



**The Tracker data redirection plugin  
PRINTED MANUAL**

# Tracker data redirection plugin

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## 1 Introduction

With the "Tracker data redirection" plugin, you can pass data from GPS trackers to other telematic servers and change the format (protocol) of the data on the fly.

The main logger application receives data from trackers of one type, splits the data into packets and variables, then the module assembles new data packets of the selected format and transmits it to the specified server over the TCP, UDP or HTTP(S) protocols.

Here is the list of currently supported formats; it expands continuously upon our customers' requests.

APKCOM ASC 5  
AutoGRAPH  
EGTS protocol  
Gis Sonic SOAP  
GlobalTrack G200X  
GMT SOAP  
GpsGate SmartPipe (NMEA 0183 \$GPRMC)  
GpsGate TrackerOne (HTTP)  
GpsGate TrackerOne (TCP)  
HTTP 1.1 GET  
HTTP 1.1 POST  
M2M SOAP  
MTA8000  
Navtelecom Signal 2115  
Teltonika  
Wialon IPS  
Wialon IPS v2  
Wialon Retranslator

## 2 Configuration

In the Data redirection module's configuration window (Fig. 1):

1. Select the format.
  2. Specify the IP address and port of the server the data will be redirected to.
- Match the variables in the parser with the respective fields in the data packet to be sent to the target server.

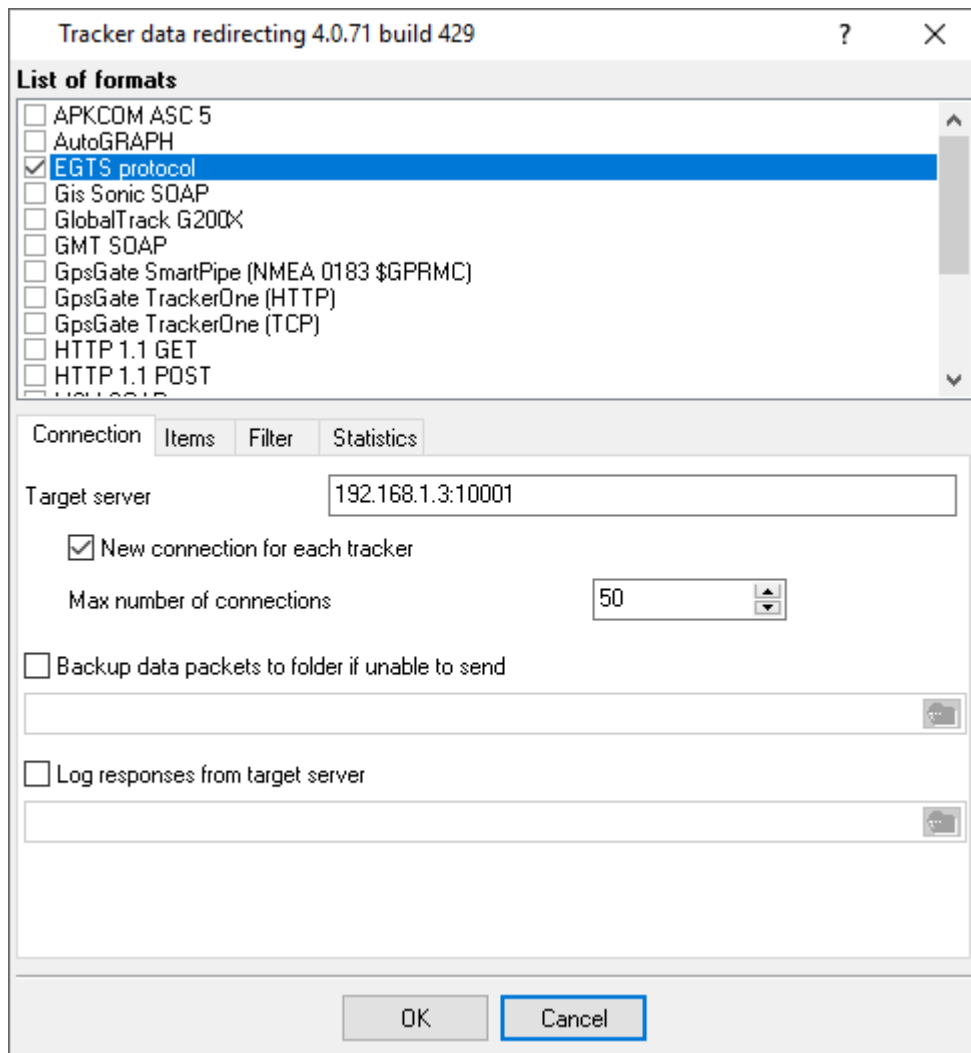


Fig.1. Configuration window

## Connection

**Formats** – select one or several formats. Individual settings will be used for each format. To activate a redirection in the required format, select the checkbox by the format name. To modify redirection settings for the required format, click and select it on the list.

