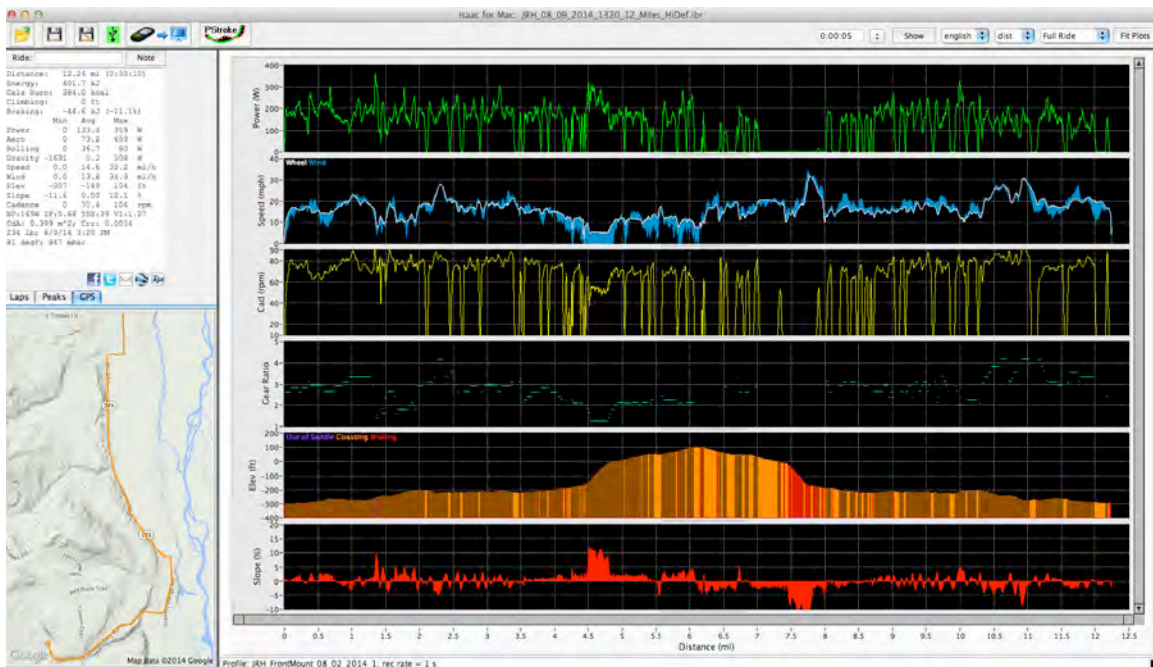# ISAAC^{TM} Software Instruction Manual Version 3.0x

Newton Power Cycling Computer
iBike Dash+Power
iBike Dash CC
iBike Gen III/II/I

November 2014

Table of Contents

Introduction

Your Isaac software contains many powerful features that make it even easier to and more fun to work with your Newton ride data. Throughout these instructions you'll learn about the many major enhancements incorporated into Isaac software.

Isaac works both with Macs and PCs. Where there are differences between Mac and Windows versions (such as software installation) we'll provide directions for both.

In these instructions we'll use screen shots from both the Mac and Windows version of the Isaac software application. Don't worry: no matter which version of Isaac software you use, you will see EXACTLY the same words and actions in either version.

Throughout this manual we assume you have basic familiarity your PC or Mac, including operations such as installing software and drivers, creating folders, and selecting and saving files.

This manual is intended to provide detailed information regarding all the commands available with Isaac software. We know the manual is long, but there are a lot of features to cover!

HOW TO USE THIS MANUAL

This manual goes through each command of the Isaac software menu, from left to right. As an example, if you want to learn how to use the "Device/Setup/Set Date and Time…" command,
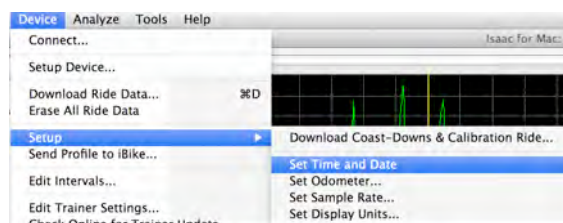
look in the table of contents for "Device menu items…how to use". The Set Date and Time command is in this section, somewhere between page 39 and 62 (it's on page 52) ☺

Computer System Requirements

Macintosh:

Intel Mac
Mac OSX 10.4 (Tiger), or Mac OSX 10.5 or greater (Leopard)
128MB RAM memory

Windows:

Windows XP, Service Pack 2, Windows Vista, Windows 7
128MB RAM memory

Isaac Software Release Notes

To obtain the latest release notes for your Isaac software, after installing the software launch the software and go to Help/Release notes:
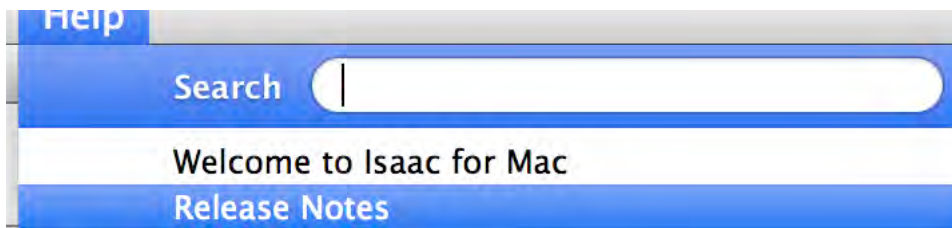
HOW TO INSTALL ISAAC SOFTWARE

Windows (XP, Vista, and Windows 7)

DO NOT PLUG IN YOUR USB ADAPTER UNTIL INSTRUCTED TO DO SO.

1) Download the latest version of Isaac for Windows software here:

https://www.ibikesports.com/index.php/downloads/

2) Install the Isaac software

4) Plug in your USB adapter (Gen III/II/I) or USB cable (Newton) to your PC. If you're using a Newton, **make sure your Newton is connected to the USB cable and is turned on.**

A series of messages will appear telling you that your USB drivers have been installed successfully.

Once your Isaac software is installed (and USB drivers, if necessary), click on the Start button. You'll see the Isaac for Windows icon in your menu:

Launch the Isaac software.

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You can check your version in the Help/About Isaac for Windows screen.
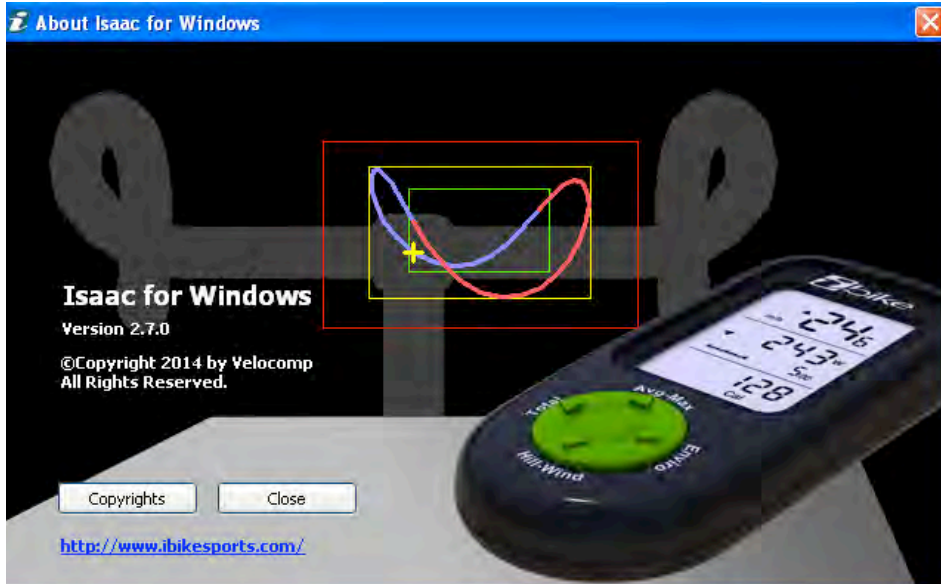
Your Isaac for Windows software installation is now complete.

Software Installation: Mac OSX

1) Download the latest version of Isaac for Mac software here:

https://www.ibikesports.com/downloads.html

2) Double click on the Isaac for Mac full.dmg icon. You will see this:

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3) Follow the steps in the window above.

4) Confirm that you have installed and are Isaac with Help/About Isaac for Mac:
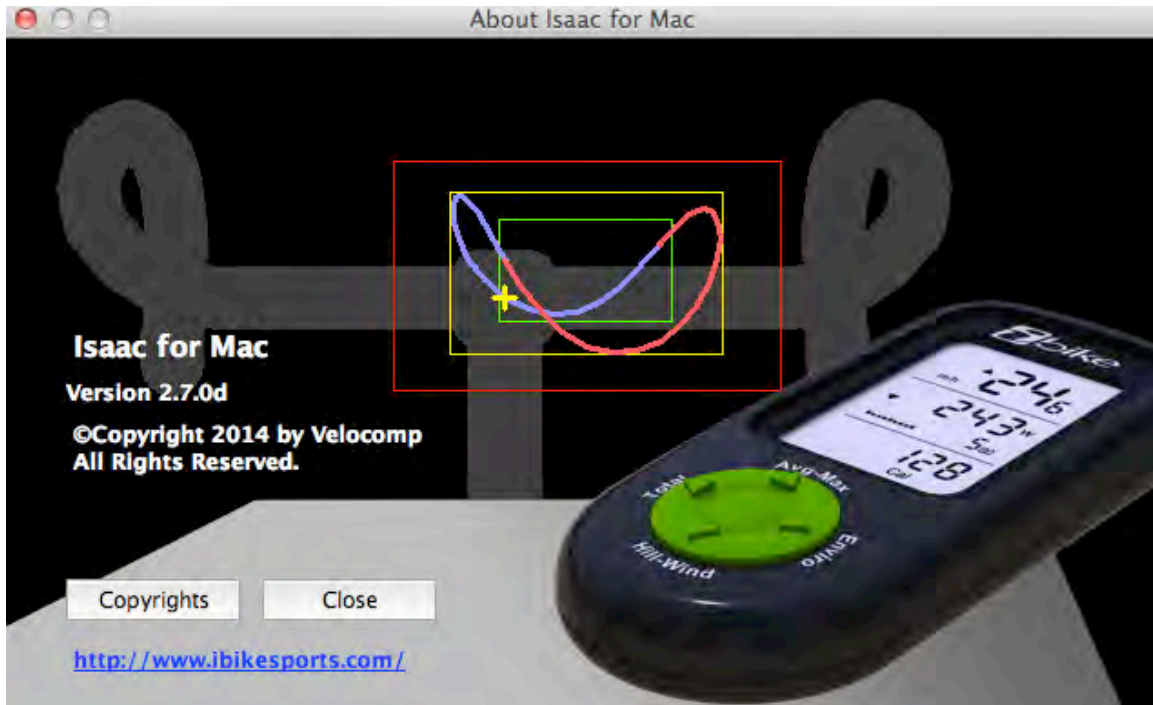
Your Isaac for Mac software installation is now complete.

CONNECTING YOUR NEWTON TO YOUR COMPUTER

If you own an iBike Dash, please skip this section.

Newton

Connect the USB cable to your Newton, and make sure your Newton is turned on (characters appear on the LCD screen). Connect the other end of the cable to a USB port in your computer.

iBike Gen III/II/I

Before you can upload and download data from your iBike you will need to establish communication between the iBike and your computer. This is the purpose of the iBike USB Adapter.

Do the following:

1) Hold the USB Adapter mount in your right hand, so that the cable is pointed to the top left and the iBike logo is right side up.

To get the iBike in the correct position to attach to the USB Adapter, hold the iBike at approximately 10PM (the Bike will roughly point in the same direction as the cable coming out of the mount):

2) Then, put the iBike over the mount and twist it clockwise onto the mount. From the back side it will look like this when properly connected:

DO NOT TWIST THE USB CABLE WHERE IT ENTERS THE HOLE THROUGH THE MOUNT. DOING SO COULD POTENTIALLY DAMAGE THE ELECTRICAL CONNECTIONS INSIDE THE MOUNT AND VOID YOUR WARRANTY FOR THE USB ADAPTER.

HOW TO OBTAIN YOUR NEWTON'S SERIAL NUMBER

NOTE: IN ALL OF THE INSTRUCTIONS THAT FOLLOW, IT IS ASSUMED THAT YOU HAVE SUCCESSFULLY SET UP YOUR ISAAC SOFTWARE, THAT YOU HAVE SUCCESSFULLY ESTABLISHED COMMUNICATIONS BETWEEN YOUR COMPUTER AND NEWTON, THAT YOU HAVE CONNECTED YOUR NEWTON TO YOUR USB ADAPTER, THAT YOUR USB ADAPTER IS PLUGGED INTO YOUR COMPUTER, AND THAT YOU HAVE LAUNCHED THE ISAAC SOFTWARE

To obtain your Newton's serial number do the following:

1) Launch the Isaac software
2) In the menu at the top go to:
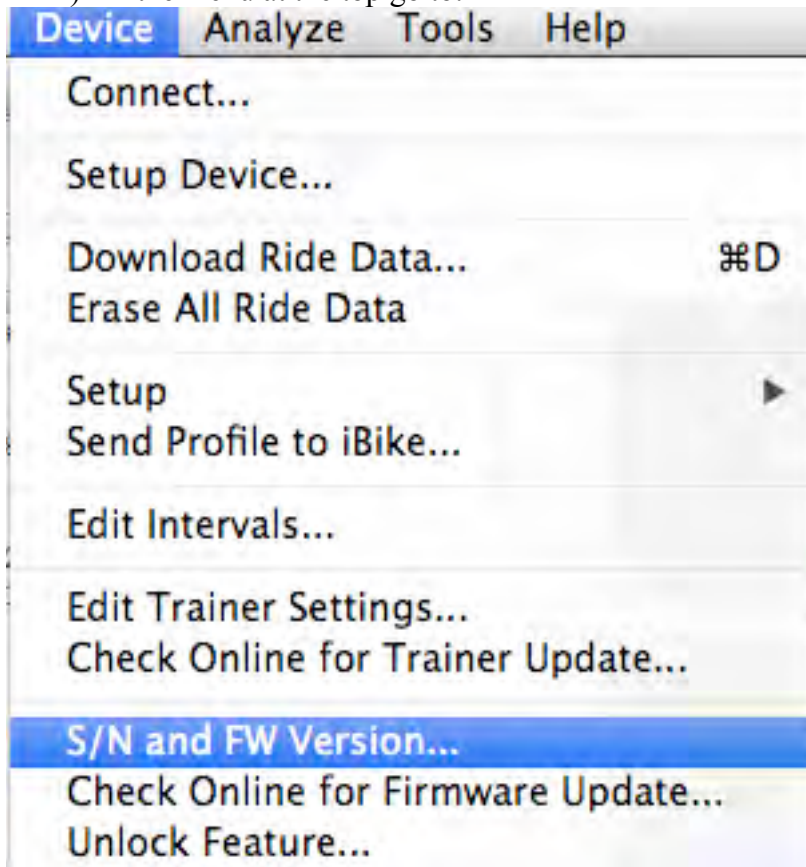
Your serial number and your firmware version will be read from your Newton's memory. You can copy and paste your serial number to other applications.

USING ISAAC SOFTWARE

VIEWING RIDE FILES

Open your Isaac software. A sample ride file has been pre-loaded into your software so you can become familiar with the operation of Isaac software. Or, you can view the sample ride file at any time from Help/Open Sample Ride File

When you open your Isaac software for the first time you will see the following screen that contains a sample ride:
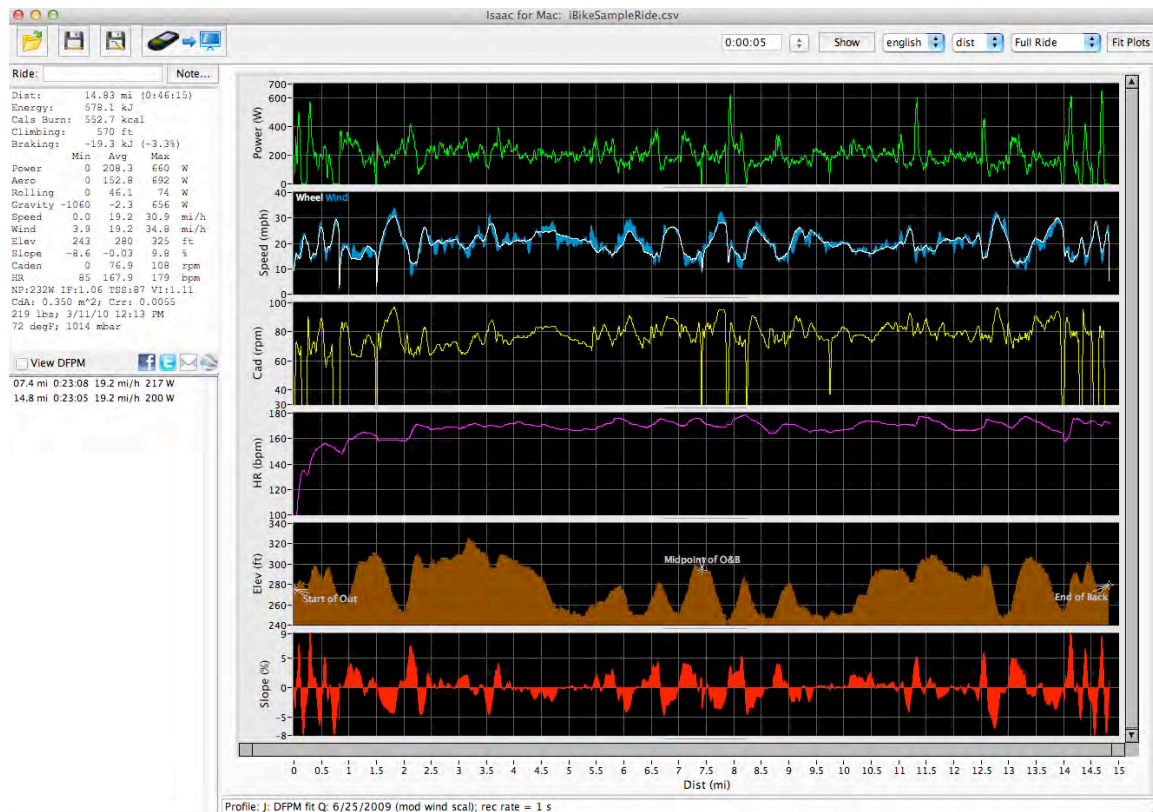
1) Click the "Show" button at the top right. You'll see this window:

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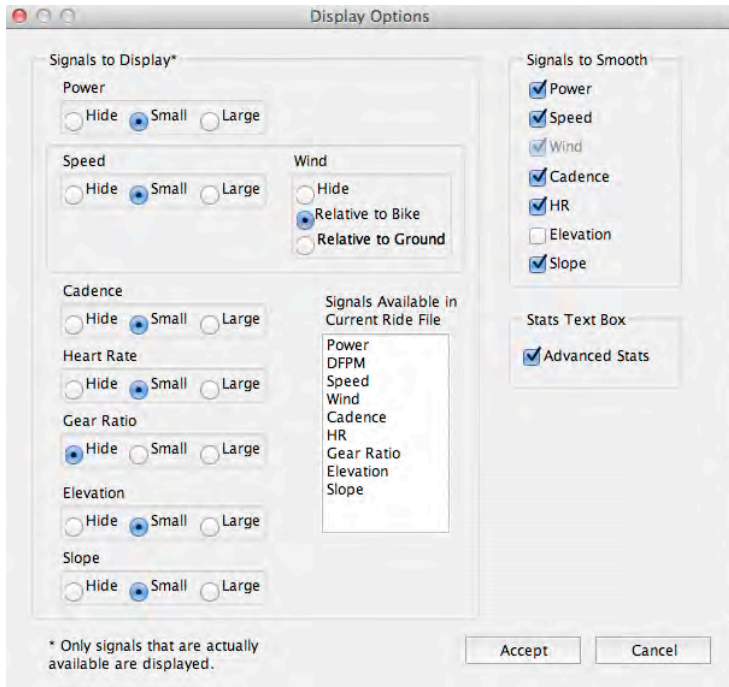
You can show, hide, expand, or shrink power, speed, wind, cadence, heart rate, elevation, and slope data with the radio buttons. Click "Accept" and the screen will refresh. Try clicking some of the buttons to see what happens.

