TRBONET
Dispatch Systems

neocom software

AUTHORIZED APPLICATION PROVIDER DIMETRA™ MOTOROLA SOLUTIONS

AUTHORIZED APPLICATION PROVIDER MOTOTRBO™ MOTOROLA SOLUTIONS

TRBOnet Enterprise | PLUS

Guard Tour

User Guide

Version 6.5

Last revised on 15 June 2026

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1 Introduction

1.1 About This Guide

This document is intended for TRBOnet administrators and Dispatch Console operators. The document describes the basics of the TRBOnet Guard Tour functionality, the configuration steps required to set up a Guard Tour subsystem on the TRBOnet software platform, and the operator's activities in the scope of the guard tour monitoring and support.

For more comprehensive information on the Neocom TRBOnet family of radio network software tools, refer to our website.

1.2 About TRBOnet

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

1.3 Contacts

Region	Phone	Email & Support
EMEA	+44 203 608 0598	info@trbonet.com — general and commercial inquiries support@trbonet.com — technical support https://trbonet.com/kb/— online knowledge base
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2 Overview

2.1 TRBOnet Guard Tour

Guard Tour is a TRBOnet functionality that helps the MOTOTRBO network providers to organize and execute guard tours and patrols in their indoor assets, ensuring that the personnel on mission equipped with a MOTOROLA two-way radio would attend all checkpoints in the specified order and within the predefined time intervals.

TRBOnet Guard Tour uses TRBOnet Bluetooth-based Indoor Positioning as an underlying technology to identify the location of the radio by proximity to the closest iBeacon transmitter installed in the patrolled area. Location data transmitted by the radio to TRBOnet Server enables the control room operator to perform visual monitoring of the radio's location on the floor map in real time.

2.2 Solution Description

The patrolled area is equipped with iBeacon transmitters that are set up to transfer identification information at a distance of 40 to 70 meters around. The beacons are added to a route as checkpoints to be attended. The guards' radios are configured to hear the signal from the checkpoints and feed this data to TRBOnet Server.

A guard tour starts when the route is assigned to a particular radio or a guard.

During the guard tour, the guard attends the checkpoints one after another. The attendance order can be arbitrary or fixed, depending on the route configuration settings.

- The assigned radio moves from one iBeacon coverage zone to another. The radio detects proximity to the closest beacon and transmits this information to TRBOnet Server silently.
- TRBOnet Server marks the respective checkpoint as attended as soon as location data is received, or when location data is followed by a command from the guard's radio (a button press, text message, or DTMF command).
- When emergency happens at a checkpoint, the radio sends an event to TRBOnet Server automatically, or the guard sends a command from the radio. TRBOnet Server marks the respective checkpoint with the alarm status.
- During the guard tour, the personnel on mission can be guided by text messages arriving on their radio and telling them what to do next.

The control room operator on duty performs visual monitoring of the guard tour. When the radio detects a checkpoint, the current location of the radio

appears on the floor map. All checkpoints appear on the operator's monitor with their actual statuses (Waiting, Attended, Alarm) that are updated in real time.

At any moment, the operator can suspend the guard tour, communicate the guard's radio, change the status of any checkpoint manually, and force termination of the guard tour.

The guard tour stops automatically when all checkpoints are attended or the preconfigured time is elapsed.

2.3 Hardware and Software Requirements

Hardware/software	Requirements
TRBOnet software	▪ Version 5.0 and higher ▪ A license with the Indoor Positioning and Route Management options
Two-way radio	▪ MOTOTRBO Enhanced Portfolio (production: May 2016 and later) ▪ Bluetooth 4.x (Low Energy) supported ▪ Indoor Location Tracking license (MOTOROLA)
Hardware transmitter	▪ K-term beacons by Kilchherr Elektronik ▪ iBeacons For more information, see Recommendations on iBeacon Transmitters.

2.3.1 Recommendations on iBeacon Transmitters

The Bluetooth LE infrastructure can be built on iBeacon transmitters of any preferred vendor. Estimote beacons (estimote.com) can be a recommended choice.

The typical characteristics of iBeacon transmitters are:

- Battery life: 2 years and more. Use the fleet management system provided by the iBeacon manufacturer for monitoring the remaining battery life.
- Signal range: up to 70 meters (230 feet).

3 Configuration

This section describes how to configure the TRBOnet Guard Tour feature.