**Target server** – specify the connection string for the required server. In this field, you can specify several target servers, separating them with a semicolon.

TCP – use the format 192.168.1.3:7777 (IP address followed by the colon and the port number).

Multiple servers: 192.168.1.3:7777;192.168.1.4:7777

UDP - udp://192.168.1.3:7777

HTTP - http://192.168.1.3:7777

HTTPS - https://192.168.1.3:7777

**New connection for each tracker** – the module emulates a real tracker by creating a new connection to the target server for each tracker. That increases CPU load but also improves

compatibility, as not all target servers accept data from multiple trackers through the same connection.

**Maximum number of connections** – here you can limit the maximum number of connections to the target server. It is recommended to specify the limit value exceeding the number of working trackers by 20%. That way, the module will have enough time to transmit the live data being received from the trackers and restore the backed-up data from the archive in case of transmission failure.

**Backup data packets to folder if unable to send** – should any problems occur while transmitting data to the target server, the module will create temporary data files. When the connection is restored, it will both transmit the live data and restore the backed-up data.

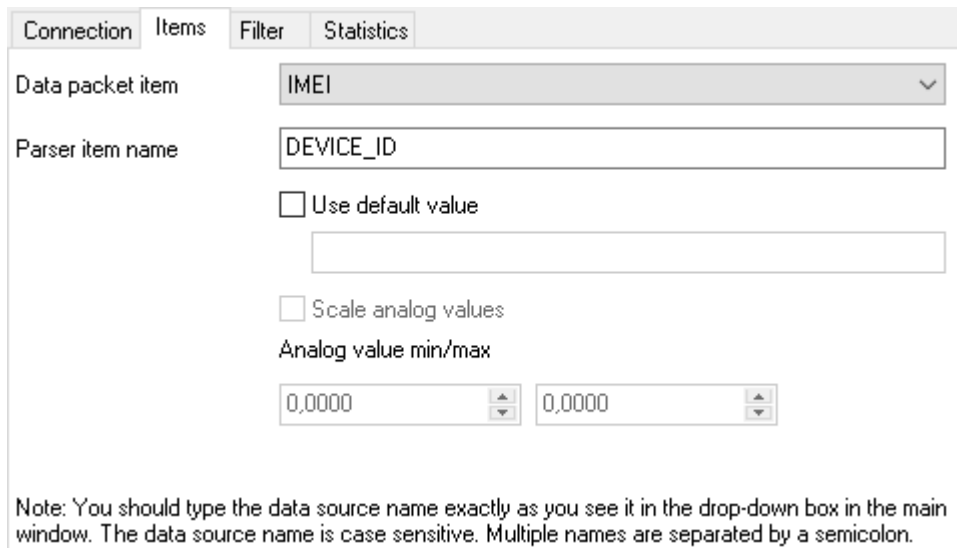
Please note that in this case the chronology of the data transmission can be breached. Some target servers may be sensitive to the sequence of the data flow.

The module makes only five attempts to transmit data from the backup. Therefore, data loss is probable when the target server remains unavailable for too long.

**Log responses from target server** – this option may be useful when configuring or troubleshooting a connection to the target server. In the log files, you can view the server's replies to the packets sent to it and, for instance, find out why the target server does not accept the data.

## Values

On this tab (Fig. 2) you can match up the variables in the parser with the items in the new data packet in the selected format.



The screenshot shows a configuration window with four tabs: 'Connection', 'Items', 'Filter', and 'Statistics'. The 'Items' tab is active. It contains the following fields and controls:

- 'Data packet item': A dropdown menu showing 'IMEI'.
- 'Parser item name': A text input field containing 'DEVICE\_ID'.
- 'Use default value': An unchecked checkbox.
- 'Scale analog values': An unchecked checkbox.
- 'Analog value min/max': Two spinners, both set to '0,0000'.

Note: You should type the data source name exactly as you see it in the drop-down box in the main window. The data source name is case sensitive. Multiple names are separated by a semicolon.

**Fig.2. Matching variables**

Please note that not all source data can be redirected to another server. In general, the redirection works only for the common telematic data (date, time, coordinates, speed).

By default, the redirection module is configured to transmit as much data as possible; however, you can change the content of the data to be transmitted by modifying the correspondence of the variables.

**Data packet item** – contains the list of all possible items in the new data packet.

**Parser item name** – specify the name of the parser variable, the value of which will be used when forming the data packet.

**Use default value** – if the source packet doesn't have a variable with the specified name, the module will use the default value when forming the new data packet.

