

# TRBOnet Option Board Configuration Guide

Version 1.9.0

## World HQ

Neocom Software  
8th Line 29, Vasilyevsky  
Island,  
St. Petersburg, 199004,  
Russia

## USA Office

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

## Sales

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

[www.trbonet.com](http://www.trbonet.com)

[info@trbonet.com](mailto:info@trbonet.com)

## Notices

This document is for informational purposes only. Neocom software, Ltd offers no warranties, express or implied, in this document.

Neocom and the Neocom logo, TRBOnet and the TRBOnet logo are either registered trademarks or trademarks of Neocom software, Ltd.

MOTOROLA, MOTO, MOTOROLA SOLUTIONS and the Stylized M logo are trademarks or registered trademarks of Motorola Trademark Holdings, LLC.

Microsoft, Windows, SQL Server and the .NET logo are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other jurisdictions.

Other product or company names mentioned herein may be trademarks of their respective owners.

© 2021 by Neocom Software, Ltd. All rights reserved.

Last revised on December 7, 2021.

# Contents

- 1 Introduction ..... 1
  - 1.1 Features and Benefits ..... 1
  - 1.2 Supported Option Boards ..... 1
  - 1.3 Supported Radio Systems ..... 1
- 2 Configuring Option Board ..... 2
  - 2.1 Preparing Option Board ..... 2
  - 2.2 Configuring Event Logic ..... 2
    - 2.2.1 Activating Features..... 3
    - 2.2.2 Report Profiles ..... 4
    - 2.2.3 Regions..... 7
    - 2.2.4 iBeacon-based Tracking ..... 9
    - 2.2.5 Security Tokens..... 11
    - 2.2.6 Dynamic Channel Selection..... 12
    - 2.2.7 Custom Menu ..... 13
    - 2.2.8 Rules ..... 14
    - 2.2.9 Scenarios..... 24
  - 2.3 Mass Configuration..... 25
- 3 Voice Recording ..... 27
- 4 Configuring TRBOnet Enterprise ..... 28
  - 4.1 TRBOnet Server ..... 28
  - 4.2 TRBOnet Dispatch Console..... 29
- 5 Using Option Board Features in Dispatch Console..... 30
  - 5.1 Battery Status ..... 30
  - 5.2 Downloading Location Data..... 31
  - 5.3 Automatic Data Retrieval..... 32
  - 5.4 Automatic Voice Download ..... 33

# 1 Introduction

The software is designed to work with both TRBOnet and Motorola's generic option boards. You can easily configure safety-related alarms such as Man Down or No Movement, use the Store and Forward technique for GPS data or even Geofencing alarms specific to this particular radio. It works seamlessly with TRBOnet Enterprise or Plus, but it can also run in the standalone mode.

## 1.1 Features and Benefits

- Frequent Location Updates
- Efficient Channel Usage
- Fast iBeacon Detection
- Geofencing
- GPS Store and Forward
- Seamless Tracking
- Battery Status
- Voice Recording
- Dynamic Channel Selection

## 1.2 Supported Option Boards

- Generic option board (GOB) by Motorola (the memory capacity is 8 MB)
- Swift option board by Neocom (the memory capacity is 512 MB)

## 1.3 Supported Radio Systems

- Direct Mode
- IP Site Connect
- Capacity Plus (Capacity Plus Single Site)
- Linked Capacity Plus (Capacity Plus Multi Site)
- Capacity MAX

## 2 Configuring Option Board

This section describes how to configure the option board with TRBOnet Swift CPS.

Notes: Make sure the Option Board capability is enabled on the radio channels (*MOTOTRBO CPS > Channels > Zone > Channel > Option Board*).

In addition, make sure that the Enhanced GNSS feature is disabled on the radio channels.

### 2.1 Preparing Option Board

- Connect a radio unit equipped with a Swift option board (or Motorola GOB) to the PC using a USB port.
- Run TRBOnet Swift CPS.
- Make sure that the **Enable changing device mode** option is set to ON (**Tools > Options**).
- Expand the **Connection** menu and click **USB**.
- On the **Device** menu, click **Read**, or click the **Read** button on the toolbar.  
Or:
- On the **File** menu, click **Open Sample**.
  - In the folder, click the sample file intended for your type of device. Click **Open**.
- In the **Device Information** pane, click **Update Firmware**.
- In the **Firmware update** window, open the **Update to** menu and click the firmware version to which the device will be updated.

### 2.2 Configuring Event Logic

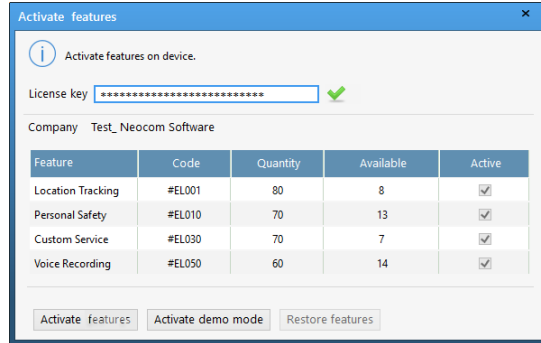
This section describes how to configure Swift Logic parameters.

Once you have finished configuring required Swift Logic parameters:

- On the **Device** menu, click **Write**, or click the **Write** button on the toolbar.

### 2.2.1 Activating Features

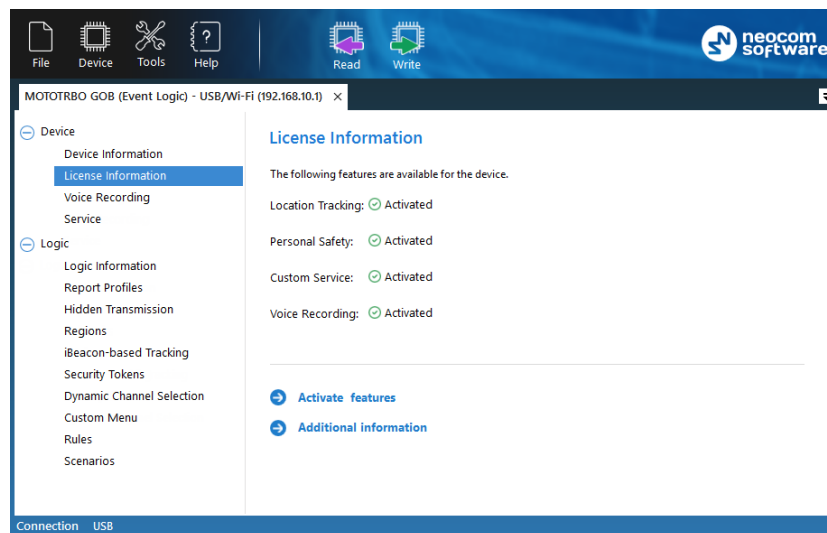
- In the left pane, click **Device > License Information**.
- In the right pane, click **Activate features**.



- In the **Activate features** window, enter the license key.

Notes: To obtain the license key, contact your Neocom sales representative.  
Your PC must be connected to the Internet when you click the **Check** button.

- If the license key is valid, the **Activate features** window displays all features included into the license.
- Click the **Activate features** button.
  - The **Location Tracking** license allows the option board to receive GPS and iBeacon location data from the radio.
  - The **Personal Safety** license allows the option board to use accelerometer to provide personal safety features.
  - The **Voice Recording** license allows the option board to receive voice recording data from the radio.

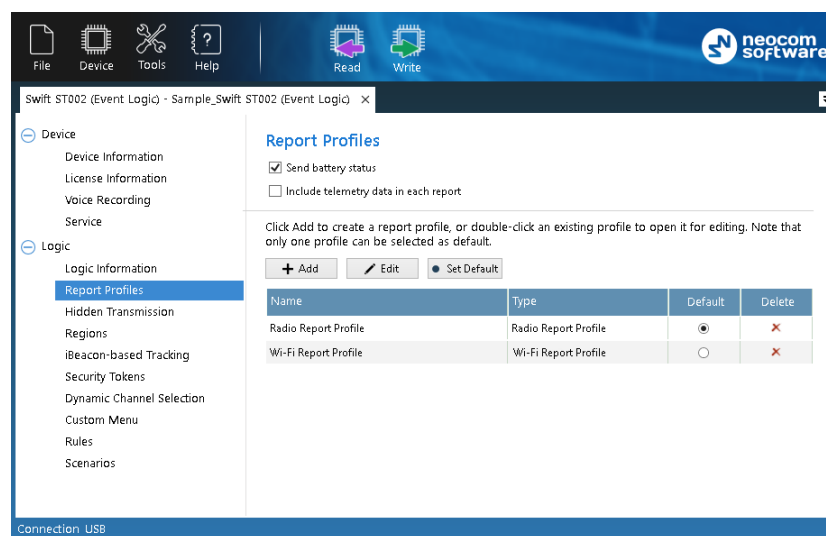


## 2.2.2 Report Profiles

If configured accordingly, a device can collect incoming information in the memory, create data sequences (reports), and send them to TRBOnet Server over a radio channel or via a Wi-Fi connection. Reports typically include the current location of a connected radio and telemetry from the input pins.

Report profiles determine what kind of information is sent to the server and how often. You can create as many profiles as necessary. One profile must be indicated as default. The default profile is loaded to the device memory at startup.

To configure report settings, click **Report Profiles** in the **Logic** section of the navigation pane.



The **Report Profiles** tab displays all profiles with report settings.

- **Send battery status**  
Select this option so that the radio will include battery status each time it changes, in a report.  
See also [5.1, Battery Status](#).
- **Include telemetry data in each report**  
Select this option so that the radio will include telemetry data in each report.

In the default configuration, there are two predefined report profiles: **Radio Report Profile** and **Wi-Fi Report Profile**.

You can manage report profiles as described below.

