



# **Mobile Security Parent**

## **(ST-900-CP)**

### **User Guide**

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# IMPORTANT SAFETY INFORMATION

## RF EXPOSURE STATEMENT

Your Transmitter contains a radio frequency transmitter. When physical damage or un-lock is the transmitter sends our RF signals. To comply with FCC RF exposure compliance requirements, a separation distance of at least 11.81 inches (30 cm) must be maintained between the antenna of this transmitter and all persons, during normal operation.

The antenna used for this transmitter must not be collocated or operating in conjunction with any other antenna of transmitter. Unauthorized antennas, modifications, of attachments could damage the transceiver and may violate FCC regulations.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## FCC CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**NOTE : The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.**

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## About the Savi Security Sensor Family

### Introduction

The Savi Security Sensor Family provides users security and visibility while tracking high-value assets and cargo throughout their global supply chains. Savi Tracking is designed to provide users a seamless and complete view of the location and security status of in-transit assets and cargo.

With an in-house security sensor system that is purpose-built to integrate directly with Savi Tracking, we are able to provide users a powerful, low-cost, all-in-one tracking and security solution that is complete with encrypted data capabilities and two-way, over-the-air communication.

The Savi Security Sensor Family consists of two types of Parent Security Sensors and Child Security Sensors.

### What's New?

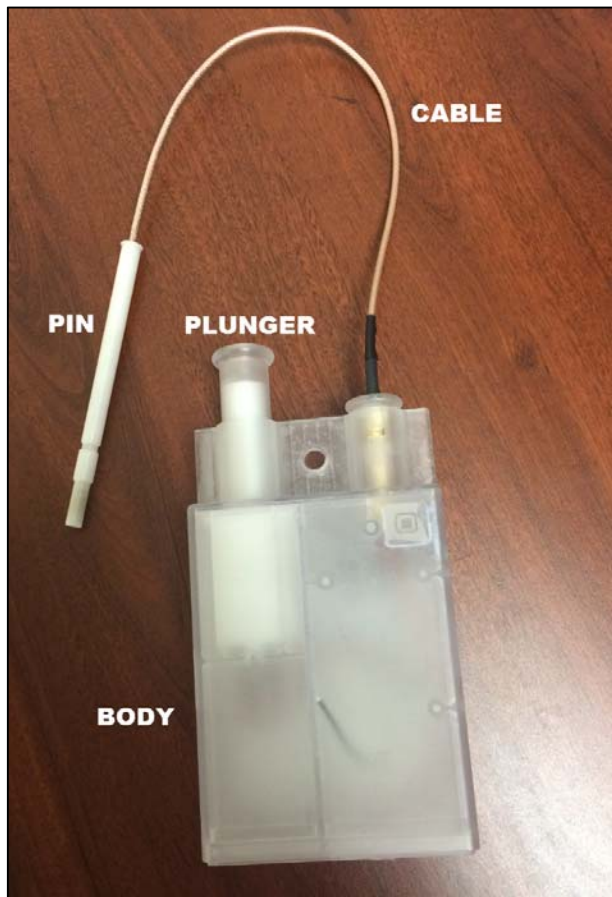
The Savi Security Sensor Family features advanced, powerful sensors while being small, light, and convenient to handle. Our new, easy-to-use design features a built-in cable and a lock that secures with the push of a finger. The devices are already pre-configured to work seamlessly with our Savi Tracking software.

