TRBOnet PLUS

Administrator's Guide

Version 5.1

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Contents

1 Introduction

1.1 About This Guide and Related Documentation

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

1.2 About TRBOnet PLUS

The TRBOnet is a suite of professional applications for MOTOTRBO digital two-way radio networks. The TRBOnet manages voice, text, and data communication paths across network endpoints and provides a unified graphical dispatcher workbench interface for the whole set of messaging and workforce orchestration 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://kb.trbonet.com — online knowledge base
Americas	+1 872 22 28 726	
APAC	+61 28 6078325	

2 Hardware and Software Requirements

TRBOnet Server/Agent with IP connection only					
Voice Channels	4	8	16	24	24+
CPU	Intel Core i3	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	300 MB for installation files, +1 MB per 1 minute of voice recording				
Sound Card	No				
Supported OS	Windows 7/8.x/10, Windows Server 2008, Windows Server 2012, Windows Server 2014				
Software	.NET Framework 4.6.x, MS SQL Server 2008 R2 or higher				

TRBOnet Server /Agent with Control Stations		
Control Stations	1	2+
CPU	Intel Core i5	
Memory	2 GB	
HDD	300 MB 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 7/8.x/10	
Software	.NET Framework 4.6.x, MS SQL Server 2008 R2 or higher	

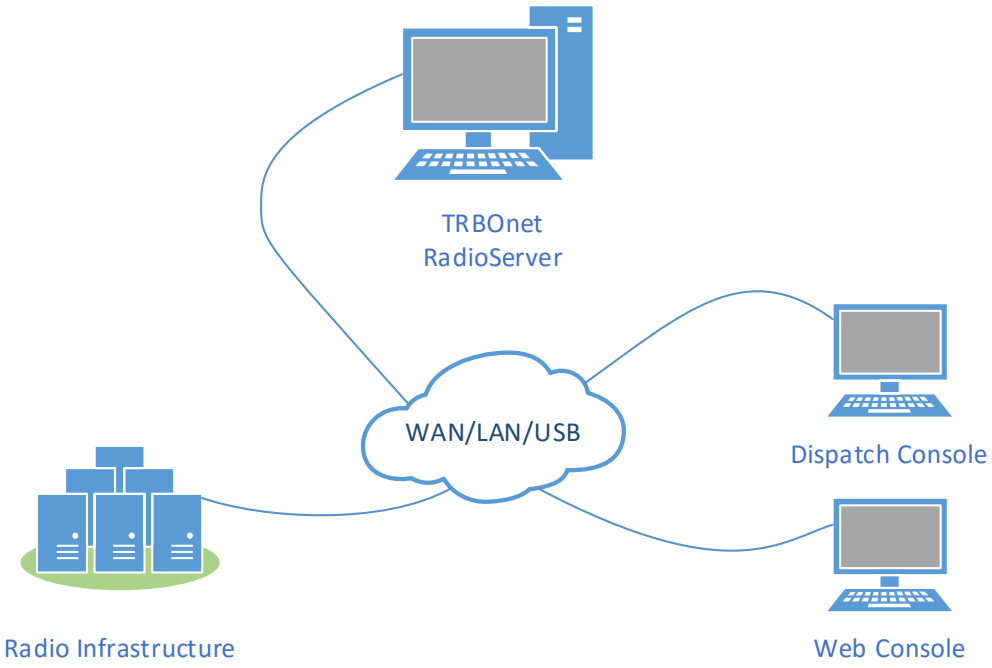
Dispatch Console	
CPU	Intel Core i3
Memory	4 GB
HDD	70 MB for installation files
Sound Card	Yes
Display	1280x1024 minimum resolution, 1600x900 recommended resolution
Additional Devices	Speakers and microphone, or headset; Imtradex devices are recommended
Supported OS	Windows 7/8.x/10
Software	.NET Framework 4.6.x

3 System Architecture Overview

3.1 TRBOnet Server and Console

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

The software has a client-server architecture: TRBOnet Server runs as a Windows service on the server machine, stores data in an MS SQL database, and allows client connections from Web Console and Dispatch Console. In addition, remote software and/or hardware agents can be connected to provide voice and data from remote sites.



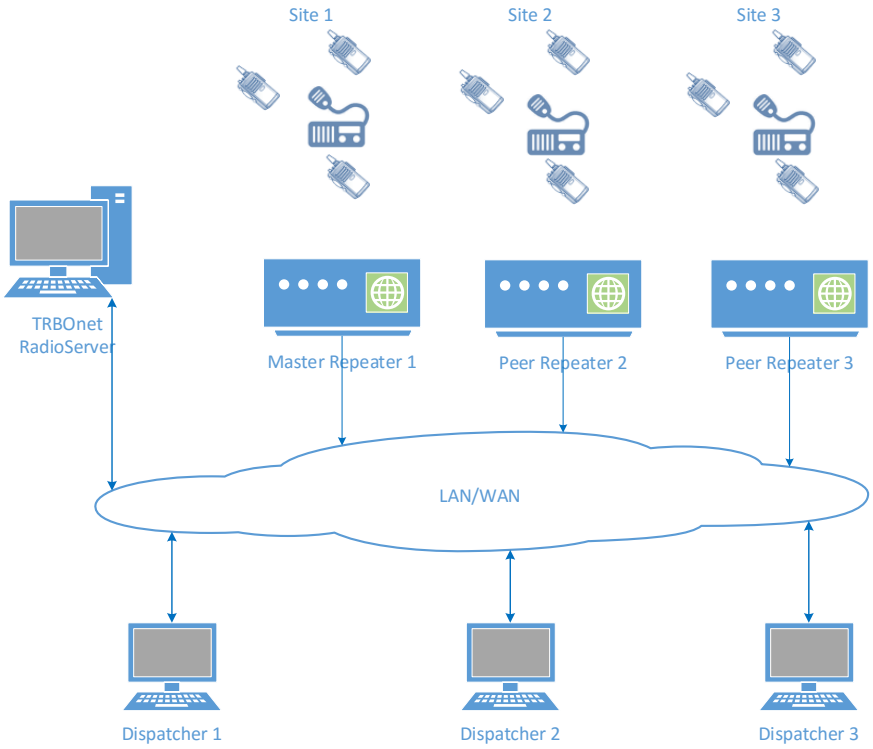
3.2 MOTOTRBO Radio Systems

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 radio channels.

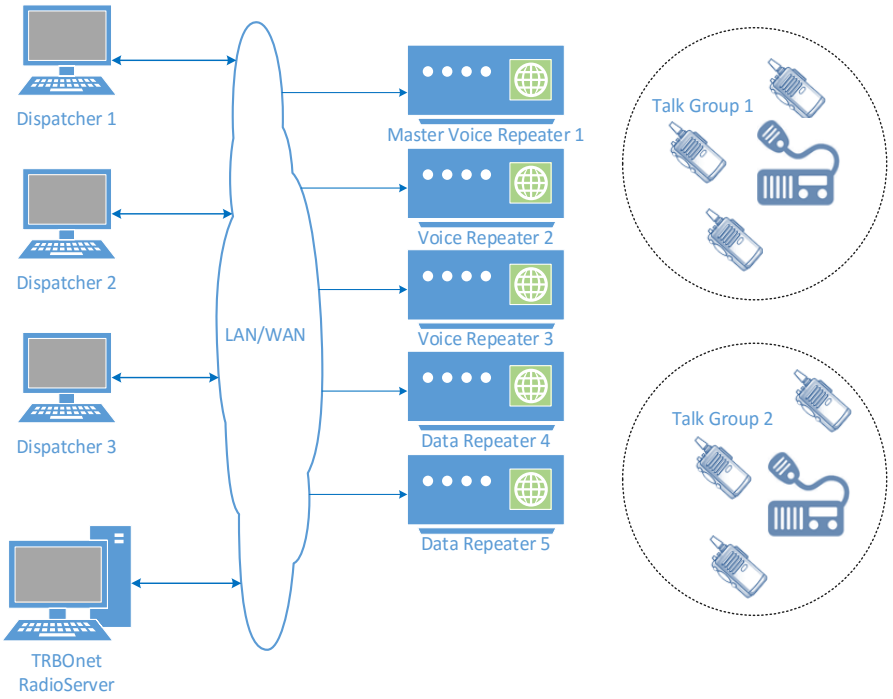
3.2.2 IP Site Connect

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



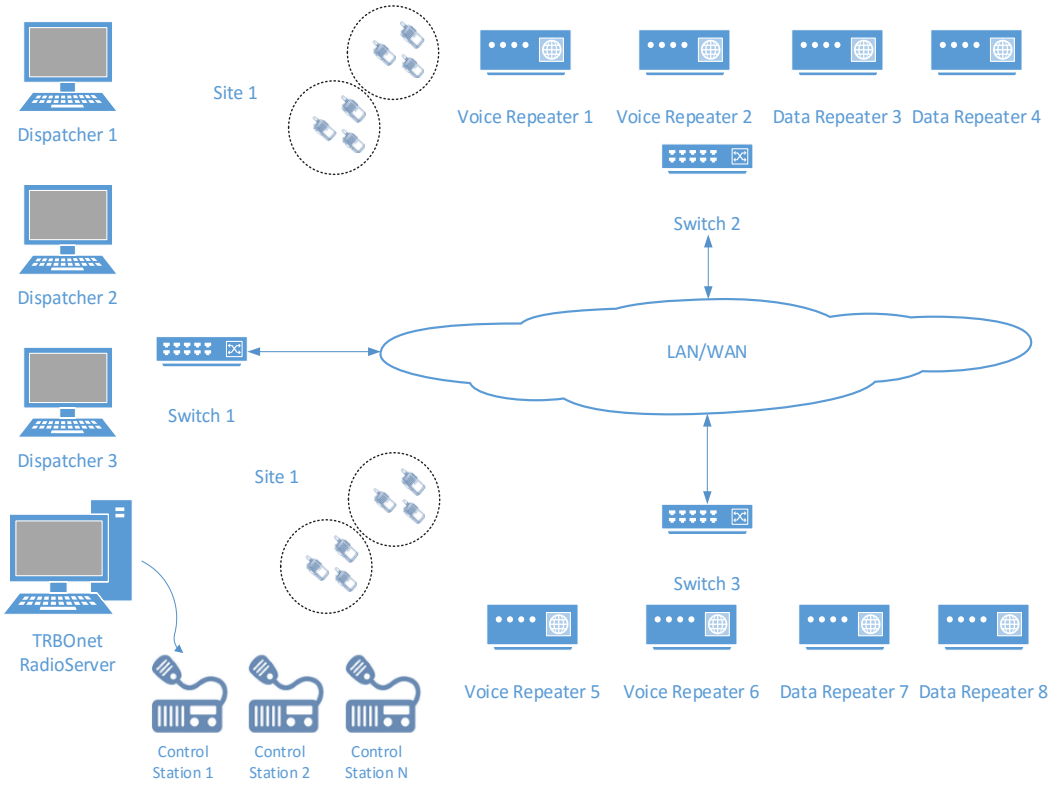
3.2.3 Capacity Plus

Capacity Plus (also known as Capacity Plus Single Site) is a digital trunked two-way MOTOTRBO system that allows you to accommodate high volume communication. It is designed to provide a stable connection between 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 radio units and control centers. The radio units 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.



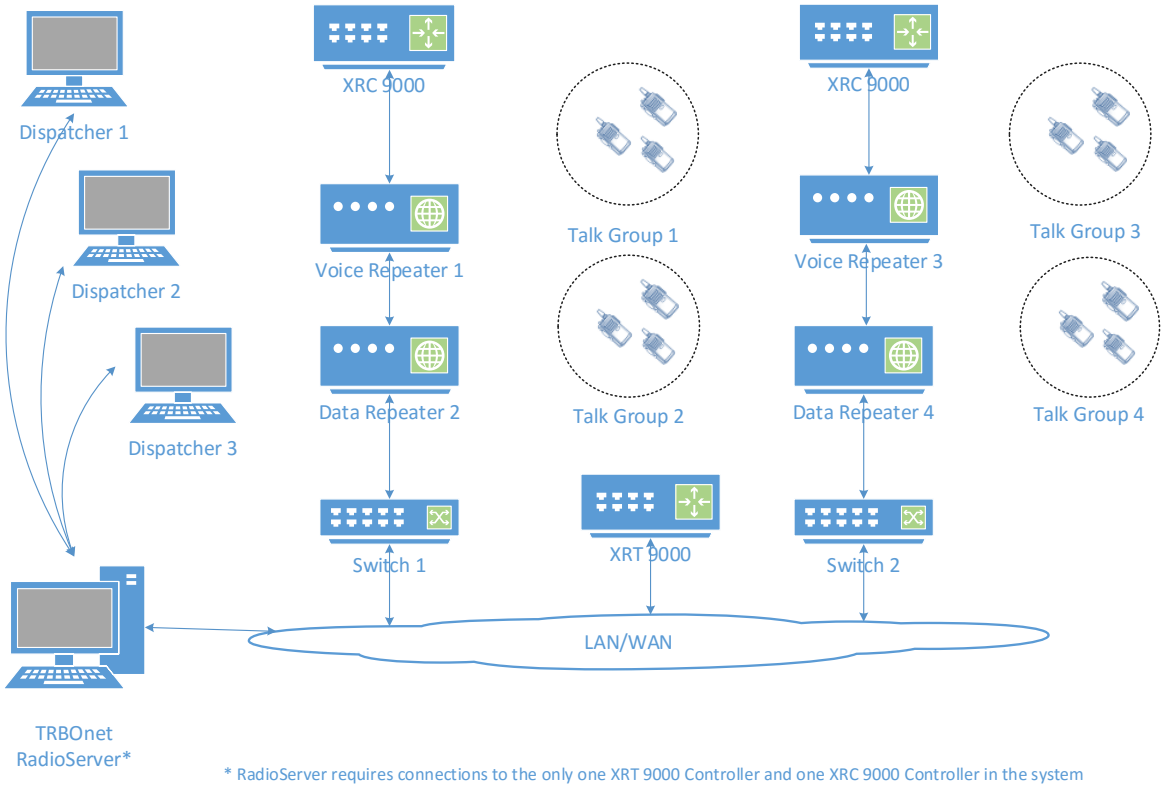
3.2.4 Linked Capacity Plus

Linked Capacity Plus (also known as Capacity Plus Multi Site) is a digital trunked multisite two-way MOTOTRBO system that enables you to accommodate high volume and wide area communication that is required for your business allowing you to connect via IP up to 15 single Linked Capacity Plus sites located in one place or in 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. 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

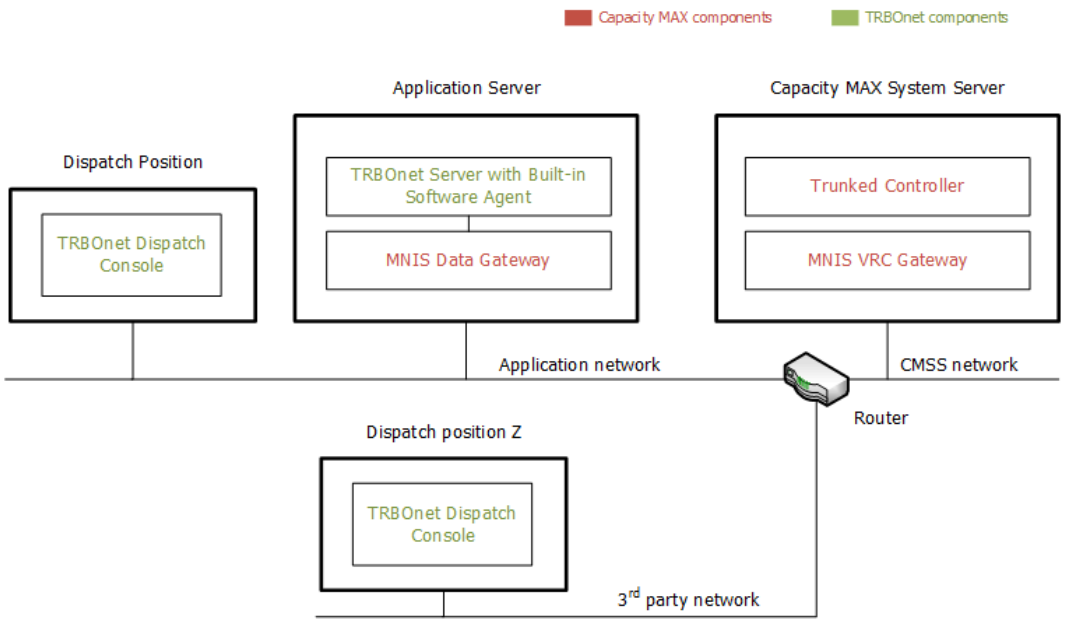
Connect Plus is a digital trunked multisite two-way MOTOTRBO system that enables you to accommodate high volume, wide area communication that's required for your business allowing you to connect via IP multiple sites located in one place or in separated territories. This system type allows you to increase the RF coverage area and the number of channels for voice and data transmission between the radio units and control centers. The 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 and XRT controllers.



* RadioServer requires connections to the only one XRT 9000 Controller and one XRC 9000 Controller in the system

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 of IP connected MOTOTRBO systems, read System Planner (chapter 4.6.3.2 Characteristics of Backend Network).

- **Delay/Latency**
  The amount of time it takes for voice to leave the source repeater and reach 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 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 up to 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 PLUS Software and Dependencies Installation

4.1 Preparing and Updating the Base OS

For all platforms, we recommend that before installing TRBOnet you upgrade your OS to the latest Service Pack and install critical updates available from Windows Update.

4.2 Installing Microsoft SQL Server

Download and install Microsoft SQL Server 2008 R2 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, RAM usage, etc.).

For example, Microsoft SQL Server 2008 R2 SP2 - Express Edition (which is free) is available at:
http://www.microsoft.com/en-us/download/details.aspx?id=30438

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.

4.3 Installing .NET Components

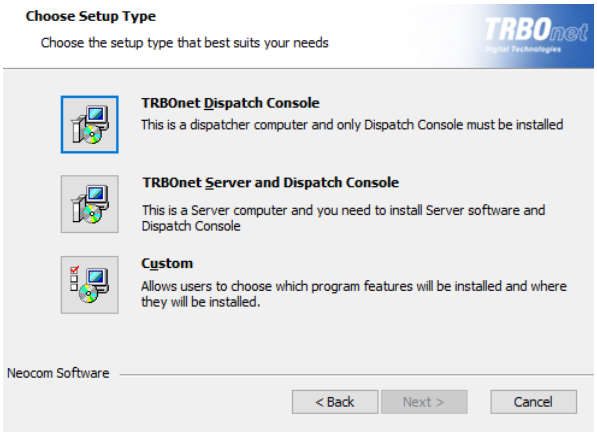
Windows 8 and later, as well as Windows Server 2012 and later, include the required .NET 4.6 components as part of the operating system.

For the TRBOnet PLUS Compatibility Table, see
http://kb.trbonet.com/public.pl?Action=PublicFAQZoom;ItemID=73

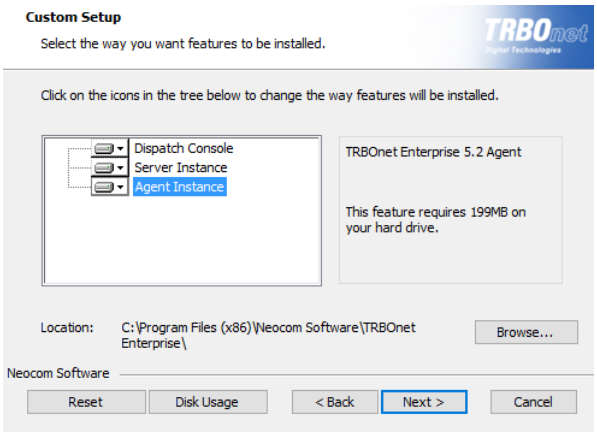
The .NET Framework redistributables are available from Microsoft at:
https://www.microsoft.com/en-us/download/search.aspx?q=.net%20framework

4.4 Installing TRBOnet PLUS

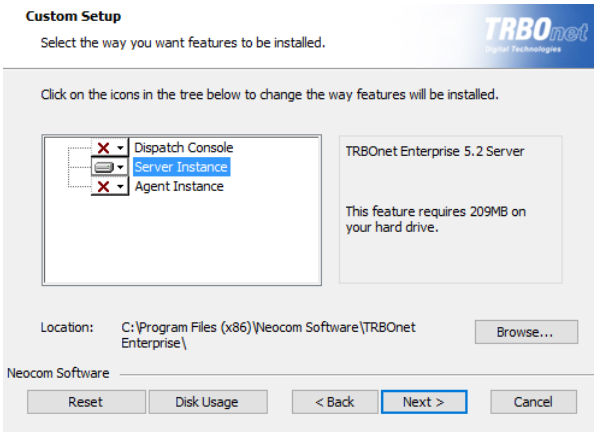
- Contact **Neocom Software** to obtain the latest installation package of the TRBOnet PLUS software, unzip, and run the setup file as a local administrator.
- When the **TRBOnet PLUS Setup** wizard opens, click **Next**.
- On the **End User License Agreement** page, accept the terms of the license,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



- 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.

5.1.1 License Types

There are three license types available for TRBOnet PLUS:

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.	Assigned to server's Hardware ID. For more details on Hardware ID, see the article. Assigned to the serial numbers of master repeaters and control stations. To retrieve serial numbers, use Control Station 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 (e.g., in Notepad):

```
License ID: aada3405-4e5f-4254-843f-a2ba01e7c475
License generated by: John Smith
License generation date: 7/20/2016
TRBOnet Support is active up to: 7/20/2017
Product: TRBOnet_Enterprise (4.0.0.138)
License for: Neocom Software Ltd
Licensed instance: [Default]

Server limitations
Server hardware keys:
    42B1-BA64-D473-D6E8-DFAC
Remote Agent connections: 5
System types: Unlimited

Agent limitations
Agent hardware keys: Any
Number of master radios or master repeaters: 5
Master radios / master repeaters serial numbers: 484TNL2887; 484TNL2888; 484TNL2889; 484TNL2890; 484TNL2891
Total number of peers in IP Site Connect or Capacity Plus systems: 10
Serial numbers of peers used in IP Site Connect or Capacity Plus systems: Unlimited

Limitation for Client connections
Remote Dispatch connections: 10
Number of Remote Dispatch accounts: 10

Subscriber radios limitations
Number of subscriber radios: 10
```

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

In case you need to use TRBOnet Server on a different server PC, please contact your **Neocom** sales representative for further instructions.

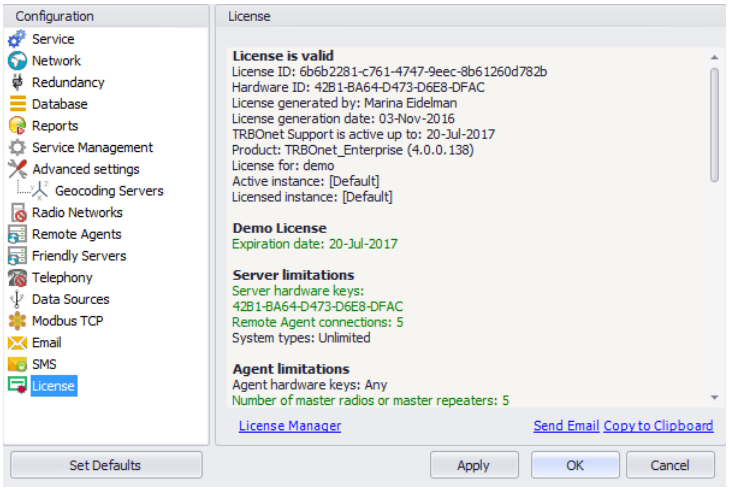
5.1.3 Using Spare Repeaters

In case you are planning to use spare repeaters, for example, as replacement for damaged ones, you need to mention all of them when ordering a license.

For example, you have 3 repeaters to use with TRBOnet Server and 1 spare repeater. In this case, mention the following repeaters limitation: 3, and send the serial numbers of 4 repeaters when placing an order (including 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.



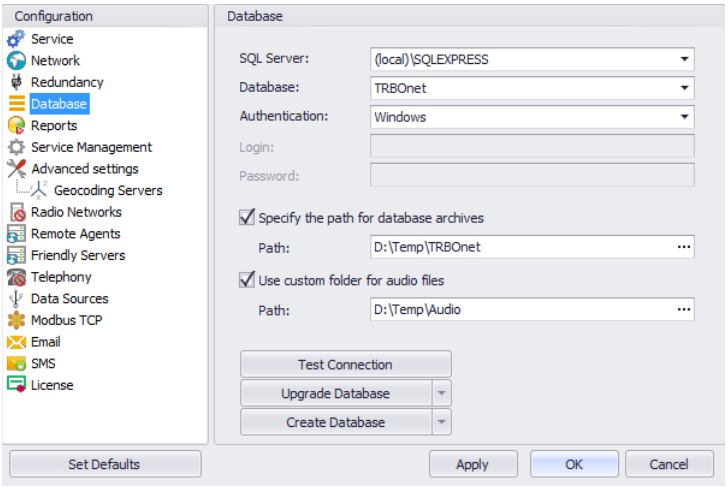
To apply the new license:

- Click the **License Manager** link in the right pane.
  The **License Manager** wizard opens.
- Click **Next**.
- Click **...** on the right-hand side of the **License file** box.
  The **Open** dialog box opens.
- 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.
- Click **Next**.
- Click **Finish** to close the wizard.
- 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, see *TRBOnet License Server Configuration Guide*.

5.2 Creating 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 preferred name of the TRBOnet database.
  - **Authentication**
    Select the authentication method for the TRBOnet database. The default method is Windows Authentication. See also the Database Authentication section.
  - **Login** and **Password**
    Enter a valid SQL Server login and password if the SQL Server Authentication is selected for the database;
  - **Specify the path for database archives**
    Select this option, and in the corresponding **Path** box enter the full path of the custom folder for database backups.
  - **Use custom folder for audio files**
    Select this option, and in the corresponding **Path** box enter the full path of the custom folder for audio recordings of the talk sessions.

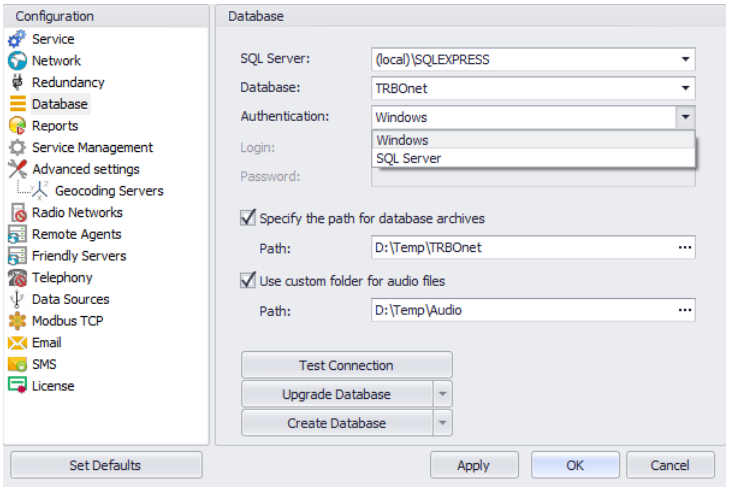
Note: If you don't specify folder paths for the database archives and audio files, TRBOnet Server will use the following default paths:
%ProgramData%\Neocom Software\TRBOnet PLUS\Backups - for database archives.
%ProgramData%\Neocom Software\TRBOnet PLUS\Audio - for audio.

- 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**.



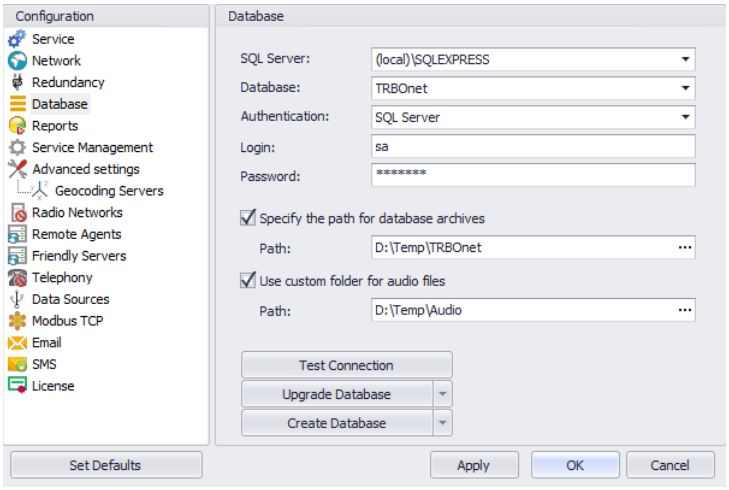
To provide access permissions for TRBOnet Server to connect to SQL Server, create an account with **sysadmin** privileges.

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 DB 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 http://kb.trbonet.com/public.pl?Action=PublicFAQZoom;ItemID=72

5.2.1.2 SQL Server Authentication

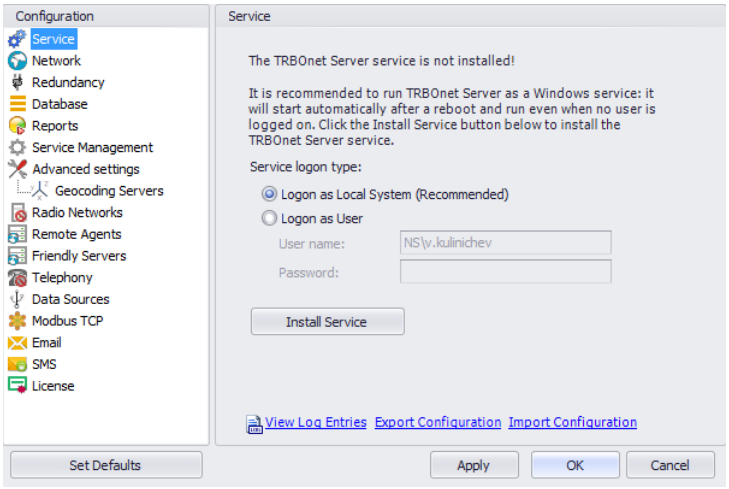
- From the **Authentication** drop-down list, select **SQL Server**.



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

5.3 Installing 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);

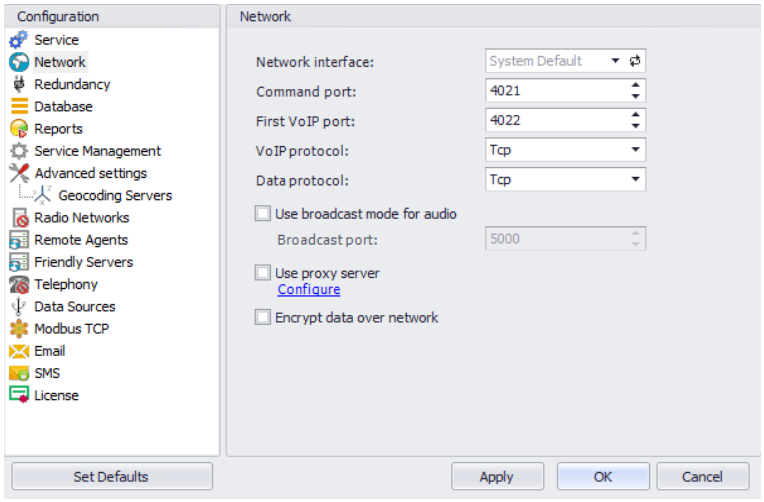
    Logon as User
    Choose this option to use a different account to run the service as a Windows service. This account must allow the user to run services in Windows, have read and write access to the **Neocom Software** folder and subfolders in the "**%ProgramFiles%**" and "**%ProgramData%**" folders. 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) has been selected to connect to the database.

- Click **Install Service**.
- Click the **Start Service** link that appears in the right pane.

5.4 Configuring Network Parameters

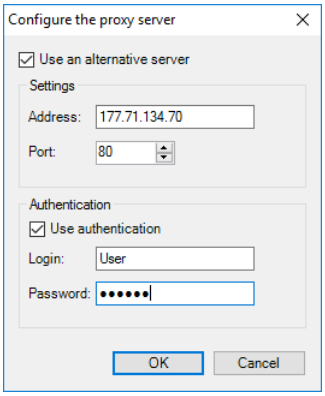
- In the **Configuration** pane, select **Network**.



- In the **Network** pane, specify the following network-related parameters:
  - **Network interface**
    Select the network interface from the drop-down list. Click to refresh the list of network interfaces available on your PC.
  - **Command port**
    Enter the port number to be used by Dispatch Console to connect to the server (4021, by default).
  - **First VoIP port**
    Enter the number of the first VoIP port for audio communications (4022, by default). Each additional Dispatch Console will establish a connection on the next available port number.
  - **VoIP protocol**
    Select the VoIP protocol type from the drop-down list:
    - **All** - UDP will be used first; if unavailable, TCP will be used;
    - **TCP** - slower but more reliable (set by default);
    - **UDP** - faster but 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 (TCP, by default).
- **Use broadcast mode for audio**
  Select this option to optimize voice transmission quality and minimize transmission delay. Note that when the broadcast mode is set, 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 an individual login and password to connect to the alternative proxy server.
- **Login**
  Enter the login for the authentication.
- **Password**
  Enter the password for the authentication.

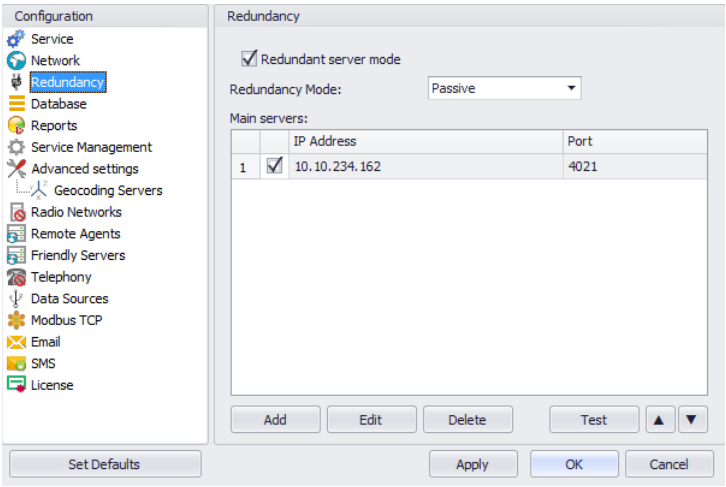
- After you configure the proxy server settings, click **OK**.

- **Encrypt data over network**
  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.

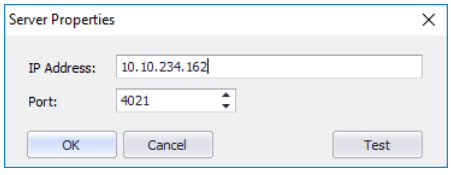
5.4.1 Configuring Backup Configuration

TRBOnet Server supports backup configuration, which allows smooth switching between the working servers in case of a failure for the Dispatch Consoles.

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



- In the **Redundancy** pane, select the **Redundant server mode** option.
- **Redundancy Mode**
  Select the mode for a backup server from the drop-down list.
- To add a main server, click **Add**.

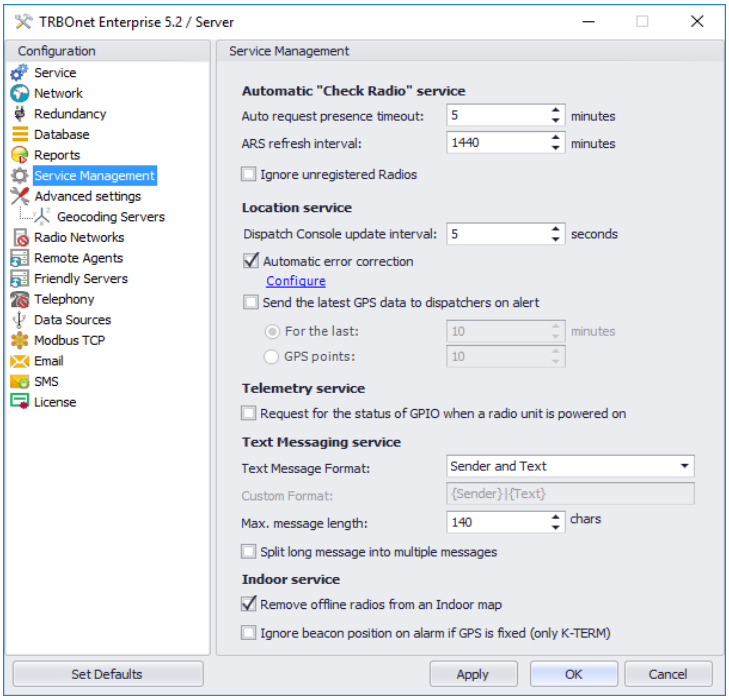


- **IP Address**
  Type the IP address of the main server.
- **Port**
  Enter the same port number as specified for the Command port.

5.5 Service Management

The Service Management pane allows you to specify various parameters for the Check Radio, Location, Telemetry, TMS, and Indoor services.

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



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

5.5.1 Automatic "Check Radio" Service

The **Automatic "Check Radio" service** group includes the following registration-related parameters:

- **Auto request presence timeout**
  Enter the time interval that will be used to regularly check a radio unit for inactivity. A radio is considered inactive (or, offline) if it 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	ARS request presence timeout (minutes)	Number of radio units	ARS request 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

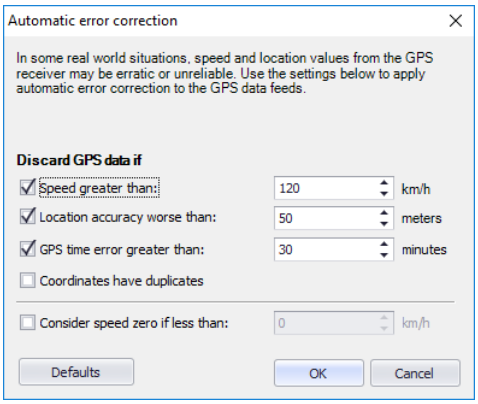
- **ARS refresh timeout**
  Enter the value of the parameter that determines how often a radio unit will send ARS packets. It is recommended that a value of 30 minutes be used for this interval.
- **Ignore unregistered Radios**
  Select this option so that unregistered radio units will be ignored and thus won't appear in Dispatch Console.

5.5.2 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 to the Dispatch Consoles.
- **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 correction parameters:



  Discard GPS data if

  - **Speed greater than**
    Select this option and enter the maximum possible speed of your vehicles. As a result, the coordinates falling out of the appropriate speed range will be discarded.
  - **Location accuracy worse than**
    Select this option and enter the maximum accuracy of your GPS receivers so that the coordinates falling out of the acceptable range will be discarded.
  - **GPS time error greater than**
    Select this option and enter the time, in minutes, that will be used to discard the coordinates falling out of the appropriate time range.
  - **Coordinates have duplicates**
    Select this option to remove duplicate coordinates from GPS data.
  - **Consider speed zero if less than**
    Select this option and enter the low-speed threshold, below which the speed will be considered as zero by the server.
- **Send the latest GPS data to dispatchers on alert**
  Select this option so that dispatchers receive the latest GPS data when alert happens. 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.

5.5.3 Telemetry Service

The **Telemetry Service** group includes the following telemetry-related parameters:

- **Request for the status of GPIO when a radio unit is powered on**
  Select this option to enable the server to request for the status of a radio unit telemetry when a radio is powered on.

5.5.4 Text Messaging Service

The **Text Messaging Service** group includes the following message-related settings:

- **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.
- **Max. message length**
  Enter the maximum number of characters allowed in a text message.
- **Split long message into multiple messages**
  Select this option to allow long messages to be split into multiple smaller messages.

5.5.5 Indoor Service

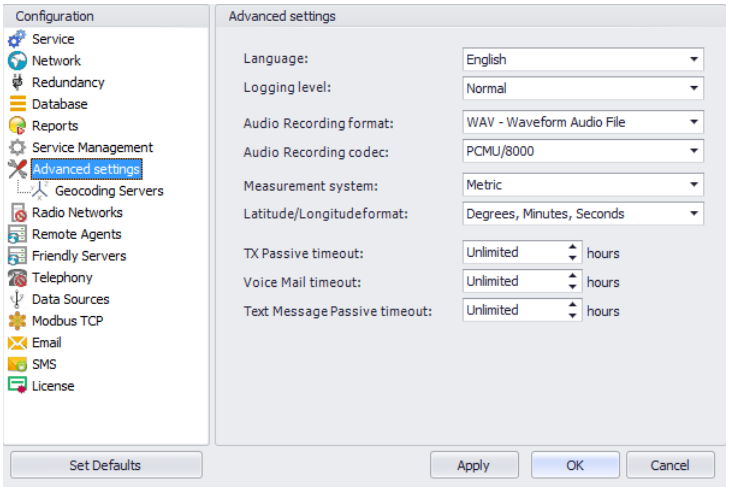
The **Text Messaging Service** group includes the following indoor-related parameters:

- **Remove offline radios from an Indoor map**
  Select this option so that offline radios are not shown on the 2D/3D floor plans.
- **Ignore beacon position on alarm if GPS is fixed (only K-TERM)**
  Select this option so that beacon positioning is ignored in case of alarm when a radio has a detected GPS position.

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

5.6 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, which determines the amount of data stored in the System Log.

    Note: This information is used by technical support for troubleshooting purposes, so it is recommended that this value be kept unchanged (Normal).
  - **Audio Recording format**
    From the drop-down list, select the format to be used to store audio recordings. The available formats are WAV and TNA.

    Note: The TNA format is a proprietary audio format that contains additional information about radio calls, such as radio ID, start time, end time, etc. 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 audio files.
  - **Measurement system**
    From the drop-down list, select either the Metric or the US unit system.
  - **Latitude/Longitude format**
    From the drop-down list, select the format of Latitude/Longitude pairs.
  - **TX Passive timeout**
    Enter the time period, in hours, that will be used to store messages while the transmission channel is unavailable ('Unlimited' recommended).

- **Voice Mail timeout**
  Enter the time period, in hours, during which TRBOnet Server will keep trying to deliver the voice mail message to the recipient ('Unlimited' recommended).
- **Text Message Passive timeout**
  Enter the time period, in hours, during which TRBOnet Server will keep trying to deliver the text message to the recipient ('Unlimited' recommended).

5.6.1 Geocoding Servers

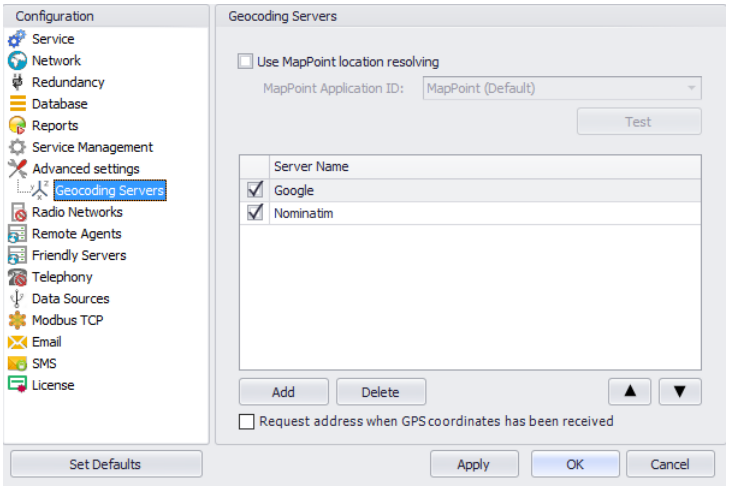
Geocoding servers resolve GPS coordinates to street addresses for reporting purposes and other needs, for example, for reports, such as 'GPS activity for period' reports. Online geocoding services, such as Google or Nominatim, can be used. However, their use may be limited by the number of requests.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

You can configure geocoding servers in three various 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 Dispatch Console 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.

5.6.1.1 Configuring Geocoding Servers

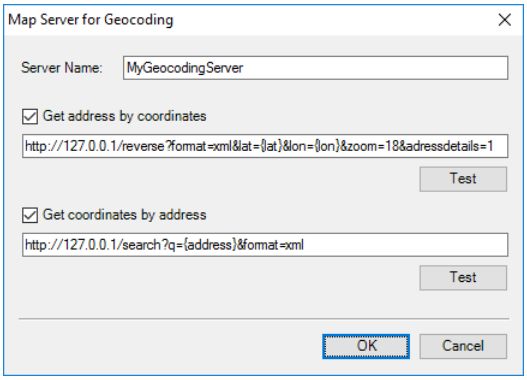
- In the **Configuration** pane, select **Geocoding Servers**.



- In the **Geocoding Servers** pane, specify the following geocoding-related parameters:
  - **Use MapPoint location resolving**
    Select this option to get street addresses from MapPoint, and enter the **MapPoint Application ID**. MapPoint is a service from Microsoft that is used to transform coordinates into street addresses.
  - **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, it requests GPS data from the geocoding servers according to the priority level. The first geocoding server in 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.

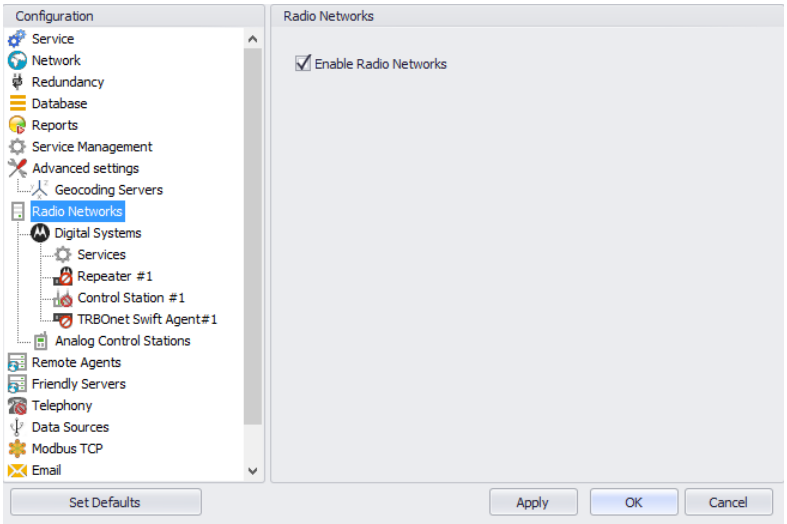
  The administrator must ensure that the geocoding servers in the list are able to resolve GPS data.

- **Request address when GPS coordinates are received**
  Select this option to resolve GPS coordinates to street addresses immediately by a GPS event. Note that street addresses and GPS coordinates are stored in the TRBOnet database to optimize the response time for street address requests (for example, GPS reports) and to reduce geocoding server load.

5.7 Radio Networks

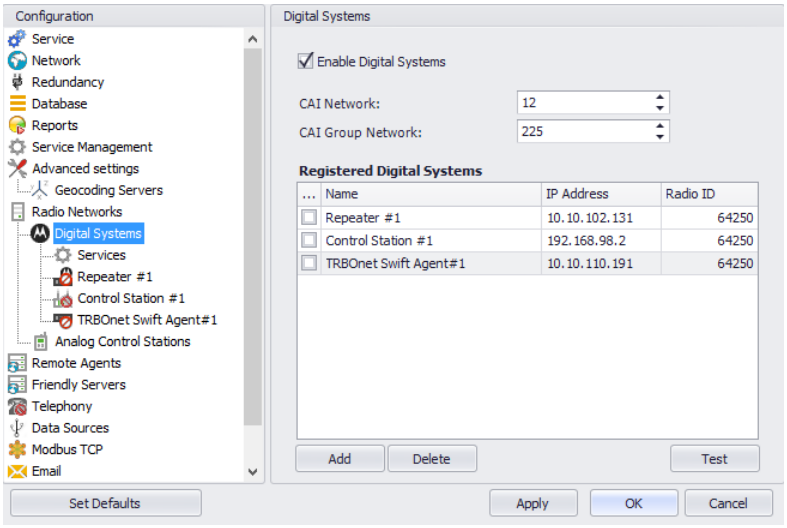
The Agent is a gateway between the radio network and the IP network. Enable 'Local Agent' to connect TRBOnet Server to a radio system. Otherwise, you should use Remote agents.

- In the **Configuration** pane, select **Radio Networks**.
- In the **Radio Networks** pane, select **Enable Radio Networks**.
  Or, in the **Configuration** pane, right-click **Radio Networks** and choose **Use Radio Networks**.



- In the **Configuration** pane, select **Digital Systems**.

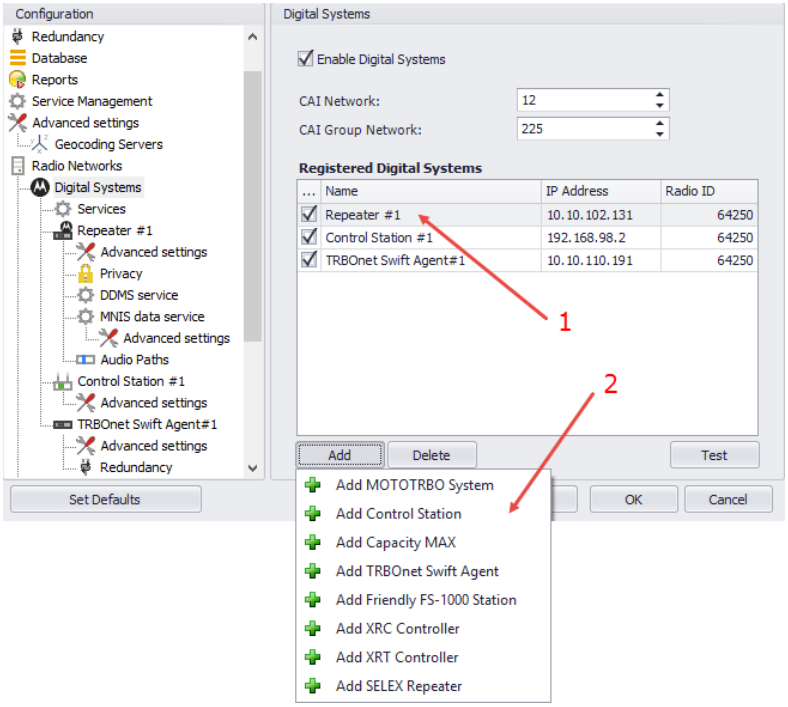
- In the **Digital Systems** pane, select or make sure **Enable Digital Systems** is selected.



- In the **Digital Systems** pane, specify the following parameters:
  - **CAI Network**
    The CAI 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.

5.7.1 Digital System Elements

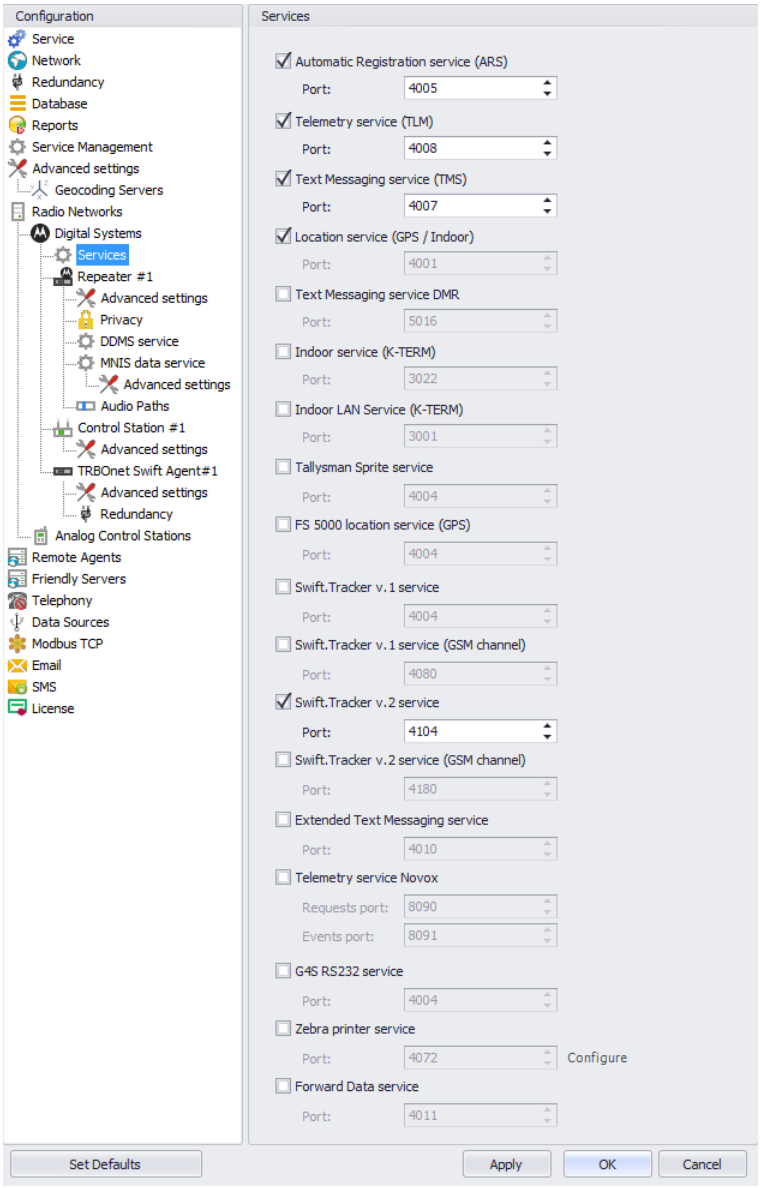


All radio system elements based on MOTOTRBO services are represented in the **Registered Digital Systems** table, including their type (Control Station, Repeater, etc.), IP Address, and Radio ID (1):

- To add an element to the system, click **Add** and select the element type from the drop-down menu (2).

5.7.2 MOTOTRBO Services

- In the **Configuration** pane, under **MOTOTRBO**, select **Services**:



- In the **Services** pane, specify the following MOTOTRBO Services-related parameters:
  - **Automatic Registration Service (ARS)**
    Select this option to enable the ARS service for the radios. When the radio powers up, the radio automatically registers with the server. This feature is used with data applications, i.e. any data traffic on this channel that 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).
  - **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.

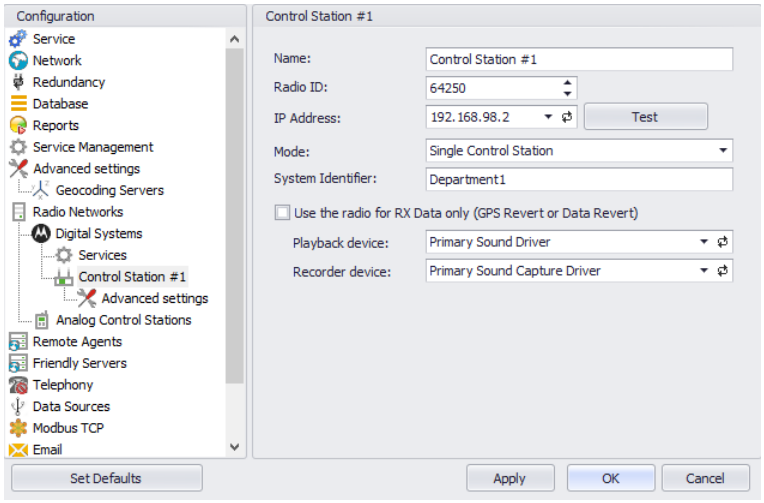
- **Port**
  Enter the local port number for the Telemetry service (4008, by default). 4008 set by default.

- **Text Messaging service (TMS)**
  Select this option to enable the Text Messaging service 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 (GPS / Indoor)**
  Select this option to enable the Location service. The radio can send its coordinates when it is in Global Positioning or iBeacon coverage area.
  - **Port**
    Enter the local port number for the Location service (4001, 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).
- **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 service**
  Select this option to enable the service to transmit coordinates and data packages via a radio channel using the Swift.Tracker TR001.M1 device.
  - **Port**
    Enter the local port number for the Swift.Tracker service (4004, by default).

- **Swift.Tracker service (GSM channel)**
  Select this option to enable the service to transmit coordinates and data packages via a radio channel and a reserved GSM channel using the Swift.Tracker TR001.M1 device.
  - **Port**
    Enter the local port number for the Swift.Tracker service (4080, 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).
- **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**
  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).

5.7.3 Adding a Control Station

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

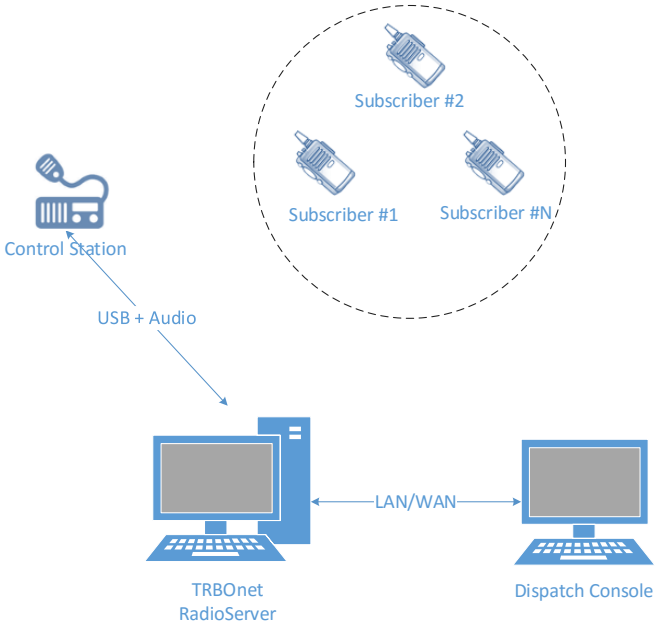
    Note: This box is populated automatically once you have successfully tested the control station by clicking the **Test** button.
  - **IP Address**
    Enter the IP Address of the control station network interface;
  - **Test**
    Click this button to check the connection to the control station. If the test succeeds, you'll see information on the control station you are connected to, such as radio ID, serial number, firmware version, etc.
  - **Mode**
    From the drop-down list, select the connection mode for the control station being configured. For more details, see section 5.7.3.1, Control Station Connection Modes.
  - **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 the 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 any transmission capability.

- **Playback device**
  From the drop-down list, select the playback device connected to the control station.
- **Recorder device**
  From the drop-down list, select the recording device connected to control station.

5.7.3.1 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.

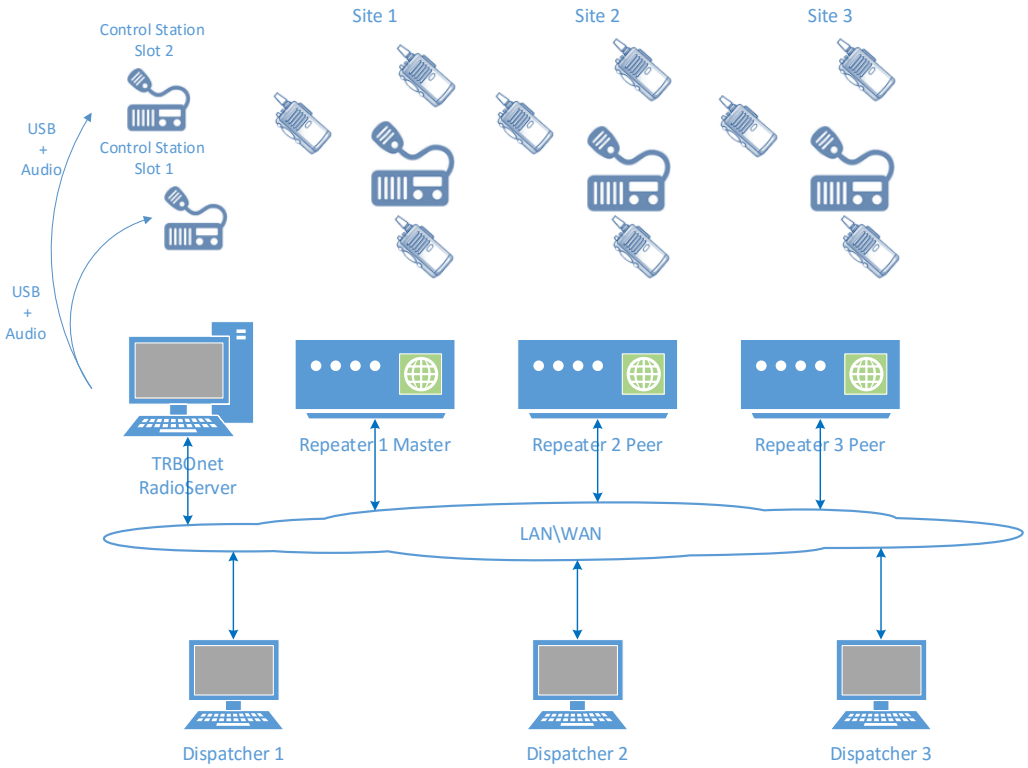


IP Site Connect

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. 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. To transmit and receive, two control stations are required, that is one control station per time slot.



Common Channel

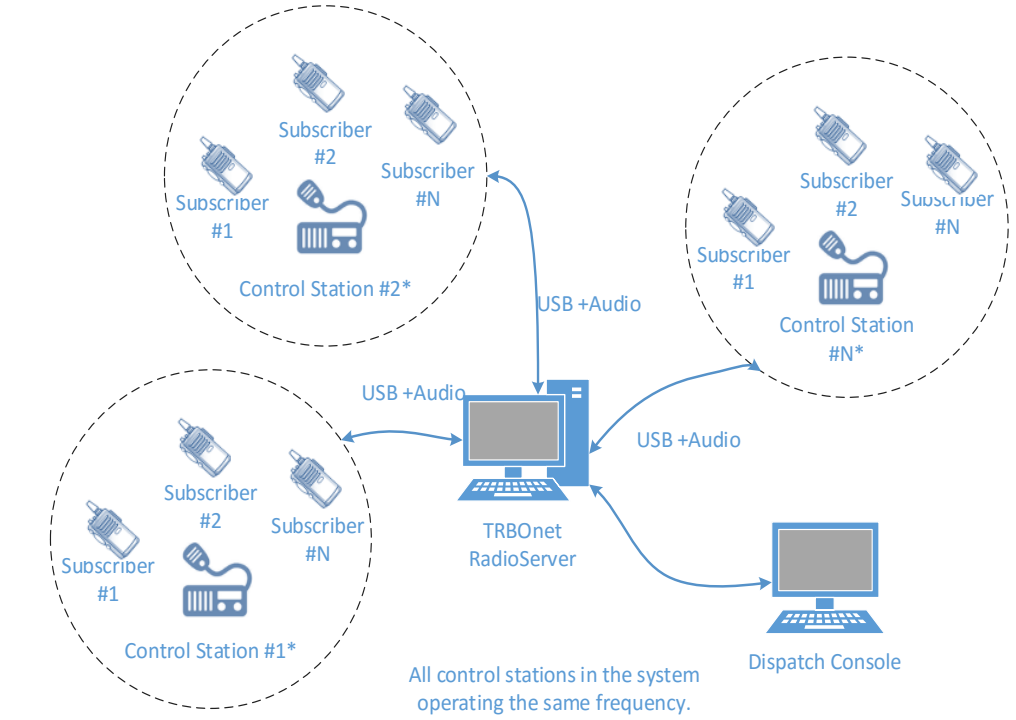
The Common Channel is a mode where it is possible to use multiple simplex base stations operating at the same frequency with overlapping communication zones.

This mode allows the customer to provide radio coverage of 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 be prohibited.

The signal filtering is preformed 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.