### To create a profile:

- Click **Add**. On the drop-down menu, click either **Radio Report Profile** or **Wi-Fi Report Profile**.
- In the **Radio Report Profile/Wi-Fi Report Profile** specify the report settings as described in section [2.2.2.1, Editing Report Profile](#) (page 5).

- Click **OK**.

**To set a default profile:**

- Select the profile and click **Set Default**,  
or  
Click the appropriate radio button in the **Default** column.

**To edit a profile:**

- Select the profile in the list and click **Edit**,  
or double-click the profile.
- Edit the report settings as described in section [2.2.2.1, Editing Report Profile](#) (page 5).
- Click **OK**.

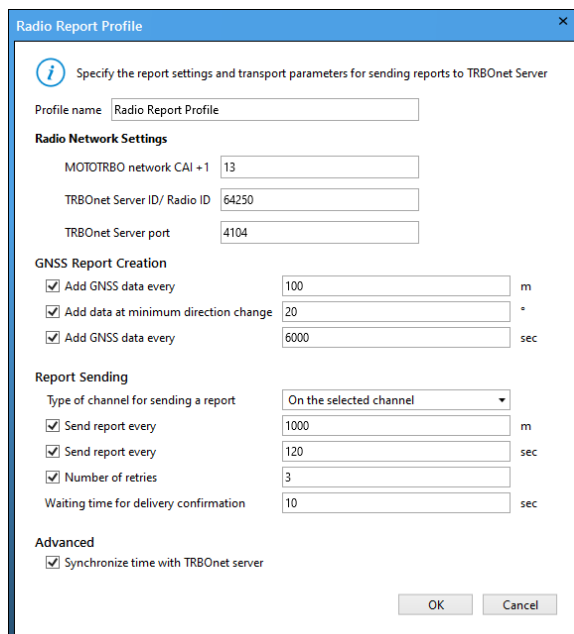
**To delete a profile:**

- Click the appropriate **Delete** icon (✖) in the Delete column.  
The profile will be deleted and cannot be restored. If you delete the default profile, the last profile in the list will become the default one.

Note: You cannot delete the last remaining profile.

### 2.2.2.1 Editing Report Profile

Specify the report settings in the **Report Profile** window. Click **OK** to save the profile.



- **Profile name**  
Enter the name of the report profile.

Depending on the selected Report Profile type (Radio or Wi-Fi), you will see the corresponding network settings:



### Radio Network Settings

- **MOTOTRBO network CAI +1**  
The MOTOTRBO network identity (CAI) increased by 1. This increment is required to send data to TRBOnet Server. Example: If MOTOTRBO CPS defines the network CAI 12, enter 13.
- **TRBOnet Server ID/Radio ID**  
The unique radio ID of TRBOnet Server in the MOTOTRBO network.
- **TRBOnet Server port**  
The port of the PC where TRBOnet Server is running (4104, by default).

Or:

### Wi-Fi Network Settings

- **Device ID**  
Enter the Radio ID of the radio equipped with the option board being configured.
- **TRBOnet Server IP**  
The IP address of the PC where TRBOnet Server is running.
- **TRBOnet Server port**  
The port of the PC where TRBOnet Server is running (4180, by default).

### GNSS Report Creation

- **Add GNSS data every (m)**  
The GNSS data will be added to the report each time the specified distance (in meters) is traveled.
- **Add data at minimum direction change**  
The minimum direction change, in degrees, at which the GNSS data is added to the report.
- **Add GNSS data every (sec)**  
The GNSS data will be added to the report each time the specified time interval (in seconds) elapses.

### Report Sending

- **Type of channel for sending a report**  
From the drop-down list, select one of the following options:
  - **Do not send**  
Creating and sending GNSS reports is disabled.
  - **On the selected channel**  
The radio sends reports on the currently selected channel.
  - **On the data channel**  
The radio sends reports on the data channel.
- **Send report every (m)**  
The radio will send a report each time the specified distance (in meters) is traveled.

- **Send report every (sec)**  
The radio will send a report each time the specified time interval (in seconds) elapses. Note that in **Wi-Fi Report Profile**, the recommended value for this option is **6 sec**.
- **Number of retries**  
The number of retries for sending a report on the radio channel.
- **Waiting time for delivery confirmation**  
The time interval, in seconds, to wait for a delivery confirmation.

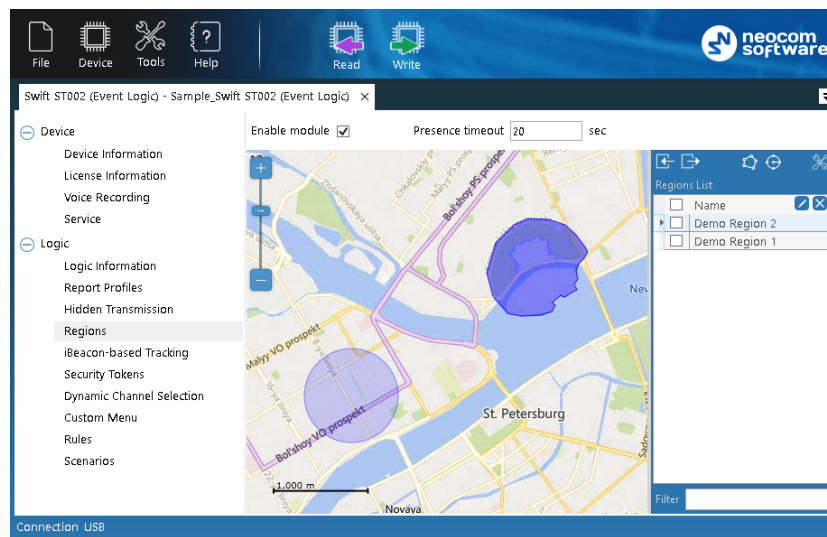
**Advanced**

- **Synchronize time with TRBOnet Server**  
Select this option so that time on the radio will be synchronized with TRBOnet Server.

**2.2.3 Regions**

The Event Logic rules use geographical regions as input parameters. A region is an area selected on the online map and given a unique name. You can add to the map any polygonal regions and circular regions with a maximum radius of 65 kilometers.

To define regions, click **Regions** in the **Logic** section of the navigation pane.



In the right pane, select the **Enable module** option.

In the **Presence timeout** box, specify the minimum duration of stay within (if entered) or out (if left) of the region. This value will be used for Geofencing events.

Regions appear on the map as colored areas. The region names are displayed in the right panel.

The following useful features will help you work with the map:


**To pan the map:**

- Keep the left mouse button pressed and move the mouse cursor to the required direction.

**To adjust the scale level:**


- Scroll the mouse wheel to zoom the map.

**To select a different map:**

- Click the **Edit Map Configuration** button () in the right panel.
- In the **Map Configuration** window, from the **Tile source** drop-down list, select the preferred map.
- Click **Apply**.


Note that in the offline mode, the map is loaded from cache.

**To select the cache folder:**


- Click the **Edit Map Configuration** button () in the right panel.
- In the **Map Configuration** window, click the **Browse** button next to the **Root cache directory** field. Find the destination folder and confirm the choice. Or, specify the folder path manually.
- Click **Apply**.

You can perform the following operations with map regions:

**To add a polygonal region:**

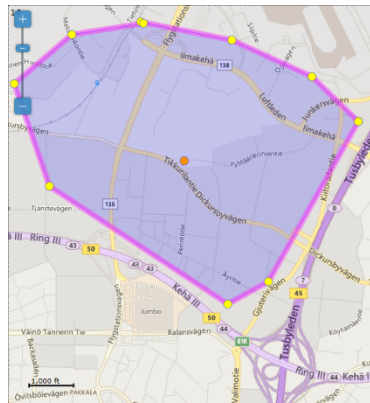
- Click the **Create Polygonal Region** button ()
- Click the map where the region border will start. Draw the shape of the region, clicking where you want to place nodes. The added nodes connected with lines make a region border.
- Double-click to finish. The first and the last nodes will be connected with a line. The new polygonal region will appear in the right panel under the **Regions List**.

**To add a circular region:**


- Click the **Create Circular Region** button ()
- Click the map where the center of the region will be located.
- Release the mouse button and move the cursor away from the center. The distance from the center (in km) is displayed near the region. The radius of a circular region is restricted to 65 km.
- Double-click to finish. The new circular region will appear in the right panel under the **Regions List**.

### To edit a region:


- Double-click inside the region on the map, or in the **Regions List**. The region on the map is highlighted and all of its nodes are displayed.
- To drag a node to a different position, click it and keep the mouse button pressed. To drop the node, release the mouse button.
- To delete a node, right-click it.
- To move the entire region, point to its central point, click and drag it to the new position on the map.
- To save changes, double-click on the map. Or, press Esc to cancel editing.



### To import regions:

- Click the **Import from KML** button ()
- Confirm to replace all regions.
- In the **Import from KML** window that appears browse for the desired \*.KML file, and click **Open**.

### To export regions:

- Select desired regions.
- Click the **Export to KML** button ()
- In the **Export to KML** window that appears locate the folder where you want to save the file, type a filename, and click Save.

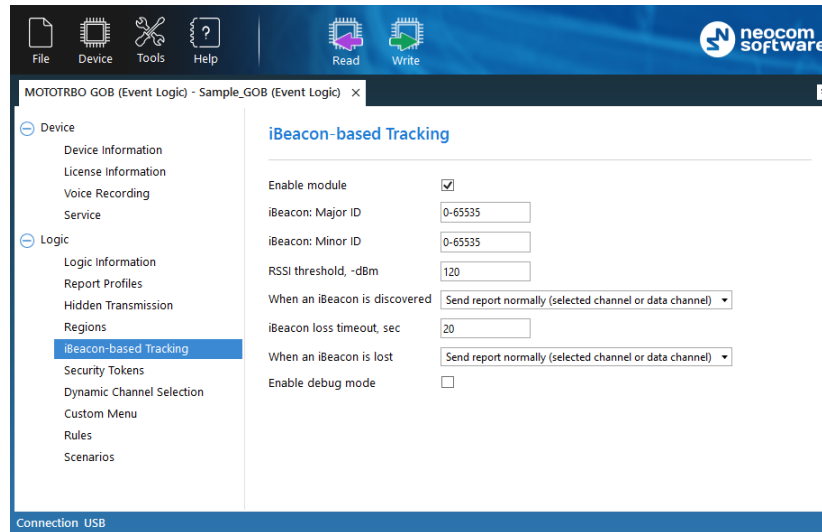
### To delete a region:

- Select the region under the Regions List and click the Delete button.