## Sensor Family and Components

### Sensor Models

#### Mobile Security Parent

Model No. ST-900-CP



## Specifications

### Mobile Security Parent,

### ST-900-CP

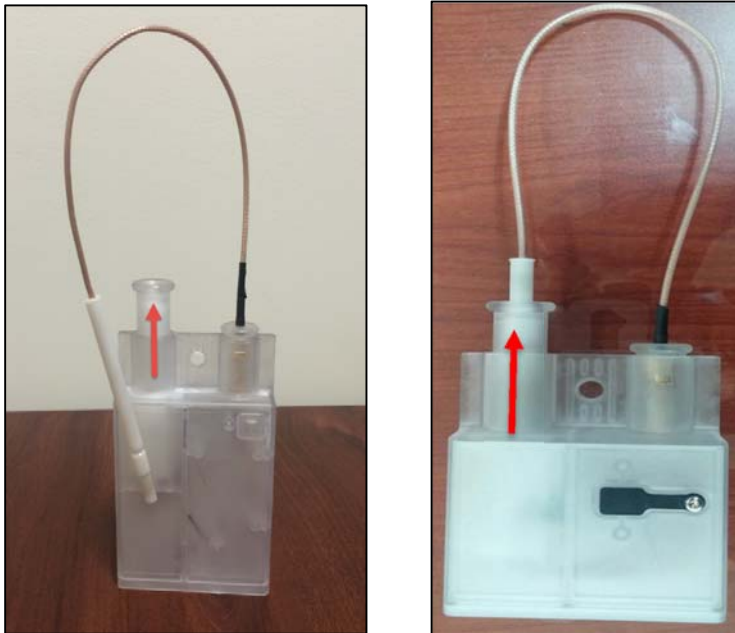
PHYSICAL	
LxWxH	<ul style="list-style-type: none"><li>88 mm x 46 mm x 168 mm</li></ul>
Standard Cable Length	<ul style="list-style-type: none"><li>300 mm</li></ul>
Weight	<ul style="list-style-type: none"><li>0.36 kg</li></ul>
ENVIRONMENTAL	
Temperature	<ul style="list-style-type: none"><li>-30°C to +50°C Operating</li><li>-40°C tp +70°C Non-Operating</li></ul>
Humidity	<ul style="list-style-type: none"><li>95% RH @ 50°C Non-Condensing</li></ul>
Vibration and Shock	<ul style="list-style-type: none"><li>U.S. Military Standards 202G and 810F, SAE J1455</li></ul>
Weatherproofing	<ul style="list-style-type: none"><li>IP67</li></ul>
WIRELESS	
Frequency	<ul style="list-style-type: none"><li>433 MHz(UHF), 123KHz(LF) , 850/900/1800/1900 MHz</li></ul>
Protocol	<ul style="list-style-type: none"><li>ISO 18000-7 (Active RFID), Quad-Band GPRS</li></ul>
Location	<ul style="list-style-type: none"><li>22-channel GPS with Cellular Triangulation Backup</li></ul>
POWER	
Battery	<ul style="list-style-type: none"><li>DC 3.7V / 2800 mAh Li-polymer battery</li></ul>
REGULATORY APPROVALS	
RoHS Compliant	
EMC/EMI	<ul style="list-style-type: none"><li>SAE J1113, FCC-Part 15B, Industry Canada</li></ul>
Global Certifications	<ul style="list-style-type: none"><li>FCC, CE, I-SAFE (ATEX, IEC, UL913 Zone 1 Groups A,B,C,D)</li></ul>
SENSORS	
	<ul style="list-style-type: none"><li>3-axis accelerometer</li></ul>
	<ul style="list-style-type: none"><li>Motion</li></ul>

## Using the Sensors

### Turning on the Mobile Security Parents and/or Child Sensors

#### For the Mobile Security Parent and Child Sensors:

To turn on the Mobile Security Parent and Child Sensors, pull the plungers up.



#### For the Vehicle Security Gateway:

Turn on the truck or vehicle ignition to turn on the sensors.

### Charging the Mobile Security Parent

The Mobile Security Parent is rechargeable with a USB cable. Charge sensors using the Savi-approved Mini USB cable and charger by plugging it into an outlet that is connected to a power source.

**Note:** Mobile Security Child is not rechargeable. The Vehicle Security Gateway is recharged automatically once connected to the vehicle power.





## LED Light Patterns

All Savi Security Sensors include a two-color red/green LED indicator that details various status conditions.

These LED patterns are defined below and should be used to assist in system operation and troubleshooting as necessary.

### Parent Sensor LED Patterns

Initialization	Red	Off	Red	Off	Red	Off	Red	Off	Red	Off	Red	Off	Red	Off	Red	Off	Red	Off
Low Battery Alert	Red	Red	Red	Off	Off	Red	Red	Red	Off	Off	Red	Red	Red	Off	Off	Red	Red	Red
GSM Connection Good	Green	Green	Green	Off	Off	Green	Green	Green	Off	Off	Green	Green	Green	Off	Off	Green	Green	Green
	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
GPRS Connection Good	Green	Off	Green	Off	Off	Green	Off	Green	Off	Off	Green	Off	Green	Off	Off	Green	Off	Green

TCP Connection Good																						
Communicating with Server																						
Searching for Child																						
Paired Child Located																						
Ready to Arm/No GPS Fix																						
Ready to Arm/GPS Fix																						
Security Tamper																						

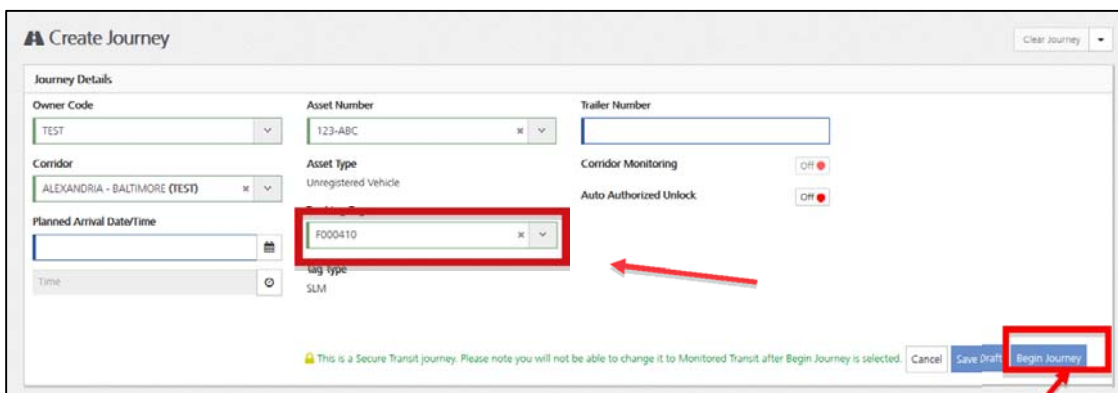
## Child Sensor LED Patterns

[illegible]

