

# Satellite Rally Program

Version 4

## Operating Manual

Revision 1

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# 1 READ THIS FIRST

Before you start:

- Go to Control Panel: Region
- Click on Advanced settings
- Ensure that Decimal Symbol is set to “.”
- Ensure that List Separator is set to “,”
- If you don’t do this the program will not print to Excel.
- If you do this after you discover that the program will not print to Excel, you will have to start again.

## 2 INTRODUCTION

Satellite Rally is a complete regularity management program written in Visual Basic version 6. It comes as a single EXE file. By convention it would be placed in the *c:\Program Files* folder, but could be placed anywhere on the c: drive.

As from Ver 4 (July 2024) an extension program has been added to allow any future loggers and /or trackers to be interfaced with the Satellite Rally program. This extension program is called “CVT-Rally.exe” and is independent of the main Satellite Rally program. CVT-Rally will interface with the new loggers and/or cloud-based trackers. The function of CVT-Rally is to collect and convert the latitude, longitude logs together with the relevant time stamps, produced by these systems and convert this information to be compatible with the Satellite Rally scoring program.

## 3 UNDERSTANDING TIME

Atomic time (TAI) works on the vibration of a certain atom and (for practical purposes) an atomic clock never loses time.

Universal Coordinated time (UTC) works on the rotation of the earth which is slightly irregular and slower than atomic time.

Loggers however read TAI and need to correct to UTC in their download software. Adjustment for this discrepancy is complex and different brands of loggers use different methods to make this adjustment, resulting in different offsets between loggers and UTC.

We established the required offset between each type of logger and UTC empirically by running a number of tests. Provision is made for this offset in the configuration file.

Since 1961 and up to July 2019, the International Earth Rotation and Reference Systems Service (IERS) have adjusted UTC by 37 seconds relative to TAI. Adjustments are made as required each year either in June or December. The IERS have issued a bulletin to notify the public that no adjustments will be made in December 2019 and until further notice.

When IERS adjustments are made, or when new logger download software is used, the offsets used in the configuration file will need to be reviewed and adjusted as required.

Latest offsets will be listed on the RALLY page of [www.vintagemotorcycleworks.co.za](http://www.vintagemotorcycleworks.co.za)

## **4 START**

On clicking Start on the menu, two options are presented. They are :

Open (existing) or New. On first start-up a folder *c:\Satellite Rally* is created. When starting a New project, folders unique to that project are created as sub folders of *c:\Satellite Rally*. A file Register.csv is created and stored in *c:\Satellite Rally* to keep track of projects.

## **5 CONFIGURATION**

It is assumed that vehicles will start at one minute intervals and that vehicles will be numbered in consecutive order according to their starting times. Vehicle No 1 leaves 1 minute after the Rally Start Time. If there are 10 Vehicles in the A Speed Group, then Vehicle No 11 will be the first vehicle in the B Speed Group.

A default configuration is presented. This should be amended to suit the event. This is generally self-explanatory. Note that the number of entries per speed group should be estimated at this stage and may be amended at any time.

Control Distance and Maximum Error are required to configure the scoring module. Control Distance should be left at its default setting.

Baseline Speed refers to the speed group used for route schedule design. 1 = A speed group, 2 = B speed group etc.

*Config.csv* is written to and stored in *c:\Satellite Rally\Rally Name\Working Files*

## 6 ROUTE SCHEDULE

All files uploaded or created by Route Schedule are stored in *c:\Satellite Rally\Rally Name\Route Schedule*.

On pressing LOAD DATA, the program first checks for an existing file *RS1\_Data.csv* (or *RS2\_Data.csv* for Day 2 etc). If it does not find this file, it will permit you to create a route schedule from scratch. Any file uploaded or created from scratch will be saved as *RS1\_Data.csv* (or *RS2\_Data.csv* for Day 2 etc)

Speed calculation is as follows:

Instruction type f (general regularity section instruction): speeds for other groups are in proportion to baseline speed group.

Instruction type o (general open section instruction) : speeds for other groups are equal to the baseline speed group.