Note: The deleted region cannot be restored with the Undo command.

## 2.2.4 iBeacon-based Tracking

To configure iBeacon-based tracking, select the **iBeacon-based Tracking** section in the left pane.



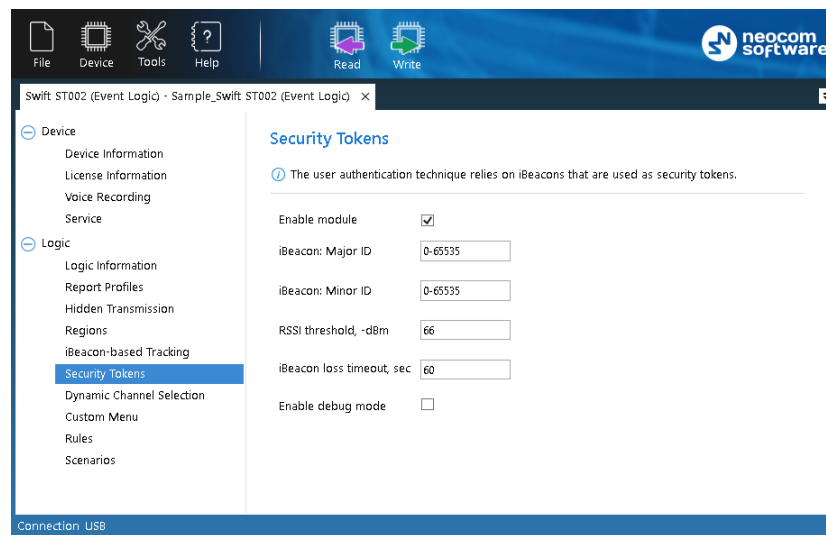
In the right pane, specify the following iBeacon-related settings:

- **Enable module**  
Select this option to enable the iBeacon-based Tracking module.
- **iBeacon: Major ID/ iBeacon: Minor ID**  
Enter the Major ID and Minor ID (the values or the ranges of values) of the iBeacons that will be used for iBeacon-based Tracking.
- **RSSI threshold**  
Set the minimum signal strength, in negative decibels, of an iBeacon to be considered as discovered.
- **When an iBeacon is discovered**  
From the drop-down list, select what to do when an iBeacon is discovered.
  - **Send report normally (selected channel or data channel)**  
This will add information on a discovered iBeacon to the report that will be sent to TRBOnet in the normal way.
  - **Immediately send report (selected channel)**  
This option means that the corresponding report will be sent to TRBOnet immediately on the selected channel.
  - **Send report with interrupt (selected channel)**  
This option means that the corresponding report will be sent to TRBOnet immediately, interrupting the current transmission, if the selected radio channel is busy.
- **iBeacon loss timeout**  
Enter the timeout, in seconds, within which an iBeacon is not considered as lost.
- **When an iBeacon is lost**  
From the drop-down list, select what to do when an iBeacon is lost.
  - **Send report normally (selected channel or data channel)**  
This will add information on a lost iBeacon to the report that will be sent to TRBOnet in the normal way.

- **Immediately send report (selected channel)**  
This option means that the corresponding report will be sent immediately on the selected channel.
- **Send report with interrupt (selected channel)**  
This option means that the corresponding report will be sent immediately, interrupting the current transmission, if the selected radio channel is busy.
- **Enable debug mode**  
Select this option to show debug information on the radio display.

## 2.2.5 Security Tokens

To configure the iBeacon-based user authentication, select the **Security Tokens** section in the left pane.



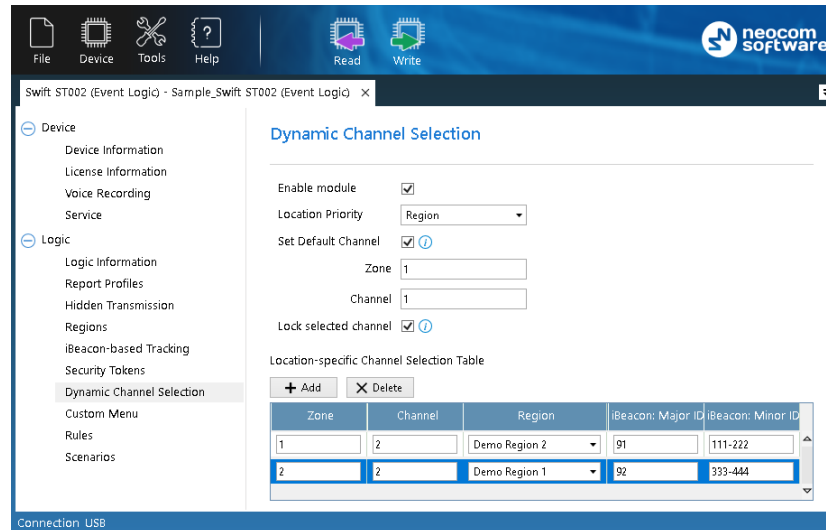
In the right pane, specify the following Security Tokens-related settings:

- **Enable module**  
Select this option to enable the Security Tokens module.
- **iBeacon: Major ID/ iBeacon: Minor ID**  
Enter the Major ID and Minor ID (the values or the ranges of values) of the iBeacons that will be used as security tokens.
- **RSSI threshold**  
Set the minimum signal strength, in negative decibels, of an iBeacon to be considered as discovered.
- **iBeacon loss timeout**  
Enter the timeout, in seconds, within which an iBeacon is not considered as lost.
- **Enable debug mode**  
Select this option to show debug information on the radio display.

## 2.2.6 Dynamic Channel Selection

The Dynamic Channel Selection feature allows for automatic selection of the radio zone/channel depending on the geographical region and/or the proximity of certain iBeacons.

- In the left pane, select the **Dynamic Channel Selection** section.



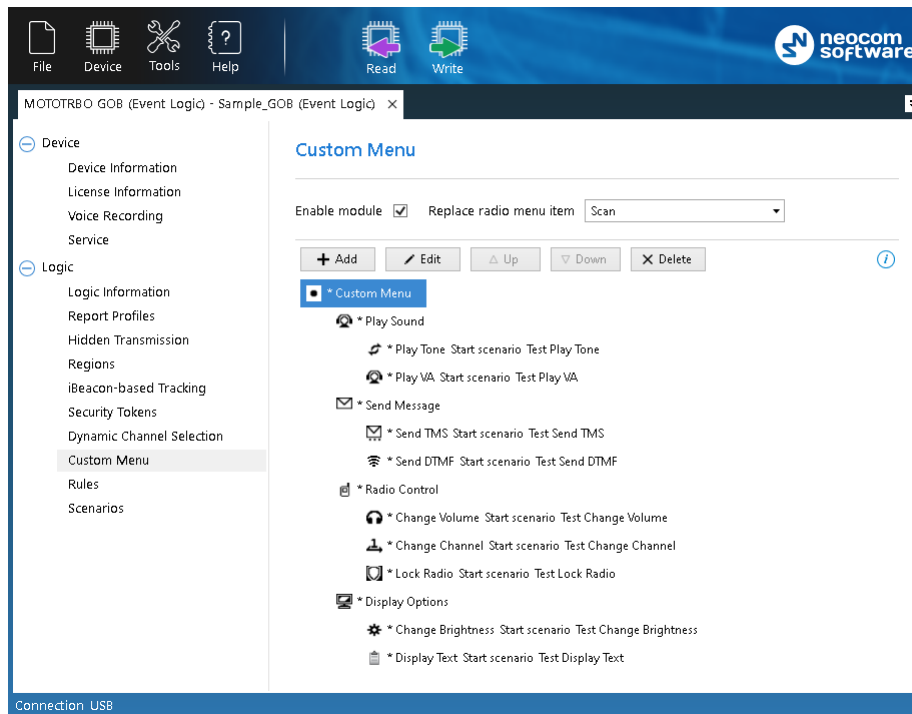
In the right pane, specify the following Dynamic Channel Selection-related settings:

- **Location priority**  
From the list, select the priority to use for Dynamic Channel Selection.
- **Set default channel**  
Select this option and specify the default channel and zone. This channel/zone will be automatically set on the radio when its location is not available or outside designated regions/iBeacons.
  - **Zone**  
Enter the default zone.
  - **Channel**  
Enter the default channel.
- **Lock selected channel**  
Select this option so that the radio will prevent the user from changing the automatically selected channel.
- **Add**  
Click this button and specify the following Dynamic Channel Selection parameters:
  - **Zone**  
Enter the zone to be set automatically when the radio stays in the selected region and/or in the vicinity of the specified iBeacon(s). The value 0 means that the current zone won't be changed.

- **Channel**  
Enter the channel to be set automatically when the radio stays in the selected region and/or in the vicinity of the specified iBeacon(s).
- **Region**  
From the list, select the region within which the radio must stay so that the specified channel/zone will be set automatically.
- **iBeacon: Major/ iBeacon: Minor**  
Specify the Major ID and Minor ID of the beacon(s) in the vicinity of which the radio must stay so that the specified channel/zone will be set automatically.
- **Delete**  
Click this button to remove the selected row from the Channel Selection Table.