If you uncheck the "Advanced Stats" box you'll see icon summaries of your ride stats:

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Another way to select between icon stats and advanced is to right-click over the stats menu in the top left corner of the main screen.

2) You can change units, view your ride according to time or distance, adjust the filtering time of the data displayed, or expand the scale of your ride by using the drop down menus at the top right of the window.
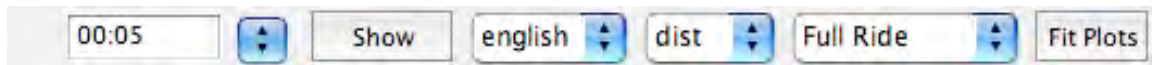
3) In the top left corner are four icons that open a ride file, save, save as, or download from your Newton or iBike

4) Just beneath the open, save, and download ride buttons is a line that extends across the window and separates the buttons from the graph below:
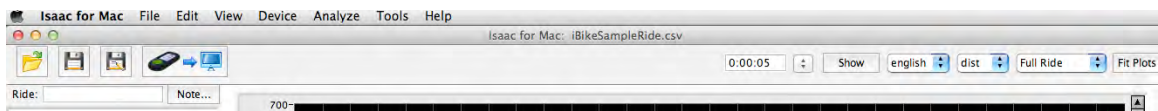
If you click on the line below the buttons the buttons will disappear:

To make the buttons reappear click again on the line at the top of the window:
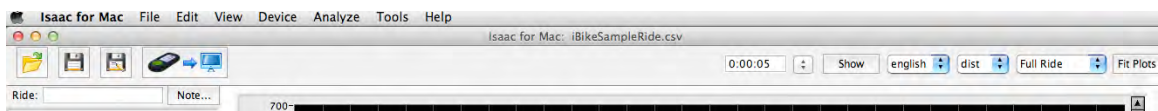
5) In the left portion of the window are your ride stats. You'll notice that this ride is given the name "iBike sample ride". If you want to call it something else simply

type it in the box and then click the Save As icon. At the right of the ride name is a button for Note…you can add a notation here and save it, or click on the button to read the note you created previously.

6) There is a great deal of data in the left portion of the screen that describes your ride stats.

NOTE: To see the most detailed level of information, check the "Advanced Stats" box in the Stats Text Box portion of the Display Options window.

```
Ride:  iBike Sample Ride          Note...

Dist:         14.83 mi  (0:46:15)
Energy:       578.1 kJ
Cals Burn:    552.7 kcal
Climbing:       570 ft
Braking:      -19.3 kJ  (-3.3%)
              Min    Avg    Max
Power          0    208.3   660   W
Aero           0    152.8   692   W
Rolling        0     46.1    74   W
Gravity    -1060     -2.3   656   W
Speed        0.0     19.2  30.9   mi/h
Wind         3.9     19.2  34.8   mi/h
Elev         243      280   325   ft
Slope       -8.6    -0.03   9.8   %
Caden          0     76.9   108   rpm
HR            85    167.9   179   bpm
NP:232W  IF:1.06  TSS:87  VI:1.11
CdA: 0.350 m^2; Crr: 0.0055
219 lbs; 3/11/10 12:13 PM
72 degF; 1014 mbar
```
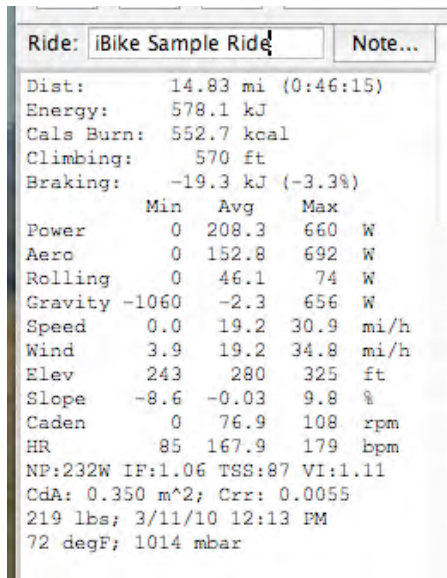
Most of the data is self-explanatory. You can see minimum, average, and max values for most of the key parameters of your ride.

Calories burned provides a very accurate measurement of your body's caloric effort. If you're trying to lose weight, this is a great number to track.

Climbing shows the total amount of vertical covered during the ride.

An exclusive feature of the Newton is the ability to the magnitude of power you expend to overcome various forces. In the example above total average power is 208.3 watts—any power meter can tell you that. However, the Newton tells you where your power went. In this example, 152.8W went to "aero"—fighting the wind. About 46.1W was consumed by rolling resistance. And gravity (hills) was about -2.3W (very close to zero)—meaning that, on average, the course was flat.

The next time you have a ride file with some hills, click-drag across one of your hills. You'll find that the "gravity" watts will be substantial and that aero will be relatively minor. Also, you'll see the average slope of the hill in the ride stats window.

A unique (and fun) stat you'll see in Isaac software is "Braking". The Isaac software can detect when you were braking during your ride.

When you apply the brakes you slow down and dissipate energy. From where did that dissipated energy come? From you! So, braking energy is wasted energy…

In this example ride the cyclist wasted 19.3KJ of energy because of applying the brakes; Isaac software computes that this is 3.3% of the total energy burned on the ride. The bigger the braking number is, the more energy you're wasting on the brakes!

7) If you don't want to have this level of detailed information, uncheck the "Advanced Stats" box in the "Display Options" window that appears when the "Show" button is clicked, or right click while the mouse is hovered over the stats window.

8) To see your ride stats for any portion of the ride, simply click in the graph where you want to review your stats. A yellow line will appear and you'll see the ride data at the very bottom of the window:
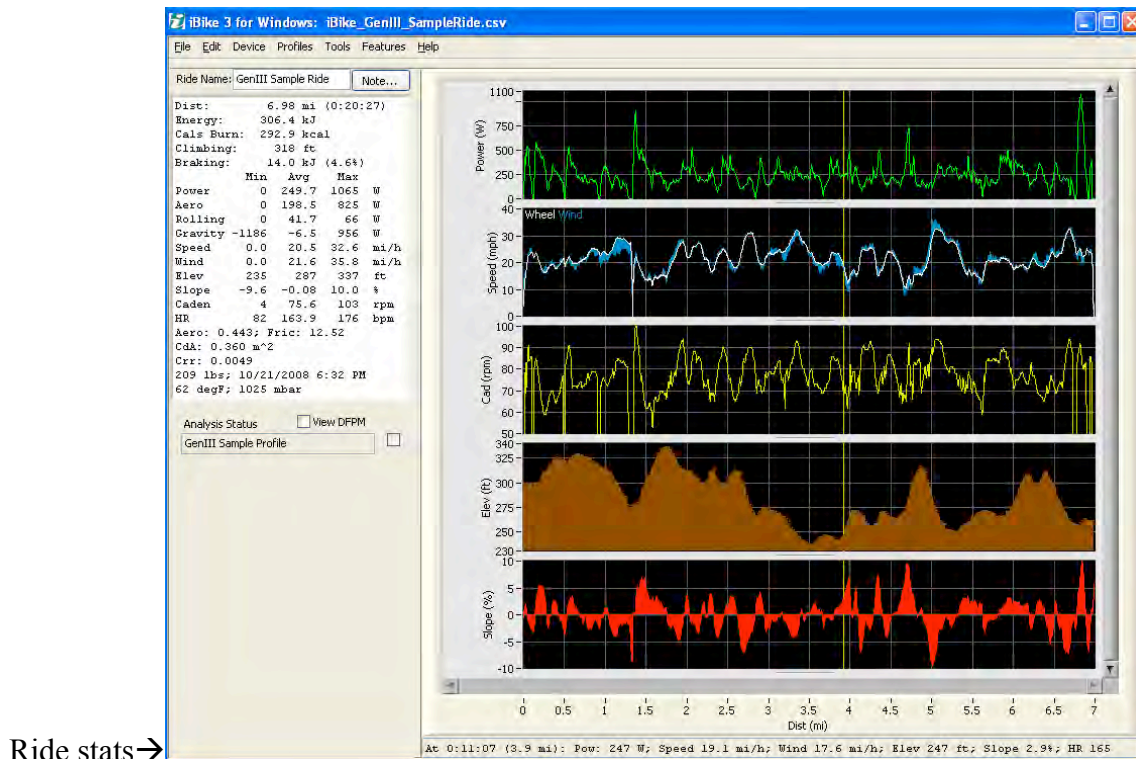
Ride stats→

9) The Isaac software has the ability to analyze data for any section of a ride. For example, suppose you want to get your stats for the hill climb that occurs from mile 5.4 to mile 6.4. Click anywhere on the graph at the point at the start of the hill. Then click and drag to the end of the hill. The section you're analyzing will be highlighted in blue and the stats *for this section only* will be shown on the left:
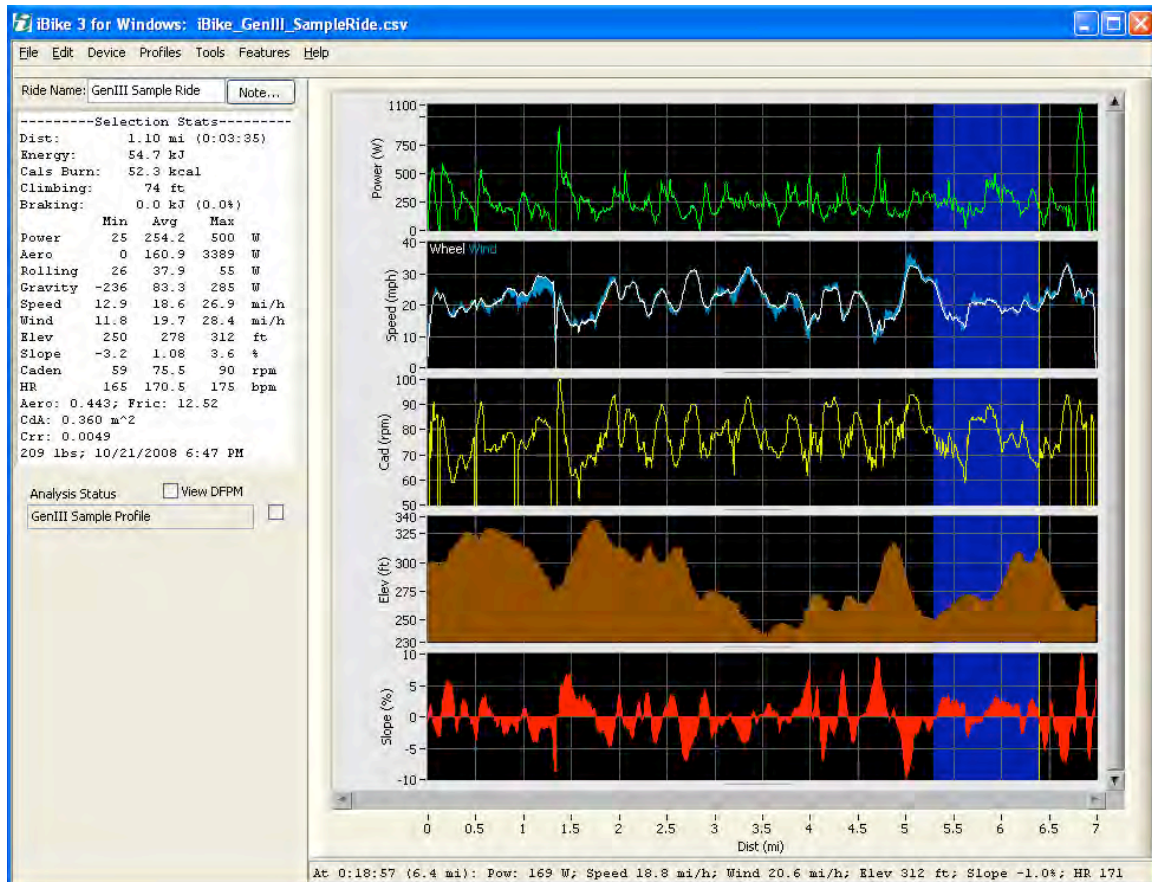
10) If you have a direct force power meter (DFPM) installed on your bike, at the bottom left of the window is a check box can be used to compare your Newton results to your DFPM. We will describe this feature in a latter section.
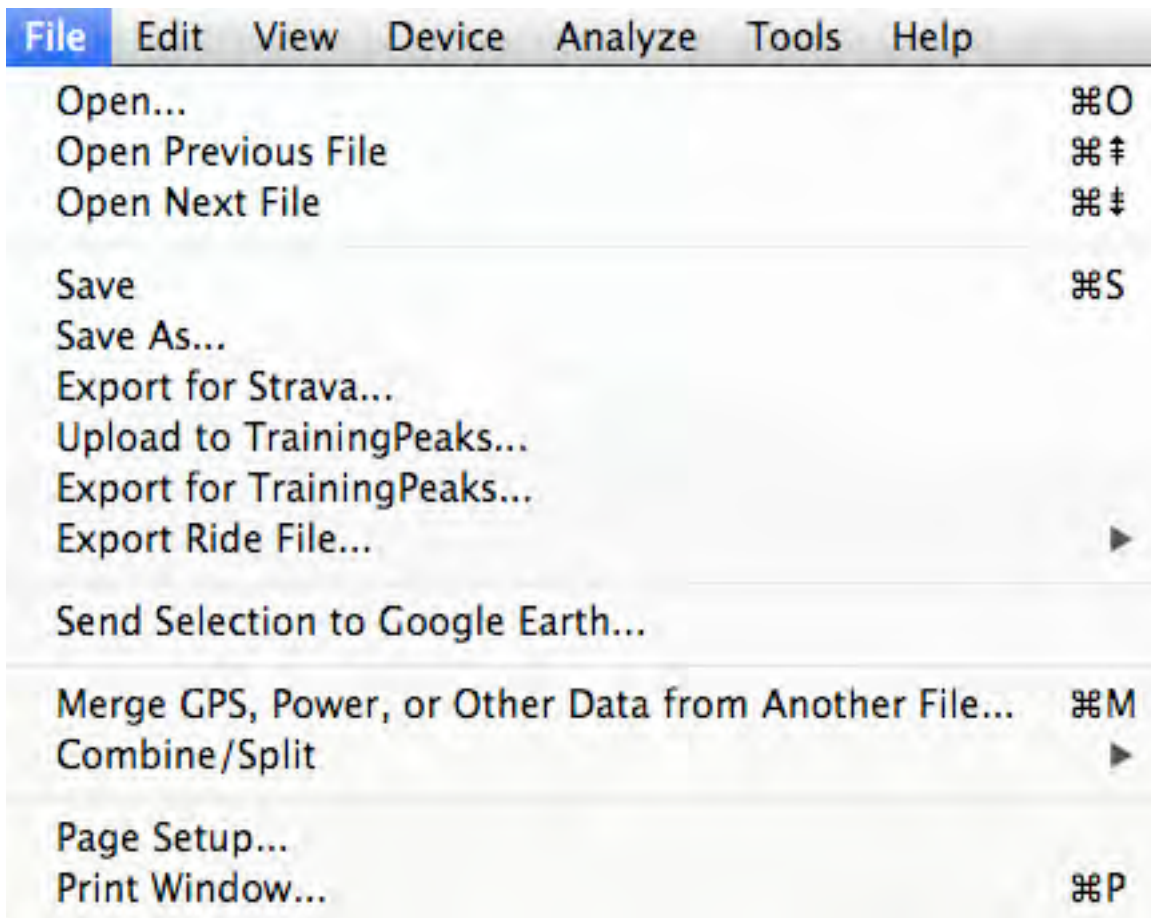
Now, let's move on to other features of your Isaac software.

THE ISAAC SOFTWARE MENU

These are the items available in the Isaac software screen (Mac or Windows).

We will explain the function of each item.

Here is the function of selected sub-items:

<u>File/Open</u>…

When this item is selected a pop-up window appears. Navigate to the file you wish to view and click the "Open" button to open the file in the main screen. Alternatively, you can click on the Folder icon that is above the stats window.

OPENING FILES CREATED WITH THE IBIKE DASH

When using the iBike app, iBike Dash ride files are emailed as attachments, directly from your iPhone or iPod touch.

Place the iBike Dash ride file (the file ends in .ibd) on your desktop. Then, use the "Open" Icon of the Isaac software, select your ride file, then click Open to view your ride file.

You can view files created with your iBike Dash + Power, or with the iBike Dash CC. Of course, files recorded with the CC won't have any power information.

NOTE: TO VIEW RIDE FILES WITH ISAAC SOFTWARE *YOU MUST USE THE IBIKE APP.* THE IBIKE COACH APP AND POWERHOUSE APPS DO NOT RECORD RIDE FILES THAT CAN BE OPENED WITH ISAAC SOFTWARE.

VIEWING BIKE ROUTES WITH ISAAC AND GOOGLE EARTH SOFTWARE

If you have Newton Tracker installed with your Newton, or have an iBike Dash and an iPhone, then you're in for an extra treat; you can view your bike route!

NOTE: WE RECOMMEND YOU INSTALL GOOGLE EARTH ON YOUR COMPUTER: WWW.EARTH.GOOGLE.COM

Open your ride file with Isaac. Notice that the Google Earth (GE) icon, in the left-center of the main window, is solid blue (the GE icon is to the right of the Facebook, Twitter, and email icons). When the GE icon is solid blue, this indicates that bike route information is available (the Google Earth icon is grey-blue when map information is not available)
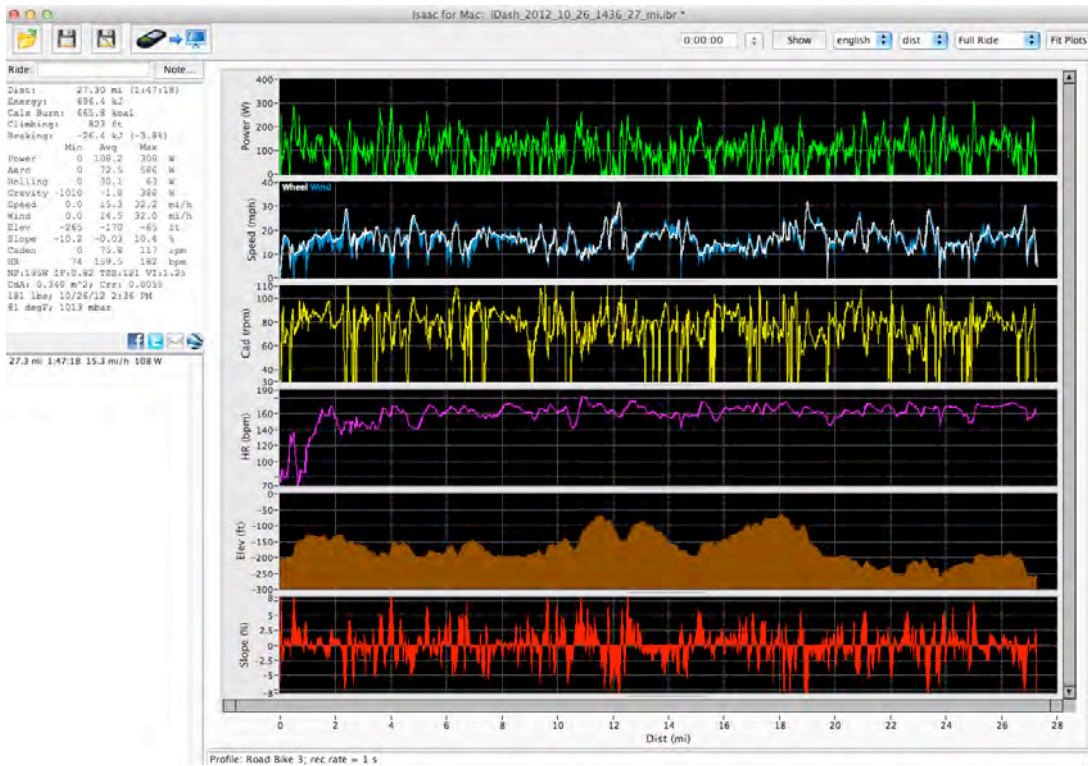
Click on the Google Earth icon, and your Google Earth app will launch automatically. A dialog box will confirm that you want to send the ride file to Google Earth.

In a few moments, your ride route will appear!

