TRBONET
Dispatch Systems

neocom software

AUTHORIZED APPLICATION PROVIDER
DIMETRA™
MOTOROLA SOLUTIONS

AUTHORIZED APPLICATION PROVIDER
MOTOTRBO™
MOTOROLA SOLUTIONS

TRBOnet Enterprise

User Manual

Version 6.2

Last revised on 30 May 2024

USA Office
Neocom Software
150 South Pine Island Rd., Suite 300
Plantation, FL 33324, USA

Sales
EMEA: +44 203 608 0598
Americas: +1 872 222 8726
APAC: +61 28 607 8325

www.trbonet.com
info@trbonet.com

Contents

1 Introduction

1.1 About This Guide and Related Documentation

This document is intended for MOTOTRBO radio network administrators as well as dispatchers responsible for the TRBOnet dispatch console operations. It provides guidance on the installation, configuration, and maintenance of the **TRBOnet Server** and **Dispatch Console** applications.

1.2 About TRBOnet

TRBOnet is a suite of professional applications for MOTOTRBO digital two-way radio networks. TRBOnet manages voice and data communication paths across network endpoints. It provides a unified graphical dispatcher workbench interface for the entire range of workforce fleet management tasks.

1.3 Contacts

Region	Phone	Email & Support
EMEA	+44 203 608 0598	info@trbonet.com — general and commercial inquiries support@trbonet.com — technical support http://trbonet.com/kb/ — online knowledge base
Americas	+1 872 222 8726	
APAC	+61 28 607 8325	

2 Hardware and Software Requirements

TRBOnet Server/Agent with IP connection only					
Voice Channels	4	8	16	24	24+
CPU	Intel Core i5	Intel Core i5	Intel Core i7, 4 Cores	Intel Core i7, 6 Cores	Contact technical support
Memory	2 GB	4 GB	4 GB	8 GB	
HDD	2 GB for installation files, +1 MB per 1 minute of voice recording				
Sound Card	No				
Supported OS	Windows 10 (x64)/11, Windows Server 2016/2019/2022 (x64) Note: Windows Server 2016/2019/2022 requires Desktop Experience Role/Feature installed.				
Software	.NET Framework 4.8, MS SQL Server 2016 or higher				

TRBOnet Server /Agent with Control Stations		
Control Stations	1	2+
CPU	Intel Core i5	
Memory	2 GB	
HDD	2 GB for installation files, +1 MB per 1 minute of voice recording	
Sound Card	Integrated sound card can be used.	Multi-channel Sound Card required; Recommended: 1. M-Audio Delta 1010 LT 2. Roland OCTA CAPTURE Hi-SPEED USB Audio Capture
Additional Devices	Cable connector Motorola PMKN4016	
Supported OS	Windows 10 (x64)/11	
Software	.NET Framework 4.8, MS SQL Server 2016 or higher	

Dispatch Console	
CPU	Intel Core i5
Memory	4 GB
HDD	2 GB for installation files
Sound Card	Yes
Display	1600x900 minimum resolution, 1920x1080 and higher resolution is recommended
Additional Devices	Speakers and microphone, or headset; Imtradex devices are recommended
Supported OS	Windows 10 (x64)/11
Software	.NET Framework 4.8

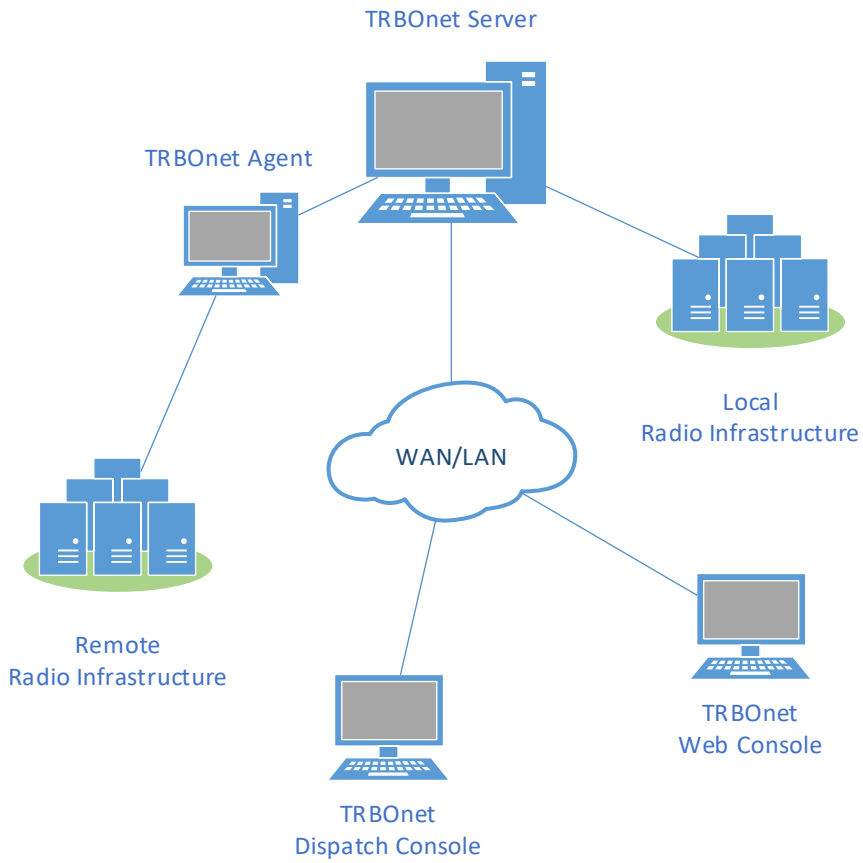
3 System Architecture Overview

3.1 TRBOnet Server, Agent and Console

The TRBOnet software is designed as a client-server architecture, where **TRBOnet Server** is PC-based and runs as a Windows service on a network computer, stores data in an MS SQL database, and allows client connections from Web Consoles, Dispatch Consoles, and Mobile Clients. The TRBOnet service can be located on a dedicated remote PC, a local PC (along with the Dispatch Console), or on a virtual machine.

In addition, remote software agents, such as **TRBOnet Agent**, and/or hardware agents, such as TRBOnet Swift A200, can be connected to TRBOnet Server providing additional voice and data communications paths to and from remote sites. Such configurations can be used when radio equipment can't be connected directly to TRBOnet Server due to IP network limitations (see section 3.3, IP Backend Network Requirements).

TRBOnet Dispatch Console is a PC-based voice dispatch and data application for MOTOTRBO professional digital two-way radio systems.



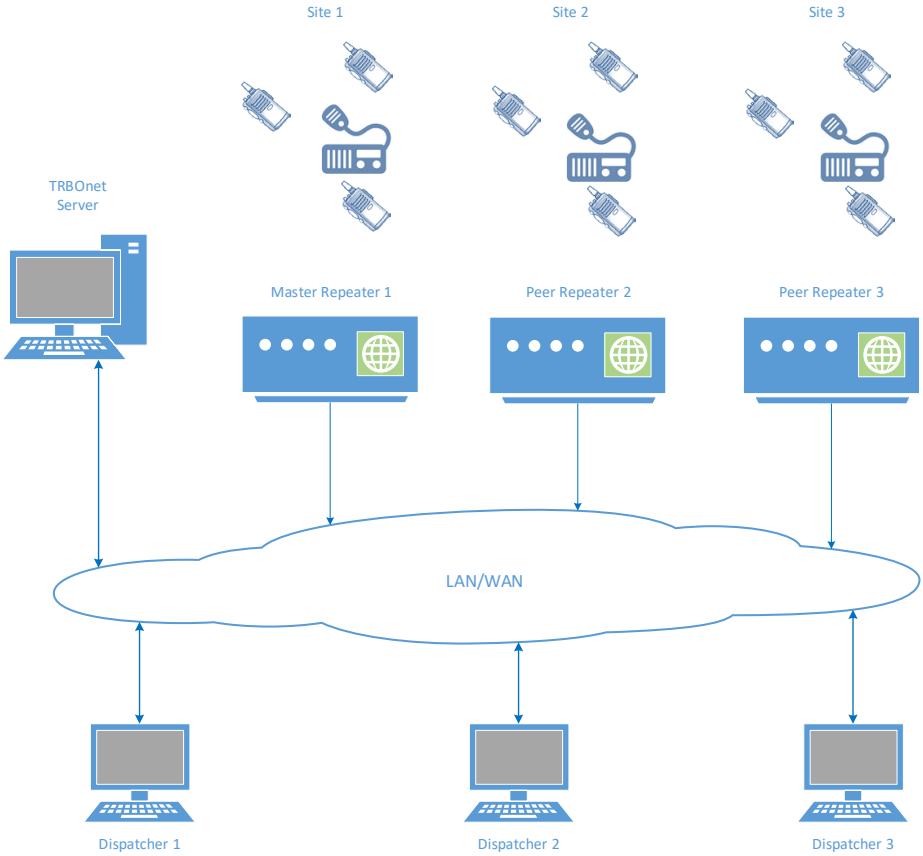
3.2 MOTOTRBO Radio Systems

3.2.1 Single Site conventional system

A Single Site conventional system is a digital conventional two-way MOTOTRBO system that includes one digital repeater and allows you to transmit voice and data via two conventional channels. Radio groups and radio units are assigned to these conventional radio channels.

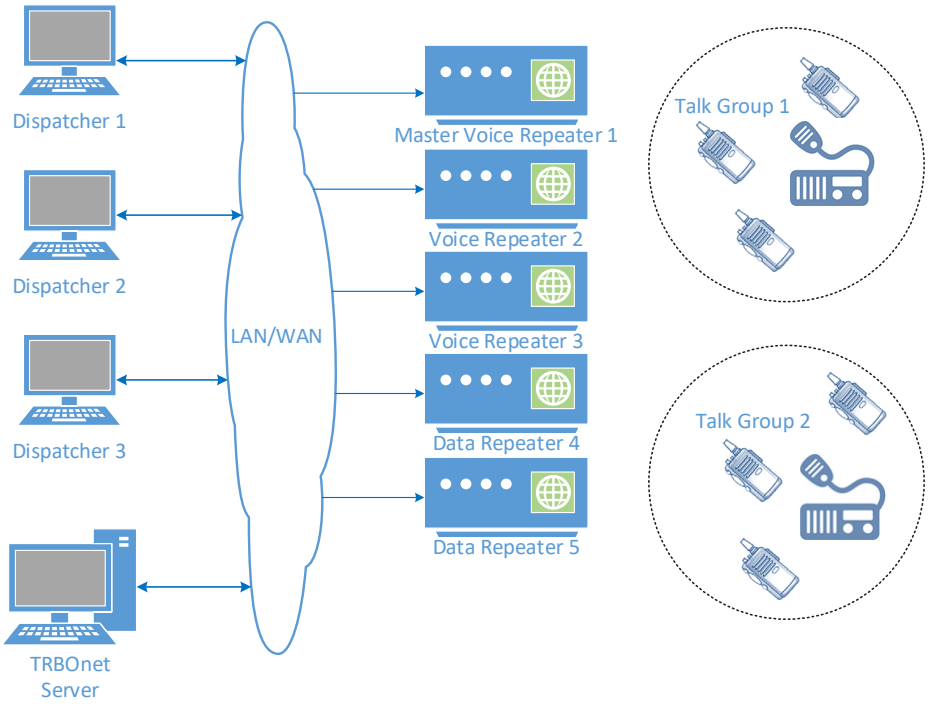
3.2.2 IP Site Connect

An IP Site Connect (IPSC) system is a digital conventional two-way MOTOTRBO system that provides two wide-area channels to increase your communications RF coverage area. It is possible to connect up to 15 repeaters (each geographical location of a repeater is called a "site") into one system using an IP connection, which allows increasing the coverage area for voice and data transmissions. The main objective of an IPSC system is to provide a stable connection between the radio units and control centers regardless of the distance.



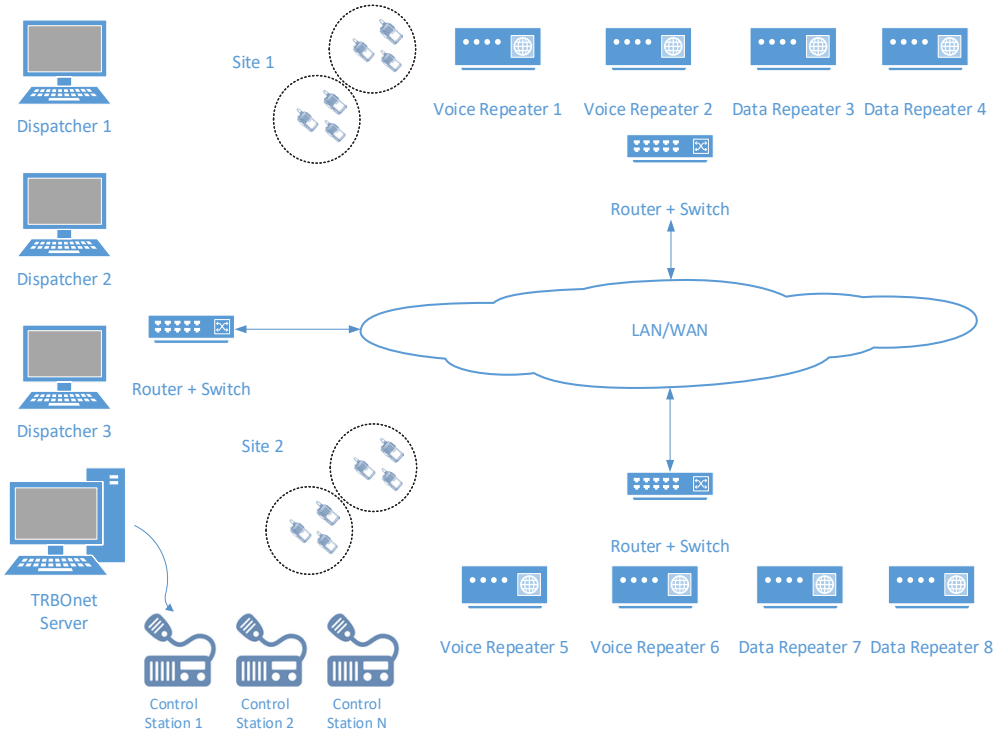
3.2.3 Capacity Plus

Capacity Plus (also known as Capacity Plus Single Site) is a digital trunked two-way MOTOTRBO system that is designed for high volume communications at a single site location. The system is designed to provide communications among a large number of users within a building, a set of buildings, or a single geographical region. This system type allows you to effortlessly increase the number of channels for both voice and data transmission between the radio units and control centers. As this system type is trunked instead of standard conventional, radio units are always automatically forwarded to a free channel rather than being programmed to remain on a single slot, thereby utilizing/sharing the available unused/free RF resources (channels) among different users. The main objective of Capacity Plus is to support more simultaneous voice and data transmissions within one capacious system.



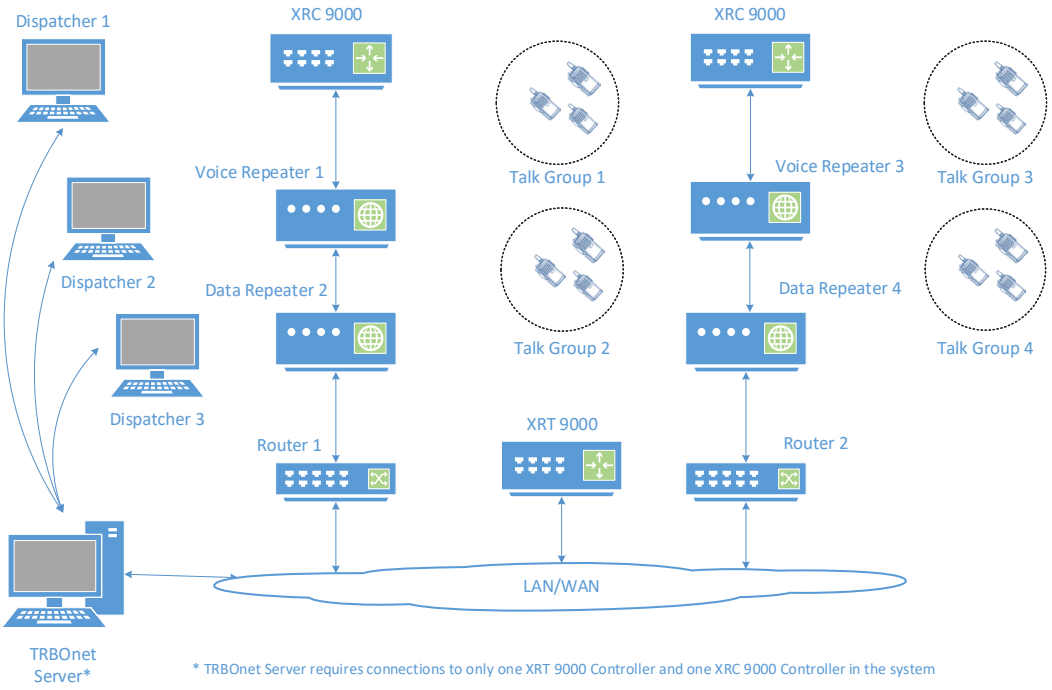
3.2.4 Linked Capacity Plus (LCP)

Linked Capacity Plus (also known as Capacity Plus Multi Site) is a digital trunked multisite two-way MOTOTRBO system that enables you to accommodate both high volume and wide area communications. This system design allows you to connect via IP up to 15 Linked Capacity Plus sites located in one geographical region (for example, City of Charlotte) or in larger geographically separated territories (for example, covering the Florida Keys from Miami to Key West). This system type allows you to increase the RF coverage area and the number of channels for voice and data transmission between the radio units and control centers. The main objective of Linked Capacity Plus is to support more simultaneous voice and data transmissions regardless of the distance.



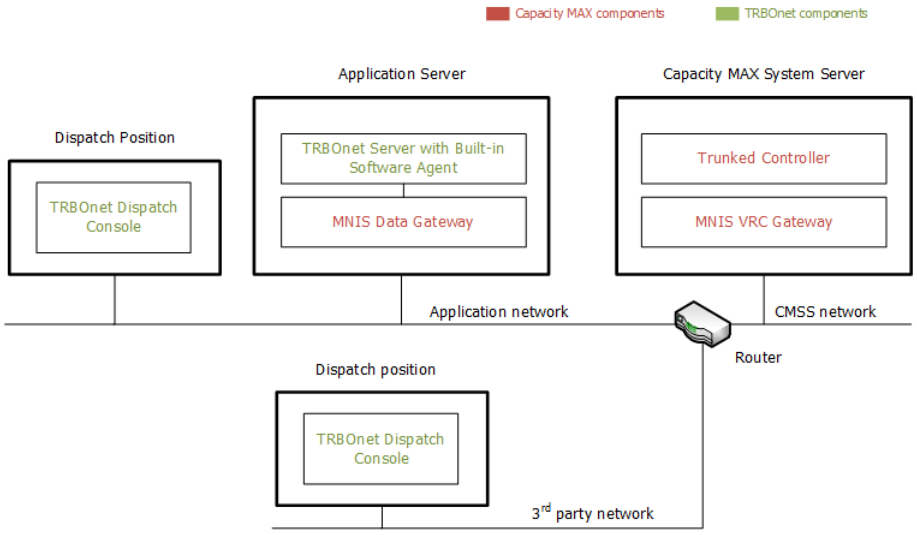
3.2.5 Connect Plus

Connect Plus is a digital trunked multisite two-way MOTOTRBO system that enables you to accommodate high volume, wide area communication that's required for your business allowing you to connect via IP multiple sites located in one geographical region or in larger geographically separated territories. This system type allows you to increase the RF coverage area and the number of channels for voice and data transmission between the radio units and control centers. Radio units are always automatically forwarded to the control channel. The main objective of Connect Plus is to support more simultaneous voice and data transmissions regardless of the distance as well as to provide a more structural addressing of the transmissions provided by XRC controller and XRT gateway.



3.2.6 Capacity Max

Capacity Max is MOTOTRBO's next-generation trunking solution. Built on the DMR Tier III Mode of Operation, it delivers smooth scalability, low cost of ownership and reliable operation.



3.3 IP Backend Network Requirements

Before planning any IP connected MOTOTRBO system, read the MOTOTRBO System Planner (Back-End Network Considerations).

- **Delay/Latency**
  The amount of time it takes for voice to leave the source repeater and arrive at the destination repeater. The delay should be less than 60 ms. It can be up to 90 ms, but requires changes in CPS for both radio units and repeaters.
- **Jitter**
  The variation of the packet inter-arrival time. It should be less than 60 ms.
- **Packet Loss**
  In the case of voice, the ongoing call ends if six consecutive packets do not arrive within 60 ms of their expected arrival time. In the case of data, the repeater waits for the expected number of packets (as per the data header) before ending the call.
- **Bandwidth**
  Refer to the MOTOTRBO System Planner for bandwidth calculations, but roughly, it requires 96 kbps for each repeater connection and should be summed up for all repeaters.

If the IP backend network does not satisfy MOTOTRBO requirements, it will degrade audio quality significantly, including dropped voice calls.

3.3.1 Linked Capacity Plus Specific Requirements

- **Addresses and Ports**
  A static IP Address and UDP Port for the master repeater must be made available to all peer devices on the Linked Capacity Plus system.
  - When a peer device registers with the master repeater, the network supplies the return IP address and UDP port of the peer device to the master repeater. The IP address and UDP port must then be made available to all other MOTOTRBO™ LCP devices on the system.

4 TRBOnet Enterprise and Dependencies Installation

TRBOnet runs on Microsoft Windows-based PCs. For the TRBOnet Enterprise Compatibility Table, see

https://trbonet.com/kb/trbonet-enterprise-plus-compatibility-table/

4.1 Installing Microsoft SQL Server

Download and install Microsoft SQL Server 2016 or higher.

You can download and install either a full-featured MS SQL Server or an Express edition of MS SQL Server. The Express edition of MS SQL Server is free; however, it has some technical restrictions (maximum database size of 10 GB, RAM usage, and other restrictions).

For example, Microsoft SQL Server 2016 SP2 - Express Edition (which is free) is available at:
https://www.microsoft.com/en-us/download/details.aspx?id=56840

Note: We recommend that you download a version of SQL Server with Tools.

Select the 32-bit or 64-bit version depending on the underlying OS. Accept the defaults for the setup.

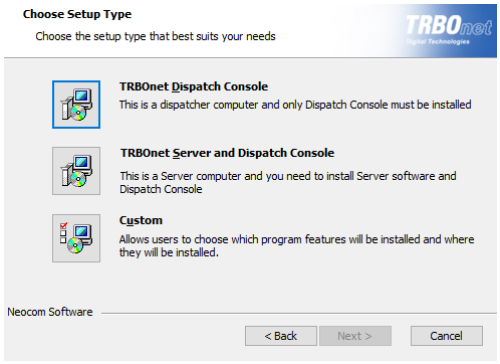
See also section 5.2.1.1, Windows Authentication on page 15.

4.2 Installing .NET Components

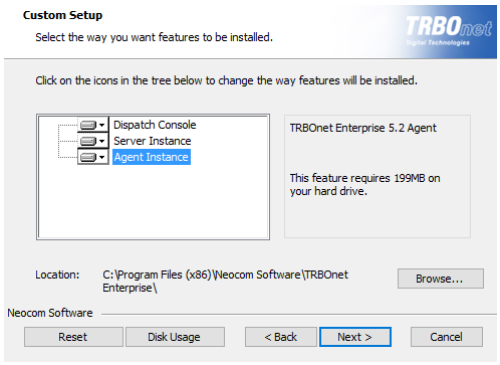
The .NET Framework installer is available at:
https://support.microsoft.com/en-us/topic/microsoft-net-framework-4-8-offline-installer-for-windows-9d23f658-3b97-68ab-d013-aa3c3e7495e0

4.3 Installing TRBOnet Enterprise

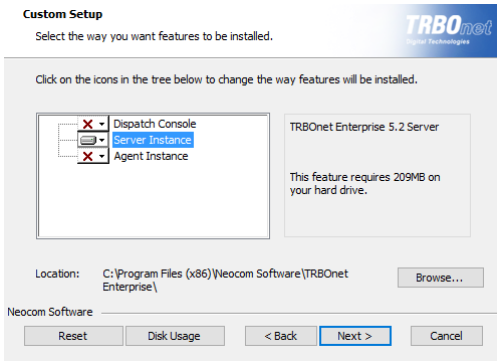
- Contact **Neocom Software** to obtain the latest installation package of the TRBOnet Enterprise software, unzip, and run the setup file as a local administrator.
- When the **TRBOnet Enterprise Setup** wizard appears, click **Next**.
- On the **End User License Agreement** page, accept the terms of the license, and then click **Next**.



- On the **Choose Setup Type** page, click one of the following options:
  - **TRBOnet Dispatch Console**
    Choose this option to install only TRBOnet Dispatch Console on your computer.
  - **TRBOnet Server and Dispatch Console**
    Choose this option to install both TRBOnet Server and TRBOnet Dispatch Console at once on your computer.
  - **Custom**
    Choose this option to select from the list one or more components to be installed.



For example, you may install only TRBOnet Server Instance:



- Accept the defaults for the rest of the setup and complete the installation.

5 TRBOnet Server

To start TRBOnet Server, click the corresponding shortcut on the desktop, or click **Start > All Programs > Neocom Software > TRBOnet Server x.x**

5.1 License Information

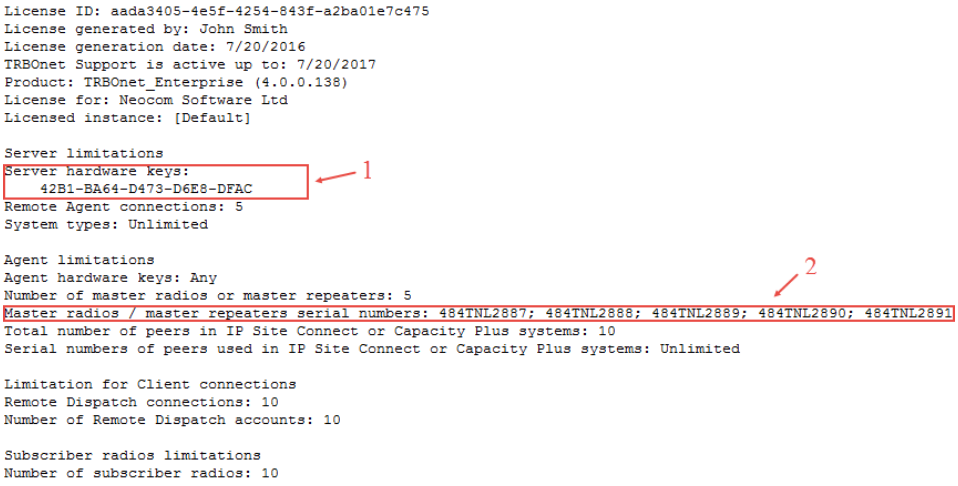
The TRBOnet software requires a valid license in order to operate. Depending on the License Type (see next section), the license can be obtained via TRBOnet's website or from a **Neocom** representative.

5.1.1 License Types

There are three license types available for TRBOnet Enterprise:

License Type	Demo	Trial	Commercial
Validity	60 days	By Request	Permanent (non-expiring)
Quantity of Control Stations and Radio Units	Up to 2 control stations or 1 IP repeater connection 10 Radio Units	By Request	According to Customer order
Features	Limited functionality	By Request	According to Customer order
How to obtain	It can be downloaded from the web page.	Assigned to server's Hardware ID. For more details on Hardware ID, see the article at https://trbonet.com/kb/how-to-get-the-hardware-id/.	Assigned to server's Hardware ID. Assigned to the serial numbers of master repeaters and control stations. To retrieve serial numbers, use Control Station's codeplug (do not rely on a serial number printed on the device's label).
For more information on the license and renewals, contact our technical support at info@trbonet.com			

To see how the Hardware ID and control stations and/or repeaters are assigned in your license, open the INFO file delivered with the license file (for example, in Notepad):



1. Your license is assigned to the Hardware ID.
2. Your license is assigned to the serial numbers of master repeaters and control stations.

5.1.2 Moving TRBOnet Server to a Different Server PC

If there is a need to use TRBOnet Server on a different server PC, please contact your **Neocom** sales representative for further instructions.

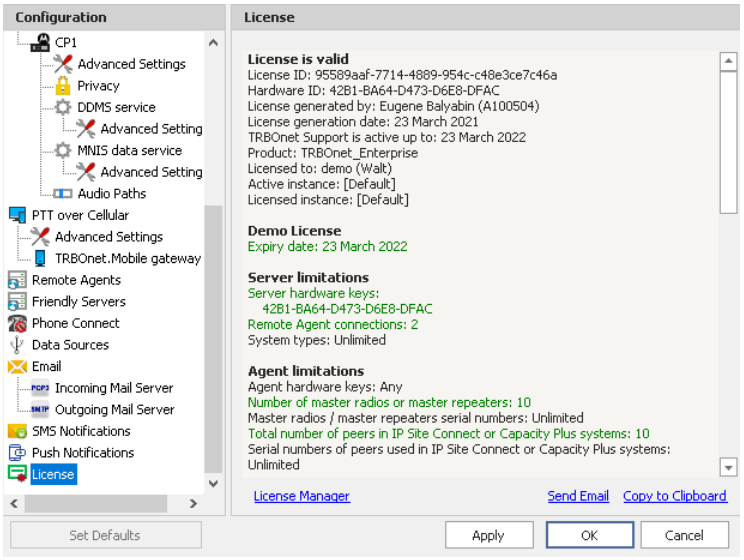
5.1.3 Using Spare Repeaters

If the plan is to use spare repeaters, for example, as replacement for damaged ones, communicate the total number of repeaters when ordering a license.

For example, 3 repeaters will be actively used with TRBOnet Server and 1 spare repeater. Communicate the following repeaters limitation: 3 active 1 spare and provide the serial numbers of all 4 repeaters when placing an order (also include the spare repeater's serial number).

5.1.4 License Manager

- In the **Configuration** pane on the left, select **License**.
  In the right pane, you can see the text of your current license.



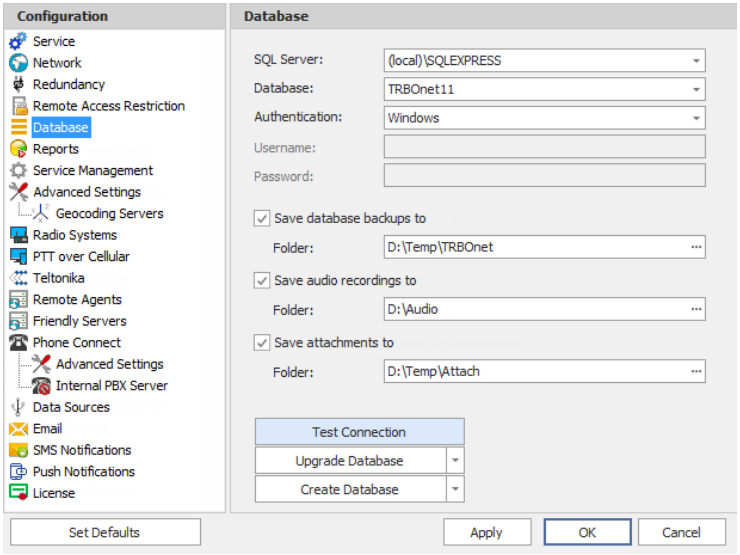
To apply the new license:

1. Click the **License Manager** link in the right pane.
   The **License Manager** wizard appears.
2. Click **Next**.
3. Click the ellipsis (**...**) button on the right-hand side of the **License file** box.
   The **Open** dialog box appears.
4. Locate the license file you received from our technical support and click **Open**.
   The full path of the license file appears in the **License file** box.
5. Click **Next**.
6. Click **Finish** to close the wizard.
7. Click **Apply** and then confirm to restart TRBOnet Server.

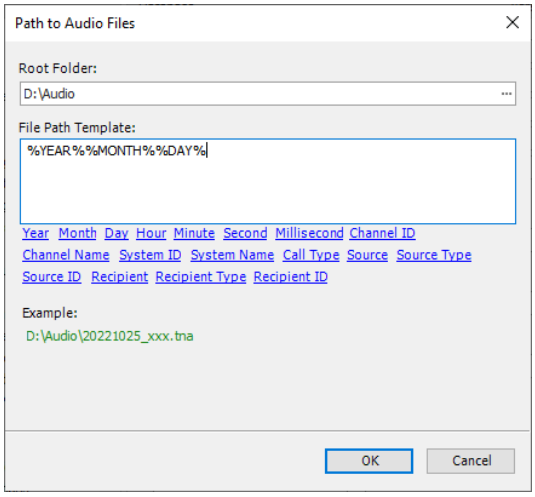
> Note: To use a single license for multiple TRBOnet software instances, you need **TRBOnet License Server**. For detailed instructions on how to use TRBOnet License Server, refer to *TRBOnet License Server Configuration Guide*.

5.2 TRBOnet Server Database

- In the **Configuration** pane, select **Database**.



- In the **Database** pane, specify the following database-related settings:
  - **SQL Server**
    Enter the location of the Microsoft SQL Server name and instance. For example, in the screenshot above, the default instance name of Microsoft SQL Server Express installed on the local computer is shown.
  - **Database**
    Enter the name of the TRBOnet database.
  - **Authentication**
    Select the authentication method for the TRBOnet database. The default method is Windows Authentication. See also section 5.2.1, Database Authentication Methods (page 15).
  - **Login** and **Password**
    Enter a valid SQL Server login and password if the SQL Server Authentication is selected for the database.
  - **Save database backups to**
    Select this option, and in the corresponding **Path** box enter the full path of the custom folder for database backups. Or, click the ellipsis (**...**) button and in the **Browse For Folder** dialog box locate the appropriate path.
  - **Save audio recordings to**
    Select this option, and in the corresponding **Path** box enter the full path of the custom folder for audio recordings of the voice calls/sessions. Or, click the ellipsis (**...**) button.



- In the **Path to Audio Files** dialog box, select the **Root Folder**, and in the **File Path Template** box enter the information (by clicking the appropriate links below: Year, Month, Day, etc.) that will be used to generate the file/path name.

Note: If you don't specify folder paths for the database archives and audio files, TRBOnet Server will use the following default paths:
%ProgramData%\Neocom Software\TRBOnet Enterprise\Backups - for database archives.
%ProgramData%\Neocom Software\TRBOnet Enterprise\Audio - for audio.
Also note that older backups are not deleted automatically. It is recommended that you regularly delete the files you no longer need to avoid running out of storage space.

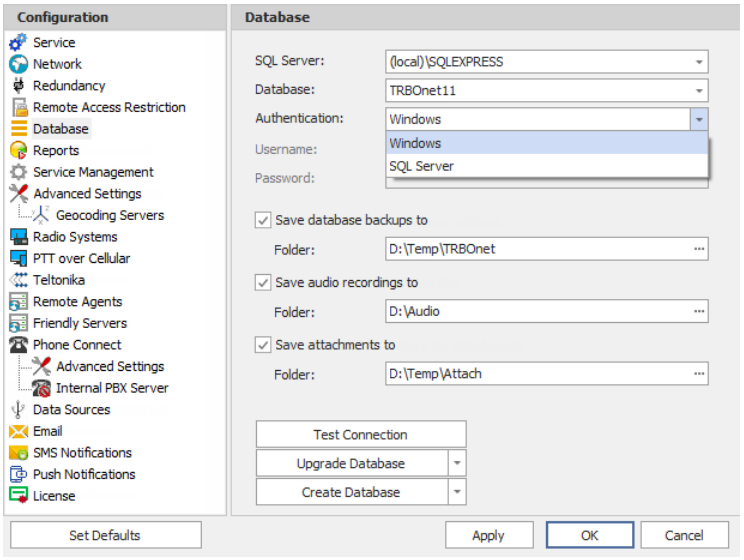
  - **Save attachments to**
    Select this option, and in the corresponding **Path** box enter the full path of the custom folder where text message attachments will be stored. Or, click the ellipsis (**...**) button and in the **Browse For Folder** dialog box locate the appropriate path.

- When you finish configuring the required database parameters, click **Create Database**.
- After you create or upgrade a database, click **Apply** and then confirm to restart TRBOnet Server.

5.2.1 Database Authentication Methods

5.2.1.1 Windows Authentication

- From the **Authentication** drop-down list, select **Windows**.



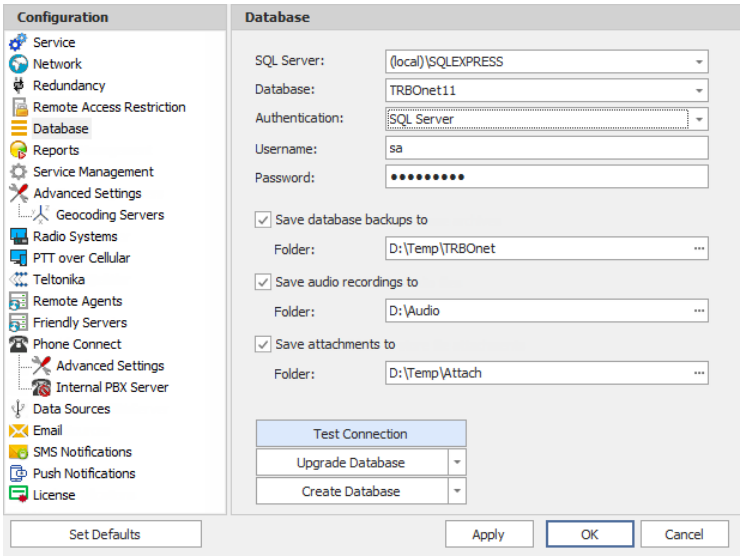
To provide access permissions for TRBOnet Server to connect to MS SQL Server, create an account with **sysadmin** privileges.

During the installation process, MS SQL Server 2008 automatically grants **sysadmin** privileges to the **NT Authority\SYSTEM** account.

In the case of MS SQL Server 2012 and higher versions, add the **NT Authority\SYSTEM** account to the Administrators group during the installation process. If the database owner privileges are required to work with TRBOnet Database, you need to assign the **sysadmin** role to the **Local System** account. For instructions on how to install and configure MS SQL Server 2012, see
Appendix B: Configuring SQL Server 2012 for Local System Account.

5.2.1.2 SQL Server Authentication

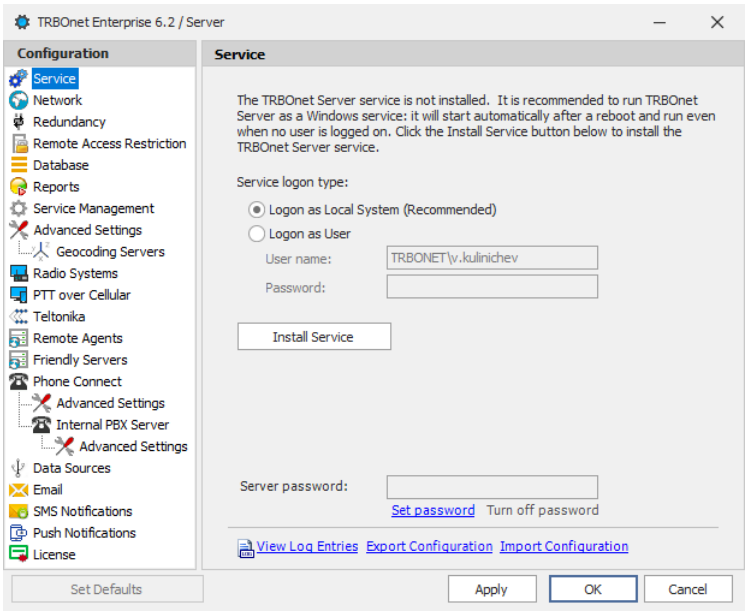
- From the **Authentication** drop-down list, select **SQL Server**.



To connect to SQL Server using **SQL Server Authentication**, create a SQL login with **sysadmin** privileges in the SQL Server in use. For detailed instructions on how to create a SQL login, see http://technet.microsoft.com/en-us/library/aa337562.aspx

5.3 TRBOnet Server Service

- In the **Configuration** pane, select **Service**.



- In the **Service** pane, specify the following service-related parameters:
  - Choose the required logon type:

    Logon as Local System
    Choose this option to use an account with local system administrator privileges to run the service as a Windows service (Recommended);

    Logon as User
    Choose this option to use a different account to run the service as a Windows service. This account must allow the user to run services in Windows, have read and write access to the **Neocom Software** folder and subfolders in the "**%ProgramFiles%**" (or, "**%ProgramFiles(x86)%**" for 64-bit OS) and "**%ProgramData%**" folders. For example, using such an account may be required in the following cases:

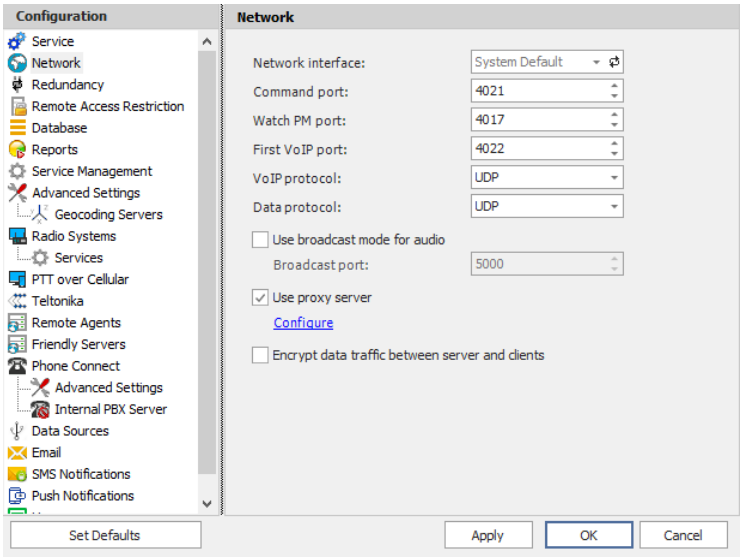
    1. An Active Directory domain network is used, and the current Windows user is not allowed to use a **Local System** account to launch services on the local PC due to domain policy restrictions.
    2. MS SQL Server is installed on a remote PC, and **Windows Authentication** (see section 5.2.1.1, page 15) has been selected to connect to the database.

  - Click the **Install Service** button.

- Click the **Start Service** link that appears in the right pane.
- **Server password**
  Click the **Set password** link and enter a password if you want to password-protect the server configuration. Once the configuration password is set, the user will be prompted to enter it when opening and exiting the TRBOnet Server application.
  To remove the password, click the **Turn off password** link.

5.4 Network Parameters

- In the **Configuration** pane, select **Network**.



- In the **Network** pane, specify the following network-related parameters:
  - **Network interface**
    From the drop-down list, select the network interface that will be used to communicate between the Server and Dispatch Consoles. Click  to refresh the list of network interfaces available on your PC.

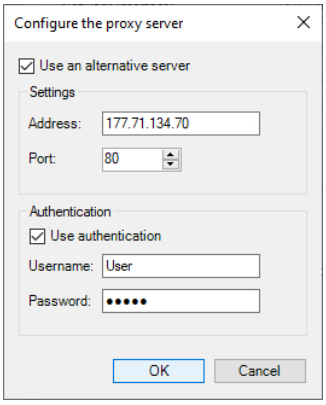
    Note: If both TRBOnet Server and Dispatch Console are installed on the same PC, then select **`127.0.0.1`** (Loopback Pseudo-Interface).

  - **Command port**
    Enter the port number to be used by a Dispatch Console to connect to the Server (4021, by default).
  - **Watch PM port**
    Enter the port number that will be used by Watch Performance Monitor to monitor the computer where TRBOnet Server is running.

- **First VoIP port**
  Enter the number of the first VoIP port for audio communications between the Server and Dispatch Consoles (4022, by default). Each additional Dispatch Console will establish a connection on the next available port number.
- **VoIP protocol**
  From the drop-down list, select the VoIP protocol type for communications between the Server and Dispatch Consoles:
  - **All** - UDP will be used first; if unavailable, TCP will be used;
  - **TCP** - slower but more reliable (set by default);
  - **UDP** - faster but data packets can be lost; some routers may drop UDP packets.
- **Data protocol**
  From the drop-down list, select the protocol to exchange data other than voice between the Server and Dispatch Consoles (**TCP**, by default).
- **Use broadcast mode for audio**
  Selecting this option will help to optimize network load and minimize transmission delays. The "load" on the network will be reduced as the Server will utilize a single audio transmission to a group of Dispatch Consoles instead of sending multiple audio streams to each individual Dispatch Console. This method of transmission will also minimize the transmission delays if there's a large number of Dispatch Consoles or the Server is busy processing other features.

  Note: When the broadcast mode is set, a Dispatch Console cannot run on the same machine as TRBOnet Server, and a warning message will appear when you select this option.

  - **Broadcast port**
    Enter the port number to be used to broadcast audio (5000, by default).
- **Use proxy server**
  Select this option to enable an alternative proxy server for TRBOnet Dispatch Software to access Internet.
  - Click the **Configure** link to specify the alternative server settings:



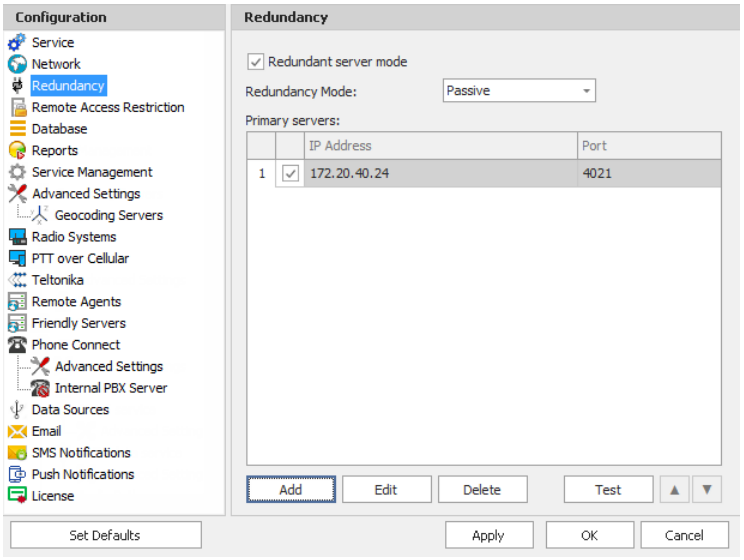
- **Use an alternative server**
  Select this option to enable an alternative proxy server.
  - ✓ **Address**
    Enter the proxy server IP address.
  - ✓ **Port**
    Enter the proxy server port number.
- **Use authentication**
  Select this option to use authentication to connect to the alternative proxy server.
  - ✓ **Username**
    Enter the username for the authentication, if needed.
  - ✓ **Password**
    Enter the password for the authentication, if needed.
- After you configure the proxy server settings, click **OK**.

▪ **Encrypt data traffic between server and clients**
Select this option to guarantee the security of data transfer between TRBOnet Server and Dispatch Console, and/or TRBOnet Agent. It is recommended that this option be used when a connection between system components is established via the Internet or other public networks.

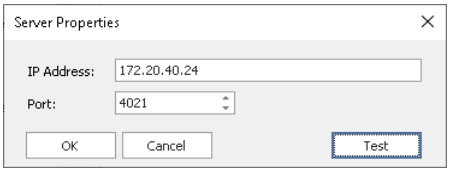
5.5 Redundancy

TRBOnet Server supports a redundant (secondary/backup) configuration which allows automatic switching from the primary to the redundant (secondary/backup) server in case of failure of the primary server. Dispatch Console operation will not be interrupted.

- In the **Configuration** pane, select **Redundancy**.



- In the **Redundancy** pane, select this option to enable the **Redundant server mode** option.
- **Redundancy Mode**
  Select a mode for the redundant server (**Active** or **Passive**) from the drop-down list.
- To add a primary server, click **Add**.



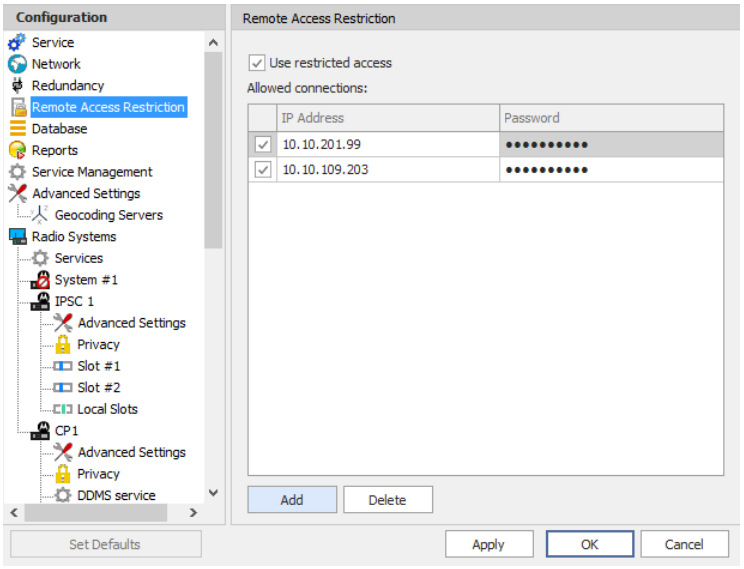
- **IP Address**
  Type the IP address of the primary server.
- **Port**
  Enter the same port number as specified for the Command port.

Note: For more details on Redundant Server configuration, see Appendix G: Redundant Server (page 419).

5.6 Remote Access Restriction

This section describes how to restrict remote access to TRBOnet Server.

- In the **Configuration** pane, select **Remote Access Restriction**.



- In the **Remote Access Restriction** pane, select the **Use restricted access** checkbox and add allowed connections to the table below:
  - Click the **Add** button.
  - **IP Address**
    Enter the IP address of the PC that will be allowed to connect.
  - **Password**
    Enter the password that will be used for a connection from this IP address.

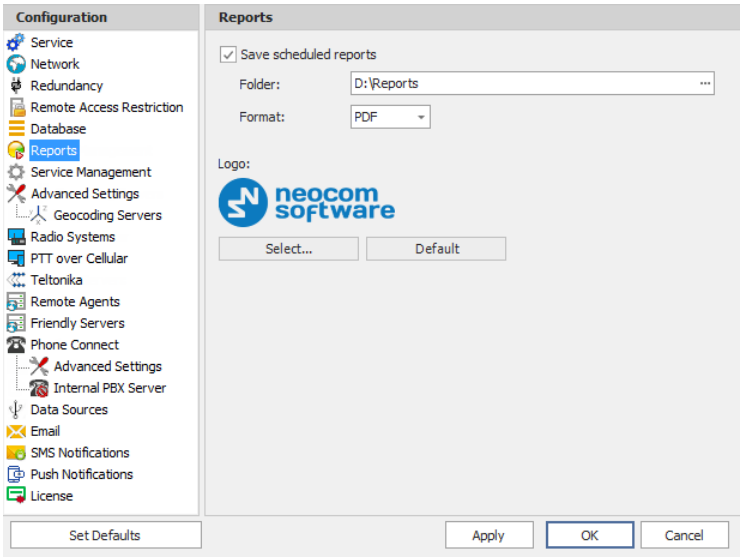
Note: If the **Use restricted access** checkbox is selected and the list of allowed connections is empty or no connections are selected in the list, the TRBOnet Server won't be able to be remotely accessed at all.

5.7 Reports

Perform the following steps to select the option to save scheduled reports and enter the appropriate information.

Note: The selection of the type of scheduled reports is configured in the Dispatch Console (see section 6.4.5.16, Scheduled Report)

- In the **Configuration** pane, select **Reports**.

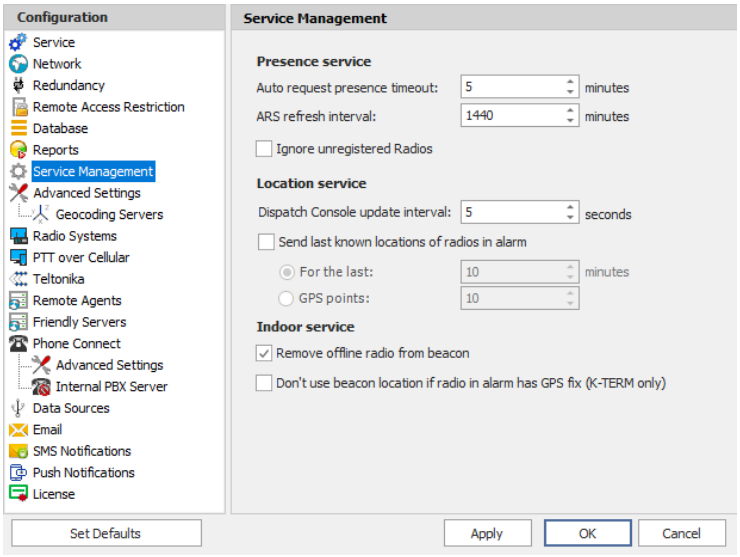


- In the **Reports** pane, select the **Save scheduled reports** checkbox and specify the following parameters:
  - **Folder**
    Click the ellipsis (**...**) button and locate the folder on the PC where you want to save reports generated by the TRBOnet software.
  - **Format**
    From the drop-down list, select the format for the reports (PDF or Excel).
  - **Logo**
    Click the **Select** button, and in the 'Open' dialog box, navigate to the desired logo file (.BMP, .PNG, .JPG, etc.) and click 'Open'.
    To revert to the default logo file, click the **Default** button.

5.8 Service Management

The Service Management pane allows you to specify various parameters for the Presence, Location, and Indoor services.

- In the **Configuration** pane, select **Service Management**.



- In the **Service Management** pane, specify the following service-related parameters:

5.8.1 Presence service

The **Presence service** group includes the following registration-related parameters:

- **Auto request presence timeout**
  Enter the time interval that will be used by the server to regularly check the online subscriber radios if there has been no activity. The server considers a radio to be inactive (or, offline) if the radio does not send any GPS, Text, ARS, or Voice messages.

  If you do not have a dedicated channel for data revert, use the following table:

Number of radio units	Presence timeout (minutes)	Number of radio units	Presence timeout (minutes)
up to 10	5	30 to 40	17
10 to 20	9	40 to 50	21
20 to 30	13	over 50	120

  If there is a dedicated data revert channel in the system, you may set this parameter to a somewhat lower value than indicated in the table.

  Note: If the DDMS service is enabled, set the value of this parameter to the value of the **DeviceRefreshTime** parameter in MOTOTRBO DDMS.

- **ARS refresh interval**
  Enter the value of the parameter that determines how often a radio unit will send ARS packets. It is recommended that a value of 30 minutes be used for this interval. This value may be changed depending on the system load.

Notes: For all radio systems (except for Connect PLUS and Capacity MAX), the ARS service must be enabled on the subscriber radio channels (*MOTOTRBO CPS, Channels>Channel>ARS*).

If the DDMS service is enabled, set the value of this parameter to the value of the **PersistenceTO** parameter in MOTOTRBO DDMS.
See also Appendix F: NAI VOICE & DATA Support.

- **Ignore unregistered radios**
  Select this option so that unregistered radio units will be ignored and thus won't appear in Dispatch Console.

5.8.2 Location service

The **Location service** group includes the following location-related parameters:

- **Dispatch Console update interval**
  Enter the time interval that will be used to send GPS data packages from the Server to Dispatch Consoles. The lower the value, the more data traffic will be present on the network. Adjust this value based on the network bandwidth. The lower the bandwidth, the higher the update interval.
- **Send last known locations of radios in alarm**
  Select this option so that dispatchers receive the latest locations when an alarm occurs. Then choose one of the following options:
  - **For the last** X minutes
    Choose this option and enter the time, in minutes, to be used as the last time period for the latest GPS data.
  - **GPS points**
    Choose this option and enter the number of GPS points to be used for the latest GPS data.

5.8.3 Indoor service

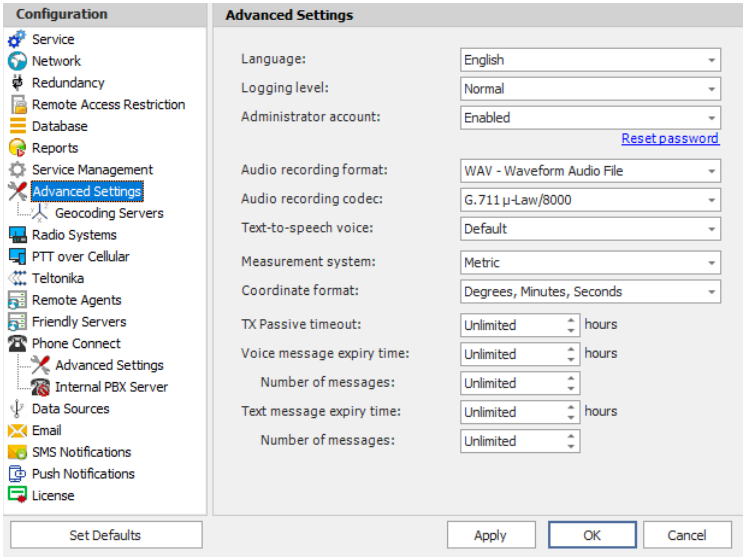
The **Indoor service** group includes the following indoor-related parameters:

- **Remove offline radio from beacon**
  Select this option so that an offline radio is not shown on its associated beacon.
- **Don't use beacon location if radio in alarm has GPS fix (K-TERM only)**
  Select this option so that beacon positioning is ignored in case of alarm when a radio transmits valid GPS data.

Note: This feature relates only to K-TERM beacons.

5.9 Advanced Settings

- In the **Configuration** pane, select **Advanced Settings**.



- In the **Advanced Settings** pane, specify the following advanced parameters:
  - **Language**
    From the drop-down list, select the interface language for TRBOnet Server.
  - **Logging level**
    From the drop-down list, select the logging level that determines the granularity of log messages in the System Log. The choices are: None, Low, Normal, and High.

    Note: This information is used by technical support for troubleshooting purposes, so it is recommended that this value be kept unchanged (Normal).
  - **Administrator account**
    From the drop-down list, select either Enabled or Disabled. If you select Disabled, the administrator won't be able to log in to the Dispatch Console.
    - **Reset password**
      Click this link to reset the administrator password to the default value.
  - **Audio recording format**
    From the drop-down list, select the format to be used to store audio recordings. The available formats are WAV, TNA, and OGG.

Note: The TNA format is a proprietary audio format that contains additional information about radio calls, such as radio ID, start time, end time, and other parameters. This format provides more details about call participants and allows easy navigation within recorded audio files.

- **Audio recording codec**
  From the drop-down list, select the audio codec to be used to compress the audio files.
- **Text-to-speech voice**
  From the drop-down list, select the voice that will be used for Text-to-Speech messages.
- **Measurement system**
  From the drop-down list, select either Metric or US units.
- **Coordinate format**
  From the drop-down list, select a format for displaying coordinates.
- **TX Passive timeout**
  Enter the time period during which text and voice messages will be stored and later sent when the channel becomes available (no longer busy). "Unlimited" is recommended.
- **Voice message expiry time**
  Enter the time period during which TRBOnet Server will continue to try to send Voice messages to a recipient while they are offline. "Unlimited" is recommended.
  - **Number of messages**
    Enter the maximum number of Voice messages that will be stored in the queue before being sent.
- **Text message expiry time**
  Enter the time period during which TRBOnet Server will continue to try to send Text messages to a recipient while they are offline. "Unlimited" is recommended.
  - **Number of messages**
    Enter the maximum number of text messages that will be stored in the queue before being sent.

5.9.1 Geocoding Servers

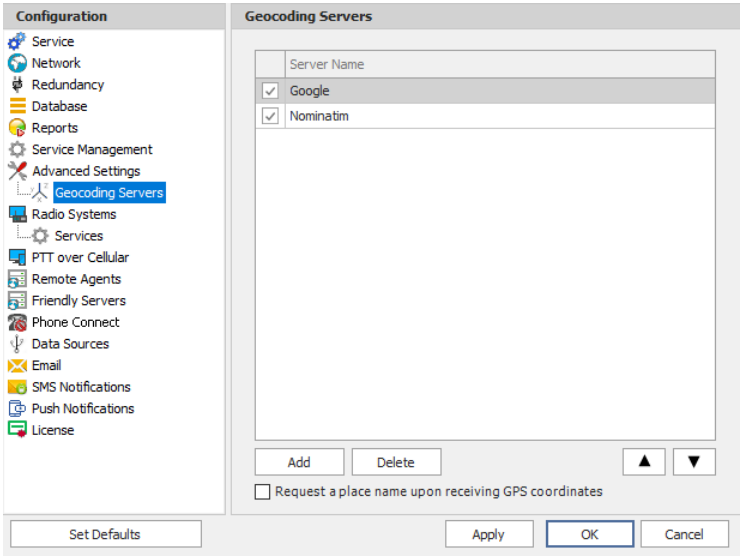
Geocoding servers resolve GPS coordinates to street addresses for reporting purposes and other needs, for example, 'GPS activity for period' reports. Online geocoding services, such as Google or Nominatim, can be used and are the standard default services in TRBOnet. However, their use may be limited by the number of requests. Furthermore, you can add custom geocoding servers to the system.

You can configure geocoding servers in three ways depending on whether the Server and/or Dispatch Console have Internet access and on your local geocoding server settings:

1. The Dispatch Console has Internet access and the Server has no Internet access. The Server can connect to preconfigured (Google and Nominatim) and/or local corporate geocoding servers via the Dispatch Console.
2. The Server has Internet access and Dispatch Console has no Internet access. The Dispatch Console can connect to preconfigured (Google and Nominatim) and/or local corporate geocoding servers via the Server (follow the instructions below).
3. You have your own Geocoding server in the local network. In this case, you can configure data resolving in both the Server and the Dispatch Console.

5.9.1.1 Configuring Geocoding Servers

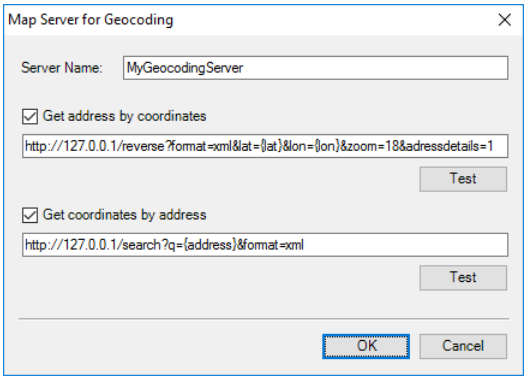
- In the **Configuration** pane, select **Geocoding Servers**.



- In the **Geocoding Servers** pane, specify the following geocoding-related parameters:
  - **Google** and **Nominatim**
    These are pre-configured geocoding servers, which allow resolving GPS coordinates to street addresses and street addresses to GPS coordinates.

    Note: These geocoding servers can't be deleted from the system.

  - Click **Add** to add a geocoding server to the system.



- **Server Name**
  Enter the name of your geocoding server.
- **Get address by coordinates**
  Select this option to resolve GPS coordinates to street addresses.
  In the box below, enter the server address with the appropriate parameters.

Note: Keep in mind that the {lat} and {lon} variables are mandatory to allow TRBOnet Dispatch Console to retrieve GPS coordinates from the radio unit.

Click **Test** to check the connection to the geocoding server. Enter a pair of GPS coordinates and see if the resolved street address appears.

- **Get coordinates by address**
  Select this option to resolve street addresses to GPS coordinates (for example, for the Search by Address feature).
  In the box below, enter the server address with the appropriate parameters.

Note: Keep in mind that the {address} variable is mandatory to allow TRBOnet Dispatch Console to search map objects by address.

Click **Test** to check the connection to the geocoding server. Enter an address and see if you get the list of map objects corresponding to the address entered.

- Use the **Up** (▲) and **Down** (▼) buttons to move the selected geocoding server up and down in the priority list of geocoding servers. When requesting GPS data via the geocoding servers configured in TRBOnet Server, GPS data is requested from the geocoding servers according to the priority level. The geocoding server at the top of the list has the highest priority level. In case the first geocoding server is unavailable, data will be requested from the second geocoding server in the list, and so forth down the list of geocoding servers.

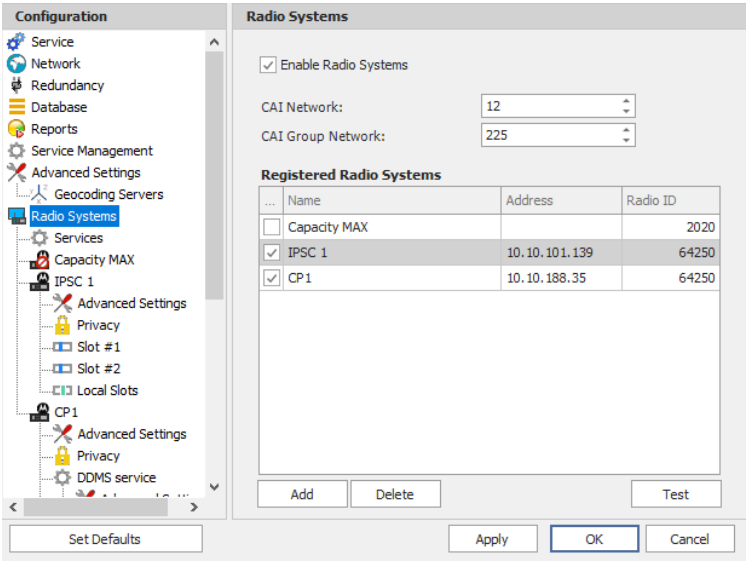
The administrator must ensure that the geocoding servers in the list are able to resolve GPS data.

- **Request a place name upon receiving GPS coordinates**
  Select this option to resolve GPS coordinates to street addresses immediately by a GPS event. Note that street addresses and GPS coordinates are automatically (without user intervention) stored in the TRBOnet database to optimize the response time for street address requests (for example, GPS reports) and to reduce geocoding server load. These street addresses and GPS coordinates will be stored without user intervention whenever GPS are resolved to street addresses via a request to a Geocoding Server.

5.10 Radio Systems

By enabling the Radio Systems feature, the TRBOnet Server is able to be connected to a radio system. Otherwise, you should use Remote agents (see section 5.13, Remote Agents).

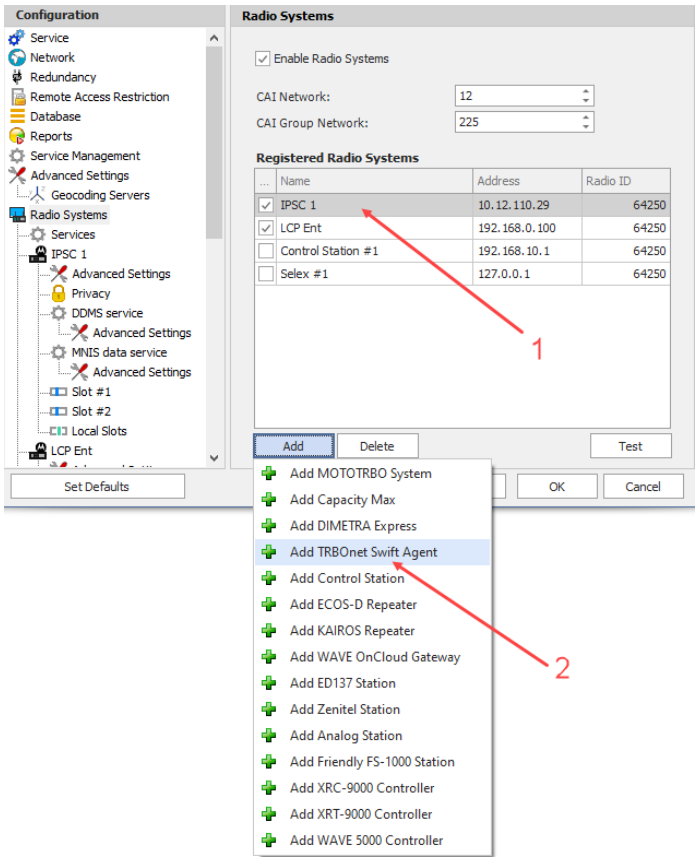
- In the **Configuration** pane, select **Radio Systems**.
- In the **Radio Systems** pane, select or make sure that the **Enable Radio Systems** option is selected.



- In the **Radio Systems** pane, specify the following parameters:
  - **CAI Network**
    The CAI (Common Air Interface) Network is a value that is combined with the Radio ID to produce the individual radio's air interface network IP address. All radios must use the same CAI Network ID to be able to exchange data. It is recommended that the default value of 12 is used.

- **CAI Group Network**
  The CAI Group Network is a value that is combined with the Group ID to produce the group's air interface network IP address. The CAI Group Network ID forms the first or most significant byte of each group's network IP address. All radios must use the same CAI Group Network ID to be able to exchange data (225, by default).

Note: The values of these two parameters must match those configured for the radio units via the MOTOTRBO CPS.



All radio systems based on MOTOTRBO services are represented in the **Registered Radio Systems** table, including their Name, IP Address, and Radio ID (1):

- To add a radio system, click **Add** and select the appropriate system type from the drop-down menu (2).

5.10.1 Services

- In the **Configuration** pane, under **Radio Systems**, select **Services**:
- In the **Services** pane, specify the following Radio System Services-related parameters:

- **Automatic Registration Service (ARS)**
  Select this option to enable the ARS service for the radios. When the radio powers up, it automatically registers with the server. This feature is used with data applications, that is, any data traffic on this channel is associated with an application server such as MOTOTRBO Text Messaging or MOTOTRBO Location Services.
  - **Port**
    Enter the local port number for the ARS service (4005, by default).
  - **RSSI**
    Select this option so that the RSSI level will be sent in ARS messages.
- **Telemetry service (TLM)**
  Select this option to enable the Telemetry service, which is the wireless transmission and reception of measured quantities for remotely monitoring environmental conditions or equipment parameters.
  - **Port**
    Enter the local port number for the Telemetry service (4008, by default).
- **Text Messaging service (TMS)**
  Select this option to enable the Text Messaging service (Motorola Solutions proprietary) which is used to exchange text messages between the radios and the dispatchers.
  - **Port**
    Enter the local port number for the Text Messaging service (4007, by default).
- **Location service (LRRP / Indoor)**
  Select this option to enable the Location service. The radio can send its coordinates when it is in Global Positioning (via **LRRP Protocol**) or iBeacon coverage area.
  - **Port**
    This is the local port number for the Location service (**4001**), which cannot be modified.
- **Location service (LIP / Indoor)**
  Select this option to enable the Location service. The radio can send its coordinates when it is in Global Positioning (via **LIP Protocol**) or iBeacon coverage area.
  - **Port**
    This is the local port number for the Location service (**5017**, by default).
- **Job Ticketing service (JTS)**
  Select this option to enable the Job Ticketing service.

- **Port**
  This is the local port number for the Job Ticketing service (4013, by default).

- **Text Messaging service DMR**
  Select this option to enable the DMR-based Text Messaging service.
  - **Port**
    Enter the local port number for the DMR-based Text Messaging service (5016, by default).
- **Indoor service (K-TERM)**
  Select this option to enable the Indoor Location service.
  - **Port**
    Enter the local port number for the Indoor service (3022, by default).
- **Indoor LAN Service (K-TERM)**
  Select this option to enable the Indoor LAN service.
  - **Port**
    Enter the local port number for the Indoor LAN service (3001, by default).
- **Tallysman Sprite service**
  Select this option to enable the service for autonomous event and aggregated event reporting to provide significant reduction in GPS data overhead.
  - **Port**
    Enter the local port number for the Tallysman Sprite service (4004, by default).
- **FS 5000 location service (GPS)**
  Select this option to enable the FS 5000 location service, which is a service for transmitting GPS data packages. This service uses FS 5000 Option Board.
  - **Port**
    Enter the local port number for the FS 5000 location service (4004, by default).
- **Swift.Tracker v.1 service**
  Select this option to enable the service to transmit coordinates and data packages via a radio channel using the Swift.Tracker TR001 device.
  - **Port**
    Enter the local port number for the Swift.Tracker v.1 service (4004, by default).
- **Swift.Tracker v.1 service (IP channel)**
  Select this option to enable the service to transmit coordinates and data packages via a radio channel and a reserved IP channel using the Swift.Tracker TR001 device.

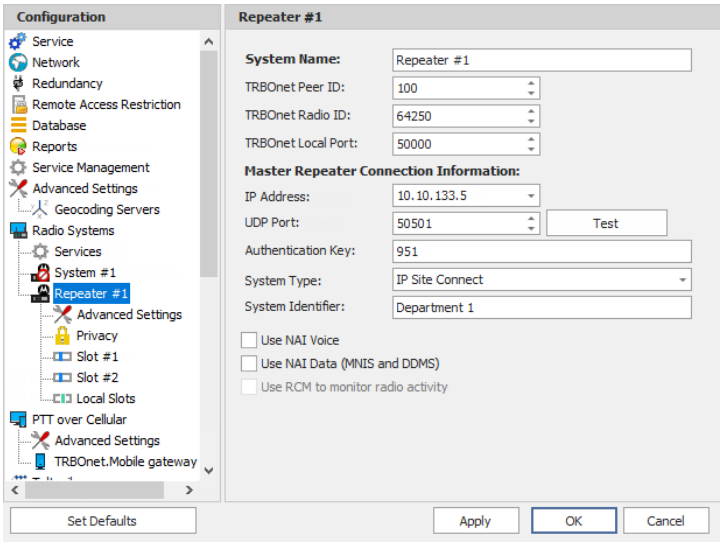
- **Port**
  Enter the local port number for the Swift.Tracker v.1 service with an IP channel (4080, by default).

- **Swift.Tracker v.2 service**
  Select this option to enable the service to transmit coordinates and data packages via a radio channel using the Swift.Tracker TR001 device (version 2).
  - **Port**
    Enter the local port number for the Swift.Tracker v.2 service (4104, by default).
- **Swift.Tracker v.2 service (IP channel)**
  Select this option to enable the service to transmit coordinates and data packages via a radio channel and a reserved IP channel using the Swift.Tracker TR001 device (version 2).
  - **Port**
    Enter the local port number for the Swift.Tracker v.2 service with an IP channel (4180, by default).
- **Extended Text Messaging service**
  Select this option to enable the Extended Text Messaging service to include sending detailed preconfigured templates with the help of TRBOnet Dispatch Software.
  - **Port**
    Enter the local port number for the Extended Text Messaging service (4010, by default).
- **Extended Data service**
  Select this option to enable the Extended Data service that will be used for communication with TRBOnet Communicator.
  - **Port**
    Enter the local port number for the Extended Data service (4106, by default).
- **Telemetry service Novox**
  Select this option to enable the Telemetry service based on NOVOX devices.
  - **Requests port**
    Enter the local port number to listen for requests (8090, by default).
  - **Events port**
    Enter the local port number to listen for events (8091, by default).
- **G4S RS232 service**
  Select this option to enable the custom developed G4S RS232 service.
  - **Port**
    Enter the local port number for the G4S RS232 service (4004, by default).

- **Zebra printer service**
  Select this option to enable the service for printing Job Tickets. A Zebra printer is connected to a radio via Bluetooth. The radios should be Bluetooth-enabled.
  - **Port**
    Enter the local port number for Zebra printer service (4072, by default).
- **Forward Data service**
  Select this option to enable the Forward Data service. This feature is used to forward "raw data" via the COM port from one device to another.
  - **Port**
    Enter the local port number for Forward Data service (4011, by default).

5.10.2 Adding a MOTOTRBO Repeater

- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.
- In the drop-down menu, click **Add MOTOTRBO System**.
- In the **Repeater** pane, specify the connection parameters.
  To ensure your connection parameters match the actual configuration of your radio network, you may need to use Motorola CPS or Config Advisor tools to determine the values. Contact your radio network administrator, if you do not have this information.



- **System Name**
  Enter a name for the repeater. This name will be displayed in the Dispatch Console.

- **TRBOnet Peer ID**
  Enter a Peer ID for TRBOnet Server. The Peer ID must be unique among the repeaters in the radio system.

  Note: Motorola recommends that this value be less than 200.

- **TRBOnet Radio ID**
  Enter the Radio ID, which is a gateway for voice and data. The Radio ID must be unique in the radio system (for Capacity Plus and Linked Capacity Plus systems, the maximum value is 65535).
- **TRBOnet Local Port**
  Enter the local port number that will be used by TRBOnet Server to establish a connection to the repeater. Use unique port numbers for each repeater connection if there are several repeaters connected.

Master Repeater Connection Information

- **IP Address**
  Enter the Ethernet IP address of the master repeater.

  Note: This value is programmed for a repeater via MOTOTRBO CPS, in *Link Establishment>Master IP*.

- **UDP Port**
  Enter the UDP port number of the master repeater.

  Note: This value is programmed for a repeater via MOTOTRBO CPS, in *Link Establishment>Master UDP Port*.

- **Authentication Key**
  Enter the repeater's authentication key (if any).

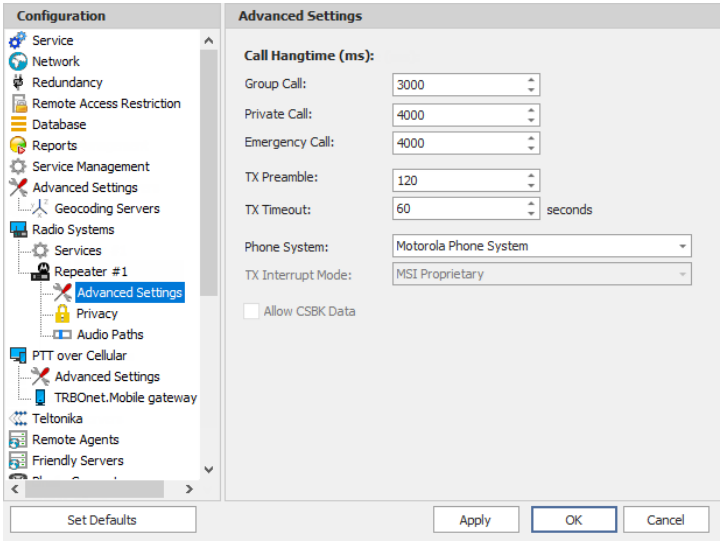
  Note: This value is programmed for a repeater via MOTOTRBO CPS, in *Link Establishment>Authentication Key*.

- **System Type**
  From the drop-down list, select the type of the radio system ('IP Site Connect', 'Capacity Plus', 'Linked Capacity Plus', or 'Extended Range Direct Mode').
- **Test**
  Click this button to check the connection to your master repeater. If the test is successful, you'll see the information on the repeater you are connected to, such as the serial number, firmware version, and other relevant information.

- **System Identifier**
  Enter the system identifier if a Capacity Plus/Linked Capacity Plus or Capacity MAX system is used with one or more control stations. Use the same system identifier as you have specified for the corresponding control stations.
- **Use NAI Voice**
  Select this option to connect to the repeater via NAI (Network Application Interface) for Voice transfer. For more details about NAI, see Appendix F: NAI VOICE & DATA Support (page 409).
- **Use NAI Data (MNIS and DDMS)**
  Select this option to connect to the repeater via NAI (Network Application Interface) for Data transfer. For more details about NAI, see Appendix F: NAI VOICE & DATA Support (page 409).
  - **MNIS**
    MOTOTRBO Network Interface Service is a Windows application which acts as a data gateway between the data applications and the radio system. Data messages are routed through the MNIS.
  - **DDMS**
    Device Discovery and Mobility Service is a service for tracking the presence of radio subscribers in the radio network and transmitting the data to the server.

5.10.2.1 Advanced Settings

- In the **Configuration** pane, under the corresponding **Repeater**, select **Advanced settings**.



- In the **Advanced Settings** pane, specify the following repeater-related advanced settings:

  Call Hangtime (ms):

- **Group Call**
  This value sets the duration the repeater reserves the channel after the end of a group call transmission. During this time, only members of the group that the channel is reserved for can transmit.
- **Private Call**
  This value sets the duration a radio keeps the private call setup after a user releases the PTT button. This is to avoid setting up the call again each time a user presses the PTT button to transmit. During this time, other radios can still transmit since the channel is essentially idle. After the hang timer expires, the radio transmits using the *TX Contact Name* parameter specified for this channel in MOTOTRBO CPS.
- **Emergency Call**
  This value sets the duration the repeater reserves the channel after the end of an emergency call transmission. During this time, only members of the Group that the channel is reserved for can transmit.

  Note: The values of the above three parameters must be taken from the corresponding parameter values programmed for the repeater via MOTOTRBO CPS in *General Settings*.

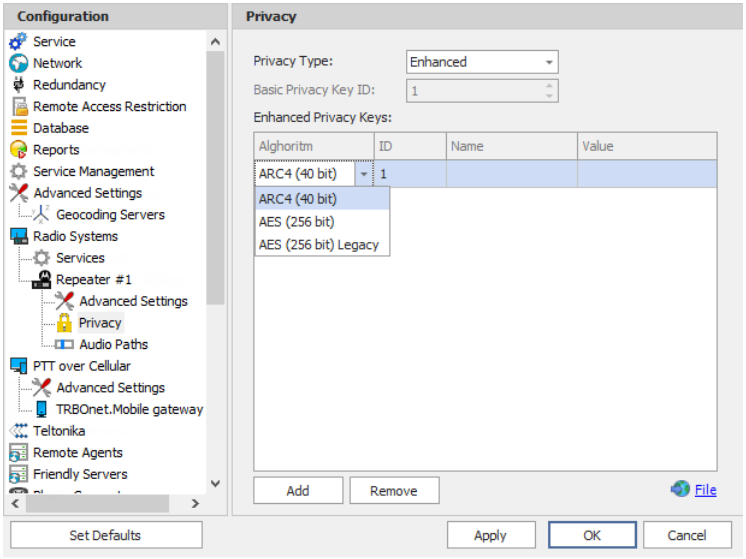
- **TX Preamble**
  Enter the value of the TX Preamble. The TX Preamble is a string of bits added in front of a data or control message (Text Messaging, Location Messaging, Registration, Radio Check, Private Call, and other message types) before transmission. The acceptable range is 0 - 8640 ms. The recommended value is 120 ms.
- **TX Timeout**
  Enter the time, in seconds, to be used as a voice session limit. When the dispatcher starts any voice session in the Dispatch Console, transmission will be interrupted after this TX Timeout expires.
- **Phone system**
  From the drop-down list, select the system for phone calls:
  - **Motorola Phone System**
    This system uses a special call type with the parameters specified for a radio unit in MOTOTRBO CPS. The Motorola Phone System is recommended for IP Site Connect mode to minimize Radio response time. For more details on programming Motorola Radios, see Appendix E: SIP Setup for Motorola Phone System (page 406).
  - **TRBOnet Phone System (TX Interrupt)**
    This is a phone call system based on the private call type using TX Interrupt feature. This phone system is available for radio systems with control stations.

- **TX Interrupt Mode**
  Use the default value **MSI Proprietary**.
  The 'DMR Standard' mode is selected when non-Motorola radios are used that support TX Interrupt and require to be additionally configured.
- **Allow CSBK Data**
  Select this option so that GPS data is sent in a single CSBK.

Note: This feature is available only when the MNIS Data Service is enabled for the repeater.

5.10.2.2 Privacy

- In the **Configuration** pane, under the corresponding **Repeater**, select **Privacy**.

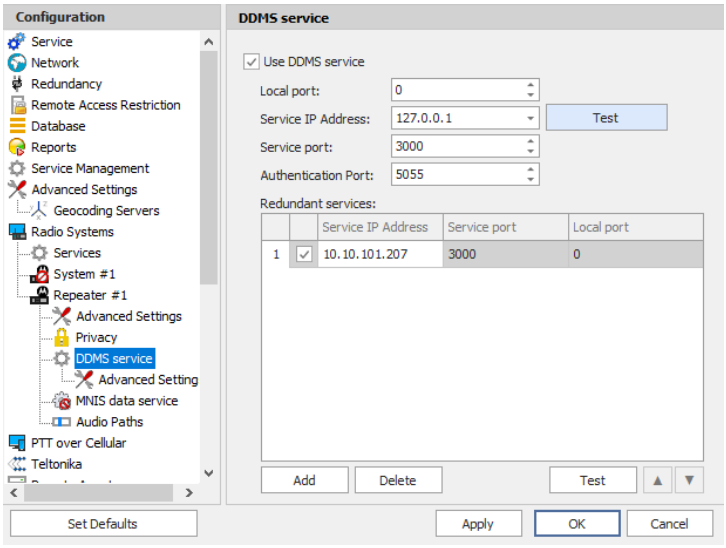


- In the **Privacy** pane, specify the following privacy-related settings:
  - **Privacy Type**
    From the drop-down list, select one of the privacy types: **None**, **Basic**, or **Enhanced**.
  - **Basic Privacy Key ID**
    Enter the Privacy Key ID available for the **Basic** privacy type.
  - **Enhanced Privacy Keys**
    Here you add enhanced privacy keys when the **Enhanced** privacy type is selected.
    - Click **Add** and specify the required **Algorithm**, **ID**, **Name**, and **Value** for the privacy key being added.
      ✓ **Algorithm**
      From the drop-down list, select one of the enhanced algorithms if you are going to use additional encryption.

5.10.2.3 DDMS Service

The DDMS, or Device Discovery and Mobility Service is a service for tracking the presence of radio subscribers in the radio network and transmitting the data to the server.

- In the **Configuration** pane, under the corresponding **Repeater**, select **DDMS service**.



- In the **DDMS service** pane, specify the following DDMS service-related settings:
  - **Use DDMS service**
    Select this option to enable the DDMS service for the server.
  - **Local Port**
    Enter the number of the local port to be used on a PC with TRBOnet Dispatch Software for DDMS service.
  - **Service IP Address**
    Enter the IP Address of the PC with the DDMS service installed and running.
  - **Service port**
    Enter the service port number.

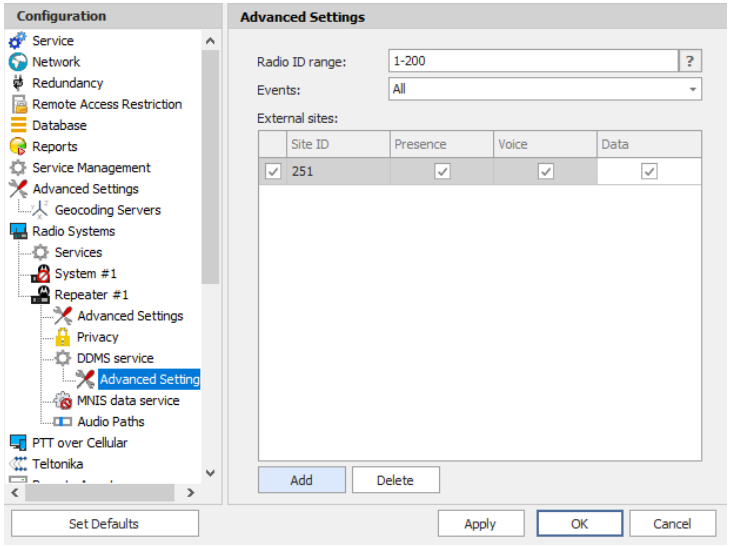
    Note: This value is programmed for a DDMS service via MOTOTRBO DDMS Administrative Client, in *Interfaces>Watcher Settings>PortWatcher*.
  - **Authentication Port**
    Enter the authentication server port number.

    Note: This value is programmed for a DDMS service via MOTOTRBO DDMS Administrative Client, in *Interfaces>Authentication Server Settings> AuthenticationServerPort*.

- **Redundant services**
  Here you see the list of redundant DDMS services for failover purposes.
  - Click **Add** and specify the required parameters for the DDMS service being added.
  - Click **Test** to test if the selected DDMS service is available.
  - Use the **Up** (▲) and **Down** (▼) buttons to move a selected DDMS service up and down in the priority list of DDMS services.

Advanced Settings

- In the **Configuration** pane, under **DDMS service**, select **Advanced Settings**.



- In the **Advanced settings** pane, you can specify settings that relate to the connected DDMS service:
  - **Radio ID range**
    Enter the range of the radios to receive data from according to the following rules:
    - To receive data from all radios in the system, leave this box blank.
    - To receive data from multiple radios and also from a range of radios, separate each Radio ID by a comma and also enter the range. For example: 12, 35, 105-111, 249.

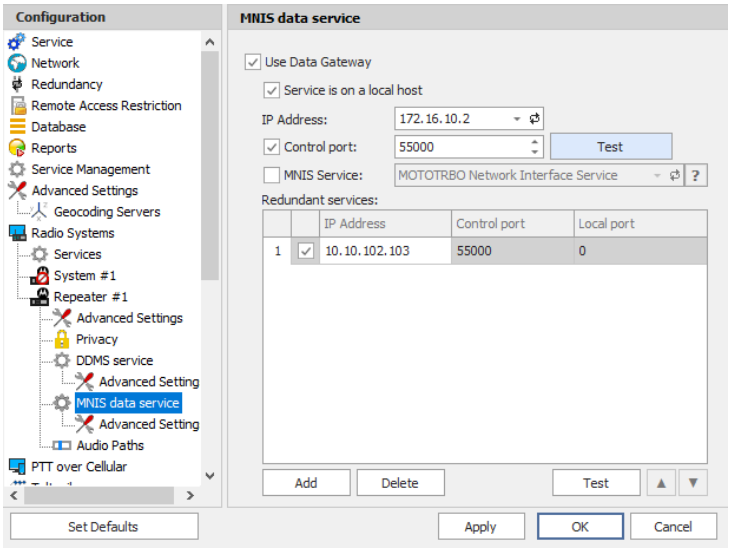
    Note: In the Radio ID list, enter Radio IDs only, without mentioning Radio Names and/or the word "Radio".
  - **Events**
    In the drop-down list, select the events to be monitored.

- **Specify external sites**
  This is the list of sites that is used when the corresponding system has a MOTOROLA System Bridge to the current Capacity MAX system.
  - Click the **Add** button and add a site by specifying its **Site ID** and selecting the appropriate data types (**Presence**, **Voice**, and/or **Data**).

5.10.2.4 MNIS Data Service

The MNIS, or Motorola Network Interface Service, is a Windows application which acts as a data gateway between the data applications and the radio system. Data messages are routed through the MNIS.

- In the **Configuration** pane, under the corresponding **Repeater**, select **MNIS data service**.



- In the **MNIS data service** pane, specify the following MNIS data service-related settings:
  - **Use Data Gateway**
    Select this option to enable the MNIS data service for the server.
  - **Service is on a local host**
    Select this option if the MNIS data service will be used on the local PC.
  - **IP Address**
    Enter the IP Address used by the MNIS to communicate with the PC.

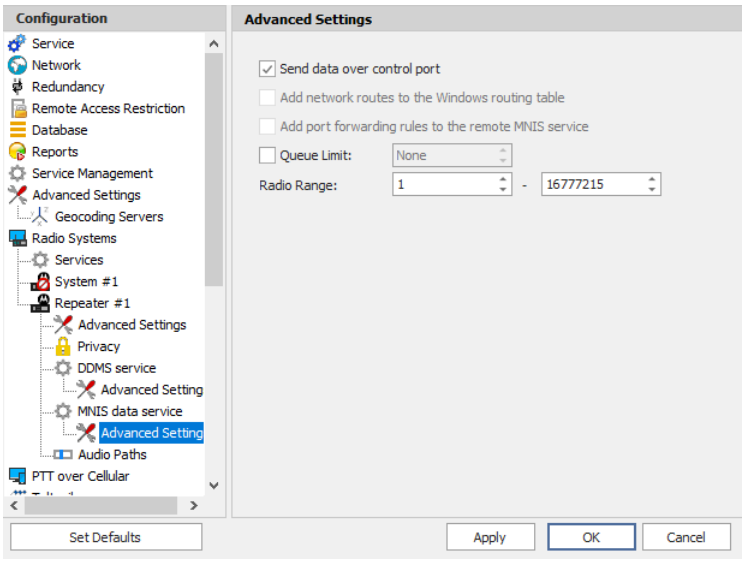
    Note: This value is programmed for a MNIS data service via MOTOTRBO MNIS Configuration Utility, and can be retrieved from *General>Tunnel Network>Tunnel IP Address*.
  - **Control port**
    Select this option and enter the number for the MNIS control port.

Note: This value is programmed for a MNIS data service via MOTOTRBO MNIS Configuration Utility, in *Advanced>Network>MNIS Control Interface TCP Port*.

- **MNIS Service**
  Select this option, and from the drop-down list select the available MNIS service.
- **Redundant services**
  Here you see the list of redundant MNIS data services for failover purposes.
  - Click **Add** and specify the required parameters for the MNIS data service being added.
  - Click **Test** to test if the selected MNIS data service is available.
  - Use the **Up** (▲) and **Down** (▼) buttons to move a selected MNIS data service up and down in the priority list of MNIS data services.

Advanced Settings

- In the **Configuration** pane, under **MNIS data service**, select **Advanced Settings**.



- In the **Advanced settings** pane, you can specify settings that relate to the remote MNIS data service:
  - **Send data over control port**
    Select this option so that data will be sent via the specified control port.

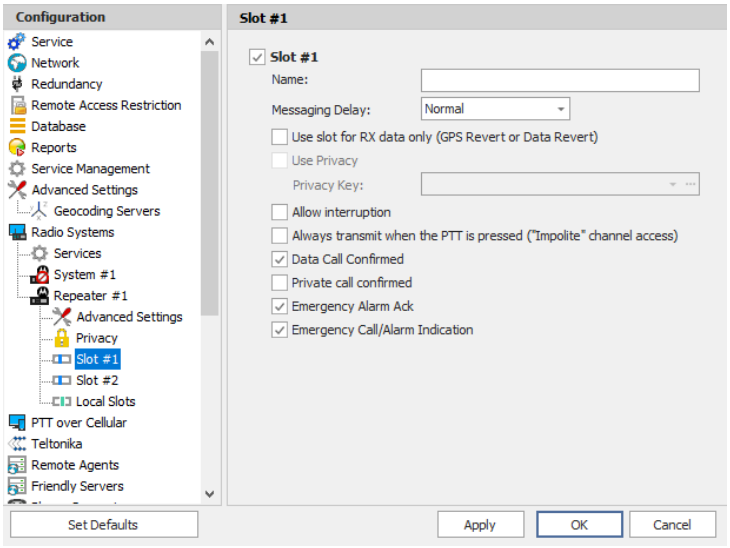
  Or, do not select this option, and instead select one or both of the following two options:
  - **Add network routes to the local Windows routing table**
    Select this option to allow TRBOnet Server to add network routes to the local Windows routing table so that data can be sent to the remote MNIS data service.

- **Add port forwarding rules to the remote MNIS service**
  Select this option to allow TRBOnet Server to add forwarding rules to the remote MNIS data service.
- **Radio Range**
  Specify the range of radios to be monitored by the MNIS service.

5.10.2.5 Slots

Note: The slots are available only when **IP Site Connect** is selected in the **Repeater** pane.

- In the **Configuration** pane, under the corresponding **Repeater**, select **Slot #1** or **Slot #2**.



- In the **Slot** pane, specify the following slot-related parameters:
  - **Slot #1** (or **Slot #2**)
    Select this option to enable **Slot #1 (**or **Slot #2)** for the Repeater.
  - **Name**
    Enter a name for the slot. This name will be displayed in the Dispatch Console.
  - **Messaging Delay**
    From the drop-down list, select the inter-repeater messaging delay based on the IP network configuration.
    - Normal
      The inter-repeater messaging delay is 60 ms.
    - High
      The inter-repeater messaging delay is 90 ms.
  - **Use slot for RX data only (GPS Revert or Data Revert)**
    Select this option to configure the slot so that it will only receive data, thus having no transmission capability.

- **Use Privacy**
  Select this option to use Privacy for the slot.

  Note: This option is available only if the **Basic** or **Enhanced** Privacy Type have been selected in Repeater's Privacy settings.

- **Privacy Key**
  From the drop-down list, select the privacy key.

  Note: This option is available only if the **Enhanced** Privacy Type has been selected in Repeater's Privacy settings).

- **Allow interruption**
  Select this option to allow interrupting dispatcher transmissions by radios that are Transmit Interrupt capable.
- **Always transmit when the PTT is pressed ("Impolite" channel access)**
  Select this option so that when the PTT button is pressed, the dispatcher will start transmitting regardless of whether the channel is free or not (that is any transmission in progress will be interrupted).
- **Data Call confirmed**
  Select this option to enable data packets in data calls (ARS, GPS, and Text Message) on the current slot to be confirmed.

  Note: This feature is available only when both the **Use NAI Voice** and **Use NAI Data (MNIS and DDMS)** options are not selected in the **Repeater** pane.

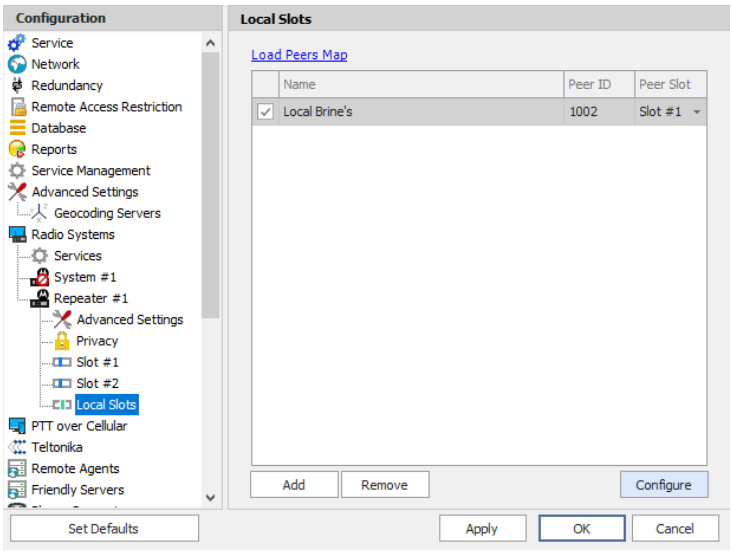
- **Private call confirmed**
  Select this option to set Private calls on the current slot as confirmed. By default, Private calls are unconfirmed.
- **Emergency Alarm Ack**
  Select this option so that the Dispatch Console is allowed to acknowledge an emergency alarm received via this slot.
- **Emergency Call/Alarm Indication**
  Select this option so that audio and visual indication is given for an emergency call/emergency alarm received via this slot.

5.10.2.6 Local Slots

While on a local slot, voice or data are not transmitted between sites in IPSC systems. Due to MOTOTRBO limitations TRBOnet Server can only receive information from local slots, but cannot transmit by IP connection to such slots.

Note: Local slots are available only when **IP Site Connect** is selected, and the **Use NAI Voice** option is selected in the **Repeater** pane.
If the **Use NAI Voice** option is not selected, local slots will be available only through dedicated control stations.

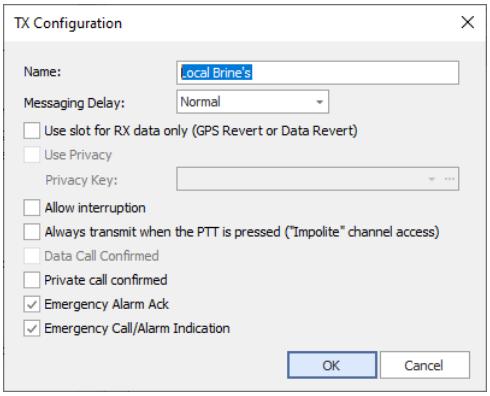
- In the **Configuration** pane, under the corresponding **Repeater**, select **Local Slots**.



- In the **Local Slots** pane, specify the following Local Slot-related settings:
  - To add a Local Slot to the system, click **Add**.
  - Select the option in the first column to enable the selected local slot.
  - Enter a **Name** for the local slot. This name will be displayed in the Dispatch Console.
  - Enter the **Peer ID** of the repeater.

    Note: This value can be taken from the repeater's configuration in MOTOTRBO CPS, in *General Settings>Radio ID*.

  - From the drop-down list, select the **Peer Slot**.
  - To configure the selected local slot, click **Configure**.



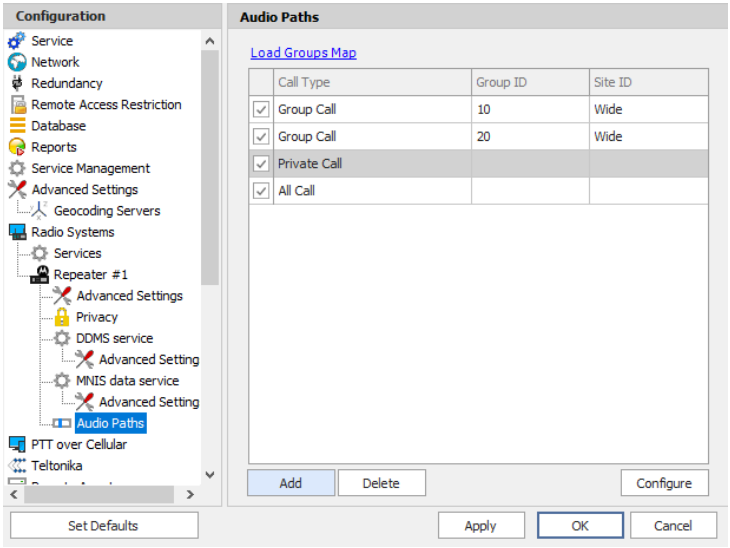
- Specify the desired local slot settings similar to those for a common repeater slot.

5.10.2.7 Audio Paths

The Audio Paths are talk paths of the system to make and receive Voice Calls; in general, they are talk groups. TRBOnet Server requires that all audio paths of a Capacity Plus system be registered in its configuration. If an audio path is not registered, the TRBOnet operator will not be able to receive and transmit to the corresponding talk group.

Note: Audio paths are available only when **Capacity Plus** or **Linked Capacity Plus** are selected.

- In the **Configuration** pane, under the corresponding **Repeater**, select **Audio Paths**.



- In the **Audio Paths** pane, specify the following Audio Path-related settings:
  - To add an audio path to the system, click **Add**.
  - Make sure the checkbox in the first column is selected to make and receive voice calls on the selected talk path.

- From the drop-down list, select the **Call Type** for the audio path. The available call types are All Call, Group Call, and Private Call.
- Enter the **Group ID**, which is an ID of the talk group the dispatcher can make calls to. The Group ID is not applicable for Private Calls and All Calls.
- Enter the **Site ID** of the site the audio path will belong to in a Linked Capacity Plus system. Or, leave zero value in this column. In this case, the Site ID will be displayed as Wide, meaning that the audio path will belong to all sites in the system.
- To configure the selected audio path, click **Configure**.
- Specify the desired audio path settings similar to those for a common repeater slot.

5.10.3 Adding a Capacity MAX System

- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.
- In the drop-down menu, click **Add Capacity MAX**.

Note that a Capacity Max system can only be integrated with TRBOnet PLUS software. For more information on how to configure and deploy a Capacity MAX system, see *TRBOnet PLUS MOTOTRBO Capacity MAX Deployment Guide*.

5.10.4 Adding a DIMETRA Express System

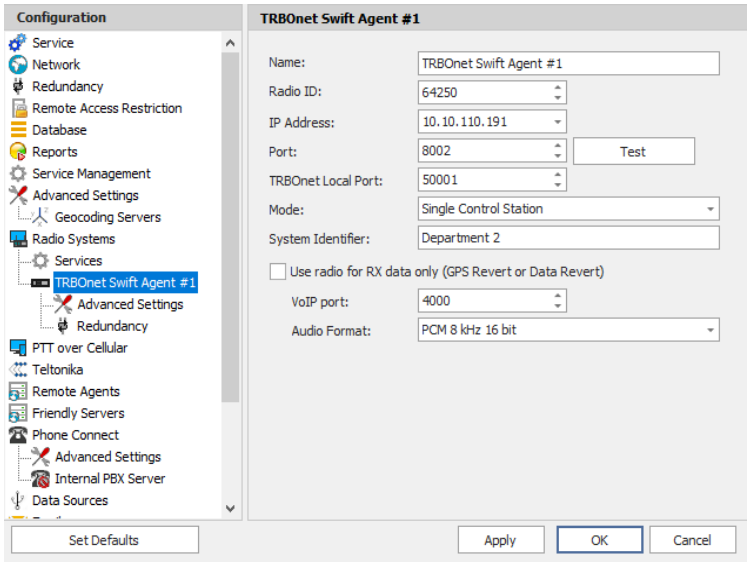
- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.
- In the drop-down menu, click **Add DIMETRA Express**.

For more information on how to configure and deploy a DIMETRA Express system, see *TRBOnet DIMETRA Express Deployment Guide*.

5.10.5 Adding a TRBOnet Swift Agent

The TRBOnet Swift Agent functions as a gateway to receive and transmit voice and data.

- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.
- In the drop-down menu, click **Add TRBOnet Swift Agent**.



- In the **TRBOnet Swift Agent** pane, specify the following Swift Agent-related parameters:
  - **Name**
    Enter a name for the Swift Agent. This name will be displayed in the Dispatch Console.
  - **Radio ID**
    This is the Radio ID of the control station connected to the Swift Agent. (for Capacity Plus and Linked Capacity Plus systems, the maximum value is 65535).

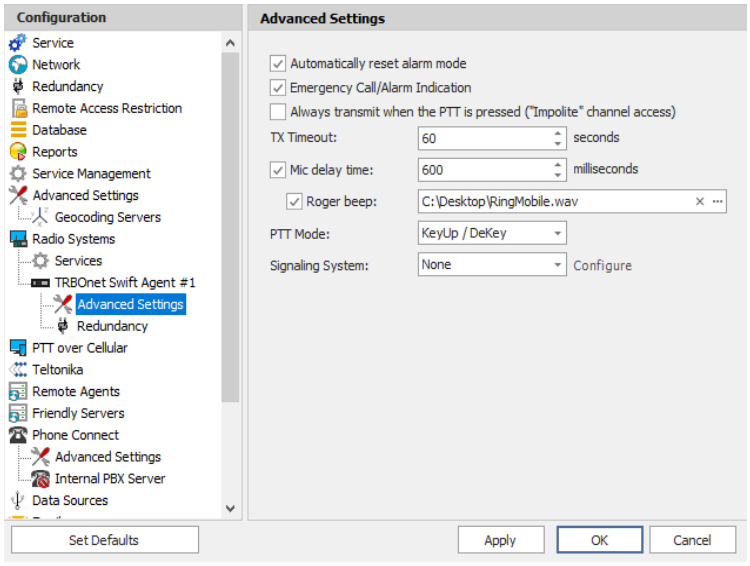
    Note: This box is populated automatically once you have successfully tested the Swift Agent by clicking the **Test** button.
  - **IP Address**
    Enter the IP Address of the Swift Agent network interface.
  - **Port**
    Enter the port number of the Swift Agent connection (8002, by default).
  - **TRBOnet Local Port**
    Enter the local port number that will be used by TRBOnet Server to establish a connection to the Swift Agent. The value 0 (default) means that a random port will be used.
  - **Test**
    Click this button to check the connection to the Swift Agent. If the test is successful, you'll see the information on the Swift Agent you are connected to, such as Serial number, Firmware version, and other relevant information.

- **Mode**
  From the drop-down list, select the connection mode for the Swift Agent being configured. For more details, see section 5.10.6.1, Control Station Connection Modes (page 54).
- **System Identifier**
  Enter the system identifier if the control station is used with a Capacity Plus or Linked Capacity Plus system. Note that the system identifier should be the same for all control stations used in the radio system.
- **Use radio for RX data only (GPS Revert or Data Revert)**
  Select this option to configure the radio channel so that it will only receive data, thus having no transmission capability.
- **VoIP port**
  Enter the port number for audio communications (4000, by default).

  Note: This setting is used for older firmware versions of TRBOnet Swift Agent.
- **Audio Format**
  From the drop-down list, select the format to transmit audio data.

5.10.5.1 Advanced Settings

- In the **Configuration** pane, under the corresponding **TRBOnet Swift Agent**, select **Advanced Settings**.



- In the **Advanced Settings** pane, specify the following Swift Agent-related advanced settings:
  - **Automatically reset alarm mode**
    Select this option to reset alarm mode on the control station radio automatically. It is recommended to enable this option.

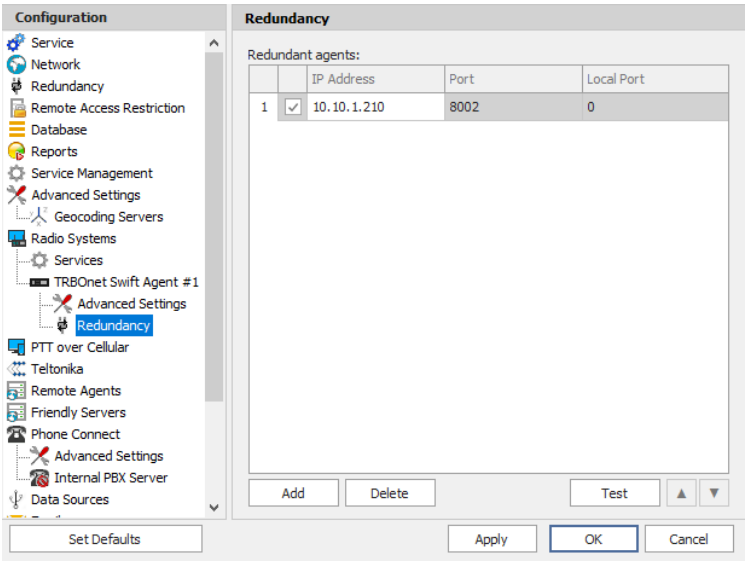
- **Emergency Call/Alarm indication**
  Select this option so that audio and visual indication is given by the Control Station radio when an Emergency Call/Emergency Alarm is received.
- **Always transmit when the PTT is pressed ("Impolite" channel access)**
  Select this option so that that when the PTT button is pressed, the radio will start transmitting regardless of whether the channel is free or not (that is any transmission in progress will be interrupted).
- **TX Timeout**
  Enter the time, in seconds, to be used as a voice session limit. When a dispatcher starts any voice session in the Dispatch Console, transmission will be interrupted after this TX Timeout expires.
- **Mic delay time**
  Select this option and specify the time, in milliseconds, to be used as a delay time interval between pushing the PTT and enabling the microphone.
  - **Roger beep**
    Select this option to play a beep sound for the time interval until the microphone is enabled. Click the ellipsis button (**...**) on the right and locate the desired sound file (WAV).
- **PTT Mode**
  From the drop-down list, select the mode of pressing the PTT on the radio.
- **Signaling system**
  From the drop-down list, select the signaling system.
  - **MDC-1200** signaling is a Motorola data system using audio frequency shift keying (ASFK) using a 1,200 baud data rate. A general option is to enable or disable an acknowledgement (ACK) data packet.
  - **SELECT-5** (5 Tone Signaling System). In the 5 Tone Signaling Systems, each radio has a unique numeric identity (for example, 12345). To signal the number 12345, a sequence of 5 tones is sent. Sequences of audible tones of a very short duration are sent between radios. Most 5 tone sequences take less than half a second to send. Available for Voice Calls, Radio Check, Call Alert, and Enable/Disable Radio.
    Click the **Configure** link and specify desired SELECT 5 settings.
  - **Quick Call I**. Using this signaling system, the radio sends a pair of tones followed by 50 to 1,000 milliseconds of silence and then a second pair of tones.
    Click the **Configure** link and specify desired Quick Call I settings.

- **Quick Call II**. Using this signaling system, the radio sends a single tone followed by 50 to 1,000 milliseconds of silence and then a second tone.
  Click the **Configure** link and specify desired Quick Call II settings.
- **Quick Call II MOTOTRBO**
  When this system is selected, the parameters are configured for the radio units via the MOTOTRBO CPS.

5.10.5.2 Redundancy

A Redundant TRBOnet Swift Agent will be used when a connection to the Main TRBOnet Swift Agent is lost.

- In the **Configuration** pane, under the corresponding **TRBOnet Swift Agent**, select **Redundancy**.

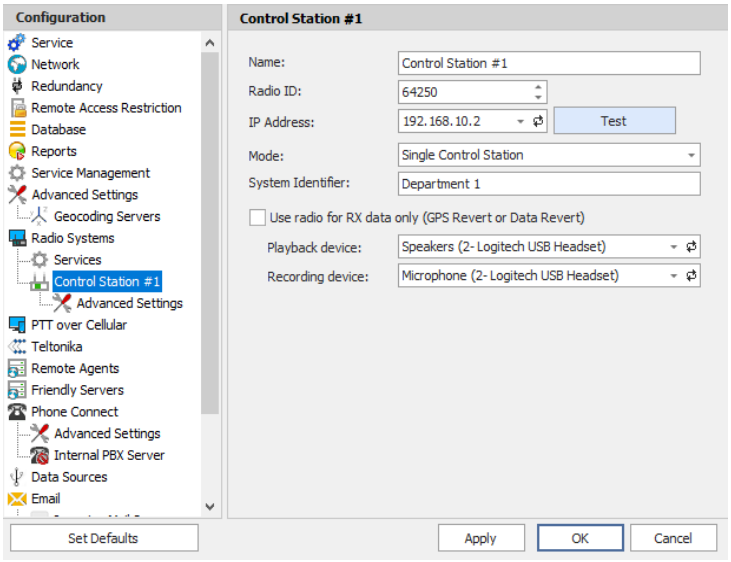


- In the **Redundancy** pane, specify the following Redundant Agent-related settings:
  - Click **Add** and specify the desired parameters for the Redundant Agent being added.
    - **IP Address**
      Enter the IP Address of the Swift Agent that will be used as a Redundant Swift Agent.
    - **Port**
      Enter the port number that will be used for connections between the server and the Redundant Swift Agent (8002, by default).
    - Click **Test** to check the connection to the Redundant Swift Agent.
      If the test is successful, you'll see the information on the Swift Agent you are connected to, such as Serial number, Firmware version, and other relevant information.

- **Local Port**
  Enter the port number that will be used for connections from the Redundant Swift Agent. The value 0 (default) means that a random port will be used.

5.10.6 Adding a Control Station

- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.
- In the drop-down menu, click **Add Control Station**.



- In the **Control Station** pane, specify the following control station-related parameters:
  - **Name**
    Enter a name for the control station. This name will be displayed in the Dispatch Console in the Voice Dispatch Radio Interface pane. It will be the name at the top of the PTT box.
  - **Radio ID**
    This is the Radio ID of the radio unit connected as a control station. (for Capacity Plus and Linked Capacity Plus systems, the maximum value is 65535).

    Note: This box is populated automatically once you have successfully tested the control station by clicking the **Test** button.

  - **IP Address**
    Enter, or select from the list, the IP Address of the control station network interface.

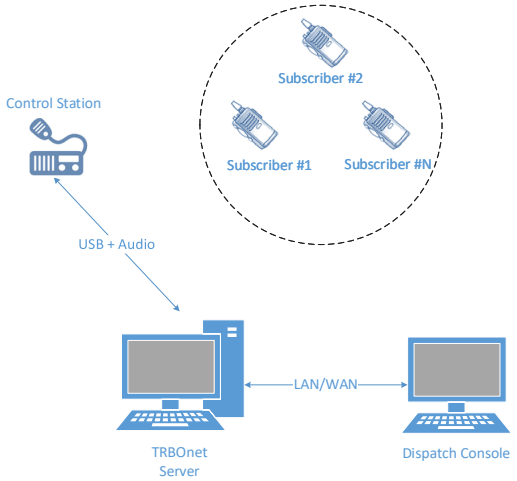
    Note: This value can be taken from the radio's configuration in MOTOTRBO CPS, in *Network>Accessory IP*.

