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1 Introduction

1.1 About This Guide

This document is intended for administrators setting up evaluation and proofof-concept deployments of MOTOTRBO Dispatch over IP solutions. The document describes the minimum steps required to integrate Teltonika devices into TRBOnet software.

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.

For more information about TRBOnet products, refer to our <u>website</u>.

1.3 Contacts

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2 Configuring Teltonika Devices

This section describes how to configure Teltonika devices using the Teltonika Configurator software.

- Connect a Teltonika device to the PC via a USB port.
- Run Teltonika Configurator.
- In the upper toolbar, click **Load from device**.

2.1 Status

• In the left pane, select **Status**.

Device Info		
Device Name	Last Start Time	Power Voltage
GH5200	14/03/2019 13:44:38	0 mV.
Firmware Version	RTC Time	Device IMEI
03.21.03 Rev:79	14/03/2019 13:54:42	352093086500351

• In the right pane, in the **Device Info** section, you can see, among other parameters, the **Device IMEI** number.

2.2 System

- In the left pane, select **System**. In the right pane, specify the following settings:
 - In System Settings > Data Protocol, choose Codec 8 Extended.



In the Sleep Mode section:

Sleep Mode							
Sleep Settings							
Disable	GPS Sleep						
Deep Sleep	Online Deep Sleep						
Ultra Sleep							

• If you choose **Deep Sleep**, then, while in this mode, the GSM/GPRS module will be turned off. Records with last known coordinate will be saved and sent to TRBOnet Server in accordance with the time period specified in **Data Acquisition > On stop > Send Period**.



On stop			
	Home	Roaming	Unknown
Min Saving Period	30 🗘	30 🕻	30 🗘
Min Saved Records	1 🔷	1	1 🗘
Send Period	120 🗘	120 🕻	120 🗘

- In Static Navigation Settings > Static Navigation,
 - If you choose **Enable**, then, if the device is not moving, GPS data changes will be filtered.

Static Navigation Settings				
Static Navigation				
Disable Enable				

2.3 GPRS

- In the left pane, select **GPRS**. In the right pane, specify the following settings:
 - In the **Server Settings** section, specify the following settings:

Server Settings							
Domain	exam	ple.com					
Port		2022 🗘					
Protocol							
ТСР		UDP					

• Domain

Enter the domain name of the PC where TRBOnet Server is running.

• Port

Enter the port number. Note that port forwarding is required on the router.

• **Protocol** Choose **UDP**.



• In the **Records Settings** section, specify the following settings:

Newest	Oldest
Sort By	
Network Ping Timeout (s)	0 🗢
Response Timeout (s)	30 🗘
Open Link Timeout (s)	30 🗘
Records Settings	

• Open Link Timeout

Enter the timeout that will be used to send data to TRBOnet Server. This option is useful when your mobile network operator uses a perminute billing rate.

• Sort by

Choose **Newest** to send the newest data first.

2.4 Features

• In the left pane, select **Features**. In the right pane, specify the following settings:

Power Off\On							
Event On Power	Off						
Disable	Disable						
Send To				~			
SMS Text Pow		r					

In Power Off\On > Event On Power Off, choose Enable.



2.5 Keyboard

- In the left pane, click **Keyboard**. In the right pane, specify the following settings:
 - In Button IO Feature > Event Button Source, choose the buttons that will used on the Teltonik device.



• In the corresponding button sections, select the actions that will be performed on one click, two clicks, and long-click.

Once you have finished configuring the device:

• in the upper toolbar, click **Save to device**.



3 Configuring TRBOnet Software

This section describes how to appropriately configure TRBOnet software.

3.1 TRBOnet Server

• Run TRBOnet Server.

Note: Make sure that your TRBOnet Software license includes Teltonika Mobile.

