Golden Cheetah User Manual

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This manual is for Golden Cheetah, version 3.0.

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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 performance 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 activities 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 functions (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 `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: `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

For those of you that are new to GoldenCheetah this section gets you up and running with the software and using its basic features. For those of you with experience of GoldenCheetah from previous releases, you might like to skip this chapter.

2.1 Downloading and Installing

There are four ways to get GoldenCheetah onto your PC and available for use:

- **Download a Stable release build** - We maintain a stable release binary for download and installation on the GoldenCheetah website, at `www.goldencheetah.org/download`.
- **Download a Development build** - We also provide regular build updated of the very latest code on the GoldenCheetah development build website, at `www.stand2surf.net`.
- **Build from Source** - Since we provide the source code for the program you can get the source from GitHub and build your own. But unless you plan on contributing to the project this is probably a pointless exercise. You could just use the pre-built binaries described above.
- **Apt-get install** - If you are running a Linux distro you can get the GoldenCheetah binary and dependencies installed via apt-get. It is worth noting that at the time of writing the V3 build has not yet been packaged.

Once you have the binary installed you can go ahead and run it, it doesn't need any configuration before you start.

2.2 Running for the first time

When you run GoldenCheetah for the very first time it will prompt you with the Athlete selection dialog box. In GoldenCheetah we allow you to create as many athletes as you like. This may sound like it is only useful for coaches, but in fact you may want to set up a scratch athlete to play and learn.

Either way in this first run you will not have an athlete created, and will see a blank dialog, asking you to select or create an athlete to work with:

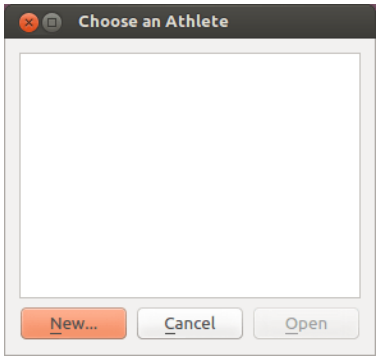

Figure 1: Initial Dialog

At this point you should go ahead and click 'New...'. This will open another dialog window to create a new athlete and set some basic data.

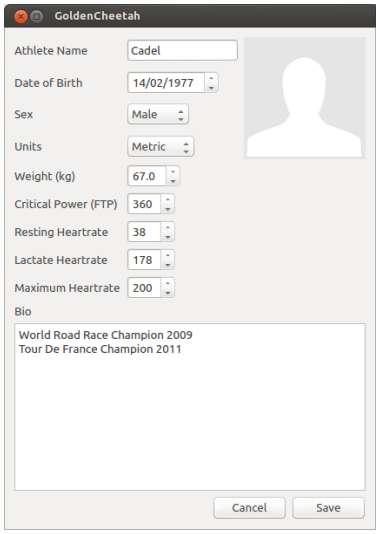

Figure 2: New Athlete Dialog

Whilst it is possible to configure these values in preferences or within an individual activity you should go ahead and set up as much of the data as accurately as possible. These values are used as defaults in many metric calculations.

If you click on the blank athlete icon on the right it is possible to set an image for the athlete too. This isn't used anywhere at present, but that may change in the future.

The LTHR value is the HR at which the onset of blood lactate accumulates, whilst the CP value is the maximum theoretical watts you can hold for an hour. It is very similar to your FTP (if that is a term you understand).

Once you're happy with the settings click save and you will then be able to select your new athlete in that initial dialog (except of course there is now an athlete listed). Go ahead and open that athlete and you wil be greeted with GoldenCheetah, but a splash page.

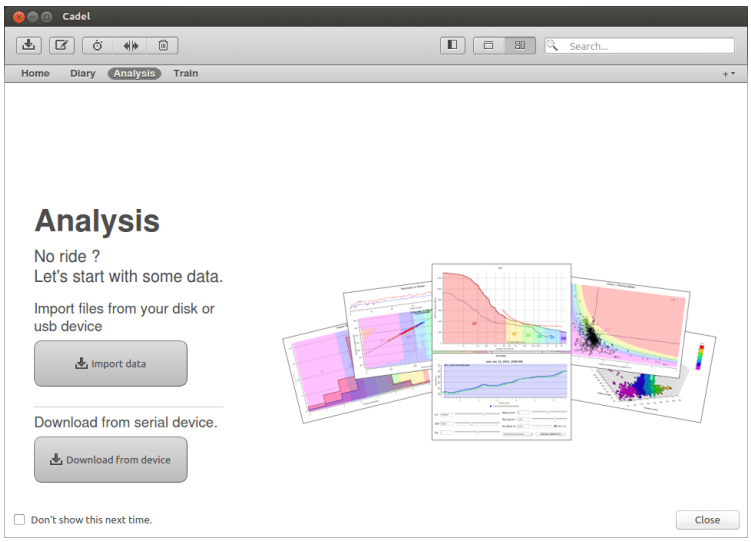

Figure 3: Analysis view splash screen

This page is shown because there is no data associated with this athlete. We need to go ahead and download some data from your bike computer or import some data from disk or USB.

