Savannah Tracking
Wildlife Tracking Solutions

SAVANNAH TRACKING SOFTWARE DOCUMENTATION

Savannah Tracking software, data access, users and user management, and collar management user manual

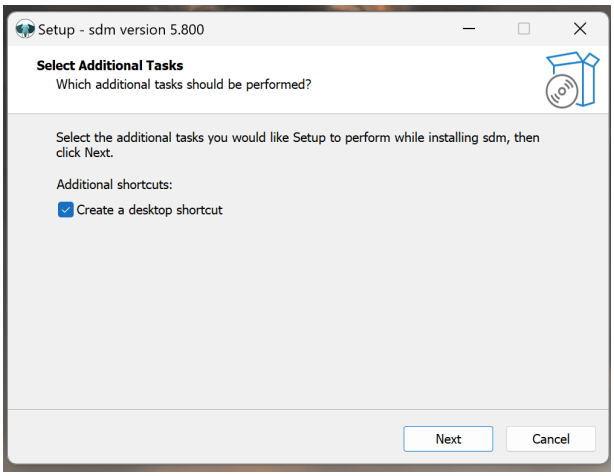
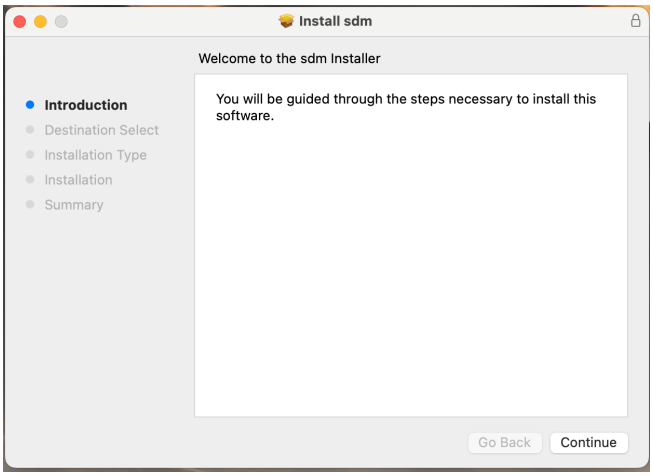
TABLE OF CONTENTS

SAVANNAH DATA MANAGER (SDM)

INSTALLATION

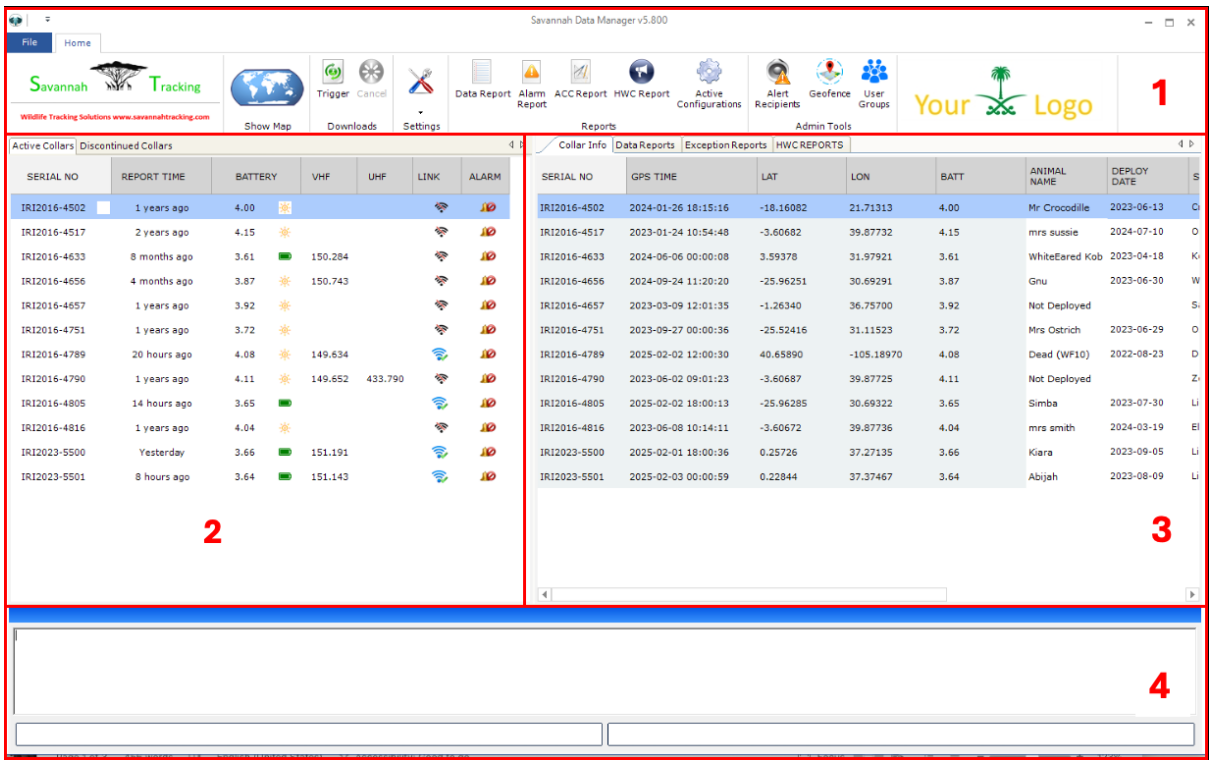
Savannah Data Manager (SDM) is available as a desktop application for both windows and Mac users. Installation packages can be downloaded from. The most up-to-date downlink links are always included into the introduction email sent to every user when a user account is created for them

Download the installer and follow its on-screen instructions and prompts to install the app.

SDM WINDOWS INSTALLER	SDM MAC INSTALLER
	

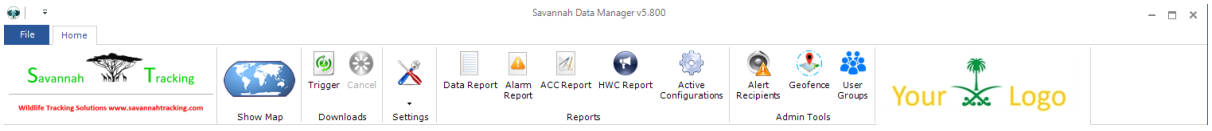
SDM LAYOUT AND KEY FEATURES

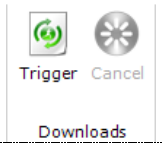
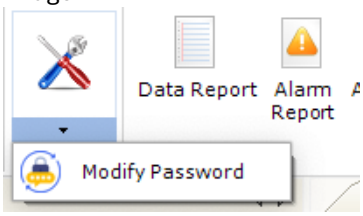
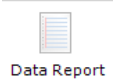
SDM consists of 4 key sections as shown below



1. Tool Bar – it has shortcuts to some of the commonly used functionalities
2. Collar View – this grid contains information related to the collar status and hardware settings
3. Data View – displays location data, custom user defined information and user generated reports
4. Console – displays a real-time log related to SDM operations. This is useful in case of troubleshooting connectivity related issues and any run-time errors

TOOL BAR

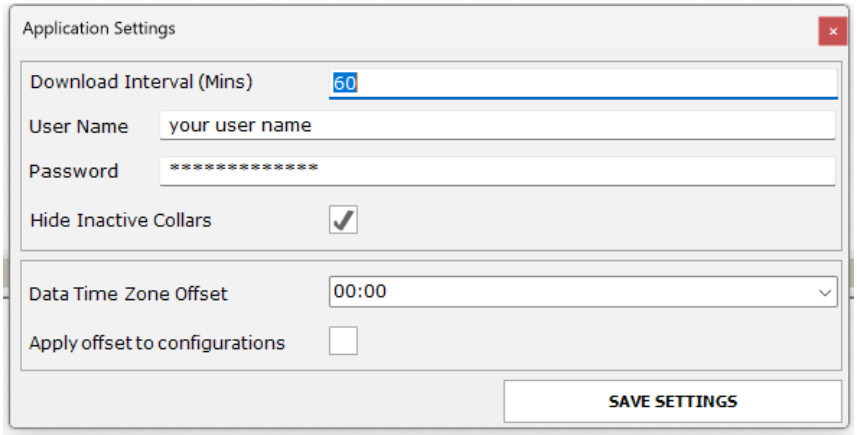


TOOL BAR ITEM	DESCRIPTION
	Pulls up the SDM Map window
	1. Trigger button – Starts a data download session to pull latest location data and any user data updates 2. Cancel – Cancels any active download session
	1. Brings up the app settings window when the main button is clicked 2. The down arrow exposes an additional button that points to an interface to allow users to modify their credentials. See below image 
	Brings up the data reports query window
	Brings up exception reports query window
	Brings up the raw accelerometer query window
	Brings up a query window for the human wildlife conflict system data
	Brings up a window that allows the user to query and visualize configurations running on all collars in a single view
	Opens an alert recipients' management interface. This requires group admin or account admin access level
	Opens a geofence management interface. This requires group admin or account admin access level

User Groups	Opens a user groups and user management interface. This requires account admin level access
Your Logo	A customizable section that allows branding the app with the data owners preferred logo or image

SDM SETTINGS

After SDM is installed, first thing is setting up your SDM access credentials to allow you to access data. Click on the settings button to bring up the settings window (below)



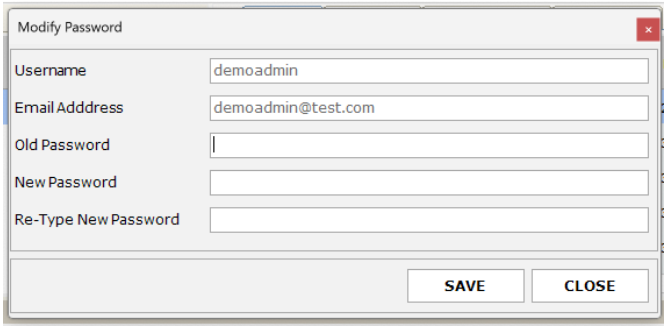
1. Download Interval - Sets how often the software will attempt to download/update collar data from Savannah Cloud
2. Username – your username
3. Password – Your password (all credentials are sent via email when your account is created)
4. Hide Inactive Collars – Cause the software to separate active and inactive collars. When this is set inactive collars will not show on the data grid and they will be moved into a separate tab on the collars grid.

   NB. *All data is still retained, and you can generate data reports for the collars*

5. Data Time Zone Offset – Set your local or preferred time zone for data display
6. Apply offset to configurations – Set this option if you want to use your local or preferred time zone when defining and sending configuration to collar

MODIFY PASSWORD

To modify your password, click on the down arrow on the settings button, then click on **MODIFY PASSWORD** button to bring open below window

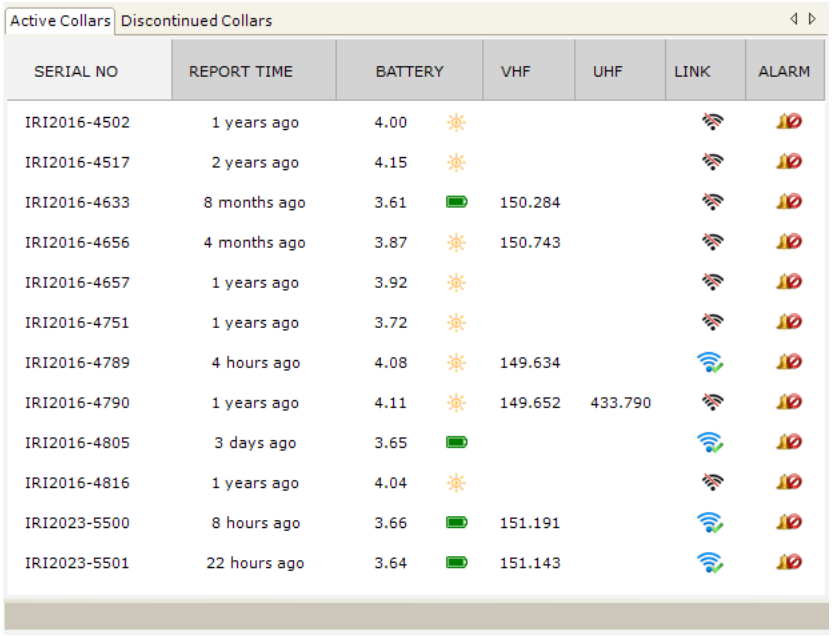


Enter your current password, then your preferred new password then click on save to update the same. You will get a confirmation if the update successful

COLLAR VIEW

Consists of two panels

1. ACTIVE COLLARS – lists all active collars
2. DISCONTINUED COLLARS – all inactive collars. E.g. collars that have long been removed from animals



SERIAL NO	REPORT TIME	BATTERY	VHF	UHF	LINK	ALARM
IRI2016-4502	1 years ago	4.00				
IRI2016-4517	2 years ago	4.15				
IRI2016-4633	8 months ago	3.61	150.284			
IRI2016-4656	4 months ago	3.87	150.743			
IRI2016-4657	1 years ago	3.92				
IRI2016-4751	1 years ago	3.72				
IRI2016-4789	4 hours ago	4.08	149.634			
IRI2016-4790	1 years ago	4.11	149.652	433.790		
IRI2016-4805	3 days ago	3.65				
IRI2016-4816	1 years ago	4.04				
IRI2023-5500	8 hours ago	3.66	151.191			
IRI2023-5501	22 hours ago	3.64	151.143			