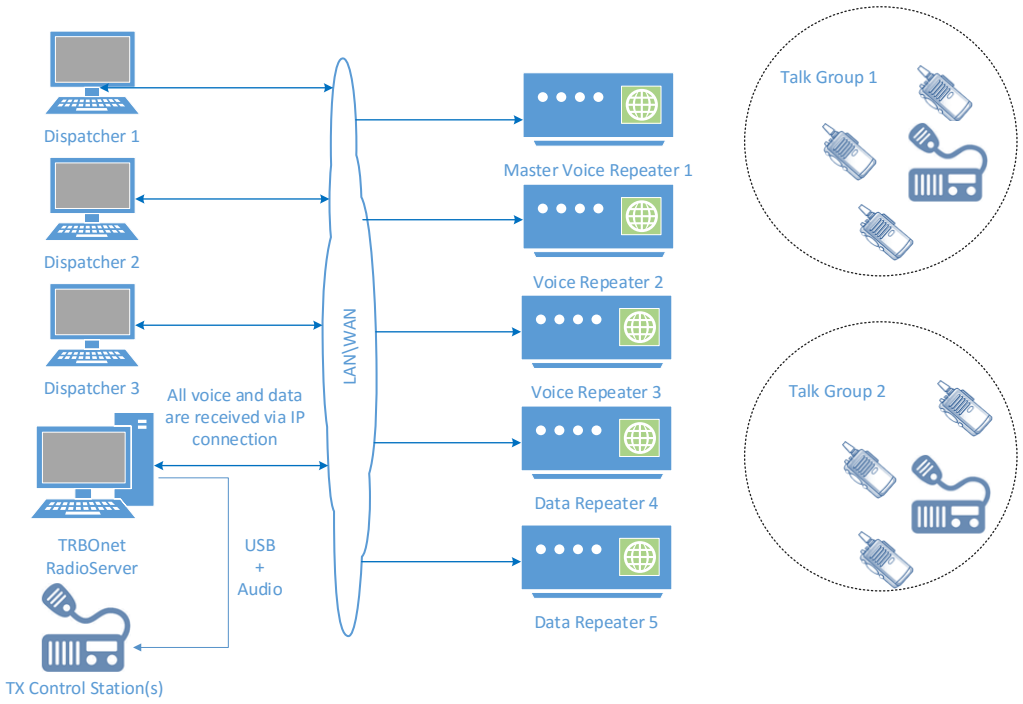
When a dispatcher initiates a call to a specific base station, the signals received by the neighboring base stations will be discarded to prevent dispatchers from listening to their own call at the time of transmission. The dispatcher is not recommended to use a simultaneous call to all base stations to avoid interference in the subscribers' area.

The best 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 TRBOnet

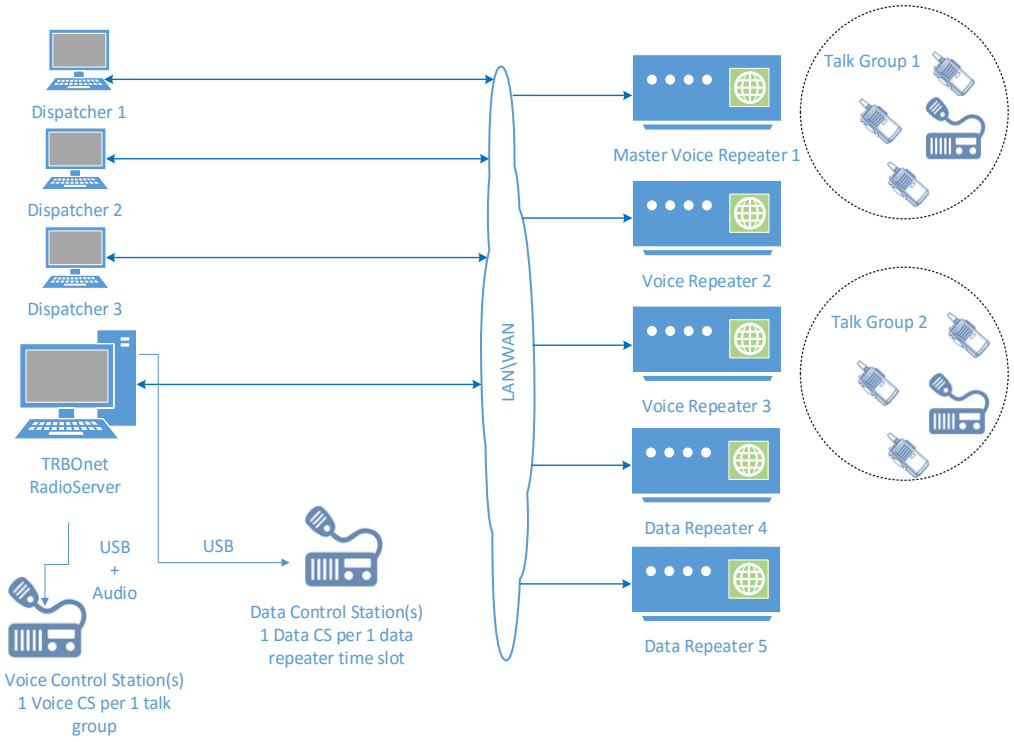
Capacity Plus TRBOnet is a limited option. All voice and data are received via IP. At least one control station is required for outgoing voice and data session at a time. Private calls and SIP calls require dedicated control stations.



Capacity Plus MOTOTRBO

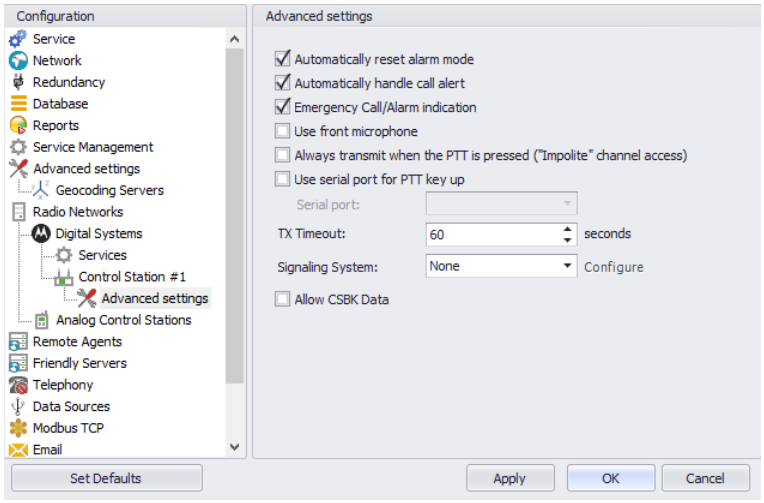
Capacity Plus MOTOTRBO is a digital trunked two-way MOTOTRBO system that allows you to accommodate high volume communication. It is designed to organize stable connection in a few groups within one building or a set of buildings. This system type allows you to increase the number of channels for voice 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 MOTOTRBO is to support more simultaneous voice and data transmissions within one capacious system.

In the Capacity Plus MOTOTRBO mode you can configure voice and data control stations to transmit and receive data over the air as it is displayed in 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.



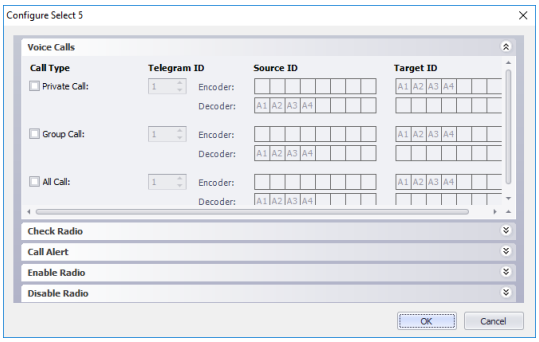
5.7.3.2 Advanced Settings

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



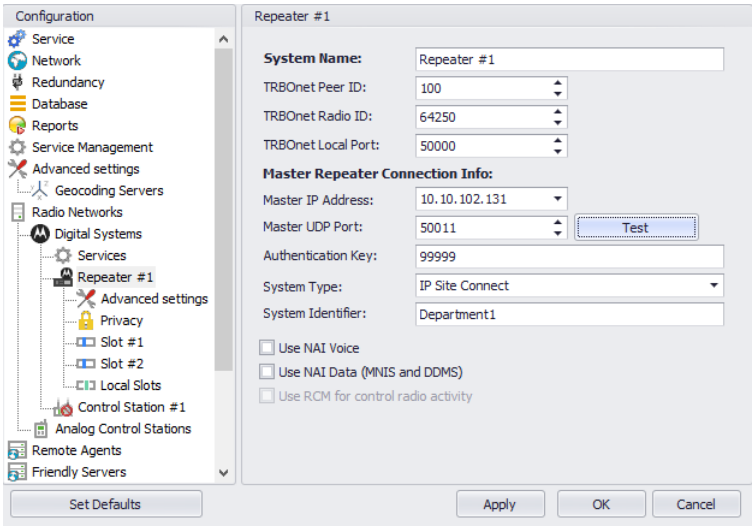
- In the **Advanced Settings** pane, specify the following control station-related advanced settings:
  - **Automatically reset alarm mode**
    Select this option to reset alarm mode on the control station radio automatically. It is recommended to enable this option.
  - **Automatically handle call 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 speaker microphone on the radio.
  - **Always transmit when the PTT is pressed ("Impolite" channel access)**
    Select this option so that the radio will always transmit when the PTT button is pressed (not available in Capacity Plus and Linked Capacity Plus systems).
  - **Use serial port for PTT key up**
    Select this option to use a remote control of the PTT button via the radio's serial port.
  - **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.
  - **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 (e.g. 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, Check Radio, Call Alert, and Enable/Disable Radio.
  Click the **Configure** link and specify desired SELECT 5 settings.



5.7.4 Adding a MOTORBO Repeater

- In the **Digital Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Digital Systems**.
- In the drop-down menu, click **Add MOTOTRBO System**.



- In the **Repeater** pane, specify the following repeater-related parameters:
  - **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.

- **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 connections for the repeater. Use unique port numbers for each repeater connection if there are several repeaters connected.
- **Master IP Address**
  Enter the Ethernet IP address of the repeater.

  Note: This value is programmed for a repeater via MOTOTRBO CPS, in *Link Establishment>Master IP*.
- **Master UDP Port**
  Enter the UDP port number of the master repeater.

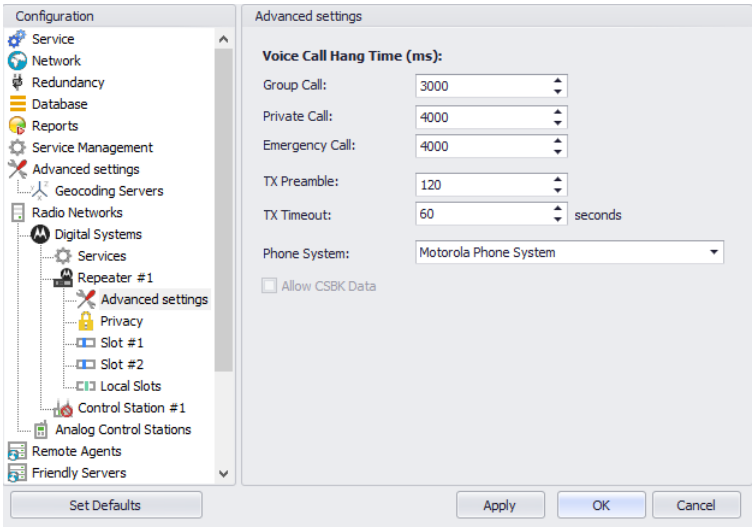
  Note: This value is programmed for a repeater via MOTOTRBO CPS, in *Link Establishment>Master UDP Port*.
- **Authentication Key**
  Enter the repeater's authentication key (if any).

  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 system type.
- **Test**
  Click this button to check the connection to your master repeater. If the test succeeds, you'll see information on the repeater you are connected to, such as the serial number, firmware version, etc.
- **System Identifier**
  Enter the system identifier if a Capacity Plus or Linked Capacity Plus 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.
- **Use NAI Data (MNIS and DDMS)**
  Select this option to connect to the repeater via NAI (Network Application Interface) for Data transfer.
  - **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 to receive data to a repeater.

5.7.4.1 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:

  Voice Call Hang Time (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.

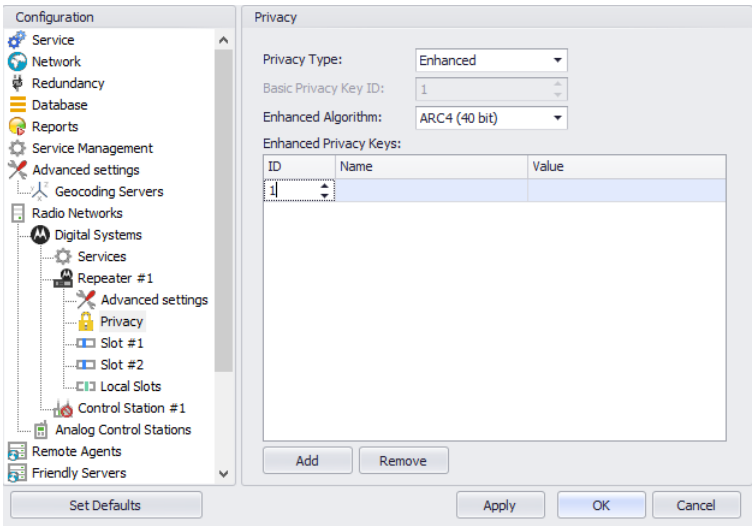
  Note: The values of the above three parameters must be taken from the corresponding parameter values programmed for the repeater via MOTOTRBO CPS in *General Settings*.

- **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, etc.) 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 B: SIP Setup for Motorola Phone System.
  - **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.
- **Allow CSBK Data**
  Select this option so that the GPS and ARS data are compressed into a single CSBK data.

Note: This feature is available only when the MNIS data service is enabled for the repeater.

5.7.4.2 Privacy

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



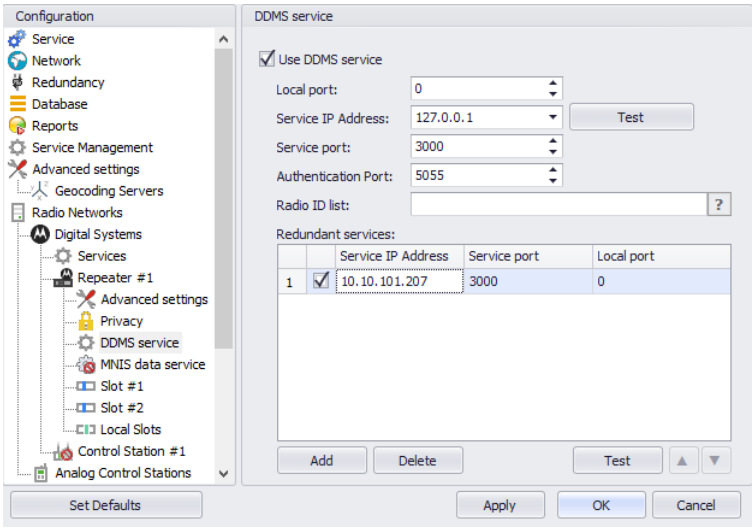
- In the **Privacy** pane, specify the following privacy-related settings:
  - **Privacy Type**
    From the drop-down list, select one of the privacy types: None, Basic, or Enhanced.
  - **Basic Privacy Key ID**
    Enter the Privacy Key ID available for the **Basic** privacy type.
  - **Enhanced Algorithm**
    From the drop-down list, select one of the enhanced algorithms if you are going to use additional encryption.

    Note: For more details on ARC4, see https://en.wikipedia.org/wiki/RC4
  - **Enhanced Privacy Keys**
    Here you add enhanced privacy keys for the selected enhanced algorithm.
    - Click **Add** and specify the required ID, name, and value for the privacy key being added.

5.7.4.3 DDMS Service

The DDMS, or Device Discovery and Mobility Service is a service to receive data to a repeater.

- 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 repeater.
  - **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.

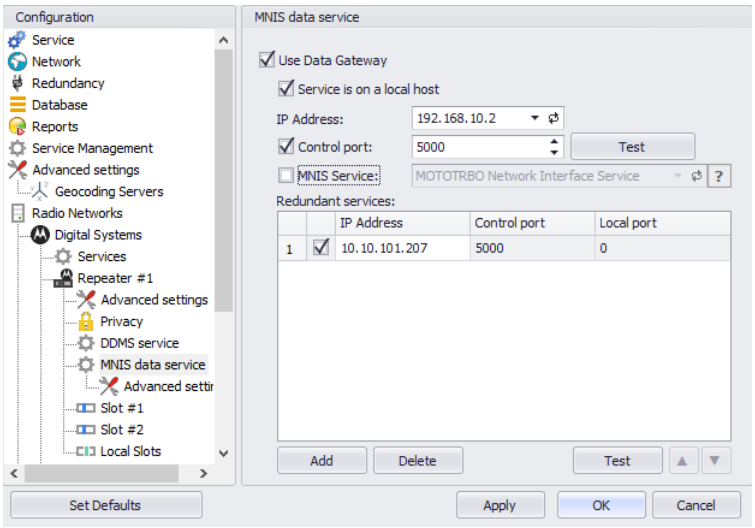
  Note: This value is programmed for a DDMS service via MOTOTRBO DDMS Administrative Client, in *Interfaces>Watcher Settings>PortWatcher*.
- **Authentication Port**
  Enter the authentication server port number.

  Note: This value is programmed for a DDMS service via MOTOTRBO DDMS Administrative Client, in *Interfaces>Authentication Server Settings>AuthenticationServerPort*.
- **Radio ID list**
  Enter the list of radios to be monitored.
- **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.

5.7.4.4 MNIS Data Service

The MNIS, or Motorola Network Interface, is a service that captures data from DDMS service and transfers the data to a radio server.

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



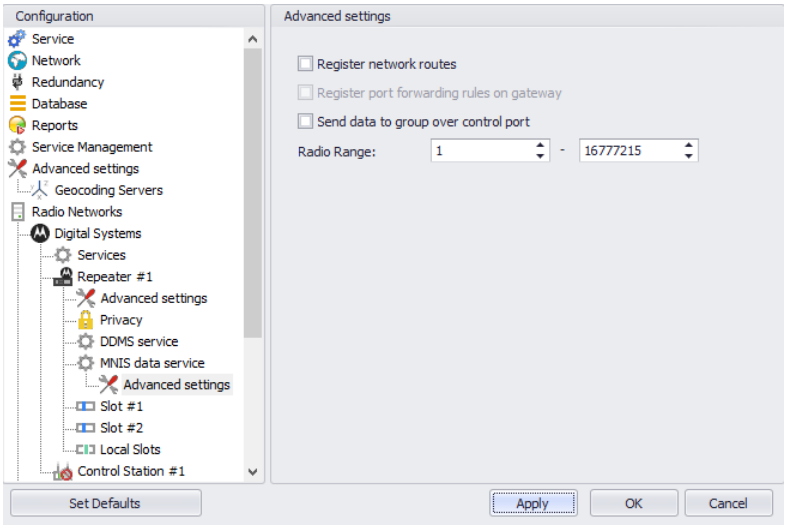
- In the **MNIS data service** pane, specify the following MNIS data service-related settings:
  - **Use Data Gateway**
    Select this option to enable the MNIS data service for the repeater.
  - **Service is on a local host**
    Select this option if MNIS data service will be used on the local PC;
  - **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**
    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**.

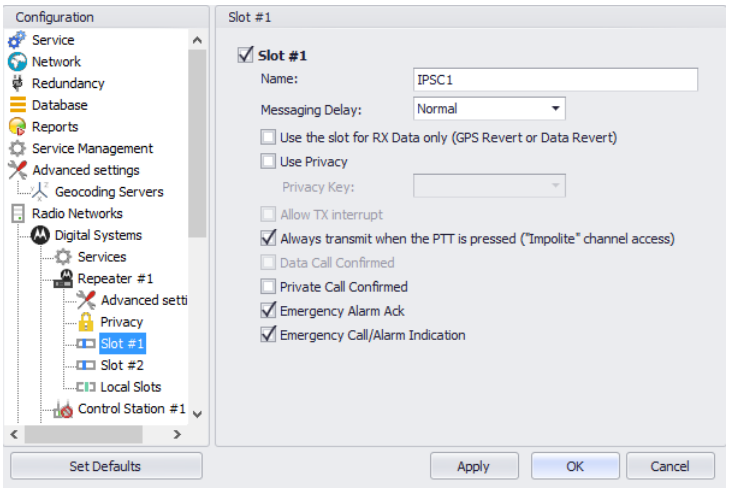


- In the **Advanced settings** pane, specify the following advanced MNIS settings:
  - **Register network routes**
    Select this option to register network routes.
  - **Send data to group over control port**
    Select this option so that data will be sent via the specified control port.
  - **Radio Range**
    Specify the range of radios to be monitored by the MNIS service.

5.7.4.5 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 #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.
- **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 the 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 any 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 TX interrupt**
  Select this option to allow the slot to be interrupted during voice transmissions by radios that are Transmit Interrupt capable.

  Note: This feature is available only when the **Use NAI Voice** option is cleared in the **Repeater** pane.
- **Always transmit when the PTT is pressed ("Impolite" channel access)**
  Select this option so that the radio will always transmit when the PTT button is pressed (not available in Capacity Plus and Linked Capacity Plus systems).
- **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.

  Note: This feature is available only when the **Use NAI Voice** option is cleared 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.

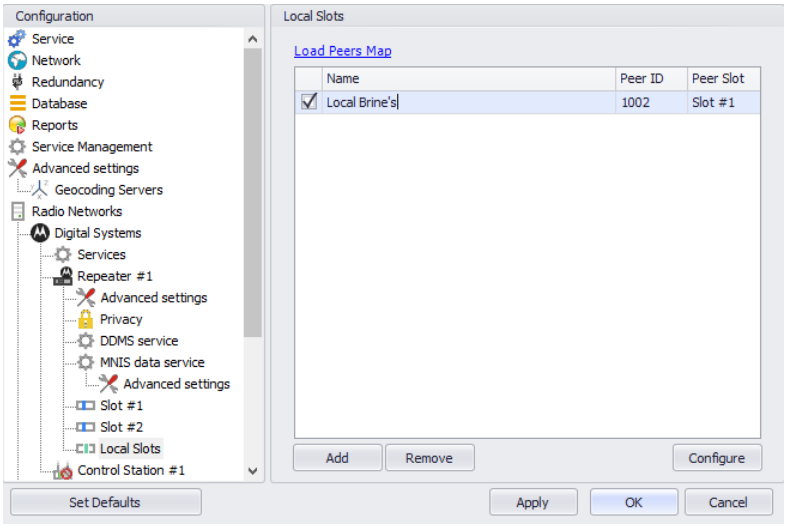
- **Emergency Alarm Ack**
  Select this option so that the slot is allowed to acknowledge an emergency alarm.
- **Emergency Call/Alarm Indication**
  Select this option so that audio and visual indication is given by the slot when an emergency call/emergency alarm is received.

5.7.4.6 Local Slots

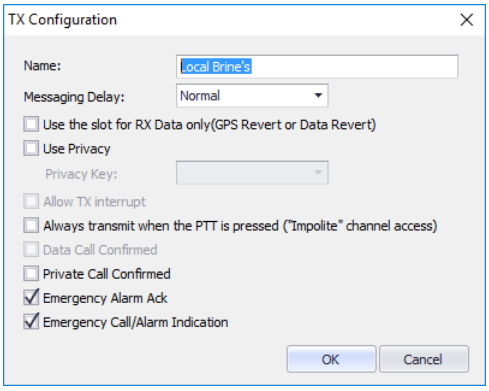
Note: Local slots are available only when **IP Site Connect** is selected, and the **Use NAI Voice** option is selected in the **Repeater** pane.

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.

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



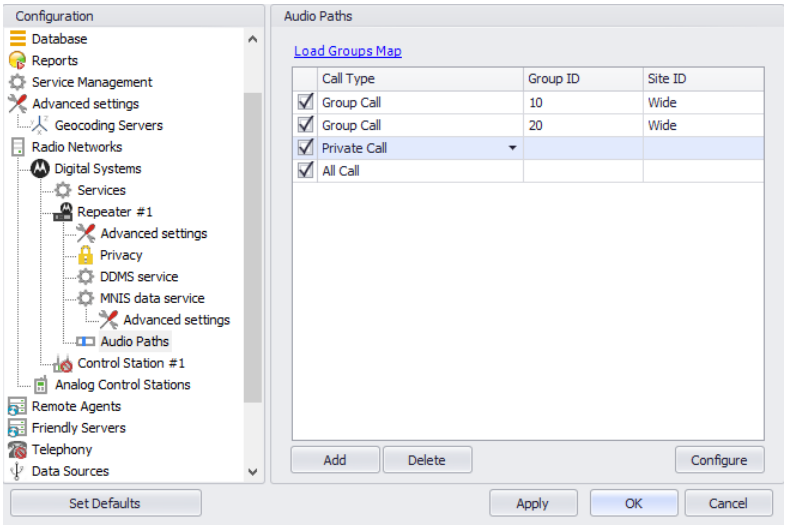
- Specify the desired local slot settings similar to those for a common repeater slot.

5.7.4.7 Audio Paths

Note: Audio paths are available only when **Capacity Plus** or **Linked Capacity Plus** are selected, and the **Use NAI Voice** option is selected in the **Repeater** pane.

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 **Repeater**, select **Audio Paths**.



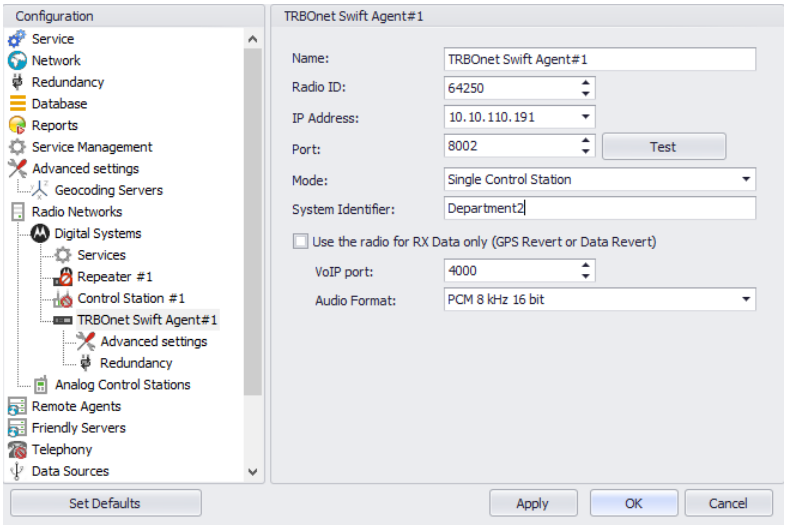
- In the **Audio Paths** pane, specify the following Audio Path-related settings:
  - To add an audio path to the system, click **Add**.
  - Make sure the check box in the first column is selected to make and receive voice calls from the selected subscriber.

- 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.
- 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.

5.7.5 Adding a TRBOnet Swift Agent

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

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



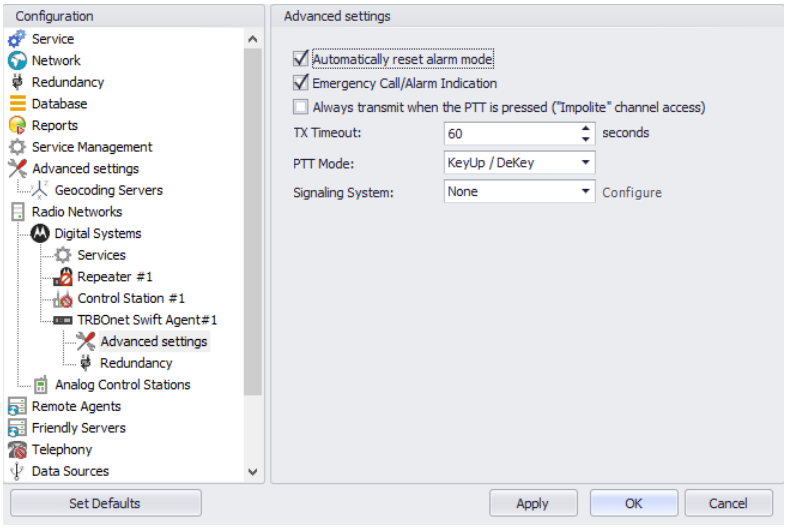
- In the **TRBOnet Swift Agent** pane, specify the following Swift Agent-related parameters:
  - **Name**
    Enter a name for the Swift Agent. This name will be displayed in the Dispatch Console.
  - **Radio ID**
    This is the Radio ID of the Swift Agent.
    (for Capacity Plus and Linked Capacity 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 for incoming connections (8002, by default).
- **Test**
  Click this button to check the connection to the Swift Agent. If the test succeeds, you'll see information on the Swift Agent you are connected to, such as Serial number, Firmware version, etc.
- **Mode**
  From the drop-down list, select the connection mode for the Swift Agent being configured. For more details, see section 5.7.2.1, Control Station Connection Modes.
- **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 the 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 any transmission capability.
- **VoIP port**
  Enter the port number for audio communication (4000, by default).
- **Audio Format**
  From the drop-down list, select the format to transmit audio data.

5.7.5.1 Advanced Settings

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

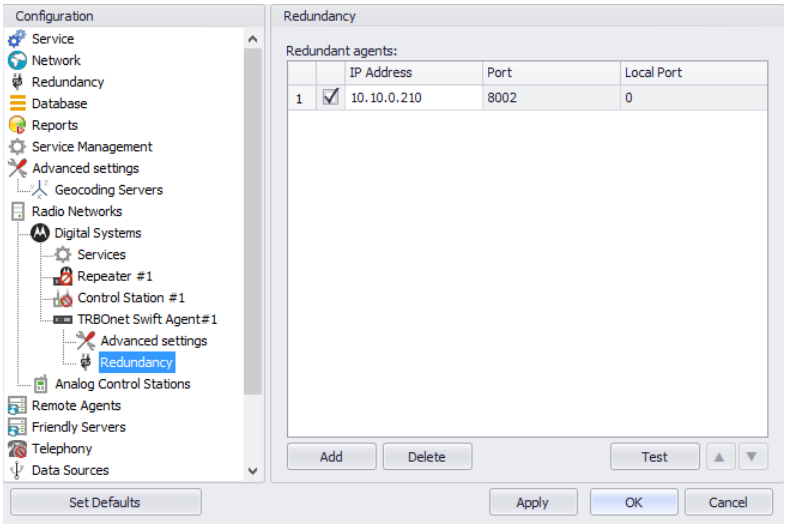


- In the **Advanced Settings** pane, specify the following Swift Agent-related advanced settings:
  - **Automatically reset alarm mode**
    Select this option to reset alarm mode on the control station radio automatically. It is recommended to enable this option.
  - **Emergency Call/Alarm indication**
    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 the radio will always transmit when the PTT button is pressed (not available in Capacity Plus and Linked Capacity Plus systems).
  - **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.
  - **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 (e.g. 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, Check Radio, Call Alert, and Enable/Disable Radio.

5.7.5.2 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**.



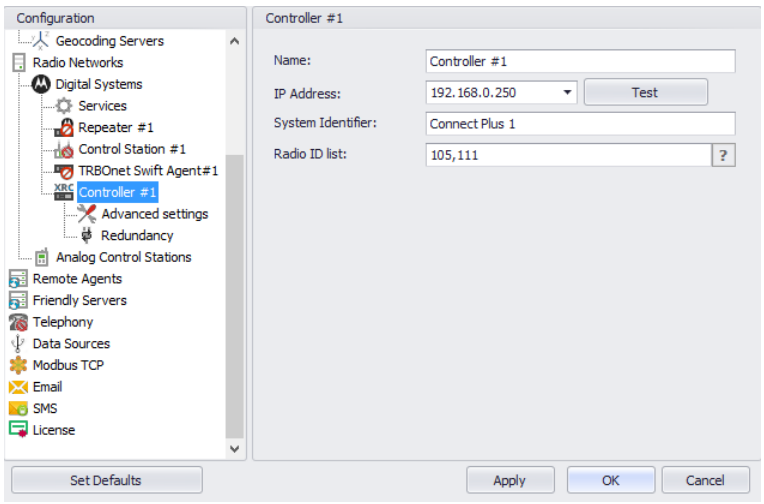
- In the **Redundancy** pane, specify the following Redundant Agent-related settings:
  - Click **Add** and specify the desired parameters for the Redundant Agent being added.
    - **IP Address**
      Enter the IP Address of the Swift Agent that will be used as a Redundant Swift Agent.
    - **Port**
      Enter the port number of the Redundant Swift Agent for incoming connections (8002, by default).
    - Click **Test** to check the connection to the Redundant Swift Agent.
      If the test succeeds, you'll see information on the Swift Agent you are connected to, such as Serial number, Firmware version, etc.
    - **Local Port**
      Enter the port number that will be used for incoming connections from the Redundant Swift Agent. The value 0 (default) means that a random port will be used.

5.7.6 Adding an XRC Controller

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

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

- In the drop-down menu, click **Add XRC Controller**.

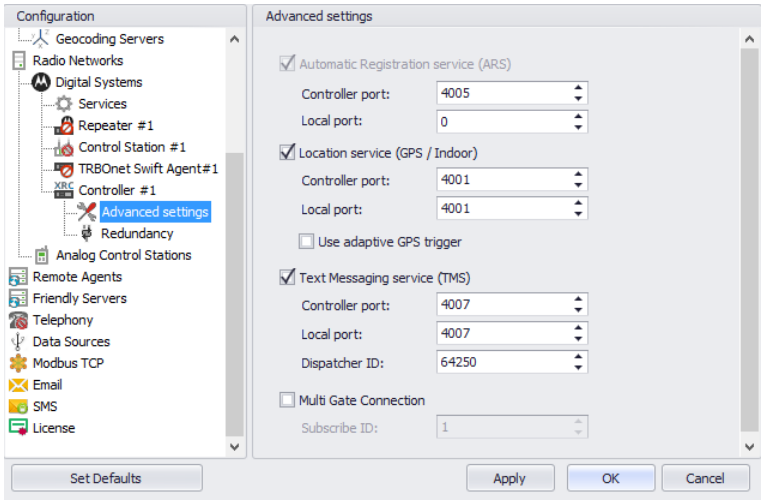


- In the **Controller** pane, specify the following XRC controller-related parameters:
  - **Name**
    Enter a name for the XRC controller. This name will be displayed in the Dispatch Console.
  - **IP Address**
    Enter the IP Address of the XRC controller network interface.
  - Click **Test** to 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.
  - **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 certain radios, separate each Radio ID by a comma, e.g. 105,106,111, etc.
    - 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".

5.7.6.1 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 advanced settings:
  - **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, i.e. any data traffic on this channel that 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)**
    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 5.5.2, 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 GPS 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).

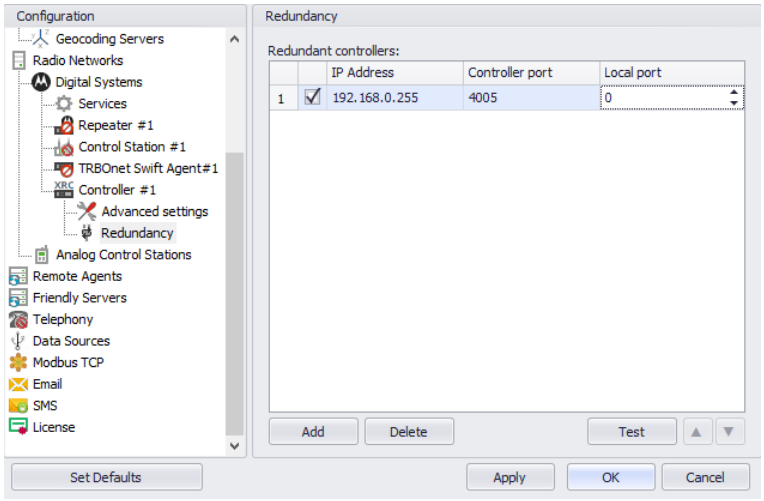
- **Local port**
  Enter the local port of the PC with TRBOnet Dispatch Software (4007, by default).
- **Dispatcher ID**
  Enter the Dispatcher ID. The Dispatcher ID should belong to TRBOnet Server account in a Connect Plus system.

- **Multi Gate Connection**
  Select this option to use a multi-gate connection and enter the corresponding **Subscribe ID**.

5.7.6.2 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**.



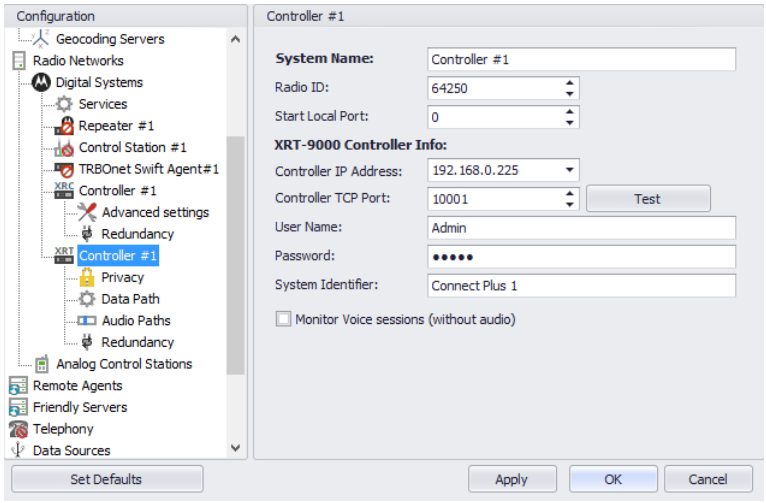
- In the **Redundancy** pane, specify the following redundant XRC controller-related settings:
  - Click **Add** and specify the desired parameters for the redundant XRC controller being added.
    - **IP Address**
      Enter the IP Address of the XRC controller that will be used as a redundant XRC 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 succeeds, you'll see information on the XRC controller you are connected to, such as serial number, firmware version, etc.

- **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.

5.7.7 Adding an XRT Controller

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

- In the **Digital Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Digital Systems**.
- In the drop-down menu, click **Add XRT 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 (for Capacity Plus systems, the maximum value is 65535). 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 (e.g. Remote Monitor).
  - **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.

  XRT Controller Info:

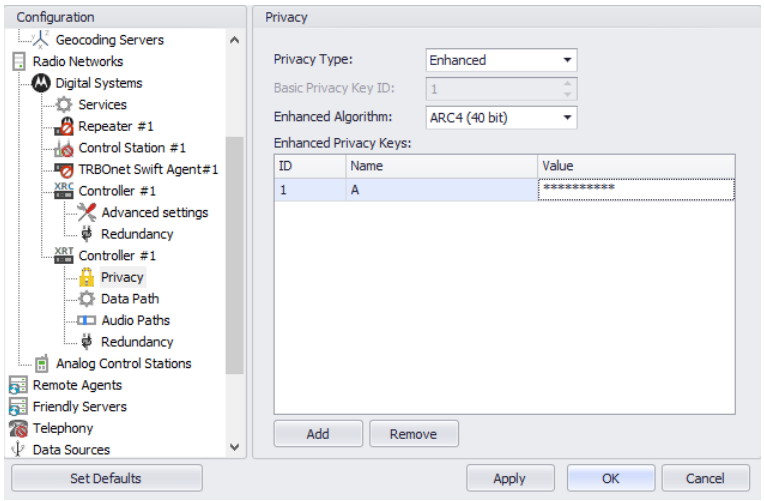
  - **Controller IP Address**
    Enter the IP Address of the XRT controller network interface.

- **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 should 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 sessions (without audio)**
  Select this option to monitor only PTT press events.

5.7.7.1 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 Algorithm**
  From the drop-down list, select one of the enhanced algorithms if you are going to use additional encryption.

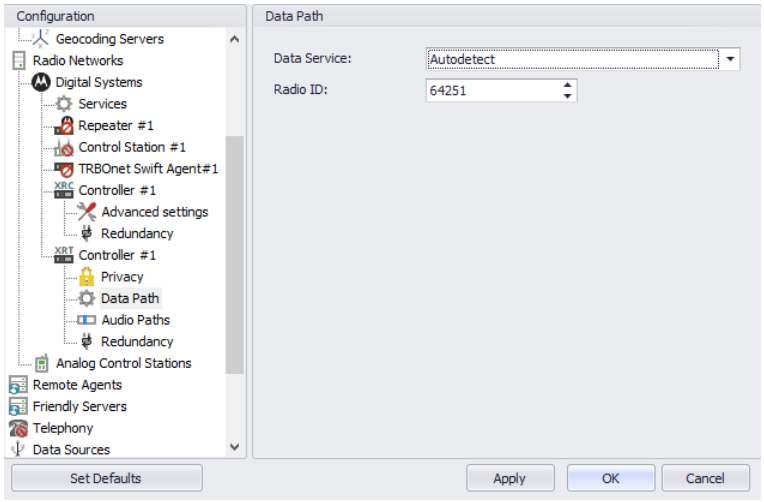
  Note: For more details on ARC4, see https://en.wikipedia.org/wiki/RC4

- **Enhanced Privacy Keys**
  Here you add enhanced privacy keys for the selected enhanced algorithm.
  - Click **Add** and specify the required ID, Name, and Value for the privacy key being added.

5.7.7.2 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**.

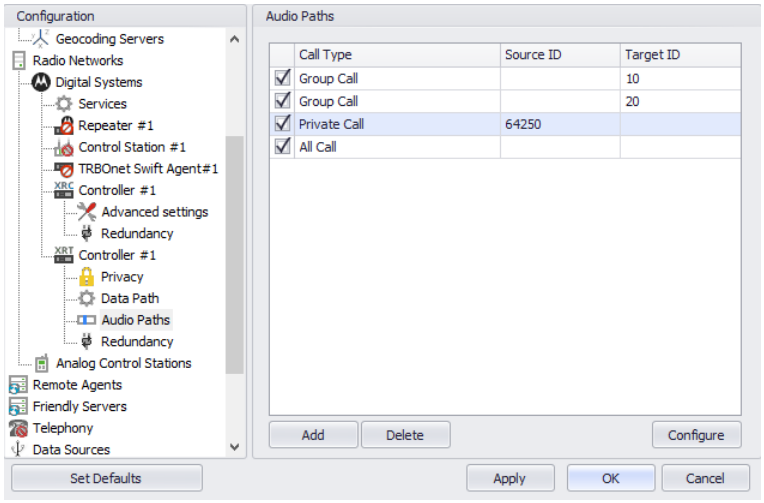


- In the **Data Path** pane, specify the following data path-related settings:
  - **Data Service**
    From the drop-down list, select the data service to be used to transfer data.
  - **Radio ID**
    Enter the Radio ID of the data service.

5.7.7.3 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**.

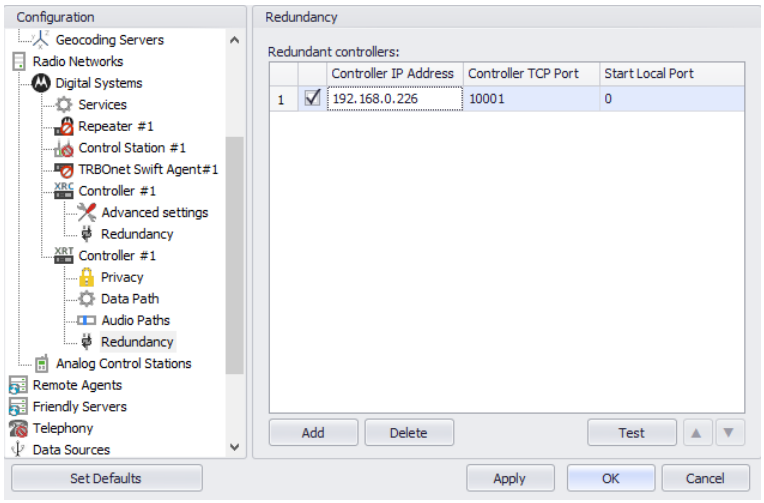


- In the **Audio Paths** pane, specify the following Audio Path-related settings:
  - To add an Audio Path to the system, click **Add**.
  - Make sure the check box in the first column is selected to make and receive Voice Calls from the selected subscriber.
  - From the drop-down list, select the **Call Type** for the audio path. The available call types are All Call, Group Call, and Private Call.
  - Enter the **Source ID**, which indicates the Radio ID of the call initiator. 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**, which 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.

5.7.7.4 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**.

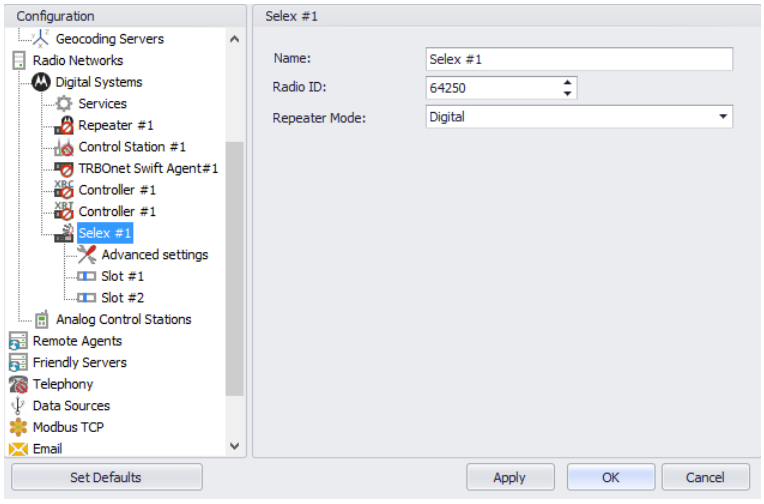


- In the **Redundancy** pane, specify the following Redundant XRT Controller-related settings:
  - Click **Add** and specify the desired parameters for the Redundant XRT Controller being added.
  - **Controller IP Address**
    Enter the IP Address of the XRT Controller that will be used as a Redundant 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 succeeds, you'll see information on the XRT Controller you are connected to, such as Serial number, Firmware version, etc.

5.7.8 Adding a Selex Repeater

The Selex 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 **Digital Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **MOTOTRBO**.
- In the drop-down menu, click **Add SELEX Repeater**.

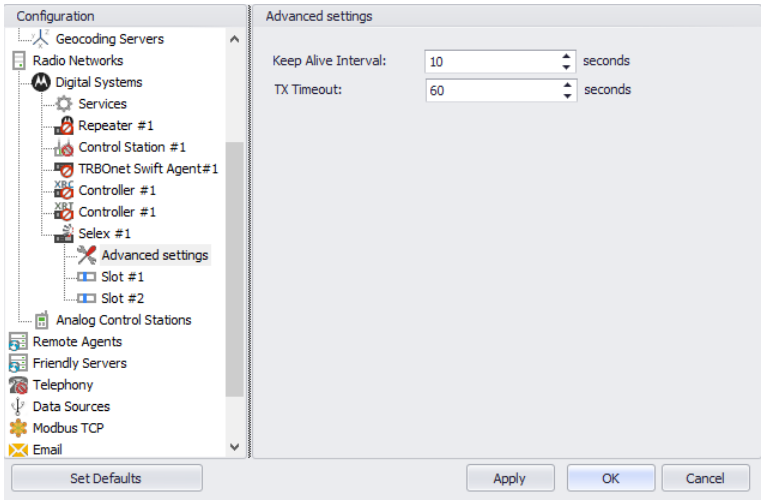


- In the **Selex** pane, specify the following Selex Repeater-related parameters:
  - **Name**
    Enter a name for the Selex Repeater. This name will be displayed in the Dispatch Console.

- **Radio ID**
  Enter the Radio ID for the Selex 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.

5.7.8.1 Advanced Settings

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

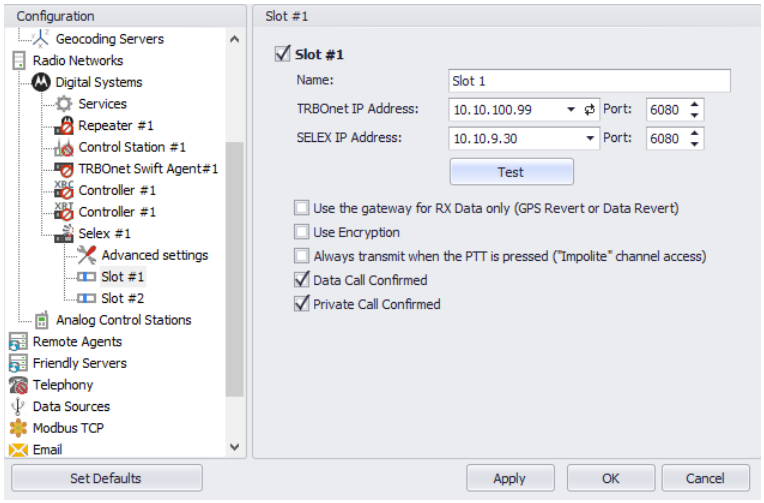


- In the **Advanced Settings** pane, specify the following Selex Repeater-related advanced settings:
  - **Keep Alive Interval**
    Enter the time interval, in seconds, for TRBOnet Server to check the connection to the Selex repeater (10, be default).
  - **TX Timeout**
    Enter the time, in seconds, 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).

5.7.8.2 Slots

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

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



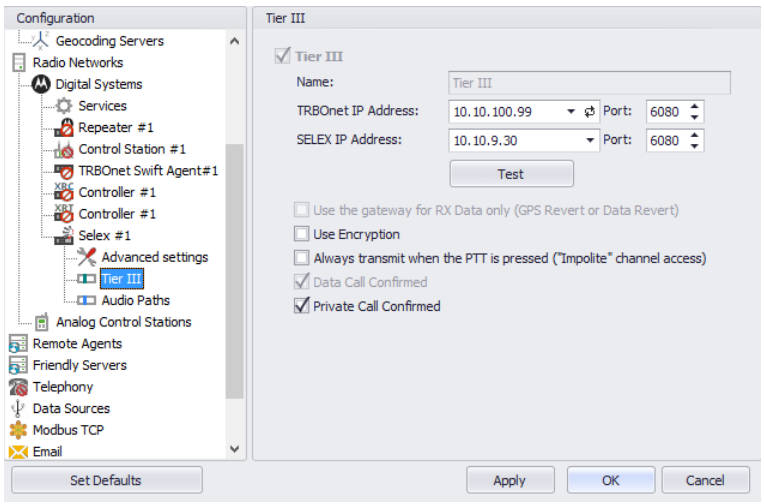
- In the **Slot #1** (or **Slot #2**) pane, specify the following slot-related parameters:
  - **Name**
    Enter a name for the slot. This name will be displayed in the Dispatch Console.
  - **TRBOnet IP Address**
    Enter the IP Address of the PC with TRBOnet Dispatch Software. Enter the **Port** number (6080, by default).
  - **SELEX IP Address**
    Enter the IP Address of the Selex Repeater (refer to the repeater configuration). Enter the **Port** number (6080, by default).
  - Click **Test** to check the connection to the repeater.
  - **Use the 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 any 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 the radio will always transmit when the PTT button is pressed (not available in Capacity Plus and Linked Capacity Plus systems).
  - **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.

5.7.8.3 Tier III and Audio Paths

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

- While in the **Selex** pane, select **Tier III** from the **Repeater Mode** drop-down list.

- In the **Configuration** pane, under the corresponding **Selex**, select **Tier III**.

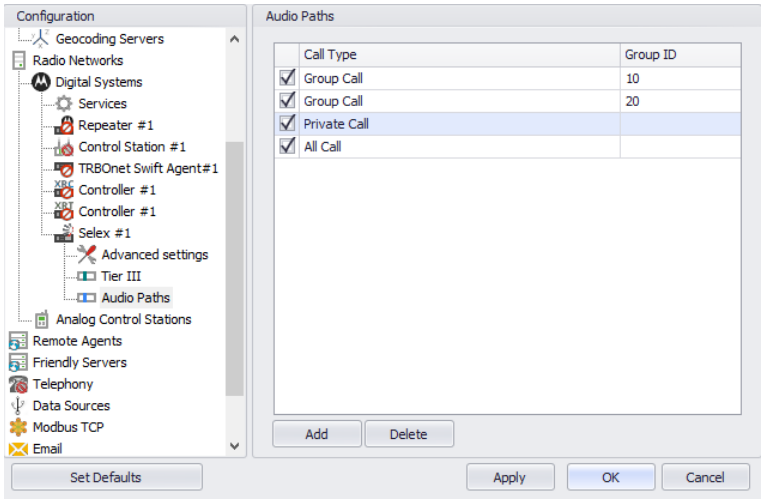


- In the **Tier III** pane, specify the following Tier III-related parameters:
  - **Use Encryption**
    Select this option to encrypt voice and data traffic over IP.
  - **Always transmit when the PTT is pressed ("Impolite" channel access)**
    Select this option so that the radio will always transmit when the PTT button is pressed (not available in Capacity Plus and Linked Capacity Plus systems).

To configure Audio Paths:

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

  Note: Make sure the **Tier III** mode has been selected as a Repeater Mode for the Selex repeater.



- In the **Audio Paths** pane, specify the following Audio Path-related settings:
  - To add an Audio Path to the system, click **Add**.

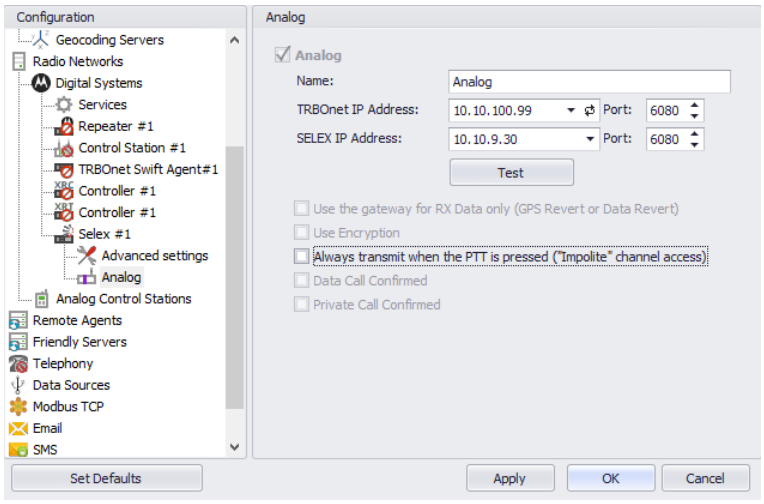
- Make sure the check box in the first column is selected to make and receive Voice Calls from the selected subscriber.
- From the drop-down list, select the **Call Type** for the audio path. The available call types are All Call, Group Call, and Private Call.
- Enter the **Group ID**, which is a radio ID of the talk group to make a call to. The Group ID is not applicable for Private Calls and All Calls.

5.7.8.4 Analog channel

The Selex repeater can also use the Analog channel.

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

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

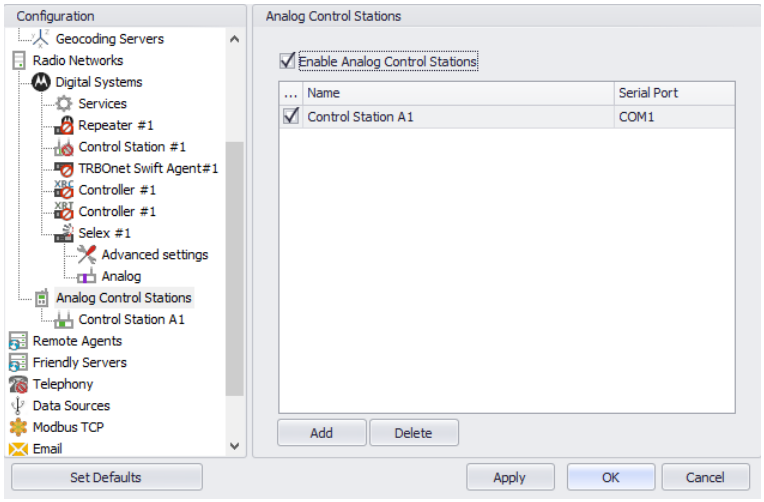


- In the **Analog** pane, specify the following Analog channel-related settings:
  - **Name**
    Enter a name for the Selex repeater in the analog mode. This name will be displayed in the Dispatch Console.
  - **TRBOnet IP Address**
    Enter the IP Address of the PC with TRBOnet Dispatch Software. Enter the **Port** number (6080, by default).
  - **SELEX IP Address**
    Enter the IP Address of the Selex 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 the radio will always transmit when the PTT button is pressed (not available in Capacity Plus and Linked Capacity Plus systems).

5.8 Analog Control Stations

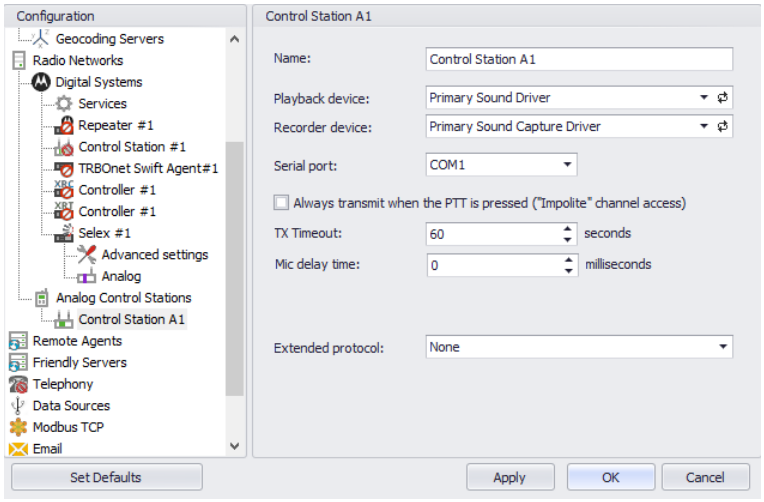
TRBOnet Dispatch Software allows using analog radios as control stations.

- In the **Configuration** pane, select **Analog Control Stations**
- In the **Analog Control Stations** pane, select **Enable Analog Control Stations**.



5.8.1 Adding an Analog Control Station

- In the **Analog Control Stations** pane, click **Add**.



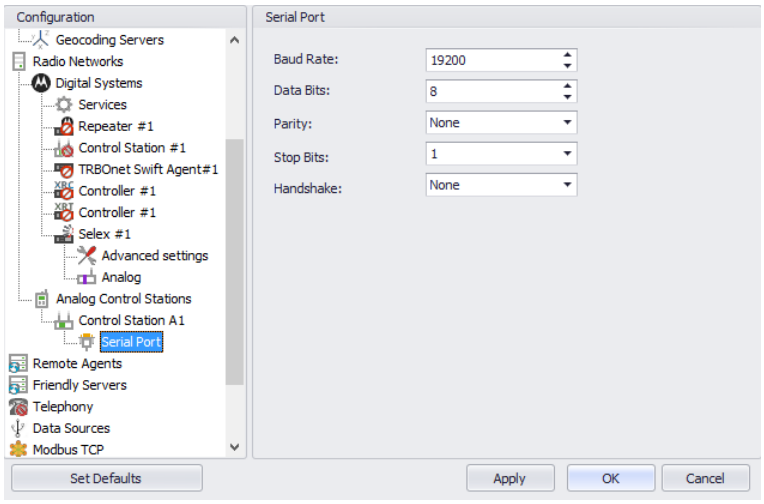
- In the **Control Station** pane, specify the following Analog Control Station-related settings:
  - **Name**
    Enter a name for the analog control station. This name will be displayed in the Dispatch Console.
  - **Playback device**
    From the drop-down list, select the playback device connected to control Station.

- **Recorder device**
  From the drop-down list, select the recording device connected to control station.
- **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 the radio will always transmit when the PTT button is pressed (not available in Capacity Plus and Linked Capacity Plus systems).
- **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**
  Enter the time, in milliseconds, to be used as a delay time interval between pushing the PTT and starting voice communication.
- **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.

5.8.1.1 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**.

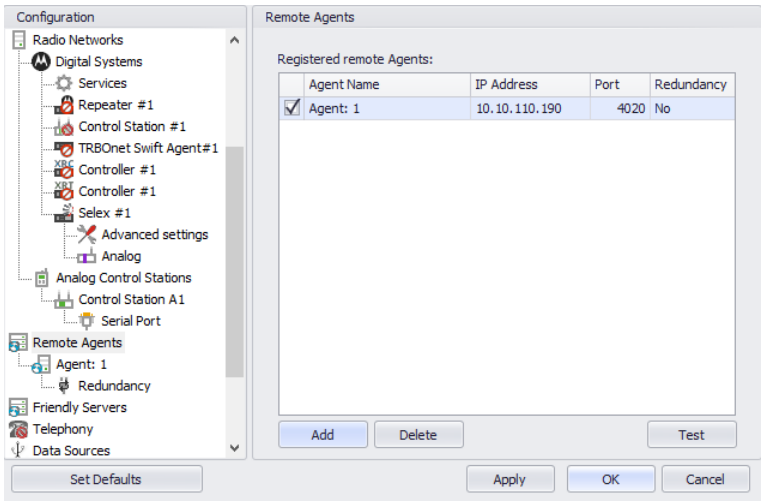


- In the **Serial Port** pane, specify the same serial port settings as those on the radio device connected to the serial port.

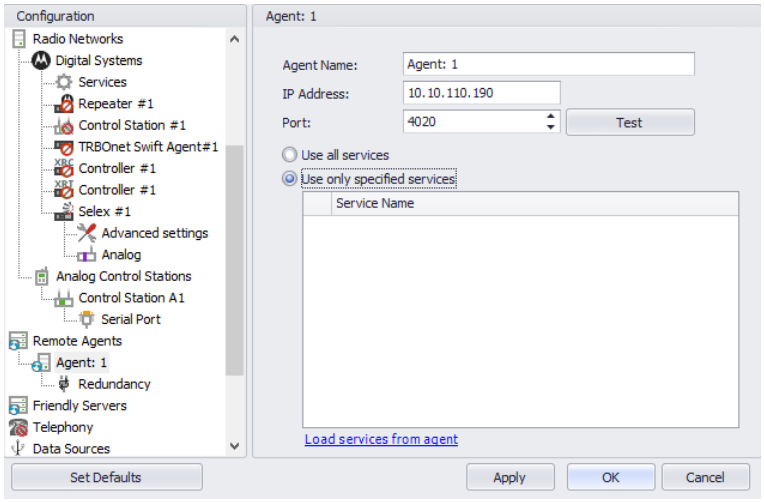
5.9 Remote Agents

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**.



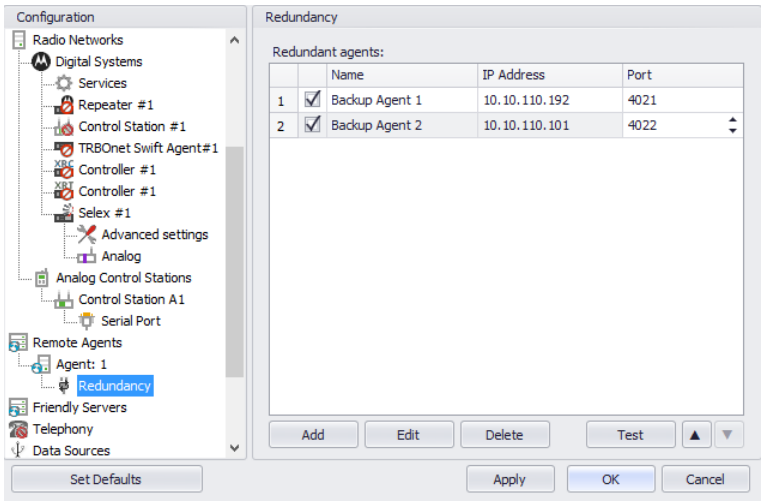
  - In the **Agent** pane, specify the following parameters:
    - **Agent Name**
      Enter a name for the remote agent. This name will be displayed in the Dispatch Console.
    - **IP Address**
      Enter the IP address of the remote agent (each remote agent has its own IP Address).
    - **Port**
      Enter the local port number that will be used by TRBOnet Server to accept connections from the remote agent.
    - 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 only specified services**
  Choose this option and click the **Load services from agent** link to load services available on the remote agent.

