# AP1 CONFIGURATION TOOL GUIDE v5.0

*A jumpstart to video telematics configuration*

Sensata Technologies | SMARTWITNESS®

# Table of Contents

**Introduction**

# 1    Welcome to your AP1 Configuration Guide

This guide aims to inform end-users of the proper processes involved in setting up your Sensata | SmartWitness AP1 device.

While the AP1 Configuration Guide gives you a step-by-step walkthrough of each function within the Configuration Tool, the preferred initial configuration method remains the AP1 Calibration Tool (available on iOS and Android).

This step-by-step walkthrough will act as your teacher as you learn our product's layout, functionality, and configuration settings.

You can find an overview of the configuration tool's layout in **section 3.0**.

The fastest way to find information in this document is through the Table of Contents.

We hope this tutorial will sufficiently remove common end-user pain points involved with the setup process. If you experience any issues with this guide, please lend us your feedback and/or contact our **support** teams.

**Note:** Use this configuration guide with at least version 1.1.6 of the AP1 configuration tool. Content in this guide was released in coordination with AP1 firmware version 1.2.1.
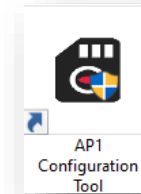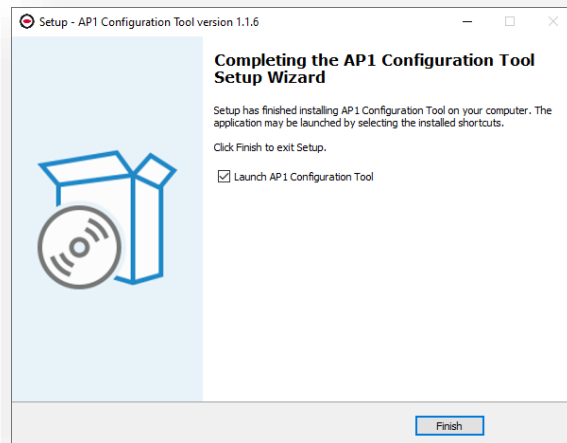
**AP1 Download & Installation**

## 2    AP1 Configuration Tool Installation

**Goal:** Locate and install your configuration wizard

## 2.1   Downloading & Installing Your Configuration Tool

Download configuration software **here.**



1. After downloading, continue to installation.
2. Open the configuration tool, and insert your SD Card.
3. Click **Initialize SD Card**.
4. Select the **SD Card** from your preferred internet browser.
5. Click **Start** to initialize.

**Note:** The maximum size supported for your SD card is 128 GB.

**AP1 Configuration Tool Layout**

## 3 AP1 Configuration Tool Layout & Settings

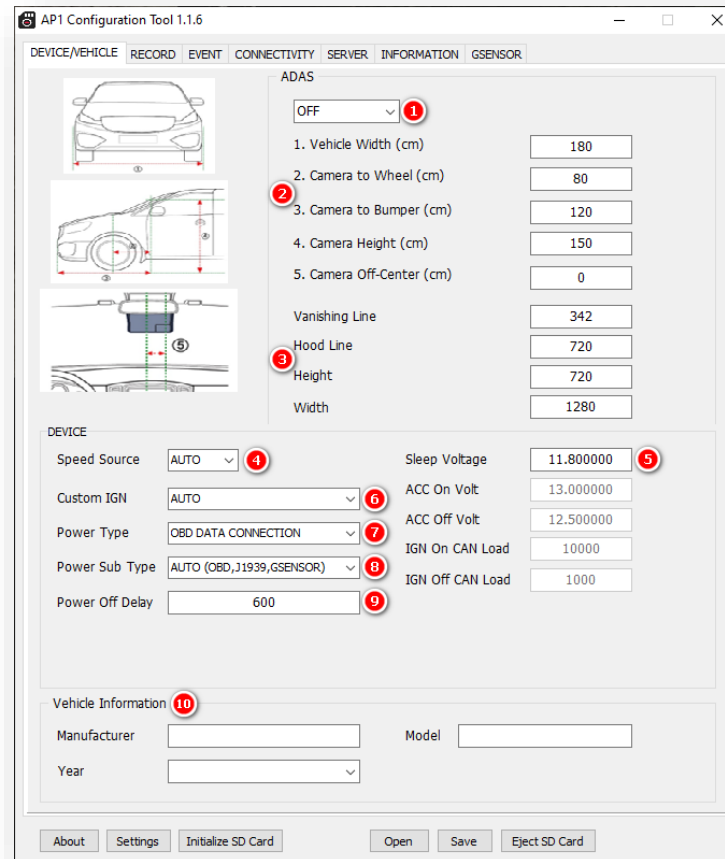<u>Goal</u>: Understand your tool's main features

**Device/Vehicle**

# 4 Configuring Your Device

**Goal:** Personalize and optimize your device's settings.

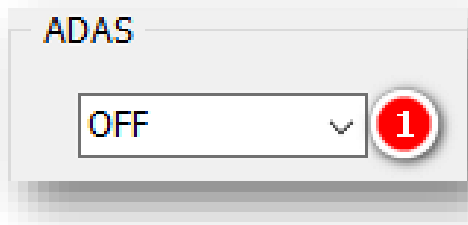## 4.1 How to Configure Device/Vehicle Tab

**Device/Vehicle Tab Layout:** At a Glance

## Device/Vehicle
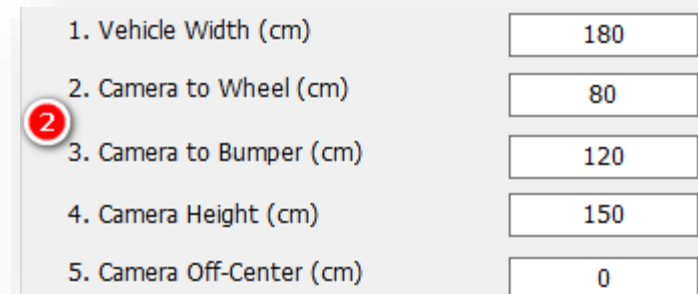
### ADAS

1. Select whether to enable or disable **ADAS**.



2. Review the descriptions below and refer to the tool's diagrams for measurement guidance.
   - **Vehicle Width:** Distance from the outside of the left tire to the outside of the right tire.
   - **Camera to Wheel:** Distance from the camera lens to the front wheel's axle.
   - **Camera to Bumper:** Distance from the camera lens to the front bumper.
   - **Camera Height:** Height from the ground to the camera lens.

- **Camera Off-Center:** Ensure your camera is within 12 in of the center of the windshield (center of device to the center of the windshield).
  - If your camera is on the left side, enter a negative number, like **-5**.
  - If the lens is in the center, enter **0**.
  - If the lens is on the right side, enter a positive number, like **5**.

