Golden Cheetah User Manual

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This manual is for Golden Cheetah, version 3.0.

Table of Contents

1 WELCOME TO GOLDENCHEETAH

GoldenCheetah is an open source program for cyclists.

In fact, it is primarily a program for cyclists with a power meter. It provides functions to download, import, edit, upload and analyse rides containing power data.

It can be used to analyse bike rides that do not contain power, perhaps containing speed, cadence or GPS data. It can be used to analyse other kinds of workouts, perhaps run or swim activities. It can be used purely as a log or journal for any activity.

But, it is primarily an open source program for cyclists that own a power meter.

In addition to the post-workout analysis it can also be used as a desktop application to record and monitor workouts on a cycle trainer. It captures telemetry from ANT+ sensors and can also work directly with Bike trainers that provide the right kind of interface.

In this manual we will be explaining how to use and configure the functions within GoldenCheetah. We will be describing it from the perspective of a bike rider. In all cases we will be describing how the functions within GoldenCheetah work, and how to configure them.

This is not a manual on how to train with power. We would urge you to read other books for that kind of information (and would recommend 'Racing and Training with a Power Meter' by Dr Andrew Coggan and Hunter Allan.

1.1 About this latest version, V3.0

This manual has been written as a companion to the latest release of GoldenCheetah, v3.0. Released in Spring 2013, it represented an overhaul of the code and was a major update.

If you are new to GoldenCheetah then all the functions it provides will be new to you, but for existing users, version 3.0 had introduced;

500+ bug fixes and minor enhancements

It fixed 46 serious issues and over 400 bugs in over 1,500 different commits. GoldenCheetah is now over 100,000 lines of code. In addition to addressing stability issues it also addressed a number of performance related issues. Whilst the new metric functionality and database means that a modern PC is recommended, the code is still efficient enough to run on a netbook.

Redesigned UI and UX

One of the most immediate changes you will notice with v3.0 are the major changes to the user experience and user interface. From the initial help screens for new users through to the redesigned preferences pane for advanced users, it is slicker and more professional.

There are 4 views available with specific and detailed sidebars for peformancee tracking (home), short term tracking (diary) as well as the well known analysis and training views from earlier releases.

It now allows you to view charts tabbed and tiled, you can resize and move charts around and customise them using roll-over controls. The activity list is fully configurable and can be configured to show any number of columns.

Support for the latest bike computers

It supports direct download features for the Cyclops Joule and Joule GPS as well as the latest SRM Powercontrol 6 and 7. We also added support for the O-sync Macro and Macro X.

Support for more telemetry

Alongside the support for the latest bike computers it also added the ability to track and plot new data series, including; Headwind, LR Balance, Temperature and Slope.

Export and Batch Export as well as lots of new file formats

It will now export and batch export your data to a wide variety of file formats include TCX, PWX, JSON and XML as well as FITLOG and GPX.

It also supports reading files from SportTracks, GPX, Tacx CAF and the SLF/SMF file formats. We have also added legacy WKO+ file format support (CP 1.0 and 1.1) as well as import of Wattbike TXT exports.

Support for a wide selection of internet services

It can upload and download data from; Withings, Zeo, Strava, TrainingPeaks, Training Stage Buch, RideWithGPS as well as Internet based calendars (calDAV) such as Google Calendar.

Realtime training significantly enhanced

Support has been added for native ANT+ removing the need for quarqd. Video Playback is built in using VLC/QTKit. It now has a media library to organise and reference any video content you may have from Tacx Ergvideos through Sufferfest.

It supports Virtual Power for popular devices from KK, LeMond and many other trainers. We have added support for the amazing new Wahoo Fitness Kickr trainer as well as the old Tacx Fortius.

It also introduces new ways to ride on the trainer including; Streetview, SpinScan (on Computrainer) and an enhanced Workout Plot that plots telemetry against the workout as you ride.

It also includes Computrainer calibration, a workout wizard and download from ErgDB as well as Multi-device Support allowing you to ride with with your ANT+ powermeter on your Computrainer, Kickr or Fortius.

Advanced search and data filtering

It introduces free text search across all ativities and a data filter (using the same search box) to filter activities with specific properties. Some examples of using the filter might be finding all rides with a TSS > 300 or perhaps those with an IF >0.9 and a duration of > 1hr.