### 2.2.7 Custom Menu

The Custom Menu module allows you to replace certain menu items on the radio (Contacts, Scan, or Zone) with your own menu items. To configure your custom menu, expand the **Logic** section and click **Custom Menu** in the left panel.



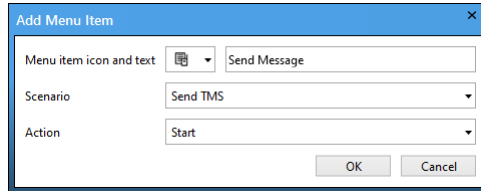
In the **Custom Menu** pane, do the following:

- **Enable module**  
Select this option to enable the Dynamic Channel Selection module.
- **Replace radio menu item**  
From the list select one of the three radio menu items (Contacts, Scan, or Zone) that will be replaced with your custom menu.



**To create a menu item:**

- Select the menu item under which you want to create a submenu and click **Add**.



In the dialog that opens, enter the following:

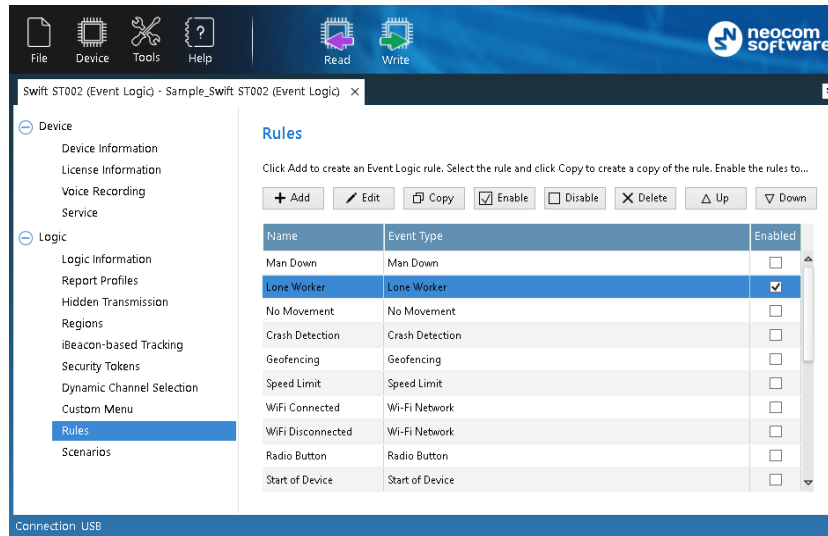
- **Menu item icon and text**  
From the drop-down list, select the icon that will be displayed in front of the menu name.  
In the text box, enter the name of the menu item.
- **Scenario**  
From the drop-down list, select the scenario for the menu item.  
If you select 'None', the menu item will only contain submenu items and perform no actions.

Note: Only enabled scenarios will be available in this list. See section [2.2.9, Scenarios](#).

- **Action**  
From the drop-down list, select either to Start or Stop the specified scenario.

## 2.2.8 Rules

A rule describes a specific event to which a programmed device will respond with a predefined sequence of actions, such as playing back tone or displaying text on the radio display, sending text to other radios, changing the radio channel, sending alarms, and other.



To configure rules, expand the **Logic** section and click **Rules** in the left pane.

The **Rules** pane displays a predefined set of rules. You can manage the rules as described below.

**To create a rule:**

- Click **Add** and on the drop-down menu click the event type.
- In the **Create Rule** window, define the rule as described in section [2.2.8.1, Creating/Editing a Rule](#) (page 16).

**To create a copy of an existing rule:**

- Select the rule in the list and click **Copy**.  
A copy of the selected rule is added to the list.
- Edit the rule name and settings as described below.

**To edit a rule:**

- Double-click the rule or select it in the list and click **Edit**.
- Modify the rule settings in the **Edit Rule** window as described in section [2.2.8.1, Creating/Editing a Rule](#) (page 16).

**Delete a rule**

- Select the rule in the list and click **Delete**.
- Confirm the deletion in the prompt dialog box.

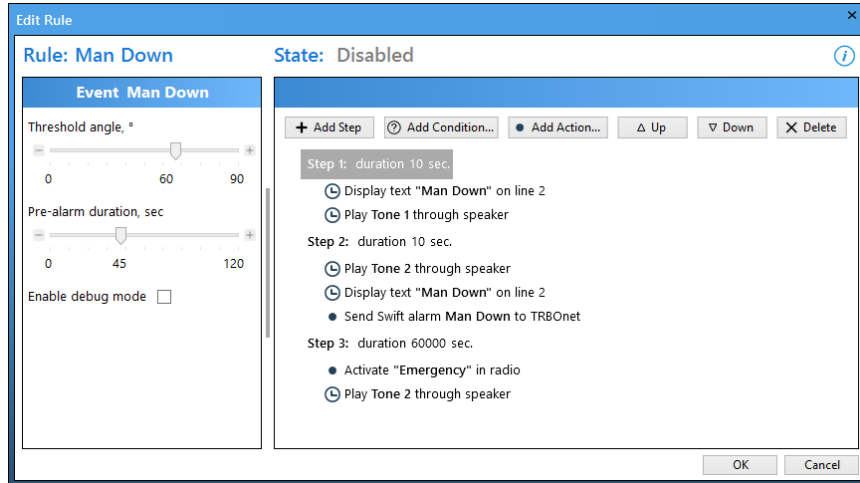
Enable all rules that you want to write to the device memory and be executed at runtime.

**To enable a rule:**

- Select the rule in the list and click **Enable**,  
or select the **Enabled** box next to the rule name.

### 2.2.8.1 Creating/Editing a Rule

The **Create/Edit Rule** window is used for creating and/or editing the Event Logic rule.



#### To define a rule:

1. Specify the name of the rule in the **Name** field (**Rule: Name**).
2. Specify the state of the rule (**State: Disabled/Enabled**).
3. In the **Event** pane, specify the properties of the event. For a brief description of the event, click the "i" icon at the window's top right.
4. In the right pane, click **Add Step**. This will add an additional step to the set of actions. Double-click the step that appears and enter the duration, in seconds. If you click **Add Step > Add Restart**, a 'Restart all steps' action will appear at the bottom of the set of steps/actions.
5. In the right pane, select a step and click **Add Condition**. You can add as many conditions as required. Configure conditions as described in section [2.2.8.3, Conditions](#) (page 19).
6. In the right pane, select a step add click **Add Action**. Configure each action as described in section [2.2.8.4, Actions](#) (page 21).
7. Click **OK** to save the rule.

### 2.2.8.2 Events

The following table summarizes information about all supported events and their configurable properties.

Event	Description
<b>Start of Device</b>	This event is triggered when the radio starts up.
<b>Swift Command</b>	This event is triggered when the Swift command is received from TRBOnet Server. Properties: optional parameters 1, 2.
<b>Telemetry Input</b>	This event is triggered when the status of any I/O pin has changed on the device. Properties: <ul style="list-style-type: none"> <li>▪ <b>Telemetry:</b> Select the Input pin #.</li> <li>▪ <b>Trigger:</b> Select the type of change occurring to the pin (turned on, off or toggled)</li> </ul>
<b>Wi-Fi Network</b>	This event is triggered when a Wi-Fi network is connected/disconnected. Properties: <ul style="list-style-type: none"> <li>▪ <b>Network trigger:</b> Select whether the Wi-Fi network is connected or disconnected.</li> <li>▪ <b>Wait timeout:</b> Enter the minimum duration of staying connected/disconnected.</li> </ul>
<b>Sudden Acceleration Change</b>	This event is triggered when the radio acceleration experiences a sharp change along the given axis. This event can be used, for example, to detect sudden braking of the vehicle. Properties: <ul style="list-style-type: none"> <li>▪ <b>Axis:</b> Select the axis along which to detect the sudden change of acceleration.</li> <li>▪ <b>Acceleration threshold:</b> The maximum acceleration that shall be exceeded to trigger the event.</li> <li>▪ <b>Enable debug mode:</b> Select this option to show debug information on the radio display.</li> </ul>
<b>Rollover Detection</b>	This event is triggered when the mobile radio tilt is below the threshold angle for a time longer than the pre-alarm duration. <ul style="list-style-type: none"> <li>▪ <b>Threshold angle:</b> The minimum vertical angle (in degrees) at which the radio is still considered up.</li> <li>▪ <b>Pre-alarm duration:</b> The timeout (seconds) after detecting the radio tilt.</li> </ul> <p>Note: After installing the radio in the working position in a car, you need to set a custom axis orientation of the accelerometer. This is done by clicking <b>Set a custom axis orientation of the accelerometer</b> in the <b>Service</b> page.</p> <ul style="list-style-type: none"> <li>▪ <b>Enable debug mode:</b> Select this option to show debug information on the radio display.</li> </ul>