## Device/Vehicle

3. The following settings require device calibration. It is recommended to use the AP1 Tool app for initial road-facing measurements. To find a QR code for both the Apple App and Google Play stores, please follow this **link**.

| | |
|---|---|
| Vanishing Line | 342 |
| Hood Line | 720 |
| Height | 720 |
| Width | 1280 |

**Device**

4. Select a **Speed Source** to determine how your device retrieves speed data. **Auto is the recommended value for this setting.**

DEVICE

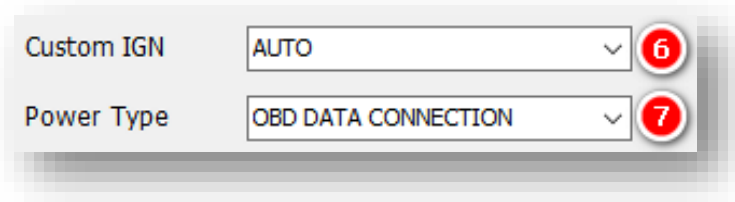Speed Source    AUTO

5. To set a threshold when the device automatically goes offline due to declining vehicle battery voltage, enter a **Sleep Voltage**. The recommended voltage range is 11.5~12v.
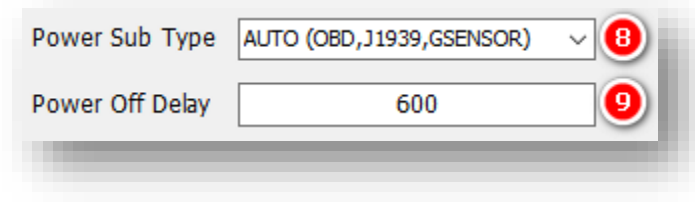
Sleep Voltage    11.800000

## Device/Vehicle

6. To determine how AP1 senses ignition status, select a **Custom IGN. Auto is the recommended value for this setting.**
7. Select the **Power Type** that applies**.** This is the installation method that brings power to the device.
   - **OBD Data Connection**
   - **2 Wire (Voltage)**
   - **3 Wire (ACC)**

| Custom IGN | AUTO | ⑥ |
| Power Type | OBD DATA CONNECTION | ⑦ |

8. **Power Sub Type** details the method of vehicle data communication utilized by your AP1. **Auto is the recommended value for this setting.**
9. Set the time, or **Power Off Delay**, when your AP1 remains on after ignition off. The value is measured in seconds, so 600 seconds corresponds with 10 minutes of device activity after ignition off.
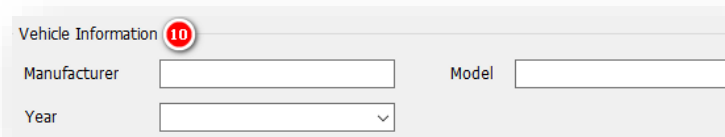
| Power Sub Type | AUTO (OBD,J1939,GSENSOR) | ⑧ |
| Power Off Delay | 600 | ⑨ |

# Device/Vehicle

## Vehicle Information

10. Locate and enter your vehicle's **Manufacturer**, **Model**, and **Year**. These fields are optional.
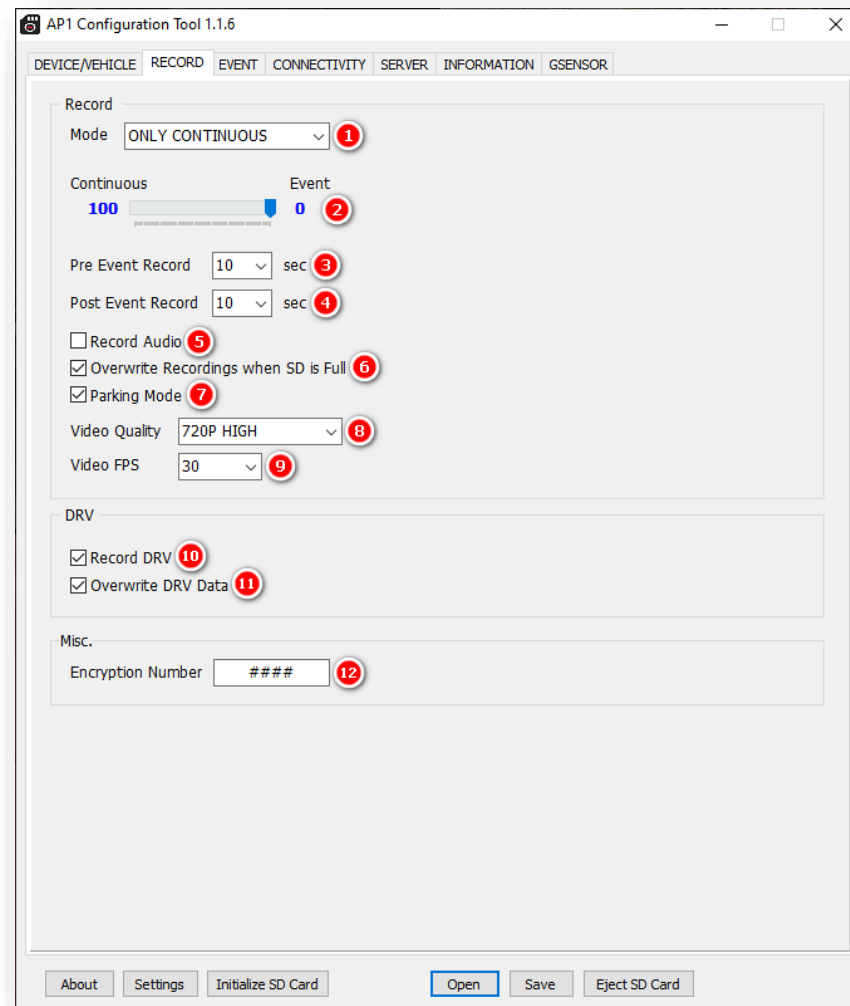
# Record

## 4.2   How to Configure Record Tab

**Record Tab Layout:** At a Glance

# Record

### Record

1. Select your preferred Record Mode:
   - **Continuous+Event:** Video continuously records at 1 FPS. Specify the FPS for events.
   - **Only Continuous (Recommended):** Video continuously records, with no events documented (Events are uploaded over-the-air to SmartAPI if configured on the **Server** tab)
   - **Only Event:** Only records events. The pre & post-event setting.
   - **Do Not Record:** Disable device video recording.
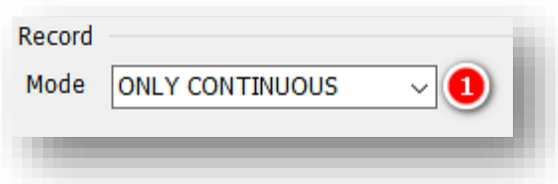


2. To adjust your device's Continuous to Event recording ratio, move the slider to your preferred setting (applicable only to Continuous + Event mode)
3. Choose how long your device records before an event by selecting a **Pre-Event Record** time.
4. Set how long your device records after an event by selecting a **Post-Event Record** time (applicable only to Event and Continuous + Event modes).
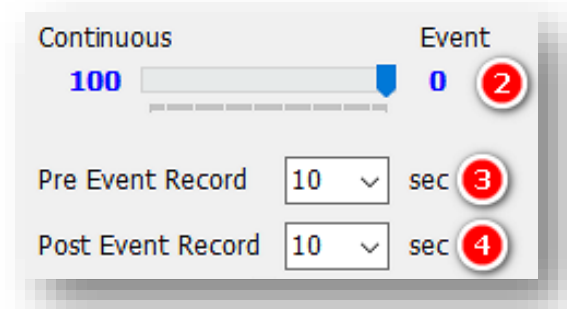
## Record

5. Turn on the audio recording feature by checking **Record Audio.**

6. Allow your device to overwrite the SD card's video and telematics data automatically by checking **Overwrite Recordings when SD is Full.**

   **Note:** If overwrite settings are unchecked, "Recorder Status" messages are passed in the device's DRV files and uploaded depending on the TSP level DRV upload interval settings. Media Error events are then generated.

7. To reduce device recording to 1 FPS when your vehicle is idle for 5 minutes or more, click **Parking Mode.**
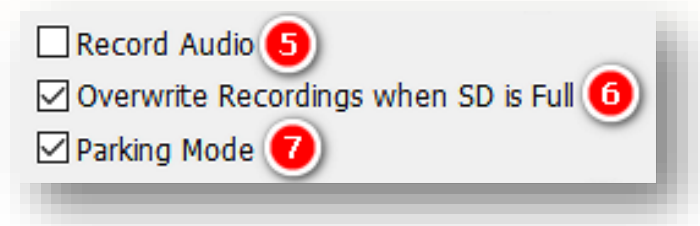


8. Determine your event recording **Video Quality**:
   - **Standard**, **High** or **Super** bitrate. Higher-quality video contains more detail but consumes more storage space on the SD card.

9. To set your video's frame rate, choose from **Video FPS**.

   **Note:** Selecting different video recording options may affect your on-device storage capacity.
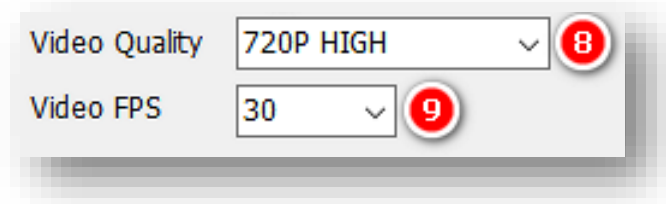
# Record

### DRV

10. Record driver telematics data to your AP1 by clicking **Record DRV.**
11. Allow your device to automatically overwrite DRV data when the SD is full by checking **Overwrite DRV Data.** If unchecked, your device will exhibit the behavior outlined [here](#).
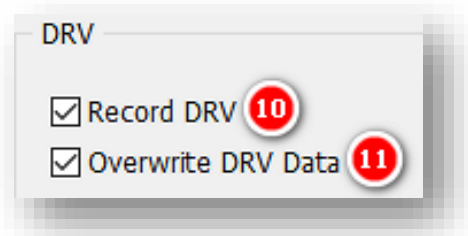
### Misc.

12. Protect SD card data from being easily viewable by entering a 4-digit **Encryption Number.**
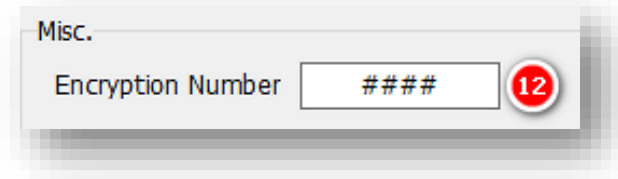
# Event

## 4.3 How to Configure Event Tab

**Event Tab Layout:** At a Glance

# Event

## 4.3.1 ADAS Events Explained

To better understand the settings and functions of **ADAS** (Advanced Driver Assistance Systems), review the definitions and related conditions below.

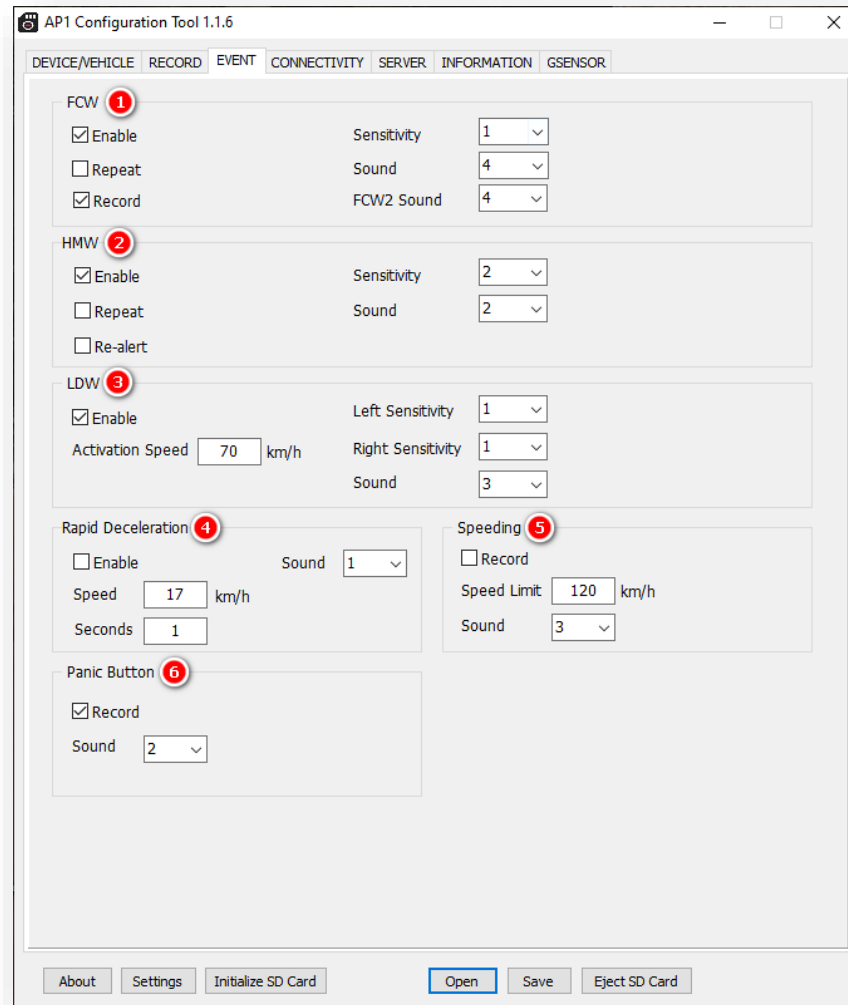| Event Type | Event Definition | Detection Conditions & Sensitivity |
|---|---|---|
| FCW | **Forward Collision Warning** - Detects an imminent collision with something ahead. | **Detection Conditions:**<br>FCW activates when the vehicle speed is over 30 km/h/19 mph. The minimum speed when GPS is the ADAS speed source is 60 km/h/37 mph.<br><br>AP1 measures TTC (time to collision) via the device's ADAS library. It's based on vehicle speed and the perceived distance between the driver's vehicle and the vehicle ahead. Variations in speed and distance dictate the TTC times at different severities (most = level 1, least = level 5).<br><br>**Sensitivity:** This dictates different detection parameters like TTC (Time to Collision) and distance (see **table**). Generally, the higher the setting, the earlier the delivery of the alert. |
| HMW | **Headway Monitoring & Warning** - Monitors distance to the vehicle ahead at higher speeds. Also referred to as "Tailgating." | **Detection Conditions:**<br>HMW activates for vehicle speeds over 30 km/h/19 mph.<br><br>AP1 measures TTC (time to collision) via the device's ADAS library. It is based on vehicle speed and the perceived distance between the driver's vehicle and the vehicle ahead. Variations in speed and distance dictate the TTC times at different severities (most = level 1, least = level 5).<br><br>**Sensitivity:** This dictates different detection parameters like TTC (Time to Collision) and distance (see **table**). Generally, the higher the setting, the earlier the delivery of the alert. |

# Event

| LDW | **Lane Departure Warning** - Your vehicle crosses a solid lane line on either side of the road. | **Detection Conditions:**<br>LDW operates within a speed range of 40 to 80 km/h/25 to 50 mph.<br><br>**Sensitivity:** This monitors the distance to and from the lane line. Detection responsiveness generally increases as sensitivity is raised. You can set up different sensitivity levels for either direction (left or right). See **table**. |
|---|---|---|

# Event

## 4.3.2 ADAS Sensitivity & TTC Table

The table featured below is a breakdown of how the different sensitivity values impact event calculations.

**HMW**

| Sensitivity | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| TTC (time to collision) | 0.6sec | 0.9sec | 1.2sec | 1.5sec | 2.0sec |

**FCW**

| Sensitivity | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| TTC (time to collision) | 2.2sec | 2.4sec | 2.6sec | 2.8sec | 3.0sec |

*TTC example based on 72 km/h. Please note that FCW TTC adjusts according to vehicle speed and distances.
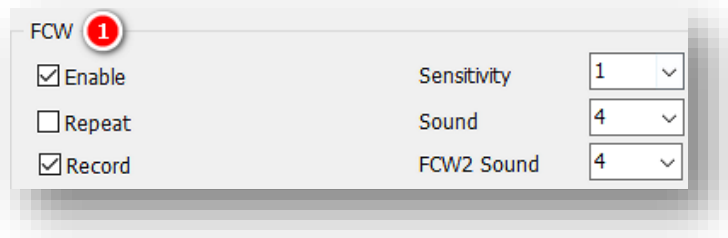
**LDW**

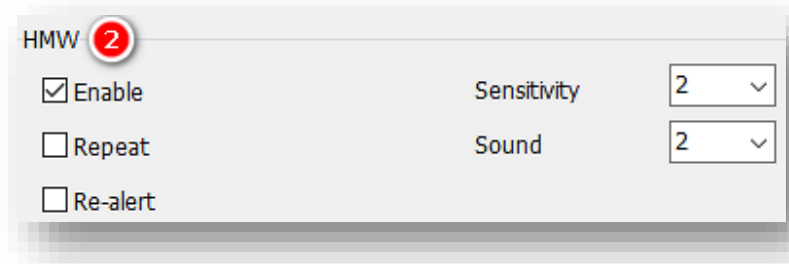| Sensitivity | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Status | Over the line | Over the line | On the line | Inside the line | Before the line |
| Distance - From the wheel to the lane line | +20cm | +10cm | 0 | -10cm | -20cm |

## Event

1. Forward Collision Warning (**FCW**) –To set FCW preferences, click **Enable.**
   - Select your FCW sensor **Sensitivity.**
   - To deliver consecutive FCW alerts on the same vehicle ahead, click **Repeat.**
   - Choose the **Sound** for in-cab alerts.
     - Sound 0: Silence
     - Sound 1: Beep type 1
     - Sound 2: Beep type 2
     - Sound 3: Beep type 3
     - Sound 4: Human Voice (male)
     - Sound 5: Human Voice (female)
   - To allow FCW recordings, click **Record.**



2. Headway Monitoring Warning "Tailgating" (**HMW**) –To set HMW event preferences, check **Enable**.
   - Select your HMW **Sensitivity.**
   - Deliver consecutive FCW alerts on the same vehicle ahead by checking **Repeat.**
   - Choose the **Sound** alert**.**
     - Sound 0: Silence
     - Sound 1: Beep type 1
     - Sound 2: Beep type 2
     - Sound 3: Beep type 3
     - Sound 4: Human Voice (male)
     - Sound 5: Human Voice (female)
   - To trigger HMW alerts repeatedly every time they occur, click **Re-alert.**
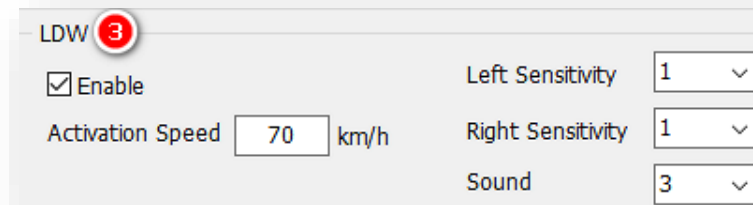
## Event

3. Lane Departure Warning (**LDW**) – To set event preferences, check **Enable.**
   - Select the sensor's **Left Sensitivity** for your vehicle's left side. Review how this changes event triggers **here**.
   - Select a **Right Sensitivity** for your vehicle's right side. See how this changes event triggers **here**.
   - Establish the speed threshold for activating LDW features by entering an **Activation Speed.**
   - Choose your preferred **sound** alerts.
     - Sound 0: Silence
     - Sound 1: Beep type 1
     - Sound 2: Beep type 2
     - Sound 3: Human voice (female)
     - Sound 4: Human voice (female)



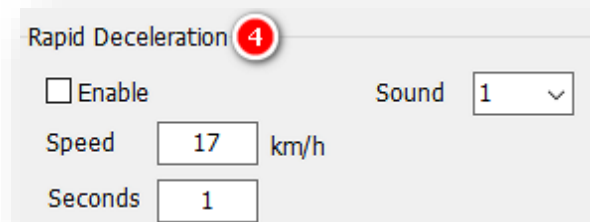4. Rapid Deceleration (**RD**) – To register events based on speed reduction over a short period, select **Enable.**
   - Choose your **Sound** alert type.
     - Sound 0: Silence
     - Sound 1: Beep type 1
   - Set the **Speed** threshold for deceleration.
   - Enter the amount of time for deceleration in **Seconds.**



**Note:** For example, if the **Speed** threshold is set to 20 km/h and the **Seconds** value is 1, an event occurs if the vehicle reduces speed by more than 20 km/h in one second.

**Event**

5. Turn on Speeding event recordings by clicking **Record**.
   - Set a **Speed Limit** threshold your vehicle must exceed to trigger Speeding events.
   - Turn on audible notifications for Speeding events by selecting **Sound.**
     - Sound 0: Silence
     - Sound 1: Human voice (female)
     - Sound 2: Human voice (female)
     - Sound 3: Human voice (female)
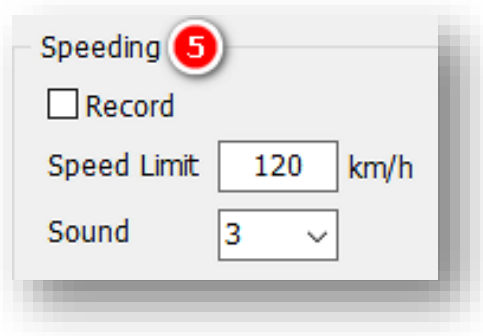


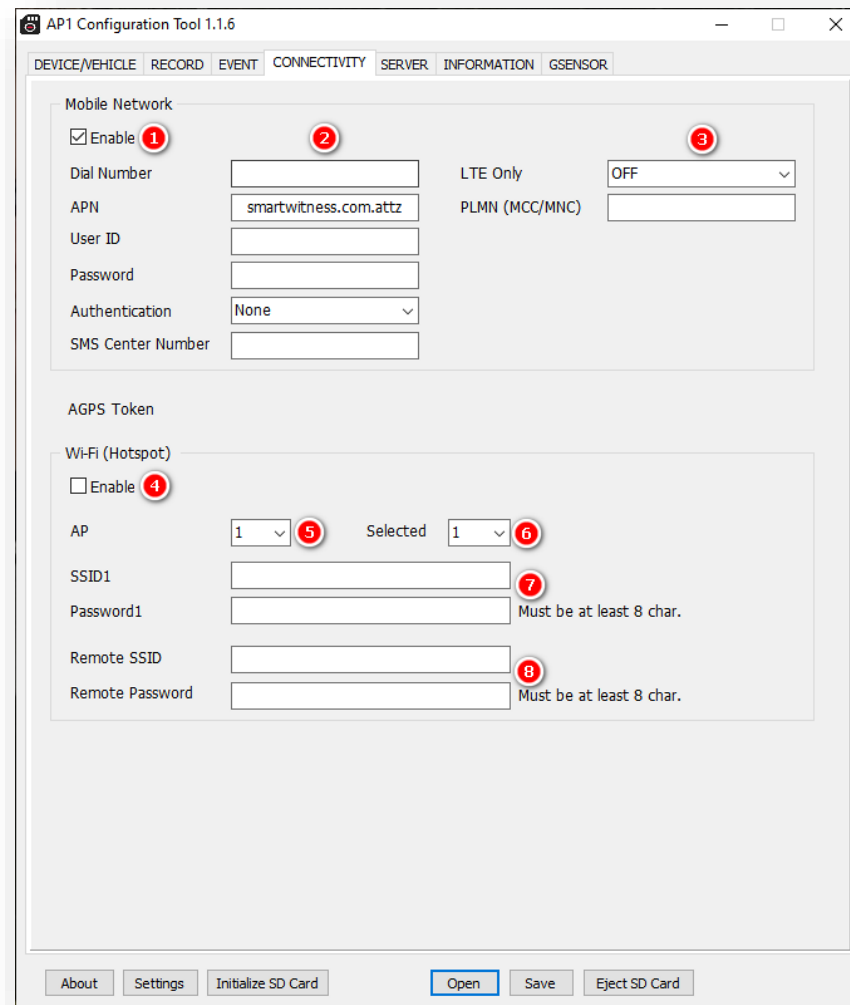6. Turn on Panic Button event recordings by clicking **Record.**
   - Turn on audible notifications for Panic Button events by selecting **Sound.**
     - Sound 0: Silence
     - Sound 1: Beep Type 1
     - Sound 2: Human voice (female)
     - Sound 3: Human voice (female)
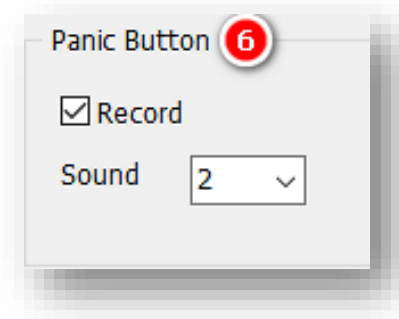
# Connectivity

## 4.4 How to Configure Connectivity Tab
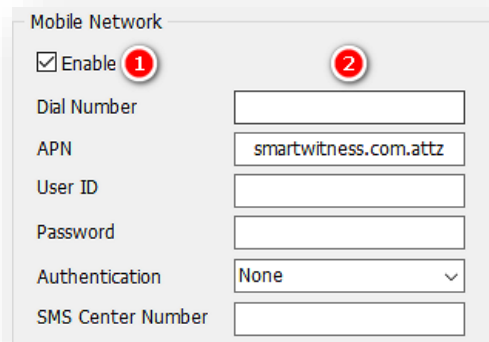
**Connectivity Tab Layout:** At a Glance

## Connectivity

Choose either **Mobile Network** or **Wi-Fi (Hotspot)** for network connection.

**Mobile Network**

1. Access a compatible mobile network by clicking **Enable.**
2. Enter your mobile network settings.
   - Dial Number
   - APN
   - User ID
   - Password
   - Authentication
   - SMS Center Number (for troubleshooting and recovery)

3. Select from **LTE Only** options to restrict mobile network connection to LTE.

**Note:** Do not enter values into the **PLMN** field. This is a support and advanced support function for product testing.

## Connectivity

**Wi-Fi Hotspot**

4. To create a Wi-Fi hotspot with your device, click **Enable.**
5. Select your **AP** from the options provided. Your **AP** must be secure, accompanied by WPA/WPA2 encryption.
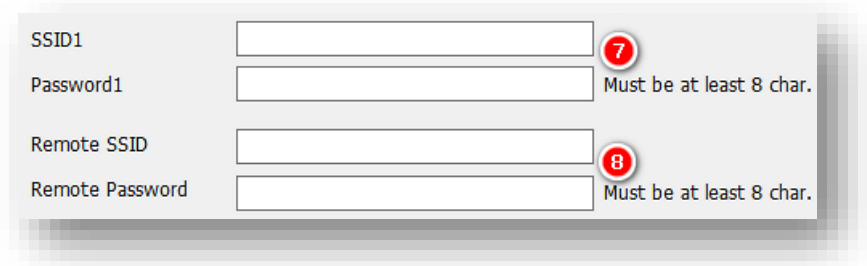6. Choose the **Selected** AP to connect with your device.

7. Set up your **SSID1**, the name of the wireless network you wish to connect with your AP1.
   - Enter your SSD1 **Password1.**
8. Enter the name of your AP1 hotspot in **Remote SSID.**
   - Add your **Remote Password.**

# Server

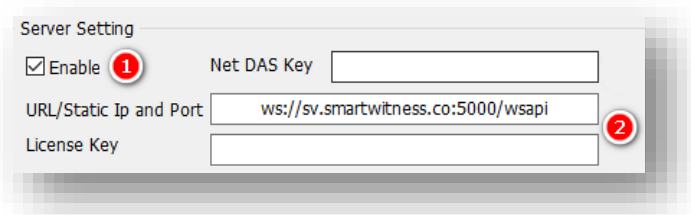## 4.5 How to Configure Server Tab
### Server Tab Layout: At a Glance
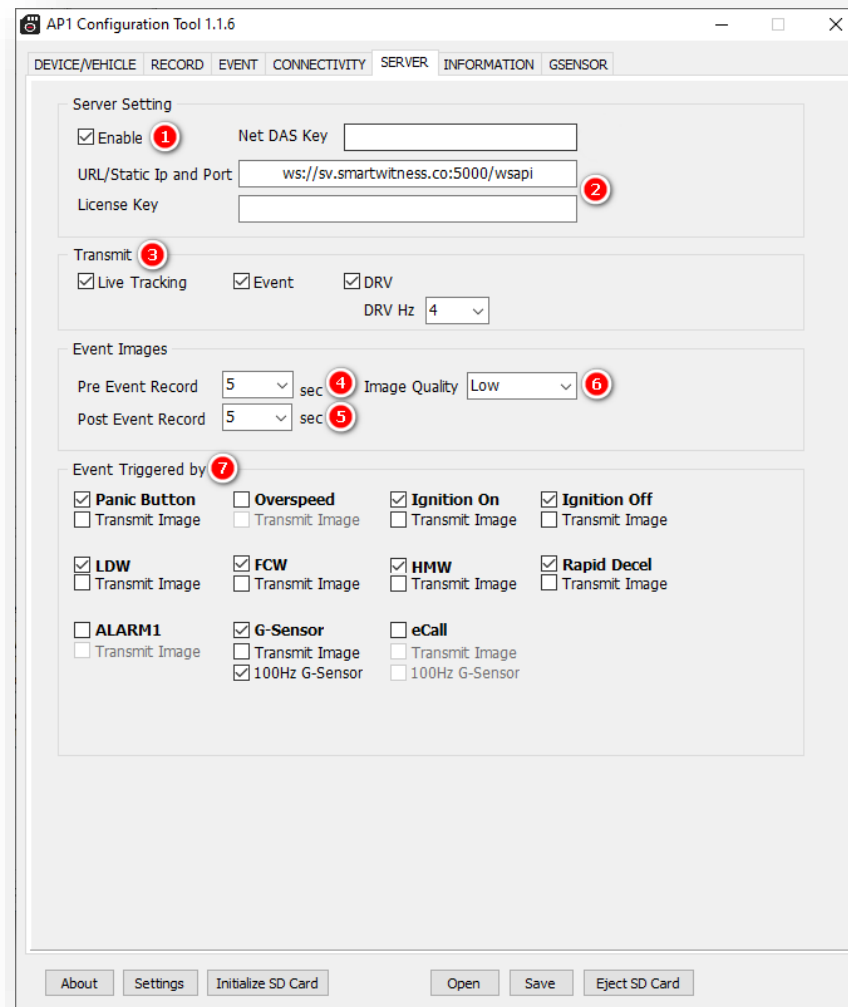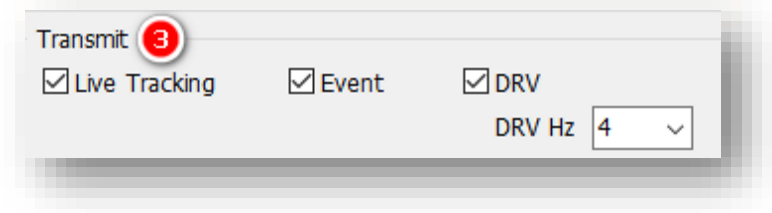
## Server

### Server Setting

1. To set up your preferred server settings, click **Enable.**
2. Sensata | SmartWitness, or your service provider, will give you the **URL/Static IP and Port** and the License Key (If necessary) to enter here.



**Note:** Leave the **Net DAS Key** field blank. SmartAPI uses this function to map settings.ini configuration values.

### Transmit

3. To send specific types of data to the server, check your desired data types.
   - To allow HTTP posts from the AP1 to the server, check **Live Tracking.**
   - Send event notifications and images to the server by checking **Event.**
   - To send DRV data to the server, click **DRV.** 4 Hz is the default and recommended setting. This is the preferred frequency for *AIDE.*

## Server

### Event Images

4. Set the time your device records before an event by selecting a **Pre-Event Record** time. Your device will then send event images to the server.
5. Set the time your device records after an event by selecting a **Post-Event Record** time. Your device will then send event images to the server.
6. Determine your preferred event **Image Quality.**
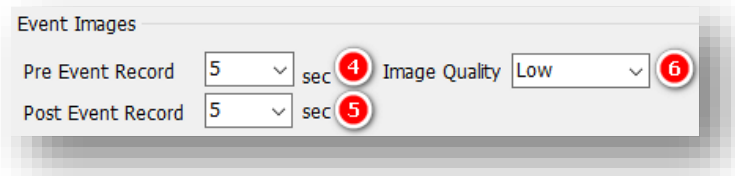


