

# TAT100 Tracking settings

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## Tracking Scenarios - FW version before X.4.7

**Please note:**



Device has up to 3 min. hardcoded time to get fixed position while it's awake from a Sleep Mode. If GNSS signal is poor - device will need more time to get fixed position. Battery usage is higher while device is looking for GNSS positions than it stays in Sleep Mode.

**Record timestamp shift:** When disabled, the timestamp in records will not be modified and the timestamp will be in UNIX time (UTC +00), although functionality won't be affected. **Time Zone:** Set tracking scenario time zone. Time zone can be set in range of -12h to +14h.

**Periodic:**

**Tracking Scenarios**

Tracking Mode

None    **Periodic**

Scheduler

Time Zone    UTC+00:00    ▾

Record timestamp shift

Disable    **Enable**

**Tracking Periods**

On Stop (s)    28800    ⬆️⬆️

On Moving (s)    28800    ⬆️⬆️

**Please note:**  
 It means that device will **wake up from Sleep Mode** periodically and send data of asset location information after fix is obtained. Data could be sent according to I/O parameters in I/O section.

**Detailed example of default Periodic settings:**

1. Device wakes up after 28800 s.
2. Device is looking for GPS Fix (can take up to 3 min., depends on the environment)
3. Device saves record to memory and tries to send it via GPRS (can take up to 2 min., depends on the environment)
4. Device goes to sleep for 28800 s.

**Please note:**  
 If On Move tracking period is configured to be greater than On Stop, when devices detects movement, On Move countdown will start and data package will be sent once On Move countdown completes.

**Scheduler:**

**Scheduler**

Day of the Week	Records per day	1st	2nd	3rd	4th	5th	6th
Monday	1    ▾	12:00	12:00	12:00	12:00	12:00	12:00
Tuesday	1    ▾	12:00	12:00	12:00	12:00	12:00	12:00
Wednesday	1    ▾	12:00	12:00	12:00	12:00	12:00	12:00
Thursday	1    ▾	12:00	12:00	12:00	12:00	12:00	12:00
Friday	1    ▾	12:00	12:00	12:00	12:00	12:00	12:00
Saturday	1    ▾	12:00	12:00	12:00	12:00	12:00	12:00
Sunday	1    ▾	12:00	12:00	12:00	12:00	12:00	12:00

This mode is used to set up the actual schedule of data sending. Every day of the week data could be

sent up to 6 times.

### **The main rules of making Schedule:**

- Time from 1st to 6th record must be set in ascending order.
- Intervals between different times must be at least 6 minutes.
- Days of the week must be selected by clicking on it.

**Please note:**

- ✘ The record will not be generated at configured specific time, but will be generated up to a few minutes later because of time needed to boot modem and to get position.

## **Tracking Scenarios - FW version after X.4.7**

**Please note:**

- ✘ Device has up to 3 min. hardcoded time to get fixed position while it i's awake from a Sleep Mode.
- If GNSS signal is poor - device will need more time to get fixed position. Battery usage is higher while device is looking for GNSS positions than when it stays in Sleep Mode.
- If less than 3 satellites are visible in the first 60 seconds, satellite search is terminated early.

### **Periodic:**





**Please note:**

- ✘ It means that device will **wake up from Sleep Mode** periodically and send data of asset location information after fix is obtained. Data could be sent according to I/O parameters in I/O section.

**Record timestamp shift:** When disabled, the timestamp in records will not be modified and the timestamp will be in UNIX time (UTC +00), although functionality won't be affected. **Time Zone:** Set tracking scenario time zone. Time zone can be set in range of -12h to +14h.

**On Stop detection time (s)** configurable amount of time until device switches to On Stop periodic tracking. Device needs to be stationary for configured amount of time to change state. Movement interrupts will reset this timer.

**On Move detection time (s)** configurable amount of time until device switches to On Move periodic tracking. Instant movement will not change tracking scenario to On Move. Device needs to be interrupted **at least once every 5 seconds** during the configured time to change tracking scenario to On Move.

### Periodic Tracking Options:

#### On Stop scenario

**On Stop periodic tracking** - enable or disable periodic data sending when device is On Stop. Device will generate and send normal record with event ID 0 and movement AVL ID 240 with a value of 0.

**On Stop event record** - enable or disable record sending when device switches tracking scenario from On Move to On Stop. To trigger this event **On Stop detection time** timer needs to reach set value. Once event is triggered GNSS module will wake up and obtain GNSS fix. Record will have AVL event 240 with a value of 0 that means "Movement event - On Stop".