COLLAR VIEW COLUMNS DESCRIPTION

	COLUMN NAME	DESCRIPTION
1.	SERIAL NO	Unique collar identifier A bell icon () indicates the latest location update from the collar has been triggered by a mortality alarm
2.	REPORT TIME	Shows the last communication time from the collar.
3.	BATTERY	Battery voltage and power source at the time of the latest data upload. • A Sun icon () indicates the collar used the solar cell • A battery icon means the collar used the primary cell. The icon color indicates primary cell status ○  Full battery ○  Battery warning ○  Depleted Battery
4.	VHF	Frequency for the independent VHF Transmitter mounted on the collar
5.	UHF	The Frequency for the programmable UHF beacon on the collar
6.	LINK	The status of the communication modem (e.g. iridium modem) •  Active •  Inactive
7.	ALARM	Indicates if the onboard accelerometer is programmed to monitor mortality and excess motion •  Acc monitoring is active •  Acc monitoring is off

CONFIGURING COLLARS

There are two modes of configuring collars

1. Single Collar configuration
    a. Configures one collar at a time
    b. Pre-populates the view with the last known configuration sent to the collar and a list of all historical configurations
2. Batch Configuration
    a. Allows configuring multiple collars at the same time
    b. Useful when setting a common configuration on a set of collars
    c. DOES NOT prepopulate the grid with the last configuration but instead defaults a very conservative schedule like our shipping configuration. **MAKE SURE** you review all parameters

IMPORTANT NOTES ON CONFIGURATIONS

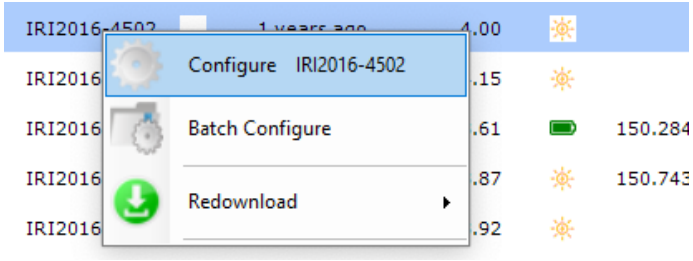
1. By default, all timestamps are in UTC unless explicitly set to work in users local time zone in the settings window

2. The collars don't have a break in function. SDM program uploads the reconfiguration parameters to the Savannah Tracking server. The collar will receive the reconfiguration next time it reports to the server. For GSM and LoRa based collars, If the unit is temporarily out of GSM/LoRa network this will only happen when it returns to network and reports to the server, for Iridium and Kineis based collars this will happen next time the collar connects to the satellite.

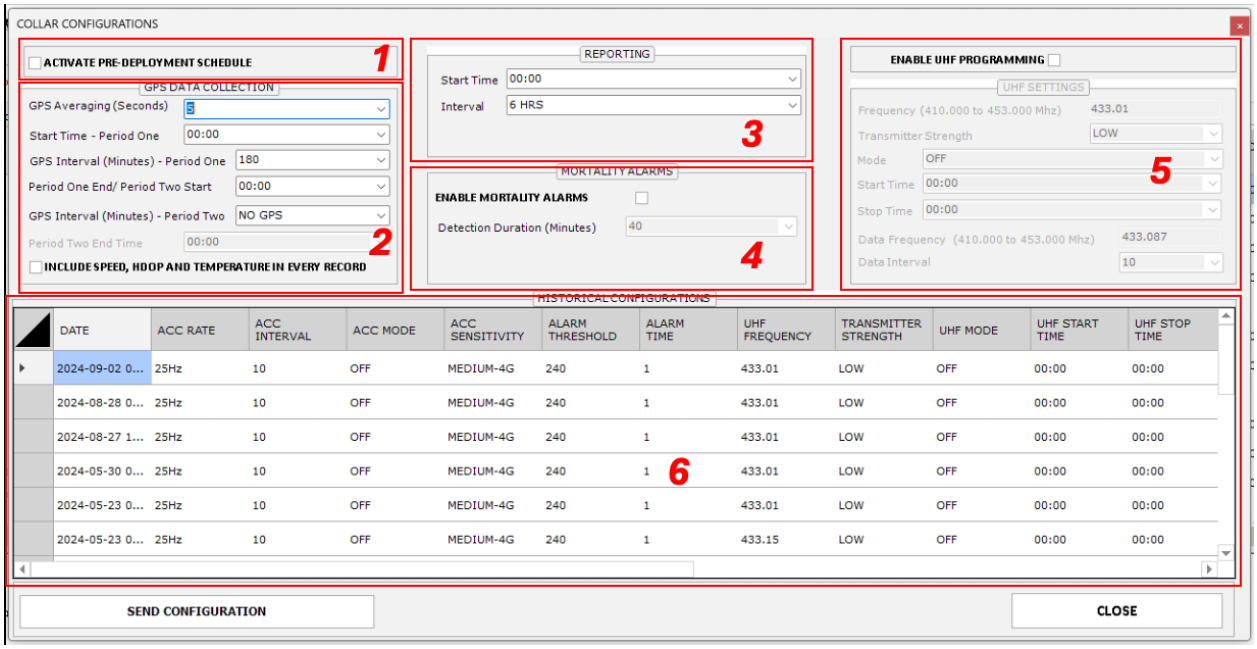
3. After receiving the reconfiguration, the collar will reboot and may be slightly out of time sync the first day until midnight when all parameters and schedules are synchronized with the GPS time.

Both single collar configuration interface and batch configuration interface can be accessed by right clicking on the Active Collar data grid. For single collar configuration, right click on the specific collar you want to configure

Active Collars Context Menu



SINGLE COLLAR CONFIGURATION INTERFACE



SECTION DESCRIPTIONS

1. PRE-DEPLOYMENT SCHEDULE – This is a predefined and recommended configuration that should be send to the collars for testing before deployment

   It configures the collar to report more frequently and activates the UHF beacon which can be used to confirm the collar is powered on and active

2. GPS DATA COLLECTION – Contains the following parameters relating to how often data is collected

Parameter	Description
GPS Averaging	Duration in seconds defining how long the GPS will average its position. Lower averaging duration results into less GPS accuracy but less power consumption, longer averaging duration results to higher GPS accuracy but more power consumption Consult the performance estimator for an estimation on the effect of different settings on power consumption
Start Time Period One	Time to record the first GPS position for the day/ schedule one
GPS Interval Period One	Interval between GPS positing during schedule one/period one
Period One End/Period Two Start	End of Period one/Schedule One NB. If you don't want two schedules, set this to the same time as Start Time Period One
GPS Interval Period Two	Interval between GPS positions during period two

	If you only want one schedule or don't want GPS data during this schedule, select NO GPS
Period Two End Time	End Of Period Two Should the same as Start Time Period One
Include Speed, HDOP and Temperature	Controls whether to include Speed, HDOP and Temperature with every record NB. It has an implication on monthly cost. Consult the data cost calculator to see implications

3. REPORTING SECTION – defines when data is uploaded from the collar

Parameter	**Description**
Start Time	Time for the first data upload of the day.
Interval	Interval between subsequent data uploads

4. MORTALITY ALARMS SECTION – activates or deactivates mortality alerts monitoring

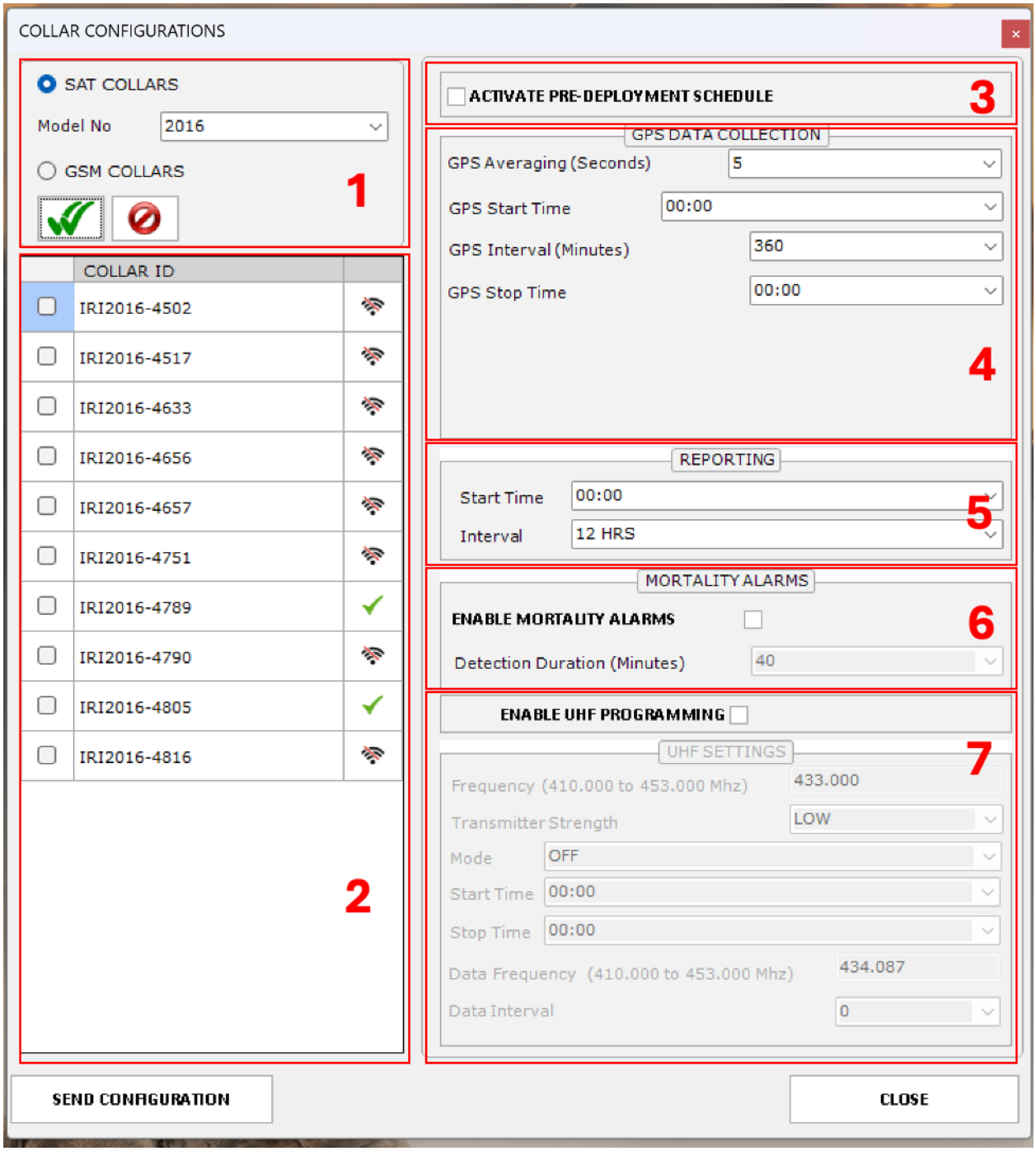
Parameter	**Description**
Enable Mortality Alarms	Check to enable accelerometer and mortality monitoring Uncheck to disable
Detection Duration	Duration in minutes to pass with no activity before the collar triggers a mortality alert. Recommended duration is 40 minutes

5. UHF SETTINGS

Parameter	Description
Enable UHF Programming	This is a control to deter accidental modifications of the UHF beacon. The UHF beacon runs on the primary cell, consult the battery calculator for impact on battery
Frequency	Set the desired Frequency between 410 and 453 By default, this is normally set to 433.XX0 where XX corresponds to the last 2 digits of the collar serial number
Transmitter Strength	Select the desired output power for the UHF beacon a) LOW = 1dBm b) MEDIUM = 11dBm c) HIGH = 20dBm
Mode	Select conditions to trigger the UHF beacon a) ALWAYS ON – beacon permanently on (not recommended) b) OFF – beacon permanently off c) ON USING SCHEDULE – beacon will be switched on daily from the start time and end time defined below **NB.** *If the collar raises a mortality alarm. It automatically activates the UHF beacon*
Start Time	Time to switch on the UHF beacon
Stop Time	Time to switch off the UHF beacon
Data Frequency	This sets the data frequency for use with our human wildlife conflict system. Accepts Frequency between 410 and 453
Data Interval	Interval to transmit the data pulse

6. HISTORICAL CONFIGURATIONS – shows a list of all historical configuration sent to the collar, this also includes dates, and the user account used to send the configurations

BATCH CONFIGURATION INTERFACE



SECTIONS DESCRIPTION

1. COLLAR MODELS

Select the collar models you want to configure. Different collar models and versions require different format configurations and support different parameters

2. COLLAR LIST

Select the collars you want to configure by ticking the box next to the specific collar (first column)

Third column indicates whether a collar has an active data plan () or an inactive data plan (). You can only configure collars with an active data plan

You can select all collars by clicking on the double tick button () or clear the selection by clicking on the clear button ()

