AP1 CONFIGURATION TOOL GUIDE v7.0

A jumpstart to video telematics configuration

Sensata IN

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1 Welcome to your AP1 Configuration Guide

This guide informs users of the proper processes involved in setting up your Sensata INSIGHTS 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**.

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.

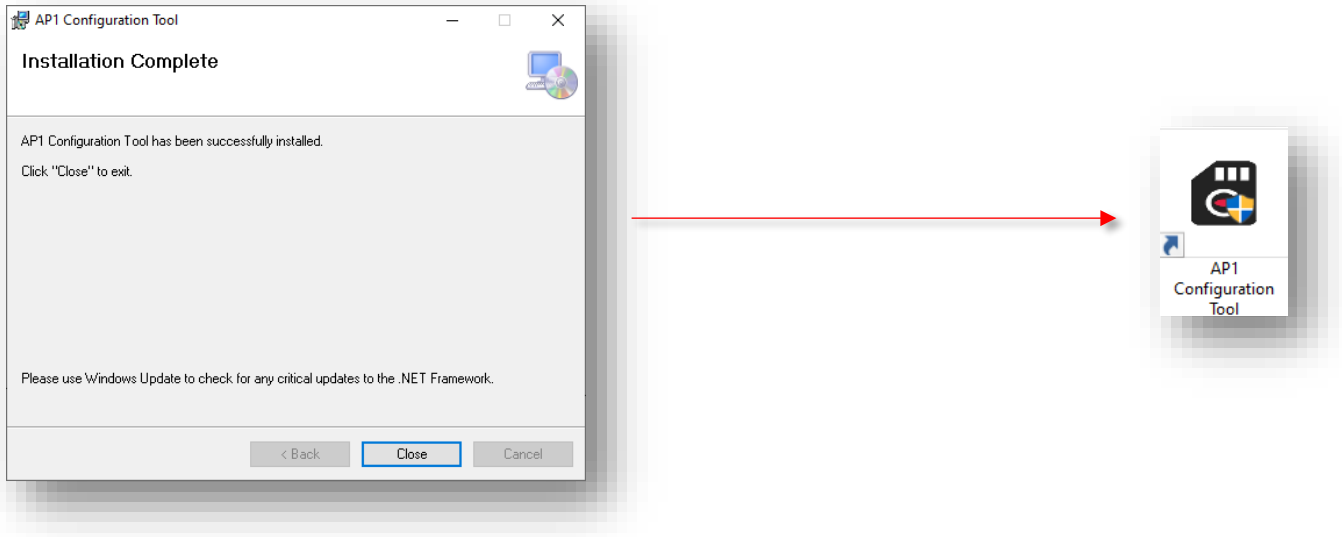
Note: Use this configuration guide with at least version 1.3.3 of the AP1 configuration tool. Content in this guide was released in coordination with AP1 firmware version 1.3.2.

2 AP1 Configuration Tool Installation

Goal: Locate and install your configuration wizard

2.1 Downloading & Installing Your Configuration Tool

Download configuration software **here.**

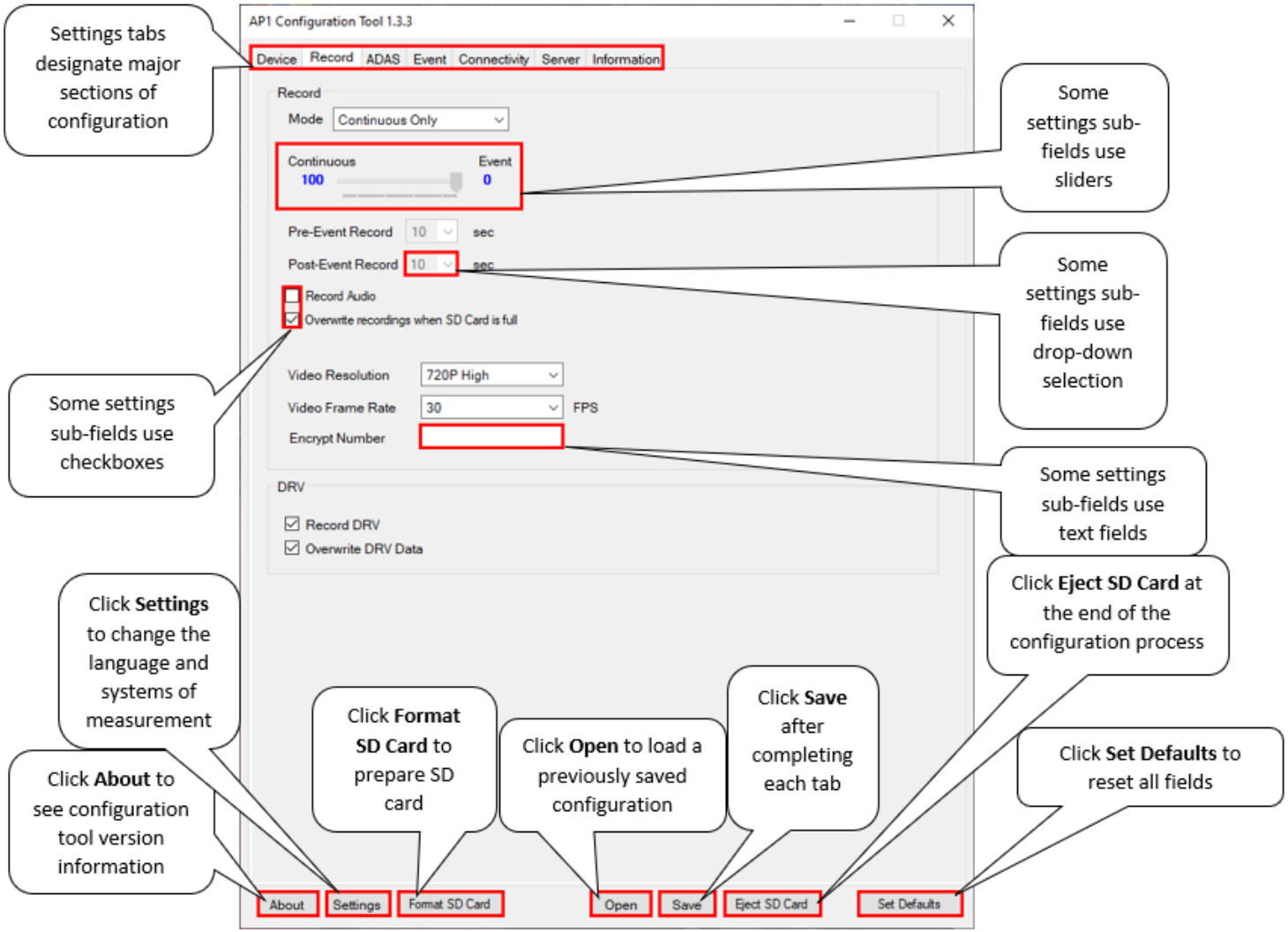


1. After downloading, continue to installation.
2. Open the configuration tool, and insert your microSD Card.
3. Click **Initialize SD Card**.
4. Select the **SD Card** from your preferred internet browser.
5. Click **Start** to initialize.