### Event Triggered By

8. Decide what events your device will upload to the server by selecting options like **G-Sensor** and **eCall** (**Severe Shock**).
   - Events will send instantly, even if the device is in "Continuous" record mode.
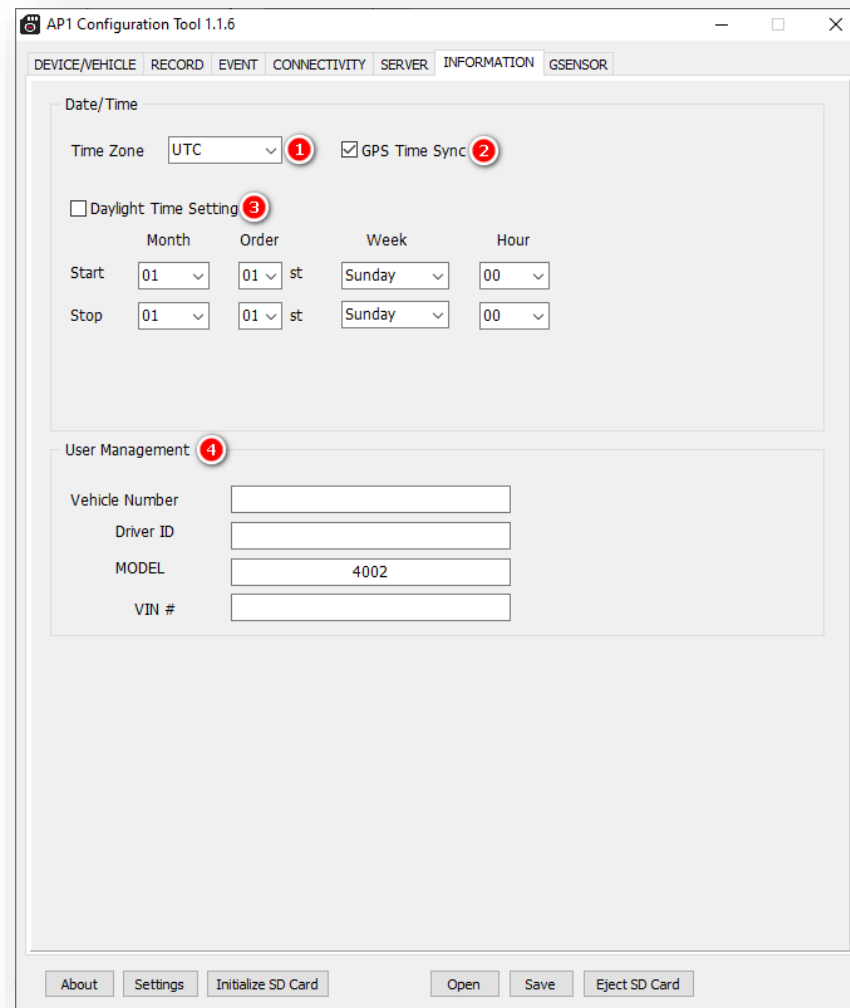   - ALARM1 is not supported on AP1.

**Note:** SmartAPI Workstation event admin controls dictate what events and event notifications are sent from SmartAPI to our partner's servers.
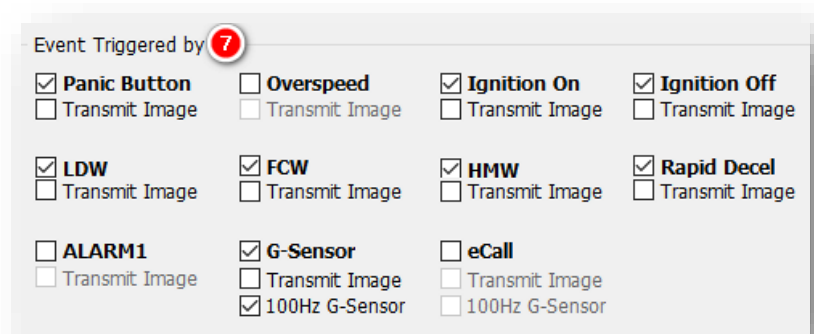
# Information

## 4.6 How to Configure Information Tab
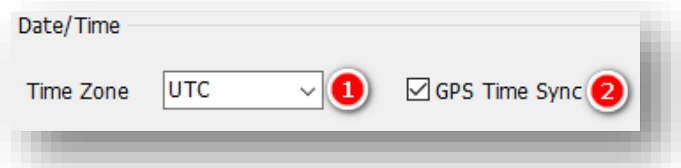
**Information Tab Layout**: At a Glance

# Information

## Date/Time

Setting time preferences on your AP1 is **not recommended**. PC Viewer software and Smart API automatically adjust UTC to your local time zone.
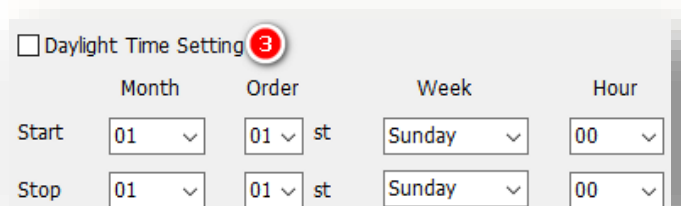
1. Ensure you set **Time Zone** to **UTC.**
2. To allow your device's GPS to establish your local time, check **GPS Time Sync.**

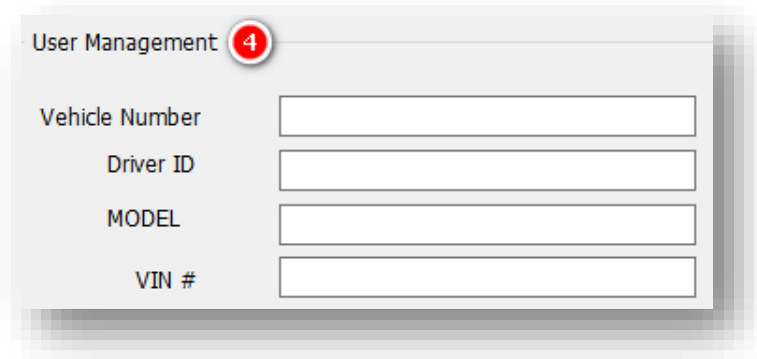3. Do not set DST start/stop times in **Daylight Time Setting.** DST settings are for engineering testing purposes.