3. PRE-DEPLOYMENT SCHEDULE

Same as single collar configuration

4. GPS DATA COLLECTION

Same as single collar configuration

5. REPORTING SECTION

Same as single collar configuration

6. MORTALITY ALARMS SECTION

Same as single collar configuration

7. UHF SETTINGS SECTION

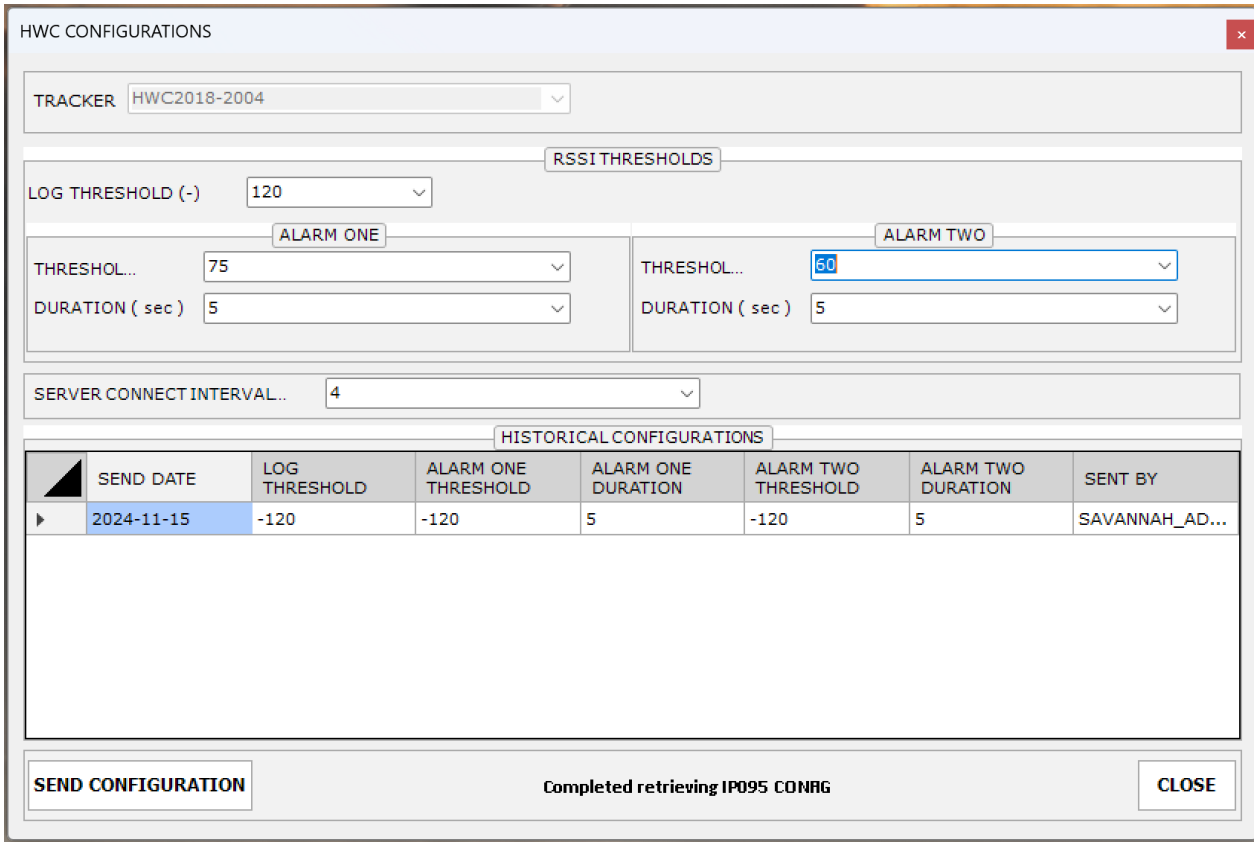
Same as single collar configuration

CONFIGURING HWC BASE STATIONS

The HWC base stations are designed to listen on a user programmable frequency for incoming UHF data transmission from Savannah Tracking collars and tags or any other compatible devices.

The base stations use an advanced algorithm to determine a collars proximity to the base station location based on a combination of RSSI values received and success rate. This allows the base station to alert people of an approaching animal such as a lion or trigger a siren and/or flood lights to scare the approaching lion

To configure a base station, right click on it on the collar view and select Configure HWC to bring up below interface



PARAMETER DESCRIPTIONS

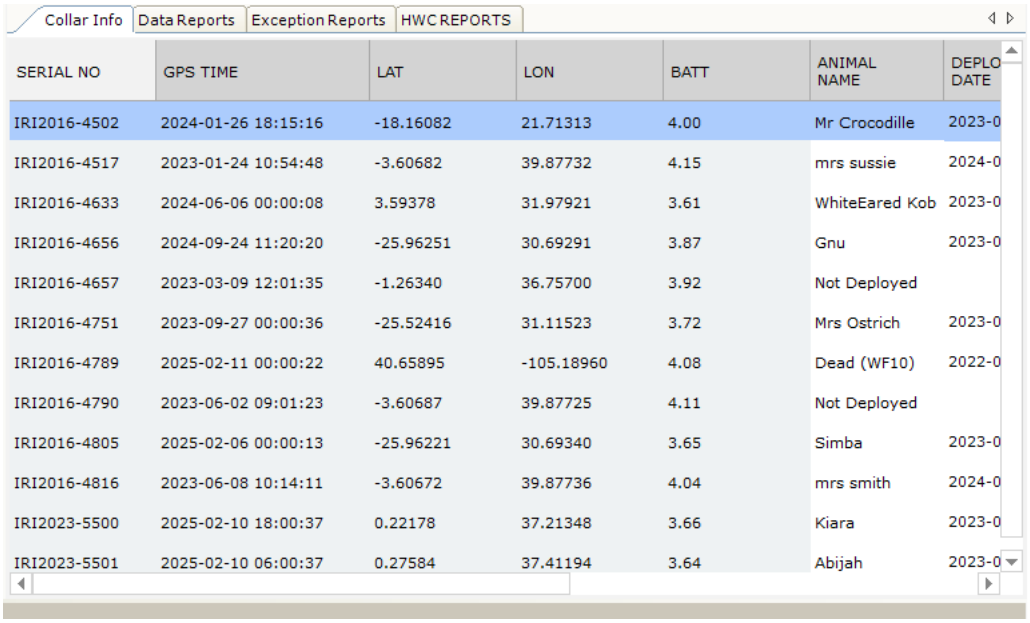
1. LOG THRESHOLD – RSSI threshold limit for logged events
2. ALARM ONE (Flood lights)
    a. Threshold – RSSI threshold to trigger the base station to activate Flood lights
    b. Duration – how long in seconds the signal will be detected before activating alarm one
3. ALARM TWO (Siren)
    a. Threshold – RSSI threshold to trigger the siren
    b. Duration – how long in seconds the signal will be detected before activating siren
4. SERVER INTERVAL – How often (hours) the HWC uploads its data to Savannah Tracking Cloud

5. HISTORICAL CONFIGURATIONS – A list of all configurations that have ever been sent to the HWC base station

DATA VIEW

Consists of 4 tabs

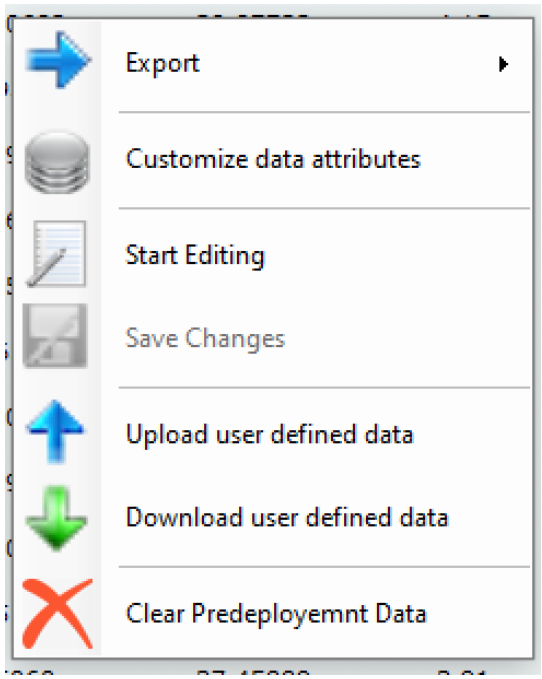
1. Collar info – shows latest location data and custom user defined data such as deployment date etc.
2. Data Reports – provides an interface for analyzing user generated data reports
3. Exception reports – provides an interface of analyzing exception reports such as mortality and geofence violations
4. HWC reports – displays data collected via our human wildlife conflict system



SERIAL NO	GPS TIME	LAT	LON	BATT	ANIMAL NAME	DEPLO DATE
IRI2016-4502	2024-01-26 18:15:16	-18.16082	21.71313	4.00	Mr Crocodille	2023-0
IRI2016-4517	2023-01-24 10:54:48	-3.60682	39.87732	4.15	mrs sussie	2024-0
IRI2016-4633	2024-06-06 00:00:08	3.59378	31.97921	3.61	WhiteEared Kob	2023-0
IRI2016-4656	2024-09-24 11:20:20	-25.96251	30.69291	3.87	Gnu	2023-0
IRI2016-4657	2023-03-09 12:01:35	-1.26340	36.75700	3.92	Not Deployed	
IRI2016-4751	2023-09-27 00:00:36	-25.52416	31.11523	3.72	Mrs Ostrich	2023-0
IRI2016-4789	2025-02-11 00:00:22	40.65895	-105.18960	4.08	Dead (WF10)	2022-0
IRI2016-4790	2023-06-02 09:01:23	-3.60687	39.87725	4.11	Not Deployed	
IRI2016-4805	2025-02-06 00:00:13	-25.96221	30.69340	3.65	Simba	2023-0
IRI2016-4816	2023-06-08 10:14:11	-3.60672	39.87736	4.04	mrs smith	2024-0
IRI2023-5500	2025-02-10 18:00:37	0.22178	37.21348	3.66	Kiara	2023-0
IRI2023-5501	2025-02-10 06:00:37	0.27584	37.41194	3.64	Abijah	2023-0

COLLAR INFO MENUS

Right clicking the collar info grid brings up below context menu that has shortcuts to additional functionalities



- Export – links for exporting the grid contents as an excel spreadsheet, ESRI shapefile or a KMZ file
- Customize data attributes - allows admin level users to add additional data attributes which can be shared across the project users
- Start Editing – allows admin level users to edit custom data
- Save Changes – Saves any edits to custom user data
- Upload user defined data – can be used to upload Savannah Cloud any user data changes done while offline
- Download user defined data – used to force the software to resynchronize any changes to user data.
- Clear predeployment data – flags and excludes any pre and post deployment data from being included in reports

CUSTOMIZING DATA ATTRIBUTES

Right click on the collar info grid and select customize data attributes in the context menu that comes up.

The custom column manager loads with a list of all available pre-defined columns that the user can choose from. Any columns that the user already has will be ticked while the rest will be un-ticked.

After selecting all desired columns, click on save to make the necessary changes to your local database and on the Savannah Cloud.

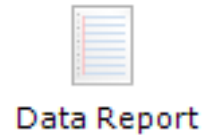
To enter custom data, right click on the collar info grid and click on Start Editing, this will bring the grid into edit mode and you will now be able to type directly on the grid.

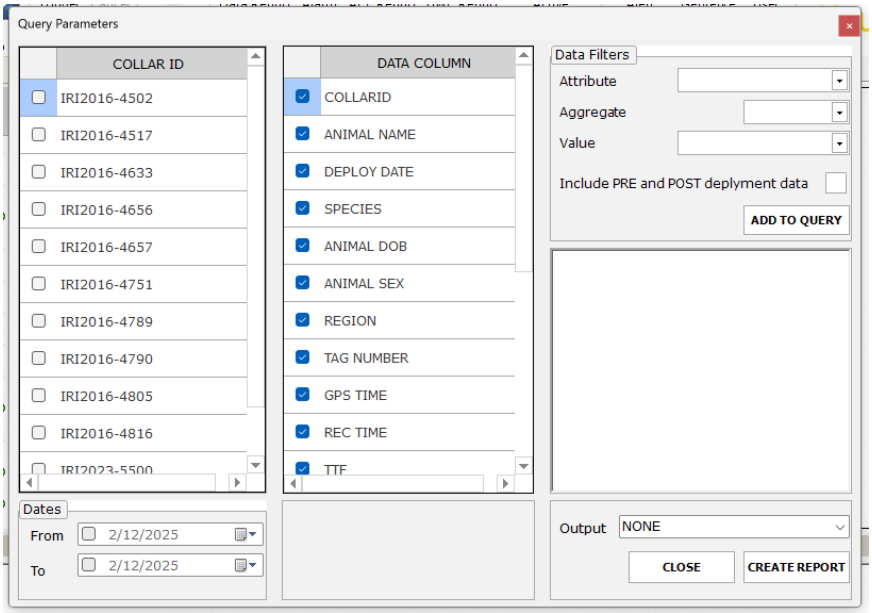
Some columns such as species have a predefined list of animals available on a dropdown list when you click on the respective column. If you need to select a species that's not available on the dropdown, send an email to support@savannahtracking.com and the animal and its corresponding icon will be added and should appear automatically on your list.