The search and filter functions can be applied to the charts – which means that you can plot a PMC only where sport is "Bike" or perhaps power distribution but only where the workout code is FTPTEST.

Lots of new charts

It provides a new HR to Power analysis chart as well as a more utilitarian 2d scatter plot. It will also use Bing as map provider for the Map chart.

The histogram and CP curve plots will now plot data for a date range rather than for a specific ride and it will also now plot a mean max curve for HR, Power, Speed, Cadence, xPower, VAM and NP.

New metrics, including TrainingPeaks' TSS and NP

The TrainingPeaks metrics have been added to both the analysis functions as well as the training funcitons (e.g. track TSS as you ride the trainer).

There are now over 100 different metrics and measures you can work with including things like; Pace, Maximums, Gradient, VAM, wpk, time in HR Zones and many, many more.

1.2 Open Source

GoldenCheetah is an open source program. This means the source code is freely available to download and compile. You can add new features and fix bugs. All we ask is that you then share your work back to the main project.

This is how GoldenCheetah has developed since it was first created in 2006. Over 50 different people have contributed new features and fixes in the 7 years since then.

Mailing list

As you would expect there is an active community of users and developers, you can join the discussion and contribute. The main GoldenCheetah website is http://www.goldencheetah.org and the main mailing list is hosted on Google Groups and is called golden-cheetah-users.

Reporting bugs and requesting new features

The code is hosted in a repository at GitHub. Github is an internet service hosting open source and commercial code repositories for thousands of projects. In addition to hosting projects GitHub also provides an issue tracker.

The issue tracker URL is: https://github.com/GoldenCheetah/GoldenCheetah/issues

We use the GitHub issue tracker to manage all bug reports and feature requests. If you are looking for a new feature or have experienced a problem using the software then you should consider raising it on the issue tracker.

As a non-developer one of the most valuable contributions you can make to the project is to provide accurate and informative bug reports. This makes it easier for the developers to fix the code and in turn makes the software better for everyone.

1.3 Bit of Past and Present

In early 2006 a Cat 1 racer called Sean Rhea bought a Powertap. Back then power meters were not very common. They certainly weren't very open. The software options were very limited. But Sean was a bit of a geek.

He set about reverse engineering the protocol the Powertap used to communicate with the PC and he developed a couple of command line utilities in the C programming language; 'ptdl' and 'ptunpk'. These utilities downloaded data from a Powertap via its serial interface saving to 'raw' files on disk, and then read that raw file and formatted the output for inputting into GNU plot.

But it soon became clear that using the command line was not at all user friendly. A GUI was going to be required. And so, in late 2006 Sean set about writing a GUI version using the QT framework and moving to the C++ language (because he needed to learn QT for his new job).

This early version had the main charts you see today, indeed a lot of that early code is still present. It could plot the ride, histograms and the CP curve that it is famous for.

From 2007 with Sean leading many new people became involved and new features were introduced; support for SRM using the libsrm project written by Rainer Clasen. Support for Linux, Windows, Metrics, File Formats, Power Zones and a large number of new charts including a Performance Manager written by Eric Murray. Google Map written by Greg Lonnon.

During this time the project moved from a 'hack' project to a fully fledged open source development project and saw Jamie Kimberley, Robert Carlsen and Justin Knotzke assist Sean in managing development with the introduction of a bugs database and more formalised releases for Linux, Mac and Windows.

In Summer 2009 a lot of the current developers joined the project, notably Damien Grauser who added much needed support for interval analysis and Mark Liversedge who contributed WKO+ file support and the 3d plot. Over the next 12 months v2.0 was developed introducing the training View (with Justin Knotzke) as well as the editor and tools, metadata and long term plotting charts.

At the tail end of 2010 Sean handed leadership of the project to Mark. Sean was no longer racing and most develpoment was now being delivered by others anyway. So in January 2011 Mark merged a number of features that were being developed in private into the main repository and thus V3 development began.

In Spring 2013, after 3 years of development version 3 was released, along with this user guide.

Version 3 is a landmark release and provides a platform for future development - the modular views and configurable layouts means it will be very easy to introduce new functionality and concepts without needing to adjust the underlying code. In short, v3 provides a future platform.