## Journeys with a Mobile Security Parent Only

### Creating the Journey

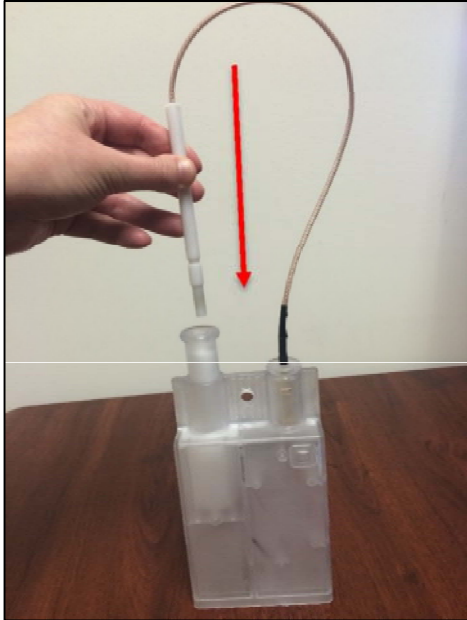
1. Log into Savi Tracking.
2. Create a Journey by performing the following steps:
  - a. Select an Owner and Corridor from the drop-down list.
  - b. Enter the Asset Number.
  - c. Enter the Mobile Security Parent serial number in the “Tracking Tag” field.



- d. Click “Begin Journey” to indicate you are ready to arm tags.

## Arming the Mobile Security Parent

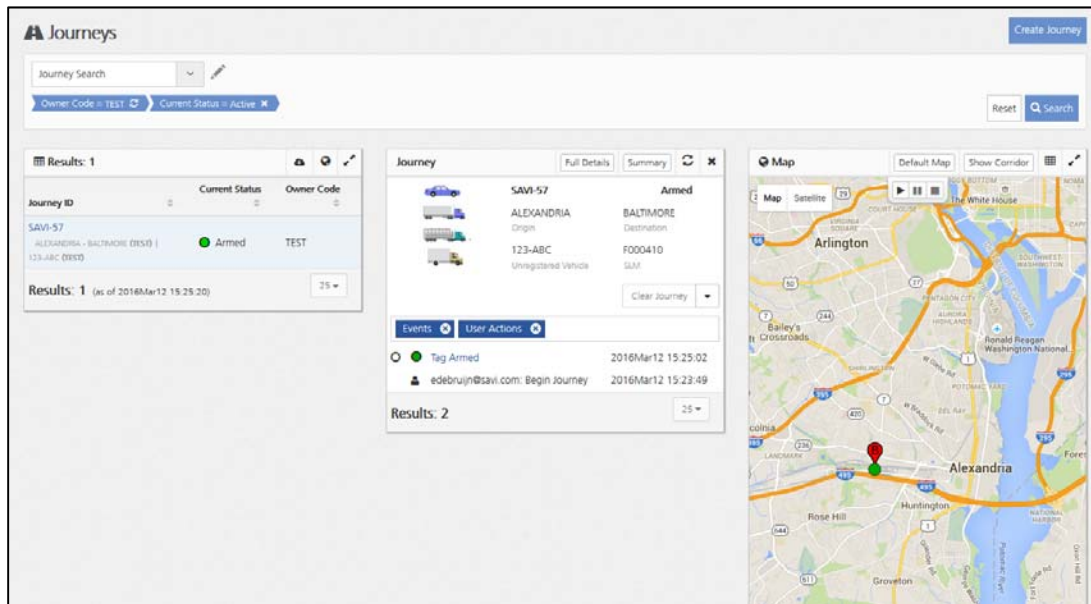
1. Turn on the sensor.
2. Loop the pin and cable through lock or door on container or vehicle.