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

3 AP1 Configuration Tool Layout & Settings

Goal: Understand your tool's main features

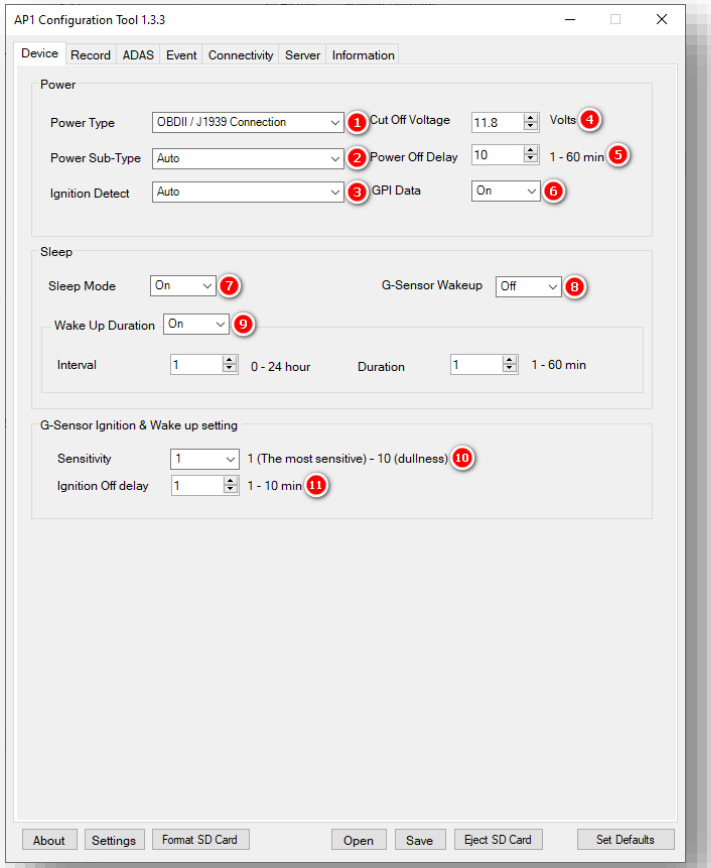


4 Configure Your Device

Goal: Customize and optimize device settings

4.1 How to Configure the Device Tab

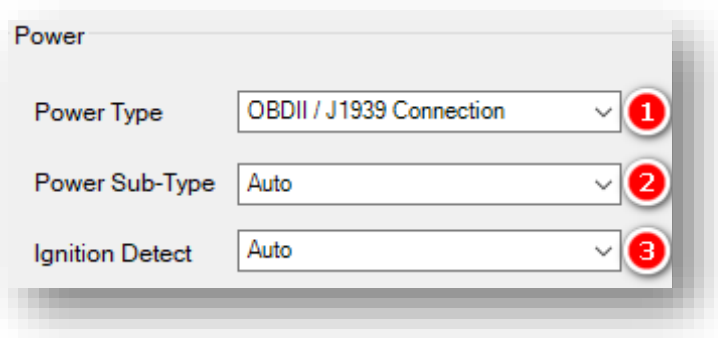
Device Tab Layout: At a Glance



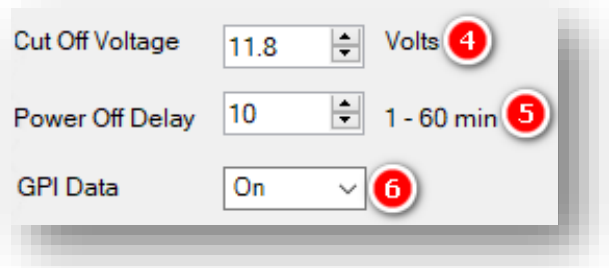
Device

Power

1. Select the **Power Type** that applies. This is the installation method that brings power to the device.
   - **OBDII / J1939 Connection**
   - **3-Wire Harness (ACC)**
2. **Power Sub Type** details the method of vehicle data communication utilized by your AP1. **Auto is the recommended value for this setting.**
3. To determine how AP1 senses ignition status, select the **Ignition Detect** type**. Auto is the recommended value for this setting.**

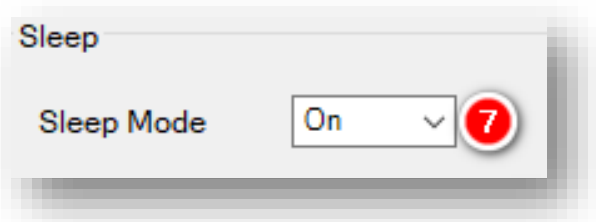


4. To set a threshold when the device automatically goes offline due to declining vehicle battery voltage, enter a **Cut Off Voltage**. The recommended voltage range is 11.5V to 12V.
5. Set the time, or **Power Off Delay**, that your AP1 remains active after ignition off.
6. In 3-Wire harness installations where true ACC utilizes ignition status, turn on **GPI Data**. The device will not respond to ACC wire voltage if this function is turned off.



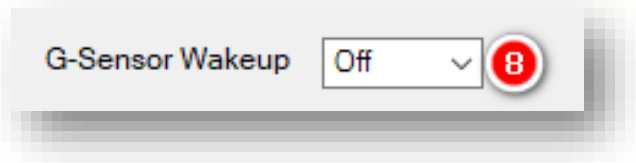
Sleep

7. Select whether to activate **Sleep Mode** for your device. This determines whether the AP1 enables faster attack time (data processing). This function moves the device's main processor into a low-power state after ignition off and the designated Power Off Delay period.

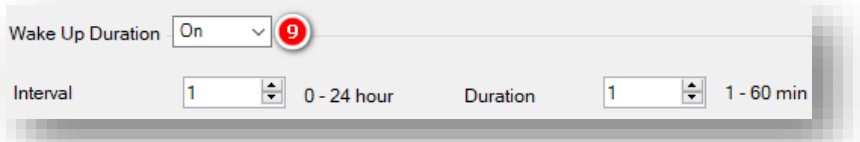


Note: Deactivating **Sleep Mode** disables the device's wakeup interval functionality.

8. To determine whether G-Sensor activity (for example, door open/close) cause the AP1 to become fully awake, select the **G-Sensor Wakeup.** This function allows the device to become active from any low-power state. **It is recommended to activate G-Sensor Wakeup for the fastest device response in sleep mode.**

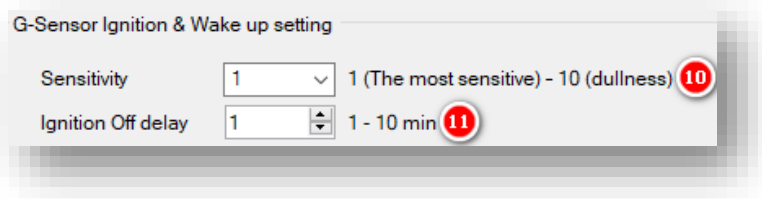


9. To enable the AP1 to enter an active state from sleep mode periodically, turn on **Wake Up Duration**. AP1 will transmit its location during the active state and respond to SmartAPI commands.
   - **Interval** sets the length of time between wakeup periods. An interval of five hours will result in the AP1 turning on every 5 hours.
   - **Duration** controls how long the device remains on during its wake-up period.