File/Open Previous File/Open Next File: If your rides are stored in a folder, these two
commands open the previous or next file stored in that folder

Export for Strava…

If you have GPS information recorded in your ride file, then you can export your ride file
in a form that can be read by Strava.

Upload to TrainingPeaks… Export for TrainingPeaks…

These commands create files that work with TrainingPeaks.

Export Ride File

This command allows you to export your files in csv (excel format readable by other
software such as Microsoft Excel or WKO+) or GPX/TCX/PWX/KML formats, used by
other websites.

Merge GPS, power, or Other Data from Another Device

If you have a ride file from another bike computer device, and that device records bike
speed, then you can merge the ride information from your device into your ride file.

When you use this command, the Isaac software will ask you to select the file to be merged. Once the selection is made follow the prompts to complete the merging of the files.

You can merge data from compatible computer devices including PowerTap, SRM, CinQo, Garmin, and Polar .gpx files.

Combine/Split/Append Ride File

Suppose you have two ride files that you wish to join together. This might happen if you ride in a race, click the "Trip Reset" button at the beginning of the race, and then ride in the race. Or, you might have two files if your battery goes low and your Newton splits your ride into two parts. You can join two ride files together with this command.

Here's what to do:

1) Use the Open command to open the starting file for your ride.
2) Select the File/Combine-Split/Append Newton File… command
3) A pop-window will appear. Navigate to the file you wish to append to the END of the file shown in your main window. Click "Accept" and the file will be joined.

<u>Combine-Split/Split File at Cursor</u>…

Suppose you have a ride file for a race includes ride data from your warm-up. You'd like to remove the warm-up data and focus only on the stats for the race. This command will perform this function. Here's how to use it:

1) Open the ride file you'd like to split apart. Let's use the sample ride file:
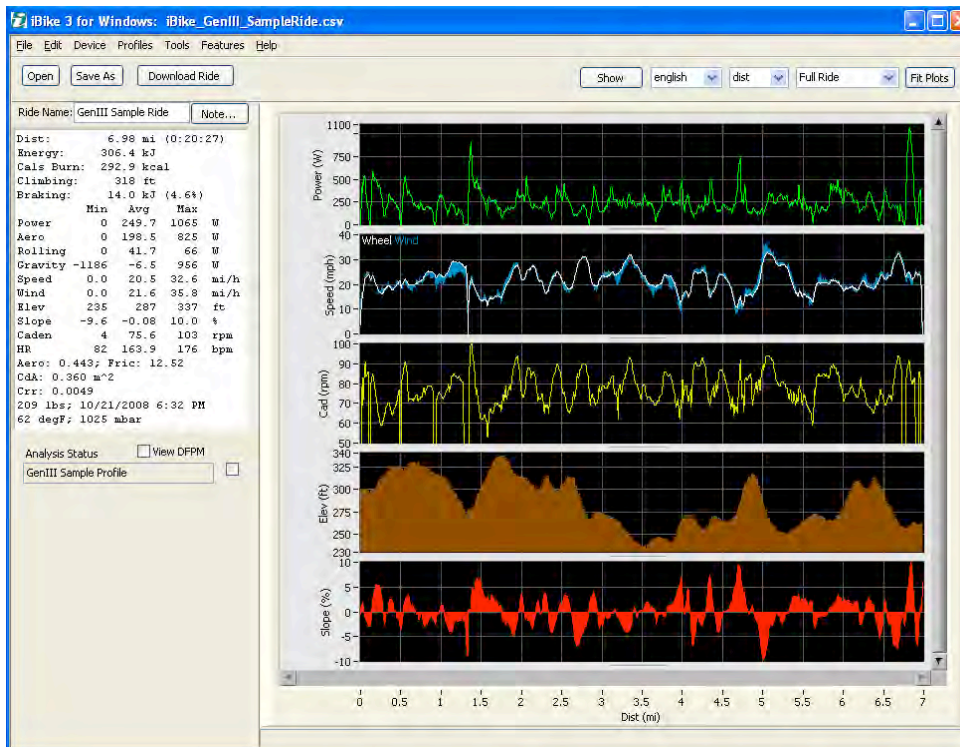
2) We're going to split the file at mile 3.5, where a hill climb begins. Click your cursor anywhere in the window, at mile 3.5. A yellow line will appear. The ride file will be split at the yellow line:
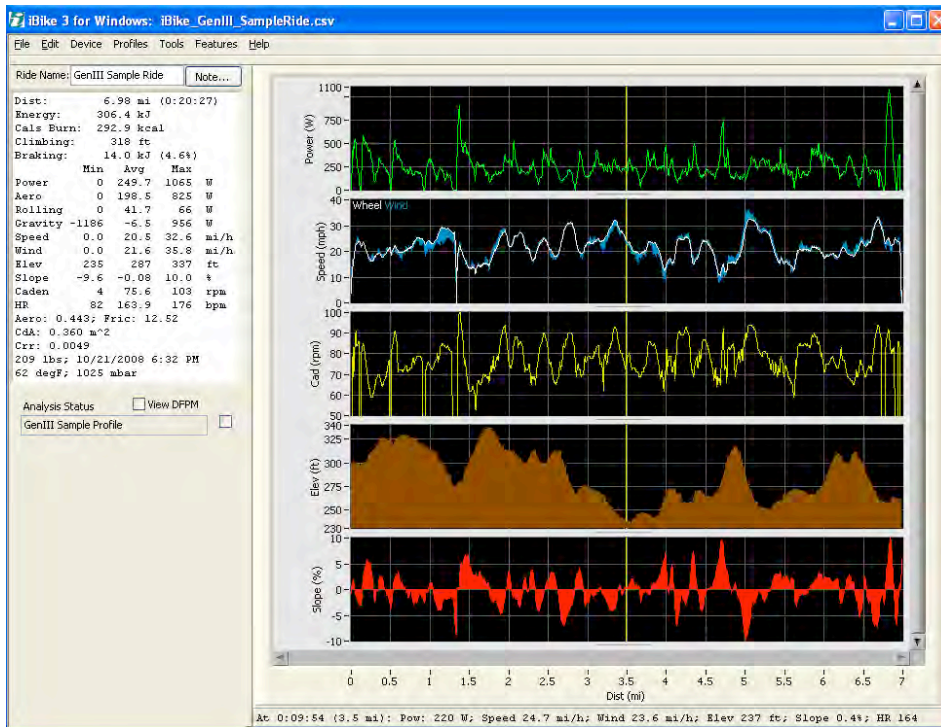
3) Select the File/Split File at Cursor…command. The following window will appear:

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4) You will see displayed in the window details about the two files that will be formed by the split. The "First Part" file is for data to the LEFT of the cursor; the "Last Part" is for data to the RIGHT of the cursor. Use the check boxes to select the files you want to save. You can change the name of the saved file by typing changes in the white boxes below each ride file name. Click "OK" to complete the command.

EDIT MENU
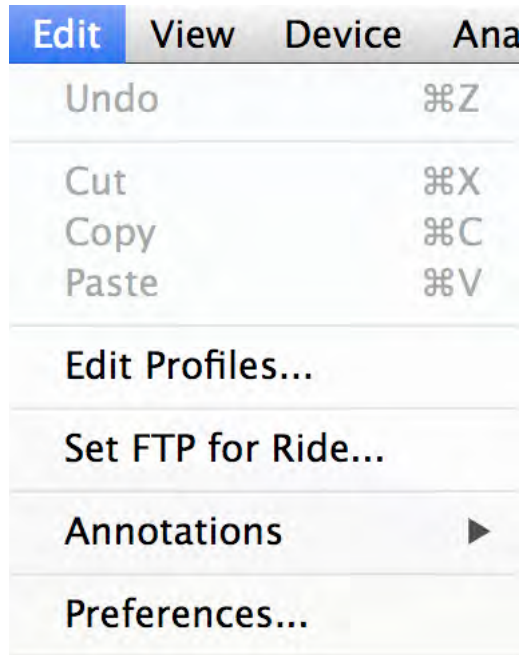
Edit Profiles…

Profiles (described in the Newton PM Operating Instructions) are unique to you and your bike, and are the result of careful measurements (Bike Setup, Tilt Cal, Cal Ride). In general, profiles are not to be "tinkered" with. However, there are some situations where you might want to edit a profile:

1) You want to update the wireless ID information in your "old" profile
2) Your Crr is obviously wrong and you want to adjust it
3) You want to export and import profiles to other computers
4) You want to change the names of profiles

Editing profiles should be done judiciously; you did a LOT of hard work to get your original profile!

If you want to edit your profiles here's how to do it:

Go to **Edit Profiles…**

You'll see the profiles you've created in a list on the left:
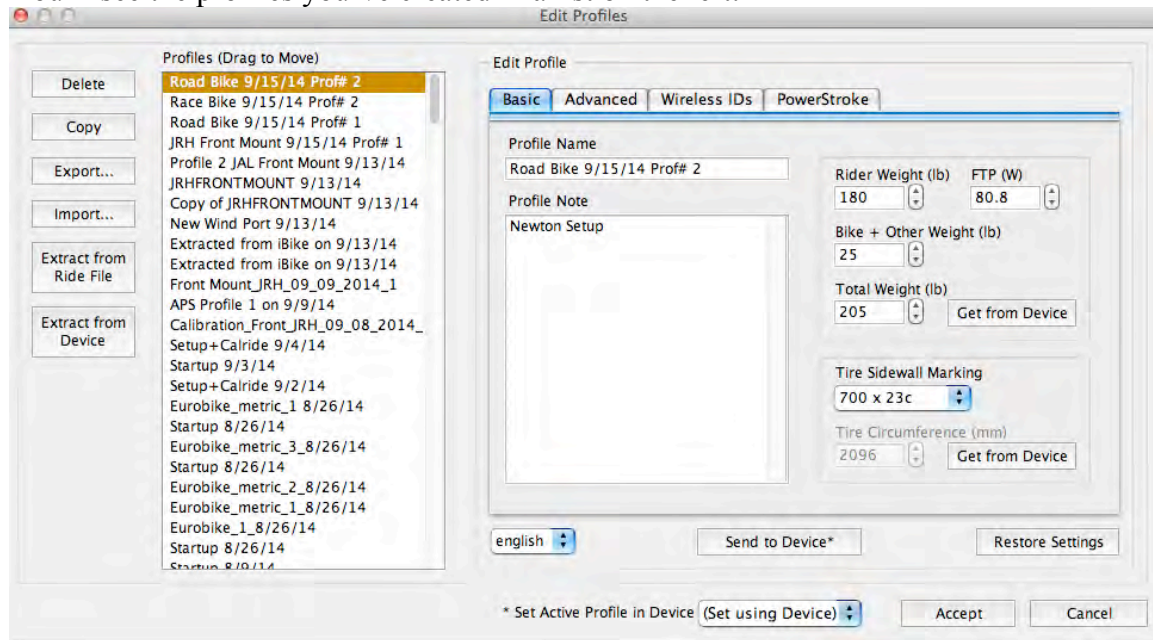
Click on the profile you wish to edit. We've selected the "Road Bike 9/15/14 Prof #2" profile.

Delete

If you have a profile in the window that you no longer use, select it and use the Delete button to remove it. After deleting the profile, use the Accept button to confirm your action.

Copy

If you wish to copy your profile (e.g. maybe you want to experiment with changes to your current profile while keeping the original one) use the Copy button.

Export…

This command creates a small file that contains your complete Newton profile. You can email this profile.

Import…

If you have received a profile file, then use the Import command to add it to your list. The imported profile will be saved in your Profile List.

<u>Extracting your Profile</u>

Your profile is stored both in your Newton and in each ride file. You can use the "Extract from Ride File" button to obtain the profile that was used for the ride file shown in the main window. You can use the "Extract from Device" button to obtain the profile that is currently selected and stored in your Newton. When using these buttons, if your profile is already stored in the Isaac software, a message will appear saying that you already have a matching profile.

"BASIC" TAB

In this window you will see your profile summary but you can edit the ONLY following:

1) Profile name
2) Total weight
3) FTP (functional threshold power)
4) Wheel circumference
5) Profile note

CRITICAL: ANY CHANGES YOU MAKE WILL NOT BE STORED UNTIL YOU CLICK THE "ACCEPT" BUTTON.

"ADVANCED" TAB

Click the "Advanced" and the following window will appear:
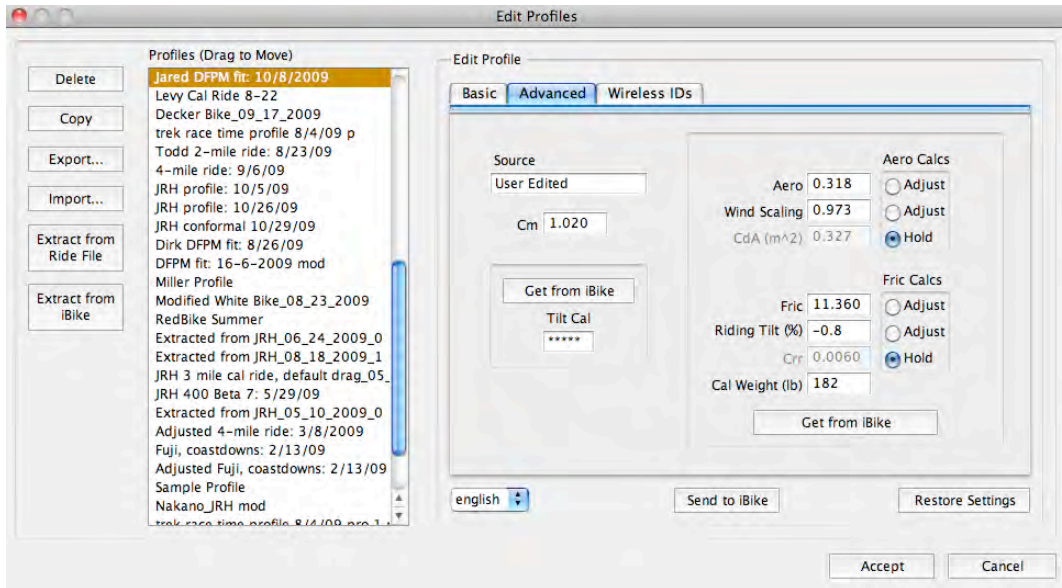
This is a very powerful, yet somewhat "tricky" screen.

For example, suppose your Crr is obviously wrong. For example, you ride on smooth concrete where your Crr should be around 0.004, but your profile's Crr is .0060 (too high). You can change this in the Advanced Profile Settings Window:

1) Click the radio button to the immediate right of the Riding Tilt window. The screen will change as follows:

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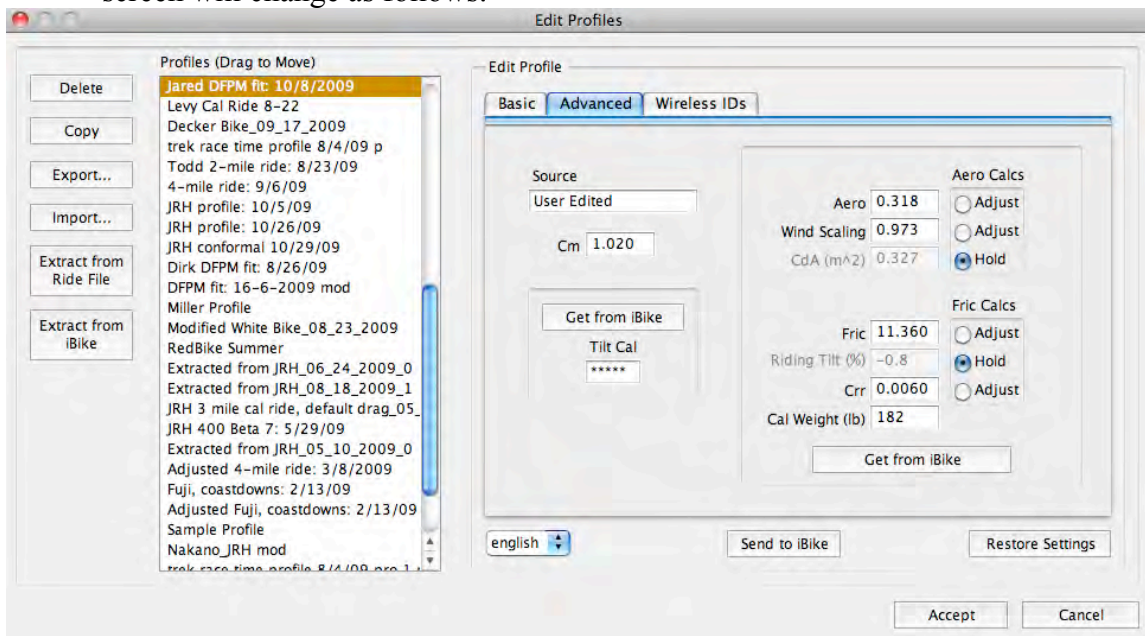
2) Now, type in 0.0040 into the Crr box. The value of fric will be recalculated automatically to 9.718, so that it is consistent with a Riding Tilt of -0.8% and a Crr of 0.004:
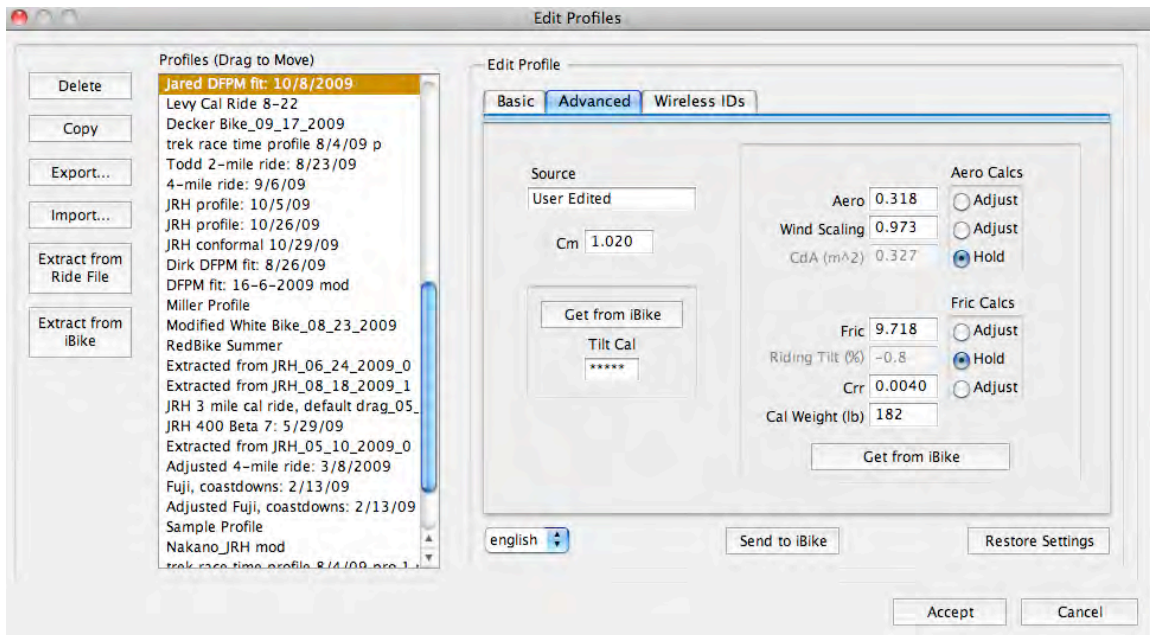
3) Click on the Basic tab and make notes in the Profile Notes, and change thee Profile Name, to reflect the changes you've made:
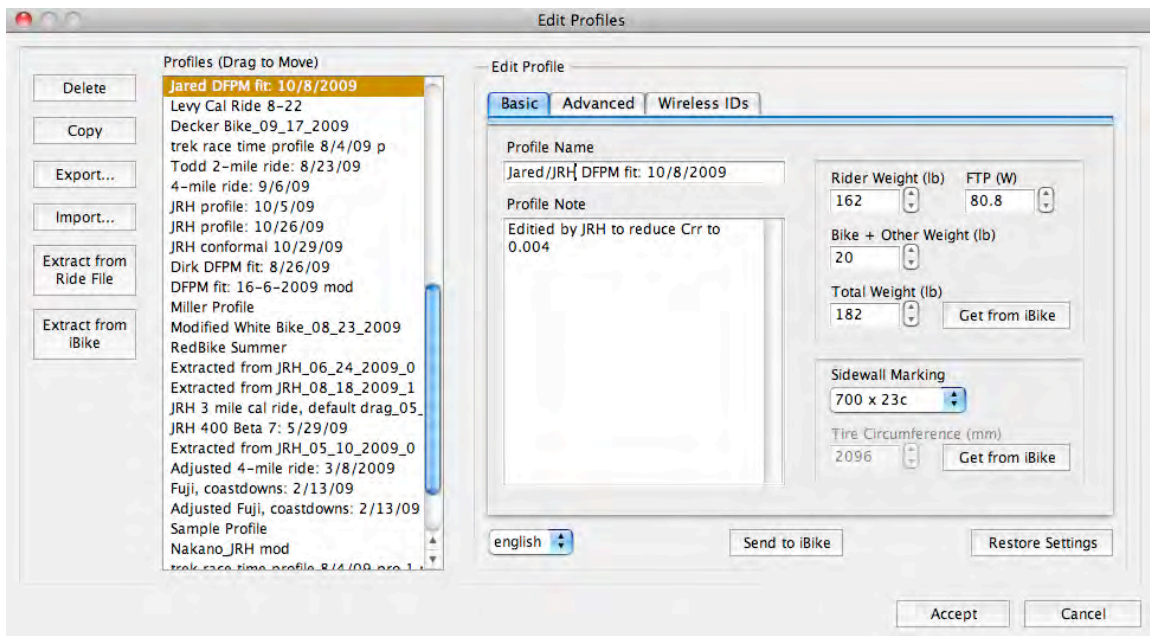
4) CRITICAL: Send your modified profile to your Newton with the "Send to Device" command.