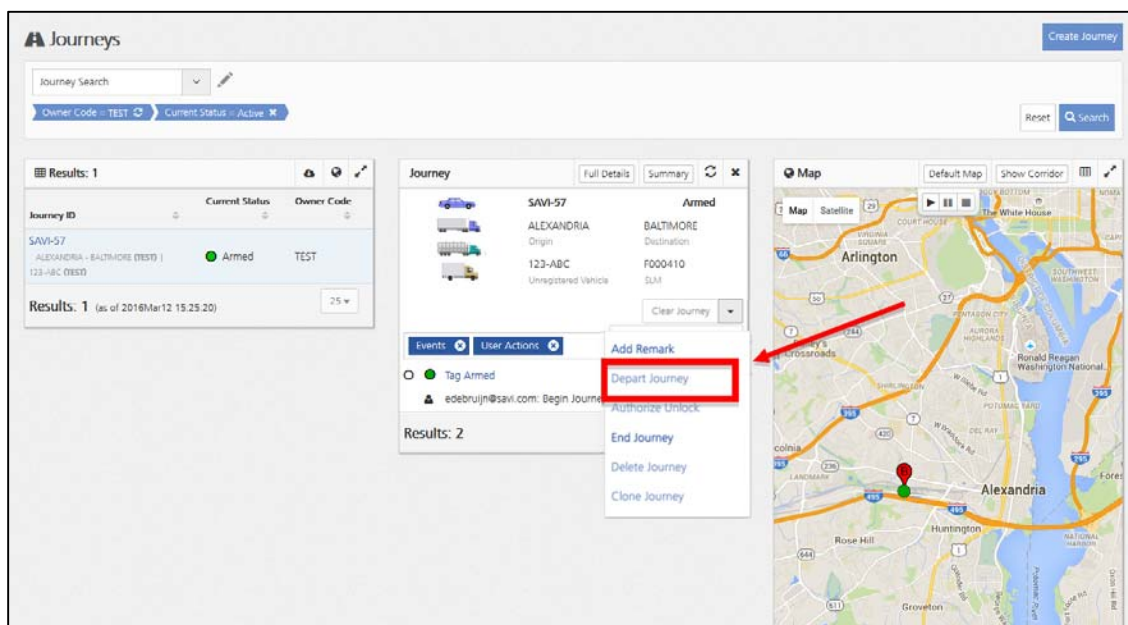
3. Push pin down into the plunger firmly until it clicks into place. Then push the plunger down to arm and lock the sensor.



- The green bullet will display in Savi Tracking to show that the Mobile Security Parent is armed and ready.



- Once the Mobile Security Parent is armed, select "Depart Journey" from the drop-down list.



6. The Current Status of the journey will change to “Secure Transit”.

The screenshot displays the Savi Journeys web application interface. At the top, there is a 'Journey Search' bar and a 'Create Journey' button. Below the search bar, filters for 'Owner Code: TEST' and 'Current Status: Active' are visible. The main content area is divided into three panels:

- Results: 1**: A table showing journey details for 'SAVI-57' (ALEXANDRIA - BALTIMORE (TEST) | 123-ABC (TEST)). The 'Current Status' is 'Secure Transit' and the 'Owner Code' is 'TEST'. Below the table, it says 'Results: 1 (as of 2016Mar12 15:25:20)'.
- Journey**: A detailed view of the journey 'SAVI-57'. It shows the origin 'ALEXANDRIA' and destination 'BALTIMORE'. The vehicle is '123-ABC' (Unregistered Vehicle) with a license plate 'F000410'. The status is 'Secure T...'. Below this, there is a 'Clear Journey' button and a list of events and user actions.
- Map**: A map showing the journey route from Alexandria to Baltimore. The route is highlighted in orange. A red pin is located near Alexandria. The map includes labels for 'Arlington', 'Alexandria', 'Huntington', 'Groverton', 'Forest', 'The White House', and 'Ronald Reagan Washington National Airport'.

The 'Events' and 'User Actions' list shows the following:

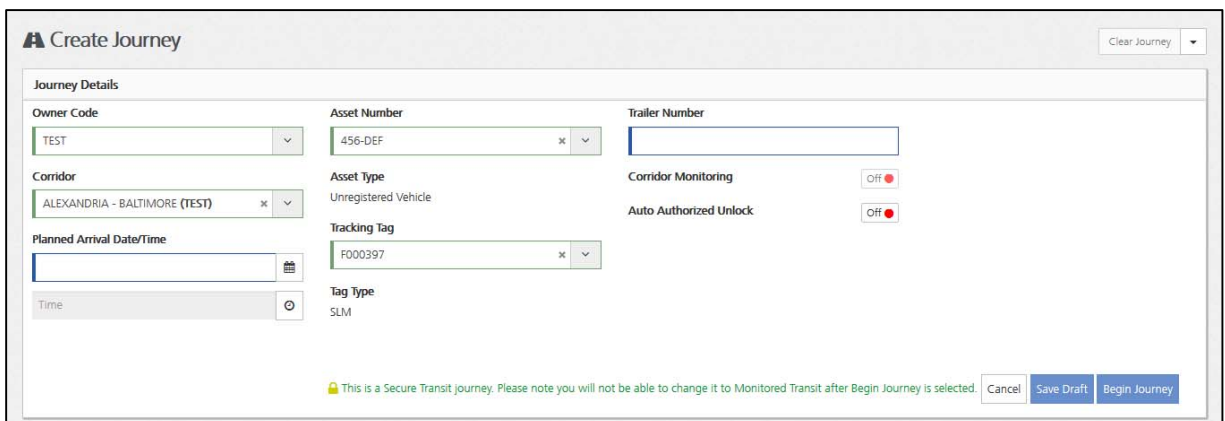
Event	User	Timestamp
Depart Journey	edeburj@savi.com	2016Mar12 15:26:48
Tag Armed	edeburj@savi.com	2016Mar12 15:25:02
Begin Journey	edeburj@savi.com	2016Mar12 15:23:49

Below the list, it says 'Results: 3'.