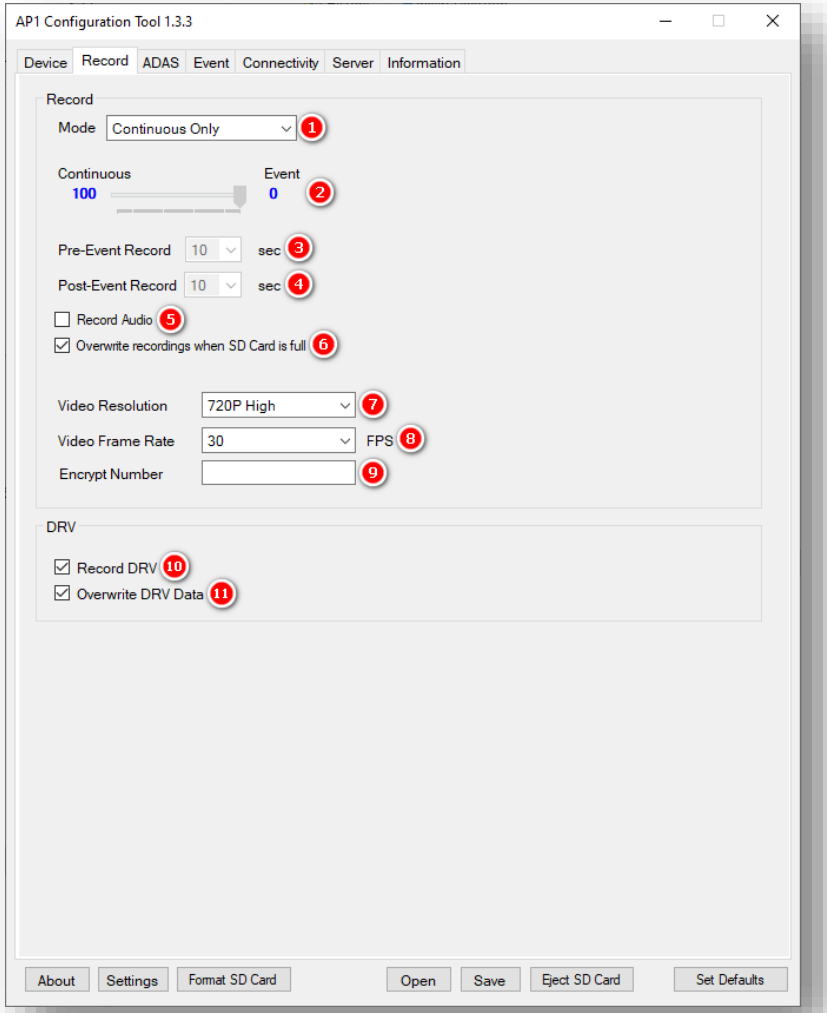
G-Sensor Ignition & Wakeup setting

10. To adjust the responsiveness of the G-Sensor wake-up feature, select a **Sensitivity**.
    - 1 - Device responds only to the most severe shocks.
    - 10 - Least sensitive. Device responds to minor fluctuations in G-Sensor readings.
11. **Ignition Off delay** processes ignition status from G-Sensor Mode (vs. OBDII / J1939 Mode). The delay sets the time an ignition off condition must remain present before ignition off is reported. This occurs after G-Sensor and voltage readings determine an ignition off state.



4.2 How to Configure the Record Tab

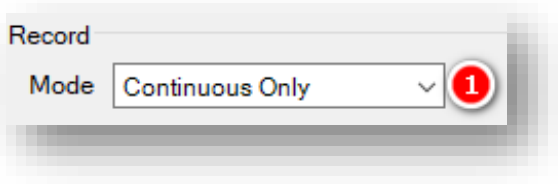
Record Tab Layout: At a Glance



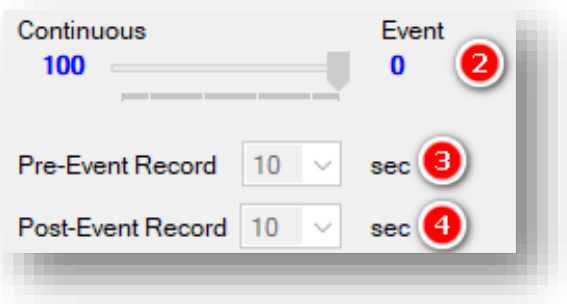
Record

Record

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



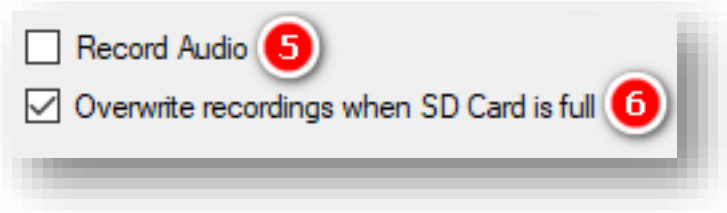
2. To adjust your device's Continuous to Event recording ratio, move the slider to your preferred setting (applicable only to Continuous + Event mode)
3. Choose how long your device records before an event by selecting a **Pre-Event Record** time.
4. Set how long your device records after an event by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



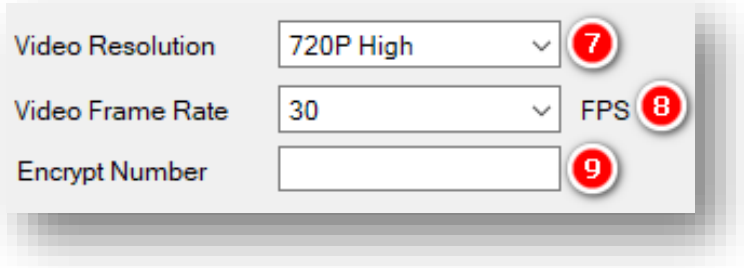
Record

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 remain 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 will also be generated.



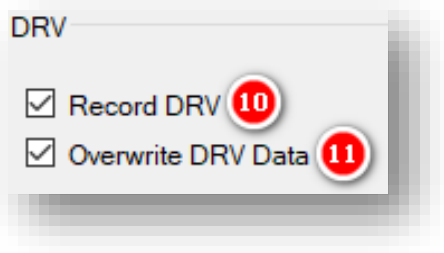
7. Determine your event recording **Video Resolution**:
   - **Standard**, **High,** or **Super** bitrate. Higher-quality video contains more detail but consumes more storage space on the SD card.
8. To set your video's frame rate, choose from **Video FPS**. Selecting different video recording options may affect your on-device storage capacity.
9. Protect SD card data from being easily viewable by entering an **Encrypt Number.**