#	High-level steps	Refer to:
1	Prepare the infrastructure and configure TRBOnet Indoor Positioning. The high-level steps include: ▪ Setting up a Bluetooth LE network in the facility ▪ Configuring radios ▪ Configuring TRBOnet Server ▪ Preparing a floor map and placing iBeacons on the map ▪ Assigning location profiles to radios	TRBOnet Bluetooth-based Indoor Positioning User Guide Note: The above guide is available upon request. Find the details for your region in Contacts.
2	Apply a license with Route Management /Guard Tour support	Applying a License
3	Create a route	Configuring a Route

3.1 Applying a License

Because TRBOnet Guard Tour is based on the Indoor Positioning and Route Management features, it requires a license with the Indoor Positioning and Route Management /Guard Tour options included.

To check if your license includes the required options:

1. In Dispatch Console, click the **Administration** tab in the left pane.
2. In the **Administration** pane, select **License** from the tree.
3. In the right pane, find **Indoor Positioning** and **Route Management /Guard Tour** under the **List of available features**.

If any of these options is not included, contact your sales representative to obtain a new license with both options.

To apply a new license:

1. Copy the new license file to a local folder. If this folder contains other license files, delete them.
2. Launch TRBOnet Server. In the configuration window, select **License** in the left pane.
3. Click the **License Manager** link in the right pane.
4. In the **License Manager** window, follow the instructions and select the new license file from the local folder.

5. Click **Finish** to close the wizard.
6. Click **Apply** and confirm to restart TRBOnet Server.

3.2 Configuring a Route

A route is the key logical component of TRBOnet Guard Tour. A route specifies the checkpoints to be attended by the guard and, optionally, the time when the guard is expected at each checkpoint. Besides, the route defines the actions to be performed by the operator and by the guard who patrols the area.

You can create as many routes as needed and configure each for particular business requirements.

To create a route:

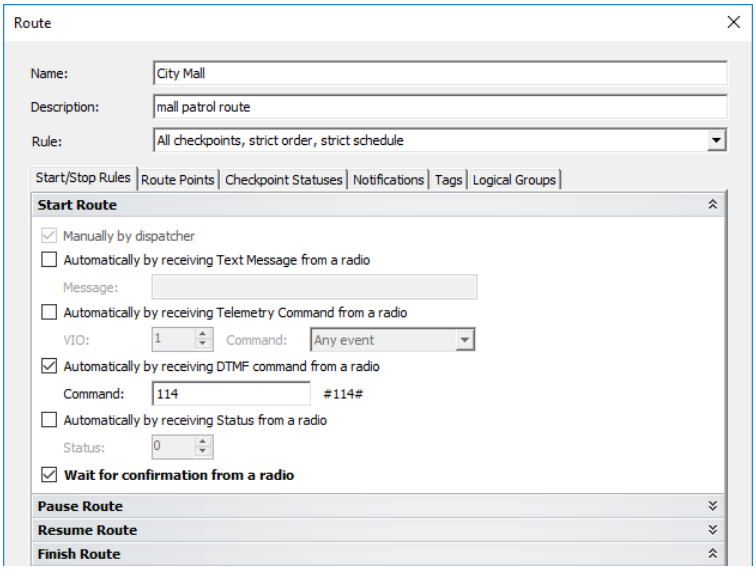
1. Launch Dispatch Console.
2. In the left pane, select **Route Management**.
3. In the right pane, click **Create** in the toolbar.
4. In the **Route** dialog box, specify the route name and description. Select the type of rule:
   - **All checkpoints, strict order, strict schedule**
     Checkpoints 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.
5. In the **Start/Stop Rules** tab, specify the rules for the route management. For details, refer to Setting Start/Stop Rules.
6. In the **Route Points** tab, add and configure the checkpoints. For details, refer to Adding Checkpoints.
7. In the **Checkpoint Statuses** tab, specify how the checkpoints should be attended during the guard tour. For details, refer to Setting Checkpoint Statuses.
8. In the **Notifications** tab, specify text messages to be sent to the guard's radio in particular events. For details, refer to Setting Notifications.
9. Click **OK** to save the route.

3.2.1 Setting Start/Stop Rules

By default, a guard tour can be started, paused, resumed, and stopped manually by a Dispatch Console operator.

To allow the guard tour management from the guard's radio, select the **Start/Stop Rules** tab in the **Route** window. The **Start Route**, **Pause Route**, **Resume Route**, and **Finish Route** sections include similar settings.

For instance, expand the **Start Route** section. Option **Manually by dispatcher** is enabled by default and cannot be edited. This option enables the operator to start a guard tour by clicking the **Start** button in the **Route Management** tab or in the **Active Routes** pane.



To enable the radio user to start the guard tour automatically, select the preferred options:

- **Automatically by receiving Text Message from a radio**
  The route starts when the radio sends a specific text message to TRBOnet Server. If you select this option, then specify the text message the radio will send in the **Message** box.
- **Automatically by receiving Telemetry Command from a radio**
  The route starts when the user presses a preconfigured button on the radio and TRBOnet Server receives a telemetry command from the user's radio. If you select this option, specify the **VIO** contact, and from the **Command** drop-down list, select the signal level at which the user's radio should send the telemetry command.
- **Automatically by receiving DTMF command from a radio**
  The route starts when the user sends a specific DTMF command to TRBOnet Server, for instance, #11#. If you select this option, specify a DTMF combination without the # characters in the **Command** box.
- **Automatically by receiving Status from a radio**
  The route starts when the user sends a specific Status to TRBOnet Server, for instance, 1. If you select this option, specify the **Status**.

- **Wait for confirmation from a radio**
  Select this option to start the route after the TRBOnet Server receives a confirmation from the radio. In this case, the route is assigned to the radio or user and paused. The route will be resumed after a confirmation is received.

Specify the same options in other sections. In the Finish Route section, specify some additional options:

- **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 'Unattended'.

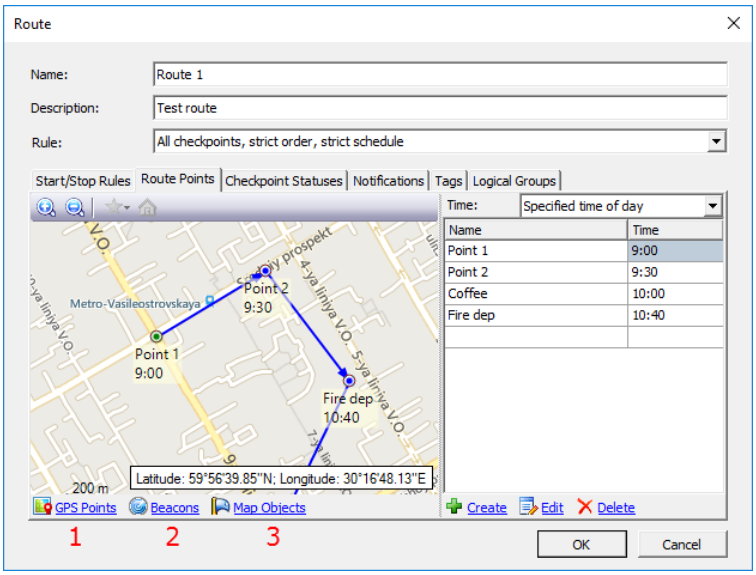
3.2.2 Adding Checkpoints

You can add map points, beacons, and map objects as checkpoints to the route. In the **Route** dialog box, select the **Route Points** tab and click one of the links at the bottom left of the dialog box (**GPS Points**, **Beacons**, or **Map Objects**). The left pane will display either the selected map, beacons, or map objects registered in the system. The right pane displays all checkpoints added to the route.

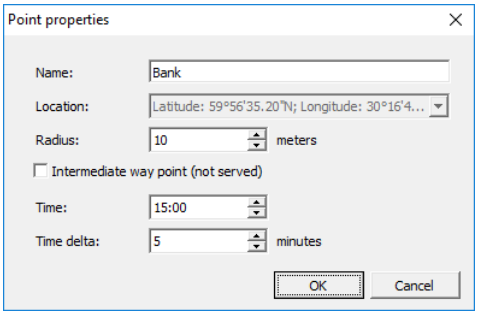
To add checkpoints to the route:

1. Click the **GPS Points** link.

   In the 'Select Map' dialog box, select the map and click **OK**.

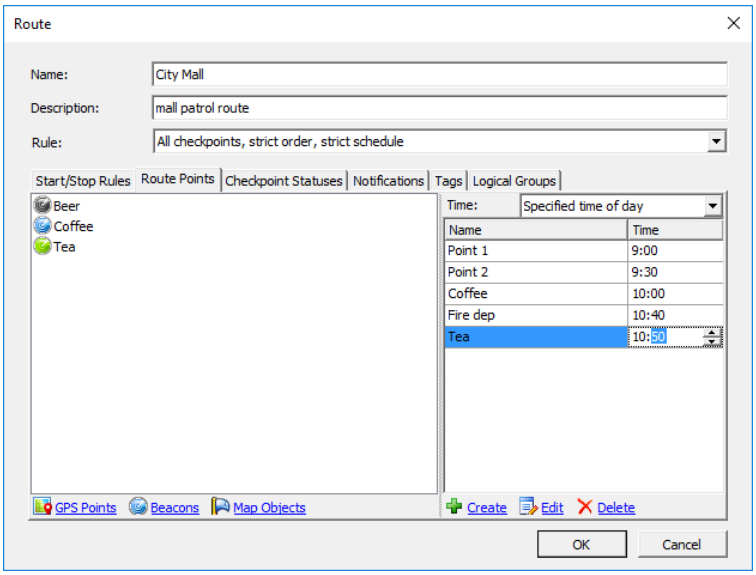


2. Double-click a point in the left pane, or click **Create** and click a point in the left pane.

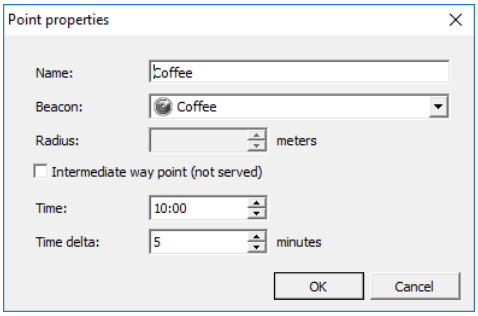


Or,

1. Click the **Beacons**/**Map Objects** link.



2. Double-click a beacon/map object point in the left pane, or click **Create** and click a beacon/map object in the left pane.
3. In the **Point properties** dialog box, specify the following checkpoint properties:



- **Name**: The checkpoint name to be displayed to the operator.
- **Beacon/Map Object**: The beacon/map object that works as a checkpoint. If necessary, expand the **Beacon/Map Object** menu and select a different beacon/map object.

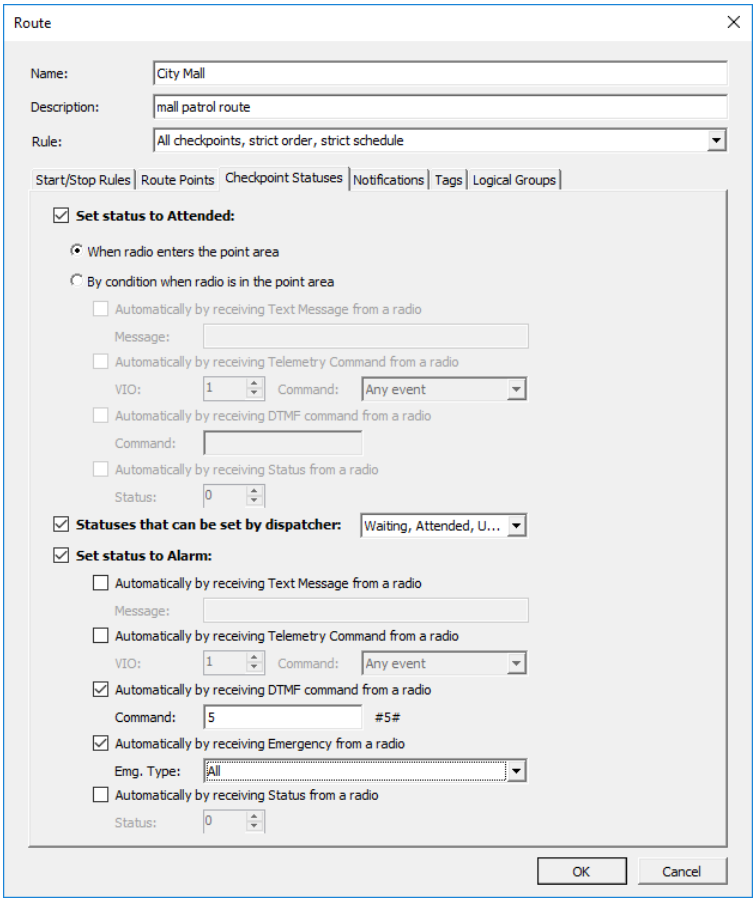
The **Time** and **Time delta** properties are available if you have selected the **All checkpoints, strict order, strict schedule** type of route. Leave default values in these properties by now, you can configure them later. Click **OK**.

4. Add all checkpoints to the route in the order they should be attended. To put a different checkpoint to a particular position in the route, do any of the following:
   - Select the position in the right pane, click **Edit**, then click the preferred beacon in the left pane.
   - Double-click the position in the right pane and assign it a different name and beacon in the **Point properties** window.
5. (Optional) If you have selected the **All checkpoints, strict order, strict schedule** type of route, you need to assign the attendance time for each checkpoint.
   - From the **Time** list box on the right, select the preferred option:
     - **Specified time of day**
       Select this option to show the absolute attendance time for each checkpoint. For instance, if you specify 18:05, the checkpoint has to be attended at this time exactly.
     - **Time shift from route start**
       Select this option to show the time shift from the absolute time when the guard tour has started. For instance, if you specify 0 h 10 m, the checkpoint has to be attended in 10 minutes after the guard tour has started.
   - In the right pane, click the value in the **Time** field for each checkpoint and specify the attendance time.
   - Additionally, double-click each checkpoint and specify the **Time delta** property to extend the time range when the checkpoint can be attended automatically.