5) CRITICAL: CLICK THE "ACCEPT" BUTTON IN THE LOWER RIGHT
    CORNER. **ONLY WHEN THE ACCEPT BUTTON IS CLICKED WILL
    YOUR CHANGES BE SAVED**.

In this same manner you can adjust CdA, riding tilt, and wind scaling factors.

NOTICE: WE RECOMMEND THAT YOU DO **NOT** CHANGE **ANY** NUMBER IN
THE ADVANCED PROFILE SETTINGS WINDOW UNLESS YOU'RE REALLY
CERTAIN ABOUT WHAT YOU ARE DOING.

WIRELESS ID SETTINGS

Click on the "Wireless" tab to see your wireless settings and to see which sensors are
enabled (bright green dots):
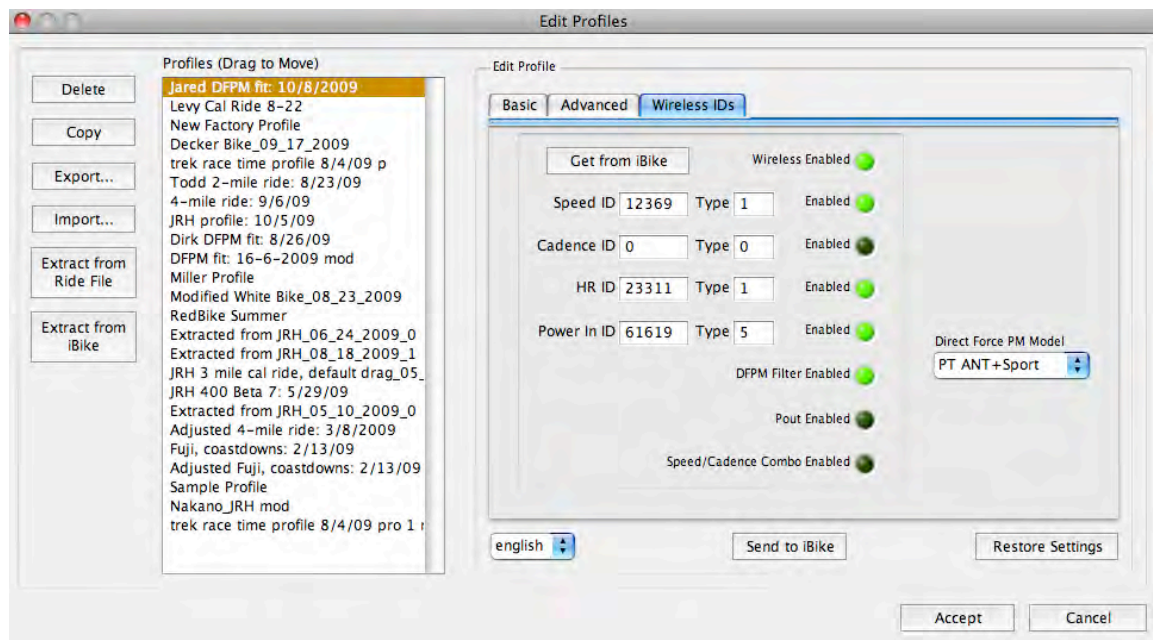
PowerStroke Tab

In this tab you can set the location of your cadence sensor position on your left crank.
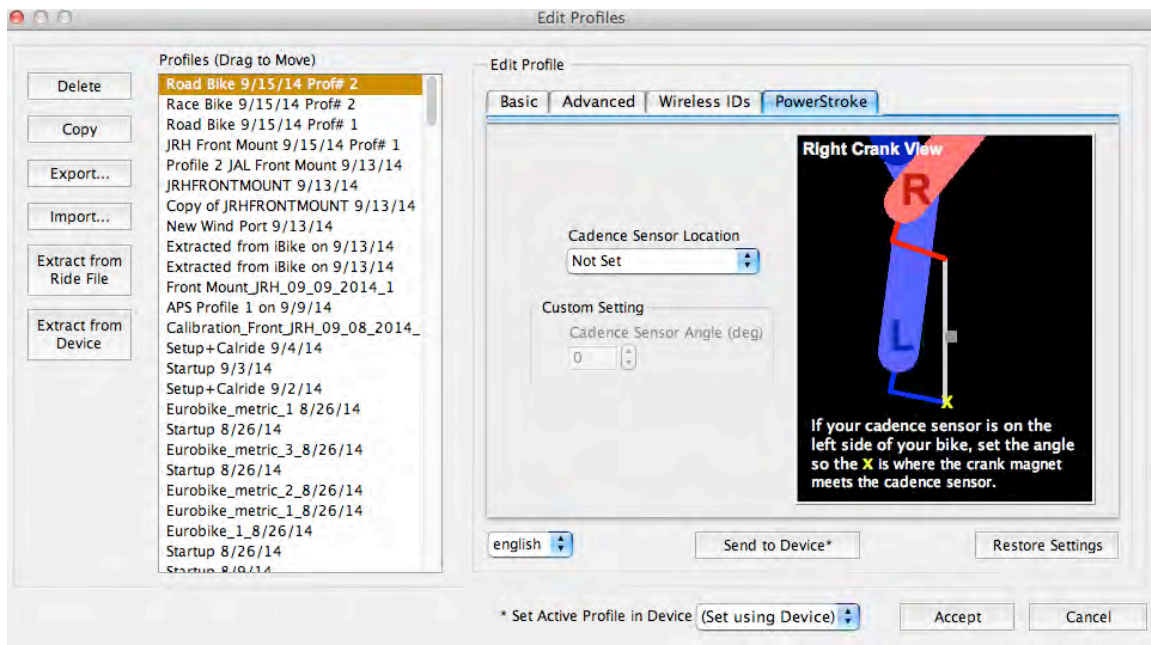
Set FTP for Ride

FTP (Functional Threshold Power) is a measure of your overall cycling power. Consult the Newton Power Meter Operating Instructions for details. Set your ride's FTP with this command
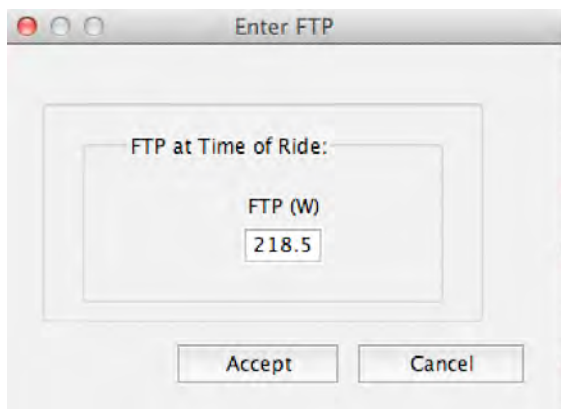
Edit/Annotations

You can make comments on your ride file's graph with the annotations feature.

Edit/Preferences opens this window:
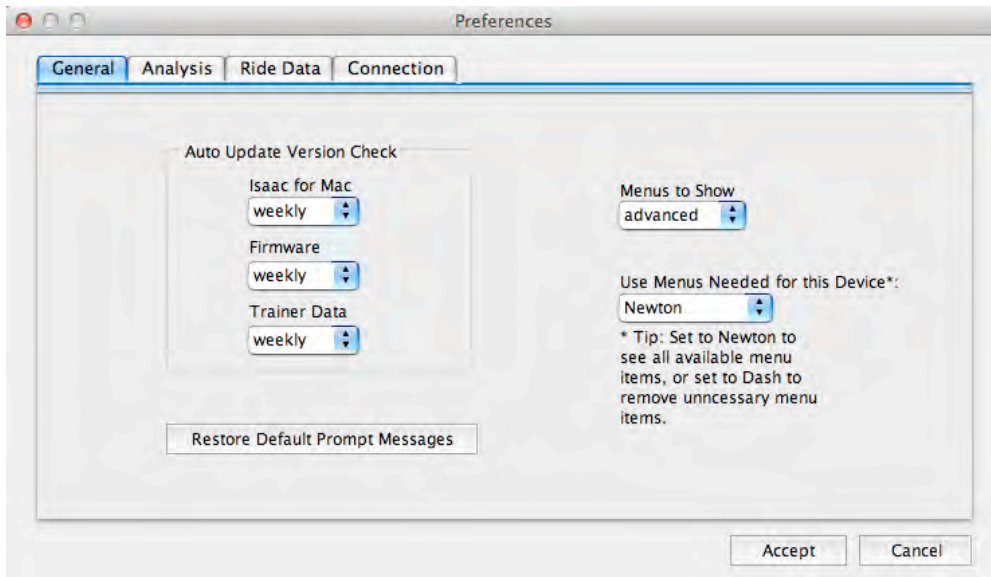
In the "General" preference window you can select how frequently to have the Isaac software check for new software and firmware updates. Also, you can choose how much data you would like to see, and select the menu items and windows that are most appropriate for the device you're using (e.g. Gen III, or Dash CC, or Dash + Power, or Newton).

In the "Analysis" window you can select the "Automatically Analyze Route" feature. The Analyze Route feature looks for out and back rides and, if it finds them, provides extra levels of accuracy to wind data and elevation data.
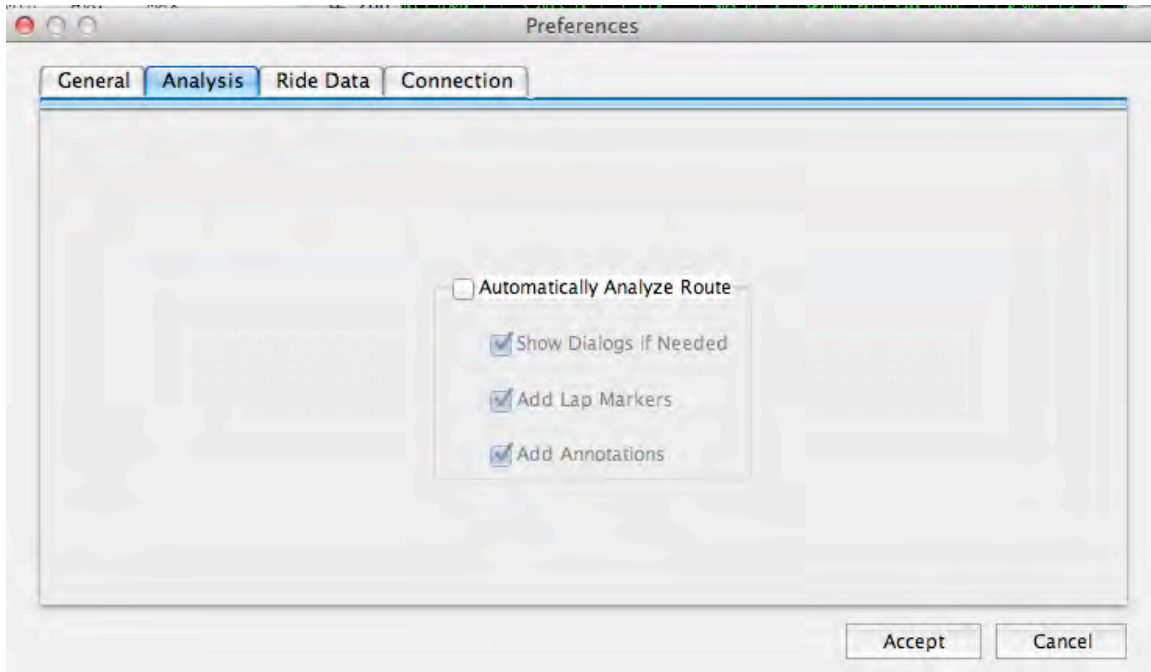
If you'd like this fine-tuning function to work automatically, just check the box; after checking the box your data will be checked automatically and fine tuned each time you download a ride. If the box is unchecked your data will be just as it came out of your Newton, but you can still use the Analyze Route your data in a separate command available in the Tools menu.

TIP: IF YOU OWN A NEWTON OR GEN III UNIT, LEAVE "AUTO FINE TUNE" UNCHECKED. YOU'LL SEE YOUR DATA DIRECTLY FROM YOUR NEWTON. AUTO TUNING IS ALMOST NEVER NEEDED.
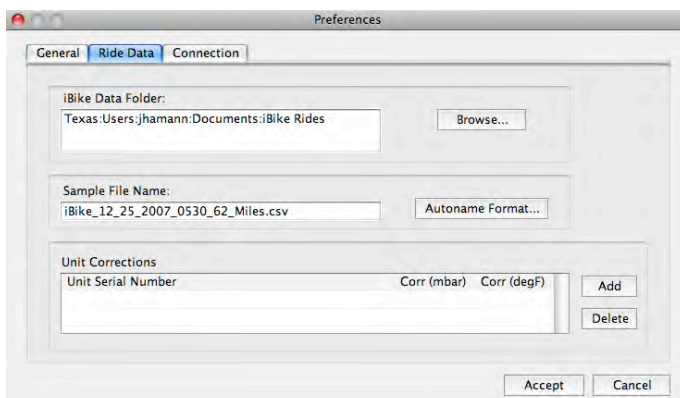
The top portion of Ride Data window shows where you're rides are being stored at present. If you wish to change the default location of your ride storage click the "Browse" button, navigate to the folder you'd like to use, then click "Accept".

The middle portion of this window allows you to change the name format. Click "Autoname Format"…to make changes to the ride file format.

The bottom portion of the window allows you to make corrections to Newton settings. For example, suppose you believe your Newton is reporting temperatures that consistently are 5 degrees too high. You can fix this: add the Newton serial number with the "Add" button, put in a temperature correction of -5 degrees, then click Accept. Your ride file data stored in Isaac software will show a reported temperature 5 degrees lower.

The same principle applies to barometric pressure correction; you can use the weatherunderground website to compare barometric pressure readings from your Newton and your local weather station, and make corrections if necessary.

NOTE: THE TEMPERATURE AND BAROMETRIC PRESSURE CORRECTIONS APPLY ONLY TO DATA DISPLAYED IN ISAAC SOFTWARE. THE CORRECTIONS ARE **NOT** UPLOADED TO YOUR NEWTON.

VIEW MENU
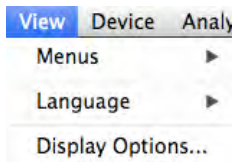
View/Menus

This item lets you select the device you're using, and the level of detail you wish to have for the menus displayed by Isaac
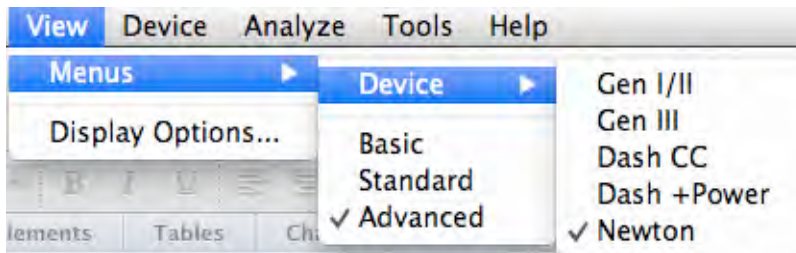
View Language

This command allows you to select the language used for Isaac. Available languages are listed

View/Display

This item is identical to the "Show" button located in the top right portion of the main window.
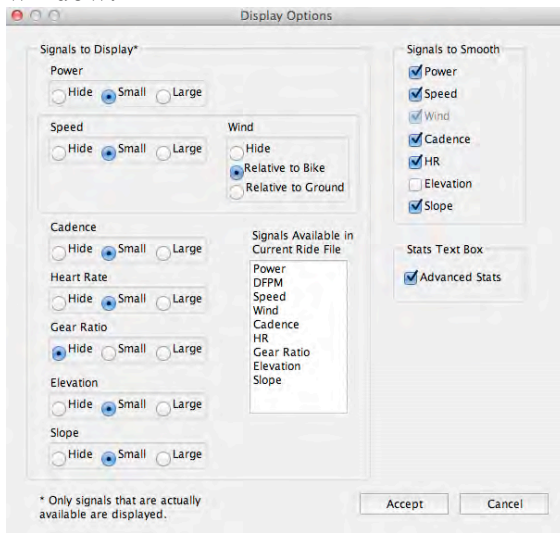
DEVICE MENU
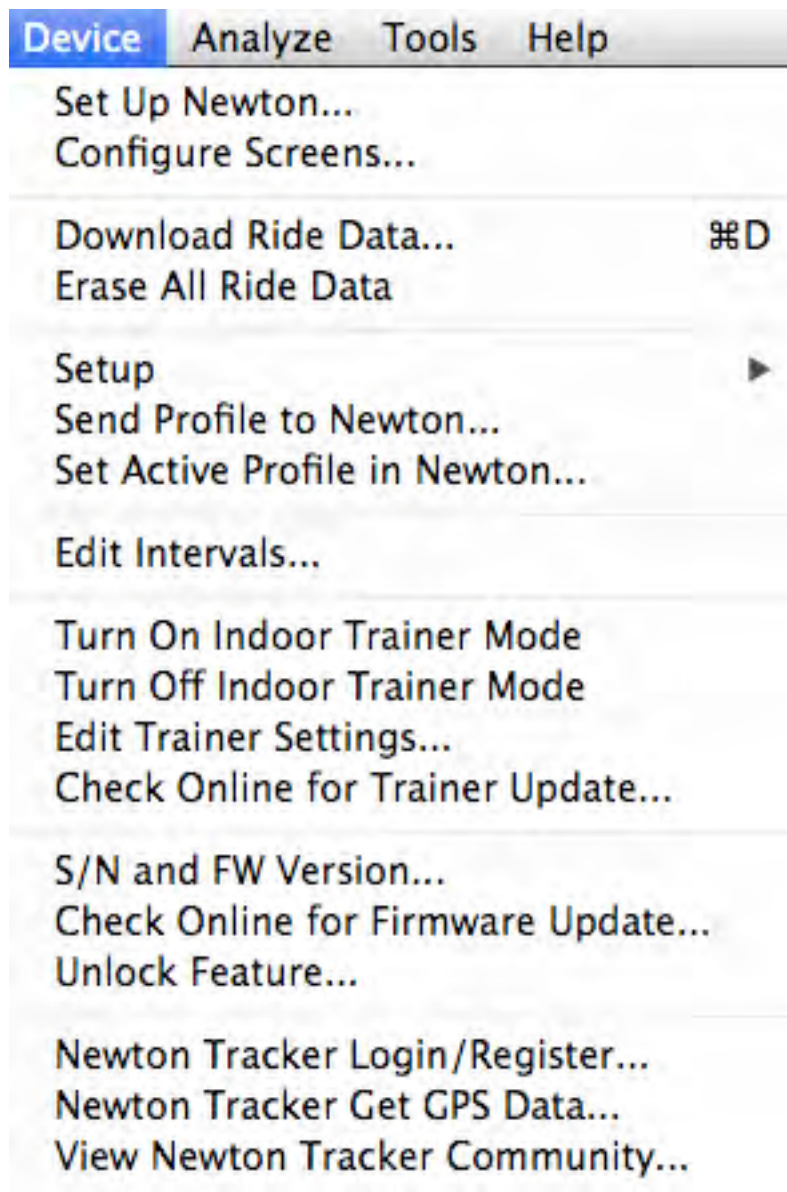
Device/Set Up Newton…

This is an important command that makes Newton setup easy and fast. Setup Device completes nearly all of the tasks required to create a Profile (See Newton Instructions manual for more details about Profiles).