Record

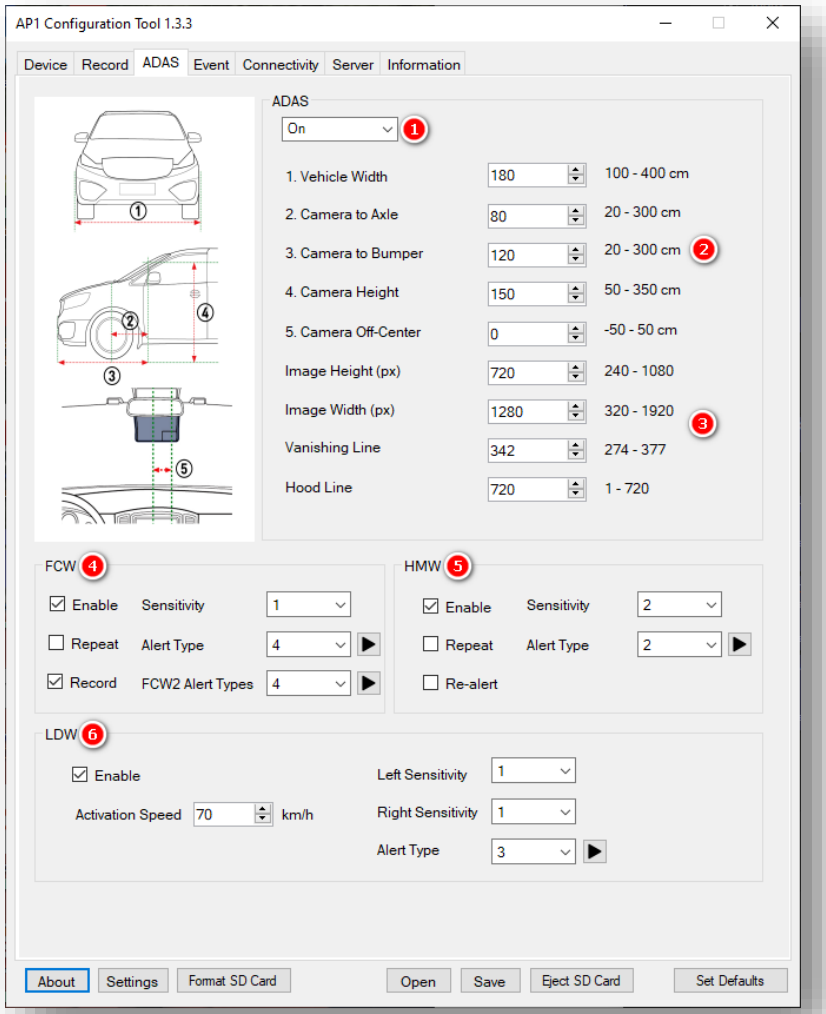
DRV

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.**



4.3 How to Configure the ADAS Tab

ADAS Tab Layout: At a Glance



ADAS

4.3.1 ADAS Events Explained

Review the definitions and related conditions below to understand the settings and functions of **ADAS** (Advanced Driver Assistance Systems).

Event Type	Event Definition	Detection Conditions & Sensitivity
FCW	**Forward Collision Warning** - Detects an imminent collision with something ahead.	**Detection Conditions:** FCW activates when the OBD 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. 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). **Sensitivity:** This dictates 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:** HMW activates for OBD vehicle speeds over 30 km/h/19 mph. 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).

		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.
LDW	**Lane Departure Warning** - Your vehicle crosses a solid lane line on either side of the road.	**Detection Conditions:** LDW operates above a speed threshold of 40 km/h/25 mph. **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**.

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

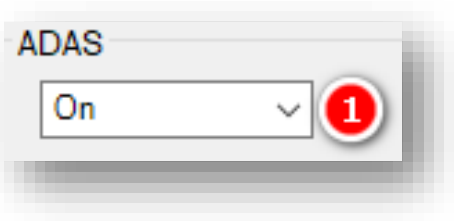
*TTC example based on 72 km/h. Please note that FCW TTC adjusts according to vehicle speed and distances.

LDW

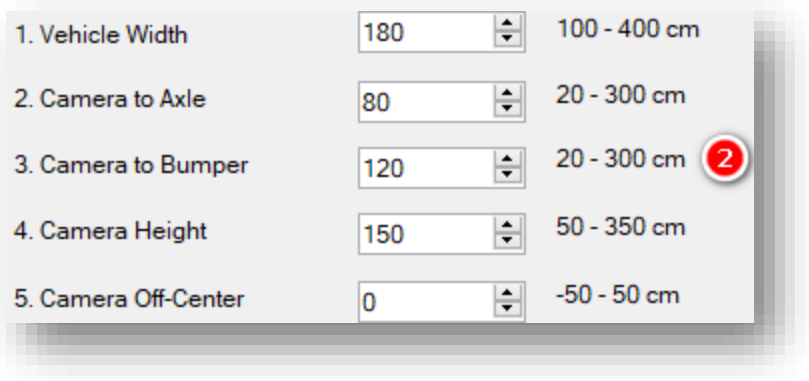
Sensitivity	1	2	3	4	5
Status	Over the line	Over the line	On the line	Inside the line	Before the line
Distance - From the wheel to the lane line	+20cm	+10cm	0	-10cm	-20cm

4.3.3 Measurement & Event Settings

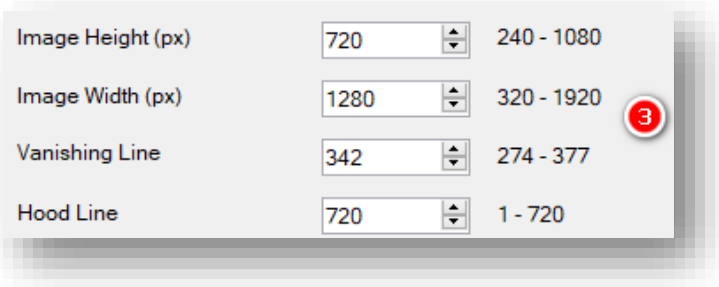
1. Select whether to turn **ADAS** on or off.



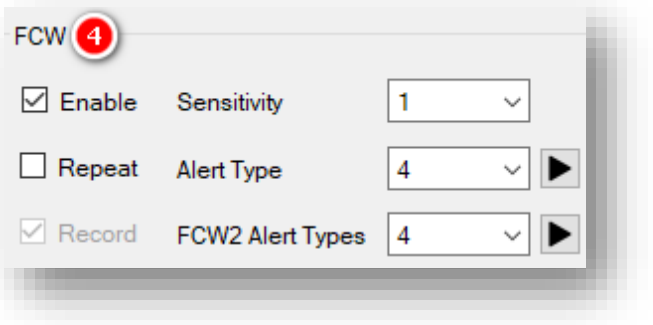
2. Review the descriptions below and refer to the tool's diagrams for measurement explanations.
   - **Vehicle Width:** Distance from the outside of the left tire to the outside of the right tire.
   - **Camera to Axle:** Distance from the camera lens to the front wheel's axle.
   - **Camera to Bumper:** 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 inches / 30.5 cm of the center of the windshield (center of the device to the center of the windshield).
     - If your camera is on the left side, enter a negative value.
     - If the lens is centered, enter 0.
     - If the lens is on the right side, enter a positive value.



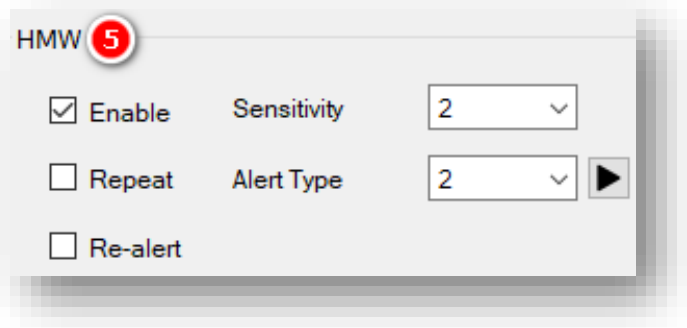
3. The following settings require device calibration. It is recommended to use the AP1 Tool app for initial road-facing measurements. To find a QR code for both the Apple App and Google Play stores, please follow this **link**.
   - To make measurement adjustments through the configuration tool, contact your integration team for a step-by-step walkthrough.



4. Forward Collision Warning (FCW) – To set FCW preferences, click **Enable**.
   - To deliver consecutive FCW alerts on the same vehicle ahead, click **Repeat**.
   - To capture event video and audio to send to SmartAPI, enable **Record.**
   - Select your FCW sensor **Sensitivity**.
   - Choose the **Alert Type** for in-cab notifications. Turn on your PC's sound to preview alerts via the play button.