- **Test**
  Click this button to check the connection to the control station. If the test is successful, you'll see the information on the control station you are connected to, such as radio ID, serial number, firmware version, and other relevant information.
- **Mode**
  From the drop-down list, select the connection mode for the control station being configured. For more details, see section 5.10.6.1, Control Station Connection Modes (page 54).
- **System Identifier**
  Enter the system identifier with which the control station is used within a Capacity Plus or Linked Capacity Plus system. Note that the system identifier should be the same for all control stations used in a (Linked) Capacity Plus system.
- **Use radio for RX data only (GPS Revert or Data Revert)**
  Select this option to configure the radio channel so that it will only receive data, thus having no transmission capability.
- **Playback device**
  From the drop-down list, select the playback device on the PC that will be used to transfer audio data to the connected control station.
- **Recording device**
  From the drop-down list, select the recording device on the PC that will be used to receive audio data from the control station connected via a line-in jack.

5.10.6.1 Control Station Connection Modes

Single Control Station

The Single Station mode is the simplest connection mode for receiving and transmitting voice and data through a conventional channel using one control station at this particular frequency.

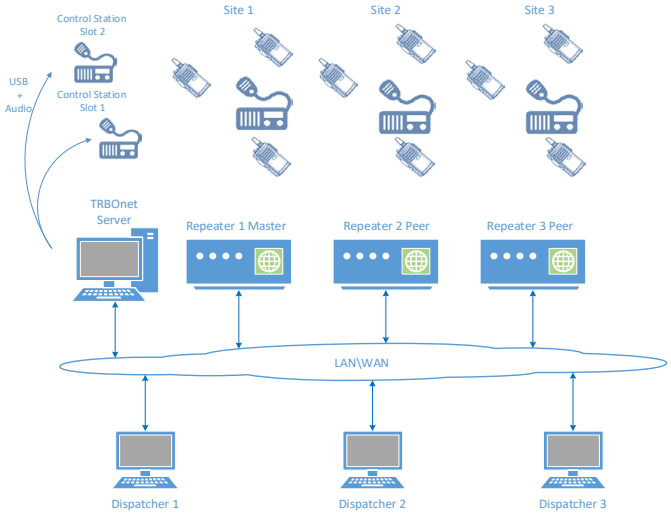


IP Site Connect

The IPSC is a digital conventional two-way MOTOTRBO system that allows you to extend the area of your communications by providing 2 wide area channels per repeater. It is possible to connect up to 15 repeaters in one system using IP connection.

The Server Connection Modes are as follows:

1. TRBOnet Server is connected to a repeater with two time slots in the "IP Site Connect" mode. The Server can transmit and receive over IP.
2. TRBOnet Server has no IP connection to a repeater. Two control stations are required to transmit and receive voice and data, that is, one control station per time slot.



Common Channel

The Common Channel is a mode where it is possible to use multiple simplex base stations operating at the same frequency with overlapping communication zones.

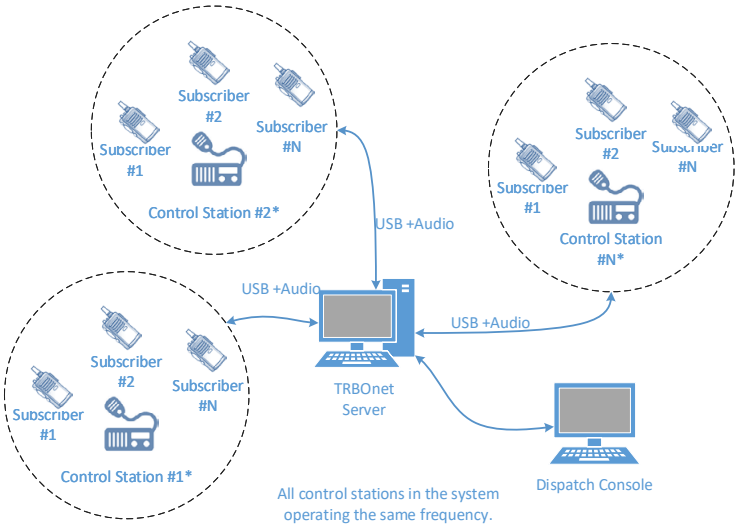
This mode allows the customer to provide radio coverage to large areas when there is only one frequency and additional frequencies are unavailable. While in this mode, the coverage area is being extended only for the dispatcher, and specifically when operating at one and the same frequency. When a radio unit initiates a call, the signal that can potentially be received by several base stations will be filtered on the server side so that repeated audio playback and recording is prohibited.

The signal filtering is performed based on the "first packet", that is, only the signal coming first to the server is played back and recorded, while the remaining signals are discarded.

When a dispatcher initiates a call to a specific base station, the signals received by the neighboring base stations will be discarded to prevent dispatchers from listening to their own call at the time of transmission. The dispatcher is not

recommended to place a simultaneous call to all base stations to avoid interference to the subscribers.

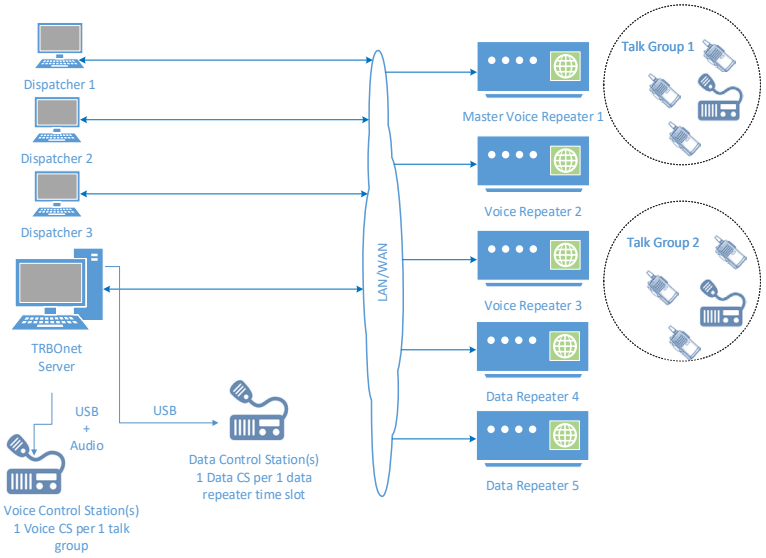
The recommended way to use this mode is as follows: each base station is configured with its own color code, and radio units are equipped with option boards having a Geo-roaming feature, and each geographic area is assigned its own radio channel with the corresponding color code.



Capacity Plus/Linked Capacity Plus

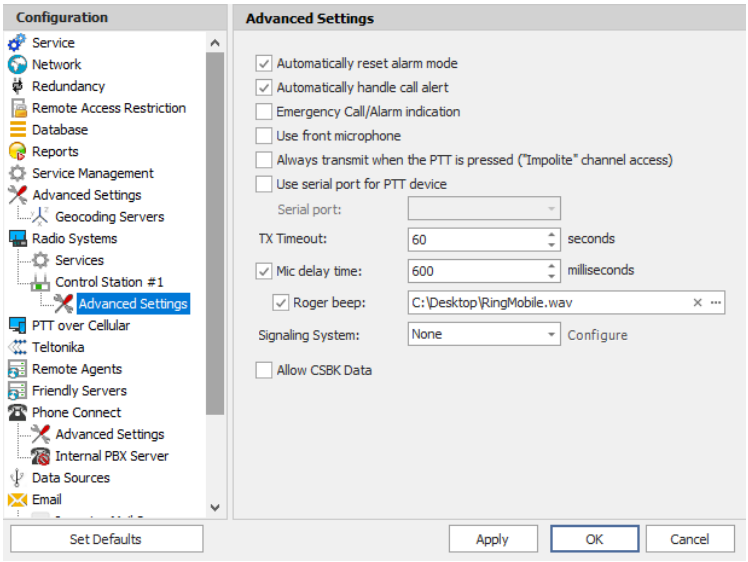
Capacity Plus is a digital trunked two-way MOTOTRBO system that allows you to accommodate high volume communication. It is designed to organize stable connection in a few groups within one building or a set of buildings. This system type allows you to increase the number of channels for voice and data transmission between the subscribers and control centers. The subscribers are always automatically forwarded to a free channel. The main objective of Capacity Plus is to support more simultaneous voice and data transmissions within one capacious system.

In the Capacity Plus mode you can configure voice and data control stations to transmit and receive data over the air as it is described in the MOTOTRBO System Planner. Keep in mind that two data control stations are required per each data repeater – one per time slot. TRBOnet Dispatch Software provides you an option to utilize an IP connection to receive voice and data.



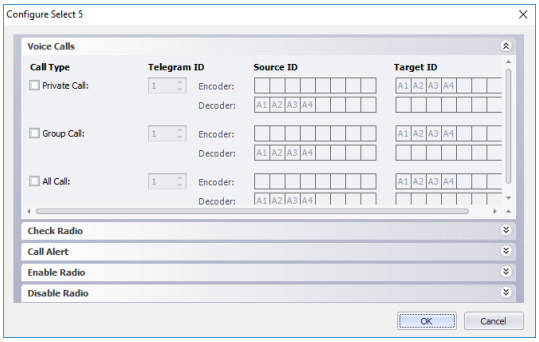
5.10.6.2 Advanced Settings

- In the **Configuration** pane, under the corresponding **Control Station**, select **Advanced Settings**.

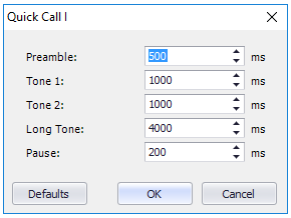


- In the **Advanced Settings** pane, specify the following control station-related advanced settings:
  - **Automatically reset alarm mode**
    Select this option to reset alarm mode on the control station radio automatically. It is recommended to enable this option.
  - **Automatically handle call alert**
    Select this option to automatically redirect call alerts from the control station radio to the Dispatch Console.

- **Emergency Call/Alarm indication**
  Select this option so that audio and visual indication is given by the control station radio when an Emergency Call/Emergency Alarm is received.
- **Use front microphone**
  Select this option to use a remote control of the PTT button via a remote speaker microphone on the radio.
- **Always transmit when the PTT is pressed ("Impolite" channel access)**
  Select this option so that when the PTT button is pressed, the radio will start transmitting regardless of whether the channel is free or not (that is any transmission in progress will be interrupted).
- **Use serial port for PTT device**
  Select this option to use a remote control of the PTT button via the serial port of the PC, and select the serial port from the drop-down list.
- **TX Timeout**
  Enter the time, in seconds, to be used as a voice session limit. When a dispatcher starts any voice session in the Dispatch Console, the ongoing transmission will be interrupted after this TX Timeout expires.
- **Mic delay time**
  Select this option and specify the time, in milliseconds, to be used as a delay time interval between pushing the PTT and enabling the microphone.
  - **Roger beep**
    Select this option to play a beep sound for the time interval until the microphone is enabled. Click the ellipsis button (**...**) on the right and locate the desired sound file (WAV).
- **Signaling system**
  From the drop-down list, select the signaling system.
  - **MDC-1200** signaling is a Motorola data system using audio frequency-shift keying (AFSK) using a 1,200 baud data rate. A general option setting for the system is to enable or disable an acknowledgement (ACK) data packet.
  - **SELECT-5** (5 Tone Signaling System). In the 5 Tone Signaling Systems, each radio has a unique numeric identity (for example, 12345). To signal the number 12345, a sequence of 5 tones is sent. Sequences of audible tones of a very short duration are sent between radios. Most 5 tone sequences take less than half a second to send. Available for Voice Calls, Radio Check, Call Alert, and Enable/Disable Radio.
    Click the **Configure** link and specify desired SELECT 5 settings.



- **Quick Call I**. Using this signaling system, the radio sends a pair of tones followed by 50 to 1,000 milliseconds of silence and then a second pair of tones.
  Click the **Configure** link and specify desired Quick Call I settings.



- **Quick Call II**. Using this signaling system, the radio sends a single tone followed by 50 to 1,000 milliseconds of silence and then a second tone.
  Click the **Configure** link and specify desired Quick Call II settings.
- **Quick Call II MOTOTRBO**
  When this system is selected, the parameters are configured on the radio unit via the MOTOTRBO CPS.

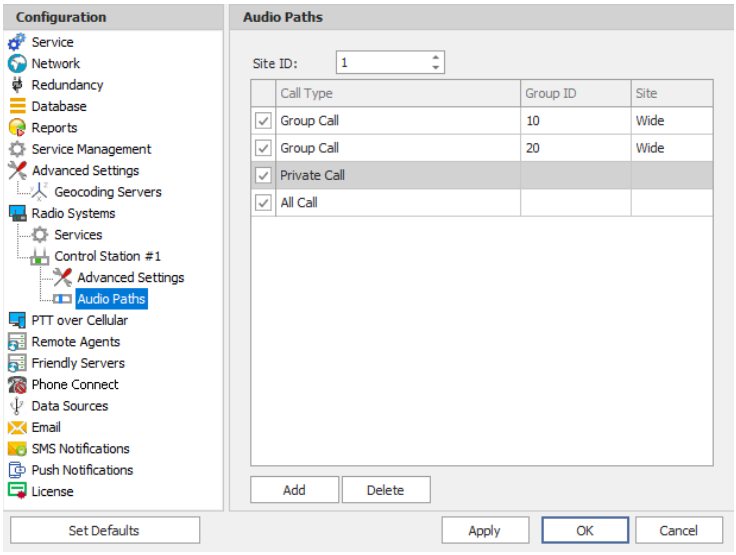
▪ **Allow CSBK Data**
Select this option so that GPS data is sent in a single CSBK.

5.10.6.3 Audio Paths

The Audio Paths are talk paths of the system to make and receive Voice Calls; in general, they are talk groups. TRBOnet Server requires that all audio paths of a radio system be registered in its configuration. If an audio path is not registered, the TRBOnet operator will not be able to receive and transmit to the corresponding talk group.

Note: Audio paths are available only when one of the following modes is selected: **Capacity Plus**, **Linked Capacity Plus**, **Connect Plus**, or **Capacity MAX**.

- In the **Configuration** pane, under the corresponding **Control Station**, select **Audio Paths**.

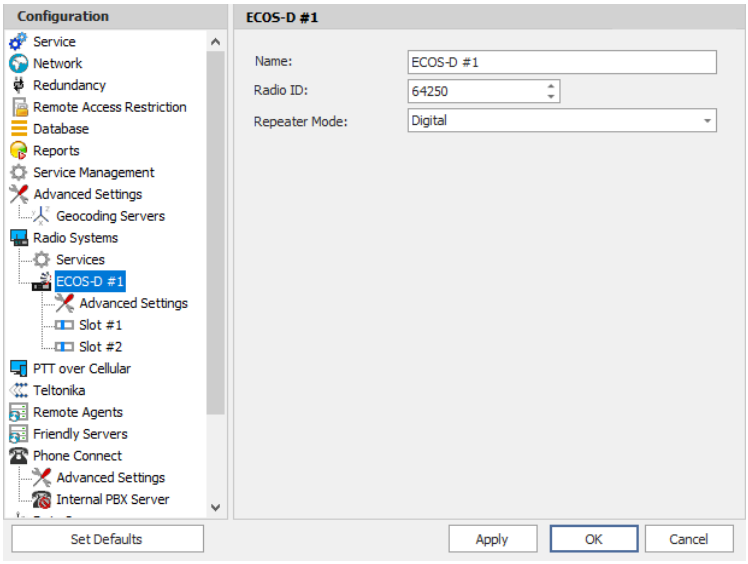


- In the **Audio Paths** pane, specify the following Audio Path-related settings:
  - To add an audio path to the system, click **Add**.
  - Make sure the checkbox in the first column is selected to make and receive voice calls from the selected subscriber.
  - From the drop-down list, select the **Call Type** for the audio path. The available call types are All Call, Group Call, and Private Call.
  - Enter the **Group ID**, which is an ID of the talk group the dispatcher can make calls to. The Group ID is not applicable for Private Calls and All Calls.
  - In the **Site** column, select either Local or Wide. The value Wide means that the audio path will be to all sites in the system and not just to the local site.

5.10.7 Adding an ECOS-D Repeater

The **ECOS-D** repeater is configured as a stand-alone repeater which supports connections to MOTOTRBO™ radios to transmit voice and data in digital, analog, and mixed modes.

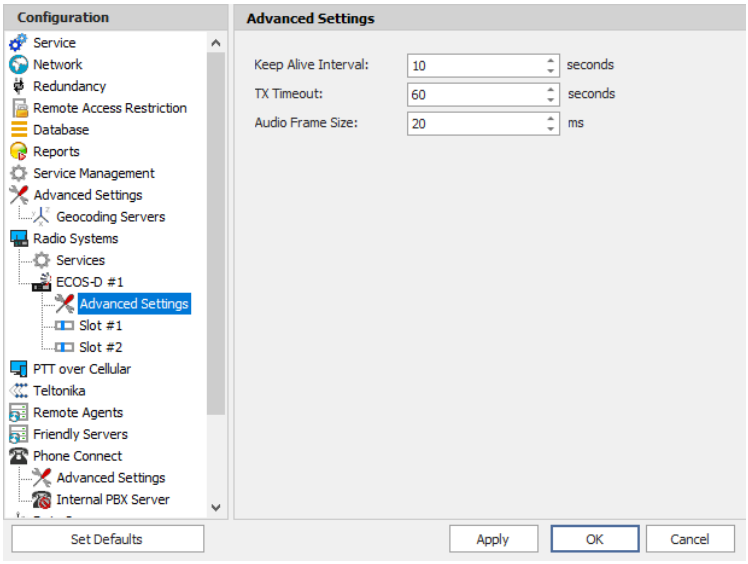
- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.
- In the drop-down menu, click **Add ECOS-D Repeater**.



- In the **ECOS-D** pane, specify the following ECOS-D Repeater-related parameters:
  - **Name**
    Enter a name for the ECOS-D Repeater. This name will be displayed in the Dispatch Console.
  - **Radio ID**
    Enter the Radio ID for the ECOS-D Repeater (for Capacity Plus systems, the maximum value is 65535).
    The Radio ID is an individual ID that uniquely identifies the radio. This ID is used by other calling radios when addressing the radio, for instance, when making a private call or sending a text message.
  - **Repeater Mode**
    From the drop-down list, select the mode. The available modes are Digital, Analog, Mixed, and Tier III.

5.10.7.1 Advanced Settings

- In the **Configuration** pane, under the corresponding **ECOS-D**, select **Advanced Settings**.

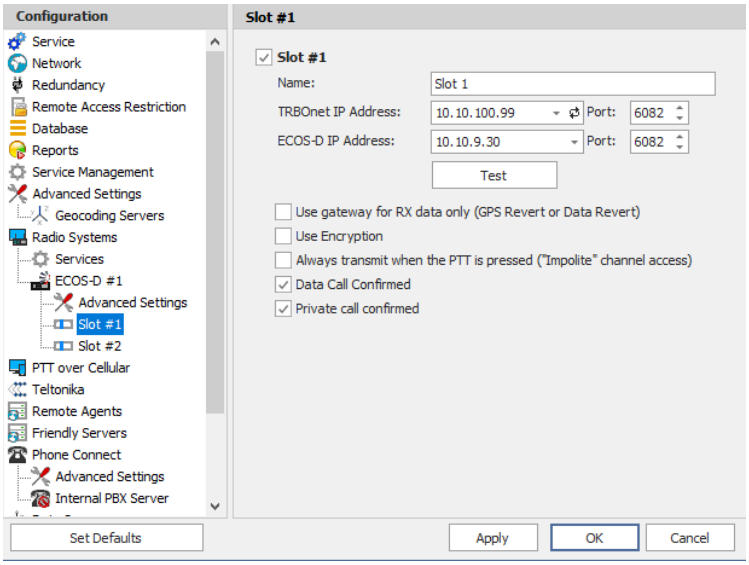


- In the **Advanced Settings** pane, specify the following ECOS-D Repeater-related advanced settings:
  - **Keep Alive Interval**
    Enter the time interval, in seconds, for TRBOnet Server to check the connection to the ECOS-D repeater (10, by default).
  - **TX Timeout**
    Enter the time, in seconds, to be used as a voice session limit. When a Dispatcher starts any Voice Session in the Dispatch Console, transmission will be interrupted after this TX Timeout expires (60, by default).
  - **Audio Frame Size**
    Set the audio frame size, in milliseconds.

5.10.7.2 Slots

The ECOS-D repeater has two available slots (in **Digital** or **Mixed** mode) to transmit voice and data.

- In the **Configuration** pane, under the corresponding **ECOS-D**, select **Slot #1** or **Slot #2**.

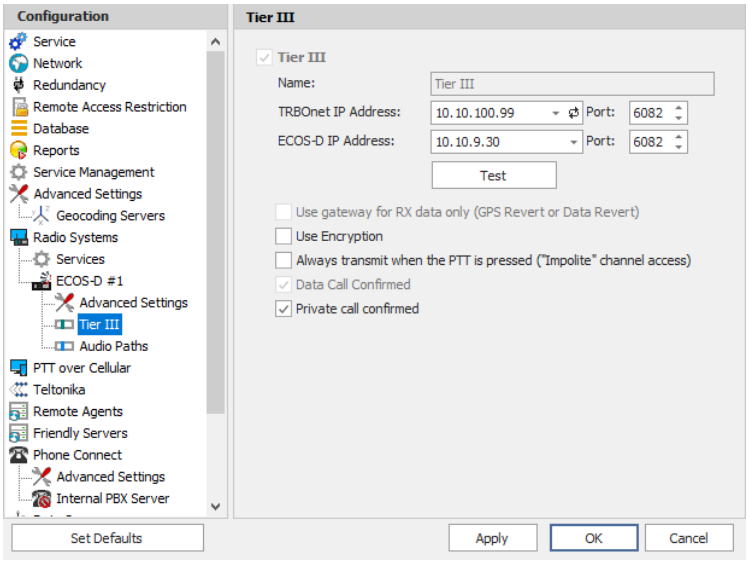


- In the **Slot #1** (or **Slot #2**) pane, specify the following slot-related parameters:
  - **Name**
    Enter a name for the slot. This name will be displayed in the Dispatch Console.
  - **TRBOnet IP Address**
    Enter the IP Address of the PC with TRBOnet Dispatch Software. Enter the **Port** number (6080, by default).
  - **ECOS-D IP Address**
    Enter the IP Address of the ECOS-D Repeater (refer to the repeater configuration). Enter the **Port** number (6080, by default).
  - Click **Test** to check the connection to the repeater.
  - **Use gateway for RX data only (GPS Revert or Data Revert)**
    Select this option to configure the channel so that it will only receive data, thus having no transmission capability.
  - **Use Encryption**
    Select this option to encrypt voice and data traffic over IP.
  - **Always transmit when the PTT is pressed ("Impolite" channel access)**
    Select this option so that that when the PTT button is pressed, the radio will start transmitting regardless of whether the channel is free or not (that is any transmission in progress will be interrupted).
  - **Data Call Confirmed**
    Select this option to enable individual packets in data calls (ARS, GPS, and Text Message) on the current slot to be confirmed.
  - **Private call confirmed**
    Select this option to set Private calls on the current slot as confirmed.

5.10.7.3 Tier III and Audio Paths

The ECOS-D repeater can be used in a **Tier III** mode. To configure this mode, do the following:

- While in the **ECOS-D** pane, select **Tier III** from the **Repeater Mode** drop-down list.
- In the **Configuration** pane, under the corresponding **ECOS-D**, select **Tier III**.

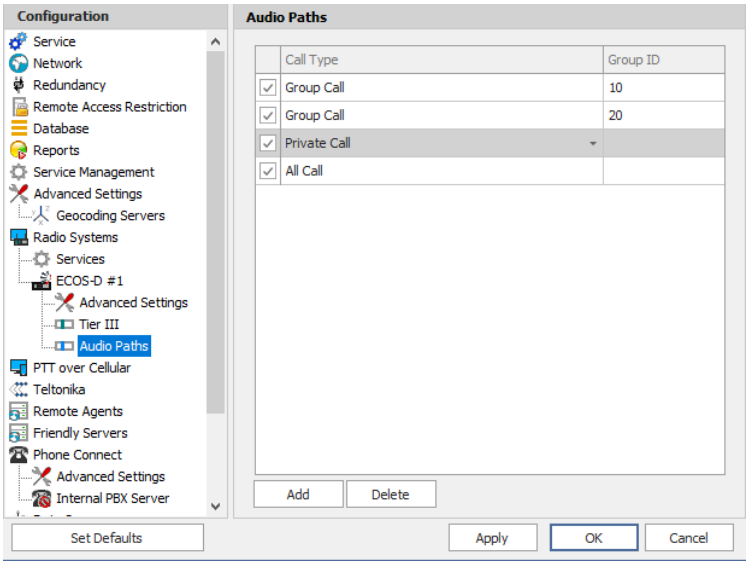


- In the **Tier III** pane, specify the following Tier III-related parameters:
  - **Use Encryption**
    Select this option to encrypt voice and data traffic over IP.
  - **Always transmit when the PTT is pressed ("Impolite" channel access)**
    Select this option so that that when the PTT button is pressed, the radio will start transmitting regardless of whether the channel is free or not (that is any transmission in progress will be interrupted).
  - **Private call confirmed**
    Select this option to set Private calls on the current slot as confirmed.

To configure Audio Paths:

- In the **Configuration** pane, under the corresponding **ECOS-D**, select **Audio Paths**.

> Note: Make sure the **Tier III** mode has been selected as a Repeater Mode for the ECOS-D repeater.



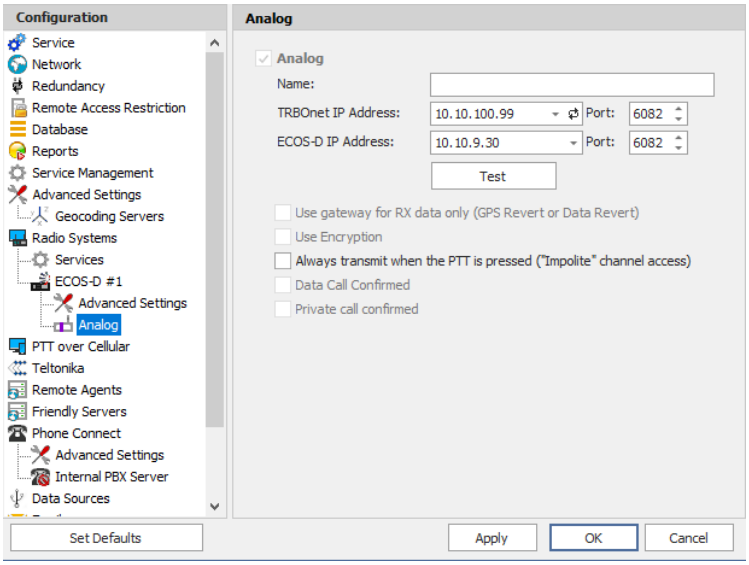
- In the **Audio Paths** pane, specify the following Audio Path-related settings:
  - To add an Audio Path to the system, click **Add**.
  - Make sure the checkbox in the first column is selected to make and receive Voice Calls from the selected subscriber.
  - From the drop-down list, select the **Call Type** for the audio path. The available call types are All Call, Group Call, and Private Call.
  - Enter the **Group ID**, which is a radio ID of the talk group to make a call to. The Group ID is not applicable for Private Calls and All Calls.

5.10.7.4 Analog channel

The ECOS-D repeater can also use the Analog channel.

- In the **Configuration** pane, under the corresponding **ECOS-D**, select **Analog**.

> Note: Make sure the **Analog** or **Mixed** mode have been selected as a Repeater Mode for the ECOS-D repeater.



- In the **Analog** pane, specify the following Analog channel-related settings:
  - **Name**
    Enter a name for the ECOS-D repeater in the analog mode. This name will be displayed in the Dispatch Console.
  - **TRBOnet IP Address**
    Enter the IP Address of the PC with TRBOnet Dispatch Software. Enter the **Port** number (6080, by default).
  - **ECOS-D IP Address**
    Enter the IP Address of the ECOS-D Repeater (refer to the repeater configuration). Enter the **Port** number (6080, by default).
  - Click **Test** to check the connection to the repeater.
  - **Always transmit when the PTT is pressed ("Impolite" channel access)**
    Select this option so that when the PTT button is pressed, the radio will start transmitting regardless of whether the channel is free or not (that is any transmission in progress will be interrupted).

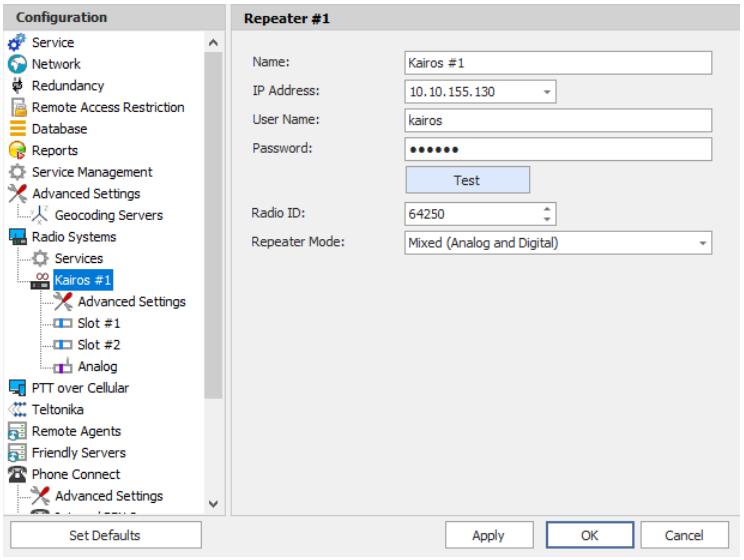
5.10.8 Adding a KAIROS Repeater

The **Radio Activity Kairos** repeater is configured as a stand-alone repeater which supports connections to MOTOTRBO™ radios to transmit voice and data in digital, analog, and mixed modes.

Note: When the Kairos repeater is connected, the following TRBOnet Dispatch features are not supported: Remote Monitor, Radio Enable/Disable, Kill Radio, and Telemetry.

- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.

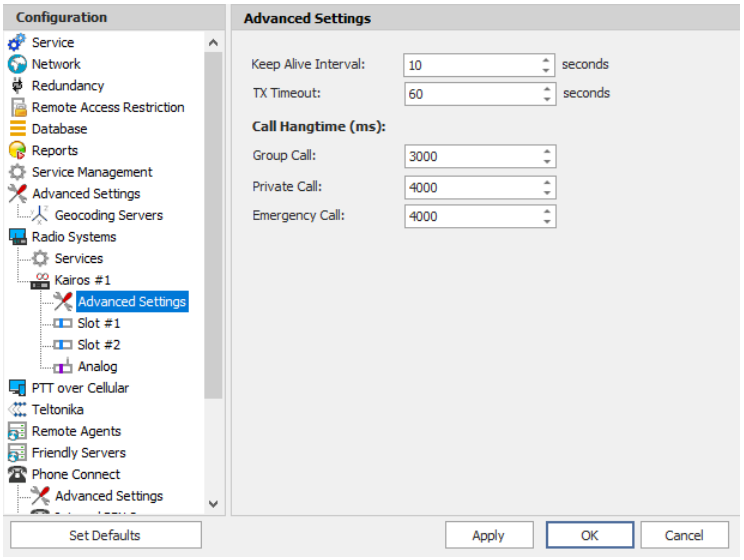
- In the drop-down menu, click **Add KAIROS Repeater**.



- In the **Kairos** pane, specify the following repeater-related parameters:
  - **Name**
    Enter a name for the Kairos repeater. This name will be displayed in the Dispatch Console.
  - **IP Address**
    Enter the IP Address of the Kairos repeater network interface.
  - **User Name**
    Enter the user name. For the user name, refer to the Kairos repeater configuration.
  - **Password**
    Enter the password for the user. For the password, refer to the Kairos repeater configuration.
  - **Radio ID**
    Enter the Radio ID, which is a gateway for voice and data. The Radio ID must be unique in the radio system.
  - **Repeater Mode**
    From the drop-down list, select the mode. The available modes are Digital, Analog, and Mixed.

5.10.8.1 Advanced Settings

- In the **Configuration** pane, under the corresponding **Kairos**, select **Advanced Settings**.



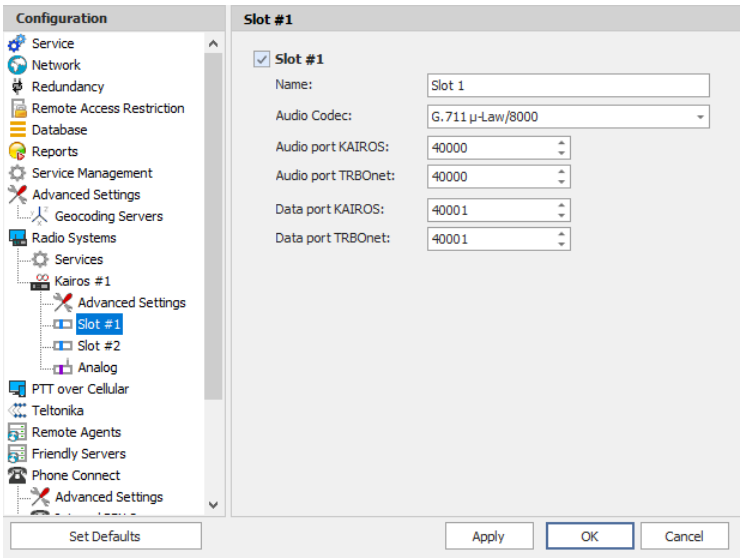
- In the **Advanced Settings** pane, specify the following Kairos Repeater-related advanced settings:
  - **Keep Alive Interval**
    Enter the time interval, in seconds, for TRBOnet Server to check the connection to the Kairos repeater (10, be default).
  - **TX Timeout**
    Enter the time, in seconds, to be used as a voice session limit. When a Dispatcher starts any Voice Session in the Dispatch Console, transmission will be interrupted after this TX Timeout expires (60, be default).

  Call Hangtime (ms):
  - **Group Call**
    This value sets the duration the repeater reserves the channel after the end of a group call transmission. During this time, only members of the group that the channel is reserved for can transmit.
  - **Private Call**
    This value sets the duration a radio keeps the private call setup after a user releases the PTT button. This is to avoid setting up the call again each time a user presses the PTT button to transmit. During this time, other radios can still transmit since the channel is essentially idle. After the hang timer expires, the radio transmits using the *TX Contact Name* parameter specified for this channel in MOTOTRBO CPS.
  - **Emergency Call**
    This value sets the duration the repeater reserves the channel after the end of an emergency call transmission. During this time, only members of the Group that the channel is reserved for can transmit.

5.10.8.2 Slots

The Kairos repeater has two digital slots (in **Digital** mode) and one analog slot (in **Mixed** or **Analog** mode) to transmit voice and data.

- In the **Configuration** pane, under the corresponding **Kairos**, select **Slot #1** or **Slot #2** (or **Analog**, if you have selected **Mixed** or **Analog** mode).



- In the **Slot #1** (or **Slot #2**) pane, specify the following slot-related parameters:
  - **Name**
    Enter a name for the slot. This name will be displayed in the Dispatch Console.
  - **Audio Codec**
    From the drop-down list, select the audio codec to be used to compress the audio files.
  - **Audio port KAIROS/ Audio port TRBOnet**
    Enter the port numbers to be used for KAIROS/TRBOnet audio ports.
  - **Data port KAIROS/ Data port TRBOnet**
    Enter the port numbers to be used for KAIROS/TRBOnet data ports.

  Note: Use the matching port numbers for KAIROS and TRBOnet. The default audio and data port numbers are **40000** and **40001** for Digital slot 1, **40002** and **40003** for Digital slot 2, and **40004** and **40005** for the Analog slot.

5.10.9 Adding a WAVE OnCloud Gateway

WAVE OnCloud is a Push-to-Talk (PTT) service that connects phones, computers and radios together.

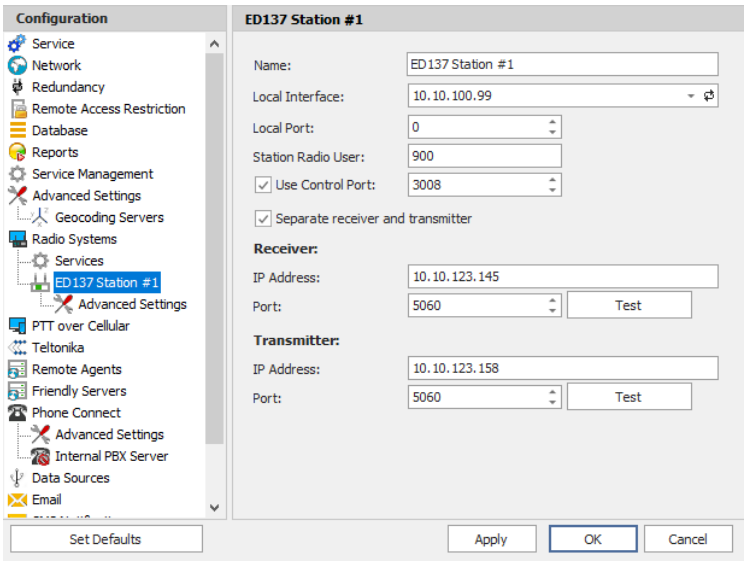
- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.

- In the drop-down menu, click **Add WAVE OnCloud Gateway**.
- In the **Wave OnCloud Gateway** pane, specify the following Wave gateway-related parameters:
  - **Name**
    Enter a name for the Wave OnCloud gateway. This name will be displayed in the Dispatch Console.
  - **Authentication FQDN**
    Enter the fully-qualified domain name of the authentication server.
  - **Client ID**
    Enter the Client ID that will be used for authentication.
  - **Client Secret**
    Enter the Client Secret that will be used for authentication.
  - **Agency**
    Enter the name of the agency that will be used.
  - **Test**
    Click this button and see the list of all available agencies.

5.10.10 Adding an ED137 / Jotron Station

This section describes how to connect an ED137-compatible radio station (for example, the Jotron 7000 series Multimode Digital Radio).

- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.
- In the drop-down menu, click **Add ED137 Station**.



- In the **ED137 Station** pane, specify the following ED137 Station-related settings:

- **Name**
  Enter a name for the control station. This name will be displayed in the Dispatch Console.
- **Local Interface**
  Enter the IP address of the PC with TRBOnet Server.
- **Local Port**
  Enter the local UDP port number.
- **Station Radio User**
  Enter the SIP ID of the radio station.
- **Use Control Port**
  Select this option and enter the control port number.
- **Separated receiver and transmitter**
  Select this option if the receiver and transmitter are separate devices with different IP addresses.
- **IP Address**
  Enter the IP Address of the receiver/transmitter (or transceiver).
- **Port**
  Enter the port number (5060, by default).

5.10.11 Adding a Zenitel Station

This section describes how to connect a Zenitel station.

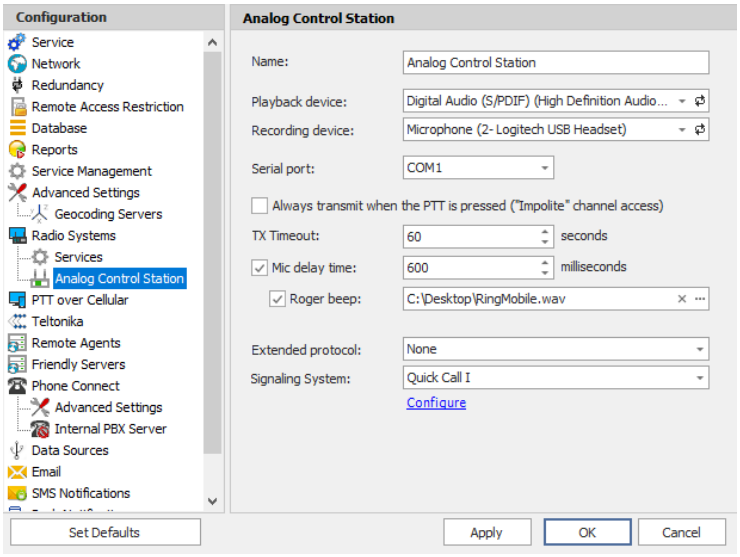
- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.
- In the drop-down menu, click **Add Zenitel Station**.
- In the **Zenitel Station** pane, specify the following Zenitel-related settings:
  - **Name**
    Enter a name for the Zenitel station. This name will be displayed in the Dispatch Console.
  - **Radio ID**
    This is the Radio ID of the Zenitel station.
    The maximum value is 65535.
  - **Local Interface**
    Enter the IP address of the PC with TRBOnet Server.
  - **Local Port**
    Enter the local UDP port number.
  - **Station IP Address**
    Enter the IP address of the Zenitel station.
  - **Station Control Port**
    Enter the control port on the Zenitel station.

- **Station SIP Port**
  Enter SIP port on the Zenitel station (5060, by default).

5.10.12 Adding an Analog Station

TRBOnet Dispatch Software allows using analog radios as control stations.

- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.
- In the drop-down menu, click **Add Analog Station**.



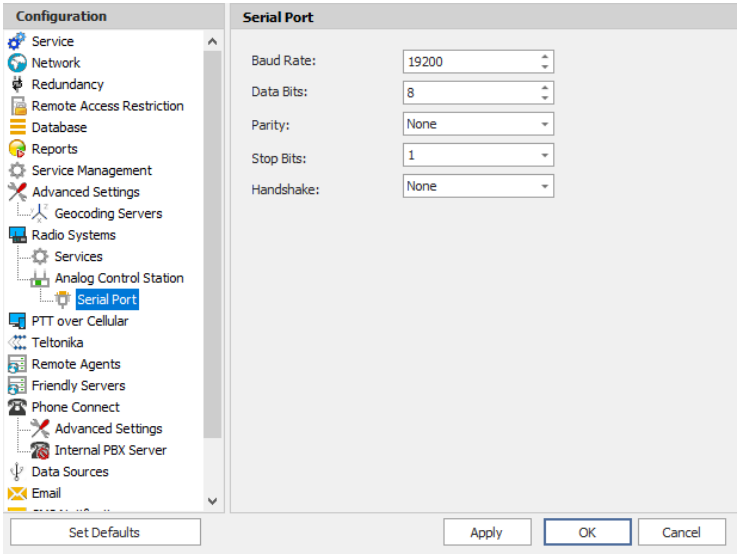
- In the **Control Station** pane, specify the following Analog Control Station-related settings:
  - **Name**
    Enter a name for the analog control station. This name will be displayed in the Dispatch Console.
  - **Playback device**
    From the drop-down list, select the playback device on the PC that the control station is connected to.
  - **Recording device**
    From the drop-down list, select the recording device on the PC that the control station is connected to.
  - **Serial port**
    From the drop-down list, select the serial port the control station is connected to on the PC.
  - **Always transmit when the PTT is pressed ("Impolite" channel access)** - Select this option so that when the PTT button is pressed, the radio will start transmitting regardless of whether the channel is free or not (that is any transmission in progress will be interrupted).

- **TX Timeout**
  Enter the time, in seconds, to be used as a voice session limit. When a Dispatcher starts any voice session in the Dispatch Console, transmission will be interrupted after this TX Timeout expires.
- **Mic delay time**
  Select this option and specify the time, in milliseconds, to be used as a delay time interval between pushing the PTT and enabling the microphone.
  - **Roger beep**
    Select this option to play a beep sound for the time interval until the microphone is enabled. Click the ellipsis button (**...**) on the right and locate the desired sound file (WAV).
- **Extended protocol**
  From the drop-down-list, select either **None**, if your radio does not support the extended protocol, or **IC-F1721D v1.01** if the radio supports the extended protocol.
- **Signaling System**
  From the drop-down-list, select the signaling system (**Quick Call I** or **Quick Call II**). Click the **Configure** link and specify desired Quick Call settings. Selecting the signaling system is available only if **None** is selected in the **Extended Protocol** list.

5.10.12.1 Serial Port

Note: The serial port settings are available only when the extended protocol **IC-F1721D v1.01** is selected for the analog control station.

- In the **Configuration** pane, under the corresponding **Control Station**, select **Serial Port**.

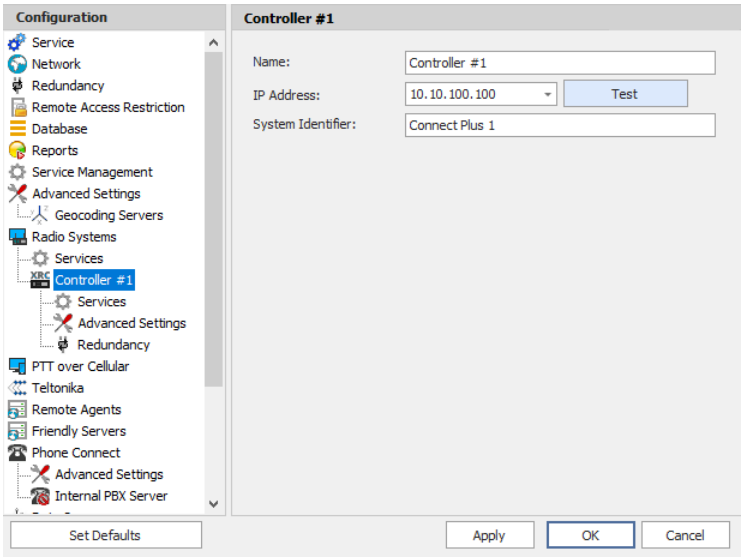


- In the **Serial Port** pane, specify the same serial port settings as those on the radio device connected to the serial port.

5.10.13 Adding an XRC-9000 Controller

The XRC Controller is a site controller that provides a channel for transferring data between sites and managing data flow.

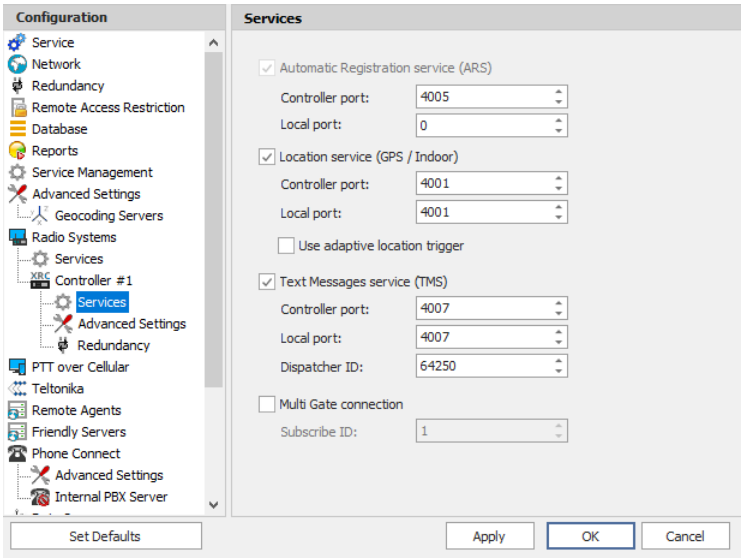
- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.
- In the drop-down menu, click **Add XRC-9000 Controller**.



- In the **Controller** pane, specify the following XRC controller-related parameters:
  - **Name**
    Enter a name for the XRC controller. This name will be displayed in the Dispatch Console.
  - **IP Address**
    Enter the IP Address of the XRC controller network interface.
  - Click **Test** to check the connection to the controller.
  - **System Identifier**
    Enter the system identifier. Note that the system identifier should be the same through all the controllers in a Connect Plus system.

5.10.13.1 Services

- In the **Configuration** pane, under the corresponding **XRC Controller**, select **Services**.

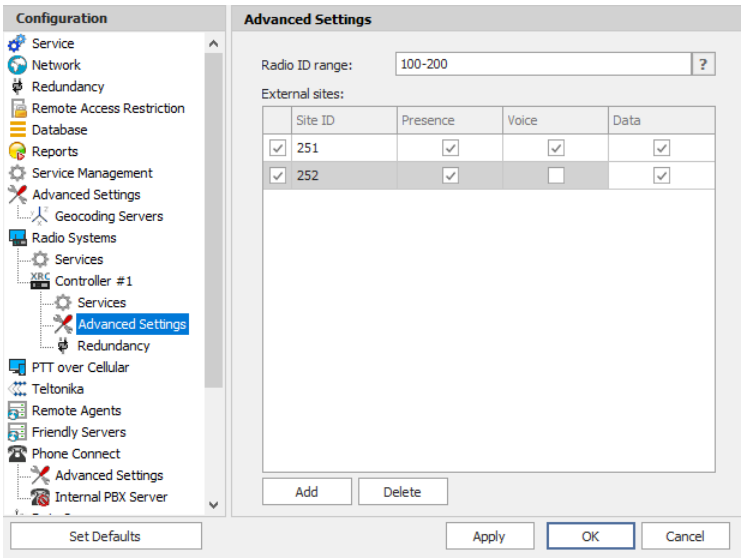


- In the **Services** pane, specify the following XRC controller-related services:
  - **Automatic Registration service (ARS)** provides an automated data application registration for the radio. When the radio powers up, it automatically registers with the server. This feature is used with data applications, that is any data traffic on this channel is associated with an application server, such as MOTOTRBO Text Messaging or MOTOTRBO Location Service. This option is selected by default and cannot be cleared.
    - **Controller port**
      Enter the controller's port number for ARS service (4005, by default).
    - **Local port**
      Enter the local port of the PC with TRBOnet Dispatch Software. The value 0 (default) means that a random port will be used.
  - **Location service (GPS / Indoor)**
    Select this option to enable Location service on the controller. The radio can send its coordinates when it is in Global Positioning coverage area. GPS settings can be configured in the **Service Management** pane (see section 5.8.2, Location service).
    - **Controller port**
      Enter the controller's port number for Location service (4001, by default).
    - **Local port**
      Enter the local port of the PC with TRBOnet Dispatch Software (4001, by default).
    - **Use adaptive location trigger**
      Select this option to use the adaptive GPS polling interval.

- **Text Messaging service (TMS)**
  Select this option to enable text message transmission on the controller.
  - **Port**
    Enter the controller's port number for Text Messaging service (4007, by default).
  - **Local port**
    Enter the local port of the PC with TRBOnet Dispatch Software (4007, by default).
  - **Dispatcher ID**
    Enter the Dispatcher ID. The Dispatcher ID should belong to TRBOnet Server account in a Connect Plus system.
- **Multi Gate connection**
  Select this option to use a multi-gate connection and enter the corresponding **Subscribe ID**.

5.10.13.2 Advanced Settings

- In the **Configuration** pane, under the corresponding **XRC Controller**, select **Advanced Settings**.



- In the **Advanced Settings** pane, specify the following XRC controller-related services:
  - **Radio ID list**
    Enter a list of the radios to receive data from according to the following rules:
    - To receive data from all radios in the system, leave this box blank.
    - To receive data from multiple radios, separate each Radio ID by a comma, for example, 105,106,111, and so on.

- To receive data from a range of radios, enter the range using the following example: 105-111.

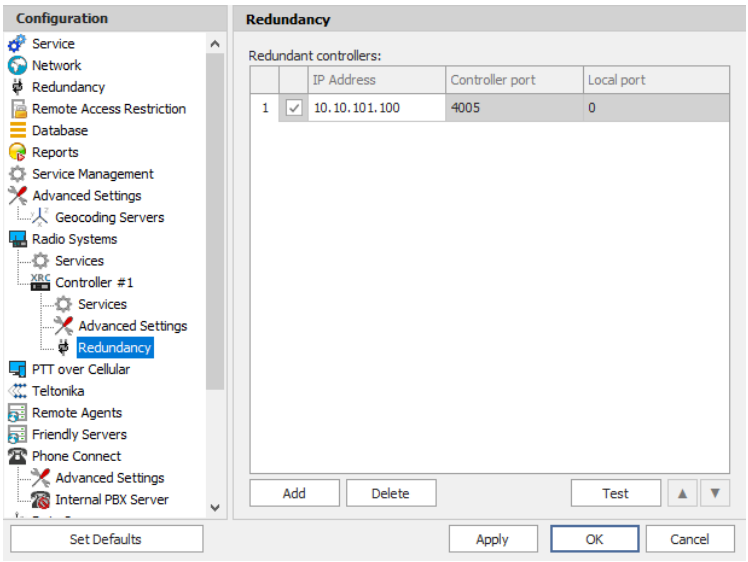
Note: In the Radio ID list, enter Radio IDs only, without mentioning Radio Names and/or the word "Radio".

- **External sites**
  This is the list of Connect Plus sites that is used when the corresponding Connect Plus system has a MOTOROLA System Bridge to the current Capacity MAX system.
  - Click the **Add** button and add a site by specifying its **Site ID** and selecting the appropriate data types (**Presence**, **Voice**, and/or **Data**).

5.10.13.3 Redundancy

A redundant XRC controller will be used when a connection to the main XRC controller is lost.

- In the **Configuration** pane, under the corresponding **XRC Controller**, select **Redundancy**.



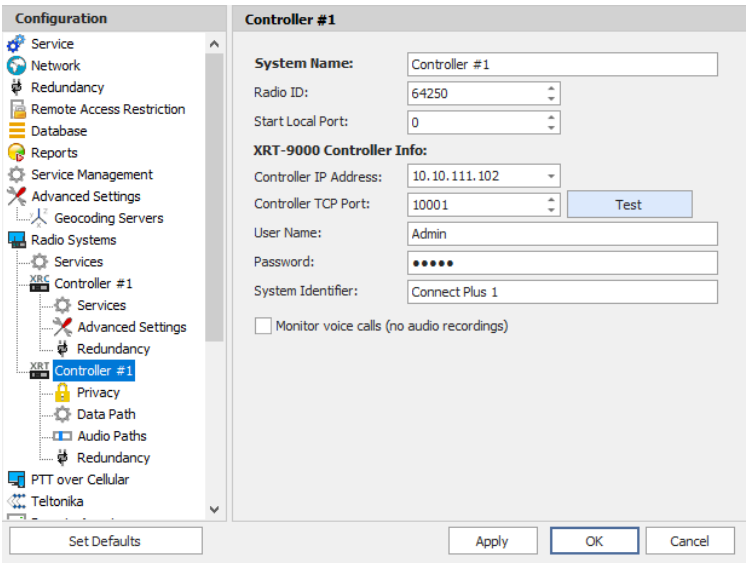
- In the **Redundancy** pane, specify the following redundant XRC controller-related settings:
  - Click **Add** and specify the desired parameters for the redundant XRC controller being added.
    - **IP Address**
      Enter the IP Address of the XRC controller that will be used as a redundant XRC controller.
    - **Controller port**
      Enter the port number of the redundant XRC controller for incoming connections (4005, by default).

- Click **Test** to check the connection to the redundant XRC Controller. If the test is successful, you'll see the information on the XRC controller you are connected to, such as serial number, firmware version, and other relevant information.
- **Local port**
  Enter the port number that will be used for incoming connections from the redundant XRC controller. The value 0 (default) means that a random port will be used.

5.10.14 Adding an XRT-9000 Controller

The XRT controller functions as a voice gateway connected to each XRC controller in a Connect Plus system.

- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.
- In the drop-down menu, click **Add XRT-9000 Controller**.



- In the **Controller** pane, specify the following XRT Controller-related parameters:
  - **System Name**
    Enter a name for the XRT Controller. This name will be displayed in the Dispatch Console.
  - **Radio ID**
    Enter the individual virtual radio ID. The virtual Radio ID is required to do the following:
    - Make all types of voice calls from XRT Controller to radios, dispatchers and groups.
    - Send commands (for example, Remote Monitor).

- **Start Local Port**
  Enter the local port of the PC with TRBOnet Server. The value 0 (default) means that a random port will be used.

XRT Controller Info:

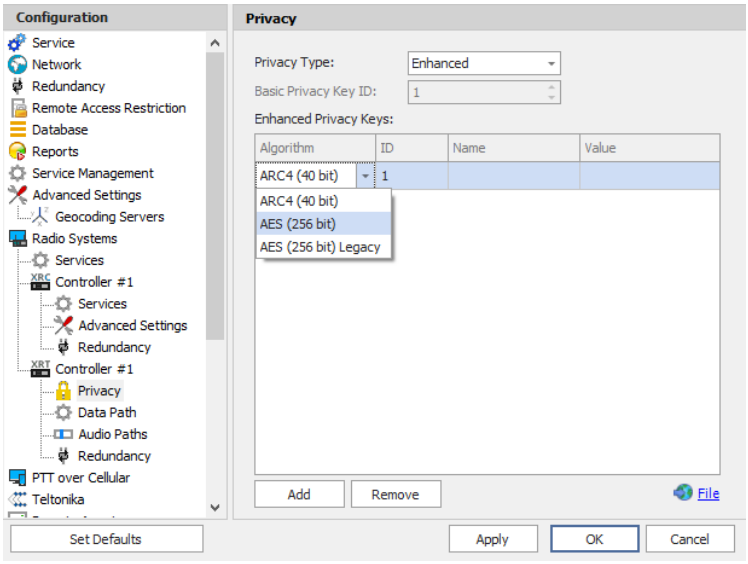
- **Controller IP Address**
  Enter the IP Address of the XRT controller network interface.
- **Controller TCP Port**
  Enter the port number of the XRT controller to be used for connections via TCP (10001, by default).
- Click **Test** to check the connection to the XRT controller.
- **User Name**
  Enter the user name. For the user name, refer to the XRT controller configuration.
- **Password**
  Enter the password for the user. For the password, refer to the XRT controller configuration.

  Note: The user name and password must belong to the same TRBOnet Connect Plus account and be appropriately configured.

- **System Identifier**
  Enter the system identifier. Note that the system identifier should be the same through all the controllers in a Connect Plus system.
- **Monitor voice calls (no audio recordings)**
  This is the Billing feature. Select this option to monitor only PTT press events.

5.10.14.1 Privacy

- In the **Configuration** pane, under the corresponding **XRT Controller**, select **Privacy**.

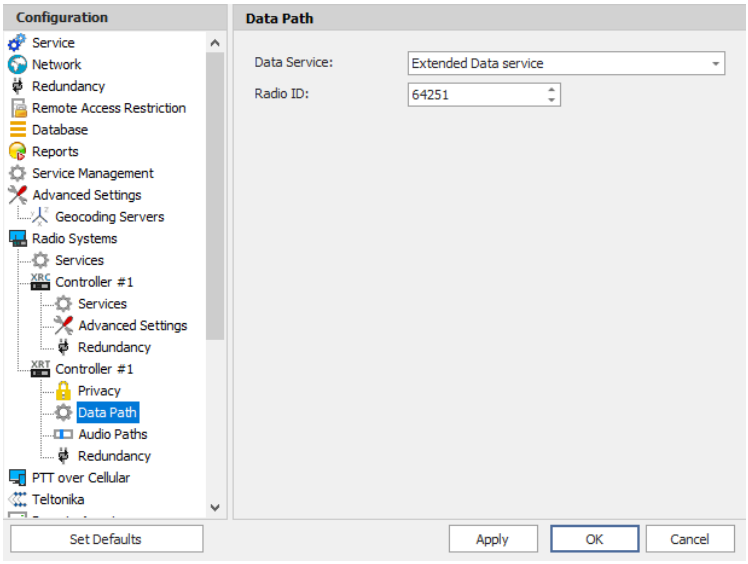


- In the **Privacy** pane, specify the following Privacy-related settings:
  - **Privacy Type**
    From the drop-down list, select one of the privacy types: **None**, **Basic**, or **Enhanced**.
  - **Basic Privacy Key ID**
    Enter the Privacy Key ID available for the **Basic** privacy type.
  - **Enhanced Privacy Keys**
    Here you add enhanced privacy keys when the **Enhanced** privacy type is selected.
    - Click **Add** and specify the required **Algorithm**, **ID**, **Name**, and **Value** for the privacy key being added.
      ✓ **Algorithm**
      From the drop-down list, select one of the enhanced algorithms if you are going to use additional encryption.

5.10.14.2 Data Path

The Data Paths are used to transmit data in a Connect Plus system.

- In the **Configuration** pane, under the corresponding **XRT Controller**, select **Data Path**.

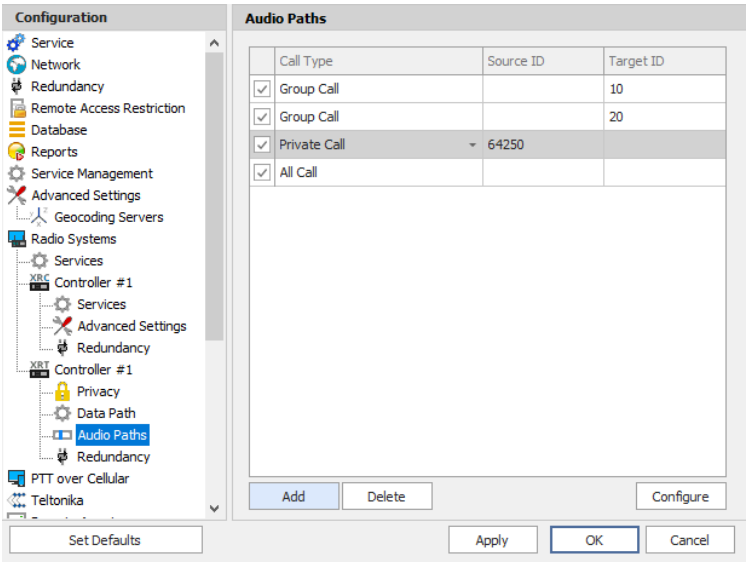


- In the **Data Path** pane, specify the following data path-related settings:
  - **Data Service**
    From the drop-down list, select the data service to be used to transfer data.
  - **Radio ID**
    Enter the Radio ID of the data service.

5.10.14.3 Audio Paths

The Audio Paths are talk paths of the system to make and receive voice calls; in general, they are talk groups. TRBOnet Server requires that all audio paths of a Connect Plus system be registered in its configuration. If an audio path is not registered, the TRBOnet operator will not be able to receive and transmit to the corresponding talk group.

- In the **Configuration** pane, under the corresponding **XRT Controller**, select **Audio Paths**.

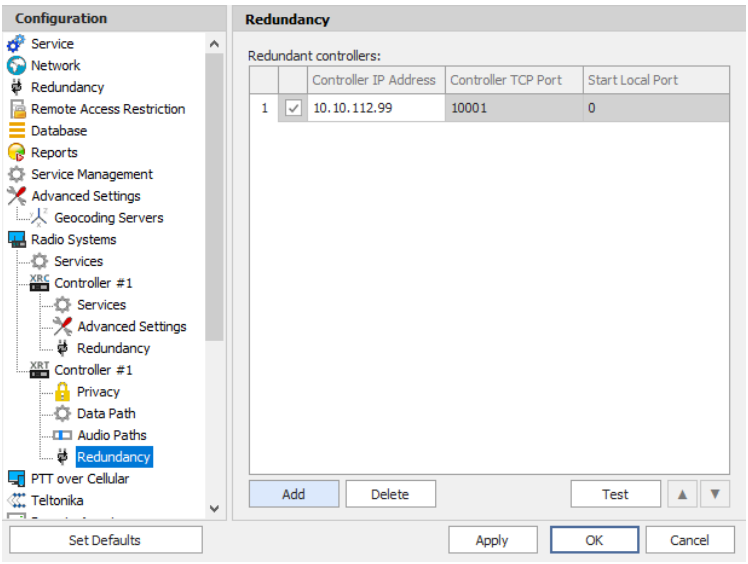


- In the **Audio Paths** pane, specify the following Audio Path-related settings:
  - To add an Audio Path to the system, click **Add**.
  - Make sure the checkbox in the first column is selected to make and receive Voice Calls from the selected subscriber.
  - From the drop-down list, select the **Call Type** for the audio path. The available call types are All Call, Group Call, and Private Call.
  - Enter the **Source ID** for Private Calls. In general, this is TRBOnet's Radio ID. If more than one Radio ID is specified in a Connect Plus system (for example, for different dispatchers), the corresponding talk paths should be added for all of them.
  - Enter the **Target ID** for Group Calls. This is the Radio ID of the talk group to make a call to. The Target ID is not applicable for Private Calls and All Calls.

5.10.14.4 Redundancy

A Redundant XRT Controller will be used when a connection to the Main XRT Controller is lost.

- In the **Configuration** pane, under the corresponding **XRT Controller**, select **Redundancy**.



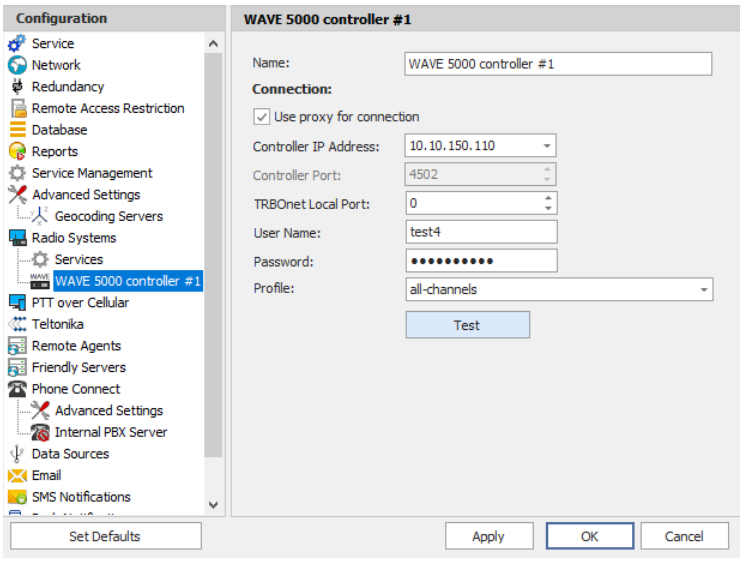
- In the **Redundancy** pane, specify the following Redundant XRT Controller-related settings:
  - Click **Add** and specify the desired parameters for the Redundant XRT Controller being added.
  - **Controller IP Address**
    Enter the IP Address of the XRT Controller that will be used as a Redundant XRT Controller.

- **Controller TCP Port**
  Enter the port number of the Redundant XRT Controller to be used for connections via TCP (10001, by default).
- **Start Local Port**
  Enter the local port of the PC with TRBOnet Dispatch Software. The value 0 (default) means that a random port will be used.
- Click **Test** to check the connection to the Redundant XRT Controller.
  If the test is successful, you'll see the information on the XRT Controller you are connected to, such as Serial number, Firmware version, and other relevant information.

5.10.15 Adding a WAVE 5000 Controller

Before creating a connection to the Wave controller, make sure the Wave server is configured to allow 3rd party applications to connect with a Neocom Software-specified license key.

- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.
- In the drop-down menu, click **Add WAVE 5000 Controller**.



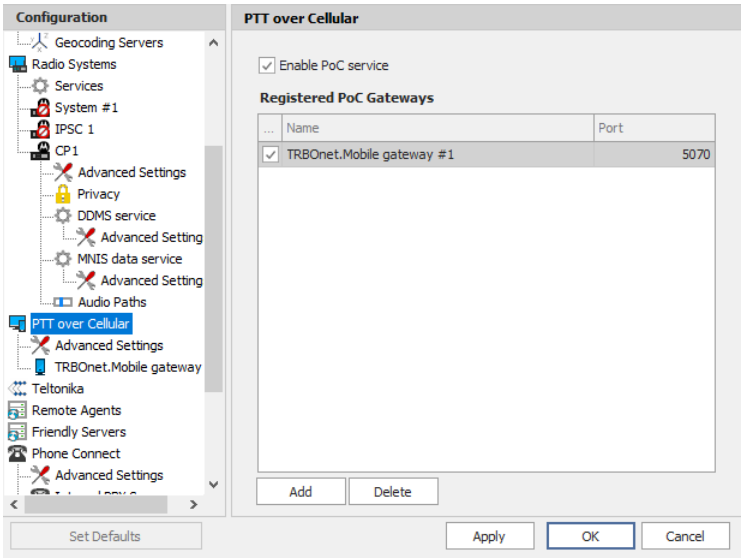
- In the **Wave 5000 controller** pane, specify the following Wave controller-related parameters:
  - **Name**
    Enter a name for the Wave controller. This name will be displayed in the Dispatch Console.
  - **Use proxy for connection**
    Select this option to use a proxy server to connect to the Wave controller.
  - **Controller IP Address**
    Enter, or select from the list, the IP Address of the Wave controller.

- **Controller Port**
  Enter the port number of the Wave controller.
- **TRBOnet Local Port**
  Enter the local port number that will be used by TRBOnet Server to establish a connection to the Wave controller.
- **User Name**
  Enter the user name. For the user name, refer to the Wave server configuration.
- **Password**
  Enter the password for the user. For the password, refer to the Wave server configuration.
- **Profile**
  From the drop-down list, select the profile to be used on the Wave server.
- **Test**
  Click this button to check the connection to the Wave controller.

5.11 PTT over Cellular

To enable connections of Mobile Client applications to TRBOnet Server, you must configure at least one dedicated gateway.

- In the **Configuration** pane, select **PTT over Cellular**.
- In the **PTT over Cellular** pane, select **Enable PoC service**.



5.11.1 Advanced Settings

- In the **Configuration** pane, select **PTT over Cellular > Advanced Settings**.
- In the **Advanced Settings** pane, specify the following parameters:

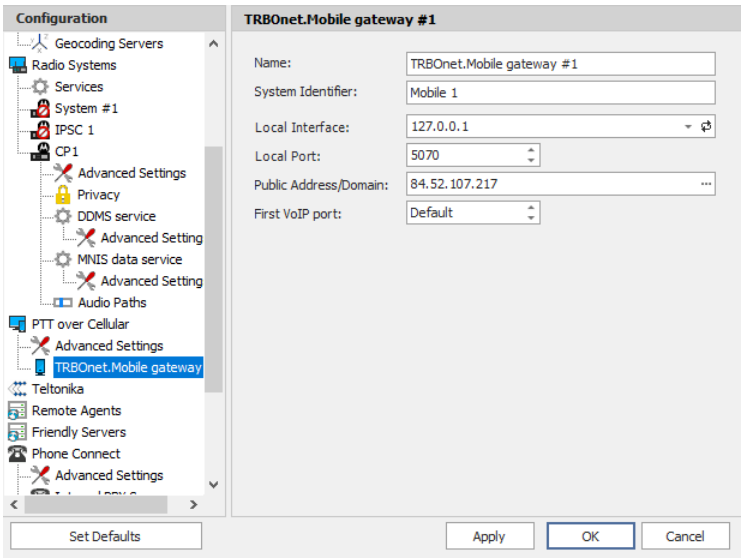
- **Max Call Duration**
  Specify the maximum duration of a call, in minutes.
- **Registration Interval**
  Enter the time interval, in seconds, to check the registration status of mobile subscribers.

Call Hangtime

- **Private Call**
  This value sets the duration, in ms, during which the private call setup is kept after a Mobile Client user releases the PTT button.
- **TX Timeout**
  Enter the time, in seconds, to be used as a limit for PTT calls. When a Mobile Client user starts a PTT session, transmission will be interrupted after this TX Timeout expires.

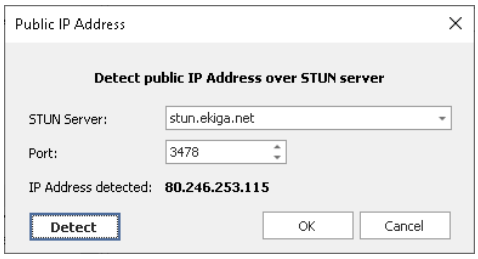
5.11.2 Adding a Mobile Gateway

- In the **PTT over Cellular** pane, click **Add**.
- In the **Mobile Gateway** pane, specify the following parameters:



- **Name**
  Enter a name for the mobile gateway.
- **System Identifier**
  Enter the name of the mobile system to which the gateway will belong.
- **Local Interface**
  Enter the IP address of the PC with TRBOnet Server.
- **Local Port**
  Enter the local UDP port number for the Mobile service (5070, by default).

- **Public Address/Domain**
  This is the public IP address of your PC. Enter the Public Address if your TRBOnet Server is behind a router. To detect the public address, click the ellipsis (**...**) button.

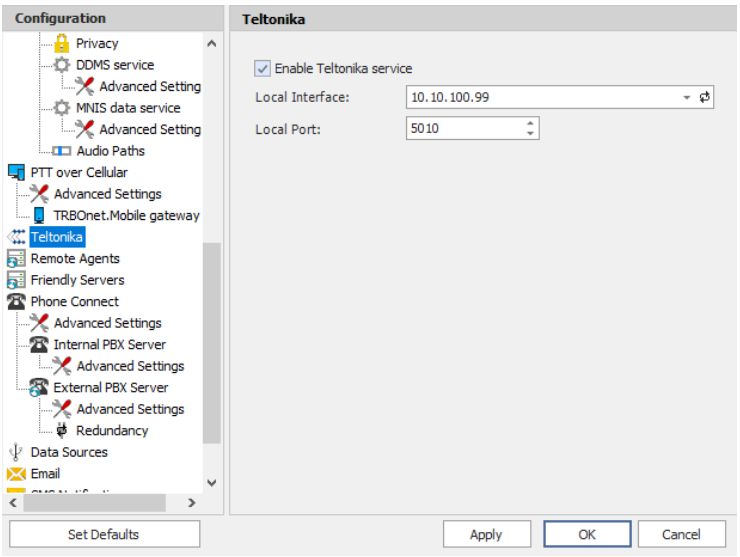


  - **STUN Server**
    From the drop-down list, select the STUN Server.
  - **Detect**
    Click this button to detect your public IP address.
- **First VoIP port**
  Enter the number of the first VoIP port for audio communications. The default value is specified in Network Parameters.

5.12 Teltonika

To integrate Teltonika devices into TRBOnet software:

- In the **Configuration** pane, select **Teltonika**.



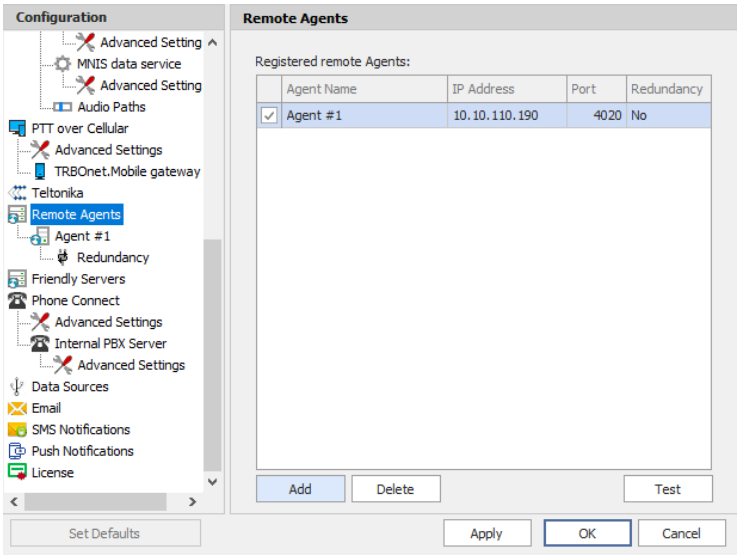
- In the **Teltonika** pane:
  - **Enable Teltonika service**
    Select this checkbox and specify the following Teltonika-related parameters.

- **Local Interface**
  From the drop-down list, select the local network interface that will be used to communicate between TRBOnet Server and Teltonika devices.
- **Local port**
  Enter the UDP port number to be used.

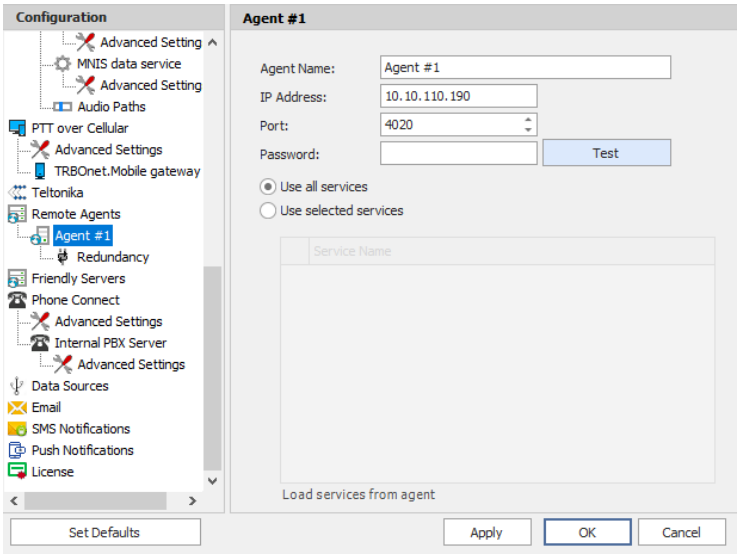
5.13 Remote Agents

The Remote Agent is TRBOnet Agent installed on a remote PC.

- In the **Configuration** pane, select **Remote Agents**.



- In the **Remote Agents** pane, click **Add**.



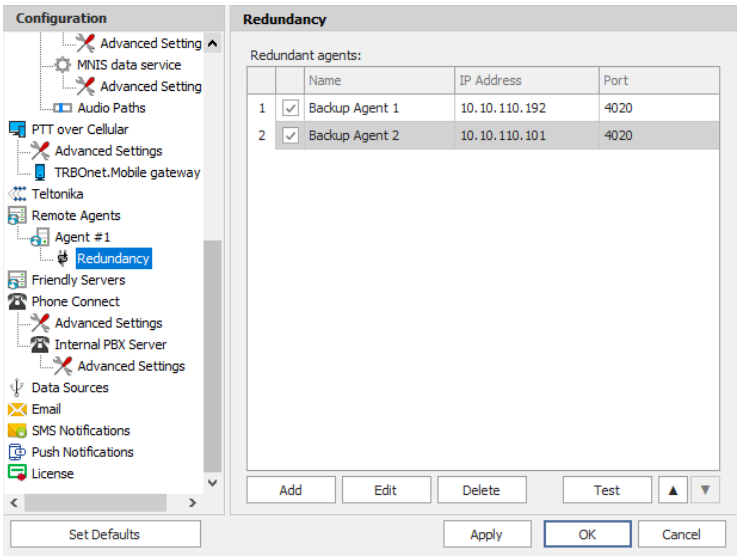
- In the **Agent** pane, specify the following parameters:
  - **Agent Name**
    Enter a name for the remote agent. This name will be displayed in the Dispatch Console.

- **IP Address**
  Enter the IP address of the remote agent.
- **Port**
  Enter the local port number that will be used by TRBOnet Server to accept connections from the remote agent.
- **Password**
  Enter the password, if the connection to the remote agent is password-protected.
- Click **Test** to check the connection to the remote agent.
- **Use all services**
  Choose this option so that all available services will be used on the remote agent.
- **Use selected services**
  Choose this option and click the **Load services from agent** link to load services available on the remote agent.

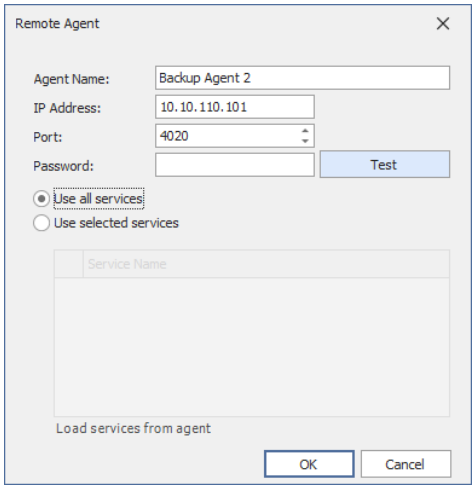
5.13.1 Redundancy

A Redundant remote agent will be used when a connection to the Main remote agent fails.

- In the **Configuration** pane, under the corresponding **Agent**, select **Redundancy**.



- In the **Redundancy** pane, click **Add**.

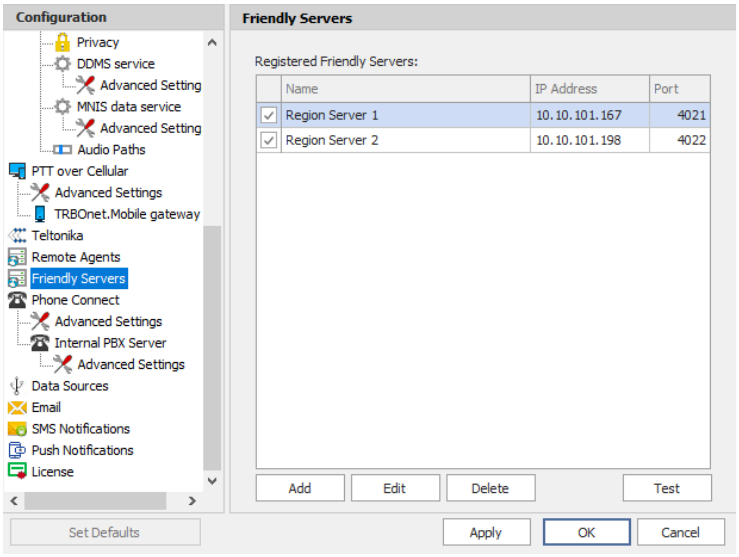


- In the **Remote Agent** dialog box, specify the following parameters:
- **Agent Name**
  Enter a name for the redundant remote agent.
- **IP Address**
  Enter the IP address of the redundant remote agent.
- **Port**
  Enter the local port number that will be used by TRBOnet Server to accept connections from the redundant remote agent.
- **Password**
  Enter the password, if the connection to the remote agent is password-protected.
- Click **Test** to check the connection to the redundant remote agent.
- **Use all services**
  Choose this option so that all available services will be used on the redundant remote agent.
- **Use selected services**
  Choose this option and click the **Load services from agent** link to load services available on redundant the remote agent.
- Click **OK** to add a redundant remote agent to the system.

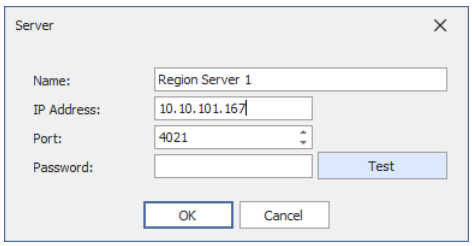
5.14 Friendly Servers

The Friendly Servers are used to transmit voice over IP between dispatchers connected to different servers.

- In the **Configuration** pane, select **Friendly Servers**.



- In the **Friendly Servers** pane, click **Add**.

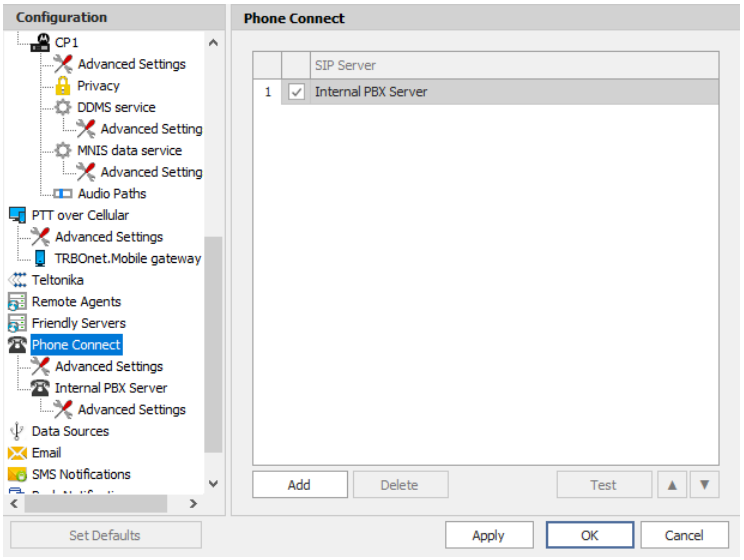


  - In the **Server** dialog box, specify the following parameters:
    - **Name**
      Enter a name for the friendly server. This name will be displayed in the Dispatch Console.
    - **IP Address**
      Enter the IP Address of the server.
    - **Port**
      Enter the local port number on the PC to connect to the friendly server.
    - **Password**
      Enter the password, if the connection to the friendly server is password-protected.
    - Click **Test** button to check the connection to the friendly server.
    - Click **OK** to add the friendly server to the system.

5.15 Phone Connect

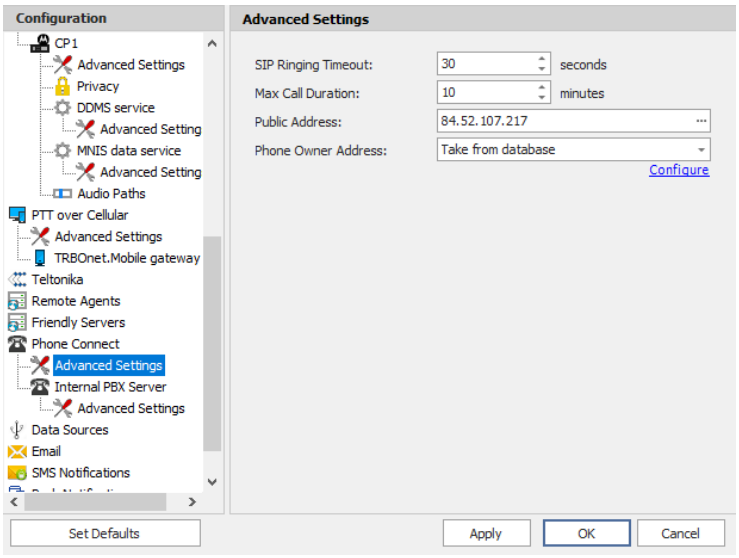
TRBOnet Server has its own built-in SIP server to support VoIP communications between the radios as well as other SIP-compliant clients. In addition, you can add multiple external PBX servers to the TRBOnet Server configuration.

- In the **Configuration** pane, select **Phone Connect**.

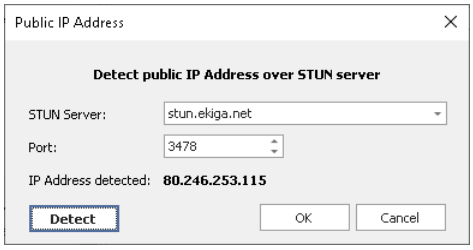


5.15.1 Advanced Settings

- In the **Configuration** pane, under **Phone Connect**, select **Advanced Settings**.

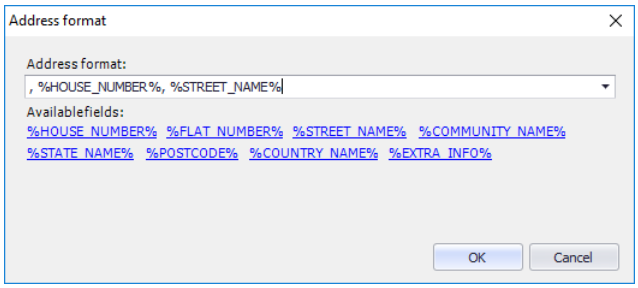


- In the **Advanced Settings** pane, specify the following parameters:
  - **SIP Ringing Timeout**
    Specify the maximum ringing time, in seconds.
  - **Max Call Duration**
    Specify the maximum call time, in minutes.
  - **Public Address**
    This is the public IP address of your PC. Enter the Public Address if your TRBOnet Server is behind a router and an External PBX Server will be used. To detect the public address, click the ellipsis (**...**) button.



- **STUN Server**
  From the drop-down list, select the STUN Server.
- **Detect**
  Click this button to detect your public IP address.

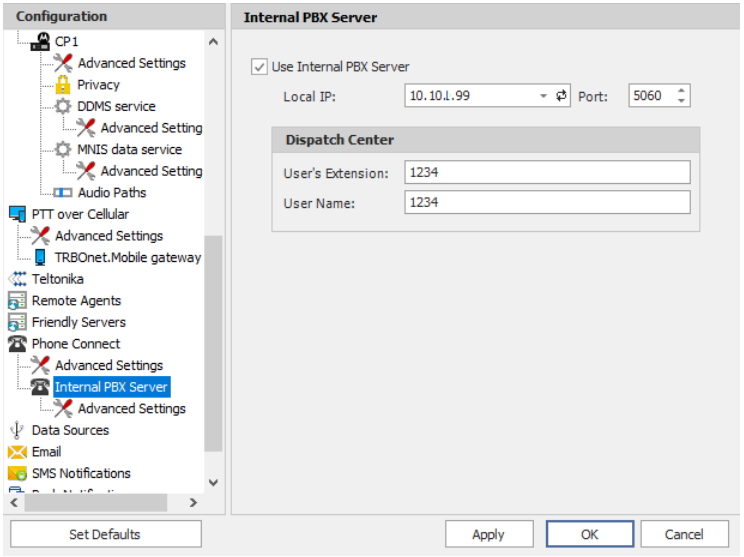
- **Phone Owner Address**
  From the drop-down list, select 'Take from database'. This will enable determining the street address of a caller.
  Click the **Configure** link.



- Add the required fields to the address information.

5.15.2 Internal PBX Server

- Make sure the **Internal PBX Server** option is selected in the **Phone Connect** pane.
- In the **Configuration** pane, select **Internal PBX Server**.



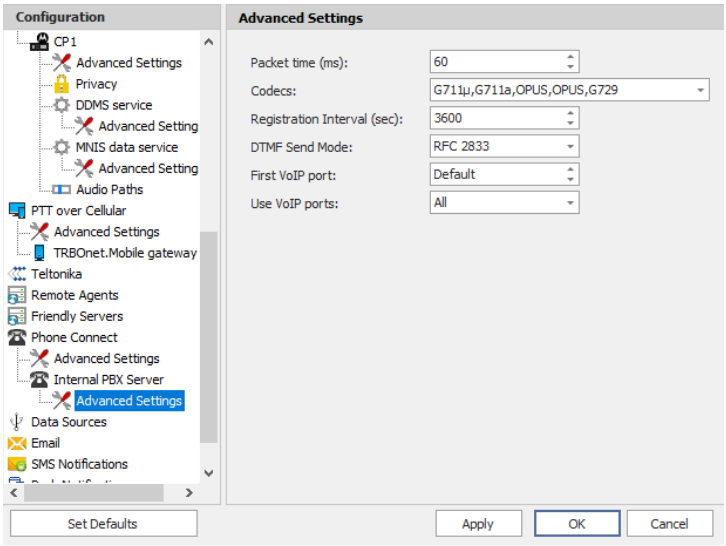
- In the **Internal PBX Server** pane, specify the following parameters:
  - **Local IP**
    Enter the IP address of the PC with TRBOnet Server.
  - **Port**
    Enter the local UDP port number for the SIP service (5060, by default).

  Dispatch Center

  - **User's Extension**
    Enter the user's extension number that will be used by the Dispatch Center.
  - **User Name**
    Enter the user name that will be used by the Dispatch Center.

5.15.2.1 Advanced Settings

- In the **Configuration** pane, under **Internal PBX Server**, select **Advanced Settings**.



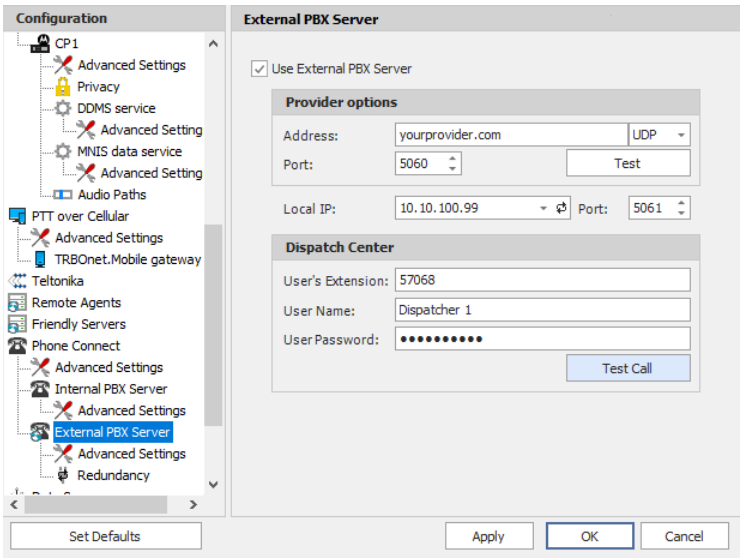
- In the **Advanced Settings** pane, specify the following Internal PBX Server-related advanced settings:
  - **Packet time**
    Enter the packet length, in milliseconds.
  - **Codecs**
    In the drop-down list, select/deselect the codec(s) to be used for audio compression.
  - **Registration Interval (sec)**
    Enter the time interval, in seconds, to check the SIP registration status of subscribers.
  - **DTMF Send Mode**
    Enter mode for sending DTMF tones. The available modes are RFC 2833, SIP INFO (DTMF relay), and SIP INFO (DTMF).

- **First VoIP port**
  Enter the number of the first VoIP port for audio communications. The default value is specified in Network Parameters.
- **Use VoIP ports**
  From the drop-down list, select which VoIP ports will be used (all, even, or odd).

5.15.3 External PBX Server

You can enable multiple external PBX servers to use the SIP Interconnect feature. This feature enables calls from the radio to the phone and vice versa. The dispatcher can make a call from the Dispatch Console to a phone as well as redirect a phone call to a subscriber radio.

- In the **Phone Connect** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Phone Connect** and choose **Add PBX Server**.



- In the **External PBX Server** pane, specify the following parameters:
  - **Use External PBX Server**
    Select this option to enable an external PBX server.

  #### Provider options

  - **Address**
    Enter your SIP provider address, and select the protocol from the drop-down list on the right of the address (for more details, contact your SIP provider).
  - **Port**
    Enter the port number of the SIP provider (5060, by default).
  - Click **Test** to check the connection to the provider.
- **Local IP**
  Enter the IP address of the PC with TRBOnet Server.

- **Port**
  Enter the local port number to make connections from.

  Dispatch Center

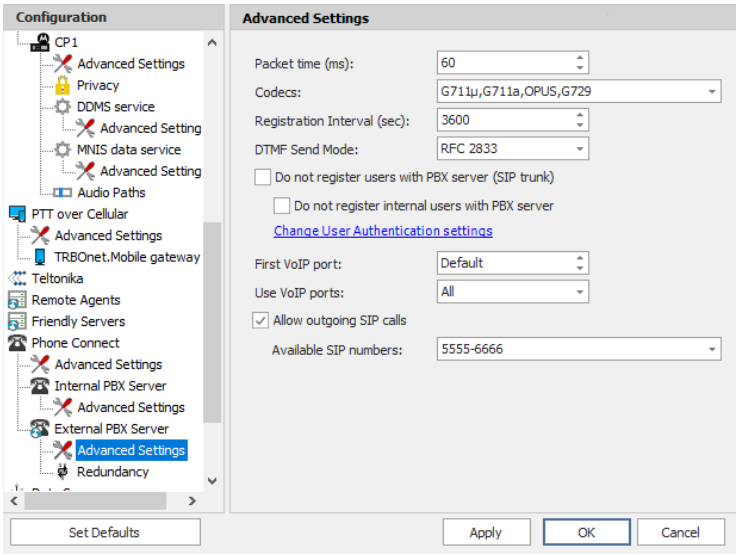
  Note: This information is provided by the SIP provider.

  - **User's Extension**
    Enter the extension number that will be associated with TRBOnet Server to make and receive calls.
  - **User Name**
    Enter the user name for the login.
  - **User Password**
    Enter the user password for the login.
  - **Test Call**
    Click this button to make a test call.

  Note: To make a test call, make sure that the TRBOnet Server service is not running.

5.15.3.1 Advanced Settings

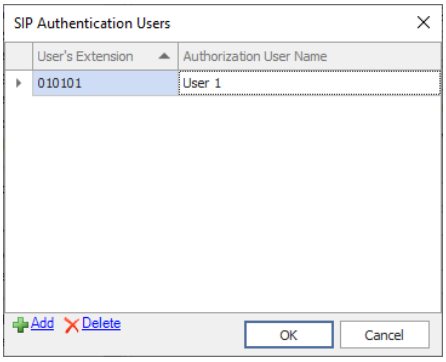
- In the **Configuration** pane, under the corresponding **External PBX Server**, select **Advanced Settings**.



- In the **Advanced Settings** pane, specify the following External PBX Server-related advanced settings:
  - **Packet time**
    Enter the same value as specified in the phone system;
  - **Codecs**
    In the drop-down list, select/deselect the codecs specified in the phone system.

Note: For more details on Phone System configuration, see Appendix E: SIP Setup for Motorola Phone System (page 406).

- **Registration Interval (sec)**
  Enter the time interval, in seconds, to check the SIP registration status of subscribers.
- **Do not register users with PBX server (SIP trunk)**
  Select this option so that radios will use the SIP trunk system to get extensions.
  - **Do not register internal users with PBX server**
    Select this option so that internal users won't be registered with the external PBX server.
- **Change User Authentication settings**
  Click this link to set up user authentication for the systems with enhanced authentication parameters. It is recommended to be used when Radio ID is equal to User's Extension. In case when voice is transmitted via a radio channel, the Radio ID is used. When voice is transmitted via a GSM channel, the User's Extension is used.



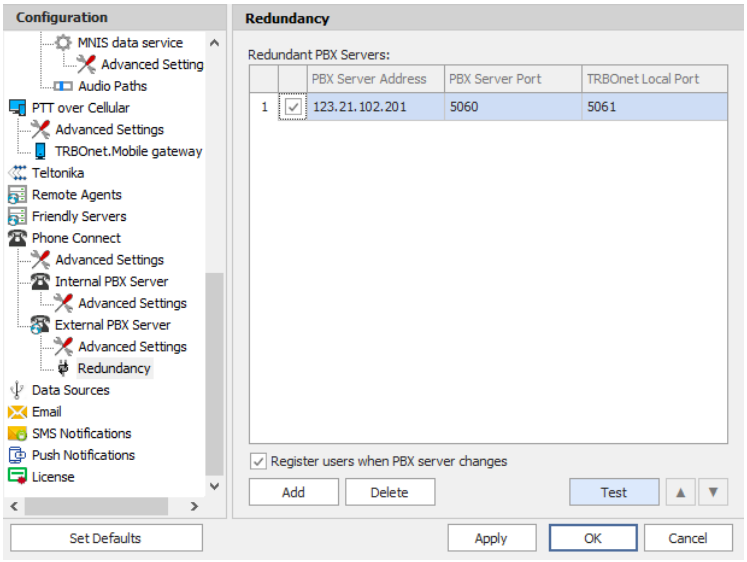
  - Click **Add** to add a user.
  - **User's Extension**
    Enter the extension number for the new user.
  - **Authorization User Name**
    Enter the name that will be used as the authorization user name.
  - Click **OK** to save the new user authorization.
- **First VoIP port**
  Enter the number of the first VoIP port for audio communications. The default value is specified in Network Parameters.
- **Use VoIP ports**
  From the drop-down list, select which VoIP ports will be used (all, even, or odd).
- **Allow outgoing SIP calls**
  Select this option to allow users to make outgoing SIP calls.

- **Available SIP numbers**
  Enter the range of SIP phone numbers that will be available for outgoing calls.

5.15.3.2 Redundancy

A Redundant PBX Server be used when a connection to the main PBX Server fails.

- In the **Configuration** pane, under the corresponding **External PBX Server**, select **Redundancy**.



- In the **Redundancy** pane, click **Add**.
  - **PBX Server Address**
    Enter the IP address of the redundant server.
  - Check the corresponding port numbers (**PBX Server Port** and **TRBOnet Local Port**).
  - Select the checkbox beside the server address.
  - **Register users when PBX server changes**
    Select this checkbox so that phone users will be registered when the PBX server is switched to the redundant server.

5.16 Data Sources

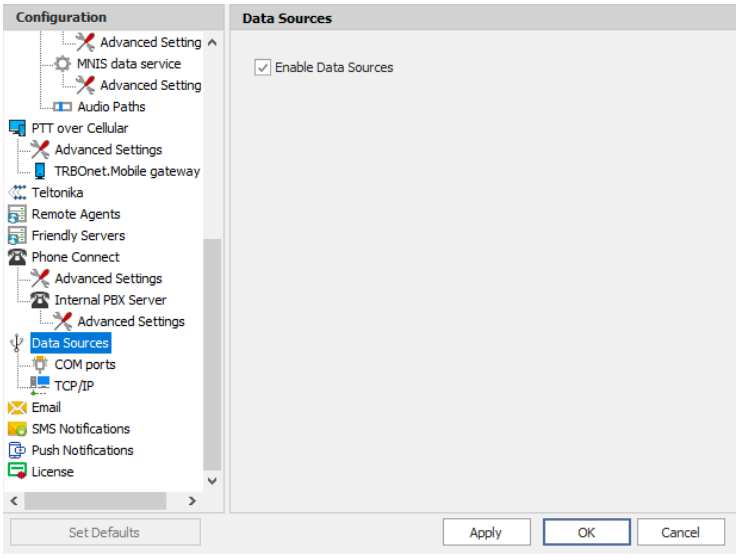
The Data Sources feature allows receiving data from third-party applications and devices.

TRBOnet Dispatch Software can work with the following two data source types:

1. Physical or virtual devices connected via a COM port
2. PCs running third-party applications connected via TCP/IP

To allow TRBOnet Dispatch Software to receive data from a third-party application or device:

- In the **Configuration** pane, select **Data Sources**.

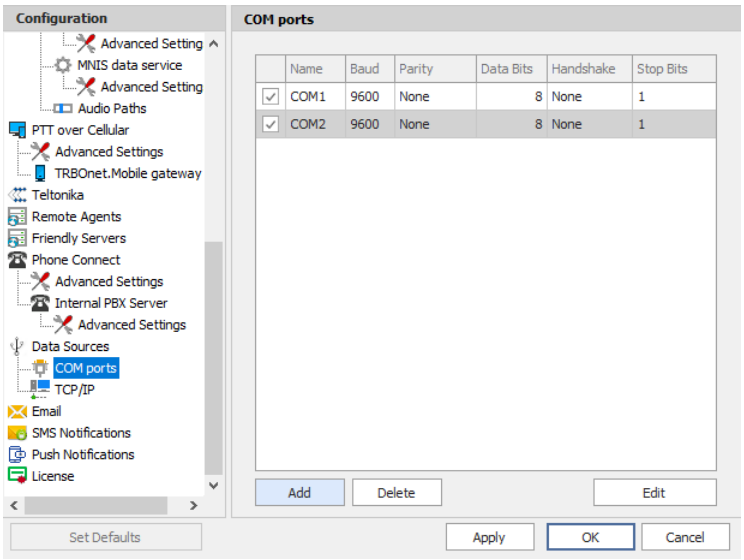


- In the **Data Sources** pane, select the **Enable Data Sources** option.

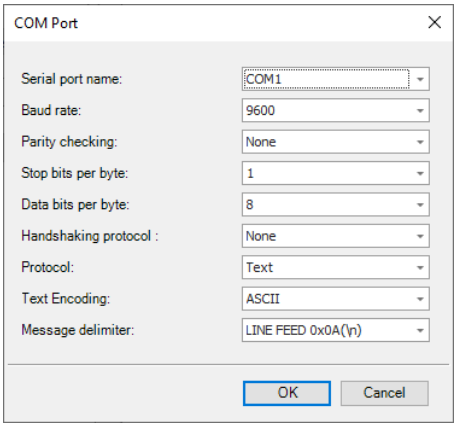
5.16.1 COM Ports

To manage physical or virtual devices connected to the TRBOnet Server PC via COM port:

- In the **Configuration** pane, under **Data Sources**, select **COM ports**.



- In the **COM ports** pane, click **Add** to add a device.



- In the **COM Port** dialog box, specify the following parameters:
  - **Serial port name**
    From the drop-down list, select the COM port on the PC with TRBOnet Server to which the device is connected to.
  - **Baud rate**
    From the drop-down list, select the baud rate at which the data is transmitted.
  - **Parity checking**
    From the drop-down list, select one of the values that represent the parity-checking protocol.
  - **Stop bits per byte**
    From the drop-down list, select the standard number of stop bits per byte.
  - **Data bits per byte**
    From the drop-down list, select the standard length of data bits per byte.
  - **Handshaking protocol**
    From the drop-down list, select the handshaking protocol for serial port transmission of data.
  - **Text Encoding**
    From the drop-down list, select the Text Encoding type.

    Note: The Text Encoding types selected in the TRBOnet Server and in the connected application must be the same to avoid incorrect text display and incorrect data parsing.
  - **Message delimiter**
    From the drop-down list, select the type of delimiters in the data.

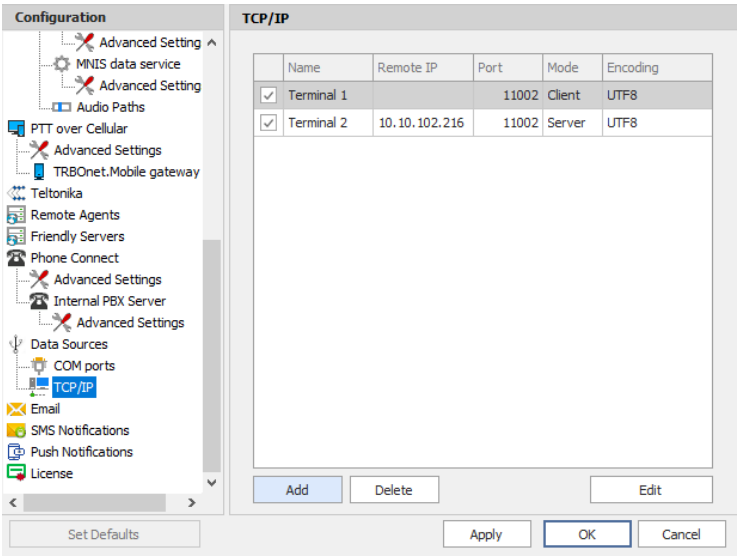
    Note: The Message delimiter types selected in the TRBOnet Server and in the connected application must be the same to avoid incorrect text display and incorrect data parsing.

- Click **OK** to save settings and close the dialog box.

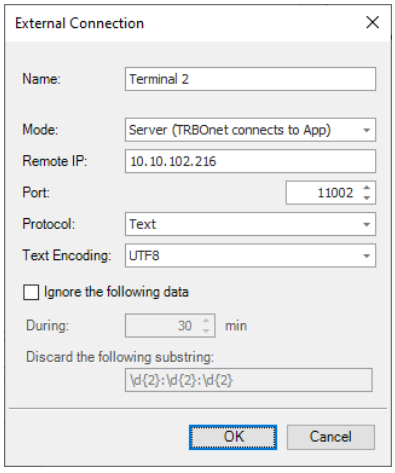
5.16.2 TCP/IP

To manage PCs running third-party applications:

- In the **Configuration** pane, under **Data Sources**, select **TCP/IP**.



- In the **TCP/IP** pane, click **Add** to add a TCP/IP connection.



- In the **External Connection** dialog box, specify the following parameters:
  - **Name**
    Enter a name for the TCP/IP connection.
  - **Mode**
    From the drop-down list, select the connection mode. The connection mode depends on the type of the application installed on the connected PC:
    - **Client**
      In this case, the application connects to TRBOnet Server which sends the data to the application.

- **Server**
  In this case, TRBOnet Server accepts connections from the application and receives the data.

- **Remote IP**
  Enter the IP address of the application server.

  Note: Available only when the **Server** connection mode is selected.

- **Port**
  In the case of the **Client** connection mode, select the local port of the PC with TRBOnet Server PC.
  In the case of the **Server** connection mode, select the port of the PC where the third-party application is installed.

- **Text Encoding**
  From the drop-down list, select the Text Encoding type.

  Note: The Text Encoding types selected in the TRBOnet Server and in the connected application must be the same to avoid incorrect text display and incorrect data parsing.

- **Ignore the following data**
  Select this option so that the following messages arriving during the specified time period will be ignored.

  - **During**
    Specify the time period, in minutes, so that similar messages that arrive during this time period will be ignored.
  - **Discard the following substring**
    Enter a regular expression that will be used to filter messages upon arriving and before being processed. For example, the following regular expression `\d{2}:\d{2}:\d{2}` means that if a message contains a substring like `11:01:54`, then this substring will be dropped before processing the message.

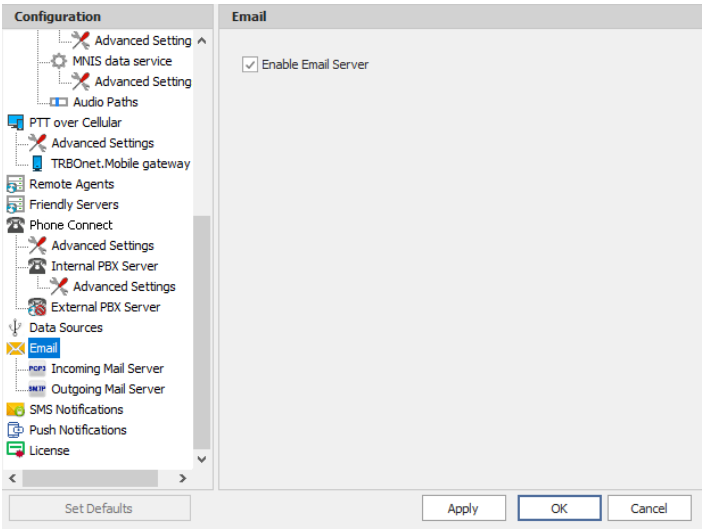
5.17 Email Settings

TRBOnet Dispatch Console allows processing emails as follows:

1. Receive emails from email servers and forward them to a particular radio or talk group (via a POP3 or IMAP server);
2. Send emails from radios to a particular email address (SMTP Server).

Note: Microsoft Exchange Server can be used as SMTP and POP3/IMAP servers.

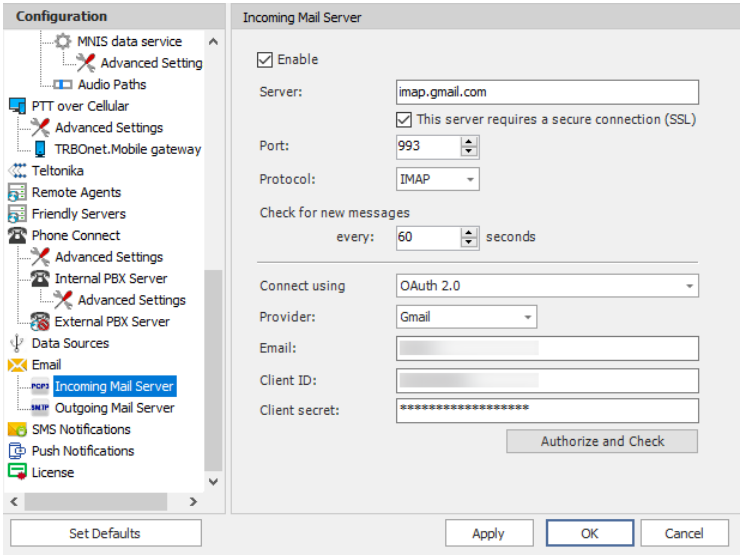
- In the **Configuration** pane, select **Email**.
- In the **Email** pane, select **Enable Email Server**.



5.17.1 Incoming Mail Server

The Incoming Mail Server is used to synchronize the Incoming Emails folder located on a mail server with your local PC. If you are using a POP3 server, all incoming emails can be downloaded from the mail server to the local PC to be then forwarded as text messages to radios or talk groups.

- In the **Configuration** pane, under **Email**, select **Incoming Mail Server**.



- In the **Incoming Mail Server** pane, specify the following incoming mail-related parameters:
  - **Enable**
    Select this option to enable Incoming Mail Server.
  - **Server**
    Enter the server hostname or IP address.
  - **This server requires a secure connection (SSL)**
    Select this option to enable a secure connection. Note that a dedicated port will be used to connect to the mail server via SSL.

Note: The port number will automatically change when you select this option. For example, from **110** to **995** for POP3, and from **143** to **993** for IMAP.

- **Port**
  The port number to be used for the connection.

  Note: This box is populated automatically depending on the selected protocol and whether a secure connection is required.

- **Protocol**
  From the drop-down list, select either **IMAP** or **POP3**. Note that if you select **POP3**, all email messages will be deleted from the server once you have downloaded them. In the case of **IMAP**, all new messages will be marked as read once you have downloaded them.

  Note: The port number will automatically change when you change the protocol.

- **Check for new messages every X seconds**
  Enter the time interval to check for new email messages (60, by default).
- **Connect using**
  From the list, select one of the following options:
  - **Anonymous access**
    Select this option to use an anonymous access to the incoming mail server.
  - **Windows authentication**
    Select this option to connect via TRBOnet Service Windows Account, if it is running under a specific account;
  - **Use login and password**
    Select this option and specify the credentials for the mailbox:
    - ✓ **Login**
      Enter the incoming mail server login.
    - ✓ **Password**
      Enter the incoming mail server password.
  - **OAuth 2.0**
    Select this option if the email server requires OAuth 2.0 authorization.
    - ✓ **Provider**
      From the drop-down list, select either **Office 365** or **Gmail**.
    - ✓ **Email**
      Enter the email address.

✓ If **Gmail** is selected as the email provider, enter the **Client ID** and **Client secret**.
If **Office 365** is selected as the email provider, enter the **Client ID** and **Tenant ID**.

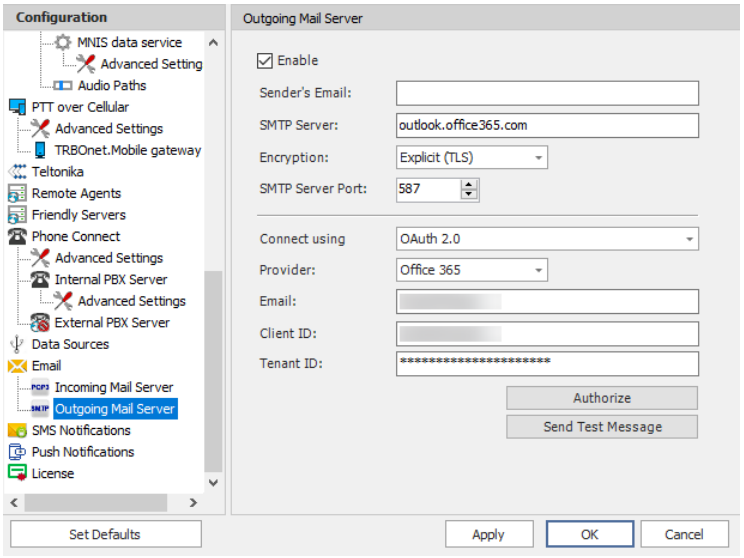
✓ **Authorize and Check**
Click this button to authorize your email account and check for new emails.

5.17.2 Outgoing Mail Server

The SMTP Server is used to send emails from users to mail servers as well as between mail servers to deliver emails to the final destination.

For example, the administrator can enable email notifications from TRBOnet Dispatch Console to particular email users when alarms occur on selected radios. In this case, the radio sends an alarm to TRBOnet Server which in turn converts this alarm to text and then forwards it as an email message to particular email addresses (for example, to *admin@yourcompany.com*).

- In the **Configuration** pane, under **Email**, select **Outgoing Mail Server**.



- In the **Outgoing Mail Server** pane, specify the following outgoing mail-related parameters:
  - **Enable**
    Select this option to enable Outgoing Mail Server.
  - **Sender Email**
    Enter the email address (optional) of the sender.
  - **SMTP server**
    Enter the server hostname or IP address of the SMTP server.