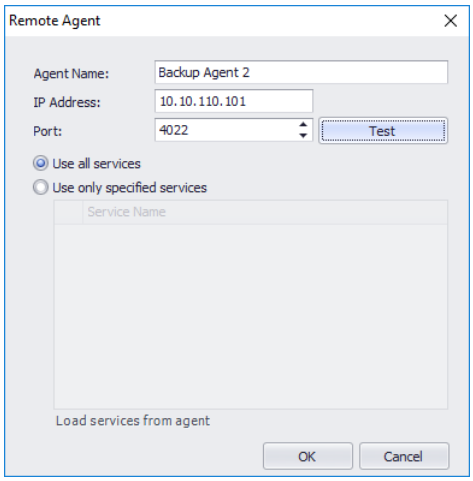
5.9.1 Redundancy

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**.



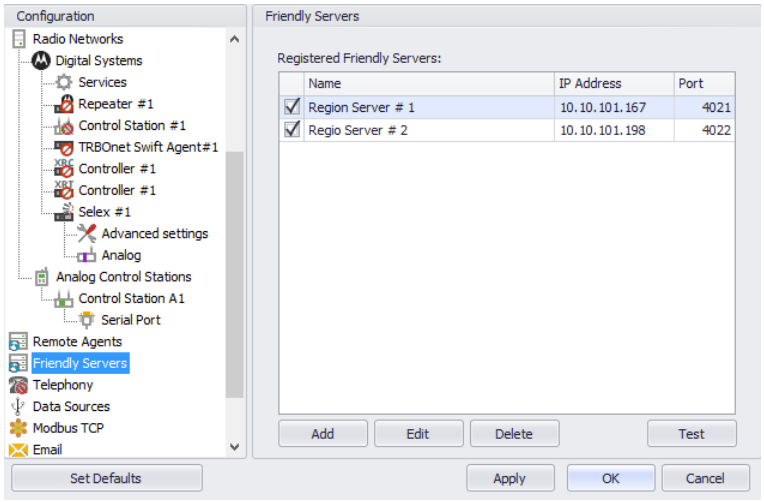
- In the **Remote Agent** dialog, specify the following parameters:
- **Agent Name**
  Enter a name of the redundant remote agent.

- **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.
- 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 only specified 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.

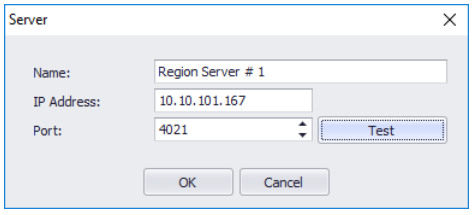
5.10 Friendly Servers

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

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



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



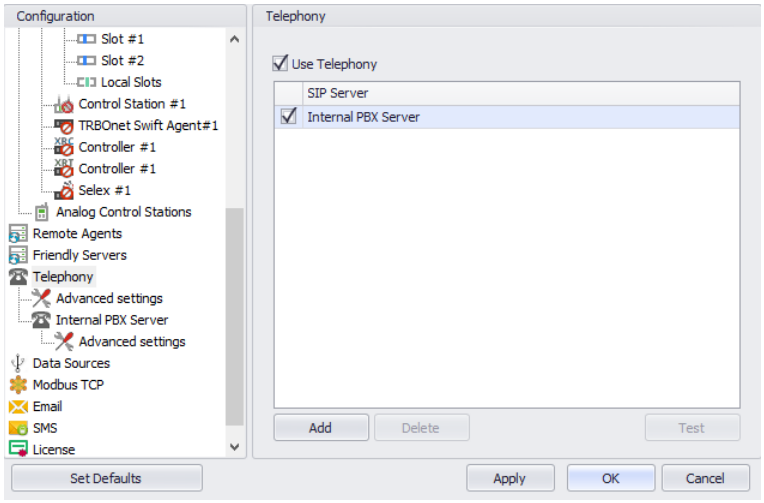
  - In the **Server** dialog box, specify the following parameters:
    - **Name**
      Enter a name for the friendly server. This name will be displayed in the Dispatch Console.

- **IP Address**
  Enter the IP Address of the server.
- **Port**
  Enter the local port number on the PC to connect to the friendly server.
- Click **Test** button to check the connection to the friendly server.
- Click **OK** to add the friendly server to the system.

5.11 Telephony

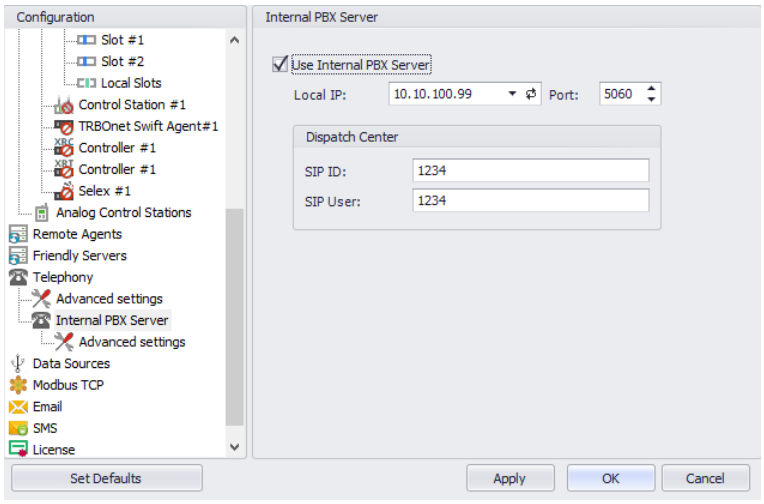
TRBOnet Server has its own built-in SIP server to support VoIP communications between the radios as well as other SIP-compliant clients. In addition, you can add an external PBX server to the TRBOnet Server configuration.

- In the **Configuration** pane, select **Telephony**
- In the **Telephony** pane, select **Use Telephony**.



5.11.1 Internal PBX Server

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



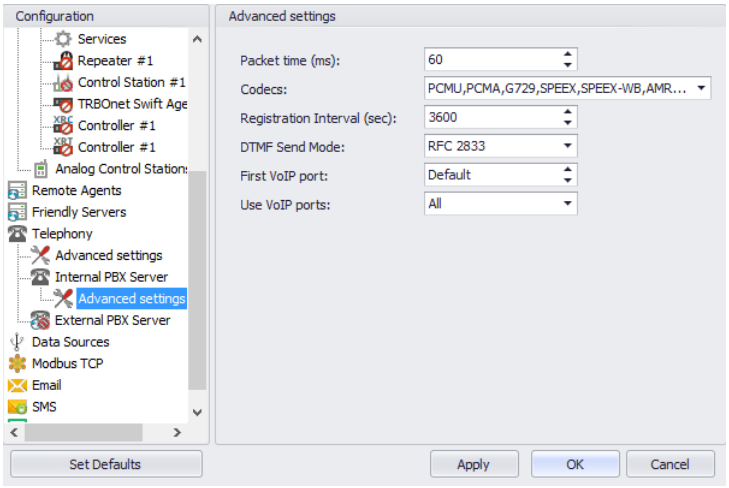
- In the **Internal PBX Server** pane, specify the following parameters:
  - **Local IP**
    Enter the IP address of the PC with TRBOnet Server.
  - **Port**
    Enter the local UDP port number for the SIP service (5060, by default).

  Dispatch Center

  - **SIP ID**
    Enter the SIP ID that will be used by the Dispatch Center.
  - **SIP user**
    Enter the SIP user name that will be used by the Dispatch Center.

5.11.1.1 Advanced Settings

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



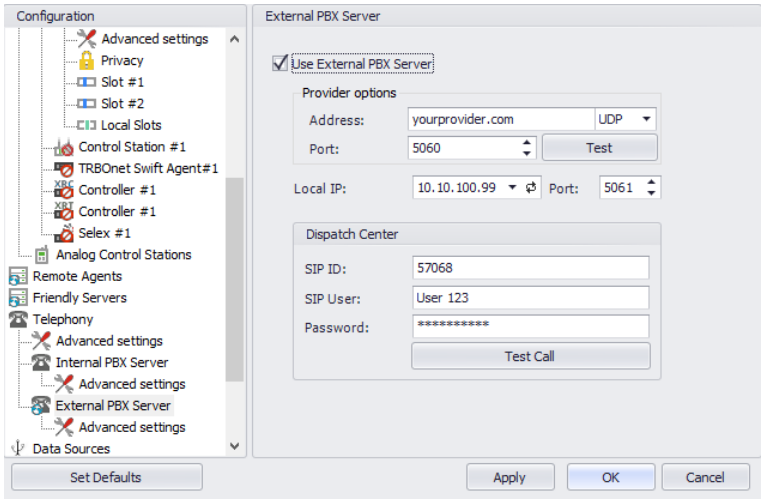
- In the **Advanced Settings** pane, specify the following Internal PBX Server-related advanced settings:
  - **Packet time**
    Enter the packet length, in milliseconds.
  - **Codecs**
    In the drop-down list, select/deselect the codecs to be used.
  - **Registration Interval (sec**)
    Enter the time interval, in seconds, to check the radio status (online/offline etc.).
  - **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

- **Use VoIP ports**
  From the drop-down list, select which VoIP ports will be used (all, even, or odd).

5.11.2 External PBX Server

You can enable an external PBX server 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 **Telephony** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Telephony** and choose **Add PBX Server**.



- In the **External PBX Server** pane, specify the following parameters:
  - **Use External PBX Server**
    Select this option to enable the SIP Interconnect feature.

  Provider options

  - **Address**
    Enter your SIP provider address, and select the protocol from the drop-down list to 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.

  Dispatcher Center

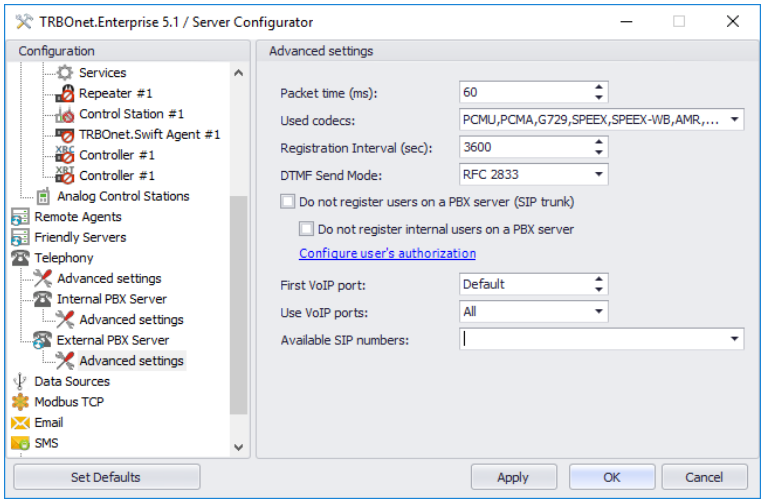
Note: This information is provided by the SIP provider.

- **SIP ID**
  Enter the SIP ID that will be associated with TRBOnet Server to make and receive calls.
- **SIP user**
  Enter the SIP user name for the login.
- **Password**
  Enter the 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.

5.11.2.1 Advanced Settings

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

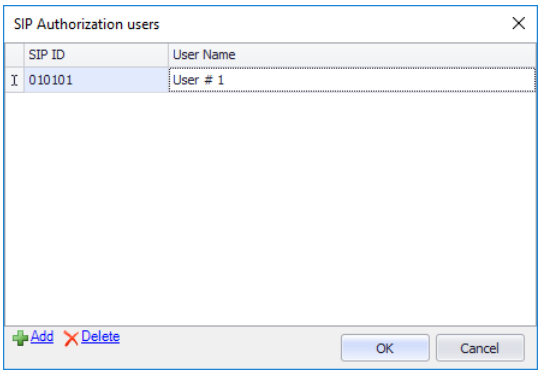


- In the **Advanced Settings** pane, specify the following External PBX Server-related advanced settings:
  - **Packet time**
    Enter the same value as specified in the phone system;
  - **Codecs**
    In the drop-down list, select/deselect the codecs specified in the phone system.

Note: For more details on Phone System configuration, see Appendix B: SIP Setup for Motorola Phone System section.

  - **Registration Interval (sec)**
    Enter the time interval, in seconds, to check the radio status (online/offline etc.).

- **Do not register users on a PBX server (SIP trunk)**
  Select this option so that radios will use the SIP trunk system to get extensions. See the following example of the SIP trunk configuration of Asterisk/FreePBX.
- **Configure user's authorization**
  Click this link to set up user authorization for the systems with enhanced authorization parameters. It is recommended to use when Radio ID is equal to SIP ID. In case when Voice is transmitted via Radio Channel, Radio ID is used. When voice is transmitted via GSM channel, SIP ID is used.



- Click **Add** to add a new user authorization.
- **SIP ID**
  Enter the SIP ID for the new user.
- **User Name**
  Enter the User Name for the new user;
- Click **OK** to save the new user authorization.

5.12 Data Sources

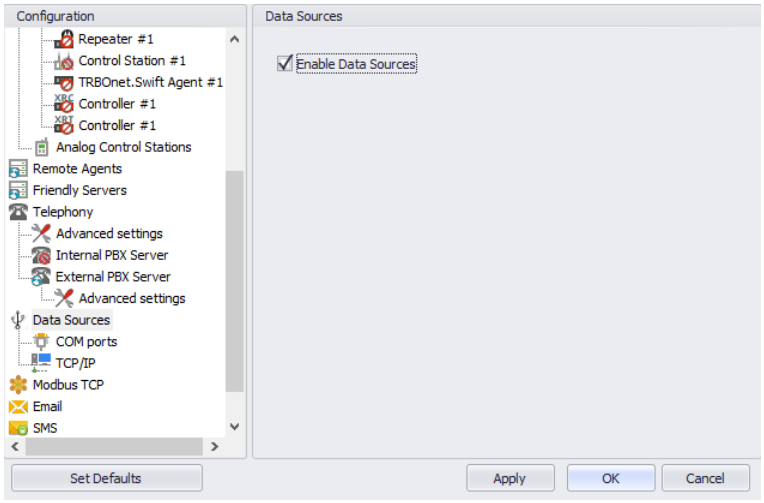
The Data Sources feature allows receiving data from third-party applications and devices.

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**.

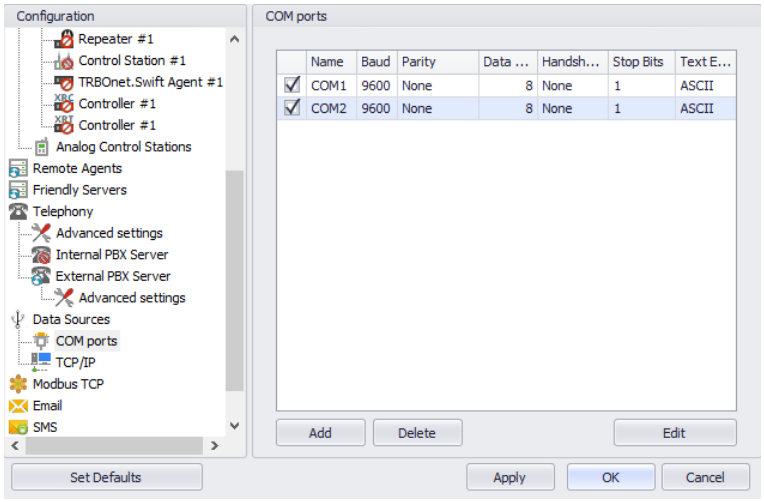


- In the **Data Sources** pane, select the **Enable Data Sources** option.

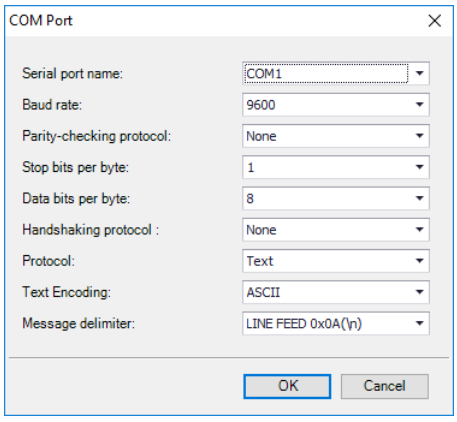
5.12.1 COM Ports

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 new 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 protocol**
    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.

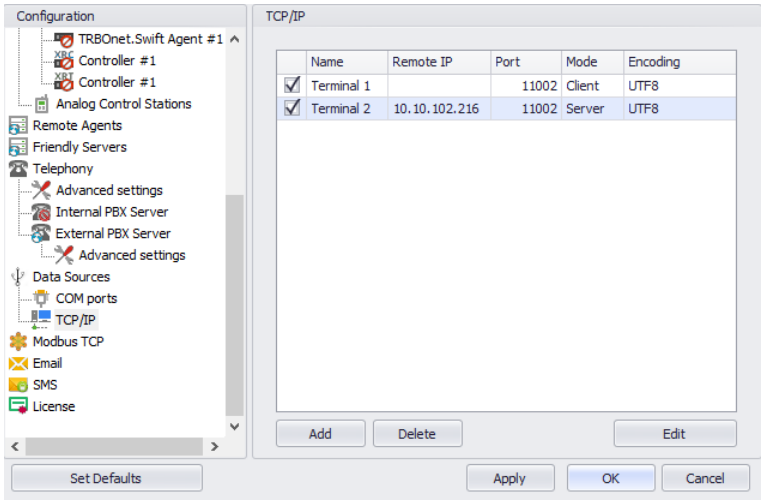
    Note: The Message delimiter types selected in the TRBOnet Server and in the connected application must be the same to avoid incorrect text display and incorrect data parsing.
  - Click **OK** to save settings and close the dialog.

5.12.2 TCP/IP

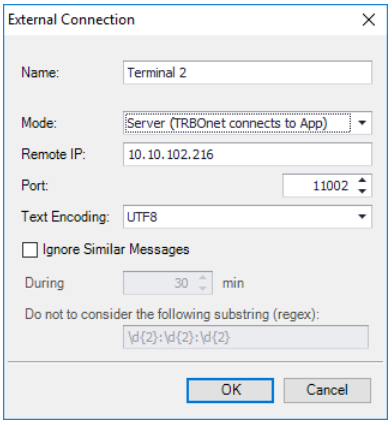
Note: When TCP/IP connection is used, all data will be transferred via UDP protocol only.

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 case of the **Client** connection mode, select the local port of the PC with TRBOnet Server PC.
  In 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.

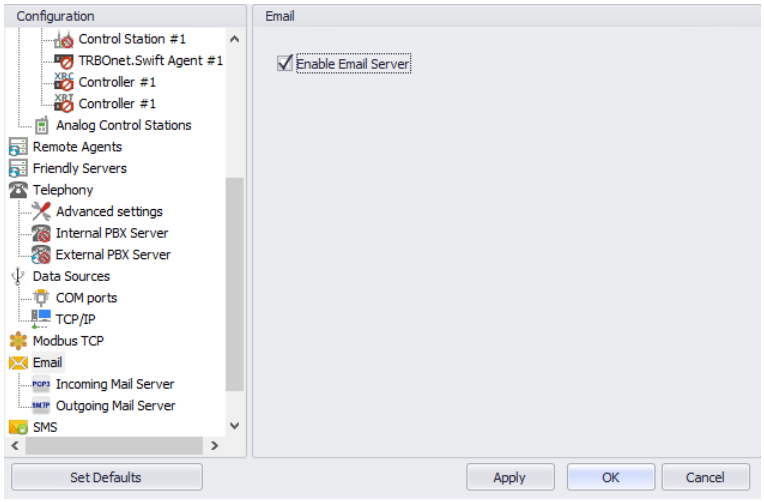
5.13 Email Settings

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.

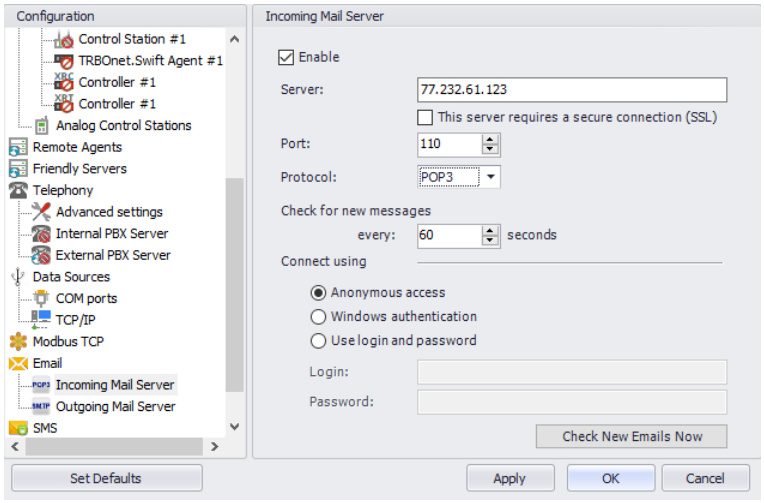
- In the **Configuration** pane, select **Email**.
- In the **Email** pane, select **Enable Email Server**.



5.13.1 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 as you select this option. For example, from 110 to 995 for POP3, and from 143 to 993 for IMAP.
  - **Port**
    Enter 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 the protocol for the incoming mail server.

    Note: The port number will automatically change as 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**
    Choose one of the following options:
    - **Anonymous access**
      Choose this option to use an anonymous access to the incoming mail server.

- **Windows authentication**
  Choose this option to connect via TRBOnet Service Windows Account, if it is running under a specific account;
- **Use login and password**
  Choose this option and specify the credentials for the mailbox:
  - ✓ **Login**
    Enter the incoming mail server login.
  - ✓ **Password**
    Enter the incoming mail server password.

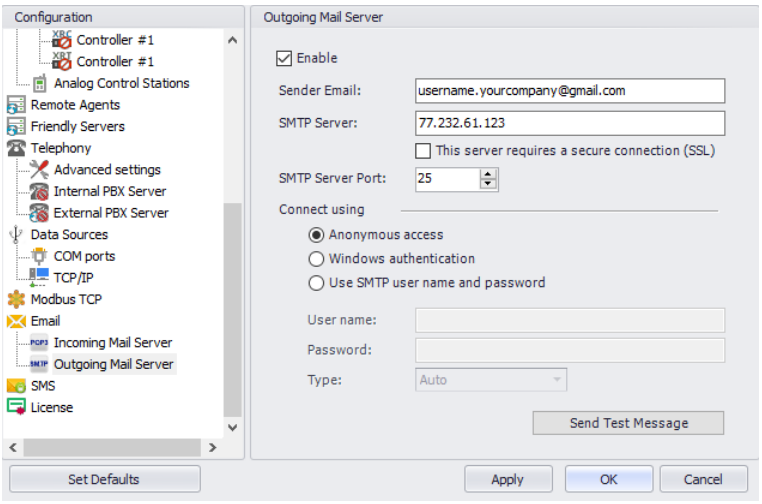
- **Check New Emails Now**
  Click this button to synchronize the Incoming Emails folder and check for new emails.

5.13.2 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 to send emails to.
  - **SMTP server**
    Enter the server hostname or IP address of the SMTP server.

- **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 as you select this option. For example, from 25 to 465.

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

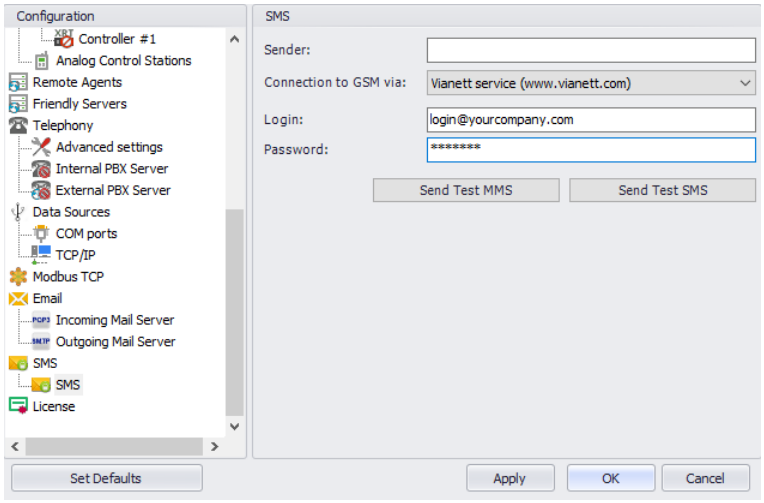
  Note: This box is populated automatically depending on whether a secure connection is required.

- **Connect using**
  Choose one of the following options:
  - **Anonymous access**
    Choose this option to use an anonymous access to the SMTP server.
  - **Windows authentication**
    Choose this option to connect via TRBOnet Service Windows Account, if it is running under a specific account;
  - **Use SMTP user name and password**
    Choose 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 SMPT login type.
- **Send Test Message**
  Click this button to send a test message from the Sender Email address.

5.14 SMS Settings

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

- In the **Configuration** pane, select **SMS**.
- In the **SMS** pane, select **Enable SMS Server**.
- In the **Configuration** pane, under **SMS**, select **SMS**.



- In the **SMS** pane, specify the following SMS-related parameters:
  - **Sender**
    Leave this box blank.
  - **Connection to GSM via**
    From the drop-down list, select the type of connection.
    - Nokia mobile phone connected to TRBOnet Server PC
      Select this item to send SMS notifications via a Nokia cell phone connected to the TRBOnet Server PC.
    - 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.
      For more details on Clickatell service, see www.clickatell.com
  - **Login**
    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 Vianett account to recipient phone number.

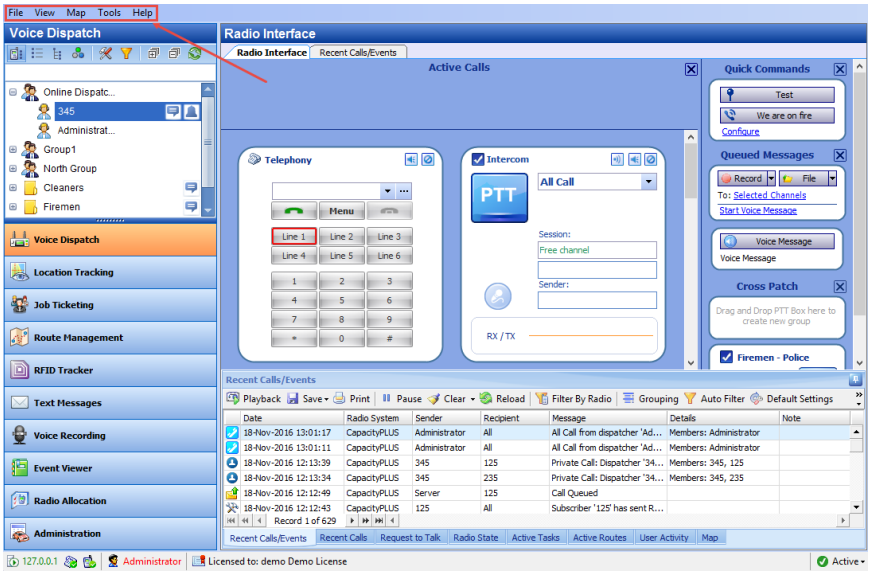
Note: This button is available when connected via Vianett, SMS Broadcast, or Clickatell services.

6 TRBOnet Dispatch Console

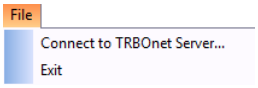
The key features of TRBOnet can be configured by the Administrator in TRBOnet Dispatch Console after initial installation and configuration. The default Administrator credentials are ***admin*** for the login and ***admin*** for the password.

6.1 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.

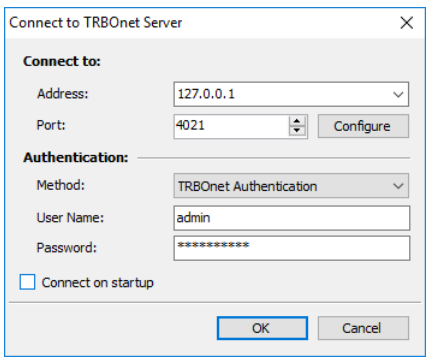


6.1.1 File



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.



In the dialog that opens, specify the following connection parameters:

Connect to:

- **Address**
  Enter the IP address of the TRBOnet Server to connect to.
- **Port**
  Enter the local port of the TRBOnet Server PC to accept connections from Dispatch Console. Use unique ports for each Dispatch Console connection if there are several Dispatch Consoles connected.

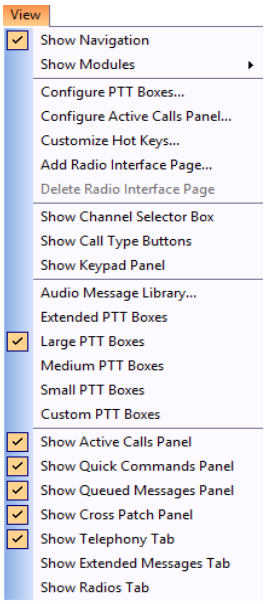
Authentication:

- **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 password is not required when the Windows Authentication method is used.
- **User Name**
  Enter the User Name registered in the TRBOnet Dispatch Console Users list.
- **Password**
  Enter the individual password.
- **Connect on startup**
  Select this option to launch Dispatch Console without typing User Name and Password.

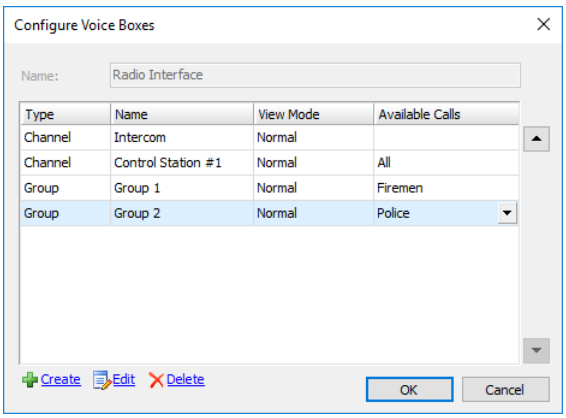
- **File > Exit**
  Choose this menu item to exit TRBOnet Dispatch Console.

6.1.2 View



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

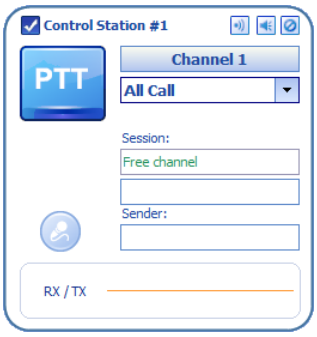
- **View > Show Navigation**
  Choose this menu item to toggle the Navigation Tree display.
- **View > Show Modules >**
  Choose this menu item and in the pull-down menu select/deselect the modules to display.
- **View > Configure PTT Boxes**
  Choose this menu item to configure the view of PTT boxes.



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

- **Type**
  In this column, the box type (e.g. Channel or Group) is displayed.
- **Name**
  Ether 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:



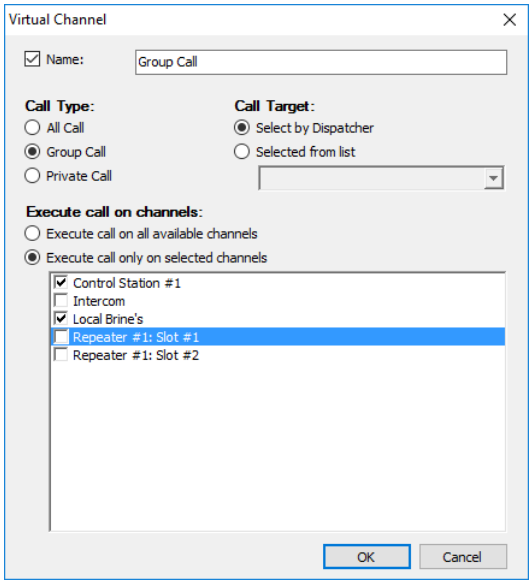
  - **Minimized**
    Select this mode so that the PTT box will be displayed in Minimized view mode:

Note: Hover your mouse pointer over the Minimized PTT box and see the PTT box popped up in Normal view mode.

- **Available Calls**
  From the drop-down list, select available Call Types for the PTT box:

Create virtual channel boxes

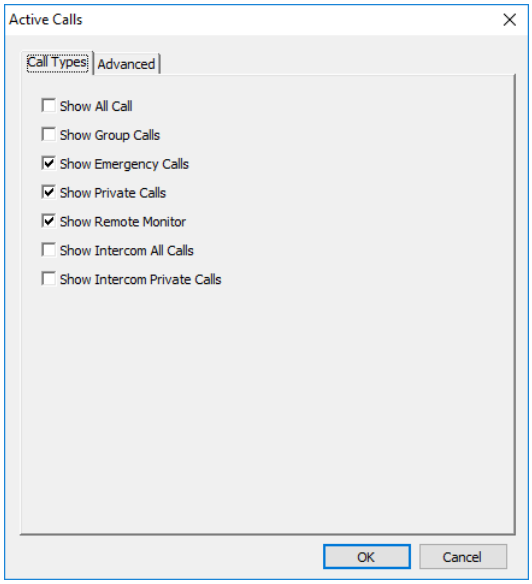
- To create a virtual PTT box, click the **Create** link in the upper-left corner of the **Configure Voice Boxes** the dialog.



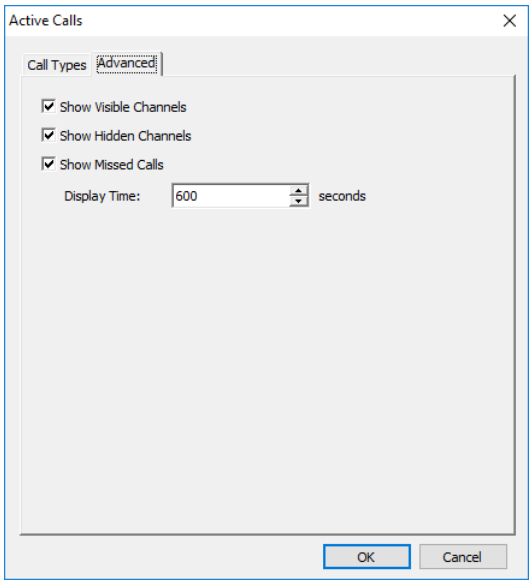
In the **Virtual Channel** dialog, specify the following virtual channel parameters:

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

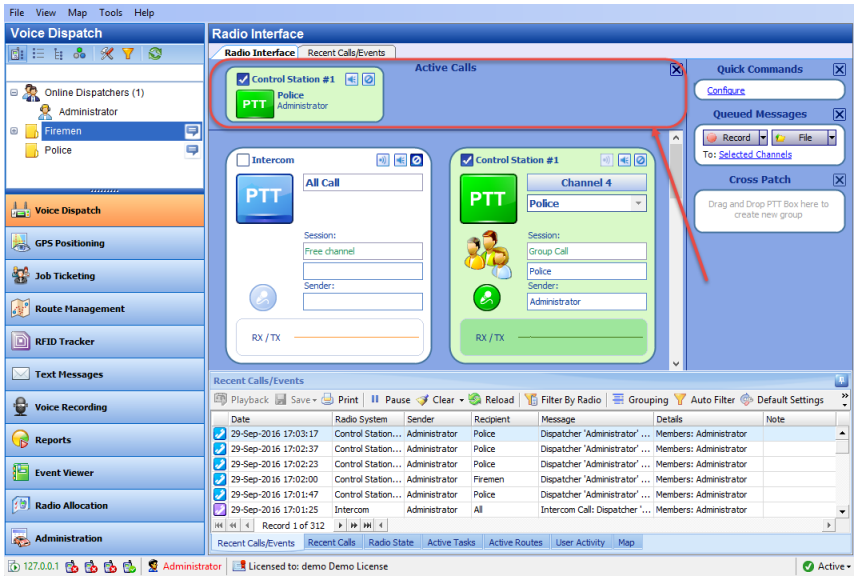


- **Call Types**
  While on this tab, you can select which call types to display in the Active Calls panel:

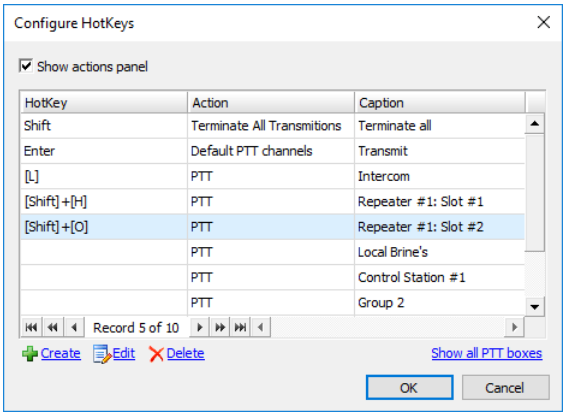


- **Advanced**
  While on this tab, you can specify whether to display Visible/Hidden Channels and Missed Calls, as well as their display time.

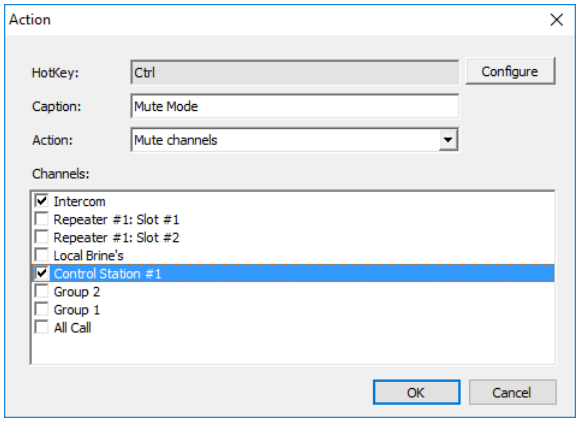
The **Active Calls** panel is displayed in the upper part of the Dispatch Console:



- **View > Customize Hot Keys**
  Choose this menu item to configure hot keys for the actions on the selected channels.



  - If you are going to configure PTT actions for PTT boxes, click the **Show all PTT boxes** link and assign a hotkey or a combination of hotkeys. Double-click the desired PTT box and select the hotkey(s) for the action.
  - If you are going to set some specific actions for PTT boxes (e.g., mute channels or set default PTT channels), click the **Create** link:

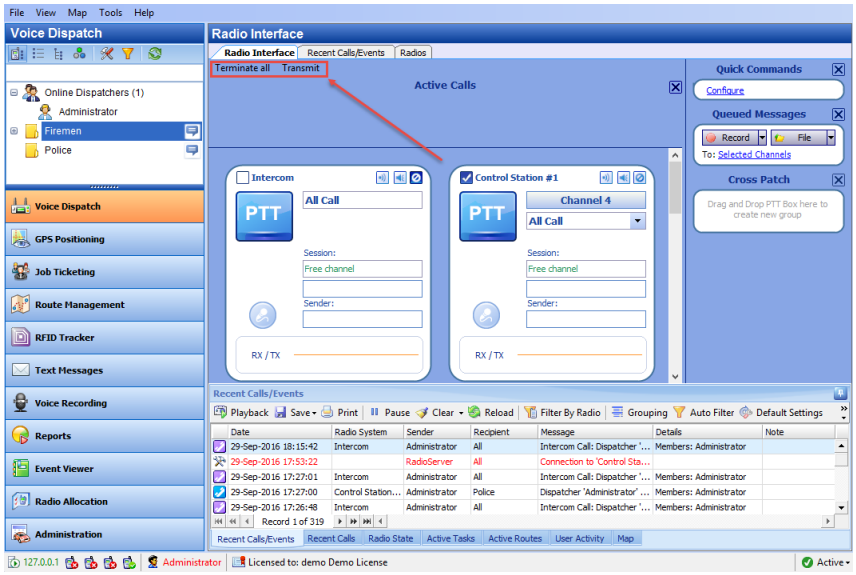


In the **Action** dialog box that opens, specify the following parameters:

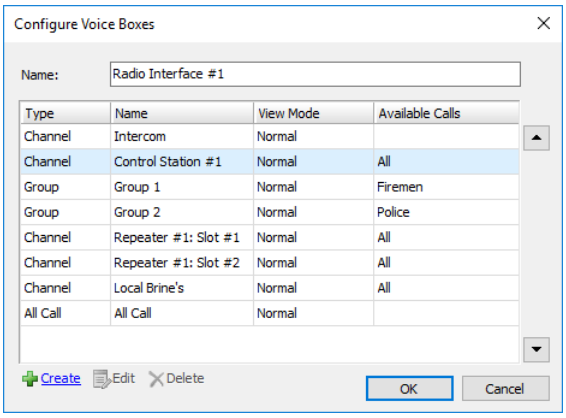
- **Hotkey**
  Click the **Configure** button and on the keyboard, press the key or key combination you want to assign as a hot key for the selected action.
- **Caption**
  Enter a caption that will be displayed in the Dispatch Console.
- **Action**
  From the drop-down list, select the desired action:
  - ✓ **Default PTT channel**
    Selected PTT box functions as a default PTT channel.
  - ✓ **Mute channels**
    This action mutes selected PTT boxes.
  - ✓ **Unmute channels**
    This action unmutes selected PTT boxes.
  - ✓ **Voice from channels**
    This action mutes voice from all PTT boxes except for selected one(s).
  - ✓ **Terminate All Transmissions**
    This action terminates all transmissions for selected PTT boxes.
- **Channels**
  In the list below, select PTT boxes to assign the actions specified above.

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

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



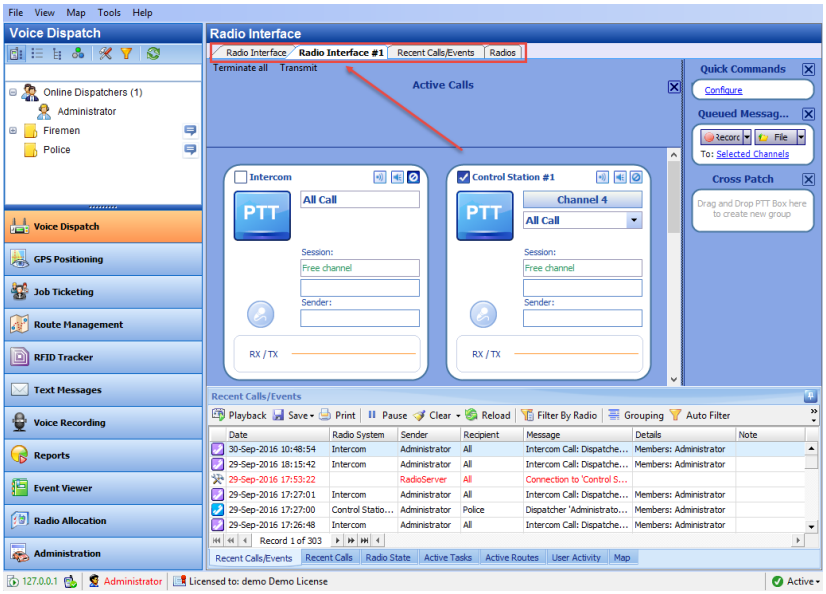
- **View > Add Radio Interface Page**
  Choose this menu item to add a new Radio Interface page.



  - In the **Configure Voice Boxes** dialog, 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.

Radio Interfaces can be switched between by clicking on the tab bar in the upper part of the **Calls** pane.

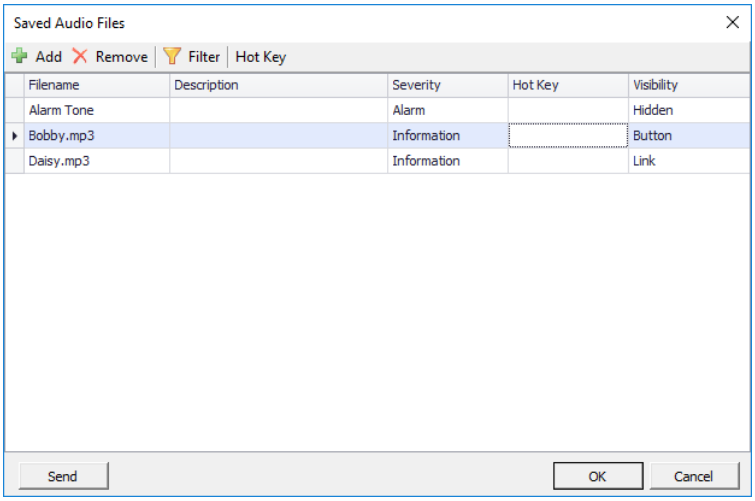


- **View > Delete Radio Interface Page**
  Choose this menu item to delete the currently selected Radio Interface page.

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

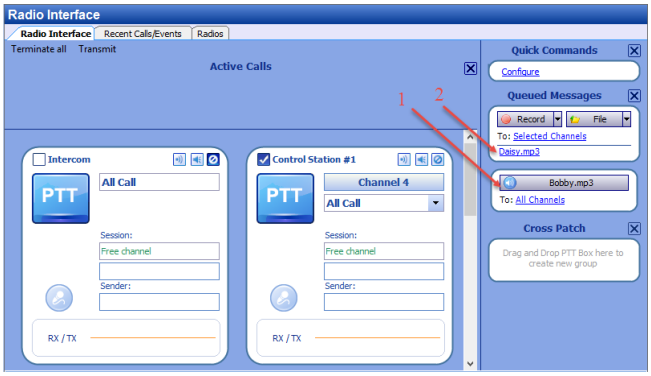
- **View > Audio Message Library**

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



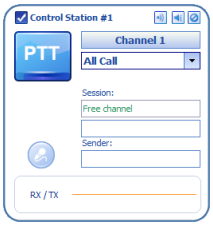
  - In the **Saved Audio Files** dialog box, specify the following parameters:
    - **Filename**
      The name of the message displayed in the Queued Messages panel.
    - **Description**
      Enter a description for the Voice Message.

- **Severity**
  From the drop-down list, select the severity level (Information, Alarm, or Warning).
- **Hot Key**
  Click the **Hot Key** button and press the key or key combination you want to assign as a hot key 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).



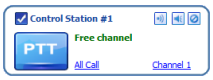
- **View > Extended PTT boxes**
  Select this command to display PTT boxes as shown:

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



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

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

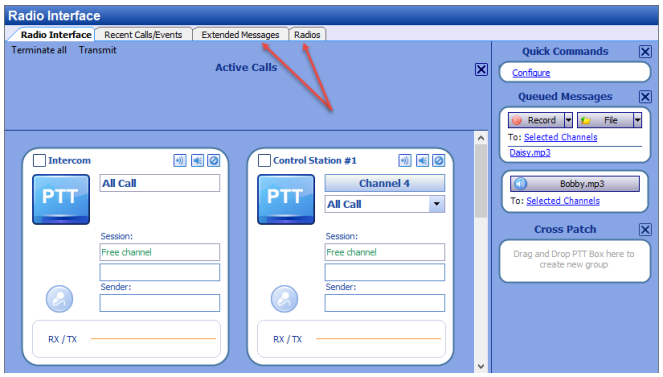


- **View > Custom PTT boxes**
  Select this command to display PTT boxes as shown:

- **View > Show Active Calls Panel**
  Select this command to display the Active Calls panel in the Dispatch Console. See also Configuring Active Calls panel.
- **View > Show Quick Commands Panel**
  Select this command to display the Quick Commands panel in the Dispatch Console.
- **View > Show Queued Messages Panel**
  Select this command to display the Queued Messages panel in the Dispatch Console.
- **View > Show Cross Patch Panel**
  Select this command to display the Cross Patch panel in the Dispatch Console.
- **View > Telephony Tab**
  Select this command to display the Telephony tab in the Radio Interface pane.
- **View > Show Extended Messages Tab**
  Select this command to display the Extended Messages tab in the Radio Interface pane.

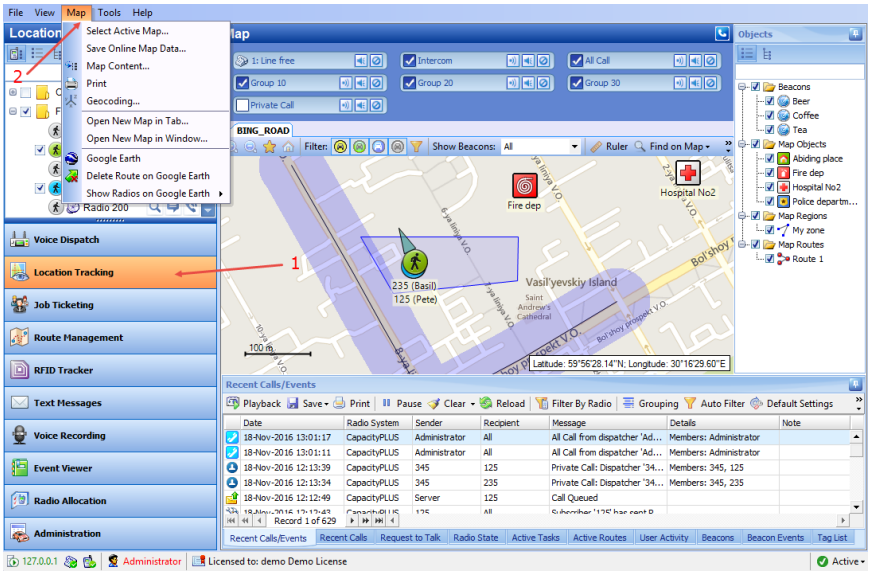
- **View > Show Radios Tab**
  Select this command to display the Radios tab in the Radio Interface pane.

The **Extended Messages** and **Radios** tabs appear on the top of the **Calls** pane:

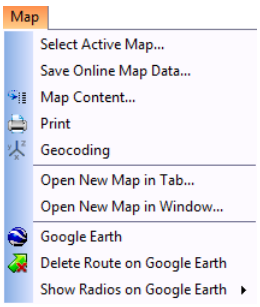


6.1.3 Map

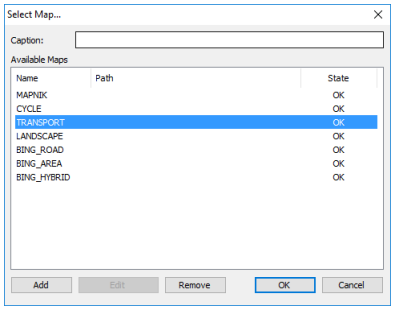
- Select **Location Tracking** (1) in the Navigation pane to enable Map Options:
- Click the **Map** menu (2).



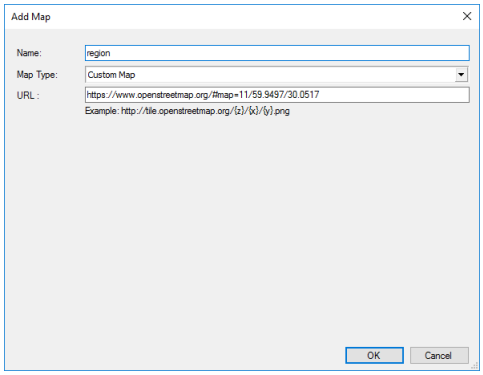
The **Map** menu contains the following items:



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

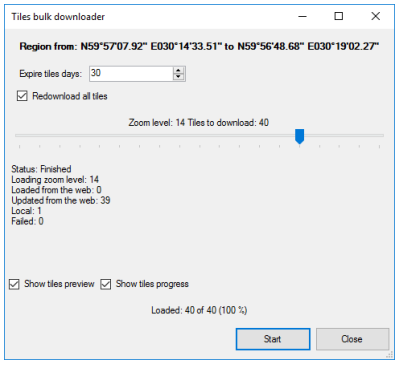


- Enter the **Caption** of the map that will be displayed in the Dispatch Console.
- In the list of **Available Maps**, choose the map to be displayed.
- You can also add a custom map using the URL.
  Click the **Add** button.



- Enter the **Name** for the new map.
- Enter the **URL**, as shown in the example.
  - ✓ **Z**
    Enter the zoom value for the map.
  - ✓ **X**
    Enter the coordinate in X-direction.
  - ✓ **Y**
    Enter the coordinate in Y-direction.

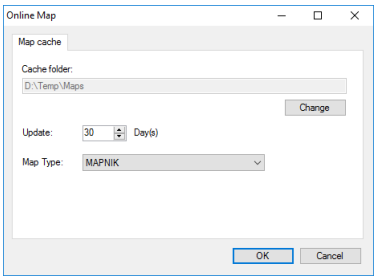
- **Map > Save Online Map Data**
  Click this menu item to save your current map region.



In the dialog box, specify the following parameters:

- **Expire tiles days**
  Enter the time the saved offline map will be stored before it is automatically updated.
- **Redownload 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.
- **Show tiles preview**
  Select this option to show how the map is divided into tiles.
- **Show tiles progress**
  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 wish to store the map data.
- **Update**
  Enter the update interval for the map data stored in the specified Cache folder.

  Note: The value 0 means that the map data won't be updated.
- **Map Type**
  From the drop-down list, select the map type. For more details on the maps used in TBOnet Dispatch Console, see Map Types.

6.1.3.1 Map Types

Online maps:

- **OpenStreetMap** – free online maps. Includes MAPNIK, CYCLE, TRANSPORT, LANDSCAPE, and MAPQUEST subtypes. For more details on

OpenStreetMaps, visit the official the website: http://www.openstreetmap.org

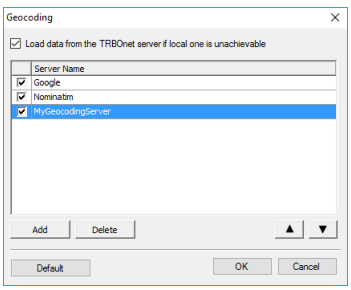
- **Microsoft BING** – commercial maps from Microsoft. Includes BING_ROAD, BING_AREA, and BING_HYBRID subtypes. A user may use BING maps for 90 days and then they must get a Basic Key. Visit http://msdn.microsoft.com/en-us/library/ff428642.aspx to get a Basic Key.

Offline Maps:

- **TRBOmap** – internal map-making resource. A user can customize a part of online maps according to requirements. For more details on map calibration, visit TRBOnet Knowledge Base and read the following article: http://kb.trbonet.com/public.pl?Action=PublicFAQZoom;ItemID=27.
- **TMap** – internal map-making resource. A user can create an offline copy of online maps for selected regions according to requirements. A user can create a map from any picture via the TRBOnet Map Edit application.

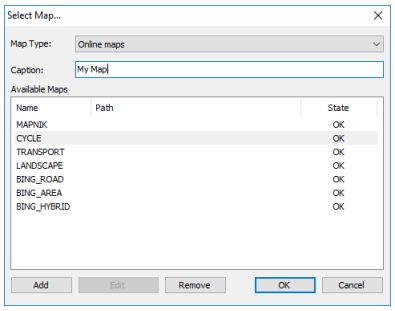
  Click **Start > All Programs > Neocom Software > TRBOnet Map Edit**
  For more details on map calibration, visit TRBOnet Knowledge Base and read the following article: http://kb.trbonet.com/public.pl?Action=PublicFAQZoom;ItemID=28.
- **GIS Panorama** – offline Russian map. For more details, visit the official website: http://www.gisinfo.ru/
- **Beacon 2D** – two-dimension offline map for Indoor positioning. A user can create maps using the Beacon2DMapGenerator tool. To get Beacon2DMapGenerator, contact your local TRBOnet dealer.
- **Beacon 3D** – tree-dimension map for Indoor positioning. A user can use any dicectX(.x) file as a map.
- **MapLib map format** – free offline map. Requires a lot of internal memory. Requires Franson GpsTools. For more details on Franson GpsTools, visit the official website: http://franson-gpstools.software.informer.com/2.3/
- **TatukGIS** – commercial offline map. For more details on TatukGIS, visit the official website: http://www.tatukgis.com/

- **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.



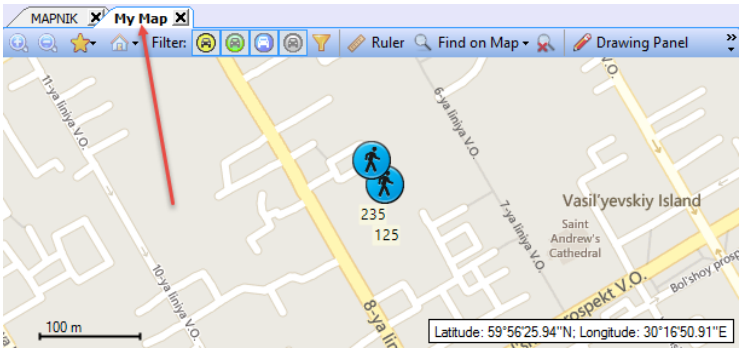
- **Load data from the TRBOnet server if local one is unachievable**
  Select this option to allow the Dispatch Console to resolve GPS data from the TRBOnet Server PC.
- For other settings, see 5.6.1.1 Configuring Geocoding Servers.

- **Map > Open New Map in Tab**
  Click this menu item to add a new map tab to the Map pane.



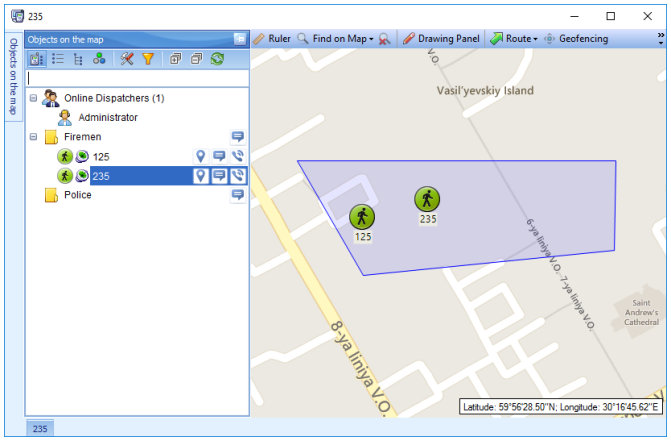
- **Map Type**
  From the drop-down list, select the map type.
- **Caption**
  Enter a caption for the new map tab.
- For other required settings, see Selecting Active Map.

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 the required settings, see Selecting Active Map

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

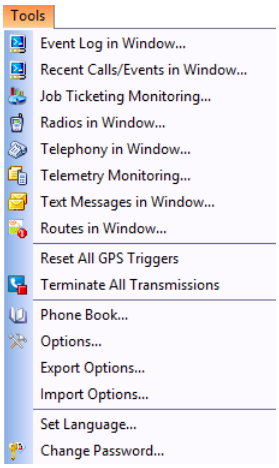


- **Map > Google Earth**
  Click this menu item to open the Google Earth application.

  Note: Google Earth must be previously installed on the PC. For more details on Google Earth, visit Google's official website: http://www.google.co.uk/earth

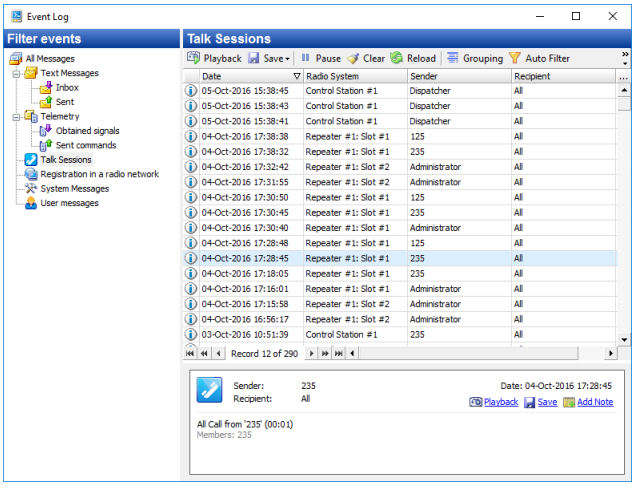
- **Map > Delete Routes on Google Earth**
  Click this menu item delete all routes from Google Earth.
- **Map > Show Radios on Google Earth**
  Click this menu item and in the drop-down menu select which radios to display on Google Earth.

6.1.4 Tools

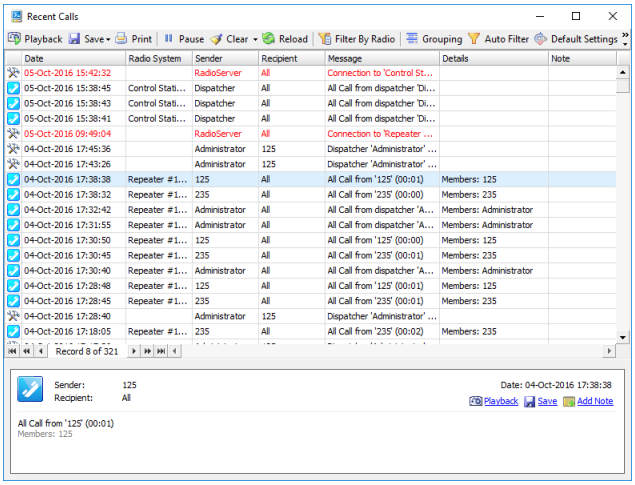


The **Tools** menu contains the following items:

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

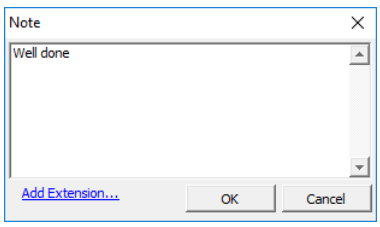


- **Tools > Recent Calls/Events in Window**
  Click this menu item to open Recent Calls/Events in a new window.



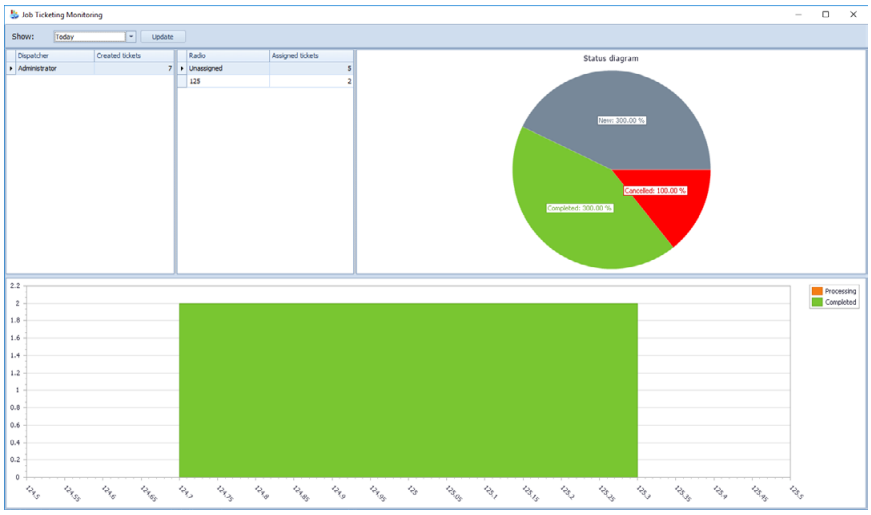
  - Click **Playback** to play back the selected call.
  - Click **Save** to save the selected call as an audio file.

    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 or *.tna) for the audio file.
  - Click **Add Note** to add a note to the selected call.



    - 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.

