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Gmax Race Route Data Feed Specification

Will Bradley

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- The Gmax Race system tracks race horses during real-time. Its minimal infrastructure makes it easy and economical to use, and allows the system to be shared between racecourses where travel times permit.

- Various data feeds are available. This document describes the protocol for a 'Routes' data feed, which provides information on the possible routes which horses may run at racecourses, including co-ordinates describing the official running line(s) and winning line(s)

- The system is under active development. Feedback on possible future improvements is welcome.

Route Data Feed | Data Summary

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- Route data is provided using 'Keyhole Markup Language' (KML) format.
- KML holds geographical data in an xml style text format, the specification for kml can be found here: https://developers.google.com/kml/documentation/kmlreference
- KML can be readily viewed by third party software, including the freely available Google Earth: https://www.google.com/earth/

- The file for each racecourse contains as a minimum
  - A folder object containing the name of the track in question (some racecourses have multiple tracks), which contains:
  - One or more 'LineString' objects in a 'Placemark' with a name prefixed with 'WINNING_LINE' each containing a list of points defining a winning line for that track
  - One or more 'LineString' objects in a 'Placemark' with a name prefixed with 'RUNNING_LINE', containing lists of points defining the 'official' path which horses are expected to follow at the track. Measuring along this path defines the 'official' distance of races.

- The data for a particular racecourse can be requested using http from the following URL by providing the 'Racecourse' – the unique identifier for each racecourse, and your subscriber license key. E.g.:

  http://www.gmaxequine.com/TPD/client/routes.ashx?Racecourse=58&k=[license key]

- Usage
  - For best efficiency and scalability, we request that the data from this feed is cached by subscribers who are expecting a large number of requests from end users (e.g. consumers using your website or mobile apps).
  - We reserve the right to impose 'fair usage' limits on repetitive requests for the same data.
  - Data will be updated infrequently, but may be updated from time to time.
  - Racecourse codes are the same as those used in other data feeds. Please contact us for details of available racecourse codes.

- Running Lines
  - The running line is typically offset by a fixed distance from the inside running rail. In the UK this offset is 2y, in the USA the offset is 1y. However, note that track geometry and guidance from the racecourse management on the likely path of the horses may mean that the running line does not always follow the inside rail.
  - These data sets are limited to defining straight lines, whereas in practice many parts of the route will be curved. The data file contains sufficient line segments to approximate these curves.

- Accuracy
  - The survey data from which these files are prepared are collected from a variety of sources. As such, the structure, precision and accuracy of data may vary. The survey instruments used in collecting the data typically have an accuracy of <5cm, but practical constraints at the survey site may limit the final accuracy. For example, consider the case of a loose rail (not uncommon) which can wobble in and out by more than 10cm.
  - Surveys are made on the track of objects as they are found on the day(s) of survey, and inferred positions calculated as appropriate based on guidance from racecourse management. As such, if objects have subsequently been moved or the guidance is incorrect, the file may be obsolete. Please notify us of any errors you identify, or if you have any queries on the data.

Future Data | Enhancements

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- Consultation is currently underway on improvements to the horse/racecourse identifier to provide better support for operations globally. This will result in an increased size of racecourse identifier, and possibly the splitting of the current identifier into separate parameters.
- In future we may also consider transport layer encryption (e.g. https)

If this feed does not meet your requirements, please contact Gmax. Other feeds are also available, including:

- Live tracking data feed, providing a live low latency data stream of the co-ordinates of each horse as they run.
- Live 'Progress' data feed, which summarises the progress of the race as a whole including the distance remaining to the finish and live running order of the horses, provided as a live low-latency data feed
- By prior arrangement only: a test data feed streaming replays of pre-recorded examples of one or more of the above data feeds, intended for use in final testing by client applications.
- Post-race sectional time data feed, summarising the performance of each horse by section (e.g. at furlong intervals)
- Post-race tracking points data feed, providing the co-ordinates at regular intervals of horses tracked in previous races
- Please let us know your requirements and we can recommend the most suitable data for your needs.

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Gmax Technology Ltd., 7 The Sidings, Shepreth, Royston, SG8 6PZ, UK

Phone: +44 1223 264428 Email: info@gmaxequine.com