- **Encryption**
  From the drop-down list, select the encryption protocol (**SSL**, **TLS**) if a secure connection is required, or select **None** if not. Note that three different dedicated ports will be used to connect to the mail server: via SSL, TLS, or with no encryption.

  Note: The port number will automatically change when you select the encryption protocol. For example, from **25** (no encryption) to **465** for SSL, and to **587** for TLS.

- **SMTP server port**
  The port number to be used for the connection.

  Note: This box is populated automatically depending on the selected encryption protocol.

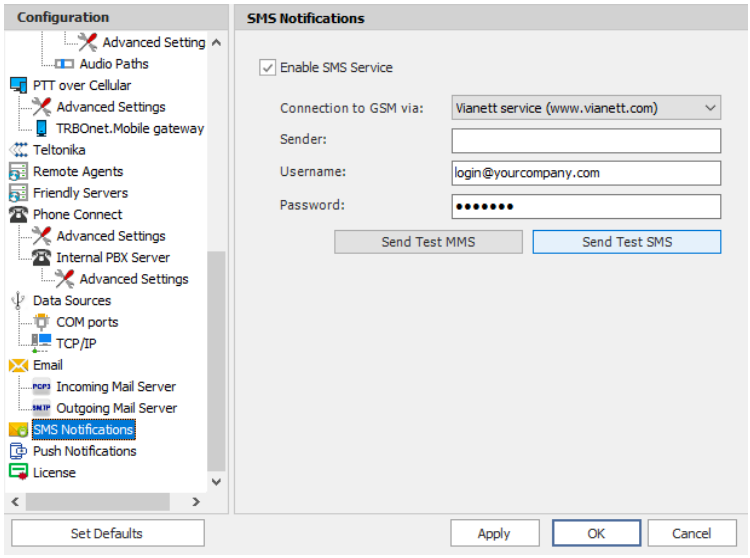
- **Connect using**
  From the list, select one of the following options:
  - **Anonymous access**
    Select this option to use an anonymous access to the SMTP server.
  - **Windows authentication**
    Select this option to connect via TRBOnet Service Windows Account, if it is running under a specific account;
  - **Login and password**
    Select this option and specify the credentials for the mailbox:
    - ✓ **User name**
      Enter the SMTP server user name.
    - ✓ **Password**
      Enter the SMTP server password.
    - ✓ **Type**
      From the drop-down list, select the SMTP login type.
  - **OAuth 2.0**
    Select this option if the email server requires OAuth 2.0 authorization.
    - ✓ **Provider**
      From the drop-down list, select either **Office 365** or **Gmail**.
    - ✓ **Email**
      Enter the email address.
    - ✓ If **Gmail** is selected as the email provider, enter the **Client ID** and **Client secret**.
      If **Office 365** is selected as the email provider, enter the **Client ID** and **Tenant ID**.
    - ✓ **Authorize**
      Click this button to authorize your email account.

✓ **Send Test Message**
Click this button to send a test message from the Sender Email address.

5.18 SMS Notifications

TRBOnet Dispatch Console allows sending SMS notifications to a cell phone when alarms and other events occur on selected radios (for example, DTMF commands from radios, Telemetry, Radio Status, and other events).

- In the **Configuration** pane, select **SMS Notifications**.
- In the **SMS Notifications** pane, select **Enable SMS Service**.



- In the **SMS Notifications** pane, specify the following SMS-related parameters:
  - **Connection to GSM via**
    From the drop-down list, select the type of connection.
    - **COM port GSM modem**
      Select this item if you are using a GSM Modem connected via COM port. In addition, select the **COM port** the modem is connected to, and enter the **SIM Card Pin Code**.
    - **Gemalto Cinterion EHS6T LAN**
      Select this item if you are using a Cinterion EHS6T GSM modem connected via LAN. In addition, enter the **IP address** of the modem, and enter the **SIM Card Pin Code**.
    - **Vianett service**
      Select this item to use an account on Vianett service.
      For more details on Vianett service, see www.vianett.com

- **SMS Broadcast**
  Select this item to use an account on SMS Broadcast service.
  For more details on SMS Broadcast service, see www.smsbroadcast.com.au
- **Clickatell**
  Select this item to use an account on Clickatell service.
  In addition to the **Login** and **Password**, you'll have to specify the **API ID**.
  For more details on Clickatell service, see www.clickatell.com
- **IntelliSoftware**
  Select this item to use IntelliSoftware SMS Gateway.
  For more details on IntelliSoftware SMS service, see www.intellisoftware.co.uk

- **Sender**
  Enter the sender phone number.
- **Username**
  Enter the login for the selected service account.
- **Password**
  Enter the password for the selected service account.
- **Send Test MMS**
  Click this button to send a test MMS from the selected service account to a recipient's phone number.

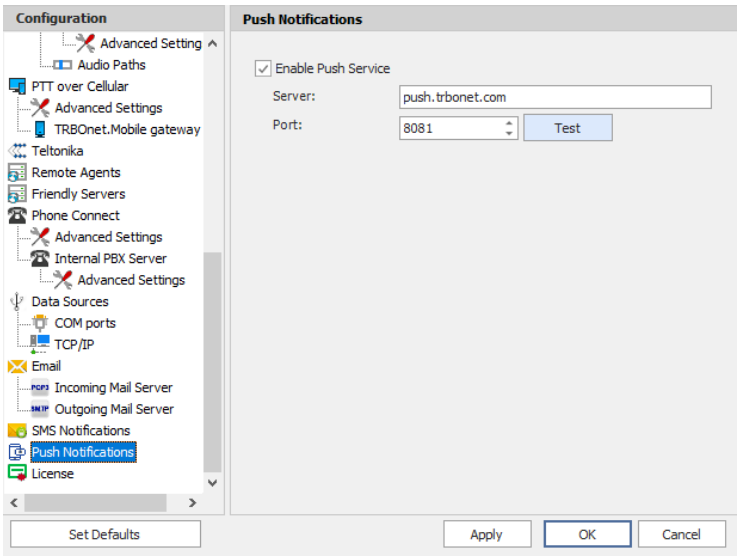
  Note: This button is available when connected via Vianett service only.

- **Send Test SMS**
  Click to send a test SMS from the selected service account to a recipient’s phone number.

5.19 Push Notifications

TRBOnet Dispatch Console allows sending push notifications to connected TRBO.SOS applications.

- In the **Configuration** pane, select **Push Notifications**.
- In the **Push Notifications** pane, select **Enable Push Service**.



- In the **Push Notifications** pane, specify the following parameters:
  - **Server**
    Enter the Ethernet IP address of the push server.
  - **Port**
    Enter the UDP port number of the push server.
  - **Test**
    Click this button to check the connection to your push server. If the test is successful, you'll see information on the server you are connected to.

6 TRBOnet Dispatch Console

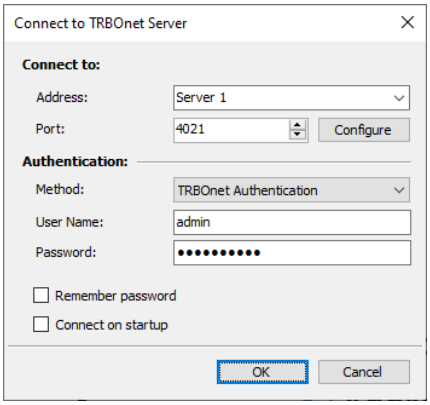
The key features of TRBOnet can be configured by the administrator in TRBOnet Dispatch Console after initial installation and configuration.

6.1 Connecting to Server

- Launch TRBOnet Dispatch using the desktop or Start menu shortcut.
- Enter the required connection settings as explained below.

  For the default Admin credentials (**User Name** and **Password**), consult our support team.

  Note: For security reasons, we strongly recommend that you change the password for the administrator immediately after the first login. See section 6.3.4.5, Changing Password.



Connect to:

- **Address**
  Enter the IP address of the TRBOnet Server to connect to.

  Note: This is the **Network interface** parameter of TRBOnet Server configured in section 5.4, Network Parameters (page 18).

- **Port**
  Enter the local port of the TRBOnet Server PC to accept connections from the Dispatch Console.

  Note: This is the **Command port** parameter of TRBOnet Server configured in section 5.4, Network Parameters (page 18).

Authentication:

- **Method**
  From the drop-down list, select the Authentication method:

- **TRBOnet Authentication**
  Select this method to log on as a User registered in the TRBOnet Dispatch Console Users list.
- **Windows Authentication**
  Select this method to log on using the PC name. The system automatically shows the PC name as a User Name.

Note: The Windows user must be registered in the TRBOnet Dispatch Console Users list.

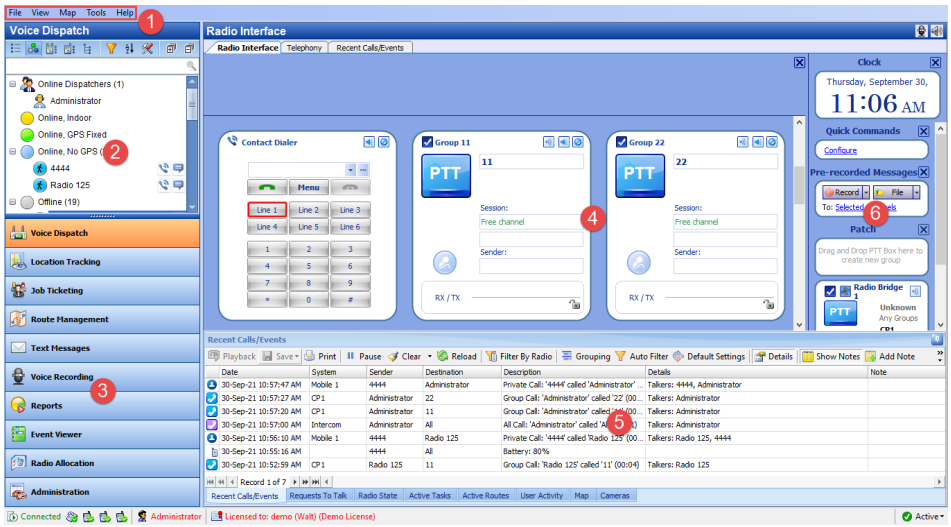
- **User Name/Password**
  Enter the user name and password.
  For the default Admin credentials (User Name and Password), consult our support team.

Note: For security reasons, we strongly recommend that you change the password for the administrator immediately after the first login. For this, on the **Tools** menu, click **Change Password**.

- **Remember password**
  Select this option to have the Dispatch Console application remember your password.
- **Connect on startup**
  Select this option to launch the Dispatch Console application without having to type the User Name and Password every time. Use this option if you regularly connect to the same TRBOnet Server and your workstation is in a secure location.

6.2 Main Window Elements

When the TRBOnet Dispatch Console application is initially launched, the default Dispatch Console window will be displayed with the **Voice Dispatch** tab being active.



The main user interface elements are as follows:

1. Main menu
2. Radio list panel
3. Modules tab panel
4. Radio Interface panel
5. Activity Monitor panel
6. Quick Pane panel

Note: The look of the Dispatch Console windows may have been customized for your specific operation.

6.3 Main Menu

The TRBOnet Dispatch Console main menu allows the user to manage the main Dispatch Console options. The main menu is located in the upper left corner of the main window.

6.3.1 File

The **File** menu contains the following items:

- **File > Connect to TRBOnet Server**
  Choose this menu item to connect to a different TRBOnet Server, or to use different credentials for the current connection.

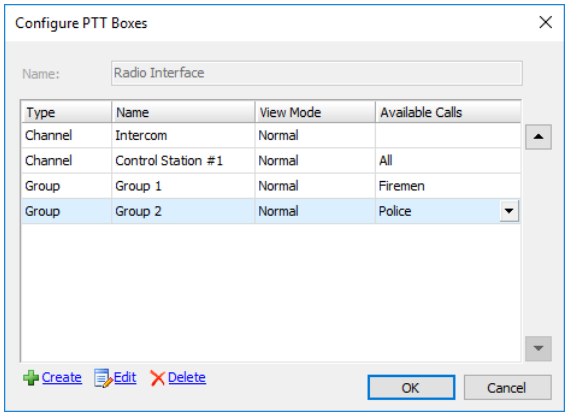
  For more details, see section 6.1, Connecting to Server (page 109).
- **File > Exit**
  Choose this menu item to exit TRBOnet Dispatch Console.

6.3.2 View

The **View** menu contains the following items:

- **View > Show Navigation Pane**
  Choose this menu item to toggle the display of the Navigation pane on the left of the main window. The Navigation pane includes two panes: the Radio list pane and the Modules tab panel (see section 6.2, Main Window Elements).
- **View > Show Touch Keyboard Button**
  Select this menu item to display a Touch Keyboard button on the bottom of the Modules panel. Clicking this button will bring up a virtual keyboard on the screen.
- **View > Show Modules**
  Choose this menu item, and in the drop-down menu select/deselect the modules to display in the Modules tab panel.

- **View > Additional Tabs**
  Choose this menu item, and in the drop-down menu select/deselect the tabs to display in the Activity Monitor panel.
- **View > Configure PTT Boxes**
  Choose this menu item to configure the view of PTT boxes.

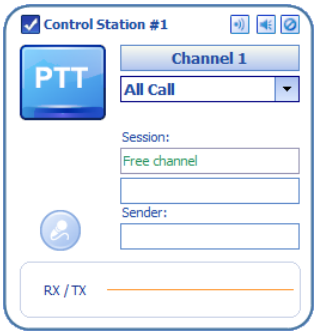


In the **Configure PTT Boxes** dialog box, specify the following PTT box parameters:

- **Type**
  In this column, the box type (for example, Channel, Group, Radio or All Call) is displayed.

  Note: The 'Channel' type means that the PTT box has been automatically created by the radio systems connected to TRBOnet Server and it can only be partially edited. The **Edit** link is grayed out when a PTT box of this type is selected.

- **Name**
  Enter a name for the selected box. This name will be displayed in the title of the PTT box.
- **View Mode**
  From the drop-down list, select the view mode:
  - **Invisible**
    Select this mode so that the PTT box will not be displayed.
  - **Normal**
    Select this mode so that the PTT box will be displayed in Normal view mode:



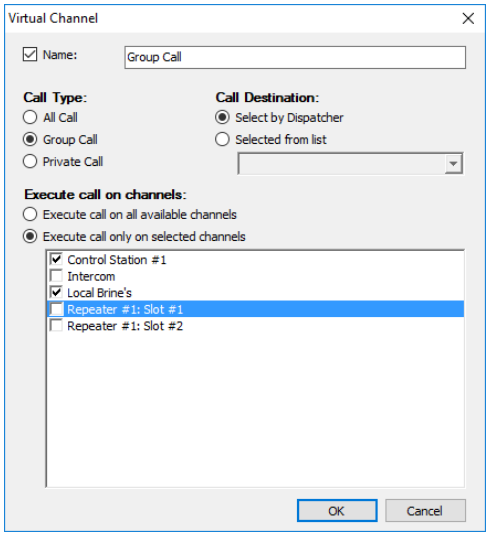
- **Minimized**
  Select this mode so that the PTT box will be displayed in Minimized view mode:

Note: Hover the mouse pointer over the Minimized PTT box to view the PTT box in the Normal view mode.

- **Available Calls**
  From the drop-down list, select the destination radio or radio group for the PTT box.

Create virtual channel boxes

- To create a virtual PTT box, click the **Create** link in the lower-left corner of the **Configure Voice Boxes** dialog box.

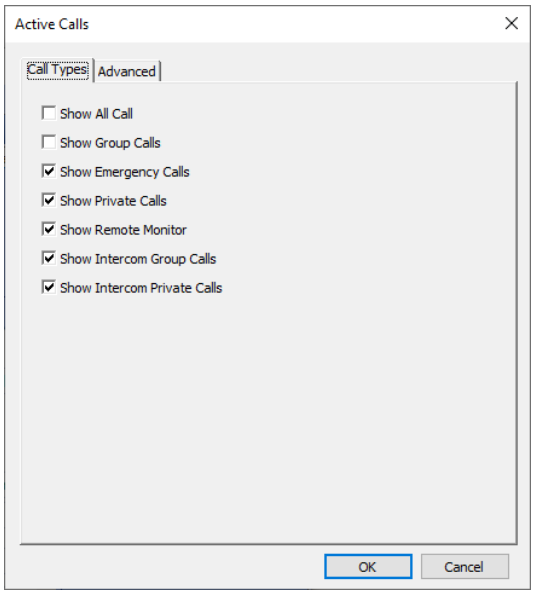


In the **Virtual Channel** dialog box, specify the following virtual channel parameters:

- **Name**
  Select this option and enter a name for the virtual channel.
- Choose a **Call Type** for the channel.

- **Call Destination**
  (available only when Group Call or Private Call is selected as the Call Type)
  Choose **Select by Dispatcher** to allow the dispatcher to select a Call Destination.
  Or, choose **Selected from list** and from the list below select the desired group (if the Group Call type is chosen) or individual radio (if the Private Call type is chosen).
- **Execute call on channels**
  (available only when All Call or Group Call is selected as the Call Type)
  Choose **Execute call on all available channels**,
  or **Execute call only on selected channels** and in the list below select the available channels.

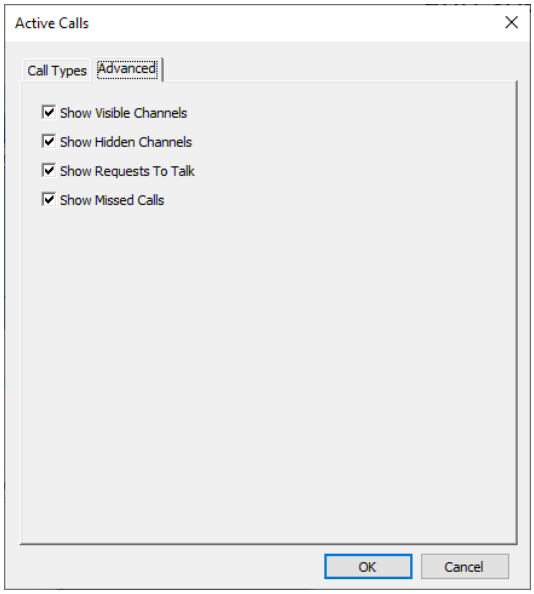
- **View > Configure Active Calls panel**
  Choose this menu item to configure call types and advanced settings for the Active Calls panel. This menu item is available if **View > Show Active Calls Panel** is selected.
  - **Call Types**
    On this tab, you can select which call types to display in the Active Calls panel:



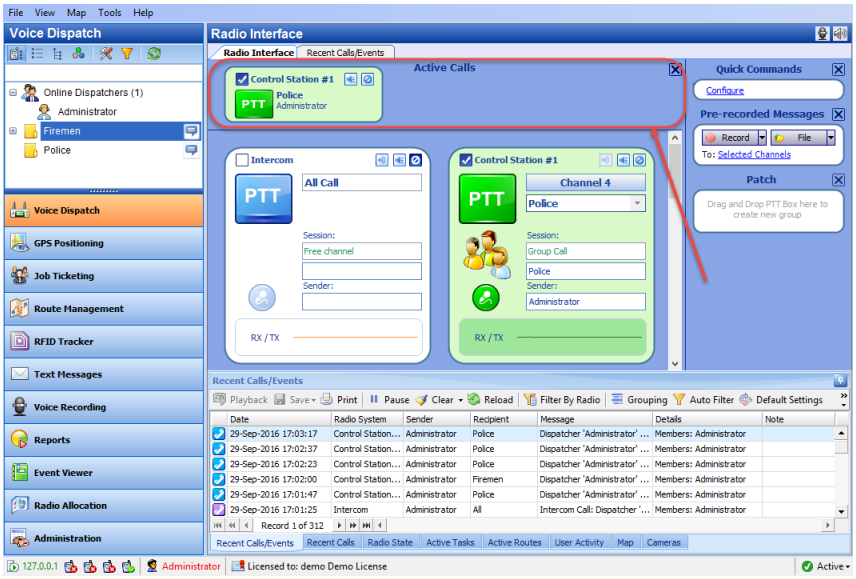
  - **Advanced**
    On this tab, you can set following options:
    - **Show Visible Channels**
      Select this option to display Visible channels in the Active Calls panel.
    - **Show Hidden Channels**
      Select this option to display Hidden channels in the Active Calls panel.

Note: For the visibility of channels, see Configure PTT boxes, View Mode.

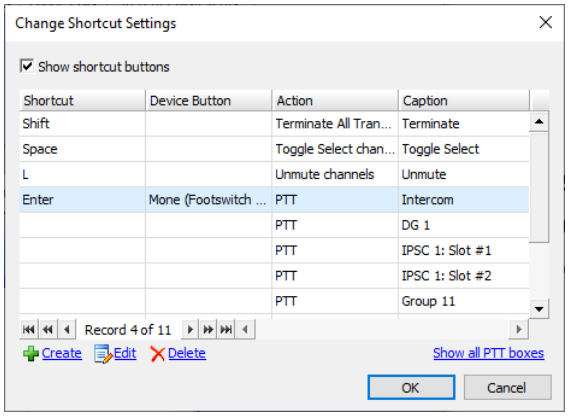
- **Show Requests To Talk**
  Select this option to display Requests To Talk in the Active Calls panel.
- **Show Missed Call**
  Select this option to display Missed calls in the Active Calls panel.



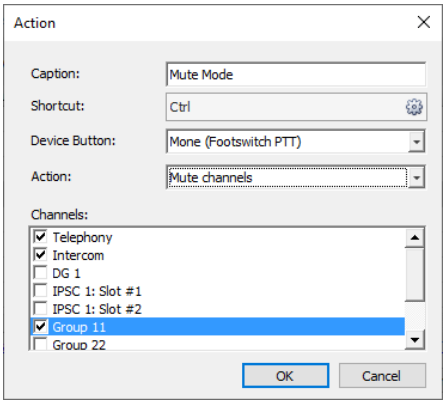
The **Active Calls** panel is displayed in the upper part of the Dispatch Console:



- **View > Customize Shortcuts**
  Choose this menu item to configure shortcuts for the actions on the selected channels.



- To configure shortcut PTT actions to the PTT boxes, click the **Show all PTT boxes** link, double-click the desired PTT box(es) to apply the changes, then assign a keyboard shortcut or combination of keys.
- To configure specific non-PTT actions to PTT boxes (for example, mute channels or set default PTT channels), click the **Create** link to make the changes:



In the **Action** dialog box that appears, specify the following parameters:

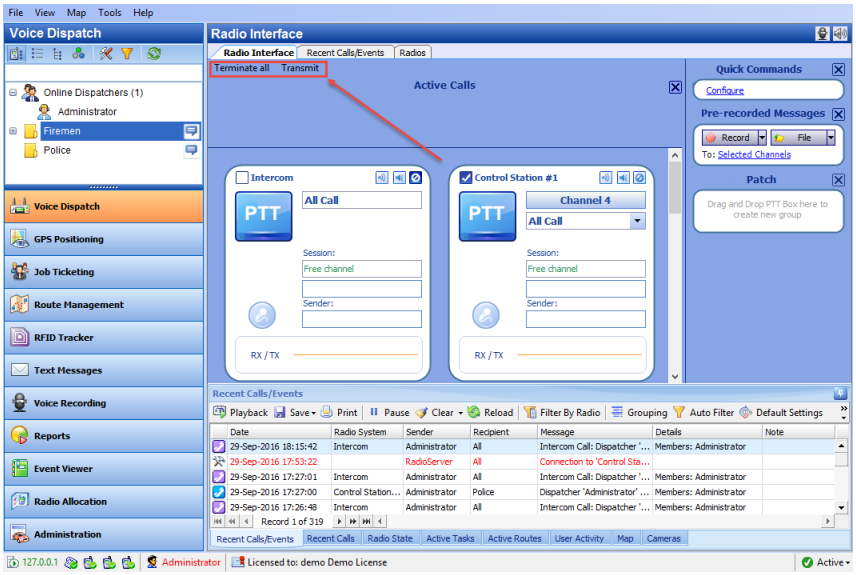
- **Caption**
  Enter the caption that will be displayed in the Dispatch Console.
- **Shortcut**
  Click the **Configure** button, and on the keyboard, press the key or key combination you want to assign as a shortcut for the selected action.
- **Device Button**
  From the drop-down list, select the external device button you want to assign for the selected action.
- **Action**
  From the drop-down list, select the desired action:
  - ✓ **Toggle Select channel**
    This action sets the Select status to selected PTT boxes and the Unselect status to others.

- ✓ **Mute channels**
  This action mutes selected PTT boxes.
- ✓ **Unmute channels**
  This action unmutes selected PTT boxes.
- ✓ **Toggle Mute channel**
  This action sets the Unmute status to selected PTT boxes and the Mute status to others.
- ✓ **Terminate All Transmissions**
  This action terminates all transmissions for selected PTT boxes.
- ✓ **Change channel settings**
  This action will configure settings, such as Recorder, Player, Speaker, etc., for the channel specified below.
- ✓ **Change Sound settings**
  This action will configure the Sound settings, such as Recorder and Player.

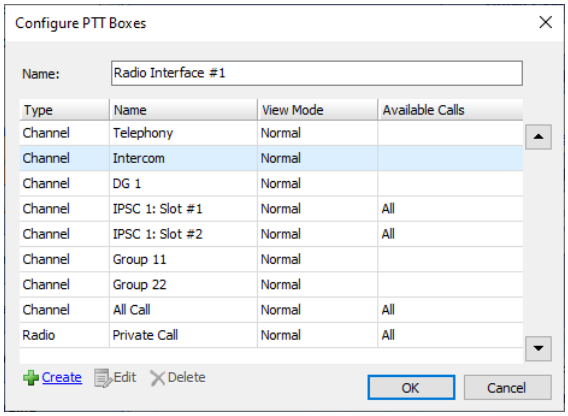
- **Channels**
  In the list below, select the PTT boxes to which to assign the actions specified above.

- To enable displaying the configured shortcuts in the Dispatch Console, select the **Show actions panel** option.

All the shortcuts you have configured are displayed in the upper part of the Dispatch Console:



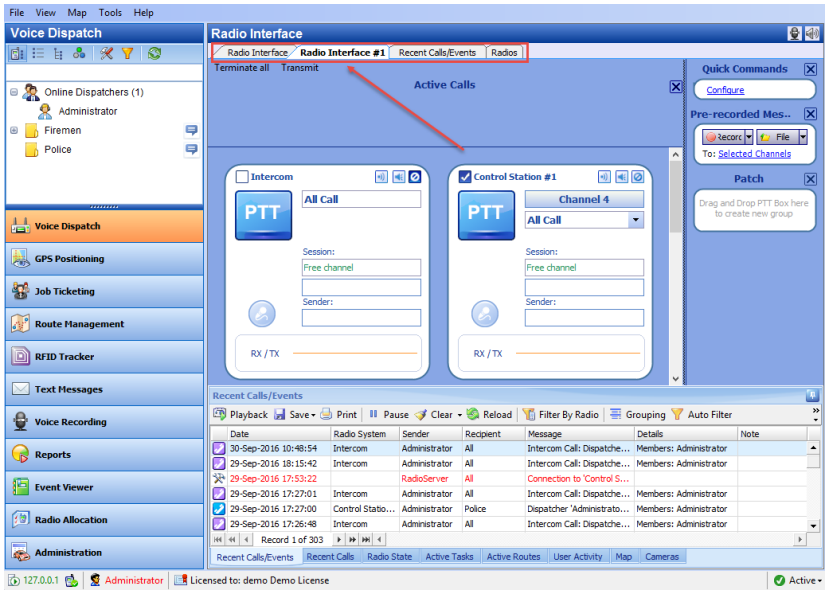
- **View > Add Radio Interface Tab**
  Choose this menu item to add a new Radio Interface tab to the Radio Interface pane.



- In the **Configure PTT Boxes** dialog box, specify the following PTT box parameters for the new radio interface:
  - **Name**
    Enter a name for the radio interface.

  Other parameters can be configured in the same way as when Configuring PTT Boxes.

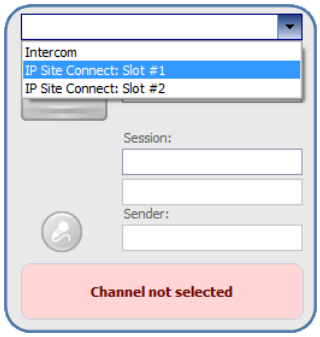
The user can switch between Radio Interfaces by clicking on the tab bar in the upper part of the **Radio Interface** pane.



- **View > Delete Radio Interface Tab**
  Choose this menu item to delete the Radio Interface tab currently selected in the Radio Interface pane.

  Note: The default Radio Interface tabs can't be deleted.

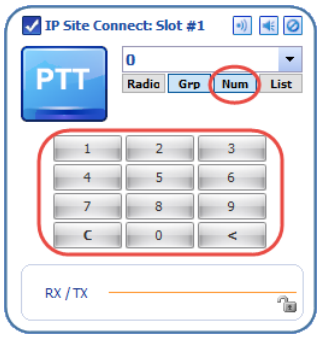
- **View > Show Channel Selector Box**
  Select this menu item to display a separate PTT box that allows selecting a channel.



Click the arrow of the drop-down list and select the channel for this PTT box.

- **View > Show Call Type Buttons**
  Select this menu item to display the Call Type Buttons panel in PTT boxes.

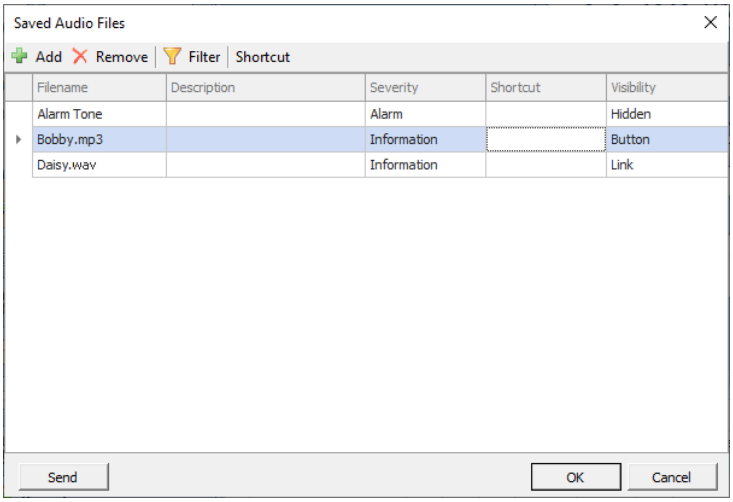
- **View > Show Keypad Panel**
  Select this menu item to display the Keypad panel in PTT boxes.



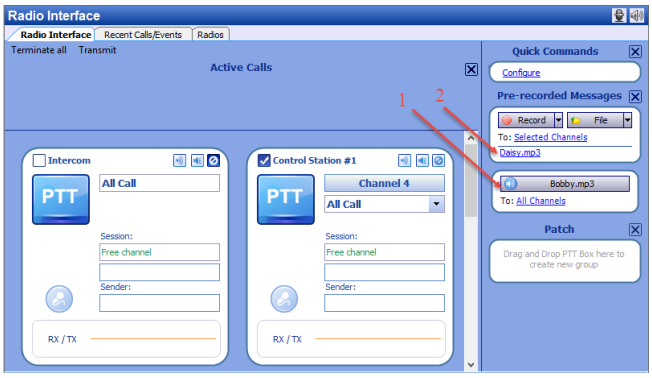
Note: The Keypad panel will be displayed only when the **Num** button is pressed in the Call Type Buttons panel.

- **View > Audio Message Library**

  Choose this menu item to add configured Voice Messages to the Queued Messages panel. For how to configure Voice Message settings, see Tasks, Voice Message.

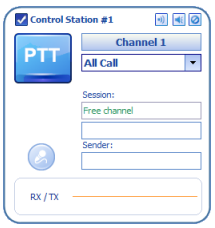


- In the **Saved Audio Files** dialog box, specify the following parameters:
  - **Filename**
    The name of the message displayed in the Queued Messages panel.
  - **Description**
    Enter a description for the Voice Message.
  - **Severity**
    From the drop-down list, select the severity level (Information, Alarm, or Warning).
  - **Shortcut**
    Click the **Shortcut** button and press the key or key combination you want to assign as a shortcut for the selected Voice Message box.
  - **Visibility**
    From the drop-down list, select how to display the selected Voice Message box:
    - ✓ **Hidden**
      Hide the Voice Message box.
    - ✓ **Button**
      Display the Voice Message as a button (1).
    - ✓ **Link**
      Display the Voice Message as a link (2).

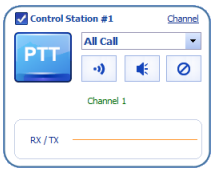


- **View > Extended PTT boxes**
  Select this menu item to display PTT boxes as shown:

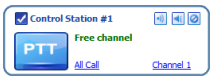
- **View > Large PTT boxes**
  Select this menu item to display PTT boxes as shown:



- **View > Medium PTT boxes**
  Select this menu item to display PTT boxes as shown:



- **View > Small PTT boxes**
  Select this menu item to display PTT boxes as shown:

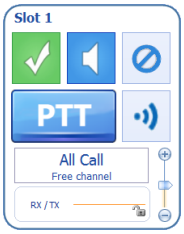


- **View > Custom PTT boxes >**

  Select **Custom PTT Boxes 1** to display PTT boxes as shown:

  Select **Custom PTT Boxes 2** to display PTT boxes as shown:

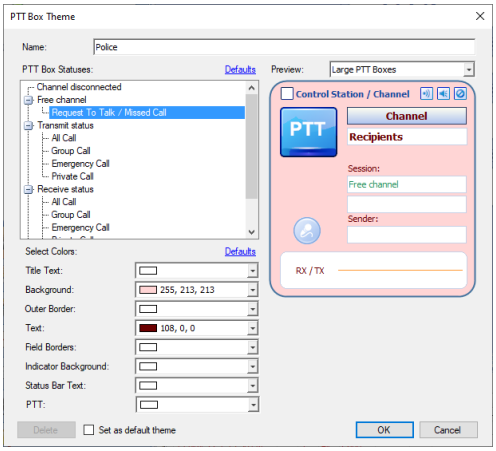
Select **Custom PTT Boxes 3** to display PTT boxes as shown:



- **View > PTT Box Themes**
  Click this menu item and select the theme to be edited, or create a new theme.

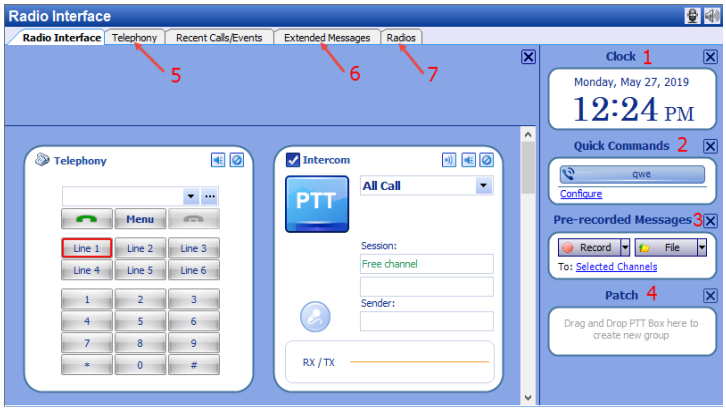
  To create a new theme:

  - Click View > PTT Box Themes > Create Theme.
  - In the **PTT Box Theme** dialog box, enter a theme name and specify desired colors for PTT box elements in various statuses and for various call types.
  - From the **Preview** list box, select the box size/type and see how it will look like.
  - To set the theme as default, select the **Set as default theme** option located at the bottom of the dialog box.
  - Click **OK**.



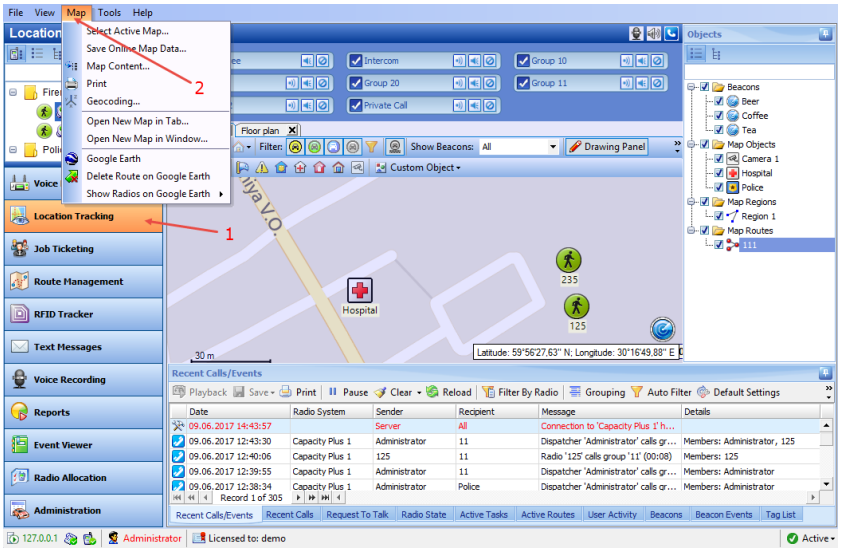
- **View > Show Active Calls Panel**
  Select this menu item to display the Active Calls panel in the Dispatch Console.
  See also Configuring Active Calls panel.
- **View > Show PTT Search Bar**
  Select this menu item to display the search bar in the Radio Interface panel.
- **View > Show Clock Panel**
  Select this menu item to display the Clock panel (1) in the Dispatch Console.

- **View > Show Quick Commands Panel**
  Select this menu item to display the Quick Commands panel (2) in the Dispatch Console. For more details, see section 6.5.6, Quick Commands.
- **View > Show Pre-recorded Messages Panel**
  Select this menu item to display the Pre-recorded Messages panel (3) in the Dispatch Console. For more details, see section 6.5.7, Pre-recorded Messages.
- **View > Show Patch Panel**
  Select this menu item to display the Patch panel (4) in the Dispatch Console. For more details, see section 6.5.5, Patches.
- **View > Show Phone Calls Tab**
  Select this menu item to display the Phone Calls tab (5) in the Radio Interface pane.
- **View > Show Extended Messages Tab**
  Select this menu item to display the Extended Messages tab (6) in the Radio Interface pane.
- **View > Show Radios Tab**
  Select this menu item to display the Radios tab (7) in the Radio Interface pane.



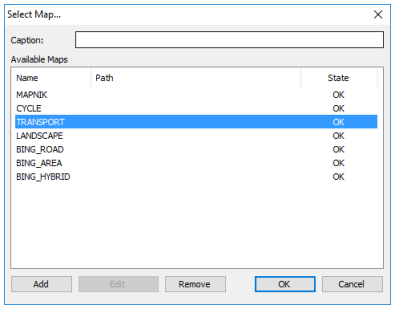
6.3.3 Map

- Select **Location Tracking** (1) in the Navigation pane to enable Map Options:
- Click the **Map** menu (2).



The **Map** menu contains the following items:

- **Map > Select Active Map**
  Click this menu item to select the map to display in the Dispatch Console.

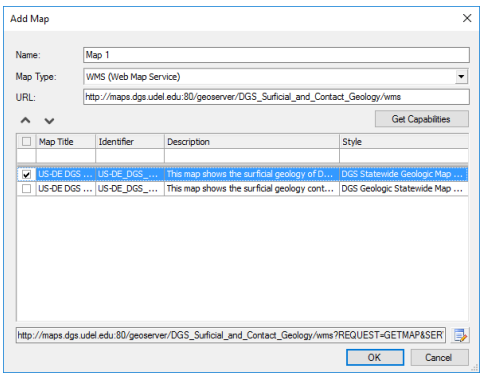


  - Enter the **Caption** of the map that will be displayed in the Dispatch Console.
  - In the list of **Available Maps**, choose the map to be displayed.

Adding custom maps

You can also add an online map using its specific URL.

- Click the **Add** button.



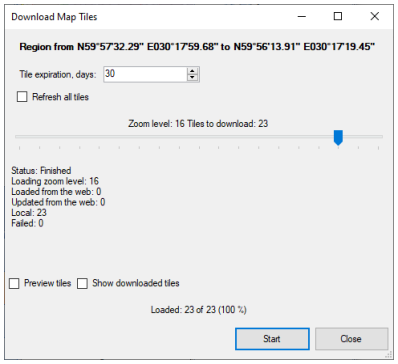
  - Enter a **Name** for the new map.

- **Map Type**
  From the drop-down list, select the map type: Custom Map, WMS (Web Map Service), or WMTS (Web Map Tile Service)
- Enter the **URL** of the map service and click **Get Capabilities**.

  As a result, the table in the lower part of the dialog box will get populated with the available map layers.
- Select the checkbox in the left column of the table to enable the appropriate map layer.
- Click **OK**.

As a result, the new map will appear in the list of available online maps.

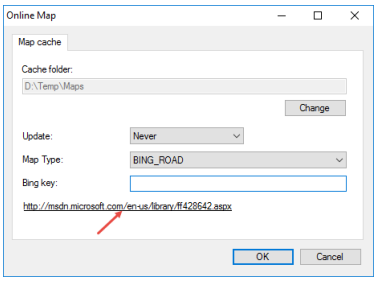
- **Map > Save Online Map Data**
  Click this menu item to save your current map region.



In the dialog box, specify the following parameters:

- **Tile expiration, days**
  Enter the expiration time, in days, for the map tiles. When you download the map, the already downloaded tiles are checked and if they are older than this number of days, these map tiles will be re-downloaded from the Internet.
- **Refresh all tiles**
  Select this option to re-download the map tiles before saving to your PC.
- **Zoom level**
  Move the slider from left to right to increase the detail level of the map.
- **Preview tiles**
  Select this option to show how the map is divided into tiles.
- **Show downloaded tiles**
  Select this option to show the progress bar while the online map is being saved.
- Click **Start** and wait for the system to save the files. This may take several minutes.

- **Map > Map Content**
  Click this menu item to specify the folder and settings to store the map data.



  In the **Online Map** dialog box, specify the following settings:

  - **Cache folder**
    Click **Change** and locate the folder on the PC where you want to store the map data.
  - **Update**
    Select the update interval ('Never', 'Immediately', or 'By period') for the map data stored in the specified Cache folder.
  - **Map Type**
    From the drop-down list, select the map type. For more details on the maps used in TRBOnet Dispatch Console, see section 6.3.3.1, Map Types (page 126).
  - **<Map Provider> key**
    Enter the key for the selected map.

    Note: To obtain the key, click the hyperlink below and follow the instructions.

6.3.3.1 Map Types

Online maps:

- **MAPNIK** – free online map. For more details on OpenStreetMaps, visit the official the website: http://www.openstreetmap.org
- **Thunderforest** – commercial online maps. Visit http://www.thunderforest.com/docs/apikeys/ to get a key.
- **Microsoft BING** – commercial maps from Microsoft. Includes BING_ROAD, BING_AREA, and BING_HYBRID subtypes. A user may use BING maps for 90 days and then they must get a Basic Key. Visit http://msdn.microsoft.com/en-us/library/ff428642.aspx to get a Basic Key.
- **Google Maps** – online mapping service from Google. Visit https://developers.google.com/maps/documentation/javascript/get-api-key#key to get a key.

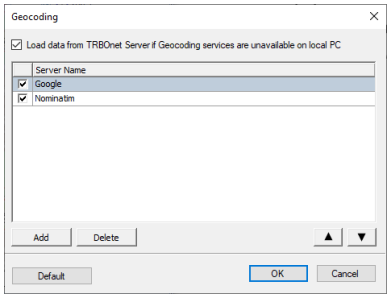
- **Custom Maps** – online mapping services such as TRBOnet Map Server, WMS and WMTS services. For more details, refer to *TRBOnet Map Server User Guide*. For more details on the WMS/WMTS services, visit http://www.opengeospatial.org/standards/wms/introduction.

Offline Maps:

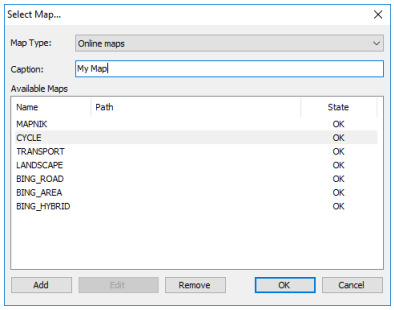
- **TMap** – internal map-making resource. The user can create an offline copy of online maps for selected regions according to their needs and requirements. The user can create a map from any picture via the TRBOnet Map Edit application.

  Click **Start > All Programs > Neocom Software > TRBOnet Enterprise> Console> TRBOnet.MapEditor.exe**
  For more details on map calibration, read the following article at: https://trbonet.com/kb/how-do-i-create-a-custom-map-for-trbonet/
- **Beacon 2D** – two-dimension offline map for Indoor positioning. The user can create indoor maps using the Indoor 2D Map Converter. See section 6.4.21.2, Indoor 2D Map Converter.
- **Beacon 3D** – three-dimension map for Indoor positioning. The user can use any DirectX file as a map.

- **Map > Print**
  Click this menu item to print the map region currently displayed in the Map pane.
- **Map > Geocoding**
  Click this menu item to configure geocoding servers in the Dispatch Console.

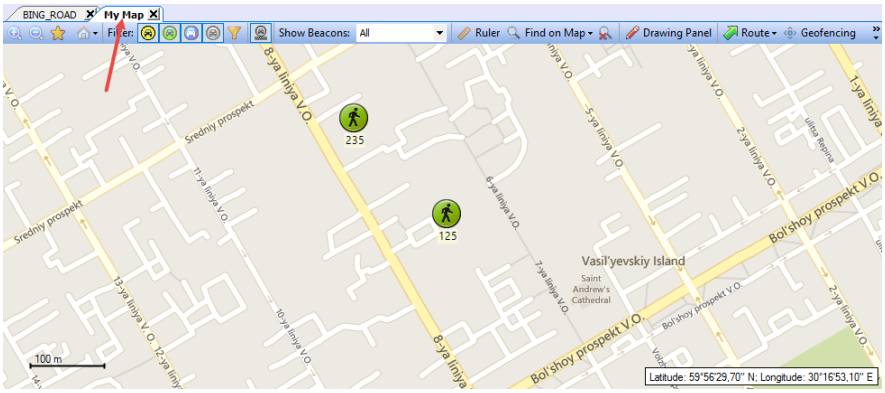


  - **Load data from TRBOnet Server if Geocoding services are unavailable on local PC**
    Select this option to receive location data from the TRBOnet Server PC if the Dispatch Console is unable to resolve location data.
  - For other settings, see section 5.9.1.1, Configuring Geocoding Servers (page 28).
- **Map > Open New Map in Tab**
  Click this menu item to add a new map tab to the Map pane.



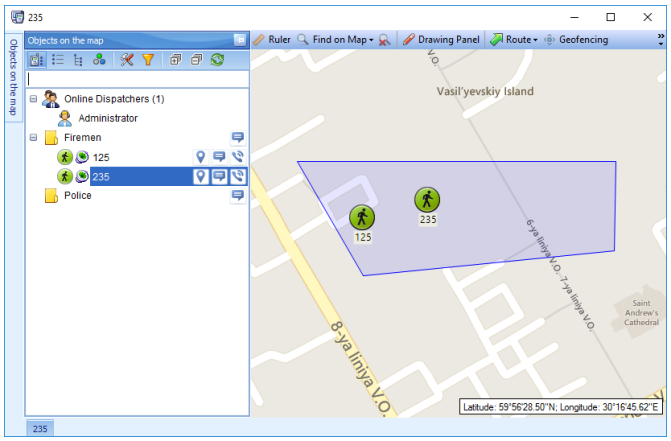
- **Map Type**
  From the drop-down list, select the map type.
- **Caption**
  Enter a caption for the new map tab.
- For other settings, see Selecting Active Map.

Once you have clicked **OK**, the new tab will appear in the Map pane:



- **Map > Open New Map in Window**
  Click this menu item to create a new map window with the specified map.
  - For required settings, see Selecting Active Map

  Once you have clicked **OK**, the new Map window will appear:



- **Map > Google Earth**
  Click this menu item to open the Google Earth application.

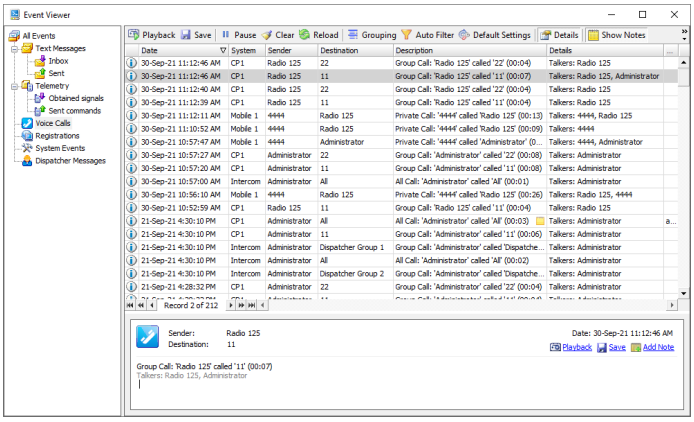
Note: Google Earth must be previously installed on the PC. To download Google Earth, go to the Google Earth website https://www.google.com/intl/en/earth/desktop/, and click **Download**.

- **Map > Delete Routes on Google Earth**
  Click this menu item delete all routes from Google Earth.
- **Map > Show Radios on Google Earth**
  Click this menu item and in the drop-down menu select which radios to display on Google Earth.

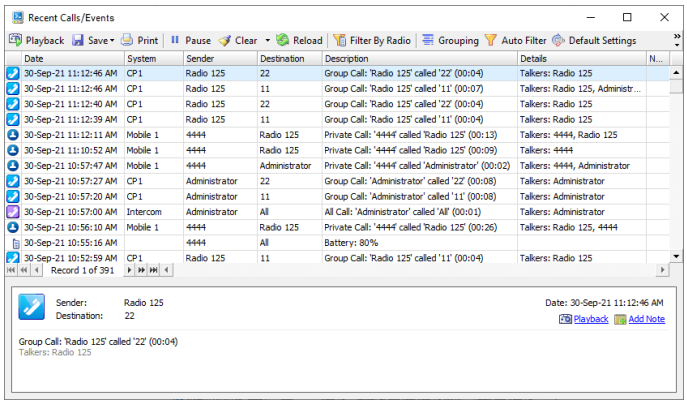
6.3.4 Tools

The **Tools** menu contains the following items:

- **Tools > Event Viewer in Window**
  Click this menu item to open the Event Viewer in a new window.



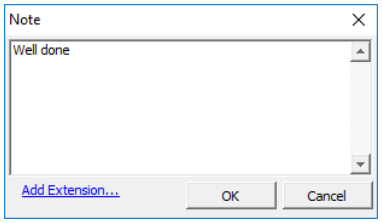
- **Tools > Recent Calls/Events in Window**
  Click this menu item to open Recent Calls/Events in a new window.



  - Click **Playback** to play back the selected call.
  - Click **Save** to save the selected call as an audio file.

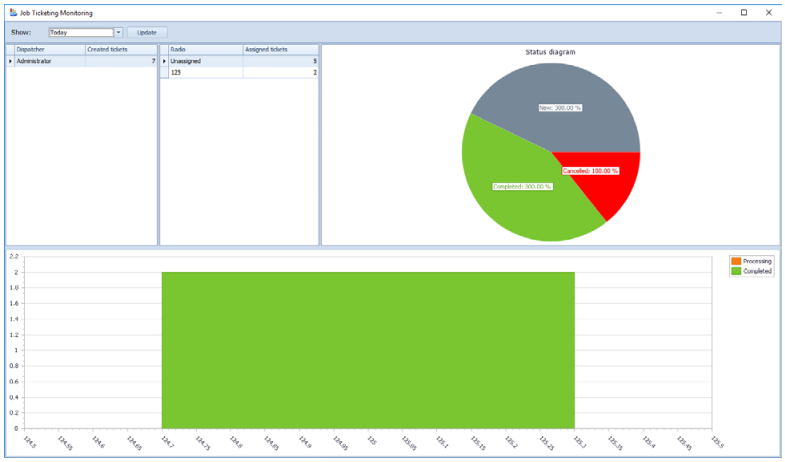
In the **Save As** dialog box, locate the folder where you want to save the audio file, specify the file name, and from the drop-down 'Save as type' list, select the format (*.wav, *.tna, or *.ogg) for the audio file.

- Click **Add Note** to add a note to the selected event.



  - Enter the text of the note in the text box.
  - You can extend the form of a note by clicking the **Add Extension** link and adding new fields and their possible values to the form.

- **Tools > Job Ticketing Monitoring**
  Click this menu item to open the window that visually represents the job tickets created by dispatchers and assigned to radios.

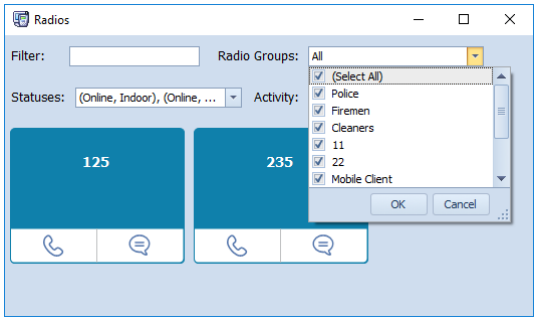


  In this window, you can perform the following actions:

  - Select a time period for which to display Job Ticketing data.
  - Monitor tickets created by dispatchers.
  - Monitor tickets assigned to radios.

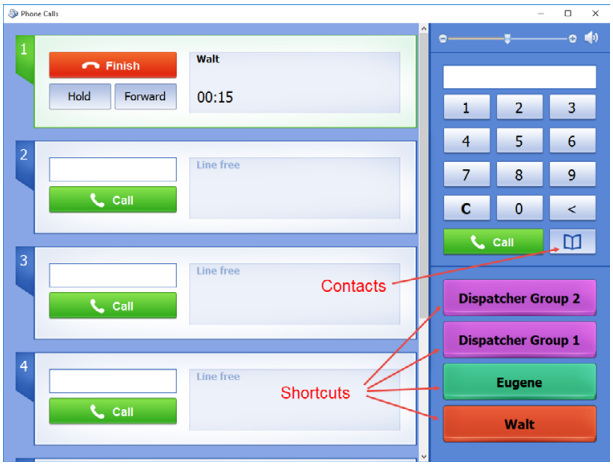
  All data are shown in the form of status diagrams.

- **Tools > Radios in Window**
  Click this menu item to open a new window that displays the radios present in the system.



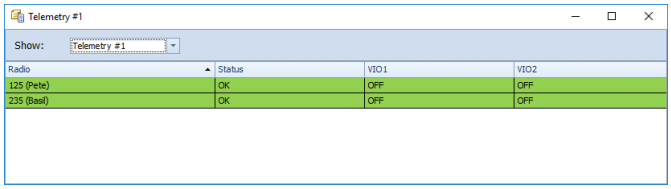
In this window, you can make radio calls, send text messages. In addition, you can select to display radios by groups and statuses.

- **Tools > Phone Calls in Window**
  Click this menu item to open a new window that displays Phone Calls available in the system.



In this window, you can make and receive phone calls. To make a call, enter a phone number in the dial string and click **Call**. You can also select a contact from the Contacts list. Or, use the shortcut buttons you have previously created for your contacts (**Tools > Contacts**).

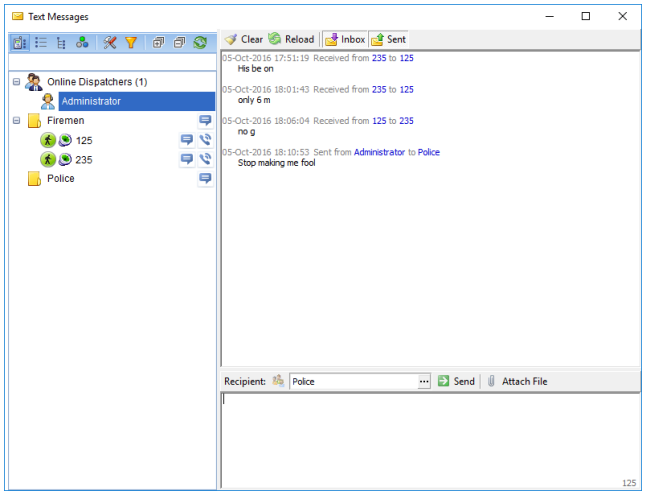
- **Tools > Telemetry Monitoring**
  Click this menu item to open the window that displays configured telemetry profiles for the radios.



  - From the **Show** drop-down list, select the Telemetry profile to display.

  See also section 6.4.12, Telemetry (page 227).

- **Tools > Text Messages in Window**
  Click this menu item to open a new window to manage text messages.

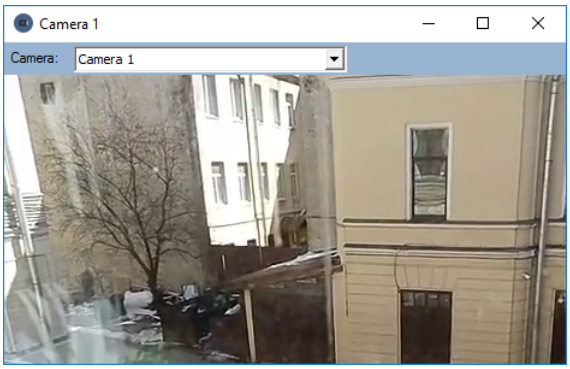


In this window, you can perform the following tasks:

- View sent messages in the upper-right pane.
- Select online dispatchers and radio groups in the left pane, or by clicking the ellipsis (**...**) button in the lower-right pane.
- Type messages in the text box in the lower-right pane.
- Send messages by clicking the **Send** button in the lower-right pane.

- **Tools > Routes in Window**
  Click this menu item to open a new window to manage routes.

  For more details on Route Management configuration,
  see section 6.8, Guard Tour / Route Management (page 349).
- **Tools > Camera in Window**
  Click this menu item to open a new window with an IP camera view.



In this window, the IP camera view is displayed.

- **Camera**
  From the drop-down list, select a camera that is connected to TRBOnet Dispatch Console.

See also section 6.4.9, IP Cameras (page 220).

- **Tools > Reset All Location Triggers**
  Choose this menu item to stop/start location triggers on all radios.

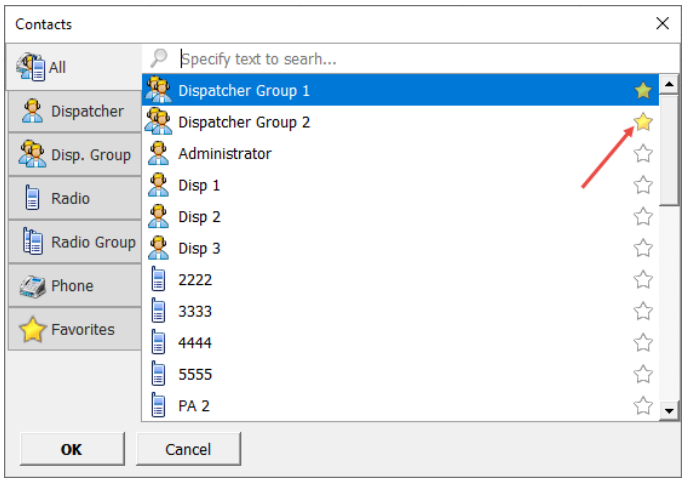
- **Tools > Dynamic Regrouping**
  Click this menu item to dynamically regroup radios depending on current needs. For more details, see section 6.4.31.2, Dynamic Regrouping.

  Note: The Dynamic Regrouping feature is available only for Capacity MAX systems. In addition, the radio's firmware version must be 2.10 or later, and the DGNA feature must be enabled on the radios.

- **Tools > Terminate All Transmissions**
  Click this menu item to terminate all voice sessions.

  This action is a "hard" request to stop all "hung" transmissions in the TRBOnet software. If a radio communication session is not allowed to be interrupted on a repeater or base station, it will only be stopped for the TRBOnet software.

- **Tools > Contacts**
  Click this menu item to open the Contacts list for reference purposes as well as for creating favorites and shortcut buttons.

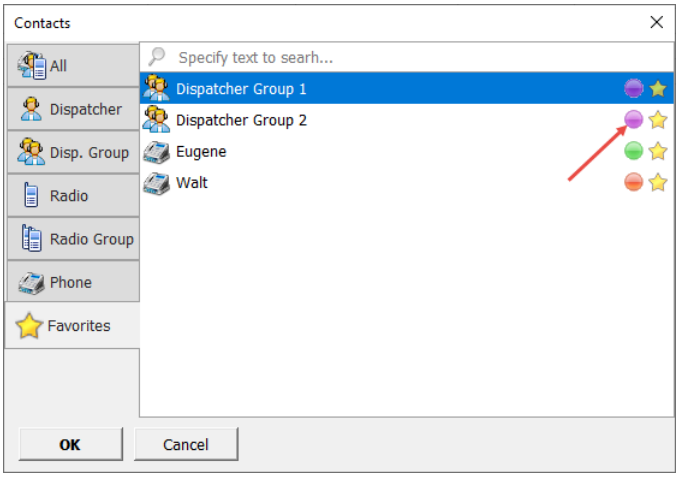


Creating favorites

- In the right pane, click the gray star on the right of the contact's name until it turns yellow.

Creating shortcut buttons

- Click the **Favorites** tab.

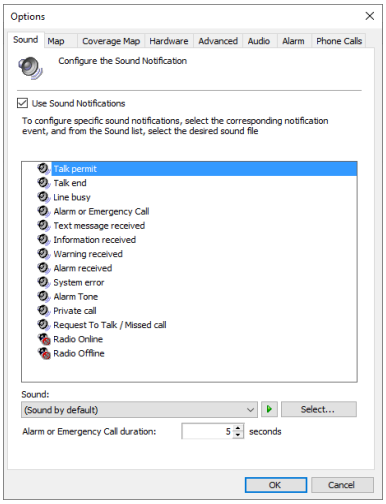


- In the right pane, click the circle to on the right of the contact's name and from the menu that opens select the desired button color.

The shortcut buttons you have created will appear in the Phone Calls window (**Tools > Phone Calls in Window**).

6.3.4.1 Options

- On the **Tools** menu, click **Options**.



Sound

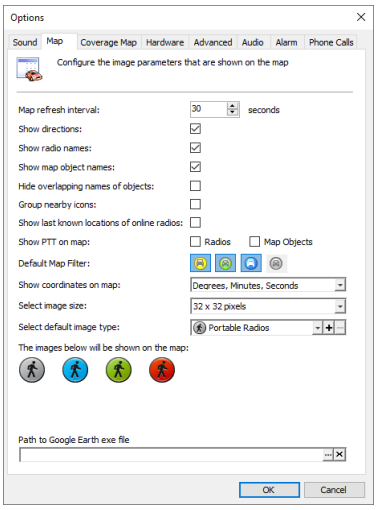
- In the **Options** dialog box, click the **Sound** tab.
  - **Use Sound Notifications**
    Select this option to enable sound notifications in the Dispatch Console.
  - Select the event in the list and specify the sound.
  - From the Sound drop-down list, select ether 'Sound by default' to play default sound, or 'Disabled' to disable sound notification for the event.

- Click  to listen to the sound notification for the selected event.
- Click **Select** and browse for the audio file on your PC.

- **Alarm of Emergency Call duration**
  Enter the time value, in seconds, for the duration of the alarm tone when an emergency call is received.

Map

- In the **Options** dialog box, click the **Map** tab.



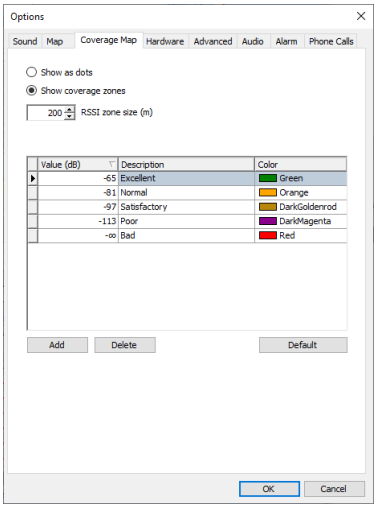
- **Map refresh interval**
  Enter the time period, in seconds, to update map data.
- **Show directions**
  Select this option to display a direction of motion for map objects.
- **Show radio names**
  Select this option to display radios names on the map.
- **Show map object names**
  Select this option to display object names on the map.
- **Hide overlapping names of objects**
  Select this option to hide overlapping object names.
- **Group nearby icons**
  Select this option to group nearby icons together.
- **Show last known indoor locations of online radios**
  If this option is selected, online radios will remain displayed at the beacon location after they left the beacon's coverage area and have not detected another beacon yet.
- **Show PTT on map**
  Select this option to allow the dispatcher to make private calls by clicking a corresponding radio icon on the map.

- **Default Map Filter**
  Select/deselect the icons for the default map filter (for a description of the icons, see section 6.6.2.4, Filters).
- **Show coordinates on map**
  In the drop-down list, select the coordinate systems/units that will be used to display coordinates in the lower-right corner of the Map pane.
- **Select image size**
  From the drop-down list, select the size of a radio icon.
- **Select default image type**
  From the drop-down list, select the default image type of a radio icon.
- **Path to Google Earth exe file**
  Click the ellipsis (**...**) button and specify the location of the Google Earth exe file on your PC. For example, the path may look like: *C:\Program Files\Google\Google Earth Pro\client\googleearth.exe*

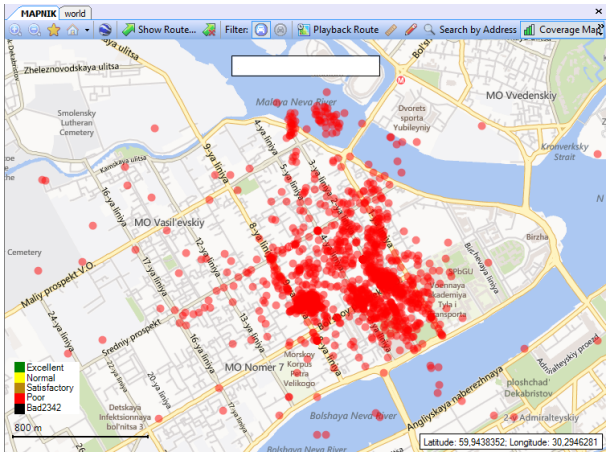
Coverage Map

TRBOnet Dispatch Console allows displaying RSSI levels on a map. The RSSI is a received signal strength indicator. It measures the power level of the RX signal at a repeater's receiver. The RSSI maps can be used by radio system engineers to plan further extension of their radio networks.

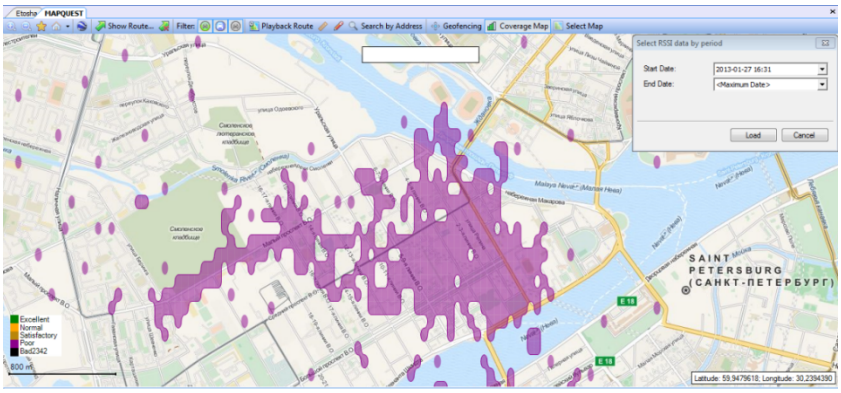
- In the **Options** dialog box, click the **Coverage Map** tab.



  - **Show as dots**
    For a more detailed data view, choose this option to display on the map, dots of RSSI levels representing coordinate points.



- **Show coverage zones**
  For a less detailed view, choose this option to configure and display on the map, RSSI zones of average RSSI levels using GPS coordinates.
  - **RSSI zone size**
    Enter the size of the RSSI zone within which RSSI levels will be averaged.

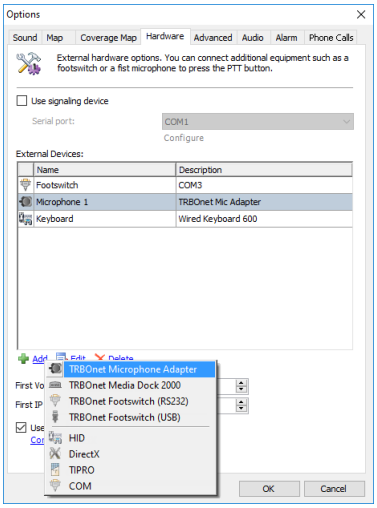


- Click **Add** to add a new RSSI level.
  - **Value**
    Enter the minimum level for the signal range (for example, -65 means -65 and higher).
  - **Description**
    Enter the name of the RSSI level to display in the system.
  - **Color**
    Pick a color for the RSSI indicator on the map.

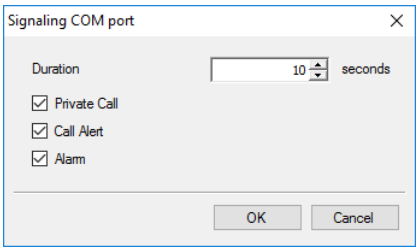
To view RSSI Levels on the map, click the **Location Tracking** tab in the **Navigation** pane, and on the **Map** pane toolbar, click **Coverage Map**. Then set the Start Date and End Date to display RSSI data.

Hardware

- In the **Options** dialog box, click the **Hardware** tab.



- **Use signaling device**
  Select this option to use an external signaling device.
  - **Serial port**
    From the drop-down list, select the COM port the signaling device is connected to.
- Click **Configure** and specify the duration of a signal and which call types to include in signaling.



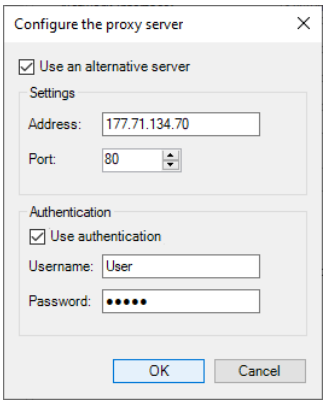
The **External Devices** table displays the connected devices (Type/Name/Description).

- Click the **Add** link, and from the pull-down menu select the type of TRBOnet device with a PTT button connected to the PC (Microphone Adapter, Media Dock, or Footswitch), or the device type (HID, DirectX, TIPRO, or COM).
- In the dialog box that opens, specify the desired device parameters, and click **OK**.
- **First VoIP port**
  Enter the number of the first VoIP port for audio communications (4022, by default). Each additional Dispatch Console will create a connection on the next port number.
- **First IP Camera port**
  Enter the number of the first IP Camera port for video communications (13152, by default). Each additional Dispatch Console will create a connection on the next port number.

- **Use proxy server**
  Select this option to enable a Proxy Server service in TRBOnet Dispatch Console to access the Internet.

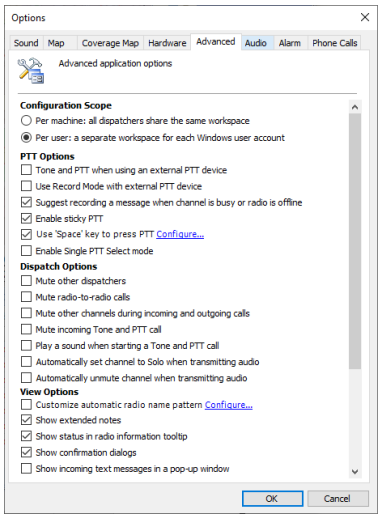
  A proxy server can be used when a user's computer cannot be connected directly to the Internet, but there is another computer with Internet access in the network.

  ✓ Click the **Configure** link to specify the alternative server settings.



Advanced

- In the **Options** dialog box, click the **Advanced** tab.



Configuration Scope

- **Per machine**
  Choose this option to store settings in a common place for all dispatchers of the Dispatch Console.
- **Per user**
  Choose this option to store settings for each dispatcher separately if they are using different Windows user accounts.

PTT Options

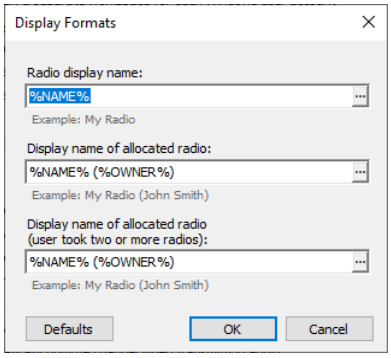
- **Tone and PTT when using external PTT device**
  Select this option to enable Alert Tone for all subscribers on a channel when the dispatcher presses the PTT button on an external PTT device.
- **Use Record Mode with external PTT device**
  Select this option to record all voice transmissions from external PTT devices (Palm mics, Footswitches, and other devices).
- **Suggest recording a message when channel is busy or radio is offline**
  Select this option to record a message when a radio channel is busy or radio is offline.
- **Enable sticky PTT**
  Select this option to start and finish voice calls by a short press of the PTT rather than holding the PTT down until the end of a voice call.
- **Use 'Space' key to press PTT**
  Select this option to use a shortcut for the PTT. Click the **Configure** link, and on the keyboard, press the key or combination of keys you want to use as a shortcut for the PTT button.
- **Enable Single PTT Select mode**
  Select this option so that only one PTT box can be selected at a time, that is you can't have multiple selected PTT boxes.

Voice Options

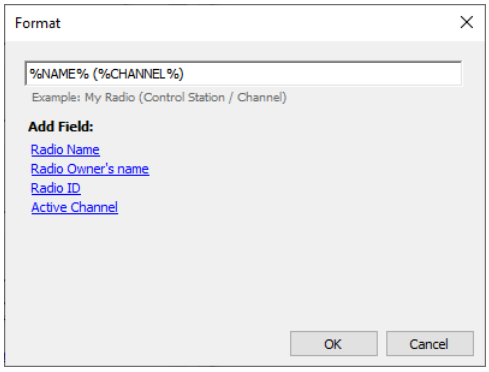
- **Mute other dispatchers**
  Select this option to mute all other dispatchers voice transmissions.
- **Mute radio-to-radio calls**
  Select this option to mute all private calls on the channel.
- **Mute other channels during incoming and outgoing calls**
  Select this option to mute other channels when the dispatcher transmits audio or records a voice message.
- **Mute incoming Tone and PTT call**
  Select this option to mute the tone when you receive a Tone and PTT call.
- **Play a sound when starting a Tone and PTT call**
  Select this option to play the tone when you start a Tone and PTT call.
- **Automatically set channel to Solo when transmitting audio**
  Select this option to mute other channels when transmitting audio.
- **Automatically unmute channel when transmitting audio**
  Select this option to automatically unmute a channel when transmitting through this channel.

View Options

- **Customize automatic radio name pattern**
  Select this option and click the **Configure** link to set a custom alias for a radio in the list of radios. Once the changes are made, selecting this checkbox will cause a change to the radios in the Radio list pane (upper left pane of the Main Interface screen).



  - **Radio display name**
    Click the ellipsis (**...**) button and in the **Format** dialog box pick the fields to display for a radio.



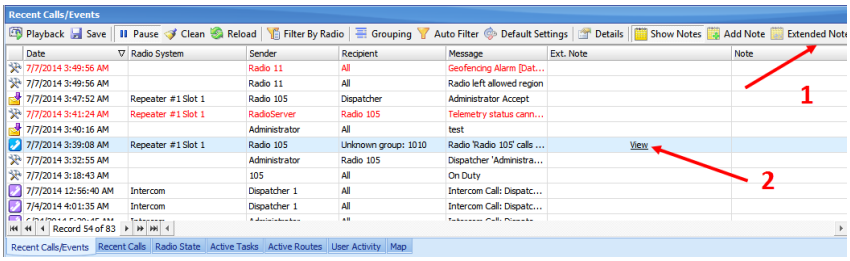
  - **Display name of allocated radio**
    Click the ellipsis (**...**) button and in the **Format** dialog box pick the fields to display for an allocated (taken) radio.
  - **Display name of allocated radio (user took two or more radios)**
    Click the ellipsis (**...**) button and in the **Format** dialog box pick the fields to display for an allocated (taken) radio in case when a user has more than one radio.
  - Click **Defaults** to set default settings for radio display.

- **Show extended notes**
  Select this option to enable Extended Notes in the Dispatch Console.

  The Extended Notes feature is intended to add predefined Extended Notes templates, the same as for Extended Messages, for the selected calls and events.

  For example, a Taxi Dispatcher needs to check clients' call response period for the company internal monitoring of the employees. They

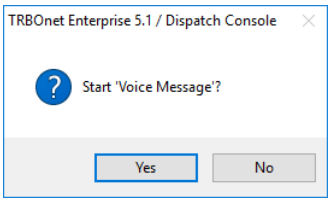
can add a predefined template and check the time period. All Extended Notes are displayed in the **Ext. Note** column in the **Recent Calls/Events** tab:



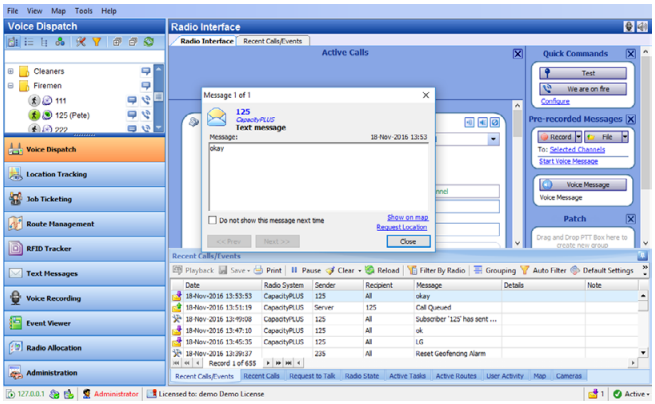
Click the **Extended Notes** button (1) to fill the template;

Click the **View** button (2) to see the Extended Note.

- **Show status in radio information tooltip**
  Select this option to show the radio status in the Radio information tooltip (see section 6.5.1.3, Radio Information Tooltip).
- **Show confirmation dialogs**
  Select this option to enable confirmation dialogs for dispatcher actions. For example, when sending a configured Voice Message from the Dispatch Console, the following confirmation dialog box will appear:



- **Show incoming text messages in a pop-up window**
  Select this option so that incoming Text Messages will pop up over the application window.

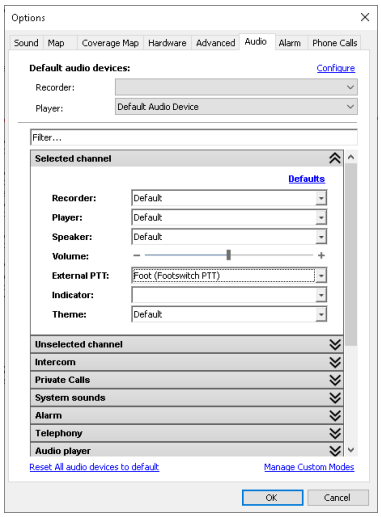


- **Close button minimizes application**
  Select this option so that clicking the Close button will minimize the Dispatch Console rather than close it.

- **Minimize button minimizes window to PTT Panel**
  Select this option so that when you click the Minimize button you will see only the PTT Panel displayed at the top of the PC's screen.
- **Show this number of recent calls/events**
  Enter the number of items to display in the Recent calls/Events pane.
- **Measurement system**
  From the drop-down list, select Metric, US, or Nautical units.
- **Coordinate system**
  From the drop-down list, select the coordinate system to be used.

Audio

- In the **Options** dialog box, click the **Audio** tab.



Default audio devices

- **Recorder**
  From the drop-down list, select the recording device the microphone is connected to.
- **Player**
  From the drop-down list, select the audio device to play incoming voice messages and playback voice recordings in the Dispatch Console.

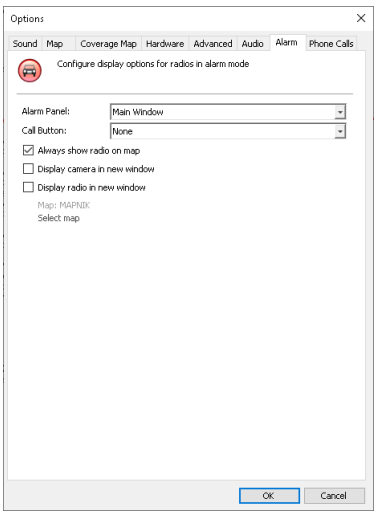
> Note: If TRBOnet Dispatch Console is running on the same PC with TRBOnet Server connected to control stations via a programming cable and sound card, the playback and recording devices cannot be the same for TRBOnet Dispatch Console and TRBOnet Server.

In the list below, you can configure audio settings for specific channels by expanding the corresponding items (**Selected channel**, **Unselected channel**, **Intercom**, etc.)

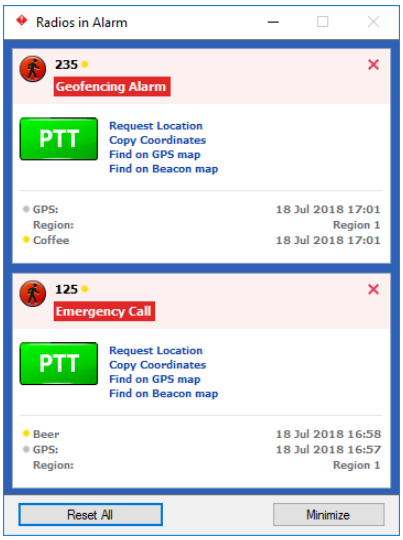
The configurable audio settings are as follows: Recorder, Player, Speaker, Volume level, External PTT, Indicator, and Theme.

Alarm

- In the **Options** dialog box, click the **Alarm** tab.



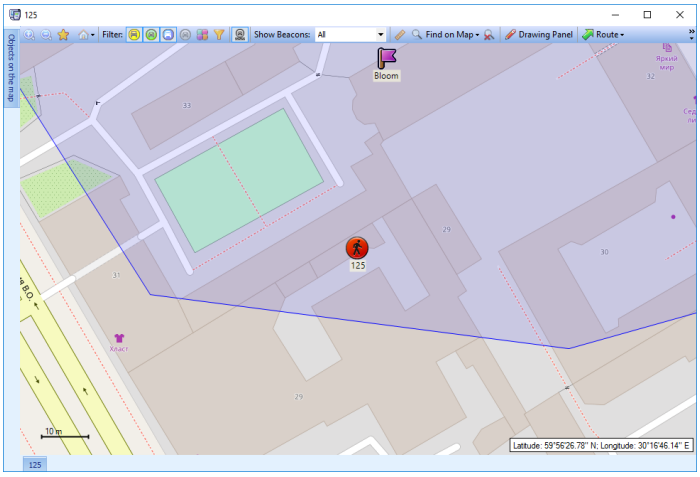
  - **Alarm Panel**
    From the drop-down list, select where to show the alarm panel (in the main window or in a new window), or select 'None' to hide it.
  - **Call Button**
    From the drop-down list, select the call destination when the PTT button is pressed in the alarm panel (private call, group call, or all call).



  - **Always show radio on map**
    Select this option so that radios in alarm mode will always be displayed on the map regardless of the filters applied to the radio (see section 6.6.2.4, Filters).

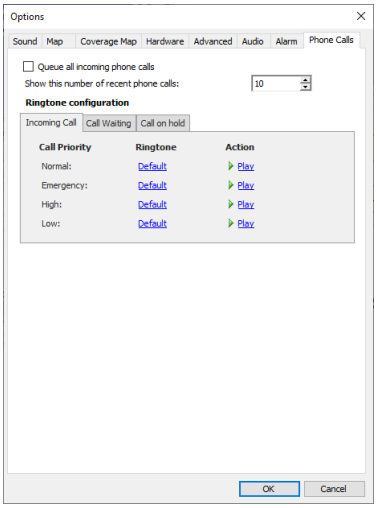
Note: When this option is selected, you cannot disable the display of radios in alarm mode.

- **Display camera in new window**
  Select this option so that when a radio is in alarm mode, a window will open with the camera associated with the radio.
- **Display radio in new window**
  Select this option to display a radio in alarm mode on the selected map in a new, separate window.
  - **Map**
    This field displays the map name. Click the **Select map** link and specify the map on which to display a radio in alarm mode.



Phone Calls

- In the **Options** dialog box, click the **Phone Calls** tab.



- **Queue all incoming phone calls**
  Select this option so that when the phone line is busy, incoming calls will be queued rather than rejected.

- **Show this number of recent phone calls**
  Enter the number of items to display in the list of recent calls. The list of recent phone calls appears when you click the arrow on the right of the dial string in the Contact Dialer box (see section 6.5.9.1, Phone Calls from/to Dispatch Console).

Ringtone configuration

On the Incoming Call (Call Waiting) tab:

- Click a corresponding link in the **Ringtone** column, and from the pull-down menu, select either **Set Default**, **Set Custom**, or **Disable**. If you select **Custom**, in the dialog box that opens, browse for the audio file on the local PC and click **Open**.
- Click a **Play** link in the **Action** column to play back the corresponding ringtone.

On the **Call on hold** tab:

- **Remind after**
  Enter the timeout, in seconds, that will be used for playing the reminder tone when a call is on Hold.
- **Ringtone**
  Specify the reminder tone to be played when a call is on Hold.

6.3.4.2 Exporting/Importing Options

A dispatcher can export custom Dispatch Console settings (Volume level, UI view, shortcuts configuration, and other settings) as a .config file and save it to the local PC or to a selected external device.

- Click **Tools > Export Options** and save the file to the specified location.

If you want to apply settings from a different TRBOnet Dispatch Console:

- Click **Tools > Import Options** and browse for the .config file with the desired settings.

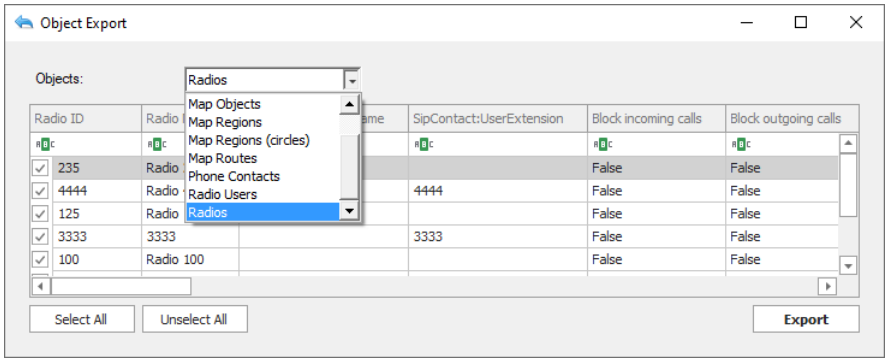
6.3.4.3 Exporting/Importing Objects

A dispatcher can export/import various types of objects, such as beacons, IP cameras, map objects, maps regions, map routes, phone contacts, radio users, and radios.

To export objects:

- Click **Tools > Export Objects**.

  In the dialog box that opens, enter the following information:

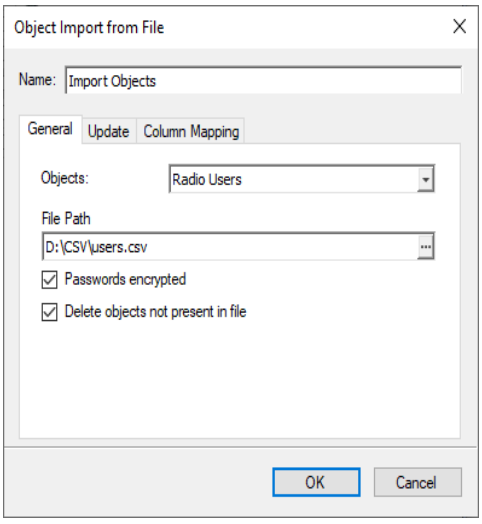


- **Objects**
  From the drop-down list, select the type of objects you want to export.
- In the table below, select/deselect the desired records.
- Click **Export**, and in the **Save As** dialog box, locate the folder where you want to save the file, type a filename, and click **Save**.

To import objects:

- Click **Tools > Import Objects**.

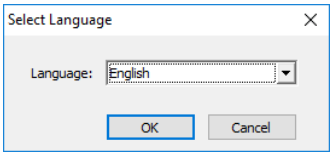
  In the dialog box that opens, enter the following information:



- **Objects**
  From the drop-down list, select the type of objects you want to import.
- In the table below, in the right column, enter/change the column names that would correspond to the database field names.
- **Passwords encrypted**
  Select this option if the passwords are kept encrypted in the data being imported.
- Click **Import**, and in the **Open** dialog box, locate the desired file and click **Open**.

6.3.4.4 Setting Language

- On the **Tools** menu, click **Set Language**

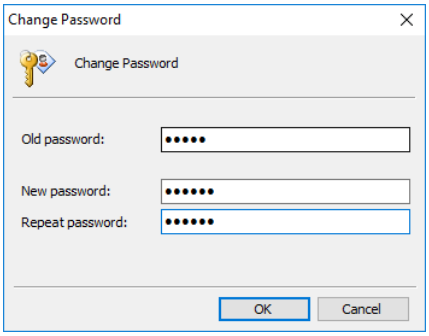


- From the drop-down list, select the desired language and click **OK**.

The changes will apply after you restart the Dispatch Console.

6.3.4.5 Changing Password

- On the **Tools** menu, click **Change Password**



- In the **Old password** box, enter your current password.
- In the **New password** box, enter the new password.
- In the **Repeat password** box, enter the new password again.
- Click **OK**.

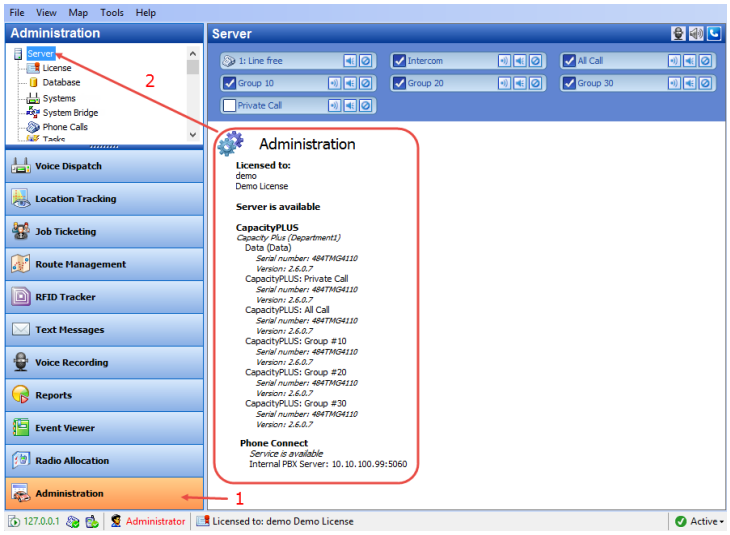
6.3.5 Help

- **Help > Send Feedback**
  Click this menu item to send your feedback to Neocom Software, either through E-mail, or online via the site.
- **Help > Save System Logs**
  Click this menu item to save the logs as a .zip file. This .zip file can then be sent to Neocom support.
- **Help > About**
  Click this menu item to see the About dialog displaying information about TRBOnet Enterprise (applied license, version, build date, and other relevant information).

6.4 Administration

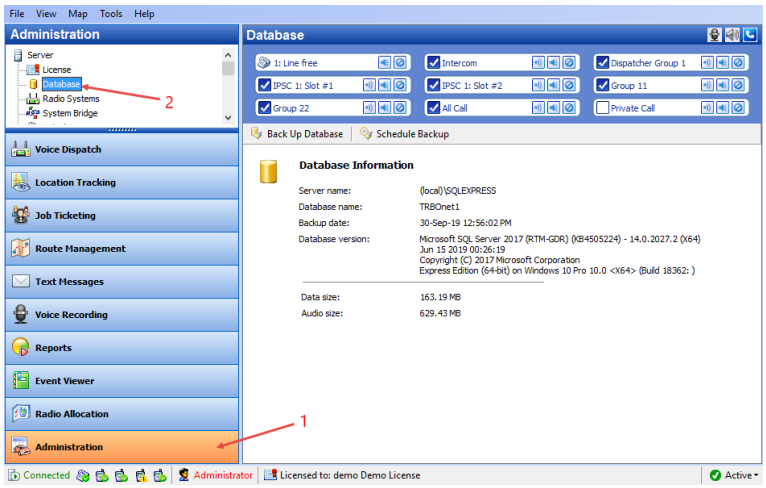
This section describes how to configure the most important settings of TRBOnet Enterprise.

- Click the **Administration** tab (1), and see the full system information in the **Server** (2) pane:



6.4.1 Database

- Go to **Administration** (1), **Database** (2) to see the full overview of the database:



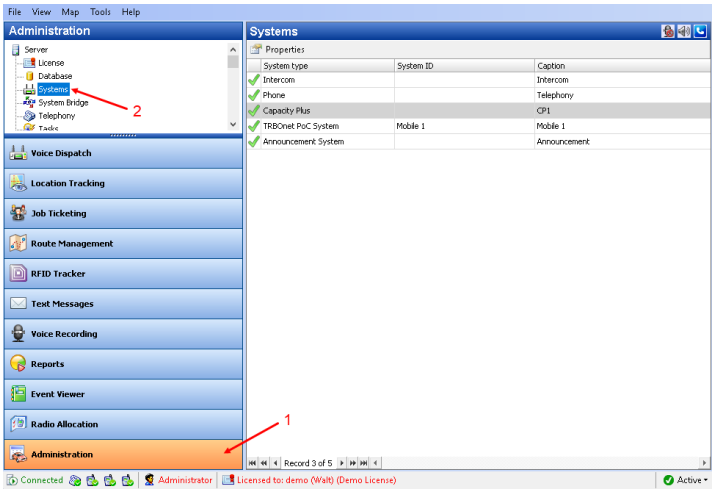
In the **Database** pane, the administrator can restore and back up the database and audio recordings.

For more details on backups, see Appendix D: Backing up and Restoring Database and Audio Recordings (page 394).

6.4.2 Systems

All radio systems registered in the Server are represented in the Systems pane. In addition to radio systems, the following systems can also be present in the Systems pane: Intercom, Phone Connect, PoC, and Public Announcement systems.

- Go to **Administration** (1), **Systems** (2) to see the system parameters:



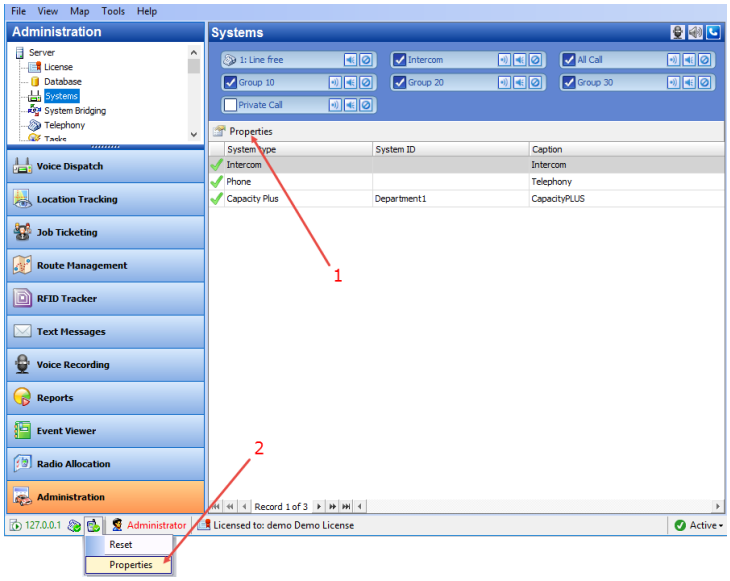
The administrator is able to see the following system parameters in the table:

- **System Type** – the type of the system.
- **System ID** – a unique System Identifier configured in TRBOnet Server configuration for repeater or control stations in the system.
- **Caption** – the caption of the system.

6.4.2.1 System Properties

To see the radio system properties, do the following:

- Select a radio system in the list and click the **Properties** button (1);
  or,
  double-click the radio system in the list;
  or,
  click the corresponding element at the bottom of the Dispatch Console window, and choose **Properties** (2).

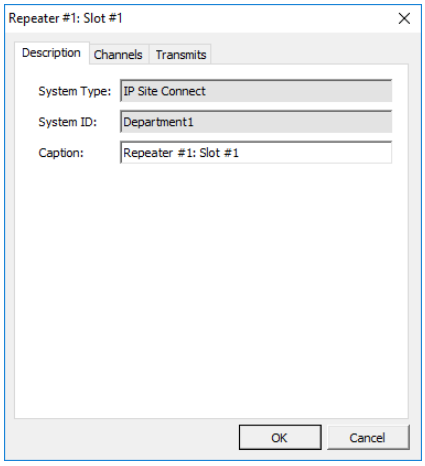


The administrator is able to see Active and Inactive registered systems. In case you have more than 10 registered systems, systems are grouped and can be seen in the drop-down list.

Common information for all system elements is listed below:

Description tab

On the **Description** tab, you can see the general info:

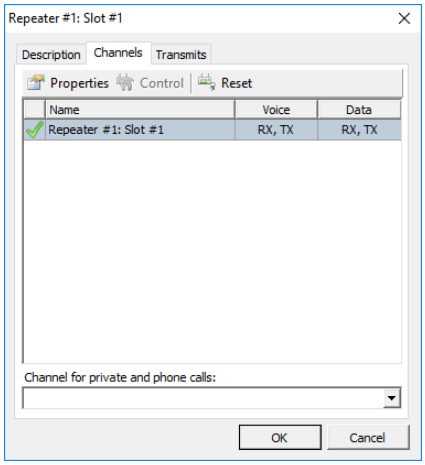


- **System Type**
  The system type for a repeater/control station (in Digital or Analogue mode).

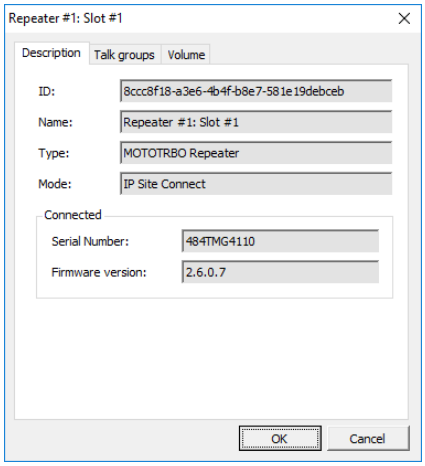
  For more details on the systems, see section 3.2, MOTOTRBO Radio Systems (page 4).
- **System ID**
  The Unique System Identifier configured in TRBOnet Server for a repeater or control stations in the system.
- **Caption**
  Enter the system name.

Channels tab

On the **Channels** tab, you see the list of channels:



- Click the **Properties** button to see the channel additional data:



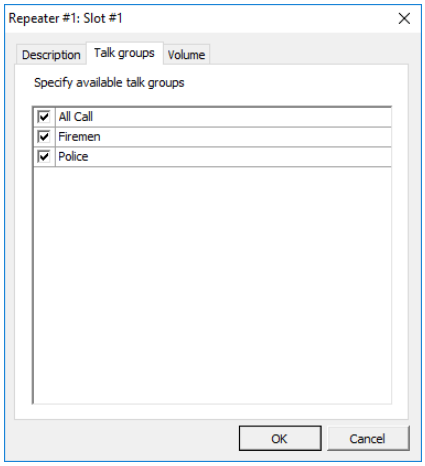
  - **ID**
    Default registration number (manufacturer's number);
  - **Name**
    System element's name in the system;
  - **Type**
    System type for a repeater/control station (in Digital or Analogue mode).
  - **Mode**
    System type for a repeater/connection mode for a control station.

    For details on the control station modes, see section 5.10.6.1, Control Station Connection Modes (page 54).
  - Connected
    - **Serial number**
      Default system element's serial number (manufacturer's number).
    - **Firmware Version**
      Current system element's firmware version.
- Click the **Reset** button to test the connection to the system element.

  Note: For a repeater, clicking the **Reset** button reconnects the repeater.
  For a control station, clicking the **Reset** button reloads the radio.

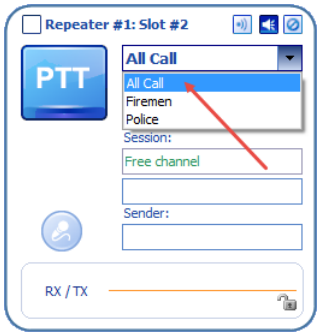
Talk groups tab (for repeaters only)

- On the **Talk groups** tab, you can see selected Talk group info:



- Specify available Talk groups for the system element in the list of created Talk groups.

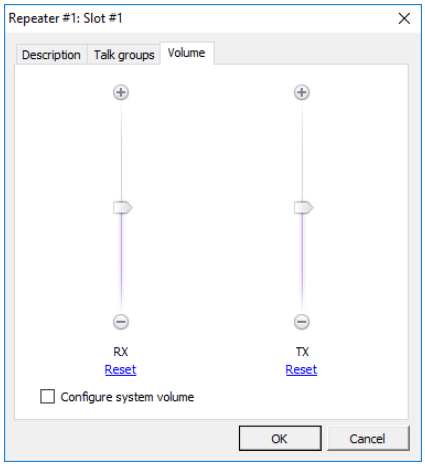
  Selected Talk groups are available on the **Radio** tab in the system element box in the drop-down list:



Note: Close TRBOnet Server before applying the system element settings.

Volume tab (for repeaters only)

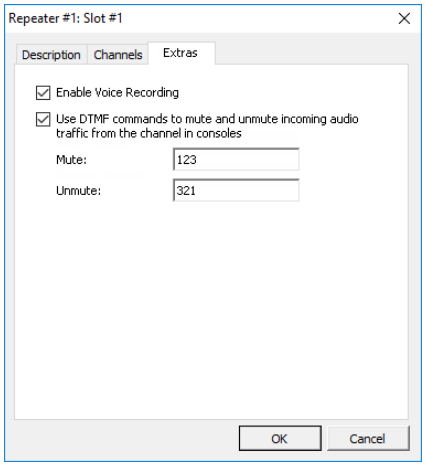
- On the **Volume** tab, you can see Volume settings for the repeater:



- Specify the **RX** and **TX** volume levels for the Repeater using a volume control slider.
- Click the **Reset** link to set default volume level for RX or TX.
- **Configure system volume**
  Select this option to save default volume settings for Voice transmissions from the selected Repeater.

Extras tab

- On the **Extras** tab, you can see the information about audio and data transmissions:



  - **Enable Voice Recording**
    Select this option to enable Voice Recording for the selected repeater.
  - **Use DTMF commands to mute and unmute incoming audio traffic from the channel in consoles**
    Select this option to use certain DTMF commands that can be sent to the channel so that the channel will be muted/unmuted in active consoles.
    - **Mute**
      Enter the DTMF sequence that will be sent to the channel to mute the channel in active consoles.
    - **Unmute**
      Enter the DTMF sequence that will be to the channel to unmute the channel in active consoles.

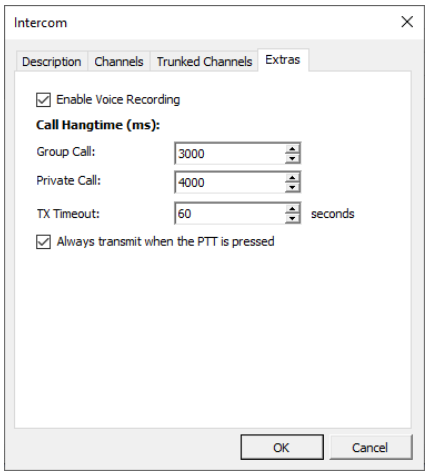
6.4.2.2 Intercom Properties

- Select **Intercom** in the list and click the **Properties** button;
  or,
  double-click **Intercom** in the list of radio systems.

Channels tab

On the **Channels** tab, you see the list of Intercom channels.
These are the dispatcher groups you added in TRBOnet Dispatch Console (see section 6.4.24, Dispatcher Groups).

Extras tab



- **Enable Voice Recording**
  Select this option to record all audio transmissions over the Intercom channel.

Call Hangtime (ms):

- **Group Call**
  This value sets the duration of reserving the channel after the end of a group call transmission. During this time, only members of the dispatcher group that the channel is reserved for can transmit.
- **Private Call**
  This value sets the duration during which the private dispatcher call setup is kept after a dispatcher releases the PTT button. This is to avoid setting up the call again each time a dispatcher presses the PTT button to transmit. During this time, other dispatchers can still transmit since the channel is essentially idle.
- **TX Timeout**
  Enter the time, in seconds, to be used as a voice session limit. When the dispatcher starts a voice session over the Intercom channel, transmission will be interrupted after this TX Timeout expires.
- **Always transmit when the PTT is pressed ("Impolite" channel access)**
  Select this option so that when the PTT button is pressed, the dispatcher will start transmitting regardless of whether the channel is free or not (that is any transmission in progress will be interrupted).

6.4.3 System Bridge

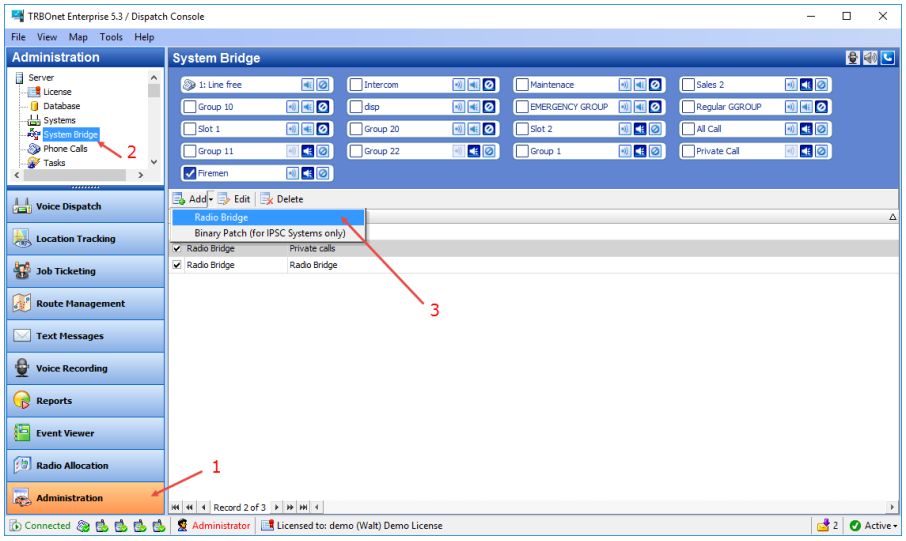
TRBOnet Dispatch Console provides the **System Bridge** function that allows configuring the network for redirecting radio calls.

The administrator can create the following two types of system bridges:

1. **System Bridge for Radio Channels** – allows connecting all types of Radios (analogue and digital radios, supports IP Site Connect, Capacity Plus, Linked Capacity Plus and Connect Plus modes). See section 6.4.3.1, Radio Bridge.
2. **System Bridge for Repeaters (Binary Patch)** - allows connecting only the repeater slots between IP Site Connect systems without encoding/decoding voice and data. See section 6.4.3.2, Binary Patch.

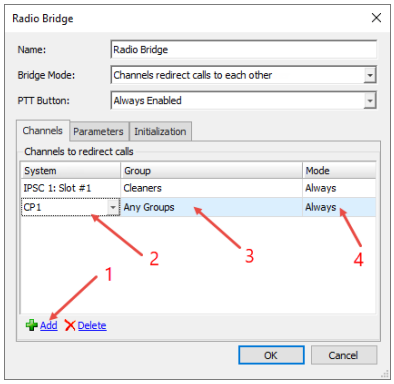
To add a system bridge:

- Go to **Administration** (1), **System Bridge** (2).



- Click the **Add** button, and from the drop-down menu, select the System Bridge type (3).

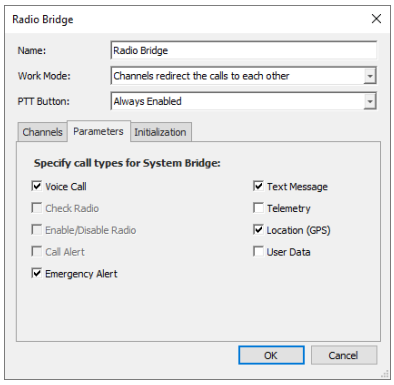
6.4.3.1 Radio Bridge



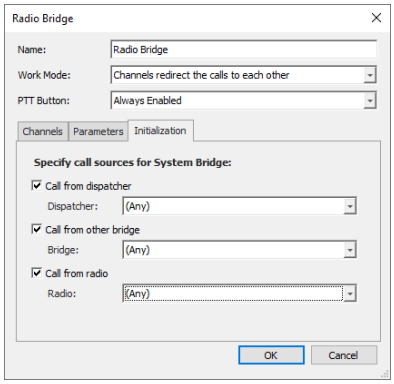
- On the **Channels** tab, specify the following bridge parameters:

- **Name**
  Specify a name for the Radio Bridge to display in the Radio Interface pane.
- **Bridge Mode**
  Select the mode from the drop-down list. For more details on System Bridge types, see Radio Bridge Types (page 158).
- **PTT Button**
  From the drop-down list, select how to display the PTT button in the System Bridge box. There are 3 options available:
  - Enabled when Bridge is activated
  - Always Enabled
  - Invisible
- On the **Channels** tab, click the **Add** button (1) to add a channel to the list.
- In the **System** column, select a radio channel from the drop-down list (2).
- In the **Group** column, select available group for the radio channel (3).
- In the **Mode** column, select a mode for the radio channel (4).
  - **Always**
    Enables the System Bridge always, regardless of the radio status (online/offline).
  - **By Radio**
    Enables the System Bridge on a selected channel when there are online radios capable to receive voice calls from the selected group.

- On the **Parameters** tab, specify call types for the System Bridge:

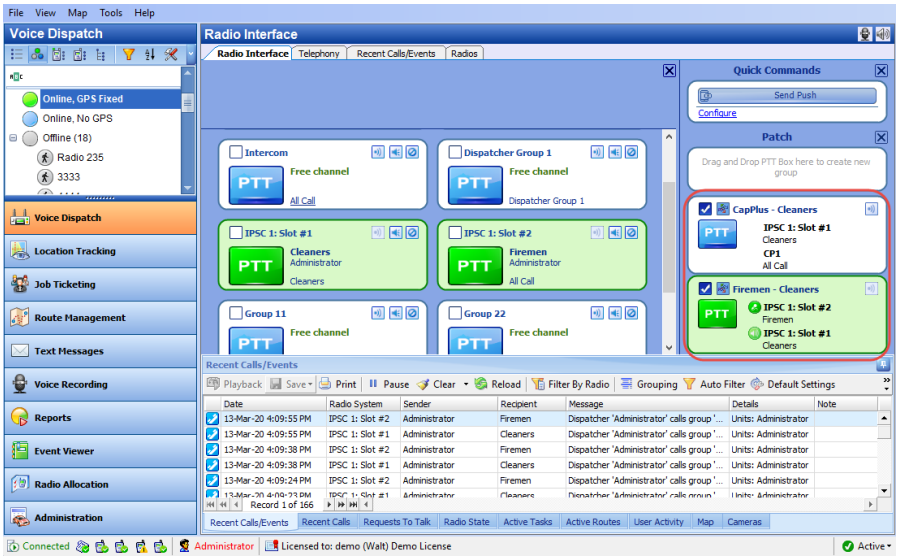


  - Select call types to use in System Bridge mode.
  - Click **OK** to add a System Bridge for the radio channels.
- On the **Initialization** tab, specify how the bridge will be initialized:



- **Call from dispatcher**
  Select this option and from the **Dispatcher** drop-down list, select the desired dispatcher.
- **Call from other bridge**
  Select this option and from the **Bridge** drop-down list, select the desired bridge.
- **Call from radio**
  Select this option and from the **Radio** drop-down list, select the desired radio(s).

The System Bridge boxes are displayed on the Patch panel of the Radio Interface pane:

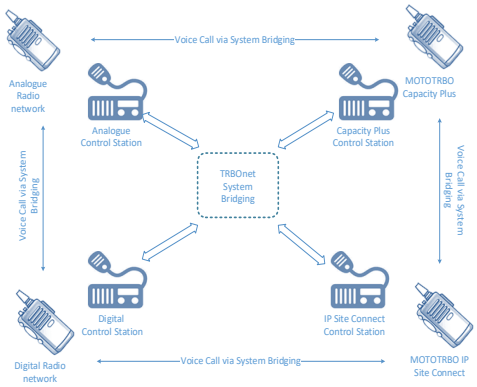


Radio Bridge Types

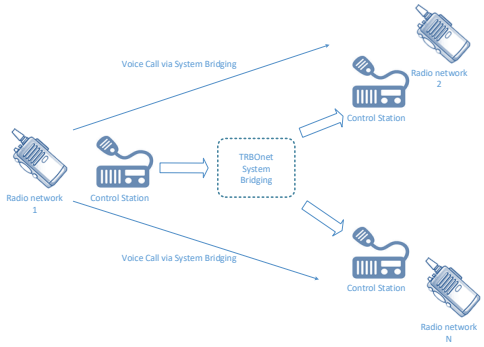
1. Channels redirect calls to each other

   This is the most common type of System Bridge when data exchanges between the channels set in the System Bridge settings. Thus, there is a common channel for all the radios of the specified control stations:

   To create this type of System Bridge, add a System Bridge and set the Work Mode as **Channels redirect calls to each other**.

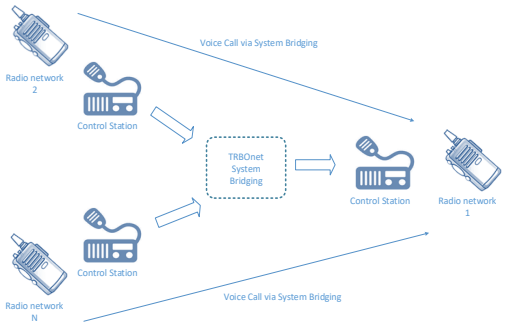


2. Channel redirects calls to multiple channels



   To create this type of System Bridge, add a System Bridge and set the Work Mode as **Channel redirects calls to multiple channels**.

3. Multiple channels redirect calls to one channel



   To create this type of System Bridge, add a System Bridge and set the Work Mode as **Multiple channels redirect calls to one channel**.

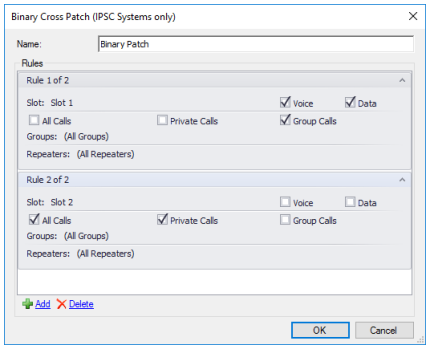
4. Redirect private calls

   Select this mode so that private calls can be redirected between radio systems.