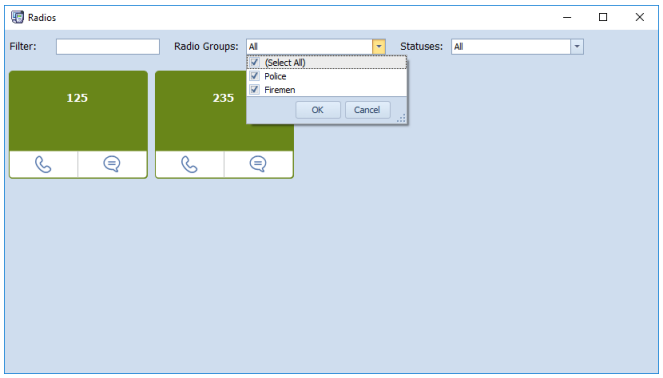


  In this window, you can perform the following actions:

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

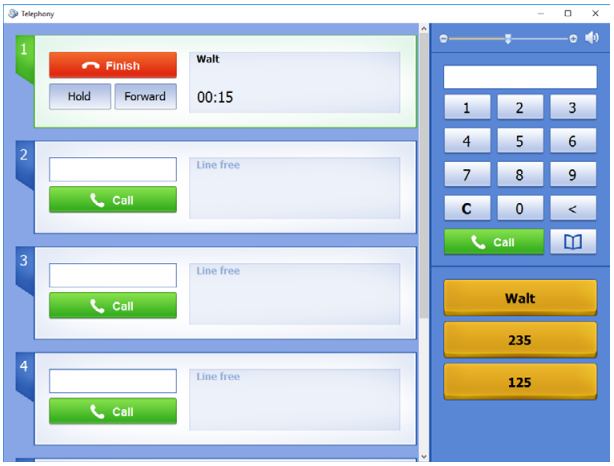
  All data are shown in the form of status diagrams.

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



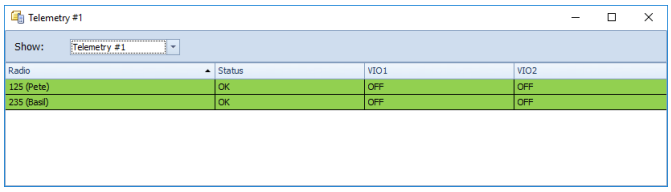
  In this window, you can make radio calls, send text messages. In addition, you can select to display radios by groups and statuses.

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



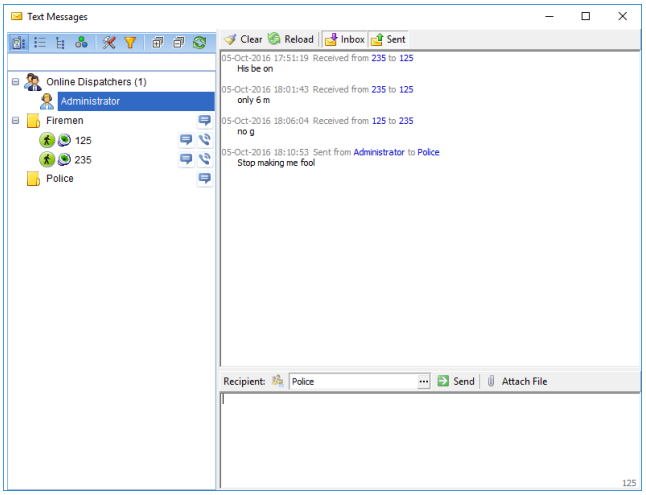
In this window, you can make and receive telephone calls.

- **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.

- **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 in the upper-right pane.
- Select online dispatchers and radio groups in the left pane, or by clicking the **...** 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.

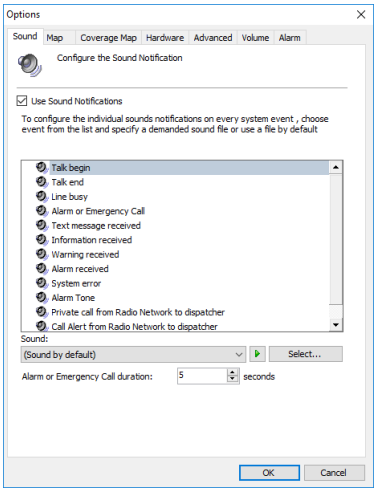
  For more details on Route Management configuration, see section 6.2, Route Management.

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

  This action is a "hard" inquiry to stop all transmissions in TRBOnet software and is intended to stop any "hung" transmission in TRBOnet. If a radio communication session does not allow to be interrupted on a repeater or base station, it will be interrupted for TRBOner software only.

6.1.4.1 Options

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

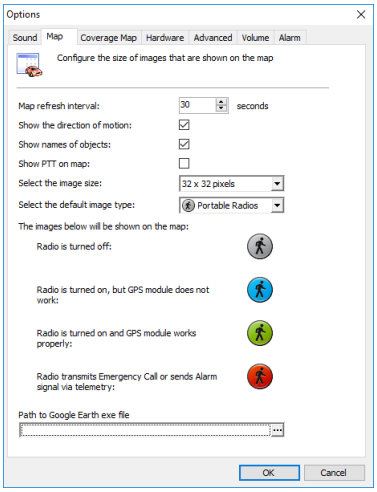


Sound

- 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 sound 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.

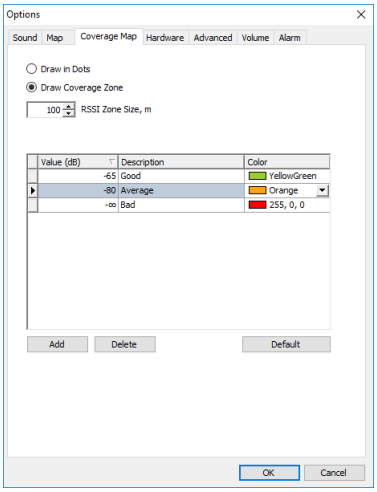


- **Map refresh interval**
  Enter the time period, in seconds, to update map data.
- **Show the directions of motion**
  Select this option to display a direction of motion for map objects.
- **Show names of objects**
  Select this option to display object names on the map.
- **Show PTT on map**
  Select this option to allow the dispatcher to make private calls by clicking a corresponding radio icon on the map.
- **Select the image size**
  From the drop-down list, select the size of a radio icon.
- **Select the default image type**
  From the drop-down list, select the default image type of a radio icon.
- **Path to Google Earth exe file**
  Click **...** and specify the location of the Google Earth exe file on your PC.

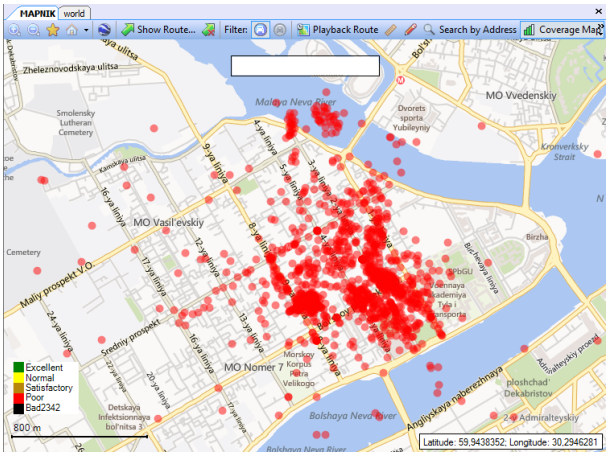
Coverage Map

TRBOnet Dispatch Console allows displaying RSSI levels on a map. The RSSI is a received signal strength indicator. It measures a radio signal loss from the radio. The RSSI maps can be used by radio system engineers to plan a further extension of their radio networks.

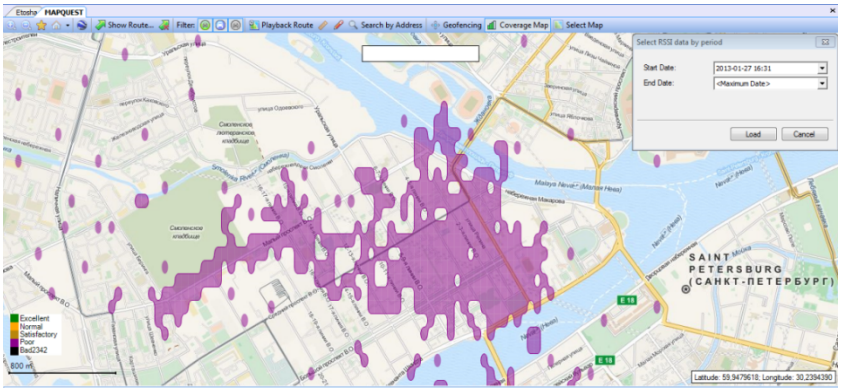
- In the **Options** dialog box, click the **Coverage Map** tab.



- **Draw in Dots**
  Choose this option to display RSSI levels on the map as dots that represent coordinate points for more a detailed data view.
  The RSSI map will be displayed as follows:



- **Draw Coverage Zone**
  Choose this option to configure RSSI zone in meters and display on map average data of RSSI level GPS coordinates for more common data view:



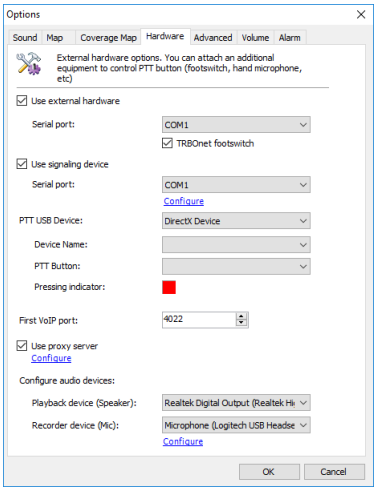
- **RSSI Zone Size**
  Enter the size, in meters, of an RSSI zone.

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

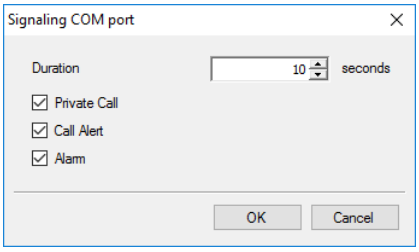
To view RSSI levels on the map, click the **Location Tracking** tab and on the Map pane's toolbar, click **Coverage Map**. Then set the Start Date and End Date to display RSSI data.

Hardware

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

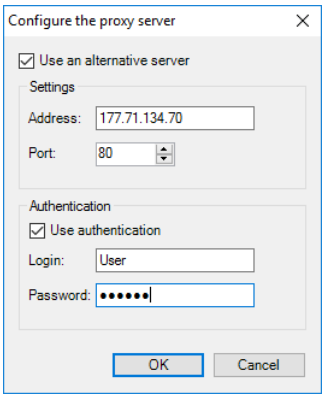


- **Use external hardware**
  Select this option to use external hardware devices, e.g. mic connectors.
  - **Serial port**
    From the drop-down list, select the COM port the device is connected to.
  - **TRBOnet footswitch**
    Select this option if you are going to use TRBOnet footswitch as a PTT button.
- **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.



- **PTT USB device**
  From the drop-down menu, select the type of the USB device with a PTT button connected to the PC (DirectX or HID).
  - **Device Name**
    From the drop-down menu, select the USB device name.
  - **PTT button**
    From the drop-down menu, select the available PTT button.
    Press the PTT button on the USB device. If the device's PTT and the PTT in the Dispatch Console are set up correctly, the **Pressing indicator** will become green.
- **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.
- **Use proxy server**
  Select this option to enable 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.



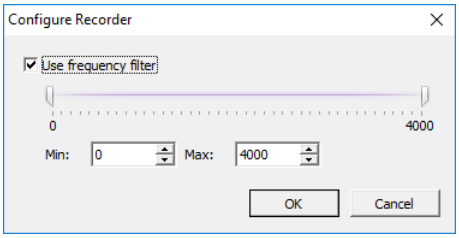
Configure audio devices

- **Playback device (Speaker)**
  From the drop-down list, select the audio device to play incoming voice messages and playback voice recordings in the Dispatch Console;

- **Recorder device (Mic)**
  From the drop-down list, select the recording device where the microphone is connected.

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

  - Click the **Configure** link to configure the Recorder device:

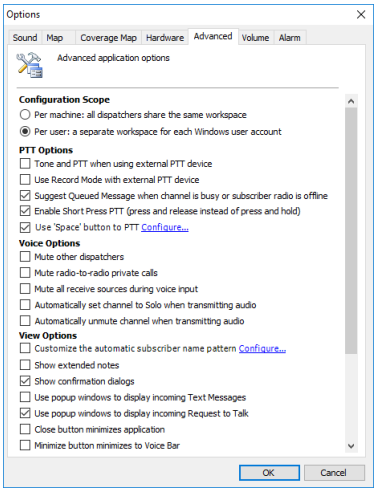


    ✓ **Use frequency filter**
    Select this option to configure the microphone to use the frequency filter to reduce external noise level.

    ✓ Specify the Min. and Max. values for the frequency filter.

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

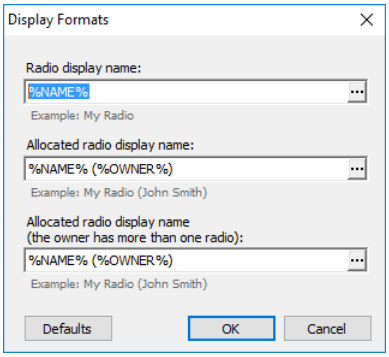
- **Tone and PTT when using external PTT device**
  Select this option to enable Alert Tone for all subscribers on a channel when the dispatcher presses the PTT button on an PTT external device.
- **Use Record Mode with external PTT**
  Select this option to record all voice transmissions from external PTT devices (Palm mics, Footswitches, etc.).
- **Suggest Queued Message when channel is busy or subscriber radio is offline**
  Select this option to record a TX Queued Voice Message when a radio channel is busy or subscriber is offline (see TX Passive configuration page);
- **Enable Short Press PTT**
  Select this option to start and finish voice calls by a short press of the PTT rather than keeping the PTT pressed until the end of a voice call.
- **Use 'Space' key to press PTT**
  Select this option to use a hot key for the PTT. Click the **Configure** link and on the keyboard, press the key you want to assign as a hot key for the PTT button.

Voice Options

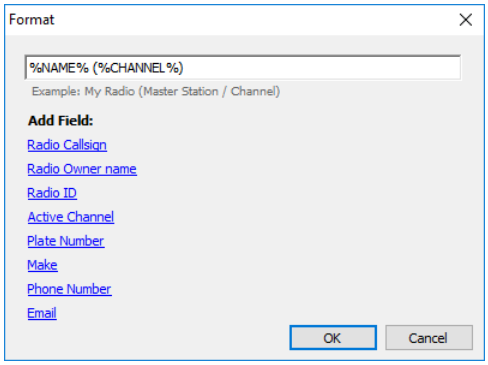
- **Mute other dispatchers**
  Select this option to mute all other dispatchers voice transmissions.
- **Mute radio-to-radio private calls**
  Select this option to mute all private calls on the channel.
- **Mute all receive sources during voice input**
  Select to mute all Voice Notifications when Dispatcher transmits or records audio.
- **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 the automatic subscriber name pattern**
  Select this option and click the **Configure** link to set a custom alias for a radio in the list of subscribers.



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

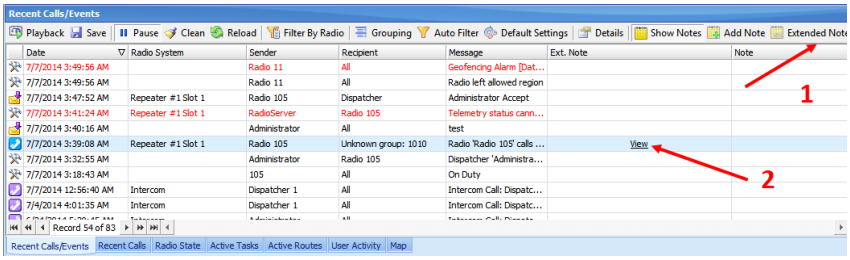


- **Allocated radio display name**
  Click **...** and in the Format dialog box pick the fields to display for an allocated (taken) radio.
- **Allocated radio display name**
  (the owner has more than one radio)
  Click **...** and in the Format dialog box pick the fields to display for an allocated (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.

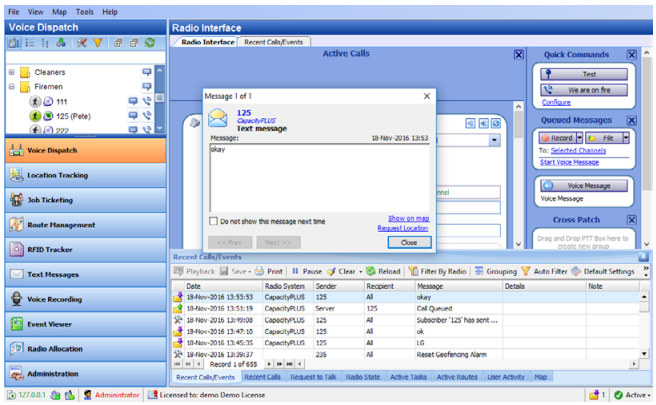
  E.g., a Taxi Dispatcher needs to check clients' calls response period for the company internal monitoring of the employees. They can add a predefined template and check the time period. All Extended Notes are displayed in the Extended Notes column:



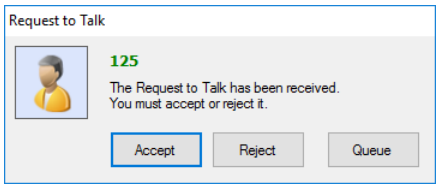
Click the **Extended Notes** button (1) to fill the template;

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

- **Show confirmation dialogs**
  Select this option to enable confirmation dialogs for dispatcher actions (e.g. when sending a configured Voice Message from the Dispatch Console).
- **Use popup windows to display incoming Text Messages**
  Select this option so that incoming Text Messages will pop up over the application window.



- **Use popup windows to display incoming Request to Talk**
  Select this option so that incoming **Request to Talk** messages will pop up over the application window.

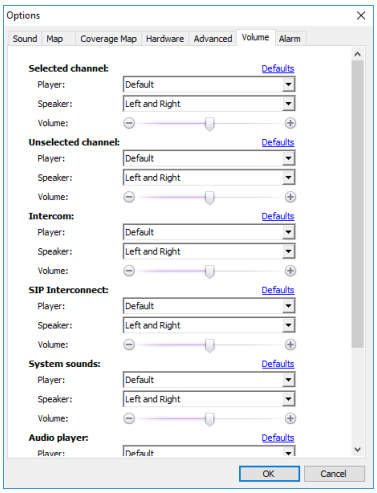


- **Close button minimizes application**
  Select this option so that clicking the Close button will minimize the Dispatch Console rather than close it.
- **Minimize button minimizes to Voice Bar**
  Select this option so that once you click the Minimize button you will see only the Voice Bar displayed.

- **Max items in "Recent calls/Events"**
  Enter the maximum number of items to display in the **Recent calls/Events** pane.
- **Measurement system**
  From the drop-down list, select either the Metric or the US unit system.
- **Coordinate system**
  From the drop-down list, select the coordinate system to be used.
  - **On Map**
    Select this option to display coordinates on the map.

Volume

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

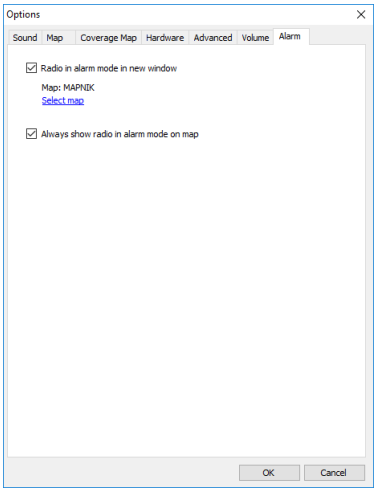


- Customize **Selected channel** speakers and volume parameters.
- Customize **Unselected channel** speakers and volume parameters. This option is intended for radio channels which are not selected in Dispatch Console.
- Customize **Intercom** speakers and volume parameters. This option is intended for **Intercom** Voice session between the dispatchers.
- Customize **System sounds** speakers and volume parameters.

  For the list of system sounds, see section Sound.
- Customize **SIP Interconnect** speakers and volume parameters. This option is intended for SIP calls.

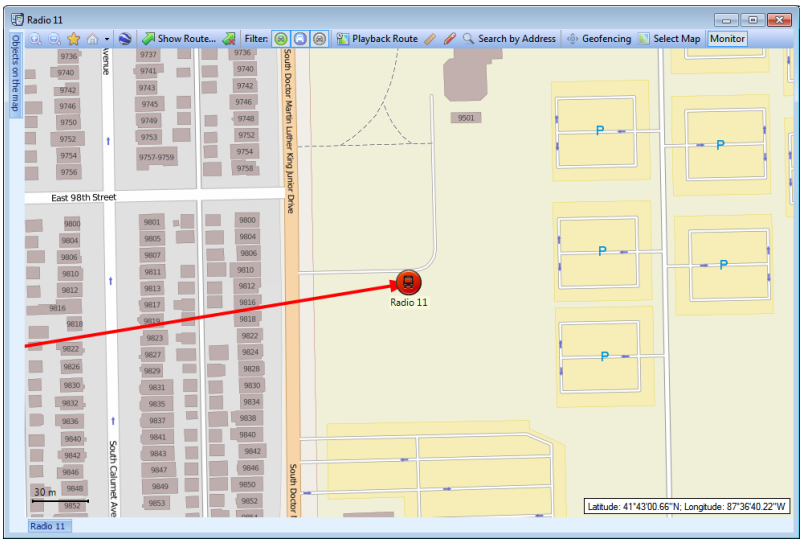
Alarm

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



- **Radio in alarm mode in new window**
  Select this option to display a radio in alarm mode on the selected map in a new 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.
- **Always show radio in alarm mode on map**
  Select this option so that radios in alarm mode will always be displayed on the map.

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



6.1.4.2 Exporting/Importing Options

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

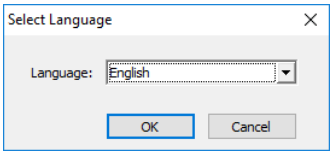
- Click **Tools > Export Options** and save the file to the specified location.

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

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

6.1.4.3 Setting Language

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

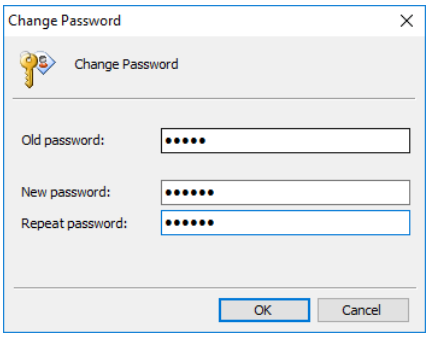


  - From the drop-down list, select the desired language and click **OK**.

  The changes will apply after you restart the Dispatch Console.

6.1.4.4 Changing Password

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



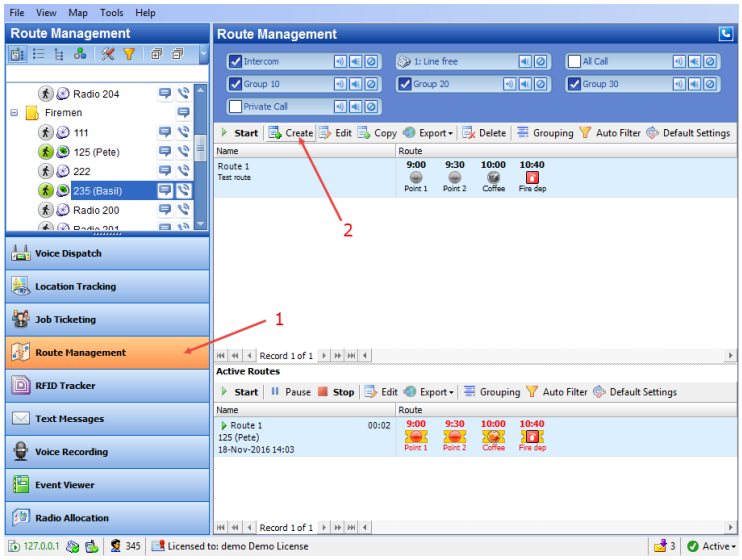
  - In the **Old password** box, enter your current password.
  - In the **New password** box, enter the new password.
  - In the **Repeat password** box, enter the new password again.
  - Click **OK**.

6.1.5 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 PLUS (applied license, version, build date, etc.).

6.2 Route Management

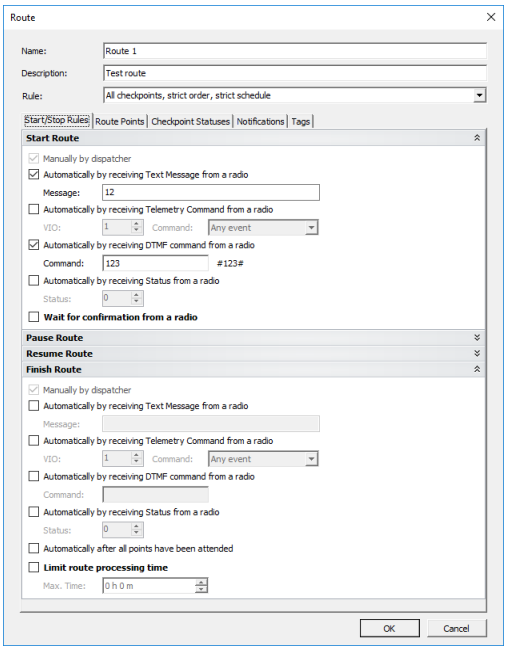
The Route Management feature allows the user to create routes and assign them to selected radio subscribers or dispatchers.



- Click the **Route Management** tab (1).

6.2.1 Creating a Route

- 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 specified text message to TRBOnet Server. If you select this option, specify a brief text message 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 specified DTMF command to TRBOnet Server, for instance, #11#. If you select this option, specify the DTMF combination without the # characters in the **Command** box.
  - **Automatically by receiving Status from a radio**
    The route starts when the user sends the specified 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 delay the start of a route until a confirmation from the radio is received. In this case, the route is assigned to the radio or user and paused. The route can then be resumed.

  Pause Route
  Specify the rules to pause the route.

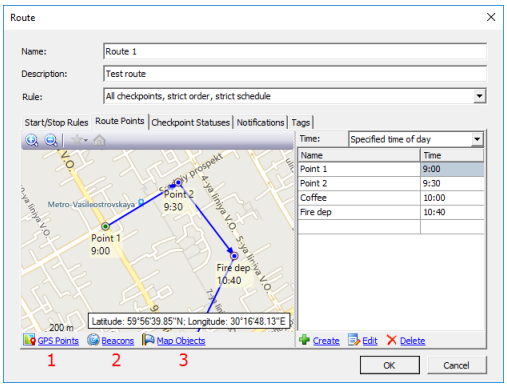
  Resume Route
  Specify the rules to resume the route.

  Finish Route
  Specify the rules to finish or stop the route.

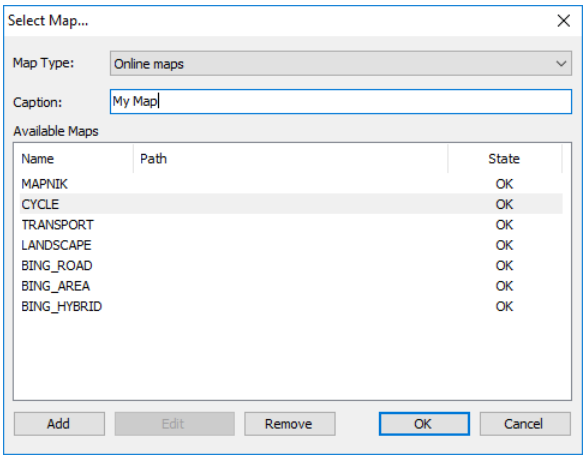
  - **Automatically when all points have been attended**
    Select this option so that the route is finished automatically when all checkpoints have been attended.

- **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'.

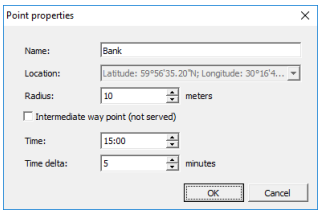
- In the **Route** dialog box, click the **Route Points** tab.



  - Click the **GPS Points** link (1) to add points to the selected map:



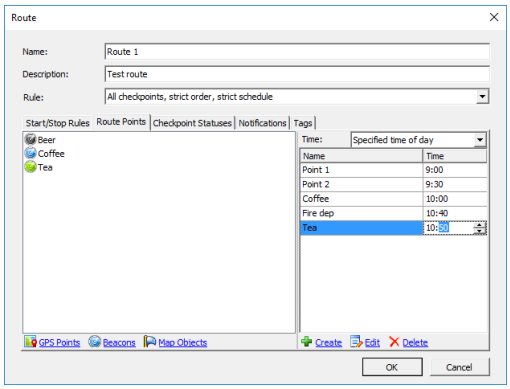
  - Select the map. For more details on map types, see Map Types section.
  - Click the **Create** link or double-click a selected point on the map to create a new route point:



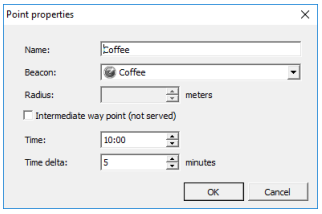
  - **Name**
    Specify a name for new point to display on the map.
  - **Location**
    This box displays the current GPS coordinates of new point.

- **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.

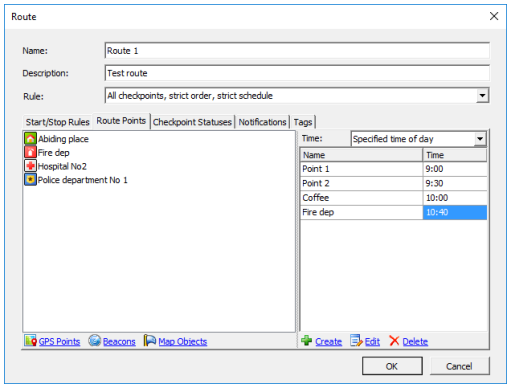
Note: To enable the **Indoor** feature, make sure your license includes **Indoor Positioning** (see License information page) and **Indoor Service** is selected in the list of available services (see Services).



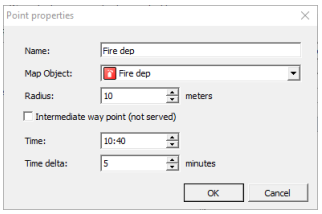
- Click the **Create** link and then click a beacon in the list.



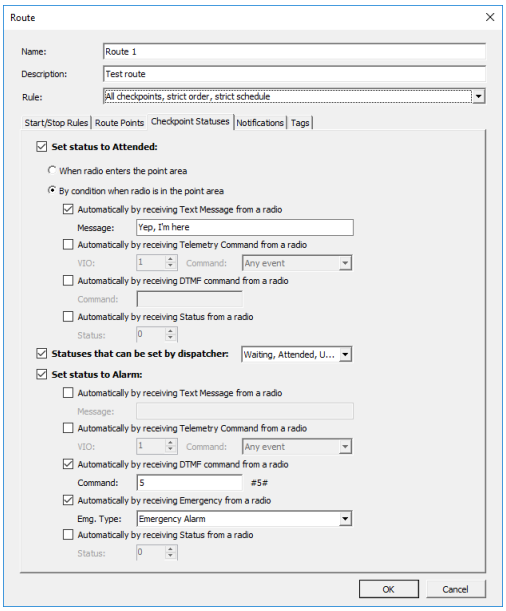
- Click the **Map Objects** link to add a map object as a checkpoint.



- Click the **Create** link and then click an object in the list.



- In the **Route** dialog box, click the **Checkpoint Statuses** tab.



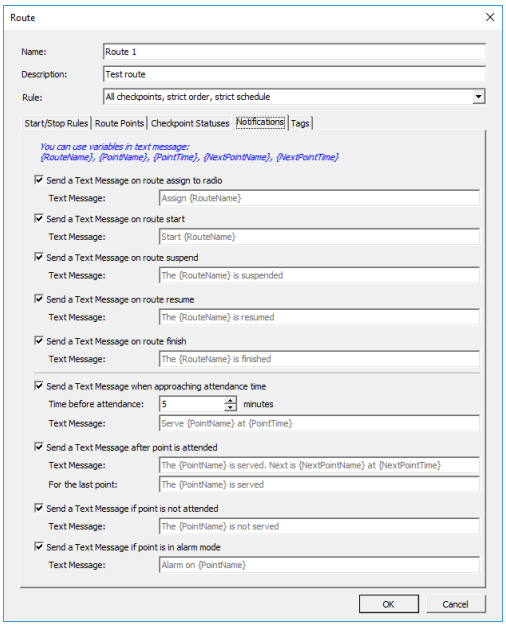
- **Set status to Attended**
  Select this option so that TRBOnet Server will change the checkpoint status to 'Attended' based on the information from the radio.
  - **When the radio enters the point area**
    Choose this option so that the radio detects the closest beacon and sends location data to 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 text message with the specified text 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 so that the checkpoint is considered to be attended after the dispatcher receives a specified 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 checkpoint is considered to be attended after the dispatcher receives a specified DTMF command from a radio, for instance, #11#. If you select this option, specify the DTMF combination without the # characters in the **Command** box.

- **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 text message with the specified text 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 set the point to alarm mode after the dispatcher receives a specified 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 set the point to alarm mode after the dispatcher receives a specified DTMF command from a radio. If you select this option, specify the 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 a radio.
  - **Emg. Type**
    Select the Emergency type from the drop-down list.

- In the **Route** dialog box, click the **Notifications** tab to manage notifications to a radio.



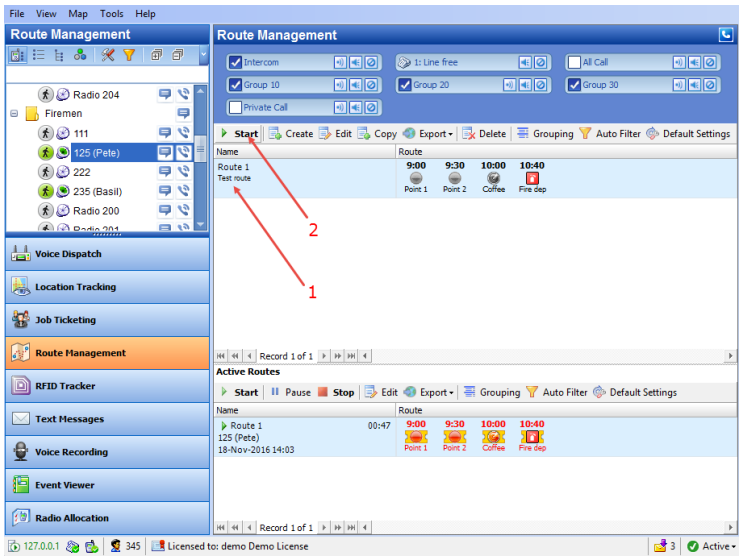
Note: To enable an option, select the checkbox. The Text Message boxes already include text. If necessary, replace the text with your own text, using variables as placeholders that will be substituted with actual data.

- **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.

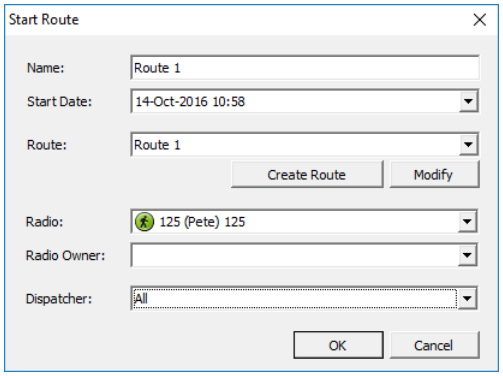
- **Send a Text Message after point is attended**
  Select this option to confirm attending a checkpoint.
- **Send a Text Message if point is not attended**
  Select this option to notify a radio holder if the point was not attended.
- **Send a Text Message if point is in alarm mode**
  Select this option to notify radio holder if the point is in alarm mode.
- Click **OK** to save settings.

The new route is added to the route list (1):

6.2.2 Starting a Route



- Click the **Start** button (2) to start the route:



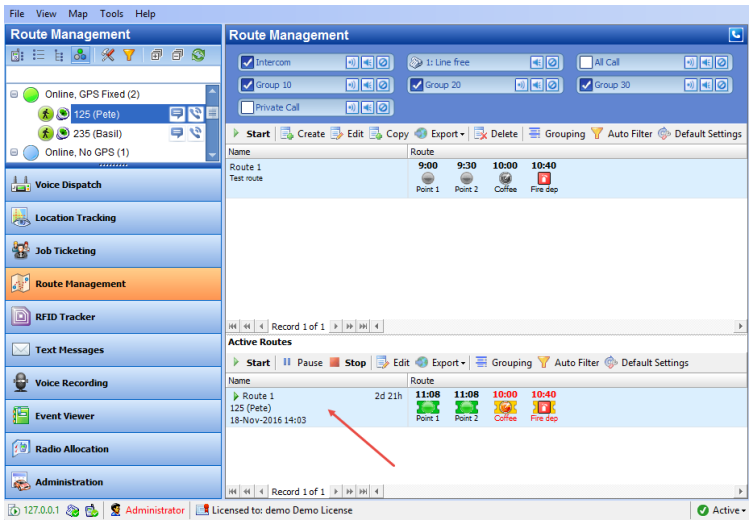
- **Name**
  Enter a name for the route to be started. Tis name will be displayed in the **Active Routes** pane.
- **Start Date**
  Select a date to start the route on.

- **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, the select the User to assign the route to.
- **Dispatcher**
  From the drop-down list, the select the dispatcher to monitor the route.

Note: Do not select both **Radio** and **Radio Owner** to prevent incorrect route running.

- Click **OK** to start the route.

The active route appears in the **Active Routes** panel.

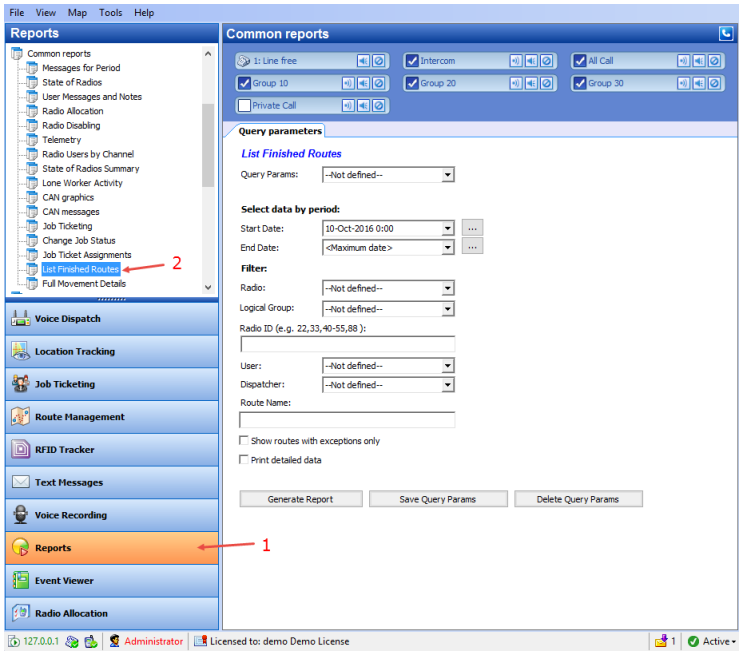


If the route point is not attended, it becomes red.

- Click the **Stop** button to replace an active route in the list of created routes.

The administrator can generate reports on the finished routes.

- Click the **Reports** (1) tab, and in the **Reports** pane select **Common reports > List Finished Routes** (2):

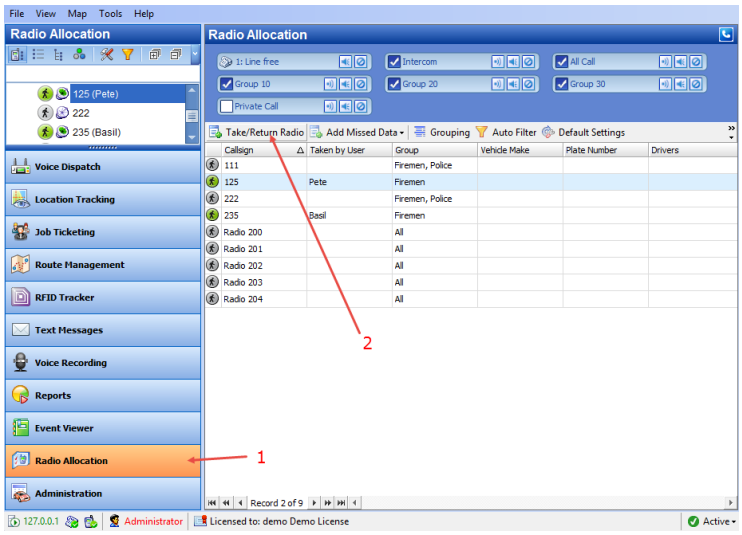


6.3 Radio Allocation

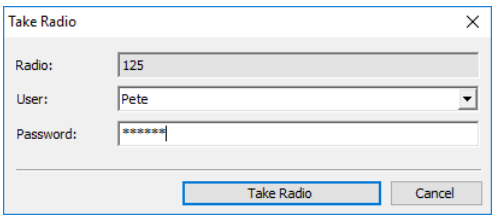
The radio can be assigned to a selected employee registered in the system.

All available radios are disabled and an employee will need to type in username and password to take and enable selected radio. When an employee returns 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):



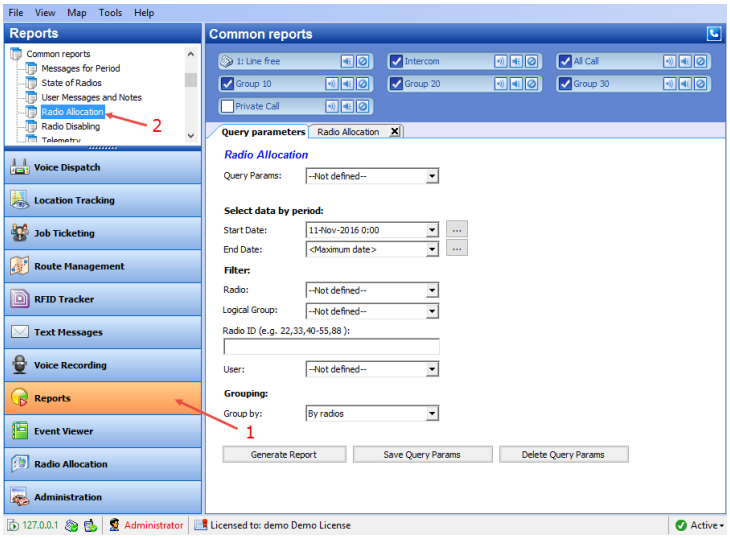
- **Radio**
  This box displays the selected radio.
- **User**
  Form drop-down list, select the user to allocate the radio to.
- **Password**
  Enter the password for the selected user.

Note: For more details on user access to Allocation Console, see Users section.

- Click the **Take Radio** button to assign the radio to the selected user.

The administrator can generate reports on the allocated radios.

- Click the **Reports** (1) tab, and in the **Reports** pane select **Common reports > Radio Allocation** (2):

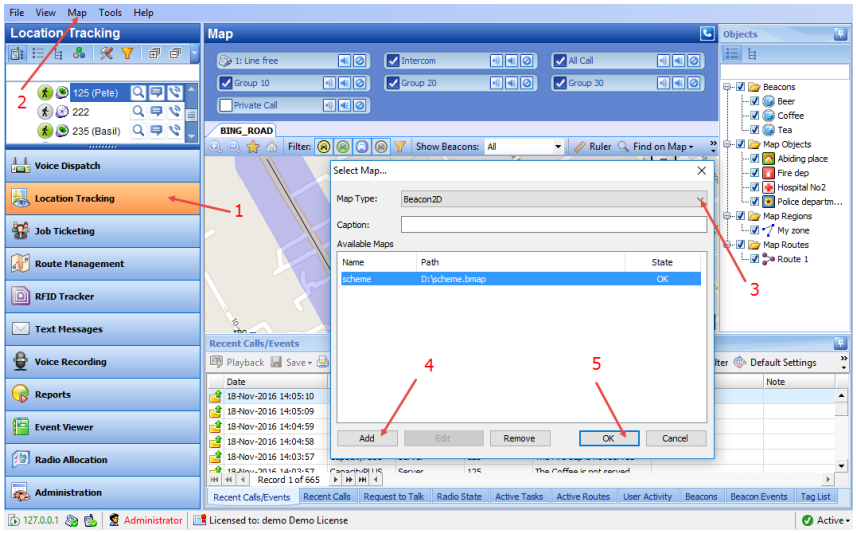


6.4 Beacons

TRBOnet Dispatch Console provides the **Indoor Positioning** feature to monitor radio location inside a building where no GPS signal is available. The feature requires additional hardware (beacons spread around the building and option boards in radios). A radio unit will be displayed on indoor floor plan on exact beacon when the radio enters the beacon's coverage area. A beacon icon on the map notifies on the amount of radios that are currently in this beacon's coverage area (e.g. Room 1(3) - there are 3 radios in Room 1).

Note: To enable the **Indoor** feature, make sure your license includes **Indoor Positioning** (see License information page) and **Indoor Service** is selected in the list of available services (see Services).

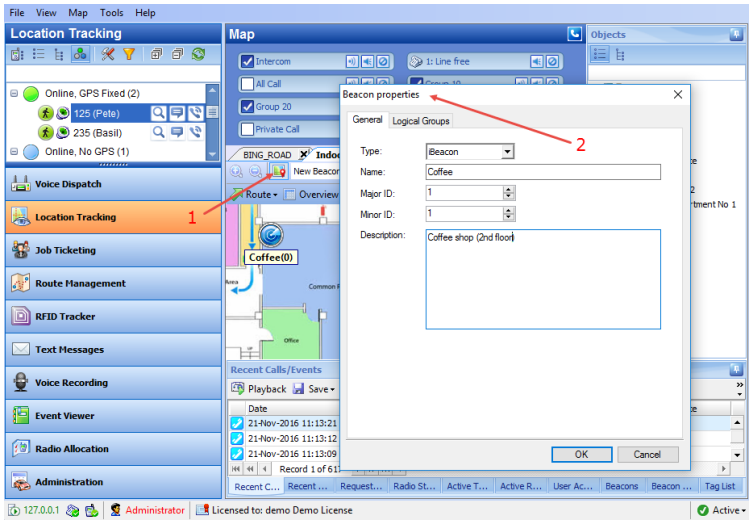
- Click the **Location Tracking** tab (1), then click **Map** (2) and choose **Open New Map in Tab**:



- **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 required map on your PC.
- Click **OK** to add the map.

Add a beacon to the selected 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 opens (2), specify the beacon properties.

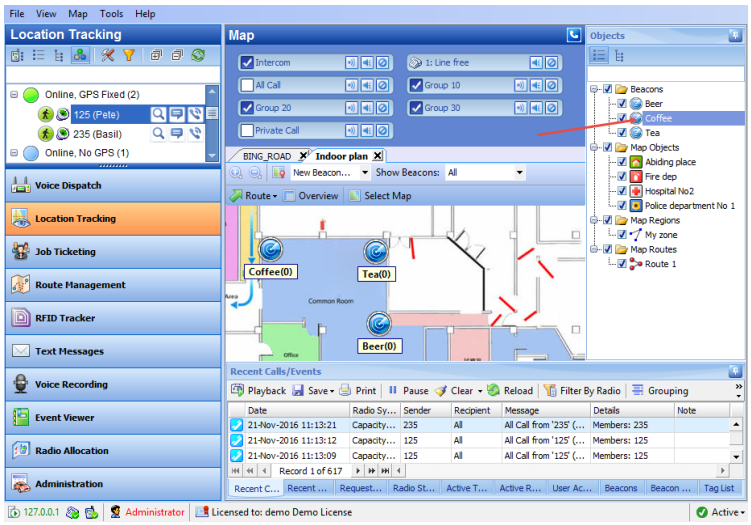


- **Type**
  Select the beacon type from the drop-down list.
- **Name**
  Specify a name for the beacon.

- **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.

Edit parameters of a beacon

- Select a beacon in the **Objects** panel and double-click to edit its parameters.



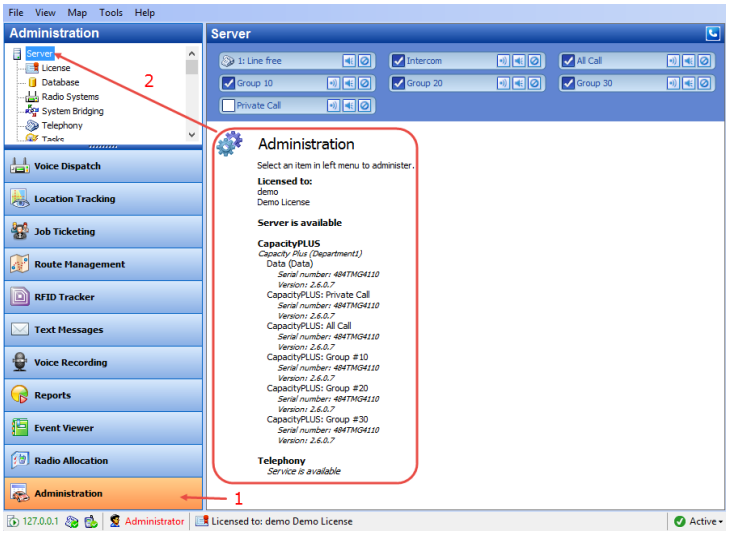
Note: For more details on beacon parameters, see the following article.

6.5 Administration

Click the **Administration** tab to set system elements and options.

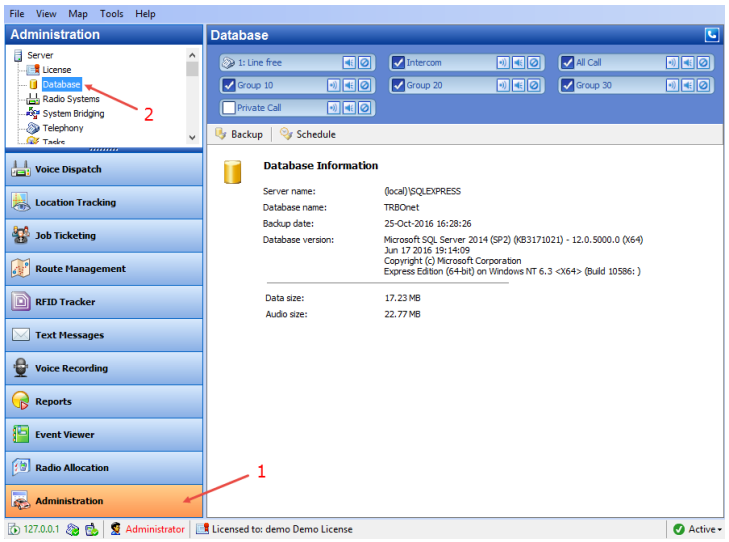
6.5.1 Server

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



6.5.1.1 Database

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



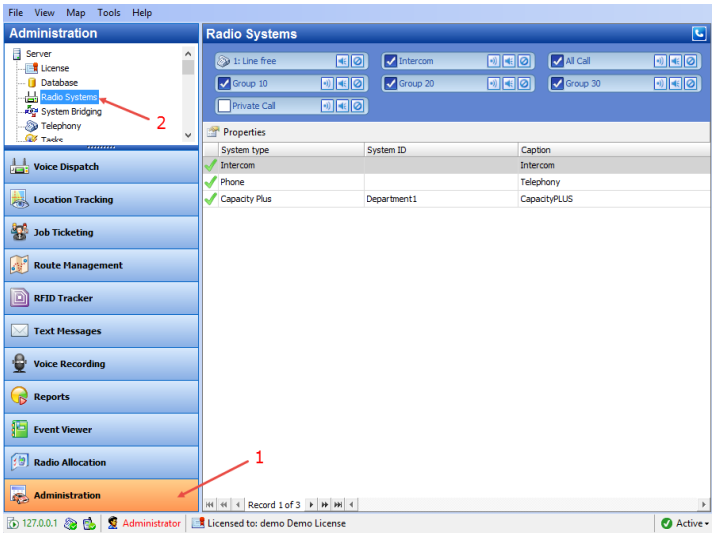
In the **Database** pane, the administrator can restore and back up the database and audio recordings.

For more details on backups, see Appendix A: Database and Audio Recordings Backup and Restore.

6.5.1.2 Radio Systems

All radio systems registered in the Server are represented on the Radio Systems pane.

Go to **Administration** (1), **Radio Systems** (2) to see system elements' parameters:



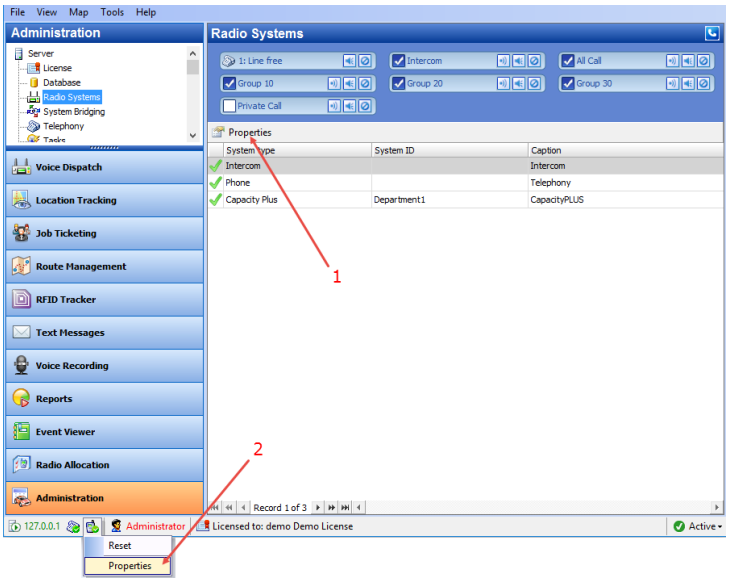
The administrator can see the following radio system parameters in the table:

- **System Type** - the type of the system.
- **System ID** - a unique System Identifier configured in TRBOnet Server configuration for repeater or controller stations in the system.
- **Caption** – channel type to transmit voice and data.

Radio 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).

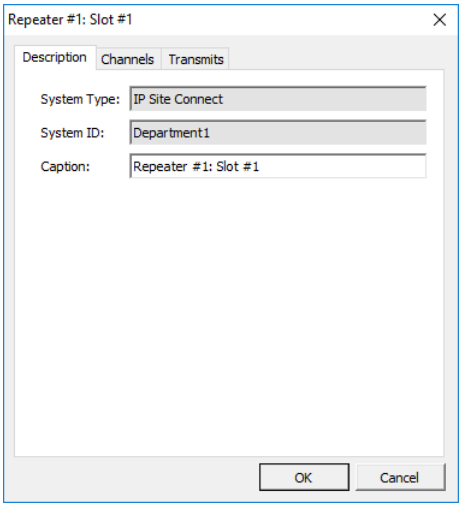


The administrator can see Active and Inactive registered systems. In case you have more than 10 registered systems, systems are grouped and can be seen in the drop-down list.

Common information for all system elements is listed below:

Description tab

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

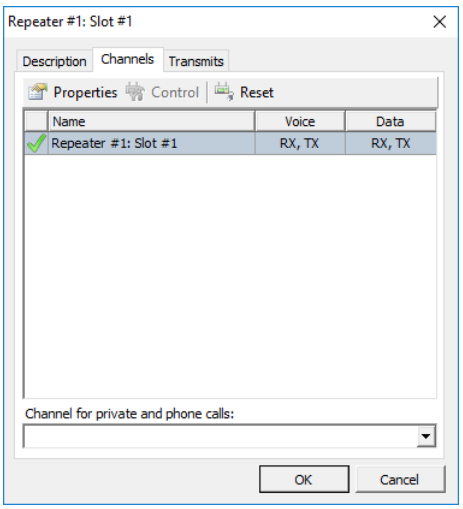


- **System Type**
  The system type for a repeater/Digital or Analogue mode for a control station.

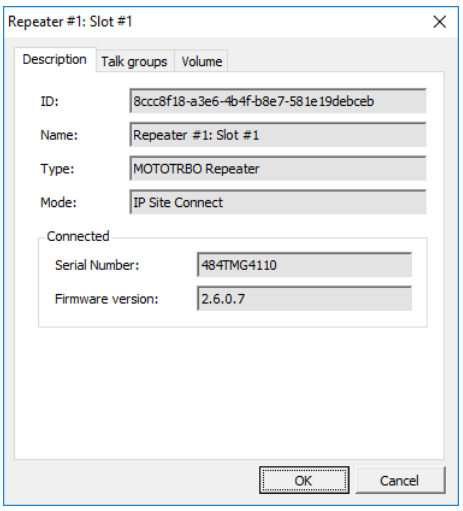
  For the repeater, see MOTOTRBO Radio Systems page.
- **System ID**
  A unique System Identifier configured in TRBOnet Server for repeater or controller stations in the system;
- **Caption**
  Enter the channel name.

Channels tab

On the **Channels** tab, you can see channel properties:



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



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

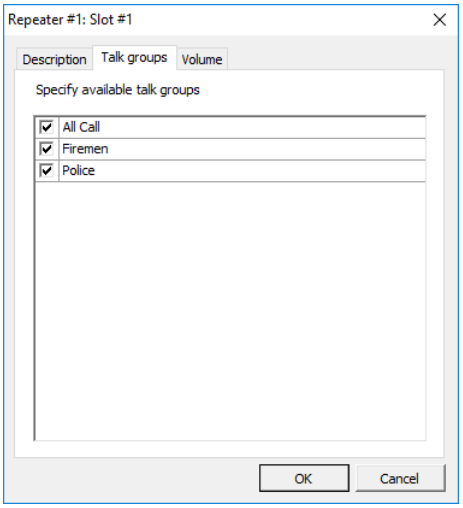
    For the repeater, see MOTOTRBO Radio Systems page.
  - **Mode**
    System type for a repeater/connection mode for a control station.

    For the control station, see Control Station Connection Modes.
  - **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.

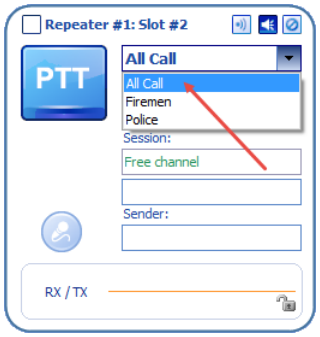
Talk groups tab (for repeaters only)

- 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.

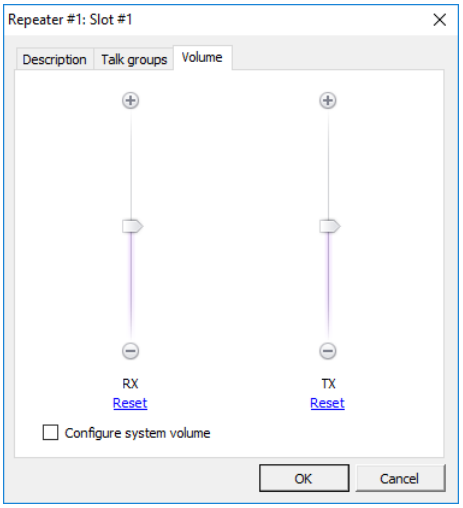
  Selected Talk groups are available on the **Radio** tab in the system element box in the drop-down list:



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

Volume tab (for repeaters only)

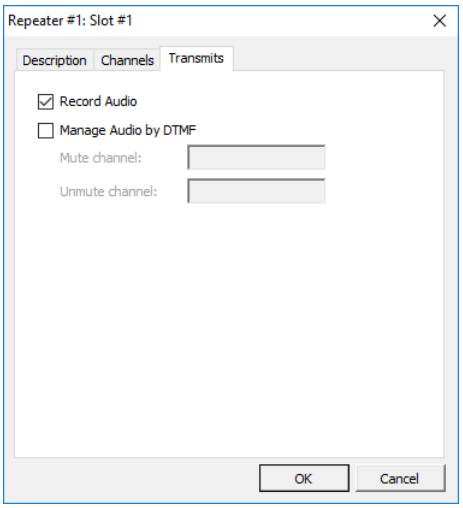
- On the **Volume** tab, you can see Volume settings for the repeater:



- 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.

Transmits tab

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



- **Record audio**
  Select this option to enable audio recordings for the selected repeater.
- **Manage Audio by DTMF**
  Select this option to manage audio in the selected channel by specified DTMF tones.
  - **Mute channel**
    Enter a DTMF sequence to be used to mute the selected channel.

- **Unmute channel**
  Enter a DTMF sequence to be used to unmute the selected channel.

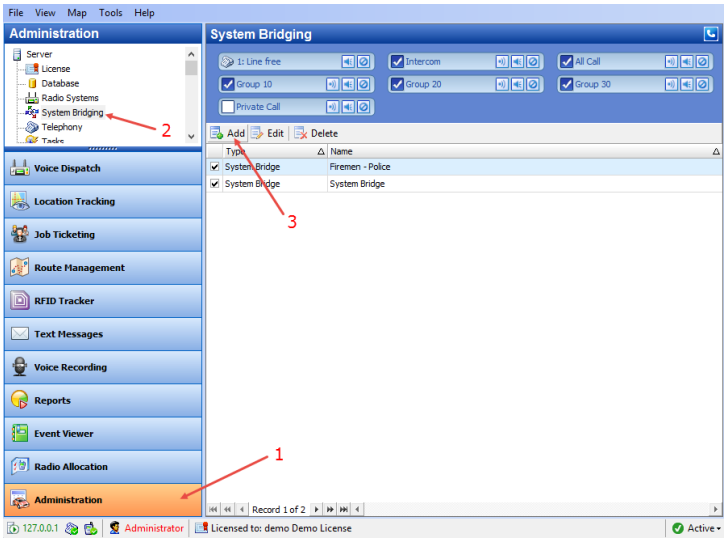
6.5.1.3 System Bridging

TRBOnet Dispatch Console provides the **System Bridging** function. System Bridging allows configuring the network to redirect calls.

Administrator can create two types of System Bridging:

1. **System Bridging for Master stations** – allows connecting all types of Radios (analogue and digital radios, supports IP Site Connect, Capacity Plus, Linked Capacity Plus and Connect Plus modes).
2. **System Bridging for repeaters** - allows connecting only the repeaters in the IP Site Connect mode.

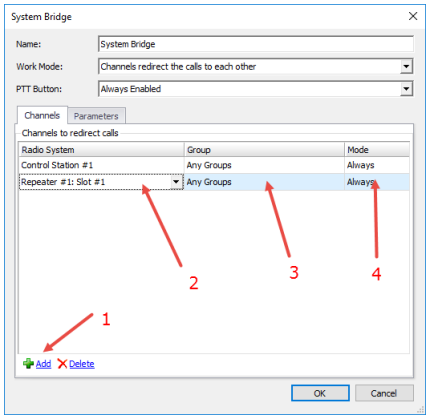
Go to **Administration** (1), **System Bridging** (2) to add System Bridging to the system:



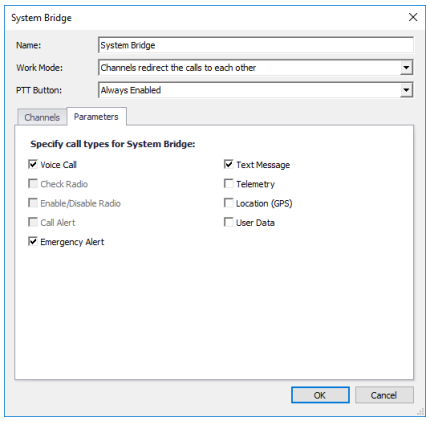
- Click the **Add** button (3) to add a Cross Patch.

  From the drop-down menu, select the System Bridging type.