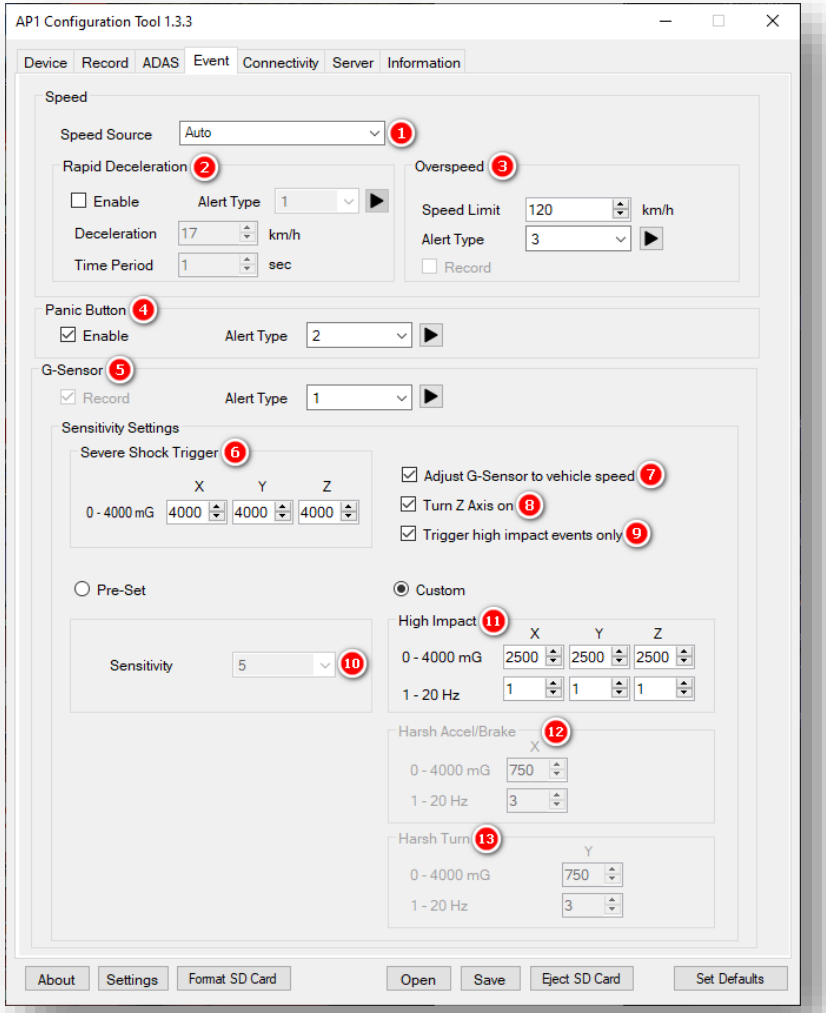
5. Headway Monitoring Warning "Tailgating" (**HMW**) –To set HMW event preferences, check **Enable**.
   - Deliver consecutive FCW alerts on the same vehicle ahead by checking **Repeat.**
   - To trigger HMW alerts repeatedly every time they occur, click **Re-alert.**
   - Select your HMW **Sensitivity.**
   - Choose the **Alert Type** for in-cab notifications. Turn on your PC's sound to preview alerts via the play button.



6. Lane Departure Warning (**LDW**) – To set event preferences, check **Enable.**
   - Establish the speed threshold for activating LDW features by entering an **Activation Speed.**
   - 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**.
   - Choose the **Alert Type** for in-cab notifications. Turn on your PC's sound to preview alerts via the play button.

4.4 How to Configure the Event Tab

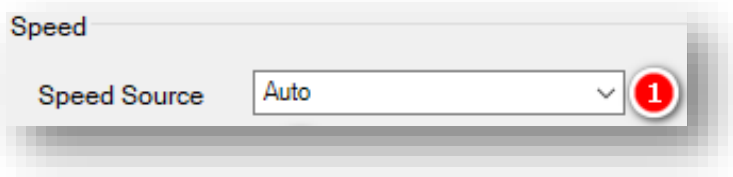
Event Tab Layout: At a Glance



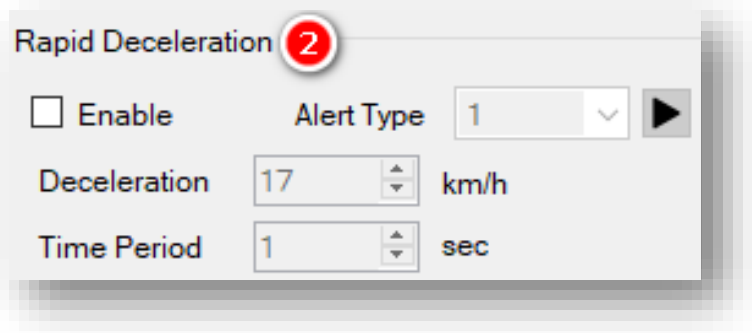
Event

Speed

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



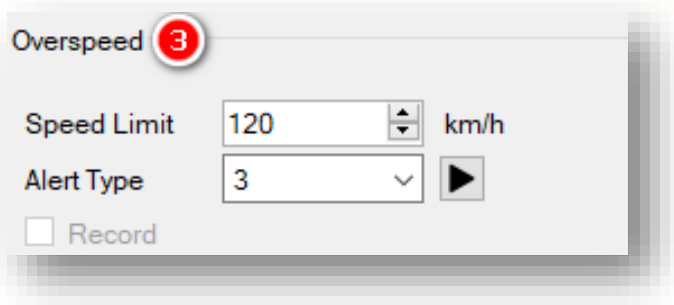
2. **Rapid Deceleration** (**RD**) – To register events based on speed reduction over a short period, select **Enable**.
   - Choose your in-cab **Alert Type**.
   - Set a **Deceleration** threshold.
   - Enter the amount of time for deceleration in **Time Period**.



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

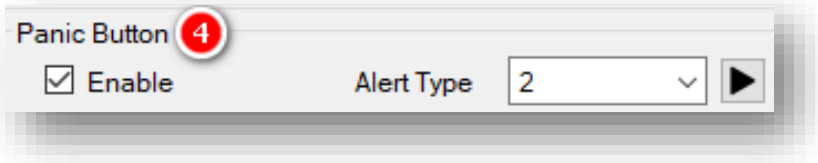
Event

3. Turn on speeding event recordings via **Overspeed**.
   - Set a **Speed Limit** threshold your vehicle must exceed to trigger Overspeed events.
   - Turn on audible notifications for Speeding events by selecting an **Alert Type.**



Panic Button

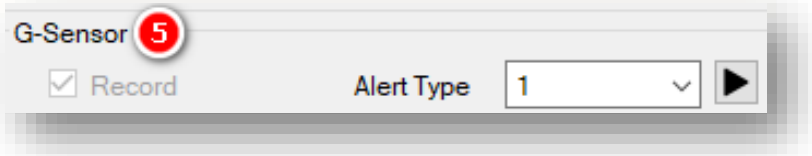
4. Turn on Panic Button event recordings by clicking **Enable**.
   - Select an audible notification for Panic Button events via **Alert Type**.