5. Redirect private calls to group calls

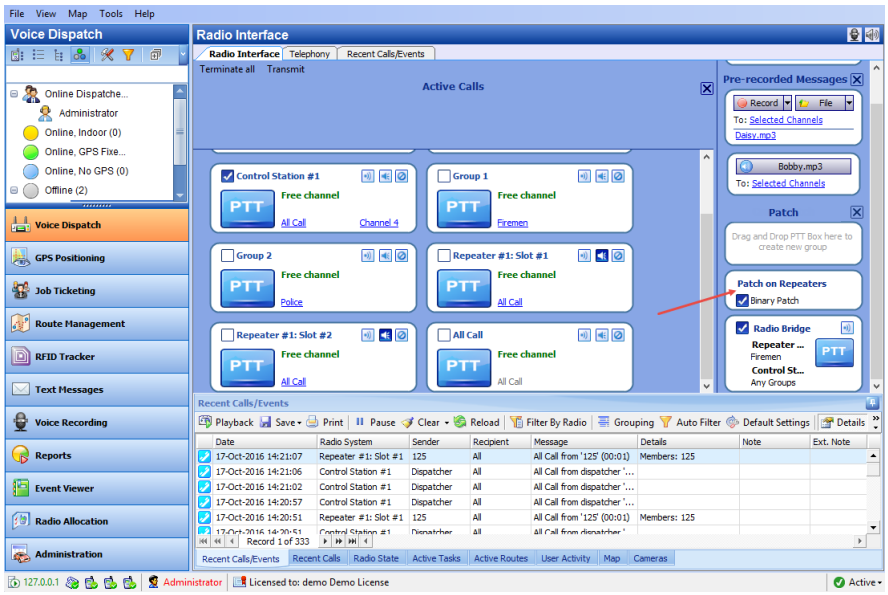
   Select this mode so that private calls will be redirected to group calls within one radio system or between radio systems.

6.4.3.2 Binary Patch



- **Name**
  Specify a name for the Binary Patch to display in the Radio Interface pane.
- **Rules**
  Specify the rules for redirecting calls between IPSC systems. Click the **Add** link below to add a rule.
  - **Slot**
    From the drop-down list, select the slot (**Slot 1** or **Slot 2**) of the IPSC systems being connected.
  - Select the type of data: **Voice** and/or **Data**.
  - Select the call types: **All Calls**, **Private Calls**, and/or **Group Calls**.
  - **Groups**
    In the drop-down list, select the group(s).
  - **Repeaters**
    In the drop-down list, select the IPSC systems to be connected via the selected slot.

The Binary Patch boxes are displayed on the Patch panel of the Radio Interface pane:

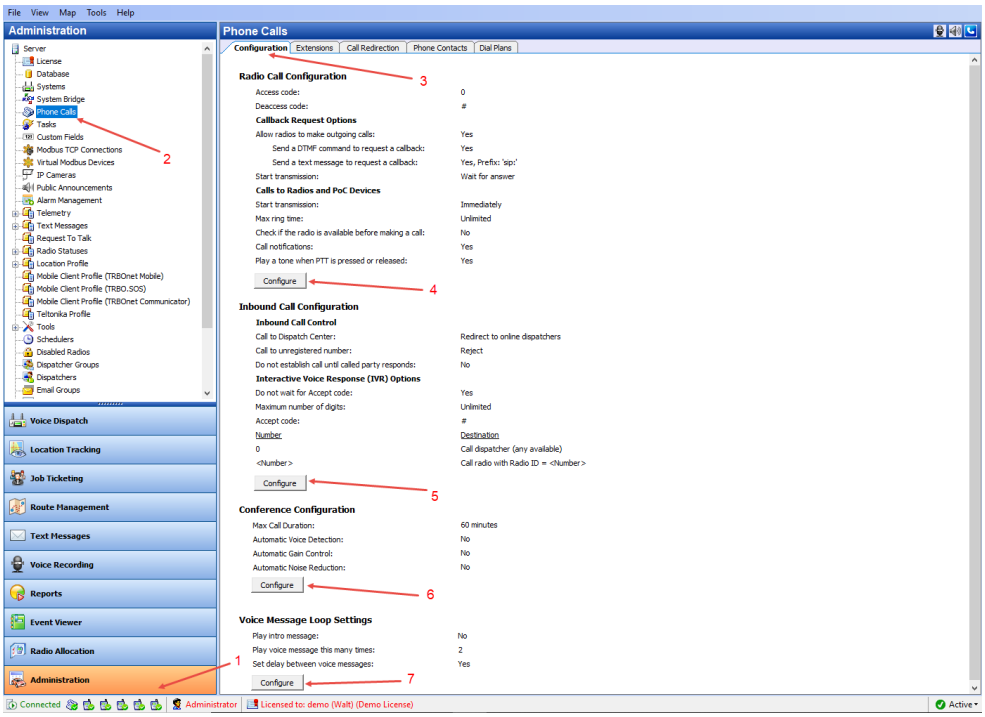


Note: System Bridges can also be created by drag and drop of the PTT boxes in the Radio Interface pane. It is a temporary System Bridge, which will be deleted after reconnecting to TRBOnet Server or exiting TRBOnet Dispatch Console.

6.4.4 Phone Calls

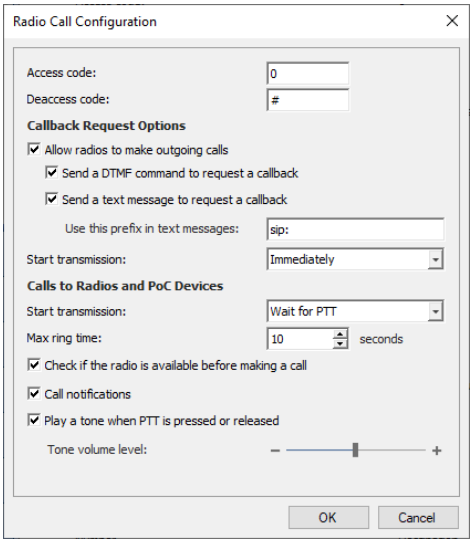
This section describes how to configure the Phone Connect system in TRBOnet Dispatch Console.

- Go to **Administration** (1), **Phone Calls** (2).
- In the **Phone Calls** pane, click the **Configuration** tab (3).



6.4.4.1 Radio Call Configuration

- Click the **Configure** button (4) to set radio call configuration parameters:



- **Access Code**
  Set the value to that configured for the radios as **Access Code** in MOTOTRBO CPS (see Appendix E: SIP Setup for Motorola Phone System, section Programming Radios).
- **Deaccess Code**
  Set the value to that configured for the radios as **Deaccess Code** in MOTOTRBO CPS (see Appendix E: SIP Setup for Motorola Phone System, section Programming Radios).

Callback Request Options

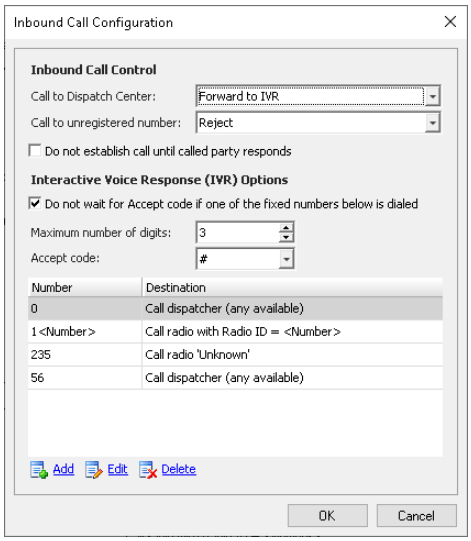
- **Allow radio users to make outgoing calls**
  Select this option to enable outgoing phone calls from the radios.
- **Send a DTMF command to request a callback**
  Select this option to allow radio users to dial the phone number as a sequence of DTMF tones sent over the radio channel.
- **Send a text message to request a callback**
  Select this option to allow radio users to initiate phone calls via sending TMS messages with a specified prefix to the dispatcher.
  - **Use this prefix in text messages**
    Enter the specific prefix for a text message.
- **Start transmission**
  Select the mode for starting transmission on the radio that initiates a call.
  - **Wait for answer**
    Transmission will be started as soon as the called party answers the call.
  - **Immediately**
    Transmission will be started immediately that is without waiting for the called party to answer the call.

Calls to Radios and PoC Devices

- **Start transmission**
  Select the option how to start transmission on the radio receiving a phone call.
  - **Immediately**
    Select to start the call immediately.
  - **Wait for PTT**
    Select to play a ringtone until the radio user presses the PTT.
- **Max ring time**
  Specify a timeout that defines how long to attempt to connect to the radio.
- **Check if the radio is available before making a call**
  If this option is selected, a Radio Check command will be executed before placing a call. Select this option if the **Use NAI Data (MNIS and DDMS)** option is not selected in the **Repeater** pane (see section 5.10.2, Adding a MOTOTRBO Repeater).
- **Call notifications**
  Select this option to send a text message to the radio when the channel is busy and a phone call cannot be established.
- **Play a tone phone when PTT is pressed or released**
  Select this option so that a tone will be played during the established phone call when PTT is pressed or released on the remote radio that doesn't support a Full-Duplex mode.

6.4.4.2 Inbound Call Configuration

- Click the **Configure** button (5) to set inbound call configuration parameters:



Inbound Call Control

- **Call to Dispatch Center**
  Select the mode for handling incoming calls made to the Dispatch Center.
  - **Reject**
    All incoming phone calls will be declined.
  - **Forward to IVR**
    When an incoming call arrives, the phone user will hear Voice Menu commands.
  - **Redirect to online dispatchers**
    All incoming voice calls will be redirected to all dispatchers of the Dispatch center and any available dispatcher will answer the phone call.
  - **Use as a regular phone number**
    A call to the Dispatch Center's number will be processed as a call to a regular phone number, and will depend on the selection made in the parameter below.
- **Call to unregistered number**
  Select the mode for handling incoming calls made to unregistered numbers.
  - **Reject**
    Select this option to decline all phone calls to unregistered subscribers.
  - **Use this number as Radio ID**
    Select this option so that the system will use unregistered numbers as a Radio ID and start a Private Call.
  - **Use this number as Internal Phone Number**
    Select this option to allow the system to read unregistered numbers according to Voice Menu rules.
  - **Forward call to PABX**
    Select this option to forward all calls to unregistered numbers to the External PBX.

Interactive Voice Response (IVR) Options

- **Do not wait for Accept code if one of the fixed numbers below is dialed**
  Select this option to search for the fixed number in the Extensions table automatically.
  When this option is disabled, the subscriber must dial the number according to the following example: **(phone number)#**. The character **#** (or ***, if selected as the Accept code) is used to search for the phone number in the table.
- **Maximum number of digits**
  Specify the maximum number of characters allowed in a phone number.

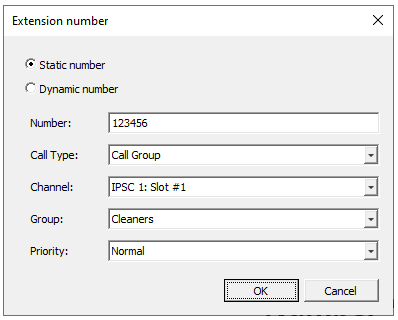
- **Accept Code**
  Specify the character that will be used to finish dialing the extension number.

All available numbers are listed in the table below.

- Click the **Add** link to add a number to the table.

  ### To add a static (fixed) number

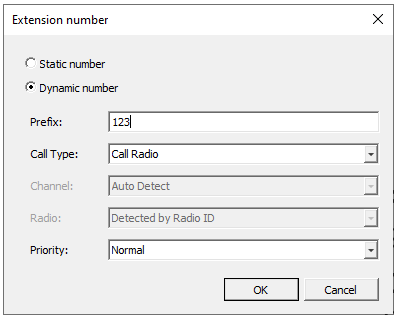
  - Choose Static number.



  - **Number**
    Enter a phone number to add to the table (contact list).
  - **Call Type**
    Select the call type from the drop-down list.
    - **Call Dispatcher**
      Select this type to make a phone call to the dispatcher.
    - **Call Radio**
      Select this type to make a phone call to the selected radio.
    - **Call Group**
      Select this type to make a phone call to the selected group.
  - **Channel**
    Select the channel to make a group phone call through (available for group calls only).
  - **Dispatcher/Radio/Group**
    Select the dispatcher, radio, or group depending on what you have selected in the **Call Type** box.
  - **Priority**
    Select the priority with which the call will be made (available for radio and group calls only).

  ### To add a dynamic number

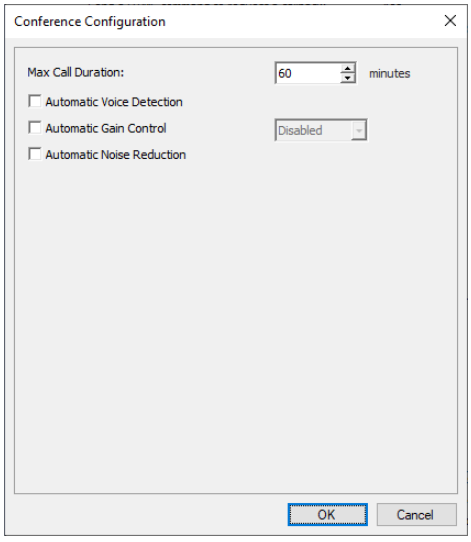
  - Choose Dynamic number.



- **Prefix**
  Specify a prefix to type in on the keyboard.
- **Call Type**
  Select the call type from the drop-down list.
  - **Call Radio**
    Select this type to make a phone call to a radio.
  - **Call Group**
    Select this type to make a phone call to a group.
  - **Call Phone**
    Select this type to make a phone call to a phone number.
- **Channel**
  Select the channel to make a group phone call through (available for group calls only).
- **Priority**
  Select the priority with which the call will be made (available for radio and group calls only).

6.4.4.3 Conference Configuration

- Click the **Configure** button (6) to set conference parameters:



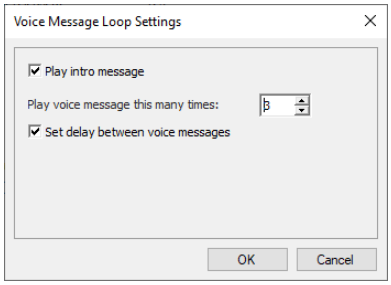
- **Max Call Duration**
  Enter the maximum time allowed for the conference, in minutes.

- **Automatic Voice Detection**
  Select this option to enable automatic voice detection during a conference call.
- **Automatic Gain Control**
  Select this option to enable automatic gain control during a conference call. In the list on the right, select the desired gain level, in dB.
- **Automatic Noise Reduction**
  Select this option to enable automatic noise reduction during a conference call.

6.4.4.4 Voice Message Loop Settings

- Click the **Configure** button (7) to configure Voice Message Loop Settings:

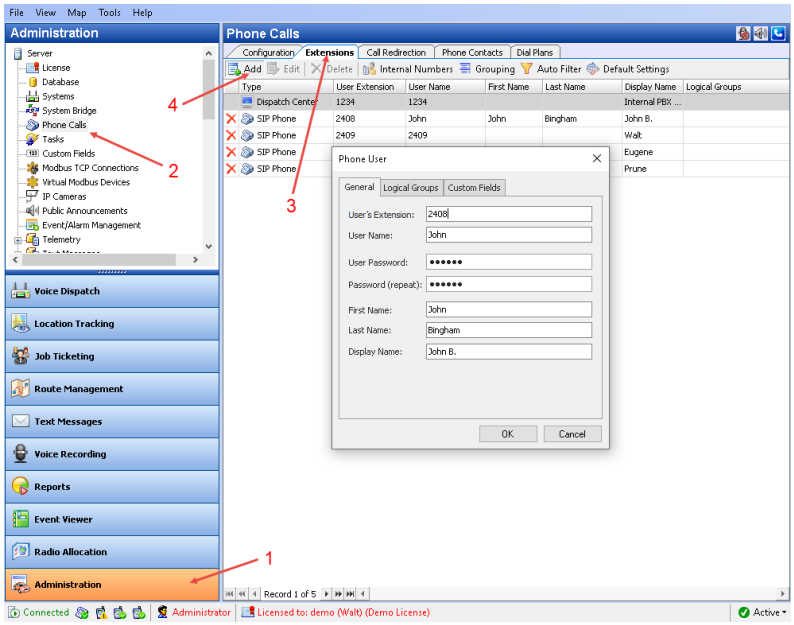
Note: These settings apply if the Voice Message task is enabled or the Voice Message or Text to Speech actions are selected in an Alarm Management rule.



- **Play intro message**
  Select this option to play an introduction message before playing the voice message itself.
- **Play voice message this many times**
  Specify how many times to play the voice message.
- **Set delay between voice messages**
  Select this option to set a delay between repeated voice messages.

6.4.4.5 Adding Extensions

- Go to **Administration** (1), **Phone Calls** (2).
- In the **Phone Calls** pane, click the **Extensions** tab (3), and then **Add** (4).



In the **Phone User** dialog box, specify the following parameters:

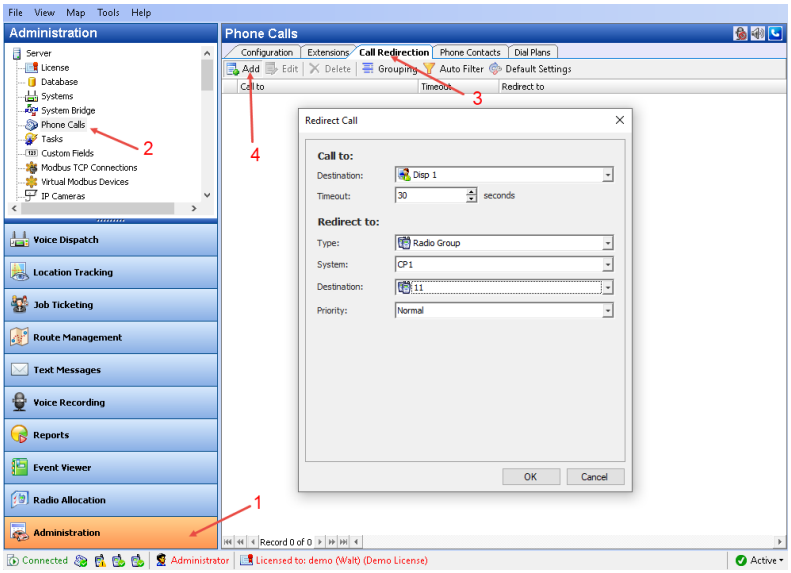
- **User's Extension**
  Enter the extension number that will be used by the phone user.
- **User Name**
  Enter the user name that will be used by the phone user.
- **User Password**
  Enter the password for the phone user to be authenticated by the phone system.
- **Password (repeat)**
  Enter the password again.
- **Fist Name/Last Name/Display Name**
  Enter the first, last and display names of the phone user.

- In addition, on the **Logical Groups** tab, specify logical groups for the phone user. For more information about logical groups, see section 6.4.29, Logical Groups.
- On the **Custom Fields** tab, specify the desired values for the custom fields. For more information about custom fields, see section 6.4.6, Custom Fields).

6.4.4.6 Call Redirection

If a dispatcher doesn't take a phone call within the set period or they have changed their status to unavailable, the call is automatically forwarded to a specified dispatcher, radio, radio group, or phone account. This can be useful during night shifts when no dispatcher is available.

- Click **Administration** (1), **Phone Calls** (2), **Call Redirection** (3), **Add** (4).



In the **Redirect Call** dialog box, specify the following parameters:

Call to

- **Destination**
  From the drop-down list, select the dispatcher or dispatcher group.
- **Timeout**
  Specify the time period, in seconds, defining how long to wait until the dispatcher answers a call.

Redirect to

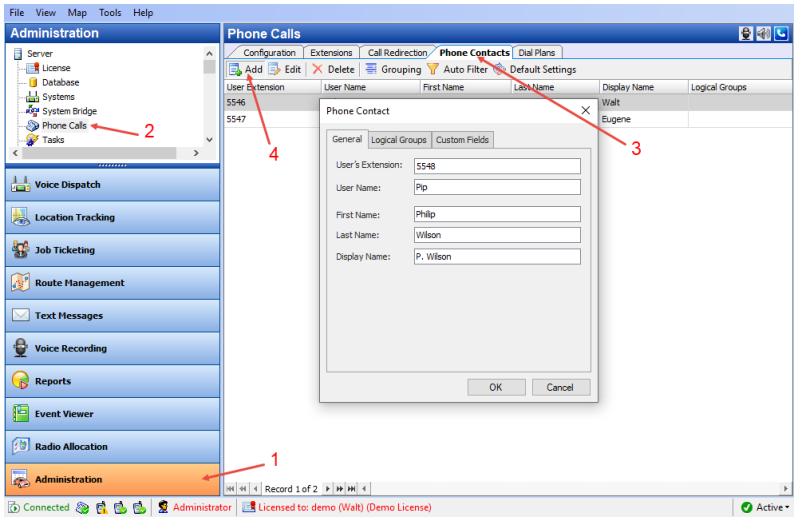
- **Type**
  From the drop-down list, select one of the following:
  - **Decline**
    The calls will be declined.
  - **Dispatcher**
    The calls will be redirected to a specified dispatcher or dispatcher group.
  - **Radio unit**
    The calls will be redirected to a specified radio.
  - **Radio Group**
    The calls will be redirected to a specified radio group.
  - **Phone account**
    The calls will be redirected to a phone account from the phone book.
- **System**
  If a radio group is selected as the redirection destination, select the radio system over which to make a call to the specified radio group.

- **Destination**
  From the drop-down list, select a particular dispatcher/dispatcher group, radio, radio group, or phone account, depending on what you have selected in the **Type** field.
- **Priority**
  If a radio or radio group is selected as the redirection destination, select the priority with which the call will be made over the radio system.

6.4.4.7 Phone Contacts

In addition to SIP extensions, the phone contacts can also be used in your Phone Connect system.

- Go to **Administration** (1), **Phone Calls** (2).
- In the **Phone Calls** pane, click the **Phone Contacts** tab (3), and then **Add** (4).



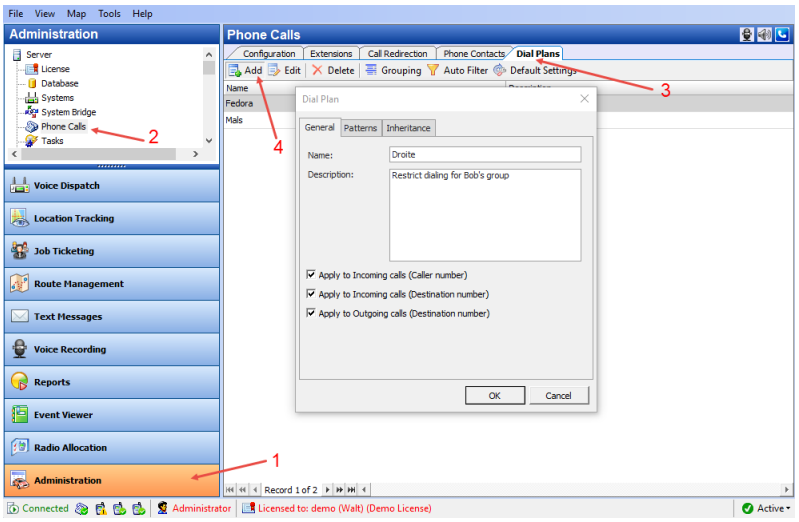
In the **Phone Contact** dialog box, specify the following parameters:

- **User's Extension**
  Enter the extension number for the phone contact.
- **User Name**
  Enter the user name for the phone contact.
- **Fist Name/Last Name/Display Name**
  Enter the first, last and display names of the phone contact.
- In addition, on the **Logical Groups** tab, specify logical groups for the phone contact. For more information about logical groups, see section 6.4.29, Logical Groups.
- On the **Custom Fields** tab, specify the desired values for the custom fields. For more information about custom fields, see section 6.4.6, Custom Fields).

6.4.4.8 Dial Plans

In order to restrict incoming and outgoing calls as well as set priority for calls, dial plans can be used in your Phone Connect system.

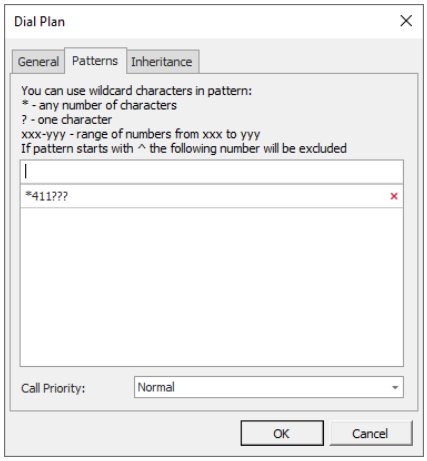
- Go to **Administration** (1), **Phone Calls** (2).
- In the **Phone Calls** pane, click the **Dial Plans** tab (3), and then **Add** (4).



In the **Dial Plan** dialog box, specify the following parameters:

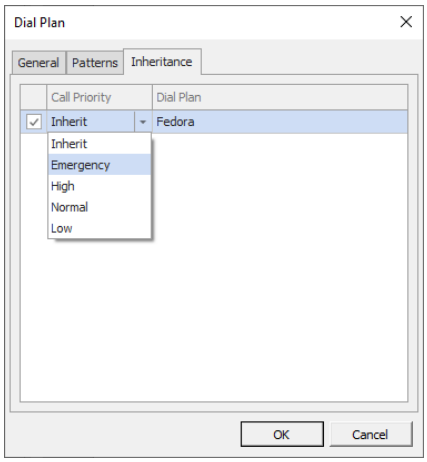
- **Name**
  Enter a name for the dial plan.
- **Description**
  Enter a description for the dial plan.
- **Apply to Incoming Calls (Caller number)**
  Select this checkbox to apply the dial plan to incoming calls from the numbers specified in the patterns.
- **Apply to Incoming Calls (Destination number)**
  Select this checkbox to apply the dial plan to incoming calls to the numbers specified in the patterns.
- **Apply to Outgoing Calls (Destination number)**
  Select this checkbox to apply the dial plan to outgoing calls to the numbers specified in the patterns.

- Click the **Patterns** tab.



- Specify the pattern that will be used to match the numbers in the dial string or the incoming call numbers.
- **Call Priority**
  From the drop-down list, specify the priority for the calls corresponding to the specified patterns.

- Click the **Inheritance** tab.



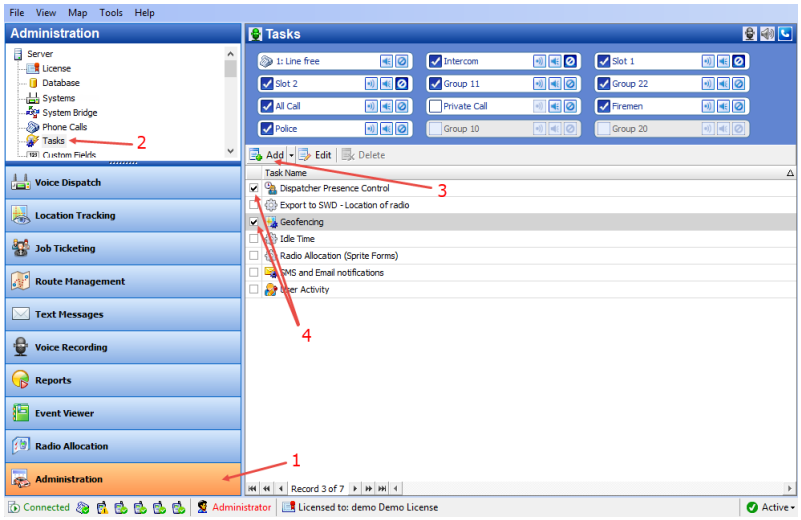
On this tab, you can select the profiles to include in the dial plan you are adding/editing.

- **Call Priority**
  From the drop-down list, select the priority for the inherited dial plan.

6.4.5 Tasks

This section describes how to configure the tasks that can be performed in TRBOnet Dispatch Console.

- Go to **Administration** (1), **Tasks** (2), and see the list of the tasks in the right pane.



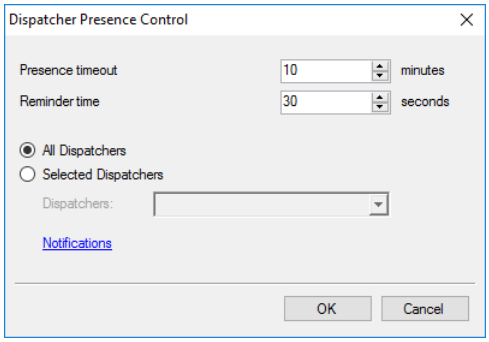
- To create a task, click **Add** (3), and from the drop-down list, select the appropriate task.

Note: After you have created a task you need to enable it. Just select the checkbox (4) beside the task you want to enable.

6.4.5.1 Dispatcher Presence Control

When enabled, this feature checks the presence of dispatchers and sends notifications to interested parties if the specified dispatchers are not present in the system.

- In the **Tasks** pane, double-click **Dispatcher Presence Control**.
- In the **Dispatcher Presence Control** dialog box, specify the following options:



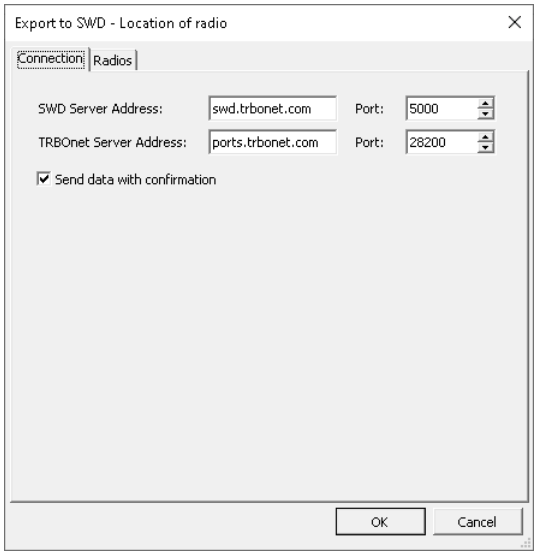
  - **Presence timeout**
    Enter the time period, in minutes, that will be used as a timeout to check for the presence of dispatchers.
  - **Reminder time**
    Enter the time period, in seconds, that will be used to show a reminder pop-up dialog before the planned time of performing the check. When the reminder appears on top of the screen, the dispatcher must click the round button in the center to confirm their presence in the system.

- **All Dispatchers**
  Choose this option button so that all dispatchers will be checked for presence.
- **Selected Dispatchers**
  Choose this option button so that only selected dispatchers will be checked for presence.
  - **Dispatchers**
    In the drop-down list, select the dispatchers.
- **Notifications**
  Click this link to select who will receive the appropriate notifications. The recipients may include dispatchers, Email groups, SMS groups, radios, and radio groups.

6.4.5.2 Export to SWD – Location of radio

When enabled, this task will perform exporting location data to a dedicated SWD Server database.

- In the **Tasks** pane, double-click **Export to SWD – Location of radio**.
- In the **Export to SWD – Location of radio** dialog box, specify the following options:



Connection tab

- **SWD Server Address**
  Enter the IP Address of the PC with the running SWD Server.
  - **Port**
    Enter the port number that will be used for the connection.
- **TRBOnet Server Address**
  Enter the IP Address of the PC with the running TRBOnet Server.
  - **Port**
    Enter the port number that will be used for the connection.

- **Send data with confirmation**
  Select this option to send location data to the SWD server until a confirmation is received.

Radios tab

- **Add data received from all radios**
  Choose this option so that location data will be sent to the SWD server from all radios in the system.
- **Add data received from selected radios**
  Choose this option, and in the list below, select the radios whose location data will be sent to the SWD server.

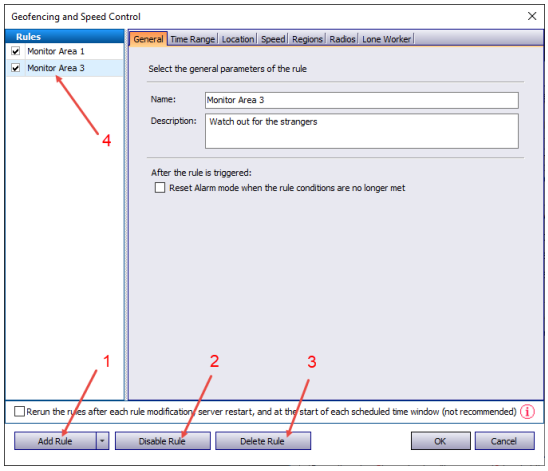
6.4.5.3 Geofencing

The Geofencing feature allows controlling the location and speed of radios relative to manually defined regions on the map.

The Geofencing monitoring consists of the manually defined regions and the tasks. The regions specify where to apply the rules, while the tasks specify how to apply the rules for the regions and radios.

- In the **Tasks** pane, double-click **Geofencing**.

The administrator can **add**/**disable**/**delete** the rules for Geofencing as well as edit the currently selected rules:



- Click the **Add Rule** button (1) and select the appropriate rule from the drop-down list (Map Region, Beacons, Radios) to add a rule to the current Geofencing configuration. A new rule will be displayed in the list of rules (4).
- Click the **Disable rule** button (2) to disable the selected rule.
- Click the **Delete rule** button (3) to delete the selected rule.
- **Rerun the rules after each rule modification, ...**
  If you select this option (though it is not recommended), the rule will be rerun each time the rule is modified, or the server is restarted, or when the scheduled time window starts.

Map Region Rule

This section describes settings that can be applied for a Map Region rule.

General tab

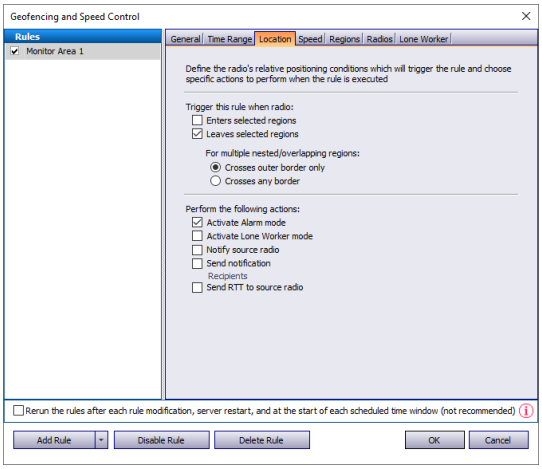
- **Name**
  Enter the rule name.
- **Description**
  Add a description of the rule.
- **After the rule is triggered**
  - **Reset Alarm mode when the rule conditions are no longer met**
    Select this option to reset Alarm mode after the rule is triggered.

Time Range tab

On this tab, you can select which time periods the rule will be monitored.

- **All Time**
  Choose this option to monitor the rule all the time.
- **Selected Time**
  Choose this option and specify the days of week and the time of day the rule will be monitored.
  - Click the **Add** link.
    - **Day of Week**
      From the list, select the day of week on which to monitor the rule.
    - **Start**
      Specify the time of day at which to start monitoring the rule.
    - **End**
      Specify the time of day at which to stop monitoring the rule.

Location tab



Trigger this rule when radio:

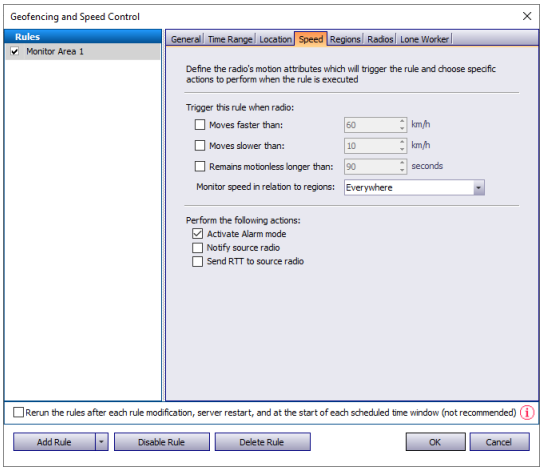
- **Enters selected regions**
  Select this option so that the rule will be triggered as soon as a radio enters the selected region.
- **Leaves selected regions**
  Select this option so that the rule will be triggered as soon as a radio leaves the selected region.
- **For multiple nested/overlapping regions**

  Choose one of the options specifying for multiple regions whether to consider only an outer border of the group of regions, or any border of a region within the group.

Perform the following actions:
Here you specify which actions to execute when the rule is triggered.

- **Activate Alarm mode**
  Select this option to activate an Alarm mode in the Dispatch Console.
- **Activate Lone Worker mode**
  Select this option to automatically activate a Lone Worker mode for the radio in case of entering or leaving the selected region.
- **Notify source radio**
  Select this option to automatically send a text message to the radio when it enters or leaves the selected region.
- **Send notification**
  Select this option to send a notification when the radio enters or leaves the selected region. Click the **Recipients** link and specify the recipients to send the notification to.
- **Send RTT to source radio**
  Select this option to automatically send a Request-to-Talk to the radio when it enters or leaves the selected region.

Speed tab



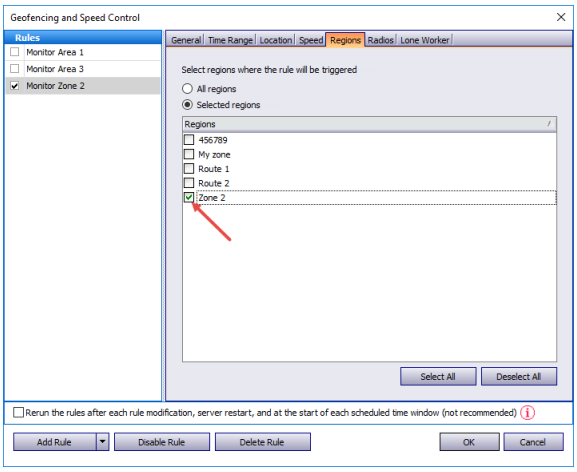
Trigger the rule when a radio:

- **Moves faster than**
  Select this option and specify the maximum allowed speed for the vehicles. The rule will be triggered when the vehicle with the radio exceeds this speed limit.
- **Moves slower than**
  Select this option and specify the minimum allowed speed for the vehicles. The rule will be triggered when the vehicle with the radio drops below the specified speed.
- **Remains motionless longer than**
  Select this option and specify the time period, in seconds, during which the vehicle is allowed to remain motionless. The rule will be triggered when the vehicle with the radio remains motionless longer than this specified time period.
- **Monitor speed in relation to regions**
  From the drop-down list, select where to monitor the speed of the vehicles: inside or outside the selected regions, or independently of the regions.

Perform the following actions:
Here you specify which actions to execute when the rule is triggered.

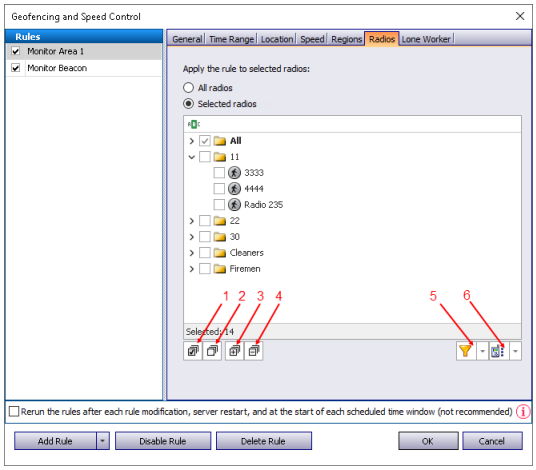
- **Activate Alarm mode**
  Select this option to activate an Alarm mode in the Dispatch Console.
- **Notify source radio**
  Select this option to automatically send a text message to the radio when it enters or leaves the selected region.
- **Send RTT to source radio**
  Select this option to automatically send a Request To Talk to the radio when it enters or leaves the selected region.

Regions tab



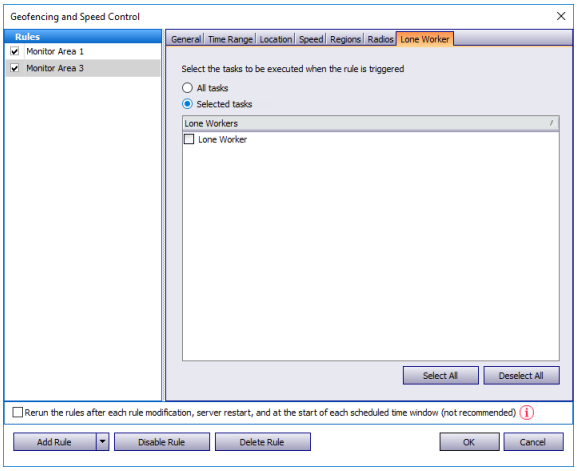
- **All regions**
  Choose this option to apply this rule for all regions.
- **Selected regions**
  Choose this option to apply the rule for one or several regions.
- **Select all**
  Click this button to select all regions in the list.
- **Deselect all**
  Click this button to deselect all regions in the list.

Radios tab



- **All radios**
  Choose this option to apply this rule for all radios.
- **Selected radios**
  Choose this option to apply the rule for one or several radios.
- **Select all** (1)
  Click this button to select all radios in the list.
- **Clear all** (2)
  Click this button to deselect all radios in the list.
- **Collapse all** (3)
  Click this button to collapse the view of radios in the list.
- **Expand all** (4)
  Click this button to expand the view of radios in the list.
-  (5)
  Click this button, and from the drop-down menu, select filters for the radios to be displayed in the list (Online (Indoor, GPS Fixed, No GPS), Offline).
-  (5)
  Click this button, and from the drop-down menu, select which list to display: Radio List, Radio Groups, or Logical Groups.

Lone Worker tab



- **All tasks**
  Choose this option to execute all Lone Worker tasks configured by the administrator when the rule has been triggered.
- **Selected tasks**
  Choose this option, and in the list below, select the Lone Worker tasks to be executed when the rule has been triggered.

Other Rules

This section describes settings that can be applied for Geofencing rules of the types other than Map Region. These settings are represented in the table below:

Rule Type	Tab Name	Parameters Description
Settings common for all rule types	**General**	**Name** – Enter the rule name. **Description** – add the rule description.
	Time Range	**All Time** Choose this option to monitor the rule all the time. **Selected Time** Choose this option and specify the days of week and the time of day the rule will be monitored. ▪ Click the **Add** link. • **Day of Week** From the list, select the day of week on which to monitor the rule. • **Start** Specify the time of day at which to start monitoring the rule. • **End** Specify the time of day at which to stop monitoring the rule.

Rule Type	Tab Name	Parameters Description
	Radios	**All radios** – choose to apply this rule for all radios; **Selected radios** – choose to apply the rule for one or several radios;

Rule Type	Tab Name	Parameters Description
Beacons Allows configuring rules when a radio enters or leaves the beacon coverage zone	**General**	**Rule Type:** **Beacon entry** – select to enable the rule when a radio enters the beacon coverage zone. **Beacon exit** - select to enable the rule when a radio leaves the beacon coverage zone. **Activate Alarm mode when the rule is triggered** - select this option to activate Alarm mode in the Dispatch Console if Beacons rule has been triggered. **Reset Alarm mode if the rule is not triggered** – select to reset Alarm mode in the Dispatch Console automatically if the rule condition was not triggered (for example, when **Beacon entry** is selected and the radio enters the monitored coverage zone and then leaves the zone, the alarm mode in the Dispatch Console will be reset automatically). **Send RTT to radio when the rule is triggered** – select this option to automatically send a Request To Talk to the radio if the rule has been triggered. **Send text message to radio when the rule is triggered** – select this option to automatically send a text message to the radio if the rule has been triggered. **Activate Lone Worker when the rule is triggered** – select this option to allow automatically activating a Lone Worker policy for a radio in case of entering or leaving beacon coverage zone.
	Time Range	See above.
	Radios	See above.
	Beacons	**All Beacons** – choose to apply this rule for all beacons; **Selected beacons** – choose to apply the rule for one or several beacons.
	Lone Worker	**All tasks** – choose to apply all tasks configured by the administrator when the rule has been triggered; **Selected tasks** – choose this option, and in the list below, select the Lone Worker tasks to be executed when the rule has been triggered.

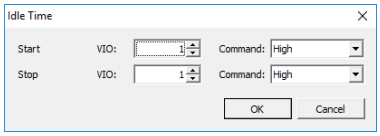
Rule Type	Tab Name	Parameters Description
Radios Allows using radio(s) as map region(s) and monitoring when another radio enters or leaves the vicinity of the radio's zone	**General**	**Rule Type:** **Geofence entry** – select to enable the rule when a radio enters the proximity zone associated with another radio. **Geofence exit** - select to enable the rule when a radio leaves the proximity zone associated with another radio. **Activate Alarm mode when the rule is triggered** - select to activate Alarm mode in the Dispatch Console if Radios rule has been triggered. **Reset Alarm mode if the rule is not triggered** – select to reset Alarm mode in the Dispatch Console automatically if the rule condition was not triggered (for example, when **Geofence entry** is selected and radio enters the monitored vicinity zone and then instantly leaves the zone, alarm mode in the Dispatch Console will be reset automatically). **Send text message to radio when the rule is triggered** – select to inform radio user if the rule has been triggered. **Send RTT to radio when the rule is triggered** – select to inform radio user if the rule has been triggered. **Minimum distance between radios** – specify the distance, in meters or feet, depending on what is chosen in **Tools > Options > Advanced / Measurement system**. When a distance is less than the selected value, the rule will be triggered according to the settings above. **Color of region** – select the color for the radio's proximity zone.
	Time Range	See above.
	Proximity Zones	Select the radios in the proximity zones of which the rule is applied.
	Radios	See above.
	Map Regions	**Rule works only in regions** Select this option and then choose either **All regions** or **Selected regions**.

6.4.5.4 Idle Time

The Idle Time feature allows monitoring vehicles idle time assigning Telemetry Commands on selected VIOs.

- In the **Tasks** pane, double-click **Idle Time**.

Specify the telemetry command to set the Idle Time:



Start

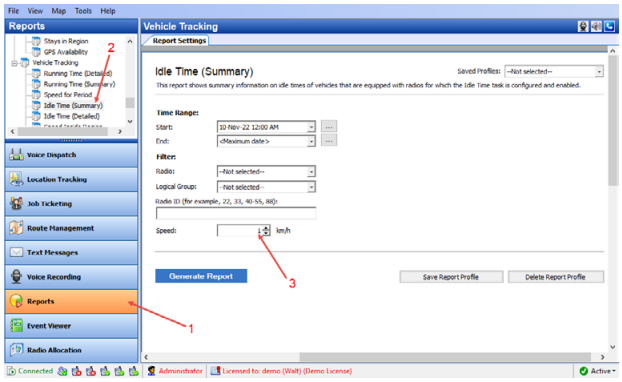
- Specify the telemetry **VIO** and **Command** to start the Idle Time task.

Stop

- Specify the telemetry **VIO** and **Command** to stop the Idle Time task.

The administrator can see Idle Time reports and statistics.

Click **Reports** (1), and under **Location History > Vehicle Tracking**, select **Idle Time (Summary)** or **Idle Time (Detailed)** (2), and specify report parameters:



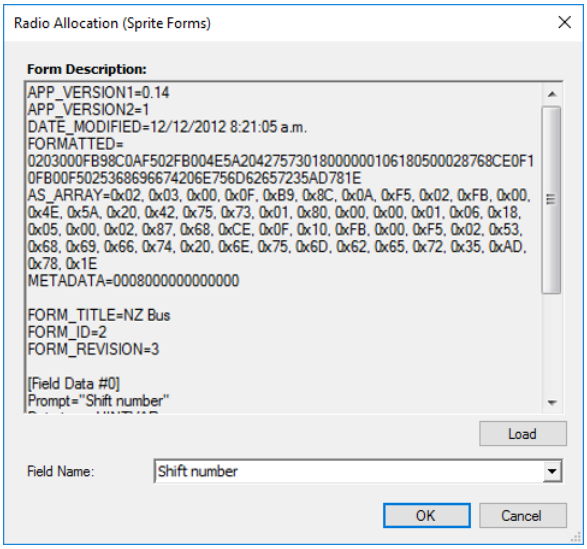
> Note: Specify the speed accuracy value in the **Speed** box (3).

6.4.5.5 Radio Allocation (Sprite Forms)

This function is used for direct communication between the dispatcher and the subscriber via special **Tallysman Option board** installed into the radio. The dispatcher and subscriber have special form templates. The dispatcher receives Duty ID of the subscriber with his template output form whereas the subscriber sends it using his template input form. The radio name changes to its Duty ID.

> Note: Any activity may be decoded with its Duty ID so this is a way to communicate for the dispatcher and subscribers only.

- In the **Tasks** pane, double-click **Radio Allocation (Sprite Forms)**.
- Load the **Sprite Form** (output template) and select the **Field Name**:



- Click **OK** to add a Sprite Form.

6.4.5.6 SMS and Email Notifications

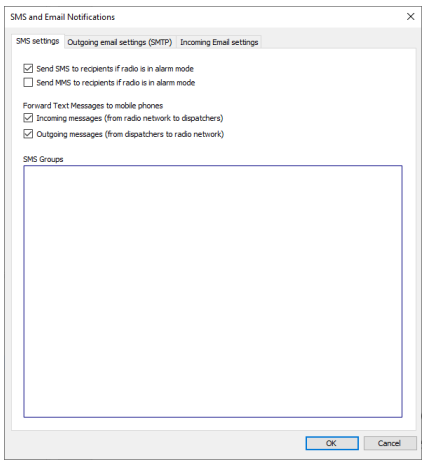
TRBOnet Dispatch Console allows managing text messages:

1. Send Text Messages from LAN to a particular radio or talk group (POP3 Server);
2. Forward all Text Messages from radios to base radio to particular email address (SMTP Server).

> Note: Microsoft Exchange Server can be used as SMTP and POP3 servers. For more details on SMTP or POP3 servers, ask your System Administrator.

- In the **Tasks** pane, double-click **SMS and Email notifications**:

SMS settings tab



- **Send SMS to recipients if radio is in alarm mode**
  Select this option to send an SMS in case of an alarm on the radio.

- **Send MMS to recipients if radio is in alarm mode**
  Select this option to send an MMS in case of an alarm on the radio.

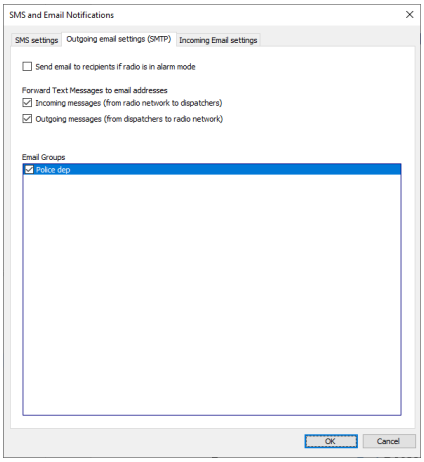
Forward Text Messages to mobile phones

- **Input messages (from radio network to dispatchers)**
  Select this option to forward incoming text messages to mobile phones.
- **Output messages (from dispatchers to radio network)**
  Select this option to forward outgoing text messages to mobile phones.

For more details on SMS settings, see section 5.17.2, Outgoing Mail Server (page 104).

A radio sends text messages to the base station. TRBOnet Server forwards all text messages to a particular email address (for example, admin@yourcompany.com). The administrator receives text messages from radios as regular emails.

Outgoing Email settings (SMTP) tab



- **Send email to recipients if radio is in alarm mode**
  Select this option to send an Email in case of alarm.

Forward Text Messages to email recipients

- **Input messages (from radio network to dispatchers)**
  Select this option to forward incoming text messages to Email address(es).
- **Output messages (from dispatchers to radio network**)
  Select this option to forward outgoing text messages to Email address(es).

Incoming Email settings tab

TRBOnet Server connects to POP3 server, reads emails and sends text messages to radios or talk groups.

1. Create an email account on your email server.

2. Send an email to radioserver@yourcompany.com. In the **Subject** field, enter either 'RadioID:XXX' to send an email to a selected radio, or 'GroupID:XXX' to send an email to a selected radio group.

   Note: If you don't properly specify the email **Subject**, or specified a non-existing **RadioID** (or **GroupID**), a corresponding notification will appear in the Event Viewer of the Dispatch Console.

- **Forward incoming emails to radios**
  Select this option to forward incoming emails to radio network.

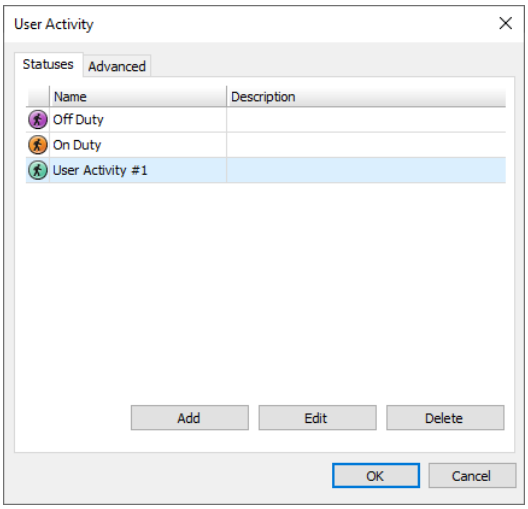
6.4.5.7 User Activity

The **User Activity** function allows the dispatcher to create the statuses to which radios can be assigned due to their activity.

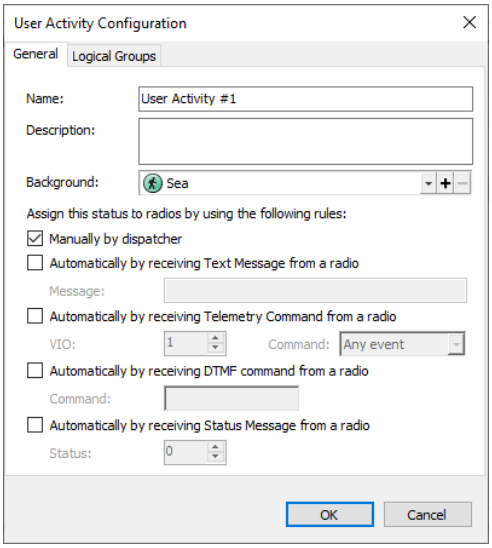
For example, if a radio sends an **On duty** message or presses an exact preset telemetry button, this radio gets assigned to the **On duty** status in the Dispatch Console. The dispatcher can also manually assign desired statuses to radios.

- In the **Tasks** pane, double-click **User Activity**:

Statuses tab



- Click **Add** to add a User Activity status:

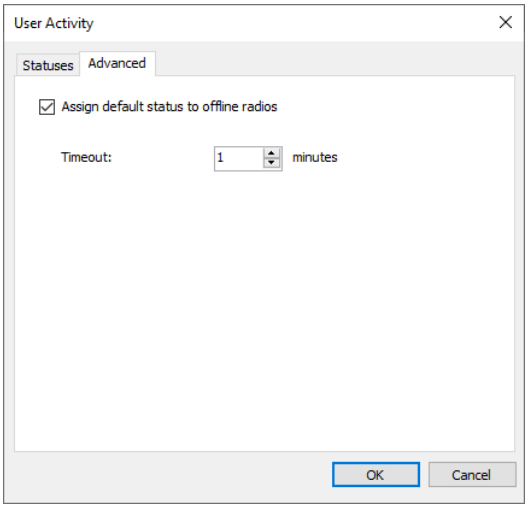


- **Name**
  Enter a name for the user activity status.
- **Description**
  Add a description for the user activity status.
- **Background**
  Select the background color to display the radios assigned to the status.

Assign this status to radios by using the following rules:

- **Manually by dispatcher**
  Select this option to assign the status to radios manually.
- **Automatically by receiving Text Message from a radio**
  Select this option to assign the status to the radio list after receiving a text message from the radio. If you select this option, enter the text message in the **Message** box.
- **Automatically by receiving Telemetry Command from a radio**
  Select this option to assign the status to the radio after receiving a telemetry command from the radio. If you select this option, specify the **VIO** contact, and from the **Command** drop-down list, select the signal level at which the radio should send the telemetry command.
- **Automatically by receiving DTMF command from a radio**
  Select this option to assign the status to the radio after receiving a predefined DTMF command from the radio, for instance, #11#. If you select this option, specify a DTMF combination without the # characters in the **Command** box.
- **Automatically by receiving Status Message from a radio**
  Select this option to assign the status to the radio after receiving a specified Status Message, for instance, 1. If you select this option, specify the **Status**.

Click the **Advanced** tab:

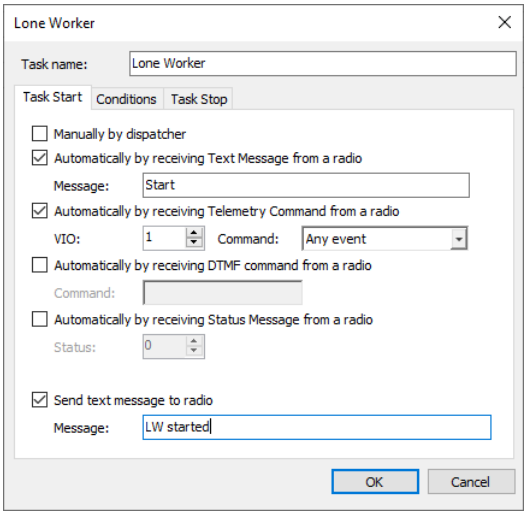


- **Assign default status to offline radios**
  Select this option to assign the default status to offline radios.
- **Timeout**
  Specify the time period, in minutes, after which the default status will be assigned an offline radio.

6.4.5.8 Lone Worker

The Lone Worker policy lets the dispatcher set a time interval the communication with a radio user is expected. For example, if a lone worker has not called the dispatcher for 15 minutes, the radio receives a message and the Dispatcher receives an alarm signal.

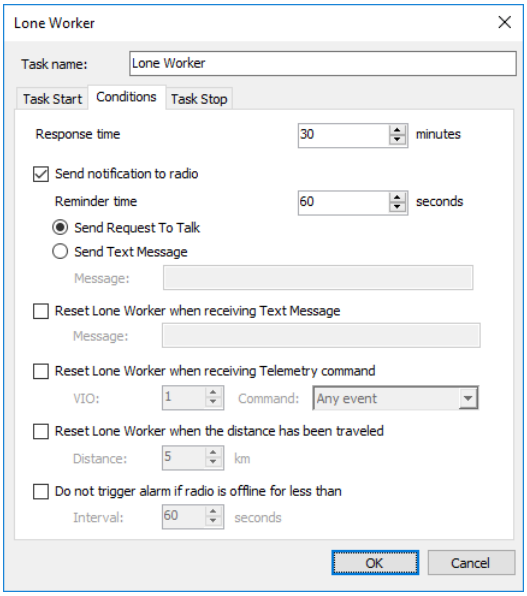
- To add a Lone Worker task, in the **Tasks** pane, click **Add > Lone Worker**.
- In the **Lone Worker** dialog box that appears, specify the following parameters:



Task Start tab

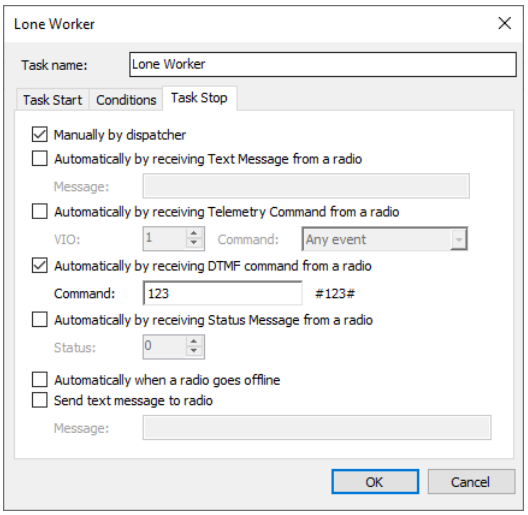
- **Manually by dispatcher**
  Select this option to start the Lone Worker task manually by the dispatcher.
- **Automatically by receiving Text Message from a radio**
  Select this option so that the Lone Worker task will start after receiving a message from a radio. If you select this option, specify a text message in the **Message** box.
- **Automatically by receiving Telemetry Command from a radio**
  Select this option so that the Lone Worker task will start after receiving a telemetry command from a radio. If you select this option, specify the **VIO** contact, and from the **Command** drop-down list, select the signal level at which the user's radio should send the telemetry command.
- **Automatically by receiving DTMF command from a radio**
  Select this option so that the Lone Worker task will start after receiving a predefined DTMF command, for instance, #11#. If you select this option, specify a DTMF combination without the # characters in the **Command** box.
- **Automatically by receiving Status Message from a radio**
  Select this option so that the Lone Worker task will start after receiving a specified status from a radio. If you select this option, specify **Status**.
- **Send text message to radio**
  Select this option and in the **Message** box enter the text message that will be sent to the radio when a Lone Worker task is started for that radio.

Conditions tab



- **Response time**
  Specify the time period, in minutes, that determines how long TRBOnet Server waits since the last radio transmission.
- **Send notification to radio**
  Select this option so that TRBOnet Server will send a notification to the radio before raising the alarm if the radio has not transmitted for the specified time period.
  - **Reminder time**
    Specify the time period before it comes to raise the alarm, to send a notification asking the radio to respond.
  - **Send Request to Talk**
    Choose this option to send a Request-to-Talk to the radio.
  - **Send Text Message**
    Choose this option to send a text message to the radio. Specify the message text in the **Message** box.
- **Reset Lone Worker when receiving Text Message**
  Select this option to reset the Lone Worker task after receiving the message specified in the **Message** box.
- **Reset Lone Worker when receiving Telemetry command**
  Select this option to reset the Lone Worker task after receiving the telemetry command. If you select this option, specify the **VIO** contact, and from the **Command** drop-down list, select the signal level at which the user's radio should send the telemetry command.
- **Reset Lone Worker when the distance has been traveled**
  Select this option to reset the Lone Worker task after the distance specified in the **Distance** box has been traveled.
- **Do not trigger alarm if radio is offline for less than**
  Select this option so that the alarm is not triggered if the radio is offline for a time less than the time specified in the **Interval** box.

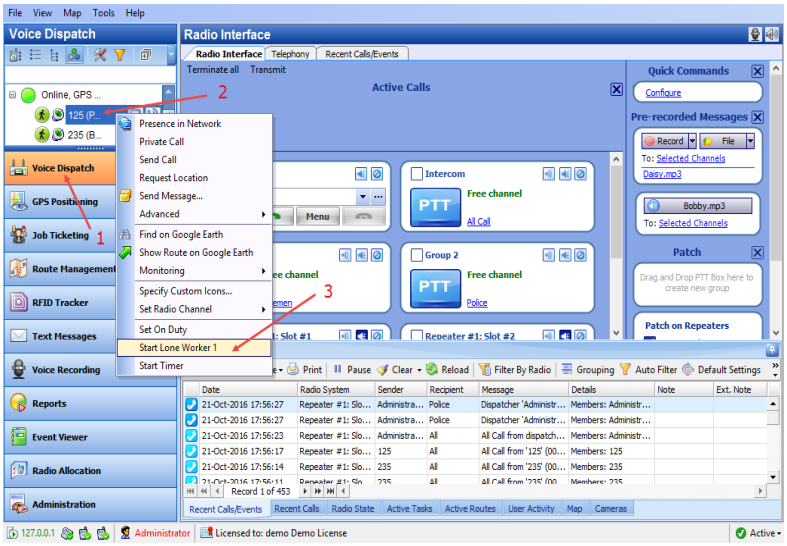
Task Stop tab



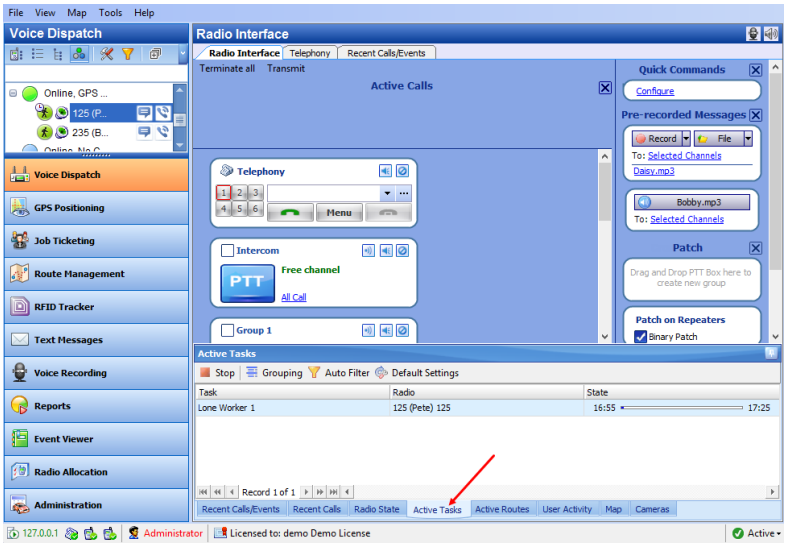
In the **Task Stop** tab, you can specify how to stop the Lone Worker task. The available options are similar to those you specified on the **Task Start** tab.

Enabling Lone Worker

- To enable the Lone Worker task for a selected radio, go to **Voice Dispatch** (1), right-click the selected radio (2), and choose **Start Lone Worker** (3):



- To monitor the Lone Worker task, click the **Active Tasks** tab:



6.4.5.9 Lone Worker Scheduler

The Lone Worker Scheduler task allows configuring a schedule for the Lone Worker task.

- To add the task, in the **Tasks** pane, click **Add > Lone Worker Scheduler**.
- **Task name**
  Enter a name for the task.

Time Range tab

- **All Time**
  Choose this option to run the task all the time.
- **Selected Time**
  Choose this option and specify the days of week and the time of day the task will be run.
  - Click the **Add** link.
    - **Day of Week**
      From the list, select the day of week on which to run the task.
    - **Start**
      Specify the time of day at which to start running the task.
    - **End**
      Specify the time of day at which to stop running the task.

Radios tab

- **All radios**
  Choose this option to run the task for all radios.
- **Selected radios**
  Choose this option to run the task for one or several radios.

Lone Worker tab

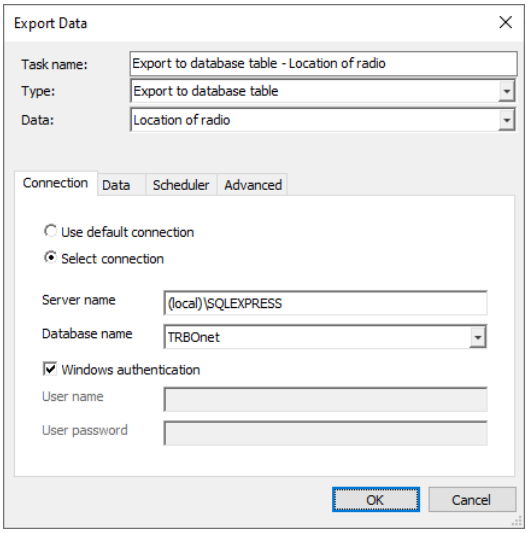
- **All tasks**
  Choose this option to run all Lone Worker tasks.
- **Selected tasks**
  Choose this option, and in the list below, select the Lone Worker tasks to run.

  Note: When a Lone Worker task is mentioned as **Disabled**, enable it on the **Tasks** pane.

6.4.5.10 Export Data

TRBOnet Dispatch Console provides the Export Data function, which allows exporting data to an external database table.

- To add an Export Data task, in the **Tasks** pane, click **Add > Export Data**.
- In the **Export Data** dialog box, specify the following parameters:

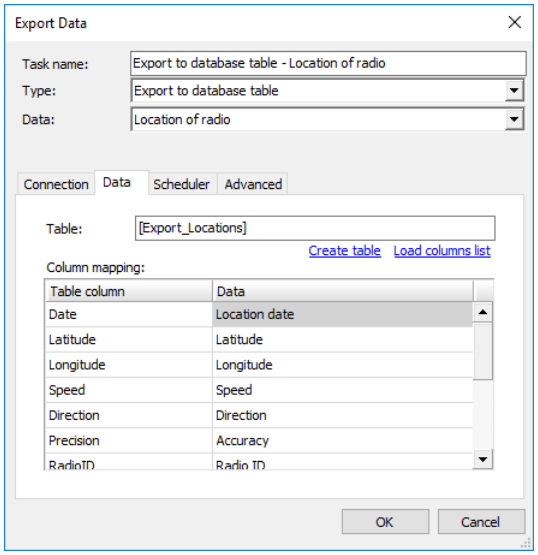


Connection tab

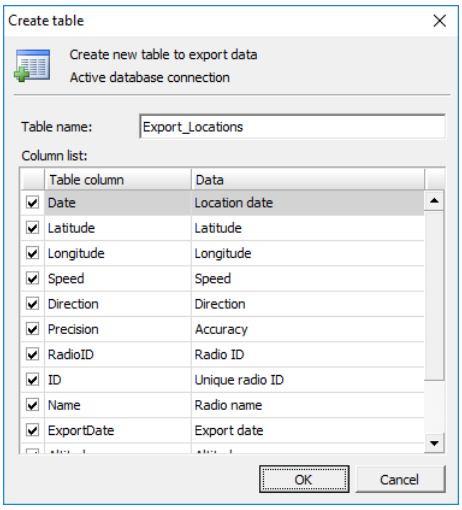
- **Task name**
  Enter a name for the task.
- **Type**
  Select the type of data export from the drop-down list. TRBOnet Dispatch Console allows exporting data for third-party systems using data export tasks.
  - **Export to database table**
    Allows exporting data to MS SQL Server tables. Specify MS SQL Server connection parameters, database, and table to export data.
  - **Export to Versatrans**
    Allows exporting data to the Versatrans data collection system via IP. For more details, visit the official website of Versatrans.
  - **Export to Google**
    Allows exporting data to file (file format is KML). For more details, visit the following website.
  - **Export to NMEA**
    Allows exporting data to a file (text file format, export format is NMEA 0183). For more details, visit the following website.
  - **Export to file**
    Allows exporting data to a text file.
- **Data**
  Select which data to export from the drop-down list.
- **Use default connection**
  Choose this option to use the default connection to SQL Server.
- **Select connection**
  Choose this option and specify the SQL Server and database name.

- **Server name**
  Enter the SQL server name.
- **Database name**
  Select the database from the drop-down list.
- **Windows authentication**
  Select this option to use **Windows authentication**, or deselect it to use **SQL Server authentication** (SQL Server user name and password will be required).

Data tab

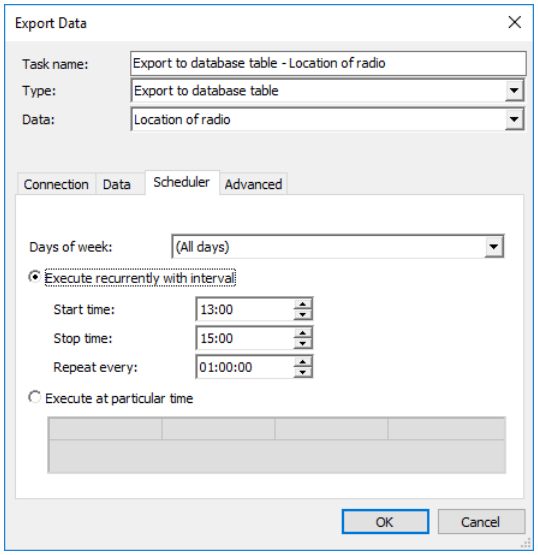


- **Table**
  the name of the table to be exported into external database (by default, the name of the table is created after you have specified it in **Create table** dialog box).
- Click the **Load columns list** link to update the columns list in case you have made any changes to the table.
- Click the **Create table** link to add a new table for data export:



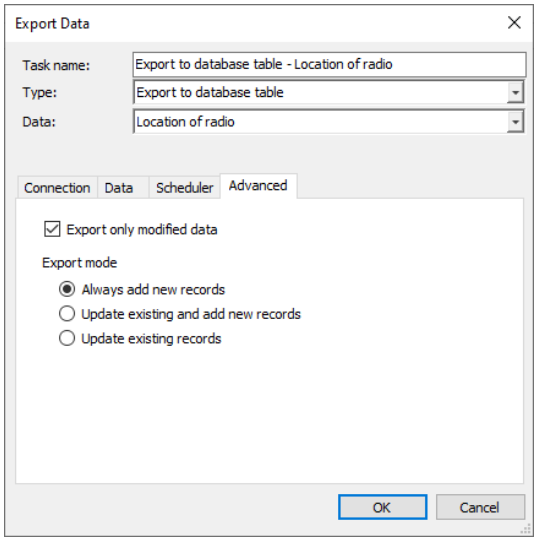
- Select the data fields to add to the table.

Scheduler tab



- **Days of week**
  In the drop-down list, select the days of the week on which to export the data.
- **Execute recurrently with interval**
  Choose this option to perform data export on a periodic basis.
  - **Start time**
    Specify the time at which to start data export.
  - **Stop time**
    Specify the time at which to stop data export.
  - **Repeat every**
    Specify a time period for periodic data exports.
- **Execute at particular time**
  Choose this option and specify the times in the columns of the table below.

Advanced tab

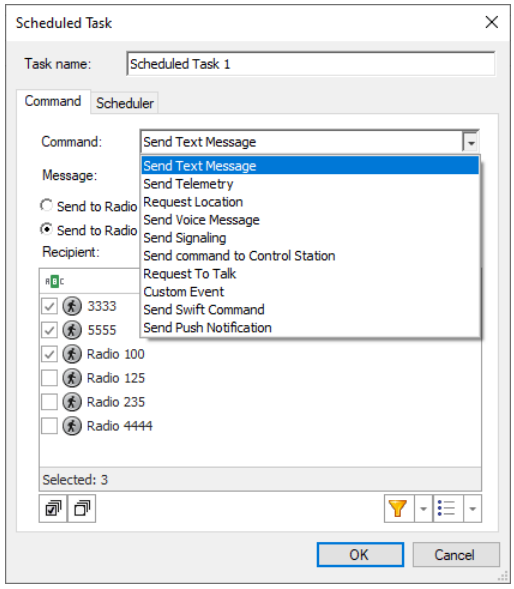


- **Export only modified data**
  Select this option to export only modified data.
- **Export mode**
  Choose the mode for exporting data.

6.4.5.11 Scheduled Task

This task allows sending scheduled commands to selected radios.

- To add a scheduled task, in the **Tasks** pane, click **Add > Scheduled Task**.
- In the **Scheduled Task** dialog box, specify the following parameters:

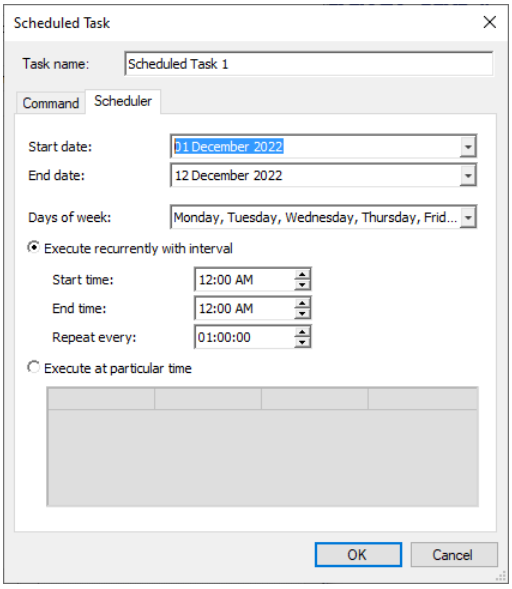


- **Task name**
  Enter a name for the task.

Command tab

- **Command**
  From the drop-down list, select what to send to selected radios.
  For a description of the available commands, see sections 6.5.6.1 - 6.5.6.10.

Scheduler tab



- **Start date**
  Select the date to start the task.
- **End date**
  Select the date to end the task.
- **Days of week**
  In the drop-down list, select the days of the week on which to perform the task.
- **Execute recurrently with interval**
  Choose this option to perform the task on a periodic basis.
- **Start time**
  Specify the time at which to start the task.
- **End time**
  Specify the time at which to end the task.
- **Repeat every**
  Specify a time period for periodic task executions.
- **Execute at particular time**
  Choose this option and specify the times in the columns of the table below.

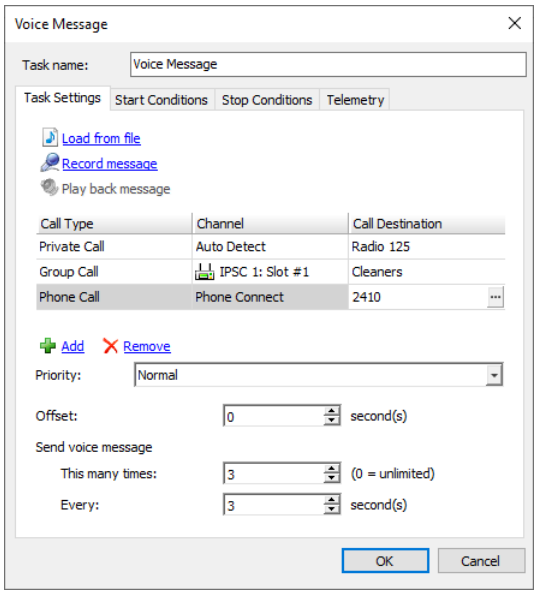
6.4.5.12 Voice Message

The Voice Message task allows you to automatically broadcast a predefined Voice Message after receiving a telemetry command, a text message, or a DTMF command.

- To add a Voice Message task, in the **Tasks** pane, click **Add > Voice Message**.

The user can have several Voice Message policies for different purposes. Enter a name for the policy in the **Task name** box and set the policy parameters.

Task Settings tab



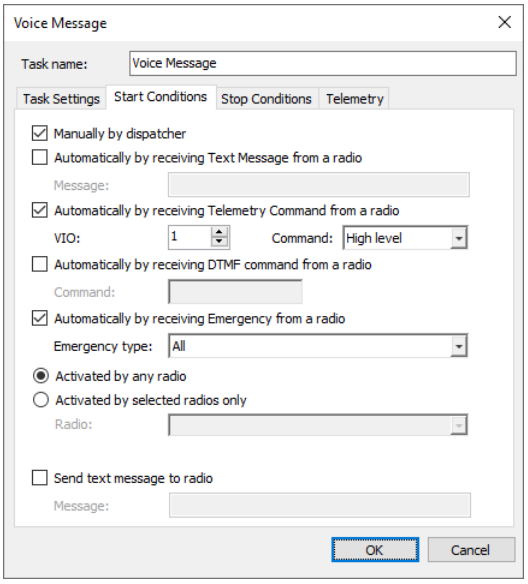
- **Load from file**
  Click this link to load an existing file from your PC.
- **Record message**
  Click this link to record a new voice message.
- **Play back message**
  Click this link to play back the voice message.
- Click the **Add** link and specify **Call Type**, **Channel**, and **Call Destination** for a voice message.

  Note: To send a Voice Message to a contact from the phone book, click the ellipsis (**...**) button in the Call Destination column and select a contact from the phone book.

- **Priority**
  From the drop-down list, select the priority with which the voice message will be sent/queued. If this priority is higher than that of the current transmission, which is, in turn, allowed to be interrupted, the current transmission will be interrupted, and the voice message will be sent instead.

- **Offset**
  Specify the delay time, in seconds, for the Voice Message task.
- **Send Voice Message**
  - **This many times**
    Enter the number of times to send the voice message.
  - **Every**
    Set the repeat interval, in seconds, if the voice message is sent more than once.
  - **Resend if interrupted**
    Select this option so that the voice message will be resent if the sending of the voice message is interrupted.

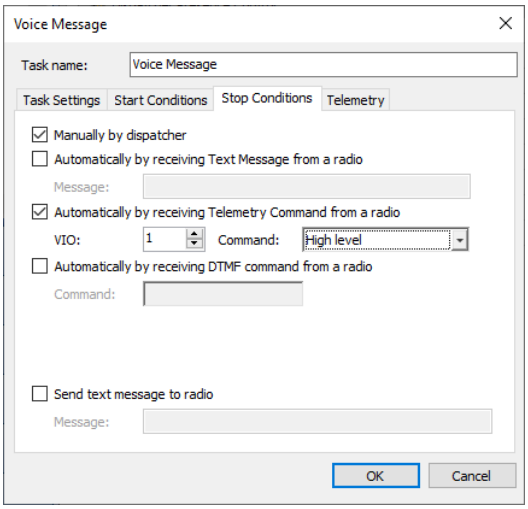
Start Conditions tab



- **Manually by dispatcher**
  Select this option to allow the dispatcher to manually start the Voice Message task.
- **Automatically by receiving Text Message from a radio**
  Select this option to start the Voice Message task after receiving a specified text message from a radio. If you select this option, specify a brief text message in the **Message** box.
- **Automatically by receiving Telemetry Command from a radio**
  Select this option to start the Voice Message task after receiving a telemetry command. If you select this option, specify the **VIO** contact, and from the **Command** drop-down list, select the signal level at which the user's radio should send the telemetry command.

- **Automatically by receiving DTMF command from a radio**
  Select this option to start the Voice Message task after receiving a DTMF command from a radio, for instance, #11#. If you select this option, specify a DTMF combination without the # characters in the **Command** box.
- **Automatically by receiving Emergency from a radio**
  Select this option to start the Voice Message task after receiving an emergency command from a radio.
  - **Emergency Type**
    From the drop-down list, select the type of emergency to be sent from a radio.
- **Activated by any radio**
  Choose this option to expect receiving data from any radio in the system.
- **Activate by selected radios only**
  Choose this option to expect receiving data from selected radios.
  - **Radio**
    In the drop-down list, select the radio(s).
- **Send text message to radio**
  Select this option so that a text message will be sent to the radio that activated the Voice Message task. If you select this option, specify a brief text message in the **Message** box.

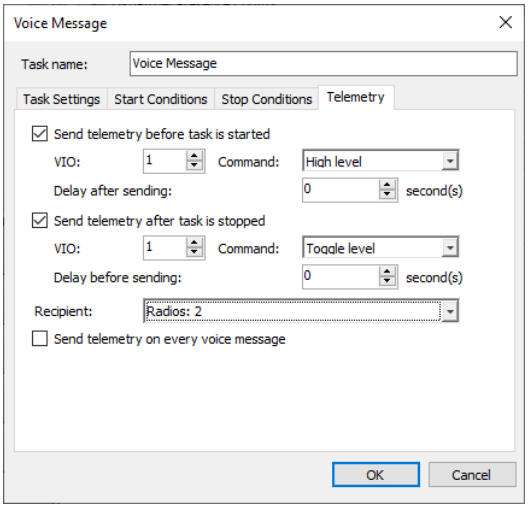
Stop Conditions tab



- **Manually by dispatcher**
  Select this option to allow the dispatcher to manually stop the Voice Message task.
- **Automatically by receiving Text Message from a radio**
  Select this option to stop the Voice Message task after receiving a message from a radio. If you select this option, specify a text message in the **Message** box.

- **Automatically by receiving Telemetry Command from a radio**
  Select this option to stop the Voice Message task after receiving a telemetry command from a radio: If you select this option, specify the **VIO** contact, and from the **Command** drop-down list, select the signal level at which the user's radio should send the telemetry command.
- **Automatically by receiving DTMF command from a radio**
  Select this option to stop the Voice Message task after receiving a DTMF command from a radio, for instance, #11#. If you select this option, specify a DTMF combination without the # characters in the **Command** box.
- **Send text message to radio**
  Select this option so that a text message will be sent to the radio that stopped the Voice Message task. If you select this option, specify a brief text message in the **Message** box.

Telemetry tab



- **Send telemetry before task is started**
  Select this option to send a telemetry command before the voice message is transmitted.
  - Specify the **VIO** contact number.
  - Select the signal level from the **Command** list.
  - **Delay after sending**
    Specify the time period, in seconds, to wait before sending the voice message after the telemetry command has been sent.
- **Send telemetry after task is stopped**
  Select this option to send a telemetry command after the Voice Message task is stopped.
  - Specify the **VIO** contact number.
  - Select the signal level from the **Command** list.

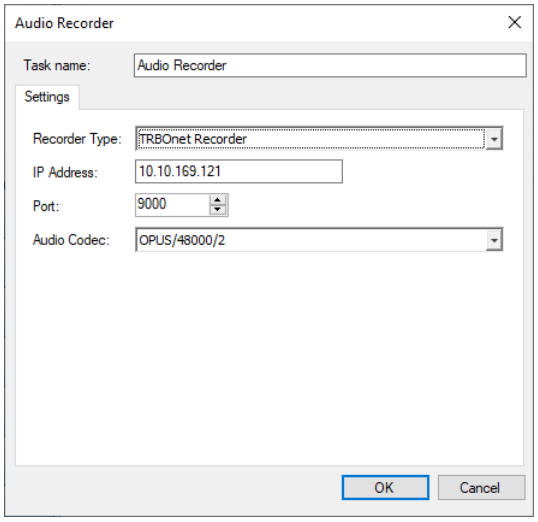
  - **Delay before sending**
    Specify the time period, in seconds, to wait before sending the telemetry command after the voice message has been sent.
- **Recipient**
  In the drop-down list, select the radios/groups to send the telemetry command to.
- **Send telemetry on every voice message**
  Select this option to send the telemetry command to the selected radios/groups every time the voice message is sent, provided the voice message is repeatedly sent.

6.4.5.13 Recorder

The Recorder feature allows connecting to an audio recorder via IP.

- To enable the task, in the **Tasks** pane, click **Add > Recorder**:

The feature allows replicating audio recordings to the recorder:



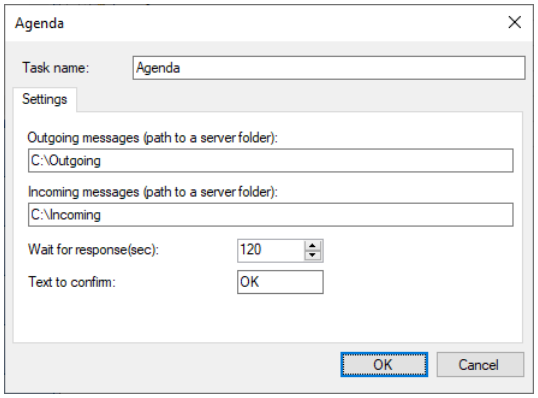
- **Task name**
  Enter a name for the task.
- **Recorder Type**
  Select either 'TRBOnet Recorder', 'NetCRR Recorder', or 'NexLog Recorder'.
- **IP Address**
  Enter the recorder's IP address.
- **Port**
  Specify the recorder's port number.
- **Port count**
  Specify the number of open ports if 'NexLog Recorder' is selected. Recommended value: twice the number of calls recorded at the same time.

- **Audio Codec**
  From the drop-down list, select the audio codec to be used.
- **Await confirmation for audio stream control packets**
  Select this option to wait for confirmation of audio stream control packets, if 'TRBOnet Recorder' is selected.
- **Check Channels**
  Click this button to view all available channels on the recorder, if 'NetCRR Recorder' is selected.
- Click **OK** to add the task.

6.4.5.14 Agenda

The Agenda is used to automatically send predefined messages to the radios. It may be used when you have any software receiving any messages but it is not able to send them to the subscribers. In this case, TRBOnet Dispatch Console acts as an intermediary for receiving the messages from the folder and sending them to radios.

- To add an agenda, in the **Tasks** pane, click **Add > Agenda**.
- In the **Agenda** dialog box, specify the following parameters.



  - **Task name**
    Enter a name for the task.
  - **Outgoing messages (path to a server folder)**
    Enter the path to the folder for outgoing messages.
  - **Incoming messages (path to a server folder)**
    Enter the path to the folder for incoming messages.
  - **Wait for response**
    Specify the time interval, in seconds, for the response.
  - **Text to confirm**
    Specify the text to be sent by radio users after they receive the message.

6.4.5.15 Import Phone Addresses

The **Import Phone Addresses** option allows importing phone/address data from a NENA database to TRBOnet database.

To perform this task:

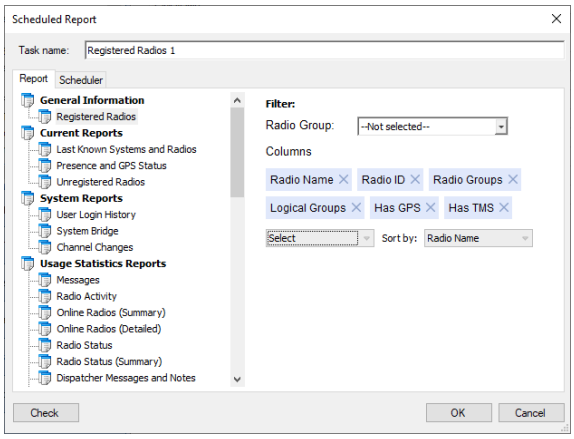
- In the **Tasks** pane, click **Add > Import Phone Addresses (NENA)**
- In the **Import Phone Addresses (NENA)** dialog box, browse for the corresponding *.CSV file, and click **OK**.

6.4.5.16 Scheduled Report

The Scheduled Report task allows reporting on selected parameters and sending these reports to selected Email subscribers groups. The user can have several Scheduled Report policies for different purposes.

> Note: Before configuring the task, you need to create a number of the Email groups to send reports to. For more details on Email groups, see section 6.4.26, Email Groups (page 267).

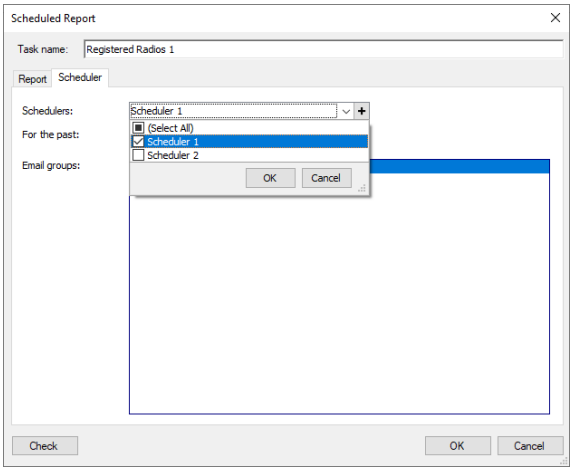
- To add a Scheduled Report task, in the **Tasks** pane, click **Add > Scheduled Report**:
- Enter a name for the policy in the **Task name** box and set the policy parameters.



- On the **Report** tab, select the report type for the Scheduled Report task.

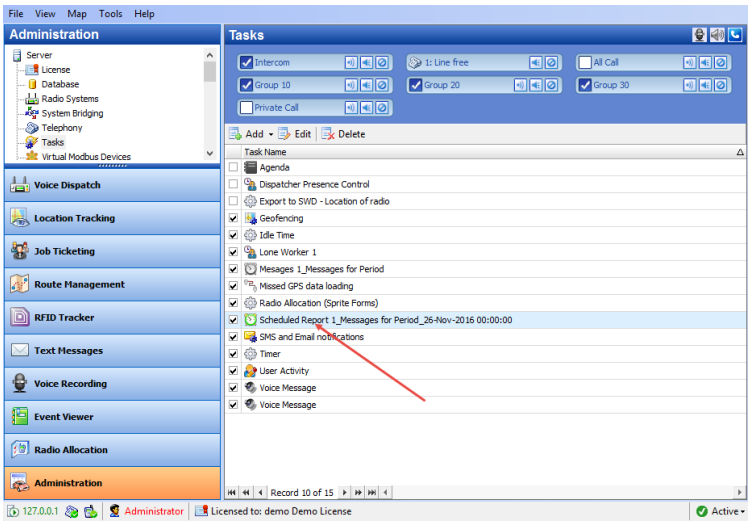
  The report details and filter might be different.

  For more details on reporting, see section 6.11, Reports (page 365).
- Click the **Scheduler** tab to configure a schedule for the report.



- **Schedulers**
  On the list, select the scheduler(s) to use for the report.
  Or, click the plus sign button and specify a new scheduler (see section 6.4.22, Schedulers).
- **For the past**
  Select the past time interval (in minutes, hours, days, weeks, or months) to collect the data for.
- **Email groups**
  In the list, select Email groups to send the report to.

The created scheduled report will be displayed in the **Tasks** pane:



To enable the task, select the checkbox in front of the Scheduled Report task you have already created.

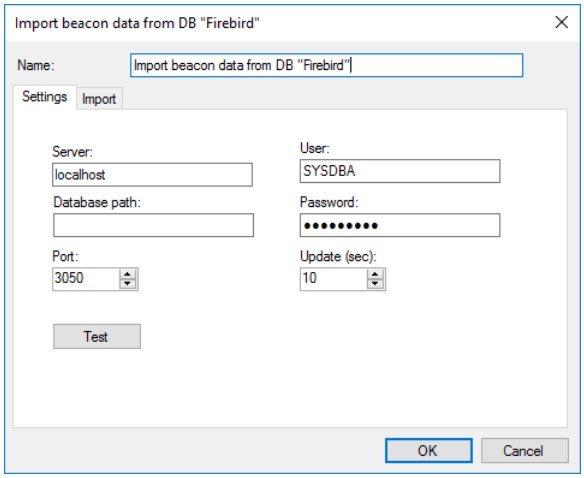
There are three types of the Scheduled Report status icons:

- Green indicates an active task, meaning the task is enabled (checked).
- Gray indicates an inactive task, meaning the task is disabled (unchecked).
- Red indicates a disabled task, meaning the task period is up in the past.

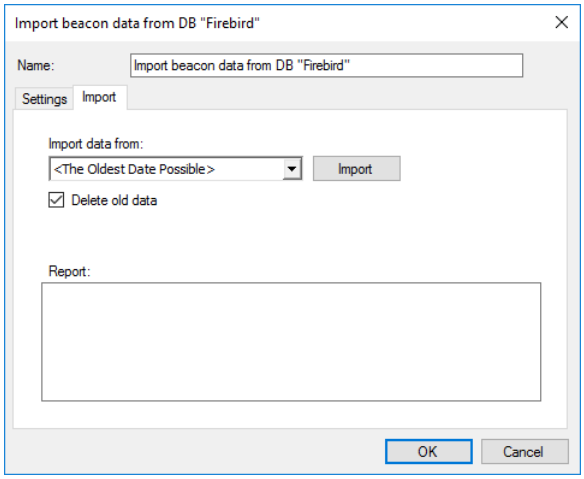
6.4.5.17 Import Beacon Data from Firebird DB

The **Import beacon data from Firebird DB** option allows importing beacon data from Firebird database to TRBOnet Dispatch Software database.

- To add the task, in the **Tasks** pane, click **Add > Import beacon data from DB "Firebird"**.
- In the dialog box that opens, specify the following parameters:



- **Name**
  Enter a name for the task.
- **Server**
  Specify a remote server or a server on the local PC.
- **User**
  Enter the name of the Firebird DB user.
- **Database path**
  Specify the Firebird DB path.
- **Password**
  Specify a password to connect to Firebird DB (provided at logon).
- **Port**
  Specify the port number to connect to Firebird DB.
- **Update (sec.)**
  Specify the update period for Firebird DB.
- Click **Test** to test the connection to Firebird DB.
- Click the **Import** tab to specify Import settings:

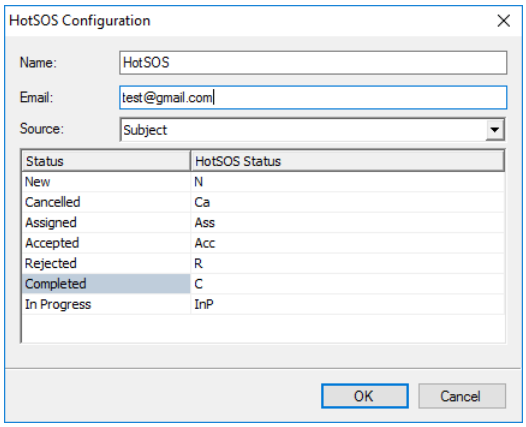


- **Import data from**
  Specify the Firebird DB name.
- Click **Import** to import data.
- **Delete old data**
  Select this option to delete all previously imported data from Firebird DB.
- **Report**
  In this box, an import report will be displayed.
- Click **OK** to add the task.

6.4.5.18 HotSOS (Email)

The **HotSOS (Email)** task is used to automatically create and assign job tickets upon receiving email messages at the address specified for the radio (**Radio >** Additional **> Email**). In addition, you specify the email address at which to receive email messages about changes to the created ticket status.

- In the **Tasks** pane, click **Add > HotSOS (Email)**.
- In the **HotSOS Configuration** dialog box, specify the following parameters:



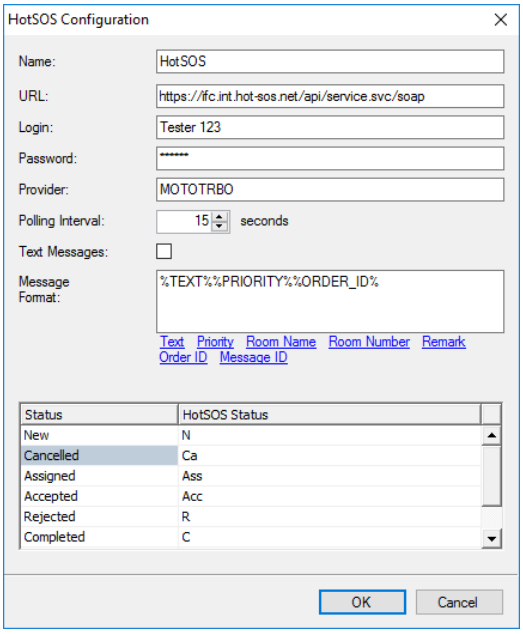
  - **Name**
    Enter a name for the task.

- **Email**
  Enter the email address at which you want to receive notifications concerning the status of the created tickets.
- **Source**
  From the drop-down list, select which part of the email message, Subject or Body, will be included in the job ticket text.
- **HotSOS Status**
  Enter the text of the emails that will be sent as notifications upon changes to the job ticket status.

6.4.5.19 HotSOS (Web Service)

The **HotSOS (Web Service)** task is used to create and assign job tickets by using the HotSOS Web Service.

- In the **Tasks** pane, click **Add > HotSOS (Web Service)**.
- In the **HotSOS Configuration** dialog box, specify the following parameters:



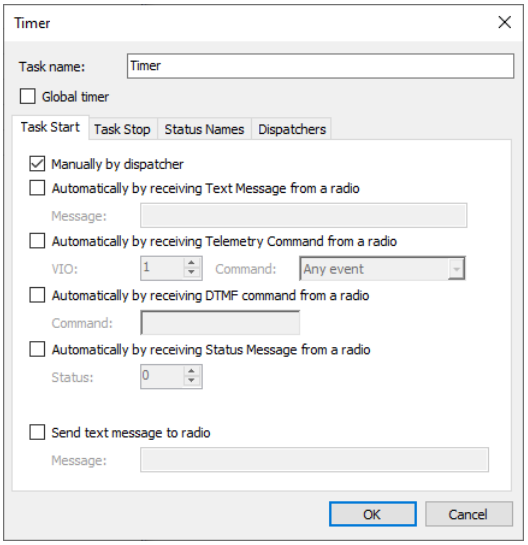
- **Name**
  Enter a name for the task.
- **URL**
  Enter the URL of the service.
- **Login** and **Password**
  Enter the login and password of the service account.
- **Provider**
  Enter the service provider name.
- **Polling Interval**
  Enter the interval, in seconds, to check the service for orders (job tickets).

- **Text Messages**
  If you select this option, additional text messages will arrive at the designated radios from the HotSOS server.
- **Message Format**
  Select the fields of a message to include in the job ticket text.
- **HotSOS Status**
  Enter the text of the messages that will be sent as notifications to the HotSOS server upon changes to the job ticket status.

6.4.5.20 Timer

The **Timer** task is used to configure the timer that can be started/stopped/paused either manually by dispatchers, or when receiving a certain text message, telemetry command, DTMF command, or status from radios.

- In the **Tasks** pane, click **Add > Timer**.
- In the dialog box, specify the following parameters:



- **Task name**
  Enter a name for the task.
- **Global timer**
  If you select this option, the timer will be started/stopped, etc. via the Alarm Management (Timers action).

Task Start/ Task Stop tabs

- **Manually by dispatcher**
  Select this option to allow the dispatcher to manually start/stop the timer for the desired radio.
- **Automatically by receiving Text Message from a radio**
  Select this option to start/stop the timer when receiving a predefined text message from a radio. If you select this option, specify a brief text message in the **Message** box.

- **Automatically by receiving Telemetry Command from a radio**
  Select this option to start/stop the timer when receiving a predefined telemetry command from a radio. If you select this option, specify the **VIO** contact, and from the **Command** drop-down list, select the signal level at which the user's radio should send the telemetry command.
- **Automatically by receiving DTMF command from a radio**
  Select this option to start/stop the timer when receiving specified DTMF tones from a radio. If you select this option, specify a DTMF combination without the # characters in the **Command** box.
- **Automatically by receiving Status Message from a radio**
  Select this option to start/stop the timer when receiving specified Status from a radio, for instance, 1. If you select this option, specify the **Status**.
- **Send text message to radio**
  Select this option so that a text message will be sent to a radio when the timer is started/stopped. If you select this option, specify a brief text message in the **Message** box.

Task Stop tab

- **After**
  Specify the duration of the timer, in minutes.

Status Names tab

In the text boxes below, enter the texts for the corresponding statuses: timer started, stopped by dispatcher/radio/system, elapsed, and paused.

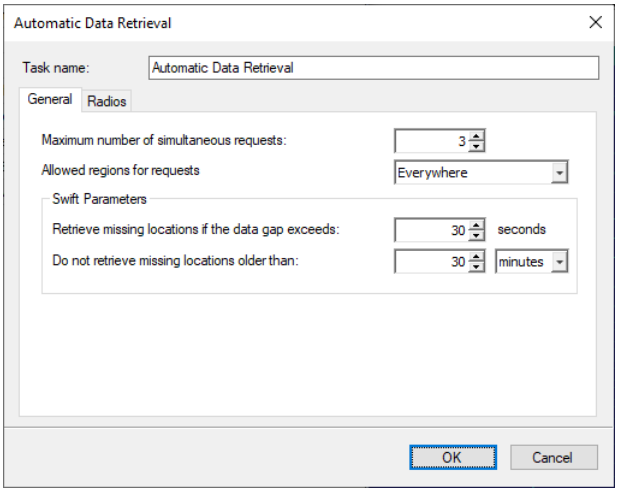
Dispatchers tab

- **All Dispatchers**
  Choose this option button so that the timer will be available to all dispatchers.
- **Selected Dispatchers**
  Choose this option button so that the timer will be available only to selected dispatchers.
  - **Dispatchers**
    In the list below, select the dispatchers.

6.4.5.21 Automatic Data Retrieval

The **Automatic Data Retrieval** task is used to automatically retrieve missing location data from the radio's option board.

- In the **Tasks** pane, click **Add > Automatic Data Retrieval (Swift GPS)**.
- In the dialog box, specify the following parameters:



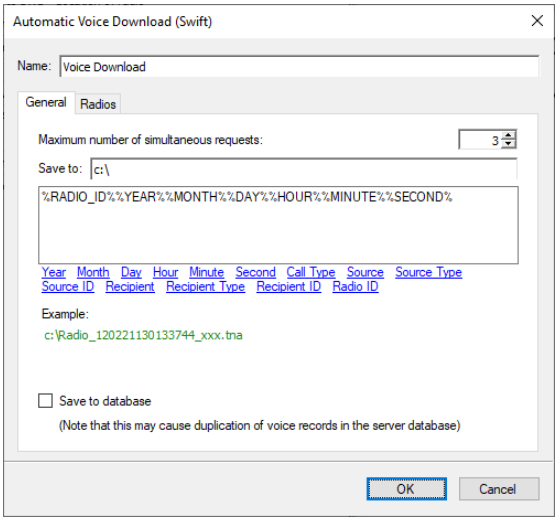
- **Maximum number of simultaneous requests**
  Specify the maximum number of radios being requested at the same time.
- **Allowed regions for requests**
  Select regions where location data will be retrieved from radios.
- **Retrieve missing locations if the data gap exceeds**
  TRBOnet Server automatically checks whether the location data is continuous. If it detects data gaps between any consecutive location data that exceed this value, it will attempt to retrieve missing information.
- **Don't retrieve missing locations older than**
  TRBOnet Server doesn't check location updates for consistency if they are older than this value in seconds, minutes, or hours.
- On the **Radios** tab, specify the radio(s) to retrieve location data from.

In the **Tasks** pane, activate the **Automatic Data Retrieval (Swift GPS)** task by selecting the checkbox next to the task name.

6.4.5.22 Automatic Voice Download

The **Automatic Voice Download** task is used to automatically retrieve voice data from the radio's option board when the radio is in WiFi zone.

- In the **Tasks** pane, click **Add > Automatic Voice Download (Swift)**.



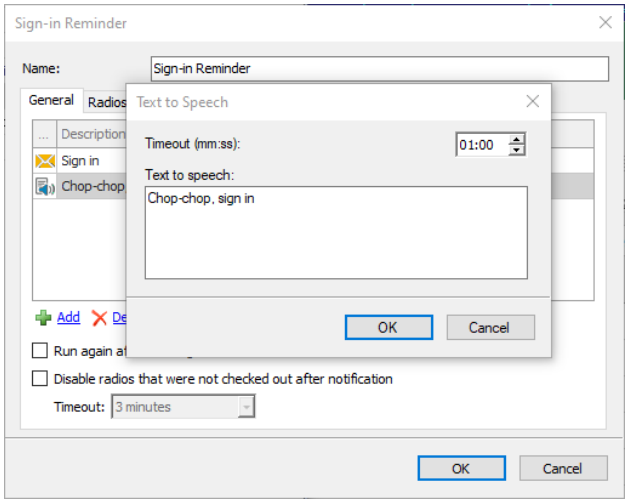
- In the dialog box, specify the following parameters:
  - **Maximum number of simultaneous requests**
    Specify the maximum number of simultaneously requested radios.
  - **Save to**
    Enter the path where to save voice data on your PC.
    Click the appropriate links below (Year, Month, Day, etc.) that will be used to generate the file/path name.
  - **Save to database**
    Select this option to save retrieved voice data to the server database. Note that selecting this option may cause duplication of voice records in the server database.
  - On the **Radios** tab, specify the radio(s) to retrieve voice data from.

In the **Tasks** pane, activate the **Automatic Voice Download (Swift)** task by selecting the checkbox next to the task name.

6.4.5.23 Sign-in Reminder

The **Sign-in Reminder** task is used to remind users to sign in into the radio(s).

- To add a Sign-in Reminder task, in the **Tasks** pane, click **Add > Sign-in Reminder**.
- In the dialog box that opens, specify the following parameters:



- **Name**
  Enter a name for the task.
- Click the **Add** link and from the drop-down list, select either **Text Message** or **Text to Speech**.

  In the dialog box that opens, specify the following:

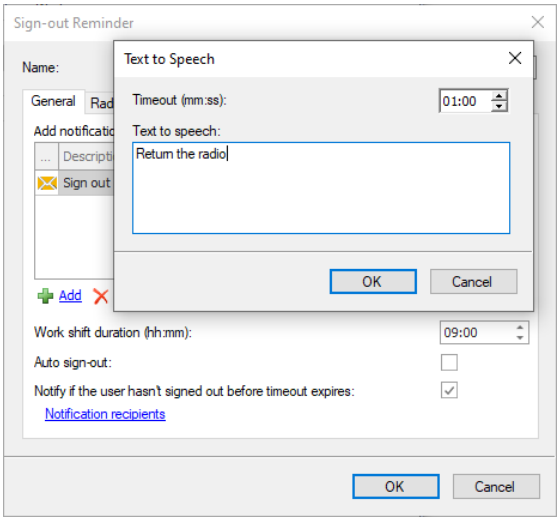
  - **Timeout**
    Specify the time, in minutes, to wait before sending the message (voice message) to the selected radio(s).
  - **Text Message / Text to Speech**
    Enter the text of the message (voice message) to be sent to the selected radio(s).
- **Run again after user signs out**
  Select this option to rerun the task after the user signs out.
- **Disable radios that were not checked out after notification**
  Select this option to disable the radio(s) if the user didn't sign in after being notified.

  - **Timeout**
    Specify the corresponding timeout, in minutes.
- Click the **Radios** tab, and select the radio(s) to send reminder(s) to.

6.4.5.24 Sign-out Reminder

The **Sign-out Reminder** task is used to remind users to sign out of the radio(s).

- To add a Sign-out Reminder task, in the **Tasks** pane, click **Add > Sign-out Reminder**.
- In the dialog box that opens, enter the following parameters:



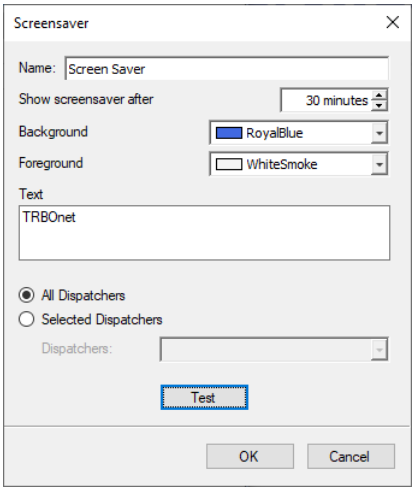
- **Name**
  Enter a name for the task.
- Click the **Add** link and from the drop-down list, select either **Text Message** or **Text to Speech**.

  In the dialog box that opens, specify the following:
  - **Timeout**
    Specify the time, in minutes, before the end of the work shift.
  - **Text Message / Text to Speech**
    Enter the text of the message (voice message) to be sent to the selected radio(s).
- **Work shift duration**
  Enter the duration of the work shift, in HH:MM.
- **Auto sign-out**
  Select this option to automatically sign out the user from the radio as soon as the work shift ends.
- **Notify if the user hasn't signed out before timeout expires**
  Select this option and choose among Notification recipients by clicking the link below.

6.4.5.25 Screensaver

The **Screensaver** task is used to launch a screensaver when the dispatcher is idle for a period longer than the specified timeout. Once started, the screensaver will be stopped when you click the mouse button or press any keyboard key, or there is an emergency call or a request to talk.

- To add a Screensaver task, in the **Tasks** pane, click **Add > Screensaver**
- In the dialog box that opens, specify the following parameters:

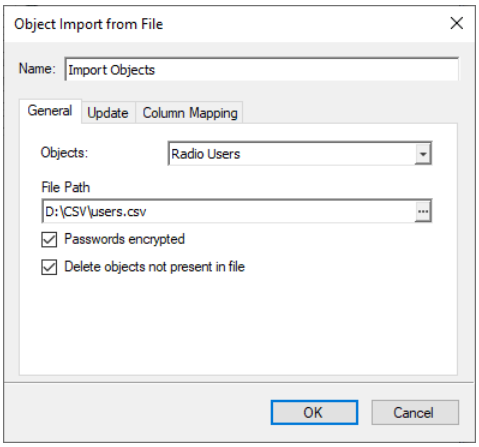


- **Name**
  Enter a name for the task.
- **Show screensaver after**
  Set the time of inactivity, in minutes, after which the screensaver will automatically run.
- **Background / Foreground**
  Select the background/foreground colors for the screensaver.
- **Text**
  Enter the text that will be displayed in the screensaver.
- **All Dispatcher / Selected Dispatchers**
  Select the dispatcher(s) to assign the screensaver task to.
- **Test**
  Click this button to see how the screensaver will look.

6.4.5.26 Import Objects

The Import Objects task is used to import new objects to the Users database and Radios database based on the .CSV data files.

- To add an Import Objects task, in the **Tasks** pane, click **Add > Import Objects**



In the dialog box that opens, enter the following information:

- **Name**
  Enter a name for the task.

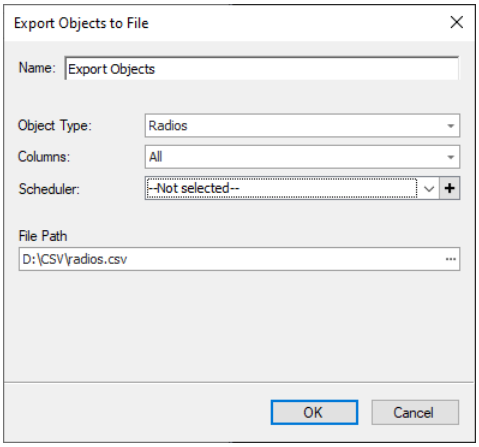
- **General** tab
  - **Object Type**
    From the drop-down list, select into which database to import data (Beacons, IP Cameras, Map Objects, Map Regions, Map Routes, Phone Contacts, Radio Users, or Radios).
  - **File Path**
    Click the ellipsis (**...**) button and locate the .CSV file on the same PC with TRBOnet Server.
  - **Passwords encrypted**
    Select this option if the passwords are encrypted in the data being imported.
  - **Delete objects not present in file**
    Select this option so that objects not found in the .CSV file will be deleted from the database.
- **Update** tab
  - **File Changed**
    Choose this option so that the specified database will be updated as soon as the source CSV file is changed. Note that the source .CSV file must reside on the same PC with TRBOnet Server.
  - **Scheduler**
    Choose this option and on the list below select the scheduler to use to perform the task. Or, click the plus sign button and specify a new scheduler (see section 6.4.22, Schedulers).
- **Column Mapping** tab

  In the table below, in the right column, enter/change the column names that would correspond to the database field names.

6.4.5.27 Export Objects

The Export Objects task is used to export objects from the Users database and Radios database to external .CSV data files.

- To add an Export Objects task, in the **Tasks** pane, click **Add > Export Objects**



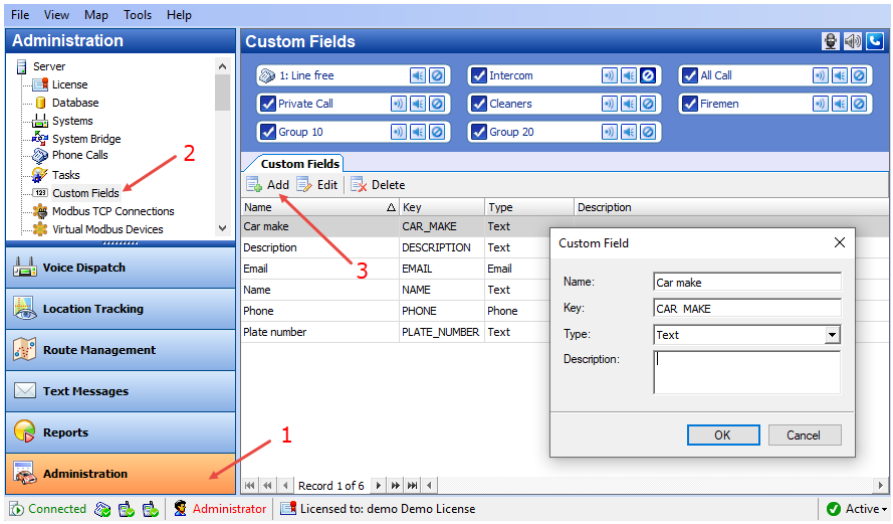
In the dialog box that opens, enter the following information:

- **Name**
  Enter a name for the task.
- **Object Type**
  From the drop-down list, select which database to export (Beacons, IP Cameras, Map Objects, Map Regions, Map Routes, Phone Contacts, Radio Users, or Radios).
- **Columns**
  In the drop-down list, select the columns to be exported into a .CSV file.
- **Scheduler**
  Choose this option and on the list below select the scheduler to use to perform the task. Or, click the plus sign button and specify a new scheduler (see section 6.4.22, Schedulers).
- **File Path**
  Click the ellipsis (**...**) button and locate the CSV file on your computer (or elsewhere).

6.4.6 Custom Fields

In this section, you can add custom fields that can later be used when registering radios (see section 6.4.32, Radios, Additional tab) and users (see section 6.4.28, Users, Custom Fields tab).