Do the following:

1) Connect your Newton to the computer using your cable
2) Select the command Device/Set Up Newton…
3) Follow the screens to select profile and to enter information for your particular bike

Isaac will take you through a few screens, where you will enter your information. Make sure to enter your information accurately, as the accuracy of your Newton's measurements depends on correct entries!

The final step will ask you to Send Profile to Newton. Make sure you click this button;

Device/Configure Screens…

For Newtons with FW 5.0 or higher, this screen allows you to configure the two main screens of your Newton. See the Newton Instructions for more details.

Device/Download Ride Data (Newton and Gen III/II/I iBikes)…

Your Newton stores your ride files in its non-volatile memory. To download your ride data to your computer do the following:

From the menu click on Device/Download Ride Data (or click) :
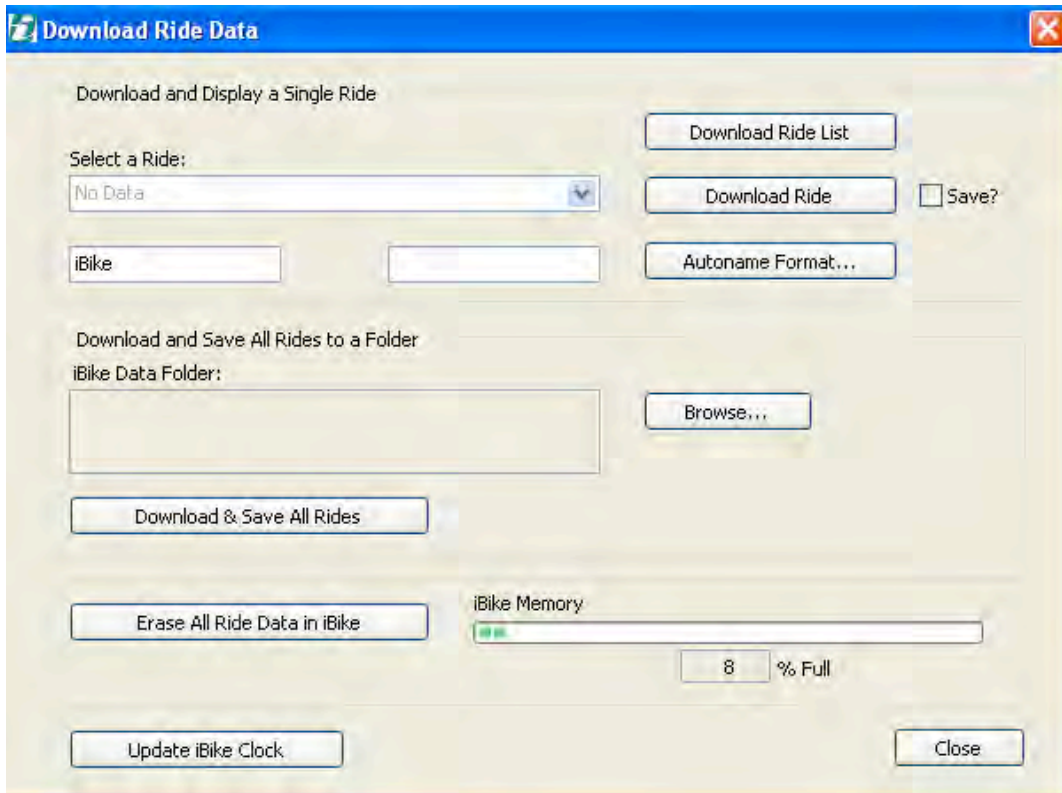
Click the button "Download Ride List" to see the list of all Newton rides stored on your Newton. The drop-down menu beneath the caption "Select a Ride" will populate. Click the blue arrow to the right of the drop-down menu list to see all of your rides. Below is an example from our Newton; your Newton will differ:
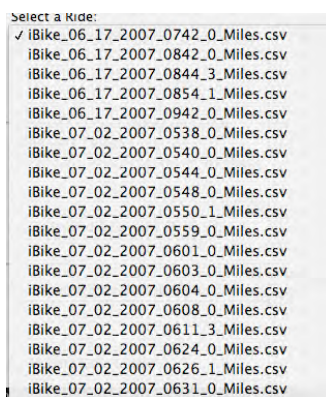
Highlight the ride you want, then click the "Download Ride" button. In a few moments the ride will appear on your main screen.

The process above allows you to select and display *one ride at a time*. If you want to save all your rides simultaneously you can click the button in the center, "Download & Save All Rides"
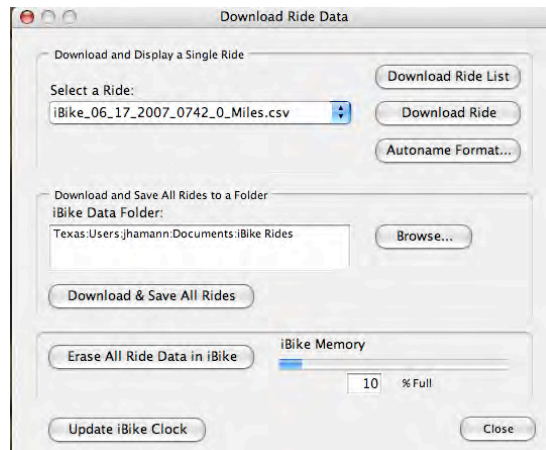
Isaac software will tell you the data folder where it intends to save the ride data. If you want to use a different folder, click the "Browse" button. Select the folder you want, then click the Download and Save All Rides Button. All of the ride files in your Newton will be saved to this folder; a progress bar will let you know how things are going.

NOTE: DOWNLOADING ALL FILES MAY TAKE SOME TIME.

NOTE: THERE ARE HIDDEN "COAST DOWN" FILES STORED IN YOUR NEWTON. THESE FILES ARE NOT DOWNLOADED OR SAVED.

In the bottom portion of the window you can see how much memory has been used by your Newton rides. If you have downloaded all the rides you want you can erase your memory.

Finally, you may notice that your Newton's clock has gotten out of sync; you can update its time in this window.

MAKE SURE TO SAVE YOUR RIDE FILE!

Device/Setup…
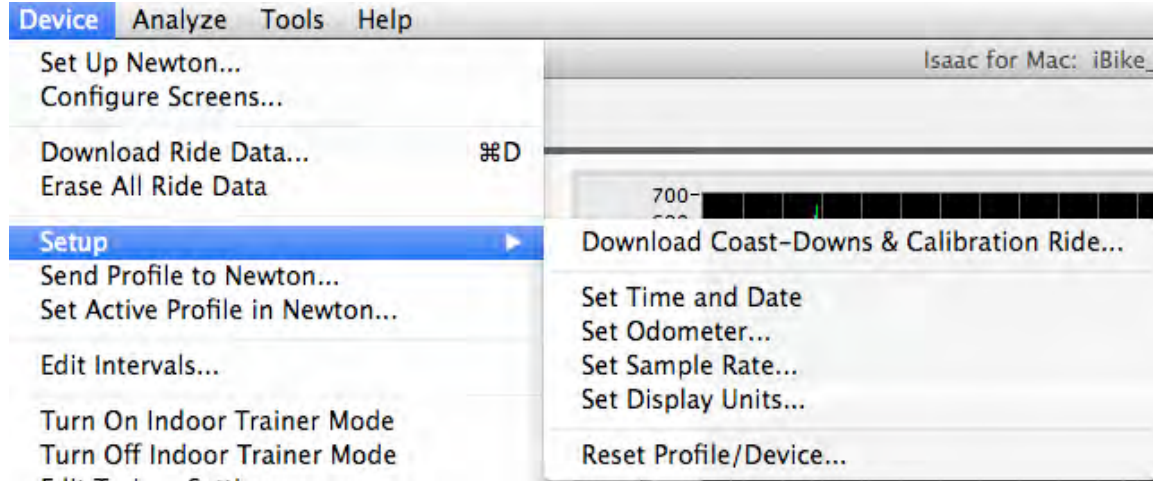
Setup/Download Coast-Downs and Calibration Ride…

For 99% of Newton owners, this command is not necessary to use. Why? After you use the Device/Setup command in Isaac to enter your basic bike/rider parameters, then do a Tilt Calibration, and then do a Calibration Ride, your Newton automatically does everything this software command does!

When, then, is this command useful? The Newton Power Meter instructions show how to do "coast down and calibration ride" measurements. If you choose to do "coast down" measurements, then, *and only then*, is this command necessary to use.

NOTE: FOR 99% OF USERS, IT NOT ADVISED TO PERFORM COAST DOWN MEASUREMENTS. UNLESS COAST DOWNS ARE DONE VERY CAREFULLY, YOUR NEWTON ACCURACY WILL BE WORSE, NOT BETTER.

If you choose to measure CdA and Crr drag coefficients, then prior to using this software command, YOU MUST PERFORM THE "MULTIPLE COAST DOWN AND CALIBRATION RIDE" PROCEDURE.

This multiple coast-down/cal ride procedure is described in the Newton Power Meter instructions; for convenience, these instructions are repeated here:

OVERVIEW

The idea is simple: you will do a 2 mile long calibration ride (1 mile out, turn around and 1 mile back), then immediately thereafter 4 to 10 coast downs. That's it; **the only requirement is that you do the coast downs and calibration ride at the same time.**

CRITICAL: TO MEASURE CDA AND CRR, YOU MUST DO COAST DOWNS **IMMEDIATELY** AFTER THE CAL RIDE**.**

CALIBRATION RIDE

The calibration ride is a simple (and leisurely) 1 mile out and 1 mile back ride that calibrates your tilt and wind sensors to maximum accuracy. There's no need to ride fast. **DO THE CAL RIDE BERFORE DOING MULTIPLE COAST DOWNS. The only requirement for this ride is that wind conditions aren't extremely gusty or that the weather doesn't change during the ride!**

You will ride approximately 1 mile out on the course you select, turn around, then ride back to the starting point on the same course. The Isaac software will compare tilt, wind, and other conditions on the "out" portion of your ride to the "return" portion of your ride. By comparing the out and back data the Isaac software can further improve the accuracy of your Newton.

Here's how to do the 2 mile calibration ride:
1) Ride to the place where you will do your calibration ride.
2) The location where you do your two mile ride should have the following characteristics:
    a. The course should be approximately one mile long and not have heavy traffic (traffic can cause wind gusts).
    b. It's OK if the course is rolling and twisty but try to avoid steep uphills and downhills. Stop signs or stoplights are OK, too.
    c. THE COURSE CAN BE LONGER THAN TWO MILES; IN FACT, **MORE DATA IS BETTER!**
    d. There should be no gusty winds due to buildings, cyclists, etc.
    e. The course should not have frequent stops, but occasional stops are OK.
    f. The course should not have sharp turns, such as at street corners.
3) *Just before starting your calibration ride*, enter Setup and click the up arrow to find the screen that says "Cal Ride".
4) When you're ready to ride, press the center button of your Newton. *You must do a Tilt Calibration and Cal Wind calibration within 30 minutes of your Cal Ride. If this has not happened then your Newton will have you perform these two calibrations prior to going to the starting screen of the Cal Ride.*
5) You'll see a screen that shows your bike speed in the top window, the distance

you've traveled in the center window, and the bottom window will say "Out"

    a. ride on the out portion of your calibration ride. As you ride out the center window will show the distance you've traveled. Keep riding out until you've ridden 1 mile.

    b. At the one mile mark in the bottom window you'll see the flashing messages "go bac" (go back), then "turn 180°" (turn one hundred eighty degrees). When you see these messages, stop, SLOW DOWN TO 10 MPH OR LESS, **STOP**, and turn your bike around so you're headed back towards the beginning place of your ride.

    c. The flashing messages will stop in the bottom window and you will see the solid message "bac" (back) in the bottom window, indicating that you are headed back to the starting point of your ride.

    d. Ride back until the middle counts down to zero. At the end of the calibration ride you'll see the message "CAL DONE" (calibration ride done), then "CALC CAL" (calculate calibration data). When the calibration ride is completed you'll see the message "Cal Ride". After a few seconds the Newton will exit Setup automatically.

TIP: During your ride, STAY IN YOUR USUAL RIDING POSITION FOR THE ENTIRE LENGTH OF THE RIDE. NO DRAFTING ALLOWED!

Once completing your Cal Ride you can proceed to the Coast Downs.

IF YOU DO COAST DOWNS AFTER YOUR CAL RIDE DO NOT REMOVE YOUR NEWTON FROM YOUR MOUNT. REPEAT: DO NOT REMOVE YOUR NEWTON FROM YOUR MOUNT!! PROCEED IMMEDIATELY TO THE COAST DOWN, DESCRIBED BELOW.

Here's the procedure for multiple coast downs:

1) If you don't know how to perform a coast down calibration, read the instructions in the Newton PM Operating Instructions.

2) Each time a coast down is done the results can be slightly different due to the nature of the measurement. Therefore, THE MORE COAST DOWNS YOU DO, THE MORE ACCURATE THE OVERALL MEASUREMENT WILL BE.

3) Do *at least* four coast downs, **making sure you ride on the same section of road, in the same direction, with the same equipment,** *and in the same riding position.*

4) If you have the time (and energy!) do five to ten coast downs. Remember: more data is better!

5) There are hidden files in your Newton that hold the raw data from every coast down. Each time you do a coast down the Newton will record the coast down file. Later on the Isaac software will analyze ALL coast down files and compute

overall drag coefficients that incorporate *all* of the data.

6) Don't worry if a "mistake" (such as hitting a pot hole, or having an 18 wheeler zoom by you) happens while doing a coast down. The Isaac software will see any of these problems and correct for the bad data caused by the mistake.

7) If you DO think you've had a problem with a particular coast down, DO ANOTHER COAST DOWN. Remember: MORE DATA IS BETTER THAN LESS DATA!

OK, so you've completed your Cal Ride and 4-10 coast downs. What's next?

<u>USING THE DEVICE/SETUP/DOWNLOAD COAST-DOWNS & CALIBRATION RIDE COMMAND</u>

NOTE: THE IBIKE DASH DOES NOT USE THE COAST DOWN PROCEDURE, SO THIS SECTION DOES NOT APPLY TO THE IBIKE DASH.

Once you've done your coast downs and calibration ride, here's how to use the Isaac software to analyze your measurements.

1) Make sure your Newton is connected to your computer. Then, select the command:
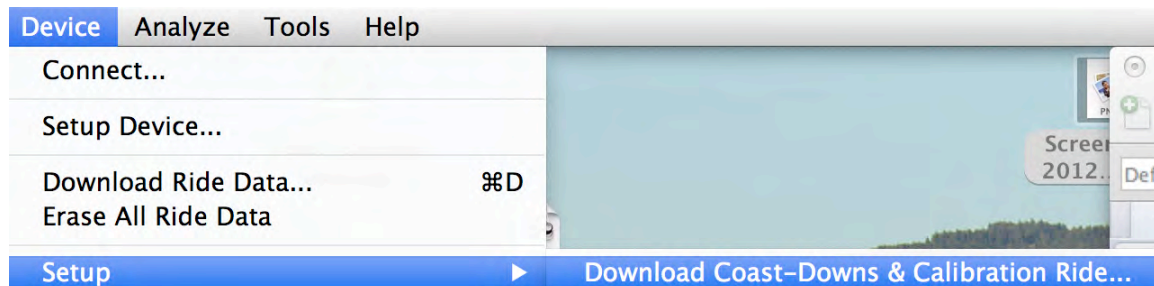
2) The Isaac software will select the appropriate files. Check the Cal Ride it selects in the top right corner of the screen. If this isn't the Cal Ride you did with your coast downs, you can click on the drop down menu select the correct ride. Eventually a screen like this will appear (your data will be different):

Crr "Setting in iBike":
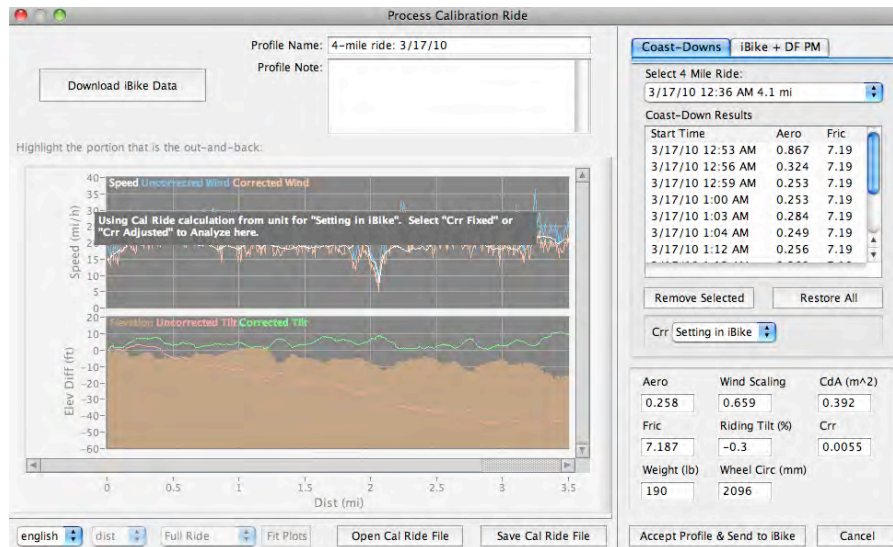
3) There's a lot going on in this screen! On the far right you'll see *all* of the coast downs results that are stored in your Newton. Below the coast downs are two buttons that can be used to remove any selected coast down from the calculations, or a button that restores all data to the coast down measurements. If you have old coast down data, say from a different day, select them and click the "Remove Selected" button.

4) Below the Remove/Restore buttons is a setting for "Crr". Click on the drop down menu to the right to view the three options: "Setting in iBike", "Crr Fixed", and "Crr Adjusted". By default, "Setting in iBike" is shown; in this selection the graph is grayed out. When selecting either of the other two options the graph is not grayed out:

Crr: "Crr Fixed":
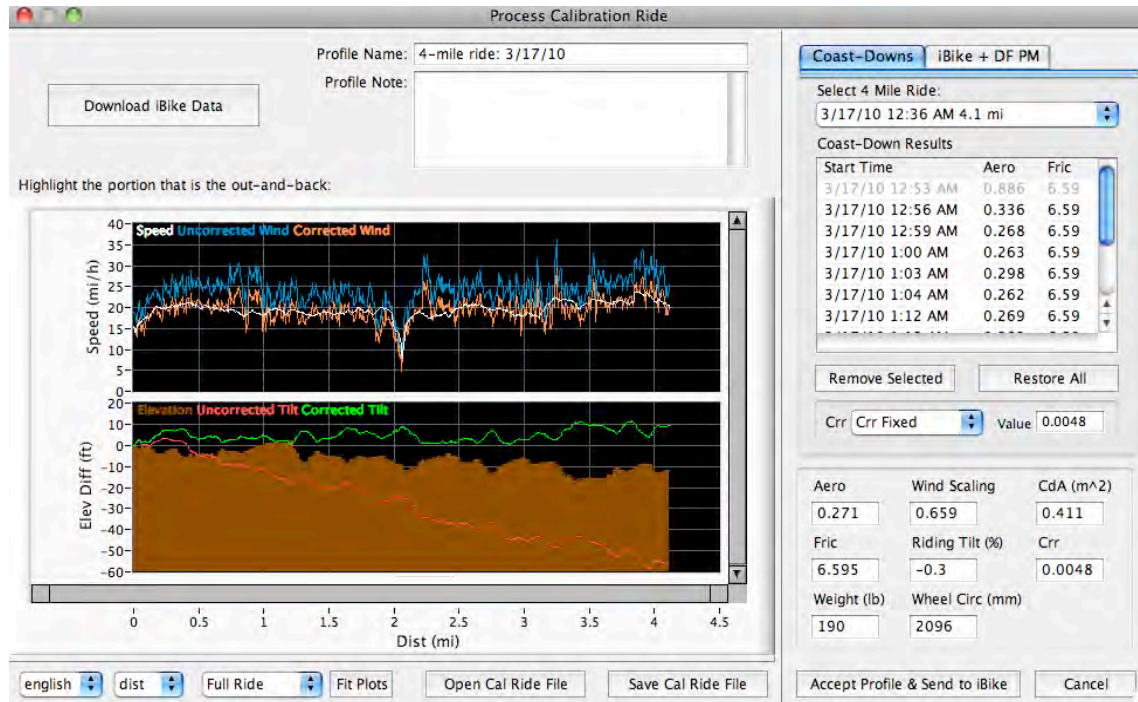
5) Below the Crr box is another box showing composite results from the Cal Ride and Coast downs. Look at the Crr box near the bottom right. When "Setting in iBike" is selected, the Crr value that is currently stored in the Newton's EST CRR window (located in the RACR sequence) is shown in the Crr box in the lower right (factory default is 0.0054).