     For instance, if you show 18:05 as the absolute attendance time and 5 minutes as the delta value, the checkpoint has to be attended at 18:05 +/- 5 minutes.

3.2.3 Setting Checkpoint Statuses

To configure the way(s) how TRBOnet should receive information about attended checkpoints and change their statuses to 'Attended' or 'Alarm', select the **Checkpoint Statuses** tab in the **Route** dialog box.



- **Set status to Attended**
  Select this option so that TRBOnet Server will change the checkpoint status to 'Attended' based on the information from the radio.
  - **When the radio enters the point area**
    Choose this option so that the radio detects the closest beacon and sends location data to TRBOnet Server. The respective checkpoint changes its status to 'Attended ' automatically.
  - **By condition when the radio is in the point area**
    If this option is chosen, the radio sends a preconfigured command to TRBOnet Server. The last detected checkpoint changes its status to 'Attended ' by this command. Configure the preferred command(s):
    - **Automatically by receiving Text Message from a radio**
      Select this option so that the checkpoint is considered to be attended after the dispatcher receives a specific text message from the radio. If you select this option, then specify the text message the radio will send in the **Message** box.

- **Automatically by receiving Telemetry Command from a radio**
  Select this option so that the checkpoint is considered to be attended after the dispatcher receives a specific telemetry command from the radio. If you select this option, specify the **VIO** contact, and from the **Command** drop-down list, select the signal level at which the user's radio should send the telemetry command.
- **Automatically by receiving DTMF command from a radio**
  Select this option so that the checkpoint is considered to be attended after the dispatcher receives a specific DTMF command from the radio, for instance, #11#. If you select this option, specify a DTMF combination without the # characters in the **Command** box.
- **Automatically by receiving Status from a radio**
  Select this option so that the checkpoint is considered to be attended after the dispatcher receives a specific Status from the radio. If you select this option, specify the **Status**.

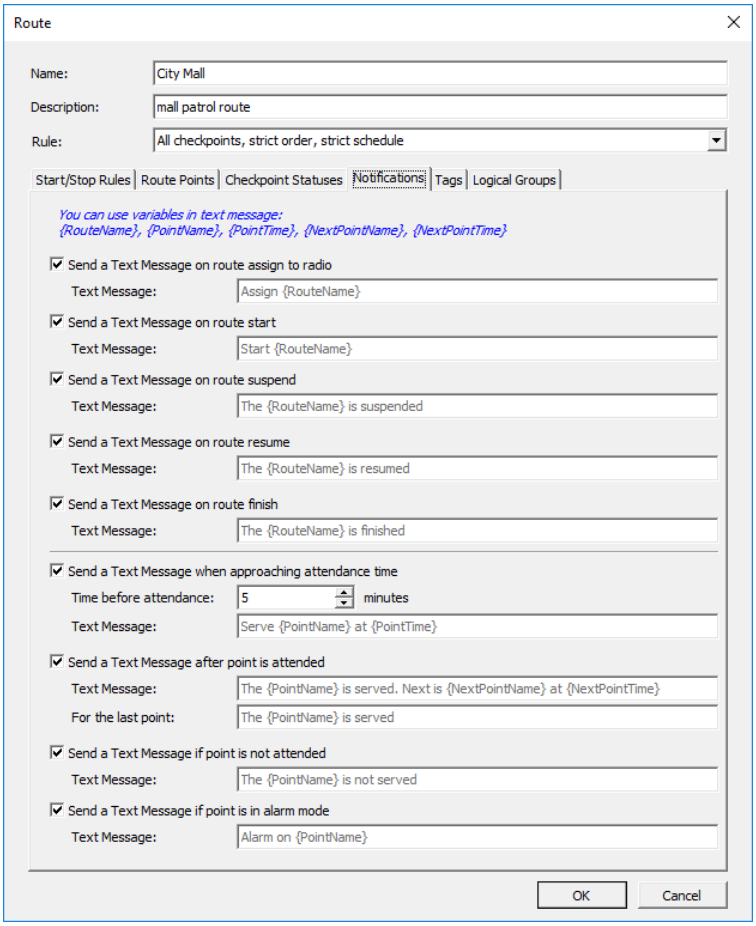
- **Statuses that can be set by dispatcher**
  Select this option to allow the Dispatch Control operator to manually change the status of checkpoints in the **Active Routes** panel.
  In the drop-down list, select the checkpoint statuses to be available for the operator: Waiting, Attended, Unattended, and Alarm.
- **Set status to Alarm**
  Select this option to allow the radio to set an alarm on the attended checkpoint. Configure the command(s) that can set the checkpoint status to 'Alarm'.
  - **Automatically by receiving Text Message from a radio**
    Select this option to set the point to alarm mode after the dispatcher receives a specific text message from the radio. If you select this option, then specify the text message the radio will send in the **Message** box.
  - **Automatically by receiving Telemetry Command from a radio**
    Select this option to set the point to alarm mode after the dispatcher receives a specific telemetry command from the radio. If you select this option, specify the **VIO** contact, and from the **Command** drop-down list, select the signal level at which the user's radio should send the telemetry command.
  - **Automatically by receiving DTMF command from a radio**
    Select this option to set the point to alarm mode after the dispatcher receives a specific DTMF command from the radio. If you select this option, specify a DTMF combination without the # characters in the **Command** box.