## User Management

4. Provide unique IDs for different drivers and vehicles in your fleet. You can display these values on MP4-converted video. They can be updated remotely in SmartAPI or by API requests.
   - Enter a value for **Vehicle Number.**
   - Enter a unique key for **Driver ID.**
   - Enter a value for **Model.** This field should remain blank as the device auto-populates this setting.
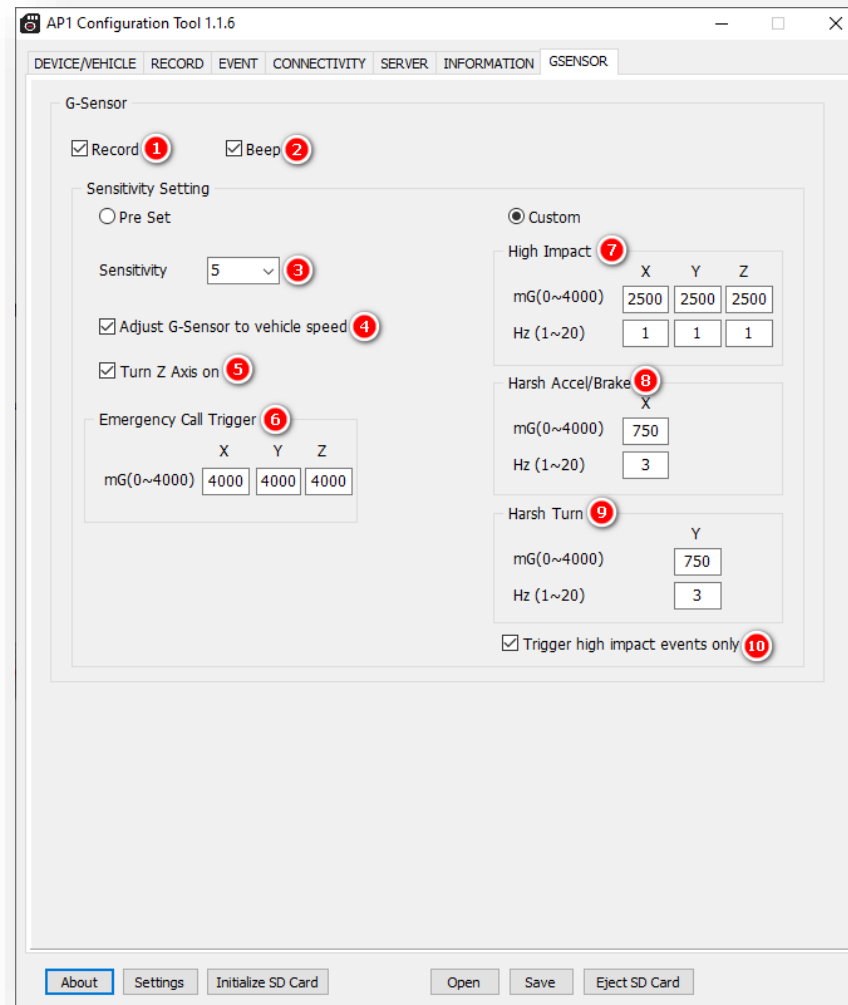   - Enter a numerical value for **VIN** (Vehicle Identification Number).

# G-Sensor

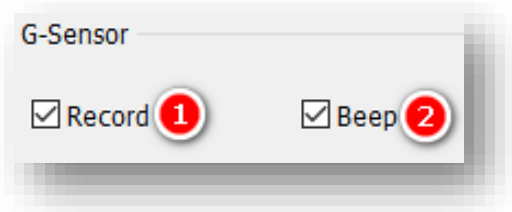## 4.7　How to Configure G-Sensor Tab

**G-Sensor Tab Layout:** At a Glance
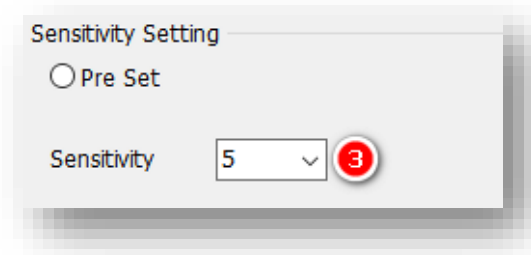
# G-Sensor

## G-Sensor

1. To turn on G-Sensor event recordings, click **Record.**
2. Allow for audible alerts of G-Sensor events by checking **Beep.**



## Sensitivity Setting

Determine your G-Sensor sensitivity settings, with **Pre-Set** options or by setting event-specific values using **Custom** options.

3. To set an overall G-Sensor sensitivity, select from **Sensitivity** options. This setting dictates the general G-Senor threshold for event triggers. Lower sensitivities result in fewer G-sensor-related events, and higher sensitivities result in more events.
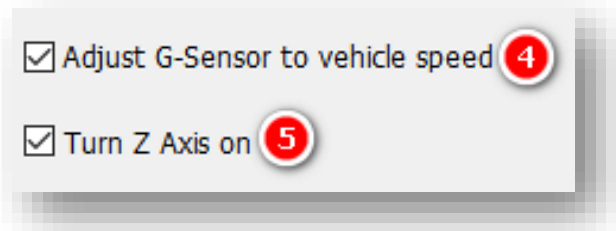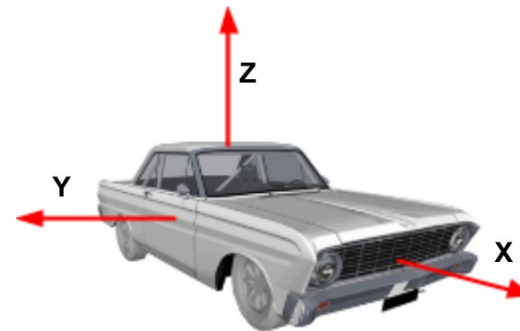
## G-Sensor

4. Automatically scale the G-Sensor speed threshold by clicking **Auto adjust G-Sensor to vehicle speed.**

   **Note:** This increases the G-Sensor event threshold on each axis by 300mcg when the vehicle speed exceeds 20 km/h.

5. Activate G-Sensor readings on the z-axis (up/down) by checking **Turn Z-axis on.**



6. Events generate if the X, Y or Z axis acceleration exceeds the set G-Sensor threshold for **Emergency Call Trigger** (aka Severe Shock).
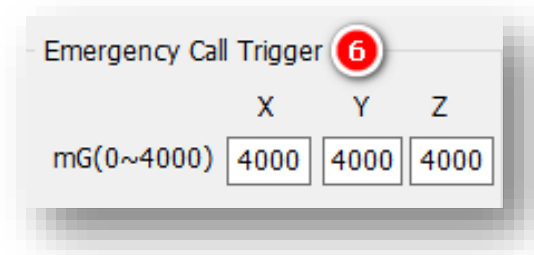
## G-Sensor

7. **High Impact** events occur if acceleration exceeds the X, Y or Z axis threshold.
8. **Harsh Accel/Brake** events generate if acceleration exceeds the threshold for the X, Y or Z axis.
9. **Harsh Turn** events occur if acceleration exceeds the X, Y, or Z axis threshold.

   **Note:** Hz values set the number of times in a row the device's G-Sensor must exceed the X, Y or Z thresholds to trigger a harsh event.

10. To limit alerts to high-impact events, check **Trigger high impact events only.**

**G-Sensor**

# 5   Finishing Up/Support

**Goal:** Complete Your Configuration and Access Support

1. Click **Save** to establish your finalized settings configuration.
2. Select **FHDRM** SD drive when prompted. Your configuration saves to your card.
3. Wait until the software confirms the application of your settings configuration.
4. Click **Eject SD Card**, insert it into your AP1 and power on the device.
5. You have completed your configuration.

**Note:** You can apply device configurations from the SmartAPI Workstation over the air. Read the instructions **here**. While AP1 is not mentioned, the same process applies.

## 5.1   Support Information

If you need additional support or an expert to walk you through this process, please **register** and submit a ticket, or email us at support@smartwitness.com. If you are enrolled in SWAT, reach out to the integration team via Teams with any device configuration questions.

Feel free to call our support team:

- **North America, South America, APAC**

  +1 (312) 981 8774

- **EMEA**

  +44 (0) 1483 397005