**On Stop** time period between records when device is working in On Stop scenario.

#### On Move scenario

**On Move periodic tracking** enable or disable periodic data sending when device is On Move. Device will generate and send normal record with event ID 0 and movement AVL ID 240 with a value of 1.

**On Move event record** enable or disable record sending when device switches tracking scenario from On Stop to On Move. To trigger this event **On Move detection time** timer needs to reach set value. Once event is triggered device will wake up and will trigger one of two records:

1 - if last record did not have a GNSS fix, GNSS module will be turned on and fix obtained.

2 - if last record had a valid GNSS fix, GNSS module will not be turned on and record will contain last good coordinates.

Record will have AVL event 240 with a value of 1 that means "Movement event - On Move" in both cases.

**On Moving (s)** time period between records when device is working in On Move scenario.

### Detailed example of default Periodic settings:

1. Device wakes up after 28800 seconds if no movement is detected for 20 seconds, see step 2. If movement is detected during this period, see step 5
2. Device is looking for GPS Fix (can take up to 3 min., depends on the environment)
3. Device saves record to memory and tries to send it via GPRS (can take up to 2 min., depends on the environment)
4. Device goes to sleep for 28800 s.
5. If movement is detected for 20 seconds device switches to On Move scenario.
  - 5.1 If **On Move event record** is **Disabled** device does not generate a new record and starts On Move scenario timer.
  - 5.2 If **On Move event record** is **Enabled** and valid fix **is present**, device sends last known good position.
  - 5.3 If **On Move event record** is **Enabled** and valid fix is **not present**, device will wake up, obtain and send new position (GPS fix - up to 3 minutes, record saved, sent via GPRS - up to 2 minutes)
6. Device wakes up after 28800 seconds if device was not stationary for 600 seconds, see step 7. If device was stationary for 600 seconds, see step 10
7. Device is looking for GPS Fix (can take up to 3 min., depends on the environment)
8. Device saves record to memory and tries to send it via GPRS (can take up to 2 min., depends on the environment)
9. Device goes to sleep for 28800 seconds.
10. If device was stationary for 600 seconds during On Move scenario device switches to On Stop scenario.
  - 10.1 If **On Stop event record** is **Disabled** device does not generate a new record and starts On Stop scenario timer.
  - 10.2 If **On Stop event record** is **Enabled** device will wake up, obtain and send new position

**Please note:**

- ✘ If On Move tracking period is configured to be greater than On Stop, when devices detects movement, On Move countdown will start.

**Scheduler:**

Scheduler

Day of the Week	Records per day	1st	2nd	3rd	4th	5th	6th
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This mode is used to set up the actual schedule of data sending. Every day of the week data could be sent up to 6 times.

**The main rules of making Schedule:**

- Time from 1st to 6th record must be set in ascending order.
- Intervals between different times must be at least 6 minutes.
- Days of the week must be selected by clicking on it.

**Please note:**

- ✘ The record will not be generated at configured specific time, but will be generated up to a few minutes later because of time needed to boot modem and to get position.

## Recovery mode

**Recovery mode** is a special functionality that stops all ongoing tracking modes, Bluetooth® scans, scenarios and sends records periodically with a configured **Recovery period**. However, it does not change options like Location and GNSS sources or Static navigation option. This mode is turned on by a configured number of events and can be turned on/off manually with a GPRS or SMS command. Once turned off, device will come back to a normal scenario that was configured before.

**Recovery mode can be triggered by:**

- **Lost BLE sensor** - for this trigger to work, Lost Sensor Alarm has to be enabled. When the sensor is not found, Recovery mode will turn on and a lost sensor alarm record will be sent.
- **Lost BLE beacon** - when TAT does not detect any beacons, it will start delayed Recovery mode - TAT will wake up to send a Lost BLE Beacon alarm record (AVL ID 20014) and then

start Recovery mode timer to send Recovery alarm records (AVL ID 20012).

- **Backup tracker** - when TAT does not detect the central device, it will start delayed Recovery mode - TAT will wake up to send a Backup tracker alarm record (AVL ID 236) and then start Recovery mode timer to send Recovery alarm records (AVL ID 20012) periodically.
- **SMS/GPRS command** - `recovery:1` command can be sent to turn **on** Recovery mode. If Recovery mode is already activated, sending 1 won't have any effect.

`recovery:0` command can be sent to turn **off** Recovery mode.

