

# gTracker protocol (ver. 1)

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Each message consists from header and body:

	L	T	Body
Size (in bytes)	1	1	Depends on message type

L – message length. This field is not counted in length.

T – message type

## Client messages

### *Authenticate message.*

	L	T	V	DeviceID
Value	0x41	1		
Size (in bytes)	1	1	1	12 or 0

V – protocol version. Equal to 1.

If client connects first time DeviceID field shall have zero length. If client already has identity, it shall be passed in DeviceID field.

### *Coordinate message*

	L	T	Latitude degree	Latitude exponent	Longitude degree	Longitude exponent	Speed	Time Stamp	....
Value	0x43								

Size (in bytes)	1	1	2	4	2	4	2	4
Size (in bytes)	1	1				18 ...		

Body can contain several coordinates. Each coordinate consists from four fields: Latitude degree, Latitude exponent, Longitude degree, Longitude exponent, Speed and Time Stamp. Latitude and longitude are floats calculated by algorithm (described in Appendix A). Mantissa is a Latitude(Longitude) degree and exponent is a Latitude(Longitude) exponent. Speed is measured in km/h. Time Stamp field is a UTC time presented as count of seconds since Epoc (1 -Jan-1970).

### ***Heartbeat message***

	L	T	
Value	0x45		
Size (in bytes)	1	1	0

Client shall send heartbeat message each minute. If both heartbeat and coordinate messages are absent within 2 minute interval, client will be dropped by server and track will be closed.

### ***SOS message***

	L	T	
Value	0x46		
Size (in bytes)	1	1	0

This message can be send in case of emergency situation. The server can react somehow(e. g. sending SMS message).

### ***Start new track***

	L	T	Track name
Value	0x47		
Size (in bytes)	1	1	0..50

A new track with new name(if any) will be started right after this message arrival.

### ***Rename track***

	L	T	Track name
Value	0x48		
Size (in bytes)	1	1	0..50

Renames current track. If track name is empty (zero length), current track name is dropped.

## **Server messages**

### ***Authenticate response from server***

	L	T	DeviceID	Reference
Value	0x42			
Size (in bytes)	1	1	12	128

DeviceID field contains unique identity for connected client. The client shall store this identity and use it next time to connect (see Authenticate message). Reference is a null-terminated string Http reference to direct view of active track of the device. All trailing unused bytes are filled with zeros. This reference can be sent by eMail, SMS, etc.

### **Track status**

	L	T	Track name
Value		0x49	
Size (in bytes)	1	1	50

Track new name.

### **Error message**

	L	T	Error code	Description
Value		0x44		
Size (in bytes)	1	1	1	0...

Server may response with error. Possible error codes are described in Appendix B.

### **Heartbeat message response**

	L	T	
Value		0x4a	
Size (in bytes)	1	1	0

The server response to client Heartbeat message.

### **Reconnect demand**

	L	T	Host	Port
Value		0x4b		
Size (in bytes)	1	1	32	4

The server demands client to reconnect to Host:Port, where Host is a null-terminated string and Port is a 4 byte integer. When client gets such message it MUST reconnects to given Host:Port.

## **Appendix A**

TBD. Latitude/Longitude calculation algo.

## **Appendix B**

- ERROR\_NOT\_AUTH (0x01) – client not authenticated. Authenticate first.
- ERROR\_WRONG\_MSG (0x02) – wrong message. Message has wrong format for declared protocol version. Description field of Error Message contains message, which client sent to server.
- ERROR\_FUCK\_OFF (0x03) – client was disconnected after N attempts to send wrong data.

- ERROR\_SERVER\_UNAVAILABLE (0x04) – server not in working mode.
- ERROR\_WRONG\_DID(0x05) – wrong DeviceID
- ERROR\_ALREADY\_AUTH(0x06) – client with such DeviceID has already authenticated
- ERROR\_TRACK\_RENAME(0x07) – track rename failed
- ERROR\_START\_NEW\_TRACK(0x08) – start new track failed
- ERROR\_TRACK\_NAME\_TOO\_LONG(0x09) – track name too long
- ERROR\_TRACK\_NOT\_STARTED(0xA) – track is not started yet