- **Automatically by receiving Emergency from a radio**
  Select this option to set the point to alarm mode after the dispatcher receives an Emergency from the radio.
  - **Emg. Type**
    Select the Emergency type from the drop-down list.
- **Automatically by receiving Status from a radio**
  Select this option to set the point to alarm mode after the dispatcher receives a specific Status from the radio. If you select this option, specify the **Status**.

3.2.4 Setting Notifications

In the **Notification** tab of the **Route** dialog box, select the notifications that the personnel should receive on their radio during the guard tour.

To enable each option, select it. The **Text Message** boxes already include text. If necessary, replace the text with your own, using variables as placeholders to 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.

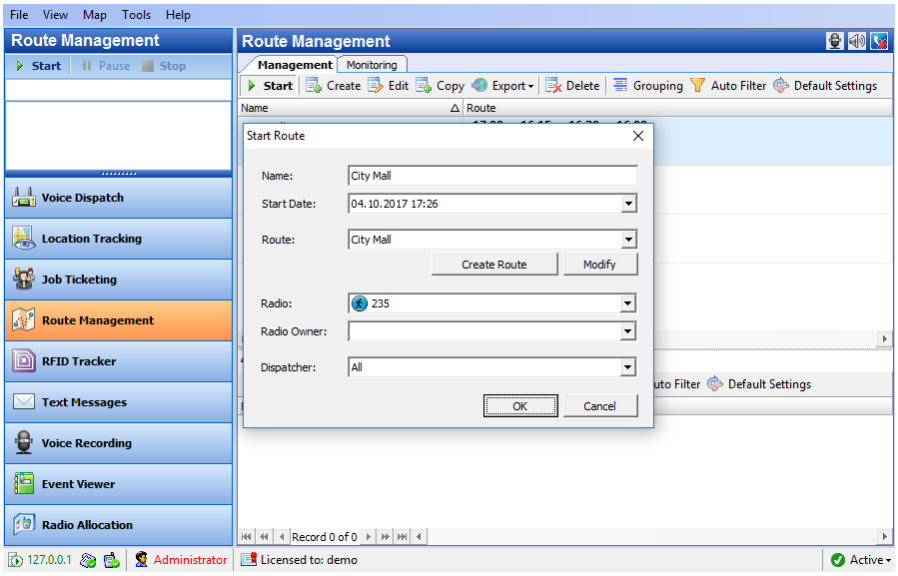
- **Send a Text Message on route start**
  Select this option to inform a radio holder that the route started.
- **Send a Text Message on route suspend**
  Select this option to inform a radio holder that the route is suspended.
- **Send a Text Message on route resume**
  Select this option to inform 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.

4 Operation

To manage and monitor guard tours in TRBOnet Dispatch Console, select **Route Management** or **Location Tracking** in the navigation (left) pane.

4.1 Starting a Guard Tour

Depending on the route configuration settings, a guard tour can be started by a command from the radio and/or by the Dispatch Console operator from the **Route Management** or **Location Tracking** tab.

