



ITS KVARTA USER'S MANUAL

ITS Public Transport



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1. INTRODUCTION

1.1. About KVARTA

For more than 20 years, Kvarata has been developing products for Broadcasters and CATV providers. Our devices are used by major radio and television broadcasters and regulatory agencies.

Broadcasting is our passion. We know what you want and we have designed many devices, which are perfectly adapted to your needs. These include RDS encoders, FM Radio monitors and CATV systems. KVARTA has a reputation for excellence and innovation among its clients and partners.

Our CATV, DVB Monitoring devices and RDS/RBDS encoders are growing in popularity due to their reliability, quality and functionality at exceptional prices. All of our products have been designed for professional broadcast use and are fully meet the standards. Our devices incorporate embedded web site and SNMP communication.

1.2. About ITS

An intelligent transportation system (ITS) aims to provide innovative services relating to different modes of transport and traffic management and enable various users to be better informed and make safer, more coordinated, and better use of transport networks.

Emission and congestion problems are increasingly causing persistent economic losses and other social harms in numerous populated areas worldwide. ITS are complex innovative solutions, which successfully address such problems and create a transport environment which is safer, cost optimized and more sustainable.

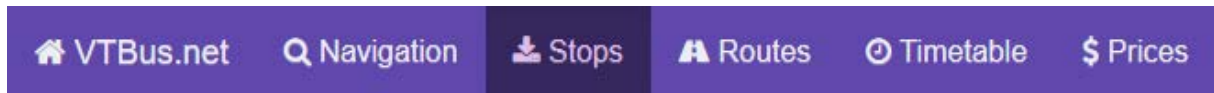
1.3. About ITS Kvarata


ITS Kvarata was created with the idea of improving the general condition of the public transport in Veliko Tarnovo, by adding a detailed route schedule, improved bus arrival times, a simple to use navigation system, a map showing all of the bus stops in the city and all its suburban areas, and more. Our hope is to expand the system, so that it can be used in many other major cities around the world.

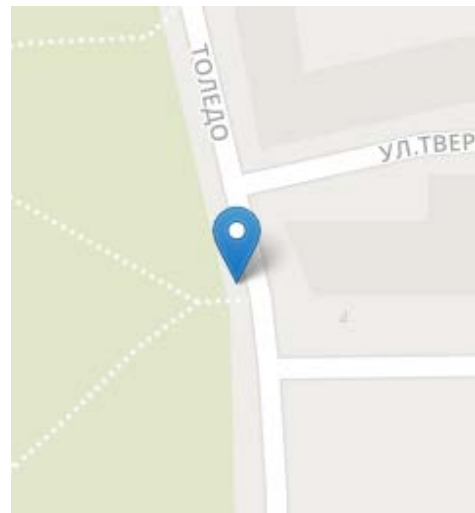
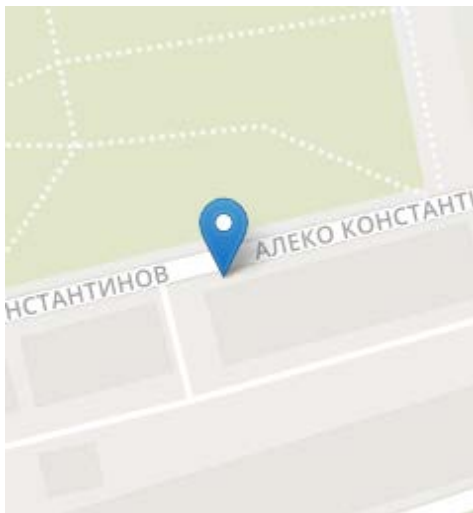
2. BUS STOPS MENU

2.1. Adding bus stops

- After logging on as an Admin, you will have access to some exclusive menus for configuration



- “**Stops**” is the first primary menu that should be configured, since they form the ‘skeleton’ of your bus lines that go through the city.
- To add a stop station, look at the upper-right corner of your screen, and select: 
- You can now place the new bus stop on any point of the map, as shown in the examples below:



2.2. Bus stops configuration

- After selecting the location of the new stop, a window will pop-up, requiring you to add some general information for it. **Latitude** and **Longitude** are filled automatically.

