

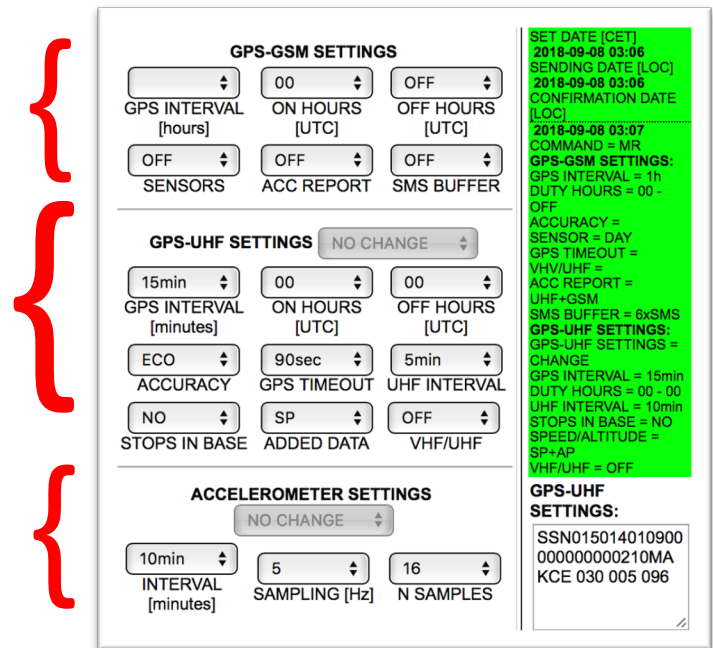
GPS and GSM Instructions

Ecotone CREX (2018+)

25 March 2019

Data Overview

- GSM data collection settings are activated in top half of panel.
 - GSM data are collected and sent on a regular schedule.
 - These data are associated with the data package (256 points/month in US and Europe).
 - Data attempt to send every 4th point, unless the “SMS BUFFER” is used to hold data for longer (e.g. at 2xSMS, data will send every 8th point).
- FTP location data collection settings are activated on bottom half (optional).
 - First select
 - FTP data are set in the “GPS-UHF SETTINGS” portion of the panel.
 - FTP data are very energy efficient and can support data collection every 5-15 minutes without noticeable impacts on battery.
 - These data are collected separately and stored in a different memory bank.
 - They can be downloaded via hand-held UHF system, or over FTP transmission.
 - FTP transmissions occur after ~ 10kb of data are stored (can be a large number of points), and therefore transmit less often and in large batches.
- FTP accelerometer data settings (optional).
 - Accelerometer data collection in the bottom third of the panel also transmit via FTP.
 - Accelerometer data have very little impact on battery and therefore can easily be used every 5-15 minutes for most species.



Options Overview

1. SMS Location Reporting

- GPS interval for SMS transmission.
- Duty hours, can be overridden by daylight sensor.
- Determination of how accelerometer will be used. Basic reports are provided via GSM. High-resolution 3-axis accelerometer data are provided via UHF/FTP.
- SMS buffer, which can be used to wait until more data are before attempting to send (e.g. default is every 4th point, buffer can increase to every 8th, 16th, etc.)

2. GPS-UHF FTP Location Reporting

- Select "CHANGE" to send new settings to unit.
- GPS interval
- Duty hours
- Location accuracy (ECO ~30m, others require more energy)
- GPS search time (60s is normal, higher uses more energy).
- UHF Interval is the interval between attempts to connect to hand-held base station. If no base station is being used, set interval to higher number (10 min) to conserve energy.
- When set to "Yes", location collection will stop when hand-held base station is present. Useful for colony and cavity nesting birds.
- Use Added Data if additional sensors are included with unit.
- VHF/UHF will attempt to send higher power ping to base station more often for hand-held telemetry locations. Turn off if not using to conserve energy.

3. Accelerometer settings

- Select "CHANGE" to send new settings to unit
- Interval between accelerometer measurement.
- Frequency between individual samples within one measurement attempt.
- Number of samples within one measurement attempt.

- After program is complete, select "SAVE" in left column to send to queue, which will then send to unit when it next checks in.

The screenshot displays a settings menu with three main sections: GPS-GSM SETTINGS, GPS-UHF SETTINGS, and ACCELEROMETER SETTINGS. Each section contains several dropdown menus and buttons, with yellow callout boxes labeled 1.a through 3.d pointing to specific options.