- **Tamper** - currently, Recovery Mode cannot be triggered with tamper detection. This feature is still under development.

**Note :** Recovery mode will not turn off automatically. It can only be turned off by restarting the device using the switch or sending SMS/GPRS command which was earlier mentioned.



### Recovery mode configuration settings:

- **None** - no events will trigger Recovery Mode and it can only be controlled with commands manually.
- **Period** - by default, Recovery mode period is 180 seconds and can be configured to a minimum of 30 seconds. When the period is less than 180 seconds, modem will be always kept on and fix will not be caught repeatedly. This means that the modem will always try to update the coordinate if possible.
- **Turn off** - if recovery mode is activated it can be turned off in Teltonika configurator by clicking on a button.

### Important!

The device will turn on/off the Recovery mode depending upon when the command was received:

1. If Recovery mode was turned on **during sleep**, Recovery mode will turn on when modem wakes up and the record will be sent with AVL ID 20012.
2. If Recovery mode was turned on **before record sending**, Recovery mode will turn on immediately and the record will be sent with AVL ID 20012.
3. If Recovery mode was turned on **after record sending**, Recovery mode will turn on immediately and the next record will be sent with AVL ID 20012.
4. If Recovery mode was turned off **during sleep**, Recovery mode will be turned off and last record with AVL ID 20012 will be send. After that, device goes back to normal periodic record sending.
5. If Recovery mode was turned off **before record sending**, a record will be sent with AVL ID 20012, Recovery mode will be turned off and on the next wakeup a normal periodic record will be sent.
6. If Recovery mode was turned off **after record sending**, Recovery mode will be turned off and on the next wakeup a normal periodic record will be sent. If the Recovery period was less than 180 seconds then modem will be shut down (it will not remain turned on as mentioned).

### SMS event

There is a new configurable IO element for Recovery mode status notifications via SMS. It can be found at the bottom of IO table:



It has three operands that can be configured to get an SMS about the Recovery mode status. Here is a table that describes the configurations and the desired result:

Operand	Low/High level	Result
On Exit	1/1	SMS notification will be send only when Recovery mode is turned off
On Entrance	1/1	SMS notification will be send only when Recovery mode is turned on
On Change	ANY/ANY	SMS notification will be send every time when Recovery mode is turned on/off

**Note**, that in order for notifications to work, Priority has to be either Low or High and a telephone number has to be specified.

**Received SMS will contain:**

1. Date and Time
2. Last known coordinates (longitude and latitude)
3. Recovery mode Val:<(0 if turned off, 1 if turned on)>

## I'm Alive

**Please note:**

- This feature is implemented since firmware version 1.0.0.Rev.00

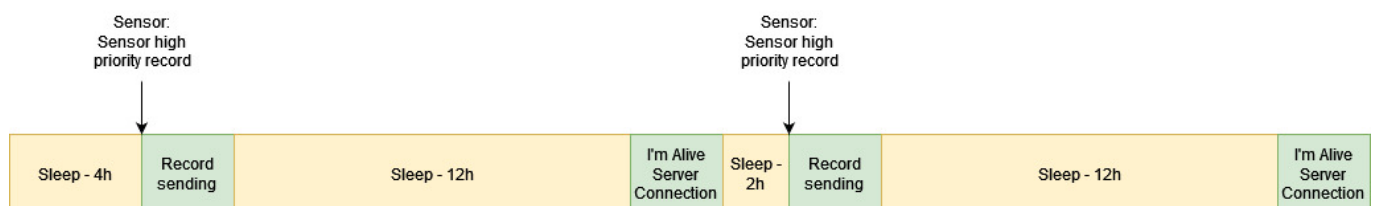


This feature allows to configure maximum amount of time device device can be in sleep mode. Every time a new record is generated (periodic, scheduler, alarm or any other), timer is restarted. If during configured time no new records were generated, device will wake up and connect to the server. This allows for a SMS or GPRS command to be received during this time. Device does not send any data during this connection.

- **I'm Alive period** - amount of time device can be in sleep mode. Minimum 10800 seconds (3 hours) - maximum 604800 seconds (7 days).

**Example use case:**

- Configured sensor scanning with high priority IO
- I'm Alive feature enabled
- I'm Alive period - 12h





# Precautions

**CAUTION! Device usage with USB cable.**



In order to prevent device battery from running out of power, make sure USB cable is not connected, while testing the device.

Continuous use of device, while connected to the USB cable will result in faster battery drain.