Once all changes are done, click on save changes to save a copy locally and upload changes to Savannah Cloud

DATA REPORTS

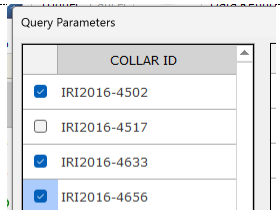
On the menu bar, click on the Data Report Button, to bring up the Reports Query Window





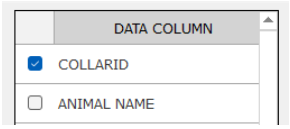
REPORT GENERATION PROCEDURE

1. COLLAR IDS



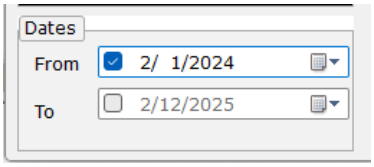
On the Collar ID list, select the collar(s) you want to create a report for. (it allows selection of multiple collars)

2. DATA COLUMNS



On the Data Column List, select the data columns you want to generate. By default, all columns are selected

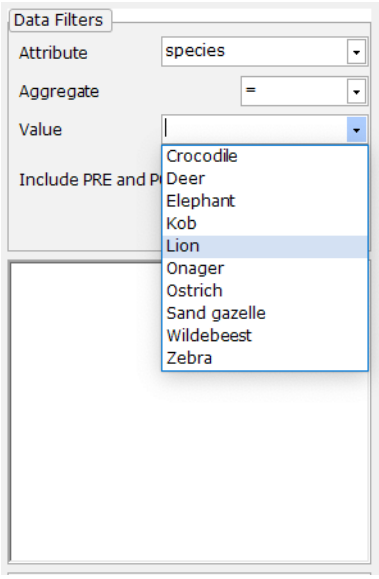
3. DATE RANGE



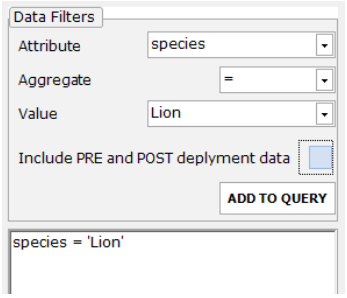
Select the date range of interest. If you don't select any dates, the app with pull all the data

4. CUSTOM USER DATA FILTERS (Optional)

You can apply more filters on your data query using the user defined custom data. E.g. if you have species and regions defined. You can pull all the data for a specific species



a. Select the custom column you want to apply a filter on
b. Select the aggregate you want to use for the filter
c. The select the aggregate value
d. Lastly click on **ADD TO QUERY**

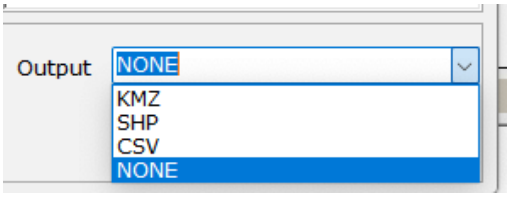


5. PRE AND POST DEPLOYMENT DATA

By Default, the program will omit pre-deployment and post-deployment data if the user has defined a deployment date and/or a removal date

To export this excluded data, simply tick the check box labeled "**Include PRE and POST deployment data**"

6. OUTPUT

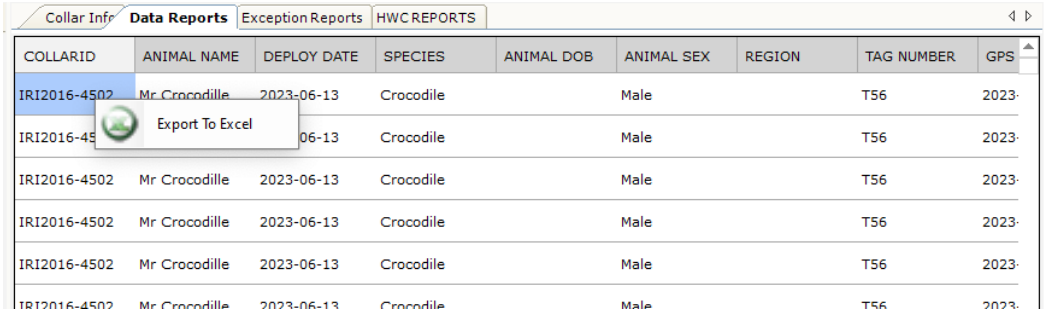


By Default, the report will be displayed on the screen in the data reports tab. However, you can export the data directly to either a KMZ file, SHP file or a CSV file by selecting the corresponding output from the provided drop down list

If you select KMZ, SHP or CSV, you will be prompted to provide a path for the file to be saved to

7. EXPORTING TO EXCEL

After the report has been generated and displayed on the screen, you can further export it directly to an excel spreadsheet by right clicking on the data report grid and selecting export to excel



ALARM REPORTS

Click on the alarm Reports Button to bring up the Alarm query Parameters window, select report type and data range then click on create report

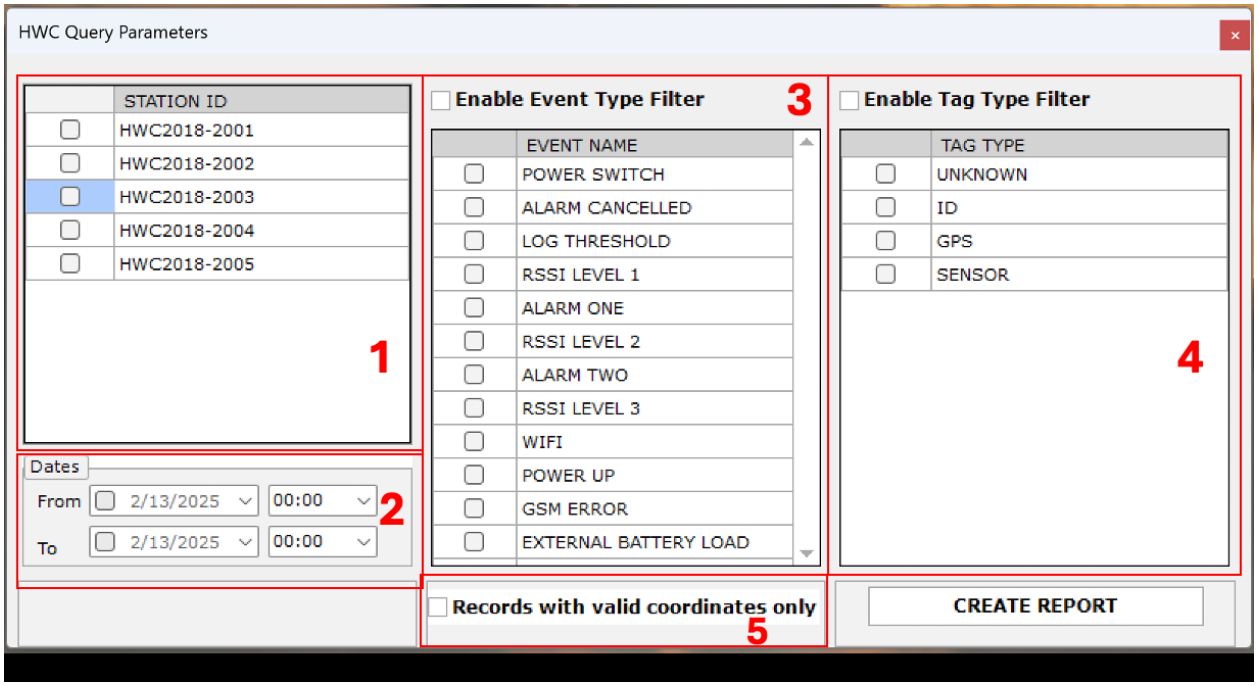
Once the report has been generated and displayed on the screen, right clicking on the Exception reports Grid will bring up a context menu with an option to export to Excel

ACC REPORTS

This feature is currently deprecated

HWC REPORTS

This brings up an interface for querying/pulling data received from our lion shield or human wildlife conflict system



SECTIONS DESCRIPTION

1. **HWC Base Station List**
   Contains a list of all HWC Base stations accessible to the user.

   Select the Base stations to query by ticking the checkbox on the first column.
2. **Date Range**
   Select the data range you are interested in, leaving both fields unchecked might return all data received from the base station

3. **HWC Base Station Events**

Tick "**Enable Event Type Filter**" to allow you to pull data from specific events. See below table for event descriptions

EVENT NAME	DESCRIPTION
Power Switch	Event Triggered when the base stations power button is pressed to either switch it off or on
Alarm Cancelled	Event recorded when a user physically switches of the base station alarm by pressing the override button
Log Threshold	Data recorded when the Base station detects a collar in the vicinity but with a weak signal that does not warrant triggering a visible or audible alarm Event raised if there is a valid Serial No
RSSI Level 1	Event raised when a signal is received within the threshold defined for log threshold regardless of serial no validity
Alarm One	Recorded when a known collar with a valid serial no is detected within the set range to trigger the base stations lights to go on Event raised if there is a valid serial no
RSSI Level 2	Event raised when a signal within Alarm One's threshold is received but without a valid serial no
Alarm Two	Event raised if signal strength received from collar is within range defined to turn on both the audible alarm and Lights
RSSI Level 3	Signal with alarm two range received without an accompanying serial no
WIFI	Logged when the HWC's Wi-Fi interface is activated or de-activated
Power UP	Logged every time the HWC is rebooted. It indicates what triggered the reboot. Some of the reboot reasons are, power-on, programming interface, software reset, power spike, watch dog reset etc.
GSM Error	Raised when an GSM module error is detection
External Battery Load	

4. HWC Tag Types

Check “Enable Tag Type Filter” to be able to filter data based on tag types. See tag type descriptions below

TAG TYPE	**DESCRIPTION**
UNKNOWN	A non-Savannah Tracking device broadcasting on the same frequency the HWC base station is listening on
ID	Savannah Tracking UHF only tags that don’t have a GPS module
GPS	A Savannah Tracking Collar with a GPS module
SENSOR	Un-used at the moment

5. Coordinates Filter

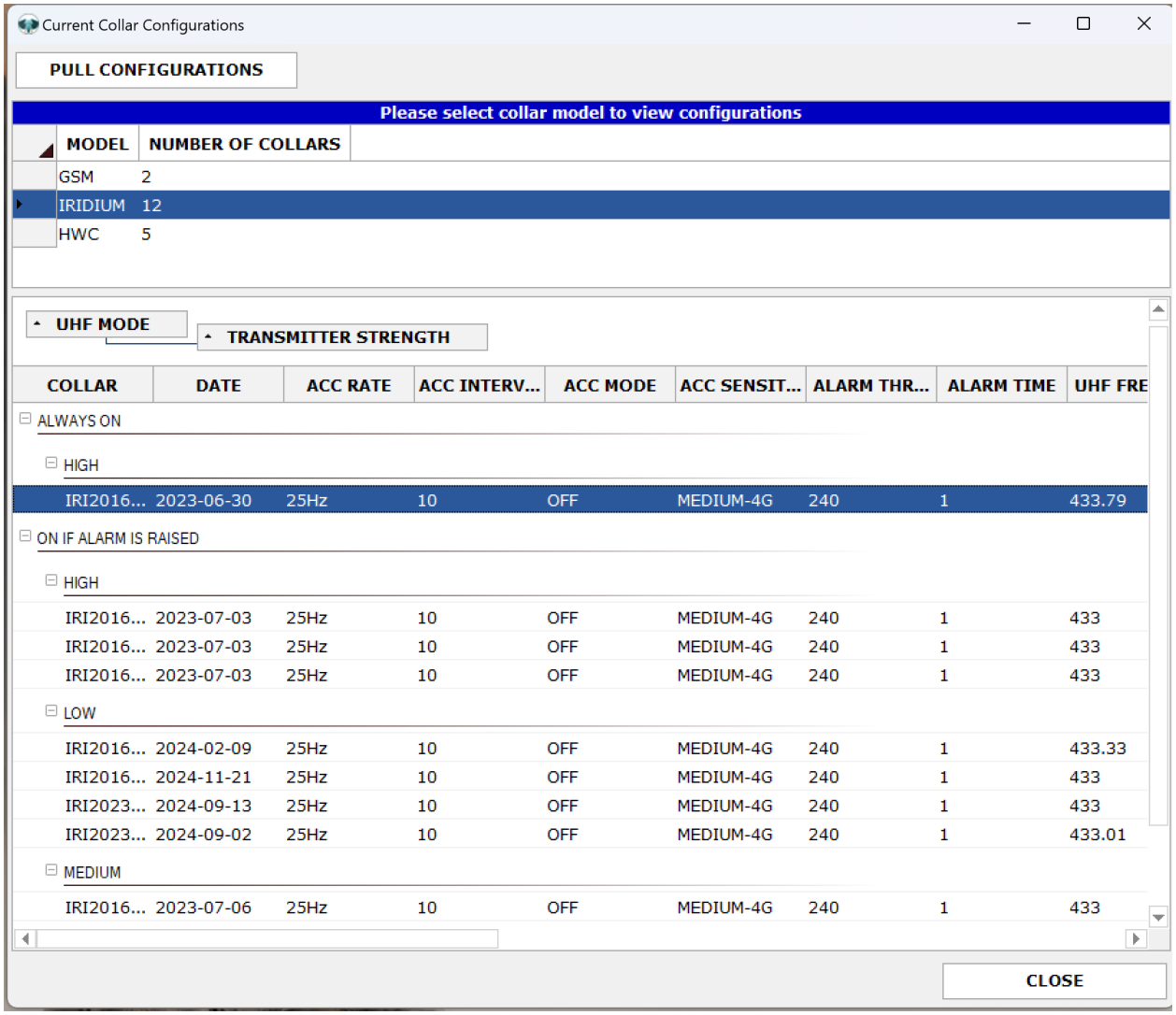
Check “**Records with valid coordinates only**” to filter out all records with invalid coordinates

ACTIVE CONFIGURATIONS REPORT

Brings up an interface that allows you to query and visualize the configurations parameters running on all collars.