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

Configuration	Teltonika	
Repeater #1 TRBOnet Swift Agent #1 TRBOnet Swift Agent Vitya TRBOnet Swift Agent Vitya Advanced Settings Redundancy PTT over Cellular Advanced Settings PoC Gateway #1 Celtonika Remote Agents Agent #1 Redundancy Friendly Servers Phone Connect Advanced Settings Internal PBX Server Advanced Settings External PBX Server Advanced Settings External PBX Server Advanced Settings External PBX Server	Enable Teltonika service Local Interface: System Default Local Port: S010	, p
Set Defaults	Apply OK Can	cel

• In the **Teltonika** pane:

Enable Teltonika service

Select this check box and specify the following Teltonika-related parameters.

Local Interface

From the drop-down list, select the local network interface that will be used to communicate between TRBOnet Server and Teltonika devices.

Local port

Enter the UDP port number to be used.



3.2 TRBOnet Dispatch Console

• Run TRBOnet Dispatch Console.

3.2.1 Adding Teltonika Device

• Go to Administration (1), Radios (2).

File View Map Tools Help								
Administration	Radios							🔮 🐠 🛂
Email Groups	Registered Unre	gistered Add Digital Radio	🖕 Add Range 🛛	Add TRBOnet Mobile 🗔 Add TRBO.SOS 🗔 Add Teltonika 🗔 Edit 📑 Delete				🖌 Delete 💙
Users	Radio Name	Туре	Radio ID	IMEI V	7 MDC ID	User Extension/Lo	Radio Groups	Logical Groups
三 Logical Groups 間 Radio Groups	🛞 tmt250	Teltonika	3	359633109461520	0		All	
To Device Lists 2	🛞 Teltonika_GH5200	Teltonika	2	354017114344050	0		N	
Radios	🚷 e.sadikova	TRBOnet Mobile	1		0	e.sadikova		
< >	🖈 Test Mobile	TRBOnet Mobile	1025		0	7891		
	🚷 Katya Mobile	TRBOnet Mobile	8967		0	8967	3	
Uoice Dispatch	🐼 Victor Mobile	TRBOnet Mobile	7856		0	7856		
	🛞 Samsung	TRBOnet Mobile	6768		0	6768		
Location Tracking	🛞 Radio 1	Digital Radio	386868		0		All	
	🗑 Radio_2626	Digital Radio	2626		35	2626		
30b Ticketing	MCI Asus2	TRBOnet Mobile	6579		0	6579		
~	MCI Victor	TRBOnet Mobile	6767		0	6767		
🧬 Route Management	🛞 MCl Katya N	TRBOnet Mobile	789		0	katyan		
	MCI Samsung	TRBOnet Mobile	6774		0	6777		lgr 1. 1
RFID Tracker								
C Text Messages								
🔮 Voice Recording								
Reports								
Event Viewer								
[행] Radio Allocation	1							
Administration	H4 44 4 Record 3 of 1	3 • • • • •						•
🚺 Connected 🖓 🔂 🔂 🔂 🔂	🙎 Administrator	Licensed to: Neo	com Software Ltd	(Demo License)				🕑 Active 🕶

• Click Add Teltonika (3) to add a new Teltonika device.

On the **General** tab, specify general settings for the Teltonika device:

Teltonika: tmt250		×
General Logical Grou	ups Additional Cameras	
Radio Name: IMEI: Radio ID: Profile: Icon:	tmt250 359633109461520 3 Teltonika 250 Portable Radios	> +
	ОК	Отмена



Radio Name

Enter a name for the Teltonika device.

IMEI

Enter the Teltonika device's IMEI number. The IMEI number is on the barcode sticker next to the serial number. You can also see the IMEI number in Teltonika Configurator (see section <u>2.1, Status</u>).

- Radio ID Enter the Radio ID of the device.
- Profile

Select the profile for the Teltonika device.

To see the **IMEI** and **Teltonika Profile** columns in the table of registered devices, right-click on the table header, and from the context menu select **Column Chooser**. In the list of available columns, select the column and drag it to the desired position in the table.

You can also add a Teltonika device once it is automatically detected by TRBOnet Server:

- In the **Radios** pane, click the **Unregistered** tab.
- Select the Teltonika device and click Register (or double-click).
- In the dialog box that opens, enter a name for the device and click **OK**.