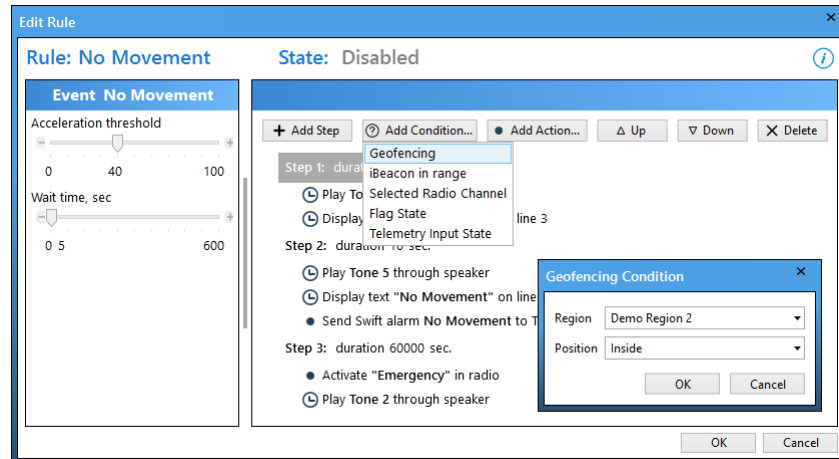
Event	Description
<b>Crash Detection</b>	<p>This event is triggered when the radio acceleration exceeds the impact threshold, the speed drops to zero within the idle timeout, and then there is no movement for the duration of the wait timeout.</p> <ul style="list-style-type: none"> <li>▪ <b>Impact acceleration threshold:</b> The maximum acceleration that shall be exceeded to suspect a car crash.</li> <li>▪ <b>Wait timeout:</b> The timeout, in seconds, that starts after the suspected car crash and during which no acceleration measurements are taken.</li> <li>▪ <b>Acceleration threshold:</b> The minimum acceleration that must be gained during the control time to confirm the normal speed mode.</li> <li>▪ <b>Idle timeout:</b> The timeout, in seconds, that starts after the wait timeout.</li> </ul>
<b>Lone Worker</b>	<p>This event is triggered when there is no user activity for a time longer than the response time. The timer will restart after pressing any radio button or knob.</p> <ul style="list-style-type: none"> <li>▪ <b>Response time:</b> The timer, in seconds, that restarts after a button push, a talk, or use of the channel selector was detected on the radio.</li> </ul>
<b>No Movement</b>	<p>This event is triggered when the radio acceleration is below the threshold for a time longer than the wait time.</p> <ul style="list-style-type: none"> <li>▪ <b>Acceleration threshold:</b> The minimum acceleration at which the radio is still considered to be at normal speed.</li> <li>▪ <b>Wait time:</b> The timeout, in seconds, that starts after the radio acceleration has fallen below the threshold.</li> </ul>
<b>Man Down</b>	<p>This event is triggered when the radio tilt is below the threshold angle for a time longer than the pre-alarm duration.</p> <ul style="list-style-type: none"> <li>▪ <b>Threshold angle:</b> The minimum vertical angle, in degrees, at which the radio is still considered up.</li> <li>▪ <b>Pre-alarm duration:</b> The timeout (seconds) after detecting the radio tilt.</li> <li>▪ <b>Enable debug mode:</b> Select this option to show debug information on the radio display.</li> </ul> <p>Note: Before enabling this event, you need to set a custom axis orientation of the accelerometer. This is done by clicking <b>Set a custom axis orientation of the accelerometer</b> in the <b>Service</b> page.</p>
<b>Speed Limit</b>	<p>This event is triggered when the measured speed exceeds or falls below the threshold.</p> <ul style="list-style-type: none"> <li>▪ <b>Speed:</b> The math operator. Values: greater than, less than.</li> <li>▪ <b>Threshold:</b> The maximum or minimum allowed speed in kilometers per hour.</li> </ul> <p>Note: The speed measurement error may be as high as 5 to 10%, depending on the type of a two-way radio (less for mobile, higher for portable) and on the satellite signal reception quality.</p>

Event	Description
<b>Geofencing</b>	<p>This event is triggered when the radio enters/exits the designated region for a time longer than the wait timeout.</p> <p>Properties:</p> <ul style="list-style-type: none"> <li>▪ <b>Region:</b> Select the region the borders of which are monitored.</li> <li>▪ <b>Direction:</b> Select if the region is entered or left.</li> </ul>
<b>Radio Call</b>	<p>This event is triggered when an incoming or outgoing call starts, or a call (either incoming or outgoing) ends. In addition, you can select the call type for this event.</p> <ul style="list-style-type: none"> <li>▪ <b>Call trigger:</b> Select one of the three triggering conditions.</li> <li>▪ <b>Call from:</b> Select the type of the call.</li> <li>▪ <b>Enable debug mode:</b> Select this option to show debug information on the radio display.</li> </ul>
<b>Radio Channel</b>	<p>This event is triggered when a different channel and/or zone is selected on the radio.</p> <ul style="list-style-type: none"> <li>▪ <b>Zone:</b> Enter the zone number.</li> <li>▪ <b>Channel:</b> Enter the channel number.</li> </ul>
<b>Radio Button</b>	<p>This event is triggered when the designated radio button is pressed/released.</p> <ul style="list-style-type: none"> <li>▪ <b>Button:</b> Select the radio button.</li> <li>▪ <b>Action:</b> Select the type of action. This can be Short press, Long press, or Release.</li> </ul>
<b>Security Tokens</b>	<p>This event is triggered when one of the following <a href="#">Security Tokens</a> event has occurred:</p> <ul style="list-style-type: none"> <li>▪ User Logged In</li> <li>▪ User Logged Out</li> <li>▪ Token Not In Range.</li> </ul>
<b>iBeacon</b>	<p>This event is triggered when an iBeacon is discovered/lost.</p> <ul style="list-style-type: none"> <li>▪ <b>iBeacon trigger:</b> Select whether the iBeacon is discovered or lost.</li> <li>▪ <b>Major ID:</b> Enter the beacon’s major ID exactly as specified in the iBeacon device.</li> <li>▪ <b>Minor ID:</b> Enter the beacon’s minor ID exactly as specified in the iBeacon device.</li> </ul>
<b>Start of Device</b>	<p>This event is triggered when the radio starts up.</p>

### 2.2.8.3 Conditions

In the right pane of the **Create/Edit Rule** window, add one or more conditions for the event to be handled.

**Note:** Adding conditions to a rule is optional. If you add multiple conditions, ALL OF THEM must be TRUE for the actions to be executed.



### To add a condition:

- In the right pane of the **Create/Edit Rule** window, select a step and click **Add Condition**. In the drop-down menu, click the desired condition.
- In the dialog box that opens, specify the required condition parameters.

- **Geofencing**

In the **Geofencing Condition** dialog box specify the following parameters:

- **Region**  
From the drop-down list, select the desired region.
- **Position**  
From the drop-down list, select 'Inside' or 'Outside' position in a region.

- **Selected Radio Channel**

In the **Selected Radio Channel Condition** dialog box, specify the **Channel** and **Zone**.

- **iBeacon In Range**

In the **iBeacon In Range Condition** dialog box specify the iBeacon's **Major ID** and **Minor ID**.

- **Flag State**

In the **Flag State Condition** dialog box specify the **Flag** (a number from 1 to 32) and its **State** (On/Off).

- **Telemetry Input State**

In the **Telemetry Input State Condition** dialog box specify the **Telemetry** input (Input 1 – Input 8) and its **State** (On/Off).

Once added, the new condition will appear at the beginning of the corresponding step. The order of conditions in the list cannot be changed and does not affect the logic.

**To edit condition settings:**

- Double-click the desired condition.  
In the dialog box that opens, edit the required condition parameters.

**To delete a condition:**

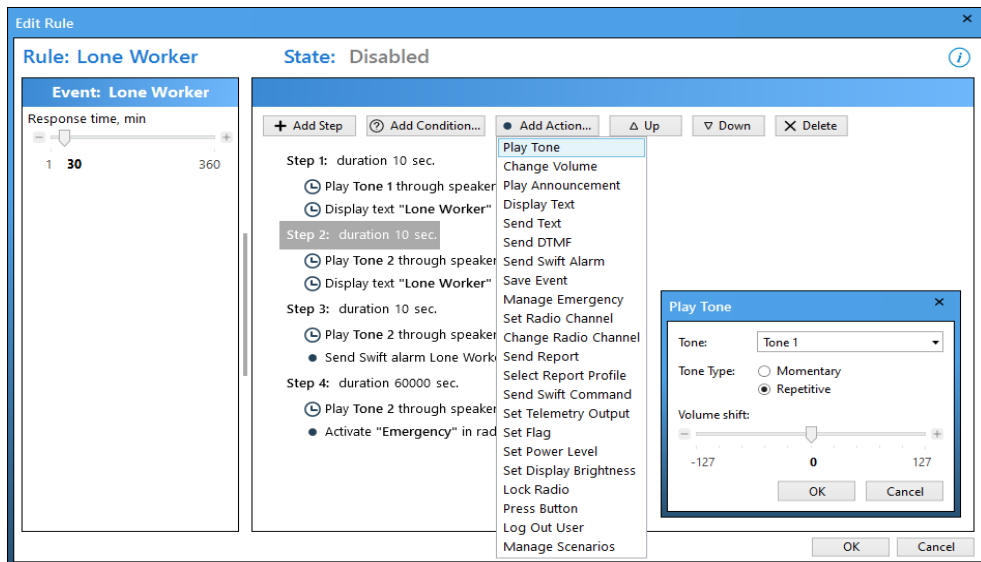
- Select the desired condition and click the **Delete** button.

**2.2.8.4 Actions**

In the right pane of the **Create/Edit Rule** window, add one or more actions to execute when the event has occurred and all conditions have been confirmed.

**To add an action:**

1. In the right pane of the **Create/Edit Rule** window, click **Add Action** and in the drop-down menu click the desired action.
2. In the dialog box that opens, specify action properties and click **OK**.



A new action with the specified name appears at the last position in the right pane of the **Create/Edit Rule** window. Use **Up** and **Down** arrow buttons to adjust the execution order of actions.

To delete an action, click the **Delete** button. Double-click the required action to open its properties for editing.

The following table summarizes information about all supported actions and their configurable properties.