Radio System Bridging

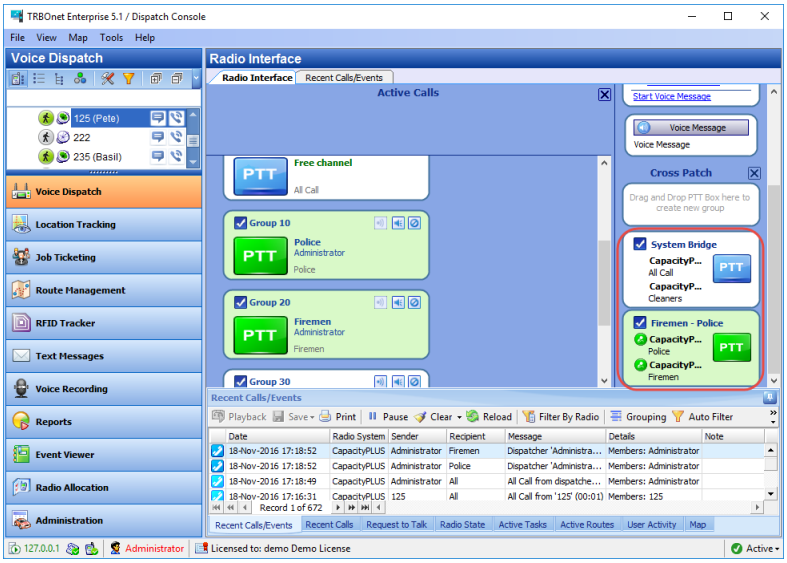


- **Name**
  Specify a name for System Bridging to display in Radio Interface.
- **Work mode**
  Select the work mode from the drop-down list. For more details on System Bridging types, see System Bridging Types.
- **PTT Button**
  set PTT on the System Bridging interface to be able to transmit voice or do not set only to hear the voice from other channels. There are 3 options available:
  - Enable when a Bridge enabled
  - Always Enabled
  - Invisible
- On the **Channels** tab, click the **Add** button (1) to add a channel to the list.
- In the **Radio 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 System Bridging always, regardless of the radio status (online/offline).
  - **ByRadio**
    Enables System Bridging 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 System Bridging:



- Select call types to use in System Bridging mode.
- Click **OK** to add System Bridging for the radio channels.

The System Bridges are displayed on the Cross Patch panel of the Radio Interface pane:

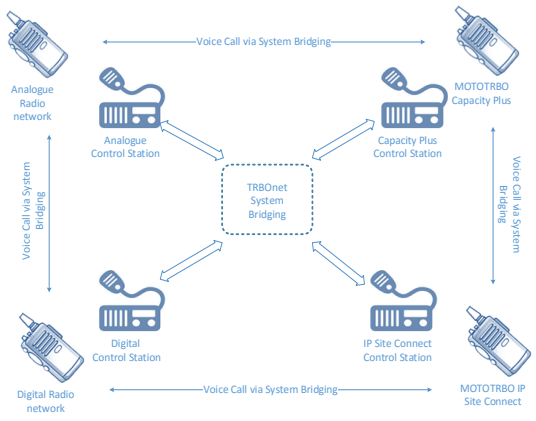


System Bridging Types

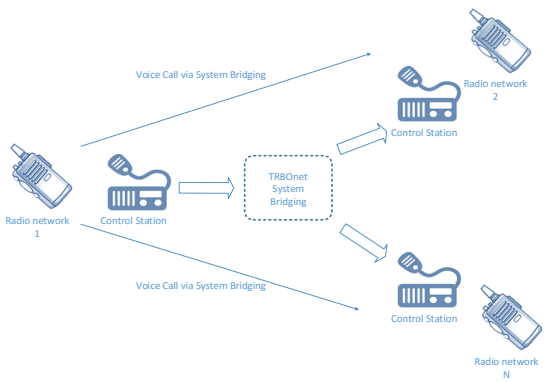
1. Channels redirect the calls to each other

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

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

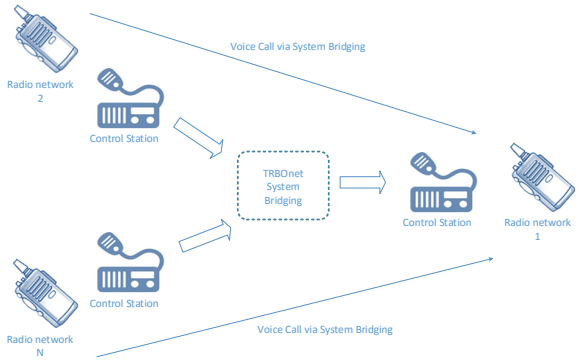


2. One channel station redirects calls to many channels



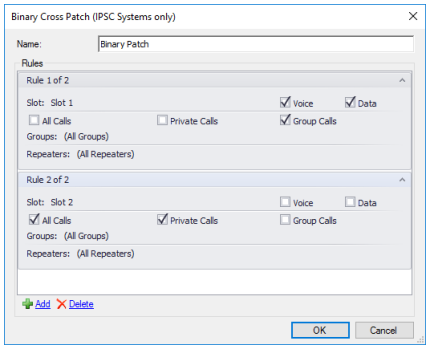
To create this type of System Bridging, add a System Bridging and set the Work Mode as **One channel redirects the calls to many channels**.

3. Many channels redirect calls to one channel



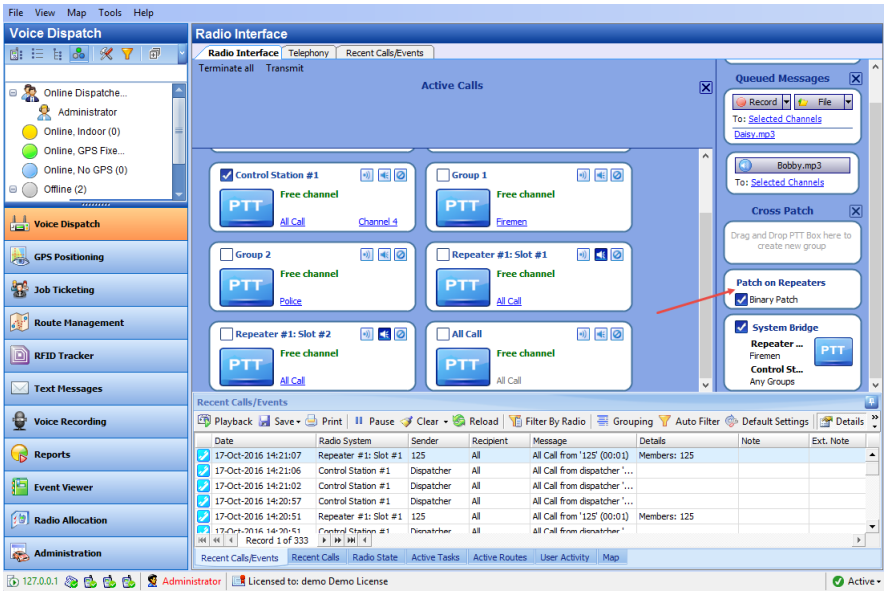
To create this type of System Bridging, add a System Bridging and set the Work Mode as **Control stations redirect the calls to one control station**.

Binary Patch (for IP Site Connect only)



- **Name**
  Specify a name for the Binary Patch to display in Radio Interface.
- **Rules**
  Specify the rules for System Bridging to redirect calls.
  - Check **Voice/Data** to transmit on the selected slot.
  - Select available **Call types**.
  - Select available **Groups** for System Bridging from the drop-down list.
  - Select available **Repeaters** to redirect calls in System Bridging from the drop-down list.

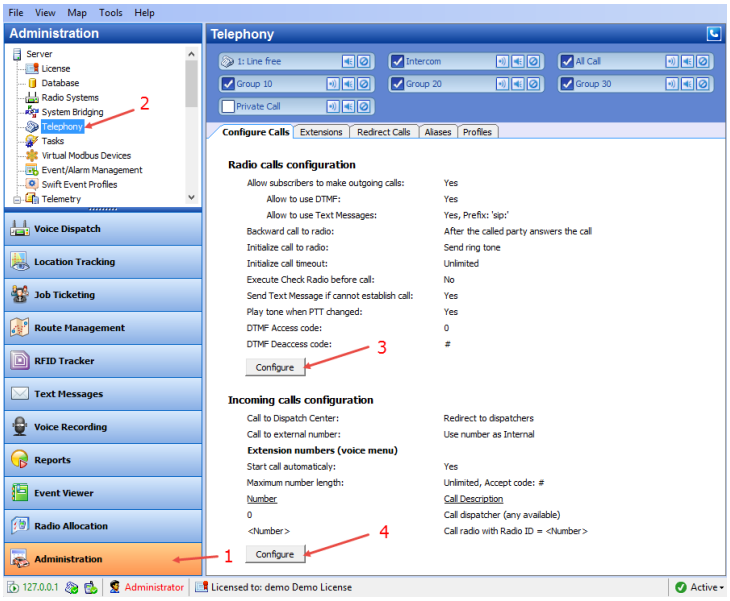
The Binary Patches are displayed on the Cross Patch panel of the Radio Interface pane:



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

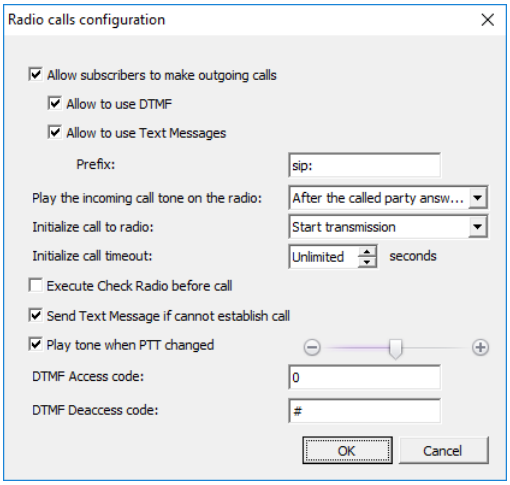
6.5.1.4 Telephony

Click **Administration** (1), and then **Telephony** (2) to configure incoming and outgoing SIP calls:



Radio Calls Configuration

Click the **Configure** button (3) to set radio call configuration parameters:

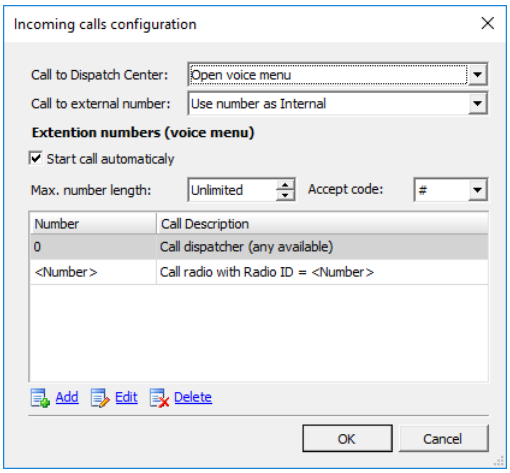


- **Allow subscribers to make outgoing calls**
  Select this option to enable outgoing phone calls for the radio subscribers.
- **Allow to use DTMF**
  Select this option to allow radio subscribers to dial the phone number as a sequence of DTMF tones.
- **Allow to use Text Messages**
  Select this option to allow radio subscribers to initialize phone calls via sending TMS messages with a specified prefix to the dispatcher.
  - **Prefix**
    Enter the standard prefix for a text message.
- **Play the incoming call tone on the radio**
  Select the mode for playing the incoming call tone on the radio that initiates a call.
  - **After the called party answers the call**
    When a radio initiates a phone call to a subscriber via DTMF tones or a TMS message, the incoming call tone will be played on the radio after the called party answers the call.
  - **Immediately**
    When a radio initiates a phone call to a subscriber via DTMF tones or a TMS message, the incoming call tone will be played on the radio immediately that is without waiting for the called party to answer the call.
- **Initialize call to radio**
  Select the option how to start a call on a radio.
  - **Start transmission**
    Select to start a call to a radio automatically.
  - **Send ring tone**
    Select to play a ring tone until the radio user presses the PTT.
- **Initialize call timeout**
  Specify a timeout that defines how long to make an attempt to connect to the called party.

- **Execute Check Radio before call**
  Select this option to execute a Check Radio command before placing a call.
- **Send text message if cannot establish call**
  Select this option to send a text message when the channel is busy and a phone call cannot be established.
- **Play tone when PTT changed**
  Select this option so that a phone will play sound tones when the PTT is pressed/released on the remote radio.
- **DTMF Access Code**
  Specify a DTMF Access Code as **0**.
- **DTMF Deaccess Code**
  Specify a DTMF Deaccess Code as **#**.

Incoming Calls Configuration

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



- **Call to Dispatch Center**
  Select the mode for handling incoming calls made to the dispatcher.
  - **Decline calls**
    All incoming phone calls will be declined.
  - **Open voice menu**
    When an incoming call arrives, the subscriber will hear Voice menu commands.
  - **Redirect to dispatchers**
    All incoming voice calls will be redirected to all dispatchers of the Dispatch center and any free dispatcher will answer the phone call.
- **Call to external number**
  Select the mode for handling incoming calls made from unregistered subscribers.
  - **Decline Calls**
    Select this option to decline all calls from unregistered subscribers.

- **Use number as Radio ID**
  Select this option to allow the system to read unregistered numbers as a Radio ID and start a Private Call.
- **Use number as Internal**
  Select this option to allow the system to read unregistered numbers according to Voice Menu rules.

Extension numbers (Voice menu)

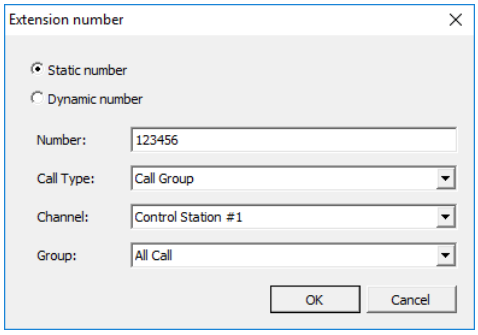
- **Start call automatically**
  Select this option to search for the number in the table automatically. When this option is disabled, the subscriber must dial the number according to the following example: **0(phone number)#**. The character **#** is used to search for the phone number in the table.
- **Max. number length**
  Specify the maximum number of characters allowed in a phone number.
- **Accept Code**
  Specify the character that will be used to finish dialing the 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 number

  - Choose **Static number**.

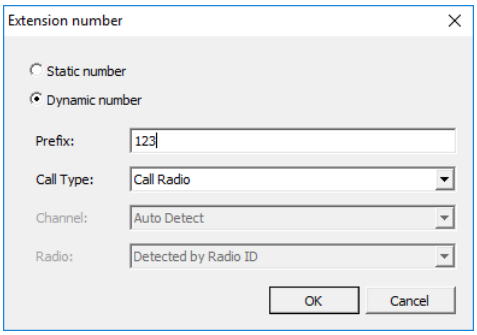


  - **Number**
    Enter a phone number to add to the table (contact list).
  - **Call Type**
    Select the call type from the drop-down list.
    - **Call Dispatcher**
      Select this type to make a phone call to the dispatcher.
    - **Call Radio**
      Select this type to make a phone call to the 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.

To add a dynamic number

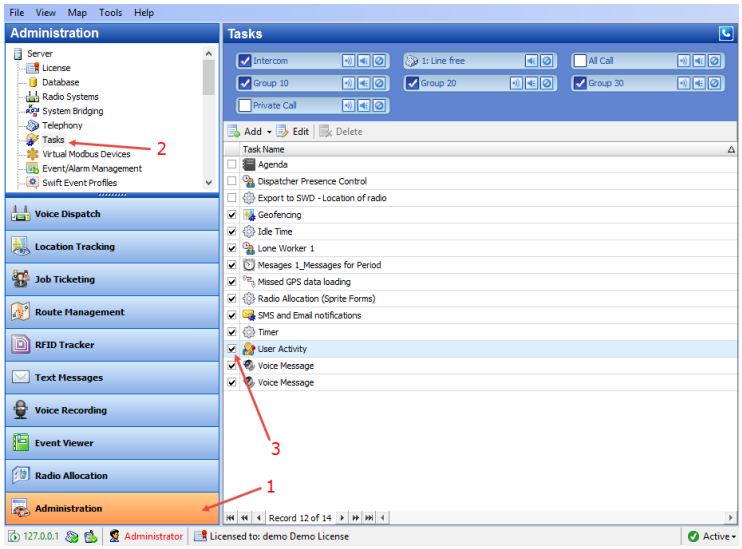
- Choose **Dynamic number**.



- **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 telephone.
- **Channel**
  Select the channel to make a group phone call through (available for Group Calls only).

6.5.1.5 Tasks

Go to **Administration** (1), **Tasks** (2) to see the list of the tasks created in the system:

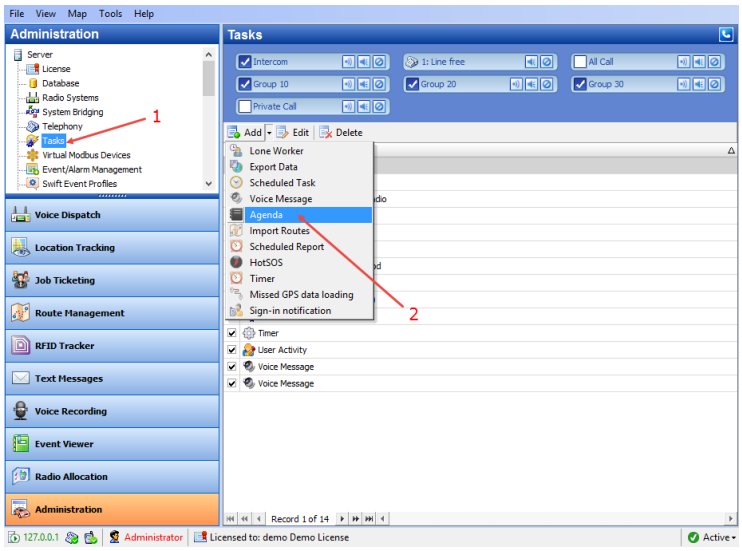


Note: After you have created a task you need to enable it. Just select the checkbox (3) beside the task you want to enable.

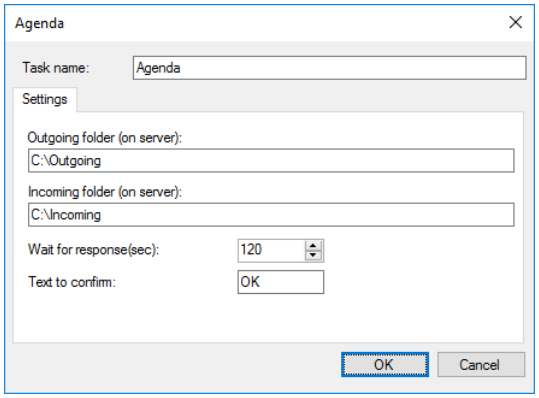
Agenda

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, select **Tasks** (1), and click **Add > Agenda** (2).



- In the **Agenda** dialog box, specify the following parameters.

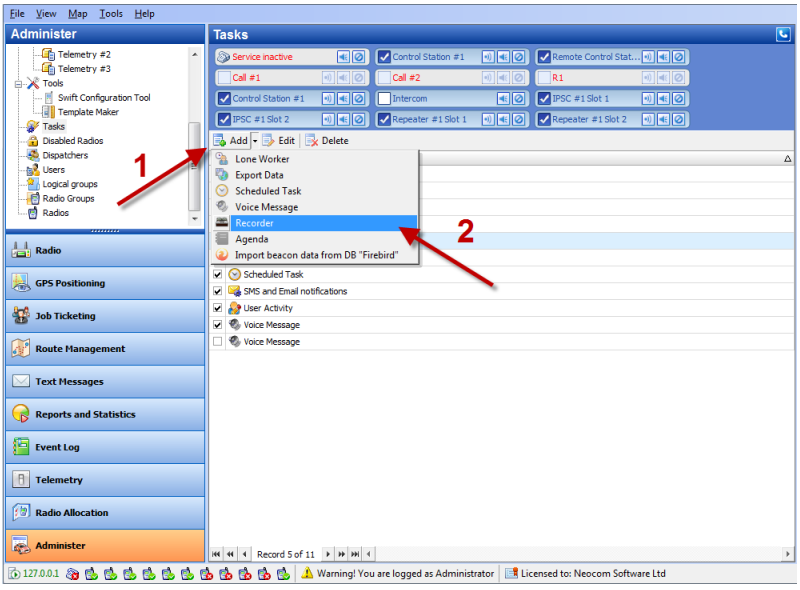


- **Task name**
  Specify a name for the task.
- **Outgoing folder (on server)**
  Specify the outgoing folder for the text messages to be displayed in the Dispatch Console (e.g. **C:\Outgoing**).
- **Incoming folder (on server)**
  Specify the incoming folder for the reports (e.g. **C:\Incoming files**);
- **Wait for response**
  Specify the time interval for the response.
- **Text to confirm**
  Specify the text to be sent by the subscribers after they receive the message.

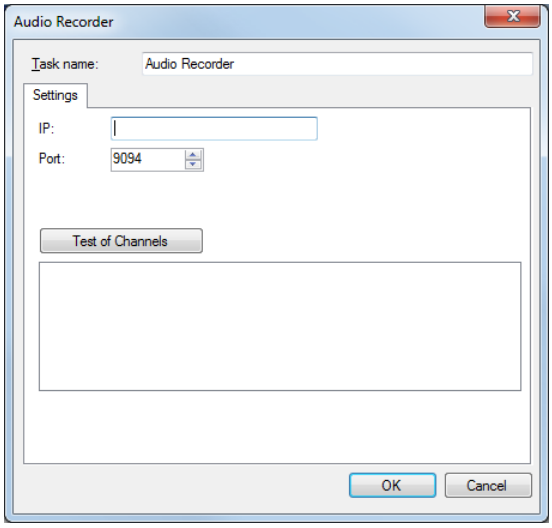
Recorder

The Recorder feature allows connecting to an audio recorder via IP.

- To enable the task, select **Tasks**, and click **Add** (1) **>** **Recorder** (2):



The feature allows replicating audio recordings to the recorder:



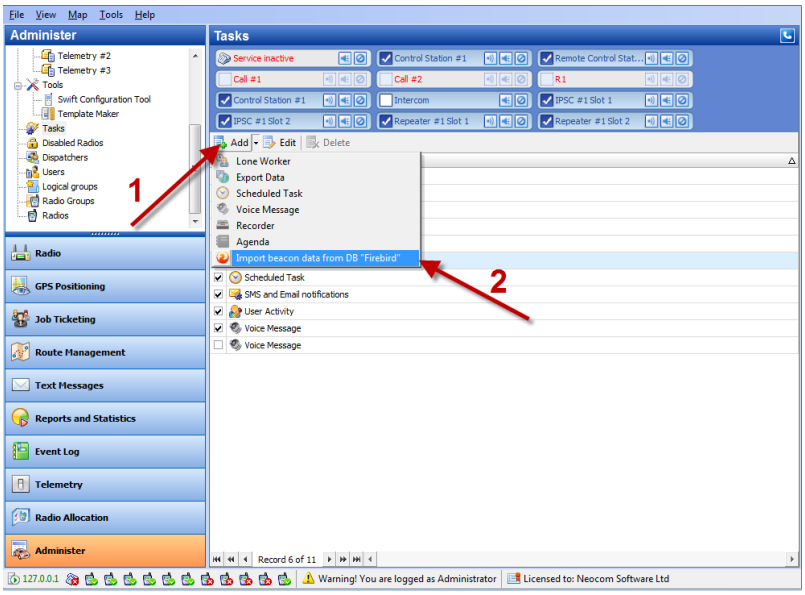
- **Task name**
  Specify a name for the task.
- **IP**
  Enter the recorder's IP address.

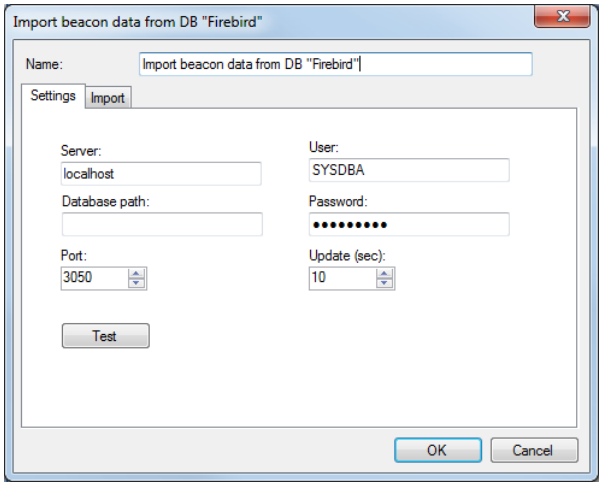
  Port
  Specify the recorder's port number.
- Click **Test of channels** to view all available channels on the recorder.
- Click **OK** to add the task.

Import Beacon Data from Firebird DB

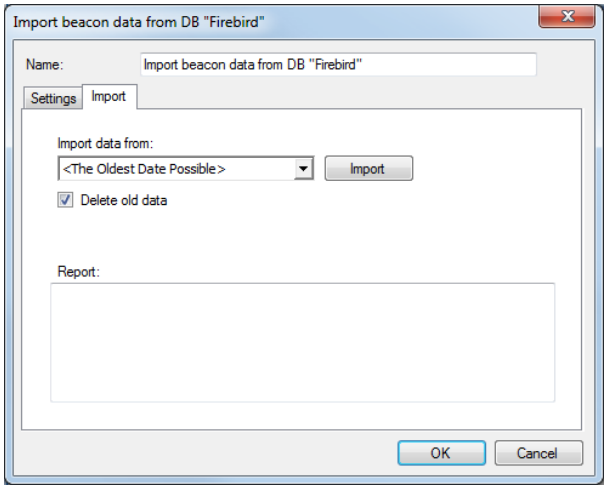
The **Import beacon data from Firebird DB** option allows import beacon data from Firebird database to TRBOnet Dispatch Software database.

To enable the task, select **Tasks**, and click **Add** (1) **>** **Import beacon data from DB Firebird** (2):





- **Name**
  Specify a name for the task;
- **Server**
  Specify a remote server or a server on the local PC.
- **User**
  Type in a 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:

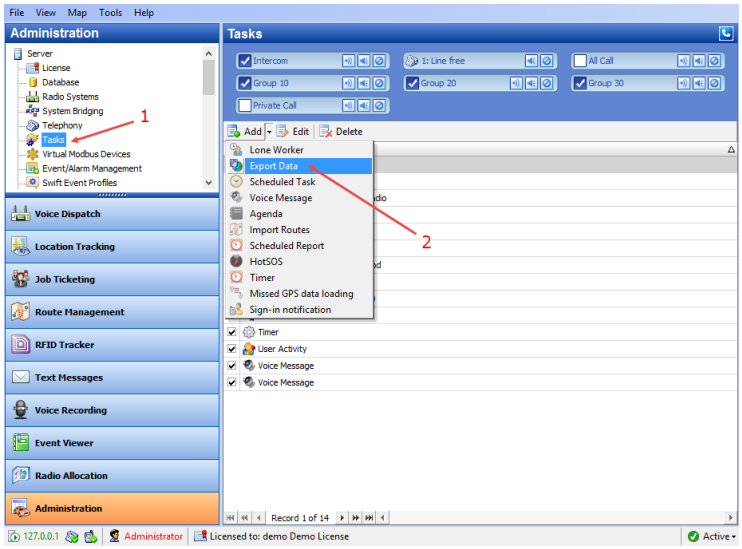


- **Import data from**
  Specify the Firebird DB name.
- Click **Import** to import data.
- **Delete old data**
  Select this option to delete all previously imported data from Firebird DB.
- **Report**
  In this box, an import report will be displayed.
- Click **OK** to add the task.

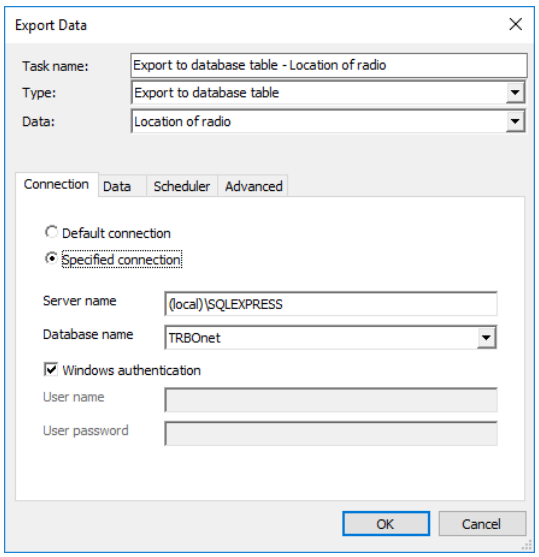
Export Data

TRBOnet Dispatch Console provides the Export Data function, which allows exporting data to an external database table.

- To add an Export Data task, select **Tasks** (1), and click **Add** > **Export Data** (2):



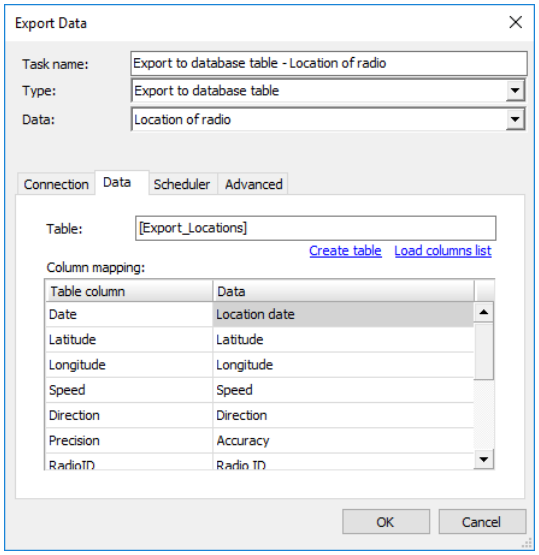
- In the **Export Data** dialog box, specify the following parameters:



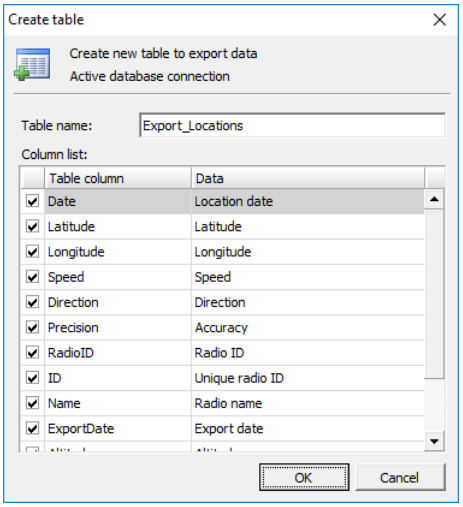
Connection tab

- **Task name**
  Specify 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, base 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.
- **Default connection**
  Choose this option for default connection to SQL Server.
- **Specified connection**
  Choose this option and specify the SQL Server and database name.
- **Server name**
  Specify 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

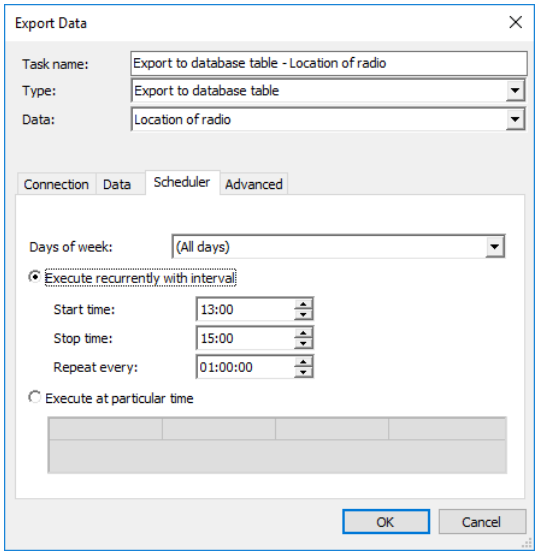


- **Table**
  the name of the table to be exported into external database (by default, the name of the table is created after you have specified it in **Create table** dialog box).
- Click the **Load columns list** link to update the columns list in case you have made any changes to the table.
- Click the **Create table** link to add a new table for data export:



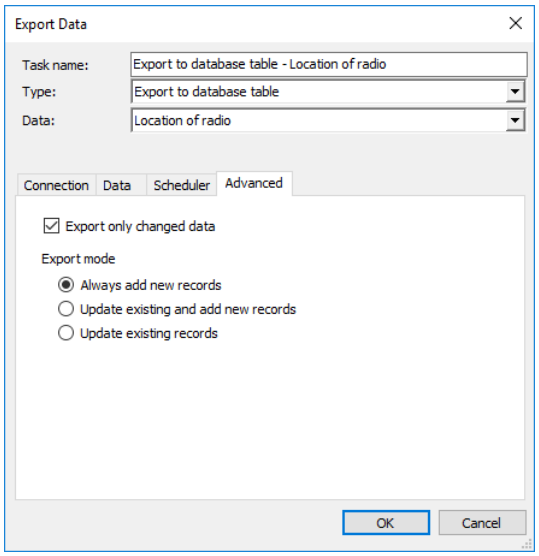
  - Select the data fields to add to the table.

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



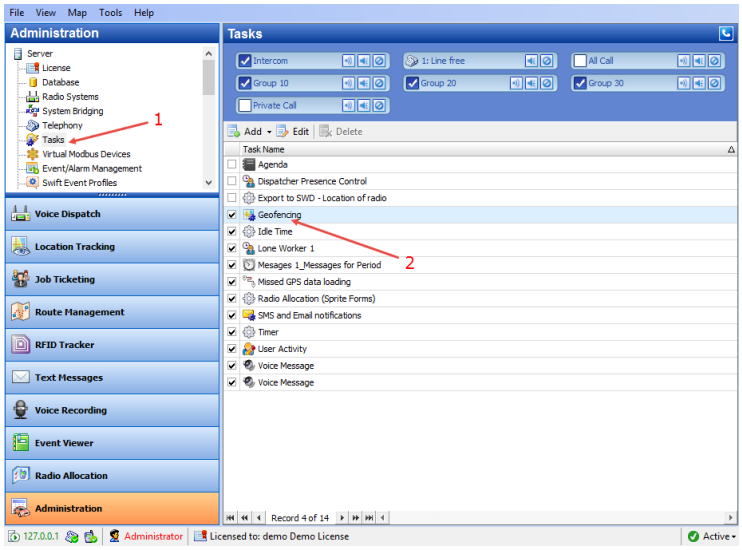
- **Export only changed data**
  Select this option to export only changed location of the radio data.
- **Export mode**
  Choose the mode for exporting data.

Geofencing

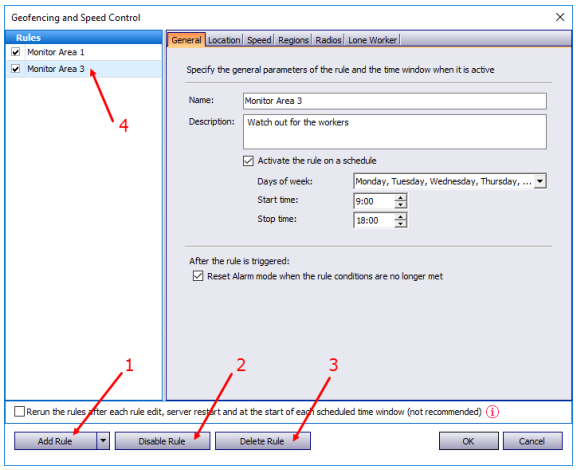
The Geofencing feature allows controlling the location and speed of radios relative to manually defined regions on the map.

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.

- Click **Tasks** (1), and double-click **Geofencing** (2) in the **Tasks** pane.



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

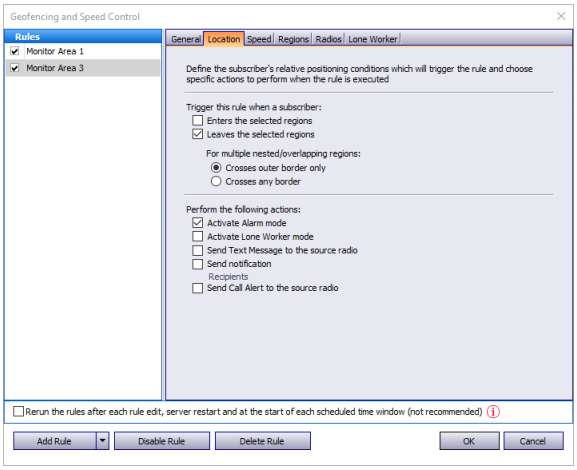


- Click the **Add Rule** button (1) and select the appropriate rule from the drop-down list (Map Region, Beacons, Radios, Lone Worker) to add a rule to the current Geofencing configuration. A new rule will be displayed in the list of rules (4).
- Click the **Disable rule** button (2) to disable the selected rule.
- Click the **Delete rule** button (3) to delete the selected rule.

General tab

- **Name**
  Specify the rule name.
- **Description**
  Add a description of the rule.
- **Run the rule on a schedule**
  Select this option and in the boxes below specify the schedule for the rule to run.
  - **Days of week**
    In the drop-down list, select the days of the week on which to run the Geofencing rule.
  - **Start time**
    Specify the start time to run the rule.
  - **Stop time**
    Set the time to stop running the rule.
- **Reset Alarm mode when the rule conditions are no longer met**
  Select this option to reset Alarm mode after the rule is triggered.

Location tab



Trigger this rule when a subscriber:

- **Enters the selected regions**
  Select this option so that the rule will be triggered as soon as a subscriber enters the selected region.

- **Leaves the selected regions**
  Select this option so that the rule will be triggered as soon as a subscriber leaves the selected region.

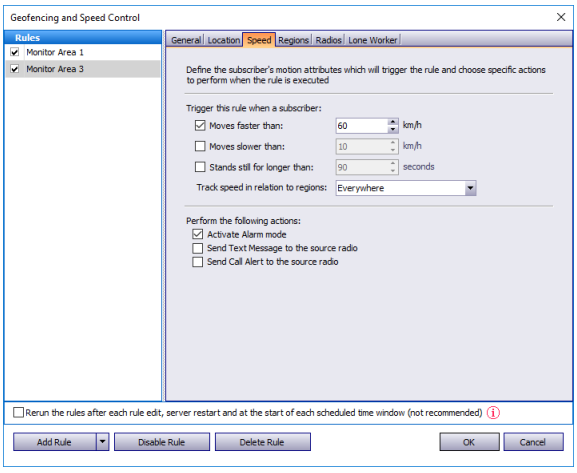
  For multiple nested/overlapping regions

  Choose one of the options specifying for multiple regions whether to consider only 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.
- **Send Text Message to the 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 Call Alert to the source radio**
  Select this option to automatically send a call alert to the radio when it enters or leaves the selected region.

Speed tab

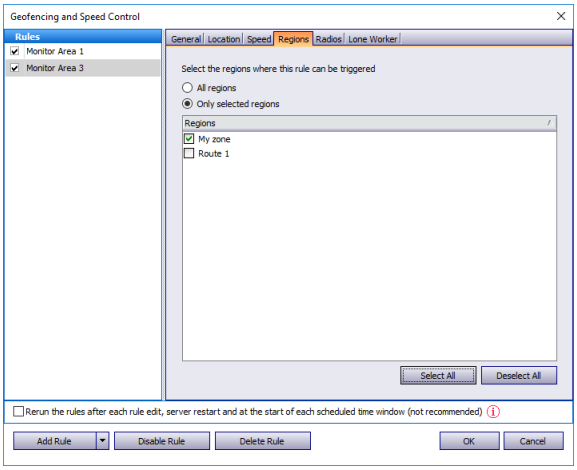


Trigger the rule when a subscriber:

- **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.

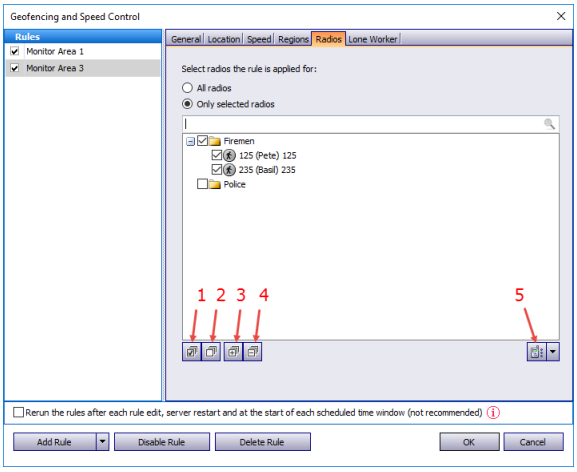
- **Moves slower than**
  Select this option and specify the minimum allowed speed for the vehicles. The rule will be triggered when the vehicle with the radio drops below the specified speed.
- **Stands still for longer than**
  Select this option and specify the time period, in seconds, during which the vehicle is allowed to stand still. The rule will be triggered when the vehicle with the radio stands still for longer than this specified time period.
- **Track speed in relation to regions**
  From the drop-down list, select where to track the speed of the vehicles: inside or outside the selected regions, or independently of the region.

Regions tab



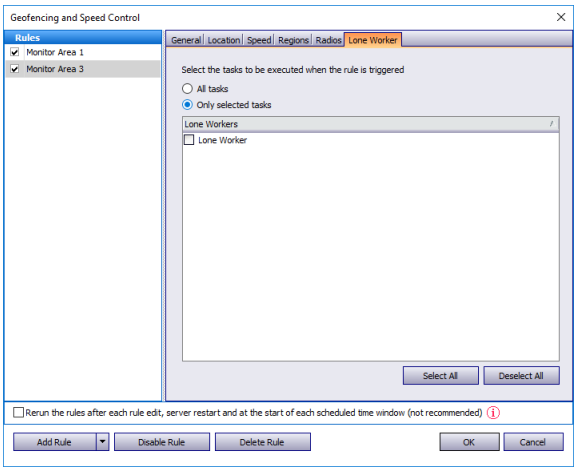
- **All regions**
  Choose this option to apply this rule for all regions.
- **Only selected regions**
  Choose this option to apply the rule for one or several regions.
- **Select all**
  Click this button to select all regions in the list.
- **Deselect all**
  Click this button to deselect all regions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

Radios tab



- **All radios**
  Choose this option to apply this rule for all radios.
- **Only 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.
- **Deselect 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 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.
- **Only selected tasks**
  Choose this option, and in the list below, select the Lone Worker tasks to be executed when the rule has been triggered.

Variable settings for Geofencing rules of event types (Map Region, Beacons, Radios and Lone Worker) are represented in the table below:

Event type	Tab Name	Parameters Description
Common Settings	General	**Name** – specify the rule name; **Description** – add the rule description;
	Scheduler	**Run the rule on a schedule** - select to start a scheduler for Geofencing rules; **Days of week** - select the days of the week on which to activate the Geofencing rule; **Start time** - set the time at which to start the rule; **Stop time** - set the time at which to stop the rule.
	Radios	**All radios** – choose to apply this rule for all radios; **Only selected radios** – choose to apply the rule for one or several radios; **Select all** – click to select all radios in the list; **Deselect all** – click to deselect all radios in the list.
Map Region.	General	**Regions Control** – select to enable regions control; **Control mode** – select the control mode for regions in the dropdown list; **Activate Alarm mode if the rule has been triggered** – select to activate Alarm mode in the Dispatch Console if Regions Control rule has been triggered; **Send Text Message to a radio if the rule has been triggered** – select to inform radio subscriber if Regions Control rule has been triggered; **Activate Lone Worker if the rule has been triggered** – allows automatically activating a Lone Worker policy for a radio in case of entering or leaving exact region on map. Select to enable this option. **Speed and Idle Control** – select to enable speed and idle control; **Control mode** – select the control mode for speed and idle control in the dropdown list; **Maximum Speed** – set the maximum speed for radio; **Maximum Idle Time** – set the maximum idle time for radio; **Activate Alarm mode if the rule has been triggered** – select to activate Alarm mode in the Dispatch Console if Speed and Idle Control rule has been triggered

Allows configuring rules when a radio(s) enters or leaves the defined map region(s).		**Send Text Message to a radio if the rule has been triggered** – select to inform radio subscriber if Speed and Idle Control rule has been triggered; **Send Call Alert to a radio if the rule has been triggered** – select to inform radio subscriber if the rule has been triggered; **Reset Alarm mode if the rule is not triggered** - select to inform radio subscriber if the rule has not been triggered.
	Scheduler	See above
	Regions. Select regions to apply the rule	**All regions** – choose to apply this rule for all regions; **Only selected regions** – choose to apply the rule for one or several regions; **Select all** – click to select all regions in the list; **Deselect all** – click to deselect all regions in the list.
	Radios	See above
	Lone Worker. Enables Lone Worker when the rule has been triggered	**All Tasks** – choose to apply all tasks configured by the administrator when the rule has been triggered; **Only selected tasks** – choose this option, and in the list below, select the Lone Worker tasks to be executed when the rule has been triggered.
Beacons. Allows configuring rules when a radio (s) enters or leaves the beacon coverage zone	General	Control mode: **Control entering beacon coverage zone** – select to enable the rule when a radio enters beacon coverage zone; **Control leaving beacon coverage zone** - select to enable the rule when a radio leaves beacon coverage zone; **Activate Alarm mode if the rule has been triggered** - select 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 (e.g., when **Control entering beacon coverage zone** is selected and the radio enters the monitored coverage zone and then instantly leaves the zone, the alarm mode in the Dispatch Console will be reset automatically) **Send Call Alert to a radio if the rule has been triggered** – select to inform radio subscriber if the rule has been triggered; **Send Text Message to a radio if the rule has been triggered** – select to inform radio subscriber if Beacons rule has been triggered; **Activate Lone Worker if the rule has been triggered** – allows automatically activating a Lone Worker policy for a

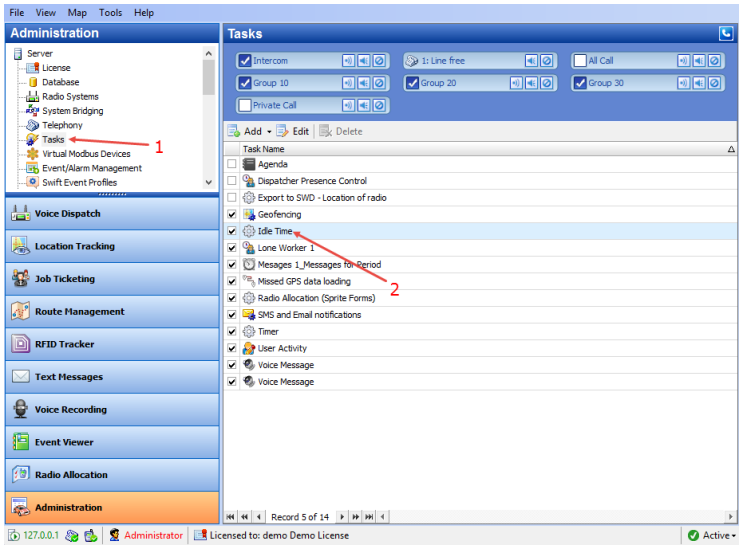
		radio in case of entering or leaving beacon coverage zone. Select to enable this option.
	Scheduler	See above
	Radios	See above
	Beacons. Enables rule for selected beacons	**All Beacons** – choose to apply this rule for all beacons; **Only selected beacons** – choose to apply the rule for one or several beacons.
	Lone Worker	See above.
Radios. Allows using radio(s)1 as a map region and monitor when another radio(s) enters or leaves radio's coverage zone	General	**Control mode:** **Control Entering Region** – select to enable the rule when a radio enters the coverage zone associated with another radio; **Control Leaving Region** - select to enable the rule when a radio leaves the coverage zone associated with another radio; **Activate Alarm mode if the rule has been 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 (e.g., when **Control Entering Region** is selected and radio enters to the monitored coverage zone and then instantly leaves the zone, alarm mode in the Dispatch Console will be reset automatically) **Send Text Message to a radio if the rule has been triggered** – select to inform radio subscriber if Radios rule has been triggered; **Send Call Alert to a radio if the rule has been triggered** – select to inform radio subscriber if the rule has been triggered; **Minimum distance between radios** – specify the distance, in meters. When a distance is less than the selected value, the rule will be triggered according to the settings above. **Color of region** – select the radio coverage zone color.
	Scheduler	See above
	Regions	Select radio coverage zones the rule is applied for.
	Radios	See above
Lone Worker.		**Days of week** - select the days to activate the Lone Worker rule;

Allows configuring scheduled Lone Worker tasks	General	**Start time** - set the time to start the rule; **Stop time** - set the time to stop the rule.
	Radios	See above
	Lone Worker	Select all configured by Administrator Lone Worker tasks or several configured tasks. When a Lone Worker task is mentioned as Disabled, the administrator should enable the task.

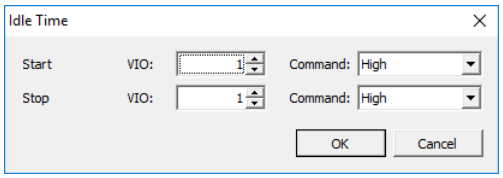
Idle Time

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

- Click **Tasks** (1), and double-click **Idle Time** (2) in the **Tasks** pane.



Specify the telemetry to set the Idle Time:



Start

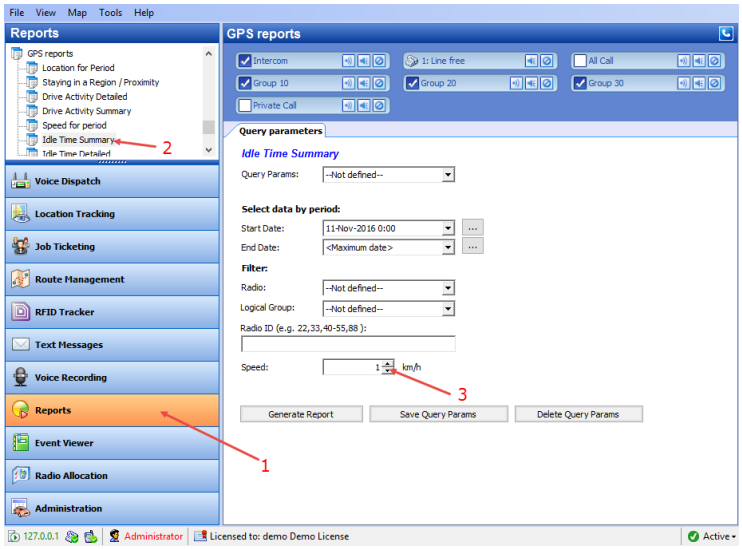
- Specify the telemetry **VIO** and **Command** to start the Idle Time.

Stop

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

The administrator can see Idle Time reports and statistics.

Click **Reports** (1), and under **GPS reports**, click **Idle Time Summary** or **Idle Time detailed** (2) to see a common Idle Time report:

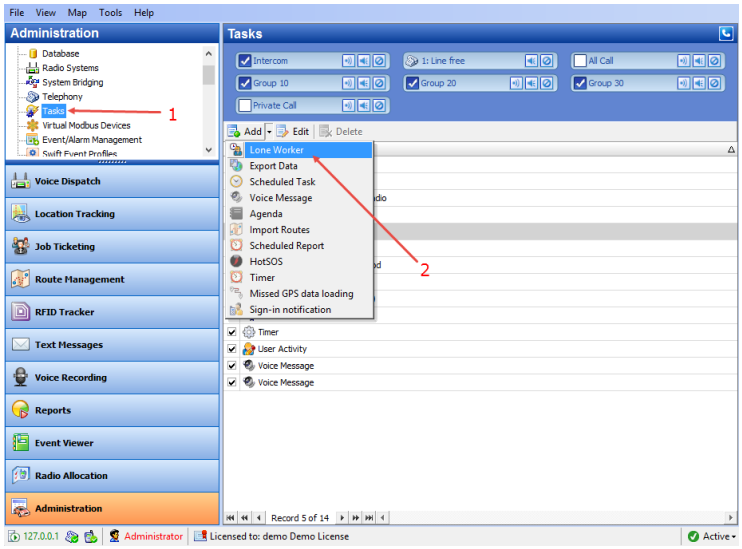


Note: Specify the speed accuracy value in the **Speed** box (3).

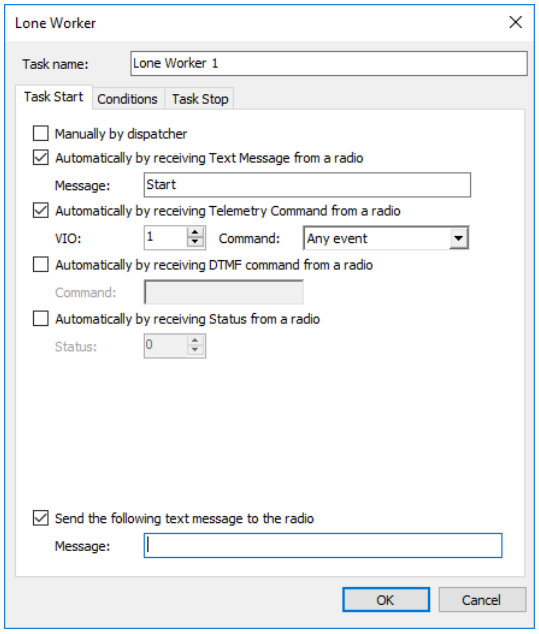
Lone Worker

The Lone Worker policy lets the dispatcher set a time interval the communication with a subscriber 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, select **Tasks** (1), and click **Add > Lone Worker** (2).



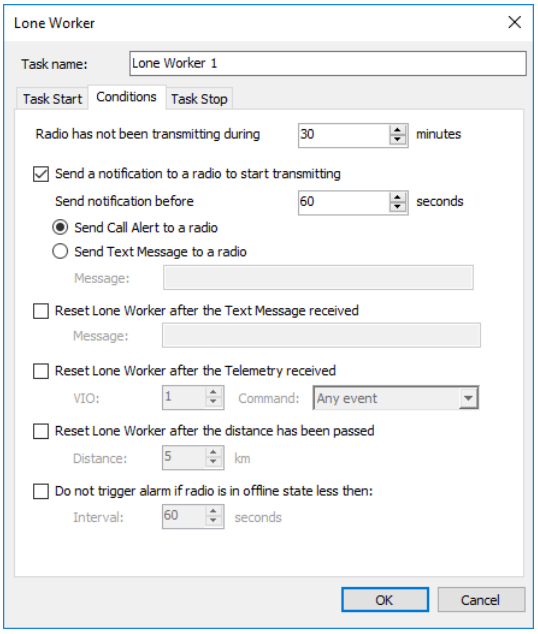
- In the **Lone Worker** dialog box that opens, specify the following parameters:



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 the DTMF combination without the # characters in the **Command** box.
- **Automatically by receiving Status 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 the following text message to the 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.

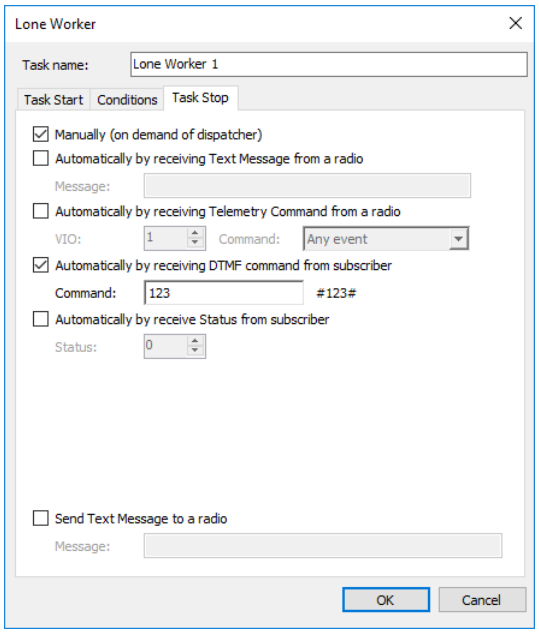
Conditions tab



- **Radio has not been transmitting during**
  Specify the time period, in minutes, during which the radio has not been transmitting, to enable the Lone Worker policy.
- **Send a notification to a radio to start transmitting**
  Select this option to send a notification to a radio before triggering the Lone Worker policy if the radio has not transmitted during the specified time period.
  - **Send notification before**
    Specify the time period before the time comes to trigger the Lone Worker policy, to send a notification asking the radio to respond.
  - **Send Call Alert to a radio**
    Choose this option to send a call alert to the radio in case the policy has been triggered;
  - **Send Text Message to a radio**
    Choose this option to send a text message to the radio in case the policy has been triggered. Specify the message text in the **Message** box.
- **Reset Lone Worker after receiving Text Message**
  Select this option to reset the Lone Worker task after receiving the message specified in the **Message** box.
- **Reset Lone Worker after 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 after 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 the time less the time specified in the **Interval** box.

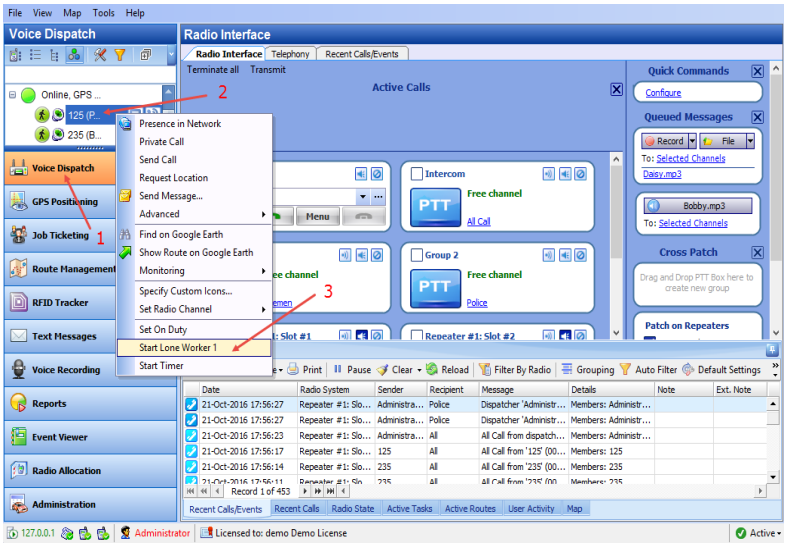
Task Stop tab



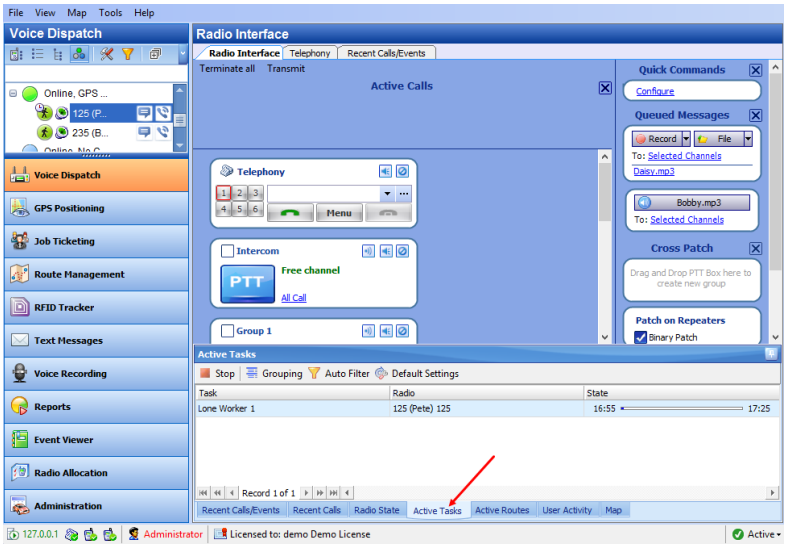
While on **Task Stop** tab, you can specify how to stop the Lone Worker task. The available options are similar to those you specified on the **Task Start** tab.

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):

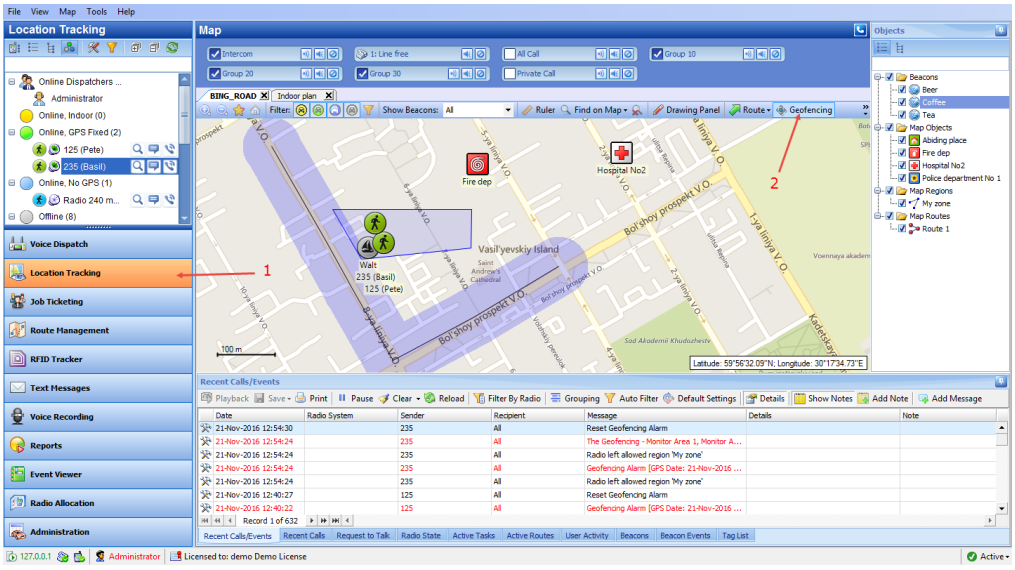


- To monitor the Lone Worker task, click the **Active Tasks** tab:

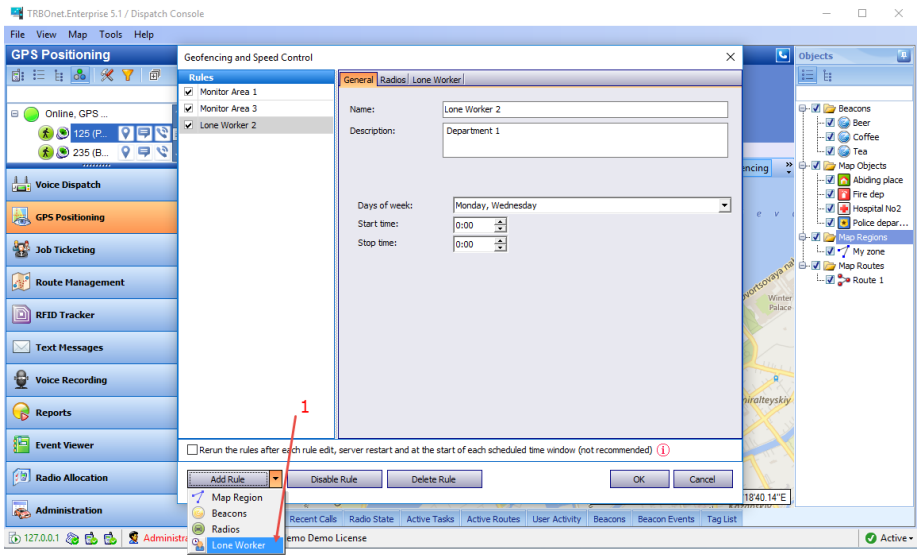


Enabling Lone Worker from Geofencing

- Click **Location Tracking** (1), and click the **Geofencing** button (2) in the **Map** pane:

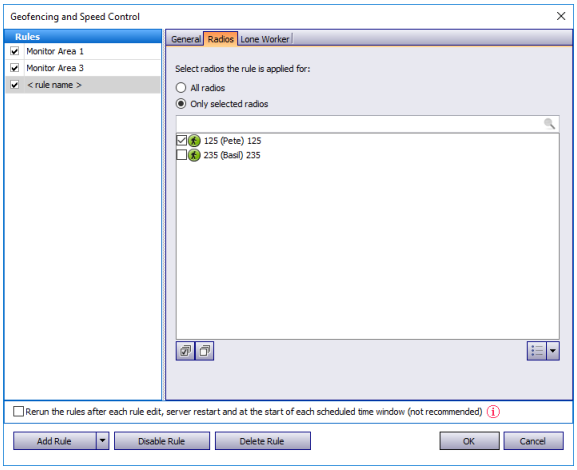


- In the **Geofencing and Speed Control** dialog box, click **Add Rule > Lone Worker** (1):



- Specify a **Name** for the Lone Worker rule and add a **Description**.
- **Days of week**
  In the drop-down list, select the days of the week on which to activate the Lone Worker rule.
- **Start time**
  Specify the time at which to start the rule.
- **Stop time**
  Specify the time at which to stop the rule.