When "Crr Fixed" is selected, a new box named "Value" appears to the right of the drop-down menu. The user may enter any value of Crr. In this example 0.0048 has been entered manually. Note that the Crr box in the bottom right is set to the same value as entered by the user.

When "Crr Adjusted" is shown, the value of Crr shown in the bottom right is the number measured by the coast downs selected in the top right of the window.

Crr: "Crr Adjusted":
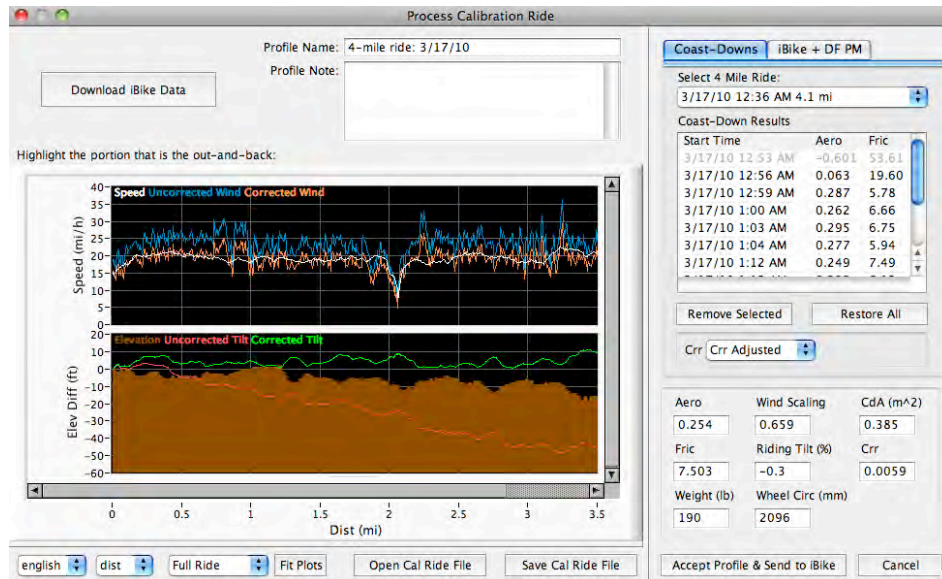
6) When "Setting in iBike" or "Crr Fixed" is selected, the frictional drag numbers shown in the Coast Down window are held fixed to a number that is consistent with the Crr value entered. The frictional drag number in the coast downs depends on the Crr. In this example, for this cyclist, with his bike, a Crr of 0.0055 corresponds to a frictional drag value of 7.19. A Crr of 0.0048 corresponds to a frictional drag of 6.59. Note that in both selections ALL coast downs have the same (forced) value of frictional drag.

7) To see the actual values of frictional drag measured by the coast downs, select "Crr Adjusted". The top right window now shows the values of aero and fric as actually measured by the Newton.

8) The Isaac software automatically analyzes each coast down. Some coast downs are truly bad (notice the first coast down has a negative aero drag coefficient); the Isaac software ignores this bad coast down even if you don't remove it manually. Also, some of the variation of the remaining coast downs are caused by wind gusts. The Isaac software figures out which coast downs are the best and gives them highest weighting; other coast downs receive a lower weighting. You can look at the data manually and remove any "suspicious" coast down results, too.

9) The graph presents information regarding the Newton's measured wind scaling factors and riding tilt.

10) Generally, a rider's weight on the bike will cause the red line (uncorrected tilt) to slope downward. In this example the average slope of this "riding tilt" line is -0.3%.

Riding Tilt is used to determine Crr from frictional drag measurements, or frictional drag from specified Crr measurements.

11) Your Newton measures air pressure. The Cal Ride allows the Newton to determine the correct wind speed from actual air pressure measurements. In the graph the "Uncorrected Wind" speed shown in blue represents the raw measurements from the Newton.

12) <u>One consequence of a Cal Ride is that Average Wind Speed for the entire ride should be the same as average bike speed</u>. If the uncorrected average wind speed is not equal to the average bike speed, the calibration ride determines a "Wind Scaling Factor" that makes average bike speed and average wind speed the same. In the example above the Newton uncorrected wind speed (blue) is much higher than the average bike speed (white); a Wind Scaling Factor of 0.659 makes the average corrected wind speed (orange) equal to average bike speed.

Notice that Isaac software corrects the wind speed and that corrected wind speed is now accurate. When you upload this profile to your Newton the wind speed seen on your Newton will be the corrected value.

13) In the bottom right corner you'll see your riding tilt, wind scaling factor, Newton aero and fric drag coefficients, and drag coefficients expressed as CdA and Crr. These numbers will vary somewhat depending on which Crr selection you've made and which coast downs you've selected.

14) In the top center of the window is a place where you can name your profile. We suggest you give it a descriptive name; you'll use this name later on to call-up this profile. This profile will be saved on your computer!

IMPORTANT: When you've completed your review, **click the "Accept Profile & Send to iBike" button.** Your profile will be saved on your computer, AND your best-fit drag coefficients will be sent to your Newton, AND your Wind Scaling Factor and Riding Tilt will be sent to your Newton. Your Newton is dialed-in!

NOTE: IF YOU HAVE MORE THAN ONE BIKE, YOU'LL NEED TO CREATE AND NAME A CALIBRATION PROFILE FOR EACH OF YOUR BIKE SETUPS.

Setup/Set Time and Date

This command updates your Newton with the Date and Time stored in your computer.

Note that your date and time are automatically updated in your Newton each time you connect your Newton to Isaac.

Setup/Set Odometer…

This command sets the Odometer reading in your Newton to the value you enter in the Isaac software

Setup/Set Sample Rate…

Your Newton can record ride files with 1 second sampling or 5 second sampling. 1 second sampling provides the most detail; 5 second sampling provides the ability to record rides that are 5x longer.

Unless you are doing a multi-day bike trip, or download your ride files very infrequently, we recommend the 1 second setting.

Setup/Set Display Units…

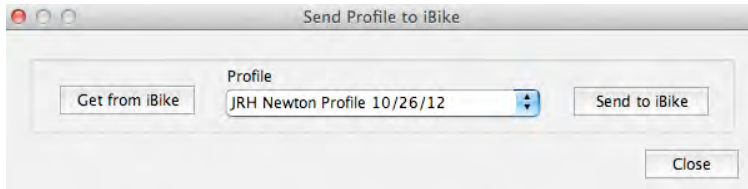This command allows you to set the display in your Newton to English or metric units.

Reset Profile/Device
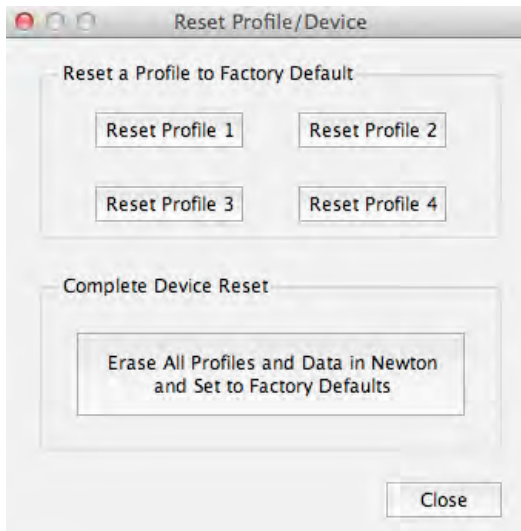
Setup/Send Profile to Newton…

If you wish to store a different profile in your Newton, or retrieve the profile currently stored in your Newton, this is the command to use.

Select the profile you want, then click Send to iBike

NOTE: THE "SEND TO NEWTON" COMMAND WILL OVERWRITE THE PROFILE THAT IS CURRENTLY STORED IN YOUR NEWTON!

Setup/Select Active Profile in Newton
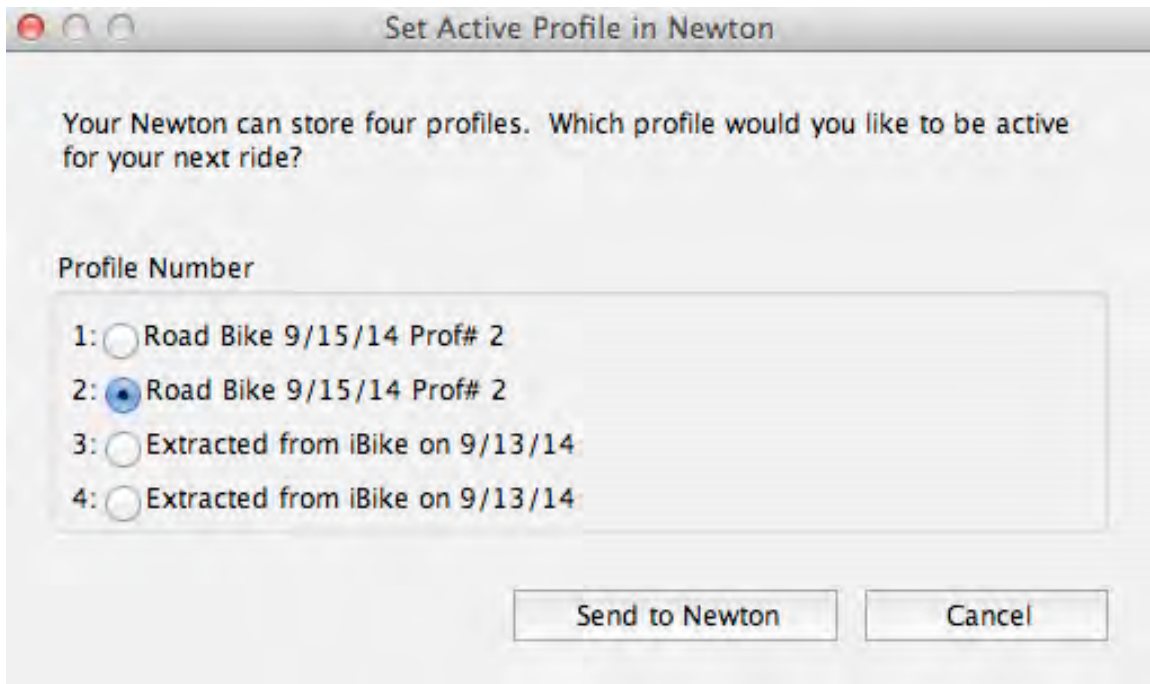
Device/Setup/Edit Intervals (Newton and Gen III/II/I only)…

You can create, save, upload, export, and import interval sets using the Isaac software.

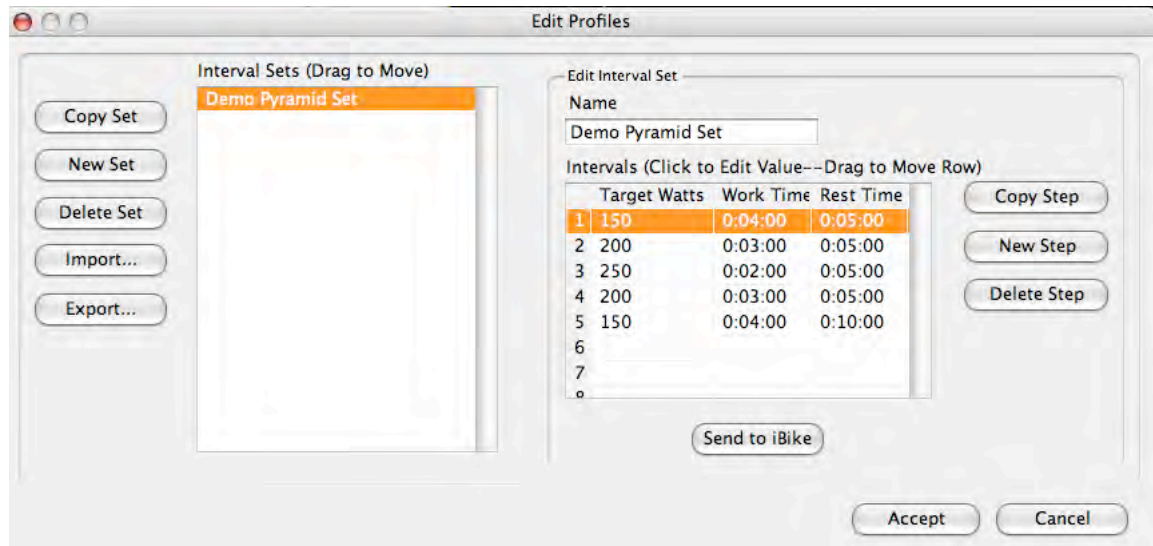This feature is very important if you're a power training coach, or if you are a cyclist trying to improve the quality of your training rides.

To get you started, your Isaac software comes pre-loaded with a "Demo Pyramid Set". To create, edit, save, import and export, and upload intervals, go to:
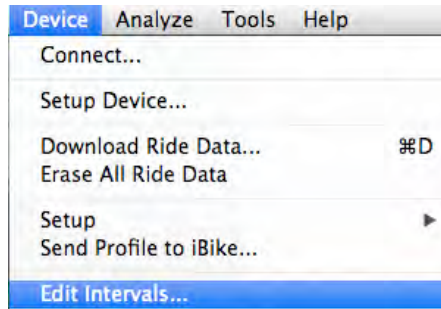
You'll see this screen:

The heart of this window is the "Intervals" box in the center right. In the box is the actual workout. Target watts, work time for the target watts, and rest time after the work time is a complete "interval". The idea of a power-based workout is to have a carefully-planned set of target watts intervals, controlled both for wattage intensity and time length, followed by rest periods.

Power training workouts are beyond the scope of this manual. We suggest you read a book such as *"Training and Racing with a Power Meter"*, by Coggan and Allen, to learn more about power training.

Use the buttons to create interval sets for your desired workout. Click "New Set" to create and name a new interval set. Type in Target Watts, Work Time, Rest Time for each interval, then click Copy Step, New Step, etc to build your workout.

Once your set is complete use the Send to iBike to load your interval set to your Newton.

If you're a coach creating Newton workouts for your athletes you can use the "Export" button to create a file that can be emailed to your athletes.

If you receive a Workout set by email, use the Import button to load it into Isaac software, then select the workout, then click the Send to iBike button.

That's all there is to it!

Turn On Indoor Trainer Mode   Turn Off Indoor Trainer Mode

If you have the Indoor Trainer Mode available in your Newton, these two commands will turn the Indoor trainer mode on or off.

IMPORTANT: WHEN USING YOUR NEWTON OUTDOORS, MAKE SURE TO TURN OFF INDOOR TRAINER MODE!

Device/Edit Trainer Settings…

## USING YOUR NEWTON WITH AN INDOOR TRAINER

The Isaac software makes it possible to use your NEWTON with an Indoor Trainer, *if you have installed the optional Trainer Unlock Ke*y (Newton and Gen III/II/I), available from the iBike Store, AND *your wheel speed sensor is located on your rear wheel.*

TIP: THE INDOOR TRAINER FUNCTION IS A STANDARD FEATURE WITH THE NEWTON+, POWERSTROKE, IAERO, AND IBIKE DASH + POWER.

## UPLOADING A TRAINER PROFILE TO YOUR Newton (Newton and Gen I/II/III only)

The principle of your Newton indoor trainer is very simple: most indoor trainers apply a resistive drag to the rear wheel that increases with speed. Each trainer has its own curve of power vs. speed; here's the curve for the Kurt Kinetic Road Machine:

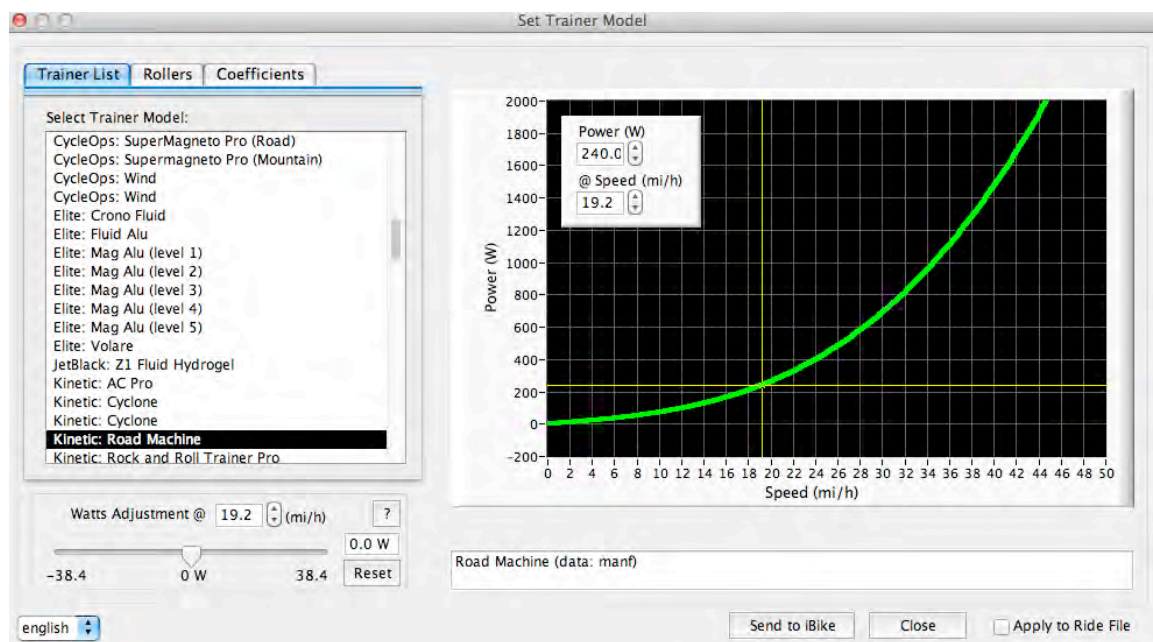Copyright Velocomp LLC 2005-2014
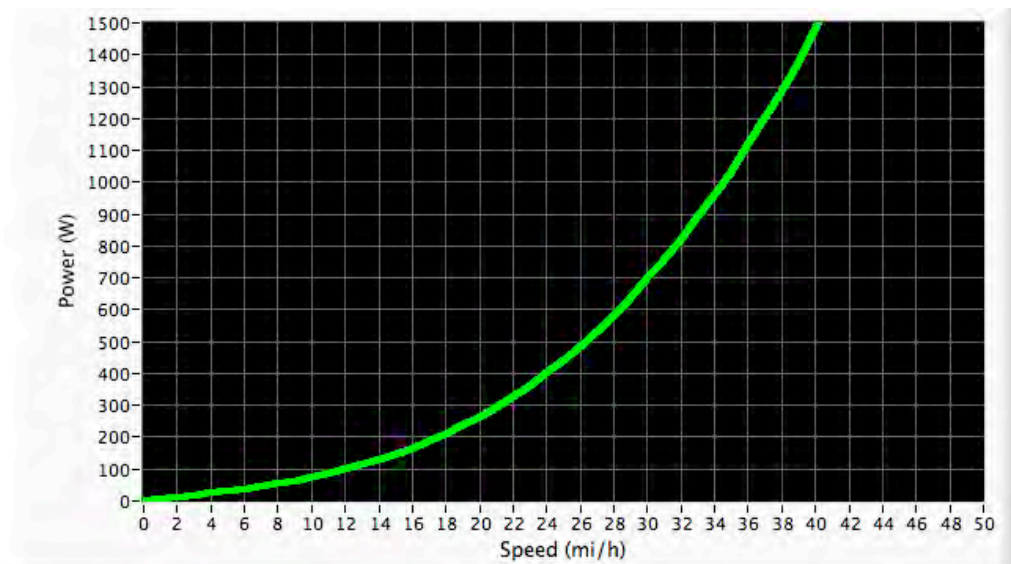
NOTE: IF YOU HAVE AN IBIKE DASH AND USE THE IBIKE APP, USE "OPTIONS/TRAINING FEATURES" FOR SETTING UP THE INDOOR TRAINER FUNCTION

You'll use the Isaac software to select the model of trainer that you own, then upload the curve to the Newton.