Event

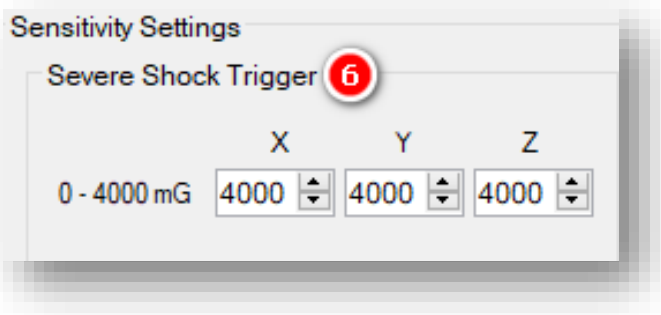
G-Sensor

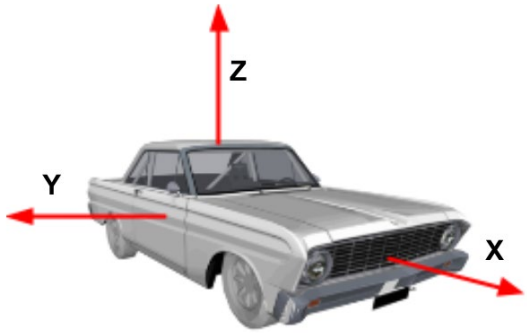
5. To turn on G-Sensor event recordings, click **Record**.
   - Allow for audible alerts of G-Sensor events by choosing an **Alert Type**.



Sensitivity Settings

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



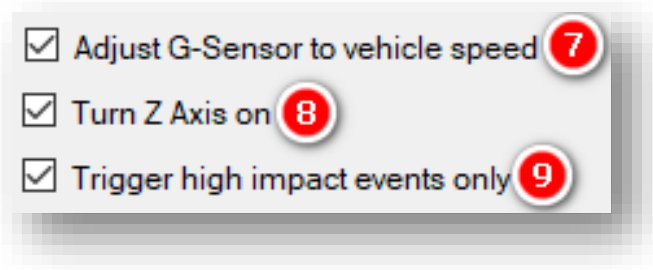


Event

7. Automatically scale the G-Sensor speed threshold by clicking **Adjust G-Sensor to vehicle speed**.

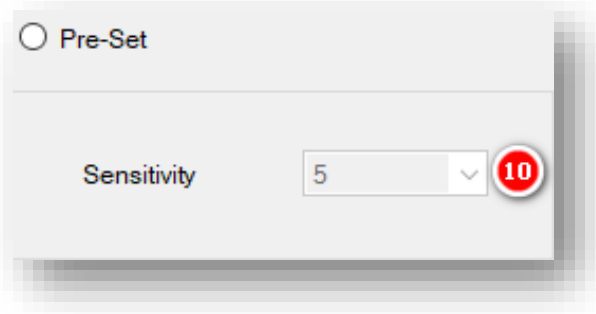
   Note: This increases the G-Sensor event threshold on each axis by 300mcg when the vehicle speed exceeds 20 km/h.

8. Activate G-Sensor readings on the z-axis (up/down) by checking **Turn Z Axis on**.
9. To limit alerts to high-impact events, check **Trigger high impact events only**.



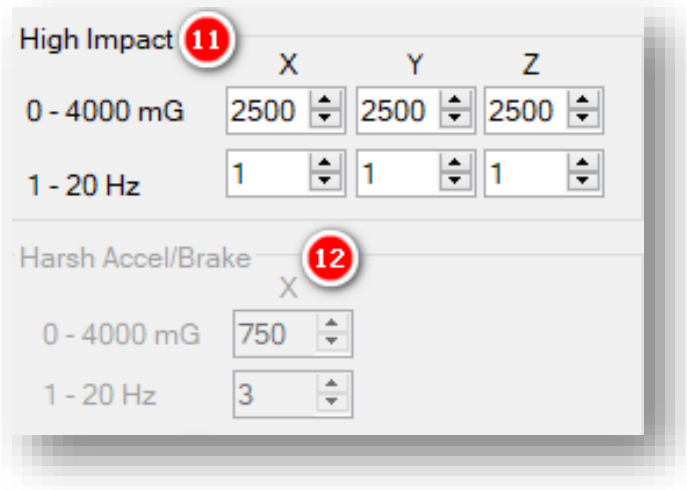
Determine your G-Sensor sensitivity settings with **Pre-Set** options or by setting event-specific values using **Custom** options.

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



Event

11. **High Impact** events occur if acceleration exceeds the X, Y, or Z axis threshold.
12. **Harsh Accel/Brake** events generate if acceleration exceeds X, Y, or Z axis thresholds.

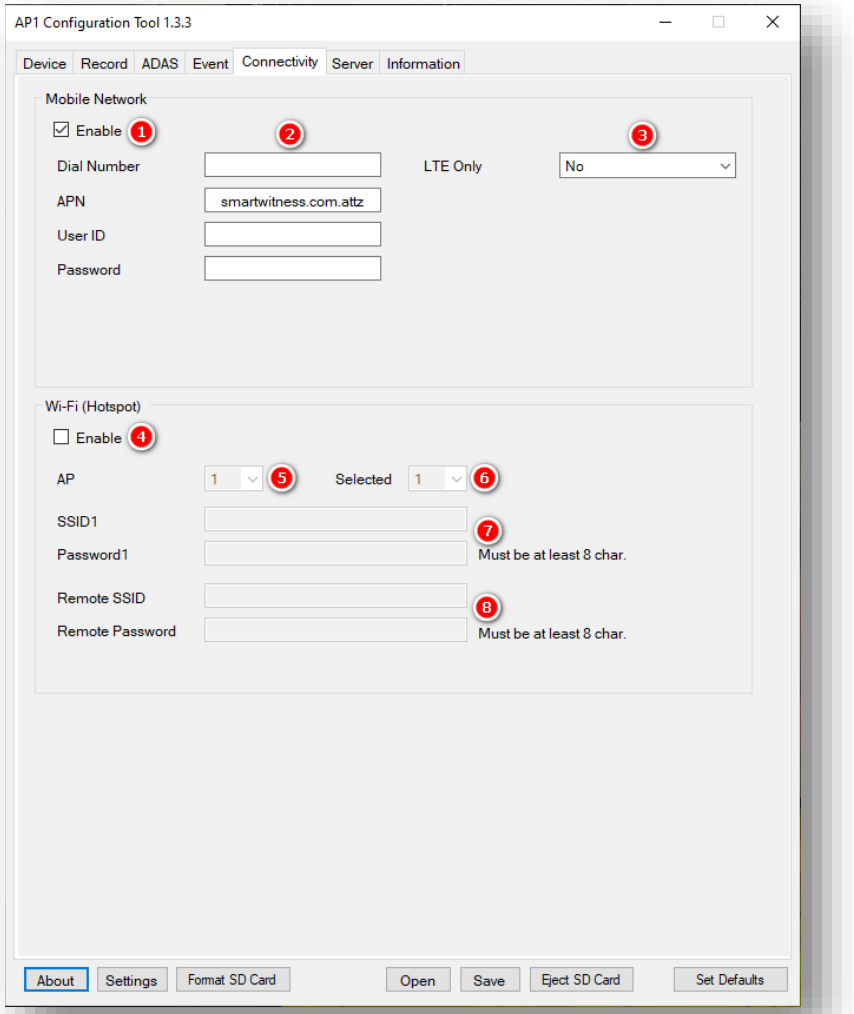


13. **Harsh Turn** events occur if acceleration exceeds the X, Y, or Z axis threshold.