2.3 Downloading a ride from device

If you use a Powertap, SRM, Joule, Joule GPS or Macro-X device you will be able to download from it directly. Please make sure the device is conected and plugged in correctly. For example, if you are downloading from a Powertap please make sure the computer is firmly connected and displays 'HOST' on its screen.

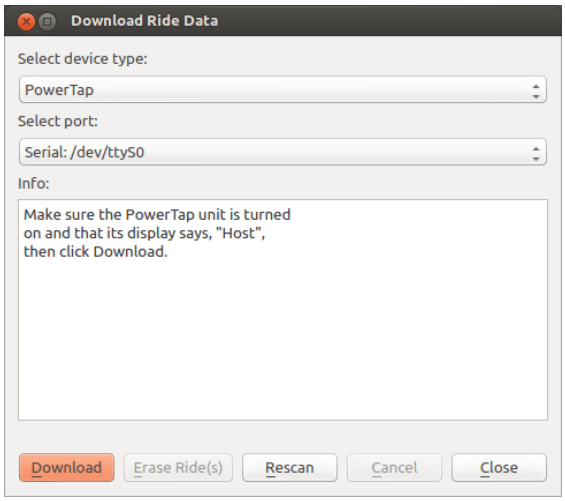

Figure 4: Download Dialog

To start the download go ahead and click the download from device button. This will open up the download dialog. Select the right kind of device and serial port before clicking on the 'Download' button. If no serial port is listed, or the port is not correct you can click on the 'Rescan' button to look again for your device. This is sometimes required if you click on 'Download' before the device is connected.

Any ride files will then be downloaded and imported into GoldenCheetah and the splash screen will disappear to reveal the Analysis view of GoldenCheetah. Congratulations - you can now start using GoldenCheetah to analyse and track your performance.

2.4 Importing data from file

To import files into GoldenCheetah you have a couple of options. You can drag and drop them from a file explorer or from the desktop into the main GoldenCheetah window, or you can select them via the import files button on the splash screen. Once you have done either the import activity wizard will appear to process the selected files.

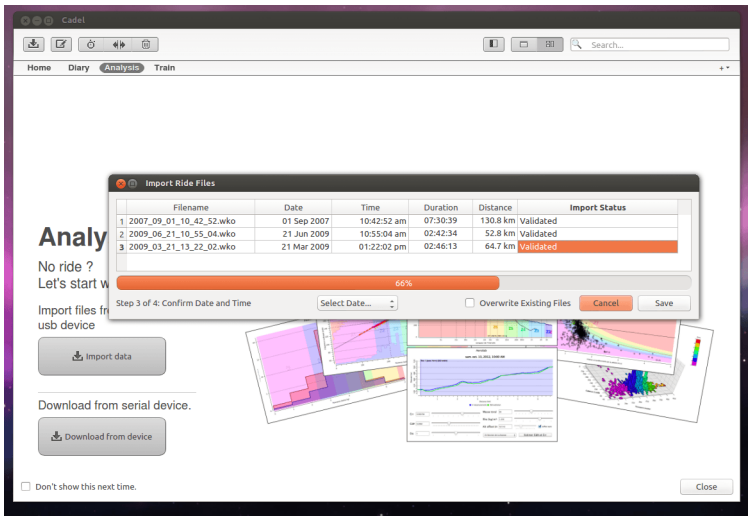

Figure 4: Import Activity Wizard

You will notice that the files are opened first to ensure you have the required permissions to read them before being validated. Once validated the dialog will prompt you to edit any of the dates (some file formats do not include date information). Once you have set the dates (if needed) you can click on save to complete the import and save the files to disk.

The splash screen will now disapper and reveal the main GoldenCheetah analysis view and you can now start analysing and tracking your performance.

3 GETTING AROUND GOLDENCHEETAH

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

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