Instruction type a (used for specific instructions at the discretion of the CoC) : speeds for all groups must be entered manually.

Instruction type s (fuel/lunch stops etc): speeds for all groups are set to zero.

Instruction type v (virtual marshal) : No speed change allowed.

The onus is on the CoC to ensure that maximum speeds are limited to 90% of the statutory speed limit for any section.

Files for printing are written to Excel, so Excel should be available on the computer. In Excel, run Print Preview to ensure that the format is correct.

For Instruction Type v, coordinates are required for the virtual marshal. These should be entered as degrees and decimal degrees to 5 decimal places. A separate file *CP1.csv* (or *CP2.csv* for day 2 etc) will be created. This file will be used for scoring.

NOTE: For best results, Instruction Type v (Virtual Marshalls) must NOT be set within 200m of any other instruction or within 200m of a bend in the road where the change in direction exceeds 15 deg.

Time may be added to any line in the Route Schedule. The time added is automatically included in the comment in the print version.

For advanced users only: If you wish to upload a route, you need to create a file named Input\_RS1.csv with the following fields;

- Line No (start from 1 and number consecutively)
- Instruction
- Instruction Type (f, o, a, s, v)
- Distance
- Baseline Speed

Note rules for csv files. No spaces or empty cells are permitted. Headings must be placed in the first row. Data will be placed on the second and consecutive rows. Data cannot contain commas (,) or inverted commas (") or (').

Place this file in the Route Schedule sub folder.

If RS1\_Data.csv file exists, delete this file (after making a back-up!)

## **7 ENTRY LIST**

The entry list is required to assign competition numbers , identify speed and score groups and to provide names for results.

The entry list is uploaded from a CSV file configured with the following fields:

- Competitor No
- Name (40 characters allowed. Include navigator if applicable)
- Year (eg 1936)
- Vehicle (eg Norton)
- Type (eg Motorcycle, Car, M/C with sidecar)
- Speed Group (must be UPPER CASE A,B,C or D as applicable)
- Score Group (must be UPPER CASE A,B,C or D as applicable)

- Day1 maximum score (No of controls x 600)
- Day2 maximum score (No of controls x 600)
- Day3 maximum score (No of controls x 600)
- Day4 maximum score (No of controls x 600)
- Day5 maximum score (No of controls x 600)

Note that results are saved to the entry list. If a logger is not handed in, the competitor will automatically receive the maximum score. The number of controls may be found in the file CPn.csv in the RouteSchedule sub folder. (The “n” in CPn.csv refers to the day number).

Note rules for csv files. No spaces or empty cells are permitted. Headings must be placed in the first row. Data will be placed on the second and consecutive rows. Data cannot contain commas (,) or inverted commas (") or (').

The CSV file must be placed in the EntryList sub folder and must be named EntryList.csv

(Note no space between Entry and List). This file will have 12 fields. All fields must be populated. For a 3 Day event, Day 4 and Day 5 must be populated with a zero (0).

It is recommended that a print of the Final Score is done as soon as the entry list is loaded to check the format.

## 8 SCORING

At the end of each day, the competitor will hand in their logger for scoring. In the case of the competitors using the Easy GPS Logger app, the competitor is responsible for transferring the log to a memory stick to hand to the scorer. The logger or memory stick is connected to a computer and the log is downloaded using proprietary software supplied by the logger manufacturer. The downloaded file must be prefixed with a letter plus the day No and a 3-digit competitors No. (with leading zeros if necessary) and saved to *c:\Satellite Rally\Rally Name\Competitors Log*.

The prefix letter for Holux loggers is “h” the prefix letter for Canmore loggers is “c” and the prefix letter for Easy GPS Loggers is “e”.

*As from Satellite Rally program Ver 4 the use of the CVT-Rally.exe program makes provision for future loggers and/or trackers to be added as if these were a local logger. The prefix for this would be “x”.*

If Competitor No 34 hands uses a Holux logger for scoring on day 1, the downloaded file must be named h1034.csv.

If Competitor No 9 uses a Canmore logger on day 3, the downloaded file must be named c3009.csv.