When the Collar configurations interface loads, click on Pull configurations to pull the parameters from Savannah cloud and group them by collar model. In the collar model grid, click on the collar models you are interested in and the information will be populated in the bottom grid.

The export the query results, right click on the bottom grid and select Export to excel



MANAGING ALERT RECIPIENTS

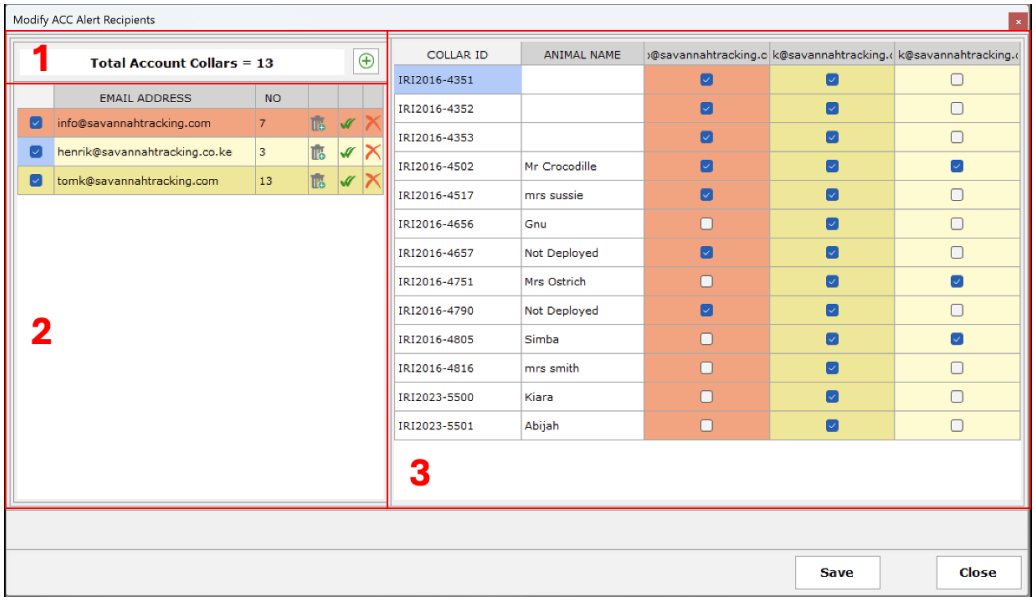
Allows admin level users to define who receives alerts and from which collars.

To bring up the alerts management interface, click on Alert Recipients Button

Once a user is listed to receive alerts from a collar, they will receive all alerts relating to that collar ranging from behavioral alerts to geofence alerts

ALERT RECIPIENTS INTERFACE

The interface is divided on to the following three parts

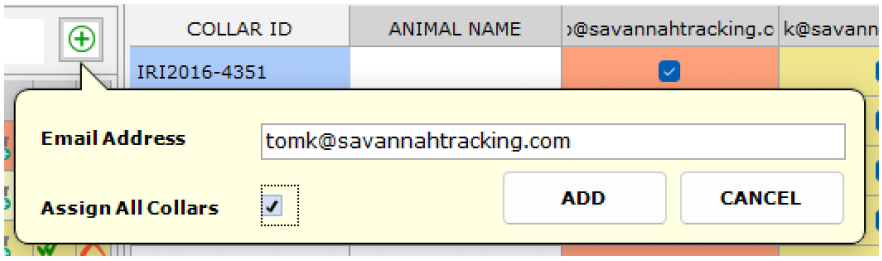


SECTION DESCRIPTIONS

1. Summary Section – Shows a summary of how many collars there are on the account. Also contains a shortcut to add more alert recipients
2. Recipients List - show a list of current alert recipients, and number of collars they are mapped to receive alerts from
3. Collar Access List – show account collars and alert recipient matrix

ADDING ALERT RECIPIENTS

Click on the add recipient button found on the summary section to bring up below window



Enter the email address for the user to be granted access. If the user should receive alerts from all collars in the account, check the box labeled “Assign all Collars”, then click on add, alternatively if the user should only receive alerts from subset of the collars, leave the said box unchecked and click add then follow the process explained below on Modify alert matrix

MODIFYING ALERT MATRIX

1. To remove a user from recipients list, click on the delete button on the specific user row
2. To update a user to receive alerts from all collars, click on the double tick button on the specific user row
3. Click on the **X** button on the user row to clear all collars the user is currently receiving alerts from. E.g. when you want a user to stop receiving alerts from all collars and to only receive from a subset
4. To visualize which specific collars the user is receiving alerts from, click on the check box to the left of the users email address to tick it. Once its ticked, a new column will be added on the collar access list grid showing all the collars the user is receiving alerts from. The column will also be assigned same background color with the email address row
    a. The new column will have checked/unchecked boxes next to each serial number. Rows with blue ticked checkboxes indicates the user is currently receiving alerts from that collar and vice versa.
    b. To enable or disable alert forward from specific collars to the selected user, simply toggle the checkbox or off
5. After you have made all changes, click on save to upload the changes to Savannah Cloud

NB. *The software will notify you if you try closing the interface with unsaved changes*

GEOFENCE MANAGEMENT

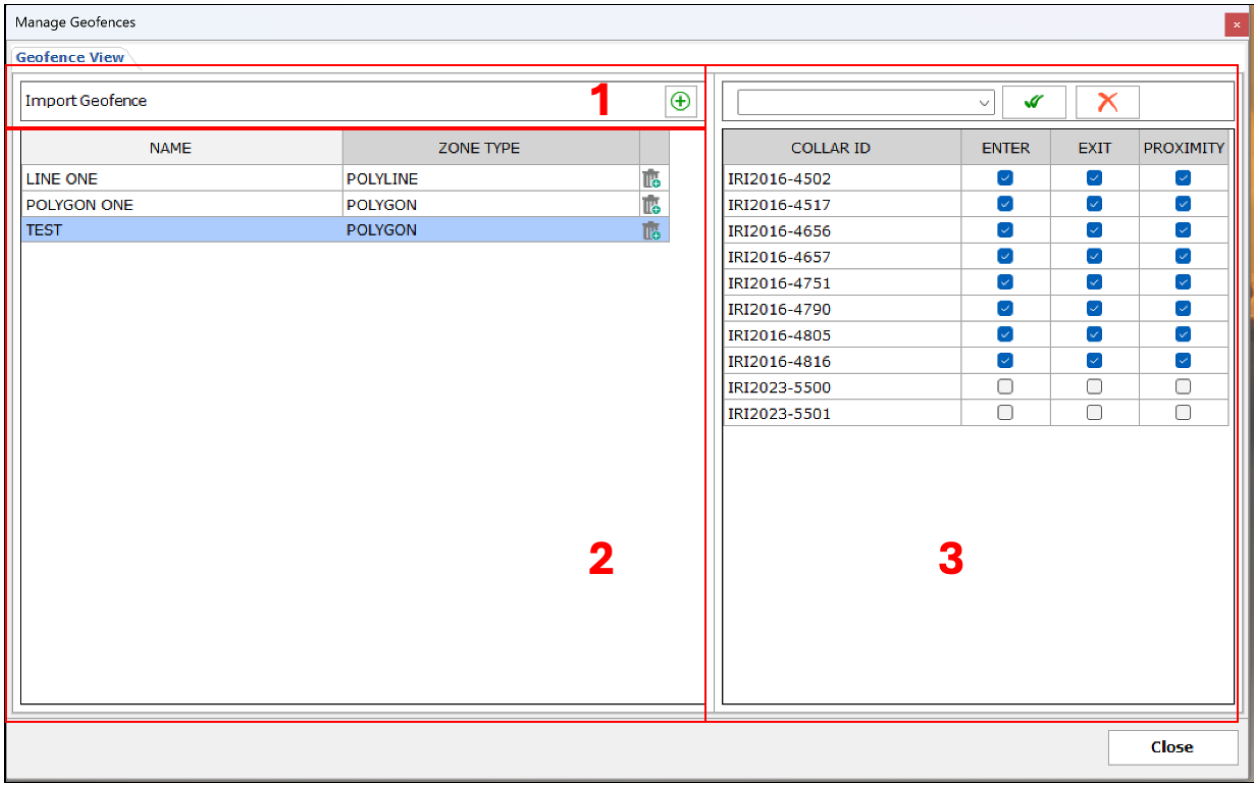
Allows Admin level users to define geofences and set rules that trigger alerts when violated. Such rules include entry and exit or proximity in the cases of Line Geofences

The system supports both polygon and polyline geofences. Point geo-references are treated the same as polygon geozones

To bring up the geofence interface, click on the geofence button

NB. ALL GEOFENCES ARE POSTPROCESSED ON THE SERVER

GEOFENCE MANAGEMENT INTERFACE



SECTION DESCRIPTIONS

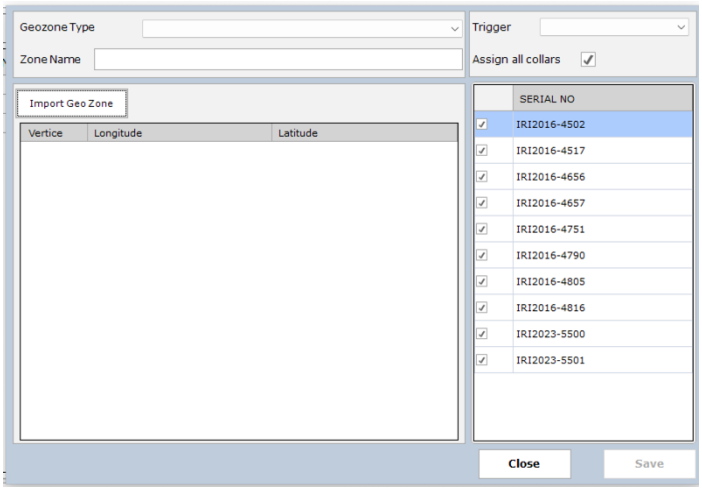
1. Import Geofence – link to import geofences
2. Geofence List – a list of all active geofences
3. Collar-Geofence Rules Matrix – Geofence rules per collar

IMPORTING GEOFENCES

IMPORTANT NOTES

1. The import modules supports either KMZ/KML files or Shape Files. Kindly ensure you convert your geofences to any of these formats
2. The software doesn't not support multi-polygons or multi-polylines. Ensure the files contain single polygon or polyline per file
3. System only supports Geographic Coordinate System (GCS) longitude/latitude WGS 84

To add/import a geofence, click on the button with a plus sign next to import geofence to bring up below interface



1. Enter a preferred Geofence Name

2. Click on Import Geozone and navigate to your saved file. Select the file parse the coordinate and load them into this module. They will be listed in the grid below the Import Geozone Button.

3. Click on the trigger dropdown and select the rule that you would like to trigger a geofence alert.

4. To apply the rule selected in step 4 above, tick the check box labeled "Assign all collars". Alternatively leave it unticked and tick the specific collars you want to apply the geofence rules on the collar list just below that checkbox

5. Lastly click on save to save the geofence

DELETING GEOFENCES

On the geofence management interface, click on the delete button on the same row as the zone you want to delete

MODIFYING GEOFENCE RULES

On the geofence management interface, click on the geofence you want to modify, this will populate its rules and display them on the rules' matrix grid

Look up the collar that you want to edit its details and uncheck or check rule assignment boxes as per your requirements

Once done, simply click on a different geofence name or an empty space on the Geofence grid and the interface will prompt you to save the changes you just made

USERS GROUPS AND USER MANAGEMENT

Account admin level users can use this module to manage and control access to collar data in their account

Every user requires a unique set of credentials and a valid email address, users are then mapped to user groups that access a defined set of collars.

USER GROUPS

There are two types of user groups.

1. Primary group or Account group – This is a system group that contains all collars that belong to a specific client/account. There can only be one account group per client.
2. Subgroup – these are generic user defined groups that can either contain all collars or a subset of collars.