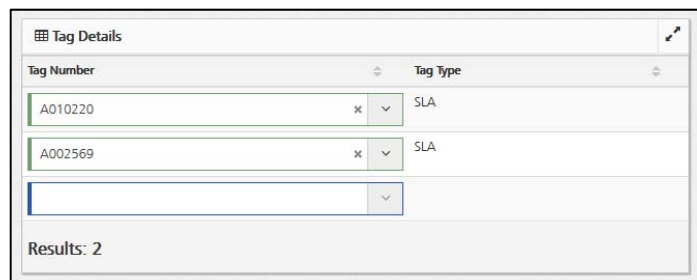
# Journeys with One or More Mobile Security Child Sensors

## Creating the Journey

1. Log into Savi Tracking.
2. Create a Journey by performing the following steps:
  - a. Select an Owner and Corridor from the list.
  - b. Enter the Asset Number. It is possible to either work with a registered asset or with a non-registered asset. If a registered asset is selected from the drop-down list, then the Tracking Tag field will automatically be filled in with the Vehicle Security Gateway serial number.



- c. When working with a non-registered asset, enter the Mobile Security Parent serial number in the “Tracking Tag” field.
- d. Scroll down to the Tag Details section and enter the Security Child Sensor IDs and Tag Point Names.



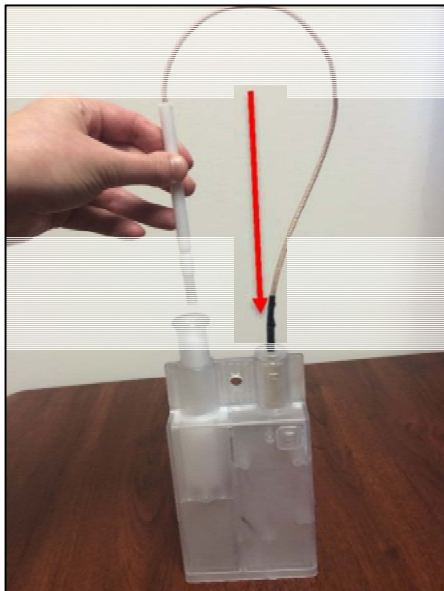


- e. When done, click Begin Journey.

The screenshot shows the 'Create Journey' web interface. The 'Journey Details' section includes fields for Owner Code (TEST), Asset Number (456-DEF), Trailer Number, Corridor (ALEXANDRIA - BALTIMORE (TEST)), Asset Type (Unregistered Vehicle), Corridor Monitoring (OFF), Auto Authorized Unlock (OFF), Planned Arrival Date/Time, Tracking Tag (F000797), and Tag Type (SLM). A warning message states: 'This is a Secure Transit journey. Please note you will not be able to change it to Monitored Transit after Begin Journey is selected.' Below this are 'Cancel', 'Save Draft', and 'Begin Journey' buttons. The 'Begin Journey' button is highlighted with a red box and a red arrow. The bottom section shows 'Tag Details' and 'Documents' tabs.

## Arming the Mobile Security Parent and Child

1. Turn on the sensors; make sure the Parent and Child are in close proximity to each other. Verify LED lights for successful pairing.
2. To arm the both the Mobile Security Parent and the Mobile Security Child, loop the pin and cable through lock or door on container or vehicle.



3. Push pin down into the plunger firmly until it clicks into place. Then push the plunger down to arm and lock the sensor.



4. The green bullets will display in Savi Tracking to show that the Mobile Security Child Sensors are armed and ready.

**Journeys** Create Journey

Journey Search

Owner Code = TEST Journey ID = SAVI-58 Current Status = Active Reset Search

**Results: 1**

Journey ID	Current Status	Owner Code
SAVI-58 ALEXANDRIA - BALTIMORE (TEST)   456-DEF (TEST)	Armed	TEST

Results: 1 (as of 2016Mar12 15:44:15) 25

**Journey** Full Details Summary ×

SAVI-58 **Armed**

ALEXANDRIA Origin  
BALTIMORE Destination

456-DEF Unregistered Vehicle  
F000397 SUM

Clear Journey

**Events** User Actions

Tag Armed	2016Mar12 15:43:38
Tag Armed	2016Mar12 15:43:29
Tag Armed	2016Mar12 15:42:28
edebrujn@savi.com: Begin Journey	2016Mar12 15:36:53