If Competitor No 89 uses an Easy GPS Logger app on his mobile phone on day 2, the downloaded file must be named e2089.csv.

If Competitor No 4 uses a Cloud base tracker or any new logger/racker which is handled and converted by the CVT-Rally.exe program on day 1, the downloaded file must be named x1004.csv.

When the scoring module is opened, the saved logger files will be visible in the top list box. Any file may be selected then press CREATE CL FILE.

A Competitors log file will be created and placed in the left hand list box. The file will be named as follows : CL####.csv where the first # is the Day No and the next ### is the competitors number.

Example: The log file name for competitor 25 on day 3 will be *CL3025.csv*.

The present display is a diagnostic one to enable any scoring errors to be traced.

The first step in the scoring process is to select a shortlist of coordinates that are close to each Control coordinate. The distance is set in the configuration file. The next step is to eliminate the coordinates that do not fit into a given time window. This time window is also set in the configuration file. The default time is 600 seconds which means 600 seconds before and after the ETA, giving a total time window of 1200 seconds. The final step is to select the 2 coordinates that are the closest to the control coordinate. The calculation is then based on triangulation of these 2 coordinates with the control coordinate.

The individual day score is printed to Excel. When all individual day scores have been completed, a combined Day Score and Day Position may be printed. When Day Scores for all rally days are complete, the Final Score may be printed.

The graph shows log output when high and no output (eg when stationery) when low. The vertical red lines are controls. For a control to record, it should intersect the blue line when high.

## 9 NOTES ON LOGGERS AND TRACKERS

The difference between a logger and a tracker is as follows: A logger will record Latitude, longitude and time, called logs, store this information for a later download to a computer. A tracker will also record latitude, longitude and time, called logs, store this information temporarily and deliver these logs via a cellular network to a central server for storage. The central server or Cloud Based server can optionally display the position on a map in Realtime. The central server will provide the logs on request.

Satellite Rally is designed to interface with the Holux RCV-3000 Logger, the Canmore GT-740FL logger, the Canmore GT-730FL and the mobile phone app, Easy GPS Logger. From Ver 4 an additional interface is provided, this interface uses the program CVT-Rally.exe. Currently, as of "July 2024" the CVT-Rally supports the Columbus P10 Pro logger and the GPX files produced by Routechoices.com's cloud-based tracker system. Routechoices.com been tested with the standalone trackers supplied by Quicklink GL320 as well as the Cellphone app supplied by Routechoices.com

A logger or tracker device is carried by each competitor during a regularity rally event. Coordinates are logged at every 5 seconds ( every one second for the Easy GPS Logger) together with a time stamp. This information is downloaded from the logger (or mobile phone) at the end of the event and uploaded into Satellite Rally. On a tracker the coordinates and time stamp would be downloaded over the air to the scorer's computer. The CVT-Rally program would then prepare the data and present the data to the Satellite Rally program for scoring. If a new logger was used the CVT-Rally.exe program would be used to collect or download the coordinates together with time stamps and present them to the Satellite Rally program. The logged results are scored against pre-determined expected times of arrival (ETA) for various control points along the route.

Competitors who do not own a logger may hire one from the organizers. The logger and tracker should be switched on at least 10 minutes before the start. If required by the organizers, a sticker with the competitor's number may be applied to the logger. Loggers should be configured for 5 second readings. The Easy GPS Logger logs a reading every second and is not configurable. The program will only read every fifth record for the Easy GPS Logger. CVT-Rally program would also ensure that logs have a 5 second gap, thus maintaining backward compatibility to the older logging devices.



Logger failures or errors appear to occur somewhere between 2% and 5% of the time for various reasons, the most common being either battery failure or simply failure to log. For this reason, competitors are advised to carry a spare device and to ensure that batteries are charged.

Separate notes have been published dealing with each specific logger and the propriety software required for reading the log and converting it to a CSV format for interfacing with the Satellite Rally program. In the case of the Easy GPS Logger, a program called ROUTE CONVERTER is used. This program offers a number of different formats for the output CSV file. The format compatible with "I-BLUE 747.csv" must be selected.