- Go to **Administration** (1), **Custom Fields** (2)



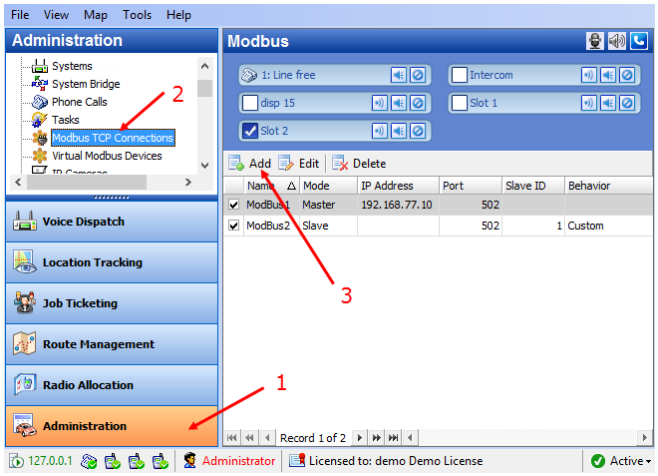
- Click the **Add** button (3).
- In the **Custom Field** dialog box, specify the parameters of the field, such as its Name, Key, Type (Text, Phone, Email, or Barcode), and Description.

6.4.7 Modbus TCP Connections

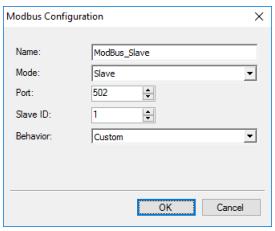
TRBOnet Server can receive and send data from/to Modbus hardware and interact with Modbus data according to desired scenarios. There are two connection modes between TRBOnet Server and Modbus hardware: Master and Slave.

To connect TRBOnet Server to Modbus hardware:

- Go to **Administration** (1), **Modbus TCP Connections** (2):

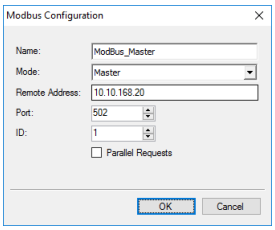


- In the **Modbus** pane, click **Add** (3).



- From the **Mode** drop-down list, select the mode of connection.
  - If the 'Slave' mode is selected, specify the **Port** of TRBOnet PC and the **Slave ID** to assign to this PC.

    Leave **Behavior** as Custom if this connection will be used for Alarm management.
  - If the 'Master' mode is selected, specify the **Remote Address**, **Port**, and **ID** of the Modbus device, which in turn will be running in the Slave mode.

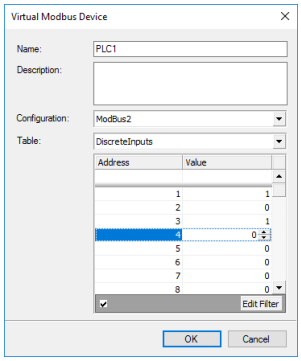


✓ **Parallel Requests**
Select this checkbox so that TRBOnet Server can send multiple requests without waiting for responses from the Modbus device.

6.4.8 Virtual Modbus Devices

Once you have created the appropriate TCP connection, you can add a Modbus device:

- Go to **Administration**, **Virtual Modbus Devices**, and click **Add**.



In the **Virtual Modbus Device** dialog box, specify the following parameters:

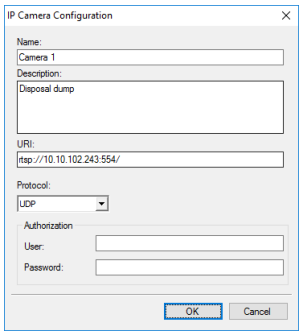
- **Name**
  Enter the name of the device.
- **Description**
  Enter the description of the device.
- **Configuration**
  From the drop-down list, select the slave connection you previously created for the device (that is, TRBOnet Server running in the Slave mode).

- **Table**
  From the drop-down list, select the appropriate MODBUS data type ('Discrete Inputs', 'Coils', 'Input Registers', or 'Holding Registers').
  In the 'Address/Value' table, enter the appropriate register values.

6.4.9 IP Cameras

This section describes how to connect IP cameras to TRBOnet Dispatch Console. Once connected, the cameras can be associated with radios, beacons and other map objects.

- Go to **Administration**, **IP Cameras** to manage IP cameras in the system.
- In the **IP Cameras** pane, click the **Add** button.
- In the **IP Camera Configuration** dialog box, specify the following parameters:



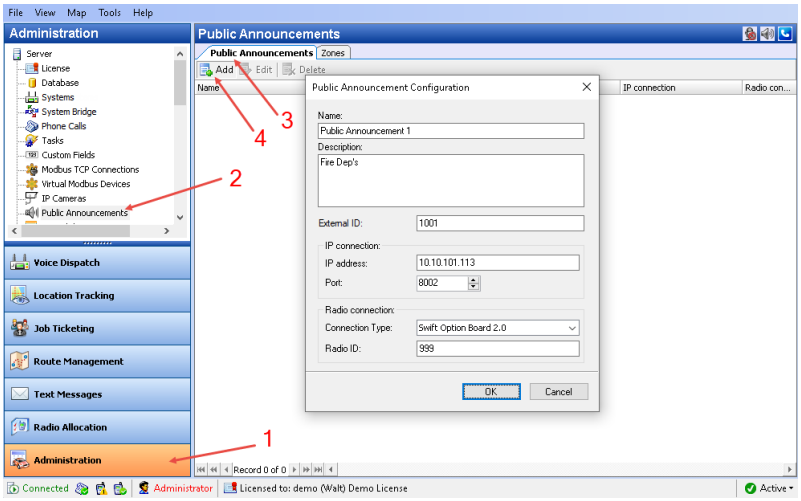
- **Name**
  Enter a name for the camera.
- **Description**
  Enter a description for the camera.
- **URI**
  Enter the URI for the camera. Note the use of the **RTSP://** prefix and port number **554** (also note that some cameras may have been configured to use a different port number other than 554).
- **Protocol**
  From the drop-down list, select **UDP**.
- **Authorization**
  - **User**
    Enter the user name for the authentication, if needed.
  - **Password**
    Enter the password for the authentication, if needed.

6.4.10 Public Announcements

This section describes how to connect Public Announcement units to TRBOnet Dispatch Console.

- Go to **Administration** (1), **Public Announcements** (2).

- In the **Public Announcements** pane, select the **Public Announcements** tab (3).
- Click the **Add** button (4).



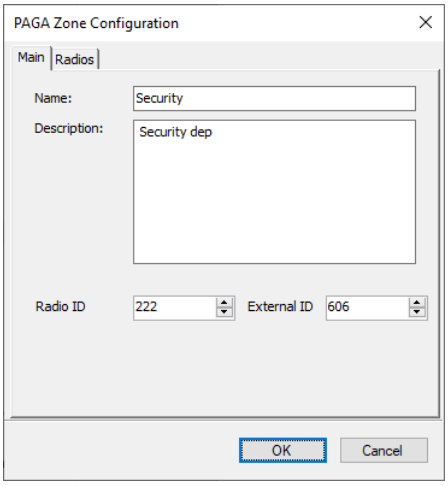
In the **Public Announcement Configuration** dialog box, enter the following parameters:

- **Name**
  Enter a name for the PA unit.
- **Description**
  Enter a description for the PA unit.
- **External ID**
  Enter the external ID for the Public Announcement unit. This ID will be used when an announcement is sent to the PA unit from some external system.
- **IP connection**
  - **IP Address**
    Enter the IP address of the PA unit.
  - **Port**
    Enter the port number that will be used for the connection.
- **Radio connection**
  - **Connection type**
    From the drop-down list, select how the radio is connected within the PA unit.
  - **Radio ID**
    Enter the Radio ID of the PA unit's radio. The Radio ID must be unique in the radio system.

Adding Public Announcement Zones

- In the **Public Announcements** pane, select the **Zones** tab.
- Click the **Add** button.

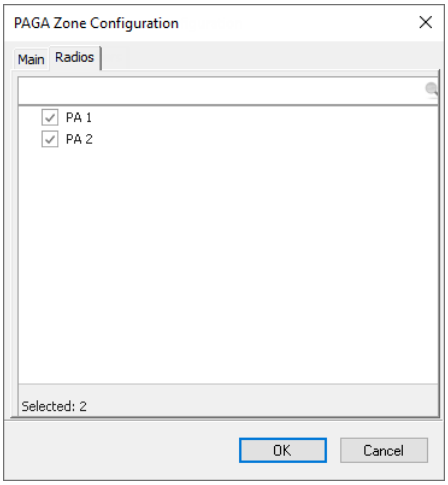
- In the dialog box that opens, click the **Main** tab.



  - **Name**
    Enter a name for the PA zone.
  - **Description**
    Enter a description for the PA zone.
  - **Radio ID**
    Enter the Radio ID of the PA zone.

    Note: Due to some technical restrictions, this must be the Radio ID of the existing radio group.

  - **External ID**
    Enter the external ID for the Public Announcement zone. This ID will be used when an announcement is sent to the PA zone from some external system.
- Click the **Radios** tab.



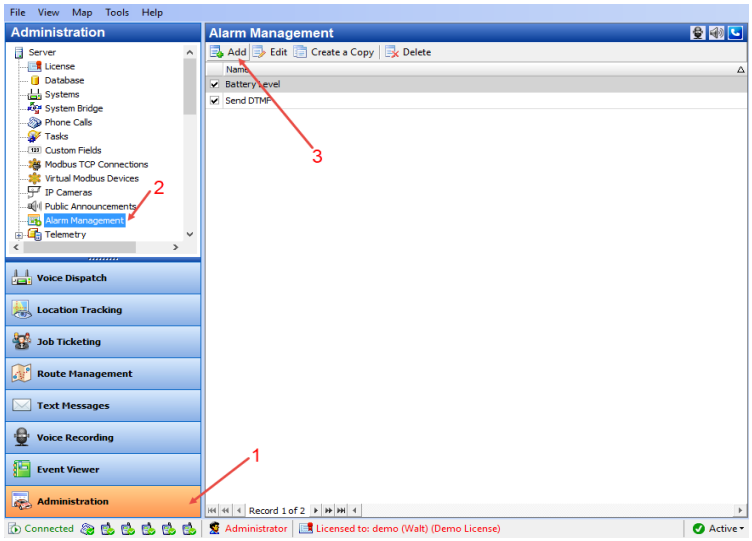
  - Select the desired PA units that will belong to the PA zone.

6.4.11 Alarm Management

The Alarm Management feature allows you to create rules for Alarms, Emails, Notifications, Text Messages to radios, and other events. When a configured rule is executed, the appropriate action(s) will start.

For example, an external application sends some text data, which contains the text "alarm", to TRBOnet software. The text "Alarm" is configured as the rule to start sending a predefined voice message (for example, "Alarm in Sector N") to selected radios (for example, the group "firemen"). As a result, the group "firemen" are notified about an emergency condition.

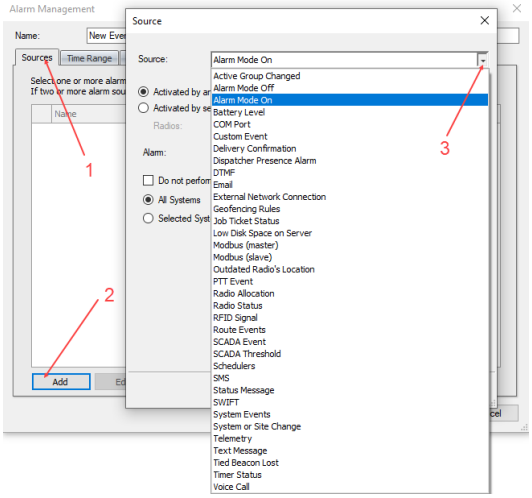
- Go to **Administration** (1), **Alarm Management** (2) to configure Alarm Management rules:



- Click **Add** (3) to add a new Alarm Management rule.

  Note: The administrator can also create a copy of the existing Alarm Management rule. Select a rule in the list and click the **Create a Copy** button. The system will create a copy of the rule with the same configuration parameters.

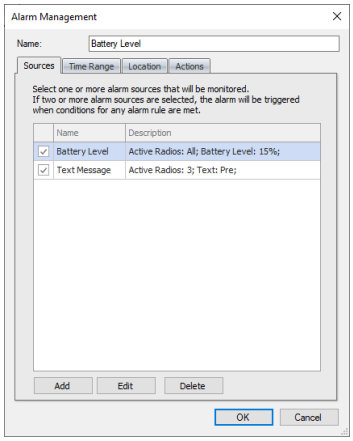
  - **Name**
    Enter a name for the alarm rule.
- On the **Sources** tab (1), click **Add** (2) to add an alarm source to the rule.



- **Source**
  From the drop-down list (3), select the alarm source to add to the rule.

  For a description of the alarm sources, see *TRBOnet Enterprise/PLUS Alarm Management User Guide*.

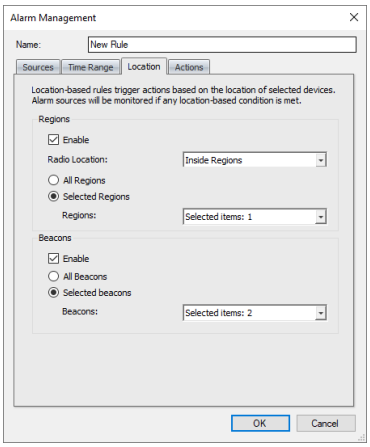
  Note: Select the alarm source you want to enable. In case no source is selected, all configured alarm sources are disabled by default.



- Click the **Time Range** tab to set the time at which the alarm rule will be applied.
  - **All Time**
    Choose this option so that the rule will be valid all the time.
  - **Selected Time**
    Choose this option so that the alarm rule will be applied on the selected days of the week at the selected time.
    - Select the days of the week and specify the time ranges.

- Click the **Location** tab.
  Under this tab, select the regions inside or outside of which the alarm rule will be applied. You can also select the beacons in the coverage zone of which the alarm rule will be applied.

  Note: When **COM Port** and/or **External Network Connection** are selected as the alarm source, the **Location** rule won't be applied.



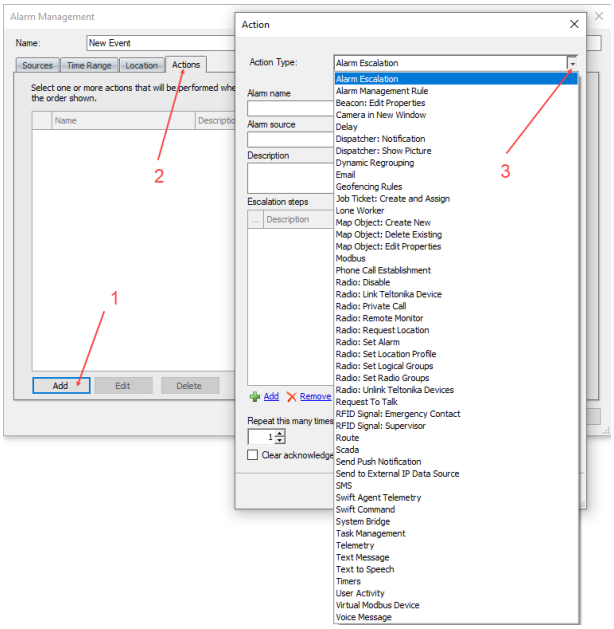
  - **Regions**
    Select **Enable** to add regions to the alarm rule.
    - **Radio Location**
      From the drop-down list, select whether the alarm rule will be applied Inside Regions or Outside Regions.
    - **All Regions**
      Choose this option to apply the alarm rule inside/outside all map regions.
    - **Selected Regions**
      Choose this option to apply the alarm rule only inside/outside selected regions.

      ✓ **Regions**
      In the list, select the region(s).
  - **Beacons**
    Select **Enable** to add beacons to the alarm rule.
    - **All Beacons**
      Choose this option to add all beacons to the alarm rule.
    - **Selected Beacons**
      Choose this option to add only selected beacons to the alarm rule.

      ✓ **Beacons**
      In the list, select the beacon(s).
- Click the **Actions** tab (1) to set actions for the rule.

In the Actions list, the administrator can add and configure actions to be executed when the events configured and selected in the **Sources** page are triggered.

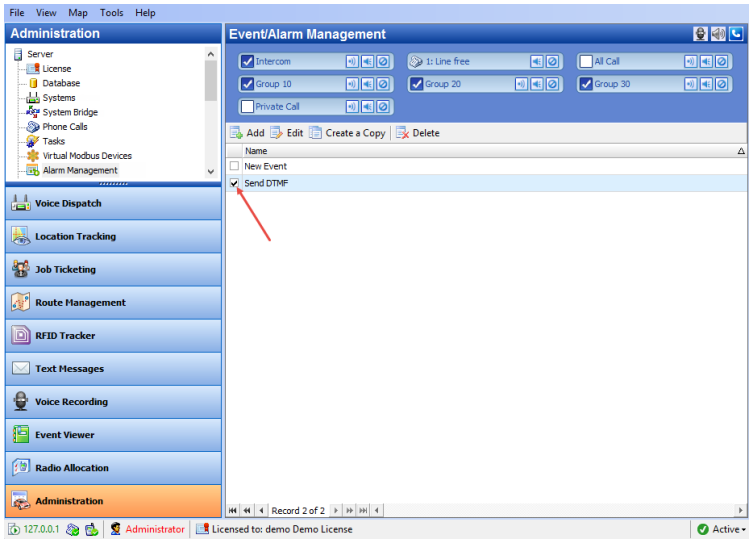
- Click **Add** (2) to add an action:



- **Action Type**
  From the drop-down list (3), select the action type.

  For a description of the action types, see *TRBOnet Enterprise/PLUS Alarm Management User Guide*.

Note: After you configure the alarm rule, enable it by selecting the checkbox beside it. In case when no alarm rule is selected, the action will not be started.



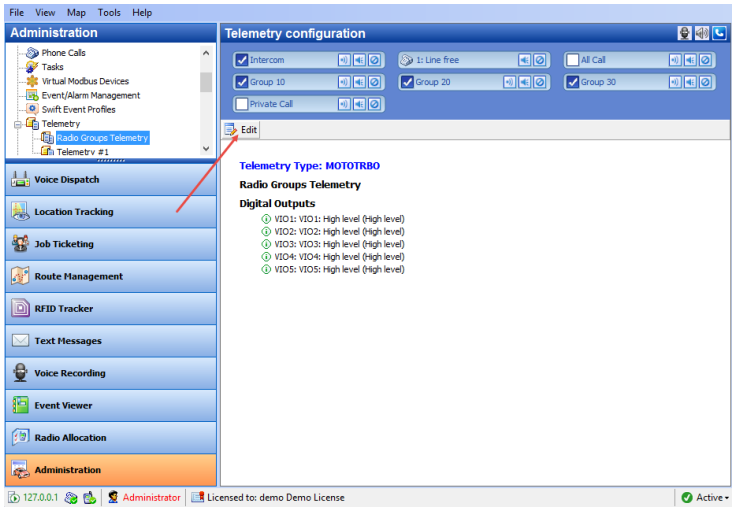
6.4.12 Telemetry

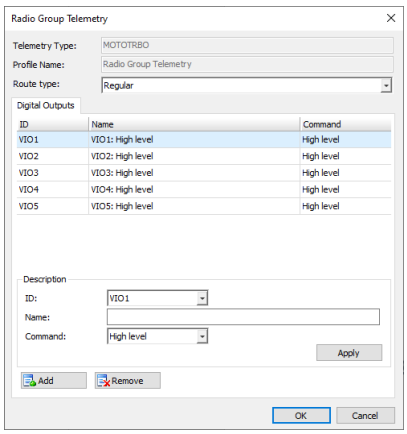
On the **Telemetry configuration** page, you can configure settings for Telemetry.

6.4.12.1 Radio Groups Telemetry

This is a default telemetry profile that is used to send telemetry commands to radio groups.

- In the **Administration** pane, click **Telemetry > Radio Groups Telemetry**.
- In the **Telemetry configuration** pane, click **Edit**.



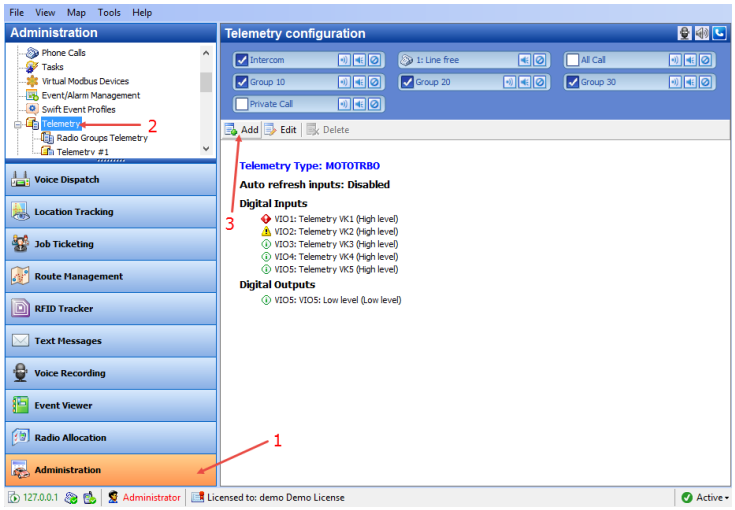


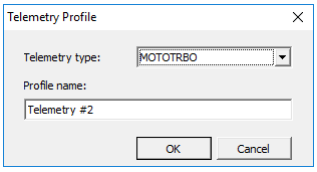
  - Click **Add** and specify **ID** (VIO), **Name**, and **Command** (signal level).

Note: For **Radio Groups Telemetry** only the **Digital Outputs** tab is available.

6.4.12.2 Adding Telemetry Profile for Radios

- Go to **Administration** (1), **Telemetry** (2), and click **Add** (3):

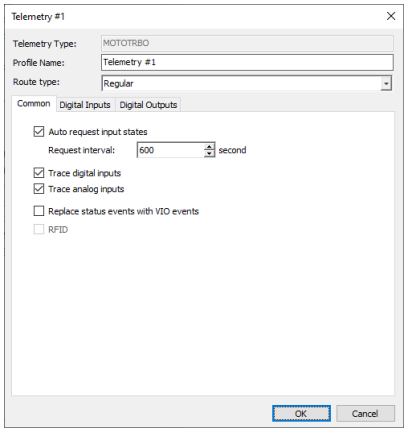




- **Telemetry type**
  From the drop-down list, select one of the following types:
  - **MOTOTRBO** – telemetry from Motorola radios.
  - **Socintech Novox** – telemetry from Novox devices connected to the radio via COM port.
  - **Swift Option Board** – telemetry from the option board connected to the radio.
  - **Sprite** – telemetry from Sprite devices.

  Note: Sprite telemetry profile can be read but not written.

- **Profile name**
  Enter the name of the profile to display in the Dispatch Console.
- Click **OK**.

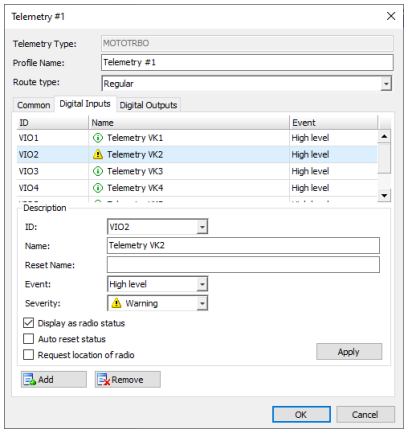


Common tab

- **Auto request input statuses**
  Select this option and in the **Request interval** box specify the time interval, in seconds, to request input data.
- **Trace digital inputs**
  Select this option to monitor digital input damages.
- **Trace analog inputs**
  Select this option to monitor analog input damages.
- **Replace status events with VIO events**
  Select this option to generate **VIO ON/OFF** event when the system compares between the last and the current statuses of the VIO.

Note: Most of the policies are set to replace events, so it is recommended to enable this option.

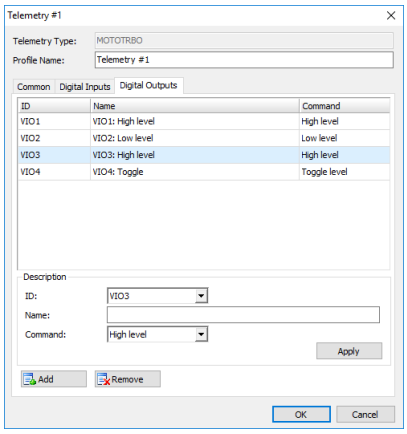
Digital Inputs tab



- Click **Add** to add a VIO (Virtual Input/Output) to the profile.
  - **ID**
    Select the VIO to set the parameters for.
  - **Name**
    Specify a name for the VIO to be displayed in the Dispatch Console.
  - **Event**
    Select the signal level of VIO events from the drop-down list. When an event with the selected signal level occurs on the selected VIO, the telemetry will be activated. The signal level must be the same in the radio's codeplug and in Telemetry configuration in TRBOnet. It is a programmable option that sets the pin's voltage level to **High** or **Low** in order to trigger a selected functionality.
  - **Severity**
    Specify a severity level for the VIO event from the drop-down list.

- **Display as radios status**
  Select this option so that the radio will change its status after it sends the telemetry command.
- **Auto reset status**
  Select this option to automatically reset the telemetry VIO after the radio sends the telemetry command.
- **Request location of radio**
  Select this option to request a GPS position of the radio after it sends the telemetry command.
- Click **Apply** to apply settings to selected inputs.

Digital Outputs tab



- Click **Add** to add a VIO (Virtual Configured PIN) to the profile:
  - **ID**
    Select the VIO in the dropdown list to set its parameters;
  - **Name**
    Specify a name for the VIO to be displayed in the Dispatch Console.
  - **Command**
    Specify a signal level for the command to send to the selected VIO.
  - Click **Apply** to apply settings to selected outputs.

6.4.13 Text Messages

On the **Text Messages configuration** page, you can configure settings for Text Messages.

6.4.13.1 Group Text Messages

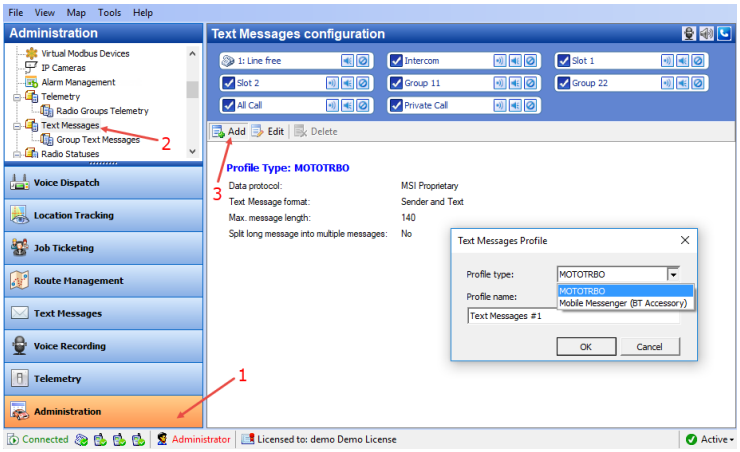
This is a default text message profile that is used to send text messages to radio groups.

- Click **Group Text Messages** in the **Administration** pane.
- In the **Text Messages configuration** pane, click **Edit**.

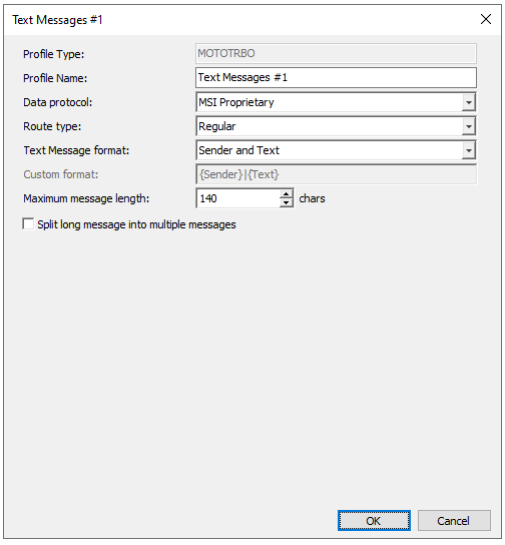
- In the dialog box that opens, change the desired parameters.
  For a description of the profile parameters, see section 6.4.13.2, Adding Text Message Profile.

6.4.13.2 Adding Text Message Profile

- Go to **Administration** (1), **Text Messages** (2), and click **Add** (3):



- In the **Text Messages Profile** dialog box, specify the following parameters:
  - **Profile type**
    From the drop-down list, select one the two items:
    - **MOTOTRBO**
      Select if the radio itself is used to send/receive messages.
    - **Mobile Messenger (BT Accessory)**
      Select if the Bluetooth Communicator is used together with the radio to send/receive messages.
  - **Profile name**
    Enter a name for the text profile.
  - Click **OK**.



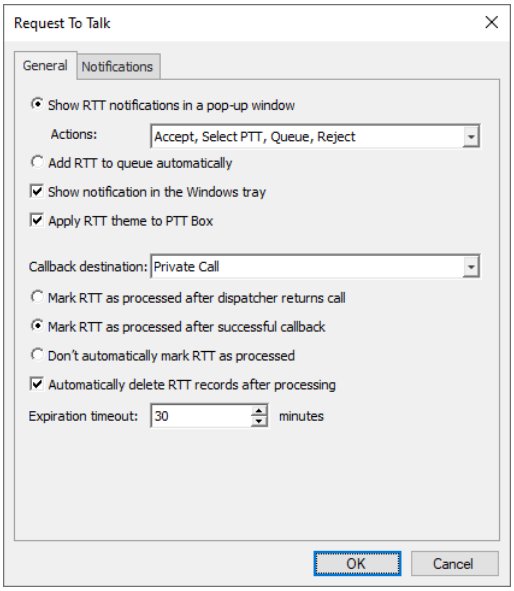
- In the **Text Messages Profile** dialog box, specify the following parameters:
  - **Profile Name**
    Enter a name for the profile.
  - **Data protocol**
    From the drop-down list, select one of the two items:
    - **MSI Proprietary**
      Select if the radio is equipped with a display and supports the new Text Messaging service.
    - **DMR Standard**
      Select if the radio is equipped with a display and supports DMR Compatible text messages.
  - **Route type**
    From the drop-down list, select one of the three items:
    - **Regular**
      Select this type to receive messages on the radio.
    - **Option Board**
      Select this type to receive messages on the radio's option board.
    - **Non-IP Peripheral**
      Select if the radio is connected to a PC via a USB port.
  - **Text Message format**
    From the drop-down list, select one of the pre-defined formats for text messages, or select the Custom format.
  - **Custom Format**
    Enter your own format for text messages in this box if you have selected 'Custom' from the list above. The Custom Format will default to {Sender} | {Text}. There are four choices: {Sender}, {Text}, {Date}, and {Time}. Another example would be: {Date} | {Time} | {Text}.
  - **Maximum message length**
    Enter the maximum number of characters that TRBOnet will send per text message. The recipient of the text message may not be able to receive the maximum number of characters due to its design limitations. Therefore, it may only display a partial text message.
  - **Split long message into multiple messages**
    Select this option to allow single messages to be split into multiple messages based on the **Max. message length** setting.

6.4.14 Request To Talk

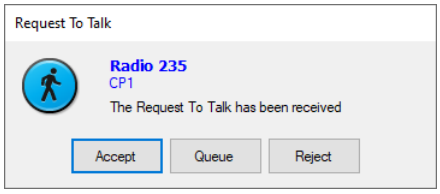
This section describes how to configure the Request-To-Talk parameters.

- Go to **Administration** (1), **Request To Talk** (2).
- In the **Request To Talk** pane, click the **Edit** button.

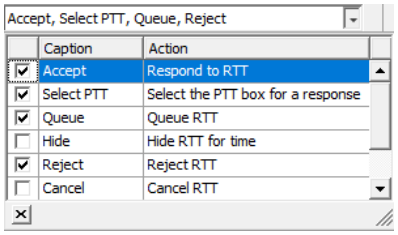
- In the dialog box that opens, specify the following parameters:



  - **Show RTT notifications in a pop-up window**
    Choose this option so that **Request to Talk** messages will pop up over the application window.



    - **Actions**
      In the drop-down list, select the buttons that will be available in the pop-up box. If necessary, modify the button captions.



    - The button captioned **Accept** means that an incoming RTT will be immediately responded by the dispatcher.
    - The button captioned **Select PTT** means that an incoming RTT will not be responded to immediately. Instead, a dedicated PTT box (Private Call, Group Call, or All Call, depending on what is chosen as the callback destination) will be selected as the default PTT box, and the callback transmission will start as soon as the external PTT button is pressed.

- The button captioned **Queue** means that an incoming RTT will be queued and can be processed later.
- The button captioned **Hide** means that an incoming RTT will be hidden for the dispatcher for the time period selected from the drop-down list. Note that the RTT will be displayed for all other dispatchers.
- The button captioned **Reject** means that an incoming RTT will be rejected by the dispatcher and displayed for all other dispatchers.
- The button captioned **Cancel** means that an incoming RTT will be rejected and not displayed for all other dispatchers.

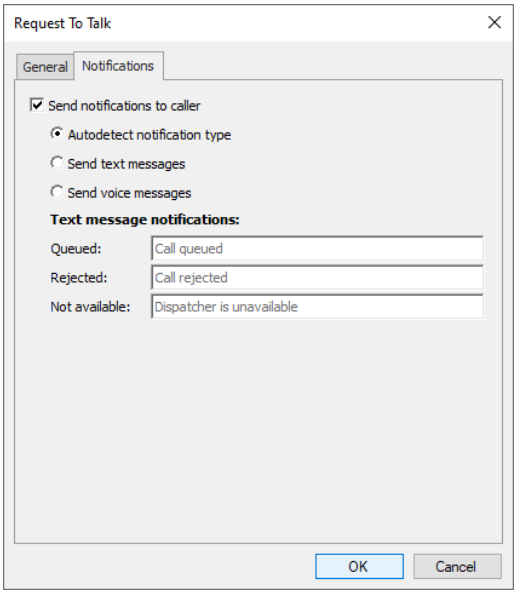
- **Add RTT to queue automatically**
  Choose this option so that all incoming requests to talk will be automatically queued and can be processed later (see Activity Monitor Panel, Requests To Talk tab).
- **Show notification in the Windows tray**
  Select this option so that a notification will be displayed in the Windows tray when a Request to Talk arrives.
- **Apply RTT theme to PTT box**
  Select this option so that a special color theme (pink background, by default) will be applied to the associated PTT box when a Request to Talk arrives.
- **Callback destination**
  From the drop-down list, select where to transmit when answering to a request to call. You can select either Private Call, Home Group, Active Group, All Call, or one of the registered Radio Groups.

  Note: If the **Home Group** is selected, and the Home Group is not specified for the radio that initiated a Request to Talk, then the response to this Request to Talk will be made as an **All Call**.

- Choose one of the following three options:
  - **Mark RTT as processed after dispatcher returns call**
    Choosing this option means that a Request to Talk will be considered processed after a dispatcher makes the return call.
  - **Mark RTT as processed after successful callback**
    Choosing this option means that a Request to Talk will be considered processed only after the radio has responded to the return call.
  - **Don’t automatically mark RTT as processed**
    Choosing this option means that a Request to Talk will be considered processed only after a dispatcher manually marks it as processed.

- **Automatically delete RTT records after processing**
  Select this option to automatically delete RTT records after they are processed.
- **Expiration timeout**
  Enter the time, in minutes, during which unanswered requests to talk will be stored.

On the **Notifications** tab, specify the following parameters:



- **Send notifications to caller**
  Select this checkbox to notify the radio when a request is rejected, queued, or the dispatcher is unavailable.
  - Choose one of the buttons below to specify the way the radio is notified.
    - ✓ **Autodetect notification type**
      Choose this option button so that the type of notification will be selected automatically depending on whether or not the Text Messages Service is enabled on the radio.
    - ✓ **Send text messages**
      Choose this option button to send text notifications to the radio.
    - ✓ **Send voice messages**
      Choose this option button to send voice notifications to the radio.
  - In the **Text message notifications** boxes, enter the corresponding text notifications. These texts will be used when sending text notifications to the radio.

6.4.15 Radio Statuses

In TRBOnet Dispatch Console, you can configure different profiles for the radio statuses that are received from or sent to the radios.

- Go to **Administration**, **Radio Statuses**. You can see the default Radio Status profile settings in the **Radio Statuses** pane.

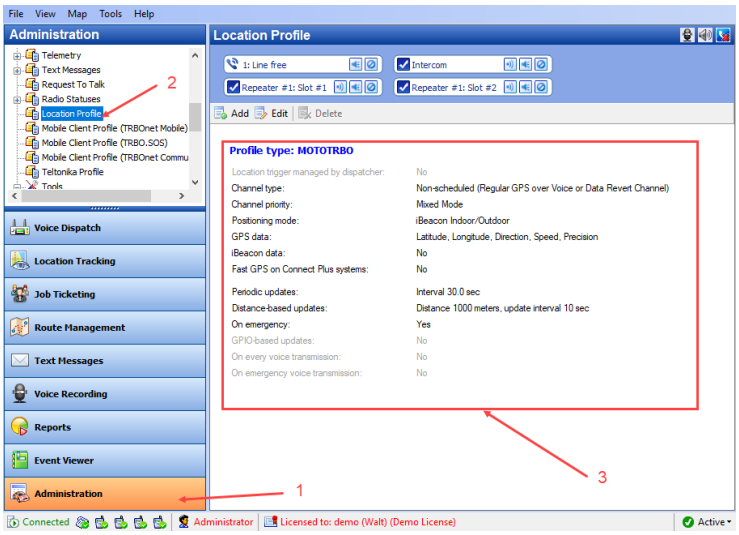
To add a Radio Status profile, click the **Add** button, and in the dialog that opens, specify the required statuses to be received from the radios (**Receive** tab) and sent to the radios (**Send** tab).

6.4.16 Location Profile

The Location Profile feature allows configuring different profiles of location update settings for built-in GPS receiver. Location Profile overrides default location trigger configuration in Server settings. For example, fire emergency service has a number of departments in a city and needs to monitor current position of radio subscribers (firemen). The administrator can create multiple separate location profiles with different location tracking settings for each department.

Note: The Location Profile feature is available for MOTOTRBO Generation II radios, firmware version 2.4 or later.

- Go to **Administration** (1), **Location Profile** (2). You can see the default Location Profile settings (3) in the **Location Profile** pane.



There is a default Location Profile that the administrator can use and edit.

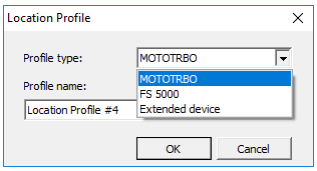
The administrator can do the following:

1. Use default location profile.
2. Create a custom location profile: **Add** button.
3. Edit a profile: **Edit** button.

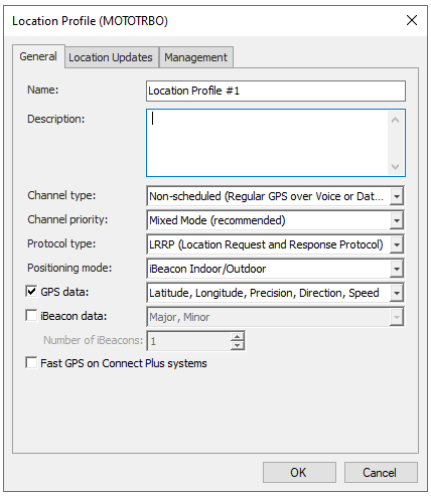
Note: In the default profile, the **Name** and **Description** cannot be changed.

6.4.16.1 Adding Location Profile

- In the **Location Profile** pane, click the **Add** button.



  - **Profile type**
    Select the Profile type (MOTOTRBO, FS 500, or Extended device).
  - **Profile name**
    Enter the name of the profile.
- In the Location Profile dialog box that opens, click the **General** tab.



- **Name**
  Specify a name for the location profile.
- **Description**
  Add a description for the location profile.
- **Channel type**
  From the drop-down list, select a radio channel for sending location data to TRBOnet Server:
  - **Non-scheduled**
    This is a channel with regular GPS (Enhanced GPS not supported).
  - **Scheduled**
    This channel is available when the Enhanced GPS feature is configured in the radio system.
  - **Non-scheduled with CSBK data**
    This channel allows using CSBK (Control Signaling Block) while decoding.

  - **Scheduled with CSBK data**
    This is a channel with Enhanced GPS, which allows using CSBK (Control Signaling Block) while decoding.

- **Channel priority**
  From the drop-down list, select the channel that will be used by location triggers when both LMR and broadband channels are available.
  - **Mixed Mode (Recommended)**
    Location triggers are used for broadband and LMR channel simultaneously.
  - **Broadband Channel**
    Location triggers are used for the broadband channel if available, and for the LMR channel if the broadband channel is not available.
  - **LMR Channel**
    Location triggers are used for the LMR channel if available, and for the broadband if the LMR channel is not available.

  Note: If you have entered the polling interval (**Triggers** tab, **Periodic trigger** > **Interval**) that is not supported for the selected channel, the closest larger value will be used.

- **Protocol type**
  From the drop-down list, select the protocol with which to send GPS data.
  - **LRRP** (Location Request and Response Protocol)
  - **LIP** (Location Information Protocol)

  Note: The LIP protocol is supported on IPSC systems only.

- **Positioning mode**
  This option determines which GPS coordinates to show on the map and display in the radio's movement history when TRBOnet Server receives a data packet containing both iBeacon and GPS data.
  - **iBeacon Indoor/Outdoor**
    The coordinates of the iBeacons will be positioned on the indoor and outdoor maps.

  Use case: When a person enters a building, the accuracy of the GPS location reported by their radio is likely to deteriorate. This may cause TRBOnet to show the radio's location outside the building. Using coordinates of iBeacons positioned on the floor plan will prevent this from happening, and the route travelled by the person will also be correct. This is especially useful for reinforced concrete or high-rise buildings.

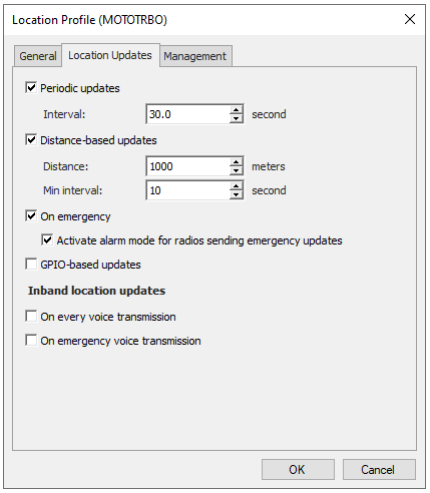
- **iBeacon Indoor/GPS Outdoor**
  The coordinates of the iBeacons will be positioned on the indoor map while the coordinates of the radio will be positioned on the outdoor map.

  Use case: This option is used to show the route travelled by the person based on the GPS coordinates received from their radio rather than from a detected beacon, or when the speed and/or altitude of the device are used for some purpose. The user's icon will appear on the map twice, one icon will show their actual GPS location, whereas the other icon will appear over a detected beacon. Only iBeacon-based location will be displayed on the floor plan. When the radio's GPS coordinates become unavailable, the user's icon will be displayed over the detected beacon on both the map and the floor plan.

- **iBeacon Indoor/No Outdoor**
  Only iBeacon-based location tracking will be used, GPS coordinates of radios and iBeacons will be ignored.

- **GPS data**
  Select this option to enable the user to select what GPS readings to send to TRBOnet Server. In the drop-down list, select which GPS data to include in a packet.
- **iBeacon data**
  Select this option to enable sending iBeacon data to TRBOnet Server. In the drop-down list, select which iBeacon data to include in a packet:
  - **Major, Minor** (included by default and cannot be disabled)
  - **UUID**
    iBeacon's Universally Unique Identifier
  - **TX Power, RSSI**
    The strength of the beacon's signal as seen on the receiving device.
- **Number of iBeacons**
  Specify the number of the most recently detected iBeacons whose data will be included in the data packet sent to TRBOnet.

Location Updates tab



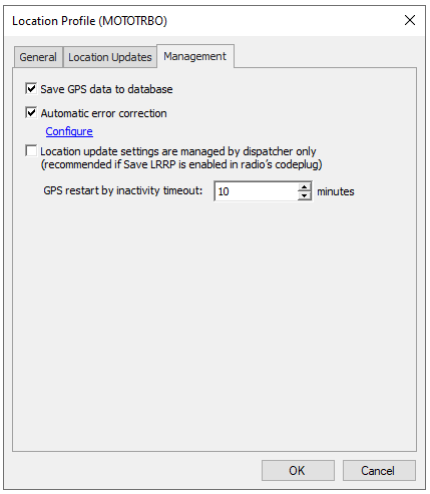
- **Periodic updates**
  Select this option to set a periodic location trigger on a radio. The trigger is a request to the radio to send its GPS and/or iBeacon data at the specified time interval.
  - **Interval**
    Specify the location update interval, in seconds.
- **Distance-based updates**
  Select this option to allow receiving location updates by a distance:
  - **Distance**
    A radio will send location updates if the travelled distance exceeds a specified distance from the last GPS point, in meters.
  - **Min. interval**
    A radio will send location updates no more than once within this time interval, in seconds.
- **On emergency**
  Select this option so that a radio will send GPS and/or iBeacon data upon entering the emergency mode.
  - **Activate alarm mode for radios sending emergency updates**
    Select this option if you want a Dispatch Console operator to see the emergency status of a radio that transmitted location data.
- **GPIO-based updates**
  Select this option so that a radio will send GPS and/or iBeacon data upon sending a Telemetry command.

Inband location updates

- **On every voice transmission**
  Select this option so that a radio will send GPS and/or iBeacon data every time the PTT is pressed and held more than 5 seconds.

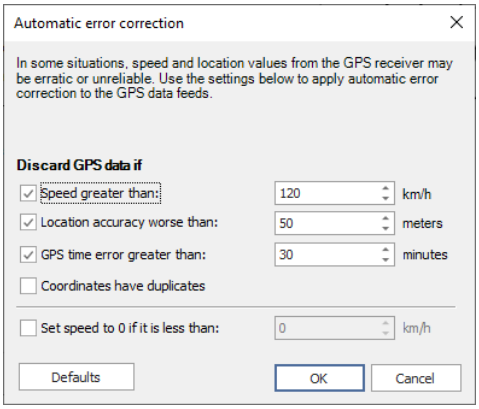
- **On emergency voice transmission**
  Select this option so that a radio will send GPS and/or iBeacon data every time the PTT is pressed in the emergency mode.

Management tab



- **Save GPS data to database**
  Select this option so that GPS data is saved in TRBOnet database.
- **Automatic error correction**
  Select this option to enable automatic error correction to detect and correct invalid GPS data.

  Click the **Configure** link to specify the GPS parameters to be corrected:



Discard GPS data if

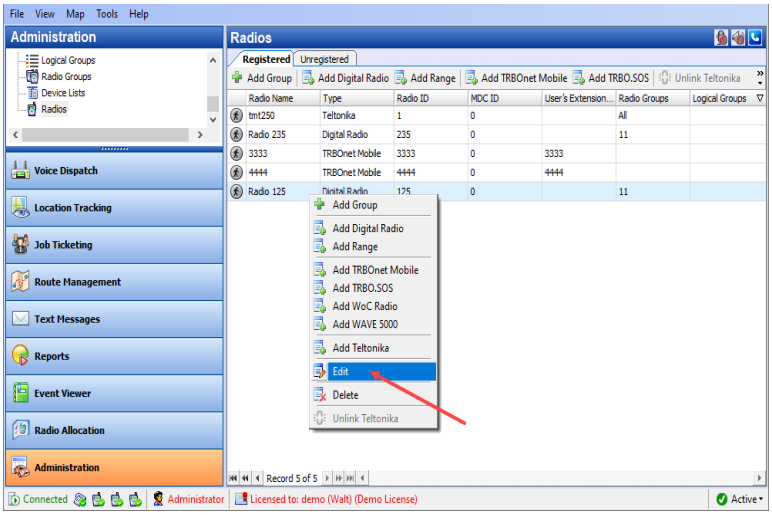
- **Speed greater than**
  Select this option and enter the maximum possible speed of your vehicles. As a result, the coordinates with speeds that exceed the maximum limit will be discarded.
- **Location accuracy worse than**
  Select this option and enter the largest distance for the accuracy of the GPS receiver. As a result, the coordinates with distances that exceed the maximum limit will be discarded.

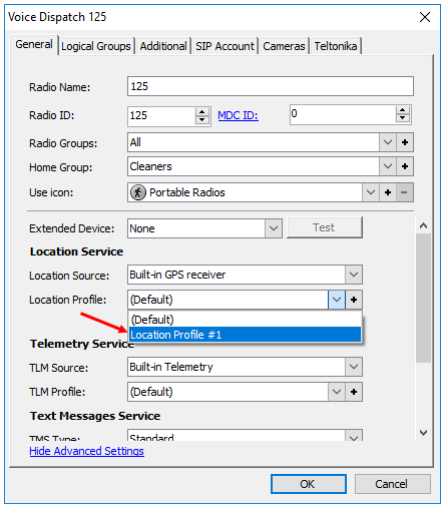
- **GPS time error greater than**
  Select this option and enter the largest allowable time error, in minutes. As a result, the coordinates with time errors that exceed the maximum limit will be discarded.
- **Coordinates have duplicates**
  Select this option to remove duplicate coordinates from the GPS data.
- **Set speed to 0 if it is less than**
  Select this option and enter the low-speed threshold. Speeds below this threshold will be considered as zero by the server.

- **Location update settings are managed by dispatcher only (recommended if Save LRRP is enabled in radio's codeplug)**
  Select this option so that Location updates can be started/stopped only manually by the dispatcher.
  - **GPS restart by inactivity timeout**
    Enter the time interval that will be used by the server to send the GPS Start Trigger request to the online subscriber radio if there has been no GPS activity.

6.4.16.2 Applying Location Profile to a radio:

- Go to **Administration** (1), **Radios** (2), select the radio in the table, and click **Edit** (3):





- Click the **General** tab, and from the **Location Profile** list select the location profile to use for the radio.
- Select/clear the **Location Enabled** checkbox to enable/disable the location trigger.

Note: The Location Profile is only applicable when the 'Built-in GPS receiver' or 'Extended device' (if any) is selected in the **Location Source**.

6.4.17 Mobile Client Profile (TRBOnet Mobile)

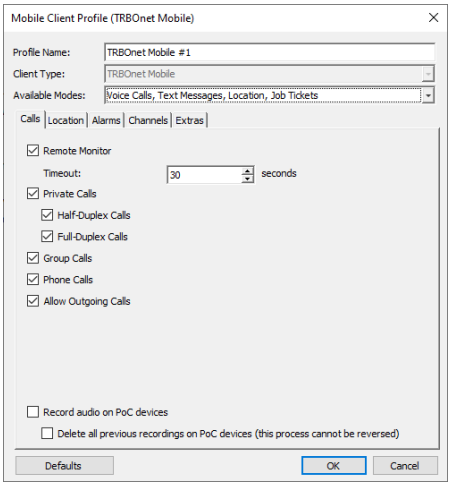
The Mobile Client Profile feature allows configuring different location profiles that can be applied to the Mobile Client app running on a smartphone. For information on how to register a TRBOnet Mobile app, see section 6.4.32.2, Adding TRBOnet Mobile. For more details on TRBOnet Mobile, refer to *TRBOnet Mobile User Guide*.

- Go to **Administration**, **Mobile Client Profile (TRBOnet Mobile)**.

  You can see the default TRBOnet Mobile Profile settings in the **Mobile Client Profile** pane.

6.4.17.1 Adding TRBOnet Mobile Profile

- In the **Mobile Client Profile** pane, click the **Add** button.
- In the **Mobile Client Profile (TRBOnet Mobile)** dialog box, specify the following parameters:
  - **Profile Name**
    Enter a name for the mobile client profile.
  - **Available Modes**
    In the drop-down list, select/deselect the features that will be available to the associated Mobile Client.



- Click the **Calls** tab.
  - **Remote Monitor**
    If you select this option, the dispatcher will be able to activate the mobile device's microphone in hidden mode.

    Note: The Mobile Client app running on iOS 13 and later must be in the foreground and the screen must be on for this feature to work.

    - **Timeout**
      Specify the remote monitor duration, in seconds.
  - **Private Calls**
    Select this option to allow the Mobile Client app to make private calls. In addition, you can select to allow:
    - Half-Duplex Calls
    - Full-Duplex Calls
  - **Group Calls**
    Select this option to allow the Mobile Client app to make group calls.
  - **Phone Calls**
    Select this option to allow the Mobile Client app to make and receive phone calls.
  - **Allow Outgoing Calls**
    Select this option to allow the Mobile Client app to make outgoing calls.

    Note: If this option is cleared, the Mobile Client app will still be able to send RTTs and respond to incoming radio calls within the call hangtime.
  - **Record audio on PoC devices**
    Select this option to save audio recordings on mobile devices running the Mobile Client app.

- **Delete all previous recordings on PoC devices**
  Select this option to delete all previous audio recordings from mobile devices.

- Click the **Location** tab.
  - **Show locations of other devices**
    Select this option so that the Mobile Client app will receive locations of other radios (mobile clients).
  - **Use GPS location**
    Select this option to enable sending GPS data to TRBOnet Server.
    - **Periodic interval**
      Specify the time interval, in seconds, that will be used to send GPS location data.
    - **Emergency interval**
      Specify the time interval, in seconds, that will be used to send emergency messages.
    - **Save GPS data to database**
      Select this option so that GPS data is saved in TRBOnet database.
    - **Automatic error correction**
      Select this option to enable automatic error correction to detect and correct invalid GPS data. Click the **Configure** link and specify the GPS parameters to be corrected.
  - **Use Indoor location**
    Select this option to enable sending iBeacon data to TRBOnet Server.
    - **Periodic interval**
      Specify the time interval, in seconds, used to send iBeacon location data.
    - **Emergency interval**
      Specify the time interval, in seconds, that will be used to send emergency messages.
    - **Number of iBeacons**
      Specify the number of the most recently detected iBeacons whose data will be included in the data packet sent to TRBOnet.
    - **iBeacons filter**
      Click the **Add** link and enter the UUID of the beacons that will be used by the mobile client.

Note: If you don't specify the **iBeacon UUID**, the Mobile Client app running on an iOS device won't detect any iBeacons.

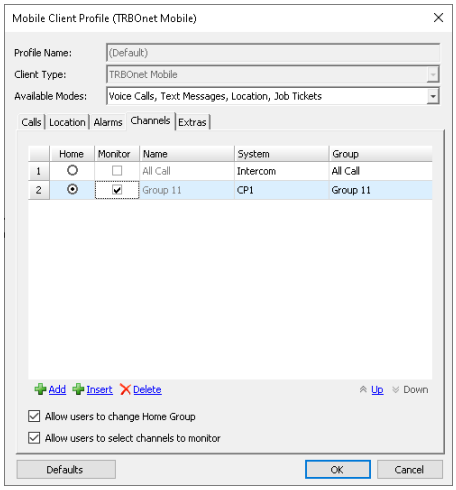
- **Positioning mode**
  This option determines which GPS coordinates to show on the map and display in the device's movement history when TRBOnet Server receives a data packet containing both iBeacon and GPS data.
  - ✓ **iBeacon Indoor/Outdoor**
    The coordinates of the iBeacons will be positioned on the indoor and outdoor maps.
  - ✓ **iBeacon Indoor/GPS Outdoor**
    The coordinates of the iBeacons will be positioned on the indoor map while the coordinates of the device will be positioned on the outdoor map.
  - ✓ **iBeacon Indoor/No Outdoor**
    Only iBeacon-based location tracking will be used, GPS coordinates of devices and iBeacons will be ignored.

- **Allow users to disable location services**
  Select this option so that users will be able to disable location services on their Mobile Client apps. To disable location services on a Mobile Client app, go to Settings > Power Saving > Position Accuracy > No location and GPS.

- Click the **Alarms** tab.
  - **Emergency Button**
    Select this option so that the Mobile Client app will be able to send Emergency Alarms to the Dispatch Console.
  - **Sensor Alerts**
    Select the desired sensor alert buttons (**Man Down**, **No Movement**, **Shake Detection**) to be shown in the Mobile Client app.
  - **Show alarms from other devices**
    Select this option so that the Mobile Client app will receive alarms from other radios (mobile clients).
  - **Allow users to enable or disable selected sensor alerts**
    Select this option so that the mobile app users will be able to enable or disable selected sensor alerts.

    Note: If this checkbox is cleared, the selected sensor alerts will always be activated on mobile app devices and cannot be deactivated by mobile app users.

- Click the **Channels** tab.



- In the table, choose the Home Group channel on which the mobile app will transmit if the user presses the PTT button (**Home**). You can also check channels to be monitored (**Monitor**). To add/insert a channel (Radio Group) to the table, click the **Add/Insert** link and specify the **Name**, **System** and **Group**.
- **Allow users to change Home Group**
  Select this option to allow users to change Home Group in their Mobile Client apps.
- **Allow users to select channels to monitor**
  Select this option to allow users to select the channels they can listen to in their Mobile Client apps.

- Click the **Extras** tab.
  - **Battery Level**
    Select this option so that the smartphone's battery level will be sent to the Dispatch Console.

    Note: Mobile apps send the battery information as soon as they are connected to TRBOnet. After successful connection, mobile apps pass the battery level to the server with every location update, voice transmission and text message. Regardless of its activity, a mobile app will update the battery charge level when it goes down to 90%, 80%, 70%, 60%, 50%, 40%, 30%, 20%, 15%, 10%, 5%.

  - **Do Not Disturb**
    Select this option so that the DND mode will be enabled on the Mobile Client app.

6.4.18 Mobile Client Profile (TRBO.SOS)

This section describes how to configure the profile for the TRBO.SOS application running on a smartphone. For information on how to register a

TRBO.SOS app, see section 6.4.32.3, Adding TRBO.SOS. For more details on TRBO.SOS, refer to *TRBO.SOS User Guide*.

- Go to **Administration**, **Mobile Client Profile (TRBO.SOS)**.

  You can see the default TRBOnet SOS Profile settings in the **Mobile Client Profile (TRBO.SOS)** pane.

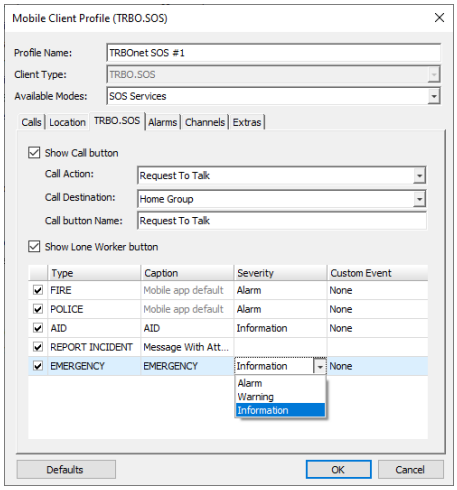
6.4.18.1 Adding TRBO.SOS Profile

- In the **Mobile Client Profile (TRBO.SOS)** pane, click the **Add** button.
- In the **Mobile Client Profile (TRBO.SOS)** dialog box, specify the following parameters:
- **Profile Name**
  Enter a name for the TRBO.SOS profile.
- Click the **Calls** tab.
  - **Remote Monitor**
    If you select this option, the dispatcher will be able to activate the device's microphone in hidden mode.
    - **Timeout**
      Specify the remote monitor duration, in seconds.

  Note: The dispatcher won't be able to execute the Remote Monitor command for TRBO.SOS apps running in the background on iOS 13 and later.

- Click the **Location** tab.
  - **Use GPS location**
    Select this option to enable sending GPS data to TRBOnet Server.
    - **Periodic interval**
      Specify the time interval, in seconds, that will be used to send GPS location data.
    - **Emergency interval**
      Specify the time interval, in seconds, that will be used to send emergency messages.
    - **Save GPS data to database**
      Select this option so that GPS data is saved in TRBOnet database.
    - **Automatic error correction**
      Select this option to enable automatic error correction to detect and correct invalid GPS data. Click the **Configure** link and specify the GPS parameters to be corrected:

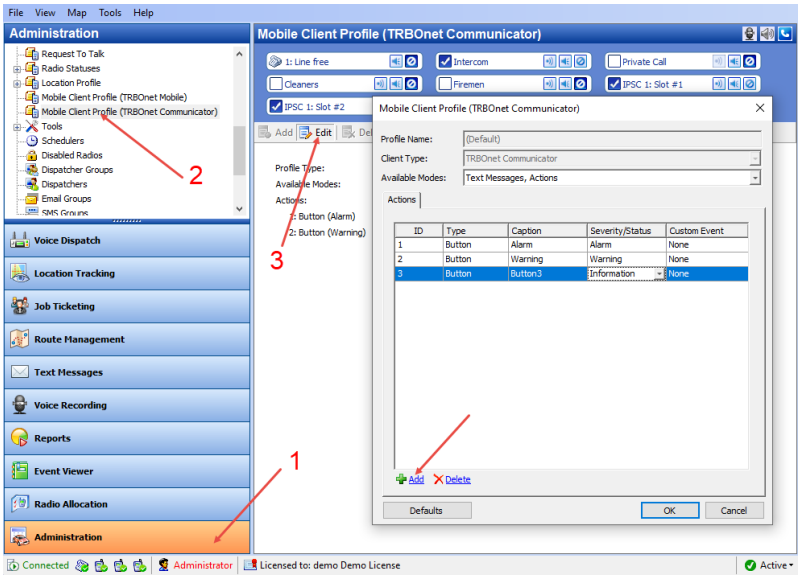
- Click the **TRBO.SOS** tab.



  - **Show Call button**
    If you select this option, the PTT button will be available in TRBO.SOS.
    - **Call Action**
      From the drop-down list, select the action to be performed when the PTT button is pressed: Request To Talk, TRBOnet Call, or Phone Call.
    - **Call Destination**
      From the drop-down list, select the call destination.
    - **Call button Name**
      Enter the name (label) of the PTT button.
  - **Show Lone Worker button**
    If you select this option, the Lone Worker button will appear in TRBO.SOS. This will allow the TRBO.SOS user to start the Lone Worker mode.
  - **Panic buttons**
    In the table below, specify the Type, Caption, Severity/Status, and Custom Event for the additional button(s).
- Click the **Alarms** tab.
  - **Sensor Alerts**
    Select the desired sensor alert buttons (**Man Down**, **No Movement**, **Shake Detection**) to be shown in the TRBO.SOS app.
- Click the **Channels** tab.
  - **Home Group**
    Select the home group (**System** and **Group**) for the PTT button.
- Click the **Extras** tab.
  - **Battery Level**
    Select this option so that the smartphone's battery level will be sent to the Dispatch Console.

6.4.19 Mobile Client Profile (TRBOnet Communicator)

This section describes how to configure the profile for the TRBOnet Communicator application running on a smartphone. For more details on TRBOnet Communicator, refer to *TRBOnet Communicator User Guide*.



- Go to **Administration** (1) > **Mobile Client Profile (TRBOnet Communicator)** (2).
- In the **Mobile Client Profile (TRBOnet Communicator)** pane, click **Edit** (3).
- In the dialog box that opens, click the **Add** link.
- In the table below, specify the Type, Caption, Severity/Status, and Custom Event for the button(s) you are adding.
- Once you have configured the profile, click **OK**.

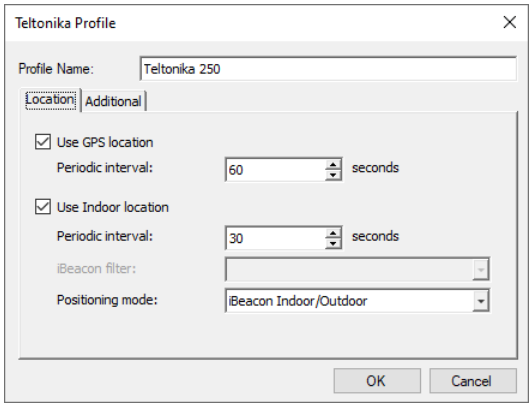
6.4.20 Teltonika Profile

This section describes how to configure the profile for the Teltonika devices.

For information on how to register a Teltonika device, see section 6.4.32.5, Adding Teltonika. For more details on TRBOnet Teltonika, refer to *TRBOnet Teltonika User Guide*.

- Go to **Administration, Teltonika Profile**.

  You can see the default Teltonika Profile settings in the **Teltonika Profile** pane.
- In the **Teltonika Profile** pane, click the **Add** button.



- **Use GPS location**
  Select this option to enable sending GPS data to TRBOnet Server.
  - **Periodic interval**
    Specify the time interval, in seconds, that will be used to send GPS location data.
- **Use Indoor location**
  Select this option to enable sending iBeacon data to TRBOnet Server.
  - **Periodic interval**
    Specify the time interval, in seconds, used to send iBeacon location data.
  - **Positioning mode**
    This option determines which GPS coordinates to show on the map and display in the device's movement history when TRBOnet Server receives a data packet containing both iBeacon and GPS data.
    - ✓ **iBeacon Indoor/Outdoor**
      The coordinates of the iBeacons will be positioned on the indoor and outdoor maps.
    - ✓ **iBeacon Indoor/GPS Outdoor**
      The coordinates of the iBeacons will be positioned on the indoor map while the coordinates of the device will be positioned on the outdoor map.
    - ✓ **iBeacon Indoor/No Outdoor**
      Only iBeacon-based location tracking will be used, GPS coordinates of devices and iBeacons will be ignored.

- Click the **Additional** tab.

  ### Events

  - **Battery Level**
    Select this option so that the Teltonika device's battery level will be sent to the Dispatch Console.

Note: Teltonika devices send the battery information as soon as they are connected to TRBOnet. After successful connection, Teltonika devices pass the battery level to the server with every location update. Regardless of the device activity, the battery charge level will be logged on TRBOnet Server every time the level goes down to 90%, 80%, 70%, 60%, 50%, 40%, 30%, 20%, 15%, 10%, and 5%.

- **Emergency Button**
  Select this option so that the Teltonika device will be able to send Emergency Alarms to the Dispatch Console.
- **Man Down**
  Select this option to send Man Down alerts to the Dispatch Console.

Location

- **Save GPS data to database**
  Select this option so that GPS data is saved in TRBOnet database.
- **Automatic error correction**
  Select this option to enable automatic error correction to detect and correct invalid GPS data. Click the **Configure** link to specify the GPS parameters to be corrected.

6.4.21 Tools

On the **Tools** page, you can find some useful tools.

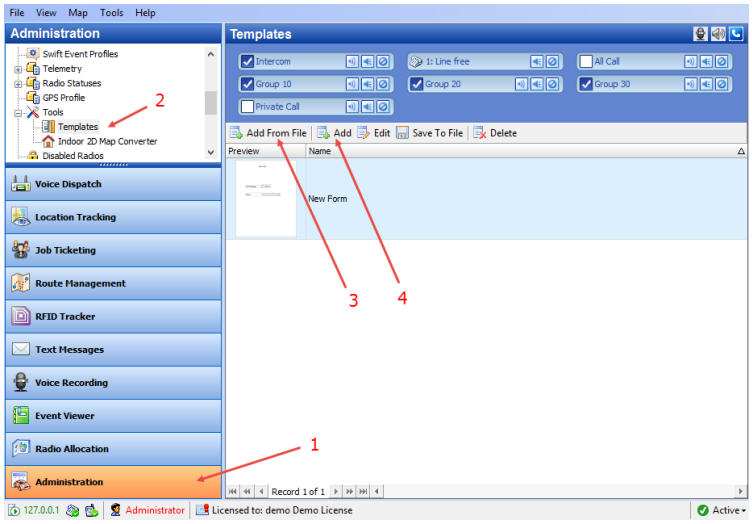
6.4.21.1 Templates for Extended Messages

The Templates can be used for Extended Messages and Extended Notes.

The **Extended Messages** feature is a special function allowing users to send detailed preconfigured templates containing necessary information to each other with the help of the special TRBOnet Dispatch Console application.

This service has been created especially for clients who need to use more detailed and structured messages in their work. If the standard messages are not enough to contain all required information, you may use the Extended Messages service.

- Go to **Administration** (1), **Tools > Templates** (2) to create a new template:

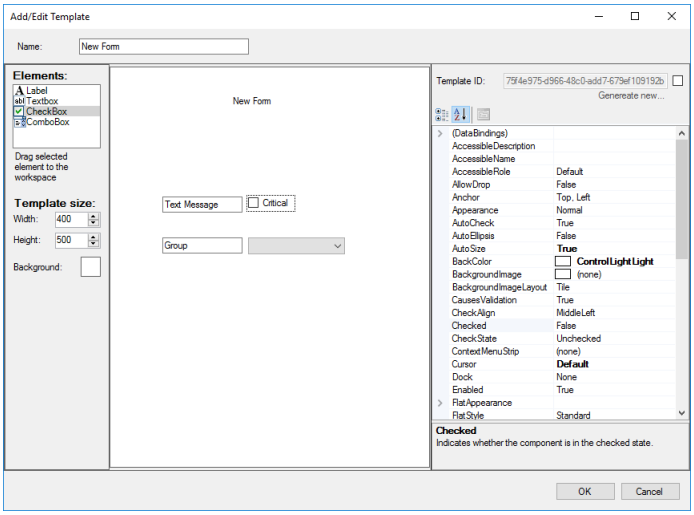


- Click **Add From File** (3) to add a template from a file.

  Note: Before adding a template from a file, save the created template to a custom directory.

  Select the directory where you saved the template and click **OK** to add the file.

- Click **Add** (4) to create a new template:



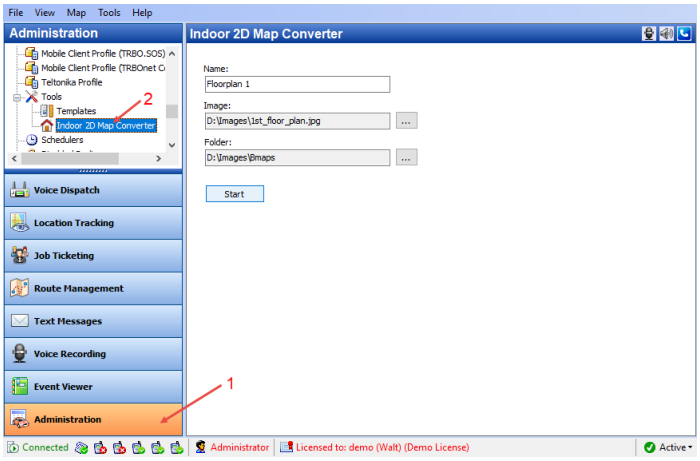
  - **Name** (1)
    Specify a name for the template to display in the Dispatch Console (1).
  - **Elements** (2)
    Select elements to add to the template. Drag and drop the selected element to the desired place on the mail template box.
  - **Template size** (3)
    Specify the template dimensions and background color.
  - Click an element on the template. On the right side of the **Template** dialog box, you can see the selected element properties.

For directions on how to send an extended message to a radio, see section 6.9.2.1, Send Extended Text Message to a Radio.

6.4.21.2 Indoor 2D Map Converter

TRBOnet Dispatch Console provides the Map Converter to use custom images as Indoor 2D Floor plans. The tool allows converting images to the BMAP format that is supported in Indoor Positioning.

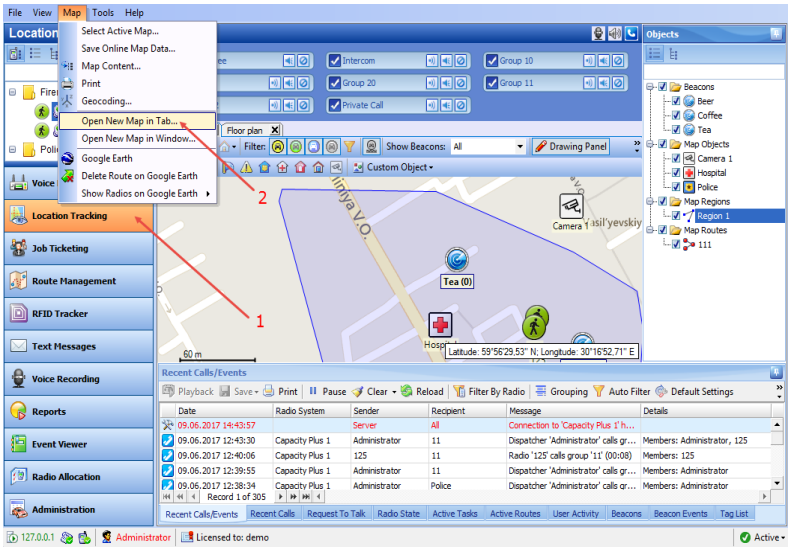
- Click **Administration** (1), **Tools > Indoor 2D Map Converter** (2).

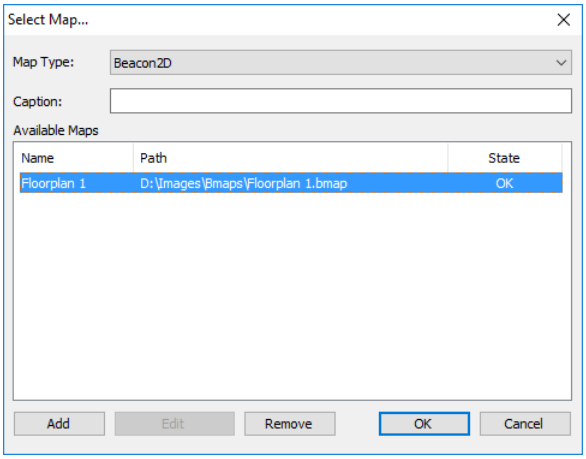


- **Name**
  Specify a name for the new Indoor 2D Map.
- **Image**
  Click the ellipsis (**...**) button and locate the image file (PNG, JPG, TIFF, GIS) on your computer.
- **Folder**
  Click the ellipsis (**...**) button and locate the folder where to save the converted Indoor 2D map on your computer.
- Click **Start** to convert the image.

To use the converted map

- Click **Location Tracking** (1). On the **Map** menu, click **Open New Map in Tab** (2):



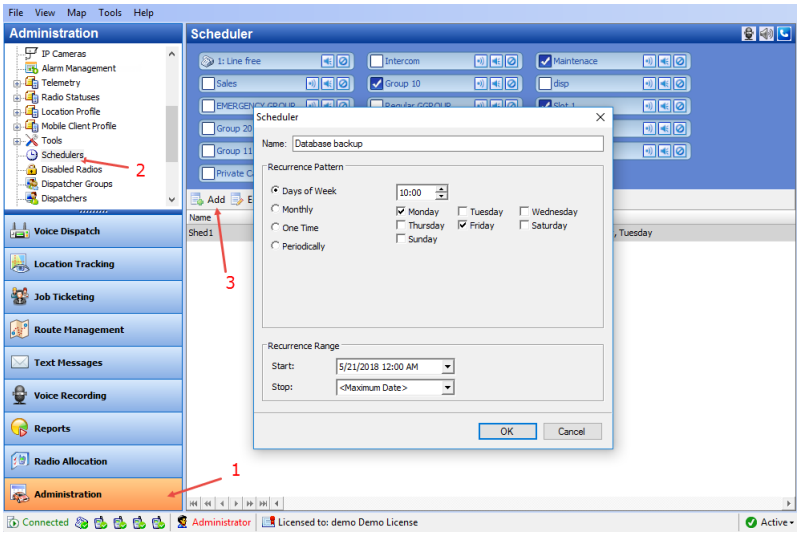


- From the **Map Type** list box, select 'Beacon 2D'.
- Click **Add** to and browse for the map you have converted.
- Click **OK** to open the Indoor map in the Map pane.

6.4.22 Schedulers

The dispatcher can create pre-defined schedules to be used as event sources in Alarm management, for database backup, and in job ticket templates.

- Go to **Administration** (1), **Schedulers** (2).
- In the **Schedulers** pane, click **Add** (3).



In the **Scheduler** dialog box, specify the following parameters:

- **Name**
  Enter the name of the scheduler.

Recurrence Pattern

Choose one of the recurrence patterns for the scheduler:

- **Days of Week**
  Specify the time and select the day(s) of the week.
- **Monthly**
  Specify one of the following options:
  - **Specific Day**
    Specify the ordinal day of the month (in the range 1-31, or select **Last**).
  - **Day of Week**
    Specify the week number in a month (in the range 1-4, or **Last**) and select the day of the week.
- **One time**
  Specify the date and time.
- **Periodically**
  Specify the time interval, the repetition period (in seconds/minutes/hours), and select the day(s) of the week.

Recurrence Range

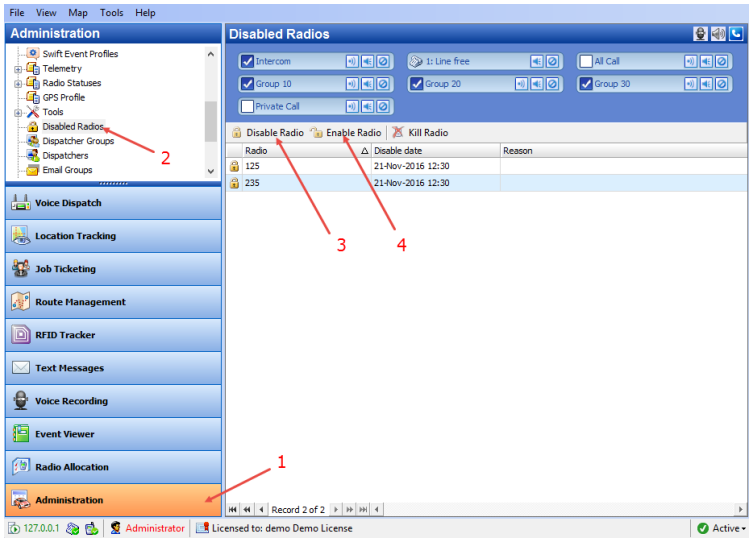
- **Start**
  Specify the start date/time.
- **Stop**
  Specify the stop date/time.

6.4.23 Disabled Radios

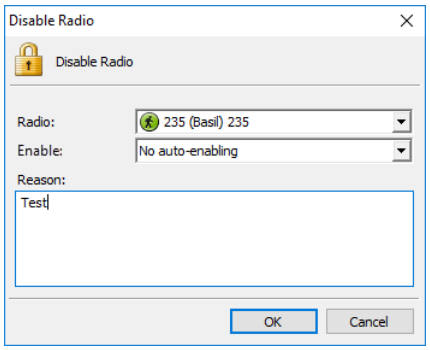
TRBOnet Dispatch Console provides the **Disable** function that allows disabling a radio even when the radio is offline. The system will disable an offline radio as soon as it gets available.

> Note: The dispatcher can disable a radio when they have relevant Access Rights (for more details on adding and editing dispatchers, see section 6.4.25, Dispatchers on page 261).

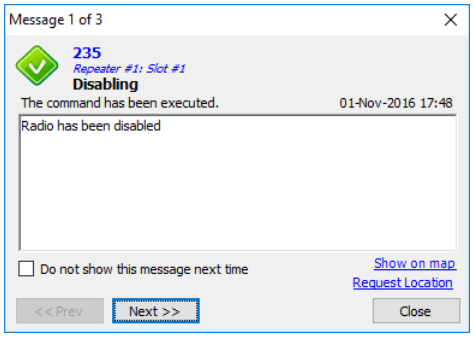
- Go to **Administration** (1), **Disabled Radios** (2) to disable/enable selected radio:



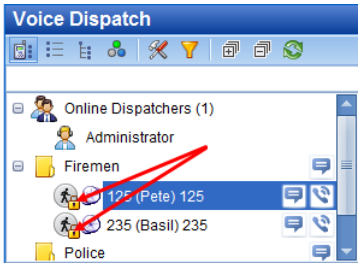
- Click **Disable Radio** (3) and in the dialog box that appears:



  - **Radio**
    From the drop-down list, select the radio to be disabled.
  - **Enable**
    Select the time period after which the radio will be enabled again.
  - **Reason**
    Enter the reason for disabling the radio.
  - Click **OK** to disable the radio.



The Radio is added to the Disabled Radios list and is marked as Disabled in the Voice Dispatch pane:



- Click **Enable Radio** (4) to enable selected radio.
- Select a radio from the drop-down list and specify the reason to enable.
- Click **OK** to enable the radio.

6.4.23.1 Kill Radio

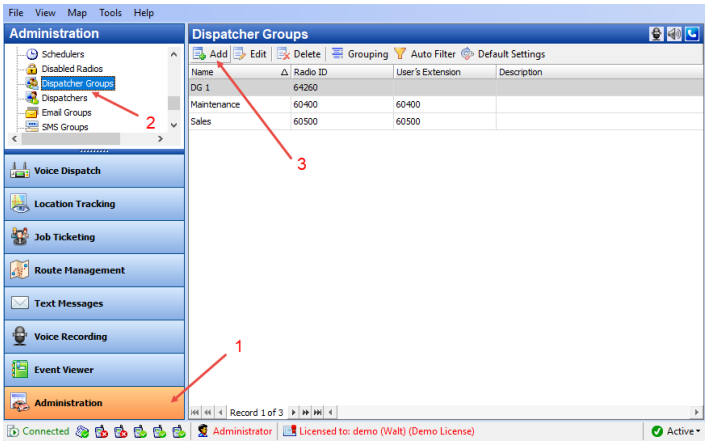
The **Kill Radio** feature is available only when a Capacity Max system is used.

Note: This operation is not reversible. If you kill a radio unit, it will be impossible to recover it.

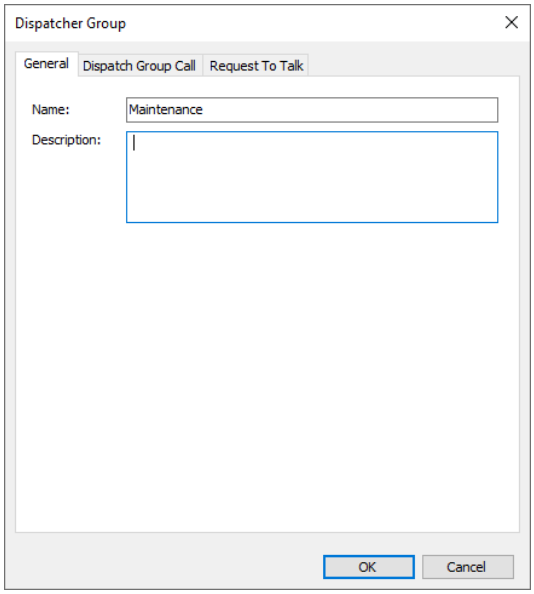
6.4.24 Dispatcher Groups

The administrator can add, edit, and delete dispatcher groups in the system.

- Go to **Administration** (1), **Dispatcher Groups** (2).



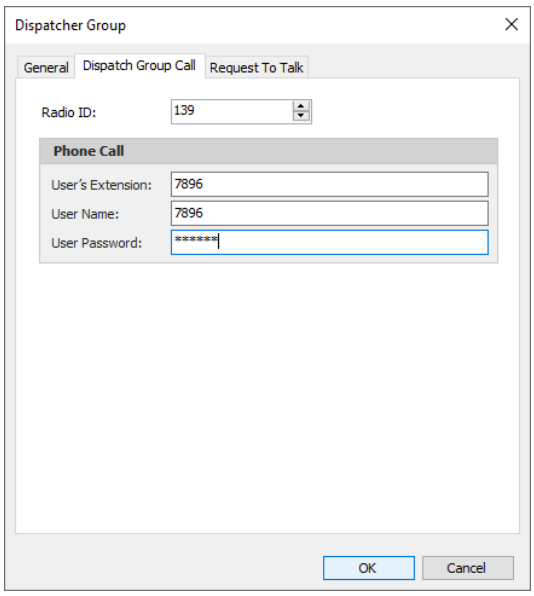
- Click **Add** (3) to add a dispatcher group.



On the **General** tab, specify general parameters for the new dispatcher group.

- **Name**
  Specify a name for the dispatcher group to display in the Dispatch Console.
- **Description**
  Add a description for the dispatcher group.

On the **Dispatch Group Call** tab, specify the following parameters:



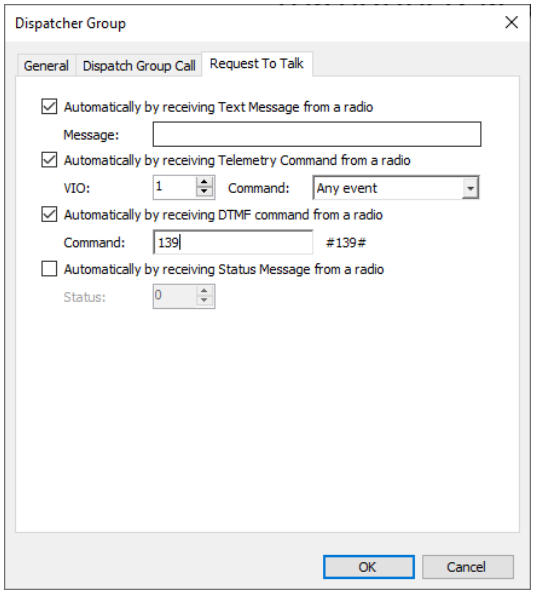
- **Radio ID**
  Specify the Radio ID of the dispatcher group.

Phone Call

- **User's Extension**
  Enter the SIP extension number that will be used by the dispatcher group.

- **User Name**
  Enter the SIP user name that will be used by the dispatcher group.
- **User Password**
  Enter the password for the dispatcher group to be authenticated by the phone system.

On the **Request to Talk** tab, specify the parameters that will be used by radios to request a call from the dispatcher group:



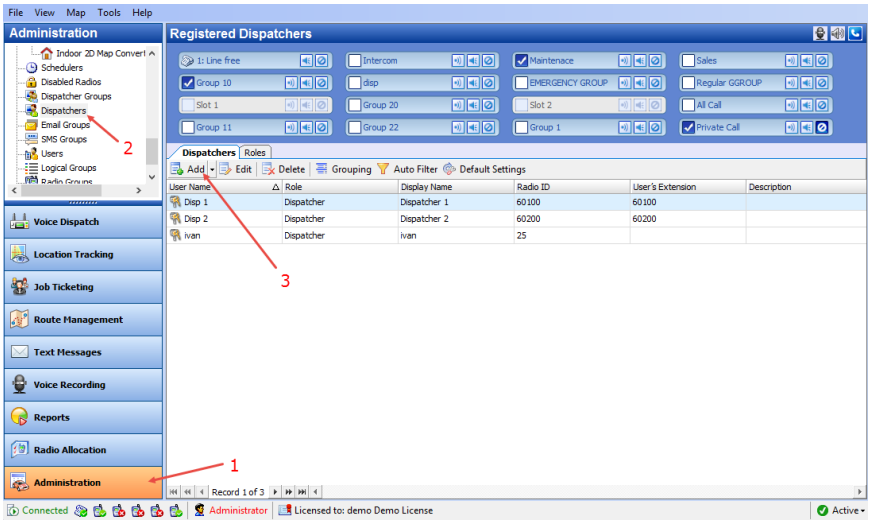
- **Automatically by receiving Text Message from a radio**
  Select this option to request a call from the dispatcher group when a radio sends a predefined text message. If you select this option, specify a brief text message in the **Message** box.
- **Automatically by receiving Telemetry Command from a radio**
  Select this option to request a call from the dispatcher group when a radio sends a predefined telemetry command. If you select this option, specify the **VIO** contact, and from the **Command** drop-down list, select the signal level at which the user's radio should send the telemetry command.
- **Automatically by receiving DTMF command from a radio**
  Select this option to request a call from the dispatcher group when a radio sends the specified DTMF tones. If you select this option, specify a DTMF combination without the # characters in the **Command** box.
- **Automatically by receiving Status Message from a radio**
  Select this option to request a call from the dispatcher group when a radio sends the specified Status to TRBOnet Server, for instance, 1. If you select this option, specify the **Status**.

Once you have added the dispatcher group to the system, the appropriate PTT box will appear in the Radio Interface pane.

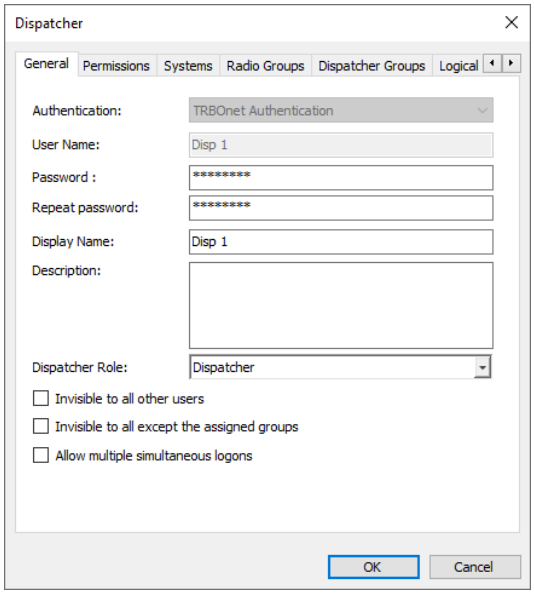
6.4.25 Dispatchers

The administrator can add, edit, and delete dispatchers in the system.

- Go to **Administration** (1), **Dispatchers** (2) to work with dispatchers:



- Click **Add** (3) to add a dispatcher.



- On the **General** tab, specify general parameters for the new dispatcher.
  - **Authentication**
    Select the Authentication method from the drop-down list.
    Select **TRBOnet Authentication** to log on as a user registered in TRBOnet Dispatch Console Users list.
    Select **Windows Authentication** to log on using the PC name. The system automatically shows the PC name as User Name.

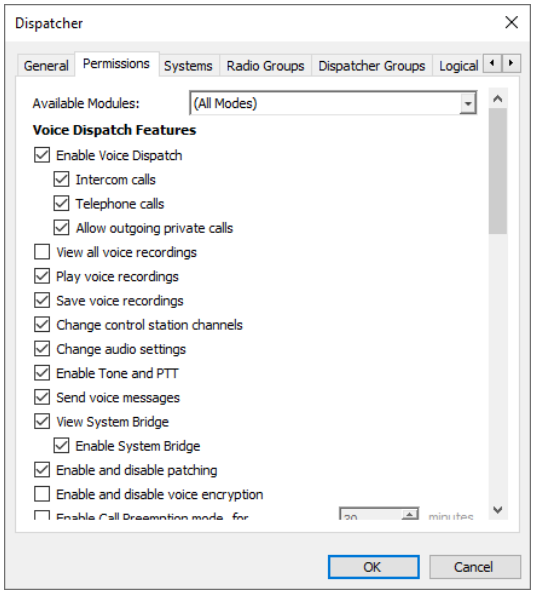
    Note: The password is not required when Windows Authentication is used.

Note: For more details on user access to Allocation Console, see section 6.4.28, Users (page 269).

  - **User Name**
    Specify a user name for the dispatcher registered in TRBOnet Dispatch Console Users list.
  - **Password**
    Specify a password for the dispatcher.
- **Display Name**
  Specify a name for the dispatcher to display in the Dispatch Console.
- **Description**
  Add a description for the dispatcher.
- **Dispatcher Role**
  Form the drop-down list, select the role of the dispatcher in the system (Administrator or Dispatcher).

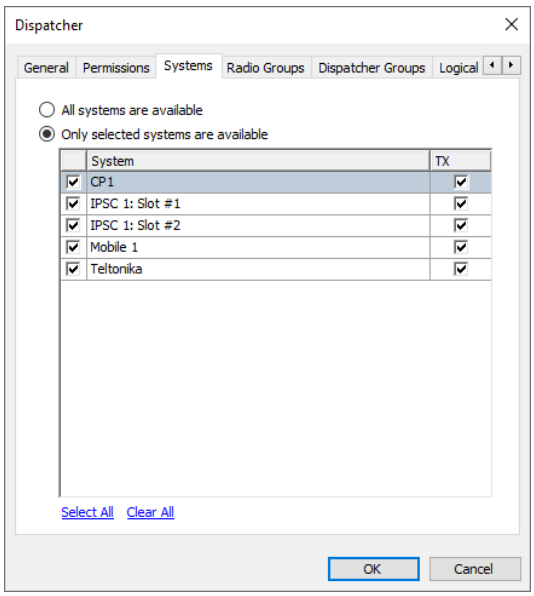
  Note: In addition to the Administrator and Dispatcher roles, you can also create custom dispatcher roles. To do this, in the **Dispatchers** pane, click the **Roles** tab, and then click **Add**.
- **Invisible to all other users**
  Select this option to make the dispatcher invisible to other users.
- **Invisible to all except the assigned groups**
  Select this option to make the dispatcher invisible to other users except for users belonging to the same group of dispatchers.
- **Allow multiple simultaneous logons**
  Select this option to allow the dispatcher to use multiple instances of Dispatch Console simultaneously.

On the **Permissions** tab, select the available modules and specify the available permissions for the dispatcher.



On the **Systems** tab, specify the system(s) that will be available for the dispatcher.

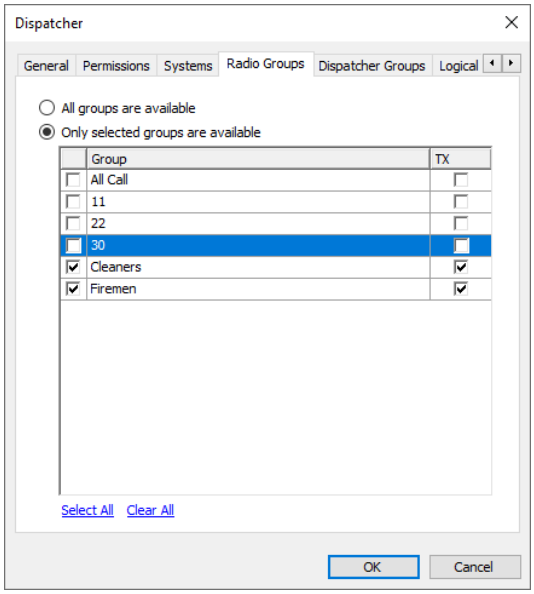
Note: The dispatcher will not be able to make and receive voice calls over the radio channels of an unavailable system. The corresponding PTT boxes will be hidden for the dispatcher. However, radios' data (text messages, statuses, locations, etc.) will be available to the dispatcher.



- **All systems are available**
  Choose this option to make all radio systems available for the dispatcher to transmit and receive Voice.
- **Only selected systems are available**
  Choose this option and specify which radio systems will be available to the dispatcher.

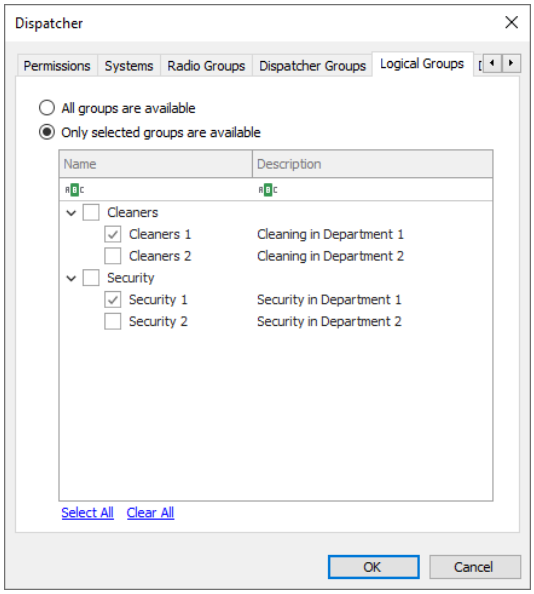
- Select the checkbox in the left column to add the corresponding radio system to the Radio Interface for the dispatcher.
- Select the checkbox in the **TX** column to allow the dispatcher to make Voice calls using the corresponding radio system. When the checkbox is cleared in the TX column, the dispatcher cannot use the corresponding radio system to transmit voice and data.

On the **Radio Groups** tab, specify the radio groups that will be available for the dispatcher.

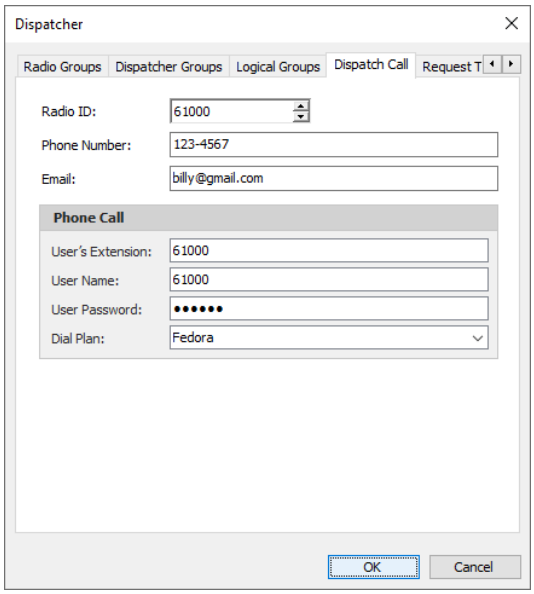


- **All groups are available**
  Choose this option to make all groups in the system available for the dispatcher.
- **Only selected groups are available**
  Choose this option and specify which radio groups will be available to the dispatcher.
  - In the list, select the groups to make them available for the dispatcher.

On the **Logical Groups** tab, select the logical groups that will be available for the dispatcher.



On the **Dispatch Call** tab, specify Dispatch Call and SIP call settings for the dispatcher:



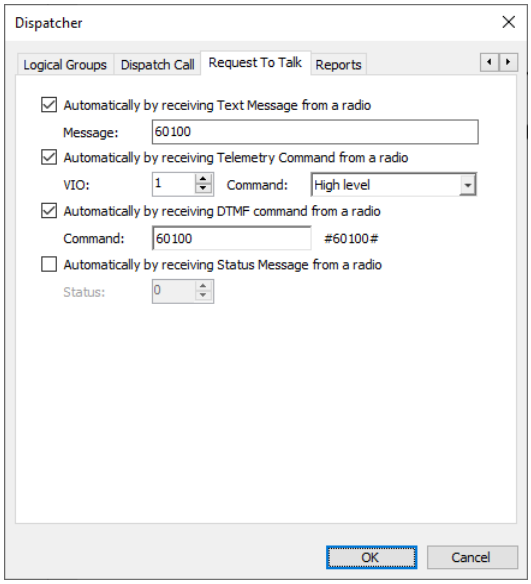
- **Radio ID**
  Specify the Radio ID of the dispatcher.
- **Phone number**
  Specify the dispatcher's phone number (additional data).
- **Email**
  Specify the dispatcher's Email (additional data).

Phone Call

- **User's Extension**
  Enter the SIP extension number that will be used by the dispatcher.
- **User Name**
  Enter the SIP user name that will be used by the dispatcher.

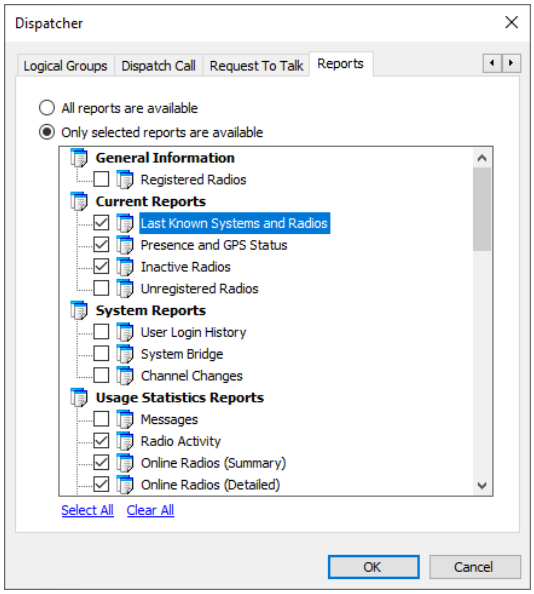
- **User Password**
  Enter the password for the dispatcher to be authenticated by the phone system.
- **Dial Plan**
  From the drop-down list, select the dial plan to use for the dispatcher.

On the **Request to Talk** tab, specify the parameters that will be used by radios to request a call from the dispatcher:



- **Automatically by receiving Text Message from a radio**
  Select this option to request a call from the dispatcher when a radio sends a predefined text message. If you select this option, specify a brief text message in the **Message** box.
- **Automatically by receiving Telemetry Command from a radio**
  Select this option to request a call from the dispatcher when a radio sends a predefined telemetry command. If you select this option, specify the **VIO** contact, and from the **Command** drop-down list, select the signal level at which the user's radio should send the telemetry command.
- **Automatically by receiving DTMF command from a radio**
  Select this option to request a call from the dispatcher when a radio sends the specified DTMF tones. If you select this option, specify a DTMF combination without the # characters in the **Command** box.
- **Automatically by receiving Status Message from a radio**
  Select this option to request a call from the dispatcher when a radio sends the specified Status to TRBOnet Server, for instance, 1. If you select this option, specify the **Status**.

On the **Reports** tab, specify the reports that will be available to the dispatcher.

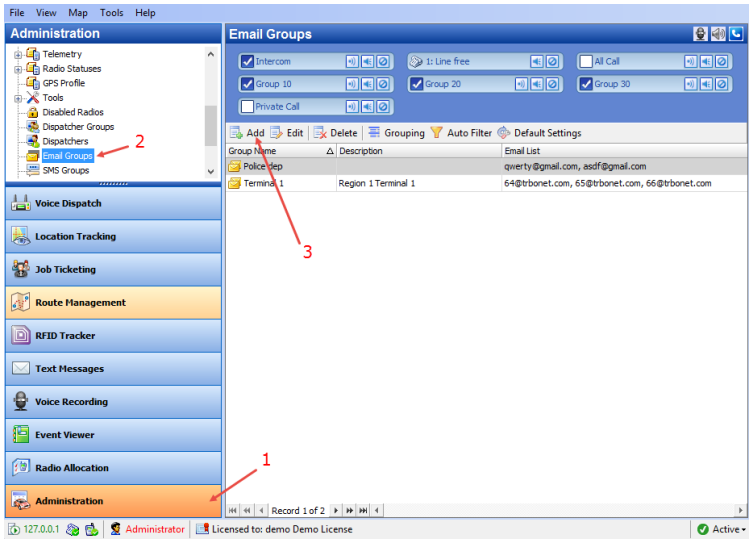


- **All reports are available**
  Choose this option so that all the reports will be available to the dispatcher.
- **Only selected reports are available**
  Choose this option and in the list below select/deselect the reports to include/exclude.

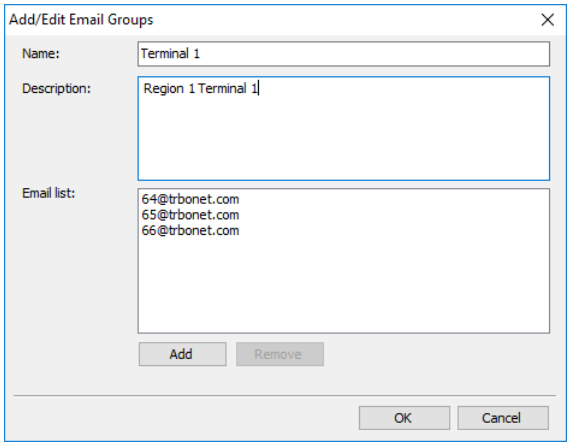
6.4.26 Email Groups

Email Groups are used in Alarm Management and Job Tickets configuration to send emails to dedicated recipient groups.

- Go to **Administration** (1), **Email Groups** (2) to add/edit/delete email groups in the system:



- Click **Add** (3) to create an email group.

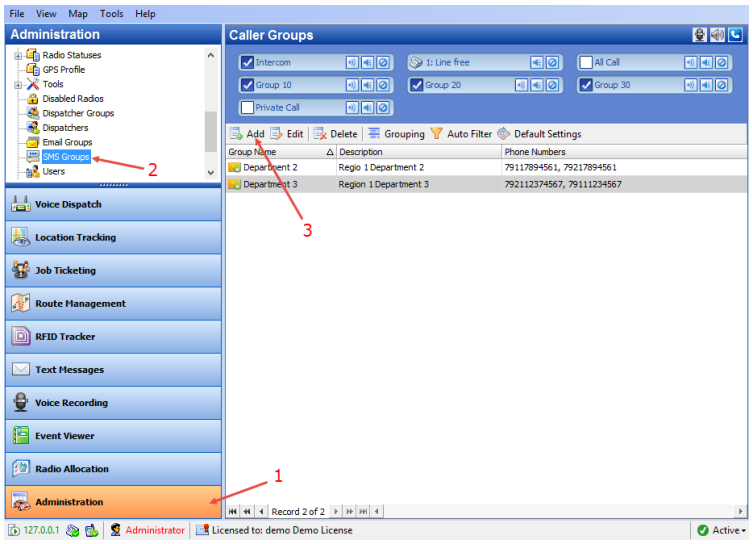


- **Name**
  Specify a name for the email group.
- **Description**
  Add a description for the email group.
- **Email list**
  Click **Add** to add an email address to the Email list.

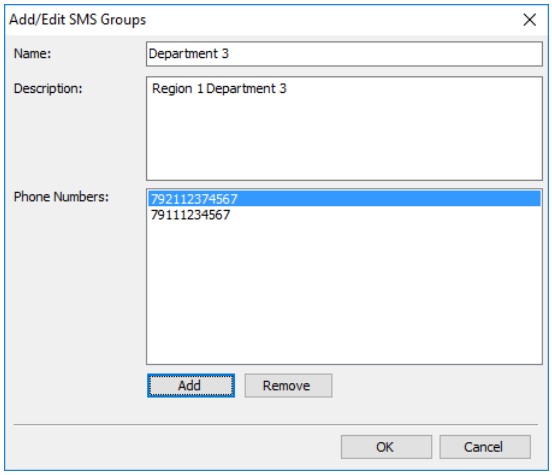
6.4.27 SMS Groups

SMS Groups are used in Alarm Management configuration to send SMS to dedicated SMS recipient groups.

- Go to **Administration** (1), **SMS Groups** (2) to add/edit/delete SMS groups in the system:



- Click **Add** to create a new SMS group:

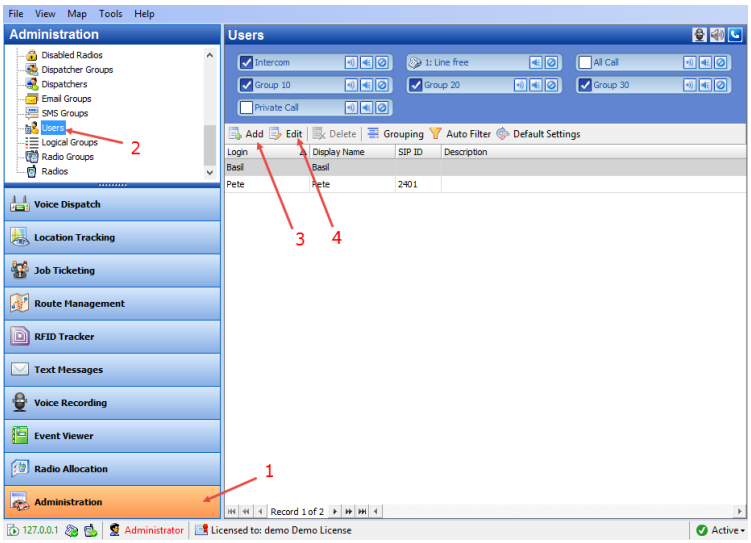


- **Name**
  Specify a name for the SMS group.
- **Description**
  Add a description for the SMS group;
- **Phone Numbers**
  Click **Add** to add a phone number to the SMS group.

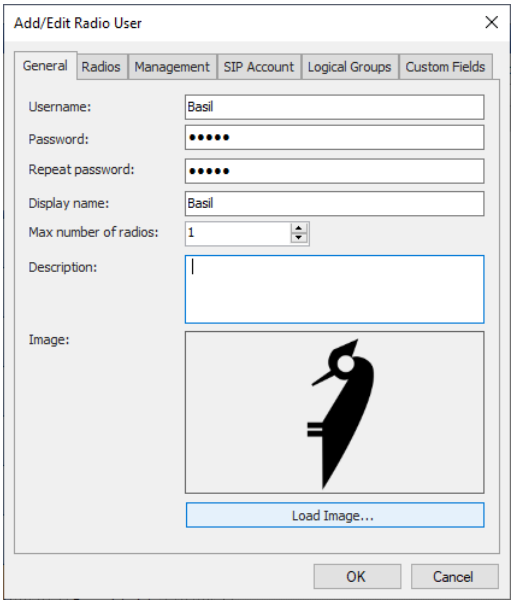
6.4.28 Users

The administrator can add/edit/delete users in the system. In addition, the dispatcher can export/import users (see section 6.3.4.3, Exporting/Importing Objects).

- Go to **Administration** (1), **Users** (2) to add/edit/delete users in the system.

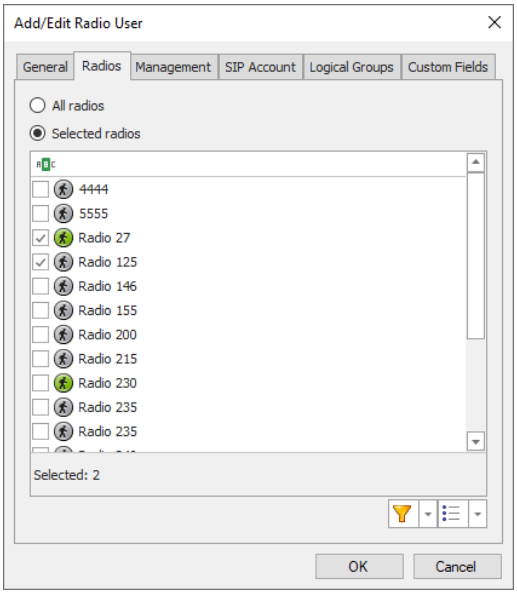


- Click either **Add** (3) to add a user to the system, or **Edit** (4) to edit the selected user.
- On the **General** tab, set general parameters for the user:



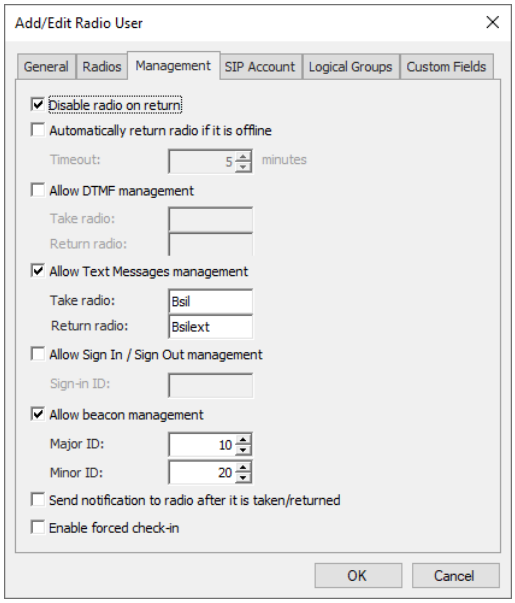
- **Login**
  Specify the login for the user.
- **Password**
  Type in the individual password for the user.
- **Display Name**
  Specify a name for the user to display in the Dispatch Console.
- **Max number of radios**
  Select the maximum number of radios that the user can take.
- **Description**
  Add a description for the user.
- **Load Image**
  Click this button and browse for the photo or image to assign to the user.

- On the **Radios** tab, specify the radios that will be available to the user.



- **All radios**
  Choose this option to allow using all radios in the system.
- **Selected radios**
  Choose this option and specify which radios will be available to the user.

- On the **Management** tab, specify settings related to taking/returning radios:



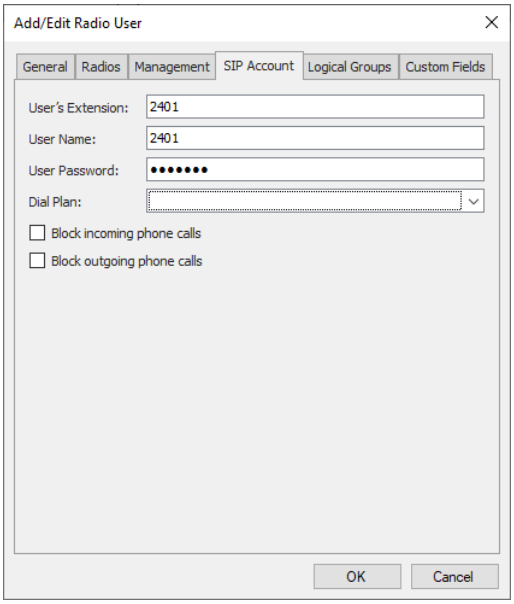
- **Disable radio on return**
  Select this option so that a radio will be disabled after the users returns it.
- **Automatically return radio if it is offline**
  Select this option so that a radio will be automatically returned if it is offline for the specified time interval.

- **Timeout**
  Specify the offline timeout period, in minutes.

- **Allow DTMF management**
  Select this option to allow taking/returning radios by sending the specified DTMF tones.
  - **Take radio**
    Specify DTMF tones to be sent by the user to take a radio.
  - **Return radio**
    Specify DTMF tones to be sent by the user to return a radio.
- **Allow Text Messages management**
  Select this option to allow taking/returning radios by sending specified text messages.
  - **Take radio**
    Specify the text of the message to be sent by the user to take a radio.
  - **Return radio**
    Specify the text of the message to be sent by the user to return a radio.
- **Allow Sign In / Sign Out management**
  Select this option to allow taking radios when the user signs in to a radio.
  - **Sign-in ID**
    Specify the password that the user enters to sign in when they take a radio.
- **Allow beacon management**
  Select this option and enter **Major ID** and **Minor ID** of the beacon that will be used for taking and returning radios. When a radio enters/leaves the range of the specified beacon, this radio will be considered taken/returned by the user.

  Note: This functionality is available only if the radio is equipped with an option board.
- **Send notification to radio after it is taken/returned**
  Select this option so that a notification is sent to a radio every time the user takes or returns it.
- **Enable forced check-in**
  This option affects the Radio Allocation module. If enabled, the user will be able to return any radio, regardless of whether who has taken the radio. For more details on the Radio Allocation module, refer to *TRBOnet Enterprise/PLUS Radio Allocation User Guide*.

- On the **SIP Account** tab, specify a SIP Account for the user:



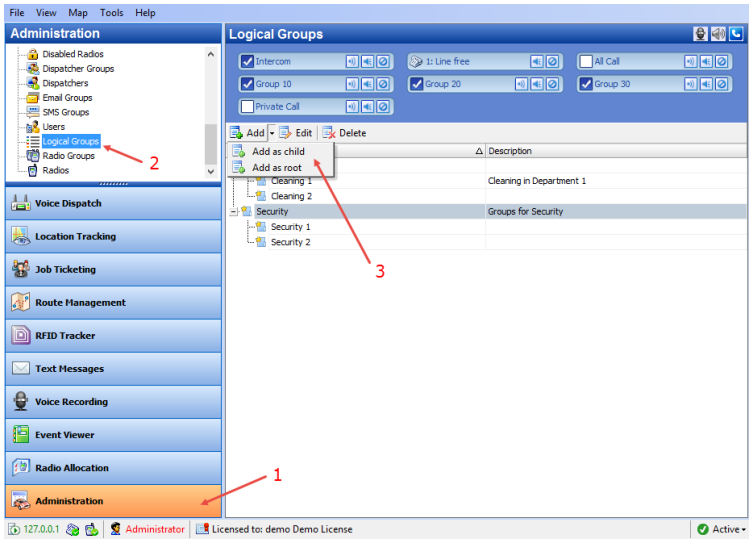
- **User's Extension**
  Enter the SIP extension number that will be used by the user.
- **User Name**
  Enter the SIP user name that will be used by the user.
- **User Password**
  Enter the password for the user to be authenticated by the phone system.
- **Dial Plan**
  From the drop-down list, select the dial plan to use for the user.
- **Block incoming phone calls**
  Select this option to block all incoming SIP calls for the user.
- **Block outgoing phone calls**
  Select this option to block all outgoing SIP calls for the user.