Add - ✕


Name	<input type="text" value="Name"/>	NameEN	<input type="text" value="NameEN"/>
Latitude	<input type="text" value="43.0831665291491"/>	Longitude	<input type="text" value="25.626538395881656"/>
Angle	<input type="text" value="0"/> ▾	Type	<input type="text" value="Автобус"/> ▾
Price group	<input type="text" value="Велико Търново"/> ▾		

- **Name** – enter the original name of the bus stop
 - **NameEN** – enter the name of the stop in Latin
 - **Angle** – from the drop-down menu, select the angle of the small arrow to match the direction in which the bus is travelling(used for easier bus route orientation)
 - **Price group** – select the price group in which this bus stop belongs to(Price groups are created in the “Prices” menu, which we will look at later on)
 - **Type** – select stop type
- After configuring the stop, select **Save** to save it. You can later edit or delete any stop you have configured, by clicking on it while you are in the “Stops” menu, and selecting the pencil icon:



3. BUS ROUTES MENU

3.1. Adding bus routes

- Now, let's create some routes.
While in the “Routes” menu, select the green plus sign in the upper-left corner: 
- A new window will pop-up, requiring you to add some general information regarding the new route:

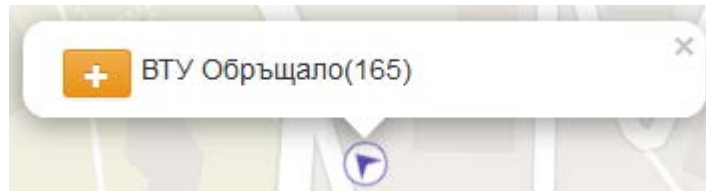
Add - ✕

Line <input type="text" value="Line"/>	Reverse <input type="text" value=""/>
Source <input type="text" value="Source"/>	SourceEN <input type="text" value="Source EN"/>
Destination <input type="text" value="Destination"/>	DestinationEN <input type="text" value="Destination EN"/>
Operator <input type="text" value="Operator"/>	

Delete
Auto generate path
Manual edit path
Save
Cancel

- **Line** – enter the bus line number
- **Reverse** – from this drop-down menu, select the reversal line to the one you are currently making(or, come back later and select it after you've created the reversal line)

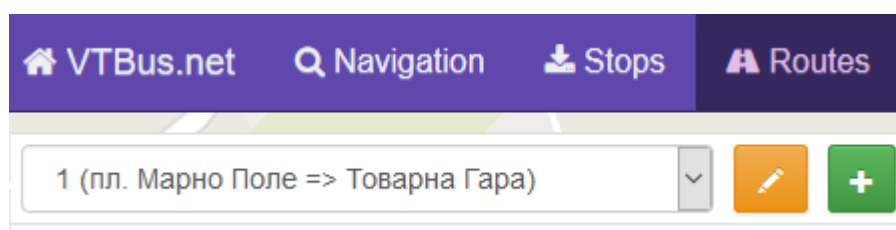
- **Source** – enter the starting point of the bus
 - **SourceEN** – enter the starting point of the bus in Latin
 - **Destination** – enter the final destination of the bus line
 - **DestinationEN** – enter the final destination of the bus line in Latin
 - **Operator** – enter the bus operator
- After filling in the route information, you are ready to start connecting its pathway on the map. While in the “**Routes**” menu, select the initial bus stop(the starting position for your bus line), and select the plus sign:



- A small pop-up window will appear. This is where you fill in the stops **Index**(the consecutive numbering for the stops), and the **Reach time**(the time it takes for the bus to reach this stop, from the previous stop, **in seconds**. The Reach time for the starting point of the bus must be left as 0).

3.2. Editing bus routes and generating bus paths

- Once you are done interconnecting the rest of the stops, until you’ve reached the final stop for the bus line, you must now generate the visual path of the bus. This is done by going back in the editing menu for the route, by clicking the pencil icon in the upper-left corner, next to the bus line number and destination:



- Now that you are back in the route editing menu, select the **Auto generate path** button, and the bus path will be generated along the interconnected stops.

Edit -
✕

Line

Source

Destination

Operator

Reverse

SourceEN

DestinationEN

Delete
Auto generate path
Manual edit path

Save
Cancel

1 (пл. Марно Поле => Товарна Гара) ✕ +

#	Stop	Time	+
1.	Летен Театър	0	✏
2.	МДТ "Константин Кисимов"	120	✏
3.	Съдебна палата	120	✏
4.	Габровски	240	✏
5.	Болница	120	✏
6.	Качица	180	✏
7.	Автогара Запад (градски линии)	120	✏
8.	Елмот	60	✏
9.	Чолаковци	180	✏
10.	Радиозавод	120	✏
11.	Дървообработване	60	✏
12.	МСД	120	✏
13.	Товарна гара	60	✏

- If you find any mistakes in the generated path, you can manually edit it, by selecting the **Manual edit path** button.

1 (пл. Марно Поле => Товарна Гара) ✕ +

Save
Cancel

#	Stop	Time	+
1.	Летен Театър	0	✏
2.	МДТ "Константин Кисимов"	120	✏
3.	Съдебна палата	120	✏
4.	Габровски	240	✏
5.	Болница	120	✏
6.	Качица	180	✏
7.	Автогара Запад (градски линии)	120	✏
8.	Елмот	60	✏
9.	Чолаковци	180	✏
10.	Радиозавод	120	✏
11.	Дървообработване	60	✏
12.	МСД	120	✏
13.	Товарна гара	60	✏

- The manual path editing, utilizes an easy to use click-and-drag function. You can also add extra dots for path manipulation, by clicking on the small dot, situated between two larger dots.
- After you are done correcting the path, always remember to **Save** the changes you've made to the path!

#	Stop	Time	
1.	Летен Театър	0	
2.	МДТ "Константин Кисимов"	120	
3.	Съдебна палата	120	
4.	Габровски	240	
5.	Болница	120	
6.	Качица	180	
7.	Автогара Запад (градски линии)	120	

4. TIMETABLE MENU

4.1. Adding and configuring timetables

- Now we must establish how many times, buses go through our routes daily. This is done in the **"Timetable"** menu.
- Once in the menu, select the route you want to add a timetable to, from the drop-down menu in the upper-left corner.

Route	Time
1 (Marno Pole => Tovarna Gara)	09:30
1 (Tovarna Gara => Marno Pole)	09:30
2 (Cholakovci => Marno Pole)	09:30
2 (Marno Pole => Cholakovci)	09:32
3 (Avtogara Zapad => Debelec)	09:34
3 (Debelec => Avtogara Zapad)	09:38
4 (VTU => Kartala)	09:40
4 (Kartala => VTU)	09:43
5 (VTU => Kolyo Ficheto)	09:45
5 (Kolyo Ficheto => VTU)	
6 (Ledenik => Sudebna Palata)	
6 (Sudebna Palata => Ledenik)	
7 (Avtogara Zapad => Prisovo)	
7 (s. Prisovo => Avtogara Zapad)	
8 (Avtogara Zapad => Belyakovec)	
8 (Belyakovec => Avtogara Zapad)	
9 (Kartala => Cholakovci)	
9 (Cholakovci => Kartala)	
10 (Avtogara Zapad => Gorna Oryahovica)	
10 (Gorna Oryahovitsa => Avtogara Zapad)	

- Now, click the **+Add** button. A pop-up window will appear, prompting you to select which days of the week the timetable schedule will be for, as well as the exact time buses begin their rounds through the route.

- Each route can have several timetables configured, depending on the days of the week, and the bus operators working schedule.
- Bus time schedules must be written in **HH:MM** format, and separated between commas.
NOTE: You can skip certain stops from the schedules if required.

Try placing in brackets the **Index** numbers of the stops, buses will go through.

The Index numbers that were skipped will not be included for that particular route.

	06:55	07:55	08:30	09:30	10:30	11:30	12:25	13:25	14:30	15:30	16:30	17:25	18:25	19:30
1. Tovarna gara	06:55	07:55					12:25	13:25				17:25	18:25	
2. MSD	06:57	07:57					12:27	13:27				17:27	18:27	
3. Darvoobrabotvane	06:58	07:58					12:28	13:28				17:28	18:28	
4. Radiozavod	06:59	07:59					12:29	13:29				17:29	18:29	
5. Cholakovci	07:00	08:00	08:30	09:30	10:30	11:30	12:30	13:30	14:30	15:30	16:30	17:30	18:30	19:30

- After you've inserted the buses beginning rounds in the timetable and save it, the rest of the arrival times between stops will be added automatically, as long as the **Reach time** indicators in the **"Routes"** menu have been established correctly.

	06:35	07:35	08:35	11:35	12:35	13:35	16:35	17:35
30 (Buzludzha => VTU)								
1. Starcheski Dom	06:35	07:35	08:35	11:35	12:35	13:35	16:35	17:35
2. Lazurna	06:36	07:36	08:36	11:36	12:36	13:36	16:36	17:36
3. Mikropazar	06:37	07:37	08:37	11:37	12:37	13:37	16:37	17:37
4. Izchisliteln tsentur	06:40	07:40	08:40	11:40	12:40	13:40	16:40	17:40
5. Bavariya	06:41	07:41	08:41	11:41	12:41	13:41	16:41	17:41
6. Pozharna	06:43	07:43	08:43	11:43	12:43	13:43	16:43	17:43
7. Tsentralen pazar	06:44	07:44	08:44	11:44	12:44	13:44	16:44	17:44
8. Mayka Bulgariya	06:48	07:48	08:48	11:48	12:48	13:48	16:48	17:48
9. Avtogara Yug	06:51	07:51	08:51	11:51	12:51	13:51	16:51	17:51
10. Birena fabrika	06:52	07:52	08:52	11:52	12:52	13:52	16:52	17:52
11. ZhP Gara	06:56	07:56	08:56	11:56	12:56	13:56	16:56	17:56
12. VTU rektorat	06:59	07:59	08:59	11:59	12:59	13:59	16:59	17:59
13. VTU	07:00	08:00	09:00	12:00	13:00	14:00	17:00	18:00
14. VTU Obryshitalo	07:01	08:01	09:01	12:01	13:01	14:01	17:01	18:01

5. BUS FARE MENU

5.1. Adding prices and price groups

- The final part is to add information about the bus fare costs. This is done in the **"Prices"** menu.
- Price groups serve to differentiate between the bus fare pricing in various regions.
- To create a price group, click the **+Add** button. A small pop-up window will prompt you to give the new price group a **Name** and a **Price** value.

- Once you have created all your price groups, you can assign them to the bus stops in the “Stops” menu, by selecting to edit a stop of your choice (see 2.2. Bus stops configuration). All the price groups you’ve created, will be available in the form of a drop-down menu, and can be assigned individually to different stops.

- You can also assign bus fare costs from one region to the next, if the bus route is travelling between two regions, or more. Select the first region, then press the **+Add transfer cost** button, and a small pop-up window will prompt you to choose the second region, and set the fare price.

From	To	Price	
Велико Търново	Горна Оряховица	1.5 leva	
Велико Търново	Арбанаси	1 leva	
Велико Търново	Дебелец	0.8 leva	
Велико Търново	Шемшево	0.8 leva	
Велико Търново	Леденик	0.8 leva	
Велико Търново	Присово	0.8 leva	
Велико Търново	Беляковец	0.8 leva	
Велико Търново	Лясковец	1.3 leva	
Велико Търново	Никюп	2.2 leva	
Велико Търново	Миндя	2.4 leva	

+ Add transfer cost

From: Велико Търново

To: Миндя

Price: 2.4 leva