1.4 Future Plans

Version 3.1 is already being planned and the high priority features include;

- Planning functions centred around the concept of an interactive performance manager chart where you set target events and physical adaptations or performance targets with a progression of daily stress and long term stress.
- Interval Analysis and Comparison across separate rides, to compare efforts and track and rank performance in intervals or 'segments' of rides and routes.

- Season by Season progression to compare and rank performance development in cycles and seasons across the long term charts, but also the critical power and distribution charts.
- Separation of the training view into a separate program 'OpenTrainer' to enable more advanced graphical displays including video with overlay and animations.

Version 3.1, hopefully, will not take so long to come to fruition and is currently targetted for Spring 2014.

2 QUICK START GUIDE

2.1 downloading and installing

downloading, installing,

2.2 basic configuration

open up with running for the first time, adding an athlete, bank state screens et setting seasons, CP, LTHR

2.3 importing a ride from device

download dialog

2.4 importing data from file or other applications

drag and drop

2.5 uploading and sending your data

upload to TP.com, export file

3 GETTING AROUND GOLDENCHEETAH

open up with screen shot and a description of all the basic ui elements, one per athlete etc

3.1 The Toolbar

what the buttons do

3.2 Views & Sidebar

scopebar, sidebar, tab/tiled, add chart menu

3.3 Searching and Filtering

free text search and basics of data filtering

3.4 Adding and adjusting charts

the dialog, title, settings, finding them again

3.5 Going fullscreen

key sequences, hiding and showing the toolbar screensaver?

3.6 The Metric database

why, what, where, refreshing, exporting

4 IMPORTING EXPORTING DOWNLOADING AND CREATING DATA

4.1 Download from device

download dialog, basics for each device (plugging in etc)

4.2 Import from file

selecting a file, the import wizard

4.3 Manual activity

the manual activity dialog and refer to details screen for more "indepth" (need a better word) stuff

4.4 Exporting data

i A single ride ii Multiple rides

4.5 Uploading and Downloading from the Cloud

i TrainingPeaks ii Strava iii TrainingStage Buch iv RideWithGPS

5 THE ANALYSIS VIEW

5.1 About Activities and Intervals

5.2 Sidebar actions and context menus

o activities o intervals

5.3 Editing and adjusting data

o using the editor i basics ii anomalies iii find o advanced editor functions i the 'fix' tools ii copying, cutting and pasting

6 Analysis View Charts

i Activity Summary ii Details iii Summary and Details iv Editor v Performance vi Critical Mean Maximals vii Histogram viii Pedal Force vs Velocity ix Heartrate vs Power x Google Map xi Bing Map xii 2d Plot xiii 3d Plot xiv Aerolab Chung Analysis

7 THE HOME VIEW

7.1 About Date Ranges, Seasons and Events

8 Performance Tracking Charts

i Long Term Metrics - indepth howto incl. setting up a PMC++ ii Performance Manager iii Collection TreeMap iv Critical Mean Maximal v Distribution

9 THE DIARY VIEW

9.1 Purpose

9.2 Summarising for Day / Week / Month

9.3 Longer term purpose (planning)

10 THE TRAIN VIEW

10.1 About Devices, Workouts and Video

10.2 Sidebar actions and context menus

o devices o workouts o media

10.3 Working with the Workout Library

- Creating a new Workout - Getting Workouts from ErgDB

10.4 Setting up and starting a workout

- Using CT handlebar controller - controlling workout from mouse + keyboard

11 Training View Charts

i Telemetry ii Workout iii Realtime iv Pedal Stroke v Map vi StreetView vii Video Player

12 CONFIGURING

Intro and explain opening the Preferences Pane

12.1 General

12.2 Athlete

i About ii Power Zones iii HR Zones

12.3 Passwords

i General ii Withings iii Zeo iv Google Calendar (calDAV)

12.4 Appearance

12.5 Data Fields

i Fields ii Notes Keywords iii Processing

12.6 Metrics

12.7 Train Devices

i Using Multiple Devices ii Adding a device

Appendix A Supported Devices, Formats & Services

B Metrics Reference

B Data Filtering Reference

C Glossary & Resources

D OS Specifics (Directories, Drivers and Permissions)

Index

(Index is nonexistent)