USER ACCESS LEVELS

There are 5 User access levels as per below

1. Account Admin
2. Group Admin
3. Standard User
4. View Only
5. Mobile Only

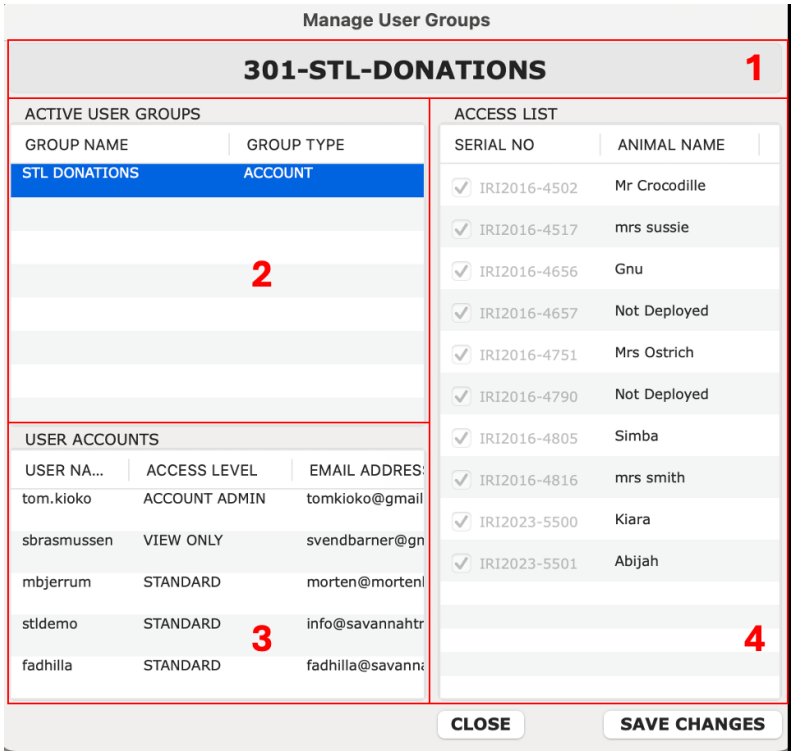
USER ACCESS AND PERMISSION MATRIX

	ACCOUNT ADMIN	GROUP ADMIN	STANDARD USER	VIEW ONLY USER	MOBILE ONLY USER
SDM	✓	✓	✓	✓	✗
MiSavannah	✓	✓	✓	✓	✓
Billing Alerts	✓	✗	✗	✗	✗
User Management	✓	✗	✗	✗	✗
Geofence Management	✓	✓	✗	✗	✗
Alert Recipients Management	✓	✓	✗	✗	✗
Edit Custom Data	✓	✓	✗	✗	✗
Reconfigure Collars	✓	✓	✓	✗	✗
Collar Configuration alerts	✓	✓	✗	✗	✗
SDM Reports	✓	✓	✓	✓	✗
Historical data	✓	✓	✓	✓	✗

MANAGING USERS AND USER GROUPS

Click on the User Groups toolbar item to bring up below user groups management interface

USERS AND USER GROUPS INTERFACE



Sections Descriptions

1. ***Account name***

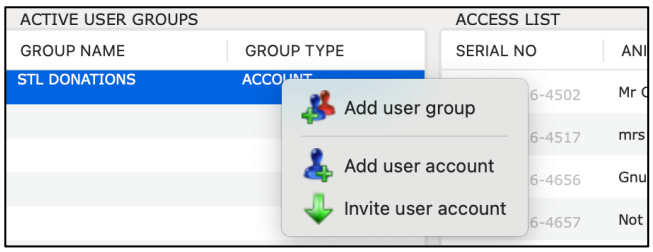
2. ***User groups list*** – shows all user groups associated with the account. There will always be one group of group type ACCOUNT that is not editable and holds all collars associated with the account

3. ***User Accounts List*** – shows a list of all users associated with the selected user group

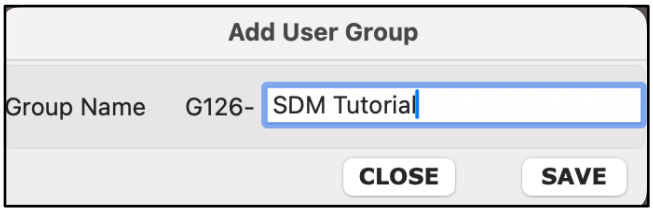
4. ***Access List*** – shows collar access matrix

ADDING USER GROUPS

1. Right click on the user groups grid and click on Add user group in the menu that comes up



2. Enter your preferred group name in the window that comes up, then click on save

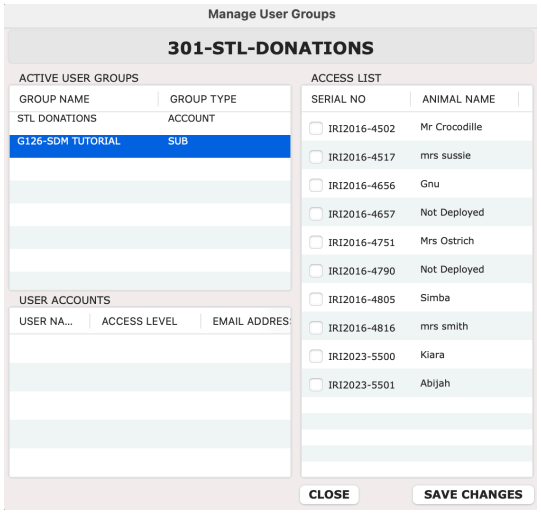


ASSIGNING COLLARS TO A USER GROUP

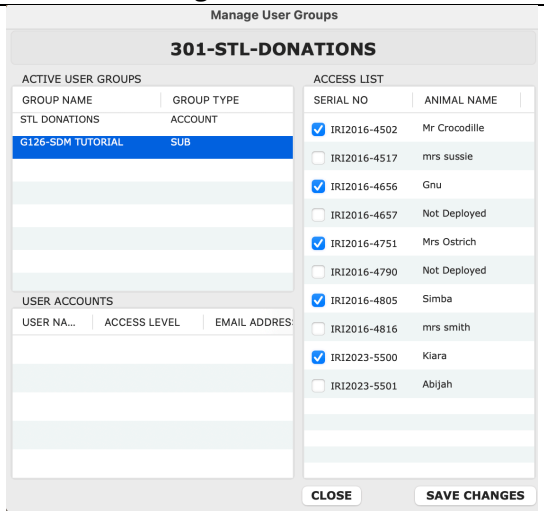
1. On the user groups list (section 2 of the interface), click/select the group you want to update access. This will pull the access matrix and display the same on the access list grid

2. Make any changes you require but checking or unchecking the box next to the collar. Tick grants access and unticking revokes access (see sample images for the SDM Tutorial group created above

Before collar assignment



After collar assignment



3. Lastly click on Save Changes to update the access matrix on Savannah Cloud

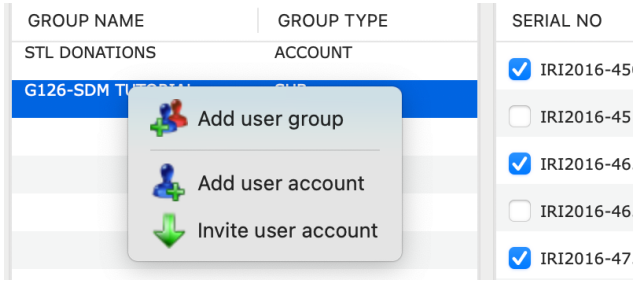
ADDING USER ACCOUNTS TO A USER GROUP

There are two ways to add users to a group

1. Creating a user account – this is for new users
2. Inviting users – if a user has an existing user account, either with the current client or a different project, you can invite the user to access data. This allows for collaboration over different projects and data sharing using same set of credentials

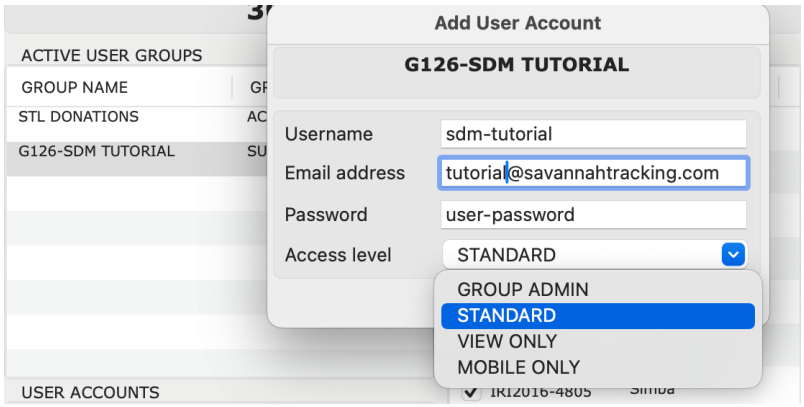
CREATING A USER ACCOUNT

1. On the user groups list, right click on the user group you want to link the new user account to, then click on add user account



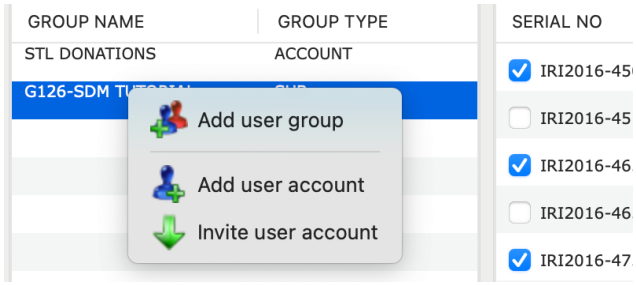
2. In the window that comes up, provide all the necessary details.

3. Ensure the email address is valid because this will be used to send the user their credentials and important download links



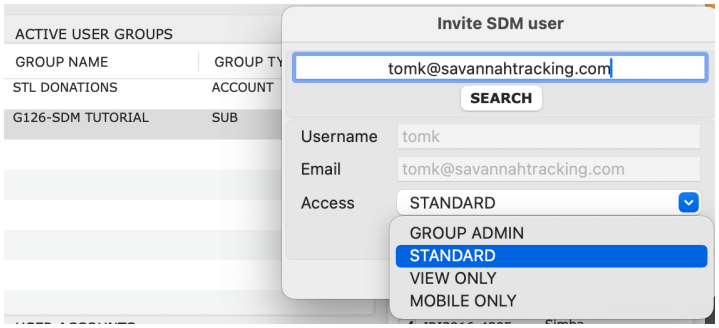
INVITE USER ACCOUNT

1. On the user groups list, right click on the user group you want to link the account to, then click on invite user account



2. On the window that comes up, enter the users email address (as registered on Savannah Cloud), then click on search.

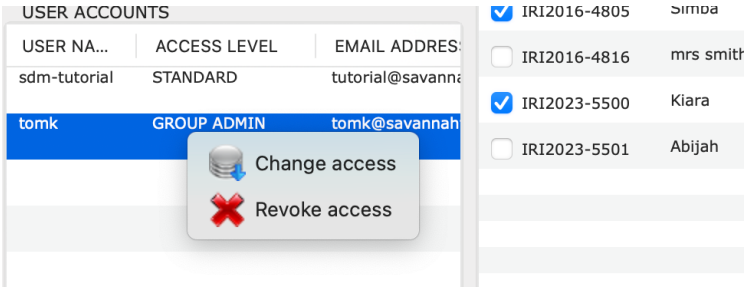
3. The app will pull the user account details from Savannah Cloud and populate them on the user window



4. Assign the user the preferred access rights then click on invite user

MODIFY USER ACCESS

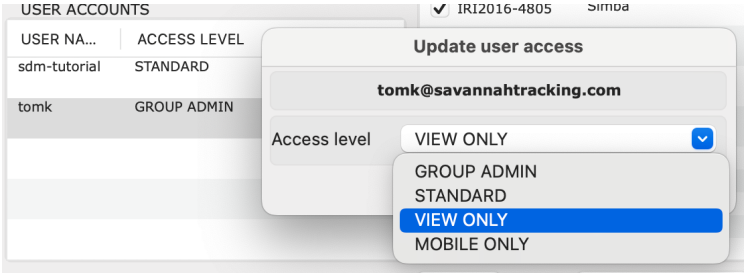
1. On the user groups list, select the group with the user you want to modify access. This will list all users for the selected user group



2. On the user accounts list, right click on the user you want to modify, then select the preferred action

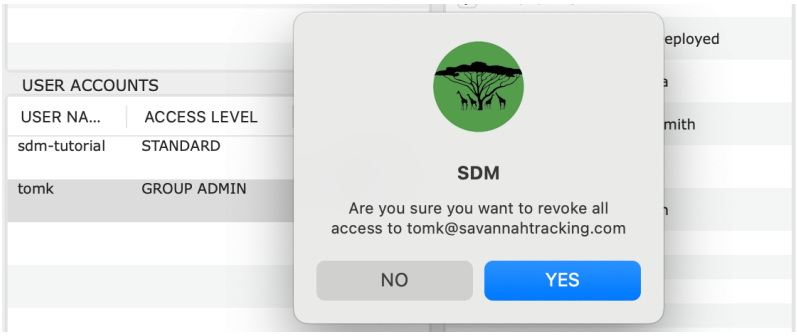
3. Change access brings up an interface that allows you to change user rights

4. Selected preferred rights from the access level drop down then click on save to update the same on savannah cloud



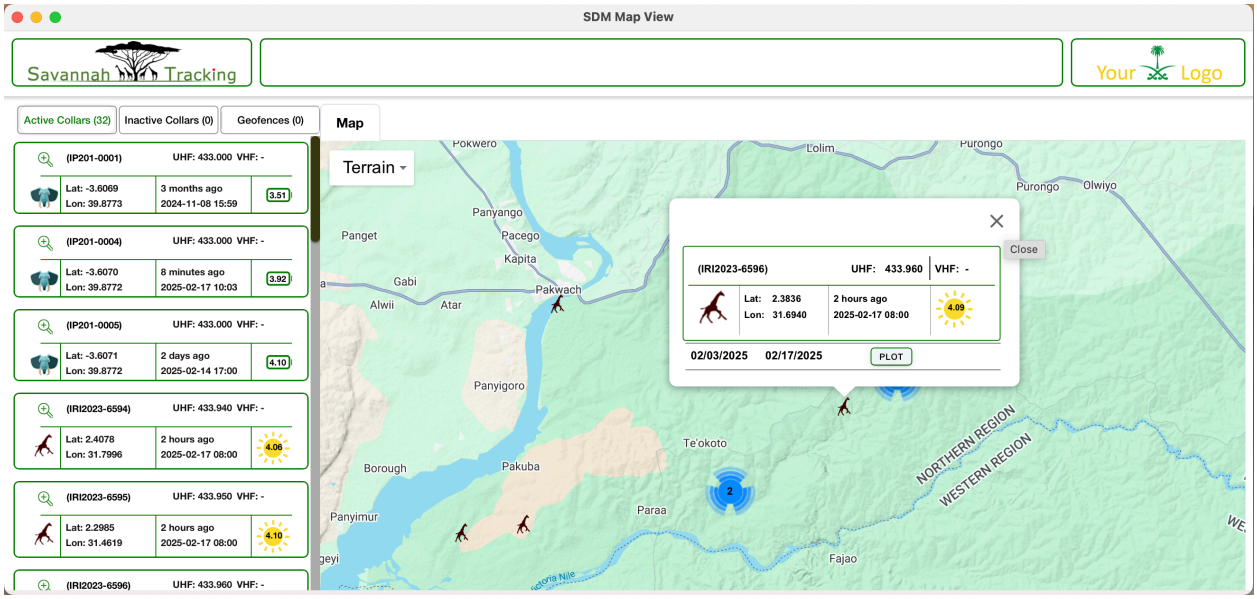
5. Revoke access will bring up a confirmation dialog box requesting you to confirm your action

6. Once confirmed, the users' access will be updated and access to all collars in the group revoked



SDM MAP

Provides an interface to visualize collar/animal locations on a map.