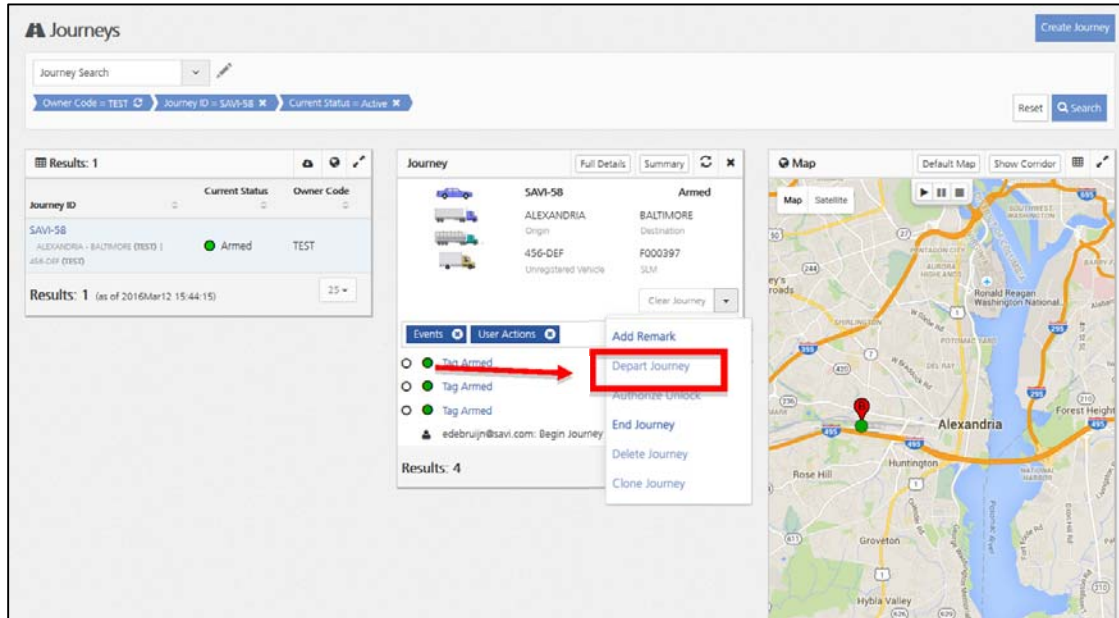
Results: 4 25

**Map** Default Map Show Corridor ×

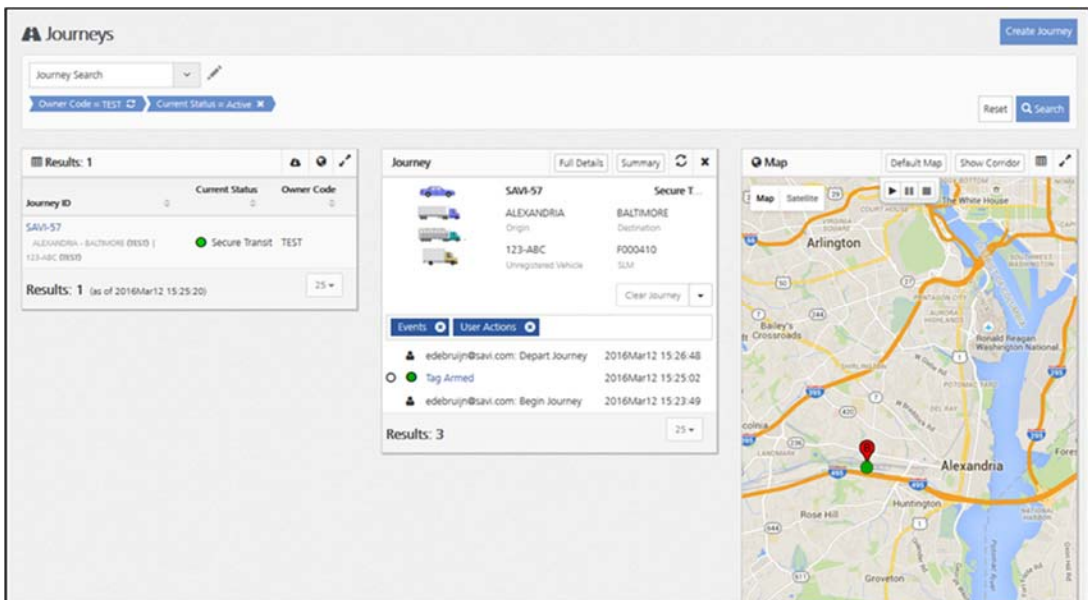
Map Satellite ▶ ⏮ ⏪ ⏩ ⏭

Alexandria

- Once the Child Sensors are armed, select “Depart Journey” from the drop-down list.



- The Current Status of the journey will change to “Secure Transit.”