1) Select:
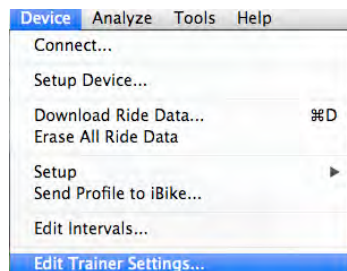
The following screen will appear:

2) Select the model of trainer you own. Its graph will appear on the right.

3) Click the "Send to iBike" button. The trainer profile selected will be sent to the Newton.

NOTE: THE CURVES USED IN THE ISAAC SOFTWARE COME FROM MANUFACTURER'S PUBLISHED INFORMATION AND FROM OTHER INTERNET-BASED SOURCES. VELOCOMP HAS NOT TESTED AND DOES NOT CERTIFY THE ACCURACY OF ANY CURVES USED IN ISAAC SOFTWARE.

NOTE: YOU CAN CHANGE YOUR TRAINER AT ANY TIME. SIMPLY SELECT THE TRAINER YOU WANT TO USE, THEN UPLOAD THE TRAINER PROFILE. YOUR OLD TRAINER PROFILE WILL BE DELETED AND THE NEW PROFILE WILL REPLACE IT.

HOW TO USE THE INDOOR TRAINER FEATURE

When you're ready to ride indoors, simply upload your trainer profile, and make sure your wheel speed sensor is located on the rear wheel of your bike.

You're ready to ride!

NOTE: MAKE SURE TO TURN YOUR INDOOR TRAINER FEATURE IS **"ON"** WHEN USING YOUR   NEWTON INDOORS. OTHERWISE YOUR NEWTON WON'T WORK PROPERLY!

NOTE: MAKE SURE TO TURN YOUR INDOOR TRAINER FEATURE **"OFF" WHEN USING YOUR NEWTON OUTDOORS.** OTHERWISE YOUR NEWTON WON'T WORK PROPERLY!

NEWTON: If you've set your Newton for indoor trainer usage, whenever your Newton awakens from sleep, or you do a Trip Reset, a "trnr on" notification appears. Clear the message by clicking the center button, or press-hold the center button to change the trainer setting (either on or off). With the Newton you do not need to block your wind port, as you do with older models.

GEN III/II/I UNITS ONLY: IF YOU'RE RIDING INDOORS AND USING A FAN TO COOL YOURSELF, MAKE SURE TO BLOCK THE WIND PORT OF YOUR IBIKE WITH A PIECE OF TAPE. OTHERWISE, YOUR IBIKE MAY AUTOMATICALLY REVERT TO OUTDOOR MODE.

<u>Device/Check Online for Trainer Update…</u>

From time to time we add new trainer profiles to the Isaac software (over 100 different trainers and rollers are supported). This command checks for any updates.

<u>Device: S/N and FW version</u>…automatically captures your Newton Serial number and firmware version:
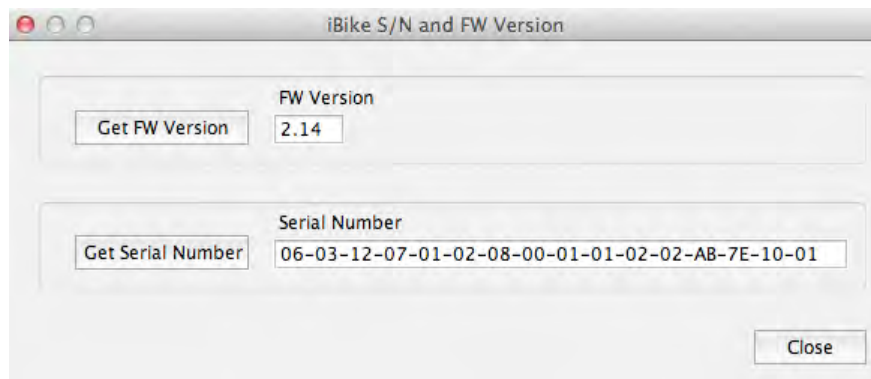
TIP: YOU CAN USE THE COPY AND PASTE FEATURES OF YOUR COMPUTER TO EASILY TRANSFER YOUR SERIAL NUMBER TO AN EMAIL OR OTHER DOCUMENT.

NOTE: WHEN YOU DOWNLOAD A RIDE IT IS **NOT SAVED** ON YOUR COMPUTER **UNLESS** YOU CLICK THE "SAVE" BUTTON ON THE MAIN SCREEN. CLICK THE SAVE BUTTON TO SAVE YOUR RIDE TO YOUR COMPUTER.

Device/Check Online for Firmware Update

Firmware is the computer program that controls your Newton.

When a new version of firmware is released it means that we've added features, or fixed bugs, that were in an earlier version of firmware. *The latest firmware version incorporates all of the changes of earlier firmware versions.*

So, it's a good idea to keep your Newton's firmware up-to-date.

When a new version of firmware is released, and you launch your Isaac software, you will get a message informing you that new firmware is available. Just follow the prompts to install.

Alternatively, use this command at any time to check for firmware updates.

Device/Unlock Feature…

INSTALLING A FEATURE "KEY" ON YOUR NEWTON

If you have purchased an feature key (Newton Tracker key, CdA key, etc), you will need to install the "key" that enables the feature on your Newton.

> **NOTE**: THE UNLOCK KEY IS CUSTOMIZED TO YOUR NEWTON'S SERIAL NUMBER. IT WILL NOT WORK WITH ANY OTHER NEWTON. ONCE YOU INSTALL THE KEY YOUR NEWTON WILL NEVER AGAIN REQUIRE INSTALLATION OF THE KEY.

> **NOTE**: YOU WILL NEED TO PROVIDE YOUR SERIAL NUMBER IN ORDER TO OBTAIN A TRAINER UNLOCK KEY.

1) Purchase your Feature Key from the iBike Store.
2) Locate your Newton serial number (Device/SN and FW Version…) and email the serial number to technicalsupport@velocomp.com
3) You will receive an email from Velocomp with a small file attached; this is your Feature key. The file will have a peculiar name ending in .enc; HOWEVER, the four characters of the file name immediately preceding the .enc suffix will be the last four characters of your serial number
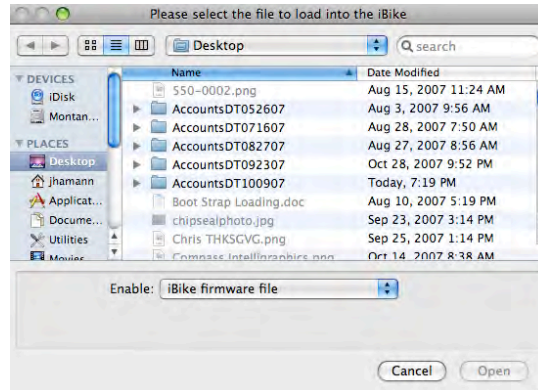4) Place your trainer key file on your desktop. Then, select Device/Unlock Feature:
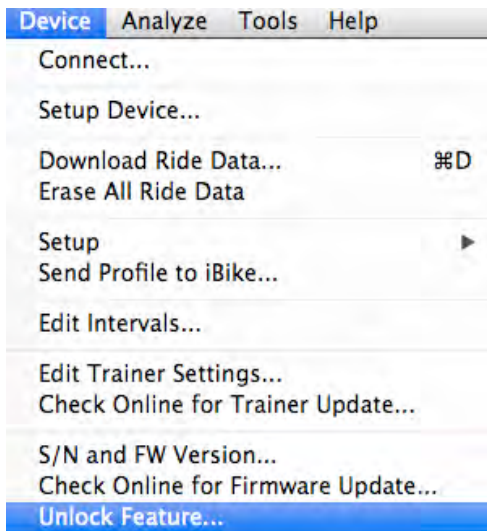
This screen will appear. PAY ATTENTION TO THE WARNING MESSAGES!
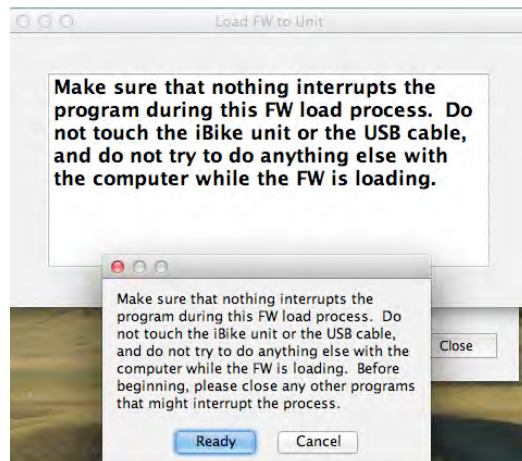
5) Click "Ready". After a few seconds this screen will appear…

**NOTE: YOUR newton MUST BE TURNED ON!**

Navigate to the key file you placed on your desktop. Then, click the "Open" button to upload the key to your Newton. This will take only a few seconds.

WARNING: DO NOT TOUCH YOUR NEWTON OR YOUR COMPUTER DURING THE UPLOAD PROCESS

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6) Once you have uploaded your key you should be able to set your Indoor Trainer to "On". You will never have to repeat this process again for your Newton.

IMPORTANT: THIS SAME PROCESS IS USED TO UNLOCK OTHER FEATURES OF YOUR NEWTON, SUCH AS GT COMPATIBILITY

Device/Newton Tracker Login/Register…
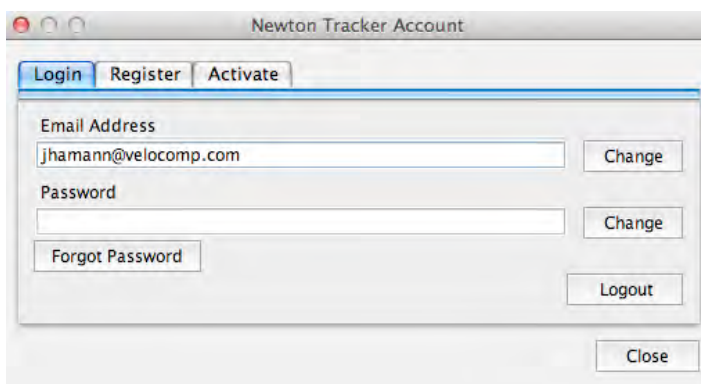
This screen allows you to login, register, and activate the Newton Tracker feature for your Newton. See the Newton Tracker instructions, located in the Help menu of Isaac.

Device/Newton Tracker Get GPS Data…

Normally, your Newton Tracker GPS data will automatically merge into your ride file whenever a new ride file is downloaded. If the NT GPS data does not automatically merge, this command allows you to manually start the merge process.

Device/View Newton Tracker Community…

Wonder where your fellow Newton owners are riding? This command allows you to see where people are riding. Use Google Earth to view the data. Flags are planted…
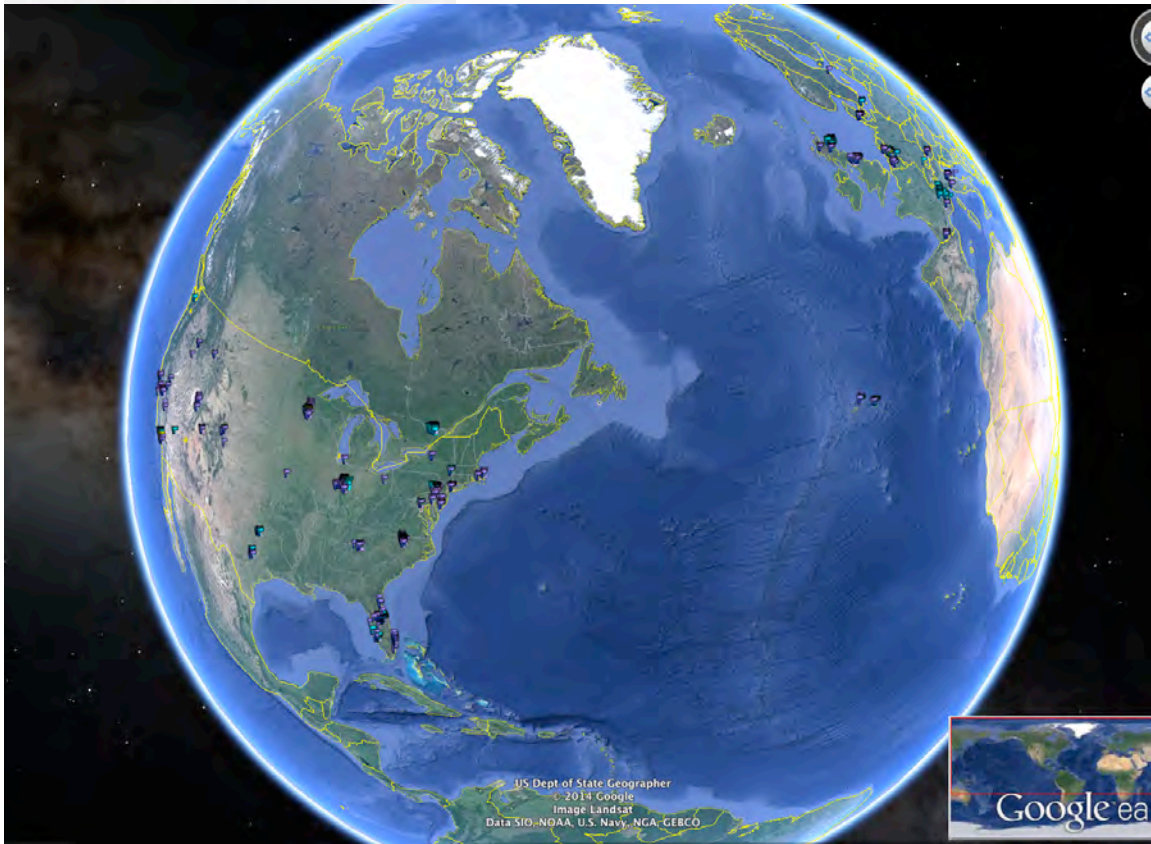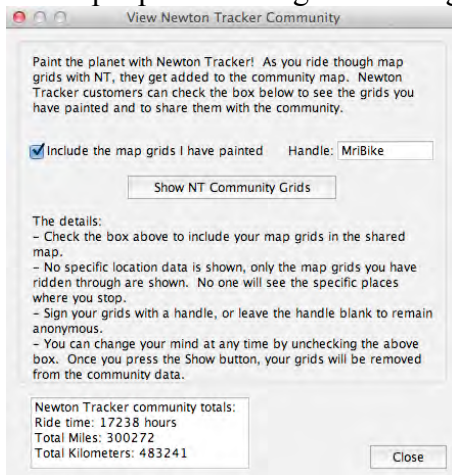
ANALYZE MENU
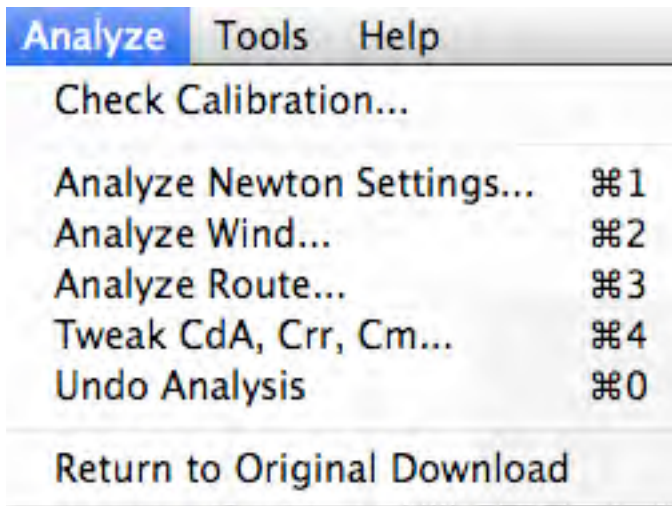
Analyze/Check Calibration…

Calibration is part of the Newton setup process and when your Newton is calibrated properly then you'll get accurate, consistent results.

The Analyze/Check Calibration feature is used to spot-check your ride files for calibration accuracy and, if necessary, to "tweak" the Newton profile to dial-in accuracy even more.

The Check Calibration feature works correctly only with ride files that have these characteristics:

1) The ride is an out-and-back ride
2) No drafting is done during the ride
3) Wind conditions do not change during the ride
4) The Newton's wind calibration (Cal Wind) is correct. This is especially important for Gen III/II/I units

If your ride file has ALL of the above characteristics, then you can use the Check Calibration feature.

> **TIP: THIS FEATURE WORKS WITH NEWTON, GEN III/II/I, AND IBIKE DASH+POWER RIDE FILES**

Here's how to use the command:

1) Open the ride file you wish to check. **Make sure the file meets all four requirements above.**

Here is an example ride that meets these criteria. Note that the elevation profile is symmetrical around the center point of the ride, indicating that this was an out-and-back ride:
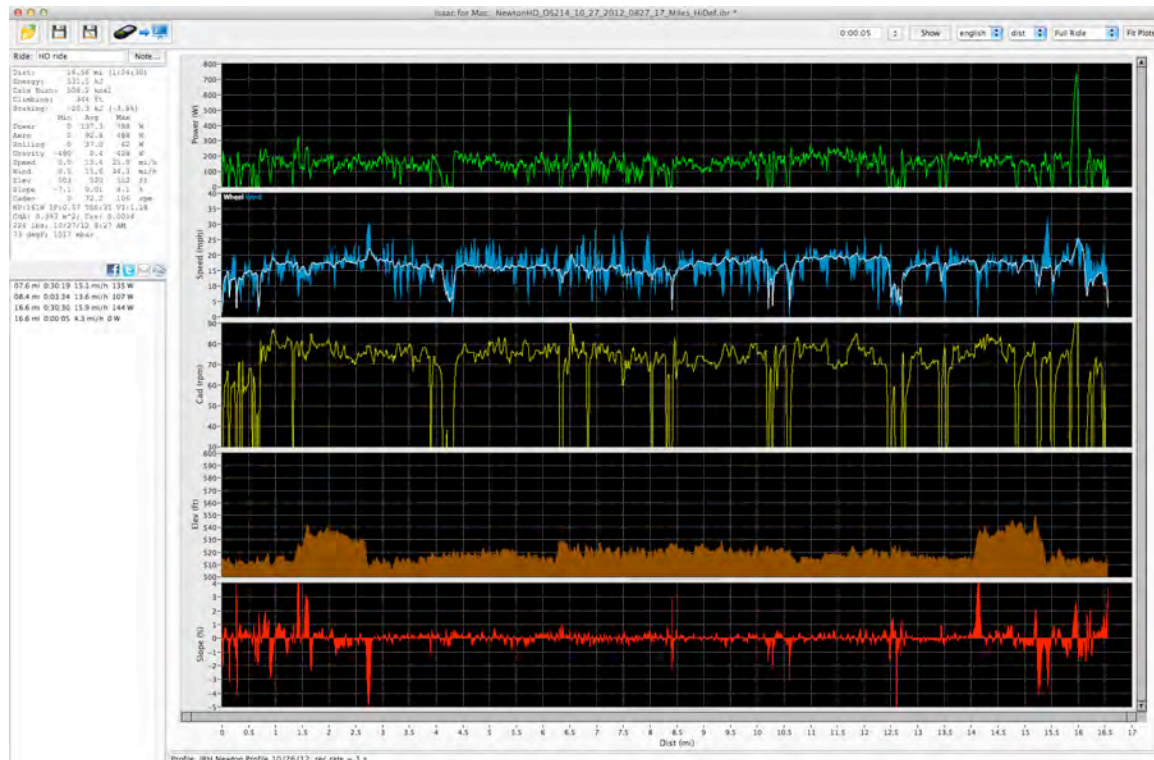
2) Select the Analyze/Check Calibration… command. You'll be asked the following:

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If you own a Newton, click "Yes" (Cal Wind is not required). If you own a Gen III/II/I, then click Yes ONLY if you did a Cal Wind prior to the ride.

3) You'll see this window appear:

The Gauge in the center right provides a visual assessment of your calibration. If the needle is in the Green range, then your calibration is good. If the needle points close to the red zone, then your Newton profile needs adjustment.