3.2.1.1 Linking Teltonika device to Radio

To link a registered Teltonika device to the radio:

• Right-click the desired radio in the list of registered radios and from the drop-down menu, select **Edit** (or, just double-click the desired radio in the list of radios).

File View Map Tools Help								
Administration	F	Radios					🔁 🕪 💩	
	^	Registered Unregistered Image: Add Group Image: Add Range Image: A						
Radios		Radio Name	Туре	Radio ID	MDC ID	User's Extension	Radio Groups	Logical Groups V
	v 0	tmt250	Teltonika	1	0		All	
< >	0	Radio 235	Digital Radio	235	0		11	
		3333	TRBOnet Mobile	3333	0	3333		
Voice Dispatch	0	4444	TRBOnet Mobile	4444	0	4444		
		Radio 125	Dinital Radio	125	0		11	
Location Tracking			P Add Group					
Job Ticketing			Add Digital Ra	dio				
🥡 Route Management			Add TRBO.SOS					
Text Messages			Add WAVE 500	0				
Reports			🛃 Add Teltonika					
Event Viewer			🛃 Delete					
Radio Allocation		_	Unlink Teltoni	ca				
Administration	144	44 4 Record 5 of	5 1 10 10 10					Þ
🐻 Connected 🗞 👶 🤹 🔹 💆 Administrator 📑 Licensed to: demo (Walt) (Demo License) 🛛 🕑 Active					🕑 Active 🕶			

• In the dialog box that opens, click the **Teltonika** tab.



Digital Radio: Radio 12	5	×
General Logical Groups	Additional SIP Account Cameras Teltonika	
Device:	tmt250 ~ +	
Location Source:	Mixed mode ~	j
Positioning mode:	From radio's Location Profile 🗸 🗸	
	From radio's Location Profile From Teltonika Profile	
		1
	ОК Отмена	

Device

From the list, select the desired Teltonika device.

Location Source

From the list, select the desired source of location data.

• Teltonika

Select this item to use only location data received from the Teltonika device. In this case, location data received from the radio will be ignored, that is, they won't be recorded to the database and so won't be used in the reports.

• Built-in GPS receiver (Radio)

Select this item to use only location data received from the radio. In this case, location data received from the Teltonika device will be ignored, that is, they won't be recorded to the database and so won't be used in the reports.

• Mixed mode

If this item is selected, location data received from both devices will be used.

Positioning mode

If **Mixed mode** is selected from the **Location Source** list, select from where the Positioning mode will be taken (radio's Location Profile or Teltonika Profile).

Once you have linked the Teltonika device, it will be grayed out in the list of registered devices.



3.2.1.2 Unlinking Teltonika device from Radio

To unlink the Teltonika device from the radio:

• Right-click the radio in the list of registered radios and from the dropdown menu, select **Unlink Teltonika** (or, just click the **Unlink Teltonika** button on the toolbar when the required radio is selected in the list).

File View Map Tools Help										
Administration		R	adios						۵ 🚳	L
		4	Registered Unre Add Group	egistered Add Digital Radio	🛃 Add Range	🛃 Add TRBO	net Mobile 📑 Add T	RBO.SOS	🗄 Unlink Teltonika	» *
Device Lists	- 11		Radio Name	Туре	Radio ID	MDC ID	User's Extension	Radio Group	s Logical Groups	⊽
Radios	~	×	tmt250	Teltonika	1	0		All		
<	>	۲	Radio 235	Digital Radio	235	0		11		
		۲	3333	TRBOnet Mobile	3333	0	3333			
Voice Dispatch		۲	4444	TRBOnet Mobile	4444	0	4444			
		F	Radio 125	Digital Dadio	125	0		11		
Location Tracking				🕈 Add Grou	p					
Job Ticketing				Add Digita	e net Mobile					
Route Management				📑 Add TRBO.SOS						
Text Messages				Add WoC	Radio E 5000					
Reports				Add Telto						
Event Viewer				🛃 Delete						
Radio Allocation				Unlink Tel	tonika					
Administration		144	4 A Record 5 of 5							Þ
访 Connected 🗞 🕵 🥵 🥵 🕵 🖉 Administrator 🔣 Licensed to: demo (Walt) (Demo License) 🔮 Active -					ve •					

3.2.2 Adding Teltonika Profile

• Go to Administration, Teltonika Profile.

You can see the default Teltonika Profile settings in the **Teltonika Profile** pane.

• In the **Teltonika Profile** pane, click the **Add** button.

Teltonika Profile	>
Profile Name: Teltonika 2	50
Location Additional	
Use GPS location	
Periodic interval:	60 seconds
Use Indoor location	
Periodic interval:	30 seconds
iBeacon filter:	
Positioning mode:	iBeacon Indoor/Outdoor
	OK Cancel

Use GPS location

Select this option to enable sending GPS data to TRBOnet Server.

• Periodic interval

Specify the time interval, in seconds, that will be used to send GPS location data.



Use Indoor location

Select this option to enable sending iBeacon data to TRBOnet Server.

• Periodic interval

Specify the time interval, in seconds, used to send iBeacon location data.

• Positioning mode

This option determines which GPS coordinates to show on the map and display in the device's movement history when TRBOnet Server receives a data packet containing both iBeacon and GPS data.

✓ iBeacon Indoor/Outdoor

The coordinates of the iBeacons will be positioned on the indoor and outdoor maps.

✓ iBeacon Indoor/GPS Outdoor

The coordinates of the iBeacons will be positioned on the indoor map while the coordinates of the device will be positioned on the outdoor map.

✓ iBeacon Indoor/No Outdoor

Only iBeacon-based location tracking will be used, GPS coordinates of devices and iBeacons will be ignored.

• Click the **Additional** tab.

Teltonika Profile		×
Profile Name: Teltonika 250		
Location Additional		
Events Battery Level Emergency Button Man Down		
Location ✓ Save GPS data to database ✓ Automatic error correction <u>Configure</u>		
	ОК	Cancel

Events

Battery Level

Select this option so that the Teltonika device's battery level will be sent to the Dispatch Console.



Note: Teltonika devices send the battery information as soon as they are connected to TRBOnet. After successful connection, Teltonika devices pass the battery level to the server with every location update. Regardless of the device activity, the battery charge level will be logged on TRBOnet Server every time the level goes down to 90%, 80%, 70%, 60%, 50%, 40%, 30%, 20%, 15%, 10%, and 5%.

Emergency Button

Select this option so that the Teltonika device will be able to send Emergency Alarms to the Dispatch Console.

Man Down

Select this option to send Man Down alerts to the Dispatch Console.

Location

- Save GPS data to database
 Select this option so that GPS data is saved in TRBOnet database.
- Automatic error correction

Select this option to enable automatic error correction to detect and correct invalid GPS data.

Click the **Configure** link to specify the GPS parameters to be corrected:

Automatic error correction							
In some situations, speed and location values from the GPS receiver may be erratic or unreliable. Use the settings below to apply automatic error correction to the GPS data feeds.							
Discard GPS data if							
Speed greater than:	120 🗘	km/h					
✓ Location accuracy worse than:	50 ‡	meters					
✓ GPS time error greater than:	30 ‡	minutes					
Coordinates have duplicates							
Set speed to 0 if it is less than:	0	km/h					
Defaults	ОК	Cancel					

Discard GPS data if

• Speed greater than

Select this option and enter the maximum possible speed of your vehicles. As a result, the coordinates with speeds that exceed the maximum limit will be discarded.

• Location accuracy worse than

Select this option and enter the largest distance for the accuracy of the GPS receiver. As a result, the coordinates with distances that exceed the maximum limit will be discarded.



• GPS time error greater than

Select this option and enter the largest allowable time error, in minutes. As a result, the coordinates with time errors that exceed the maximum limit will be discarded.

• Coordinates have duplicates

Select this option to remove duplicate coordinates from the GPS data.

• Set speed to 0 if it is less than

Select this option and enter the low-speed threshold. Speeds below this threshold will be considered as zero by the server.