PLOTTING COLLAR HISTORY

On the active collar list, scroll to the collar you are interested in then click on the zoom icon to the left of the collar serial no or click on the coordinates to zoom the map to the collar location

Click on the animal icon to bring up the information window. When the information window comes up, select the preferred date range then click on PLOT to overlay the history on the map

To clear the history layer, again zoom to the specific animal/collar, click on the animal icon to bring up the info window, then click on clear

VIEWING GEOFENCES

Click on the Geofence tab to show a list of all geofences mapped to the client account. Click on the check box next to the geofence name to display/hide the geofence layer on the map

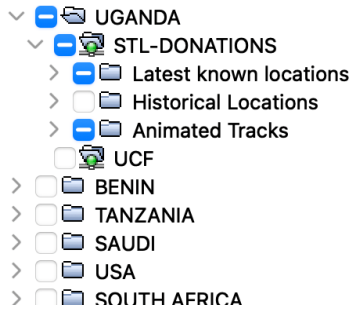
OTHER MODES OF DATA ACCESS

GOOGLE EARTH NETWORK LINK

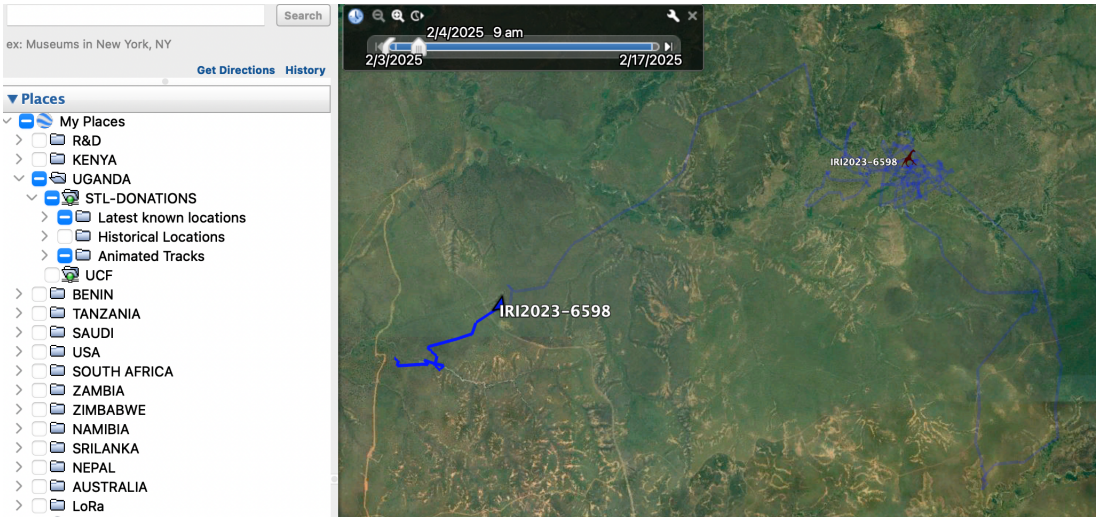
Savannah Tracking provides an automatically updated KMZ file on our server which can be accessed and viewed in Google Earth. This link is updated every 10 min allowing an easy to access view of the last 2 weeks of data in Google earth without installing the full data manager and without getting access to the full dataset.

1) Open and save the provided kmz file in Google Earth (if not available please contact us and ask for this link to be created)

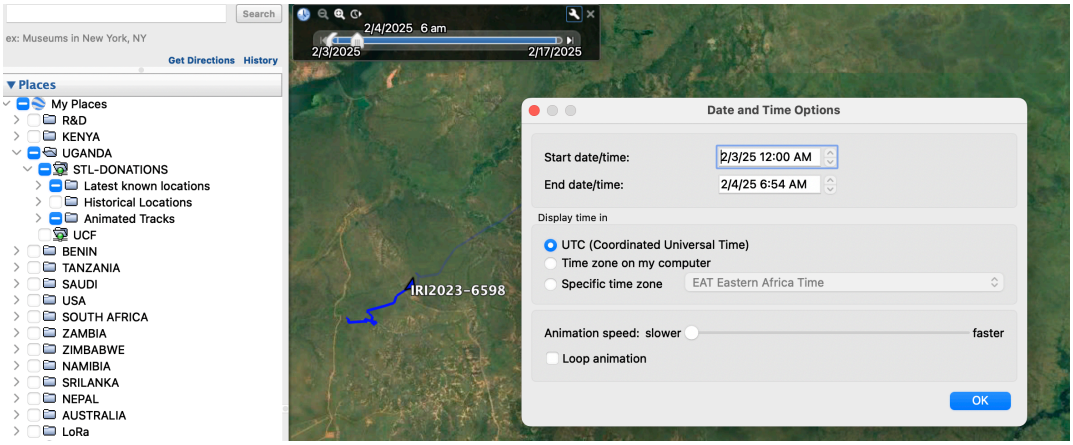
2) To run the most optimal animation in Google Earth un tick the historic locations like this:



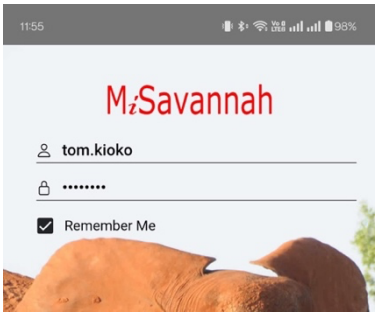
3) Go to the top “Time Slider” in the map window and separate the first and last section of the slider a few notches to display a section of the path rather than just one instant of a time. Move the slider to the far left and click the clock to run the animation of the last 2 weeks of data



4) If the animation is running too fast, select “setting” and choose the lowest speed. If you want the animation to loop (continuously replaying) select “loop animation”



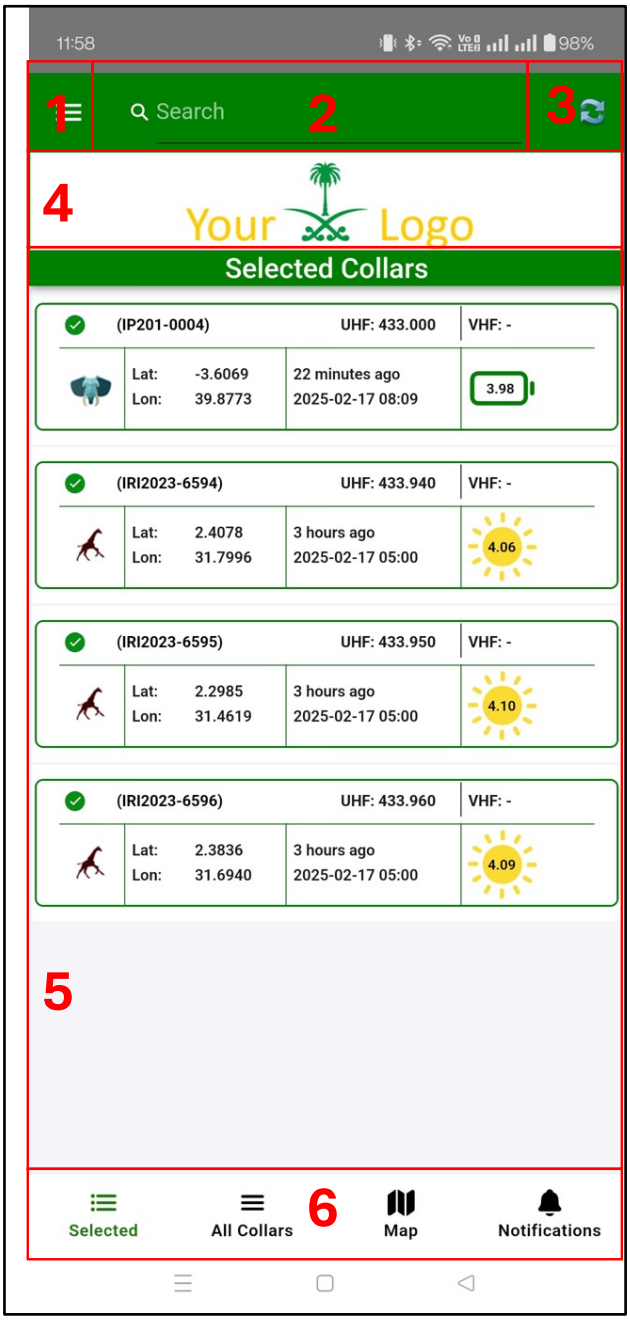
MISAVANNAH



This is the mobile application for accessing Savannah Tracking data, it can be downloaded from either Google Play store for android devices of apple app store for iOS devices

The app shares the same credentials with SDM. Download and enter your username and password to start using the app

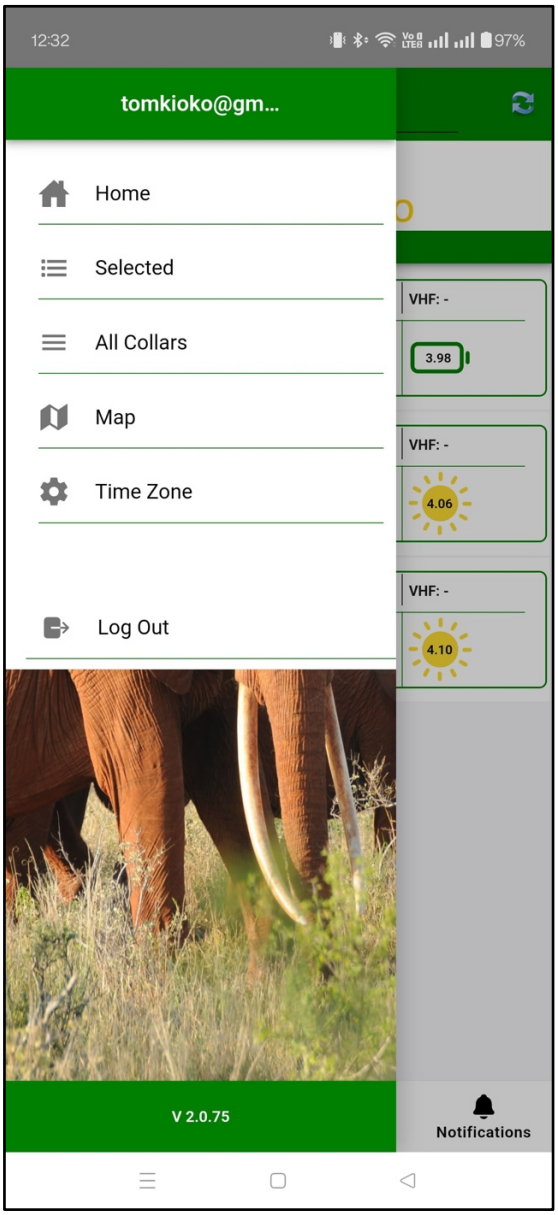
MISAVANNAH LAYOUT



1. App Menu - shortcut to app menus
2. Search Box – provides and interface for searching through the active view continents. E.g. search for a collar serial no on the list or map view
3. Addition commands – will either be a refresh button or a clear button based on current view
4. Client logo – this is a customizable section that allows the client to load their logo and brand the app with their account or project logo.

   Contact support@savannahtracking.cpm on how to load custom logo
5. Content View – shows the contents of the user's active view. See view selection in item 6 below
6. View Selection Menu – a link for the user to change to different views.
   a. Selected view – a user defined subset of collars, may or may not be to full set
   b. All collars – a view with all the collars accessible by the user
   c. Map view – a map view of all the collars on the selected view
   d. Notifications – a list of push notifications that have been received by the user.

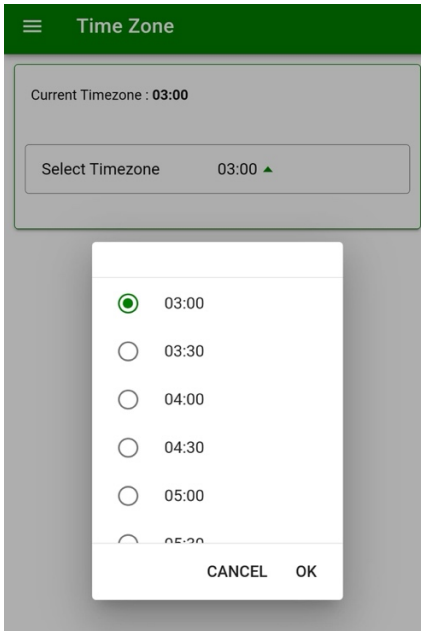
MISAVANNAH MENU



Contains links to different views and functionalities on the app.