## Troubleshooting

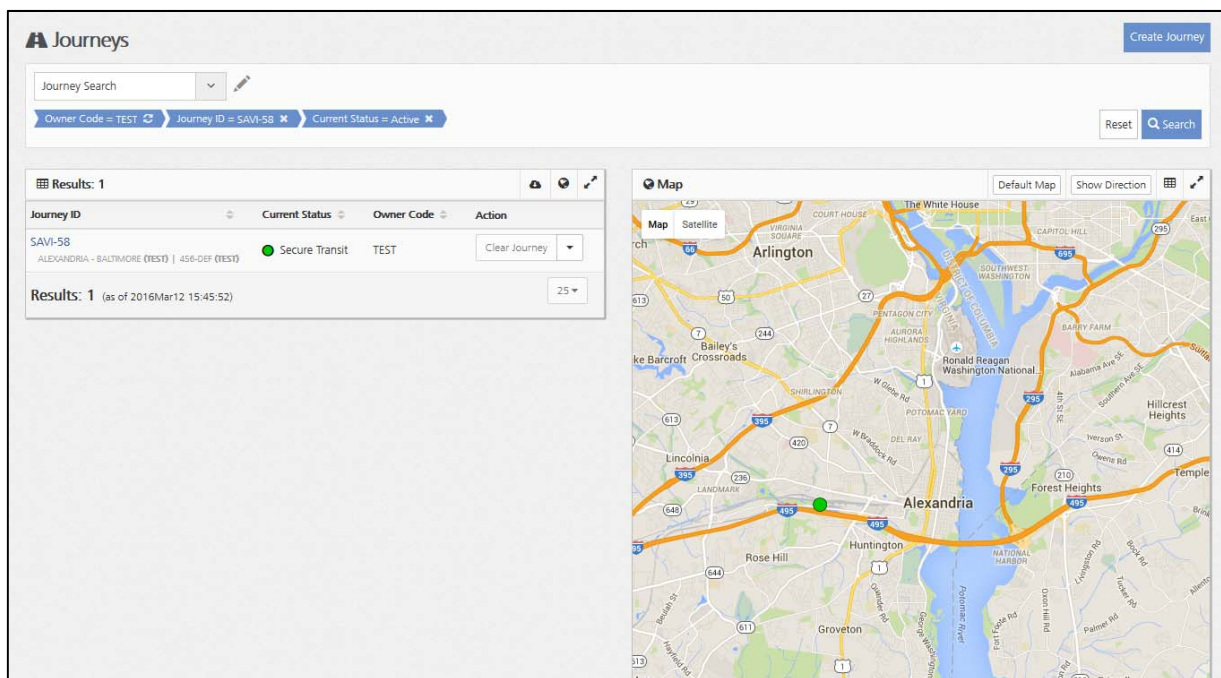
### Replacing a Child Sensor

For various reason, it may be necessary to replace a Child Sensor on a journey, for example because:

- The child sensor isn't pairing with the parent sensor
- The child sensor isn't arming
- The Child sensor has a low battery

To replace a Child Sensor on a journey, perform the following steps:

1. Search for the journey using the Journey screen.



2. Click on the journey to display the journey details.

The screenshot shows the Savi Journeys web application. At the top, there's a 'Journey Search' bar and filters for 'Owner Code = TEST', 'Journey ID = SAVI-58', and 'Current Status = Active'. Below the search bar, a list of results is shown. The first result, 'SAVI-58', is highlighted with a red box. A red arrow points from this box to the 'Full Details' button in the 'Journey' section. The 'Journey' section displays details for 'SAVI-58', including 'ALEXANDRIA' as the origin and 'BALTIMORE' as the destination. It also shows a list of events, including 'Tag Armed' and 'Begin Journey'. A map on the right shows the location of the journey.


3. Click on Full Details to display the full journey details.

This screenshot shows the 'Full Details' view for the journey 'SAVI-58'. The 'Full Details' button in the 'Journey' section is highlighted with a red box, and a red arrow points to it. The detailed view shows the journey's origin ('ALEXANDRIA') and destination ('BALTIMORE'), along with a list of events. The events include 'Tag Armed' and 'Begin Journey'. A map on the right shows the location of the journey.

4. Click pencil symbol to edit the journey:

SAVI-58 Secure Transit

Clear Journey Last Search

**Journey Details** 

TEST  
Owner Code

456-DEF  
Asset Number

-  
Trailer Number

ALEXANDRIA to BALTIMORE (TEST)  
Corridor

Unregistered Vehicle  
Asset Type


OFF  
Corridor Monitoring

Planned Arrival Date: 2016Mar12 15:45:50 to BALTIMORE






F000397  
Tracking Tag



OFF  
Auto Authorized Unlock


SLM  
Tag Type


 This is a secure journey.