- On the **Logical Groups** tab, specify logical groups for the user:
  - In the list of available groups, select desired group(s).
  - For more information about logical groups, see section 6.4.29, Logical Groups (page 273).
- On the **Custom Fields** tab, specify the desired values for the custom fields (see section 6.4.6, Custom Fields).

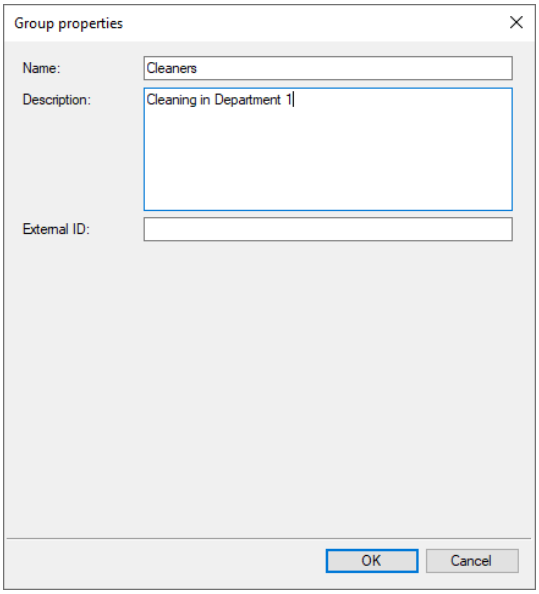
6.4.29 Logical Groups

TRBOnet Dispatch Console allows adding custom logical groups in addition to radio groups. You can create groups and subgroups and then assign radios/users/dispatchers to these groups.

- Go to **Administration** (1), **Logical groups** (2):

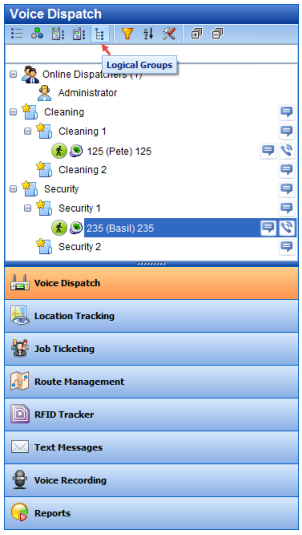


- Click **Add** (3) to add a logical group.
  - Select **Add as root** to add a logical group as a root folder.
  - Select **Add as child** to add a logical group as a child folder.



  - Specify a **Name** and **Description** for the logical group.
  - Click **OK** to add the logical group.

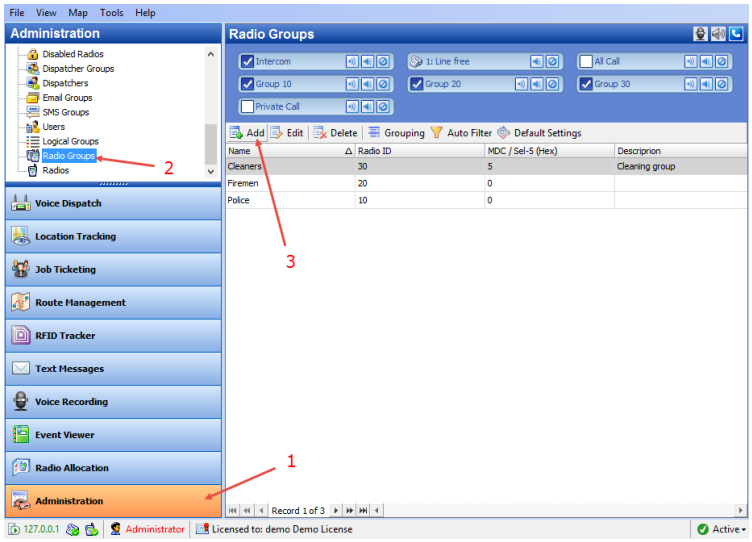
To display logical groups, enable the Logical Group view:



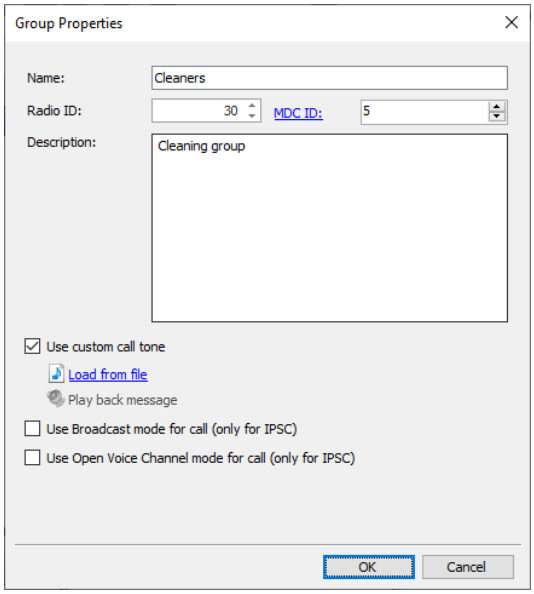
All created logical groups are displayed in the list of radios.

6.4.30 Radio Groups

- Go to **Administration** (1), **Radio Group** (2) to add/edit/delete Radio Groups in the system.



- Click **Add** (3) to add a radio group to the system:



- **Name**
  Specify a name for the radio group in the system.
- **Radio ID**
  Specify the Radio ID for the radio group used to identify messages to/from the radio group.
- **MDC / Select-5 / Quick Call I / Quick Call II**
  Set an ID for MDC 1200 or SELECT 5 signaling systems. This ID is used to identify and communicate with a target radio or group of radios depending on the call type. Or, select Quick Call I / Quick Call II signaling system and specify the appropriate parameters.
- **Description**
  Add a description for the radio group.
- **Use custom call tone**
  Select this option and browse for the audio file (WAV) that will be used as a custom tone when a group call is started by clicking the Tone and PTT button in the group's PTT box (see section 6.5.2, PTT Boxes).
- **Use Broadcast mode for calls**
  Select this option so that a group call will be made in the Broadcast mode. Receiving radios of this group call won't be able to answer (talk back) to this group call.
- **Use Open Voice Channel mode for calls**
  Select this option so that a group call will be made in the Open Voice Channel mode. All radios on the channel that are capable of receiving OVCM calls will receive the group call rather than only the group participants.

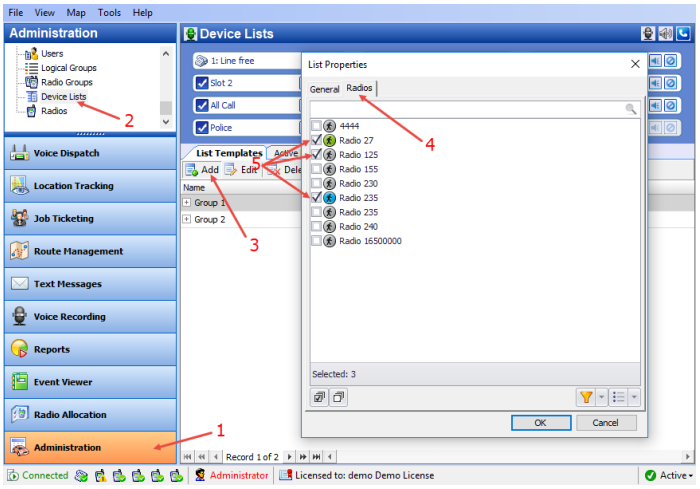
Notes: The Broadcast and OVCM group calls are available on IPSC systems only. To use the Broadcast and OVCM group calls, the **Use NAI Voice** option must be enabled for the repeater (see section 5.10.2, Adding a MOTOTRBO Repeater).

6.4.31 Device Lists

The Device Lists are used to dynamically group radios based on current needs.

6.4.31.1 Adding List Templates

- Go to **Administration** (1), **Device Lists** (2).
- In the **Device Lists** pane, select the **List Templates** tab, and click **Add** (3).



- In the **List Properties** dialog box, enter a name and description for the list.
- Click the **Radios** tab (4), and select the radios (5) to include in the list.

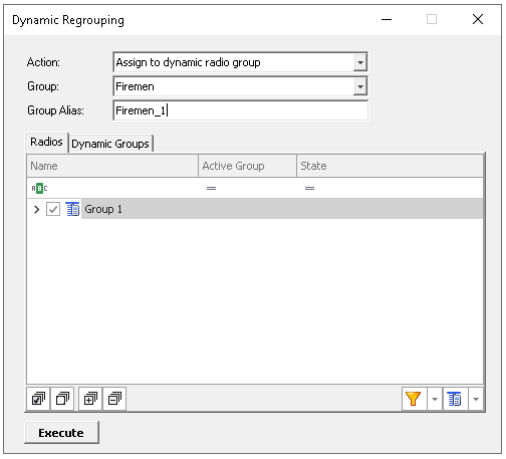
6.4.31.2 Dynamic Regrouping

Note: The Dynamic Regrouping feature is available only for Capacity MAX systems.

To assign radios to dynamic groups:

- Go to **Administration**, **Device Lists**.
  In the **Device Lists** pane, select the **Active Lists** tab, and click **Create**.

  Or:
- On the **Tools** menu, click **Dynamic Regrouping**.



In the **Dynamic Regrouping** dialog box, enter the following parameters:

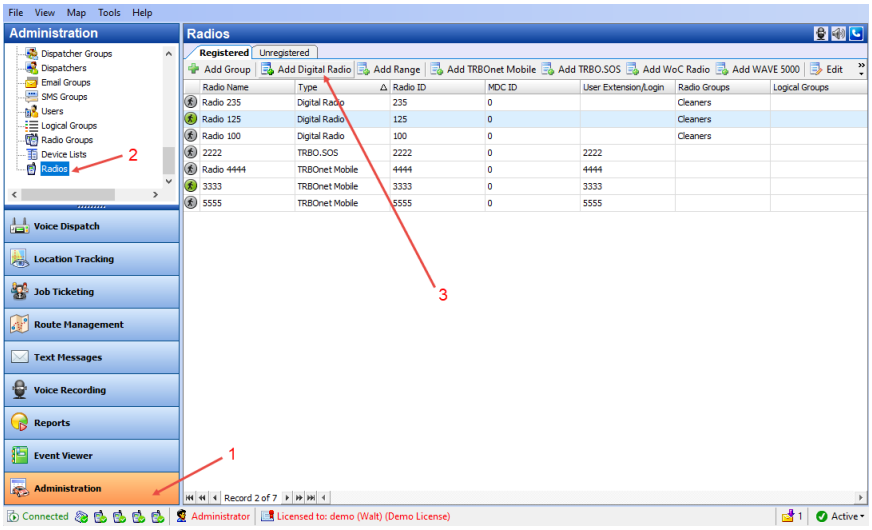
- **Action**
  From the list, select the action (Assign to, or Exclude from dynamic group).
- **Group**
  From the list, select the radio group to which to assign (or, from which to exclude) radios.
- **Group Alias**
  Enter an alias for the radio group.
- In the list below, expand the group and select the desired radios.
- Click the **Execute** button.

6.4.32 Radios

The administrator can add/edit/delete radios in the system. In addition, the dispatcher can export/import radios (see section 6.3.4.3, Exporting/Importing Objects).

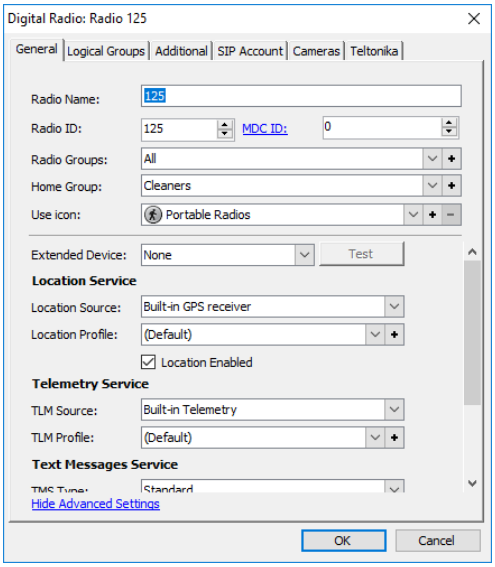
6.4.32.1 Adding Digital Radio

- Go to **Administration** (1), **Radios** (2).



- Click **Add Digital Radio** (3) to add a new radio.

  On the **General** tab, specify general settings for the radio:



- **Radio Name**
  Enter a descriptive name for the radio to display in the Dispatch Console.
- **Radio ID**
  Enter a Radio ID for the radio. This ID is used by other calling radios when addressing the radio, for instance, when making a private call or sending a text message.
- **MDC / Select-5 / Quick Call I / Quick Call II**
  Set an ID for MDC 1200 or SELECT 5 signaling systems. This ID is used to identify and communicate with a target radio or group of radios depending on the call type. Or, select Quick Call I / Quick Call II signaling system and specify the appropriate parameters.
- **Radio Groups**
  In the drop-down list, select a radio group(s) to which to assign the radio.

- **Home Group**
  In the drop-down list, select a home group for the radio.
- **Use icon**
  From the drop-down list, select an icon for the radio.
- **Extended Device**
  From the drop-down list, select the option board type the radio is equipped with.

Location Service

- **Location Source**
  - **Built-in GPS receiver**
    Select if the radio has its own built-in GPS receiver to send GPS data.
  - **Not equipped with GPS receiver**
    Select if the radio cannot send GPS data.
  - **Extended device**
    Select if the radio is equipped with an option board.
- **Location Profile**
  From the drop-down list, select the default or preconfigured Location Profile. For more details on Location Profiles, see section 6.4.16, Location Profile (page 236).
  - **Location Enabled**
    Select/clear this checkbox to enable/disable the location trigger.

Telemetry Service

- **TLM Source**
  - **Not equipped with Telemetry**
    Select if the radio cannot send Telemetry data.
  - **Built-in Telemetry**
    Select if the radio has its own built-in Telemetry.
  - **Extended device**
    Select if the radio is equipped with an option board.
- **TLM Profile**
  From the drop-down list, select the default or preconfigured Telemetry Profile. For more details on Telemetry Profiles, see section 6.4.12, Telemetry (page 227).

Text Messages Service

- **TMS Source**
  - **Not equipped with display**
    Select if the radio is not equipped with a display.
  - **Built-in Text Messages**
    Select if the radio has its own built-in Telemetry.

- **TMS Profile**
  From the drop-down list, select the default or preconfigured Text Message Profile. For more details on Text Message Profiles, see section 6.4.13, Text Messages (page 230).

Job Tickets Service

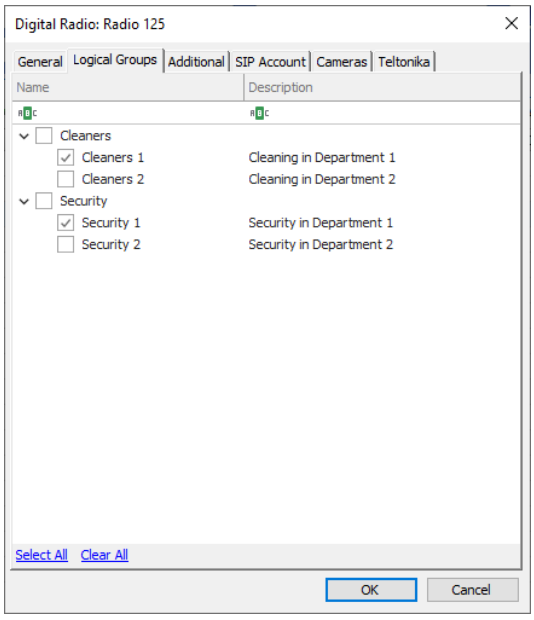
- **JTS Type**
  - **None**
    Select if the radio is not equipped with a display.
  - **MSI Proprietary**
    Select if the radio is equipped with a display and supports the Enhanced Job Ticket protocol.
  - **Text Messages**
    Select if the radio is equipped with a display and supports the legacy Job Ticket protocol.

Radio Status Service

- **RS Profile**
  From the drop-down list, select the default or preconfigured Radio Status profile.

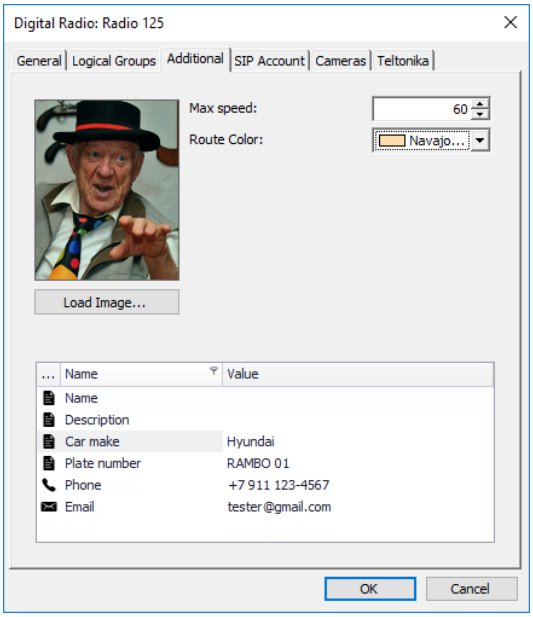
  For more details on Radio Status profiles, see section 6.4.15, Radio Statuses (page 235).

On the **Logical Groups** tab, specify logical groups for the radio:



- In the list of available groups, select desired group(s).
- For more information about logical groups, see section 6.4.29, Logical Groups (page 273).

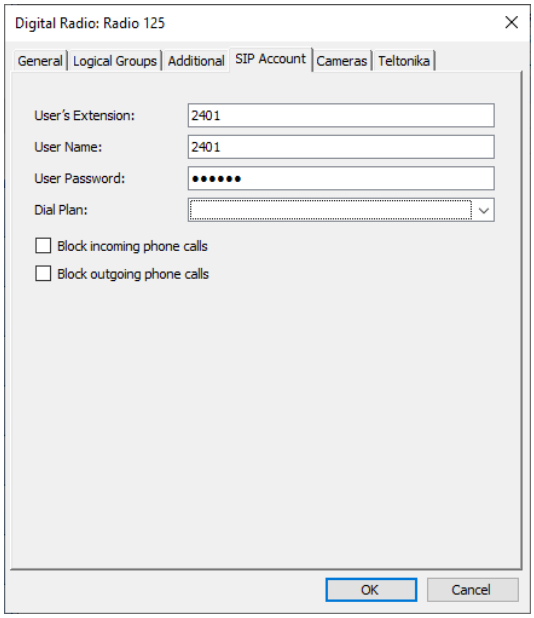
On the **Additional** tab, specify additional information about the radio subscriber:



- **Max speed**
  Specify the maximum speed allowed for the vehicle, in kilometers per hour or in miles per hour, depending on the measurement system specified in TRBOnet server.
- **Route Color**
  Specify a color to display the route passed by the radio on the map.
- **Load Image**
  Click this button and browse for the photo or image to assign to the radio.
- In the table below, specify the desired values for the custom fields (see section 6.4.6, Custom Fields).

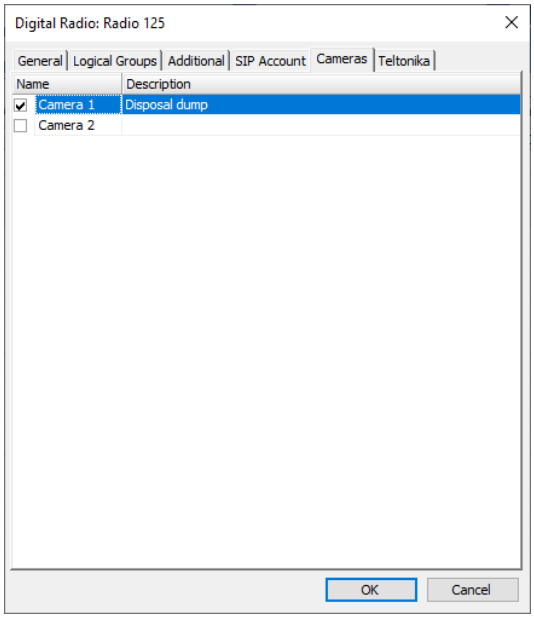
> Note: To automatically create and assign job tickets to the radio (see section 6.4.5.18, HotSOS (Email)), there must be present at least one field with the 'Email' type.

On the **SIP Account** tab, specify a SIP Account for the radio:

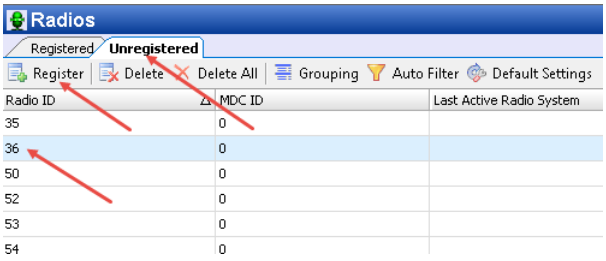


- **User's Extension**
  Enter the SIP extension number that will be used by the radio.
- **User Name**
  Enter the SIP user name that will be used by the radio.
- **User Password**
  Enter the password for the authentication.
- **Dial Plan**
  From the drop-down list, select the dial plan to use for the radio.
- **Block incoming phone calls**
  Select this option to block all incoming SIP calls for the radio.
- **Block outgoing phone calls**
  Select this option to block all outgoing SIP calls for the radio.

On the **Cameras** tab, select the checkbox beside the camera that will be associated with the radio:



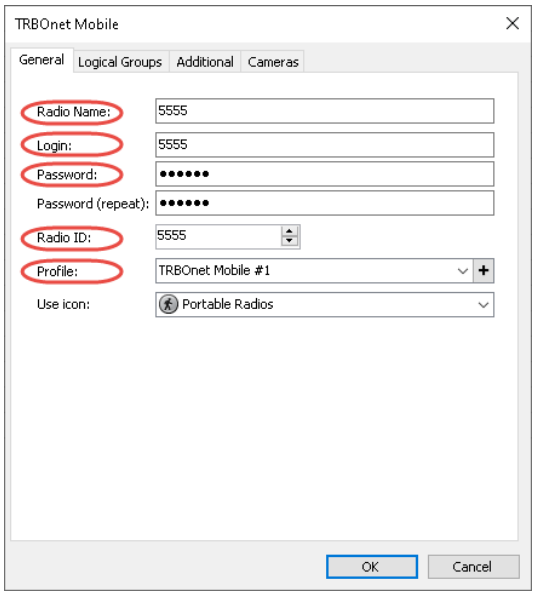
Note: You can also register a radio from under the **Unregistered** tab. Just select a radio and click **Register**:



6.4.32.2 Adding TRBOnet Mobile

In addition to digital radios, you can create accounts for TRBOnet Mobile Clients that can connect to your radio systems.

- Click **Add TRBOnet Mobile**.
  In the **TRBOnet Mobile** dialog box, enter the following parameters:



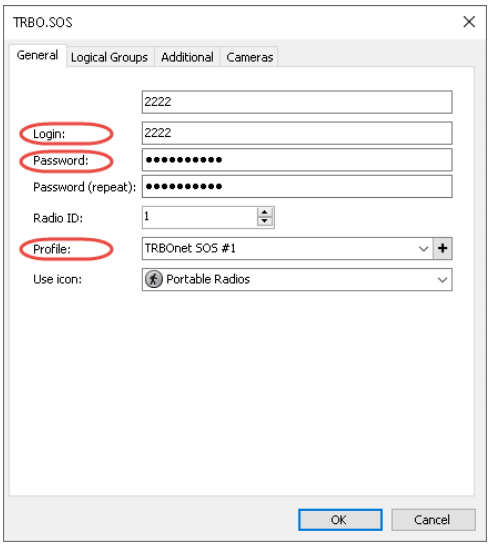
  - **Radio Name**
    Enter a descriptive name for the Mobile Application user to display in the Dispatch Console.
  - **Username**
    Enter the username for the Mobile Client app user.
  - **Password**
    Enter the password for the Mobile Client app user to be authenticated by the TRBOnet system.
  - **Radio ID**
    Specify a Radio ID for the Mobile Client user. This ID is used by other calling radios when addressing the Mobile Client user, for instance, when making a private call or sending a text message.
  - **Profile**
    In the drop-down list, select the profile for the mobile client.
    Or, click the plus button on the right to create a profile.

Note: For directions on how to create/edit a Mobile Client Profile, see section 6.4.17.1, Adding TRBOnet Mobile Profile.

6.4.32.3 Adding TRBO.SOS

In addition, you can create accounts for TRBO.SOS applications that can connect to your radio systems.

- Click **Add TRBO.SOS**.
  In the **TRBO.SOS** dialog box, enter the following parameters:

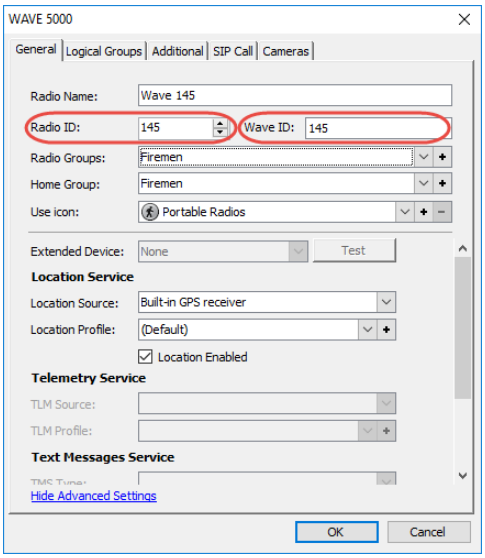


  - **Radio Name**
    Enter the descriptive name of the TRBO.SOS user to display in the Dispatch Console.
  - **Login**
    Enter the Login that will be used by the TRBO.SOS user. Note that this is a case-sensitive value.
  - **Password**
    Enter the password for the authentication.
  - **Profile**
    Select the location profile for the mobile client. See section 6.4.18.1, Adding TRBO.SOS Profile.

6.4.32.4 Adding WAVE Radio

If the WAVE 5000 Controller and/or WAVE OnCloud Gateway is connected, you can add WAVE radios to your radio systems.

- Click **Add WAVE 5000** or **Add WoC Radio** (depending on to which WAVE system the radio is being added).



In addition to **Radio ID**, the WAVE radio has the **Wave ID** parameter.

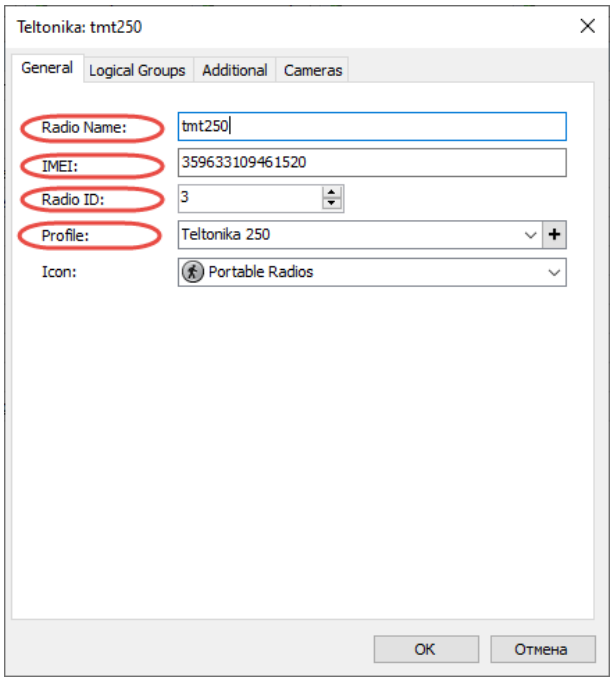
- **Radio ID**
  Specify a Radio ID for the WAVE radio. This ID is used by other calling radios when addressing the radio, for instance, when making a private call or sending a text message.
- **WAVE ID**
  Enter the Wave ID that corresponds to the user registered in the WAVE server's user database.

6.4.32.5 Adding Teltonika device

You can also add Teltonika devices.

- Click **Add Teltonika**.

  On the **General** tab, specify general settings for the Teltonika device:



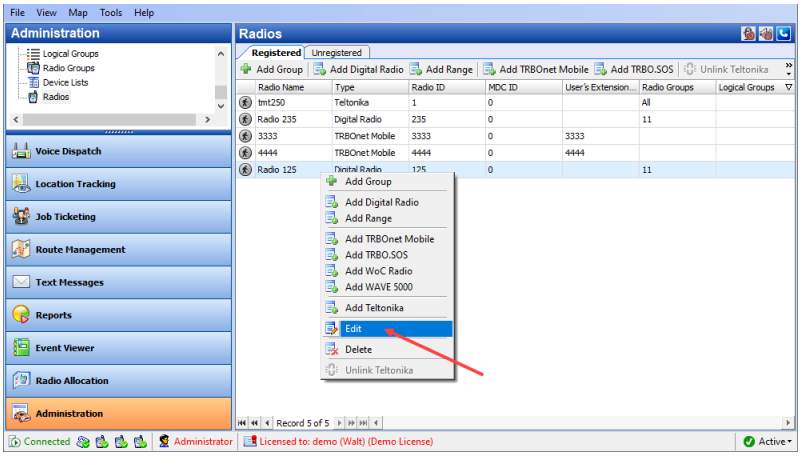
  - **Radio Name**
    Enter a name for the Teltonika device.
  - **IMEI**
    Enter the Teltonika device's IMEI number.
    The IMEI number is on the barcode sticker next to the serial number.
    You can also see the IMEI number in Teltonika Configurator.
  - **Radio ID**
    Enter the Radio ID of the device.
  - **Profile**
    Select the profile for the Teltonika device. See section 6.4.20, Teltonika Profile.

To see the **IMEI** and **Teltonika Profile** columns in the table of registered devices, right-click on the table header, and from the context menu select **Column Chooser**. In the list of available columns, select the column and drag it to the desired position in the table.

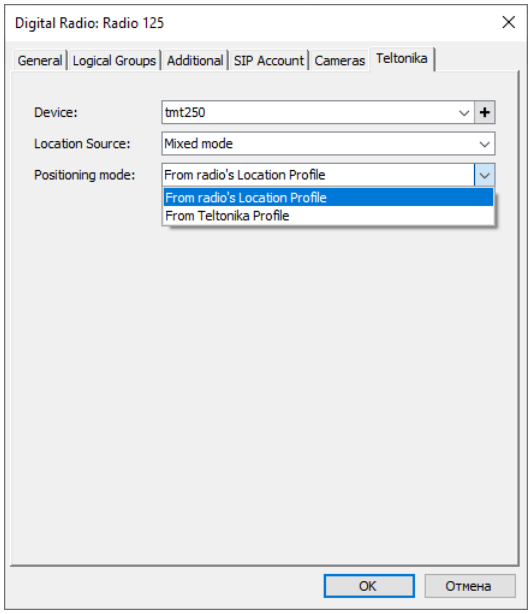
Linking Teltonika device to Radio

To link a registered Teltonika device to the radio:

- Right-click the desired radio in the list of registered radios and from the drop-down menu, select **Edit** (or, just double-click the desired radio in the list of radios).



- In the dialog box that opens, click the **Teltonika** tab.



  - **Device**
    From the list, select the desired Teltonika device.
  - **Location Source**
    From the list, select the desired source of location data.
    - **Teltonika**
      Select this item to use only location data received from the Teltonika device. In this case, location data received from the radio will be ignored, that is, they won't be recorded to the database and so won't be used in the reports.

- **Built-in GPS receiver (Radio)**
  Select this item to use only location data received from the radio. In this case, location data received from the Teltonika device will be ignored, that is, they won't be recorded to the database and so won't be used in the reports.
- **Mixed mode**
  If this item is selected, location data received from both devices will be used.

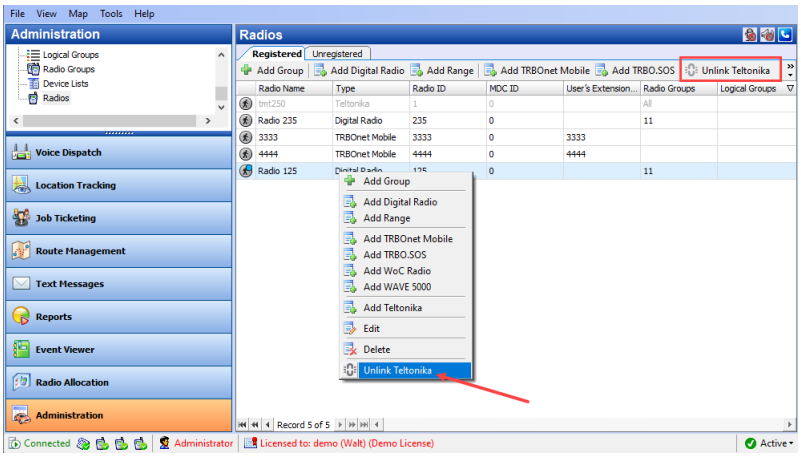
- **Positioning mode**
  If **Mixed mode** is selected from the **Location Source** list, select from where the Positioning mode will be taken (radio's Location Profile or Teltonika Profile).

Once you have linked the Teltonika device, it will be grayed out in the list of registered devices.

Unlinking Teltonika device from Radio

To unlink the Teltonika device from the radio:

- Right-click the radio in the list of registered radios and from the drop-down menu, select **Unlink Teltonika** (or, just click the **Unlink Teltonika** button on the toolbar when the required radio is selected in the list).



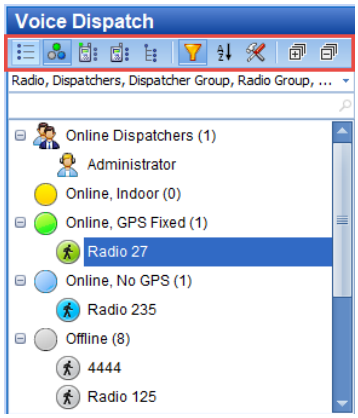
6.5 Voice Dispatch

When on the Voice Dispatch tab is selected, the dispatcher can make radio and phone calls, send text messages to radios and phone numbers, monitor recent calls and events, radio status, active tasks and routes and view selected map.

6.5.1 Radio List

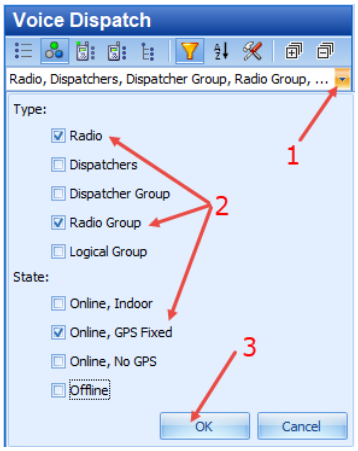
6.5.1.1 View Options

The toolbar in the upper part of the Radio List pane provides buttons to change the appearance of the list:



- Click  to view radios by radio list.
- Click  to view radios by their statuses.
  - **Yellow**
    A radio is online and enters the beacon coverage zone; has Indoor positioning lock.

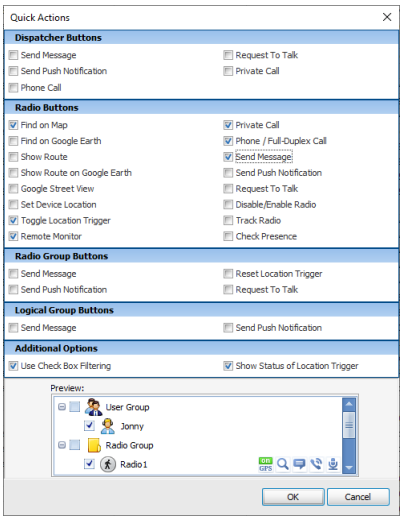
    Note: When GPS location is available and the radio enters the beacon coverage zone, the status will turn yellow from green.
  - **Blue**
    A radio is online; GPS data is not available.
  - **Green**
    A radio is online; GPS data is available. This status is shown if the server has received GPS data during the last 30 seconds (the time interval is set in Location Profile > Periodic updates).
  - **Gray**
    A radio is offline.
- Click  to view radios by radio groups.
- Click  to view radios by logical groups.
- Click  , and select the radio list elements that will be displayed in the Radio List pane.



- Click the arrow button (1).
- Select the object types and the radio statuses (2) to filter radios.

  For example, you may select to display only radios and radio groups that are online and have fixed GPS signal.
- Click **OK** (3) to apply filter settings.

- Click  , and from the drop-down list, select how to sort the radios in the Radio List (Name, Radio ID, Status).
- Click  to open the **Quick Actions** dialog box to specify which quick buttons to display in the Radio List pane.



- **Dispatcher Buttons**
  In this group, select the quick buttons to be displayed in the Radio List for dispatchers.
- **Radio Buttons**
  In this group, select the quick buttons to be displayed in the Radio List for radios.

- **Radio Groups Buttons**
  In this group, select the quick buttons to be displayed in the Radio List for radio groups.
- **Logical Group Buttons**
  In this group, select the quick buttons to be displayed in the Radio List for logical groups.

Note: For the preview, see the lower part of the **Settings** dialog box.

- Additional Options
  - **Use Check Box Filtering**
    Select this option to display checkboxes next to each radio and radio group. Selecting/clearing a checkbox will display/hide the corresponding radio/radio group on the map.
  - **Show Status of Location Trigger**
    Select this option to display the Location trigger status for a radio in the Radio List pane.

✓ **Gray**
A radio is offline.

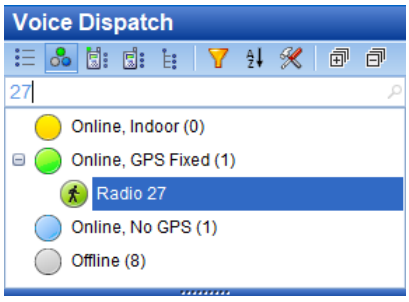
✓ **Blue + white dish**
A radio sent ARS but didn't send GPS packets.

✓ **Blue + red dish**
A radio sent ARS and GPS packets without GPS data, that is the radio is out of GPS coverage.

✓ **Green**
A radio is fully online (has a GPS fix).

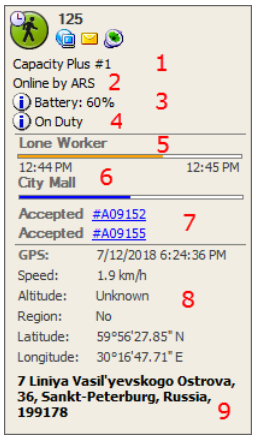
6.5.1.2 Quick Filter

Type in Radio ID or Radio name to filter the Radio List. Search results are displayed in the Radio List pane:



6.5.1.3 Radio Information Tooltip

The dispatcher can see the last received radio data in the Radio information tooltip. Select a radio in the Radio List and hover the mouse pointer over it:



The following information on the radio is displayed in this tooltip:

1. The current channel/radio system the radio is on.
2. The radio status (displayed only if the **Show latest note in Unit information details** option is selected in the **Advanced** tab of the **Options** dialog).
3. The current battery level, in percent (displayed only if the radio is equipped with an option board).
4. The User Activity list the radio is assigned to, if a User Activity task is activated.
5. The Lone Worker policy status, if a Lone Worker task is activated.
6. The route assigned to the selected radio, if a Route Management task is activated for the selected radio.
7. The associated job tickets.
8. The current GPS data and current location data.
9. The current location resolved to address.

While this pop-up window is open, the dispatcher can do the following:

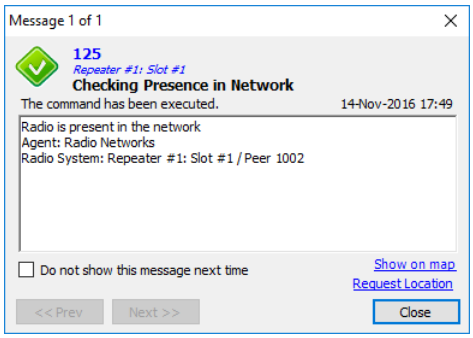
- Click  to request the presence of the radio in the radio network.
- Click  to send a text message to the radio.
- Click  to request the radio's location.

6.5.1.4 Radio Shortcut Menu

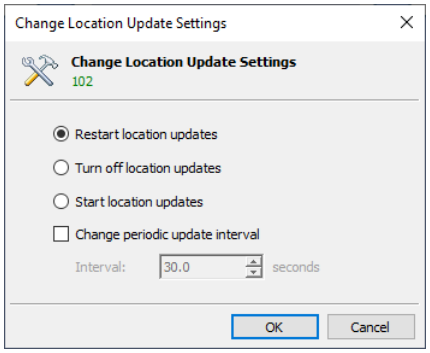
To open the radio's shortcut menu, right-click a radio in the Radio List pane:

This shortcut menu contains the following items:

- **Check Presence**
  Choose this menu item to send a Radio Check command. If the radio is online and is located in the coverage area, the dispatcher will see a message like this:



- **Private Call**
  Choose this menu item to initiate a Private PTT Call to the selected radio.
- **Phone Call/ Full-Duplex Call**
  Choose this menu item to initiate a phone call (full-duplex call) to the selected radio.
- **Request to Talk**
  Choose this menu item to send a talk request to the selected radio.
- **Request Location**
  Choose this menu item to request the location of the selected radio (for radios with GPS module only).
- **Send Message**
  Choose this menu item to send a text message to the selected radio (for radios with display only).
  - In the dialog box that appears, specify the radio/radio group/dispatcher to send the text message to.
- **Advanced > Remote Monitor (Open mic)**
  Choose this menu item to activate the radio microphone in hidden mode (remote monitor duration – 30 sec.)
- **Advanced > Change Location Update Settings**
  Choose this menu item to customize the Location Update settings. When you reconnect to the Server or reassign a Location Profile to the radio, temporary settings will be updated to the Location Profile settings.

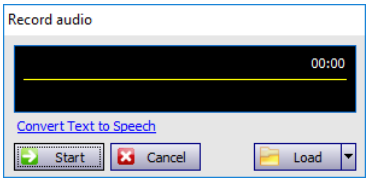


- **Restart/Turn off/Start location updates**
  Choose which command to send to the radio.
- **Change periodic update interval**
  Select this option and specify the new location update interval.

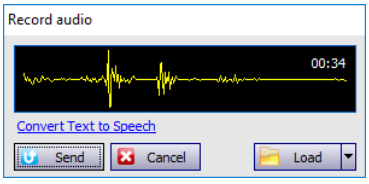
- **Advanced > Enable Radio**
  Choose this menu item to enable the selected radio.
- **Advanced > Disable Radio**
  Choose this menu item to disable the selected radio.
- **Advanced > Exit from Emergency mode**
  Choose this menu item to cancel the Emergency mode on the selected radio.

  Note: This command is distinct from the Clear Alarm command ("x" button on the Alarm box) which just clears the radio's alarm status in the Dispatch Console. Also note that this command is applicable when the radio is used in Capacity MAX or DIMETRA Express systems only.

- **Advanced > Send Audio Record**
  Choose this menu item to send an audio record to the selected radio.

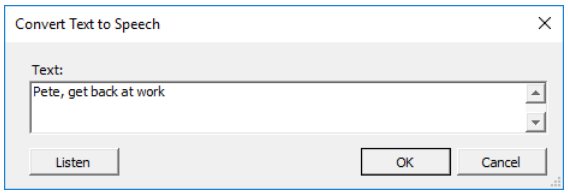


- Click **Start** and start talking to the microphone.



- Click **Send** to send the recorded message to the radio.

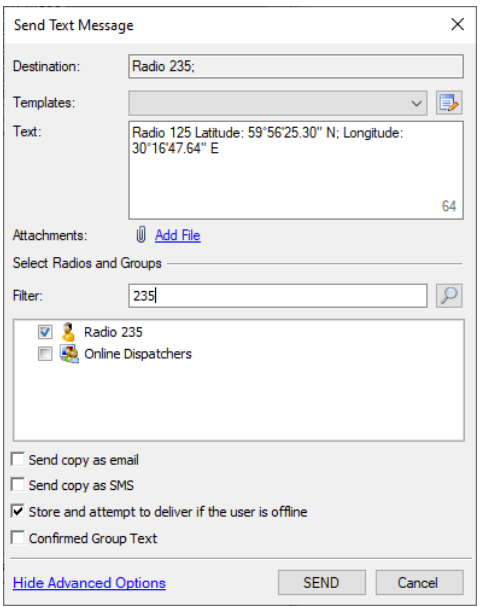
- You can also load your message from file, or from Saved Audio Files. Just click the **Load** button.
- Or, you can send a text message converted to speech. Just click the **Convert Text to Speech** link.



- **Advanced > Send Push Notification**
  Choose this menu item to send a push notification to the selected radio.
  - In the dialog box that appears, specify the radio/radio group to send the push notification to.

  Note: This menu item appears only if the radio is a mobile client app running on a smartphone.

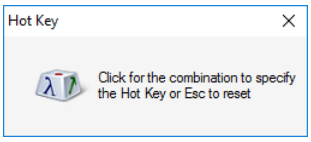
- **Advanced > Send Coordinates To**
  Choose this menu item to send the coordinates of the selected radio to selected recipients.



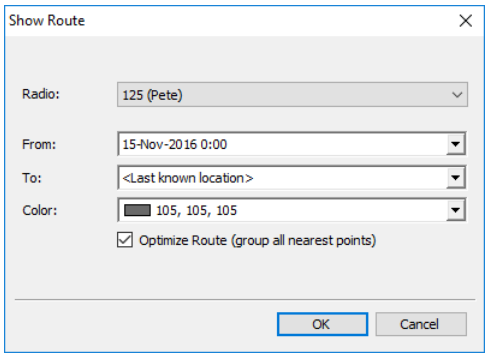
  - In the dialog box that appears, specify the radio/radio group/dispatcher to send the coordinates to.

- **Advanced > Send Email**
  Choose this menu item to send an Email message to the mailbox associated with the selected radio.

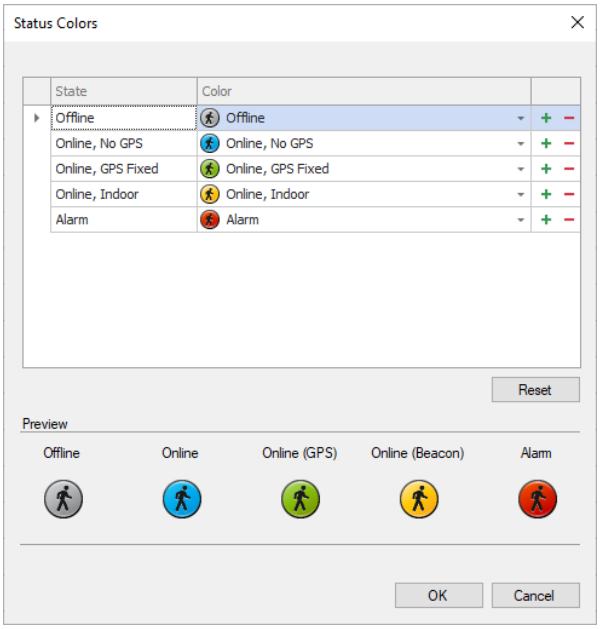
- **Advanced > Shortcut - Private Call**
  Choose this menu item to assign a shortcut that will be used to make a private call to the selected radio. When the prompt appears, press the desired key or key combination.



- **Find on Google Earth**
  Choose this menu item to display the selected radio location on Google Earth.
- **Show Route on Google Earth**
  Choose this menu item to display a route traveled by the selected radio on Google Earth for the specified time period.



- **Track Radio > Track in New Window**
  Choose this menu item to open a new Map window for the selected radio.
- **Track Radio > Video Tracking in New Window**
  Choose this menu item to open a new window with the IP camera(s) that will track the selected radio. The camera may be associated with the selected radio and/or with the beacon(s) when the radio enters the range of the beacon(s).
- **Track Radio > Google Street View**
  Choose this menu item to open Google Street View with the latest location and direction of the selected radio.
- **Track Radio > Yandex Street View**
  Choose this menu item to open Yandex Panorama with the latest location and direction of the selected radio.
- **Set Location Profile**
  Click this menu item and select the location profile that will be associated with the radio.
- **Select Status Colors**
  Choose this menu item to select to set individual parameters for the radio icons.

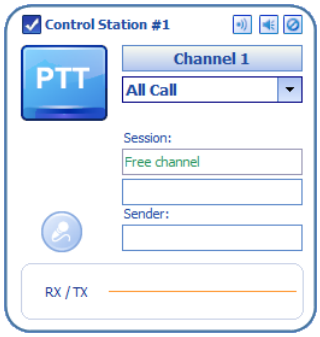


- In the **Status Colors** dialog box, you can specify icons for the statuses of the selected radio. Select icons from the drop-down list. To set a custom color for the radio status icon, click the **+** button and select a color in the uniform color palette. Click the **–** button to delete a custom color.
- In the lower part of the dialog box, you can see the preview of the icons.
- To set default icons for the selected radio, click the **Reset** button.

- **Set Radio Channel > Radio Active**
  Select/deselect this menu item to make the selected radio active/inactive.
- **Set Radio Channel > Channel**
  Select the radio channel over which to make calls to the selected radio.
- **Cameras >**
  Click this menu item and select a camera associated with the radio. As a result, a new window with the camera view will open.
- **Set On Duty**
  Choose this menu item to assign the selected radio to the **On Duty** list. See also section 6.4.5.7, User Activity (page 186).

6.5.2 PTT Boxes

The dispatcher can make voice calls from the Dispatch Console by using PTT boxes:



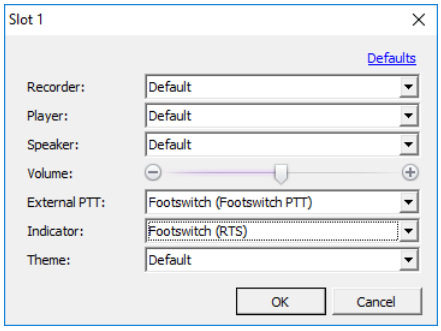
The following options are available for the PTT box:

- Click the button to make the channel the default PTT channel.
- Click the (Tone and PTT) button to start transmitting after a tone sound.
- Click the (Solo) button to mute all channels except this one.
- Click the (Mute) button to mute this channel.

Right-click on the selected PTT box to display the shortcut menu which contains the following commands:

- **Default PTT channel**
  Select this menu item to make the channel the default PTT channel.
- **Shortcut**
  Choose this menu item to assign a shortcut that will be used to transmit on this radio channel. When the prompt appears, press the desired key.
- **Select External PTT**
  Select the external PTT device that will be associated with this PTT box.
- **Select External Indicator**
  Select the external PTT indicator that will be associated with this PTT box.
- **Add to New Group**
  Choose this menu item to add the channel/group associated with the selected PTT box to the Patch box. When two or more channels/groups are added to the Patch box, the dispatcher can click the **Create** link to create a patch group for the selected channels/groups.
- **Tone and PTT**
  Click this menu item to start transmitting after playing a tone sound.
- **Mute this channel**
  Click to mute the selected channel.
- **Mute all channels except this**
  Click to mute all channels except the selected one.
- **Volume**
  Move the slider to specify the speaker volume level on the selected channel/group.

- **Microphone**
  Move the slider to specify the microphone volume level on the selected channel/group.
- **Configure channel**
  Click this menu item and, in the dialog box that opens specify the recorder, player, speaker, external PTT device, etc.



- **Open Voice Channel Mode**
  This option is available for Private PTT Boxes. If you select this mode, all radios on the channel that are capable of receiving OVCM calls will receive this call rather than only the designated call recipient.

  Notes: The OVCM calls are available on IPSC systems only. To use the OVCM calls, the **Use NAI Voice** option must be enabled for the repeater (see section 5.10.2, Adding a MOTOTRBO Repeater).

- **Select By Radio ID Mode**
  Select this mode to allow making calls by entering radio IDs from the PTT box.
- **Recipient**
  Select the call recipient for the PTT box.
- **Terminate Transmission**
  Click this menu item to terminate the current transmission.

  Note: The incoming transmission can also be interrupted and terminated by clicking the **Interrupt** button in the PTT box.

- **Reset**
  Click this menu item to reset connection to the selected channel/group.
- **Minimize/Restore**
  Click to minimize/restore the PTT box size.

6.5.3 Voice Calls

The dispatcher can make the following types of calls:

- **Private Call**
  This is an individual call from the Dispatch Console to a radio via the radio channel.
- **All Call**
  This is a call from the Dispatch Console to all radio groups registered in the system.
- **Group Call**
  This is a call from the Dispatch Console to a selected radio group registered in the system.
- **Intercom Call**
  This is a call from the Dispatch Console to other dispatchers. There are three types of Intercom Call:
  - Intercom Call to all dispatchers
  - Group Intercom Call to a group of dispatchers
  - Private Intercom Call to a selected dispatcher
- **Phone Call**
  This is a call from the Dispatch Console to a selected phone number.

In addition, the dispatcher can send voice mails to offline radios.

6.5.3.1 Private calls

The dispatcher can make a call to any online radio registered in the system. To make an individual call from the Dispatch Console to a selected radio via the radio channel, do the following:

- Select the radio in the Radio List.
- Click the  button on the right.

Or:

- Right-click the radio in the Radio List.
- On the drop-down menu, click **Private Call**.

To terminate a private call, do the following:

- Click the PTT button on the PTT box.

Or:

- Click the  button in the Radio list.

Note: You can also create a special PTT box for Private Calls. For more details, see View > Configure PTT Boxes on page 112.

Full-Diplex calls

The dispatcher can also make full-duplex calls (phone calls) to online radios. To make a full-duplex call from the Dispatch Console to a selected radio, do the following:

- Select the radio in the Radio List.
- Click the  button on the right.

Or:

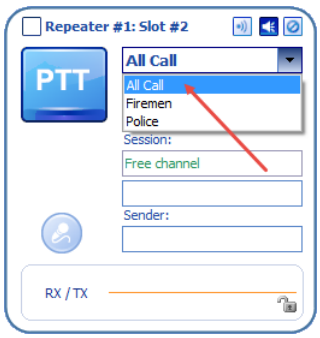
- Right-click the radio in the Radio List.
- On the drop-down menu, click **Full-Duplex Call**.

See also section 6.5.9, Phone Calls.

6.5.3.2 All calls

The dispatcher can make a call to all online radios registered in the system (for example, in the case of alarm). To make a call from the Dispatch Console to all radios registered in the system, do the following:

- From the drop-down list, select **All Call**.

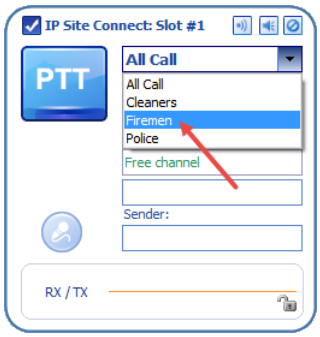


- Click the **PTT** button.

6.5.3.3 Group calls

To make a call from the Dispatch Console to a selected radio group registered in the system, do the following:

- From the drop-down list, select a group.



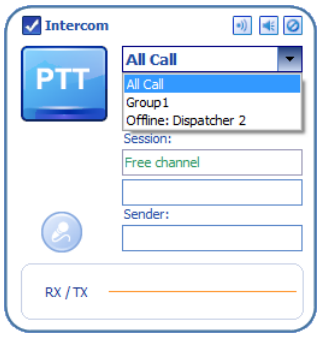
- Click the **PTT** button.

Note: You can also create a special PTT box for Group Calls. For more details, see View > Configure PTT Boxes on page 112.

6.5.3.4 Intercom calls

The dispatcher can make calls to all dispatchers or to selected dispatchers in the system. To make an Intercom Call to dispatchers, do the following:

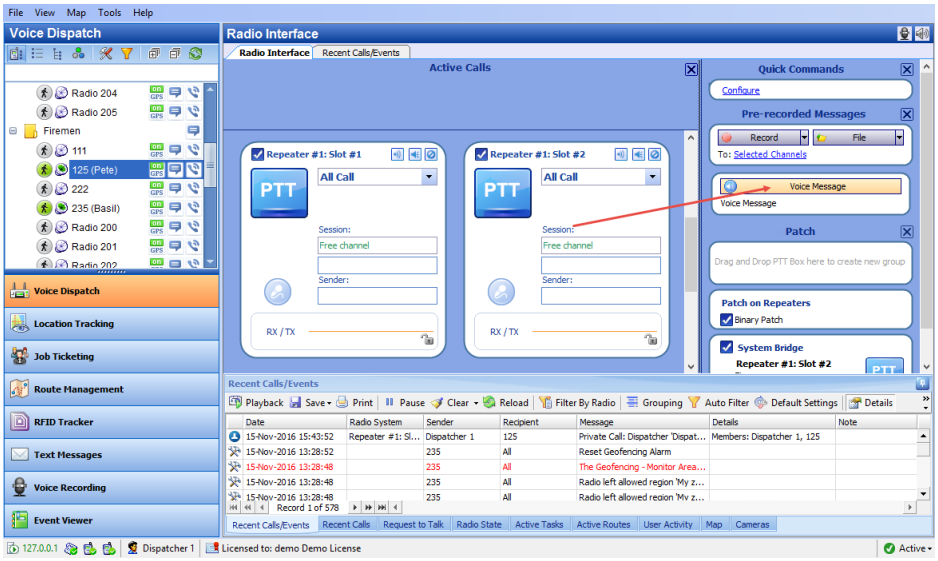
- On the Intercom PTT box, from the drop-down list, select either All Call, or a group of dispatchers, or an individual dispatcher.



- Click the **PTT** button.

6.5.4 Predefined Voice Messages

The dispatcher can send predefined voice messages (recorded or voice messages, or audio files) to a radio or a selected radio group:

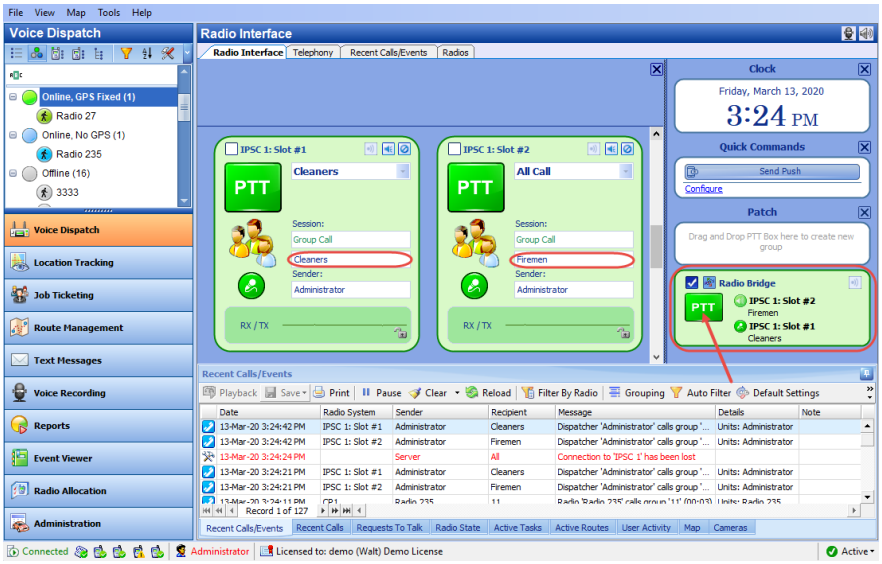


- In the Queued Messages panel, click the **Voice Message** button.
- In the confirmation dialog box, click **Yes**.

6.5.5 Patches

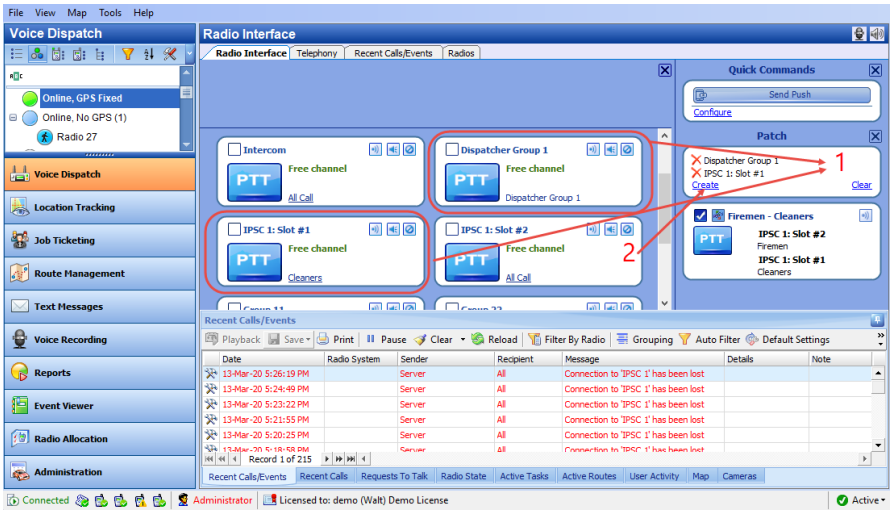
6.5.5.1 Predefined Patch

The **Patch** function allows configuring the network to redirect calls. A predefined Patch can be created by the administrator only (see section 6.4.3.1, Radio Bridge) and a dispatcher cannot configure it. A predefined Patch is displayed in the Patch panel by default. The Patch feature is intended to combine different radio channels in a single group to make voice calls from a dispatcher to radios and from radios to a dispatcher (for example, to connect a dispatcher with the firemen and cleaners).



6.5.5.2 Custom Patch

The dispatcher can create a custom Patch to connect selected PTT boxes (for example, the Emergency and Firemen radio groups). In addition, you can connect analogue and digital radios via a Patch.



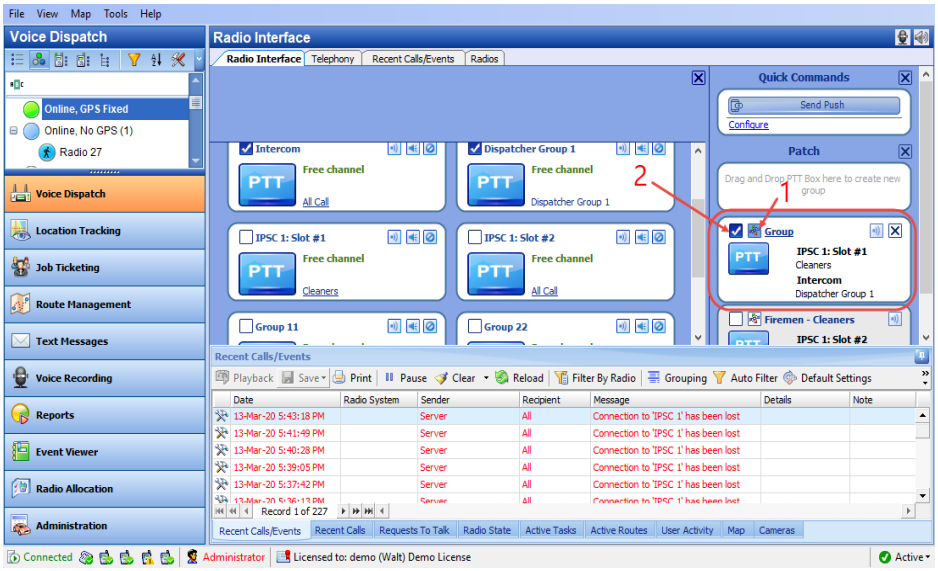
1. In the **Radio Interface** pane, click the desired PTT boxes and drag and drop them, one after another, to the empty **Patch** box (1).

2. Click the **Create** link (2) to create a custom Patch.

   Note: Until you click the **Create** link, this patch will remain as a temporary patch that will be deleted after you reconnect to TRBOnet Server or restart TRBOnet Dispatch Console.

   As a result, the new patch will be added to the Patch panel.

   - Click the **Activate** button (1) to activate the patch.
   - Click the checkbox on the left (2) to make the patch selected (default) so that the external PTT button can be used to start transmission.

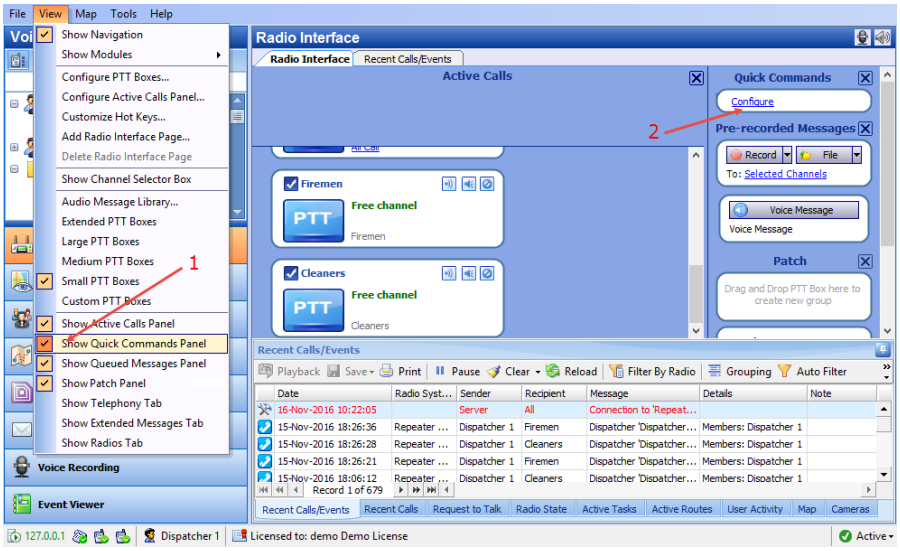


6.5.6 Quick Commands

The dispatcher can create Quick Commands (Text Messages, Send Telemetry, Request Location, Send Voice Message, and some other commands) and display the Quick Commands panel in the Radio Interface pane. With these commands, the dispatcher can quickly send Text Message, Telemetry, Location Request, Voice Message, and some other commands to a radio by clicking the appropriate Quick Command button.

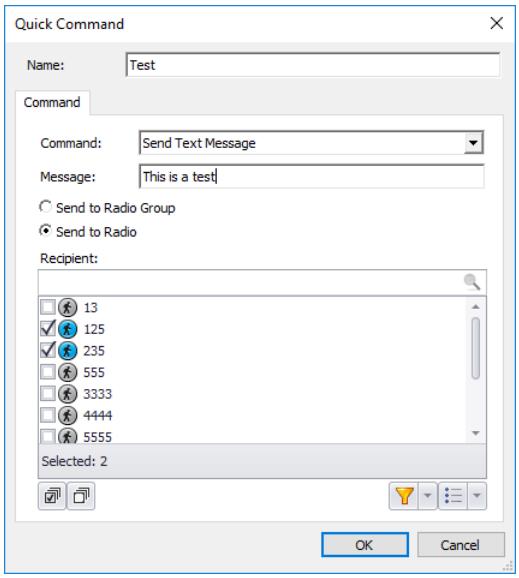
To configure the Quick Commands panel, do the following:

- Make sure **Show Quick Commands Panel** (2) is selected under the **View** menu.
- On the **Quick Commands** panel, click the **Configure** link (3).



- In the **Configure Quick Commands** dialog box, click the **Create** link.
  - **Name**
    Specify a name for the quick command. This name will be displayed as the button name in the Quick Commands panel.

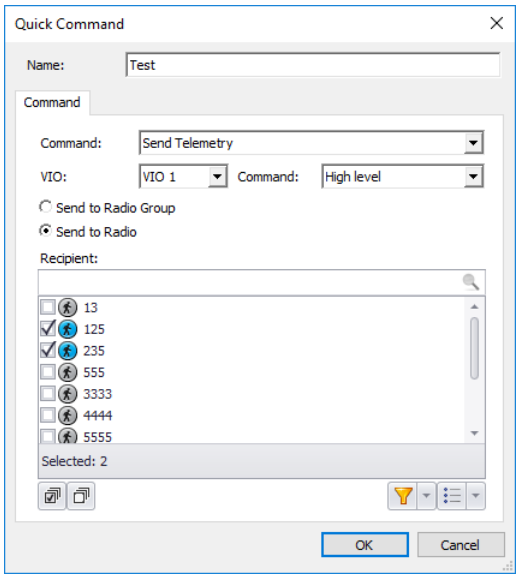
6.5.6.1 Send Text Message



  - **Command**
    From the drop-down list, select **Send Text Message**.
  - **Message**
    Enter the text of the message.
  - **Send to Radio**
    Choose this option to send a predefined text message to individual radios registered in the system. In the **Recipient** box, select target radios.

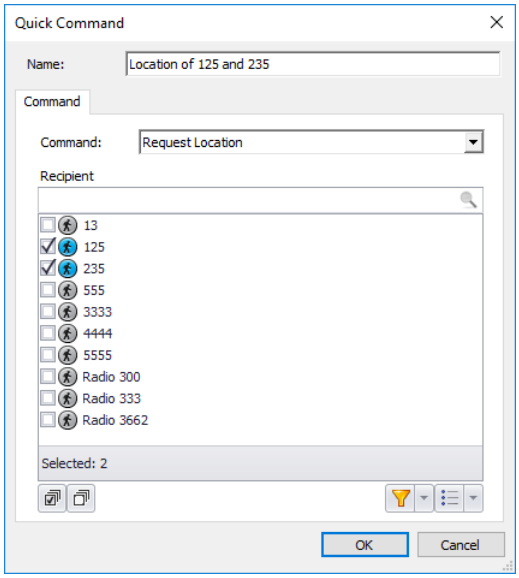
- **Send to Radio Group**
  Choose this option to send the text message to radio groups registered in the system. In the **Recipient** box, select target groups.

6.5.6.2 Send Telemetry



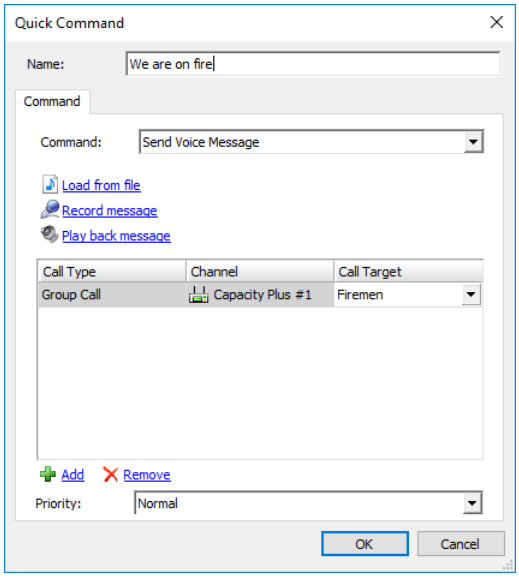
- **Command**
  From the drop-down list, select **Send Telemetry**.
- **VIO**
  Specify a VIO to which to send a telemetry command.
- **Command**
  From the drop-down list, select a telemetry command for the selected VIO.
- **Send to Radio Group**
  Choose this option to send the telemetry command to radio groups registered in the system. In the **Recipient** box, select target groups.
- **Send to Radio**
  Choose this option to send the telemetry command to individual radios registered in the system. In the **Recipient** box, select target radios.

6.5.6.3 Request Location



- **Command**
  From the drop-down list, select **Request Location**.
- **Recipient**
  Select radios to which to send a location request.

6.5.6.4 Send Voice Message



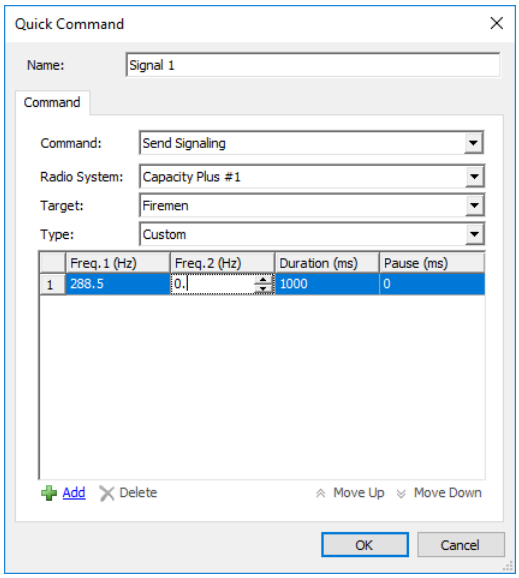
- **Command**
  From the drop-down list, select **Send Voice Message**.
- **Load from file**
  Click this link and locate the audio file on your PC.
- **Record Message**
  Click this link to record a new voice message.

- **Play back message**
  Click this link to play back the voice message.
- Specify **Call Type**, **Channel**, and **Call Target** for a voice message.

  Note: To send a Voice Message to a subscriber from the phone book, click the ellipsis (**...**) button in the Call Target column and select a contact from the phone book.

- **Priority**
  From the drop-down list, select the priority with which the voice message will be sent/queued. If this priority is higher than that of the current transmission, which is, in turn, allowed to be interrupted, the current transmission will be interrupted and the voice message will be sent instead.

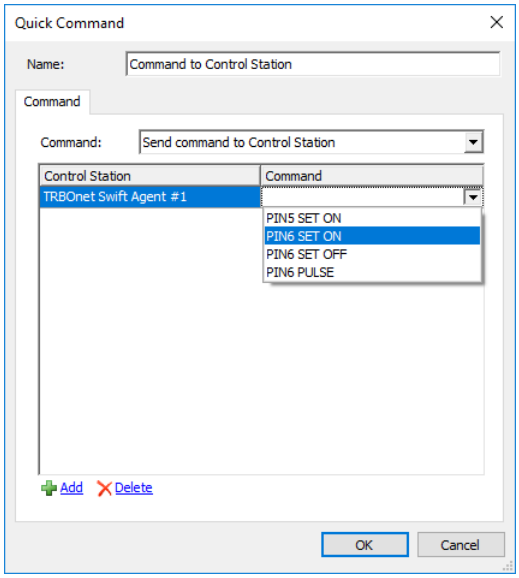
6.5.6.5 Send Signaling



- **Command**
  From the drop-down list, select **Send Signaling**.
- **Radio System**
  From the drop-down list, select the radio system.
- **Target**
  From the drop-down list, select the target group to which the signal will be sent.
- **Type**
  From the drop-down list, select the signaling system type (Quick Call I, Quick Call II, DTMF, or Custom).

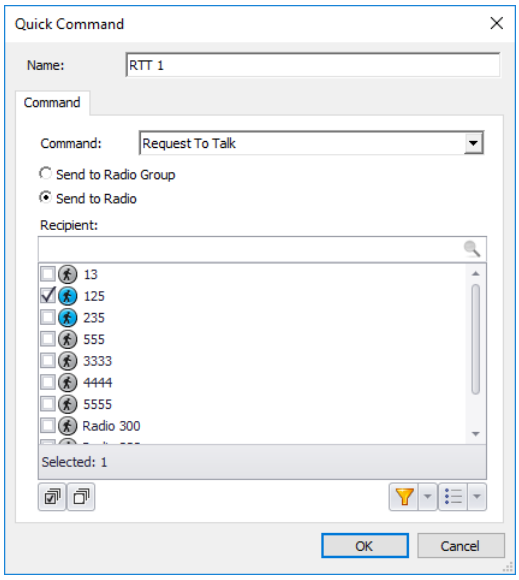
  If the **Custom** type is selected, specify the **Frequency 1**, **Frequency 2**, **Duration**, and **Pause** for the signal to be sent.

6.5.6.6 Send Command to Control Station



- **Command**
  From the drop-down list, select **Send command to Control Station**.
- Click **Add**
  - **Control Station**
    From the drop-down list, select the Swift Agent connected to TRBOnet Server.
  - **Command**
    From the drop-down list, select the PIN number and its value.

6.5.6.7 Request To Talk



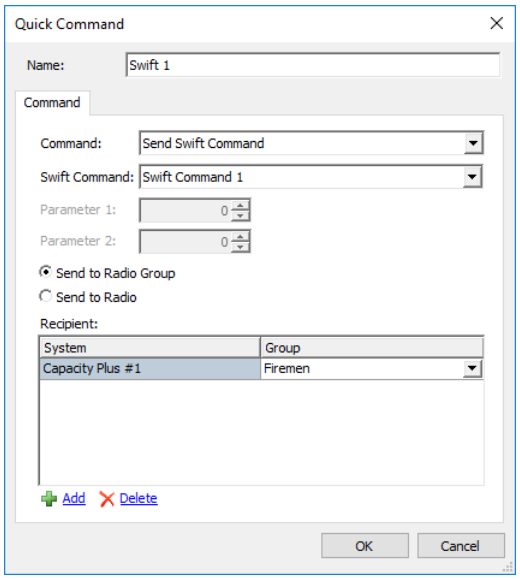
- **Command**
  From the drop-down list, select **Request To Talk**.

- **Send to Radio Group**
  Choose this option to send the request to talk to radio groups registered in the system. In the **Recipient** box, select target groups.
- **Send to Radio**
  Choose this option to send the request to talk to individual radios registered in the system. In the **Recipient** box, select target radios.

6.5.6.8 Custom Event

- **Command**
  From the drop-down list, select **Custom Event**.
- **Event ID**
  Specify the event ID.

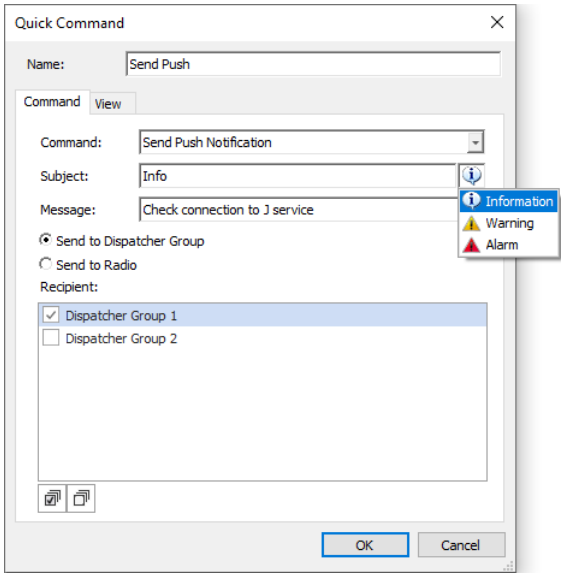
6.5.6.9 Send Swift Command



- **Command**
  From the drop-down list, select **Send Swift Command**.
- **Swift Command**
  From the drop-down list, select the appropriate Swift command.

  Enter the required parameters, if any.
- **Send to Radio Group**
  Choose this option to send the Swift command to radio groups registered in the system. In the **Recipient** box, select target groups.
- **Send to Radio**
  Choose this option to send the Swift command to individual radios registered in the system. In the **Recipient** box, select target radios.

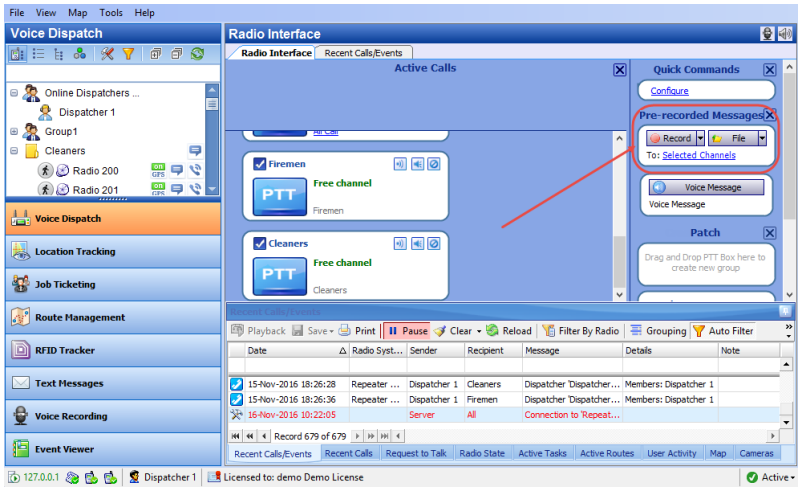
6.5.6.10 Send Push Notification



- **Command**
  From the drop-down list, select **Send Push Notification**.
- **Subject**
  Enter the subject of the notification. Click the button on the right, and select the message severity (Information, Warning, or Alarm).
- **Message**
  Enter the notification message to be displayed.
- **Send to Dispatcher Group**
  Choose this option to send the push notification to dispatcher groups registered in the system. In the **Recipient** box, select target dispatcher groups.
- **Send to Radio**
  Choose this option to send the push notification to individual radios registered in the system. In the **Recipient** box, select target radios.

6.5.7 Pre-recorded Messages

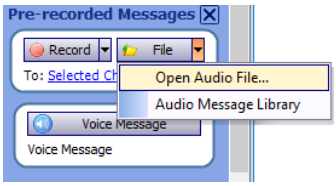
This feature enables dispatchers to send audio messages even if the channel is currently busy. The dispatcher records a message to be sent to a busy channel and then TRBOnet automatically forwards this message as soon as the channel becomes available:



To queue an audio message for delivery to the selected recipients, first record a message by clicking the Record button. Alternatively, you can select a WAV audio file from any storage location, or select a prerecorded message from the library.

6.5.7.1 Select Audio File

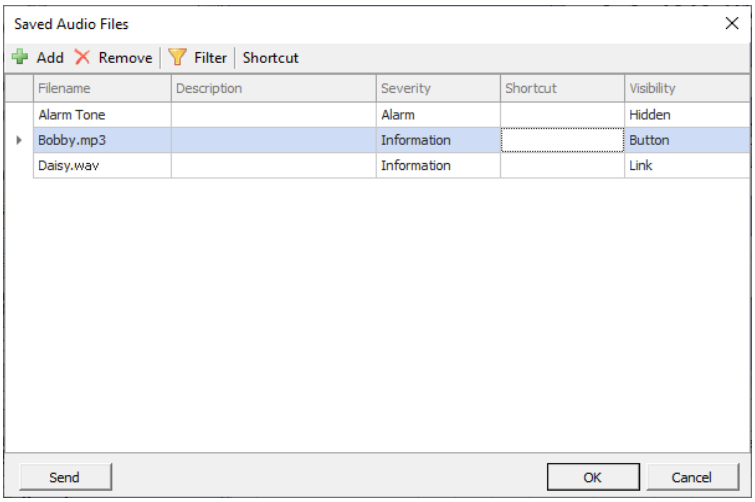
- Click **File > Open Audio File** and browse for the audio file on the local PC.



6.5.7.2 Audio Message Library

You can select an audio file from the Voice Message templates.

- Click **File > Audio Message Library**.

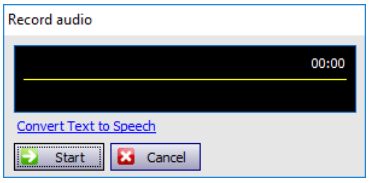


- Select an audio file in the list and click **OK** to use this file as a queued Voice Message.

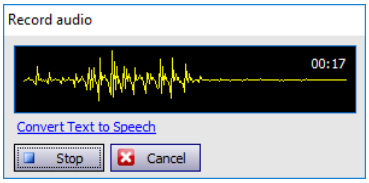
6.5.7.3 Record Audio File

You can record a voice message that can be sent to selected radios.

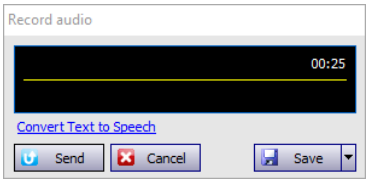
- Click **Record > Record audio** to open the recording tool:



  - Click **Start** and start talking to the microphone.



  - Click **Stop** to stop recording the message.



  - Click **Send** to send the recorded message immediately.
  - Click **Save > Save as file** to save the recorded file as an audio file on the PC.

  Or:

  - Click **Save > Save as Saved Audio File** to add the recorded file to a list of the Saved Audio Files.

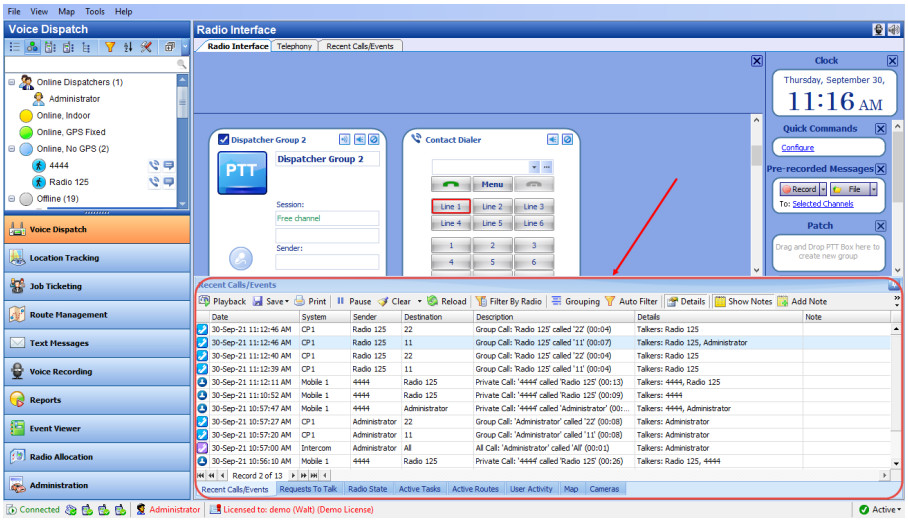
6.5.8 Activity Monitor Panel

While in this panel, the dispatcher can perform a wide range of tasks, including:

- Monitoring and listening to recent calls and viewing system events
- Monitoring selected radio status
- Monitoring active tasks for selected radio
- Monitoring active routes for selected radio
- Enabling and disabling User Activity monitoring
- Displaying selected map in a compact view mode
- Monitoring cameras connected to Dispatch Console

6.5.8.1 Recent Calls/Events

In the **Recent Calls/Events** tab, the dispatcher can monitor recent Server events, view and listen to recent calls.

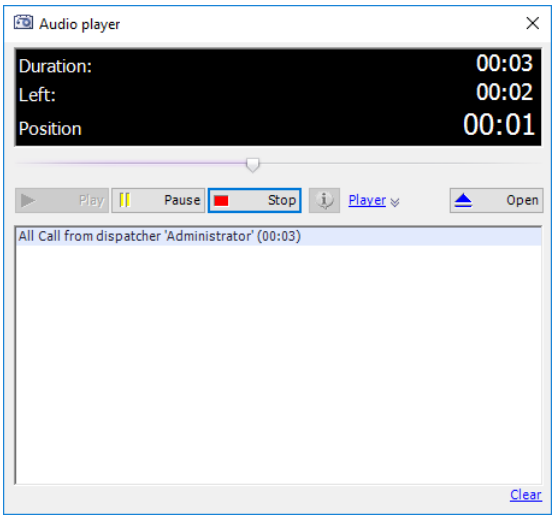


Voice Recording

Play back selected call(s)

- Select the voice call recording you want to play back and click the Playback button on the left of the toolbar.

  The Audio player box will appear.



  - Click the **Play** button to play back the recording.
    Click the **Pause** button to make a pause.
    Click the **Stop** button to finish playing back the recording.
    Click the **Open** button to select a new audio file to play back.

Note: You can play back multiple recordings in a row. Use the CTRL and/or SHIFT keys to select multiple recordings you want to play back. Then click the Playback button.

Save selected call(s)

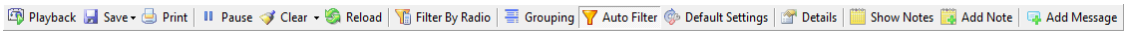
- Select the voice call recording (or multiple recordings, with the help of CTRL/SHIFT keys) you want to save as an audio file.

- Click **Save > Save Selection as Individual Files** to save selected recordings in separate files.

  Or

- Click **Save > Save Selection as Single File** to save selected recordings in a single file.
- In the **Save As** or **Browse For Folder** dialog box, browse for the folder where you want to save the file(s).

Recent Calls/Events Toolbar



Click the **Pause** button to pause updating the Recent Calls/Events log.

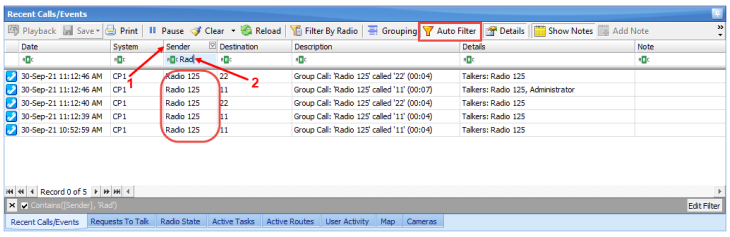
Click the **Clear** button to clear the Recent Calls/Events log records.

Click the **Reload** button to reload all log records.

Click the **Filter By Radio** button to filter log records by a selected radio/radio group. In the Radio List pane (the upper-left-pane of the main window), select a radio or radio group. The Recent Calls and Events for a selected radio will only be displayed in the Recent Calls/Events pane.

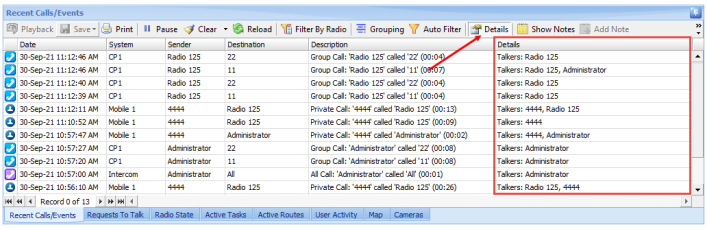
Click the **Grouping** button to group log records. Select the column you want to group log records by. Drag and drop the selected column header to the Grouping field.

Click the **Auto Filter** button to set a filter for the recent calls and events. You can filter the Recent Calls/Events list by any parameter. For example, to filter the list by a selected Sender, select the **Sender** column (1), and start typing the sender name (2).



Click the **Default Settings** button to apply default settings to all log records.

Click the **Details** button to see voice call participants:

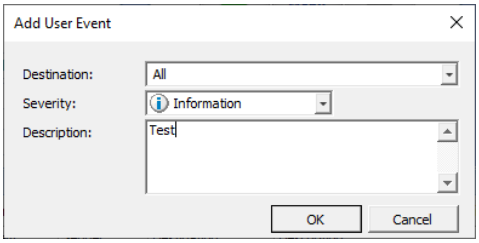


Click the **Show Notes** button to enable the **Note** column. All notes added by the administrator and dispatchers for the recent calls and events will be shown

in the Notes column. So, you can mark recent calls and events to later find them by notes.

Click the **Add Note** button to add a note for the selected recording and/or event. The notes will be displayed in the Recent Calls/Events log if the **Show Notes** button stays pressed.

Click the **Add Event** button to add an event to the Recent Calls/Events log.



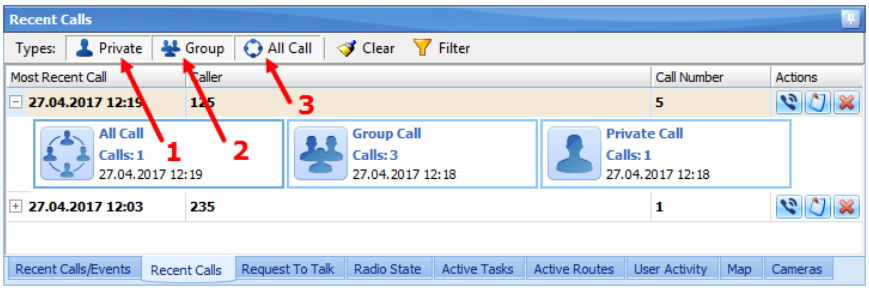
- **Destination**
  Select either All or an individual dispatcher if you want to see the message.
- **Severity**
  Select the severity level to inform dispatchers about the level of importance.
- **Description**
  Enter the event description.
- Click **OK**.

As a result, the event will be added to the Recent Calls/Events pane.

6.5.8.2 Recent Calls

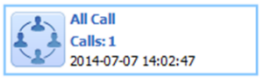
Note: The **Recent Calls** tab is not displayed in the Active Monitor panel by default. To view this tab, go to **View > Additional Tabs**, and select the **Recent Calls** item.

On the **Recent Calls** tab, the dispatcher can see and configure the latest Voice calls, including Private, Group, and Intercom calls:



- Click the **Private** button (1) to display the latest Private calls.
- Click the **Group** button (2) to display the latest Group calls.
- Click the **All Call** button (3) to display all call types, including Intercom calls.

In a Call Box, you can see the number of calls and the last call date and time:



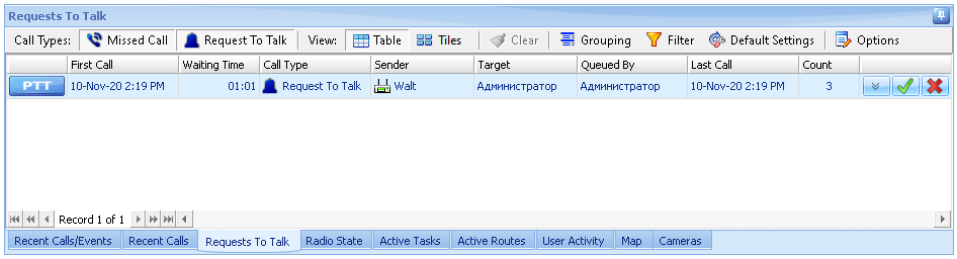
Click the button to start a Private call to the Sender-Radio (Radio is displayed in the Sender column).

Click the button to mark the calls as viewed.

Click the button to clear the recent call history.

6.5.8.3 Requests To Talk

On the **Requests To Talk** tab, the dispatcher can see Missed Calls and Requests To Talk:



Call Types

- Click the **Missed Call** button to display Missed Calls.
- Click the **Request to Talk** button to display Requests To Talk.

View

- Click the **Table** button to display calls/requests in a table view.
- Click the **Tiles** button to display calls/requests as a set of tiles.
- Click the **Clear** button to clear all the records.
- Click the **Filter** button to set a filter for the records. You can filter the records by any parameter. For example, to filter by the caller select the **Caller** column, click in the empty row and start typing the caller name.
- Click the **Options** button to specify options related to Request to Talk:

  For a description of the Request-To-Talk options, see section 6.4.14, Request To Talk.

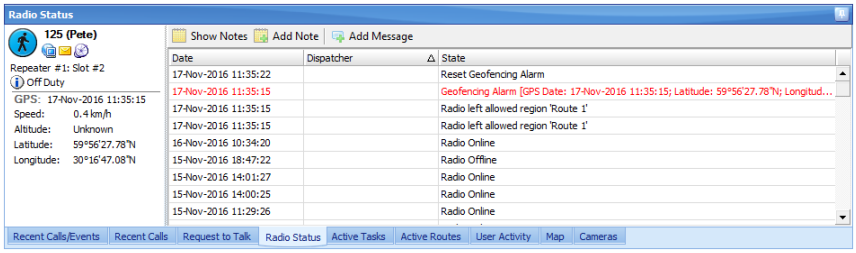
From within the **Request To Talk** table, you can do the following:

- Click the PTT button to start a private call to the call request sender.
- Click the **Finish** ( ) button to mark the RTT as processed and remove it from the table.
- Click the **Reject** ( ) button to reject the RTT for the dispatcher. Note that the RTT will keep showing to other dispatchers.

- Click the **Menu** ( ) button and from the drop-down list select one of the following commands:
  - Click the **Forward** ( ) command to redirect the RTT to a different dispatcher/ dispatch group.
  - Click the **Hide** ( ) command to hide the RTT for the dispatcher for the time period selected from the drop-down list. Note that the RTT will keep showing to other dispatchers.
  - Click the **Cancel** ( ) command to reject the RTT for all dispatchers.

6.5.8.4 Radio Status

On the **Radio Status** tab, the dispatcher can see the log of radio statuses for the radio selected in the Radio List pane (the upper-left-pane of the main window):



In the Radio Status pane, the dispatcher can do the following:

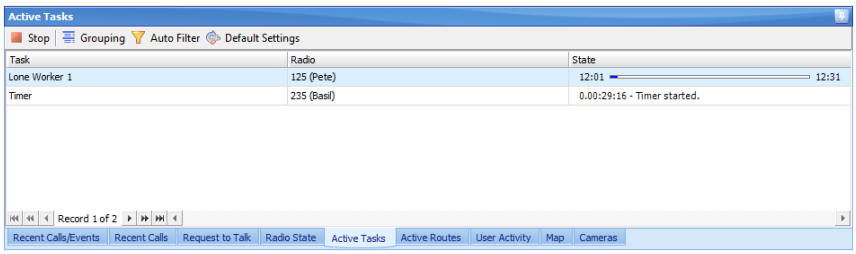
Click the **Show Notes** button to enable the **Note** column. All notes added by the administrator and dispatchers for the radio status records will be shown in the Notes column. So, you can mark radio status records to later find them by notes.

Click the **Add Note** button to add a note for the selected radio status record. The notes will be displayed in the Recent Calls/Events log if the **Show Notes** mode enabled:

Click the **Add Message** button to add a message for dispatchers to the Radio Status log.

6.5.8.5 Active Tasks

On the **Active Tasks** tab, the dispatcher can monitor all active tasks for the selected radio (for example, Lone Worker, Active Routes, and other tasks).



The dispatcher can manage active tasks as follows:

Click the **Stop** button to stop executing the selected task.

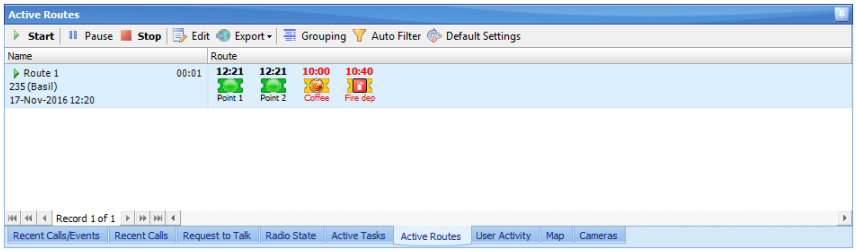
Click the **Grouping** button to group the tasks. Select the column you want to group tasks by. Drag and drop the selected column header to the Grouping field.

Click the **Auto Filter** button to set a filter for the active tasks. You can filter the tasks by any parameter. For example, to filter by selected radio select the **Radio** column, and start typing the radio name.

Click the **Default Settings** button to apply default settings to all active tasks.

6.5.8.6 Active Routes

On the **Active Routes** tab, the dispatcher can monitor all active routes.

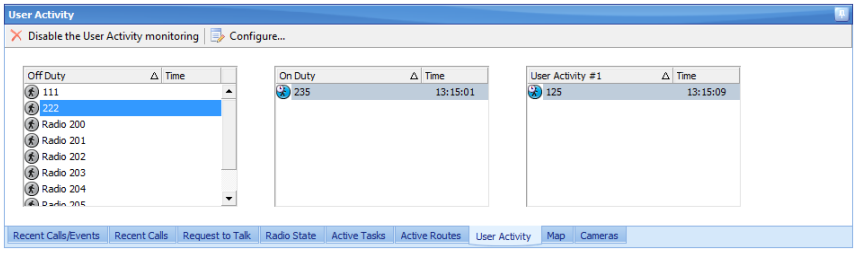


The dispatcher can manually set statuses for route checkpoints. To do this, right-click a route point and from the drop-down menu, select the desired status.

- **Waiting**
  The checkpoint is waiting to be attended.
- **Attended**
  The checkpoint has been attended on time.
- **Unattended**
  The checkpoint hasn't been attended on time.
- **Alarm**
  The checkpoint is in Alarm mode.
- **Note**
  Click this item to add a note to the selected checkpoint. The note will be displayed in the pop-up window that appears when hovering the mouse pointer over the checkpoint.

6.5.8.7 User Activity

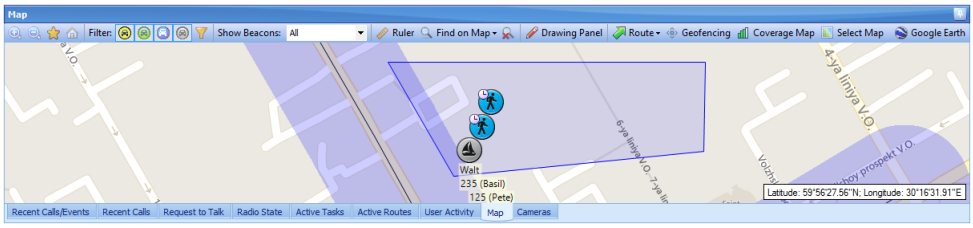
- Click the **User Activity** tab to monitor the activity of radio users:



- Click the **Configure** button to configure the User Activity list:

6.5.8.8 Map

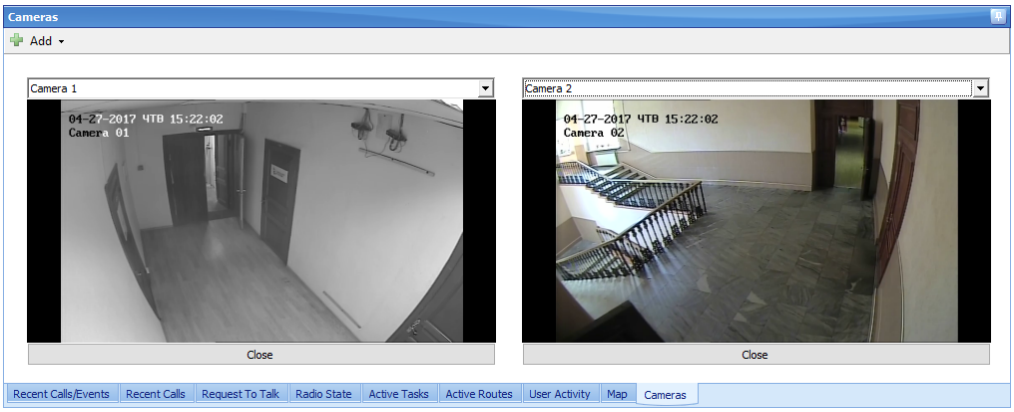
On the **Map** tab of the Activity Monitor panel, you can monitor location of radios on the map and simultaneously perform all available actions in the **Radio Interface** pane (make voice calls, send messages, disable and enable selected radios, and other actions):



For more details on map options, see section 6.6, Location Tracking (page 325).

6.5.8.9 Cameras

On the **Cameras** tab of the Activity Monitor panel, you can monitor cameras connected to Dispatch Console.



- Click the **Add** button and select a camera to be displayed on the tab.

  Note: You can add up to four cameras to the Cameras tab view.

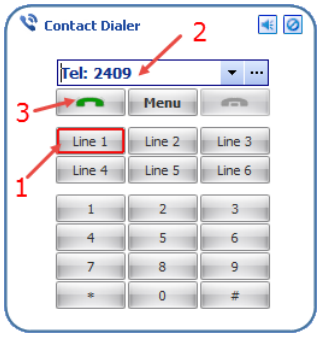
6.5.9 Phone Calls

The Phone Connect feature allows making calls from phones to radios and vice versa.

The phone system must be previously configured by your TRBOnet administrator.

6.5.9.1 Phone Calls from/to Dispatch Console

To make a phone call from the Dispatch Console:



- In the Contact Dialer box, select the Line (1), enter the phone number (2) and click the  (3) button.

Terminate a phone call

- In the Contact Dialer box, click the  button.

Select a destination from Contacts

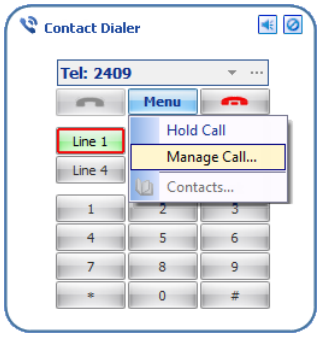
- In the Contact Dialer box, click the ellipsis (**...**) button on the right of the dial string.
- In the **Call Destination** dialog box that opens select the desired contact and click **Call**.

Answer an incoming call

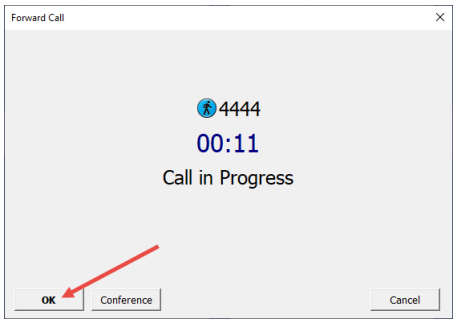
- In the Contact Dialer box, click the  (3) button.

Forward a call

- While in a call, click **Menu > Manage Call**.



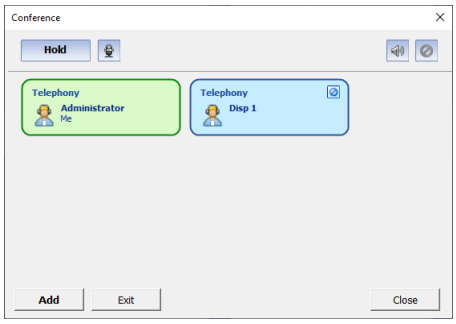
- In the **Call** dialog box that opens, select the desired contact and click **Forward**.
  The **Forward Call** dialog box opens.



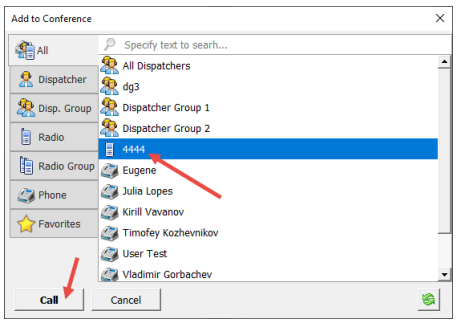
- When the second call is established, click **OK**.

Create a conference call and add participants

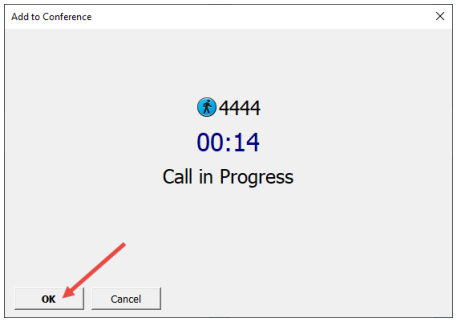
- While in a call, click **Menu > Manage Call**.
- In the **Call** dialog box that opens, click **Conference**.
- In the **Conference** dialog box that opens, click **Add**.



- In the **Add to Conference** dialog box that opens, select the desired contact and click **Call**.



- When the second call is established, click **OK**.



6.5.9.2 Making Phone Calls from Radios

Make a DTMF call

Note: Only 1.07.02 and higher firmware version for all radios equipped with dialing keyboard support DTMF.

To make a DTMF call, do the following:

- Press the PTT button on a portable radio and hold it.
- While holding the PTT button, dial a phone number and press # (For example, 0079521112233#).
- Release the PTT button. The server will automatically initiate a phone call.

Call by sending Text Message

To make a phone call, send a text message with the text **PrefixN** where:

- **Prefix** – is a short text to define the special text message (for example, **sip:**);
- **N** - the phone number.

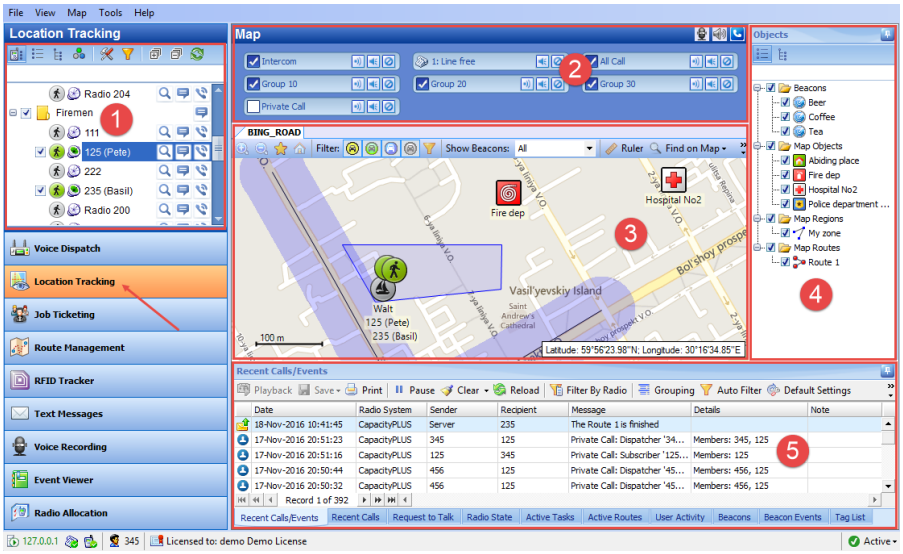
For example, to initiate a call to a phone subscriber "123 456 7890", the following text message must be sent to TRBOnet Server: "sip:1234567890".

Terminate a call

To terminate the call, press the PTT button and then press # twice on the radio.

6.6 Location Tracking

In the **Location Tracking** tab, the dispatcher can monitor selected radio location on supported maps, open different maps in separate tabs and toggle between map tabs:



The main user interface elements are as follows:

1. Radio List pane
2. Voice panel
3. Map panel
4. Objects panel
5. Activity Monitor panel

While in the Activity Monitor panel, the dispatcher can perform a wide range of tasks, including:

- Monitoring and listening to recent calls and viewing system events
- Monitoring selected radio status
- Monitoring active tasks for selected radio
- Monitoring active routes for selected radio
- Enabling and disabling User Activity monitoring
- Monitor beacons and beacon events.

6.6.1 Objects

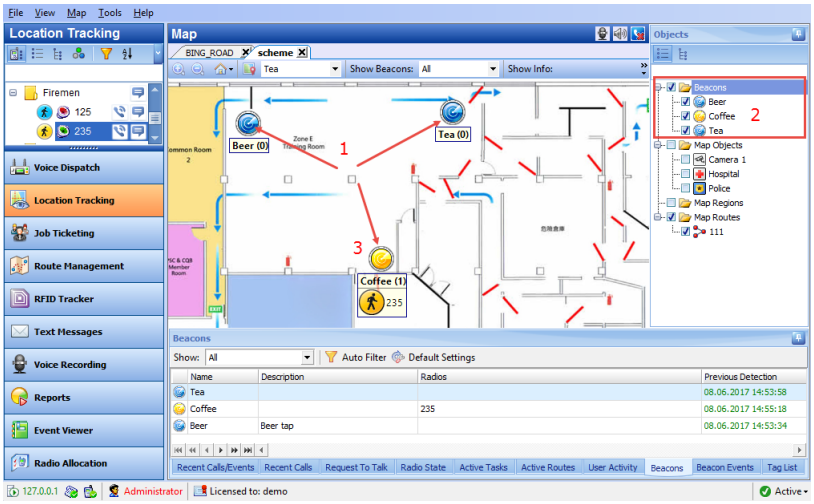
On the Objects panel, the dispatcher can view and enable/disable the following objects:

- **Beacons** – all beacons connected to the system.
- **Map Objects** – all manually created map objects and predefined objects created with the Map Drawing toolbar.
- **Map Regions** – all map regions created with the Map Drawing toolbar (use the Add Polygon tool to create a map region).
- **Map Routes** – all map routes created with the Map Drawing toolbar (use the Draw Route tool to create a map route).

In addition, the dispatcher can export and import these objects (see section 6.3.4.3, Exporting/Importing Objects).

6.6.1.1 Beacons

TRBOnet Dispatch Software provides the **Indoor Positioning** feature to monitor the location of radios inside a building where no GPS signal is available. This feature requires additional hardware (the beacons spread around the building and the option boards in radios). A radio user will be displayed on the indoor floor plan when the radio enters the beacon coverage area. The beacon icon on the map displays the number of radios that are currently in the beacon coverage area.



Beacons are displayed on the building floor plan (1) and in the list of beacons (2) in the Objects panel. When a radio comes into the range of a beacon, they both are highlighted in yellow on the floor plan/map (3).

For more details on beacons, see section 6.13, Beacons (page 368)

6.6.1.2 Map Objects

The dispatcher can create custom and predefined map objects using the Drawing Panel. The dispatcher can attach 2D or 3D floor plans for Indoor Positioning.

For more details on creating map objects, see section 6.6.2.8, Drawing Panel (page 330).

6.6.1.3 Map Regions

The dispatcher can create map regions that can be used for Geofencing rules. The map Regions can be created manually on the map (click any point on the map to select it as a region border) or, the dispatcher can add map points by GPS coordinates to create a region.

For more details on creating map regions, see section Draw a Polygonal Region (page 330).

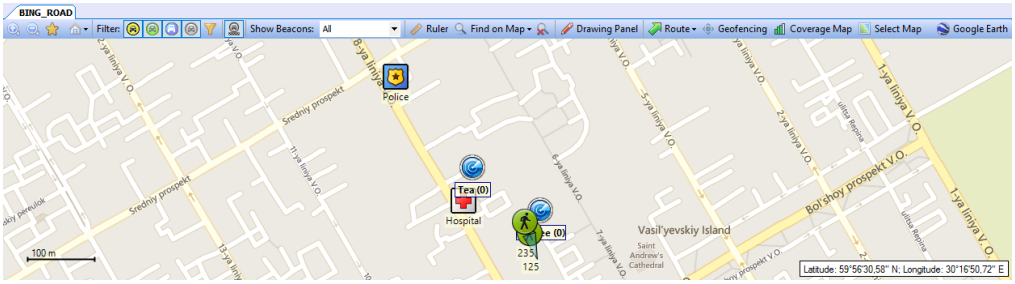
6.6.1.4 Map Routes

The dispatcher can create routes on the map that can be used for Geofencing rules.

For more details on creating map routes, see section Draw a Route (page 333).

6.6.2 Map Tools

The Map toolbar is located in the upper part of the Map pane:

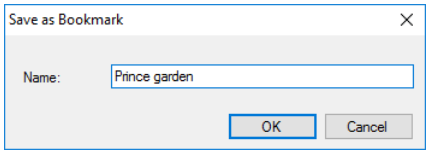


6.6.2.1 Zoom in/out

- Click  to zoom in a map.
- Click  to zoom out a map.

6.6.2.2 Bookmarks

- Click  to put a bookmark on the map.
- Click **Save as Bookmark** to save the map region as a bookmark.



- The dispatcher can create any number of the bookmarks. To open a bookmark, click  and select the bookmark in the list.

6.6.2.3 Default View

- Click  and choose **Save as Default View** to save current map view as a default view. The dispatcher can save only one default view.

  To open the default view, click  and choose **Show Default View**.

6.6.2.4 Filters

Select the filters to display radios on the map:

 - radio is online, beacons are detected;

 - radio is online, GPS data is received;

 - radio is online, no GPS data is received;

 - radio is off, no GPS data is received.

All filters are enabled by default. Click the selected icon to disable selected radios on the map.

Click the  button and select the visibility of the radios having **On Duty** and/or **Off Duty** statuses.

Click the  button and select which radios to hide according to the radio groups and/or logical groups they belong to, and the map regions they are currently in.

Click the  button to toggle showing object names on the map.