Time Zone – all data is in UTC Time Zone, use this view the set your preferred data display time zone.

Time Zone View



Logout – log out of MiSavannah app

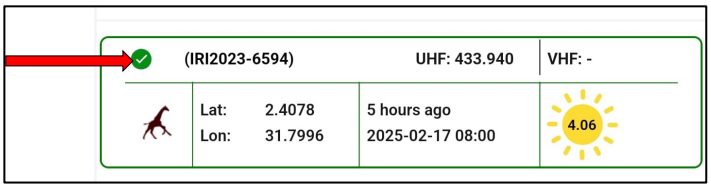
V x.x.xx – shows the app version. This is useful when requesting support or submitting a bug

MISAVANNAH VIEWS

1. Selected View

Shows a subset of collars that the user has selected to keep on display. It controls which collars are visible on the map

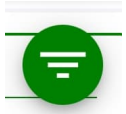
To remove collars from the selected view, click on the tick button on the top left of the section containing the serial no you would want to hide (see below image).

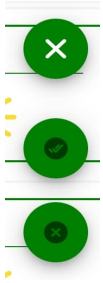


2. All Collars View

Also known as the master list, it contains a list of all collars the user account has access to. It also provides shortcuts to allow the user to hide/show collars on the selected list and map

See below a description of the different icons and functionalities available on this view

a) 	• A green tick shows the collar is already on the selected list • To remove it from the selected list, click on the tick to toggle it to an x
b) 	• A red x means the collar is not currently on the selected collar list • To add it to the selected collar list, clock on the x to toggle it to a green tick
c) 	• Expansion menu, click on it to show shortcuts for global clear/ add to selected list

d) 	• Expanded menu
	  ○ Click on the X circle to close the menu
	  ○ Click on the double tick to add all collars to the selected list
	  ○ Click on the X to remove all collars from the selected list

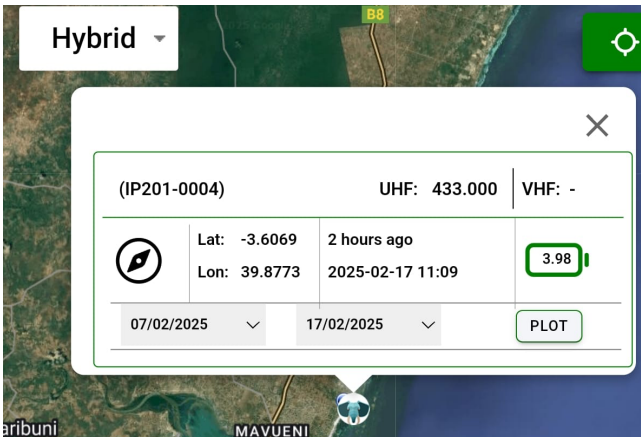
3. **Map View**

Shows the locations of selected collars on a map. This will default to all collars in the selected view.

NB. *Clicking on the coordinates of any collar either on the selected view or all collars view, will cause the app to load an instance of the map but with only the selected collar*

On the map window, click on a collar icon to bring up an information windows which has links to more functionalities such as plotting history and navigating to a collar.

Information window image



To navigate to a collar location, on the information window described above, click on the compass icon and this will load the navigation icon showing distance to collar and direction. This is a very useful feature when tracking animals out in the field

4. **Notifications View**

Shows a list of all push notifications received. this will mainly be mortality and geofence alerts and they will be kept in the notification panel for a maximum of 72 hours before auto deleting. You can always query these alerts on the SDM software

THIRD PARTY DATA ACCESS

Savannah collars are fully integrated with EarthRanger, Movebank and supports a public API for any other custom integrations

SAVANNAH PUBLIC API

INTRODUCTION

- The API allows users to pull data from the Savannah Tracking Server into their own local database.
- API supports both GET and POST requests.
- All Responses from the API are in JSON format, and they have the following common attributes.
    - Success: true if request is successful, false if there was a failure
    - Error_msg: if the API request fails, a detailed error message is contained in this attribute.
    - has_more_records: a Boolean flag that indicates if there are more records (see more details on each API call)
    - records: contains a list of the requested data (see more details per API call)

API URL

- URL = https://api.savannahtracking.co.ke/APIV3/APIService
- Parameters should be JSON encoded.
- Parameter descriptions are as follows.

Parameter	Description
api action	The action to be performed by the API
uid	API access username
pwd	API access password
Id	The record id associated with the collar the user wants to pull its data
Collar id	The serial no for the collar being queried

AUTHENTICATION

This API call is useful when you want to get a list of all the collars that you have access to, it can either be used in the following scenarios.

- on first run to get all the collars that you have been assigned/granted access
- periodically to get any new collars that have been added to your account

To Make the API call, pass below parameters to the API.

```
{
  "api_action": "get_collar_list",
```

```
  "uid": "your_user_name",
  "pwd": "your_password"
}
```

Below is a sample complete URL

https://api.savannahtracking.co.ke/APIV3/APIService?{"api_action":"get_collar_list","uid":"your_uid","pwd":"your_pwd"}

The API will return a list of all collars your credentials have access to, see sample success payload.

```
{
  "success": true,"error_msg": "",
  "records": ["IRI2016-4633", "IRI2016-4502", "IRI2016-4751" ]
}
```

DATA APIS DESCRIPTION

We have two data API calls; one returns data in standard JSON and the second returns data in RFC 7946 The GeoJSON Format

DATA ATTRIBUTES

Both API calls return the following attributes

```
{
  "success": true,
  "has_more_records": true,
  "records": []                    // see data record fields table for a list of all fields.
}
```

DATA RECORD FIELDS

Attribute	Description
Id	a unique id identifying each record
gps_time	Record acquisition time
battery	battery voltage at time of GPS record upload
pos_type	See position type below for more details
power_src	See power source below for more details
longitude	longitude
latitude	latitude
hdop	HDOP
speed	gps speed

POSITION TYPES

Type Id	Description

1	Normal position update triggers by user defined schedule
2	Mortality Alarm triggered update
3	Excess Motion Alarm triggered message

POWER SOURCES

Source Id	Description
1	Primary Cells
2	Sollar Cells

JSON DATA CALL

To make the API call, pass below parameters.

```
{
 "api_action": "get_data",
 "uid": "your_uid",
 "pwd": "your_pwd",
 "collar_id": "IRI2016-4572",
 "id": 42088754                    //latest id in your local database
}
```

The API will return all the records with an id greater than the one provided, (newer records), see below server response sample.

```
{
 "success": true, "has_more_records": true,
 "records":
[
  { "id": 42322393, "gps_time": "2023-01-25 00:00:19", "battery": 4.15, "pos_type": 1, "power_src": 2, "longitude": 39.87705,
"latitude": -3.606633, "hdop": 0.0, "speed": 0.0 },
  {
    "id": 42322394,  "gps_time": "2023-01-25 02:00:20",  "battery": 4.15, "pos_type": 1, "power_src": 2, "longitude": 39.87707,
"latitude": -3.606773,  "hdop": 0.0,   "speed": 0.0 }
 ]
}
```

GEOJSON API CALL

To make the API call, pass below parameters.

```
{
 "api_action": "get_geojson",
 "uid": "your_uid",
 "pwd": "your_pwd",
 "collar_id": "IRI2016-4572",
 "id": 42088754                    //latest id in your local database
}
```

The API will return all the records with an id greater than the one provided, (newer records), see below server response sample.


```
{
 "success": true, "error_msg": "",  "has_more_records": true,
 "gps_records":
{
  "features":
[
   {
    "geometry": {
     "coordinates": [ 39.87705,  -3.606633],
     "type": "Point"
    },
    "properties": { "id": 42322393,  "gps_time": "2023-01-25 00:00:19",  "battery": 4.15,  "pos_type": 1, "power_src": 2 },
    "id": 42322393,
    "type": "Feature"
   }
  ],
  "type": "FeatureCollection"
 }
}
```


EARTHRANGER

GATHER REQUIRED INFORMATION

Ensure you have the information described in the following two sections

SAVANNAH TRACKING INFORMATION

Item	Description
Service Username	The username to use for querying Savannah Tracking Collars
Service Password	The password to use for querying Savannah Tracking Collars
Service API Host	IP address or URL pointing to Savannah Tracking API https://api.savannahtracking.co.ke
Device manufacturer ID	The serial number of the tracking collar
Device model name	The model name of the tracking collar (for example GPS-Iridium Ele collar)

EARTHRANGER INFORMATION

Item	Description
Subject group	The group that the subject (animal or entity being tracked) belongs to (for example Elephants or Rangers)

Subject name	A name for the animal or entity being tracking (for example Maximus)
Subject subtype	A subtype for a broader subject type (for example Elephant or Giraffe are subtypes of wildlife)
Natural key for source provider	This can be any value, but one possible configuration is to enter the site name and sensor type separated by a hyphen (*e.g grumeti-savannahtracking)*
Display name for source provider	Again , we recommend using your site's name, a hyphen and the sensor type (*e.g grumeti-savannahtracking)*)

CONFIGURE EARTHRANGER

Follow these steps to configure EarthRanger for use with Savannah Tracking collars

ADD A SOURCE PROVIDER

Skip this step if you already have a compatible source provider at **Home > Observations > Source providers.**

To add a source provider:

1. Login to your EarthRanger administration webpage at (https://<yourprojectarea>.pamdas.org/admin).
2. Go to **Home > Observations > Source** providers and select **Add Source Provider**
3. Enter the following values that you collected in the gather required information section of this guide
    a. Natural key for source provider
    b. Display name for source provider
4. Select Save

ADD SAVANNAH PLUGIN

Add a new Savannah Plugin for your Savannah Tracking Collar

To add a Savannah Plugin:

1. Go to **Home > Tracking > Savannah Plugins** and select **Add Savannah Plugin**
2. On the Savannah Plugin Page, enter the following values
    a. Unique name to identify the plugin e.g. *grumeti- savannahtracking*
    b. Additional: Enter ***{"plugin":"plugin"}*** (including the braces)
    c. Provider: The source provider you added previously e.g. *grumeti- savannahtracking*
    d. Service username: The username for querying Savannah tracking collars
    e. Service password: The password for querying Savannah Tracking collars
    f. Service API Host: https://api.savannahtracking.co.ke
3. Select Save

ADD A SOURCE PLUGIN AND A SOURCE

These steps are required every time you add an external device

To add a source plugin and a source:

1. Go to **Home > Tracking > Source Plugins** and select **Add Source Plugin**
2. On the **Add Source Plugin page,** enter the following values:
    a. Plugin configuration: Select the correct configuration from the dropdown
    b. Source: click on the green plus sign to open the **Add source** window, then enter the following information
        i. Device Manufactured ID: The serial number of the tracking collar
        ii. Type of data expected: Select ***Tracking Device***
        iii. Device model and name: Enter the model name of the tracking collar (e.g. GPS-Iridium Ele Collar)
        iv. Provider: Select the *Display name for the source provider* you entered in the previous step (*Add a source provider*)
        v. Select Save (which closes the **Add Source** window and returns you to the **Add Source plugin** page)
3. Select Save

VERIFY SUBJECT GROUP

Verify that a subject group is available and add one of necessary

Before you add a new subject, check to see if an appropriate subject group is available for that subject. For example, if you want to add a new subject called Elephant, first verify that an Elephant subject group (or another appropriate group) exists

Important: Subjects are not visible on the map window until they are made part of the subject group

To verify that an appropriate subject group exists and add a new subject group if necessary:

1. Go to **Home > Observations > Subject Groups.**
2. If an appropriate subject group to which you want to add your subject is listed jump to **Add Subject to Track**
3. If you want to add a new subject group, Select **Add Subject Group** then enter the following information
    a. Name: Enter a name for the subject group (e.g. Elephants)
    b. Permission Sets: Select available permission sets and assign them to Chosen permission sets
4. Click on Save

ADD SUBJECT TO TRACK

In this step, you assign the Savannah Tracking collar to the animal or entity that is being tracked

To add a new subject to Track:

1. Go to **Home > Observations > Subjects then** select Add Subject
2. On the Add Subject Page, enter the following values
    a. Name: A subject name for the entity being tracked e.g. Maximus
    b. Subject subtype: a subtype of a broader subject type (e.g. elephant is a subtype of wildlife)
    c. Active: Select if you want the subject's location to be displayed on the EarthRanger map.
    d. Groups: The group that the subject belongs to. (*NB each subject group translates to a map layer on EarthRanger*)
    e. Color: Preferred tracking line color
    f. Sex: Select Male or Female (optional)
    g. Source: Select the correct Device Manufacturer ID (Serial Number) that you assigned to the source previously
    h. Assigned Range: enter the deployment dates for the collar on the left box. On the right box, enter a date you want to stop tracking the collar or any far future date such as 2099-12-31.
3. Click on Save

MOVEBANK LIVE FEED

To active a Movebank live Feed kindly contact support@savannahtracking.com