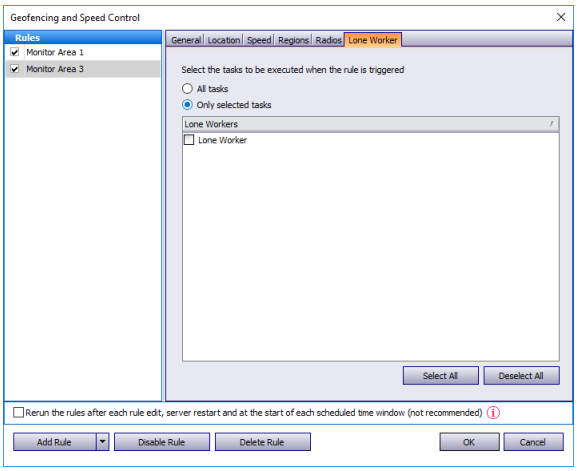
- Click the **Radios** tab and add radios to which to apply the Lone Worker rule:



- **All radios**
  Choose to apply this rule to all radios.
- **Only selected radios**
  Choose to apply the rule to one or several radios.
- **Select all**
  Click to select all radios in the list.

- **Deselect all**
  Click to deselect all radios in the list.

- Click the **Lone Worker** tab and select the configured Lone Worker tasks:



  - Choose either all configured Lone Worker tasks or several configured tasks.

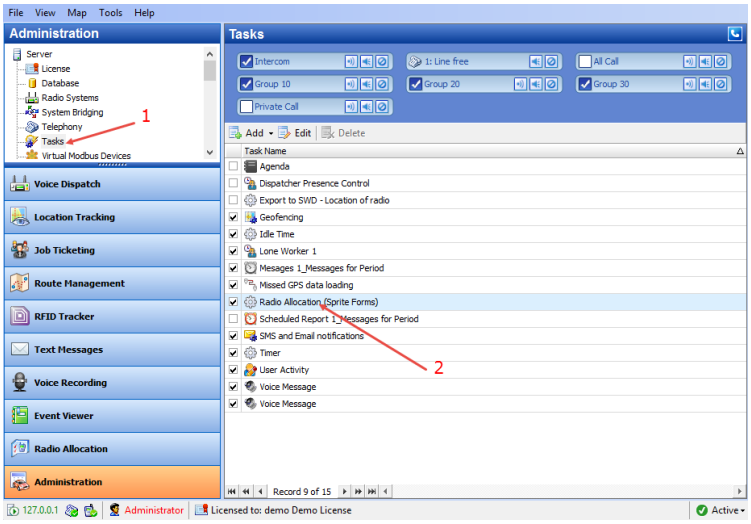
Note: When a Lone Worker task is mentioned as **Disabled**, enable it on the **Tasks** pane.

Radio Allocation (Sprite Forms)

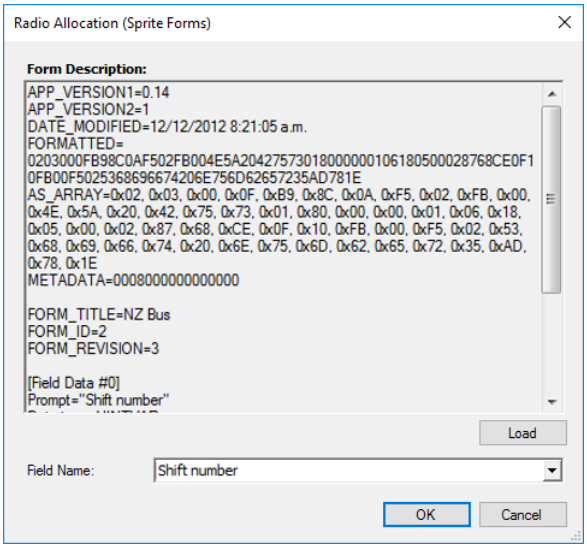
This function is used for direct communication between the dispatcher and the subscriber via special **Tallysman Option board** installed into the radio. The dispatcher and subscriber have special form templates. The dispatcher receives Duty ID of the subscriber with his template output form whereas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

- Click **Tasks** (1), and double-click **Radio Allocation (Sprite Forms)** (2) in the **Tasks** pane.



- Load the **Sprite Form** (output template) and select the **Field Name**:

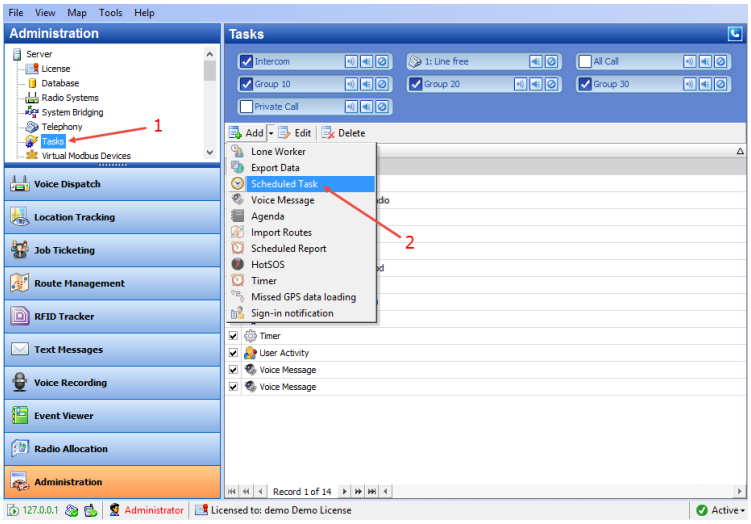


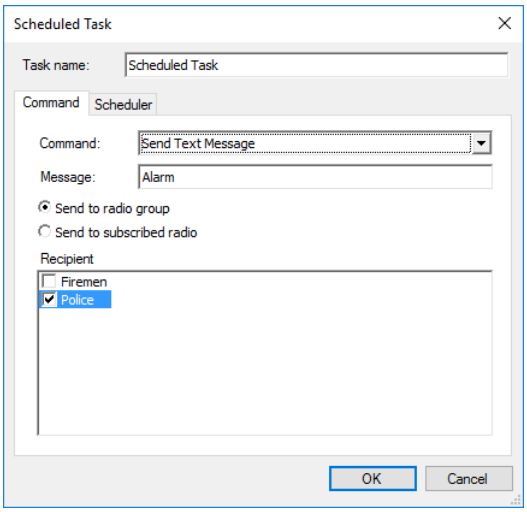
- Click **OK** to add a Sprite Form.

Scheduled Task

This function allows sending scheduled messages to radios.

- To add a scheduled task, click **Add** (1) **>** **Scheduled task** (2):





- **Task name**
  Specify a name for the task.
- **Command**
  From the drop-down list, select what to send to selected radios.

Send Text Message

- **Message**
  Enter the message text in this box.

Send Telemetry

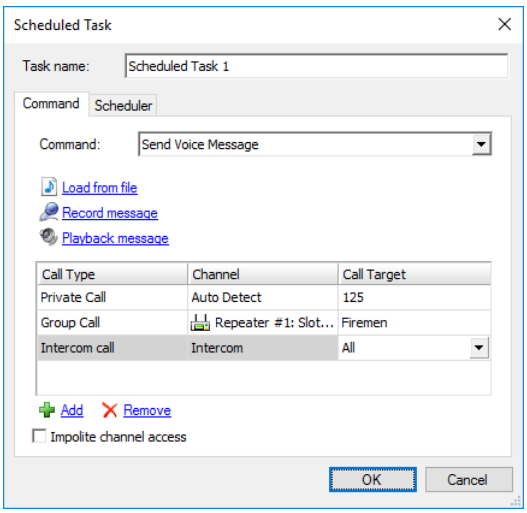
Select this command to send scheduled telemetry commands to selected radios/groups, or request telemetry states from selected radios/groups.

- **VIO**
  Specify the VIO contact.
- **Command**
  From the drop-down list, select the signal level at which to send the telemetry command to selected radios/groups, or select 'Request state' to receive telemetry states from selected radios/groups.

Request Location
Select this command to receive location data from selected radios/groups.

- **Send to radio group**
  Choose this option to send the specified command to selected radio groups.
- **Send to subscribed radio**
  Choose this option to send the specified command to selected radios.
- **Recipient**
  In this list, select radio groups/radios to send the specified command to, or receive telemetry/location data from.

Send Voice Message
Select this command to send a voice message to selected radios/groups:

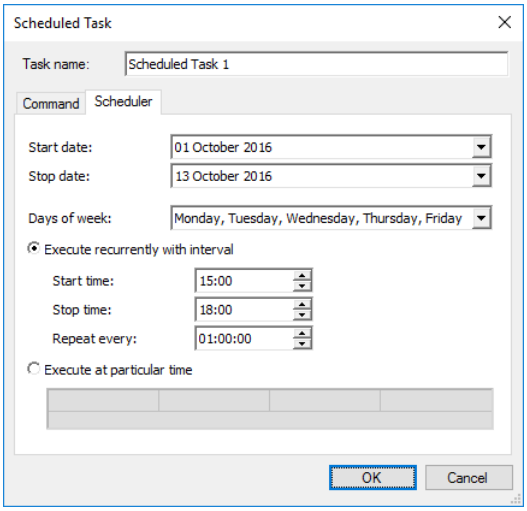


- **Load from file**
  Click this link to load an existing file from your PC.
- **Record Message**
  Click this link to record a new voice message.
- **Play back message**
  Click this link to play back the voice message.
- Specify **Call type**, **Channel**, and **Call Target** for a voice message.

  Note: To send a Voice Message to a subscriber from the phone book, click **...** in the Call Target column and select a contact from the phone book.

- **Impolite channel access**
  Select this option so that the voice message will be sent regardless of whether the channel is busy or not.

Scheduler tab



- **Start date**
  Select a date to start the task.
- **Stop date**
  Select a date to stop 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.
- **Stop time**
  Specify the time at which to stop 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.

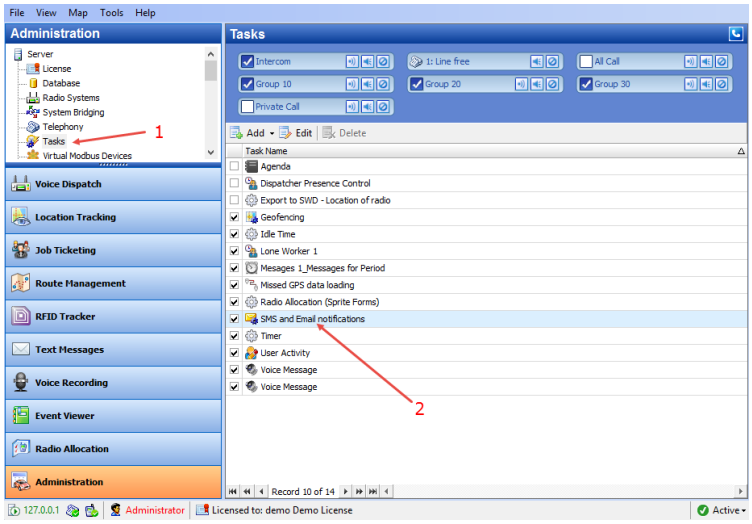
SMS and Email Notifications

TRBOnet Dispatch Console allows managing text messages:

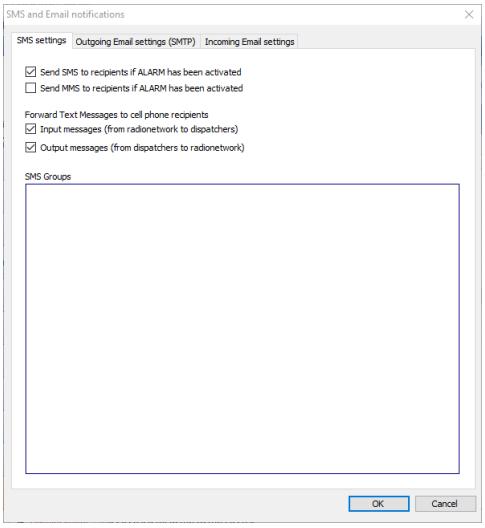
1. Send Text Messages from LAN to a particular radio or talk group (POP3 Server);
2. Forward all Text Messages from radios to base radio to particular email address (SMTP Server).

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

To enable the task, click **Tasks** (1), and double-click **SMS and Email notifications** (2) in the **Tasks** pane.



SMS settings tab



- **Send SMS to recipients if ALARM has been activated**
  Select this option to send an SMS in case of an alarm on the radio.
- **Send MMS to recipients if ALARM has been activated**
  Select this option to send an MMS in case of an alarm on the radio.

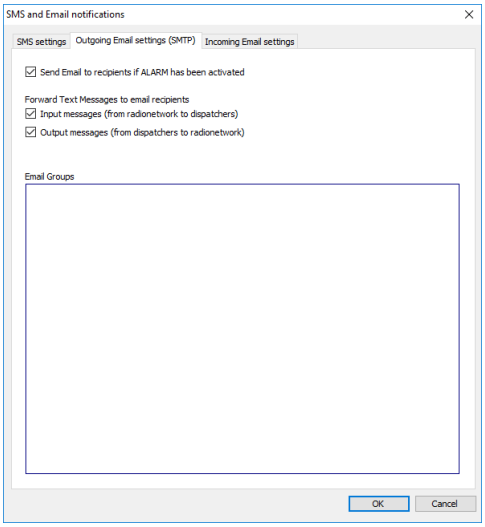
Forward Text Messages to cell phone recipients

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

For more details on SMS settings, see Outgoing Mail Server (SMTP).

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

Outgoing Email settings (SMPT) tab



- **Send Email to recipients if ALARM has been activated**
  Select this option to send an Email in case of an 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 **Radio ID**: XXX to send an email to a selected radio, or **Group ID**: 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 **Radio ID**, a corresponding notification will appear in the Event Log of the Dispatch Console.

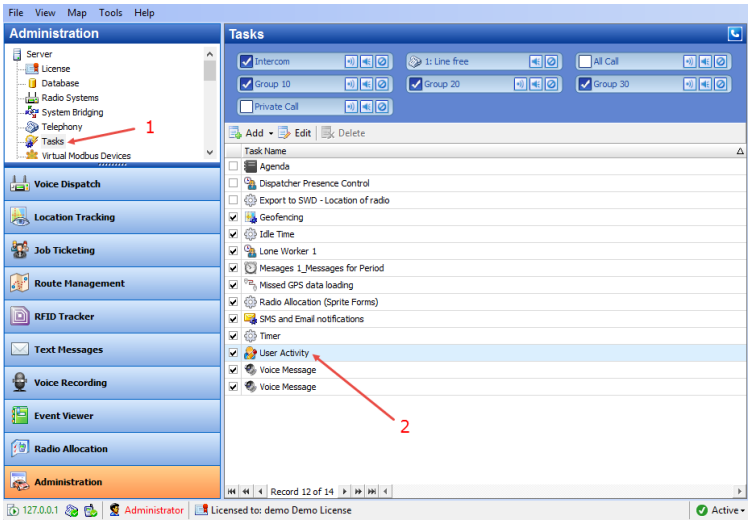
- **Forward incoming emails to radio network (from email box to radios)**
  Select this option to forward incoming emails to radio network.

User Activity

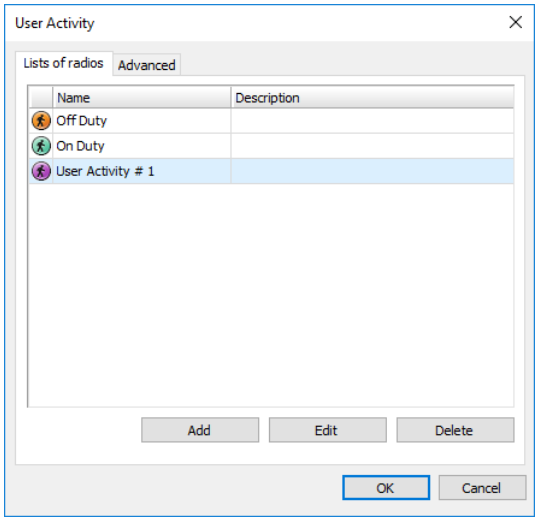
The **User Activity** function allows the dispatcher to create lists of radios, to which radios can be assigned due to their activity.

For example, if a subscriber sends an **On duty** message or presses an exact preset telemetry button, this subscriber gets assigned to the **On duty** list in the Dispatch Console. The dispatcher can also manually assign subscribers to lists.

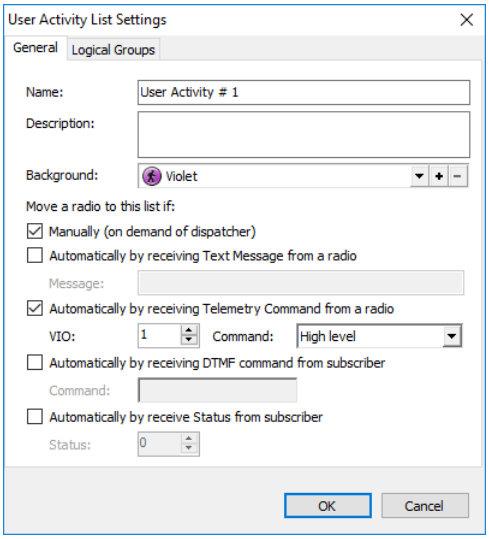
- To enable the User Activity task, click **Tasks** (1), and double-click **User Activity** (2) in the **Tasks** pane:



Lists of radios tab



- Click **Add** to add a list of radio activities:

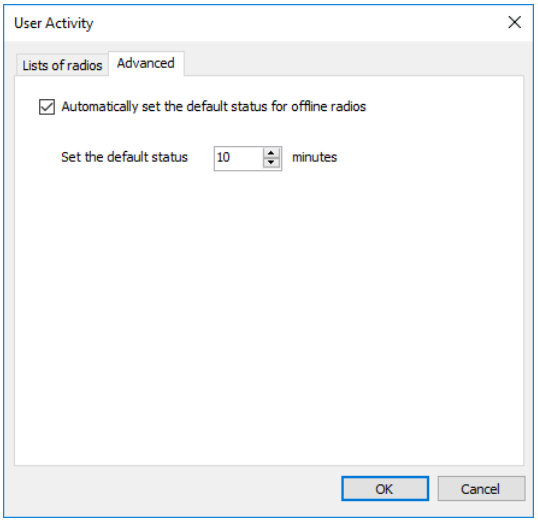


- **Name**
  Specify a name for the user activity list.
- **Description**
  Add a description for the user activity list.
- **Background**
  Select the background color to display the radios assigned to the list.

Move a radio to this list if:

- **Manually by dispatcher**
  Select this option to assign radios to the list manually.
- **Automatically by receiving Text Message from a radio**
  Select this option to assign a radio to the list after receiving a text message from the 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 assign a radio to the list 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 assign a radio to the list after receiving a predefined DTMF command, for instance, #11#. If you select this option, specify the DTMF combination without the # characters in the **Command** box.

To assign offline radios to the default User Activity list, click the **Advanced** tab:

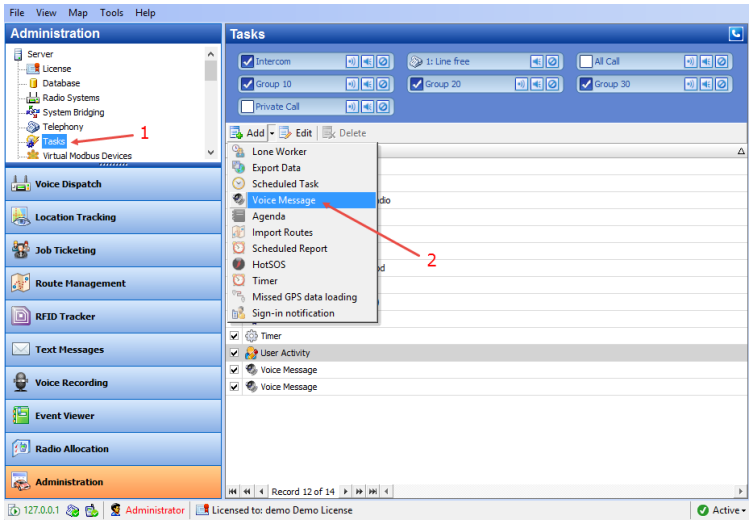


- **Automatically set the default status for offline radios**
  Select this option to allow assigning the default status for offline radios.
- **Timeout**
  Specify the time period, in minutes, after which the default status is set to a radio.

Voice Message

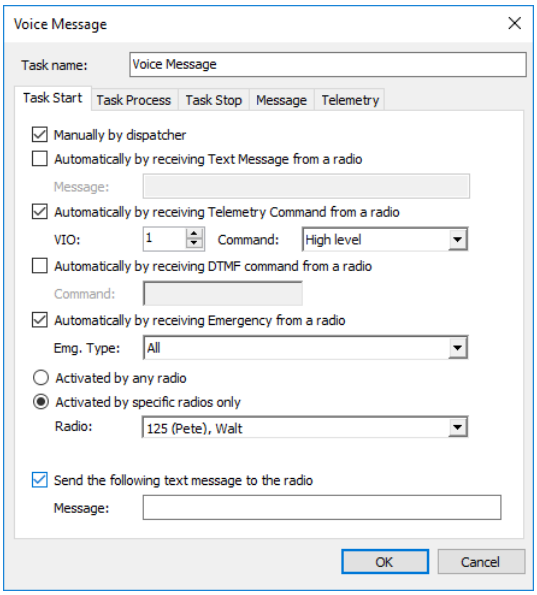
The Voice Message allows automatically broadcasting a predefined Voice Message after receiving a telemetry command, a text message or a DTMF command.

- To add a Voice Message task, select **Tasks** (1), and click **Add > Voice Message** (2).



The user can have several Voice Message policies for different purposes. Specify a name of the policy in the **Task name** box and set the policy's parameters.

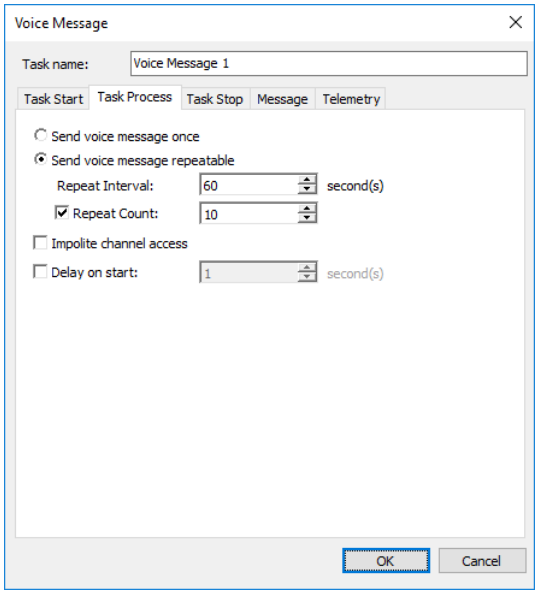
Task Start tab



- **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 the 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.
  - **Emg. 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 specific 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 a 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.

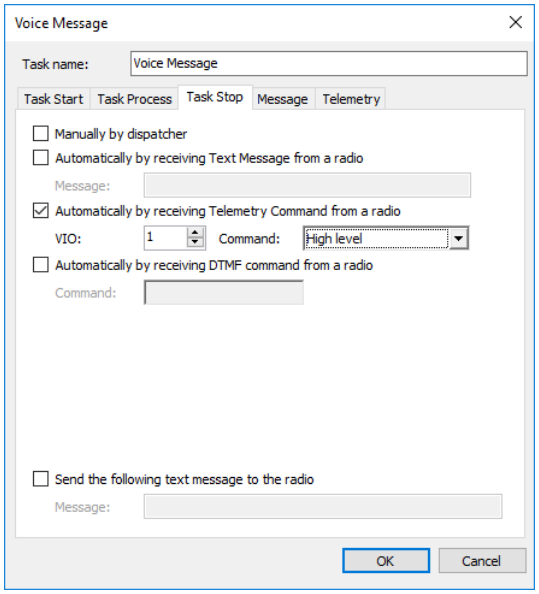
Task Process tab



- **Send Voice Message once**
  Choose this option to send the voice message to a selected radio (s) only once.
- **Send Voice Message repeatedly**
  Choose this option to send the voice message repeatedly.
  - **Repeat Interval**
    Specify the repeat interval, in seconds.
  - **Repeat Count**
    Select this checkbox and specify the number of times to repeat the voice message.
- **Impolite channel access**
  Select this option so that the voice message will be sent regardless of whether the channel is busy or not.
- **Start delay**
  Select this checkbox and specify the delay time, in seconds, for the Voice Message task.

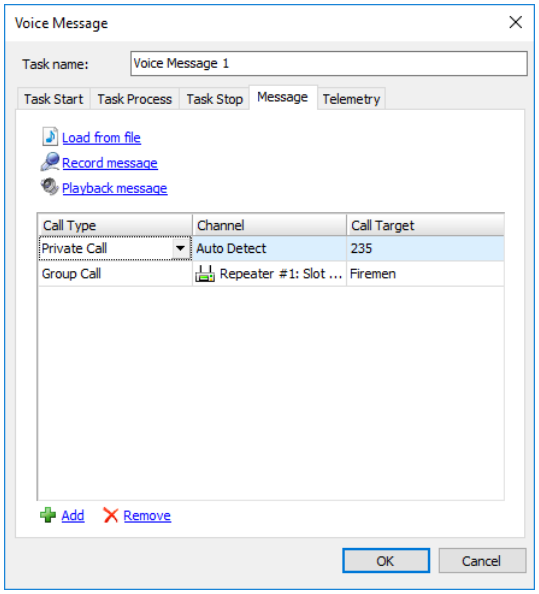
Task Stop tab

Note: These options are available only if you have selected the **Send Voice Message repeatedly** option in the **Task Process** 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 the DTMF combination without the # characters in the **Command** box.
- **Send Text Message to a 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.

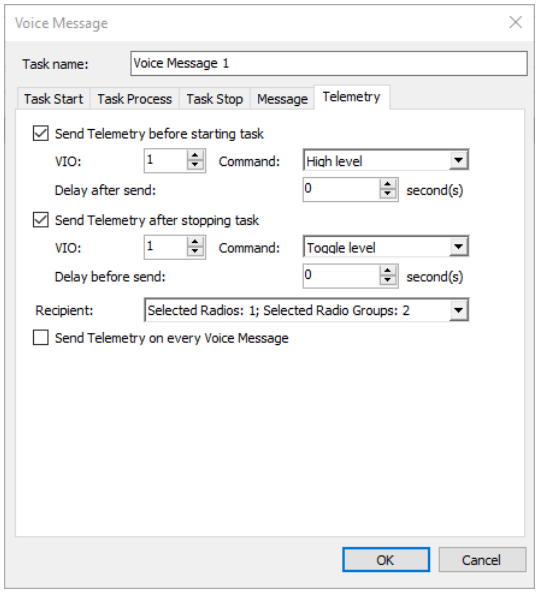
Message tab



- **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.
- 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 **...** in the Call Target column and select a contact from the phone book.

Telemetry tab



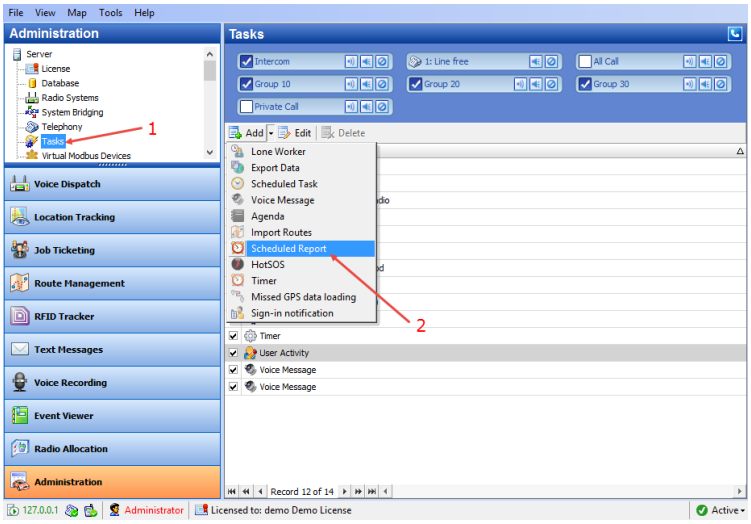
- **Send telemetry before starting task**
  Select this option to send a telemetry command before the voice message is transmitted.
  - Specify the **VIO** contact number.
  - Select the signal level from the **Command** list.
  - **Delay after sending**
    Specify the time period, in seconds, that will be used as a delay timeout for the voice message after the telemetry command is sent.
- **Send telemetry after stopping task**
  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, that will be used as a delay timeout before sending the telemetry command after the Voice Message task is stopped.
- **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.

Scheduled Report

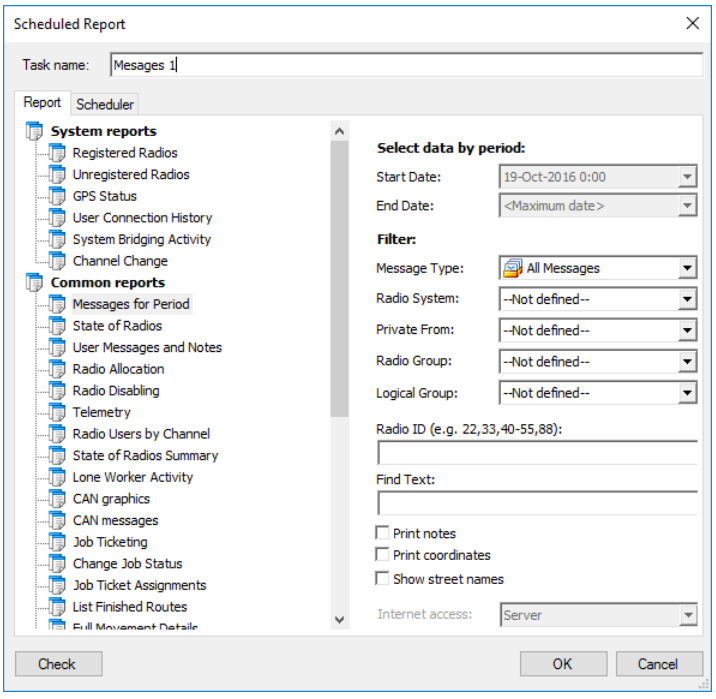
The Scheduled Report task allows reporting on selected parameters and sending these reports to selected Email subscribers groups. The user can have several Scheduled Report policies for different purposes.

> 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 *Email Groups* section.

- To add a Scheduled Report task, select **Tasks** (1), and click **Add > Scheduled Report** (2):



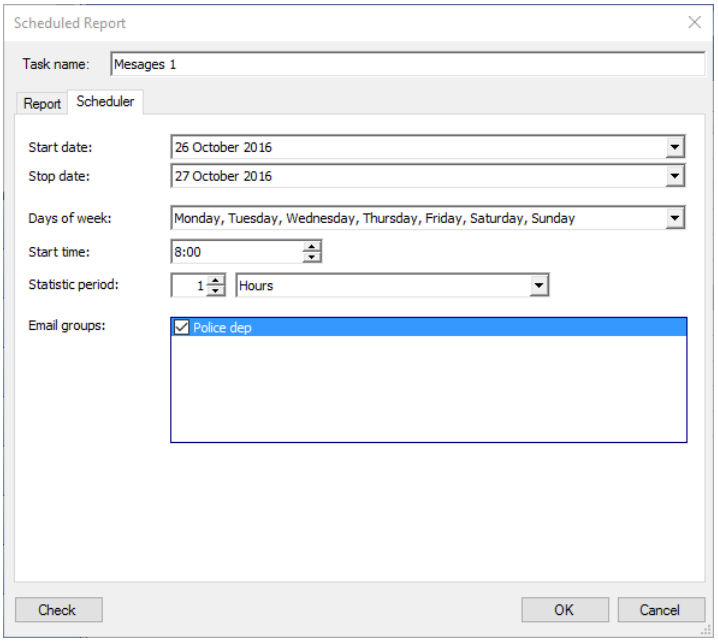
- Specify a name of the policy in the **Task name** box and set the policy parameters.



- On the **Report** tab, select the type of a report for the Scheduled Report task.

  The report details and filter might be different.

  For more details on reporting, see **User Guide**, section **Reports and Statistics**.
- Click the **Schedule** tab to configure a schedule for the report.

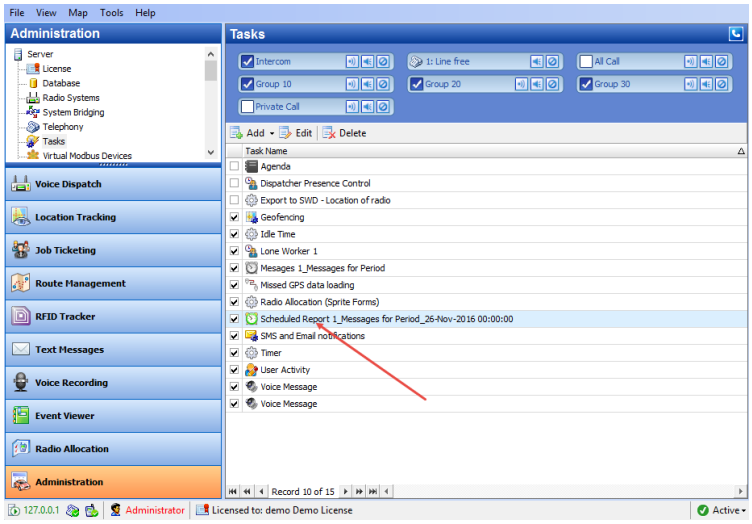


- **Start date** and **Stop date**
  Select the time period over which to generate reports and send them to email group.

  Note: The start date may be any date you choose to start the task on. The stop date must be later or the same as the current date.

- **Days of week**
  In the drop-down list, select the days of the week you want to generate reports on.
- **Start time**
  Specify the time to start generating the report at.
- **Statistic period**
  Select the time interval (in minutes, hours, days, weeks, or months) to collect the data.
- **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, just select the checkbox in front of the Scheduled Report task you have already created.

There are three types of the Scheduled Report status icons:

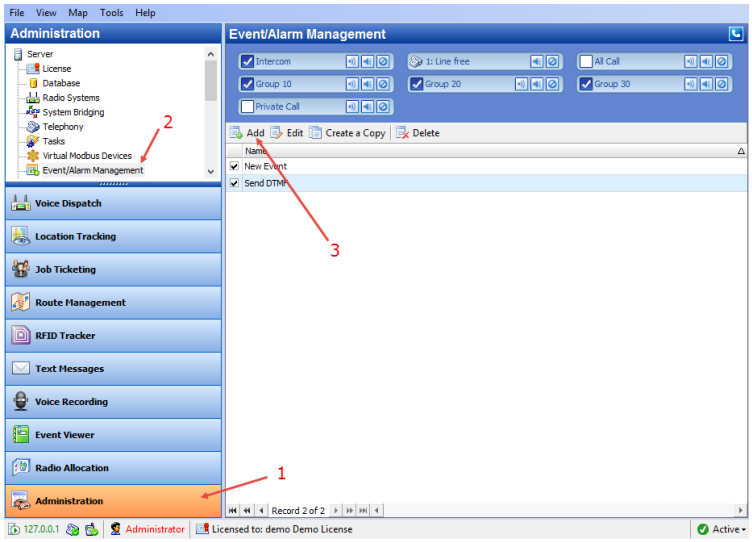
- Green indicates an active task, meaning the task is enabled (checked).
- Grey indicates an inactive task, meaning the task is disabled (unchecked).
- Red indicates a disabled task, meaning the task period is up in the past.

6.5.1.6 Event/Alarm Management

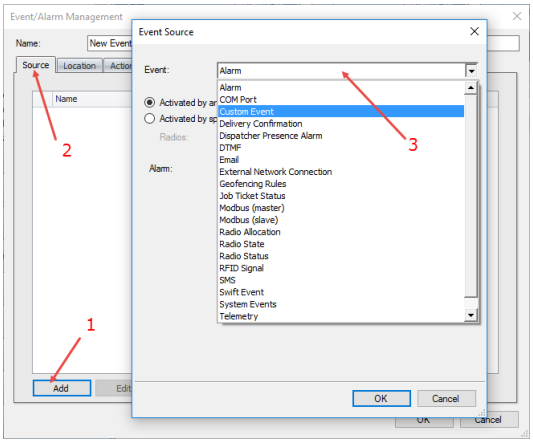
The Event/Alarm Management feature allows creating action rules for Alarms, Emails, Notifications, Text Messages to radios etc. When a configured rule is executed, a configured action will start.

For example, an external application sends 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 to selected radios (e.g. the group "firemen") with (e.g. "Alarm in Sector N"). As a result, the group "firemen" is notified about emergency condition.

- Go to **Administration** (1), **Event/Alarm Management** (2) to set Event/Alarm Management:



- Click **Add** (3) to add a new Event/Alarm Management configuration.
- The administrator can create a copy of the existing Event/Alarm Management configuration. Select a configuration in the list and click the **Create a Copy** button. The system will create a copy with the same configuration parameters.
- On the **Source** tab (1), click **Add** (2) to add a new data source for the action.



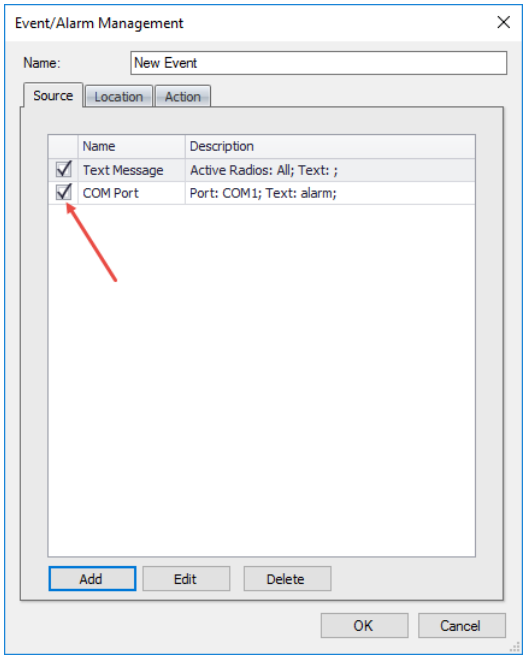
- **Event**
  From the drop-down list (3), select the event type to set as a rule for the action.

  For the settings for various event types, see the table below:

Event Type	Parameters Description
Text Message	**Activated by any radio** – choose to receive text messages with predefined text from any radio in the system to enable the action; **Activate by specific radios only** - choose to receive text messages with predefined text from selected radios in the system to enable the action; **Text Contains** – specify the text or characters that the text messages from radios must contain to start the action selected in the **Action** page.
Telemetry	**Activated by any radio** – choose to receive telemetry data from any radio in the system to enable the action;

	Activate by specific radios only - choose to receive telemetry data from selected radios in the system to enable the action; **VIO –** specify VIO to send telemetry; **Command –** specify a command for selected VIO.
DTMF	**Activated by any radio** – choose to receive DTMF command from any radio in the system to enable the action; **Activate by specific radios only** - choose to receive DTMF command from selected radios in the system to enable the action; **Command** – specify DTMF command to start the action.
COM Port	**COM Port** – select the COM Port connection configured in Server; **Regular Expression** – specify the text or characters that the external application data must contain to start the action selected in the **Action** page. For more details on regular expressions, see the Wiki article.
External Network Connection	**Connection** – select the connection configured in Server in the TCP/IP page; **Regular Expression** – specify the text or characters the external application data must contain to start the action selected in the **Action** page. For more details on regular expressions, see the Wiki article.
Alarm	**Activated by any radio** – choose to receive an alarm from any radio in the system to enable the action; **Activate by specific radios only** - choose to receive an alarm from selected radios in the system to enable the action; **Alarm** – select alarm type in the dropdown list. **Emergency Alarm** – alarm configured in radio Code Plug; **Man Down** – radio's Man-Down monitoring; **No Movement** – radio's No-Movement monitoring; **Crash Detect** – radio's speed and sudden stop monitoring; **Geofencing -** control the location and speed of radios relative to manually defined map regions.
Radio State	**Activated by any radio** – choose to receive radio state data from any radio in the system to enable the action; **Activate by specific radios only** - choose to receive radio state data from selected radios in the system to enable the action; **Radio is detected as online** – select to start the action when a radio is online; **Radio is detected as offline** - select to start the action when a radio is offline; **Radio fixed GPS** - select to start the action when a radio has fixed GPS signals; **Radio lost GPS** - select to start the action when a radio has lost GPS signals.

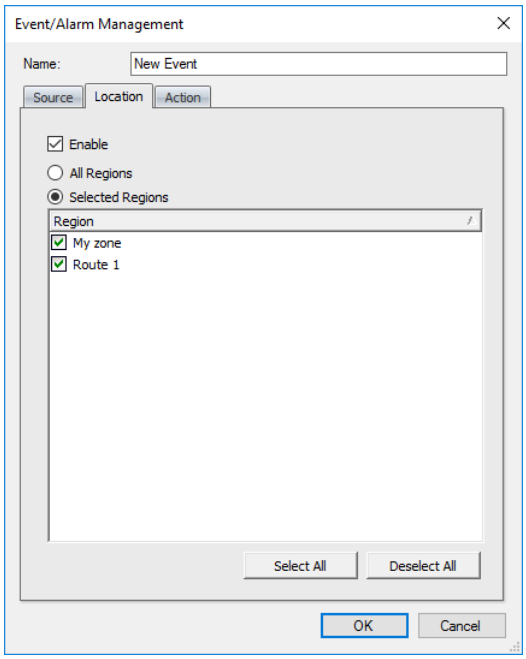
Note: Select the checkbox beside the event you want to enable. In case no event is selected, all configured events are disabled by default:



- Click the **Location** tab (1) to set the regions for the action.

  When the Location rule is enabled and a region is selected, the events specified in the **Source** tab must take place in the selected region to start the action.

  Note: When **COM Port** and/or **External Network Connection** are selected as the event source, the **Location** rule should not be used.

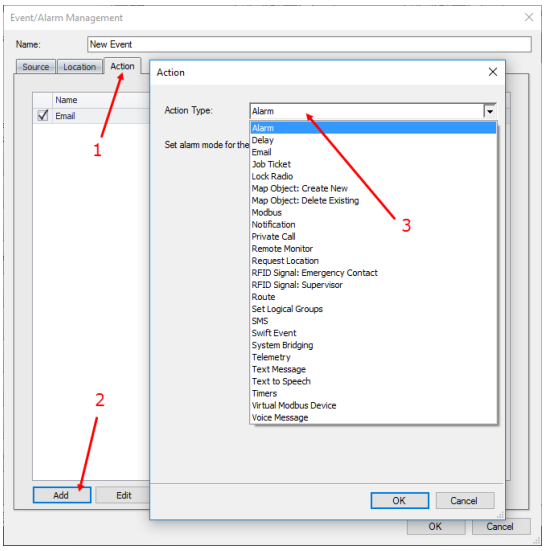


  - **Enable**
    Select this option to apply the **Location** rule to the action.

- **All Regions**
  Choose this option to use Source Event rule in all map regions to start the action;
- **Selected Regions**
  Choose this option to use Source Event rule to start the action only in selected regions.
  - **Region**
    In the list, select the region(s).

- Click the **Action** tab (1) to set actions for the **Source Event** and **Location** rules.

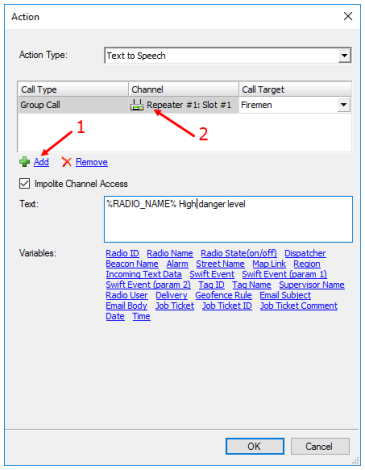
  In the Actions list, the administrator can add and configure the action types to be started when the rules configured in the Source and/or Location pages are executed.
- Click **Add** (2) to add an action:



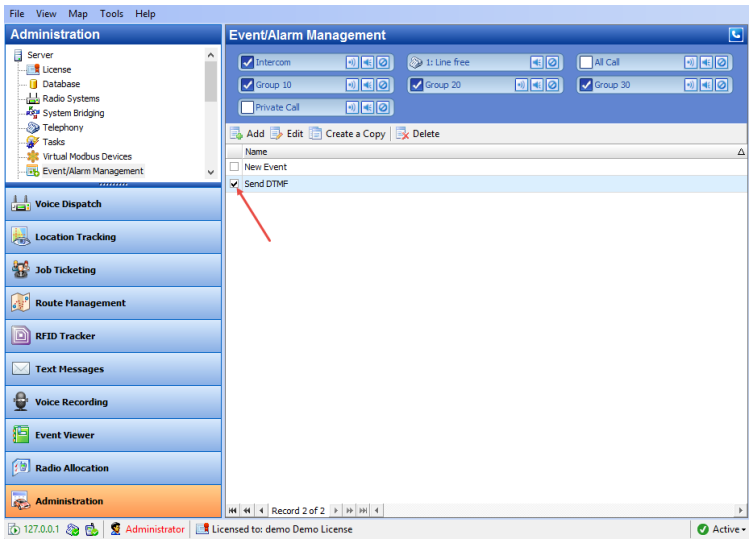
- **Action Type**
  From the drop-down list (3), select the action type.

  For the settings for various action types, see the table below:

Action Type	Parameters Description
Alarm	Not applicable.
Email	**Recipients** – select email recipients in the drop-down list; **Subject** – enter the subject of the email to send to recipients; **Variables** –add variables to include in the email subject: **Text** – enter the email text to send to recipients; **Variables** –add variables to include in the email text:
Job Ticket	**Deadline** – select the task end time; **Recipients** – select the radios or radio groups registered in the system; **Description** – add a description for the Job Ticket; **Variables** – add variables to include in Job Ticket description.

Notification	**Severity** – select the severity level from the drop-down list. **Information** – low severity level; **Warning** – middle severity level; **Alarm –**high severity level. **Text** – add text to the notification to display in the Dispatch Console; **Variables** – add variables to include in the notification.
Request Location	Not applicable.
SMS	**Recipients** – select SMS recipients from the drop-down list; **Text** – enter the SMS text to send to recipients; **Variables** – add variables to include in the SMS text.
System Bridging	**Profiles** – select the System Bridging profile to activate/deactivate; **Activate/deactivate** – choose the action type for the System Bridging profile.
Telemetry	**VIO** - select the VIO to send telemetry commands to; **Command** – select a signal level for the command for selected VIO; **Recipients –** select radios or radio groups to send telemetry commands to.
Text Message	**Recipients** – select text message recipients in the drop-down list; **Text Message** – enter the message text to send to recipients; **Variables** –add variables to include in the message text.
Text to Speech	The Text to Speech feature allows converting text to speech:  **1** – click the **Add** link to add a text to convert to speech; **2** – configure **Call Type**, **Channel** and **Call Target** to send the text converted to speech. **Text** – enter the text to be converted to speech. **Variables** - add variables to include in the message to be converted to speech.
Voice Message	**Voice Messages** – select recorded voice messages. For more details on Voice Messages, see section Voice Message.

Note: After you configure the rule, enable it by selecting the checkbox beside it. In case when no rule is selected, the action will not be started.



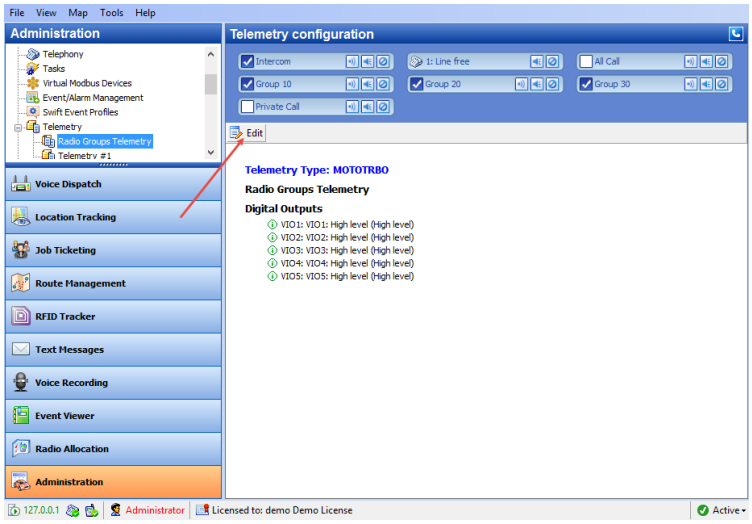
6.5.1.7 Telemetry

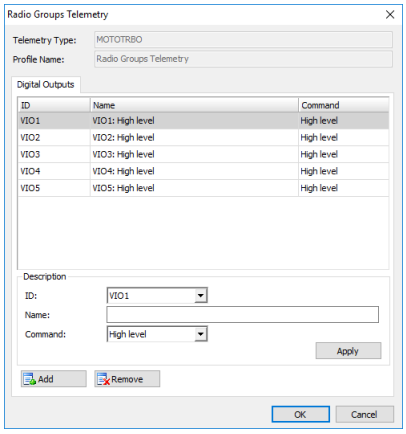
On the **Telemetry** page you can configure settings for Telemetry.

Radio Groups Telemetry

This is a default telemetry profile that is used to send telemetry commands to radio groups.

- Click **Radio Groups Telemetry** in the **Administration** pane.
- In the **Telemetry configuration** pane, click **Edit**.



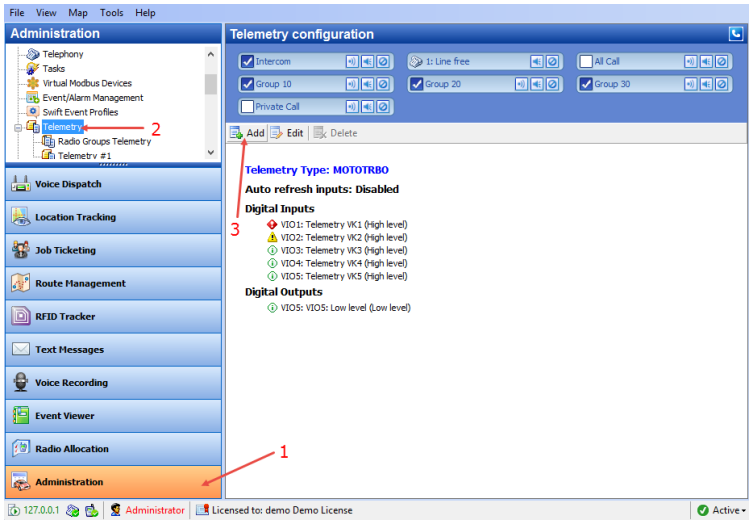


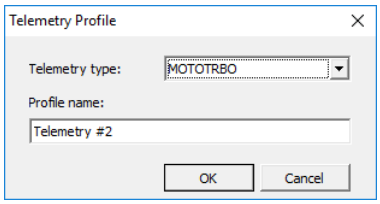
- Click **Add** and specify **ID** (VIO), **Name**, and **Command** (signal level).

Note: For **Radio Groups Telemetry** only the **Digital Outputs** tab is available.

Adding Telemetry Profile for Radios

- Go to **Administration** (1), **Telemetry** (2), and click **Add** (3):



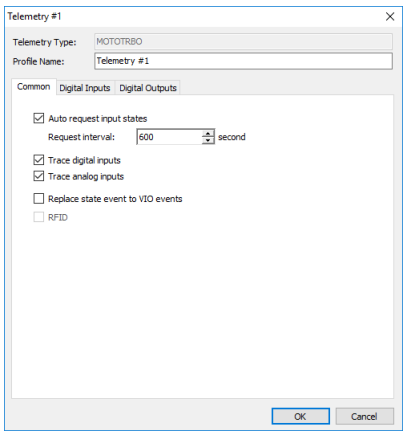


- Specify **Telemetry Type** for Radio groups:
  - **MOTOTRBO** – telemetry from Motorola devices.
  - **Novox** – telemetry from Novox devices connected to a radio via COM port.

- **Swift.Tracker** – telemetry from Swift.Tracker sensors connected to a radio over-the-air.
- **Sprite** – telemetry from Sprite devices.

Note: Sprite telemetry profile can be read but not written.

- **Profile name**
  Specify a name of the profile to display in the Dispatch Console.
- Click **OK**.

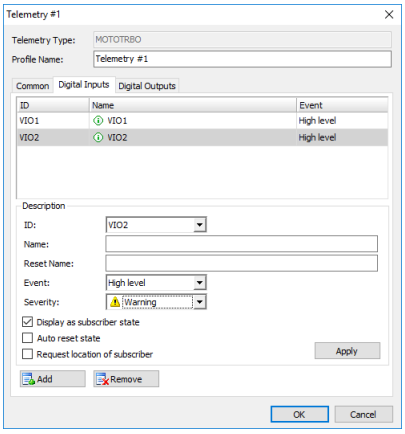


Common tab

- **Auto request input states**
  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 state event to VIO events**
  Select this option to generate **VIO ON/OFF** event when the system compares between the last and the current states of the VIO.

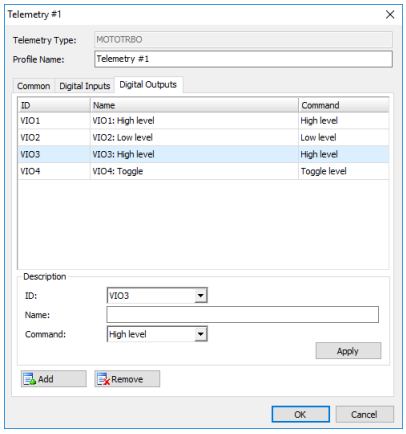
Note: Most of the policies are set to replace events, so it is recommended to enable this option.

Digital Inputs



- Click **Add** to add a VIO (Virtual Configured PIN) 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 Code Plug 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 subscriber state**
    Select this option so that the radio will change its status after it sends the telemetry command.
  - **Auto reset state**
    Select this option to automatically reset the telemetry VIO after the radio sends the telemetry command.
  - **Request location of subscriber**
    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



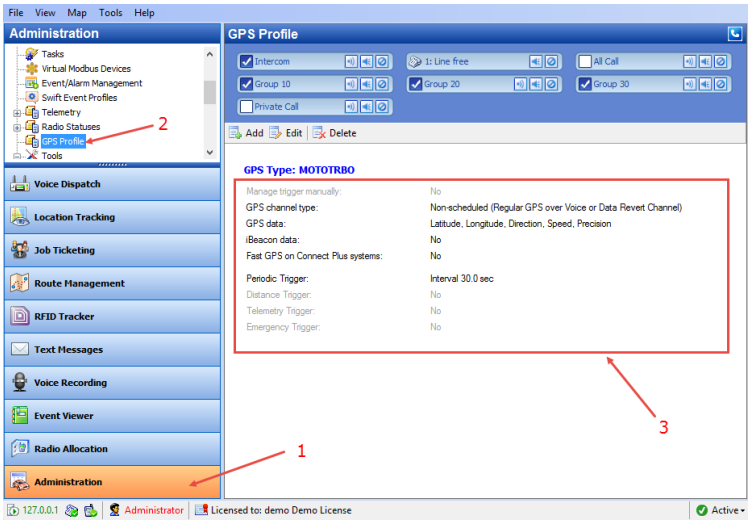
- Click **Add** to add a VIO (Virtual Configured PIN) to the profile:
  - **ID**
    Select the VIO in the dropdown list to set its parameters;
  - **Name**
    Specify a name for the VIO to be displayed in the Dispatch Console.
  - **Command**
    Specify a signal level for the command to send to the selected VIO.
  - Click **Apply** to apply settings to selected outputs.

6.5.1.8 GPS Profile

The GPS Profile feature allows configuring different profiles of GPS update settings for built-in GPS receiver. GPS Profile overrides default GPS 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 a number of separate GPS profiles with different GPS tracking settings for each department.

> Note: The GPS Profile feature is available for MOTOTRBO Generation II radios, firmware version 2.4 or later.

Go to **Administration** (1), **GPS Profile** (2). You can see the default GPS Profile settings (3) in the **GPS Profile** pane.



There is a default GPS Profile that the administrator can use and edit.

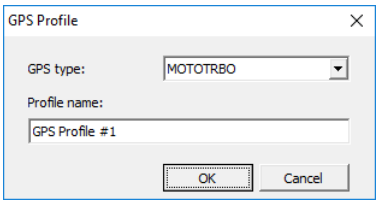
The administrator can do the following:

1. Use default GPS profile.
2. Create a custom GPS profile: **Add** button.
3. Edit a profile: **Edit** button.

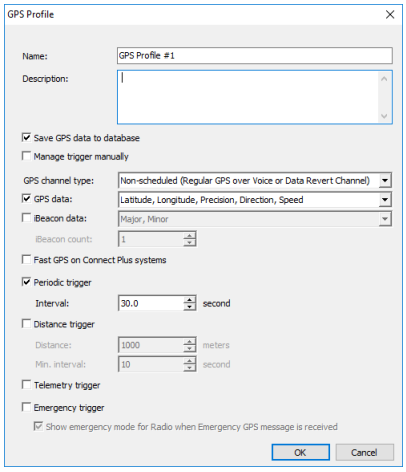
> Note: In the default profile, the **Name** and **Description** cannot be changed.

Adding a GPS Profile

- In the **GPS Profile** pane, click the **Add** button.



  - **GPS type**
    Select the GPS type.
  - **Profile name**
    Enter a name of the profile.



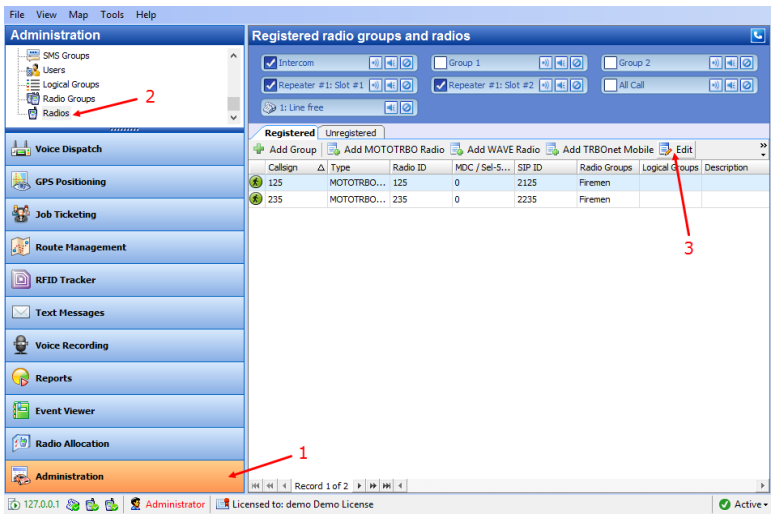
- **Name**
  Specify a name for the GPS profile.
- **Description**
  Add a description for the GPS profile.
- **Save GPS data to database**
  Select this option so that GPS data is saved in TRBnet database.
- **Manage trigger manually**
  Select this option so that GPS triggering will be started manually by the dispatcher.
- **GPS 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.
- **GPS data**
  Select this option to enable sending GPS data 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**

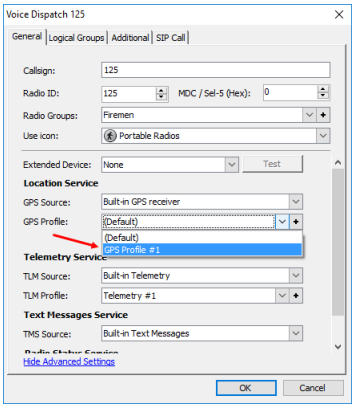
- **TX Power, RSSI**

- **Periodic Trigger**
  Select this option to set a periodic GPS trigger on a radio. The trigger initiates the radio to send GPS and/or iBeacon data at the specified time interval.
  - **Interval**
    Specify the update interval, in seconds.
- **Distance trigger**
  Select this option to allow receiving GPS updates by a distance:
  - **Distance**
    A radio will send GPS updates if it exceeds a specified distance from the last GPS point, in meters.
  - **Min. interval**
    A radio will send GPS updates if it does not move within a specified period of time, in seconds.
- **Telemetry trigger**
  Select this option so that a radio will send GPS and/or iBeacon data upon sending a Telemetry command.
- **Emergency Trigger**
  Select this option so that a radio will send GPS and/or iBeacon data upon entering the emergency mode.
  - **Show emergency mode for Radio when Emergency GPS message is received**
    Select this option if you want a Dispatch Console operator to see the emergency status of a radio that transmitted location data.
- Click **OK** to save the GPS profile settings.

To apply GPS 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 **GPS Profile** list select the GPS profile.
- Select/clear the **Location Enabled** checkbox to enable/disable the location trigger.

Note: The GPS Profile is only applicable when the 'Built-in GPS receiver' is selected in the **GPS Source**.

6.5.1.9 Tools

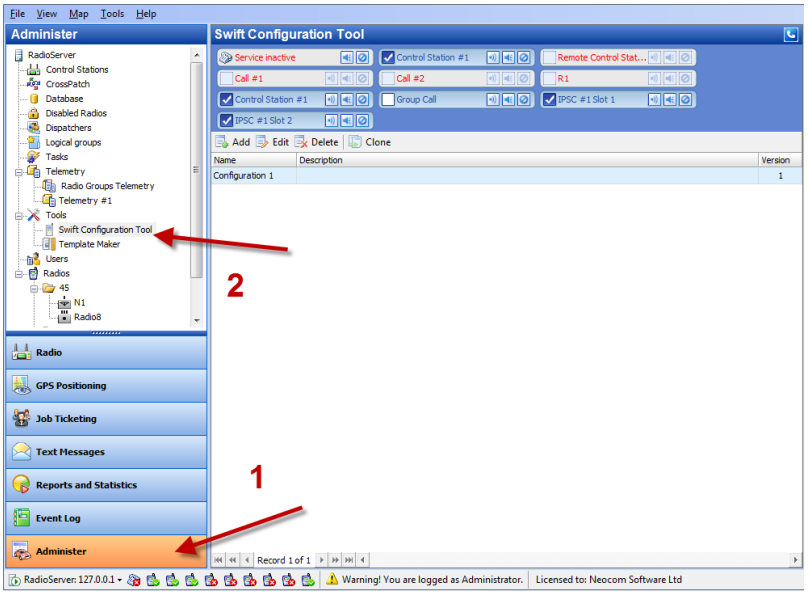
On the **Tools** page, you can find some useful tools.

Swift.Tracker Configuration Tool

In general, a MOTOTRBO™ portable radio comes with a standard option board factory-installed to the radio.

Generic Option Board replaces this standard option board, new radio like XPR 7550 come with Generic Option Board already installed. Generic Option Board can be flashed with custom firmware to provide additional functionality: ManDown, No Movement, Crash Detect, Lone Worker and event-driven GPS functionality. Event-driven GPS feature allows to collect GPS data more frequently, store and forward GPS data by event, also it allows to collect and store GPS data while radio is out of radio coverage to request GPS data when comes back to radio coverage.

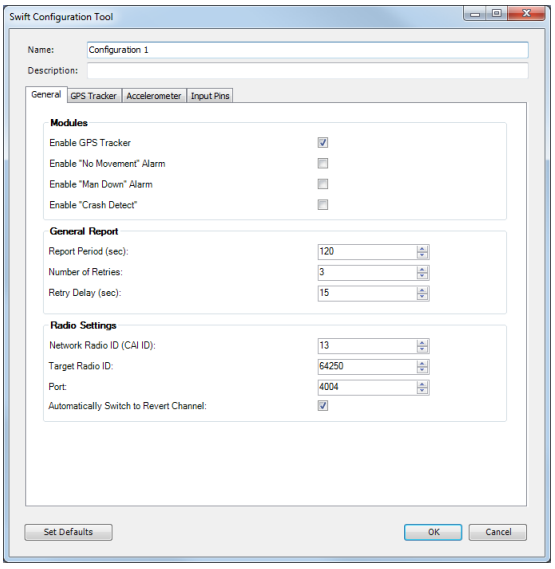
Go to **Administration** (1), **Swift Configuration Tool** (2) to manage Swift.Tracker settings:



Click **Add** to add a configuration for Swift Tracker.

- **Name**
  Specify a name for the configuration to apply to a radio or a group of radios.
- **Description**
  Add a description for the configuration.
- **Set Defaults**
  Click this button to enable default settings.

On the **General** tab, set general settings for Swift Tracker:



Modules

- **Enable GPS Tracker**- when GPS enabled radio sends data to TRBOnet Server according individual GOB settings.
- Enable "**No Movement**" Alarm - select to enable No Movement feature;
- Enable "**Man Down**" - select to enable Man Down feature.

General report

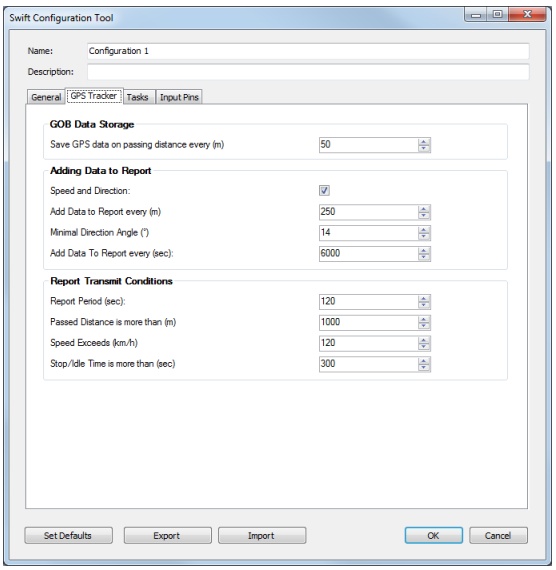
- **Report period (sec.)** - select time period for data transfer to the server;
- **Number of retries** - specify the number of retries when data transfer is impossible. If the channel is busy data transfer to the server is priority and TX Interrupt feature will be enabled automatically;
- **Retry delay** - select time period between data transfer retries.

Radio settings

- **Network radio ID (CAI ID)** - select your Server PC network radio ID. ID=13 is a default value to route packet to Server PC, value 12 will send packets to a control station.
- **Target Radio ID** - select target radio ID for data transfer. In case of direct connection to repeater select the TRBOnet server ID (TRBOnet peer ID).
- **Port** - select port for data transfer.
- **Automatically Switch to Revert Channel** - select to transfer data via revert channel in automatically mode.

> Note: If the radio does not have a revert channel, this option must be disabled.

On the **GPS Tracker** tab, set GPS Tracker settings:



GOB data Storage

- **Save GPS data on passing distance every (m)** - specify the distance. When the indicated distance is passed radio saves the data in Option Board memory but GPS data are not added in the report;

Adding data to report

- **Speed and Direction** - select to receive radio speed and direction data;

- **Add data to report every (m)** - specify the distance. When indicated distance is passed radio adds data to the report. At this case the data is saved in the report to send the report according to selected time period (see «**Report Period** » option).

  Note: Number value Add data to report every (m) must exceed number value Save GPS data on passing distance every (m).

- **Minimal direction angle** - select minimal direction angle to add data to the report automatically (if the radio reverses the direction the current data is added to the report automatically and next data recording is started).
- **Add data to report every (sec.)** - specify time period for the report. When the indicated time period is passed radio adds the data to the report.

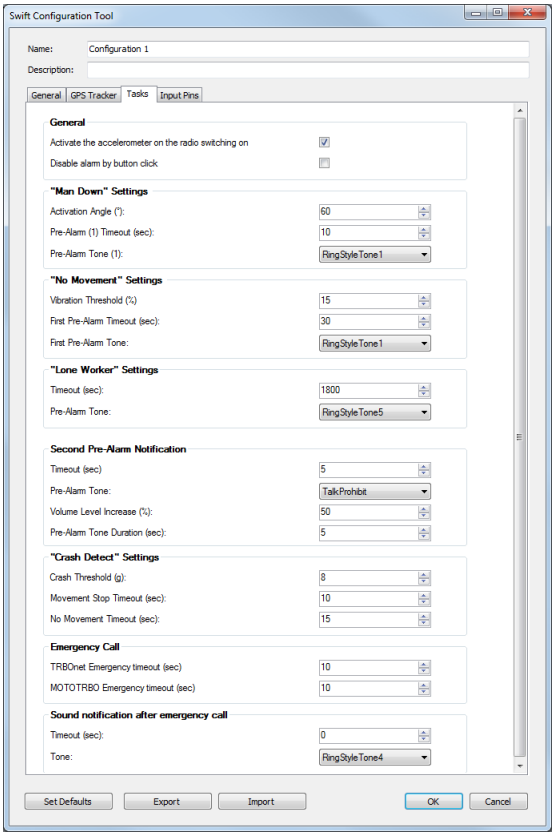
Report Transmit Conditions (custom report settings)

- **Report period (sec.)** – set time period to send the report;
- **Passed distance is more than (m)** - type in the distance. When the indicated distance is passed the Option Board sends the report.

  Note: Number value Add data to report every (m) must exceed number value Save GPS data on passing distance every (m).

- **Speed exceeds** - select speed. When current speed is more than the indicated one, radio sends data to the TRBOnet Dispatch Software server;
- **Stop/Idle Time is more than (sec.)** - select stop/idle time. When stop/idle time is more than the indicated one radio sends data to TRBOnet Server.

Go to Tasks page to set Man Down, No Movement, Lone Worker and Crash Detect settings:



- **Activate the accelerometer on the radio switching on** - select to enable accelerometer;
- **Disable alarm by button click** – select to allow radio subscriber disable alarm notification by pressing any button on the radio.

"Man Down" settings

- **Activation angle** - select activation angle to enable Man Down feature;
- **Pre-Alarm (1) Timeout (sec.)** - select time period preceding pre-alarm Tone 1;
- **Pre-Alarm tone (1)** - select pre-alarm tone. All pre-alarm tones can be found in radio's code plug configuration.

"No Movement" Settings

- **Vibration Threshold (%)** - select max. vibration threshold for No Movement feature;
- **Pre-Alarm Timeout (sec.)** - select time period preceding pre-alarm Tone 1;
- **Pre-Alarm tone** - select pre-alarm tone. All pre-alarm tones can be found in radio's code plug configuration.

"Lone Worker" Settings

- **Timeout (sec.) –** select time period to enable Lone Worker alarm;
- **Pre-alarm tone -** select pre-alarm tone. All pre-alarm tones can be found in radio's code plug configuration;

Second Pre-Alarm Notification

When pre-alarm tone (1) activates for **Man Down**, **No Movement** and **Lone Worker**, and there was no user's activity (the radio remains unchanged), the second pre-alarm tone activates**:**

- **Timeout (sec.)** - select time period preceding pre-alarm Tone 2;
- **Pre-Alarm tone** - select pre-alarm tone. All pre-alarm tones can be found in radio's code plug configuration;
- **Volume Level Increase (%)** - select the percentage of the Volume Level Increase for pre-alarm Tone 2;
- **Pre-Alarm Duration (sec.)** - select pre-alarm Tone 2 duration.

"Crash Detect" Settings

- **Crash Threshold (g)** - select acceleration changing value to enable Crash Detect alarm notification;
- **Movement Stop Timeout** – select the time period of movement stop to enable Crash Detect alarm notification;
- **No Movement Timeout** - select the time period of the radio without any movement to enable Crash Detect alarm notification;

Emergency call

- **TRBOnet Emergency Timeout (sec.)** - select time period preceding emergency tone to the Dispatch Console for **Man Down**, **No Movement** and **Lone Worker** options;
- **MOTOTRBO Emergency timeout (sec.)** - select time period preceding emergency tone to the Dispatch Console.

Note: **MOTOTRBO Emergency Alarm** should be set in Radio's code plug.

Sound notification after emergency call

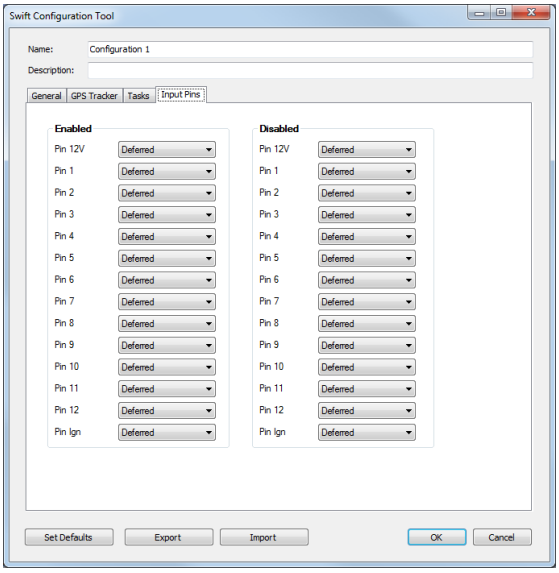
- **Timeout (sec.)** – select time period to repeat the alarm notification. To stop the alarm notification Dispatcher should disable alarm notification;
- **Tone** – select the notification tone. All tones can be found in radio's code plug configuration.

Click **Set defaults** to apply default values.

Click **Import** to import Swift .Tracker configuration from file.

Click **Export** to save Swift .Tracker configuration as a file to the PC.

Click the **Input Pins** tab to set the priority for Enabled/Disabled Pins:



Select programmed Pin in Enabled/Disabled Pins table.

Select data transmission priority for Pin:

- **Deferred** - to send the data into current packet;
- **In Memory** - to save the data in the GOB memory;
- **Immediately** - transmission interrupt - oriented. Select **Immediately** to transmit the data via free channel with radio channel priority;
- **Extremely** - transmission via radio channel and GSM channel simultaneously.

The PIN options are model dependent. All available PINs for the radio can be programmed in Radio's codeplug configuration (See **Accessories**, **GPIO Physical PINs**)

> Note: Additional PINs are available only when GSM Swift.Tracker is connected. For more details, contact our technical support.

- Click **OK** to save the settings.

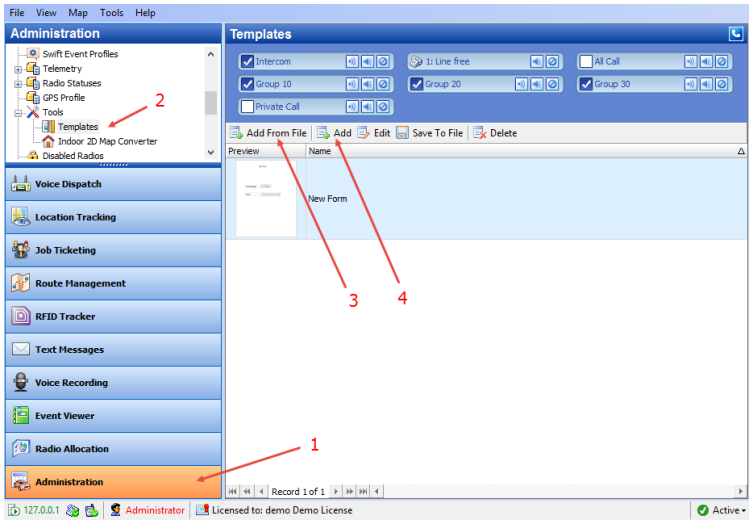
Templates for Extended Messages

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), **Templates** (2) to create a new template:

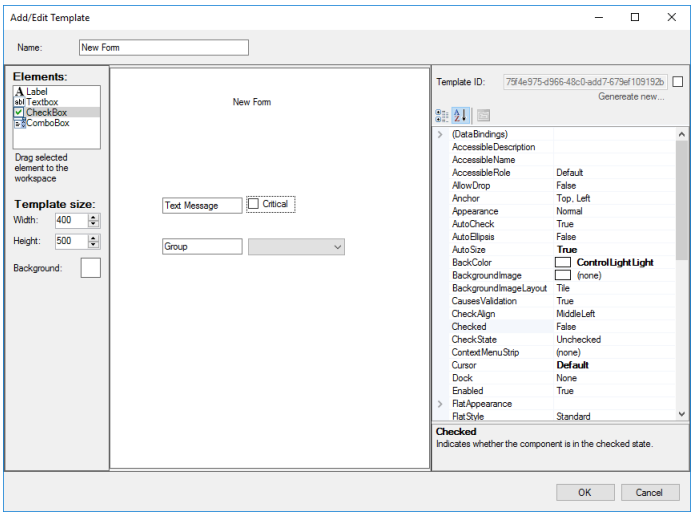


- Click **Add From File** (3) to add a template from file.

  Note: Before adding a template from file, save the created template to a custom directory.

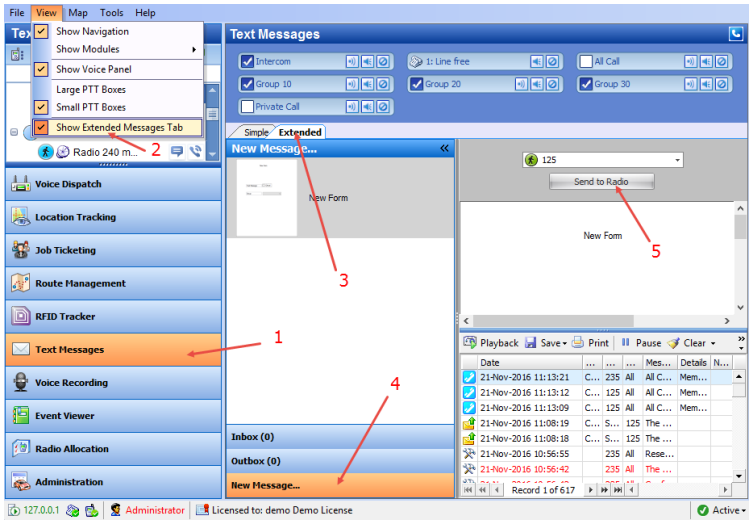
  Select the directory where you saved the template and click **OK** to add the file.

- Click **Add** (4) to create a new template:

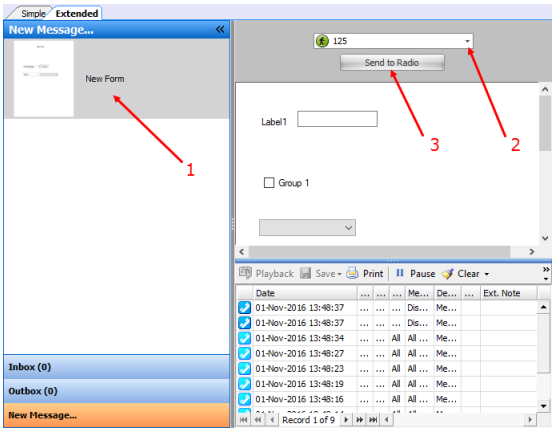


  - **Name** (1)
    Specify a name for the template to display in the Dispatch Console (1).
  - **Elements** (2)
    Select elements to add to the template. Drag and drop the selected element to the desired place on the mail template box.
  - **Template size** (3)
    Specify the template dimensions and background color.
  - Click an element on the template. On the right side of the Template dialog box, you can see the selected element properties.

Sending a template to a radio



- Click **Text Messages** (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).

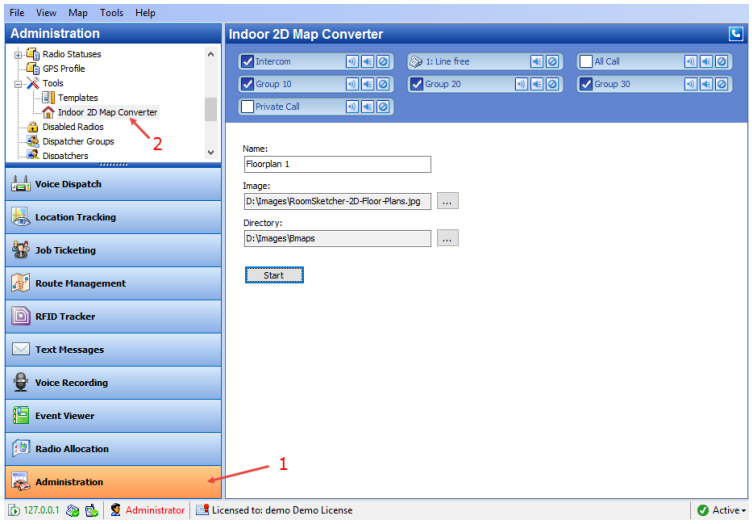


- Select the template in the list (1).
- From the drop-down list (2), select a radio to which to send the template.
- Click **Send to Radio** (3) to send the template to a radio.

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.

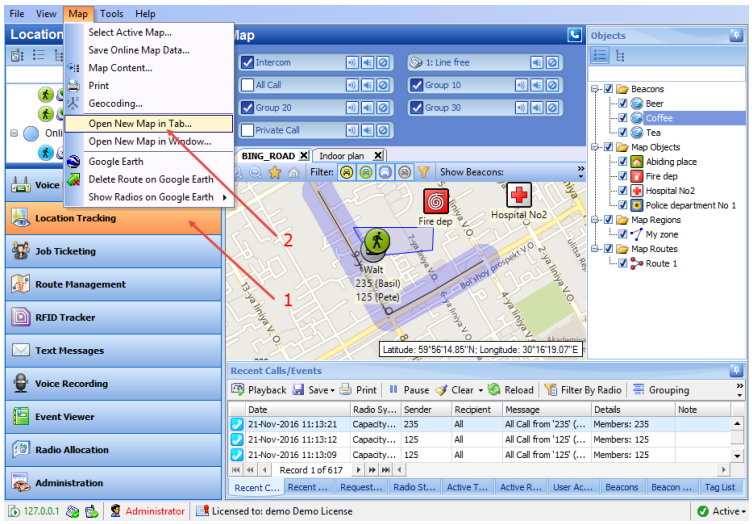
- Click **Administration** (1), **Tools > Indoor 2D Map Converter** (2).

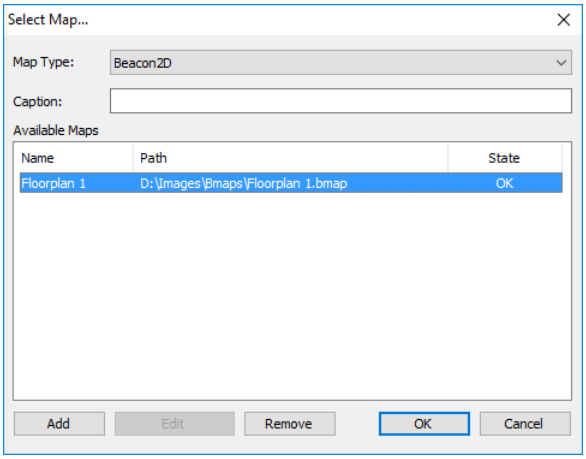


- **Name**
  Specify a name for the new Indoor 2D Map.
- **Image**
  Click **...** and locate the image (PNG, JPG, TIFF, GIS) on your computer.
- **Directory**
  Click **...** and locate the folder where to save the converted Indoor 2D map on your computer.
- Click **Start** to convert the image.

To use the converted map

- Click **Location Tracking** (1). On the **Map** menu, click **Open New Map in Tab** (2):





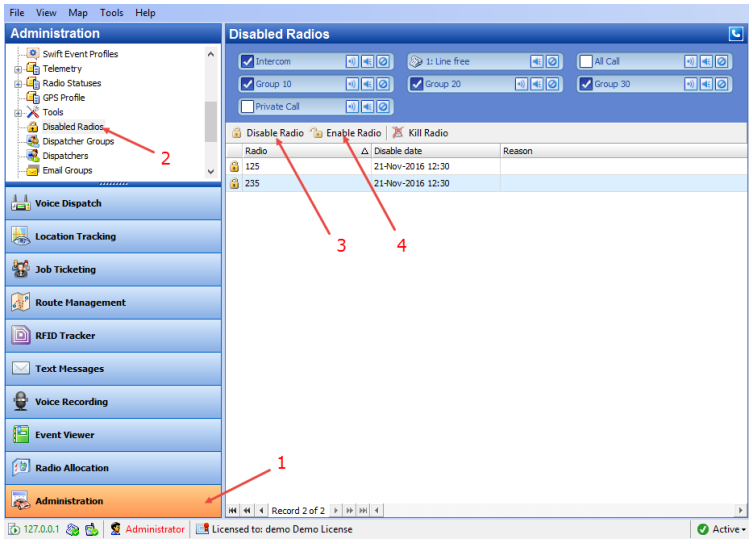
- From the **Map Type** list box, select 'Beacon 2D':
- Click **Add** to and browse for the map you have converted.
- Click **OK** to open the Indoor map in the Map pane.

6.5.1.10 Disabled Radios

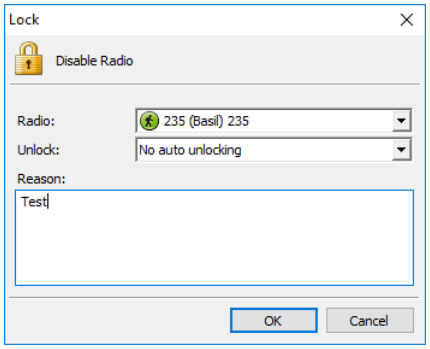
TRBOnet Dispatch Console provides the **Stun Kill Passive** function that allows disabling a radio even if the radio is offline. The system will disable an offline radio as soon as it gets available.

> Note: The dispatcher can disable a radio when they have relevant Access Rights (for more details on adding and editing dispatchers, see Dispatchers section).

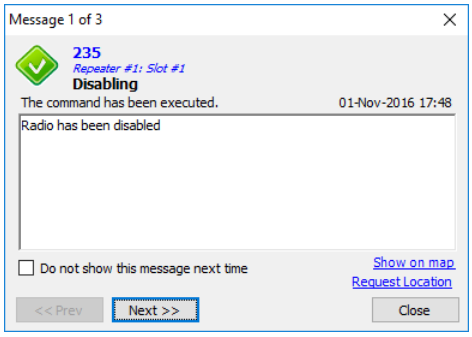
- Go to **Administration** (1), **Disabled Radios** (2) to disable selected radio:



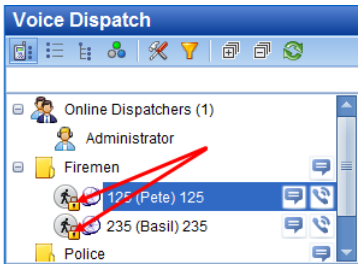
- Click **Disable Radio** (3) and in the dialog box that opens:



- **Radio**
  Select a radio from the drop-down list.
- **Unlock**
  Select the time period after which to unlock the radio.
- **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:

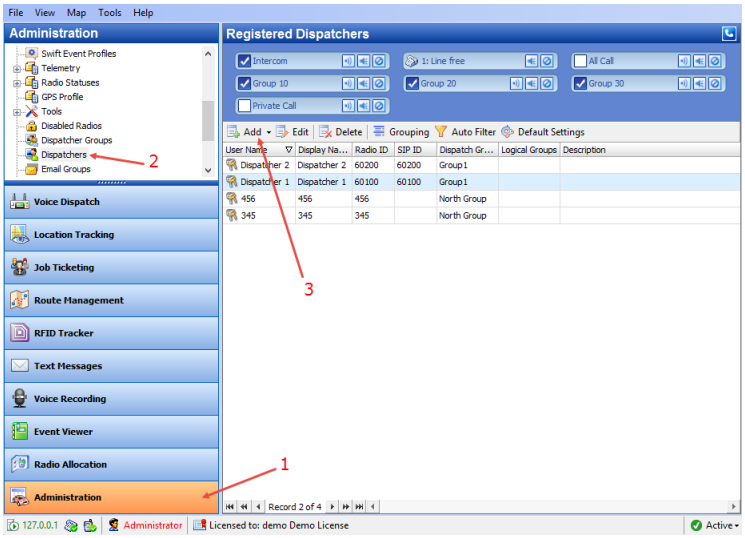


- Click **Enable Radio** (4) to enable selected radio.
- Select a radio from the drop-down list and specify the reason to enable.
- Click **OK** to enable the radio.

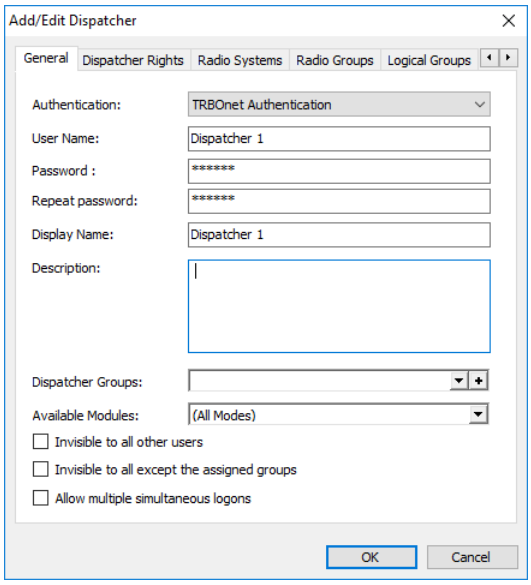
6.5.1.11 Dispatchers

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.

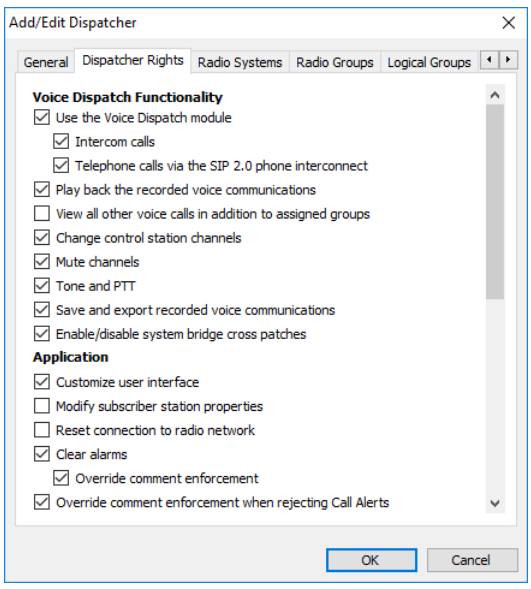
Note: The password is not required when Windows Authentication is used.

Note: For more details on user access to Allocation Console, see Users section.

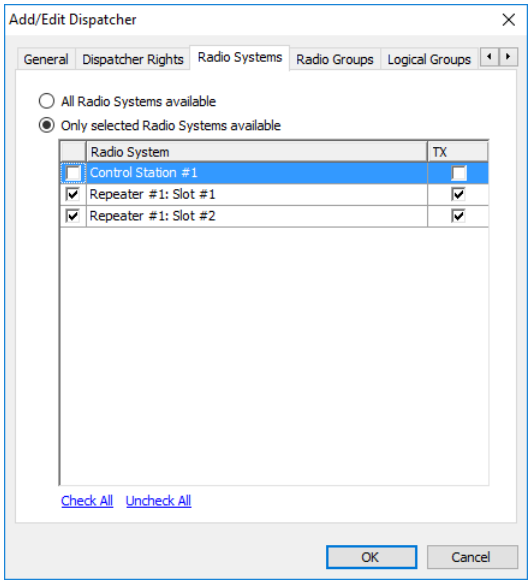
- **User Name**
  Specify a user name for the dispatcher registered in TRBOnet Dispatch Software users list.
- **Password**
  Specify a password for the dispatcher.

- **Display Name**
  Specify a name for the dispatcher to display in the Dispatch Console;
- **Description**
  Add a description for the dispatcher.
- **Dispatcher Groups**
  In the drop-down list, select the group(s) of dispatchers to which to assign the dispatcher. Click **+** to add a group of dispatchers to the list.
- **Available modes**
  In the drop-down list, select the modules that will be available for the dispatcher in the Dispatch Console.
- **Invisible to all other users**
  Select this option to make the dispatcher invisible for other users.
- **Invisible to all except the assigned groups**
  Select this option to make the dispatcher invisible for 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 **Dispatcher Rights** tab, specify the available access rights for the dispatcher.

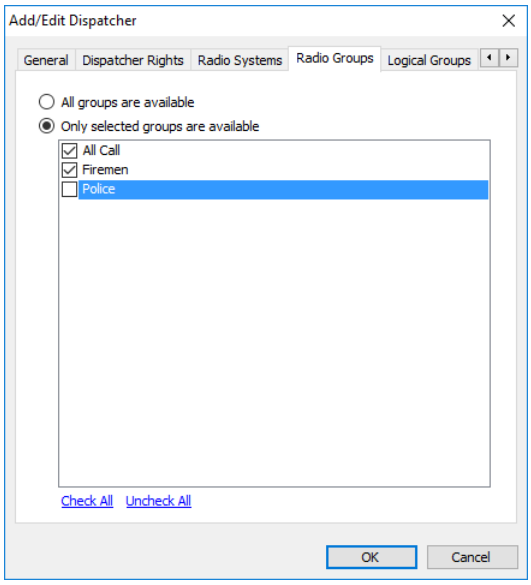


On the **Radio Systems** tab, specify the radio system(s) that will be available for the dispatcher.



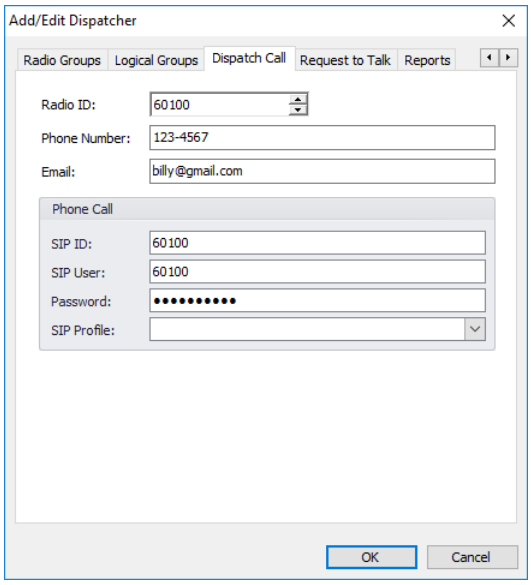
- **All Radio Systems are available**
  Choose this option to make all radio systems available for the dispatcher to transmit and receive Voice and Data.
- **Only selected Radio Systems are available**
  Choose this option and specify which radio systems will be available to the dispatcher.
  - Select the checkbox in the left column to add the corresponding radio system to the Radio Interface for the dispatcher.
  - Select the checkbox 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 a group to assign the dispatcher to.



- **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 **Dispatch Call** tab, specify Dispatch Call and SIP call settings for the dispatcher:

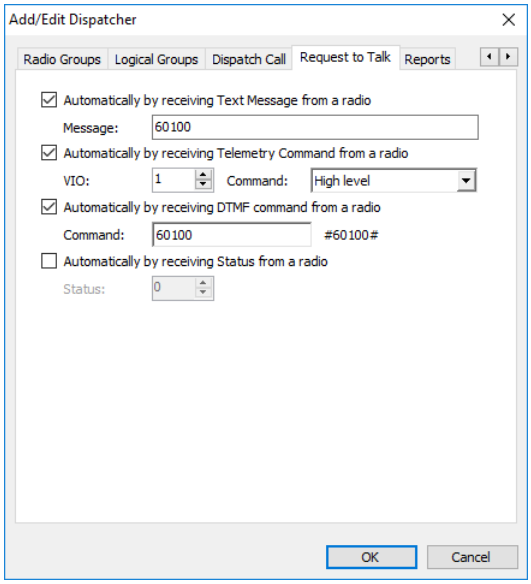


- **Radio ID**
  Specify the Radio ID of the dispatcher.
- **Phone number**
  Specify the dispatcher's phone number (additional data).
- **Email**
  Specify the dispatcher's Email (additional data).

Phone Call

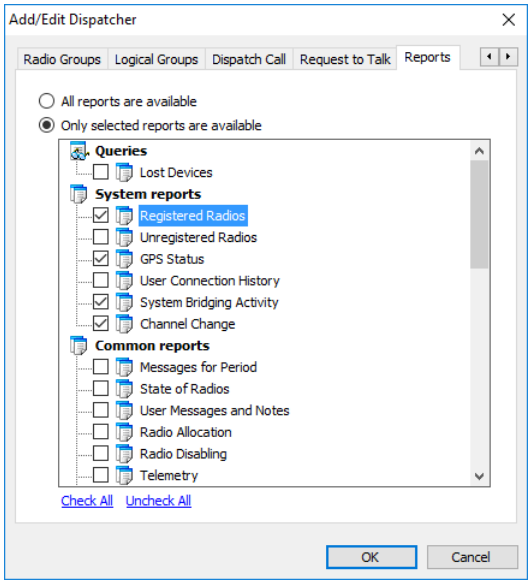
- **SIP ID**
  Enter the SIP ID that will be used by the dispatcher.
- **SIP Name**
  Enter the SIP user name that will be used by the dispatcher.
- **Password**
  Enter the password for the dispatcher to be authenticated by the telephone system.
- **SIP Profile**
  From the drop-down list, select the SIP profile to use.

On the **Request to Talk** tab, specify 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 the DTMF combination without the # characters in the **Command** box.
- **Automatically by receiving Status 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.

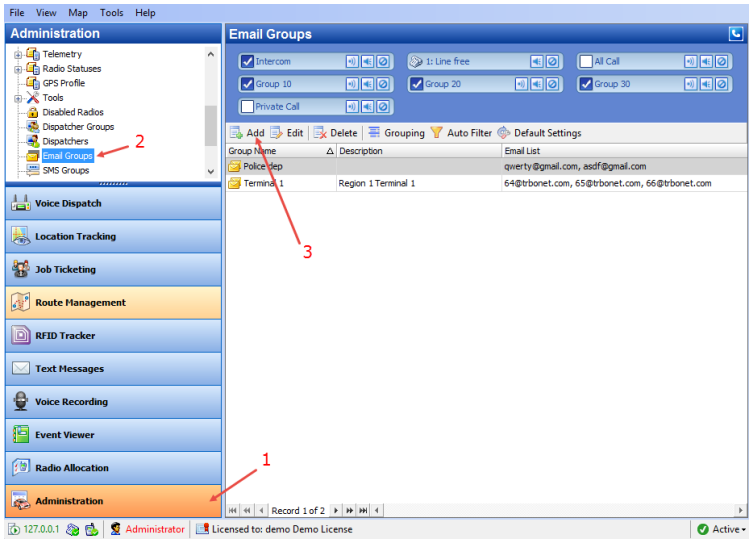


- **All reports are available**
  Choose this option so that all the reports will be available to the dispatcher.
- **Only selected reports are available**
  Choose this option and in the list below select/deselect the reports to include/exclude.

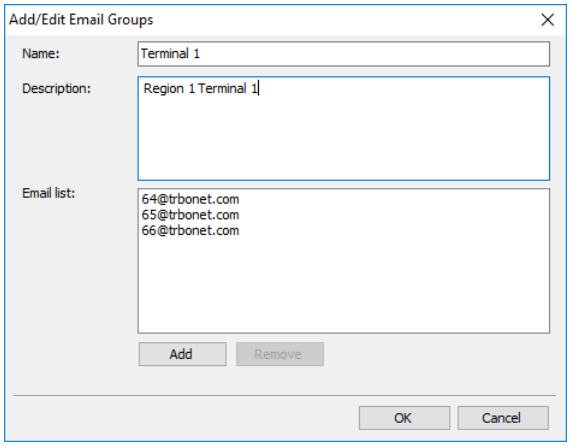
6.5.1.12 Email Groups

Email Groups are used in Event/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.

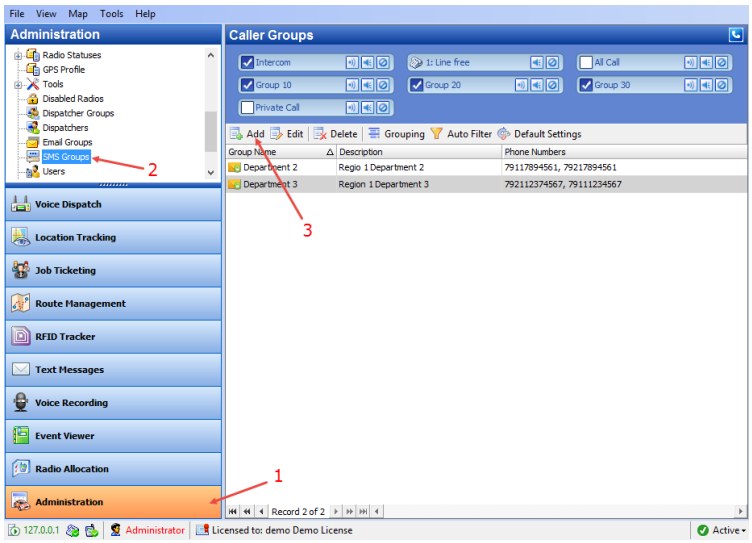


- **Name**
  Specify a name for the email group.
- **Description**
  Add a description for the email group.
- **Email list**
  Click **Add** to add an email address to the Email list.

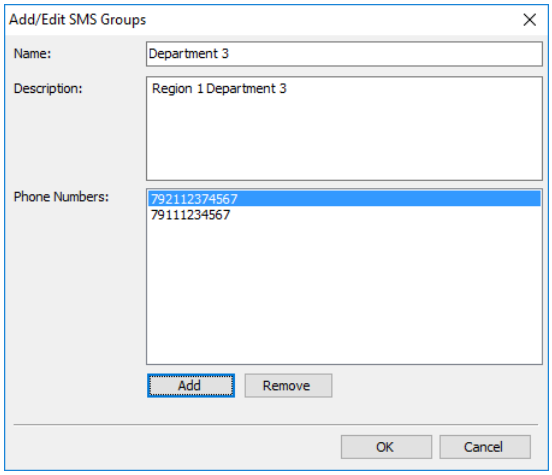
6.5.1.13 SMS Groups

SMS Groups are used in Event/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:



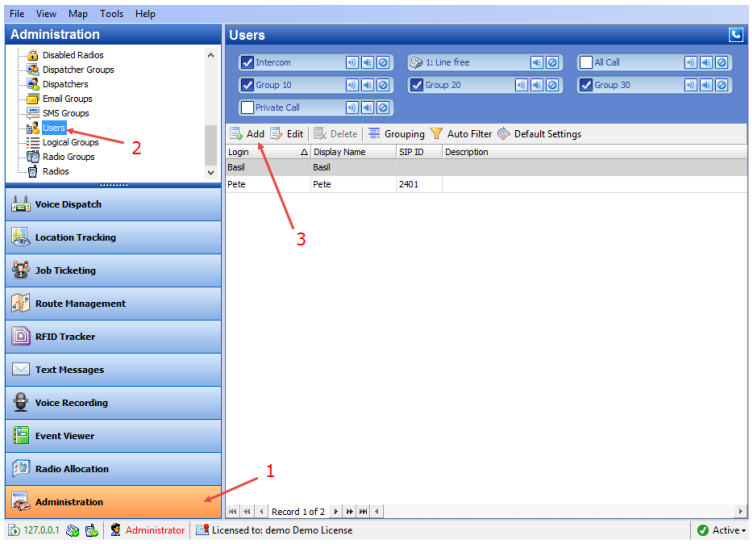
- Click **Add** to create a new SMS group:



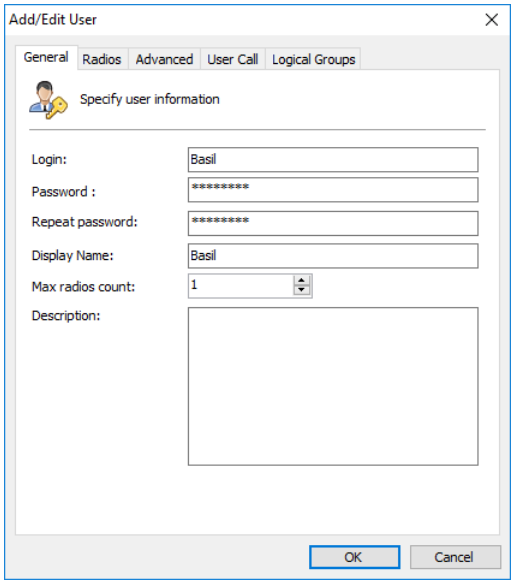
- **Name**
  Specify a name for the SMS group.
- **Description**
  Add a description for the SMS group;
- **Phone Numbers**
  Click **Add** to add a phone number to the SMS group.

6.5.1.14 Users

Go to **Administration** (1), **Users** (2) to add/edit/delete users in the system:

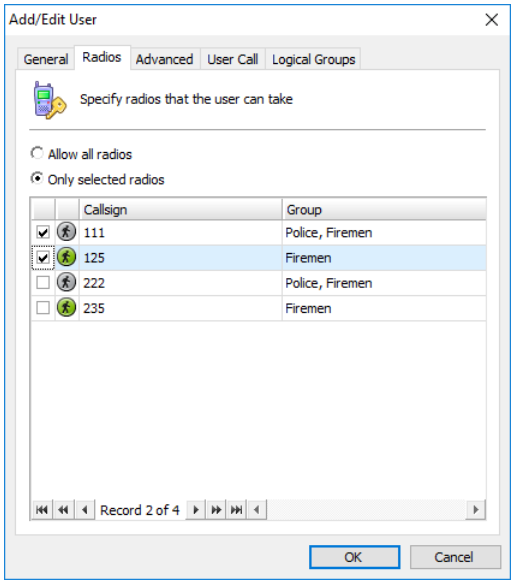


- Click **Add** (3) to add a new user to the system:
- On the **General** tab, set general parameters for the user:



- **Login**
  Specify the login to log on to the Dispatch Console.
- **Password**
  Type in the individual password.
- **Display Name**
  Specify a name for user to display in the Dispatch Console.
- **Max radios count**
  Select a number of radios that will be available for the user.
- **Description**
  Add a description for the user.

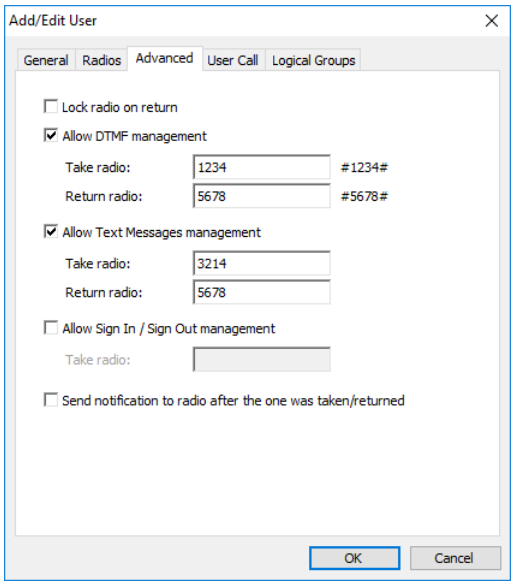
- On the **Radios** tab, specify the radios available to the user.



- **Allow all radios**
  Choose this option to allow using all radios in the system.

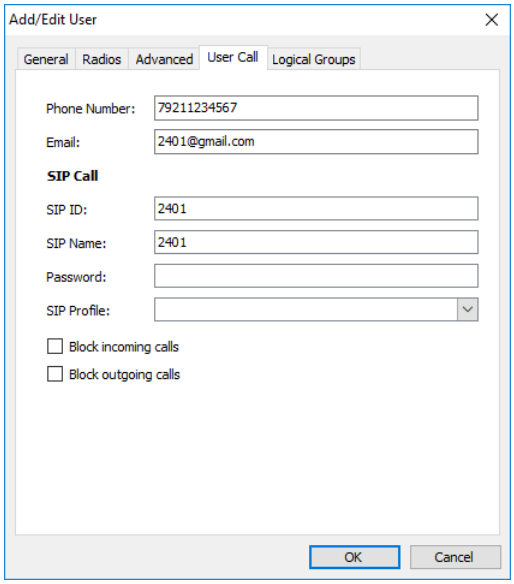
- **Only selected radios**
  Choose this option and specify which radios will be available to the user.

- On the **Advanced** tab, specify settings related to taking/returning radios:



  - **Lock radio on return**
    Select this option so that a radio will be disabled after the users returns it.
  - **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.
    - **Take radio**
      Specify the text of the message to be sent by the user to take a radio.
  - **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/returns it.

- On the **User Call** tab, specify SIP Call settings for the user:



- **Phone number**
  Specify the user's phone number (additional data).
- **Email**
  Specify the user's Email (additional data).

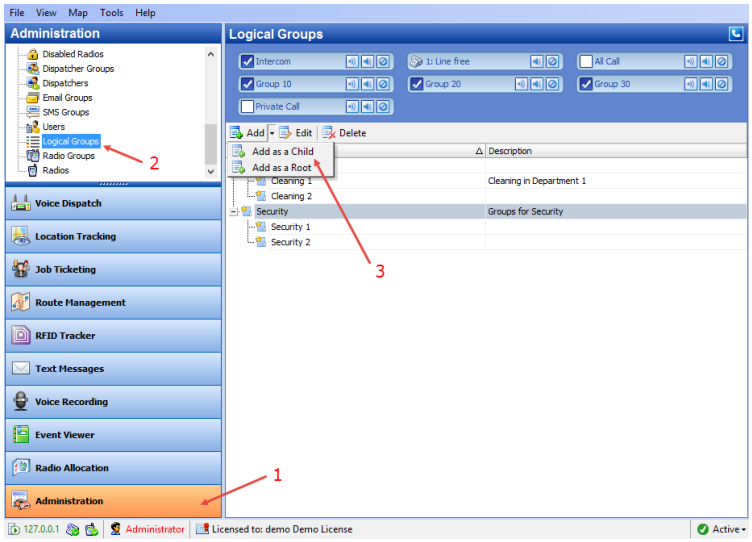
SIP Call

- **SIP ID**
  Enter the SIP ID that will be used by the user.
- **SIP Name**
  Enter the SIP user name that will be used by the user.
- **Password**
  Enter the password for the user to be authenticated by the telephone system
- **SIP Profile**
  From the drop-down list, select the SIP profile to use.
- **Block incoming calls**
  Select this option to block all incoming SIP calls for the user.
- **Block outgoing calls**
  Select this option to block all outgoing SIP calls for the user.

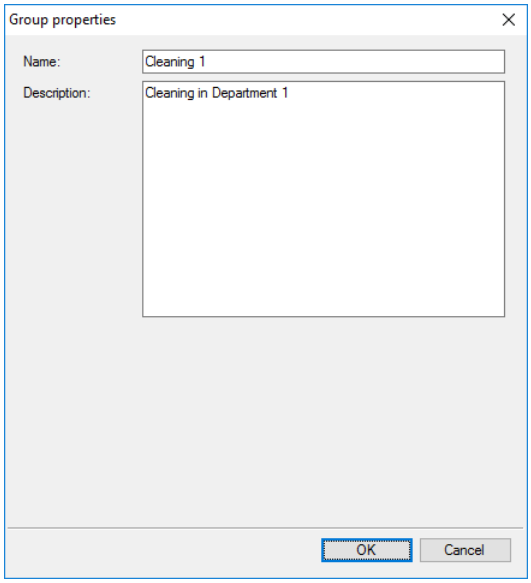
6.5.1.15 Logical Groups

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) to work with Logical Groups:

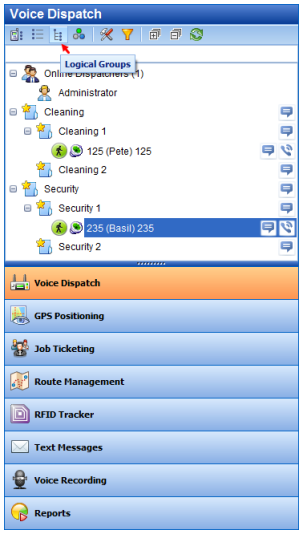


- Click **Add** (3) to add a logical group.
  - Select **Add as a Root** to add a logical group as a root folder.
  - Select **Add as a Child** to add a logical group as a child folder.



  - Specify a **Name** and **Description** for the logical group.
  - Click **OK** to add the logical group.

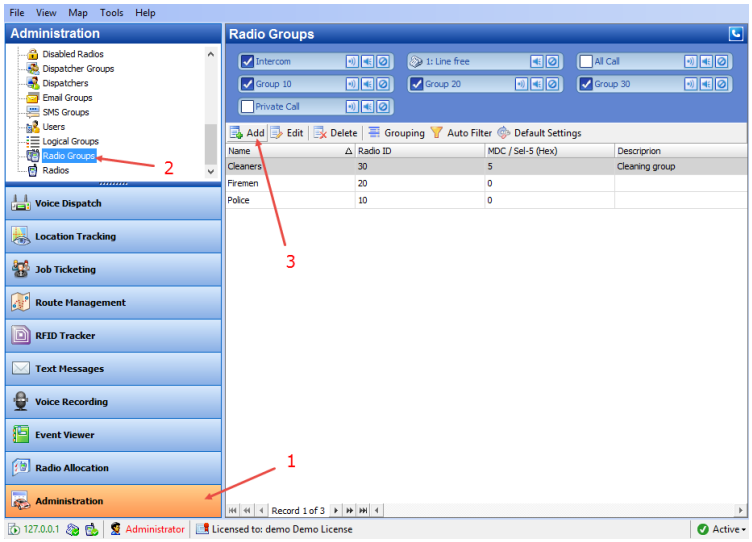
To display logical groups, enable the Logical Group view:



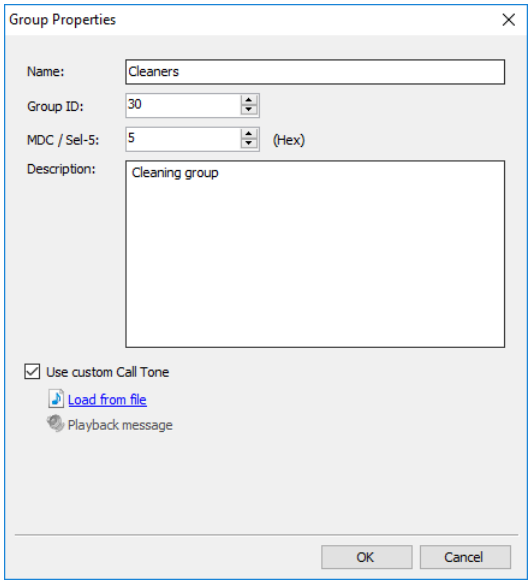
All created logical groups are displayed in the list of radios.

6.5.1.16 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:

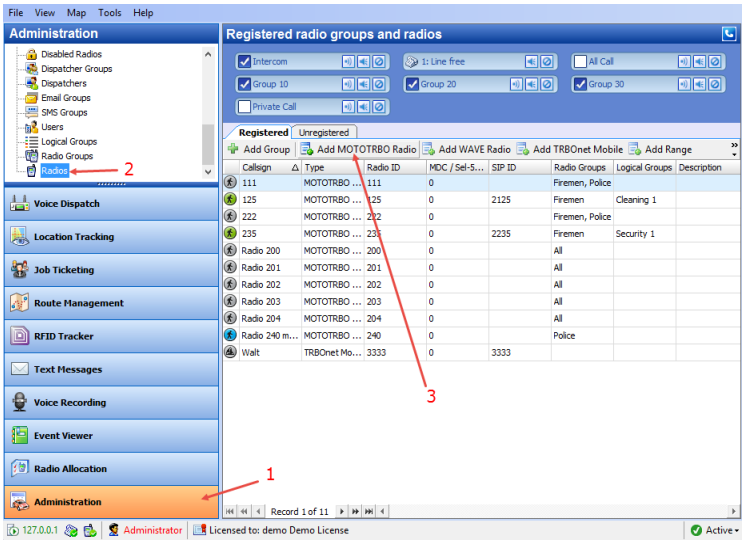


- **Name**
  Specify a name for the radio group in the system.
- **Group ID**
  Specify the Radio ID for the radio group used to identify messages to/from the radio group.
- **MDC / Sel-5 (Hex)**
  Set an ID for MDC 1200 or SELECT 5 signaling systems. This ID is used to identify and communicate with a target radio or group of radios depending on the call type. For more details on MDC 1200, see http://en.wikipedia.org/wiki/MDC-1200.
- **Description**
  Add a description for the radio group.
- **Use custom Call Tone**
  Select this option and browse for the sound file (WAV, MP3) that will be used as a ringtone when receiving calls from the group.

6.5.1.17 Radios

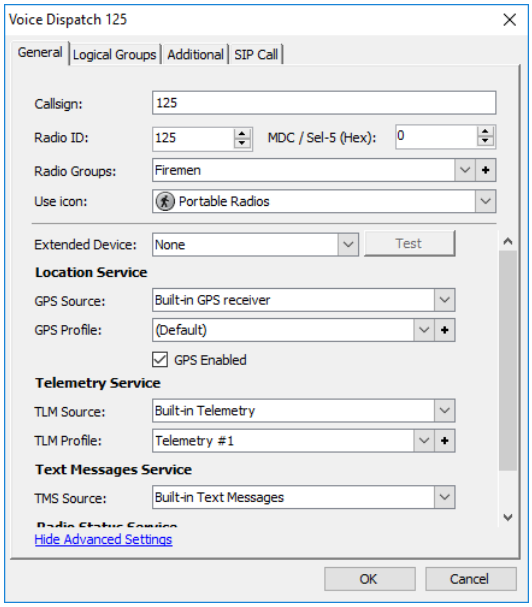
The administrator can add/edit/delete radios in the system.

- Go to **Administration** (1), **Radios** (2).



- Click **Add MOTOTRBO Radio** to add a new radio.

On the **General** tab, specify general settings for the radio:



- **Callsign**
  Specify a callsign for the radio to display in the Dispatch Console.
- **Radio ID**
  Specify 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 / Sel-5 (Hex)**
  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. For more details on MDC 1200, see http://en.wikipedia.org/wiki/MDC-1200.

- **Radio Groups**
  In the drop-down list, select a radio group(s) to which to assign 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

- **GPS 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.
- **GPS Profile**
  From the drop-down list, select the default or preconfigured GPS Profile. For more details on GPS Profiles, see GPS Profile.
  - **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 extended device.
- **TLM Profile**
  From the drop-down list, select the default or preconfigured Telemetry Profile. For more details on Telemetry Profiles, see Adding Telemetry Profile.

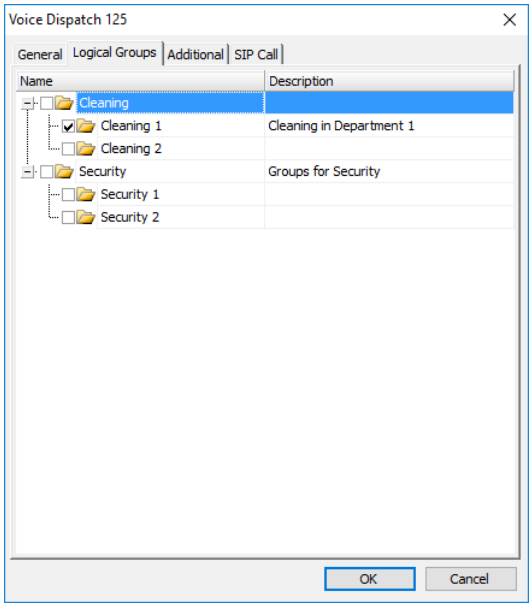
Text Messages Service

- **TMS Source**
  - **Not equipped with Display**
    Select if the radio is not equipped with a display.
  - **Built-in Text Messages**
    Select if the radio supports Text Messaging service (equipped with Display).
  - **DMR Compatible Text Messages**
    Select if the radio supports DMR Compatible text messages.

Radio Status Service

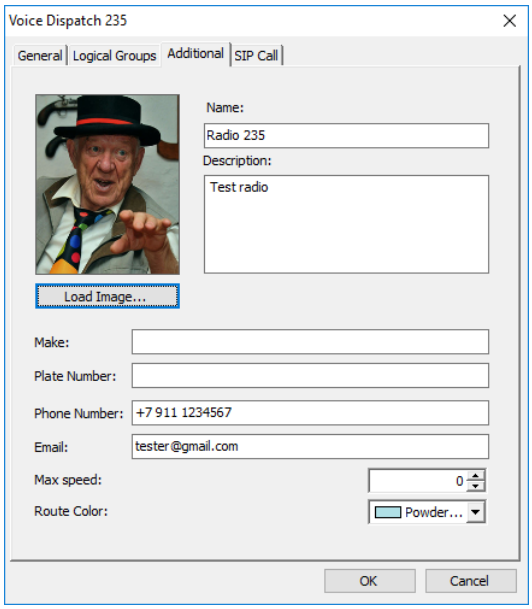
- **RS Profile**
  From the drop-down list, select the default or preconfigured Radio Status Profile.

On the **Logical Groups** tab, specify logical groups for the radio:



- Select a logical group in the list of available groups.
- For more information about logical groups, see Logical Groups section.

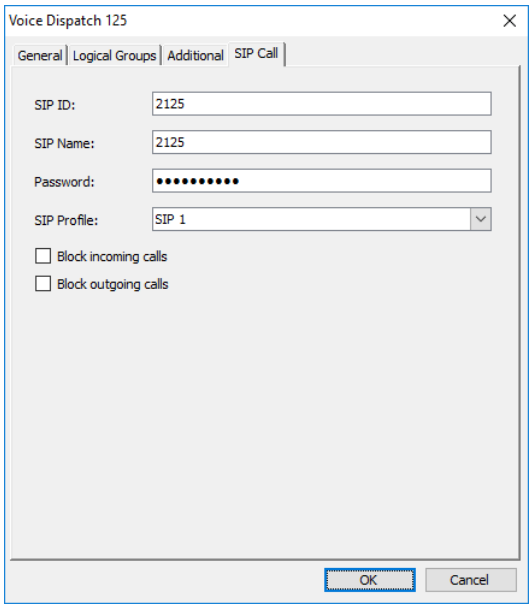
On the **Additional** tab, specify additional information about the radio subscriber:



- **Name**
  Specify a name for the radio subscriber.
- **Description**
  Add a description for the radio subscriber.

- Click the **Load Image** button and browse for the photo or image to assign to the radio subscriber.
- **Make**
  Specify a make of the vehicle as additional information.
- **Plate number**
  Specify a plate number of the vehicle as additional information.
- **Phone number**
  Add a telephone number for the radio subscriber.
- **Email**
  Add an email address for 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 the color to display the route passed by the radio on the map.

On the **SIP Call** tab, specify SIP Call settings for the radio:



- **SIP ID**
  Enter the SIP ID that will be used by the radio.
- **SIP Name**
  Enter the SIP user name that will be used by the radio.
- **Password**
  Enter the password for the authentication.
- **SIP Profile**
  From the drop-down list, select the SIP profile to use for the radio.

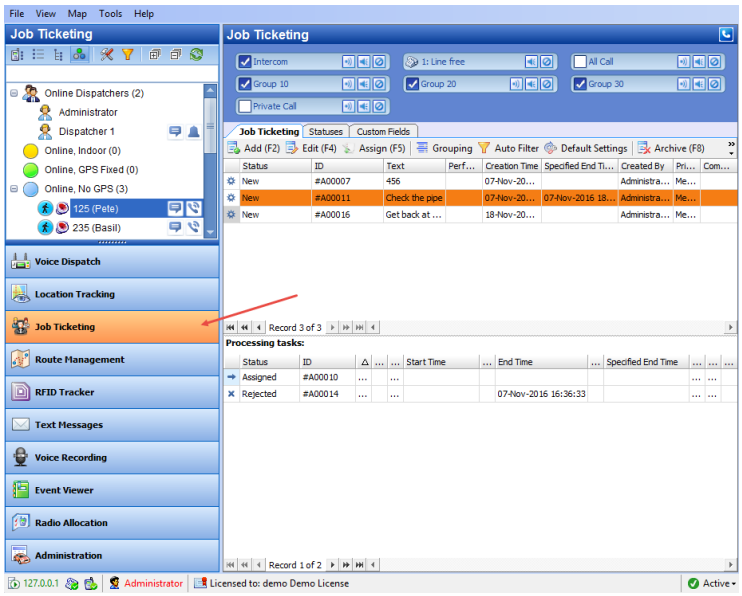
- **Block incoming calls**
  Select this option to block all incoming SIP calls for the radio.
- **Block outgoing calls**
  Select this option to block all outgoing SIP calls for the radio.

6.6 Configuring 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.

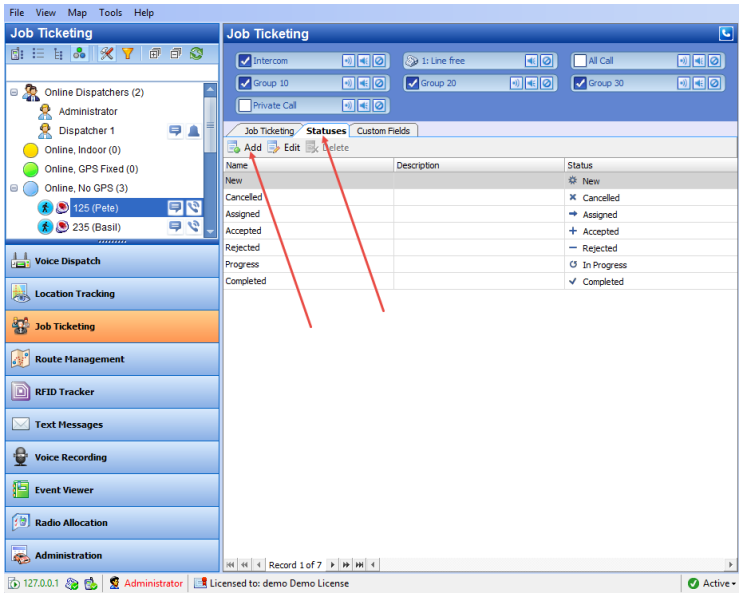
> Note: Before using the feature, make sure that your TRBOnet Dispatch Software license includes Job Ticketing.

- Click the **Job Ticketing** tab, and manage Job Tickets in the **Job Ticketing** pane.

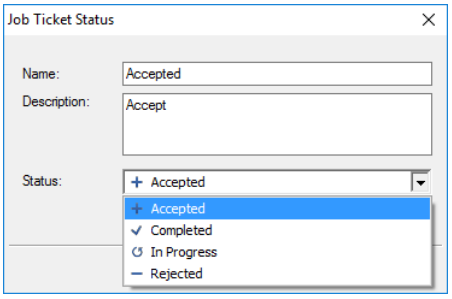


6.6.1 Adding a Status for Job Ticketing

- Click the **Statuses** tab to see the statuses available for job tickets.



- Click the **Add** button to add a Job Ticket status.



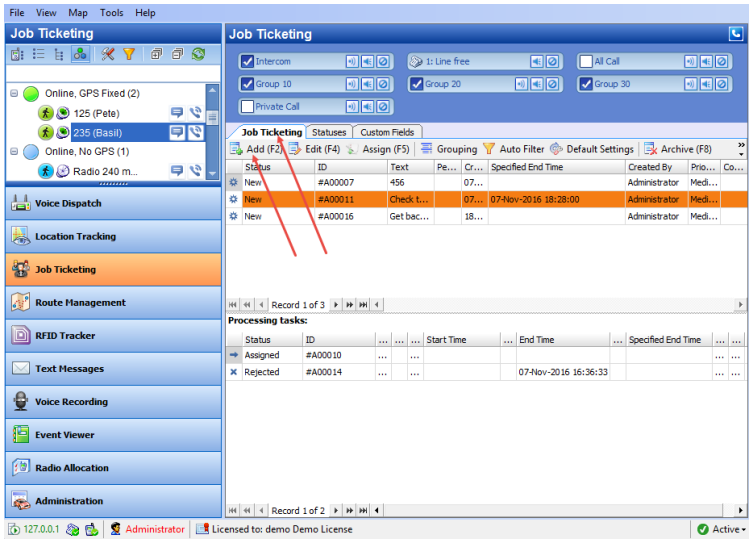
- **Name**
  Specify a Job Ticket status name to display in the system.
- **Description**
  Add a description for the job ticket status.
- **Status**
  From the drop-down list, select the Job Ticket status.

Note: Specify a Job Ticket status name according to the following compliance table, so that Job Tickets are identified by radio:

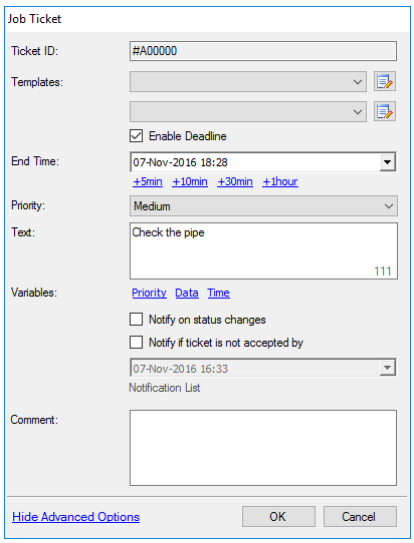
Name	Status
Accepted	Accepted
Rejected	Rejected
In Progress	In Progress
Completed	Completed

6.6.2 Adding a Job Ticket

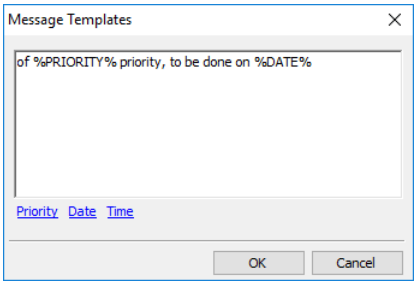
- Click the **Job Ticketing** tab to see the created job tickets.



- Click the **Add** button to create a job ticket.



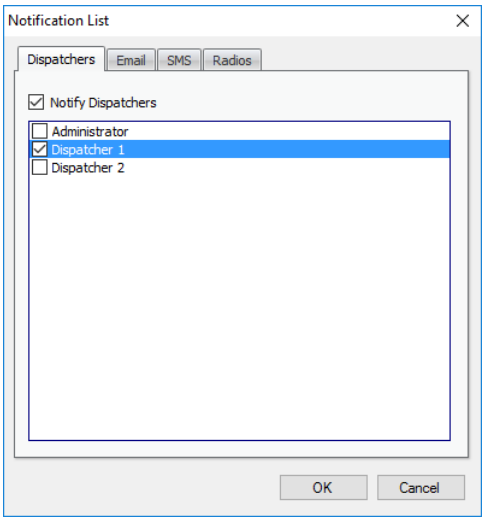
- **Ticket ID**
  This value will be set automatically once the ticket has been created.
- **Templates**
  From the drop-down list, select a template for the Job Ticket.
  - Click the  button to create a template.



    - Enter the template text. You can also add:

- ✓ **Priority**
  Click this link to add the task priority to the text.
- ✓ **Date**
  Click this link to add the date to the text.
- ✓ **Time**
  Click this link to add the time to the text.

- **Enable Deadline**
  Select this option and in the **End Time** box, specify the date and time on which to finish the task.
- **Priority**
  From the drop-down list, select the task priority.
- **Text**
  Enter the text message in this box.
- **Notify on status changes**
  Select this option to send notifications when Job Ticket status changes to dispatchers, Email and/or SMS groups.
- **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.

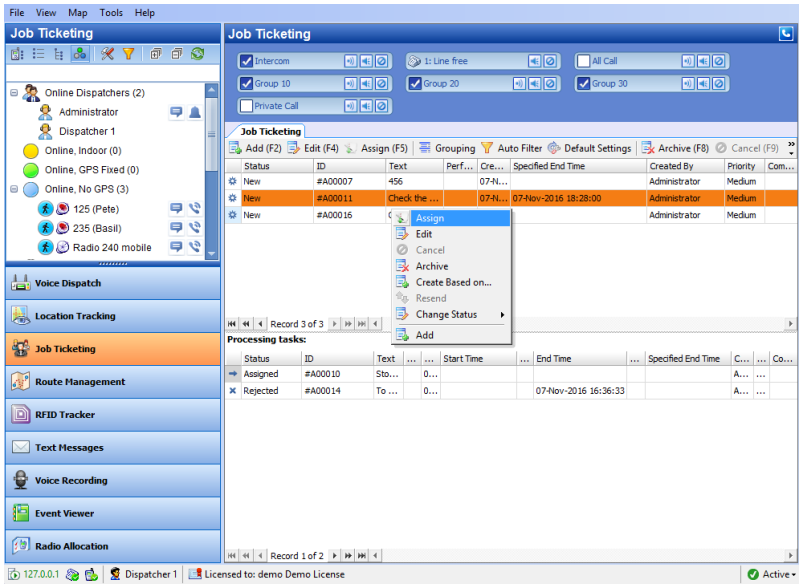


You can notify dispatchers with the help of notifications in the Dispatch Console (on the **Dispatchers** tab, check **Notify Dispatchers**, and select dispatchers), Email groups by sending Emails to dedicated Email groups (click the **Email** tab, check **Notify by Email**, and select Email groups) and phone users by sending SMS to dedicated SMS groups (clcik the **SMS** tab, check **Notify by SMS**, and select SMS groups).

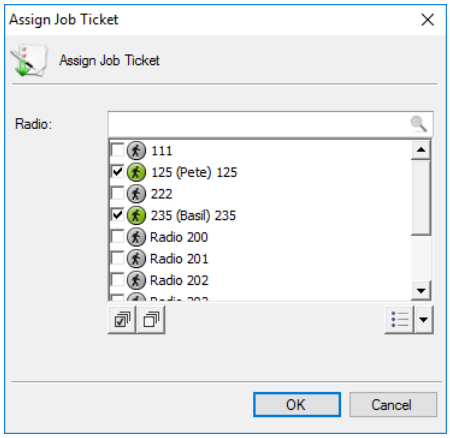
- **Comment**
  Add a comment for the task.

6.6.3 Assigning a Job Ticket

- Select the job ticket in the list, and click the **Assign** button.
  Or, right-click the job ticket and choose **Assign**.



In the dialog box that opens:

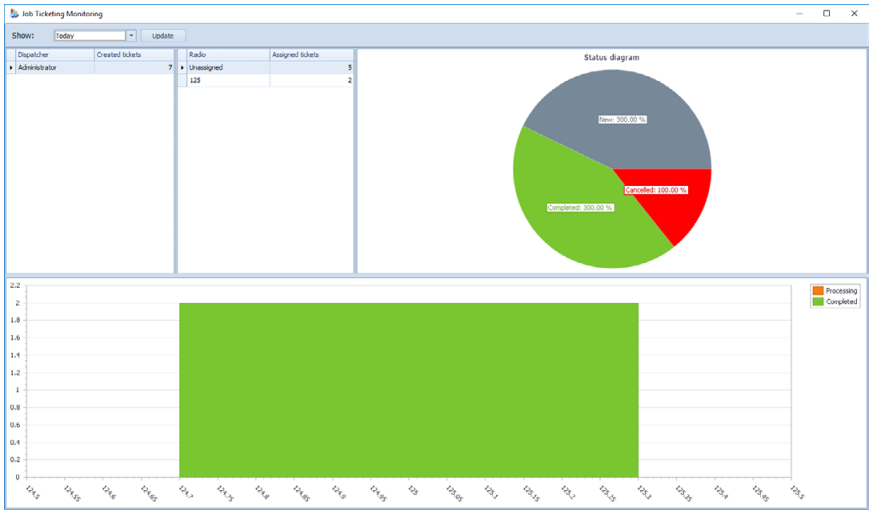


- In the list, select a radio, radio or logical group to which to assign the job ticket.
- Click **OK** to assign the task to selected radio(s).

  As a result, the selected radio will receive the job ticket.

6.6.4 Viewing Job Ticketing Statistics

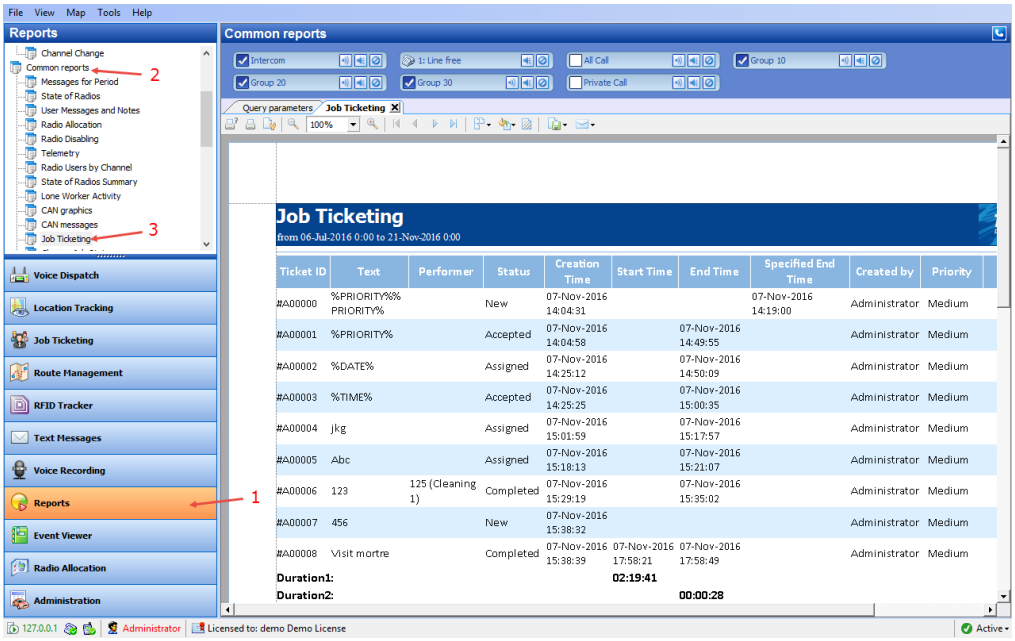
- On the **Tools** menu, click **Job Ticketing Monitoring** to see the Job Ticketing statistic diagram:



For more details on the statistics, see Job Ticketing Monitoring.

6.6.5 Viewing Job Ticketing Reports

- To view a job ticketing report, go to **Reports** (1), and select **Common Reports** (2) – **Job Ticketing** (3).
- On the **Common reports** pane, click the **Query parameters** tab, and specify the appropriate parameters and then click **Generate Report**.
- Click the **Job Ticketing** tab to see the generated report.

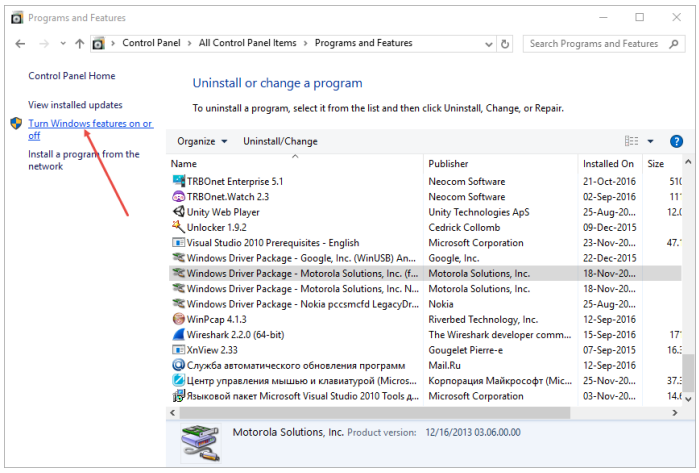


7 Installing Web-Console

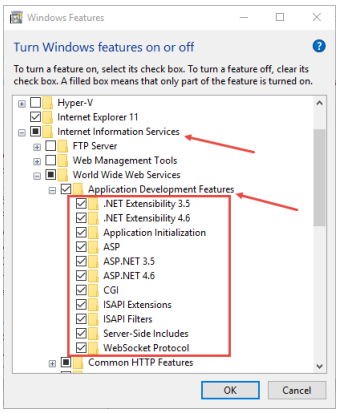
The Web Console is a special interface to connect to TRBOnet Server and monitor subscriber radios using a regular Web browser on any device. For more details on Web Console interface, see **User Guide,** section **Web Console User Manual**.

7.1 Installing Web Console

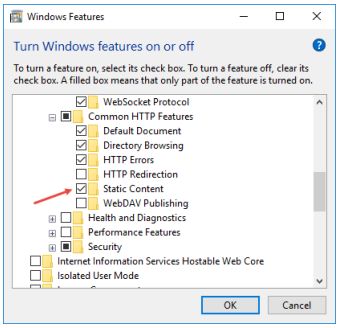
- Click **Start>Control Panel>Programs and Features**.
- Click the **Turn Windows features on or off** link.



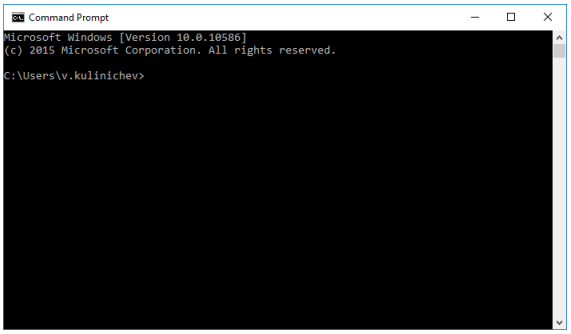
- Go to **Internet Information Services>World Wide Web Services>Application Development Features**, and make sure all of them are selected:



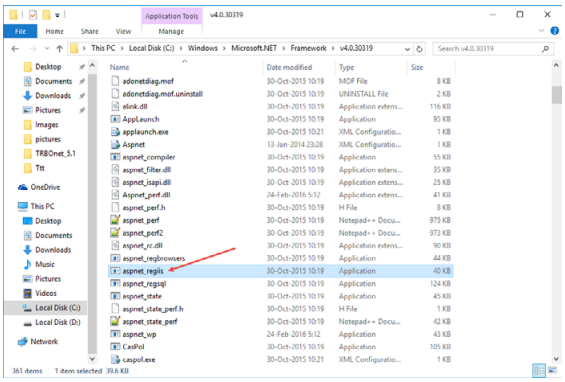
- Also, make sure that **Common HTTP Features>Static Content** is selected.



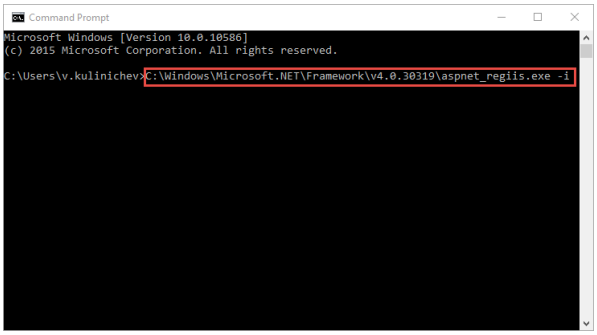
- Restart your PC.
- Click **Start>All Programs>Accessories>Command Prompt**.



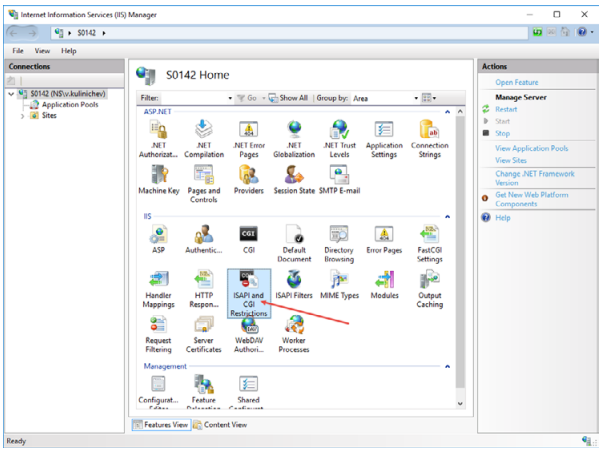
- Go to **This PC>Local Disk (C:)> Windows > Microsoft.NET > Framework > v4.0.30319/aspnet_regiis**.



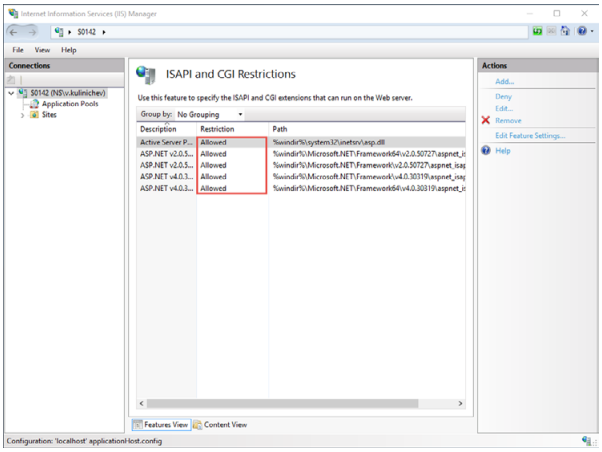
- Drag the **aspnet_regiis** file into the **Command Prompt** then press the space bar and add the **-i** key. Then press the **Enter** key:



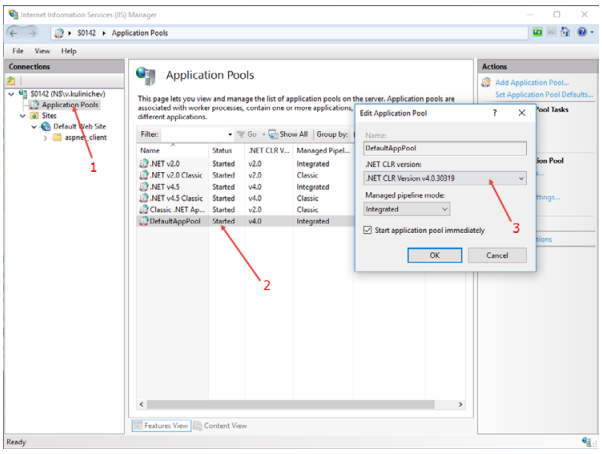
- Go to **Control Panel > Administrative Tools**.
- Double-click the **Internet Information Services (IIS) Manager** shortcut and double-click **ISAPI and CGI Restrictions**.



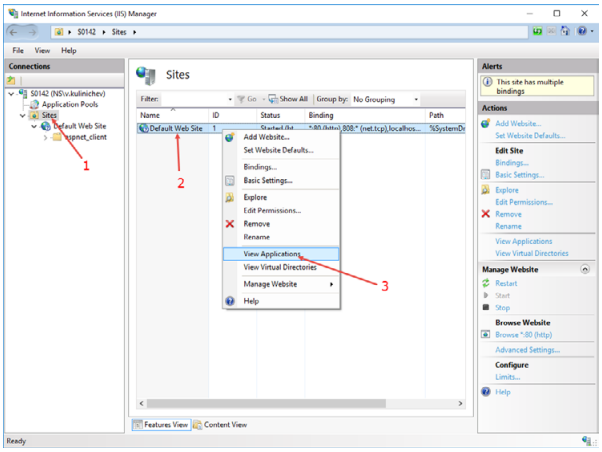
- In the **Restriction** column, set **Allowed** in all lines.



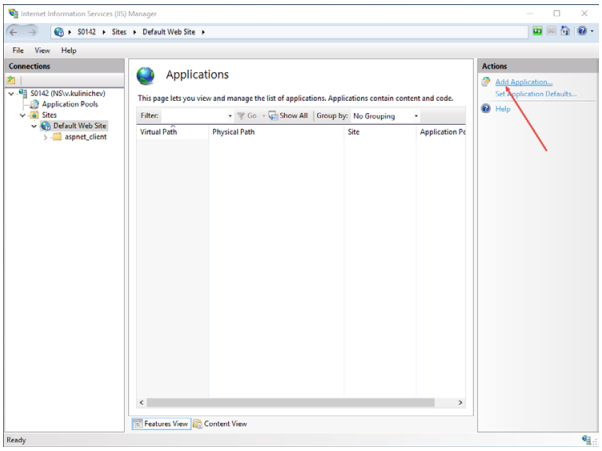
- Copy the Web Site archive **WebConsole** to **Computer > Local Disc (C:) >inetpub** to create a folder for the Web Console.
- Go to **Application Pools** (1). Double-click **DefaultAppPool** (2) and check the **.Net CLR Version** (3):



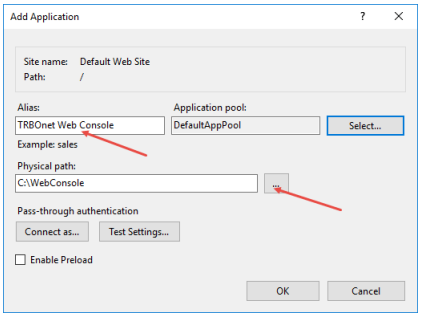
- Click **Sites** (1), right-click **Default Web Site** (2) and choose **View Applications** (3):



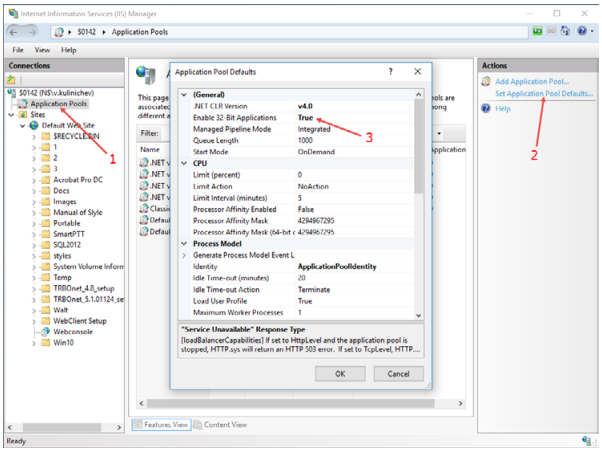
- Click the **Add Application** link.



- Specify the **Alias** and **Physical path** for the application:

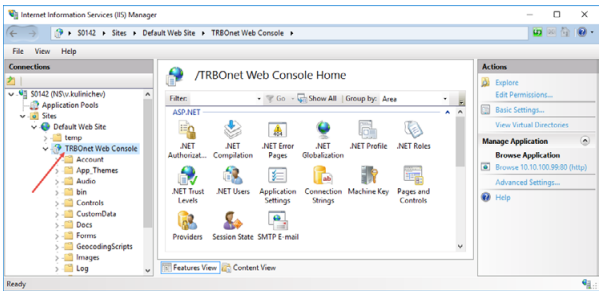


- Browse for the folder with unarchived Web Console.
- Click **OK**.
- Select **Application Pools** (1) and click the **Set Application Pool Defaults** link (2):



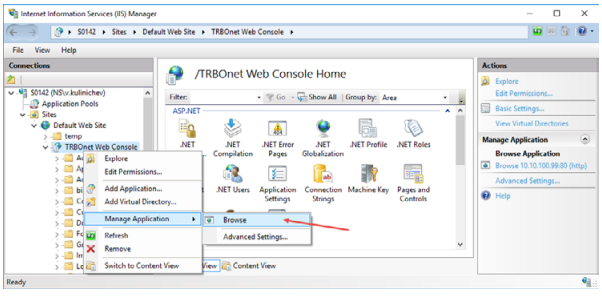
- Set **Enable 32-Bit Applications** to True (3).

  The Web Console will be added as an application to under the Default Web Site:

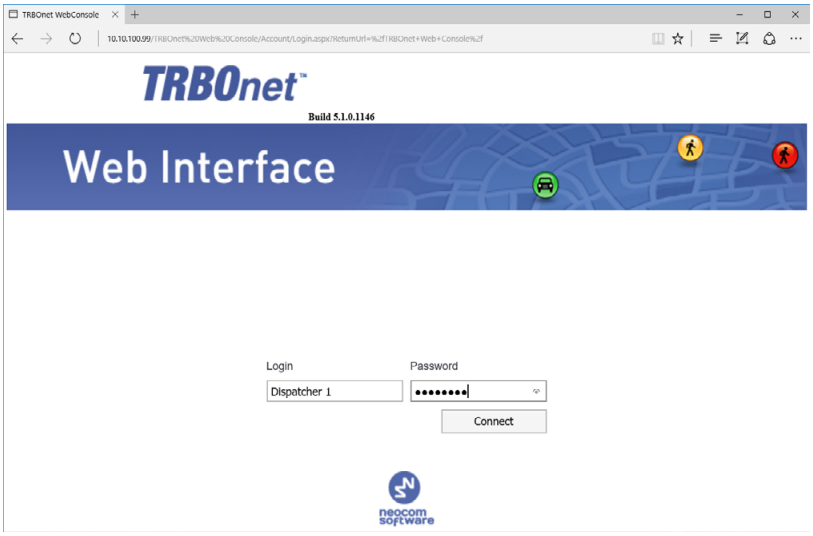


Note: Make sure your account has sysadmin privileges and the database connection is successful (see Database Authentication section).

To open Web Console, right-click your application, choose **Manage Application > Browse.**



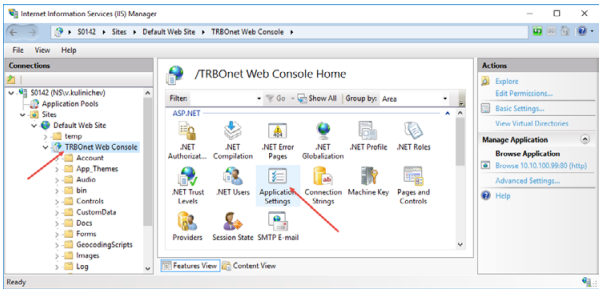
TRBOnet Web Console is now ready for operation:



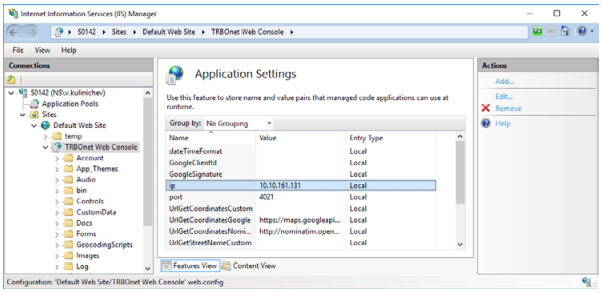
- Enter the **Login** and **Password**, and click **Connect**.

7.2 Configuring Web Console

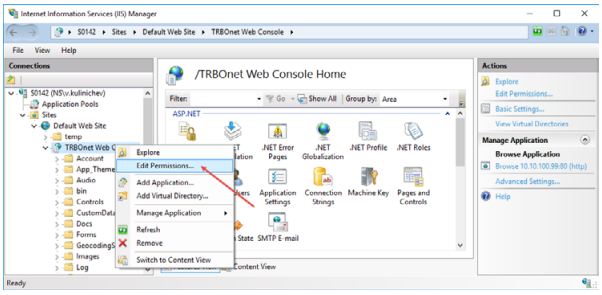
- If TRBOnet Dispatch Console is not installed on your PC, select the application and click **Application Settings**:



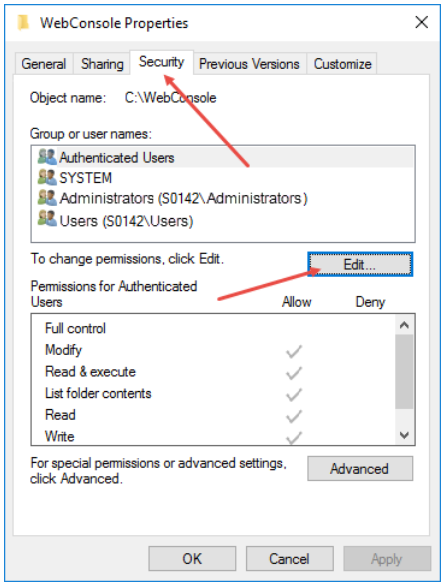
- Specify the **IP address** and **Port** of the PC with TRBOnet Dispatch Console installed:



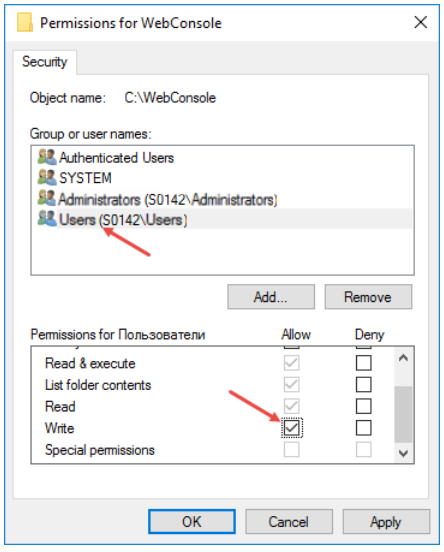
- Right click **TRBOnet Web Console** and choose **Edit Permissions**.



- 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**.

Appendix A: Backing up and Restoring Database and Audio Recordings

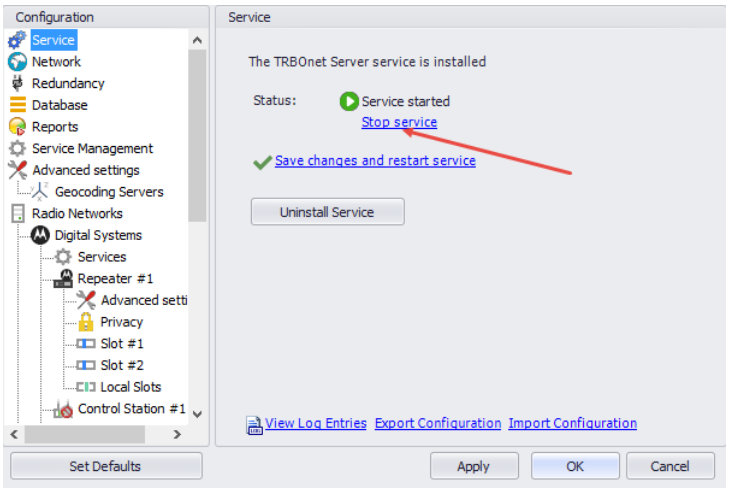
Configure Backup

TRBOnet Dispatch Software has an embedded mechanism for database and audio recordings backup. Initially, it already has two paths to store database and audio recordings:

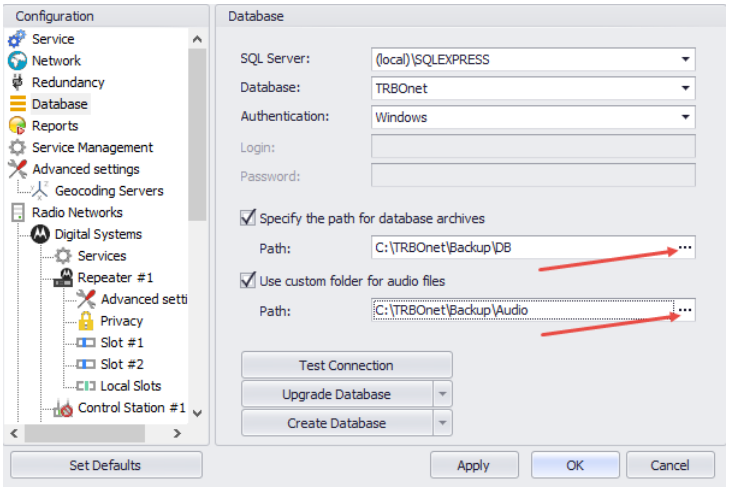
%ProgramData%\Neocom Software\TRBOnet.Plus\Backups and **%ProgramData%\Neocom Software\TRBOnet.Plus\Audio**.

For your convenience, the default paths can be changed:

- Open TRBOnet Server and stop the TRBOnet Server service.



- To customize backup folders, go to **Database** and select custom directory for the database (e.g. **C:\TRBOnet\Backup\DB**) and audio files (e.g. **C:\TRBOnet\Backup\Audio**). The database backups will be stored to selected directories.

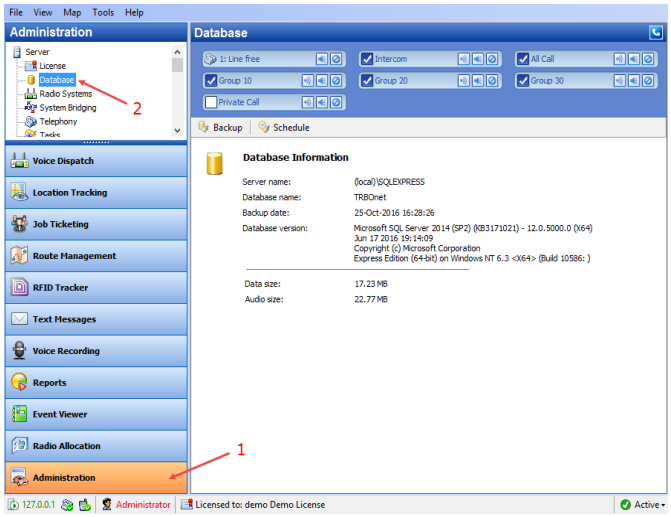


- Save your changes and restart the service.

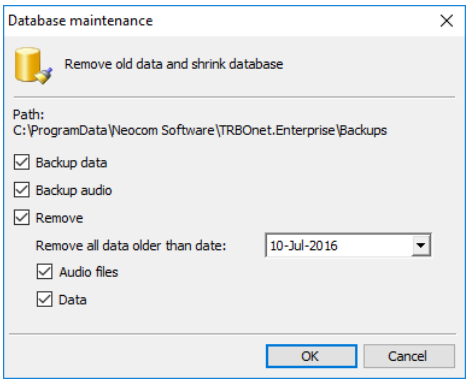
Back up Database and Audio Recordings

To back up the database and audio recordings, do the following:

- In the Dispatch Console go to **Administration** section and select **Database** in the Navigation tree.
- Click the **Backup** button:



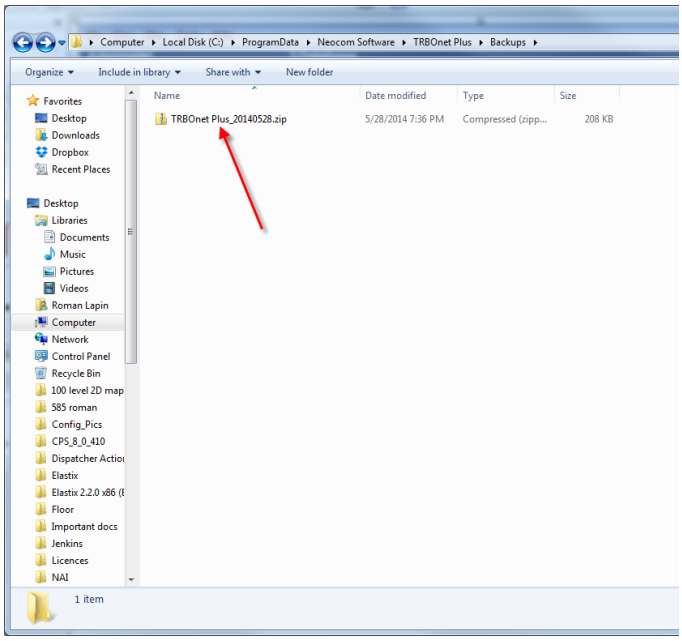
- Specify the backup details:



  - **Backup 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.

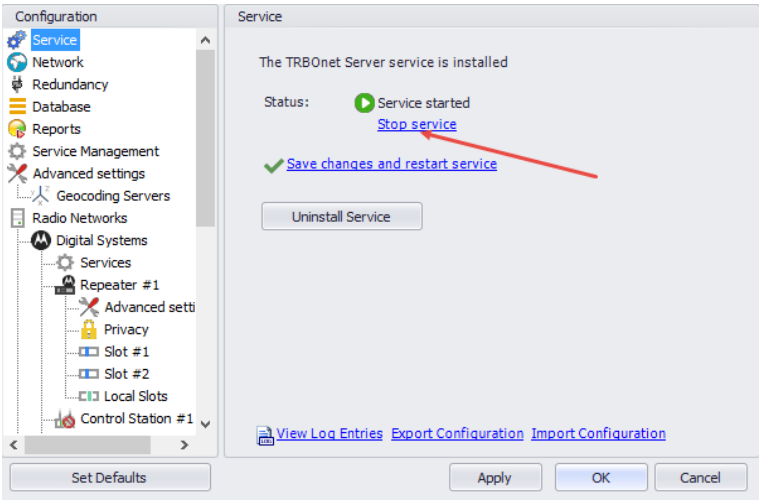
4. In a while, a ZIP archive will be created in two possible directories:
   - The default directory is **%ProgramData%\Neocom Software\TRBOnet.Plus\Audio** for Audio files and **%ProgramData%\Neocom Software\TRBOnet.Plus\Backups** for backup files.
   - The custom directory is specified in TRBOnet Server settings.
5. 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.



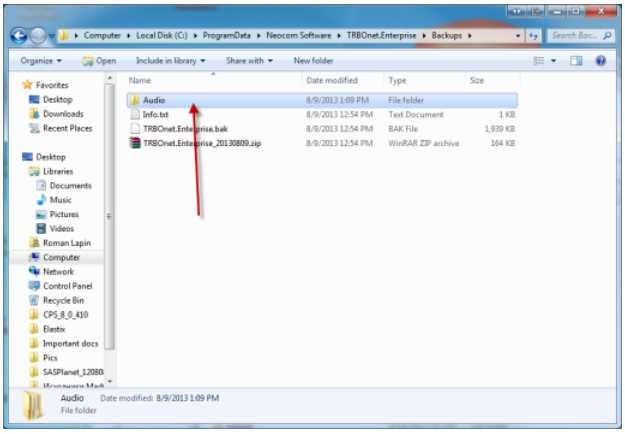
Restore Database

To restore the database

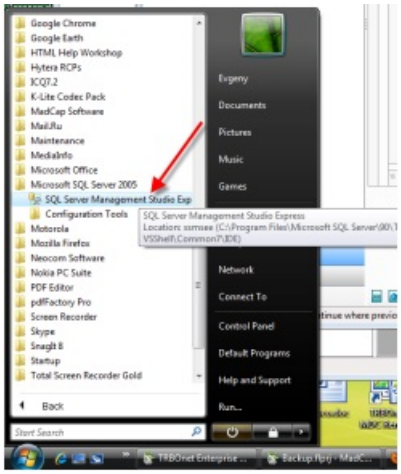
- Open TRBOnet Server and stop the TRBOnet Server service.



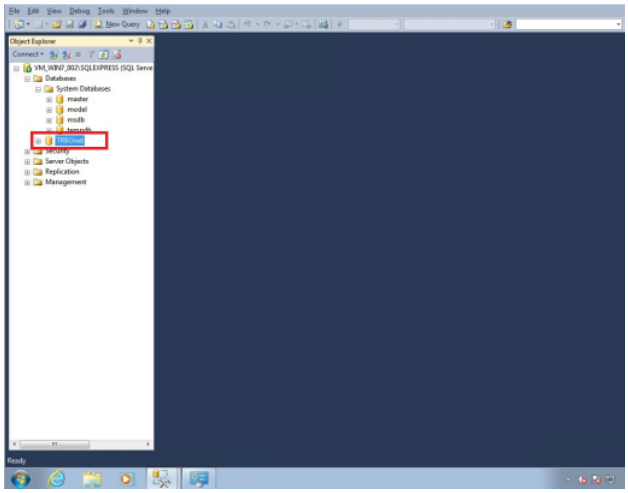
- Unzip the backup archive and open the folder:



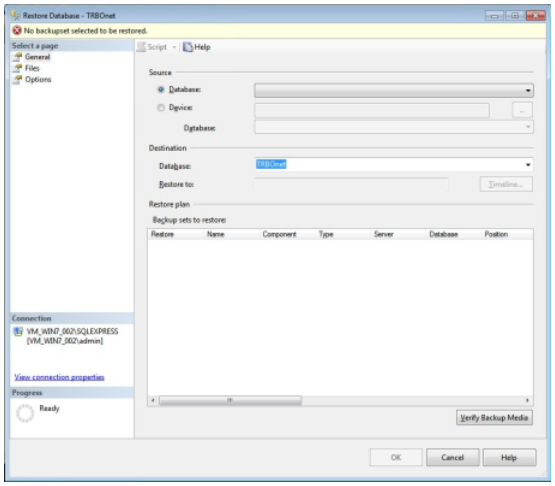
- Run **SQL Server Management Studio Express** with sufficient rights to manage databases.



- Select **Database** in the navigation tree (e.g. **TRBOnet**):

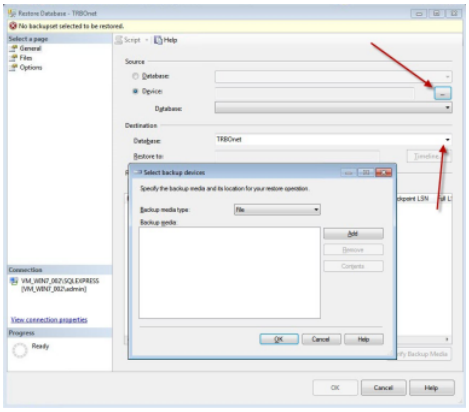


- Right-click the selected database, and go to **Tasks**/**Restore**/**Database**:

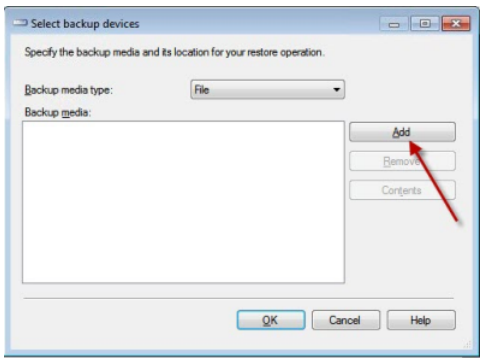


Select Database backup properties:

- In the **Destination** group, type in or select **Database** name to back up to from the drop-down list (e.g. **TRBOnet**).
- In the **Source** group, click **Device**.
- Click **...** to select the directory with database backup:

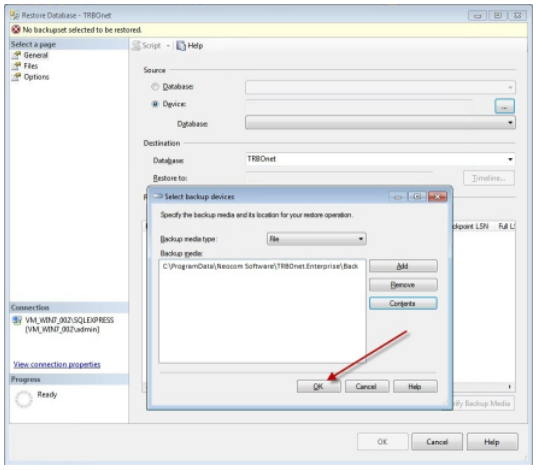


- Click **Add** and select the directory to which you unarchived the database backup (e.g., **C:\TRBOnet\Backup\DB**).



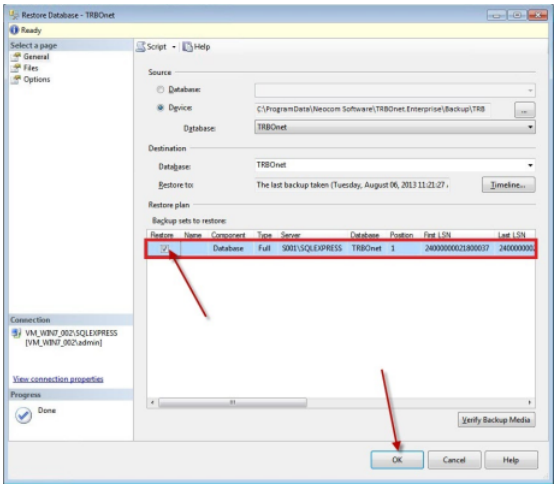
Note: Select the *.**bak** file type.

- Click **OK** to add the directory.

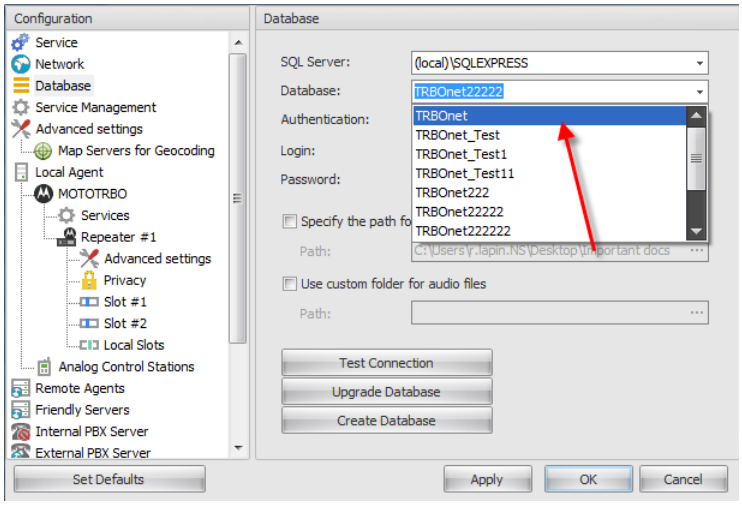


- Click **OK**.

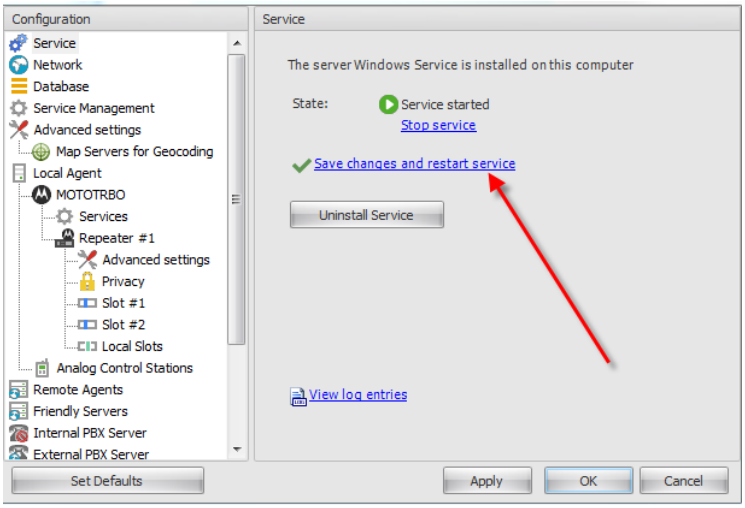
  The database is added to the list of restored databases.



- 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.



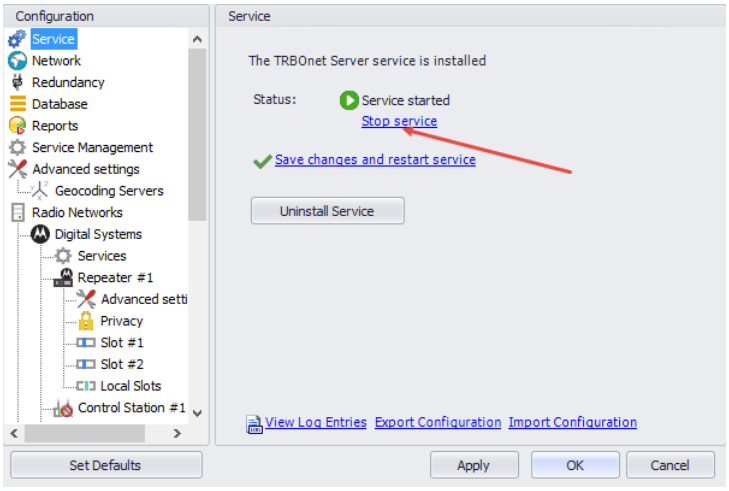
- Click **Test Connection** to check the connection to the database.
- Click **Upgrade Database** to upgrade the database if the current database was restored from the database version lower than current.
- Click the **Save changes and restart service** link.



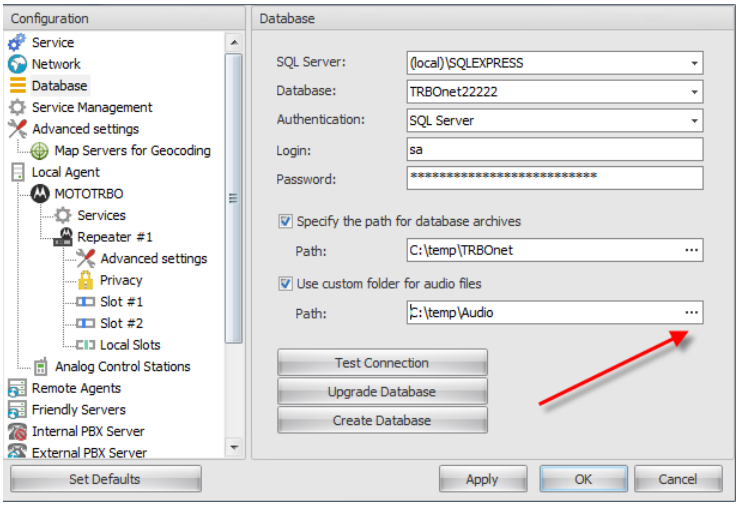
Restore Audio Recordings

To restore the audio file:

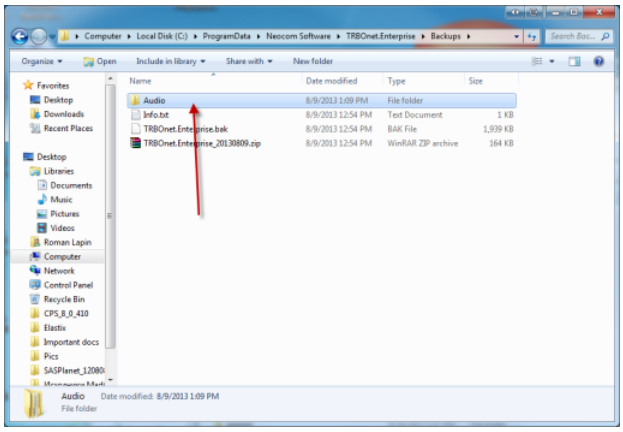
- Launch TRBOnet Server and stop the TRBOnet Server service.



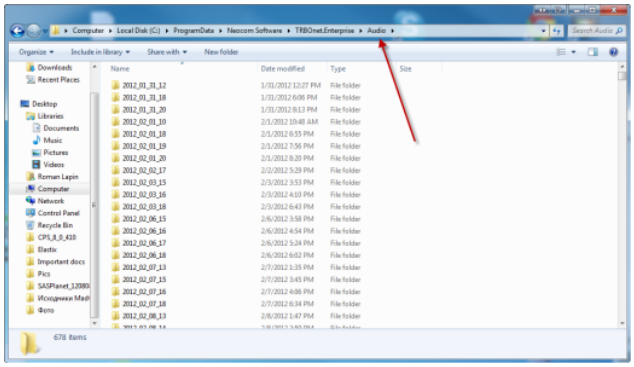
- Go to **Database** section in the navigation tree and specify custom directory for audio files (e.g. **C:\TRBOnet.Plus\Backup\Audio**).



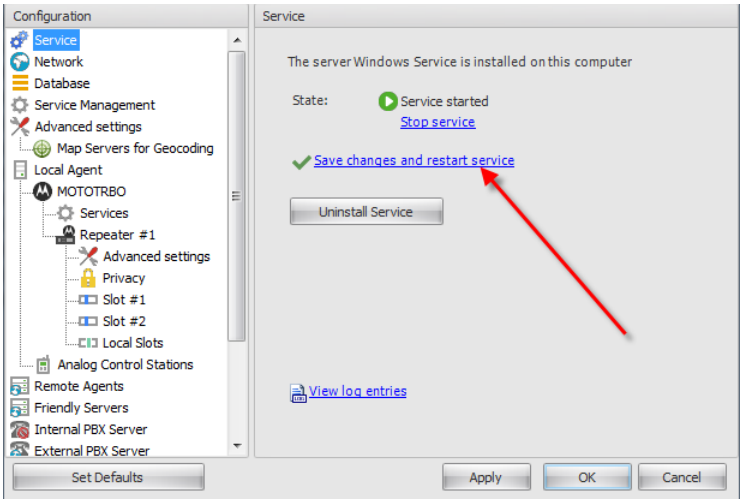
- Go to the directory you specified to store backup audio files.
- Unzip the backup archive:



- Copy unarchived audio files to the folder specified in TRBOnet Server settings (e.g., **C:\ProgramData\TRBOnet Dispatch Software \Audio**):



- Click the **Save changes and restart service** link.

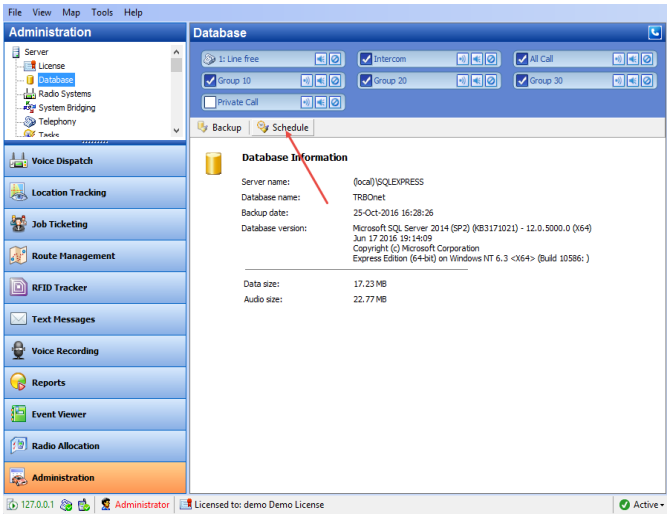


Thus, the audio files are restored.

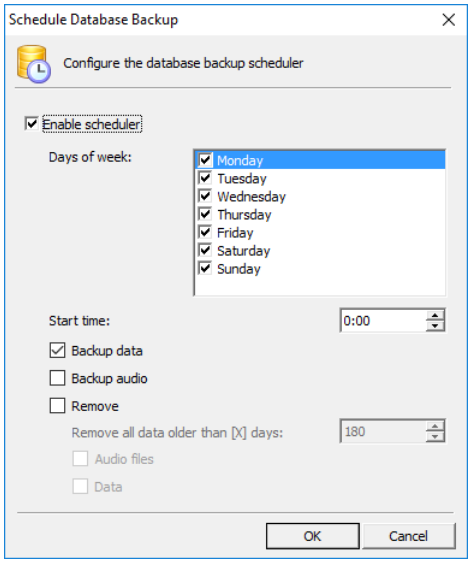
Schedule Backups

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** button:



- In the dialog that opens, specify the Backup details:



- **Enable scheduler**
  Check to enable the database backup scheduler.
- **Days of week**
  Select the days of the week on which to back up the database.
- **Start time**
  Enter the start time for database backup.
- **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 B: 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 Server

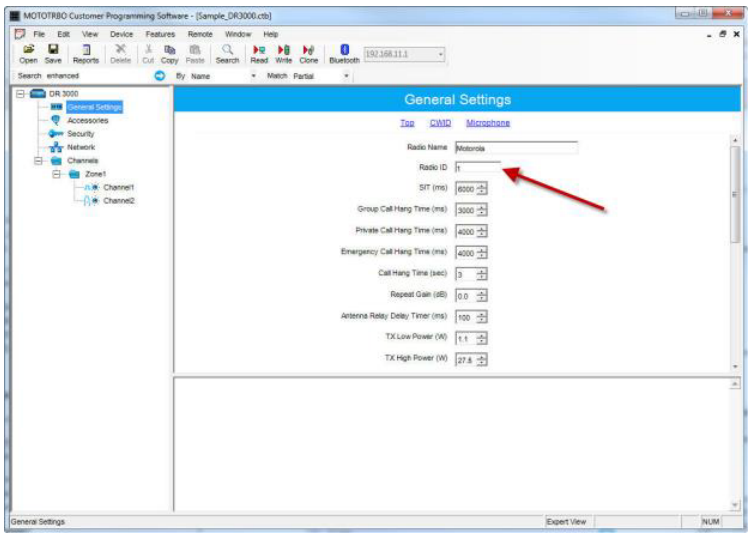
TRBOnet Server requires a specific setup for a repeater in the IP Site Connect mode as well as for SIP in order to make the phone system work properly.

Open TRBOnet Server, and go to **SIP Interconnect / Advanced Settings** page:

Set DTMF Access Code to **0** and DTMF Deaccess Code to **#**.

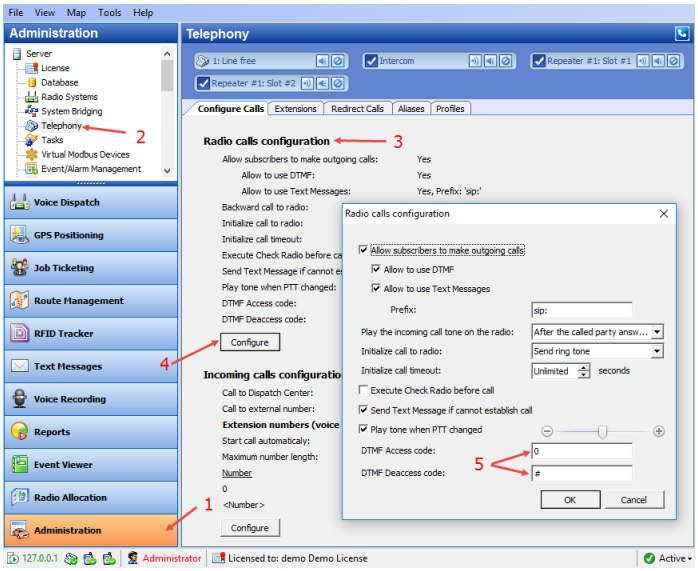
Note: Mototrbo Phone System is available for repeaters in IP Site Connect mode. For a system based on the control stations, use TRBOnet Phone System.

Launch **Mototrbo CPS** and go repeater **General Settings** page:



The Radio ID of actual repeaters in CPS must differ from the TRBOnet Peer ID. TRBOnet Dispatch Console acts as another virtual peer repeater with Peer ID (e.g. IPSC network consists of 1 master and 3 peers. The repeaters' IDs (Radio IDs in CPS code plugs for repeaters) in this case would be 1, 2, 3, 4. The TRBOnet peer ID must differ from all the repeaters (the master and all peers), otherwise a conflict will happen in the network as peers have the same ID). The TRBOnet Peer ID is 64250.

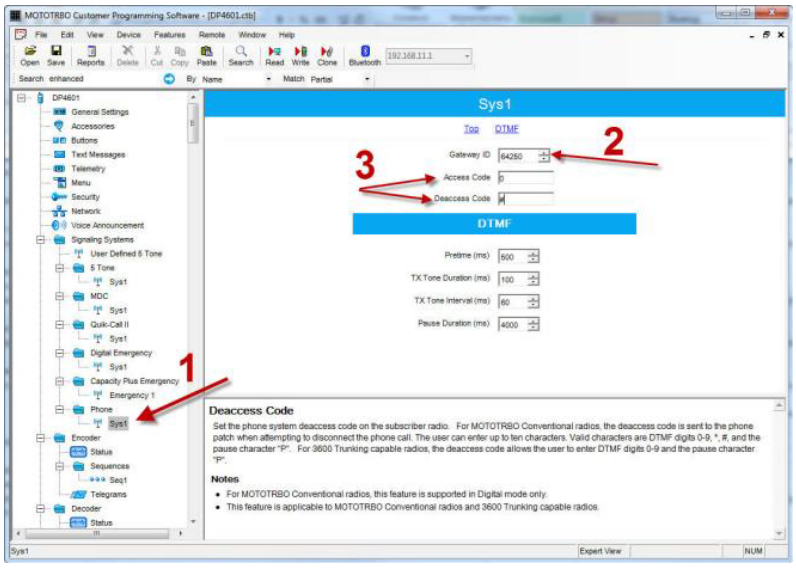
1. Open TRBOnet Dispatch Console. Go to **Administration** (1), **Telephony** (2), **Radio calls configuration** (3) – **Configure** (4) and set **DTMF Access** and **DTMF Deaccess codes** (5) to **0** and **#**, respectively:



Programming Radios

A special setup is required for radios in MOTOTRBO CPS.

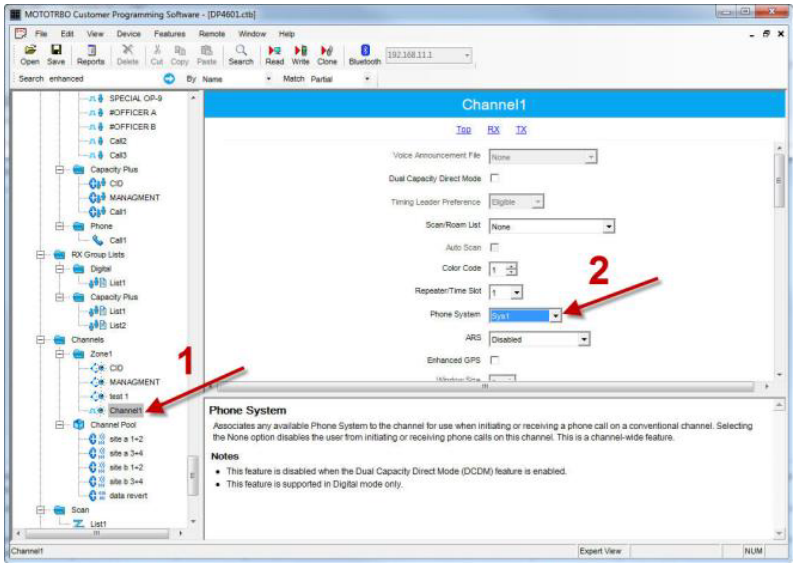
Read a subscriber's radio in CPS and go to **Phone Systems (1):**



Make sure that **Gateway ID** (2) is equal to repeater Slot IDs in TRBOnet Server as well as to TRBOnet Peer ID in TRBOnet Server.

Set DTMF Access Code to **0** and DTMF Deaccess Code to **#**, respectively (3).

Go to **Repeater/Channels** (1) and specify the phone system you have set up (2):


MOTOTRBO Customer Programming Software - [DP4601.ctb]
Channel1
Phone System
Associates any available Phone System to the channel for use when initiating or receiving a phone call on a conventional channel. Selecting the None option disables the user from initiating or receiving phone calls on this channel. This is a channel-wide feature.
Notes
This feature is disabled when the Dual Capacity Direct Mode (DCDM) feature is enabled.
This feature is supported in Digital mode only.
1
2