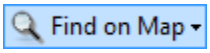
6.6.2.5 Ruler

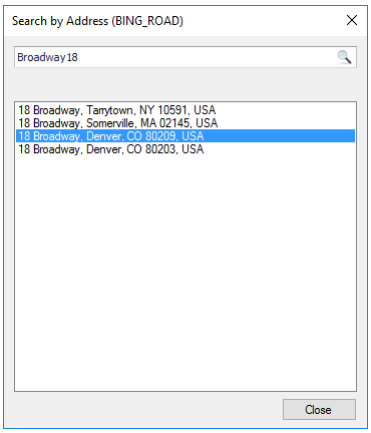
- Click  to enable the tool to measure distances on the map.
- Left-click a point on the map to start measuring. Left-click intermediate points and see the distance displayed at the mouse pointer.

6.6.2.6 Search by Address

The dispatcher can search map objects by their address.

Note: For online maps, Internet access is required!

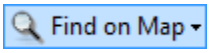
- Click  and choose **Address** to find an address on the map.

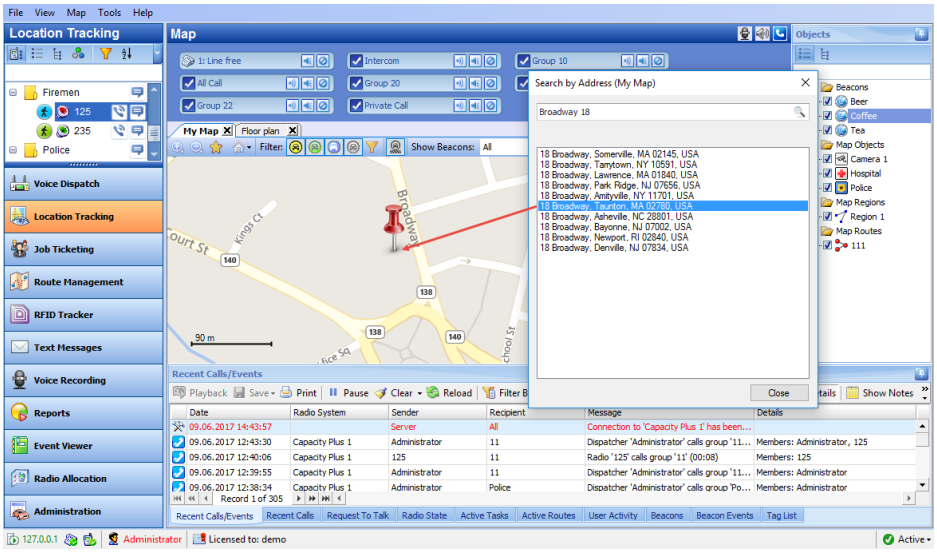


- Click the address in the list to display it on the map.

6.6.2.7 Search by Coordinates

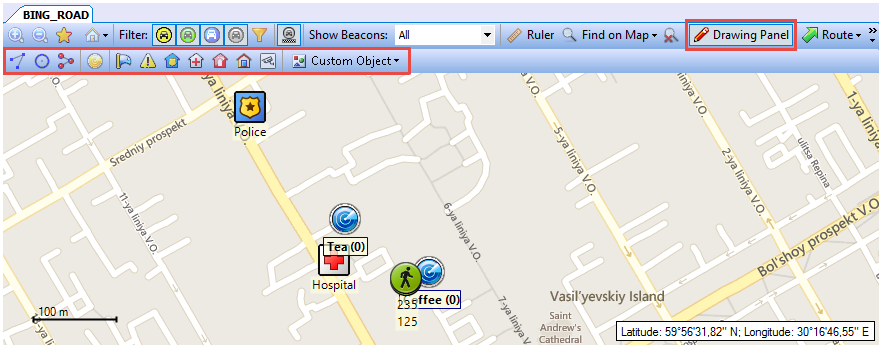
You can also find an object by its exact coordinates.

- Click  and choose **Coordinates**.
- In the dialog box that opens, select a coordinate system, and enter the coordinates.



6.6.2.8 Drawing Panel

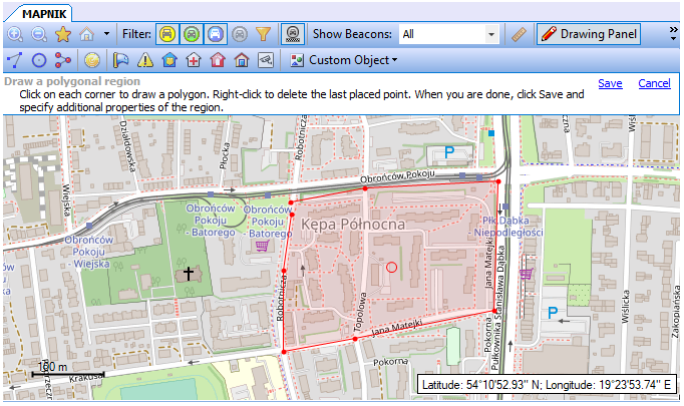
- Click Drawing Panel to display the Drawing toolbar:



Draw a Polygonal Region

Draw a polygonal region manually

- Click and choose **Draw on map**.
- Left-click points on the map to create the polygonal region.



- Once finished, click the **Save** link.

In the **Object on Map** dialog box that opens, specify the following parameters:

General tab

- **Name**
  Specify a name for the map region.
- **ID**
  Enter the ID of the map region.
- **Description**
  Enter a description for the map region.

Region tab

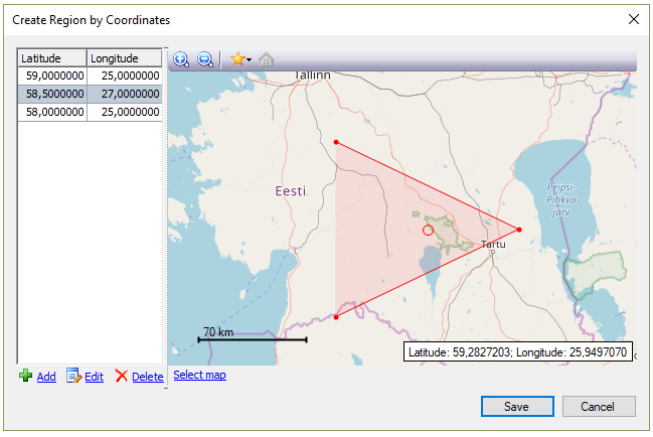
- **Color**
  Select a color to display the region on the map.
- **Fill region area**
  Select this checkbox to fill in the region area on the map.
- **Transparency**
  Specify the transparency level (in percent) for the fill color.

Logical Groups tab

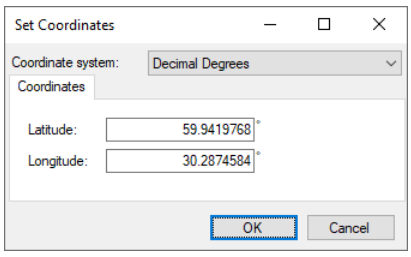
- Select the Logical Groups that will be associated with the map region.

Draw a polygonal region by coordinates

- Click  and choose **Use coordinates**.



- Click the **Add** link to add a point.



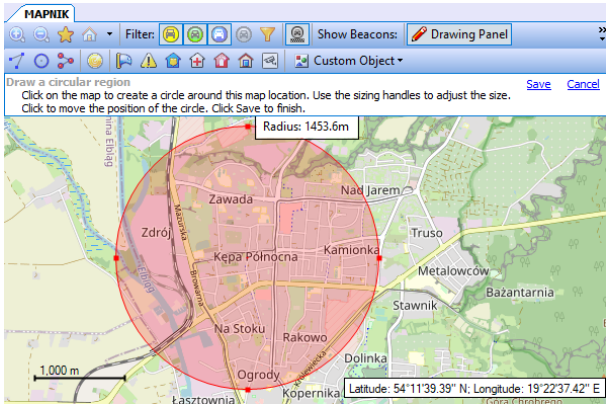
- **Coordinate system**
  From the drop-down list, select the convenient format (for example, Decimal Degrees) for the coordinates.
- **Latitude/Longitude**
  Enter the coordinates of the point.
- Click **OK** to add the point.

- Click the **Edit** link to edit the selected point.
- Click the **Delete** link to delete the selected point.
- Once finished editing the region's points, click the **Save** button.

Draw a Circular Region

Draw a circular region manually

- Click  and choose **Draw on map**.



- Click on the map to place the center of the region. Drag the sizing handles to adjust the radius of the region. To change the center position of the region, click another place on the map.
- Once finished, click the **Save** link.

  In the **Object on Map** dialog box that opens, specify the following parameters:

  #### General tab

  - **Name**
    Specify a name for the map region.
  - **ID**
    Enter the ID of the map region.
  - **Description**
    Enter a description for the map region.

  #### Region tab

  - **Color**
    Select a color to display the region on the map.

- **Fill area**
  Select this checkbox to fill in the region area on the map.
- **Transparency**
  Specify the transparency level (in percent) for the fill color.

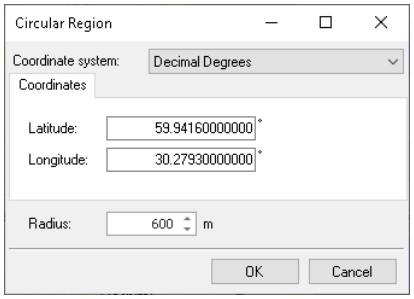
Logical Groups tab

- Select the Logical Groups that will be associated with the map region.

Draw a circular region by coordinates

- Click  and choose **Use coordinates**.

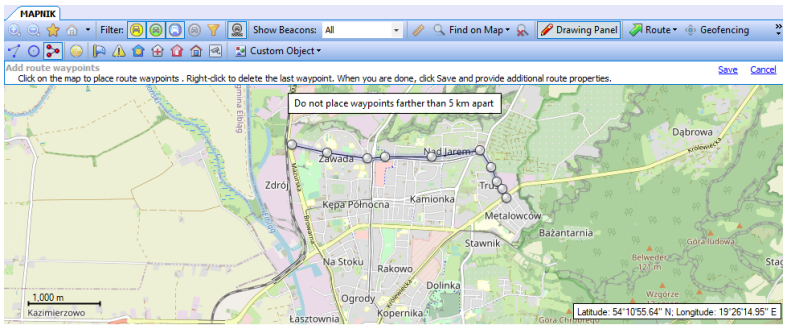
  In the **Circular Region** dialog box, specify the following parameters:



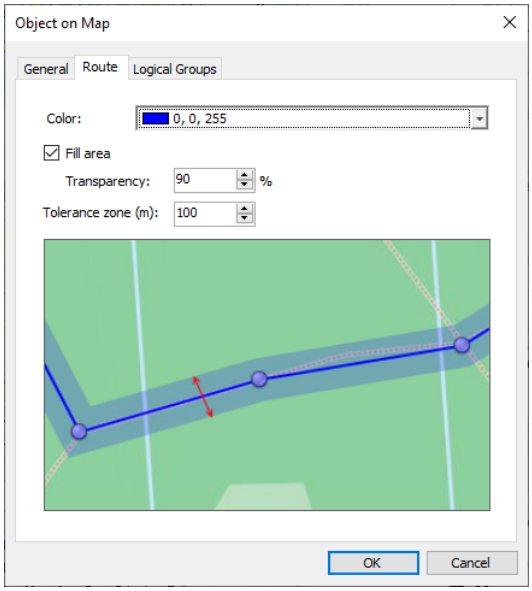
- **Coordinate system**
  From the drop-down list, select the convenient format (for example, Decimal Degrees) for the coordinates.
- **Latitude/Longitude**
  Enter the coordinates of the circle's center.
- **Radius**
  Enter the radius of the circle.

Draw a Route

- Click  and then set route points one after another by clicking on the map.



- Once you have finished drawing a route, click the **Save** link.
- In the **Object on Map** dialog box, specify a name and description for the route.
- Click the **Route** tab.



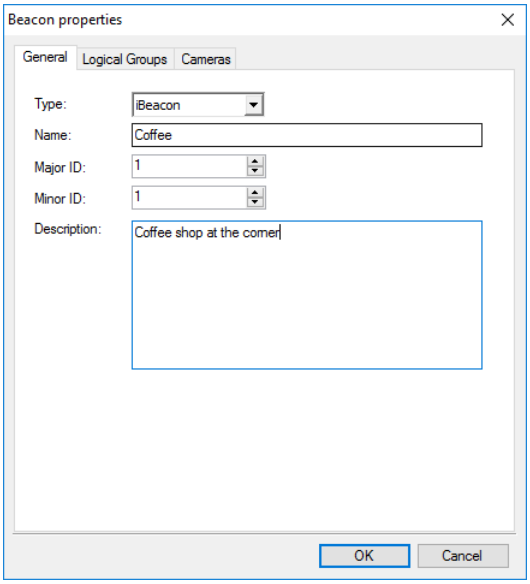
- **Color**
  Select the color in which to display the route on the map.
- **Fill area**
  Select this checkbox to display a transparent edge around the route line. The edge width is specified by the value of the **Tolerance zone** parameter.
  - **Transparency**
    Specify the transparency, in percent, for the line edge.
- **Tolerance zone**
  Specify the corridor width (in meters or feet, depending on what is chosen in **Tools > Options > Advanced / Measurement system**). If a radio will pass out of this tolerance zone, the dispatcher will receive an alarm signal.

Add a Beacon

- Click  and choose **Position on map**.
- Click on the map where you want to place a beacon.
- Click the **Save** link.

The **Beacon properties** dialog box will appear.

- On the **General** tab, specify the following parameters:



- **Type**
  Select the beacon type from the drop-down list.
- **Name**
  Specify a name for the beacon.
- **Major ID** and **Minor ID**
  Enter the beacon's major and minor ID exactly as specified on the iBeacon device.
- **Description**
  Add a description for the beacon.

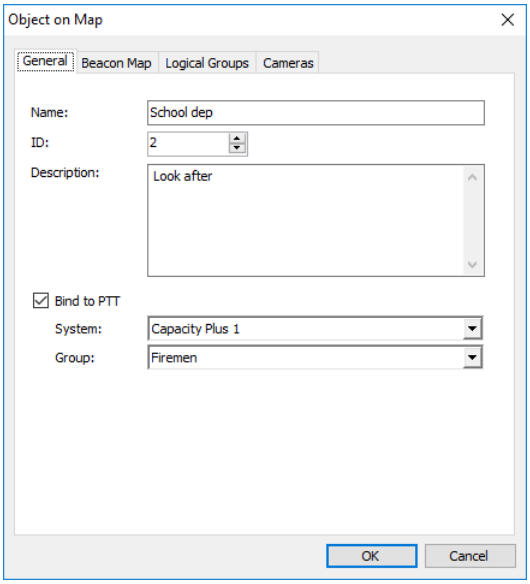
On the **Logical Groups** tab, select logical groups that will be associated with the beacon.

On the **Cameras** tab, select the checkbox beside the camera that will be associated with the beacon.

Note: You can also place a beacon by specifying its coordinates. To do this, click  and choose **Use coordinates**.

Add a Point of Interest

- Click  and choose **Position on map**.
- Click on the map where you want to place a POI.
- Click the **Save** link.
  The **Object on Map** dialog box will appear.



- **Name**
  Specify a name for the new map region.
- **Description**
  Enter a description for the map region.
- **Bind to PTT**
  Select this option to connect the POI to a radio group in your radio system. Clicking the object's icon on the map will start a call on the selected radio group.
  - **System**
    From the drop-down list, select the radio system.
  - **Group**
    From the drop-down list, select the radio group.

On the **Logical Groups** tab, select logical groups that will be associated with the object.

On the **Cameras** tab, select the checkbox beside the camera that will be associated with the object.

Note: You can also place a POI by specifying its coordinates. To do this, click  and choose **Use coordinates**.

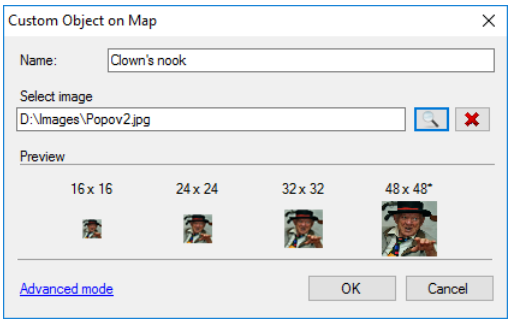
Note: Similarly, you can place other objects with predefined icons, such as Warning points, Police departments, Emergence departments, Fire departments, Houses, and Cameras. To do this, click one of the following icons on the toolbar:  .

Create a Custom Object

In addition to objects with predefined icons, you can create your own objects to be then placed on the map.

- Click 

and choose **Add Custom Object**.



  - **Name**
    Specify a name for the object.
  - **Select image**
    Click the Browse button and locate the image file you want to use as an icon for the object.

> Note: You can also assign different images for different icon sizes. Click the **Advanced mode** link and select images for different sizes (16x16, 24x24, 32x32, 48x48).

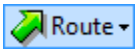
After you create a custom object, the corresponding icon will appear along with other predefined icons on the Drawing Panel.

- To delete a custom object, click 

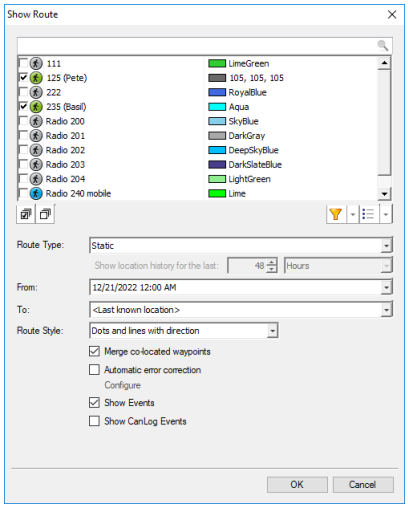
and choose **Delete Custom Object**.

6.6.2.9 Route

Show Route

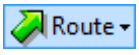
- Click 

and choose **Show Route**.



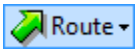
- In the list of radios, select a radio and the color with which to display the route for the radio.
- **Route Type**
  Select the route type, either Static or Dynamic.
- **Show location history for the last**
  If the Dynamic route type is selected, specify the time period, in hours, for which to show the route.
- **From/To**
  If the Static route type is selected, specify the start and end dates of the time period for which to show the route.
- **Route Style**
  Select the style in which to display the route on the map.
- **Merge co-located waypoints**
  Select this option to group all points in a 100-meter radius.
- **Automatic error correction**
  Select this option to detect and correct invalid GPS data. Click the **Configure** link and select the maximum possible speed for your vehicles.
- **Show Events**
  Select this option to display TRBOnet Server events (telemetry, alarms, and other events).
- **Show CanLog Events**
  Select this option to display events that occurred in a vehicle (door opening, and other events).

Export Route

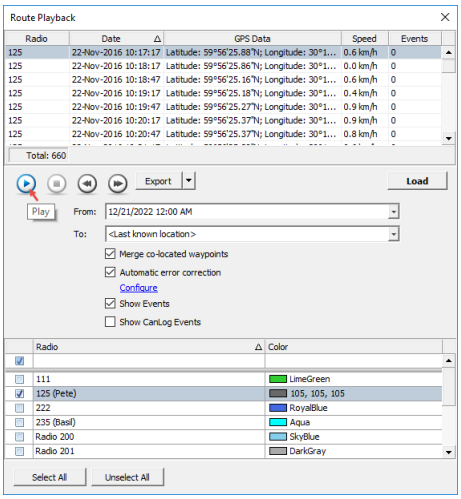
You can export the routes travelled by radio users in a GPX or KML files. To do this, after you have performed a Show Route command, click 

and choose **Export Route > Export to GPX file/ Export to KML file**.

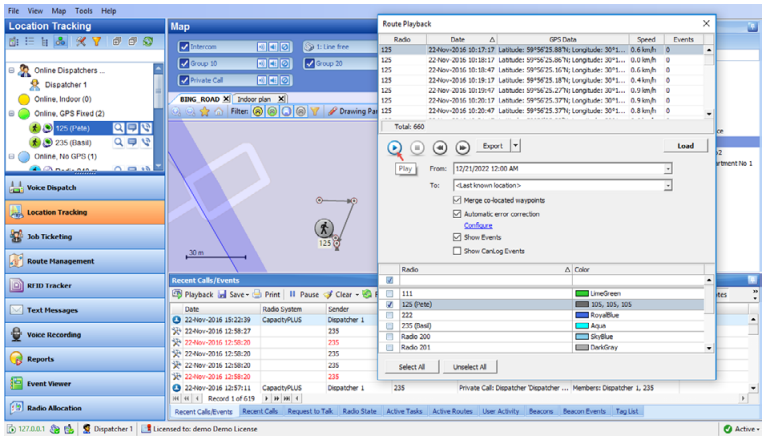
Route Playback

- Click 

and choose **Route Playback**.



  - In the list of radios, select the radio and the color with which to display the route for the radio.
  - **From/To**
    Specify the start and end dates of the time period for which to show the route.
  - Click the **Load** button.
  - Once you have loaded the route points, click the Play button to play back the route on the map.



6.6.2.10 Geofencing

The Geofencing feature allows controlling the location and speed of radios relative to manually defined regions on the map.

The Geofencing monitoring consists of the manually defined regions and the tasks. The regions specify where to apply the rules, while the tasks specify how to apply the rules for the regions and radios.

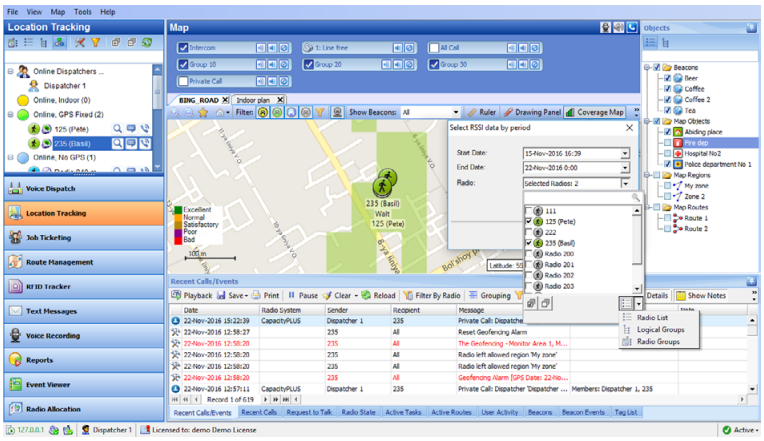
- On the Map toolbar, click Geofencing.

  The administrator can **add**/**disable**/**delete** the rules for Geofencing as well as edit the currently selected rules:
- For more details on configuring Geofencing rules, see section 6.4.5.3, Geofencing.
- To enable Geofencing rules, go to **Administration**, **Tasks**, and in the **Tasks** pane, select the checkbox next to **Geofencing**.

6.6.2.11 Coverage Map

The Coverage Map option allows to see RSSI levels on the map.

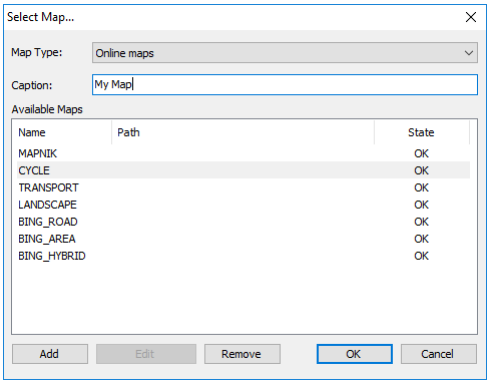
- On the Map toolbar, click Coverage Map.



For more details on configuring the Coverage Maps, see section Coverage Map (page 136).

6.6.2.12 Select Map

- On the Map toolbar, click Select Map.



  - Enter the **Caption** of the map that will be displayed in the active tab.
  - In the list of **Available Maps**, choose the map to be displayed.

Note: For more details on available map types, see section Map Types (page 126).

6.6.2.13 Google Earth

To open the Google Earth application:

- On the Map toolbar, click Google Earth.

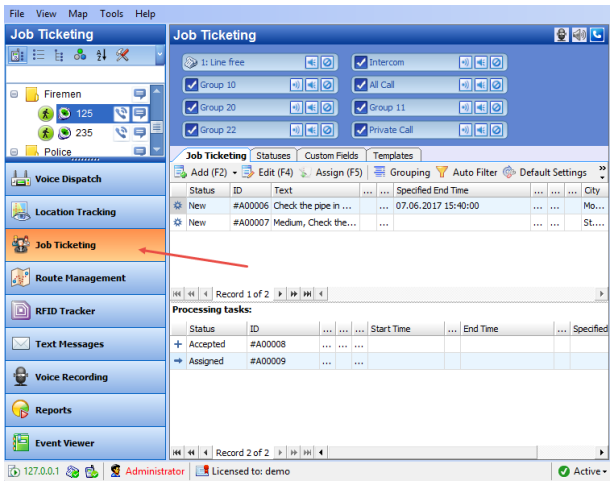
Note: Google Earth must be previously installed on the PC. To download Google Earth, go to the Google Earth website https://www.google.com/intl/en/earth/desktop/, and click **Download**.

6.7 Job Ticketing

TRBOnet Dispatch Console provides the **Job Ticketing** feature – the integrated ticketing system that allows dispatchers to create, assign, and track job tickets through the radio network.

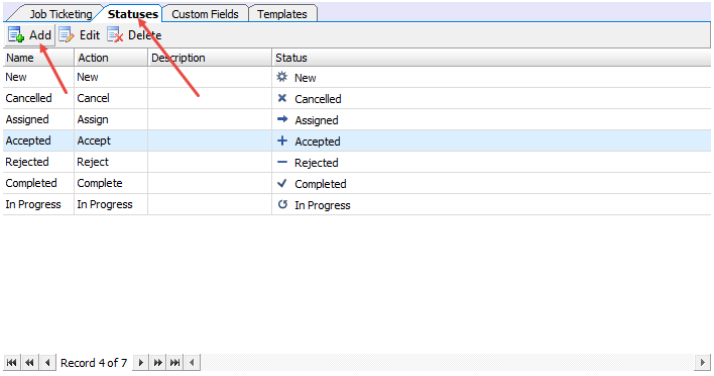
Note: Before using the feature, make sure that your TRBOnet Dispatch Software license includes Job Ticketing.

- Click the **Job Ticketing** tab, and manage Job Tickets in the **Job Ticketing** pane.

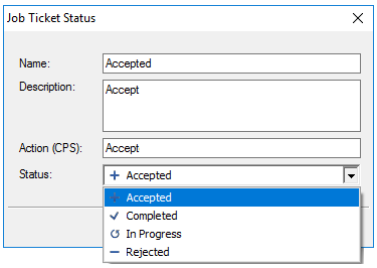


6.7.1 Adding Statuses for Job Ticketing

- In the **Job Ticketing** pane, click the **Statuses** tab to see the statuses available for job tickets.



- Click the **Add** button to add a Job Ticket status.



  - **Name**
    Specify a Job Ticket status name to display in the system.
  - **Description**
    Add a description for the job ticket status.
  - **Action (CPS)**
    Enter the action name as specified in MOTOTRBO CPS.

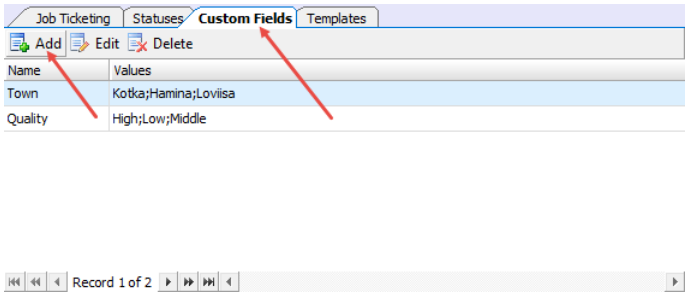
    Note: The **Action (CPS)** value must match the value of the corresponding *Action/Response* field configured for a radio in *MOTOTRBO CPS, Job Tickets*.

  - **Status**
    From the drop-down list, select the Job Ticket status (Accepted, Completed, In Progress, or Rejected).

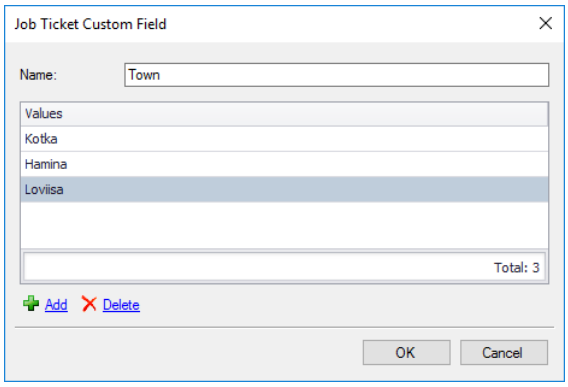
6.7.2 Adding Custom Fields for Job Ticketing

In addition to the default fields (Priority, Deadline, etc.), you can add custom fields with pre-defined values to be used in tickets/ticket templates.

- In the **Job Ticketing** pane, click the **Custom Fields** tab to see the list of custom fields available for job tickets.



- Click the **Add** button.

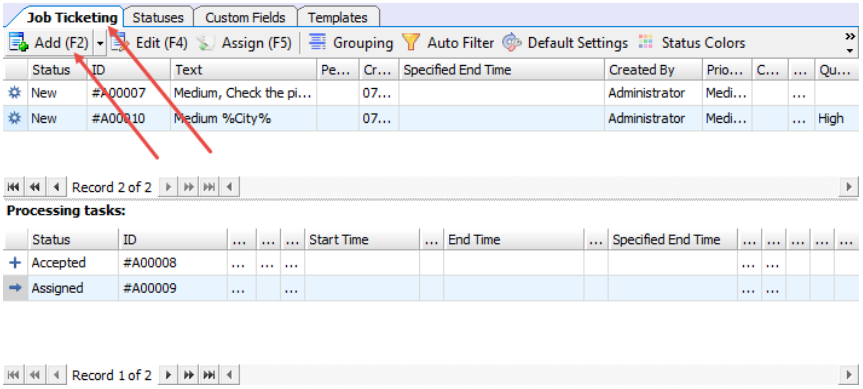


In the **Job Ticket Custom Field** dialog box, specify the following:

- **Name**
  Enter a name for the field.
- **Values**
  Click the **Add** link and enter a pre-defined value for the field.

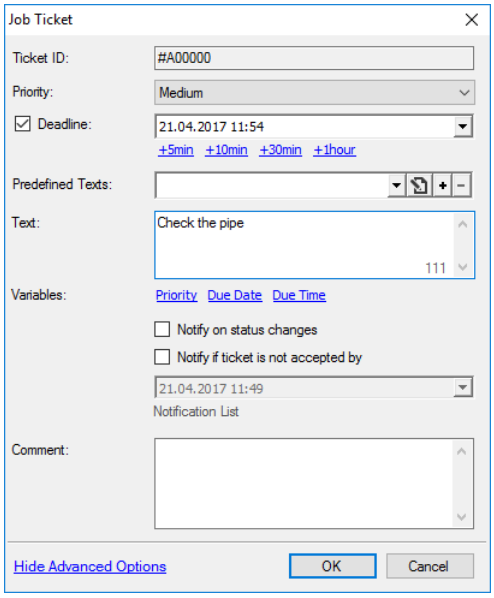
6.7.3 Creating a Job Ticket

- In the **Job Ticketing** pane, click the **Job Ticketing** tab to see the list of created job tickets.



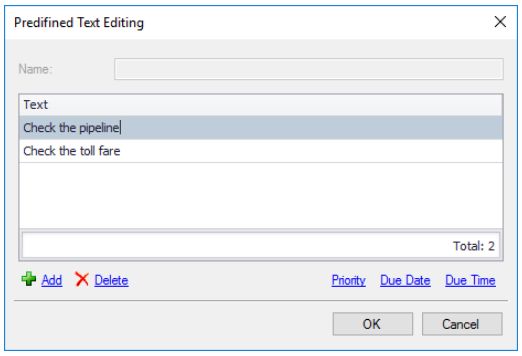
- Click the **Add** button to create a job ticket.

Note: To create a ticket from a template, click the arrow on the right of the **Add** button to select from the available ticket templates. For directions on how to create templates, see section 6.7.4, Creating a Ticket Template.



In the **Job Ticket** dialog box, specify the following parameters:

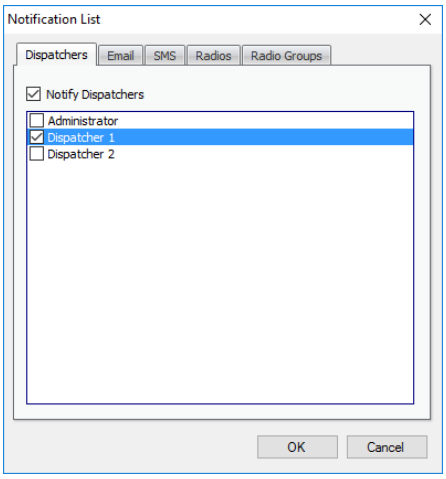
- **Ticket ID**
  This value will be set automatically once the ticket has been created.
- **Priority**
  From the drop-down list, select the task priority.
- **Deadline**
  Select this option and in the box to the right, enter a due date and time for the task.
- **Predefined Texts**
  From the drop-down list, select a predefined text for the Job Ticket.
  - Click the  button to edit the predefined text.



  - Click the **Add** link and type the text in the line that appears.
    In addition, you can also add to this text:

- ✓ **Priority**
  Click this link to add the ticket priority to the text.
- ✓ **Due date**
  Click this link to add the ticket due date to the text.
- ✓ **Due time**
  Click this link to add the ticket due time to the text.

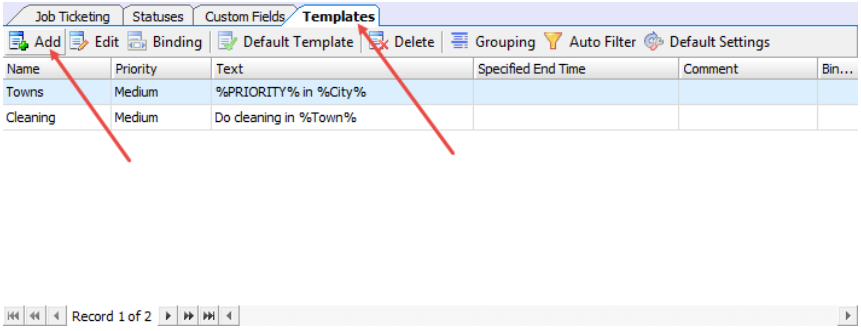
- **Text**
  Enter the text message in this box.
- **Notify on status changes**
  Select this option to send notifications to Dispatchers, Email and/or SMS groups when a Job Ticket status changes.
- **Notify if ticket is not accepted by**
  Select this option to send notifications to dispatchers, Email and/or SMS groups if a radio does not accept the Job Ticket at the time specified in the box below.
- **Notification List**
  Click this link and choose the recipients of selected notifications.



  You can notify dispatchers with the help of notifications in the Dispatch Console (on the **Dispatchers** tab, check **Notify Dispatchers**, and select dispatchers), Email groups by sending Emails to dedicated Email groups (click the **Email** tab, check **Notify by Email**, and select Email groups) and phone users by sending SMS to dedicated SMS groups (click the **SMS** tab, check **Notify by SMS**, and select SMS groups).
- **Comment**
  Add a comment for the ticket.

6.7.4 Creating a Ticket Template

You can create ticket templates in advance to then use them when creating tickets.



- Click the **Templates** tab to see the list of templates available for job tickets.
- Click the **Add** button to create a ticket template.
- In the **Job Ticket Template** dialog box, fill in the desired fields, and click **OK**.

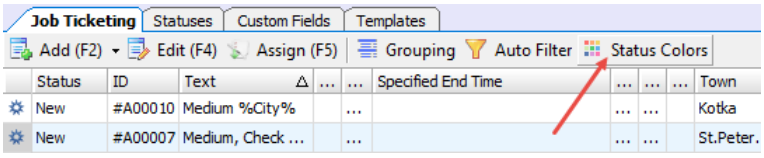
> Note: For information about the fields, see section 6.7.3, Creating a Job Ticket.

In addition, you can enable automatic creation of the template-based tickets by using a scheduler. To do this, go to **Create Automatically by Scheduler**, click the arrow down button and select the corresponding scheduler. Or, click the plus button on the right, and create a new scheduler.

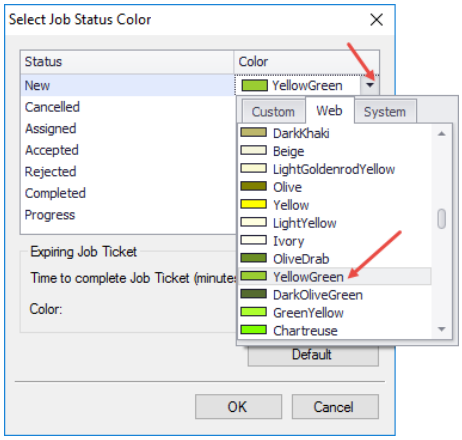
6.7.5 Selecting Ticket Status Color

You can also color tickets based on their statuses.

- Click the **Job Ticketing** tab, and on the toolbar, click the **Status Colors** button.



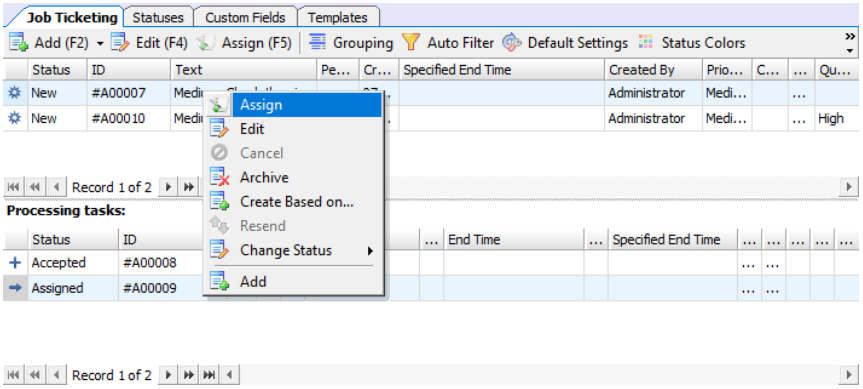
In the **Select Job Status Color** dialog box that opens:



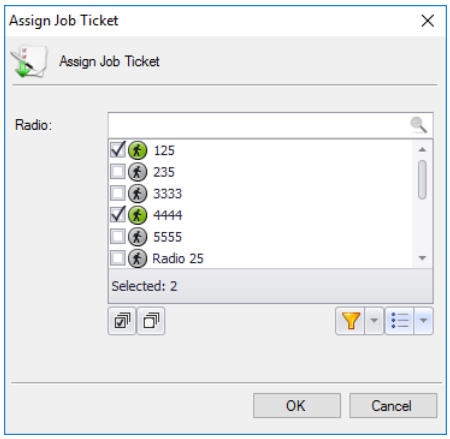
- Click the arrow on the right, and from the drop-down list, pick the color for the selected status.

6.7.6 Assigning a Job Ticket

- Select a job ticket in the list, and click the **Assign** button.
  Or, right-click the job ticket and choose **Assign**.



In the **Assign Job Ticket** dialog box that appears:



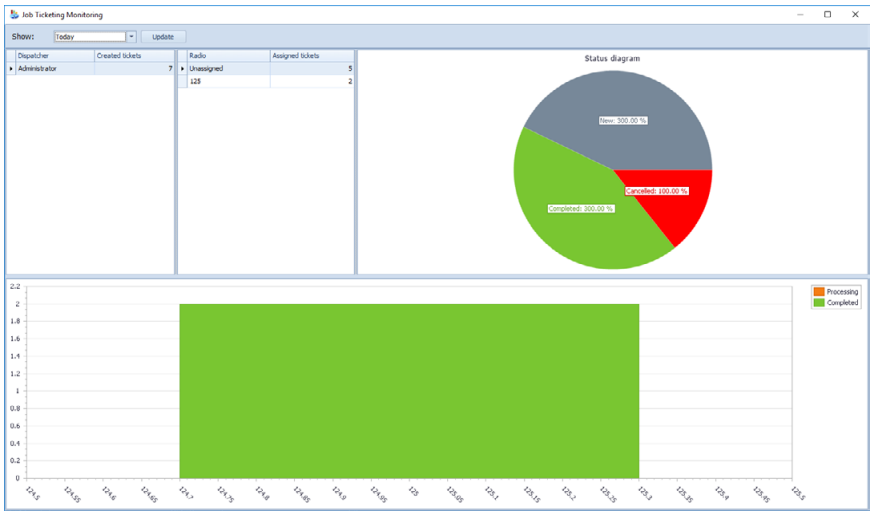
- In the list, select a radio or multiple radios, radio group(s), or logical group(s) to which to assign the job ticket. To switch between the Radio List, Radio Groups, and Logical Groups, click the  button and select the desired list.
- Click **OK** to assign the ticket to the selected radio(s)/radio group(s)/logical group(s).

  As a result, the selected radio(s)/radio group(s)/logical group(s) will receive the job ticket.

Note: When you assign the job ticket to multiple radios and the first radio accepts the ticket, the behavior of other radios depends on the Job Ticketing Service type configured for these radios. If the **Text Messages** type is configured for the radios, all other radios will receive a corresponding text notification. If the **MSI Proprietary** type is configured for the radios (or Mobile Client is used as a radio), the ticket will be cancelled on all other radios (Mobile Clients).

6.7.7 Viewing Job Ticketing Statistics

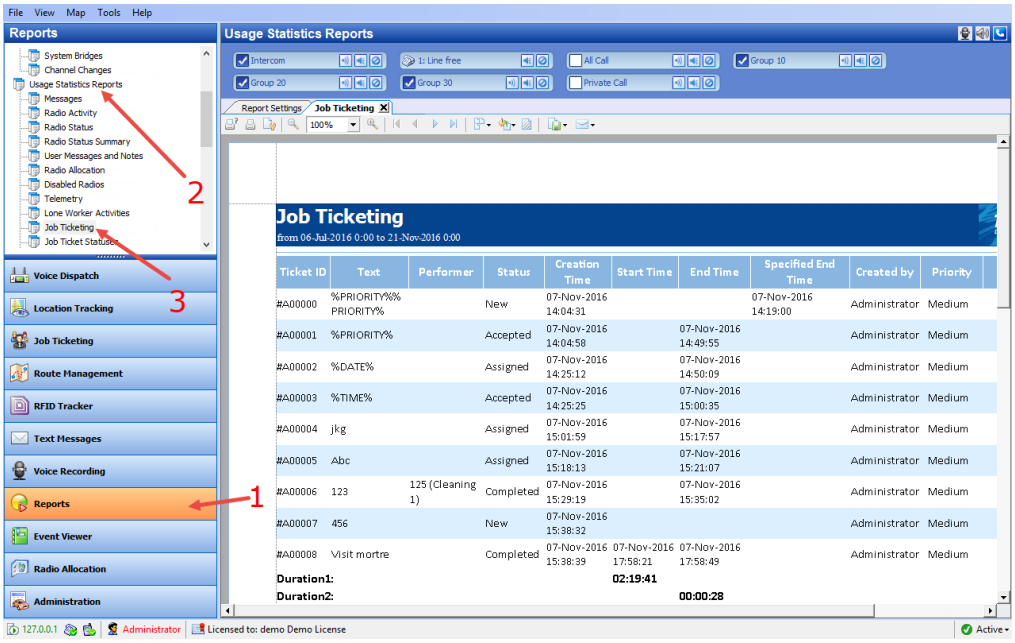
- On the main menu, select **Tools**, then click **Job Ticketing Monitoring** to see the Job Ticketing statistic diagram:



For more details on the statistics, see Job Ticketing Monitoring.

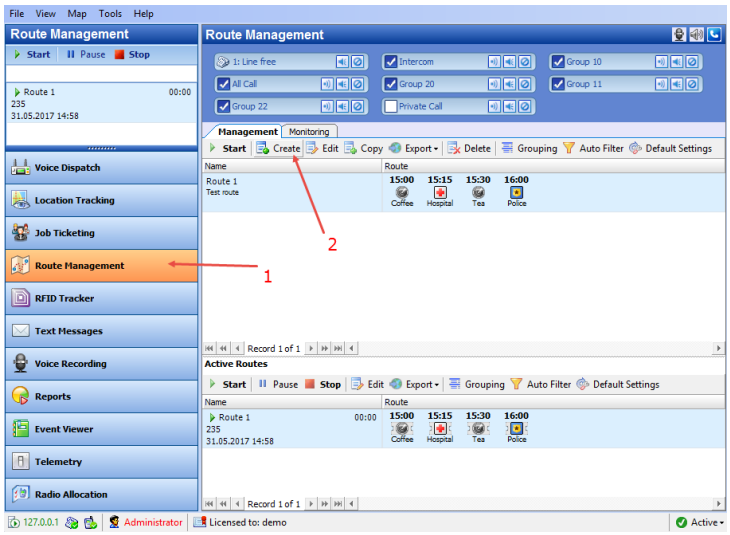
6.7.8 Viewing Job Ticketing Reports

- To view a job ticketing report, go to **Reports** (1), and select **Usage Statistics Reports** (2) – **Job Ticketing** (3).
- On the **Usage Statistics Reports** pane, click the **Report Settings** tab, and specify the appropriate parameters and then click **Generate Report**.
- Click the **Job Ticketing** tab to see the generated report.



6.8 Guard Tour / Route Management

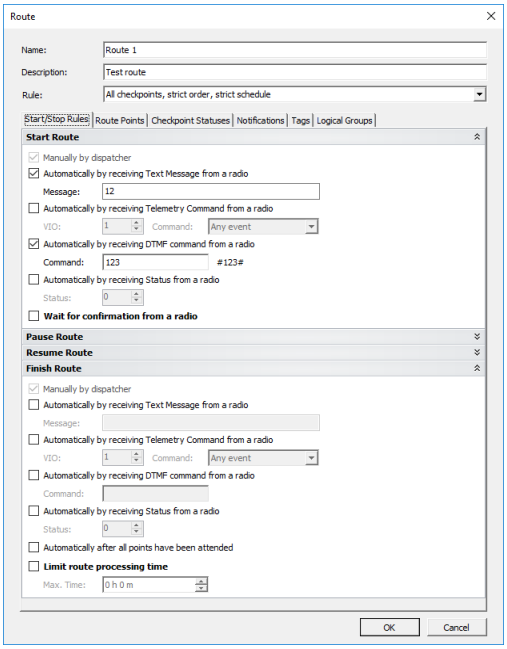
The Guard Tour / Route Management feature allows the user to create routes and assign them to selected radio subscribers or dispatchers.



- Click the **Route Management** tab (1).

6.8.1 Creating a Route

- In the **Route Management** pane on the right, select the **Management** tab, then click the **Create** button (2) to create a new route.



- **Name**
  Specify a name for the route to display in the route list.
- **Description**
  Add a description for the route.
- **Rule**
  Select the type of the rule from the drop-down-list:
  - **All checkpoints, strict order, strict schedule**
    Checkpoints are to be attended in the specified order, each within a specified time range.
  - **All checkpoints, strict order, loose schedule**
    Checkpoints are to be attended in the specified order. The time for attending each checkpoint is not limited.
  - **All checkpoints, loose order, loose schedule**
    Checkpoints can be attended in any order, each at any time.
- Click the Start/Stop Rules tab.

  ### Start Route

  Specify the rules to start the route.
  - **Manually by dispatcher**
    This option is enabled by default and cannot be edited. This option enables the dispatcher to start the route by clicking the **Start** button in the **Route Management** tab or in the **Active Routes** pane.
  - **Automatically by receiving Text Message from a radio**
    The route starts when the radio sends a specific text message to TRBOnet Server. If you select this option, then specify the text message the radio will send in the **Message** box.

- **Automatically by receiving Telemetry Command from a radio**
  The route starts when the user presses a preconfigured button on the radio and TRBOnet Server receives a telemetry command from the user's radio. If you select this option, specify the **VIO** contact, and from the **Command** drop-down list, select the signal level at which the user's radio should send the telemetry command.
- **Automatically by receiving DTMF command from a radio**
  The route starts when the user sends a specific DTMF command to TRBOnet Server, for instance, #11#. If you select this option, specify a DTMF combination without the # characters in the **Command** box.
- **Automatically by receiving Status Message from a radio**
  The route starts when the user sends a specific Status to TRBOnet Server, for instance, 1. If you select this option, specify the **Status**.
- **Wait for confirmation from a radio**
  Select this option to start the route after the TRBOnet Server receives a confirmation from the radio. In this case, the route is assigned to the radio or user and paused. The route will be resumed after a confirmation is received.

Pause Route

Specify the rules to pause the route.

Resume Route

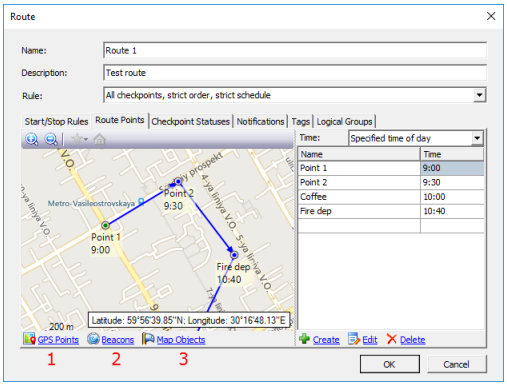
Specify the rules to resume the route.

Finish Route

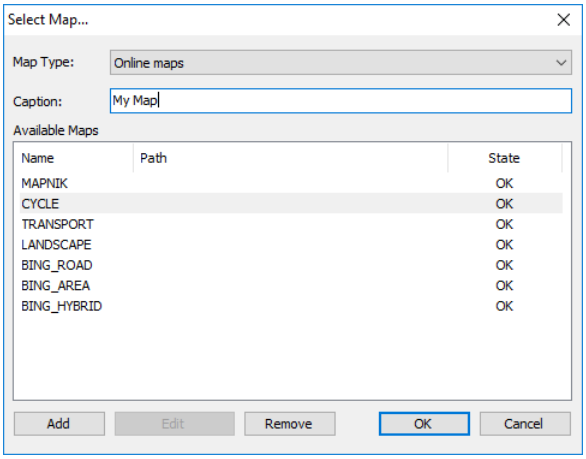
Specify the rules to finish or stop the route.

- **Automatically after all points have been attended**
  Select this option so that the route is finished automatically after all checkpoints have been attended.
- **Limit route processing time**
  Select this option, and specify the maximum allowed time in the **Max. Time** box. If the time is exceeded, the route will stop automatically. All unattended checkpoints automatically change their statuses from 'Waiting' to 'Not Attended'.

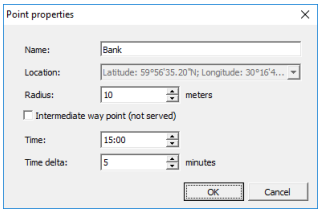
- In the **Route** dialog box, click the **Route Points** tab.



- Click the **GPS Points** link (1) to add points to the selected map:

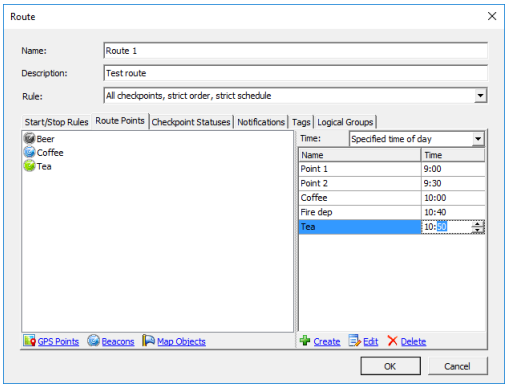


- Select the map. For more details on map types, see section Map Types (page 126).
- Click the **Create** link or double-click a selected point on the map to create a new route point:

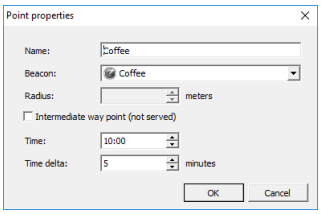


- **Name**
  Specify a name for new point to display on the map.
- **Location**
  This box displays the current GPS coordinates of new point.
- **Radius**
  Specify the radius within which to consider the point as attended.
- **Intermediate way point (not served)**
  Select this option to exclude the point from being used as a checkpoint.
- **Time**
  Specify the time the point is to be attended at.
- **Time delta**
  Specify the time accuracy to attend the point.
- Click **OK** to add the new point.
- Click the **Beacons** link (2) to add a beacon as a checkpoint.

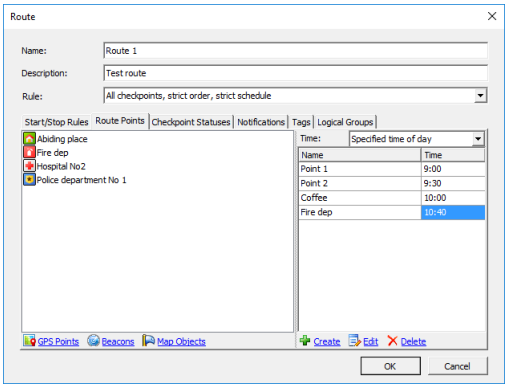
Note: To enable the **Indoor** feature, make sure your license includes **Indoor Positioning** (see section 5.1 License Information on page 11) and **Indoor Service** is selected in the list of available services (see section 5.10.1 Services on page 31).



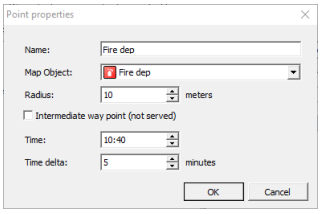
- Click the **Create** link and then click a beacon in the list.



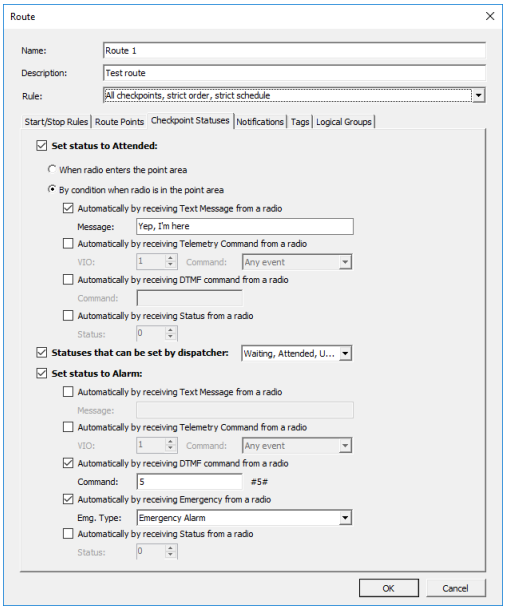
- Click the **Map Objects** link to add a map object as a checkpoint.



- Click the **Create** link and then click an object in the list.

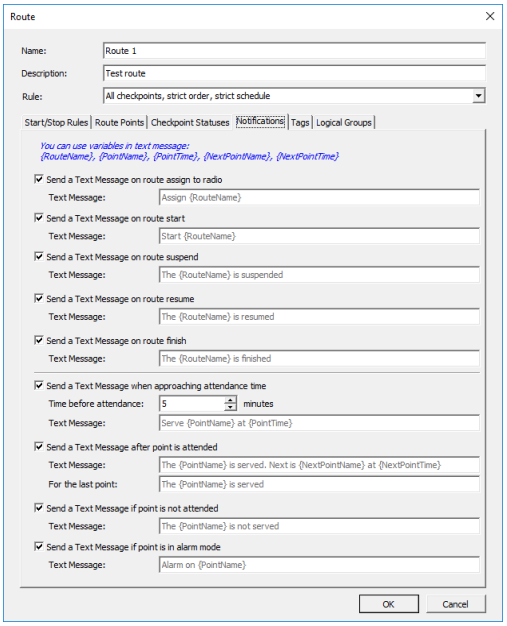


- In the **Route** dialog box, click the **Checkpoint Statuses** tab.



- **Set status to Attended**
  Select this option so that TRBOnet Server will change the checkpoint status to 'Attended' based on the information from the radio.
  - **When the radio enters the point area**
    Choose this option so that the radio detects the closest beacon and sends location data to TRBOnet Server. The respective checkpoint changes its status to 'Attended ' automatically.
  - **By condition when the radio is in the point area**
    If this option is chosen, the radio sends a preconfigured command to TRBOnet Server. The last detected checkpoint changes its status to 'Attended ' by this command. Configure the preferred command(s):
    - **Automatically by receiving Text Message from a radio**
      Select this option so that the checkpoint is considered to be attended after the dispatcher receives a specific text message from the radio. If you select this option, then specify the text message the radio will send in the **Message** box.
    - **Automatically by receiving Telemetry Command from a radio**
      Select this option so that the checkpoint is considered to be attended after the dispatcher receives a specific telemetry command from the radio. If you select this option, specify the **VIO** contact, and from the **Command** drop-down list, select the signal level at which the user's radio should send the telemetry command.
    - **Automatically by receiving DTMF command from a radio**
      Select this option so that the checkpoint is considered to be attended after the dispatcher receives a specific DTMF command from the radio, for instance, #11#. If you select this option, specify a DTMF combination without the # characters in the **Command** box.

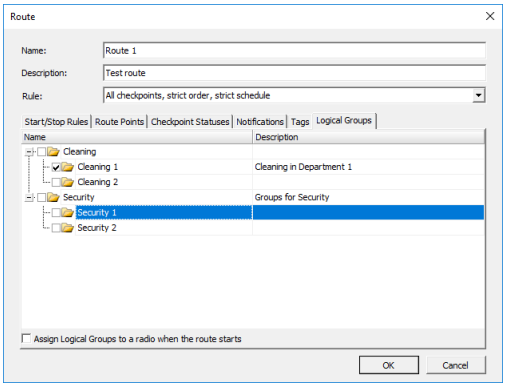
    - **Automatically by receiving Status Message from a radio**
      Select this option so that the checkpoint is considered to be attended after the dispatcher receives a specific Status from the radio. If you select this option, specify the **Status**.
- **Statuses that can be set by dispatcher**
  Select this option to allow the Dispatch Control operator to manually change the status of checkpoints in the **Active Routes** panel.
  In the drop-down list, select the checkpoint statuses to be available for the operator: Waiting, Attended, Unattended, and Alarm.
- **Set status to Alarm**
  Select this option to allow the radio to set an alarm on the attended checkpoint. Configure the command(s) that can set the checkpoint status to 'Alarm'.
    - **Automatically by receiving Text Message from a radio**
      Select this option to set the point to alarm mode after the dispatcher receives a specific text message from the radio. If you select this option, then specify the text message the radio will send in the **Message** box.
    - **Automatically by receiving Telemetry Command from a radio**
      Select this option to set the point to alarm mode after the dispatcher receives a specific telemetry command from the radio. If you select this option, specify the **VIO** contact, and from the **Command** drop-down list, select the signal level at which the user's radio should send the telemetry command.
    - **Automatically by receiving DTMF command from a radio**
      Select this option to set the point to alarm mode after the dispatcher receives a specific DTMF command from the radio. If you select this option, specify a DTMF combination without the # characters in the **Command** box.
    - **Automatically by receiving Emergency from a radio**
      Select this option to set the point to alarm mode after the dispatcher receives an Emergency from the radio.
        - **Emg. Type**
          Select the Emergency type from the drop-down list.
    - **Automatically by receiving Status Message from a radio**
      Select this option to set the point to alarm mode after the dispatcher receives a specific Status from the radio. If you select this option, specify the **Status**.
- In the **Route** dialog box, click the **Notifications** tab to manage notifications to a radio.



Note: To enable an option, select the checkbox. The Text Message boxes already include text. If necessary, replace the text with your own text, using variables as placeholders that will be substituted with actual data.

- **Send a Text Message on route assign**
  Select this option to inform a radio holder that the route is assigned to.
- **Send a Text Message on route start**
  Select this option to inform a radio holder that the route started.
- **Send a Text Message on route suspend**
  Select this option to inform a radio holder that the route is suspended.
- **Send a Text Message on route resume**
  Select this option to inform a radio holder that the route is resumed.
- **Send a Text Message on route finish**
  Select this option to inform a radio holder that the route is finished.
- **Send a Text Message when approaching attendance time**
  Select this option to inform a radio holder that the next checkpoint is expected in the time interval specified in the **Time before attendance** box. This message is only available for routes with the specified attendance time.
- **Send a Text Message after point is attended**
  Select this option to confirm attending a checkpoint.
- **Send a Text Message if point is not attended**
  Select this option to notify a radio holder if the point was not attended.
- **Send a Text Message if point is in alarm mode**
  Select this option to notify radio holder if the point is in alarm mode.

- In the **Route** dialog box, click the **Logical Groups** tab.



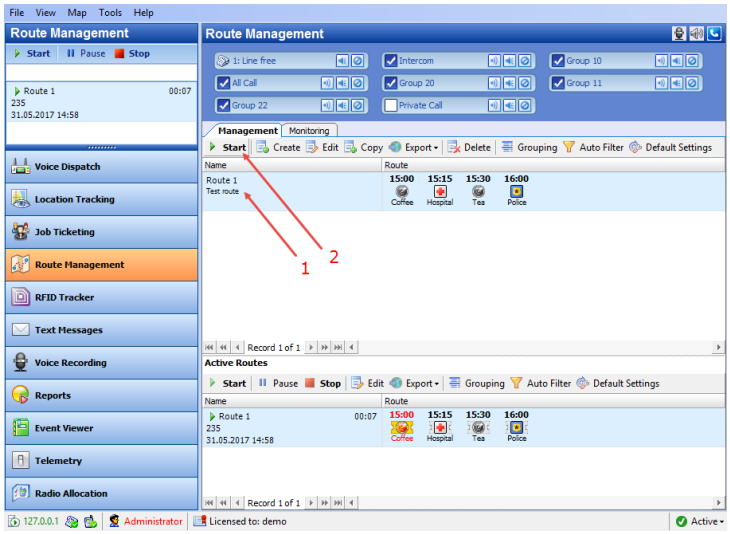
- Select a logical group(s) in the list of available groups.
- **Assign Logical Groups to a radio when the route starts**
  Select this checkbox so that when the route is assigned to a radio, the selected logical group(s) will automatically be assigned to the radio.

Note: For more information about logical groups, see section 6.4.29, Logical Groups (page 273).

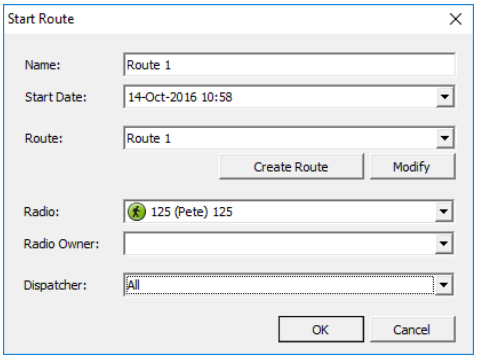
- Click **OK** to save settings.

  The new route is now added to the route list (1):

6.8.2 Starting a Route



- Click the **Start** button (2) to start the route:



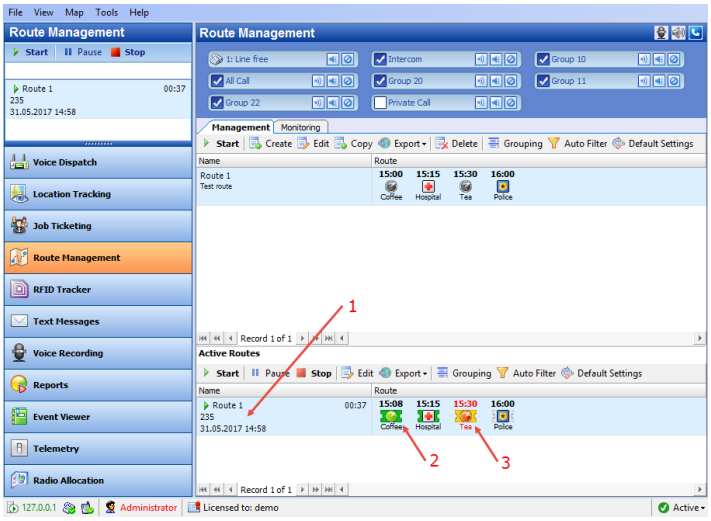
In the **Start Route** dialog box, specify the following parameters:

- **Name**
  Enter a name for the route to be started. This name will be displayed in the **Active Routes** pane.
- **Start Date**
  Select a date to start the route on.
- **Route**
  From the drop-down list, select the route to start. Click the **Create Route** button to create a new route based on the selected route. Click the **Modify** button to modify selected route parameters.
- **Radio**
  From the drop-down list, select the radio to assign the route to.
- **Radio Owner**
  From the drop-down list, select the Users to assign the route to.

  Note: Select only one of the two (**Radio** or **Radio Owner**) to prevent an incorrect route.

- **Dispatcher**
  From the drop-down list, select the dispatcher to monitor the route.
- Click **OK** to start the route.

The active route appears (1) in the **Active Routes** panel.



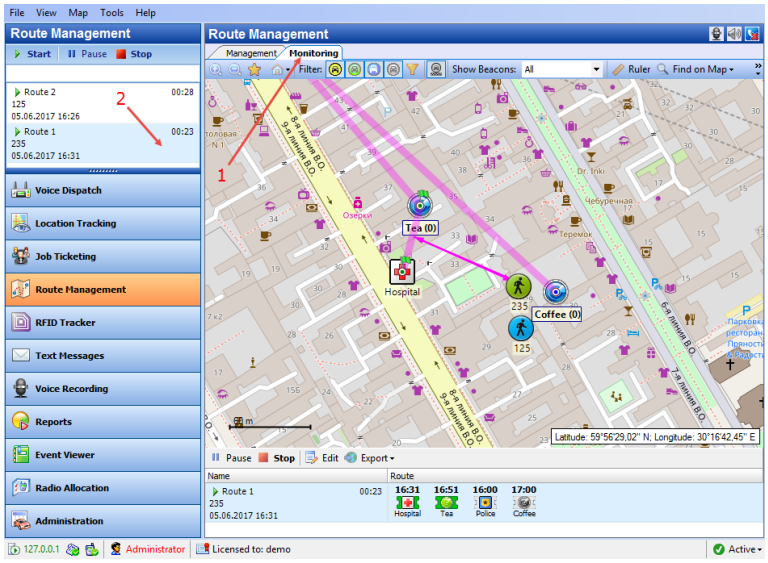
If a route point is attended in time, it is displayed in green (2)

If a route point is not attended in time, it is displayed in red (3).

For more operations with checkpoints, see section 6.5.8.6, Active Routes (page 321).

6.8.3 Tracing Active Route on Map

- In the **Route Management** pane, click the **Monitoring** tab (1).



- In the upper-left pane, select the route (2) to be traced on the map.

6.8.4 Stopping a Route

Depending on the route configuration settings, a route/guard tour can be stopped automatically:

- by a command sent from the radio;
- when all checkpoints are attended;
- when the route time is elapsed.

To manually stop the route:

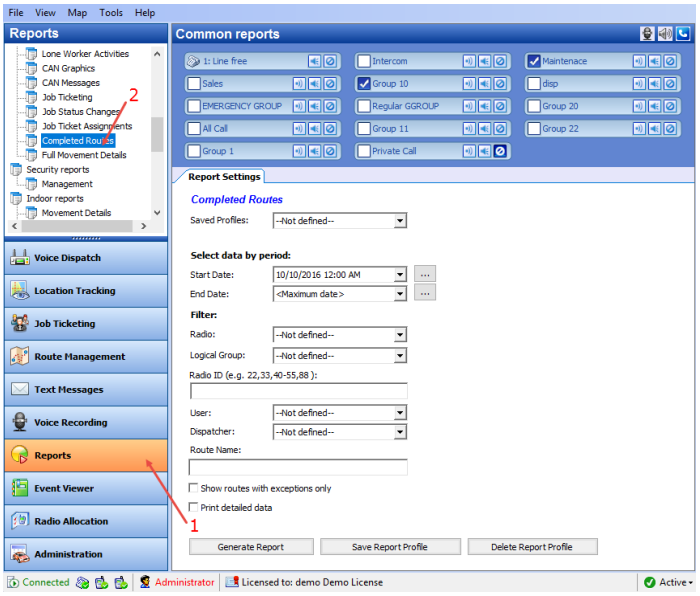
- Click the **Stop** button to stop the route. Once the route is stopped, it will disappear from the **Active Routes** panel.

After the route is stopped, the checkpoint statuses cannot be modified neither automatically, nor manually.

6.8.5 Generating Route Reports

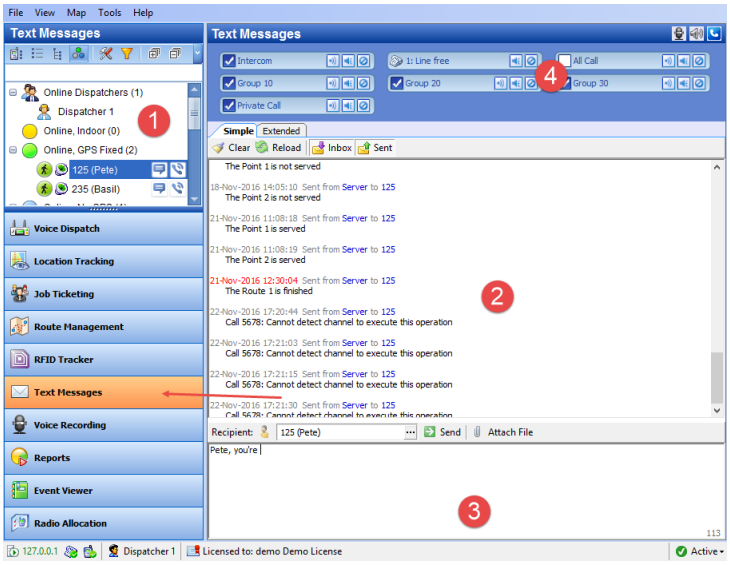
The administrator can generate reports on the finished routes.

- Click the **Reports** (1) tab, and in the **Reports** pane select **Common reports > Completed Routes** (2):



6.9 Text Messages

In the Text Messages tab, the dispatcher can review and send text messages to other dispatchers, individual radio subscribers and radio groups:



1. Radio List
   displays dispatchers and radio subscribers available for text communication.

   Note: Radios must be equipped with a display to receive Text Messages.

2. Text Messages panel
   displays the latest messages transmitted via a radio channel.
3. New Message panel
   provides you with text sending options.

4. Calls Panel in compact mode allows making voice calls.

6.9.1 Sending Text Messages

The dispatcher can send a text message to:

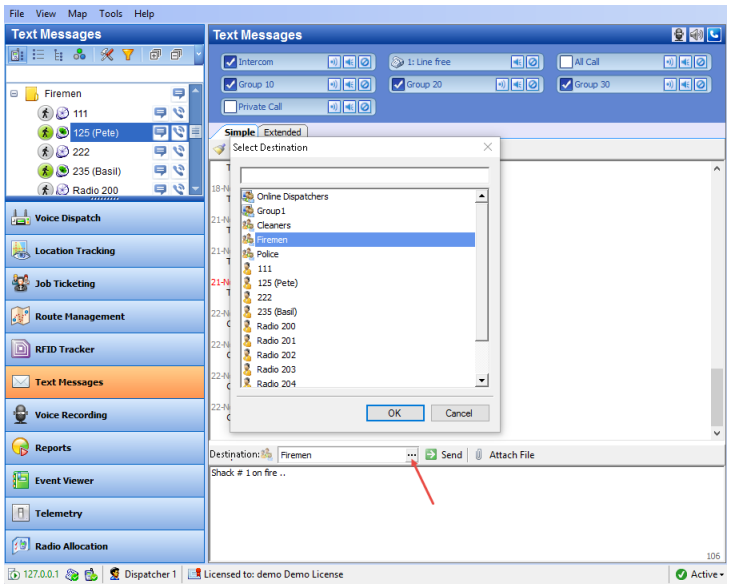
- Selected Radio
- Selected Radio Group
- Selected Logical Group
- Selected Dispatcher
- All Online Dispatchers or a group of dispatchers

The dispatcher can send a text message to selected subscribers from:

- New Message panel
- Radio List

6.9.1.1 New Message panel

- In the New Message panel, click the ellipsis (**...**) button.



- In the **Select Destination** dialog box, select the radio, radio group or dispatcher and click **OK**.
- Type the text message you want to send.

  Note: The size of a text message is restricted to 125 characters.

- Click the **Attach File** button if you want to attach a file to the message being sent.
- Click the **Send** button.

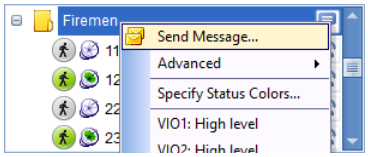
The text message will be displayed in the Text Messages panel.

The message details highlighted in red indicates that the message recipient is offline and the message will be delivered as soon as the recipient gets back online again.

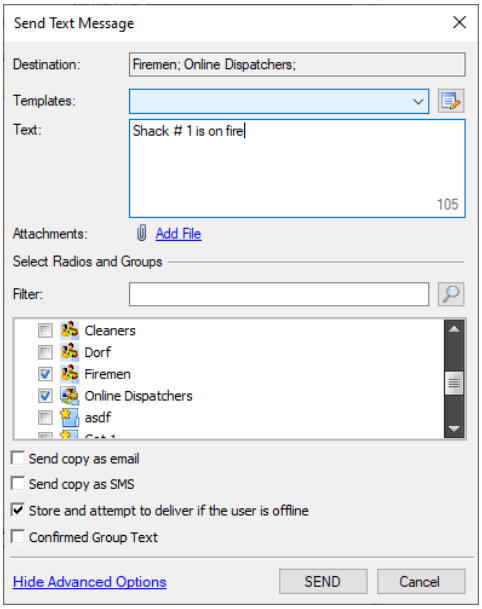
The message details in gray indicate that the message has been delivered.

6.9.1.2 Radio List

- On the Radio List, right-click the radio/radio group/dispatcher you want to send a text message to, and choose **Send Message**.



- In the **Send Text Message** dialog box that appears, specify the following parameters:



  - **Destination**
    This box displays the destination of the message.
  - In the **Text** box, type the message text. You can also insert a template text from the **Templates** list box. Note that the size of a text message is restricted to 125 characters.
  - In the Destination list, add recipients of the text message by selecting radios/radio groups/logical groups/dispatchers.
  - **Store and attempt to deliver if the user is offline**
    Select this option to store the message on the server if a radio is offline, and to send it as soon as the radio becomes online.

Note: The storage time is set in TRBOnet Server's Advanced Settings > **Text Message Passive timeout** (Unlimited, by default).

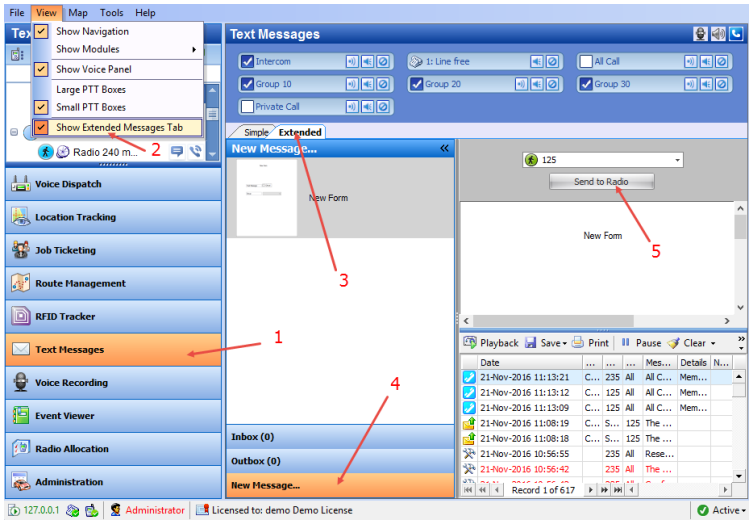
- Click **Send**.

6.9.2 Extended Messages

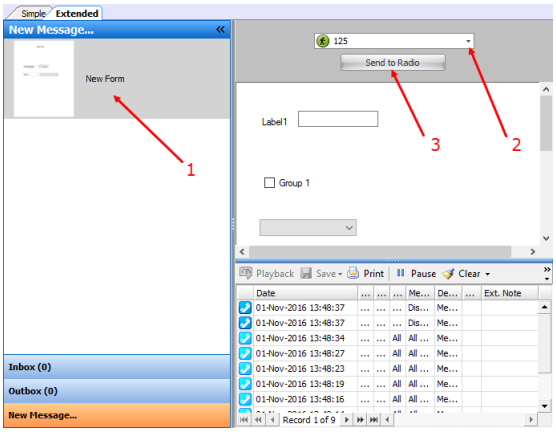
The **Extended Messages** service is a special function allowing users to send/receive detailed preconfigured templates containing necessary information.

This service was created especially for clients who need to use more detailed and structured messages in their work. If the standard messages are not enough to contain all the information you need to send, you may use the Extended Messages service. Also note that an extended message can only be viewed on a Dispatch Console.

6.9.2.1 Send Extended Text Message to a Radio



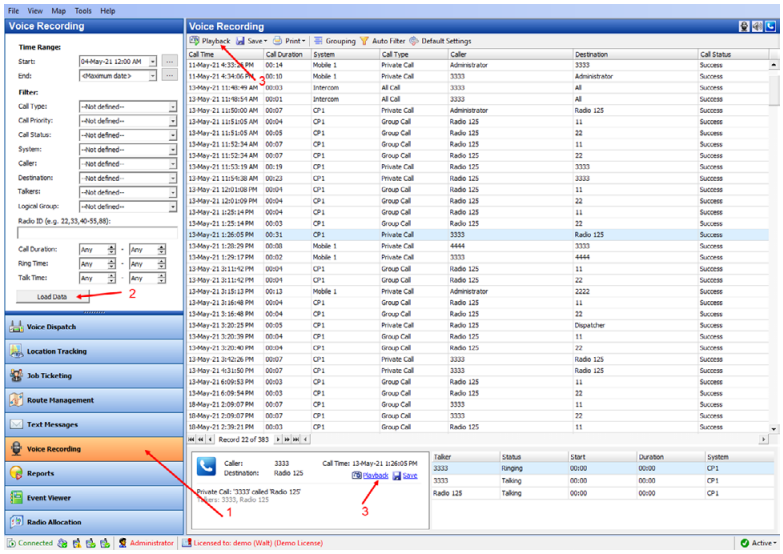
- Click the **Text Messages** tab (1).
- Click the **View** menu, and select **Show Extended Messages Tab** (2).
- In the **Text Messages** pane, click the **Extended** tab (3), and **New message** (4).



- Select the template in the list (1). For instructions on how to create templates, see section 6.4.21.1, Templates for Extended Messages.
- From the drop-down list (2), select the radio to which to send the extended message.
- Click **Send to Radio** (3) to send the extended message to the selected radio.

6.10 Voice Recording

On the **Voice Recording** tab, the dispatcher can display the list of voice calls recordings according to certain criteria, listen to the voice recordings and save them to a file.



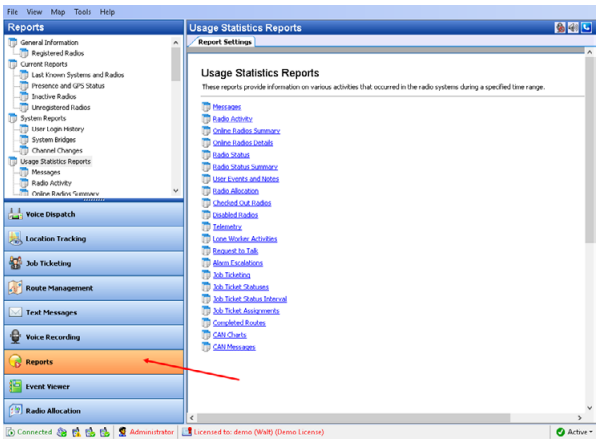
- Click the **Voice Recording** tab (1).
- In the **Voice Recording** panel, specify the criteria according to which you want to display call recordings, and click **Load Data** (2).
- In the right pane, you will see the list of calls according to the criteria you have specified.
- To play back a recording, select it in the list and click **Playback** (3).

Note: For more actions available in the **Voice Recording** panel, see section 6.5.8.1, Recent Calls/Events, Voice Recording.

6.11 Reports

The Reports tool provides you with various printing forms with monitored radio network activity data.

- Click the **Reports** tab.



6.11.1 Report Types

TRBOnet Dispatch Console supports the following report types:

- **General Information**
  These reports contain general information on the radio systems registered in TRBOnet.
- **Current Reports**
  These reports contain current information on the radio systems registered in TRBOnet.
- **System Reports**
  These reports contain system information on the radio systems registered in TRBOnet.
- **Usage Statistics Reports**
  These reports provide information on various activities that occurred in the radio systems during a specified time range. The reported information may include information about Messages, Radio Statuses, User Events and Notes, Allocated Radios, Disabled Radios, Job Ticketing, Completed Routes etc.
- **Location History**
  These reports contain movement details for GPS and Indoor Positioning, for a selected time period.
- **Security Reports**
  These reports contain information related to security issues that may affect the radio systems connected to TRBOnet.

- **Data Export**
  This report contains information on extended notes in the messages. The report can be generated in XLS or XML format.

6.11.2 Main Report Parameters

To generate a report, go to **Reports** section and select a report type you want to generate.

When generating a report, you might need to specify the parameters listed below:

Time Range

- **Start**
  The date from which to start the report.
- **End**
  The date on which to end the report.

Filter Content

- **Message Type**
  Select available message types from the drop-down list (All Messages, Talk Sessions, Text Messages, and other message types).
- **Radio System**
  In the drop-down list, select the system(s) to include in a report.
- **Radio**
  In the drop-down list, select the radio(s) to include in a report.
- **Radio Group**
  In the drop-down list, select the radio group(s) to include in a report.
- **Logical Group**
  In the drop-down list, select the logical group(s) to include in a report.
- **Dispatcher**
  In the drop-down list, select the dispatcher(s) to include in a report.
- **Radio ID**
  Enter the Radio ID or multiple Radio IDs.
- **Find Text**
  Enter the text to filter by.

6.11.3 Common Command Buttons

Below are the buttons common for all reports that you generate:

- **Generate Report**
  Click this button to generate a report according to the selected report settings.
- **Save Report Profile**
  Click this button to save the current report settings as a report profile.

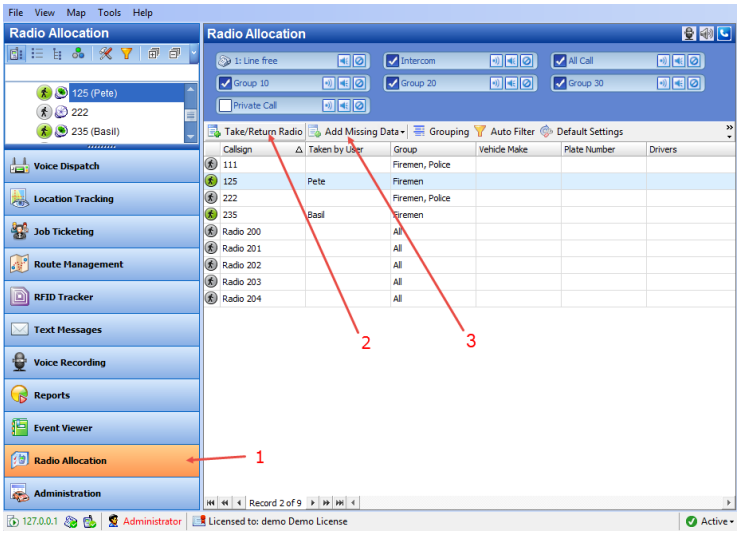
- **Delete Report Profile**
  Click this button to delete the currently selected report profile.

6.12 Radio Allocation

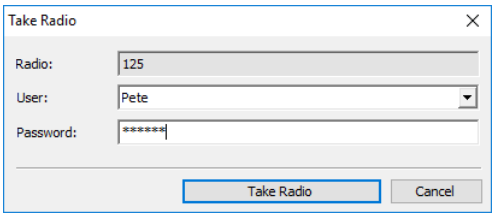
The radio can be assigned to a selected employee registered in the system.

All available radios are disabled and an employee will need to type in a username and password to take and enable the selected radio. When an employee returns the allocated radio, it gets disabled again.

- Click the **Radio Allocation** tab (1) to assign radios to users:



- Select the radio in the list and click the **Take/Return Radio** button (2):



  - **Radio**
    This box displays the selected radio.
  - **User**
    From the drop-down list, select the user to allocate the radio to.
  - **Password**
    Enter the password for the selected user.

  Note: For more details on user access to Allocation Console, see section 6.4.28 Users (page 269).

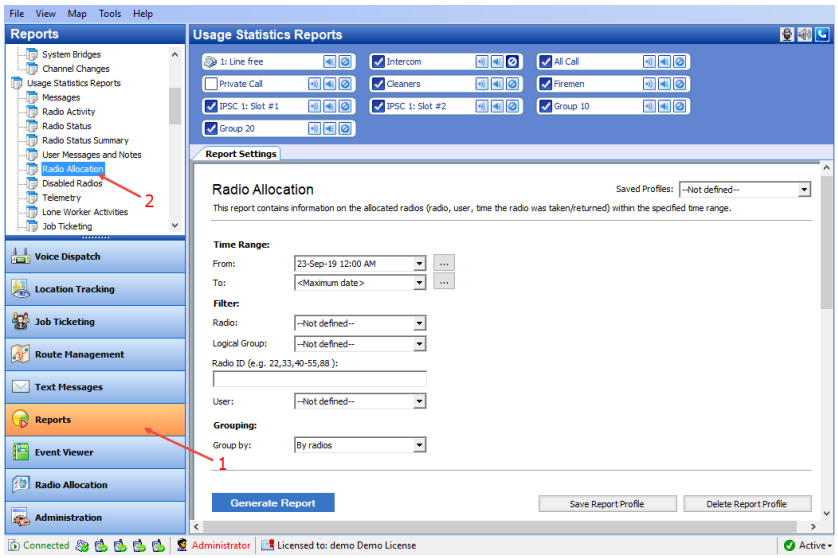
- Click the **Take Radio** button to assign the radio to the selected user.

You can also add required allocation data by clicking the **Add Missing Data** button (3) and selecting either **Manually** or **From File** from the drop-down menu.

> Note: If you select **From File**, the CSV file must contain 4 fields: Radio ID, User's display name, Date/Time taken, Date/Time returned. For example,
> `1,John,2024-04-27 12:00,2024-04-27 16:00`
> `2,Tim,2024-04-27 12:00,2024-04-27 16:00`

In addition, the administrator can generate reports on the allocated radios.

- Click the **Reports** (1) tab, and in the **Reports** pane, select **Usage Statistics Reports > Radio Allocation** (2):



6.13 Beacons

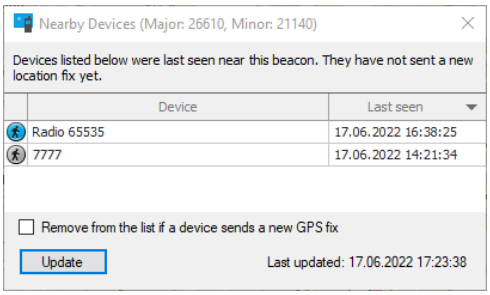
TRBOnet Dispatch Console provides the **Indoor Positioning** feature to monitor the location of radios inside a building where GPS signals are not present. The feature requires additional hardware (beacons located around the building and Bluetooth modules/option boards installed in radios).

> Note: To enable the **Indoor Location Tracking** feature, your license must include **Indoor Positioning** (see section 5.1, License Information) and **Indoor Service** is selected in the list of available services (see section 5.10.1, Services).

A radio unit will be displayed on the indoor floor plan at the beacon location as soon as the radio enters the beacon's coverage area.
If the **Show last known indoor locations of online radios** option is selected in **Tools** > **Options** > **Map**, online radios will remain displayed at the beacon location after they left the beacon's coverage area and have not yet detected another beacon.

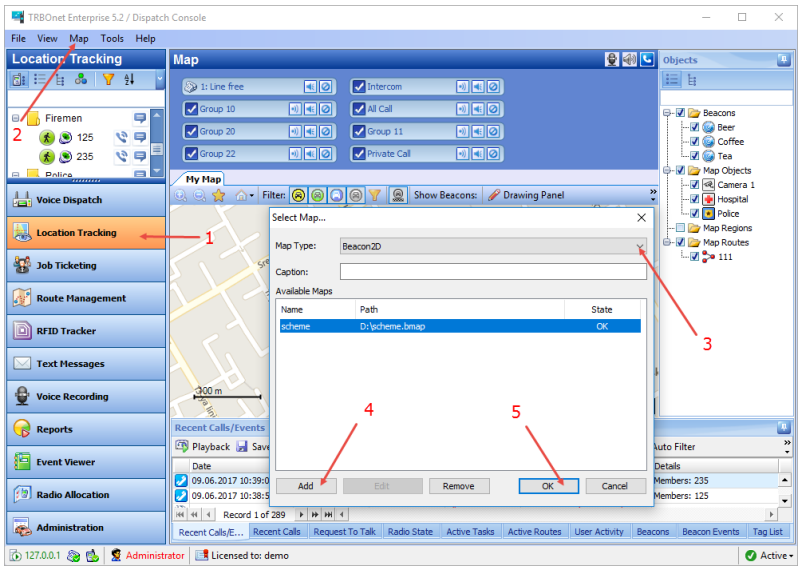
Hovering over the beacon icon on the map will provide a count of the number of radios (mobile devices) that are currently in this beacon's coverage area (for example, Room 1(3) - there are 3 radios in Room 1).

In addition, you can view devices that were last seen near the beacon. Right-click the beacon on the map and, on the shortcut menu that appears, choose **Show Nearby Devices**. As a result, you will see the list of devices that were last seen near this beacon and have not yet detected another beacon. If you select the lower checkbox, this list won't contain last seen devices that have already sent a new GPS fix.



6.13.1 Adding a Floorplan

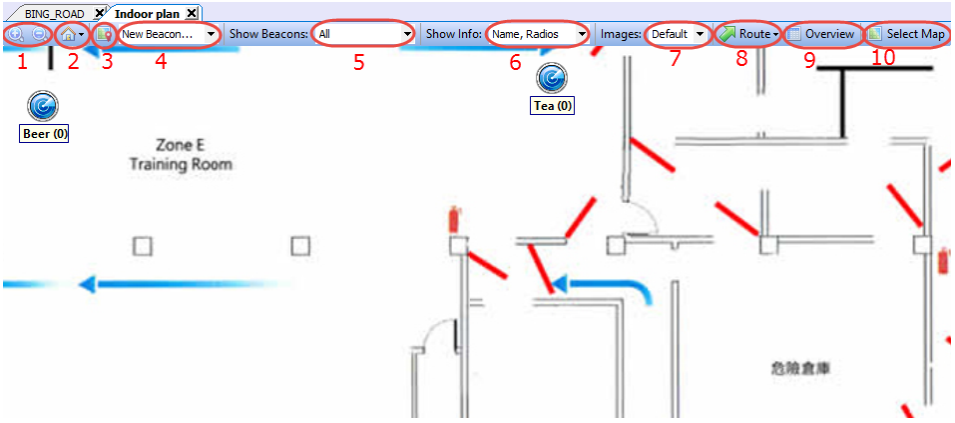
Click the **Location Tracking** tab (1), then click **Map** (2) and choose **Open New Map in Tab**:



- **Map Type**
  From the drop-down list, select 'Beacon 2D' to enable 2D floor plan, or 'Beacon 3D' to enable 3D floor plan (3).
- Click **Add** (4), and browse for the required map on your PC.
- Click **OK** (5) to add the map.

6.13.1.1 Floor Plan Toolbar

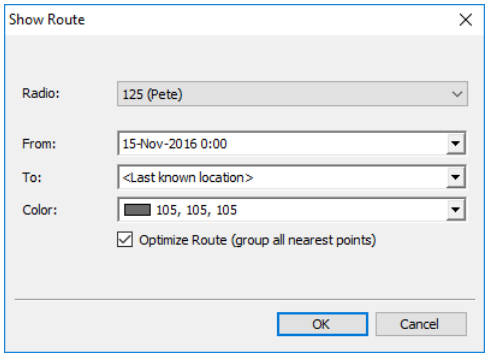
The Floor Plan pane's toolbar is located in the upper part of the Floor Plan pane:



1. **Zoom in/out**
   Click the Zoom buttons to zoom in/out the floor plan.
2. **Default View**

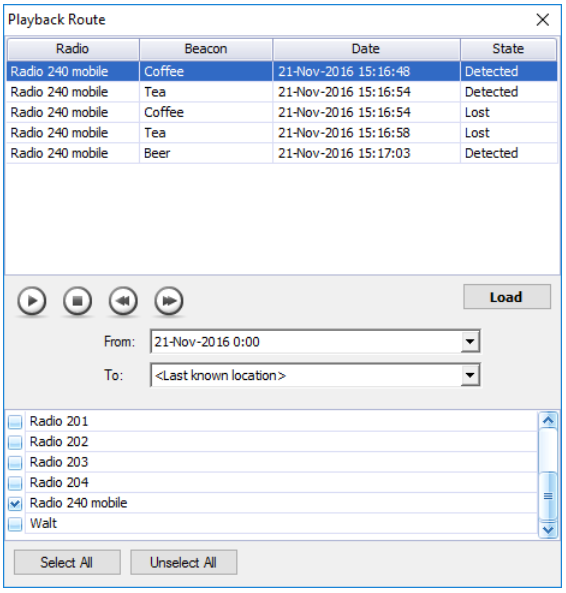
   Click the arrow beside  and choose **Save as Default View** to save current floor plan as a default view. The dispatcher can save only one default view.

   To open the default view, click the arrow beside  and choose **Show Default View**.
3. **Set Location**
   Click the **Set Location** button to manually set a beacon on the floor plan.
4. **Available beacons** drop-down list
   Select a beacon from the list and click the **Set Location** button to put the selected beacon on the floor plan. If you are going to add a beacon, select 'New Beacon' from the drop-down list and click the **Set Location** button to add a beacon to the floor plan.
5. **Show Beacons**
   The dispatcher can select which beacon types to display on the floor plan.
   - **All** – all beacons are displayed on the map.
   - **With Radios** – beacons with attached radios are displayed on the map.
   - **Without Radios** – beacons without radios are displayed on the map.
   - **In Alarm** - beacons in Alarm mode are displayed on the map.
   - **No** – all beacons are hidden on the map.
6. **Show Info**
   From the drop-down list, select which information to display for beacons.
7. **Images**
   From the drop-down list, select an image size for beacon icons.
8. **Route**
   - Click **Route > Show Route** to display a route traveled by the radio for the selected time period.



- **Radio**
  Select the radio to display the route for.
- **From/To**
  Specify the time period to show the route for.
- **Color**
  Select a color to display the route with.
- Click **OK** to show the route for the selected radio.

▪ Click Route > Play Back Route.

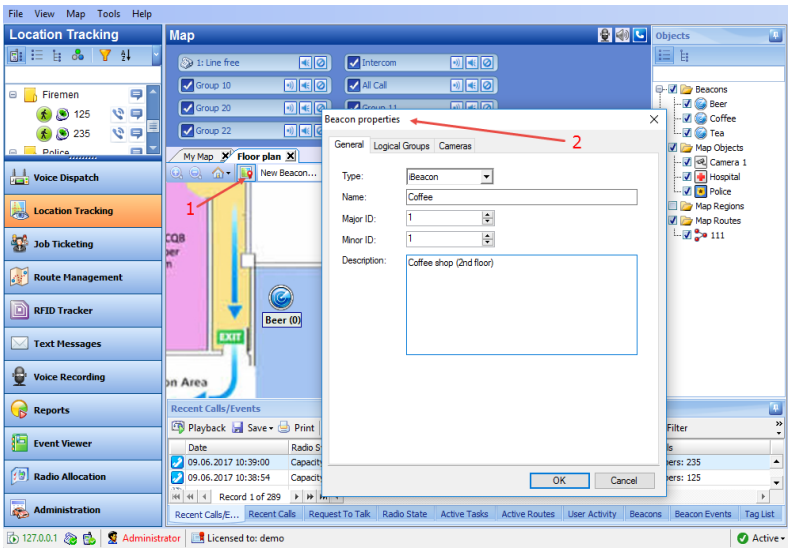


- Select the time period to request data for.
- Select the radio(s) to request data for. Click **Select All** to display history for all radios registered in the system. Click **Clear All** to cancel radio selection.
- Click **Load** to load the history.

9. **Overview**
   Click this button to view the entire floor plan.
10. **Select Map**
    Click this button to change the map displayed in the current tab.

6.13.2 Adding a Beacon to the Floor Plan

- Click the **Set Location** button (1) and then click on the map to point the location of a physical beacon on the floor.
- In the dialog box that appears (2), specify the beacon properties.

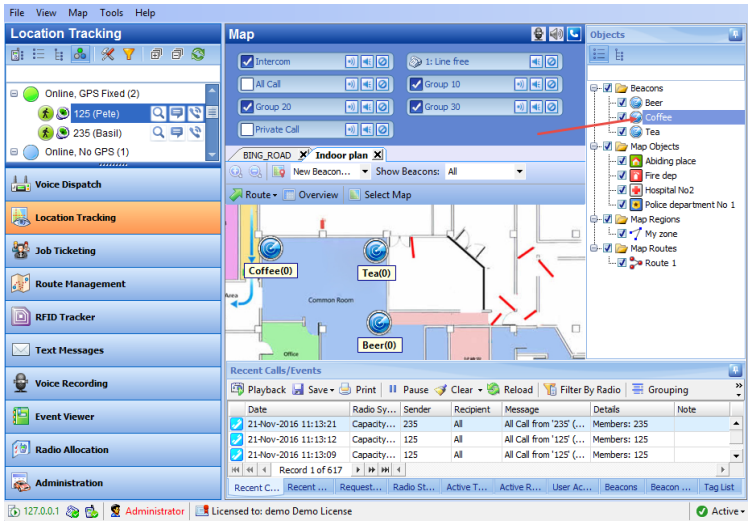


  - **Type**
    Select the beacon type from the drop-down list (**K-Term** or **iBeacon**).
  - **Name**
    Specify a name for the beacon.
  - **Major ID** and **Minor ID**
    Enter the beacon's major and minor ID exactly as specified on the iBeacon device.

    Or, if a **K-Term** beacon is being added:
  - **Beacon ID**
    Enter the beacon's ID exactly as specified on the K-Term device.
  - **Description**
    Add a description for the beacon.

6.13.3 Editing Beacon Parameters

- Select a beacon in the **Objects** panel and double-click to edit its parameters.

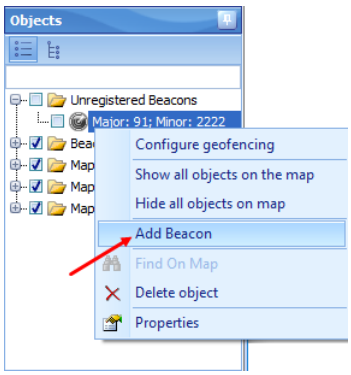


- In the **Beacon properties** dialog box that appears, edit the desired properties.

> Note: For more details on K-Term beacons, see the following article at https://trbonet.com/kb/how-to-find-out-a-beacon-id/.

6.13.4 Unregistered Beacons

If the radio detects an unregistered beacon, this beacon will appear in the **Unregistered Beacons** folder at the top of the **Objects** pane.



To add an unregistered beacon to the Dispatch Console, right-click it and choose **Add Beacon** on the shortcut menu.

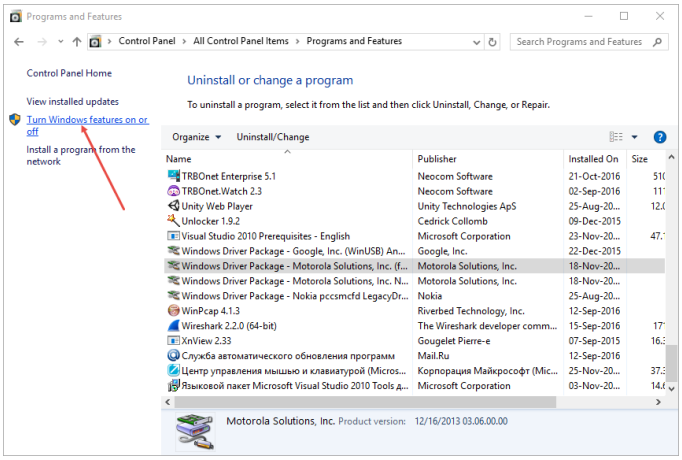
7 TRBOnet Web Console

TRBOnet Web Console is a special online application. It is an extension for TRBOnet Dispatch Software which allows dispatchers to get access to the system via a Web browser. The Web Console is the best solution for carriers, operators and systems with a huge number of users.

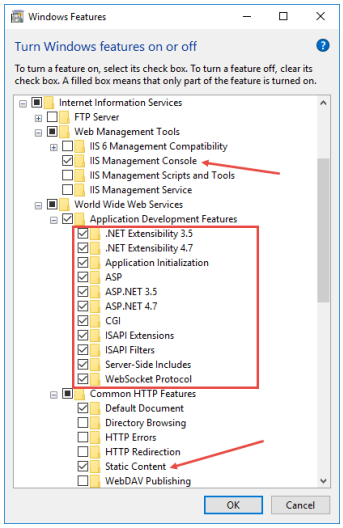
This application allows you to monitor your system without any special software installed on your computer.

7.1 Installing Web Console

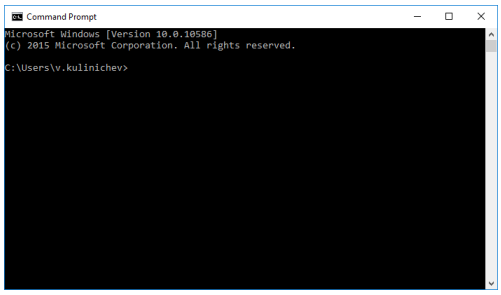
- Click **Start>Control Panel>Programs and Features**.
- Click the **Turn Windows features on or off** link.



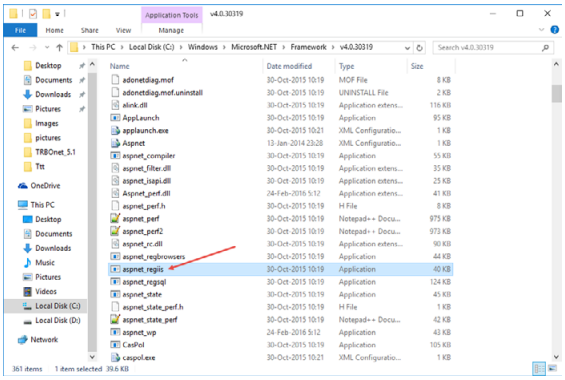
- In the **Windows Features** dialog box, expand **Internet Information Services**:
  - Expand Web Management Tools and make sure that IIS Management Console is selected.
  - Go to World Wide Web Services>Application Development Features and make sure all of them are selected.
  - In addition, expand **Common HTTP Features** and make sure that **Static Content** is selected.



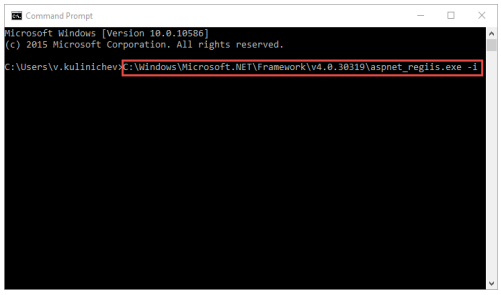
- Restart your PC.
- Click **Start>All Programs>Accessories>Command Prompt**.



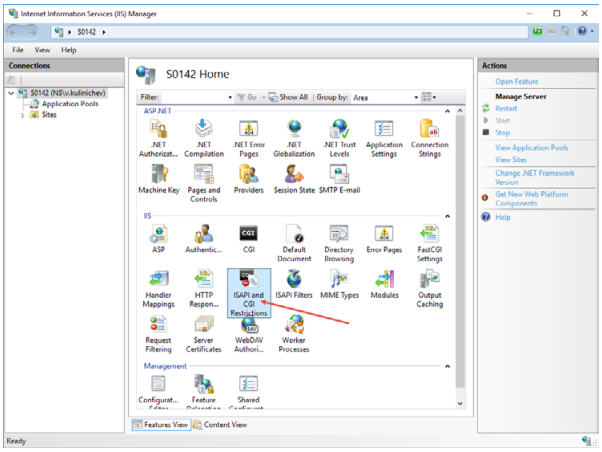
- For 32-bit systems:
  Go to **This PC>Local Disk (C:)> Windows > Microsoft.NET > Framework > v4.0.30319/aspnet_regiis**.
  For 64-bit systems:
  Go to **This PC>Local Disk (C:)> Windows > Microsoft.NET > Framework64 > v4.0.30319/aspnet_regiis**.



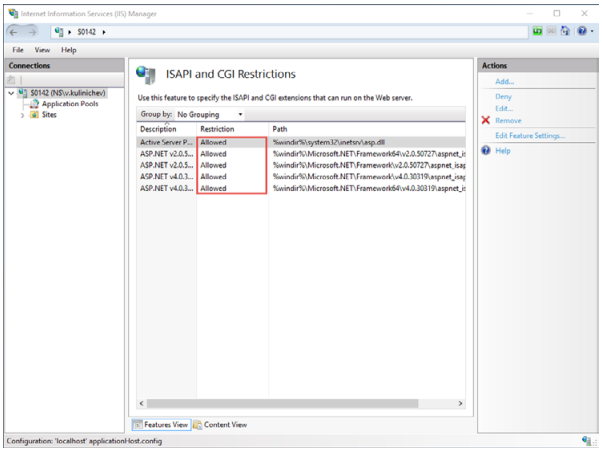
- Drag the **aspnet_regiis** file into the **Command Prompt** then press the space bar and add the **-i** key. Then press the **Enter** key:



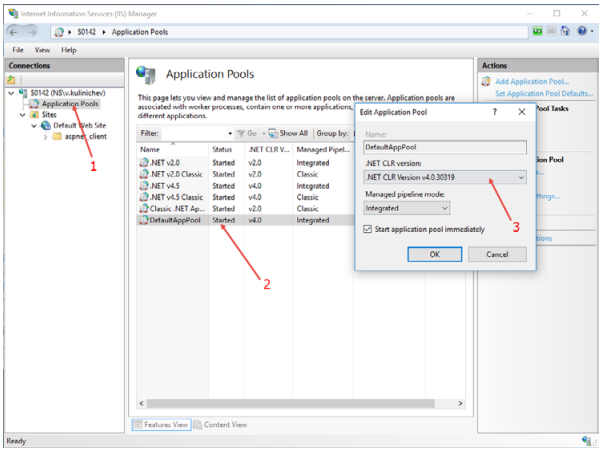
- Go to **Control Panel > Administrative Tools**.
- Double-click the **Internet Information Services (IIS) Manager** shortcut and double-click **ISAPI and CGI Restrictions**.



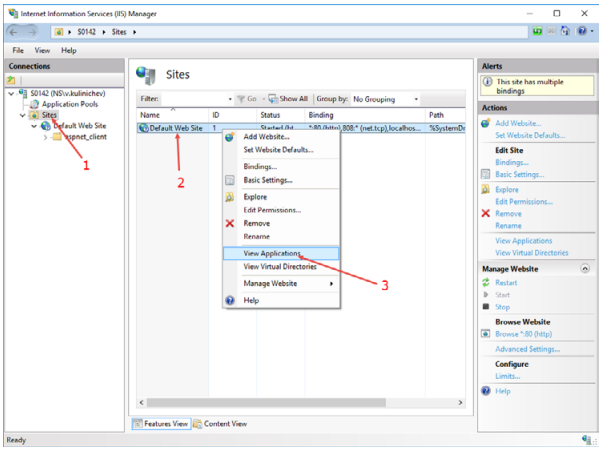
- In the **Restriction** column, set **Allowed** in all lines.



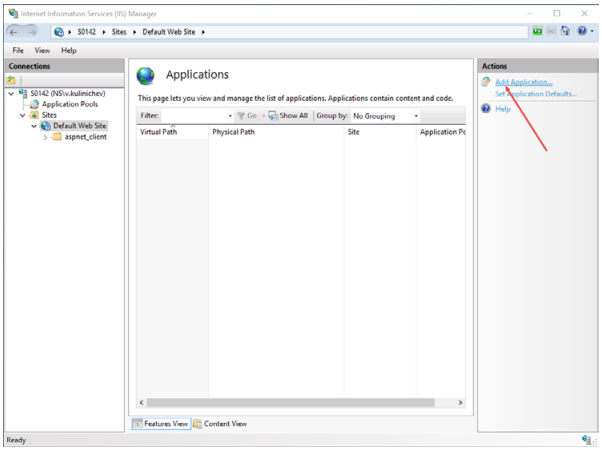
- Copy the Web Site archive **WebConsole** to **Computer > Local Disc (C:) >inetpub** to create a folder for the Web Console.
- Go to **Application Pools** (1). Double-click **DefaultAppPool** (2) and check the **.Net CLR Version** (3):



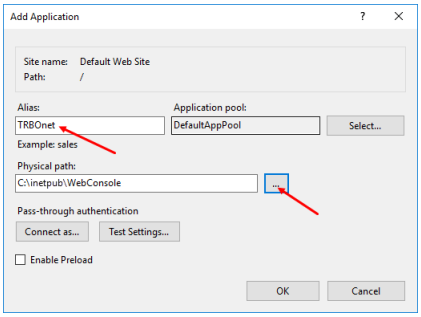
- Click **Sites** (1), right-click **Default Web Site** (2) and choose **View Applications** (3):



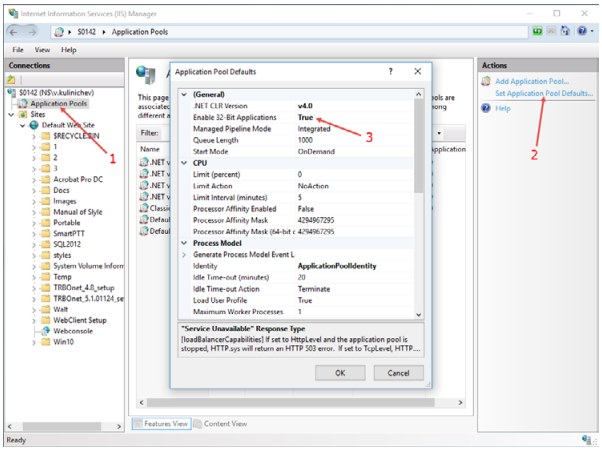
- Click the **Add Application** link.



- Specify the **Alias** and **Physical path** for the application:

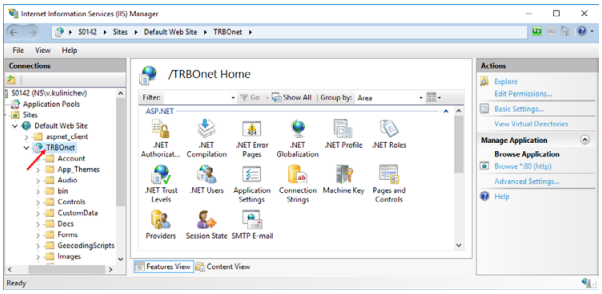


- Browse for the folder with unarchived Web Console.
- Click **OK**.
- Select **Application Pools** (1) and click the **Set Application Pool Defaults** link (2):



- Set **Enable 32-Bit Applications** to True (3).

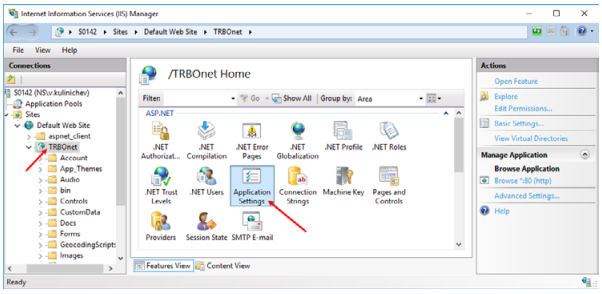
  The Web Console will be added as an application to under the Default Web Site:



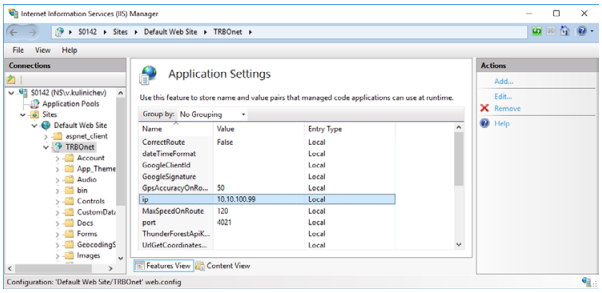
Note: Make sure your account has sysadmin privileges (for more details, see Appendix B: Configuring SQL Server 2012 for Local System Account on page 390, and Appendix C: Granting Sysadmin Role to Local System in SQL Server 2012 on page 393) and the database connection is successful (see section 5.2, TRBOnet Server Database on page 14).

7.2 Configuring Web Console

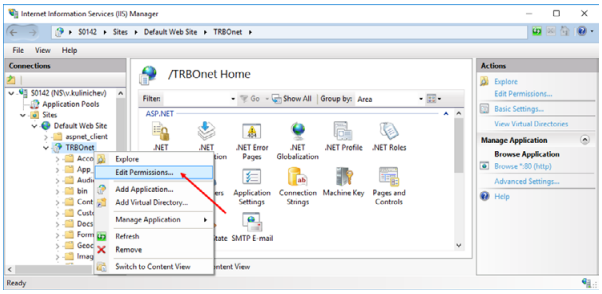
- If TRBOnet Server is not installed on your PC, select the application and click **Application Settings**:



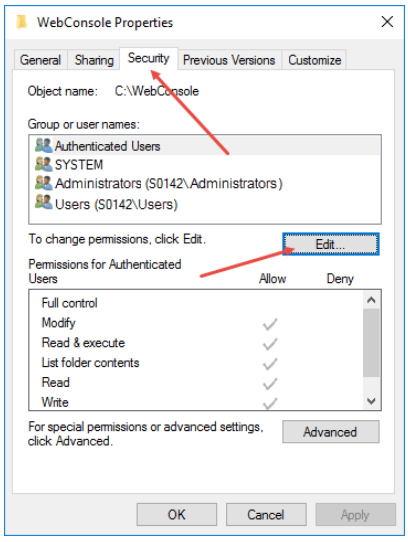
- Specify the **IP address** and **Port** of the PC with installed TRBOnet Server:



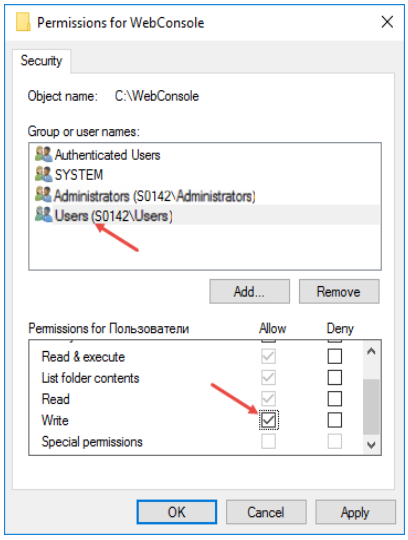
- Right click **TRBOnet Web Console** and choose **Edit Permissions**.



- Click the **Security** tab and then click the **Edit** button to edit permissions:



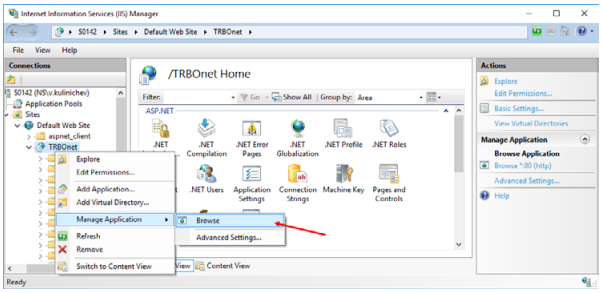
- Select **User** in the Users list. In the **Allow** column, select **Write**:



- Click **Apply**.
- Click **OK**.

To open TRBOnet Web Console:

- Go to **Internet Information Services (IIS) Manager > Connections >Sites > Default Web Site > TRBOnet**
- Right-click it and choose **Manage Application > Browse**.



TRBOnet Web Console is now ready for operation.

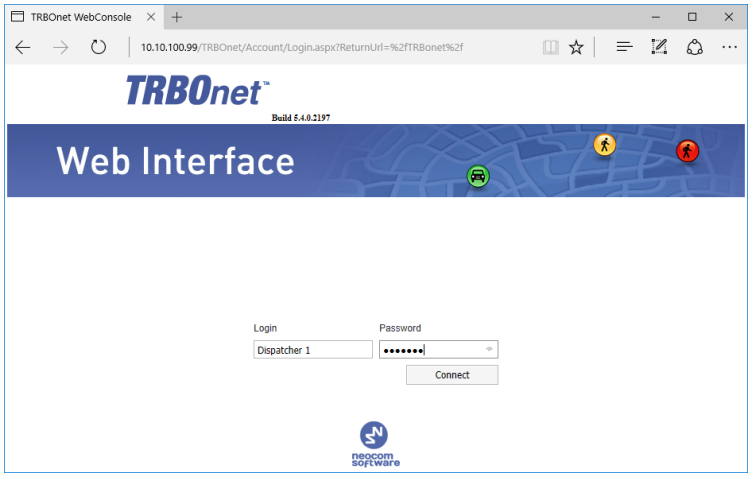
7.3 Using Web Console

7.3.1 Connecting to TRBOnet Server

- Launch the browser.
- In the browser's address bar, enter the IP address of the PC with the installed TRBOnet Web Console, and the path (for example, *10.10.100.99/TRBOnet*).

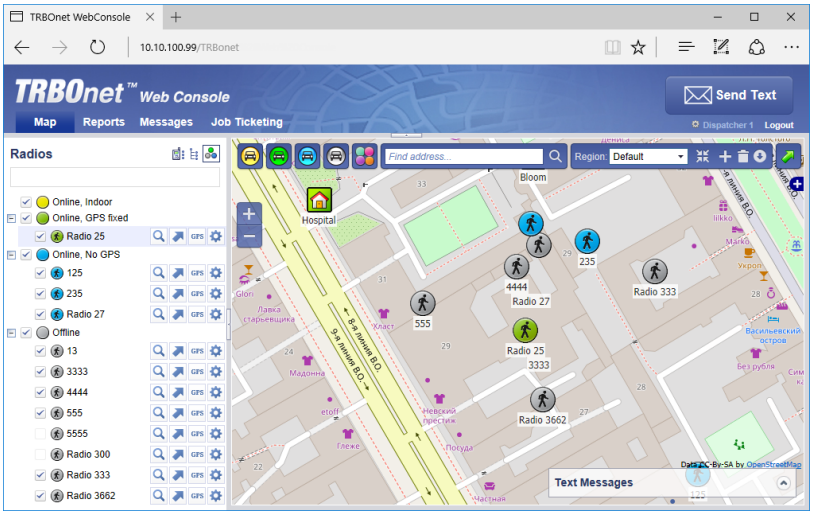
> Note: For the path, see section 7.1, Installing Web Console, **IIS Manager>Add Application>Alias**

As a result, the TRBOnet Login page will open:



- **Login**
  Enter the User Name registered in the TRBOnet Dispatch Console Users list.
- **Password**
  Enter the user password.
- Click **Connect**.

Once you have connected to TRBOnet Server, you will see a window like this.

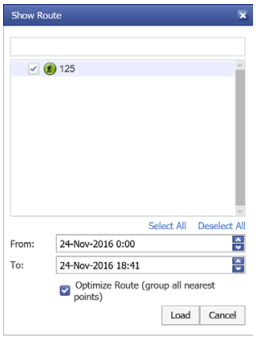


7.3.2 Radio List

The Radio List pane is located on the left and contains the list of radios. From this pane, you can perform the following tasks.

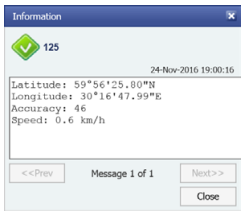
Click the  button to see the selected radio in the center of the map.

Click the  button to button to display a route traveled by the selected radio on the map.

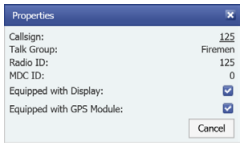


Specify the **From** and **To** date and time. Select the **Optimize Route** option to group all points in a 100-meter radius.

Click the GPS button to request a location of the selected radio.



Click the button to display the selected radio properties.



7.3.2.1 Disabling a radio

To disable a radio:

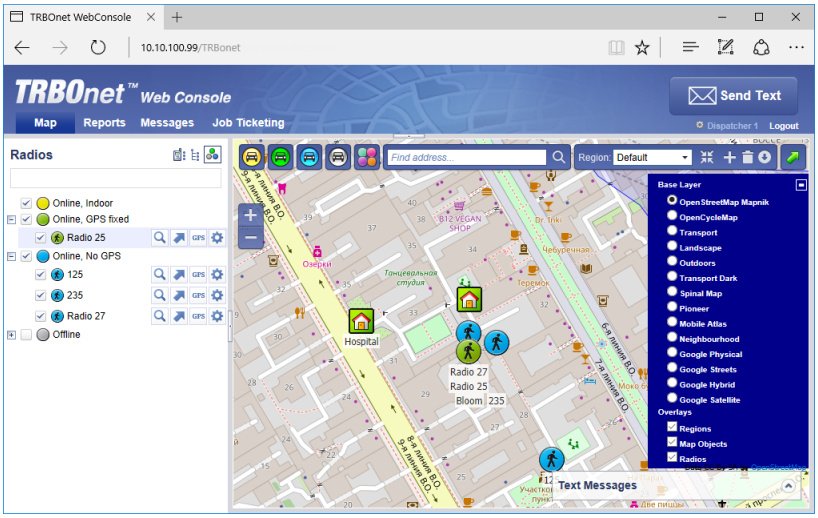
- Right-click the desired radio in the Radio List pane.
- In the shortcut menu that opens, click **Disable**.
- Enter the **Reason** and click **OK**.

Note: The dispatcher can disable a radio when they have relevant Access Rights.

7.3.3 Map

7.3.3.1 Map Layers

- Click the small plus button on the right of the Map pane.
- Choose the map layer to display in the Map pane.
- In the Overlays list, select whether to display Regions, Map Objects and Radios on the map. Just select/clear the corresponding checkbox.



7.3.3.2 Zoom In/Out

- Click the large plus button on the left of the Map pane to zoom in the map.
- Click the large minus button on the left of the Map pane to zoom out the map.

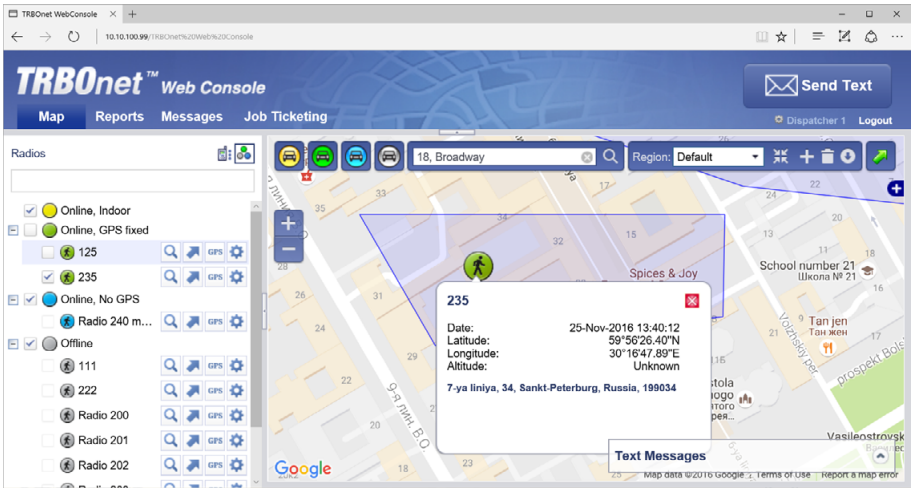
Or:

- Use the mouse wheel to zoom in/out the map.

7.3.3.3 Radio Coordinates and Address

- In the Map pane, click the radio you want to inspect.

  As a result, a window will appear displaying the coordinates and address of the inspected radio.



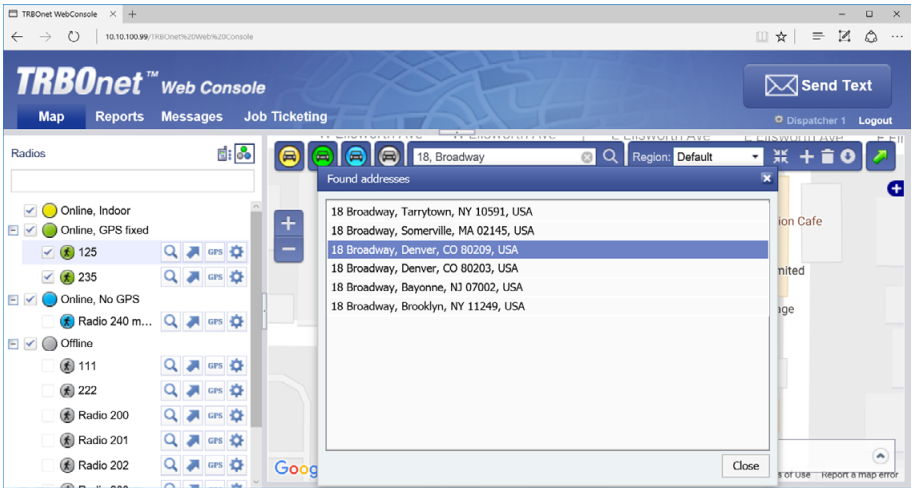
7.3.3.4 Filter Radios

You can filter the display of radios on the map. To do this, use the colored car buttons at the top of the Map pane.

- Click  to remove radios that are online and have a detected beacon position from the map view. Click this button again to bring them back to be displayed.
- Click  to remove radios that are online and have a detected GPS position from the map view. Click this button again to bring them back to be displayed.
- Click  to remove radios that are online and have no detected GPS position from the map view. Click this button again to bring them back to be displayed.
- Click  to remove radios that are offline and have no detected GPS position from the map view. Click this button again to bring them back to be displayed.
- Click  and select the visibility of the radios having On Duty and/or Off Duty statuses.

7.3.3.5 Search by address

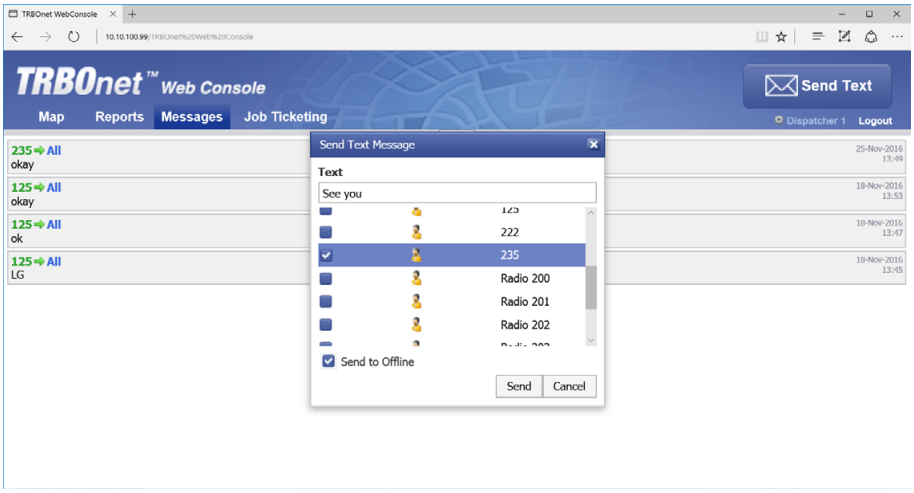
- In the Find Address box, enter the address you want to locate on the map.
- Click the lens button on the right.
- In the Found addresses window, click the address to locate it on the map.



7.3.4 Text Messages

With TRBOnet Web Console, you can send text messages to radios/radio groups/dispatchers.

- Click the **Messages** tab at the top of the window.
- Click the **Send Text** button.



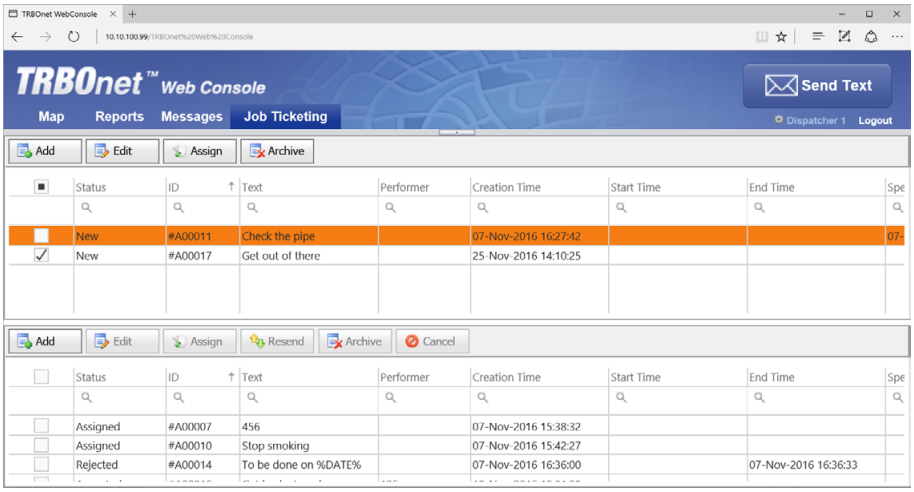
In the **Send Text Message** window that appears:

- Enter the text of the message.
- Select the radios/radio groups/dispatchers to send the message to.
- Select the **Send to Offline** option to send the message to offline radios.

7.3.5 Job Ticketing

With TRBOnet Web Console, you can create, assign, and track job tickets through the radio network.

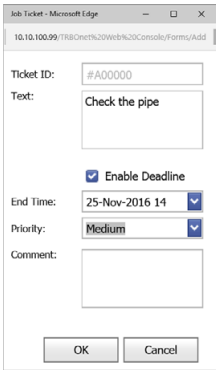
- Click the **Job Ticketing** tab at the top of the window.



In the upper pane, you see the list of created job tickets. In the lower pane, there are assigned job tickets.

7.3.5.1 Add a Job Ticket

- Click the **Add** button.

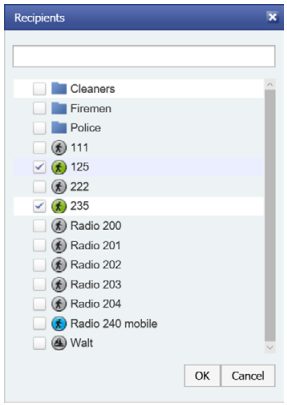


- **Ticket ID**
  This value will be set automatically once the ticket has been created.
- **Text**
  Enter the text message in this box.
- **Enable Deadline**
  Select this option and in the **End Time** box, specify a due date and time for the task.
- **Priority**
  From the drop-down list, select the task priority level.
- **Comment**
  Enter a comment for the ticket.
- Click **OK**.

Once you have added a ticket, it will appear in the list of tickets in the upper pane.

7.3.5.2 Assign a Job Ticket

Select the job ticket in the upper pane, and click the **Assign** button.

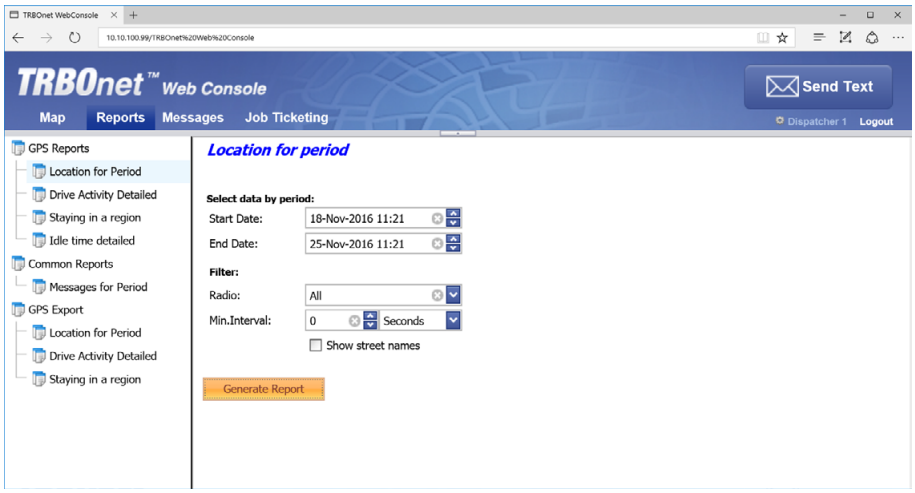


- In the list, select a radio(s), radio or logical group to which to assign the job ticket.
- Click **OK** to assign the task to selected radio(s).

  As a result, the selected radio will receive the job ticket. The assigned job ticket will appear in the upper pane.

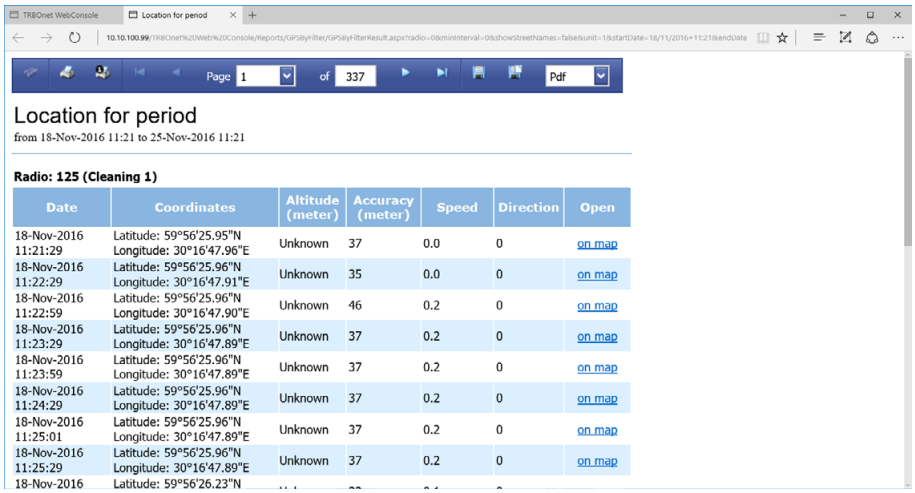
7.3.6 Reports

- Click the **Reports** tab at the top of the window.



- In the right pane, select report parameters and click **Generate Report**.

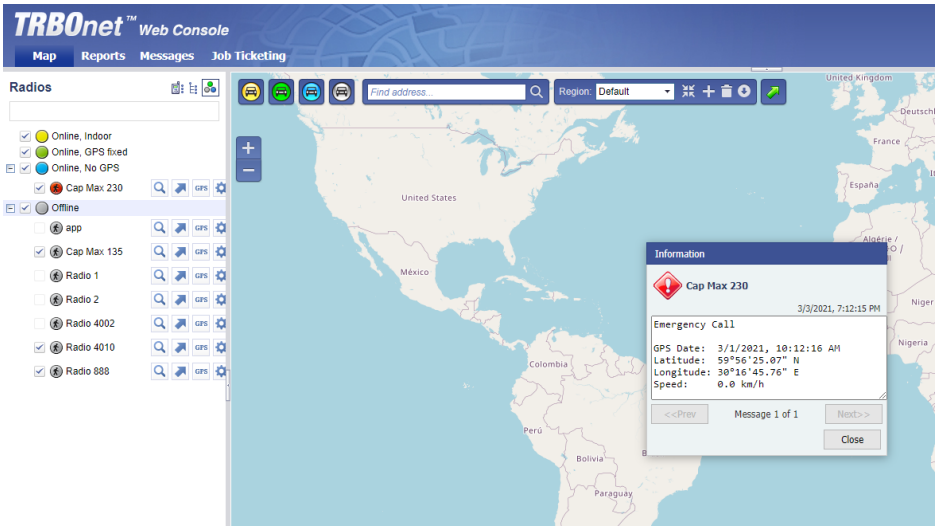
  Once the report is generated, you will see it in a separate tab of your Web browser.



  You can print the report, save it as a file, and so forth.

7.3.7 Alarms

When an alarm is received from a radio, the radio icon will turn red, and a corresponding Information window will pop up displaying the radio's name, coordinates, and speed.

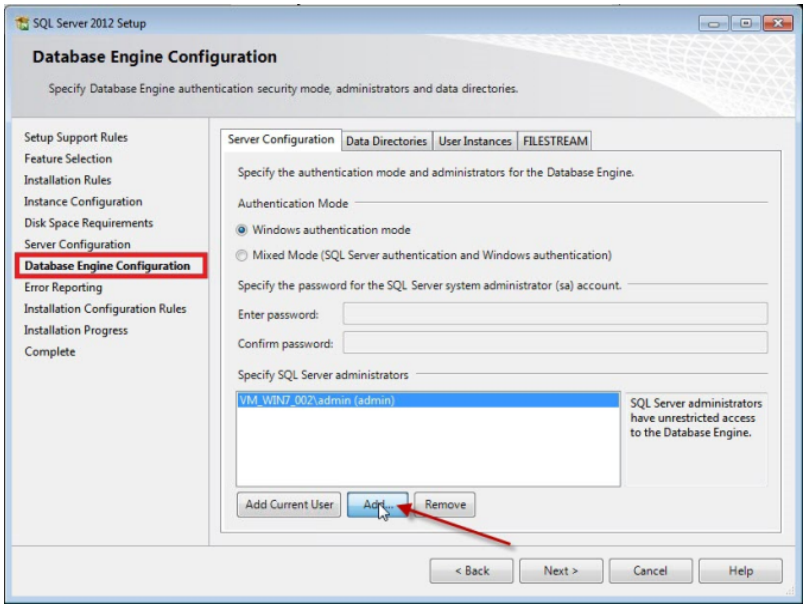

TRBOnet™ Web Console
Map
Reports
Messages
Job Ticketing
Radios
Online, Indoor
Online, GPS fixed
Online, No GPS
Cap Max 230
Offline
app
Cap Max 135
Radio 1
Radio 2
Radio 4002
Radio 4010
Radio 888
Find address...
Region: Default
Information
Cap Max 230
3/3/2021, 7:12:15 PM
Emergency Call
GPS Date: 3/1/2021, 10:12:16 AM
Latitude: 59°56'25.07" N
Longitude: 30°16'45.76" E
Speed: 0.0 km/h
<<Prev
Message 1 of 1
Next>>
Close

Appendix A: SQL Server Edition Considerations

How to select SQL Server		
	0 - 200 subscriber units	200 + subscriber units
Windows 7, Windows Server 2008	MS SQL 2008 Express	MS SQL 2008 Standard
Windows 8, Windows Server 2012	MS SQL 2012 Express	MS SQL 2012 Standard
Windows 10, Windows Server 2016	MS SQL 2016 Express	MS SQL 2016 Standard

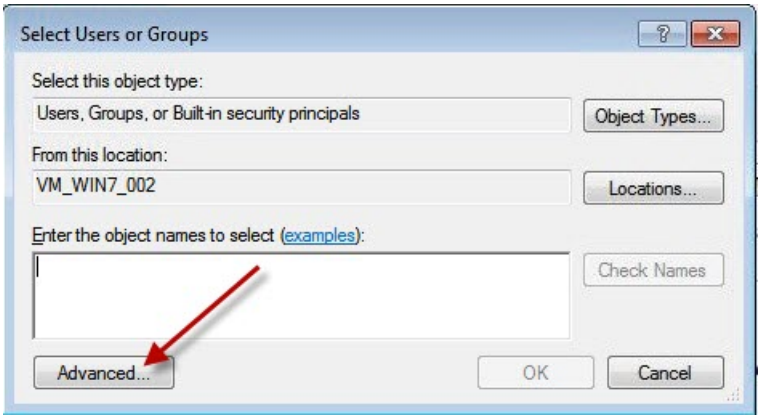
Appendix B: Configuring SQL Server 2012 for Local System Account

During installation of MS SQL Server 2012, you can grant the required role to Windows **Local System** account in advance. On the configuration setup, click **Database Engine Configuration**:

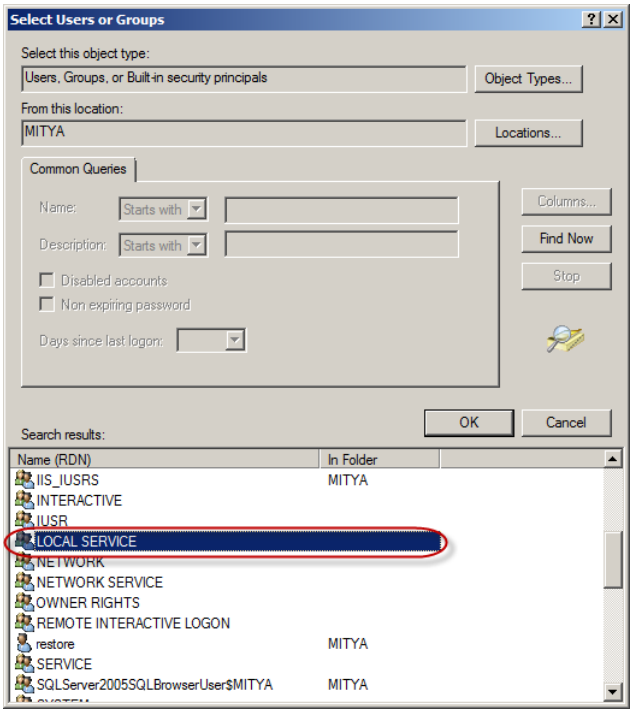


Windows Authentication mode

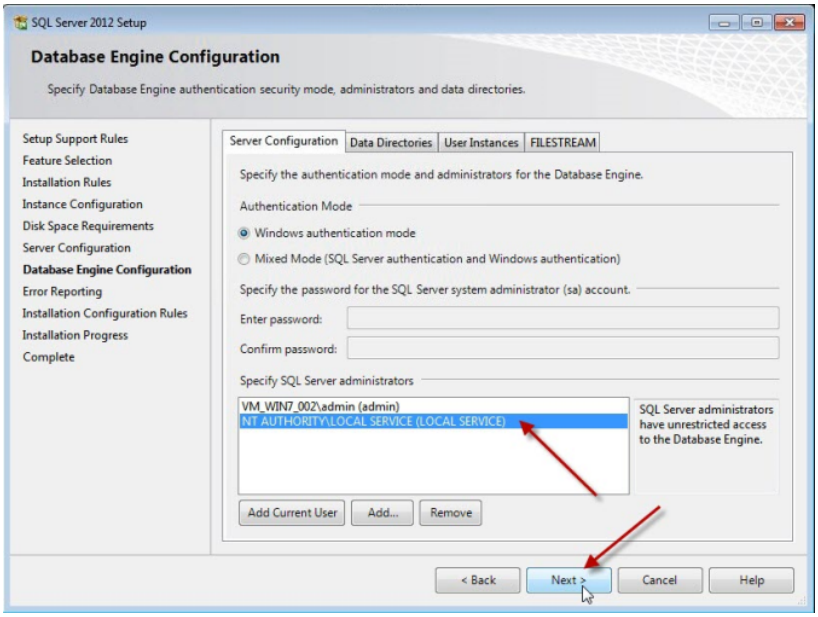
- Click **Add** to add an additional account to MS SQL Server administrators.
- In the **Select Users or Groups** dialog box, click the **Advanced** button in the **Enter the object names to select** box to find a required user name.



- Click the **Find Now** button and select LOCAL SERVICE account. Click **OK** to add the user and close the window.

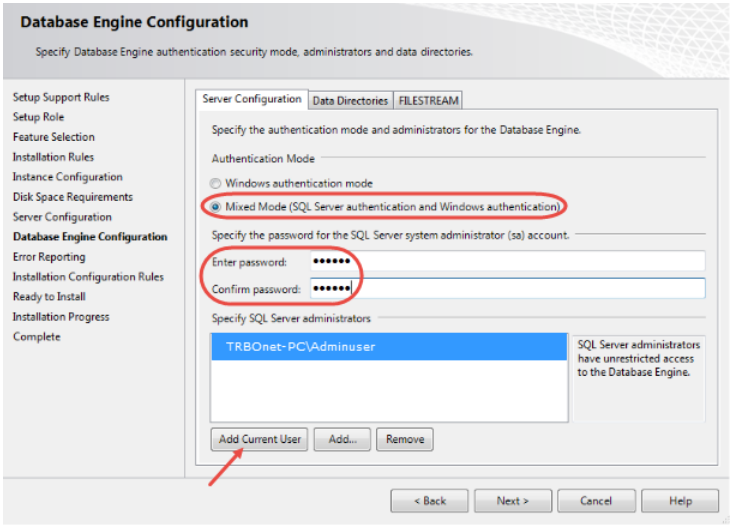


- **NT AUTHORITY\LOCAL SERVICE (LOCAL SERVICE)** will be added to the list of SQL administrators:



- Click **Next** and follow the prompts to finish the installation.

Mixed Authentication mode



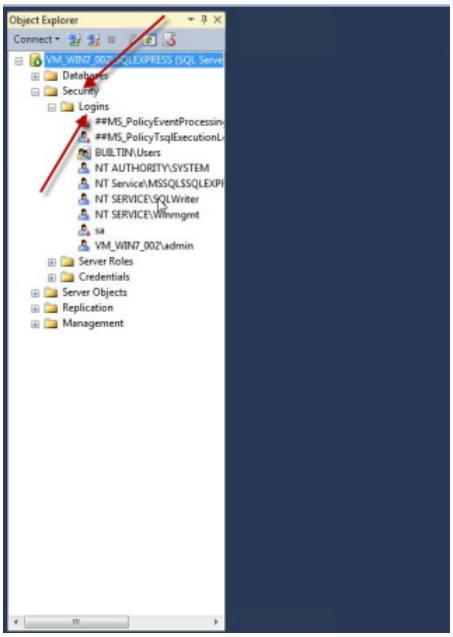
- Click Mixed Mode (SQL Server authentication and Windows authentication).
- Enter and confirm the password for SA SQL user in the **Enter password** and **Confirm password** boxes.
- Click the **Add Current User** button (unless it is already there).

Note: Once you have added the SA account, you'll be able to use this SA account to connect to SQL Server with administrator privileges as an alternative to a Windows user account.

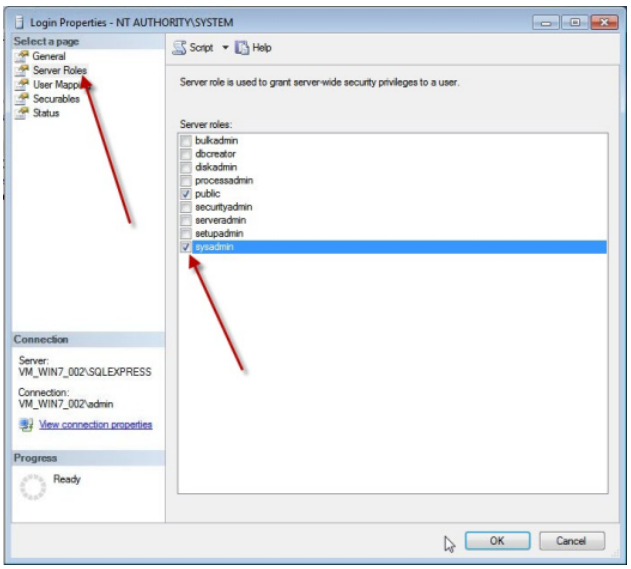
Appendix C: Granting Sysadmin Role to Local System in SQL Server 2012

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

- From the **Start** menu, run **SQL Server Management Studio**.
- 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** checkbox.



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

Appendix D: Backing up and Restoring Database and Audio Recordings

Configure Backup

TRBOnet Dispatch Software has an automatic mechanism for database and audio recordings backup. Initially, it defaults to two paths to store database and audio recordings.

For TRBOnet Enterprise:

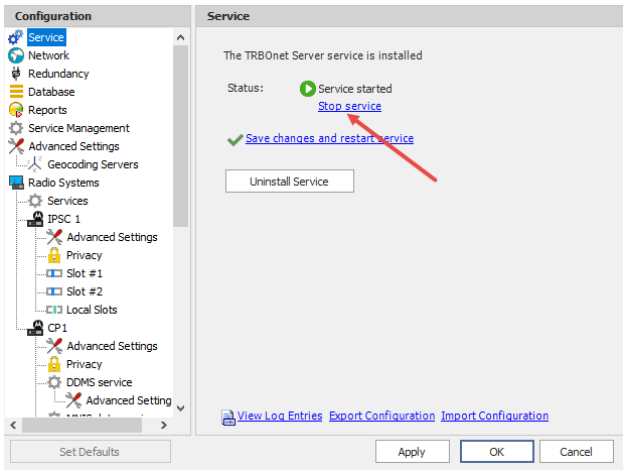
%ProgramData%\Neocom Software\TRBOnet.Enterprise\Backups and **%ProgramData%\Neocom Software\TRBOnet.Enterprise\Audio**.

For TRBOnet Plus:

%ProgramData%\Neocom Software\TRBOnet.Plus\Backups and **%ProgramData%\Neocom Software\TRBOnet.Plus\Audio**.

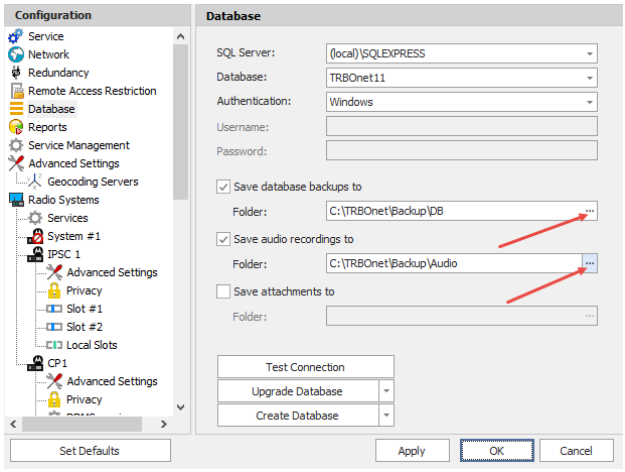
For your convenience, the default paths can be changed:

- Open TRBOnet Server and stop the TRBOnet Server service.



- To customize these backup folders, on the **Configuration** pane, select **Database**, then select the **Save database backups to** and **Save audio recordings to** options. Next, enter the new (custom) folder for the backup database (for example, **C:\TRBOnet\Backup\DB**) and custom folder for the audio files (for example, **C:\TRBOnet\Backup\Audio**). The database and audio backups will be stored in the selected directories.

> Note: Older backups are not deleted automatically. It is recommended that you regularly delete the files you no longer need to avoid running out of storage space.

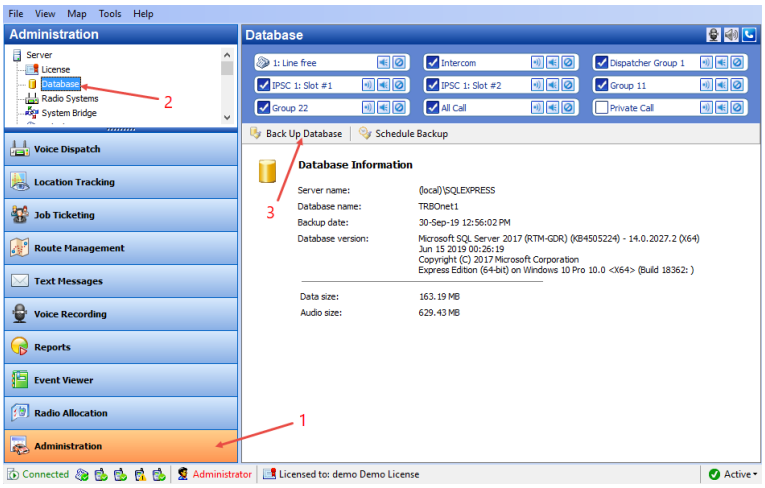


- Save your changes and restart the service.

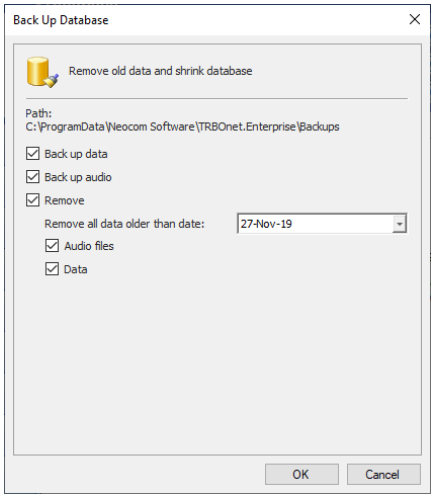
Back up Database and Audio Recordings

To back up the database and audio recordings, do the following:

- In the Dispatch Console go to **Administration** (1), and select **Database** (2) in the Navigation tree.
- Click the **Back Up Database** (3) button:



- Specify the backup details:



- **Back up audio**
  Select to back up audio recordings.
- **Remove**
  Select to remove audio files and data from the database.
- **Remove all data older than date**
  Specify the date to remove data older than that specified date.
- **Audio Files**
  Select to remove audio files.
- **Data**
  Select to remove data.
- Click **OK** to run the backup procedure.

The Backup progress bar will be displayed in the lower-right corner.

1. In a while, a ZIP archive will be created in two possible directories:

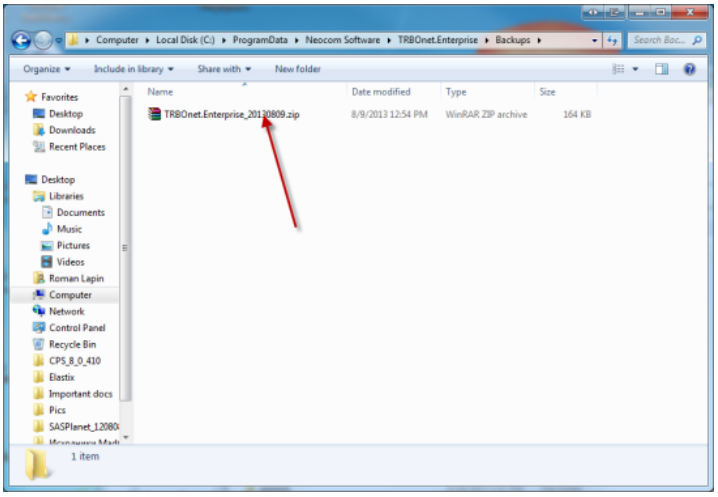
   For TRBOnet Enterprise:

   - The default directory is **%ProgramData%\Neocom Software\TRBOnet.Enterprise\Audio** for Audio files and **%ProgramData%\Neocom Software\TRBOnet.Enterprise\Backups** for backup files.
   - The custom directory is specified in TRBOnet Server settings.

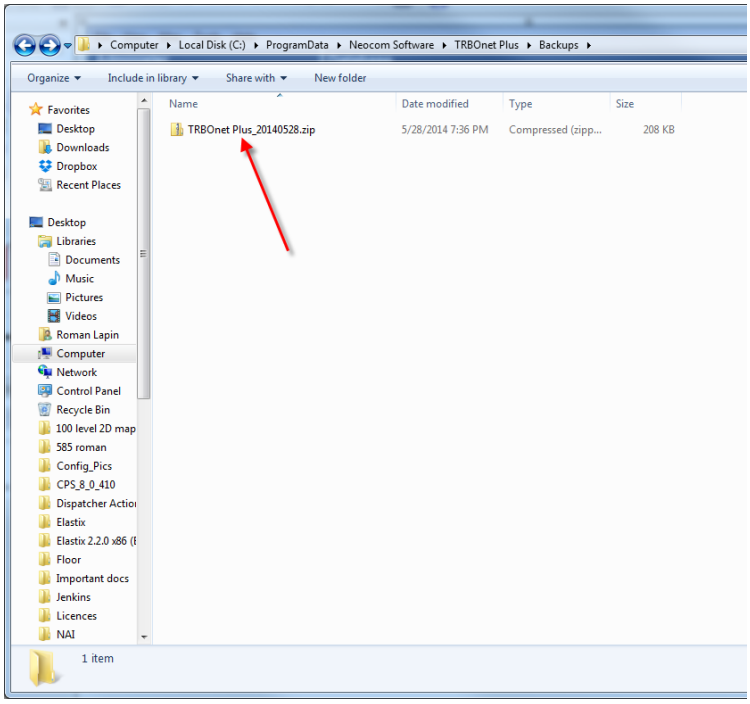
   For TRBOnet Plus:

   - The default directory is **%ProgramData%\Neocom Software\TRBOnet.Plus\Audio** for Audio files and **%ProgramData%\Neocom Software\TRBOnet.Plus\Backups** for backup files.
   - The custom directory is specified in TRBOnet Server settings.

2. The archive includes the database backup file and audio recordings files. The archive name contains the date of backup. New backup files will be placed in the same directory.



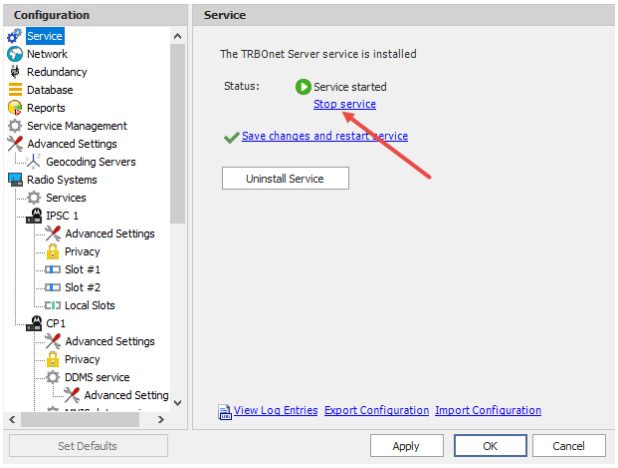
For TRBOnet.Plus:



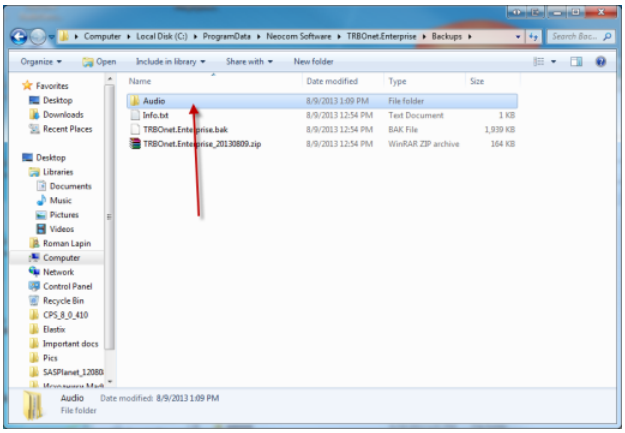
Restore Database

To restore the database

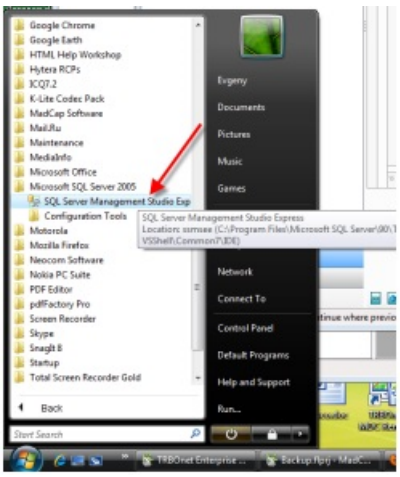
- Open TRBOnet Server and stop the TRBOnet Server service.



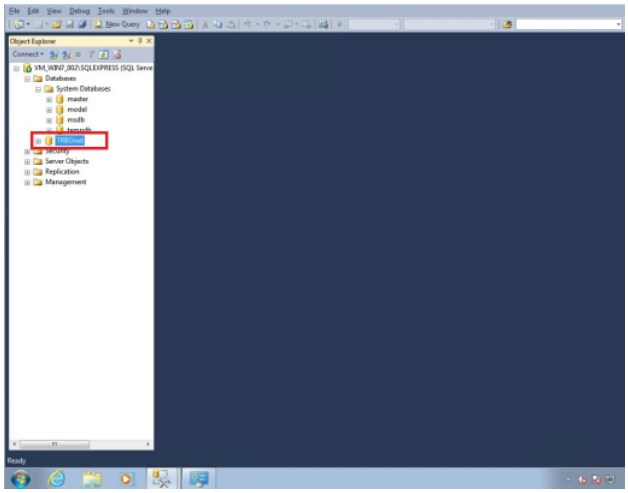
- Unzip the backup archive and open the folder:



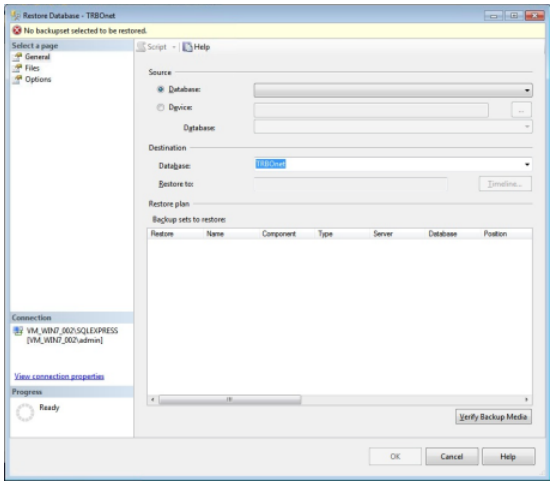
- Run **SQL Server Management Studio** with sufficient rights to manage databases.



- Select **Database** in the navigation tree (for example, **TRBOnet**):

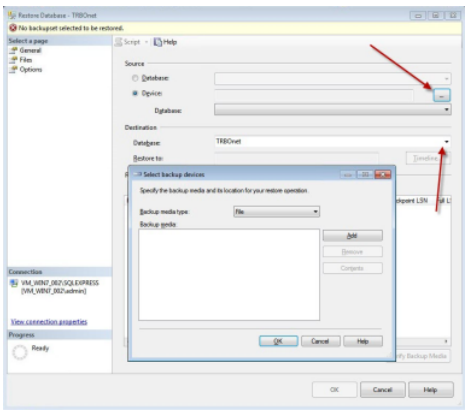


- Right-click the selected database, and go to **Tasks**/**Restore**/**Database**:

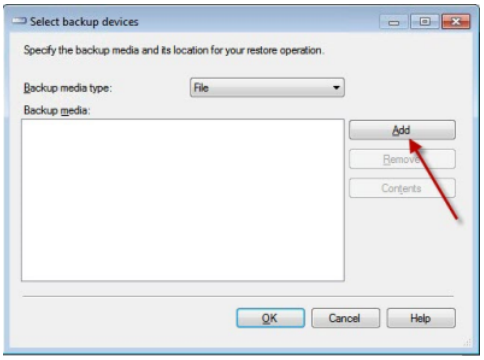


Select Database backup properties:

- In the **Destination** group, type in or select **Database** name to back up to from the drop-down list (for example, **TRBOnet**).
- In the **Source** group, click **Device**.
- Click the ellipsis (**...**) button to select the directory with database backup:

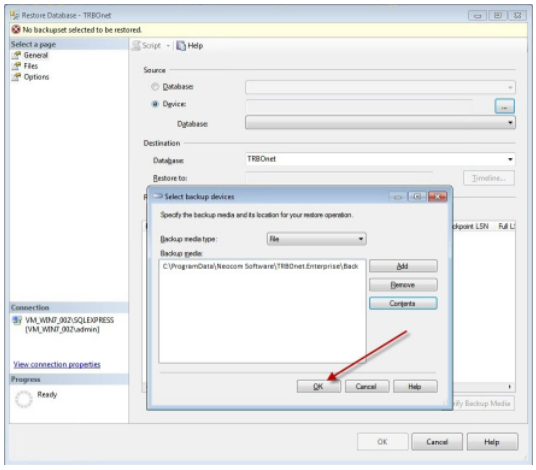


- Click **Add** and select the directory to which you unarchived the database backup (for example, **C:\TRBOnet\Backup\DB**).



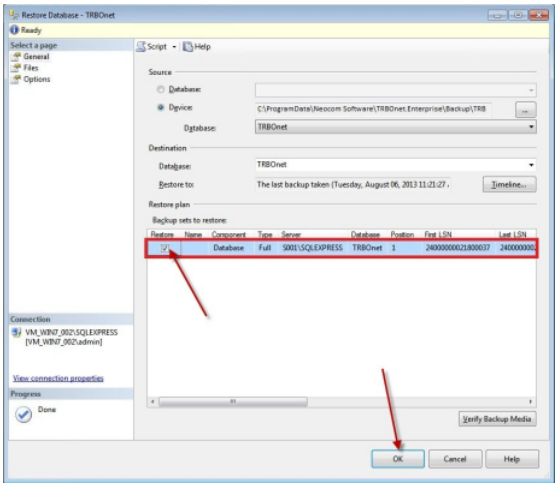
Note: Select the ***.bak** file type.

- Click **OK** to add the directory.



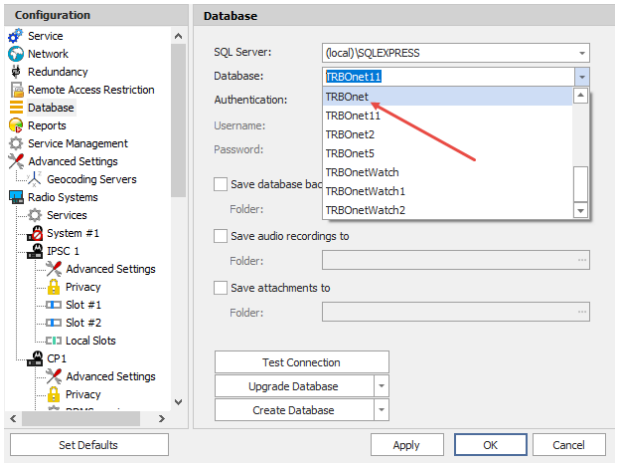
- Click **OK**.

  The database is added to the list of restored databases.

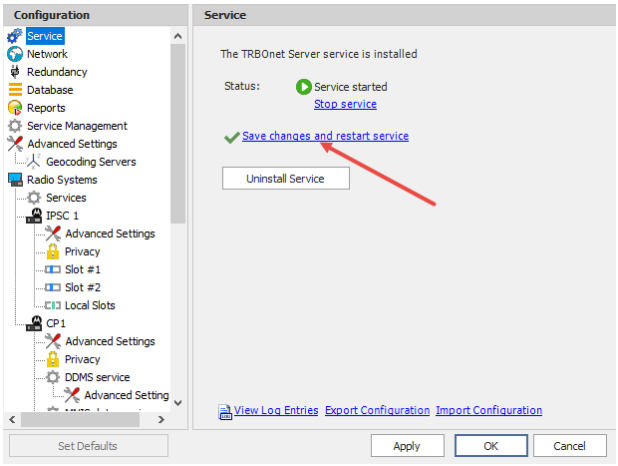


- Select the checkbox and click **OK** to restore the database.
- In the **Configuration** pane, select **Database**.

- From the **Database** drop-down list, select the restored database.



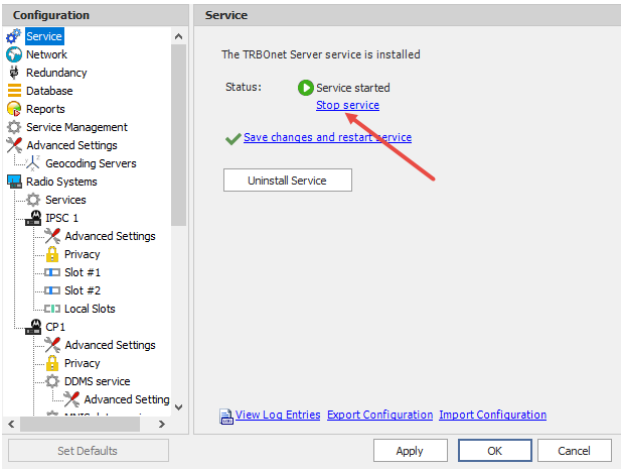
- Click **Test Connection** to check the connection to the database.
- Click **Upgrade Database** to upgrade the database if the current database was restored from the database version lower than current.
- Click the **Save changes and restart service** link.



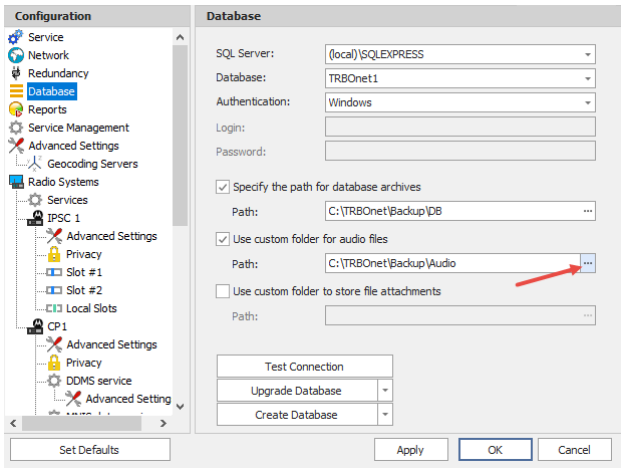
Restore Audio Recordings

To restore the audio file:

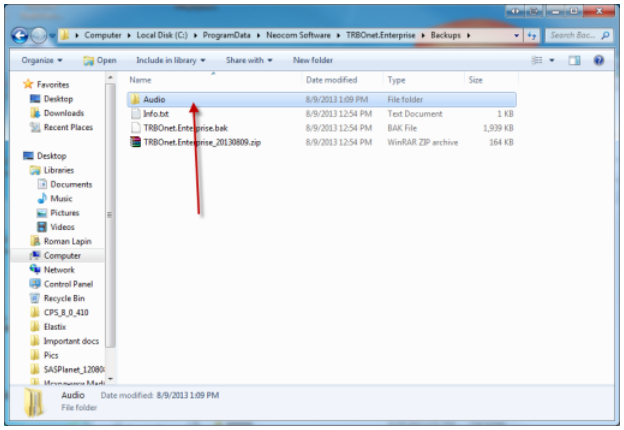
- Launch TRBOnet Server and stop the TRBOnet Server service.



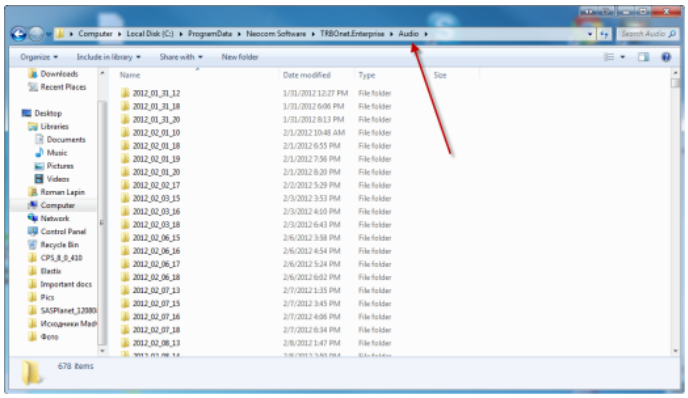
- Go to **Database** section in the navigation tree and specify custom directory for audio files (for example, for TRBOnet Enterprise **C:\TRBOnet.Enterprise\Backup\Audio**; for TRBOnet Plus: **C:\TRBOnet.Plus\Backup\Audio**).



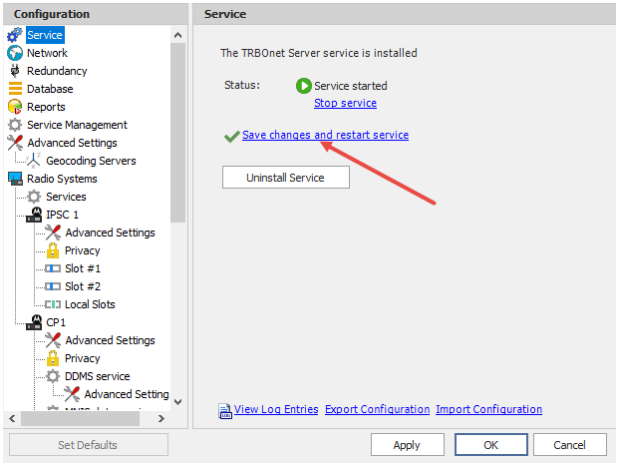
- Go to the directory you specified to store backup audio files.
- Unzip the backup archive:



- Copy unarchived audio files to the folder specified in TRBOnet Server settings (for example, **C:\ProgramData\TRBOnet Dispatch Software \Audio**):



- Click the **Save changes and restart service** link.

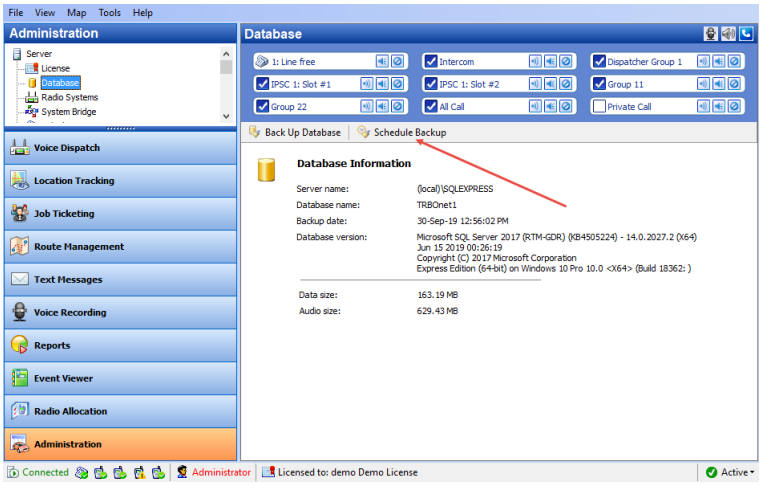


Thus, the audio files will be restored.

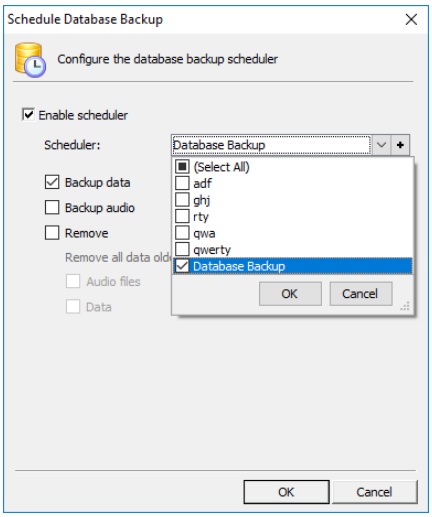
Schedule Backups

To set a scheduled backup for the database and audio recordings, do the following:

- In the Dispatch Console, go to **Administration** section and select **Database** in the Navigation tree:
- Click the **Schedule Backup** button:



- In the dialog box that appears, specify the Backup details:



- **Enable scheduler**
  Check to enable the database backup scheduler.
- **Scheduler**
  Click the arrow button on the right, and on the drop-down list select the required scheduler(s). Or, click the plus button on the right, and create a new scheduler.
  For directions on how to create schedulers, see section 6.4.22, Schedulers.
- **Backup data**
  Check to back up data.
- **Backup audio**
  Check to back up audio recording.
- **Remove**
  Check to remove audio files and data from the database.
  - **Remove all data older than [X] days**
    Select the number of days to remove all data.

- **Audio Files**
  Check to remove audio files.
- **Data**
  Check to remove data.

- Click **OK** to run the backup procedure.

Appendix E: SIP Setup for Motorola Phone System

The native MOTOTRBO phone system is supported in the case of a direct IP connection to the repeater. MOTOTRBO Phone system is recommended for IP Site Connect mode.

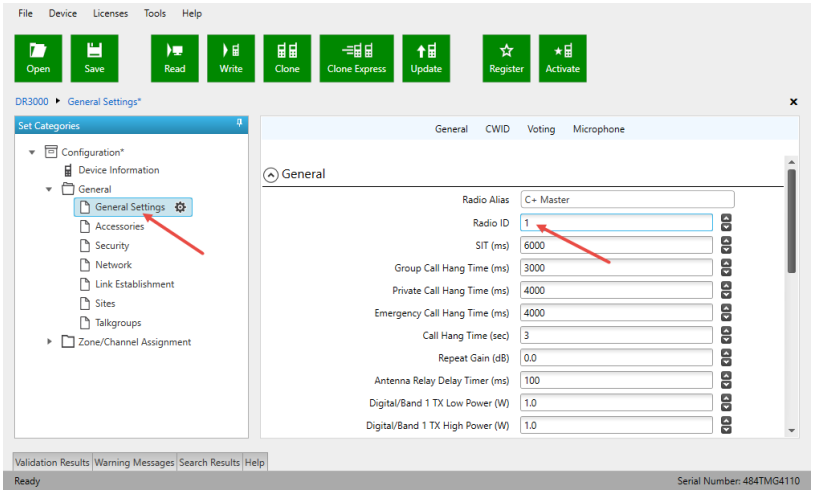
> Note: No extra license per repeater is required for Digital Phone Patch from Motorola.

TRBOnet Software and Repeaters

TRBOnet Server requires a specific setup for a repeater in the IP Site Connect mode as well as for SIP in order to make the phone system work properly.

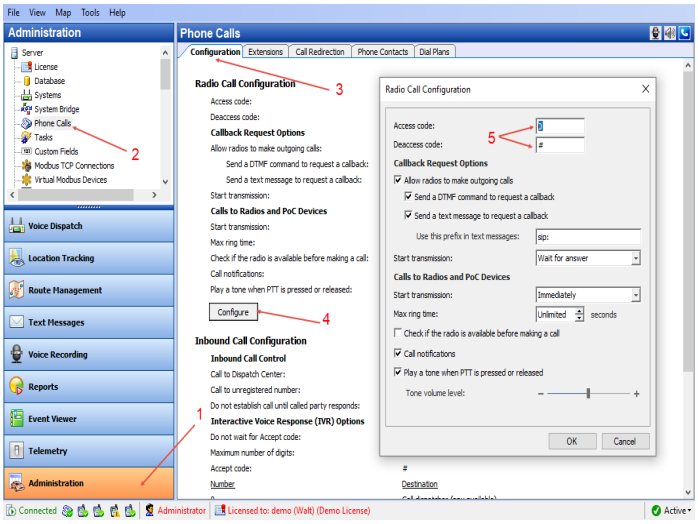
> Note: MOTOTRBO Phone System is available for repeaters in IP Site Connect mode. For a system based on the control stations, use TRBOnet Phone System.

Launch **MOTOTRBO CPS** and go to Repeater's **General > General Settings**:



The **Radio ID** of the repeaters in CPS must differ from the TRBOnet Peer ID. TRBOnet Dispatch Console acts as another virtual peer repeater with a Peer ID. For example, given an IPSC network consisting of 1 master and 3 peers, the repeaters' IDs (Radio IDs in CPS codeplugs for the repeaters) in this example would be 1, 2, 3, 4. The TRBOnet Peer ID must not be a value of 1, 2, 3, or 4, and must differ from all the repeaters (the master and all peers), otherwise a conflict will happen in the network as there are multiple peers with the same ID. The default TRBOnet Radio ID is 64250.

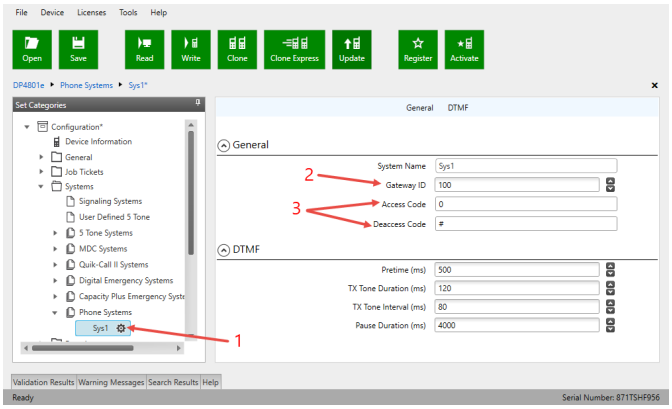
- Open TRBOnet Dispatch Console.
- Go to **Administration** (1), **Phone Calls** (2), **Configuration** (3), **Configure** (4) and set **Access code** and **Deaccess code** (5) to **0** and **#**, respectively:



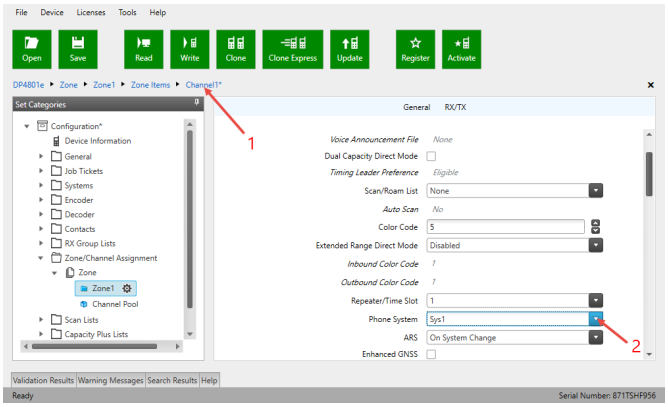
Programming Radios

A special setup is required for radios in MOTOTRBO CPS.

- Read a subscriber's radio in CPS and go to **Systems > Phone Systems > System (1)**:



- Make sure that **Gateway ID** (2) is equal to **TRBOnet Peer ID** in the Repeater settings of TRBOnet Server.
- Set **Access Code** to **0** and **Deaccess Code** to **#**, respectively (3).
- Go to **Zone/Channel Assignment >...> Zone> Channel** (1) and select the **Phone System** you have previously specified (2):


File
Device
Licenses
Tools
Help
Open
Save
Read
Write
Clone
Clone Express
Update
Register
Activate
DP4801e ▸ Zone ▸ Zone1 ▸ Zone Items ▸ Channel1*
Set Categories
Configuration*
Device Information
General
Job Tickets
Systems
Encoder
Decoder
Contacts
RX Group Lists
Zone/Channel Assignment
Zone
Zone1
Channel Pool
Scan Lists
Capacity Plus Lists
General
RX/TX
Voice Announcement File
None
Dual Capacity Direct Mode
Timing Leader Preference
Eligible
Scan/Roam List
None
Auto Scan
No
Color Code
5
Extended Range Direct Mode
Disabled
Inbound Color Code
1
Outbound Color Code
1
Repeater/Time Slot
1
Phone System
Sys1
ARS
On System Change
Enhanced GNSS
1
2
Validation Results
Warning Messages
Search Results
Help
Ready
Serial Number: 871TSHF956

Appendix F: NAI VOICE & DATA Support

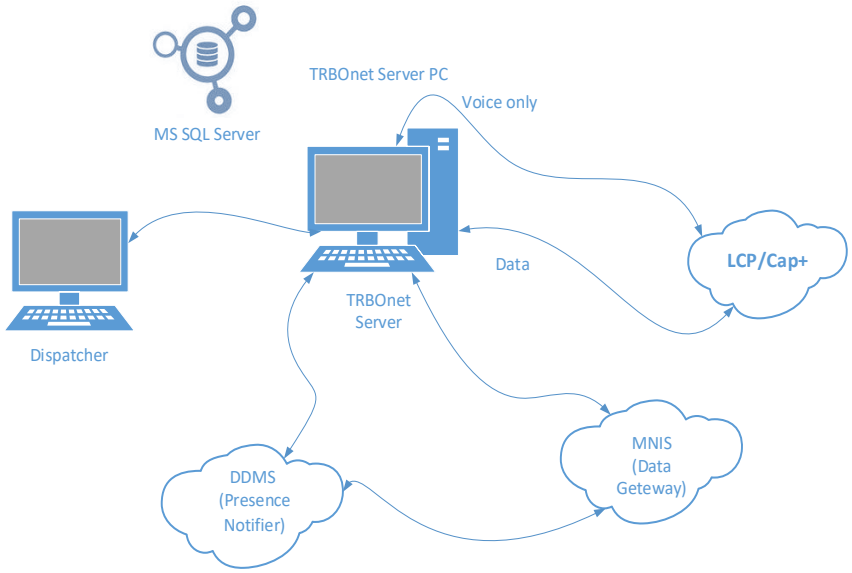
TRBOnet Dispatch Software supports MOTOTRBO Network Application Interface (NAI) VOICE and DATA.

NAI protocol allows operating with MOTOTRBO Capacity Plus and MOTOTRBO Linked Capacity Plus repeaters over IP (Wireline Dispatch Console).

Voice Repeaters must have NAI VOICE and NAI DATA license activated. Data Revert repeaters must have NAI DATA license activated. A repeater must have 32 Mb memory.

Voice and Data Flow 1

TRBOnet Voice and Data flow for NAI is represented on the following scheme:



Voice and Data Flow 2

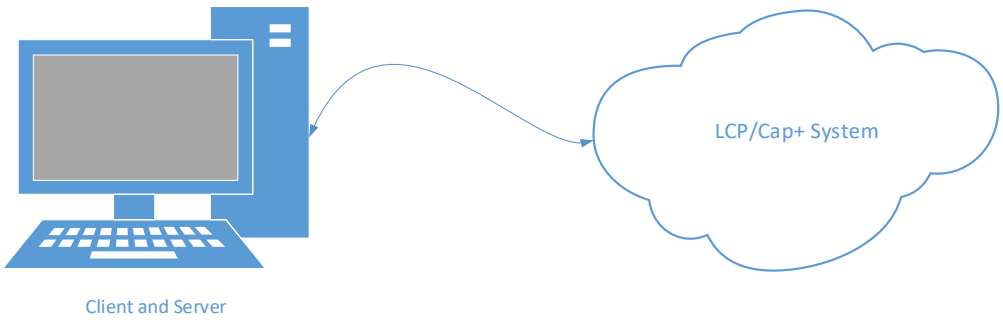
MNIS is responsible for sending/receiving Data Packages and forwarding them to TRBOnet Server.

DDMS (aka Presence Notifier) is responsible for ARS and notifies TRBOnet Server when a radio is turned on/off. For more details, see *NAI_RM_Training_v02.pdf*.

All the repeaters in all sites should be available for TRBOnet Server, which normally requires Port Forwarding rules on routers. For more details, see *MOTOTRBO Linked Capacity Plus (LCP) - HP MSR 20-20 Router Configuration Guide*.

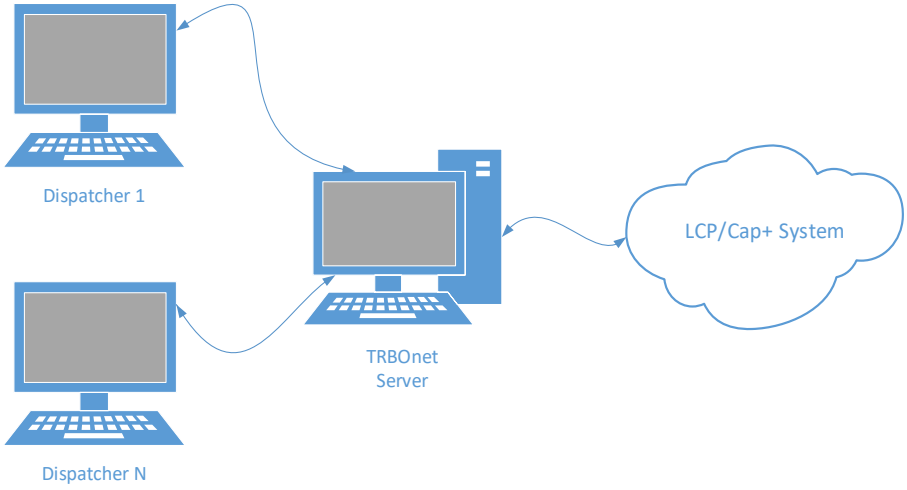
Single PC Installation

TRBOnet Server and Dispatch Console can be installed on the same computer.

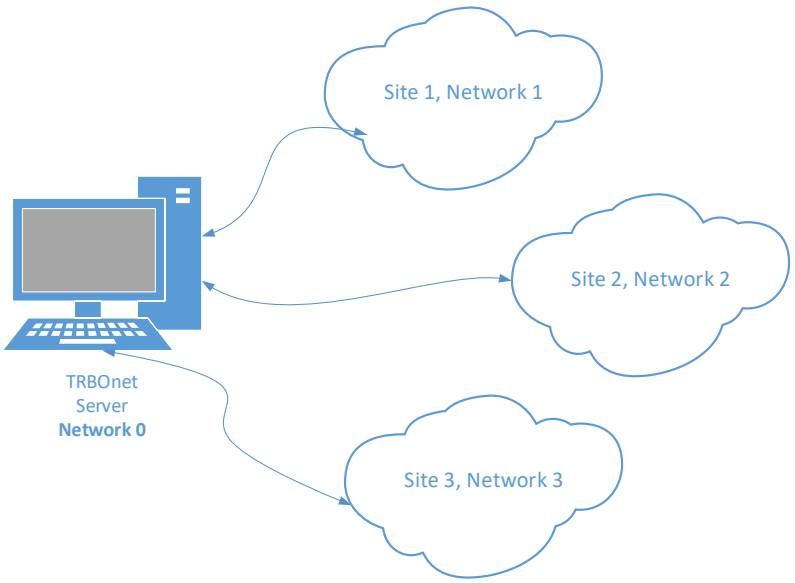


Client-Server Installation

For the systems with 2 and more dispatch positions, it is recommended to have a dedicated server computer (could be a virtual machine).



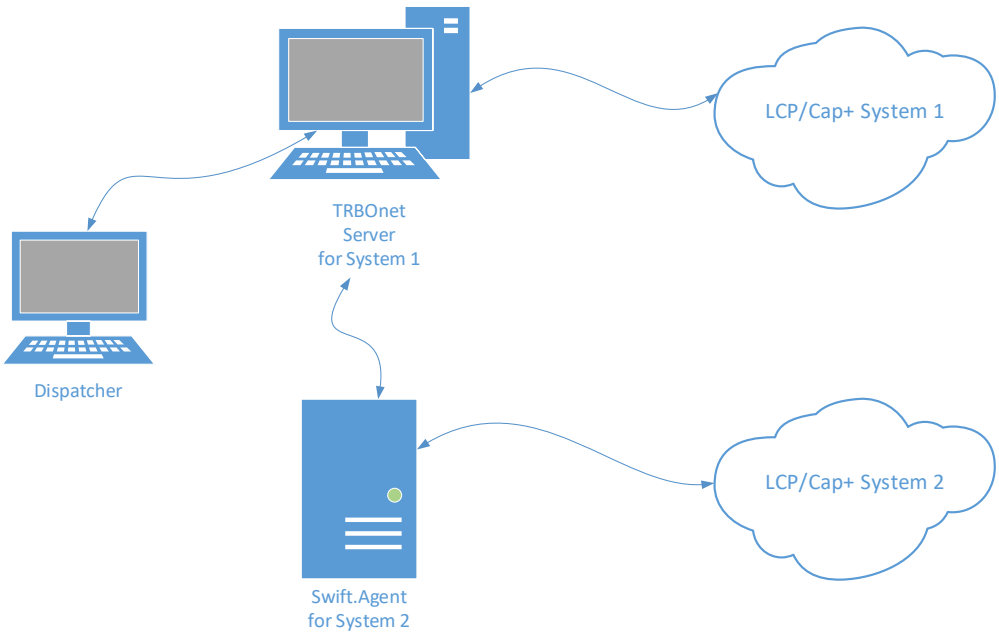
TRBOnet Server and all the LCP sites must be in different networks, behind their corresponding routers:



Use the recommended Routers only.

Notes:

- One TRBOnet Server computer is for one LCP System.
- It is possible to connect two or more LCP systems (System Bridging).
- TRBOnet System Bridging supports Group and Individual Calls.
- It is possible to use a Virtual machine as a Server.

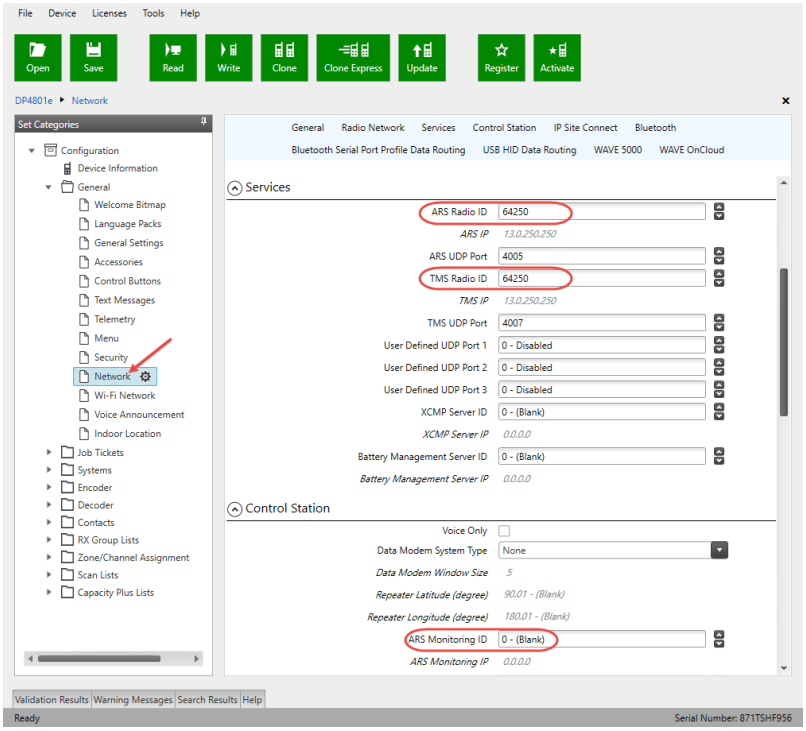


Limitations

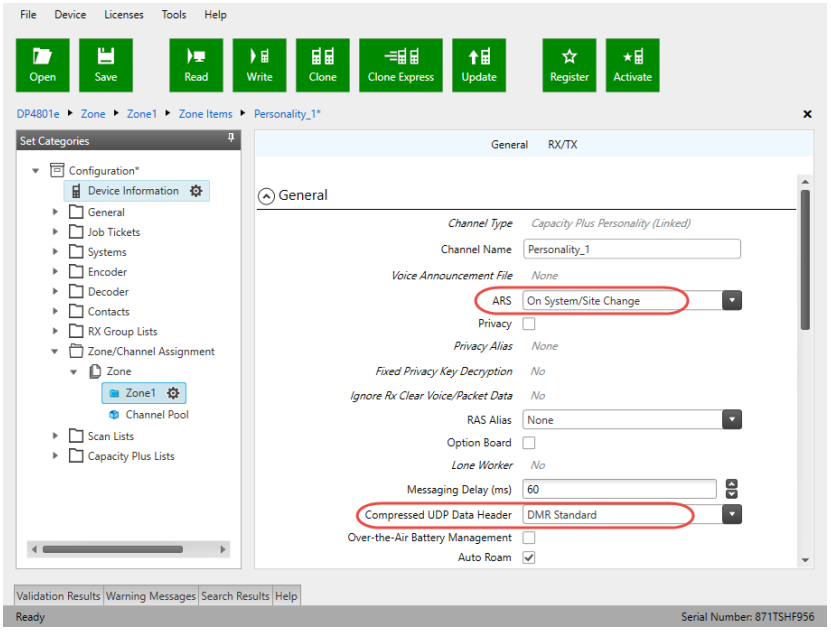
- Logging of Radio-to-Radio TEXT is **NOT SUPPORTED**.
- Phone Connect is available with some limitations.
- Local Talk Group IDs must be unique per system.

Radio Subscriber Configuration

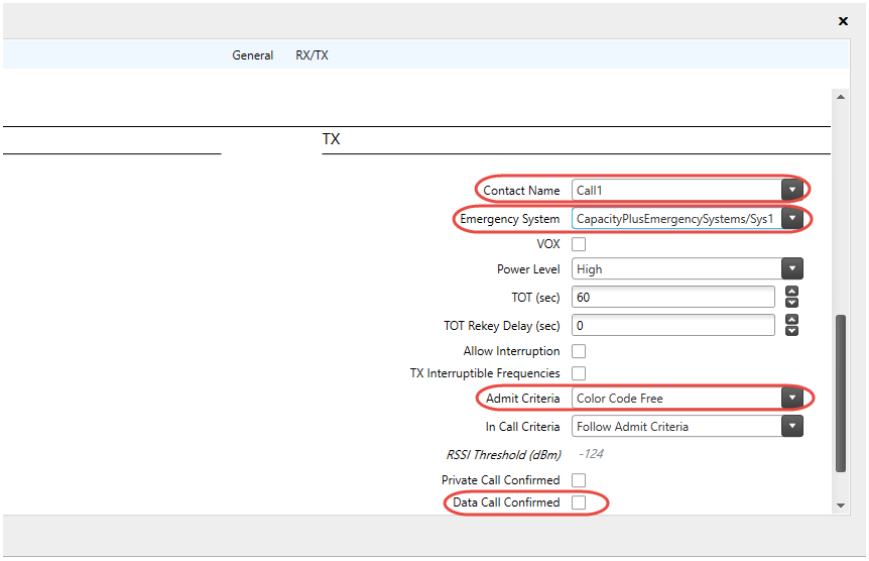
Network Settings



Personality Settings – 1

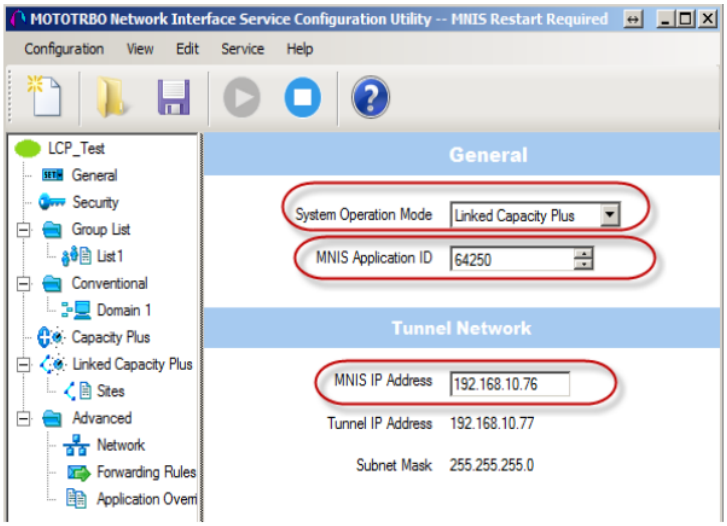


Personality Settings – 2

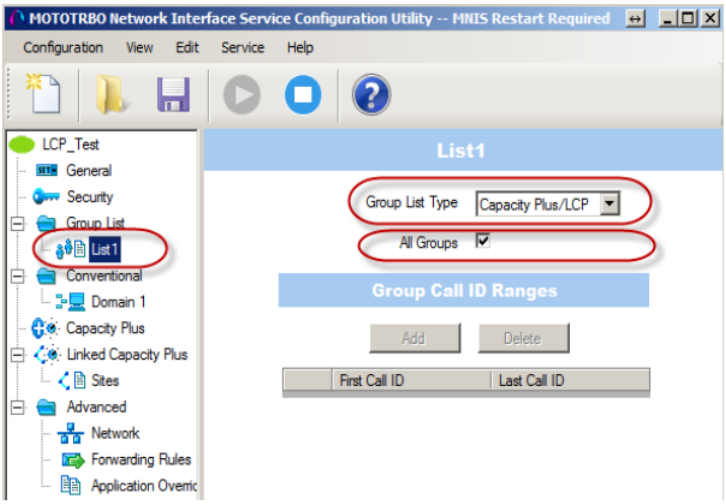


MNIS and DDMS Settings

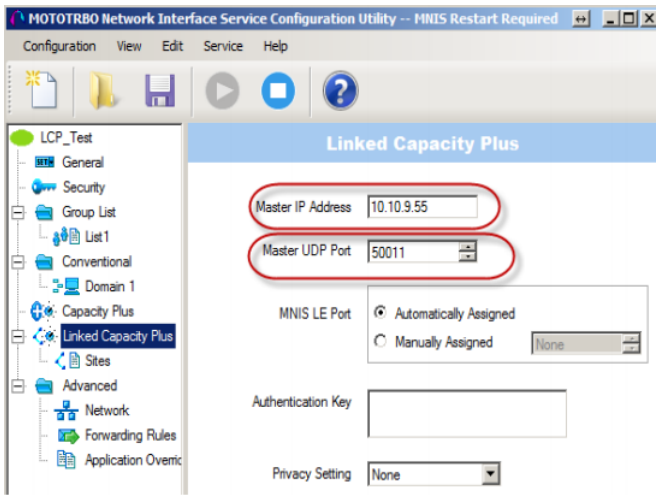
General Settings



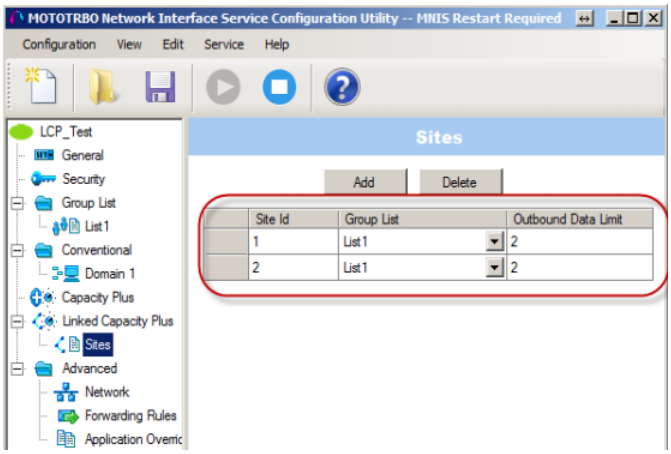
Talk Group Settings



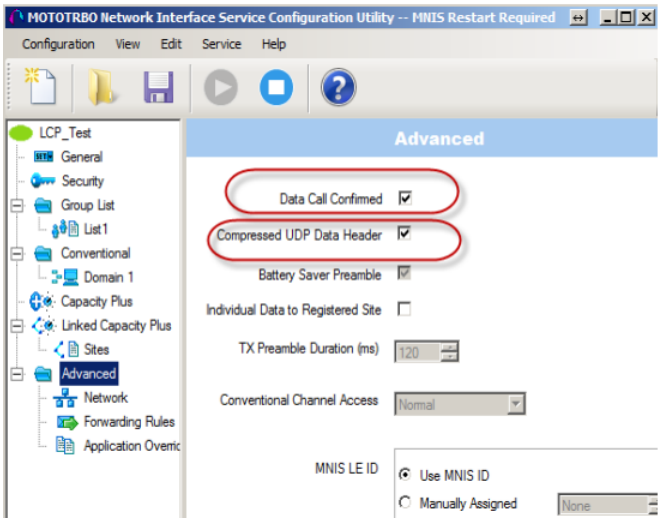
Master Repeater Settings



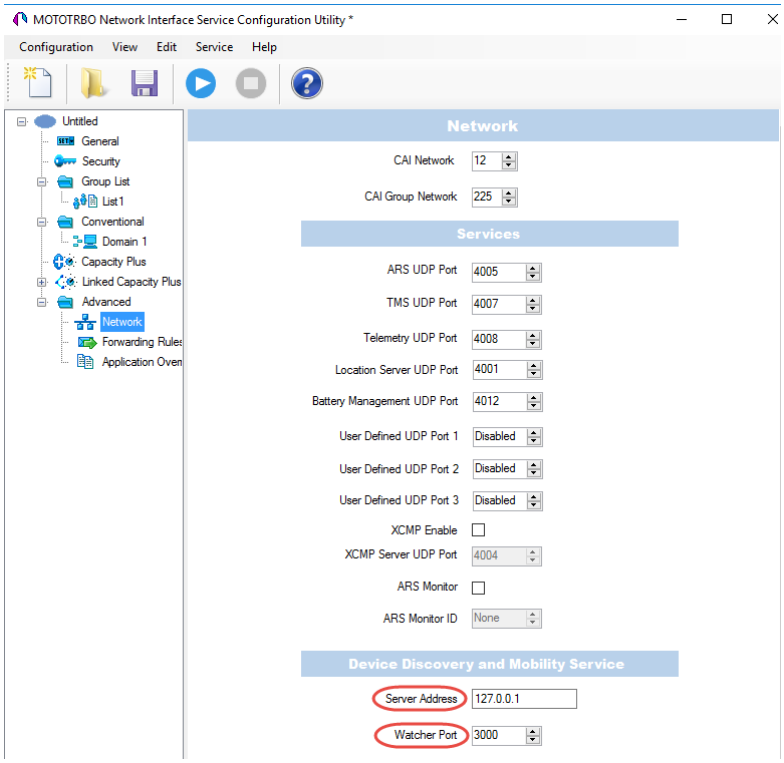
LCP Sites Settings



Advanced Settings

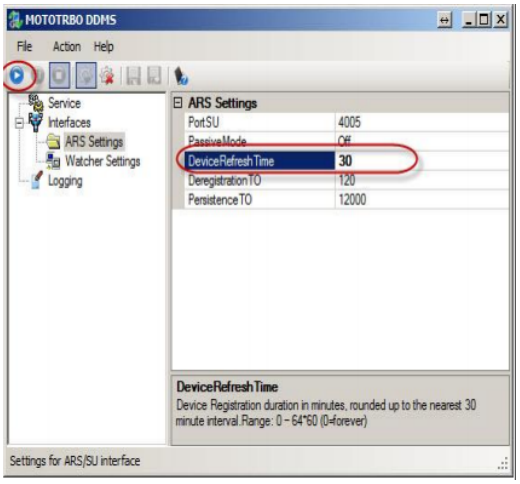


Network Settings

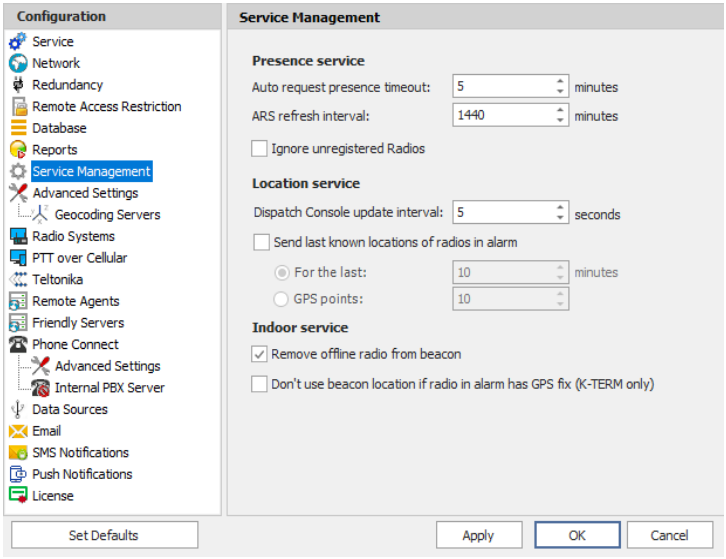


DDMS Settings

The **DeviceRefreshTime** parameter defines how often radios should send ARS to TRBOnet Dispatch Software. The value depends on the number of radios and channels.

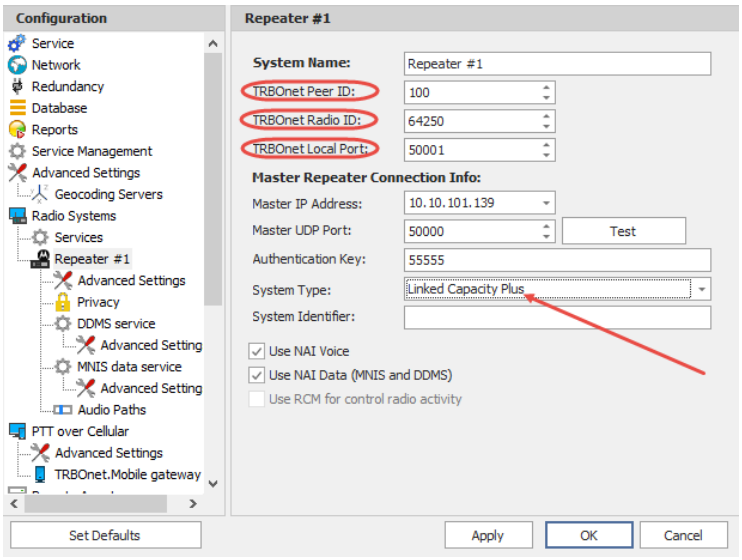


ARS TRBOnet Settings



- **Auto request presence timeout**
  Set this parameter to the value of the **DeviceRefreshTime** parameter in MOTOTRBO DDMS.
- **ARS refresh interval**
  Set this parameter to the value of the **PersistenceTO** parameter in MOTOTRBO DDMS.

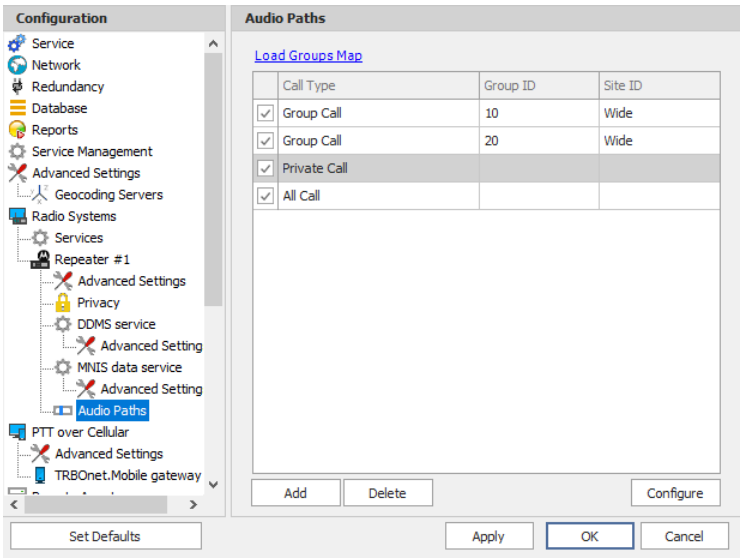
LCP Repeater Settings



Special settings:

- **TRBOnet Peer ID** – any unique value.
- **TRBOnet Radio ID** – the default TRBOnet ID.
- **TRBOnet Local Port** – any free port on the PC.

Audio Paths



Special settings

- Load Groups from Master Repeater;
- Add Local Groups manually.

Appendix G: Redundant Server

TRBOnet Server supports a redundant (secondary/backup) configuration which allows automatic switching from the primary to the redundant (secondary/backup) server in case of failure of the primary server.

There are two modes of running the Redundant server: Passive mode and Active mode.

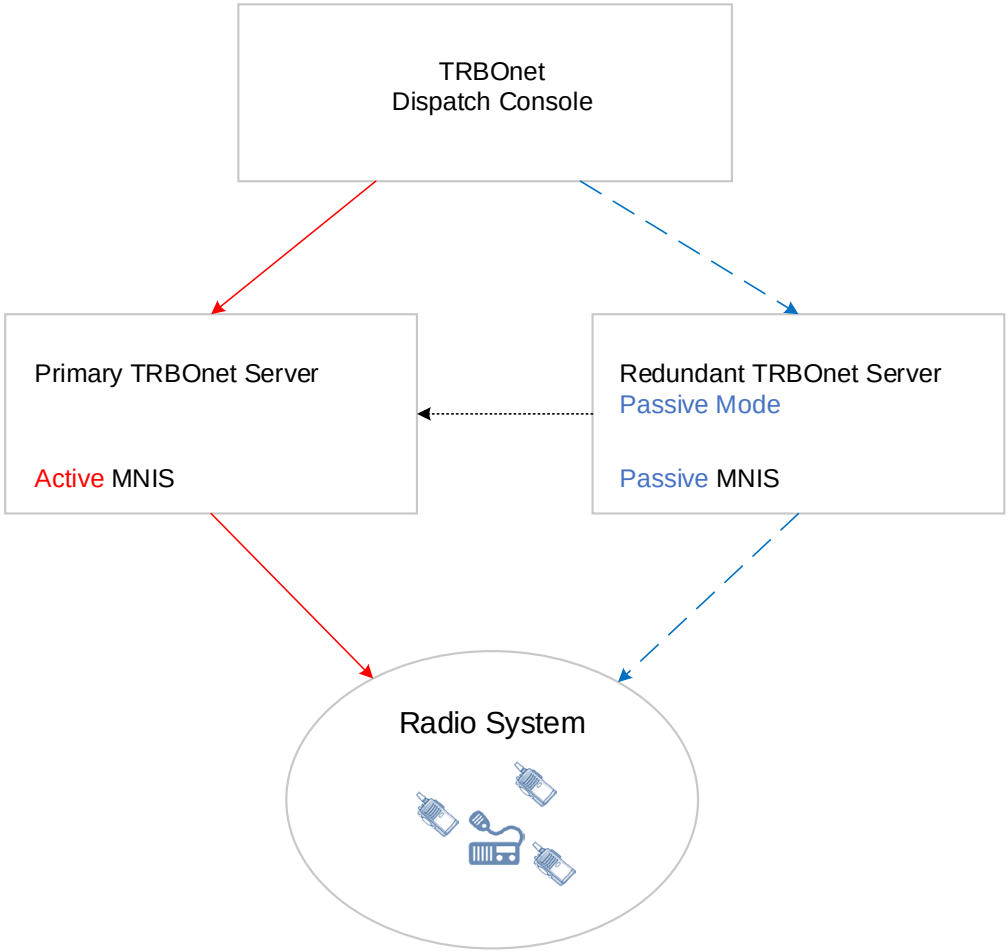
Overview

- The radio system's master repeater supports up to 4 simultaneously connected Software Peers (for example, MNIS, RDAC, TRBOnet Enterprise/PLUS or TRBOnet Watch).
- The databases on both servers are not synchronized. Before making a copy of the primary server's database and deploying it on the redundant server, make sure that all the appropriate information, such as radios, radio groups, map objects, etc., have been entered into the primary server's configuration.
- The dispatch console will connect to the redundant server when one of the following happens:
  - The primary server is unavailable.
  - All radio systems are unavailable for the primary server (except for Phone Connect or POC systems).
- Connection to the redundant server takes up to 2 minutes.
- The dispatch console will reconnect to the primary server when the primary server is available again and the radio system is available for it.
- It's a good practice to configure an Alarm Management rule to send emails to desired addresses whenever the primary server gets disconnected/reconnected, and/or the radio system gets disconnected/reconnected.

Passive Mode

The scheme below shows how the Redundant server is used in the Passive mode.

In the scheme, a red solid line means a connection to the primary server. A blue dash line means a connection to the redundant server that will be established once the primary server fails. A black dotted line means a heartbeat connection between the redundant and primary servers.



- The primary and redundant servers are configured identically. Note that both servers may have equal **TRBOnet Peer ID** because the redundant server is not connected to the radio system until the primary server fails. The redundant server is constantly monitoring the primary server's status.

  Note: In the case of Capacity Max, **TRBOnet Peer ID** is not used and some special settings are required in MOTOTRBO Radio Management for the secondary MNIS Data Gateway. For information on how to configure the secondary MNIS Data Gateway, refer to MOTOROLA Capacity Max Installation and Configuration Guide.

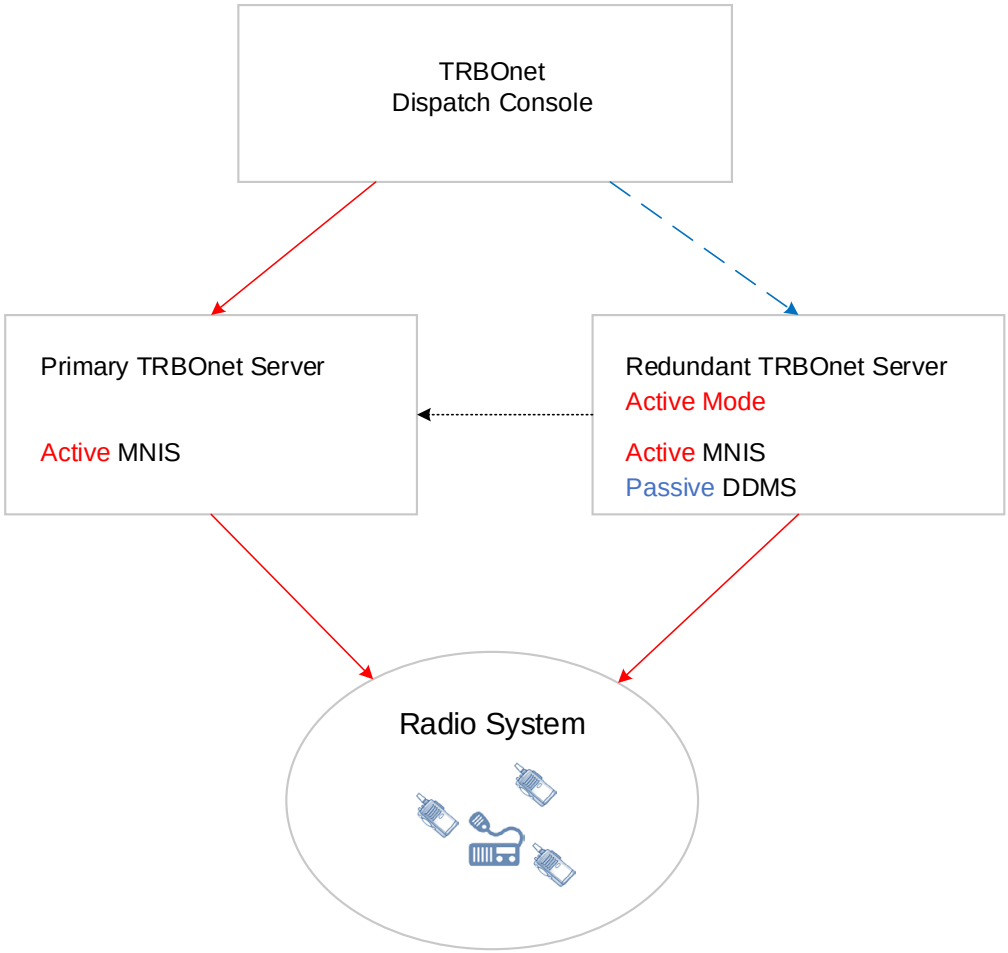
- When the primary server fails, the redundant server gets activated, starts its MNIS service, and connects to the radio system.
  The dispatch console will connect to the redundant server automatically.
- Once the failed primary server is back online, the dispatch console will automatically reconnect to the primary server.

- Note that the databases on both servers are not synchronized. The redundant server's database will have data only for the time period the primary server is down. Once the primary server is restored, the redundant server will stop adding data to its database. Thus, there will be no data in the primary server's database for the time period the primary server is down.

Active Mode

The scheme below shows how the Redundant server is used in the Active mode.

In the scheme, a red solid line means a connection to the primary server. A blue dash line means a connection to the redundant server that will be established once the primary server fails. A black dotted line means a heartbeat connection between the redundant and primary servers.



- The primary and redundant servers are configured identically, except for **TRBOnet Peer ID** which must be unique for each server.
  The redundant server is constantly monitoring the primary server's status.

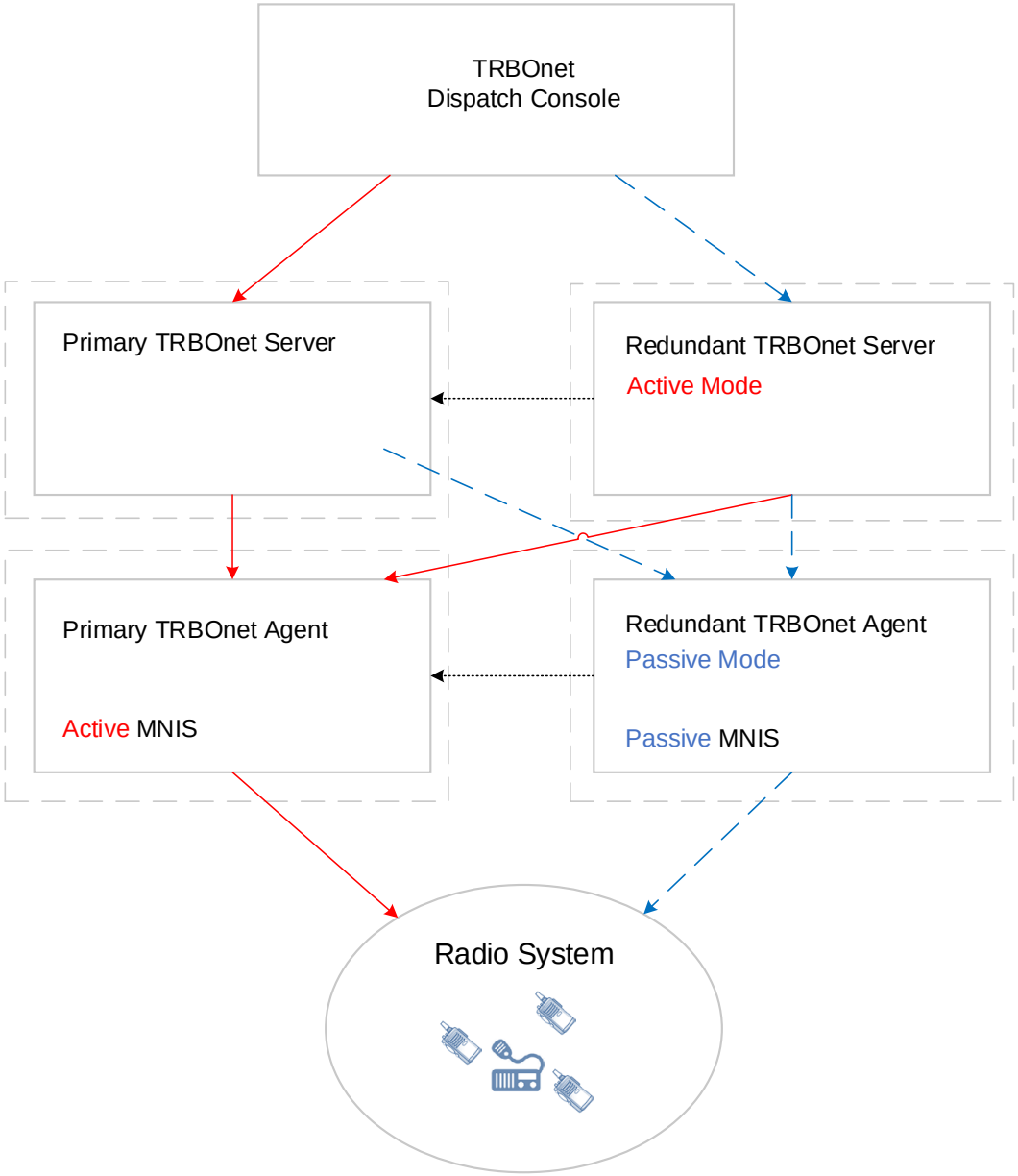
- When the primary server fails, the dispatch console will connect to the redundant server.
- When the dispatch console connects to the redundant server, the DDMS service running for the redundant server must be manually set to the active mode (**MOTOTRBO DDMS > ARS Settings > PassiveMode** set to **OFF**). To prevent channel collisions when multiple ARS packets are transmitted at the same time, it is recommended that the **ARS Initialization Delay (min)** parameter be set to 30 min for each radio subscriber (see MOTOTRBO CPS\RM reference guide).
  When the dispatch console is reconnected to the primary server, the DDMS service running for the redundant server must be manually set to the passive mode (**MOTOTRBO DDMS > ARS Settings > PassiveMode** set to **ON**).
- Note that two TRBOnet Servers and two MNIS services are connected to the radio system's master repeater, thus occupying all four available peer connections. As a result, no additional software, such as TRBOnet Watch or RDAC application, can be connected in such a scheme.
- Note that the databases on both servers are not synchronized when the redundant server is active and the primary server is inactive. The redundant server's database will always have the full set of data. The primary server's database won't have data for the time period it was down.

Active mode and TRBOnet Agents

The scheme below shows how the Redundant Server is used when running in the Active mode and being connected to Radio Systems via Primary and Redundant TRBOnet Agents.

In such a scheme, one TRBOnet Server and one MNIS service are simultaneously connected to the radio system's master repeater, thus occupying only two of the four available peer connections, and consequently you can additionally connect TRBOnet Watch or an RDAC application, or an additional TRBOnet Server.

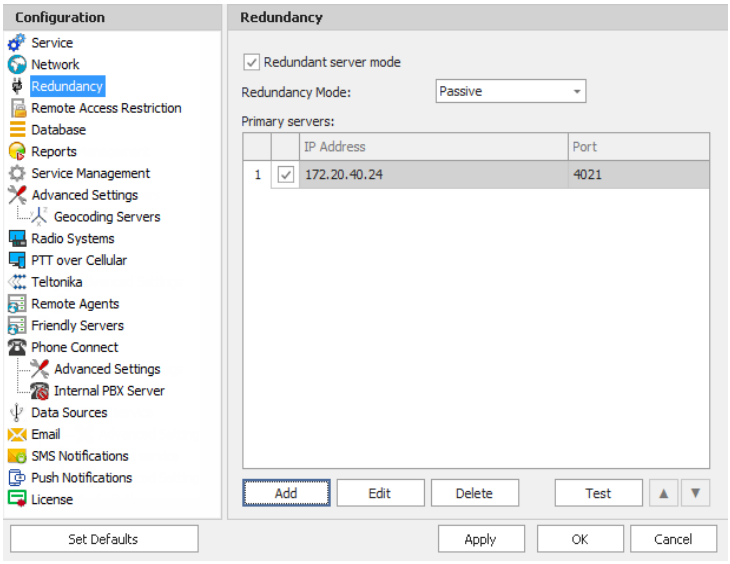
Note that in the scheme, a red solid line means a connection to the primary server. A blue dash line means a connection to the redundant server that will be established once the primary server fails. A black dotted line means a heartbeat connection between the redundant and primary servers (agents).



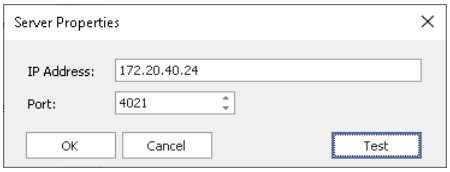
- Note that this is the only feasible solution for running the redundant server in the Active mode when a Capacity Max system is used.

Redundant Server Configuration

- In the **Configuration** pane, select **Redundancy**.



- In the **Redundancy** pane, select **Redundant server mode**.
- **Redundancy Mode**
  Select the mode for a redundant server from the drop-down list.
- To add a primary server, click **Add**.

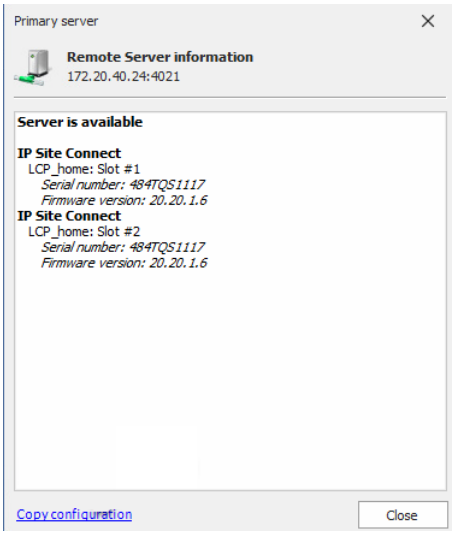


- **IP Address**
  Type the IP address of the primary server.
- **Port**
  Enter the same port number as specified for the Command port.

Synchronizing server configurations

To copy the configuration of the primary server to the redundant server, do the following:

- In the **Redundancy** pane, click **Test**.
- In the **Primary Server** dialog box that opens, click the **Copy configuration** link.

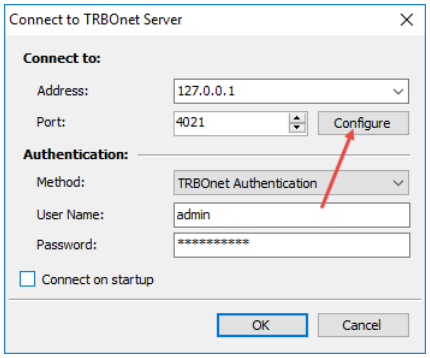


- Verify that the settings in the **Network**, **Redundancy**, and **Database** tabs are correct.

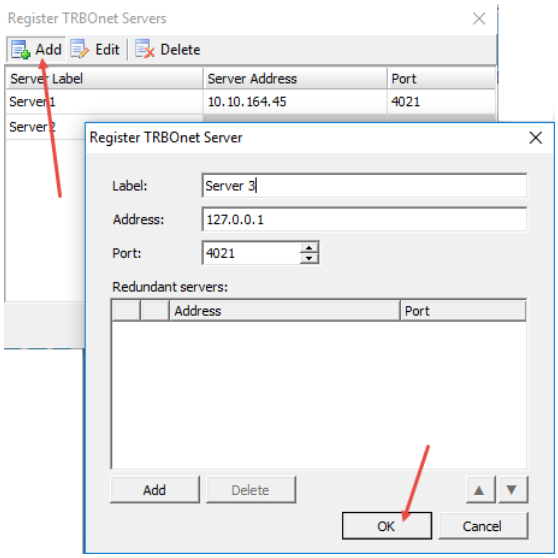
Dispatch Console Configuration

To add a server to the list of servers:

- Launch TRBOnet Dispatch Console to open the **Connect to TRBOnet Server** dialog box, or on the **File** menu, click **Connect to TRBOnet Server**.



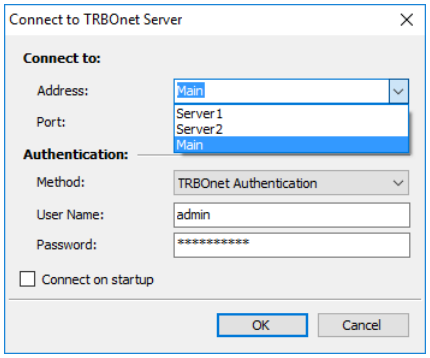
- Click **Configure** to register the new primary server:



- Click **Add** to add a new TRBOnet Server:
  - **Label** – enter a name for the new primary server.
  - **Address** – enter the primary server's IP Address.
  - **Port** – specify the command port of the primary server.
  - **Add** – click and specify the IP address and port of the redundant (backup) server for the primary server being registered.
  - Click **OK** to save settings and close the dialog box.

Connecting Dispatch Console to Servers

- Go to **File > Connect to TRBOnet Server**, and from the drop-down list select the primary server you created:



- Click **OK** to connect to the primary server.

  Now you are connected to the primary server. In case of a lost connection to the primary server, the Console will try to restore the connection within 30 seconds. After 30 seconds have passed, the console will change connection to the redundant server automatically. When the primary server is restored, the Dispatch Console will reconnect to the primary server automatically.