History Tag Details Documents Checkpoints Grants Alert Settings


**History** Summary     


Events:  User Actions: 


 edebruin@savi.com: Depart Journey 2016Mar12 15:45:50


 Tag Armed 2016Mar12 15:43:38




 Tag Armed 2016Mar12 15:43:29

 Tag Armed 2016Mar12 15:42:28

 edebruin@savi.com: Begin Journey 2016Mar12 15:36:53


Results: 5 

**Map** Show Corridor 


Map Satellite   


Delgado & Kuzmik  
Delta Resources


5. Delete the sensor that needs to be replaced by clicking on the “X” symbol next to it.

**Tag Details** 

Tag Number Tag Type

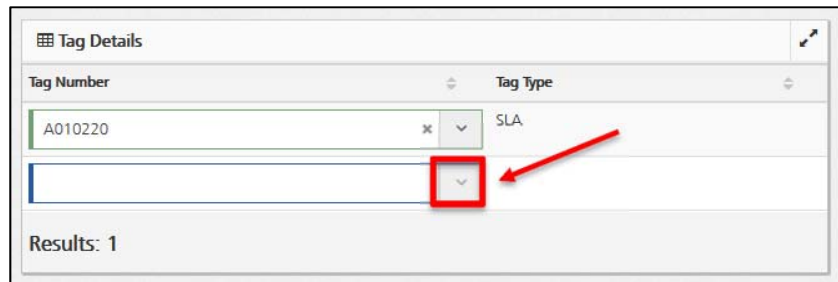
A010220  SLA

A002569  SLA



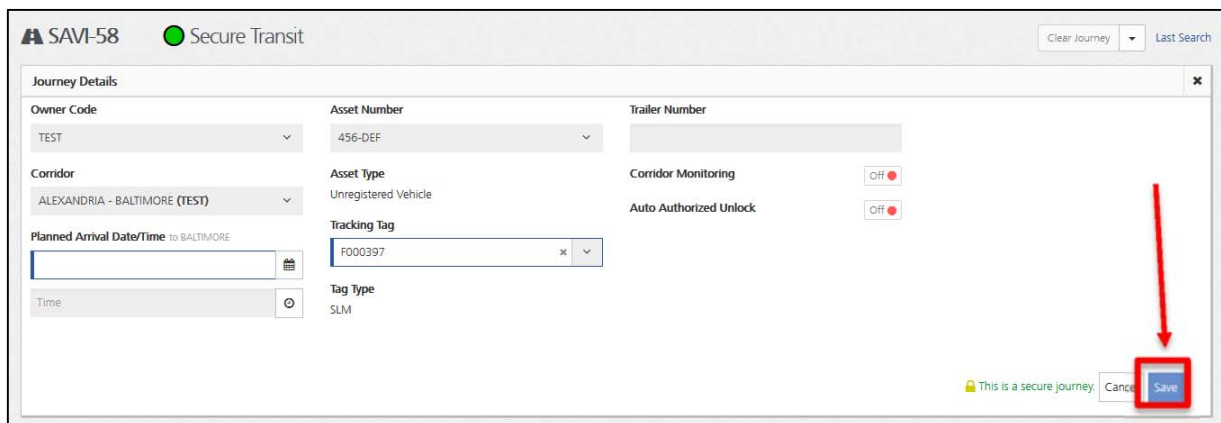
Results: 2

6. Add a new sensor by start typing the Child Sensor ID and selecting it from the drop-down list.



The screenshot shows a 'Tag Details' form. At the top, there are two tabs: 'Tag Number' and 'Tag Type'. Under the 'Tag Number' tab, there is a search bar containing the text 'A010220'. To the right of the search bar is a dropdown arrow. Below the search bar, there is a red box highlighting the dropdown arrow. A red arrow points from the text 'Add a new sensor by start typing the Child Sensor ID and selecting it from the drop-down list.' to the dropdown arrow. At the bottom of the form, it says 'Results: 1'.

7. When done, click "Save"



The screenshot shows a 'Journey Details' form. At the top, there are two tabs: 'Owner Code' and 'Asset Number'. Under the 'Owner Code' tab, there is a dropdown menu showing 'TEST'. Under the 'Asset Number' tab, there is a dropdown menu showing '456-DEF'. To the right of the 'Asset Number' dropdown is a 'Trailer Number' field. Below the 'Owner Code' dropdown is a 'Corridor' dropdown menu showing 'ALEXANDRIA - BALTIMORE (TEST)'. Below the 'Corridor' dropdown is a 'Planned Arrival Date/Time to BALTIMORE' field. Below the 'Planned Arrival Date/Time' field is a 'Time' field. To the right of the 'Planned Arrival Date/Time' field is a 'Tracking Tag' dropdown menu showing 'F000397'. Below the 'Tracking Tag' dropdown is a 'Tag Type' dropdown menu showing 'SLM'. To the right of the 'Tracking Tag' dropdown is a 'Corridor Monitoring' field with a red 'OFF' button. Below the 'Corridor Monitoring' field is an 'Auto Authorized Unlock' field with a red 'OFF' button. At the bottom right of the form, there is a green lock icon and the text 'This is a secure journey.' followed by 'Cancel' and 'Save' buttons. A red box highlights the 'Save' button, and a red arrow points to it from the text 'When done, click "Save"'. The 'Save' button is highlighted with a red box.

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## **Maintenance**

### **Cleaning Instructions**

TBD

### **Replacing a Cable**

TBD

### **Storing the Sensors**

TBD

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