    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.

4.7 How to Configure the Connectivity Tab

Connectivity Tab Layout: At a Glance

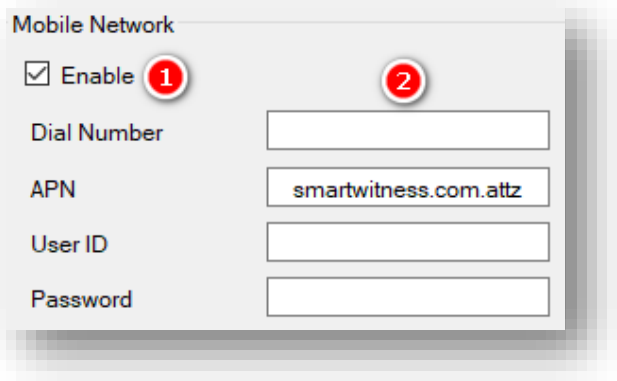


Connectivity

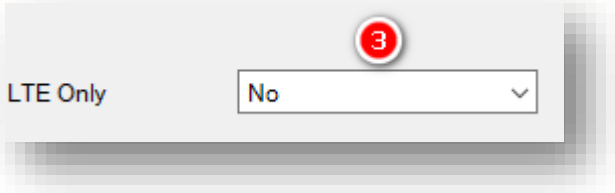
Choose either **Mobile Network** or **Wi-Fi (Hotspot)** for network connection.

Mobile Network

1. Access a compatible mobile network by clicking **Enable.**
2. Enter your mobile network settings.
   - Dial Number
   - APN
   - User ID
   - Password



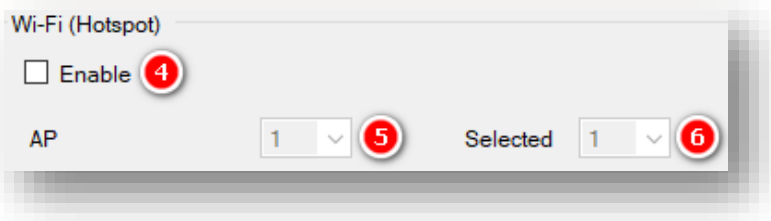
3. Select from **LTE Only** options to restrict mobile network connection to LTE.



Connectivity

Wi-Fi Hotspot

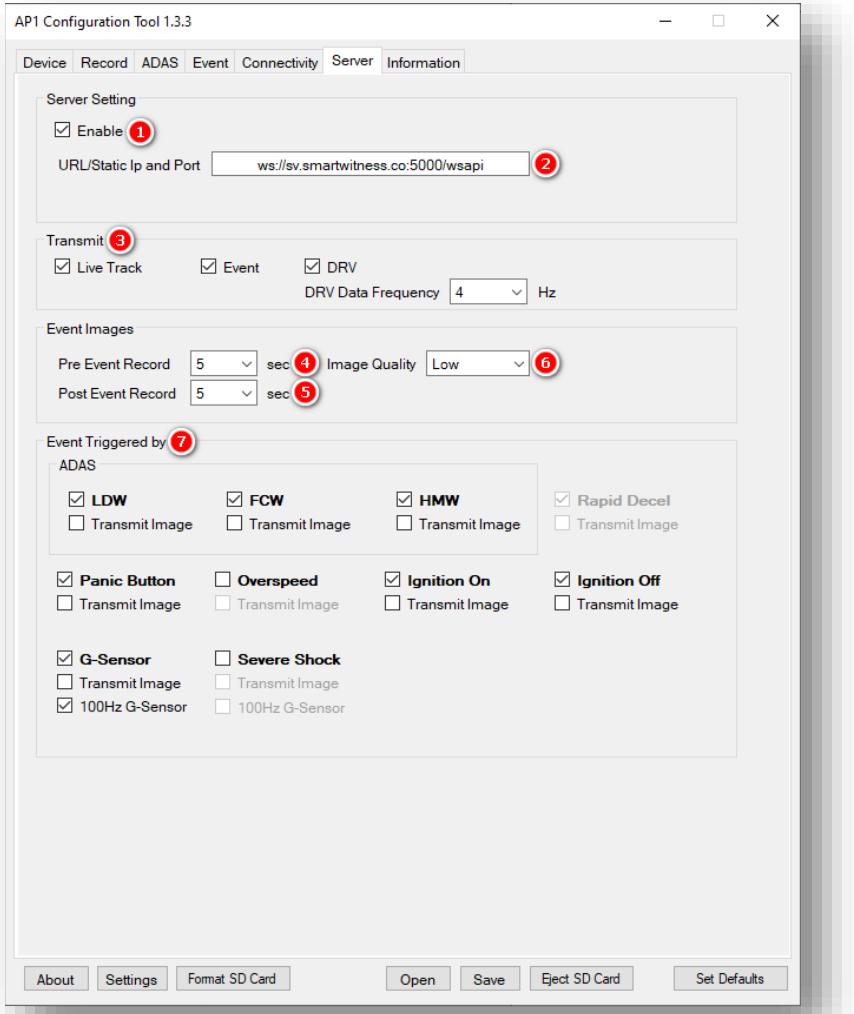
4. To create a Wi-Fi hotspot with your device, click **Enable**.
5. Select your **AP** from the options provided. Your **AP** must be secure, accompanied by WPA/WPA2 encryption.
6. Choose the **Selected** AP to connect with your device.



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.**

4.5 How to Configure the Server Tab

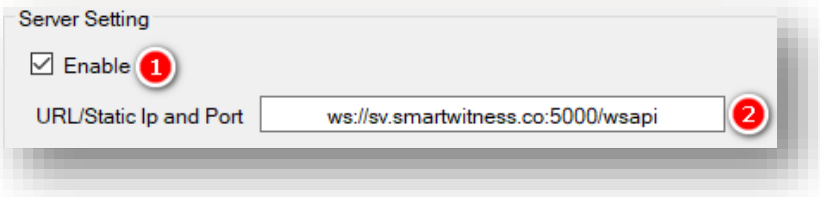
Server Tab Layout: At a Glance



Server

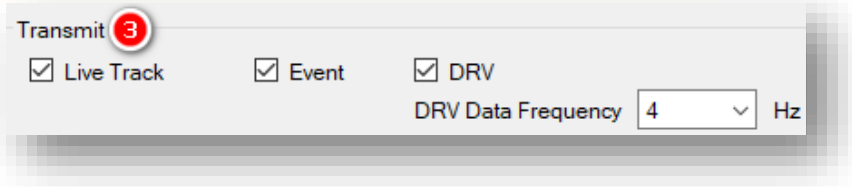
Server Setting

1. To set up your preferred server settings, click **Enable.**
2. Sensata INSIGHTS or your service provider will give you the **URL/Static Ip and Port** to enter here.