Action	Description
<b>Play Tone</b>	This action forces the radio to play back the specified tone. Properties: <ul style="list-style-type: none"> <li>▪ <b>Tone:</b> The tone to be played back.</li> <li>▪ <b>Tone Type:</b> Choose whether to play the tone momentarily or repetitively.</li> <li>▪ <b>Volume shift:</b> The volume boost (in MOTOROLA's units of measure).</li> </ul>
<b>Change Volume</b>	This action forces the radio to change the volume of its speaker. Properties: <ul style="list-style-type: none"> <li>▪ <b>Action:</b> Select the action to be executed (Increase Volume or Decrease Volume).</li> </ul>
<b>Play Announcement</b>	This action forces the radio to play back a pre-recorded voice announcement. <ul style="list-style-type: none"> <li>▪ <b>Voice Announcement:</b> Select one of the pre-recorded voice announcements.</li> </ul>
<b>Display Text</b>	This action forces the radio to display text. Properties: <ul style="list-style-type: none"> <li>▪ <b>Text:</b> Enter the text to display on the radio.</li> <li>▪ <b>Position:</b> The display line from which the text starts. Options: Line 1, Line 2, Line 3, Line 4.</li> <li>▪ <b>Alignment:</b> Select the alignment of the text.</li> <li>▪ <b>Font:</b> Select the font style (Normal or Bold).</li> </ul>
<b>Send Text</b>	This action forces the radio to send text to a specified radio or radio group. Properties: <ul style="list-style-type: none"> <li>▪ <b>Destination:</b> The recipient of the message. Values: radio, radio group.</li> <li>▪ <b>Radio ID:</b> The radio ID of the recipient.</li> <li>▪ <b>Text:</b> The message to be sent.</li> </ul>
<b>Send DTMF</b>	This action forces the radio to send the specified DTMF sequence on the radio channel. Properties: <ul style="list-style-type: none"> <li>▪ <b>Sequence:</b> The sequence of digits to be sent.</li> <li>▪ <b>Pretime:</b> The duration of silence (ms) prior to sending the first DTMF tone.</li> <li>▪ <b>Duration:</b> The duration of the DTMF tone digits in milliseconds (ms).</li> <li>▪ <b>Interval:</b> The duration of the intervals between the DTMF tone digits in a transmission sequence in milliseconds (ms).</li> </ul>
<b>Send Swift Alarm</b>	This action forces the radio to send an alarm to TRBOnet Server. The alarm type will depend on the triggered event (Crash Detection, Lone Worker, Man Down, No Movement, etc.).
<b>Save Event</b>	This action forces the radio to save the corresponding alarm event (along with the coordinates of the radio) to the option board's memory.
<b>Manage Emergency</b>	This action activates/deactivates the alarm mode on the radio.
<b>Set Radio Channel</b>	This action forces the radio to select a different radio channel/zone. Properties: <ul style="list-style-type: none"> <li>▪ <b>Channel:</b> The radio channel to be set.</li> <li>▪ <b>Zone:</b> The zone to be set.</li> </ul> <p>Note: These are numerical values that are represented in <i>MOTOTRBO CPS, Channels&gt;Zone&gt;Channel</i> (in the Position column).</p>

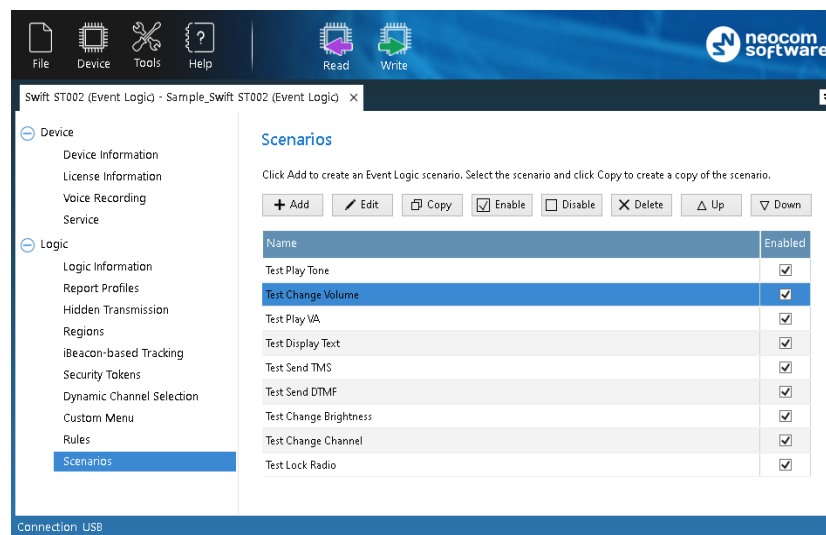
Action	Description
<b>Send Report</b>	<p>This action will send a report to TRBOnet Server.</p> <ul style="list-style-type: none"> <li>▪ <b>Priority:</b> <ul style="list-style-type: none"> <li>○ Normal (selected channel or data channel)</li> <li>○ High (selected channel)</li> <li>○ With Interrupt (selected channel)</li> </ul> <p>This priority means that a report will be sent immediately over the selected channel, interrupting the current transmission, if the channel is busy.</p> </li> </ul>
<b>Select Report Profile</b>	<p>This action forces a device to use the specified profile with report settings.</p> <p>Note: A profile with report settings defines rules for sending reports to TRBOnet Server. See also section <a href="#">2.2.2. Report Profiles</a> (page 4).</p> <ul style="list-style-type: none"> <li>▪ <b>Profile:</b> Select the report profile to switch to.</li> </ul>
<b>Send Swift Command</b>	<p>This action will send a Swift command to TRBOnet Server.</p> <ul style="list-style-type: none"> <li>▪ <b>Command:</b> Select the Swift command to be sent.</li> <li>▪ <b>Parameter:</b> Enter the parameter if the Swift command contains a parameter.</li> <li>▪ <b>Destination:</b> Select one of the destinations (TRBOnet, Radio, or Radio group).</li> <li>▪ <b>Radio/Group ID:</b> Enter the Radio/Group ID if the Radio or Radio group are selected as the destination.</li> <li>▪ <b>Target Device:</b> Select the device connected to the target radios: an option board (Swift OB, GOB) or a DT series controller (Swift DT200/DT600).</li> <li>▪ <b>Priority:</b> The values are: 'Immediately send to TRBOnet' and 'Immediately send to TRBOnet with interrupt'. The latter option means that the selected command will be sent immediately, interrupting the current transmission, if the radio channel is busy.</li> </ul>
<b>Set Telemetry Output</b>	<p>This action will set the selected telemetry output to the specified state.</p> <ul style="list-style-type: none"> <li>▪ <b>Action:</b> Select the action for the output (Toggle, On, O).</li> <li>▪ <b>Output:</b> Select the radio's output to perform the specified action on.</li> </ul>
<b>Set Flag</b>	<p>This action will set the selected flag to the specified state.</p> <ul style="list-style-type: none"> <li>▪ <b>Action:</b> Select the action for the flag (Toggle, On, Off).</li> <li>▪ <b>Flag:</b> Specify the flag (a number from 1 to 32).</li> </ul>
<b>Set Power Level</b>	<p>This action will set the radio's transmission power level for the current channel.</p> <ul style="list-style-type: none"> <li>▪ <b>Power:</b> The values are 'Low' and 'High'.</li> </ul>
<b>Set Display Brightness</b>	<p>This action will set the radio display brightness to a specified level.</p> <ul style="list-style-type: none"> <li>▪ <b>Brightness:</b> The values are 'Increase' (one step), 'Decrease' (one step), 'Maximum', 'Minimum' and 'Default'</li> </ul>
<b>Lock Radio</b>	<p>This action will lock/unlock the radio's keyboard.</p>
<b>Press Button</b>	<p>This action will short-press the specified Accessory Button on the radio (No Dot Button, 1-Dot Button, or 2-Dot Button).</p> <ul style="list-style-type: none"> <li>▪ <b>Short press:</b> Select the desired Accessory Button.</li> </ul>
<b>Log Out User</b>	<p>This action will log out the user (deallocate the radio).</p>

Action	Description
<b>Manage Scenario</b>	<p>This action will start/stop the desired scenario. See section <a href="#">2.2.9, Scenarios</a>.</p> <ul style="list-style-type: none"> <li>▪ <b>Scenario:</b> Select the desired scenario.</li> <li>▪ <b>Action:</b> Select either to Start or Stop the desired scenario.</li> </ul>

## 2.2.9 Scenarios

A scenario is a sequence of steps/conditions/actions that can be then started/stopped in a particular place of a rule by clicking **Add Action > Manage Scenario**.

To configure scenarios, expand the **Logic** section and click **Scenarios** in the left panel.



The **Scenarios** pane displays a set of the scenarios. You can manage the scenarios as described below.

### To create a scenario:

- In the **Scenarios** pane, click **Add**.
- In the **Create Scenario** window, define the of steps/conditions/actions as described in section [2.2.9.1, Creating/Editing a Scenario](#) (page 25).

### To create a copy of an existing scenario:

- Select the scenario in the list and click **Copy**.  
As a result, a copy of the selected scenario is added to the list.
- Edit the scenario name and settings as described below.

### To edit a scenario:

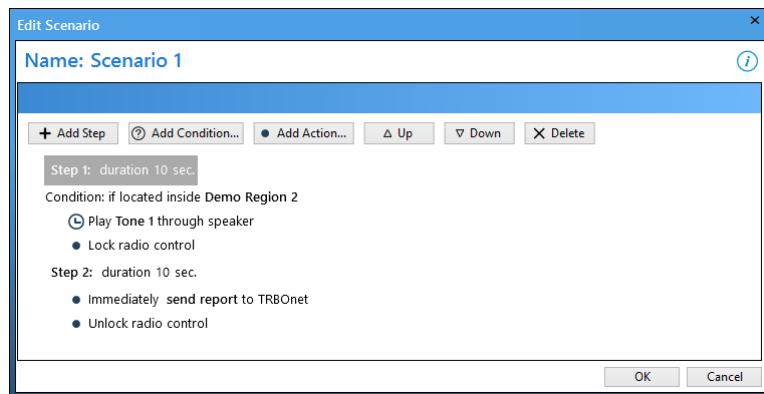
- Double-click the scenario or select it in the list and click **Edit**.
- Modify the scenario settings in the **Edit Scenario** window as described in section [2.2.9.1, Creating/Editing a Scenario](#) (page 25).