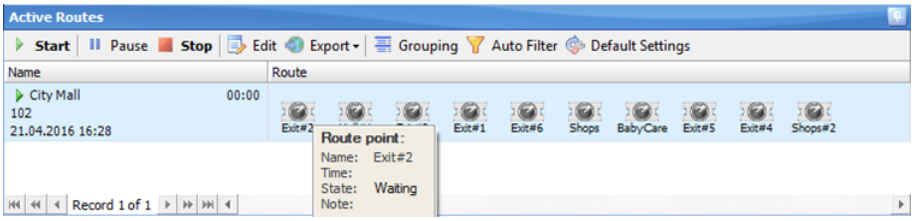


1. In the **Route Management** tab, select a route and click **Start** in the toolbar above, or click **Start** in the **Active Routes** pane. If in the **Location Tracking** tab, click **Start** in the **Active Routes** pane.
2. In the **Start Route** dialog box, specify the guard tour settings:
   - **Name**: The name of the guard tour to be displayed in the **Active Routes** pane.
   - **Start Date**: The date and time for the guard tour to start. The current date and time are displayed by default.
   - **Route**: The route of the guard tour. Expand the menu and select the required route.
   - **Radio**: The radio ID to which the route is assigned.
   - **Radio Owner**: (Optional) The radio owner (TRBOnet user) to whom the route is assigned. Specify this parameter in addition to or instead of the radio ID if the guard's radio can be used by more than one TRBOnet user.
   - **Dispatcher**: (Optional) The operator who can monitor the guard tour in Dispatch Console. By default, all operators can monitor the guard tour.

3. Click **OK**. The guard tour appears in the **Active Routes** pane.

4.2 Managing Active Routes

In the **Active Routes** pane, you can see all active routes that are available to you for monitoring. Each active route shows its name, the radio ID, and the date and time when it should start. The state of a route (started, paused, stopped) is indicated by the icon in front of the route name.



As a Dispatch Console operator, you have rights to start, pause, and stop routes that you see in the **Active Routes** pane. To manage the routes, use the **Start**, **Pause**, and **Stop** toolbar buttons.

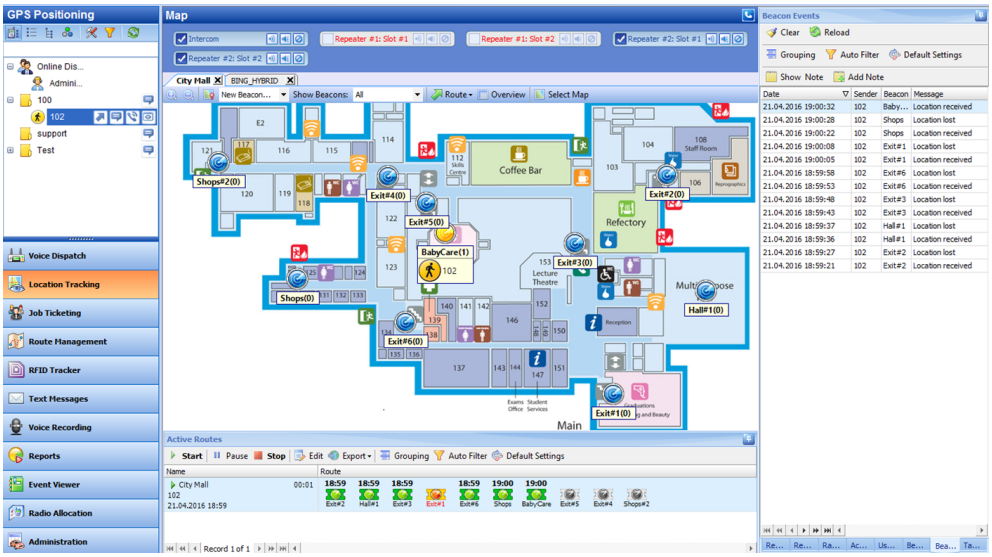
Button	Description
Start	When you click the **Start** button, you call the **Start Route** window in which you can assign a route as described in Starting a Guard Tour. When you assign a route, it appears in the **Active Routes** pane already started or put on hold: ▪ If you have entered the current date and time, the guard tour starts immediately. ▪ If you have entered the future date or time, or if the selected route has the **Wait for confirmation from a radio** option selected, the guard tour appears in the **Active Routes** pane with the **Pause** button toggled. To start the guard tour, release this button.
Pause	When you toggle this button, the route is put on hold. Commands from the radio do not affect the checkpoint statuses at this time. If the total time of the route is limited, the timer is put on hold as well.
Stop	When you click this button, you stop the execution of the route and clear it from the **Active Routes** pane. This operation cannot be undone by any operator's action or command from the radio.

4.3 Monitoring a Guard Tour

During the guard tour, the personnel on mission attends all checkpoints one after another, keeping to the order in which the checkpoints are displayed in the **Active Routes** pane. Optionally, the guard can receive text messages on the radio that instruct them what to do next.

When the radio detects a beacon (checkpoint), it automatically sends the location data to TRBOnet Server. Depending on the route configuration settings, location data can be enough to consider the checkpoint attended, or the guard has to send a command from the radio to confirm the attendance. When this is done, the checkpoint is considered attended.