Section	Setting	Value	Callout
GPS-GSM SETTINGS	GPS INTERVAL [hours]	2h	1.a
	ON HOURS [UTC]	00	1.b
	OFF HOURS [UTC]	OFF	1.b
	SENSORS	DAY	1.b
	ACC REPORT	OFF	1.c
	SMS BUFFER	OFF	1.d
GPS-UHF SETTINGS	CHANGE	CHANGE	2.a
	GPS INTERVAL [minutes]	15min	2.b
	ON HOURS [UTC]	00	2.c
	OFF HOURS [UTC]	00	2.c
	ACCURACY	ECO	2.d
	GPS TIMEOUT	60sec	2.e
	UHF INTERVAL	10min	2.f
	STOPS IN BASE	NO	2.g
	ADDED DATA	SP	2.h
VHF/UHF	OFF	2.i	
ACCELEROMETER SETTINGS	CHANGE	CHANGE	3.a
	INTERVAL [minutes]	15min	3.b
	SAMPLING [Hz]	5	3.c
	N SAMPLES	16	3.d

Selecting Optimal Program

- New FTP options on transmitters allow for different data collection strategies.
- Many users are reducing the GSM data collection slightly, and applying very high frequency UHF/FTP data collection without noticeable impacts on battery.
 - GPS positions every 15 minutes
 - Accelerometer settings every 15 minutes
- Use of daylight sensor will apply to both GSM and UHF/FTP GPS data, but not to accelerometer data.

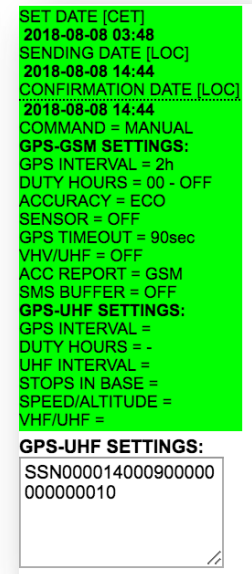
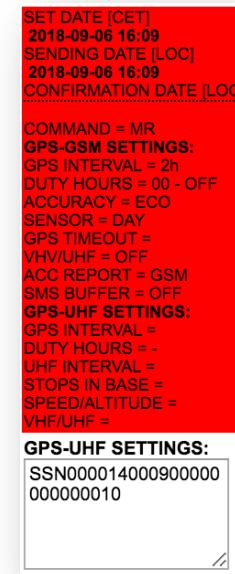
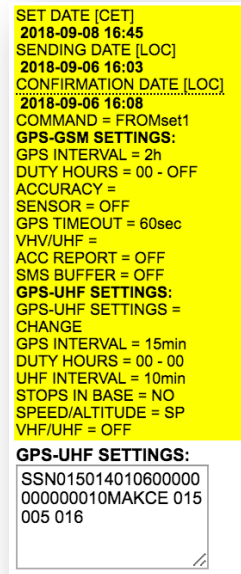
GPS-GSM SETTINGS		
2h GPS INTERVAL [hours]	00 ON HOURS [UTC]	OFF OFF HOURS [UTC]
DAY SENSORS	OFF ACC REPORT	2xSMS SMS BUFFER

GPS-UHF SETTINGS		
15min GPS INTERVAL [minutes]	00 ON HOURS [UTC]	00 OFF HOURS [UTC]
ECO ACCURACY	60sec GPS TIMEOUT	10min UHF INTERVAL
NO STOPS IN BASE	SP ADDED DATA	OFF VHF/UHF

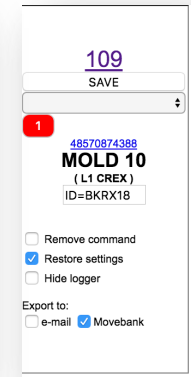
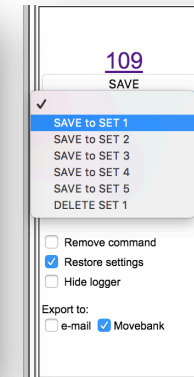
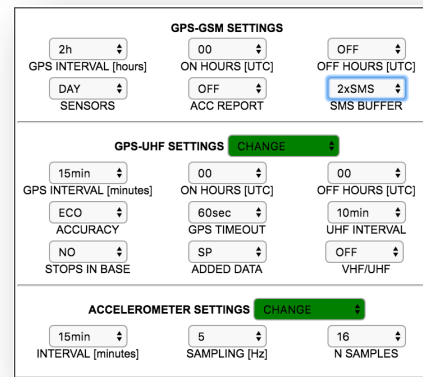
ACCELEROMETER SETTINGS		
15min INTERVAL [minutes]	5 SAMPLING [Hz]	16 N SAMPLES

Saving Settings and Sending to Unit

- Select settings to be sent to unit.
 - Select “Save” to send to unit directly.
 - Select preferred settings to save as set (see below).
 - When settings are waiting in queue panel will be yellow.
 - After they have been sent to unit, panel will turn green (unit confirmed receipt of settings) or red, settings were sent, but unit did not confirm.
 - If panel turns red, wait for another cycle and it may turn green.



- Preferred settings can be saved and used to program additional units.
 - Compose preferred program.
 - Pull dropdown menu and select set.
 - Click save.
 - To apply settings to additional units use dropdown and select, then save.
 - Pre-defined settings will show as red box near top.