If there is no variable in the source packet, and the default value is not set, the new packet too will not have the respective value. If the target format does not allow skipping values, the program will add a zero, empty string or FALSE (depending on the field's data type).

**Scale analog values** – the module can proportionally recalculate the source value into a new one. For instance, if in a new data packet, the value is an integer between 0 and 4096, the source value is 10, the minimum is 0, and the maximum is 100, the new value in the packet will be  $4096 * 10 / 100 = 409$ .

Table 1 lists the fields and their data types, which the module expects to receive from the parser. When matching up the values, you should keep in mind that the redirection module expects to receive data from the parser or the data filtration modules in the specified format. When matching up the values, the module can automatically convert their data types as follows:

- Float into integer by discarding the fractional part;
- Integer into float;
- Number into string;
- String into number;
- Number into a logical value (0 – logical FALSE, any other value – logical TRUE).

Data packet field	Data type	Description
IMEI	String	Device identifier (number, IMEI, etc.)
Date and Time	DateTime	UTC
Longitude	Float	In the GPS format; e.g., 48.71514
Latitude	Float	In the GPS format; e.g., 48.71514
Height (m)	Integer	In meters above the sea level
Heading	Float	Angle 0-360 degrees
Speed	Byte	Km/h
Distance	DWORD	Travel distance, km
Relay 1-8	Logical	Status of relay 1-8
Sensor 1-8	Logical	Status of sensor 1-8
ADC 1-4	Byte	Value of ADC 1-4
Voltage 1-2	Float	Voltage in Volts in the range between 0 and 25.5
GPS	Byte	Number of satellites (0 – 14)
GSM	Byte	GSM signal level (0-5)

T int.	Signed byte	Internal temperature (degrees) from -127 to 127
T ext.	Signed byte	External temperature (degrees) from -127 to 127
Fuel 1-2	DWORD	Value of fuel sensor 1-2
Engine hours 1-2	WORD	Value of engine hours 1-2
Alarm indication	Logical or numeric	0 or False – no alarm indication; otherwise, an alarm indication is present.

## Filter

On this tab (Fig. 3) you can set up filters for trackers redirection is enabled for. The identifiers can be set in the module settings. You can also specify a name for the external text file.

If the text file name is specified, the module will check it occasionally and refresh the list in the memory when the file gets modified.

When the option "**Filter out specified IDs**" is enabled, the redirection will be enabled for all trackers except for listed in the table.

When the option "**Redirect specified IDs only**" is enabled, the redirection will be enabled only for trackers listed in the table.

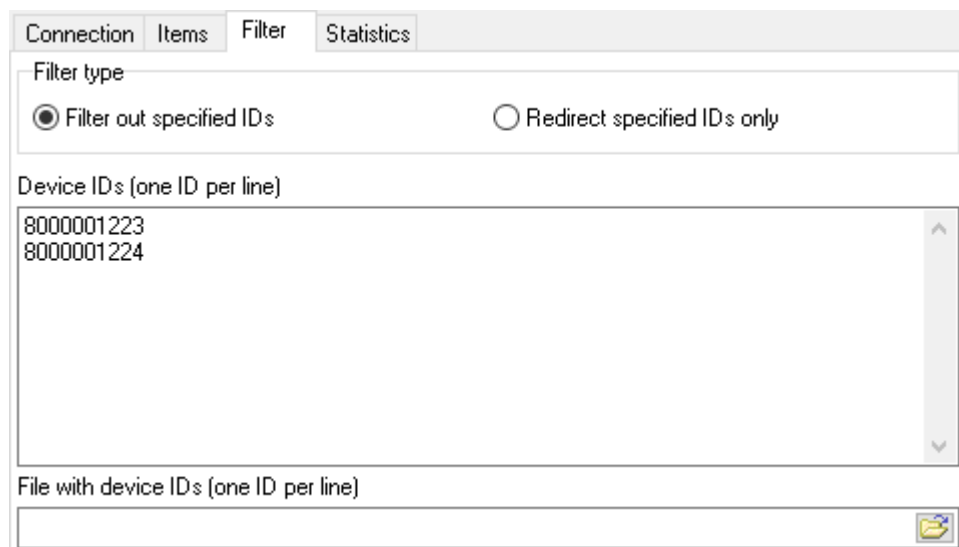


Fig.3. Filter settings

## Statistics

This tab provides brief performance statistics for the entire module (list of active and inactive connections). This data can be used for troubleshooting and obtaining information on the load of the redirection module. When the load is low, you can reduce the number of simultaneous connections and thus save CPU resources. Alternatively, the other way around, increase the number of connections if the outgoing queue is large.