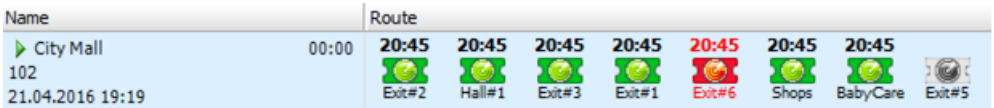
You can monitor the process of attending checkpoints in the **Location Tracking** tab.



- On the floor map, a just attended checkpoint is highlighted in the yellow color.
- The **Beacon Events** tab displays the history of attended beacons that is updated in real time.
- In the **Active Routes** pane, you can see the checkpoints changing their statuses automatically as described in section 4.3.1, Monitoring Checkpoint Statuses Set Automatically.

4.3.1 Monitoring Checkpoint Statuses Set Automatically

When a guard tour starts, the **Active Routes** pane displays all checkpoints with the 'Waiting' status. Then all attended checkpoints automatically change their statuses to 'Attended' or, if a checkpoint is attended with emergency, to 'Alarm'.



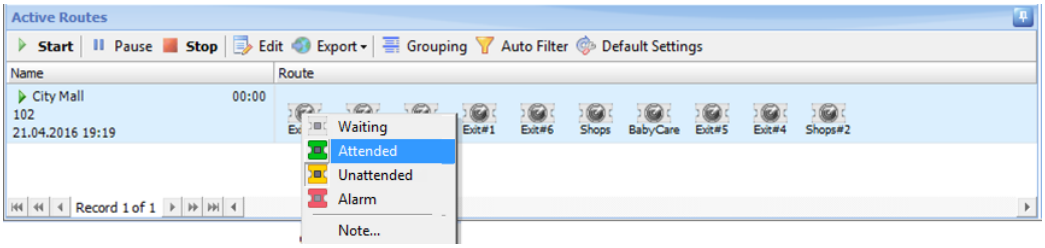
If a checkpoint with the 'Attended' status is re-attended with emergency, the checkpoint status changes to 'Alarm'. The 'Alarm' status cannot be removed by re-attending a checkpoint without emergency. You can only change the 'Alarm' status manually as described in section 4.3.2, Assigning Checkpoint Statuses Manually.

Routes of different types show some differences when changing the checkpoint statuses automatically.

Route Type	Checkpoint Statuses	Comments
All checkpoints, loose order, loose schedule	Waiting, Attended, Alarm	The checkpoints can be attended in any attendance order and at any time. The route stops automatically when all checkpoints have been attended.
All checkpoints, strict order, loose schedule	Waiting, Attended, Alarm, Unattended	The checkpoints should be attended in the specified order and at any time. A bypassed checkpoint changes its status to 'Unattended'. If the guard attends this checkpoint later, the status changes to 'Attended' or 'Alarm'. The route stops automatically when all checkpoints have been attended, or when the last checkpoint in the **Active Routes** pane has been attended. All unattended checkpoints change their statuses to 'Unattended'.
All checkpoints, strict order, strict schedule	Waiting, Attended, Alarm, Unattended	The checkpoints should be attended in the specified order and at the specified time. The attendance time for each checkpoint must fall into the range defined by the preconfigured time +/- time delta. If a checkpoint is attended sooner or later than the specified time, the checkpoint status is not updated automatically. When the route starts, all of its checkpoints show the absolute time values in the **Active Routes** pane. If the route is paused and then resumed, these values are not recalculated. The route stops automatically when all checkpoints have been attended, or when the last checkpoint in the **Active Routes** pane has been attended. All unattended checkpoints change their statuses to 'Unattended'.

4.3.2 Assigning Checkpoint Statuses Manually

The route configuration can allow a Dispatch Console operator to assign statuses to checkpoints manually. If this right is provided, you can change the checkpoint statuses without limitations until the route is stopped.



To assign a different status to a checkpoint, right-click it in the **Active Routes** pane and select the available status in the context menu.

Note: The status set manually can be changed to 'Alarm' automatically if the checkpoint is re-attended with emergency.

4.4 Stopping a Guard Tour

Depending on the route configuration settings, a guard tour can be stopped:

- automatically by a command sent from the radio;
- automatically when all checkpoints are attended;
- automatically when the route time is elapsed.

In all above cases, the **Active Routes** pane displays the stopped route if any of the checkpoints has the status other than 'Attended'. If all checkpoints have the 'Attended' status, the route is stopped and immediately cleared from the **Active Routes** pane.

Additionally, a guard tour can be stopped manually by clicking the **Stop** button in the **Active Routes** pane. In this case, the route is cleared from the **Active Routes** pane after a prompt.

After the route is stopped, the checkpoint statuses cannot be modified neither automatically, nor manually.