**Delete a scenario**

- Select the scenario in the list and click **Delete**.

**2.2.9.1 Creating/Editing a Scenario**

The **Create/Edit Scenario** window is used for creating and/or editing the scenario.

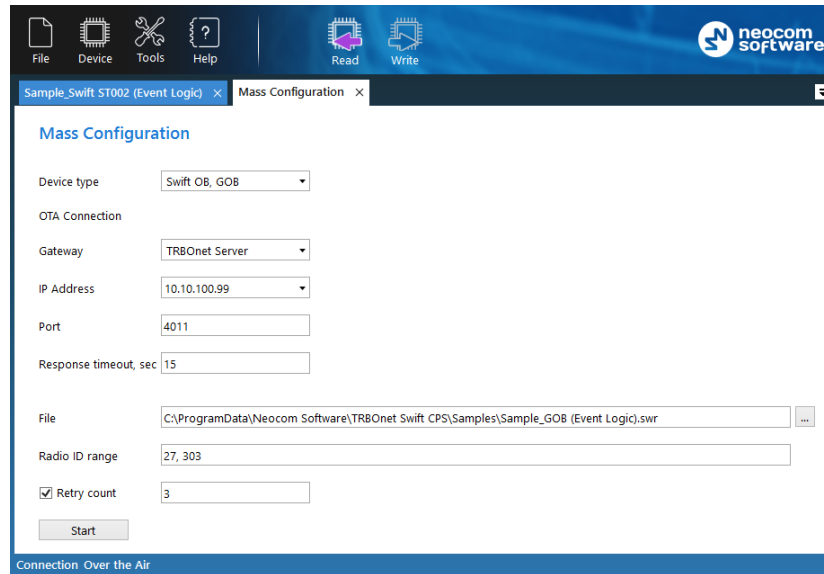


- Specify the name of the scenario in the **Name:** field.
- Click **Add Step**. This will add an additional step to the set of actions. Double-click the step that appears and enter the duration, in seconds. If you click **Add Step > Add Restart**, a 'Restart all steps' action will appear at the bottom of the set of steps/actions.
- Click **Add Condition** and in the drop-down menu, click the desired condition. For a description of conditions, see section [2.2.8.3, Conditions](#).
- Click **Add Action** and in the drop-down menu click the desired action. For a description of conditions, see section [2.2.8.4, Actions](#).
- Use **Up** and **Down** arrow buttons to adjust the execution order of steps/actions.

**2.3 Mass Configuration**

You can configure multiple option boards at once by using the Mass Configuration mode. The OTA connection is used for over-the-air programming of endpoint devices such as an option board ST002 installed into a MOTOTRBO radio.

- On the toolbar, click **Tools > Mass Configuration**.



- In the **Mass Configuration** page, enter the following parameters:
    - **Device type**  
From the drop-down menu, select 'Swift OB, GOB'.
    - **OTA Connection**  
In this section, specify the OTA (over-the-air) Connection-related settings.
      - **Gateway**  
The gateway that can establish an IP connection with TRBOnet Swift CPS and that can communicate with the device over the air.  
Values: TRBOnet Server, Swift IP Gate: Swift A100/ A200
      - **IP Address**  
The IP address of the gateway selected above.
      - **Port**  
This is the Forward Data service port of the TRBOnet Server (if selected above). Default: **4011**.  
To get the port number, launch the TRBOnet Enterprise (PLUS) Server application and select **Radio Systems > Services** in the left pane. Find the port number under the **Forward Data service** option.
- Note: Make sure that the **Forward Data service** option is selected (see section [4.1, TRBOnet Server](#)).
- **Response timeout**  
The time period, in seconds, to wait for a response from the server side (TRBOnet Server, Swift IP Gate).
  - **File**  
Enter the full path name for the configuration file (\*.swr) that will be sent to the radios specified below.

- **Radio ID range**  
Enter the range of Radio IDs to which the configuration file selected above will be sent.

Note: Separate each Radio ID with a comma, for example, "105,106,111", or enter the range using the following example: "105-111".

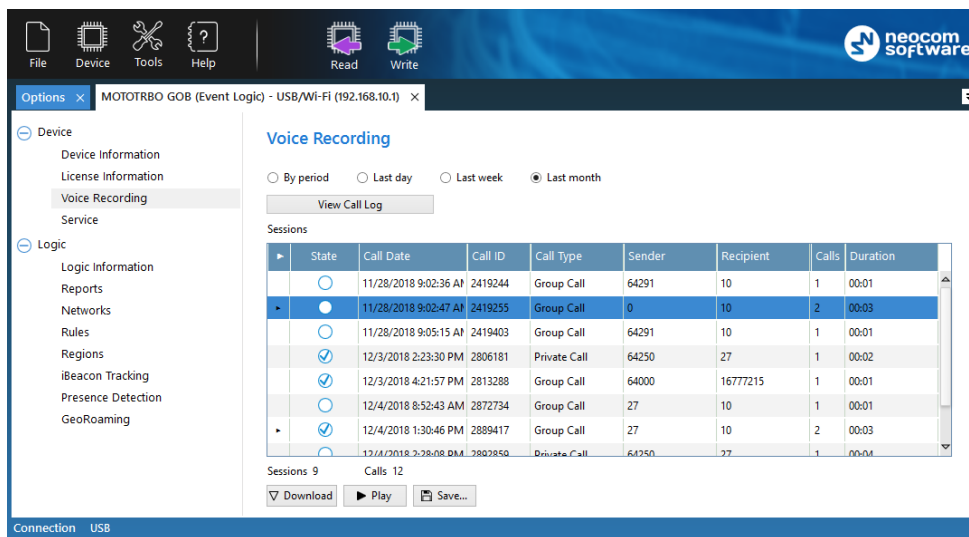
- **Retry count**  
Enter the number of retries allowed.
- Once you have specified the desired configuration settings, click **Start**.

### 3 Voice Recording

The Voice Recording tool available in TRBOnet Switch CPS allows you to retrieve call recordings from the radio and listen to them by using the TRBOnet Player.

Note: In the Swift ST002 option board, the amount of memory for voice records is limited to 256 MB.

- In the left pane, click **Device > Voice Recording**.



- In the **Voice Recording** pane on the right, choose the appropriate time period and click **View Call Log**.  
In the **Sessions** table, you will see the list of audio sessions.
- Select a record or a group of records in the table and click the **Download** button.  
The downloaded record(s) will be marked as checked in the **State** field.

- Once downloaded, the records can be listened to by clicking the **Play** button.  
The TRBOnet Player will open and start playing the selected audio record(s).
- To save downloaded records, click the **Save** button.  
In the **Save As** dialog box, locate the folder where you want to save the audio file, specify the file name, and click **Save**.

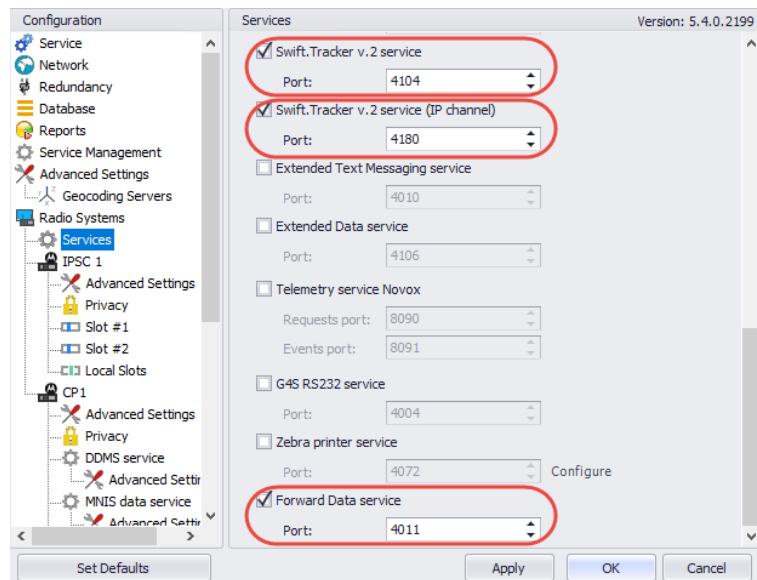
Note: The audio records will be saved in the TNA format, which is a proprietary audio format that contains additional information about radio calls, such as radio ID, start time, end time, and other parameters. This format provides more details about call participants and allows easy navigation within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

## 4 Configuring TRBOnet Enterprise

This section describes how to configure TRBOnet Enterprise software to take advantages of using option boards.

### 4.1 TRBOnet Server

- Run TRBOnet Enterprise Sever.
- In the **Configuration** pane, select **Radio Systems > Services**.



- In the **Services** pane:
  - Select the **Swift.Tracker v.2 service** option and make sure the port number is **4104**.

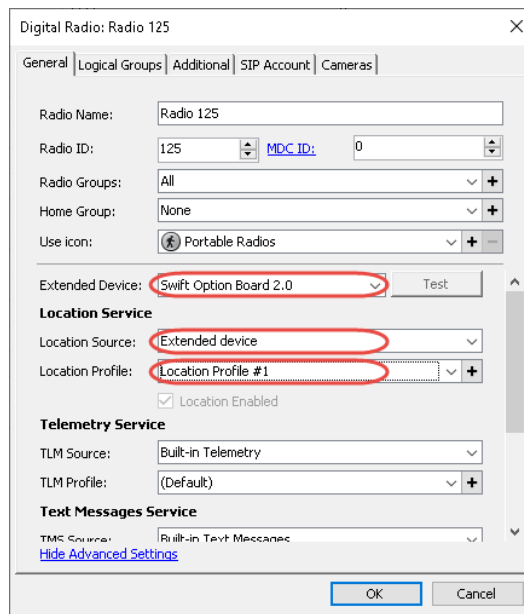
- Select the **Swift.Tracker v.2 service (IP channel)** option and make sure the port number is **4180**.
- Select the **Forward Data service** option and make sure the port number is **4011**.

Note: Selecting the **Forward Data service** option is required for using [Mass Configuration](#) in TRBOnet Swift CPS.

## 4.2 TRBOnet Dispatch Console

- Run TRBOnet Enterprise Dispatch Console.
- Go to **Administration > Radios**.
- Double-click the desired radio in the list of registered radios.

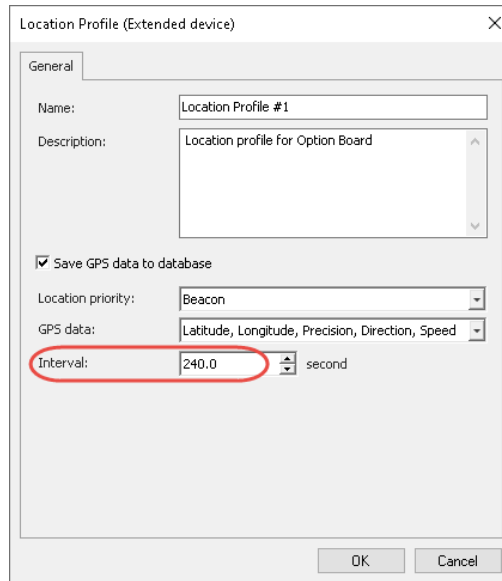
The Digital Radio dialog box opens:



- **Extended Device**  
From the drop-down list, select **Swift Option Board 2.0**.
- **Location Service>Location Source**  
From the drop-down list, select **Extended device**.
- **Location Service>Location Profile**  
From the drop-down list, select the location profile to apply.

Note: In the applied Location Profile (**Administration > Location Profile**), set the **Interval** parameter to a value two-three times as large as that specified in TRBOnet Swift CPS (**Logic > Report Profiles > Radio Report Profile > Send report every X sec**, see section [2.2.2.1, Editing Report Profile](#)).

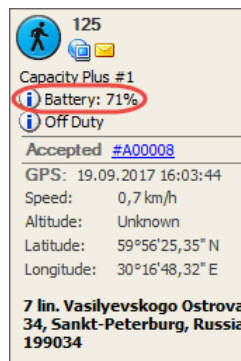




## 5 Using Option Board Features in Dispatch Console

### 5.1 Battery Status

- Select a radio in the Radio List and hover the mouse pointer over it:

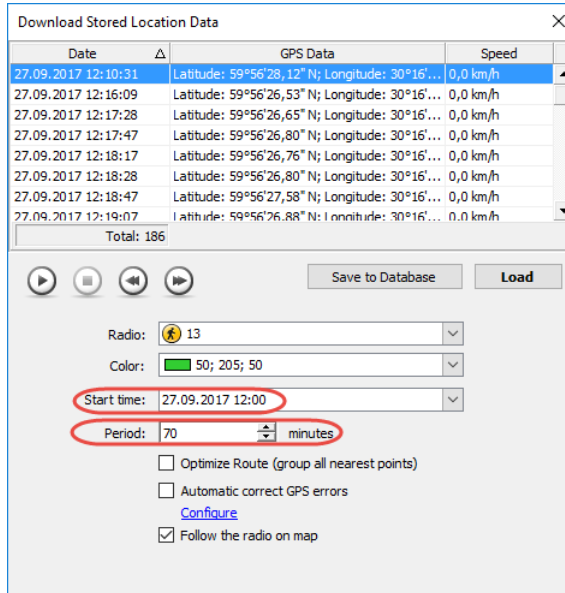


In addition to the common information, you'll see the battery status received from the radio.

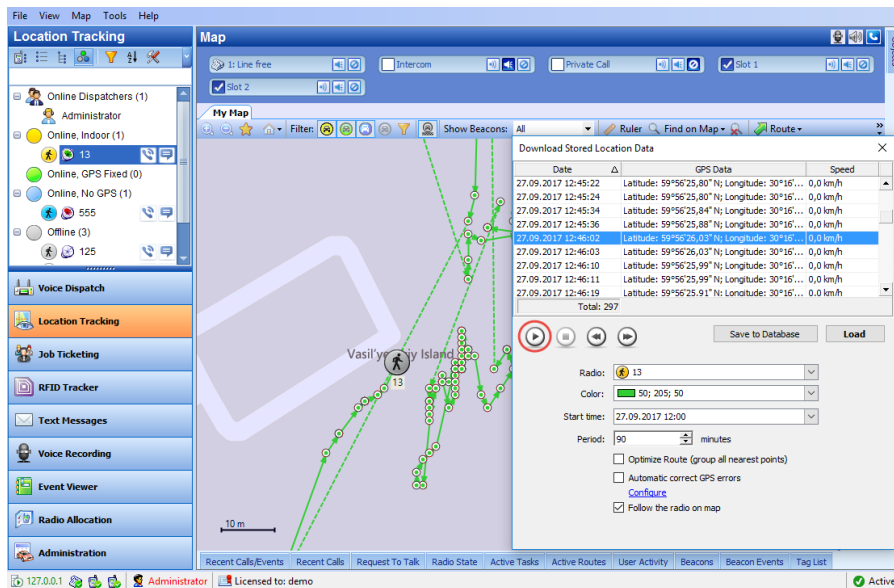
Note: The version of TRBOnet Enterprise must be **5.2.0.1359** or later. The Swift ST002 device firmware version must be **03.00.13** or later. If the radio is equipped with an Impres battery, the dispatcher will be able to see the percentage remaining battery level. Otherwise, the radio will send an alert in the case of a low battery level.

## 5.2 Downloading Location Data

- Right-click a radio in the Radio List, and on the context menu, choose **Monitoring > Download Stored Location Data**.



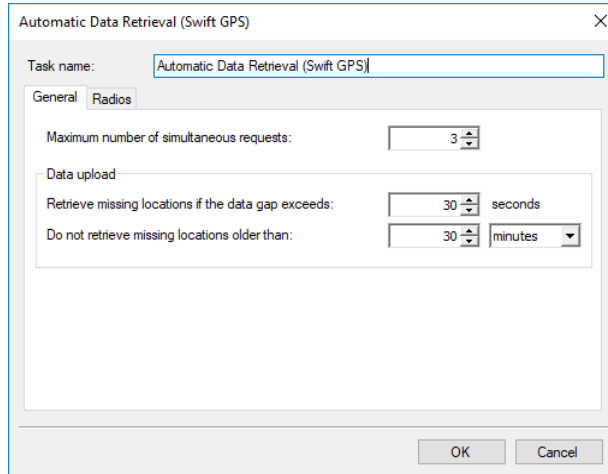
- In the dialog box, specify the following parameters:
  - **Start time**  
Specify the date/time starting from which to load location data from the radio's option board.
  - **Period**  
Specify the time period, in minutes, for which to load location data from the radio's option board.
  - Click **Load** to start loading location data.
  - Once you have finished loading location data, click the **Play** button and see the route made by the radio user on the map.



### 5.3 Automatic Data Retrieval

The **Automatic Data Retrieval** task is used to automatically retrieve missing location data from the radio's option board.

- Go to **Administration, Tasks**.
- In the **Tasks** pane, click **Add > Automatic Data Retrieval (Swift GPS)**.



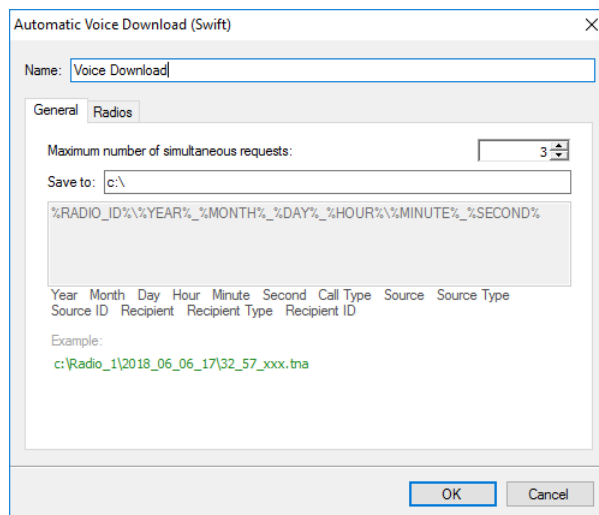
- In the dialog box, specify the following parameters:
  - **Maximum number of simultaneous requests**  
Specify the maximum number of radios being requested at the same time.
  - **Retrieve missing locations if the data gap exceeds**  
TRBOnet Server automatically checks whether the location data is continuous. If it detects data gaps between any consecutive location data that exceed this value, it will attempt to retrieve missing information.

- **Don't retrieve missing locations older than**  
TRBOnet Server doesn't check location updates for consistency if they are older than this value in seconds, minutes, or hours.
- On the **Radios** tab, specify the radio(s) to retrieve location data from.
- In the list of tasks, activate the **Automatic Data Retrieval (Swift GPS)** task by selecting the box next to the task name.

## 5.4 Automatic Voice Download

The **Automatic Voice Download** task is used to automatically retrieve voice data from the radio's option board when the radio is in WiFi zone.

- Go to **Administration, Tasks**.
- In the **Tasks** pane, click **Add > Automatic Voice Download (Swift)**.



- In the dialog box, specify the following parameters:
  - **Maximum number of simultaneous requests**  
Specify the maximum number of simultaneously requested radios.
  - **Save to**  
Specify the path where to save voice data on your PC.
  - On the **Radios** tab, specify the radio(s) to retrieve voice data from.

In the list of tasks, activate the **Automatic Voice Download (Swift)** task by selecting the check box next to the task name.