Data Retrieval

Ecotone CREX (2018+)

24 September 2020

Overview

- Data collected by Ecotone units via cellular network are two forms:
 - GPS-GSM data (communicated via SMS)
 - GPRS/GPS-UHF-FTP (communicated via direct digital)
- Data can be retrieved in three ways:
 - GSM data retrieved from Ecotone web site
 - GPRS data retrieved using Analyzer program
 - Combined data sets retrieved through Vertebrate Systems Web Portal
- Each data retrieval system is reviewed below

GSM Data Download

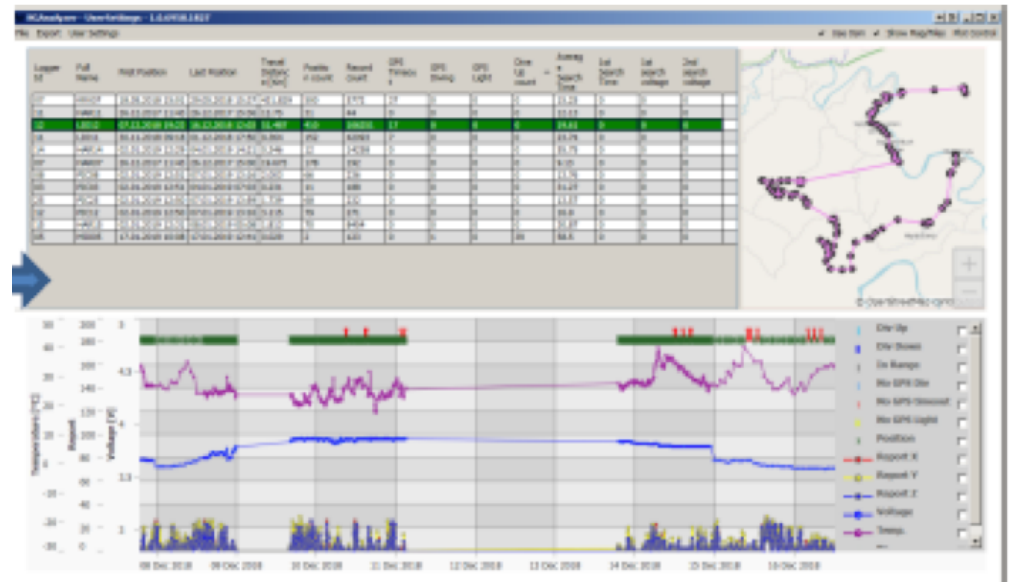
- Log into Ecotone web site with link and password
- Click on the “Exports” button in the upper left
- Select “Positions”
- Download data by csv files. These can be opened and manged in MS Excel



GPRS Data

- GPRS data can be retrieved and explored using the NGA analyzer program.
- Instructions and information about downloading the software can be accessed at the link to the right

[Click this link for NGA analyzer Instructions](#)



VS Data Portal

- The VS Data Portal combines all data from all sources, including GSM, GPRS, and UHF.
- Instructions and login information were sent with your initial email after purchasing units.
- The system also sends out highlights from your units each week via email.
- For additional information or to reset your login, please contact: vs@sensorvs.com

Vertebrate Systems Online Data Portal

The Vertebrate Systems data portal provides compiled sets of data for each customer account, and for individual animals within each account. When fully operational, data will be collected and uploaded every 12 hours.

Historically, retrieving and compiling data has presented challenges for some. For example, Ecotone Telemetry serves data through a dedicated "panel" web site. Modern units from the company post data to the panel in two different forms, including GPRS and GSM. In order to retrieve data associated with a single animal through the Ecotone panel, users must download multiple files and manage them with specialized software, and then later combine those files for use in analyses.

In the VS data portal, all data for a customer are available in a single downloadable file (AllGPS.csv), including data from all units, and all types of data. This portal is intended to provide access to compiled data files until such a product is available from Ecotone.

Additionally, a summary of retrieved data are available in the "BirdInfo.csv" file, which shows how many locations were retrieved for each bird, and the start and stop dates for each unit. Subfolders in the VS data portal contain information for each individual unit, including a graph of transmission information, Google Earth files of points and movements for the life of each transmitter, and Google Earth plots for the last 30 days.

1. Logging into your panel

Instructions for logging onto the VS data portal, and for retrieving data, are shown below. If you encounter difficulties or have comments, drop a line (keslerd@sensor.global).

- 1) Click the provided link to your data repository.
- 2) Enter "vertsyst" into the first login site, and click "Next". If you see a panel asking about IAM, select that. You will be associated with the portal, and future access from the same computer will not require this step.
- 3) On the following page, enter your account id (email) and password, and then click "Sign In".
- 4) New users will be required to change passwords. Use the password provided to you in the initial email as the "old password". Select a new password of your choice, and **enter the new password twice**.
- 5) You will be directed to a data directory:

