Richta GPS Checkpoints: Best Practices and Handling Unusual Situations

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→ "Best Practices" are <u>not</u> a set of rules that must be followed. Best Practices are a set of guidelines that are known to produce <u>good outcomes</u> if followed.

→ These guidelines have been developed over the course of three years with over 600 road rally events staged using the Richta GPS Checkpoints system.

→ This presentation also serves as a guide for how to handle unusual situations should they occur on an event.

→ Thanks to John Fishbeck, Detroit Region SCCA, for his suggestions regarding this material, and Jim Crittenden, Milwaukee Region SCCA for his contributions to this content.

→ Thanks to the event organizers whose questions and issues have contributed to this content.

1. Use a test event to learn the system. Build a scale model of your full event with similar event style.

2. Engage with an experienced user of Richta GPS checkpoints for guidance and Q&A.

3. When setting the CP locations in Rallymaster, write down CP locations (lat/long) while setting CPs.

4. When setting CPs stop at in line, wait 5 seconds for GPS to settle before recording location.

5. Run Validity Check and resolve or understand all warnings and errors.

6. Run precheck with Competitor. Ensure CPs detected, confirm accuracy of leg calcs.

7. Start the event with either a validation loop or time check CPs on the tire warm up or odometer checks. (Allows entrants to verify CP detection and introduce new entrants to what happens at a CP). Consider posting an official at end to answer questions/assist.

8. Add several (3 to 6) Time Check Cps during the odometer check so that entrants can compare their clocks to the clock that will be used to time them at checkpoints.

9. Freeze event after precheck (No CP additions, moves, etc.)

10. One week before event: delete old registrations used to precheck the event, check Validity Report (one more time)

11. Match Number of CPs in Event Settings with actual number of CPs (affects entrant being recognized as "Ready")

12. Is Maximum permitted time allowance large enough?
    - It may not be if the number of Restart CPs is small, like a Monte Carlo rally

13. Do not open the event for entrant registrations until all event settings have been finalized and complete. (Risks entrants having wrong event configuration copied to the device).

14. At the Start

- App instruction in generals
- Monitor cars for becoming "ready" and current Competitor release in use
- Have helpers available to assist first-timers with getting app installed and ready

15. Monitor event in real time

- Assign a "designated event watcher"
- At comfortable location (end point, at home)
- Monitor for lost entrants, call them if they are far off course
- Could be part of the scoring team

16. Set a goal to score rapidly

- "Provisional scores will be available by the time the last car arrives at the ending location."
- Recruit a dedicated scoring team
- Practice handling unusual situations
  - Recore leg because of a calculation error
  - Drop a leg
  - Missing timeslip at restart
  - Backup device timeslips

17. Reminder: Drop / Rescore Leg timing

- Must be done <u>after</u> timeslips have been transmitted
- (All cars may not have passed or reported their scores)

1. Discarding a Leg
2. Incorrect Ideal Leg Time
3. Competitor Device Failure
4. General Competitor Issues
5. Missing Restart Timeslips
6. Adjusting a Time Allowance or Score
7. Event Delay for all entrants
8. Pre-check conducted at different time of day
9. Sections run out of order
10. Early CP detection
11. Location Services not enabled
12. Icons representing cars on Map not advancing.
13. Event not showing up in Competitor.
14. Entrants unable to edit their entry details.
15. Invalid characters used in critique slips.

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16. Setting up a rally that can be run at any time of day.

17. Using a real keyboard for Rallymaster app.

18. Directionally Sensitive CP detected when passed in wrong direction.

→ Situation:

- It is occasionally necessary to discard a leg from being included in the scores for an event. This could be due to misplacing a CP, excessive delays during the event or, in a trap rally, a logic error in constructing the trap.

→ Solution:

- Rallymaster app: select Discard Leg function. This will set the score in all timeslips to 0.

→ Note:

- Discarding can be undone by rescoring a leg.

→ Situation:

- Sometimes an error is made in calculating the ideal leg time.

→ Solution:

- Enter the correct ideal leg time in Rallymaster. Select Rescore Leg function. This will rescore all timeslips in the database for that leg only.

→ Note:

- This operation may have to be repeated if any cars pass the checkpoint after the rescore operation or if any cars are using Wifi-only phones/tablets (repeat after those devices report their scores).

→ Situation:

- As more events use this system, failure of phone/tablet becomes more critical

→ Solution:

- Added support and recommendations for backup devices
- See next page for a recommended procedure.

→ Recommended Use:

- Register backup device as primary device number + 100
  - Car #7 registers backup device as car #107
- DO NOT REGISTER BACKUP DEVICE AS SAME CAR NUMBER
  - Both devices will register checkpoint times and scores, surviving update unpredictable
- If primary device fails:
  - (Android) Rallymaster app: Replace Missing Timeslips
  - Enter car numbers of primary and backup devices
  - App will show timeslips missing from primary and those available on backup
  - "Replace" button will copy timing data from backup to primary timeslips
  - Rallymaster may need to rescore new timeslips with Edit Timeslips
    - Out time will be that of the backup device, any TA may be missing.

→ Situation:

- Some issue about the operation of the Competitor app arises and needs to be investigated.

→ Solution:

- The app records significant events in a debug log which can be sent for review via email. Review the device's debug log and contact me if additional assistance is needed.
- Events recorded include app startup, checkpoint approach and detection, etc…
- Android (Send Debug Log), iOS (Send Device Log)

→ Situation:

- Entrants have missed Restart CPs due to failing to restart the Competitor app after a break. Subsequent checkpoints receive a max score.

→ Solution:

- Use the Edit Timeslip function in Rallymaster to create a timeslip for the missed CP and rescore the legs.
- The app will show "Timeslip not found" when displaying the timeslip.
- Add the correct In Time for the missing CP, press Rescore and Save
- Rescore checkpoints which are timed from this restart using

→ Situation:

- An entrant failed to take a time allowance, or the incorrect TA was entered for one of several reasons. The rallymaster needs to adjust that entrants score for the leg.

→ Solution:

- The Competitor app provides no ability to alter a timeslip.
- Use Rallymaster app, Edit Timeslip to change the timeslip.
- The Out Time, TA Time and In Time can be changed and the timeslip Rescored and Saved. You must press Save to retain the changes.

→ Situation:

- An unforeseen event causes entrants to be delayed and some or all are not able to get to CZT Restarts on time.

→ Solution:

- An Emergency Broadcast Message can be sent to all entrants (with data coverage at their current location).
- Correct the scores at the end of the event. Change the CZT Restart time to the adjusted time and Rescore Leg for all checkpoints which are timed from there.

→ Note:

- Rescore Leg may need to be re-run if additional cars pass the checkpoint.

→ Situation:

- The time of day for the event pre-check needs to be different than the CZT Restart times for the event.

→ Solution:

- No need to change CZTs.
- Event Setting, Precheck Offset: Number of minutes to add to each CZT. May be negative to run pre-check earlier than the event.

→Notes:

- Set Pre-check Offset to 0 prior to event.
- Precheck Offset, if any, is shown on Competitor app screen.
- Pre-check not zero is called out as error in Validity Report

→ Situation:

- A day-of-event situation requires the sections of the rally to run in an order differently than planned. (Example: a bike race is discovered to use the same roads as Section 2. Need to run rally in this order: Sections 1, 3, 4, 2 and 5.)

→ Solution:

- Adjust CZT Restart times.
- Each entrant must stop the Competitor app and restart Competitor while in an area with data coverage or connected to Wi-Fi.
- (Or, use Edit Timeslips to change the leg start time for all timeslips and rescore.)

→Notes:

- Android: Exit app and restart it
- Apple: Double-click button, force stop app by flicking off screen.
- Or, power-cycle phone (i.e. turn it off and back on again).

→ Situation:

- On a two-day event, checkpoints from day #2 were detected during day #1.

→ Solution:

- Contact the developer and request that the day #2 timeslip(s) be deleted. Restart the Competitor apps to force the timeslips to be read again.

→ Notes:

- See "Sections run out of order" for app restart process.

→ Situation:

- Entrants fail to enable Location Services (i.e. fail to turn on GPS) before the event. This causes failure in detecting checkpoints.

→ Solution:

- Organizer visually inspect phones at start of rally.
- Rallymaster app Cars screen shows "Ready" (data is loaded) with green background if a GPS location has been reported recently by that phone.

→ Notes:

- Enhancements made in July 2022 to Cars screen to explicitly call out reason for not being ready.

→ Situation

- On Map, icons representing cars do not advance several times a minute. Cars appear to be bunched in a particular location. Eventually the icons are seen to advance along the rally route.

→ Solution:

- This is not a problem. The rally route has likely entered a dead zone with respect to data coverage. When a car gets back into a data coverage are the location updates will flow and the car will seen to be advancing down the route.

→ Situation

- A rally has been entered and validated, but the event does not show up on the list of rallys in the Competitor app.

→ Solution:

- An event shows up on the list of available events in Competitor if the event setting has marked the event as "open". A setting of "open" means it can be selected by Competitors and entered. If the event is not open, it won't show up on the list in Competitor.

→ Situation

- Once they complete the self-registration process, entrants can not get back to the registration screen to edit their team name, class, phone, email, etc…

→ Solution:

- Known requirement, will be address will a Competitor app update.
- Original design goal was to be able to quickly restart Competitor in the event it is closed. No prompts are required once registration is completed. No event, car number or password required on app restart.

→ Situation
- Some characters typed in on critique slip are replaced with X's when saved.

→ Solution:
- Avoid these special characters in critique slips:

  , ^ & - %

- These special characters cause errors in event export (backup/archive format)

→ Situation

- An event which entrants can run at any time of day on any day is desired, perhaps for testing, training or evaluation purposes.

→ Solution:

- Restarts – Use Flying Start – Truncate to 0:30
- Place actual Restart CP 0.1 miles after the point you instruct entrants to start at.
- Tell entrants to leave at the top of their desired minute. Restart time will be truncated to the top of that minute.
- Result: "Good" restart times will be assigned (13:21:00.000) whenever the CP is passed.

Improved keyboard needed for rallymaster app

→ Situation
- A better, real keyboard is needed for the Rallymaster app to enter critique slip text, CP position data or to edit entrants' registration details.

→ Solution:
- Add a keyboard for your iPad
- Bluestacks app.
  - Free download for Windows, MacOS or Linux PCs or laptops.
  - Android emulator for Windows PCs or Macs
    - Restrictions apply for Macs. See https://support.bluestacks.com/hc/en-us/articles/360025866511-System-specifications-for-installing-BlueStacks-on-macOS

→ Tips:
- Make sure you have version 5 – much better performance
- Maps look great on large screen
- No GPS support
- Install and start Bluestacks app, Start Google Play Store, install Rallymaster AND Gmail apps. Tailor Gmail.

→ Situation

- A CP designated as directionally sensitive was detected when it should not have been, having been passed in the wrong direction

→ Solution:

- An older version of the Competitor app was used by this entrant.
- Competitor version 1.23 or later needs to be used in order to honor directional sensitivity.
- Competitor version numbers are show on Rallymaster app Cars screen.

1) What is the current release number of each app?
   1) www.richtarally.com, see Documentation page

2) Can this system be used to time a hill climb?
   1) Yes. Testing in progress. An event for each run up hill, start is Flying Start a few feet after start line, finish line is Timed CP, ideal leg time =0, use a directionally sensitive checkpoint setting (DSCP) on both CPs. Can also set up sectors or intervals..

3) What future enhancements are planned for the timing and scoring apps?
   1) We're looking at event lifecycle management: event creation, backup, archiving, deleting and automating other aspects of event management.
   2) Competitor – allow entrant to edit their registration details.