### 3 Formats

**APKCOM ASC 5, AutoGRAPH, GlobalTrack G200X, Navtecom Signal 2115, Teltonika** – format of the respective tracker.

**EGTS protocol** – Russian format EGTS.

**Gis Sonic SOAP** – example of a data packet with a link to the schema.

POST:application/soap+xml; charset=utf-8

```
<?xml version="1.0" encoding="utf-8"?>
<soap12:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema" >
  <soap12:Body>
    <GIS_Info_Sonic xmlns="http://portal.secureorigins.com">
      <Security-Token></Security-Token>
      <device_num>3512340</device_num>
      <Latitude>53.918460</Latitude>
      <Longitude>27.603648</Longitude>
      <timestamp>20190403061613</timestamp>
    </GIS_Info_Sonic>
  </soap12:Body>
</soap12:Envelope>
```

**GMT SOAP** – example of a data packet.

POST:text/xml; charset=ISO-8859-1

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" >
  <soap:Body>
    <UbicacionEquipoTerceros xmlns="urn:GMTGPSIntegracionTerceros">
      <sNoSerie xsd:type="xsd:string">3512340</sNoSerie>
      <sEvento xsd:type="xsd:string"></sEvento>
      <sFechaHoraPaquete xsd:type="xsd:string">20190403062009</sFechaHoraPaquete>
      <sLatitud xsd:type="xsd:string">53.918460</sLatitud>
      <sLongitud xsd:type="xsd:string">27.603648</sLongitud>
      <sVelocidad xsd:type="xsd:string">40</sVelocidad>
      <sHeading xsd:type="xsd:string">0</sHeading>
      <sTemperatura xsd:type="xsd:string">0</sTemperatura>
    </UbicacionEquipoTerceros></soap:Body></soap:Envelope>
```

**GpsGate SmartPipe (NMEA 0183 \$GPRMC)** – format of the data packet is the same as of \$GPRMC of the standard NMEA 0183, but here the device ID precedes the packet.

```
IMEI=100000003512340$GPRMC,062147,A,5355.1076,N,02736.2189,E,21.6,0.0,20190403,, ,E*4E<CR><LF>
```

**GpsGate TrackerOne (HTTP)** – format supported by the GpsGate system. Works only if the target server address is of the HTTP or HTTPS type.

```
GET /url?cmd=$FRCMD,100000003512340,_SendMessage,,5355.1076,N,02736.2189,E,0.0,21.60,0.0,030419,062147
Accept: */*
Connection: Keep-Alive
User-Agent: GPS Tracker Data Logger
Host: 127.0.0.1:7777
```

**GpsGate TrackerOne (TCP)** – format supported by the GpsGate system. Works over TCP.

```
$FRCMD,100000003512340, _SendMessage, , 5355.1076,N,02736.2189,E,0.0,21.60,0.0,030419,062624.0
```

### HTTP 1.1 GET - simple HTTP GET request.

```
GET /url?op=loc&imei=3512340&dt_tracker=2019-04-03+06%3A28%3A16&lat=53.918460&lng=27.603648
Accept: */*
Connection: Keep-Alive
User-Agent: GPS Tracker Data Logger
Host: 127.0.0.1:7777
```

### HTTP 1.1 POST - simple HTTP POST request.

```
POST /url HTTP/1.1
Accept: */*
Connection: Keep-Alive
Content-Type: application/x-www-form-urlencoded
User-Agent: GPS Tracker Data Logger
Host: 127.0.0.1:7777
Content-Length: 210
```

```
op=loc&imei=3512340&dt_tracker=2019-04-03+07%3A09%3A50&lat=53.918460&lng=27.603648&altitude
```

### M2M SOAP – inter-server interaction protocol by Wialon.

```
<?xml version="1.0" encoding="windows-1251"?>
<soapenv:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope">
<soapenv:Header/>
<soapenv:Body>
<ws:PutCoord>
<ObjectID>3512340</ObjectID>
<Coord time="2019-04-03T07:11:40Z" lon="27.603648" lat="53.918460" alt="0" speed="40" dir="
<DigO outnum="1" />
<DigI inpnum="1" />
<AnalogI num="1" val="0.0" />
<AnalogI num="2" val="0.0" />
<PortData port="99" value="0" recvd="" />
</ws:PutCoord>
</soapenv:Body>
</soapenv:Envelope>
```

**Wialon IPS, Wialon IPS v2** – protocols developed by Wialon. Detailed descriptions can be found on the Net. The second version of the protocol features additional fields in the first authentication message.

```
#L#3512340;NA<CR><LF>
#D#030419;071311;5355.1076;N;02736.2189;E;40;0;NA;9;NA;1;1;0.0,0.0;NA;serial_id:3:0,pwr_in:
```

**Wialon Retranslator** – binary exchange protocol developed by Wialon.