Transmit

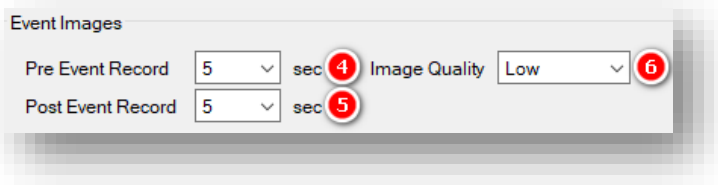
3. To send specific data to the server, check your desired data types.
   - To allow HTTP posts from the AP1 to the server, check **Live Track.**
   - Send event notifications and images to the server by checking **Event.**
   - To send DRV data to the server, click **DRV.** 4 Hz is the default and recommended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



Server

Event Images

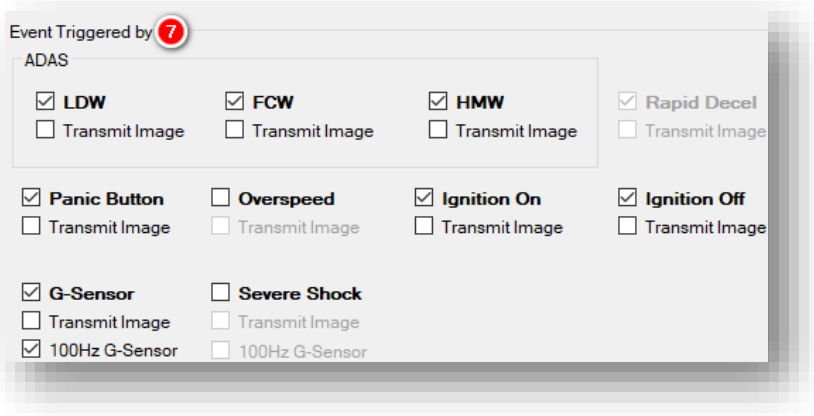
4. Set the time your device records before an event by selecting a **Pre Event Record** time. Your device will then send event images to the server.
5. Set the time your device records after an event by selecting a **Post Event Record** time. Your device will then send event images to the server.
6.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



Event Triggered By

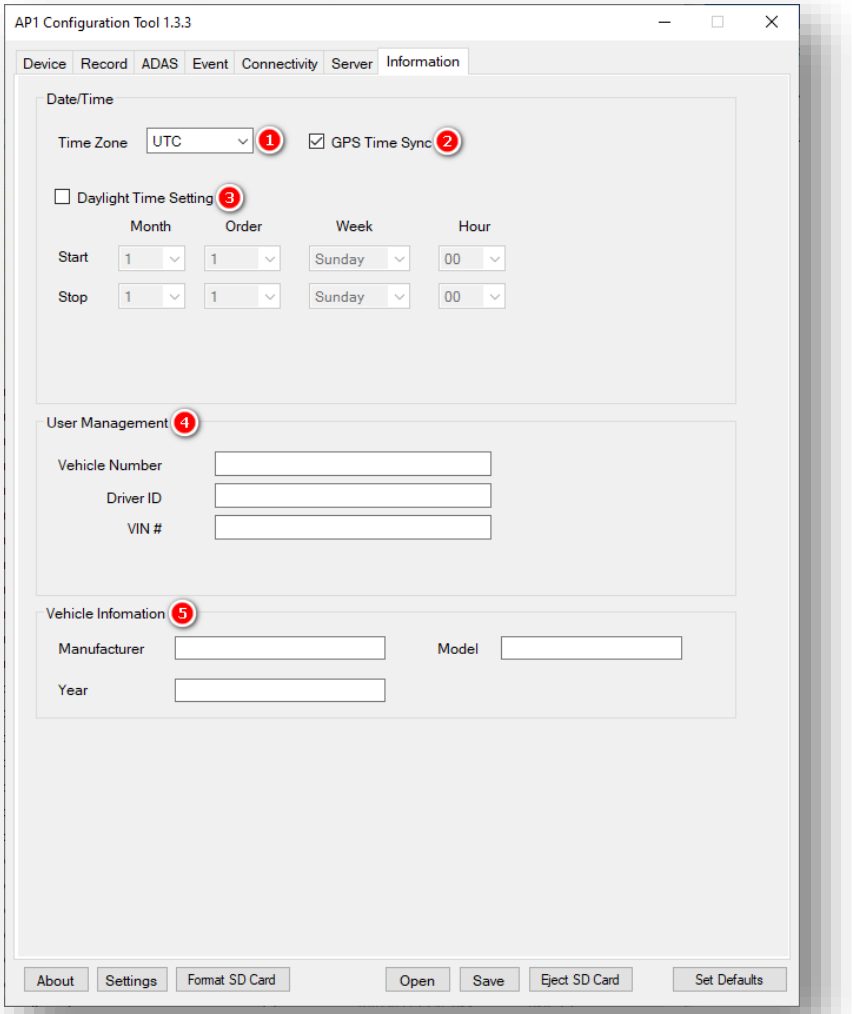
7. Choose the events your device uploads to the server by selecting options like **G-Sensor.**
   - Events send instantly, even if the device is in “Continuous” record mode.
   - ADAS event access requires enablement in the **ADAS** tab.

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



4.6 How to Configure Information Tab

Information Tab Layout: At a Glance

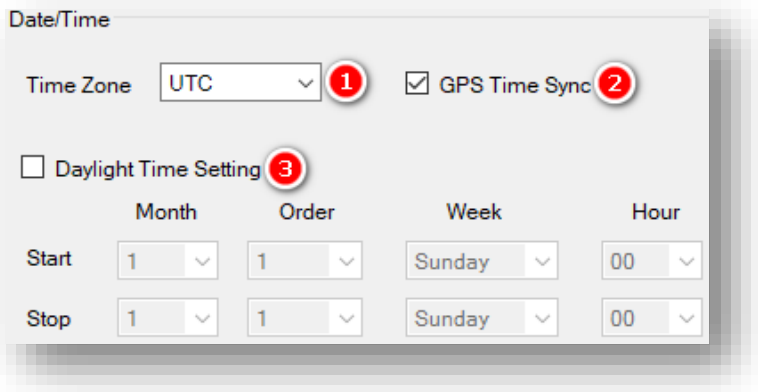


Information

Date/Time

Setting time preferences on your AP1 is **not recommended**. PC Viewer software and SmartAPI 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.



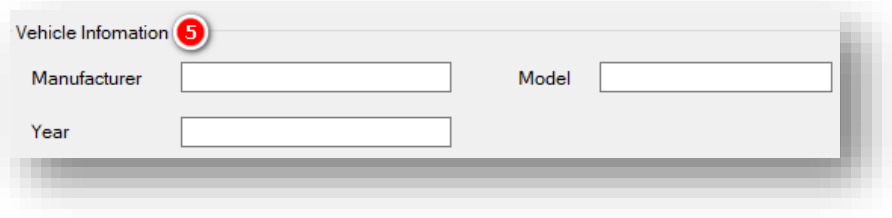
User Management

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 the **Vehicle Number.**
   - Enter a unique key for **Driver ID.**
   - Enter a numerical value for **VIN #** (Vehicle Identification Number).

Information

Vehicle Information

5. Log important vehicle identification information in the following fields.
   - Enter a vehicle **Manufacturer** such as “Ford” or “Lexus.”
   - Enter the vehicle **Model**. This is typically a unique name attached to that vehicle class.
   - Enter the model **Year** when the vehicle was produced.



5 Finishing Up/Support

Goal: Complete your configuration and access support

1. Click **Save** to set your finalized settings configuration.
2. Select **FHDRM** SD drive when prompted. Your configuration saves to your card.
3. Wait for confirmation that the software applied 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 in the SmartAPI Workstation over the air. Read the instructions **here**.

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 **smartwitness-support@sensata.com**. Additionally, 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