If you wish to correct your ride file, click the Accept button; this will correct the ride file selected. If you wish to correct your ride file AND send the corrected profile to your Newton, click the Send Profile to iBike button. If you decide to leave your ride file alone, click the Cancel button.

Check Calibration Guidelines

In general, the Check Calibration command is most useful when you've first started using your Newton. Check Calibration is a nifty way to dial-in your Newton, and we recommend you try it out.

There is a natural tendency to strive for the highest "accuracy" in our cycling measurements, and the Isaac software includes powerful, proprietary tools for checking the calibration of any out and back ride file. (Note: there is no comparable way of checking, post-ride, if a DFPM was properly calibrated prior to a ride, or if its calibration drifted during the ride).

Since we all want highest accuracy, it's very temping to use the Analyze/Check Calibration with *every* out-and-back ride.

We strongly recommend against overusing the Check Calibration, because *more important than highest accuracy is ride-to-ride consistency*. That is, in order to know if you're improving, you want to be able to compare today's results with last week's results. If your numbers are increasing, then likely you're getting better.

And if you're constantly tweaking your profile, it won't be clear if your watts increased because of better riding, or because of a profile tweak.

In particular, the iBike Newton performs with very high consistency from ride to ride. So, once dialed-in properly there should be no reason to adjust its calibration.

In fact, whenever you "tweak" your ride files with the Check Calibration command, you are messing with the ride-to-ride consistency that tracks progress over time. You'll even get a warning message if you choose to adjust your ride when the changes are minor:
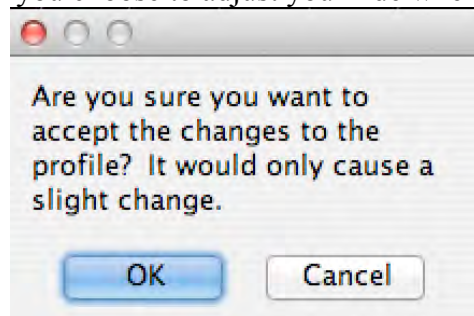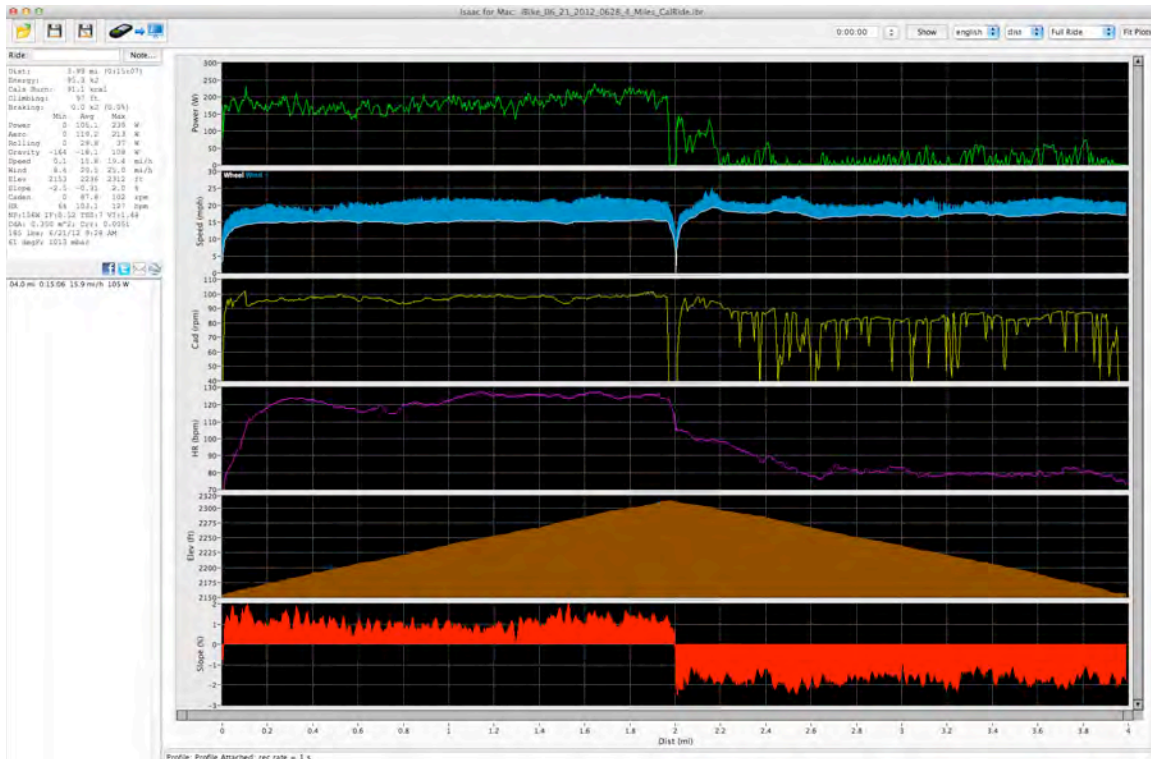

In summary: if your Newton is calibrated properly, then leave it alone!

What if my needle is in the red range?

Here is an example of an out-and-back file where Check Calibration will really help (note that the wind is constantly above bike speed, indicating a calibration problem):

The elevation profile is symmetric—a necessary requirement for Check Calibration. Note, however, that there are blue "flames" of high wind speed constantly above the white bike speed; in an out-and back ride, the wind speed setting should be symmetric.

So, Check Calibration can really help this profile!

When Check Calibration is used, it will prompt the user to confirm certain things. For this ride:
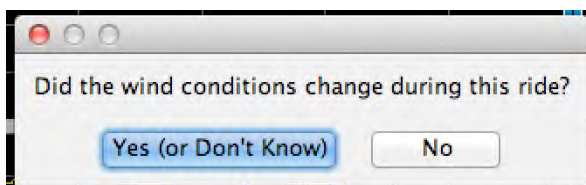
Click "no", then the analysis is performed:

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Check Calibration Using Out & Back Ride

Traffic Conditions: None

Aerodynamic Resistance (CdA): Original | Estimated

CdA (m^2): 0.350

Rolling Resistance (Crr): Original | Estimated

Crr: 0.0051

english

Edit Route

Calibration Changes

```
Aero             0.403 ->   0.245
Wind Scaling     1.150 ->   0.700
CdA              0.350 ->   0.350 m^2
Fric             4.213 ->   5.859
Riding Tilt        0.0 ->    -0.2 %
Crr             0.0051 -> 0.0051
Cal Weight         185 ->     185 lb
---------------------------------
Avg Power        104.0 ->   106.9 W
Avg Wind           4.5 ->     0.0 mi/h
```

Significance of Profile Change: Significant

Show Graph & Stats

Send Profile to iBike

Accept | Cancel

The needle is in the red range, in this particular example because the wind scaling factor is wrong. It's likely that the Cal Ride was done improperly.

Click the Accept button to correct the ride file. Afterwards, you'll see that wind speed is nicely symmetric too. WITH THIS CHANGE, IT SHOULD NOT BE NECESSARY TO PERFORM FURTHER "CHECK CALIBRATIONS" FOR THIS UNIT

Garbage In, Garbage Out

This Check Calibration command cannot work properly if the Newton has been setup improperly. As an example here is a ride file that shows improper setup:

The elevation data is symmetric, but the wind sensor data is wildly "off" (wind "icicles" hanging below bike speed), indicating that the Cal Wind calibration was done improperly. If Check Calibration is performed with this ride file, the Newton will be in WORSE shape, not better.

The user should answer "No" to the question "Was a Cal Wind done properly prior to starting this ride?"

This ride file indicates that the user needs to "start from zero"—a completely new set of calibrations and Cal Ride.

Check Calibration with a DFPM

If you are using your Newton with a DFPM, then the Check Calibration procedure can precisely calibrate your Newton with the DFPM as a reference.
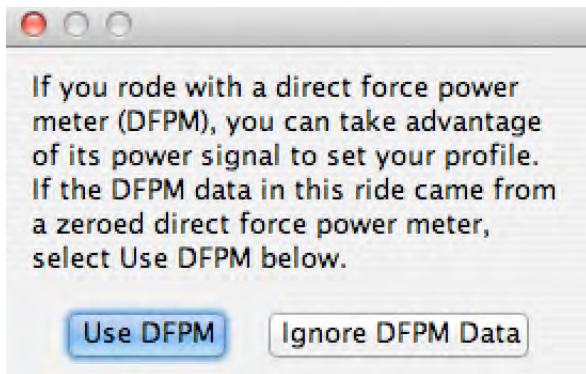
NOTE: Your DFPM is assumed to be properly calibrated.

Here is an out-and-back ride file that was recorded with a DFPM (note that the View DFPM box is visible)
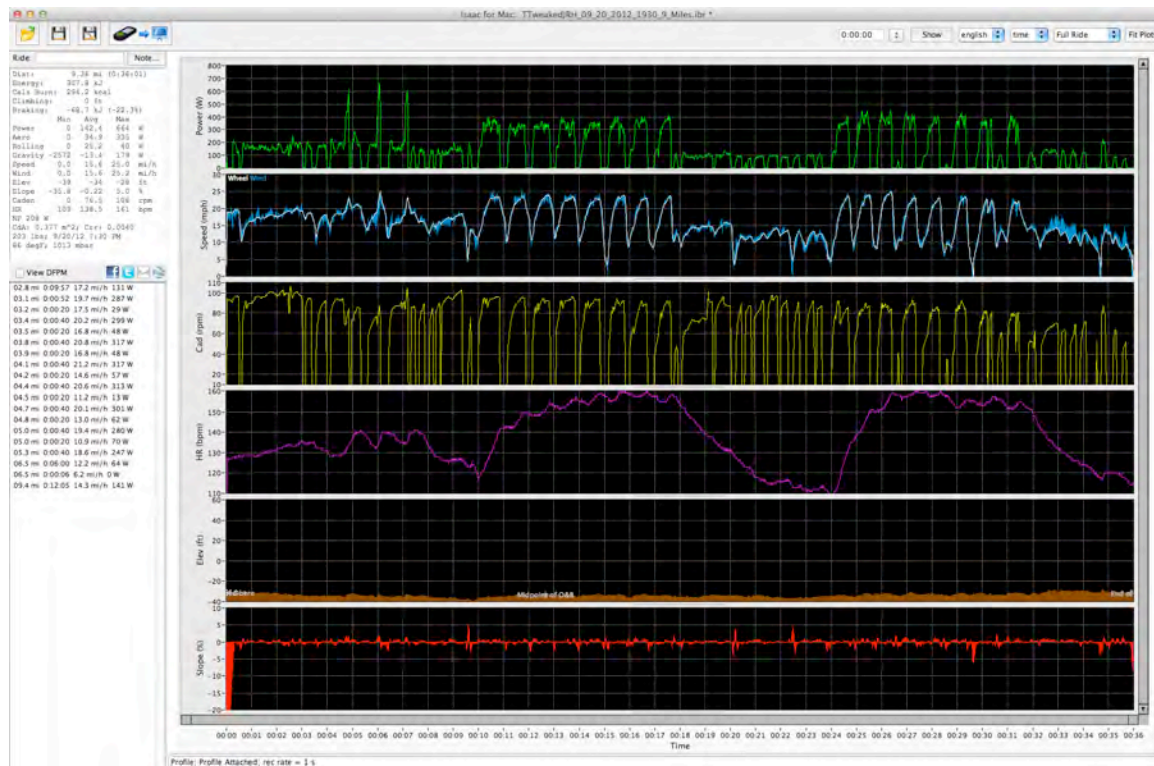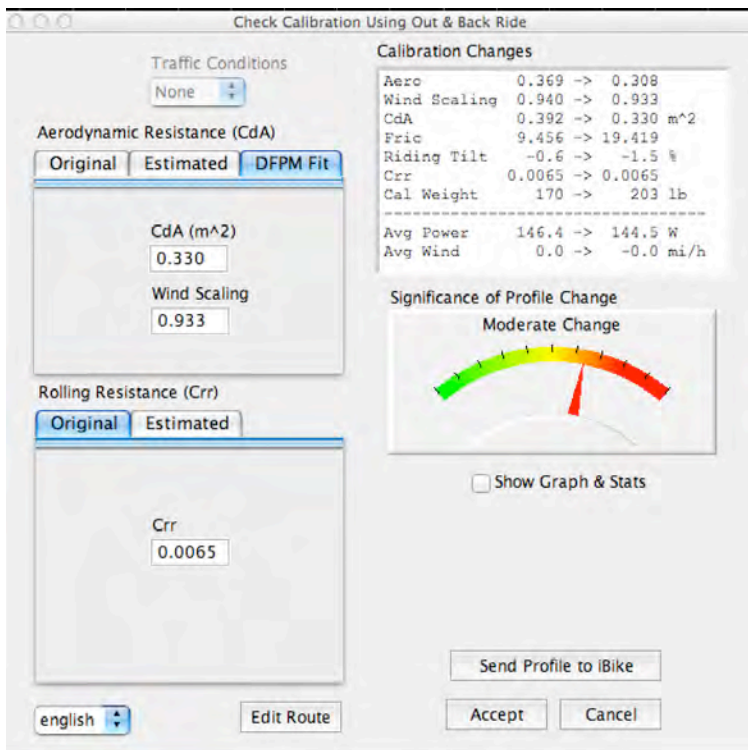
When Check Calibration is performed a new screen appears:

Click "Use DFPM".

You can now customize the calibration of your Newton against your DFPM. In this particular example needle is near the red zone; the rider's Crr is too high (.0065 is more representative of a mountain bike; this rider cycles with a road bike on asphalt roads, and uses premium tubulars):

So, in the Crr box we click on the Estimated tab, and select tubular premium tires:

Note that Crr drops to 0.0041, and that CdA is automatically best-fitted to the value 0.375. Click Send Profile to iBike to send the best-fit profile to the Newton. Now, your Newton is calibrated to your DFPM (and you can return the DFPM to the person who loaned it to you)! ☺

```
--------Selection Stats--------          --------Selection Stats--------
Dist:        2.36 mi (0:07:40)           Dist:        2.36 mi (0:07:40)
Energy:     105.4 kJ                      Energy:     104.2 kJ
Cals Burn:  100.7 kcal                    Cals Burn:   99.6 kcal
Climbing:        0 ft                     Climbing:        0 ft
Braking:     -20.6 kJ (-19.5%)           Braking:     -20.6 kJ (-19.7%)
           Min   Avg   Max                          Min   Avg   Max
DFPM Pow     0  229.1   428  W            Power        0  226.5   411  W
Aero         0  145.8   281  W            Aero         0  145.8   281  W
Rolling      6   30.8    40  W            Rolling      6   30.8    40  W
Gravity   -156   -0.1   105  W            Gravity   -156   -0.1   105  W
Speed      3.6   18.5  23.9  mi/h         Speed      3.6   18.5  23.9  mi/h
Wind       0.0   18.4  25.1  mi/h         Wind       0.0   18.4  25.1  mi/h
Elev       -37    -34   -32  ft           Elev       -37    -34   -32  ft
Slope     -3.0  -0.00   1.4  %            Slope     -3.0  -0.00   1.4  %
Caden        6   80.6    97  rpm          Caden        6   80.6    97  rpm
HR         117  150.7   160  bpm          HR         117  150.7   160  bpm
NP 256 W                                  NP 257 W
CdA: 0.375 m^2; Crr: 0.0041               CdA: 0.375 m^2; Crr: 0.0041
203 lbs; 9/20/12 7:40 PM                  203 lbs; 9/20/12 7:40 PM
86 degF; 1013 mbar                        86 degF; 1013 mbar
☑ View DFPM                               ☐ View DFPM
```

Analyze/Analyze Bike Settings…

This is the screen where you can adjust your wheel circumference, starting elevation, and rider weight. Any changes will be reflected in the ride file.
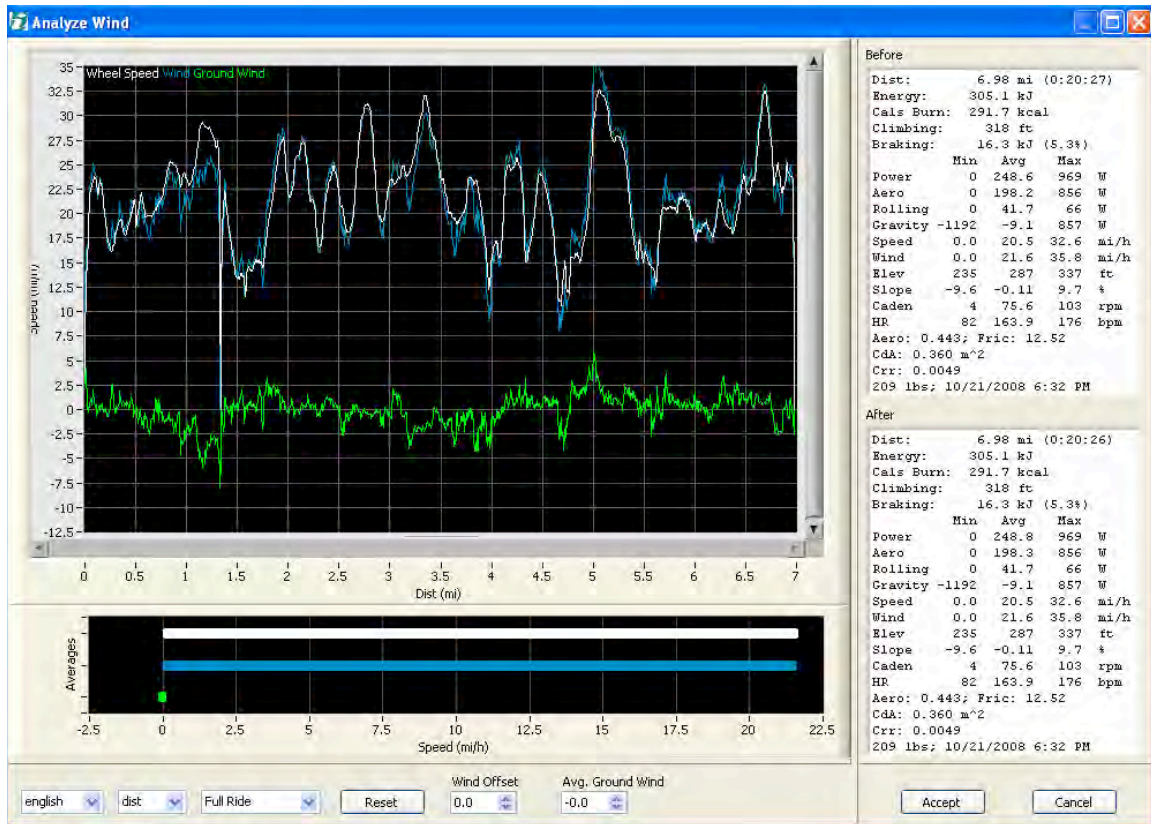

Analyze/Analyze Wind:

This command analyzes wind speed data. Use this command ONLY under the following circumstances:

1) A good wind cal was done prior to the ride (Gen III/II/I)
2) No drafting was done during the ride
3) The ride was out-and-back

This command will adjust your wind speed if necessary so that average wind speed equals average bike speed (as must be the case for out and back rides).

When there is no ambient wind (wind is calm), or when you do an out-and-back ride, then the difference between average bike speed and average wind speed should be zero.

In this command you can check to see what your Newton reported and, if desired, alter the wind speed to reflect actual conditions. To adjust the average wind speed, change the number in the "Average Ground Wind" box. You'll see the results of your adjustments in the After stats.

Analyze/Analyze Route…

This command is very similar to the Check Calibration command, and all of the cautions of the Check Calibration command apply to this command. The primary difference in this command is that you can get more detail about what parameters are adjusted.

Analyze/Tweak CdA, Crr, Cm

In this command you can adjust the values of CdA (aerodynamic drag), Crr (rolling resistance) and Cm (drive train losses).

Why would you want to tweak these parameters? Here are three scenarios (more are possible)

1) Your Newton was set to the "ride on hoods" position, but in the ride you happened to ride in the drops. You can tweak down your CdA, in order to reflect the more efficient ride position
2) You decided to ride your road bike on a dirt road. You tweak Crr to a higher number, to reflect the higher rolling resistance
3) After the ride you find out that your rear brake was rubbing constantly against the wheel. You tweak Cm to a higher number to reflect the drive train loss
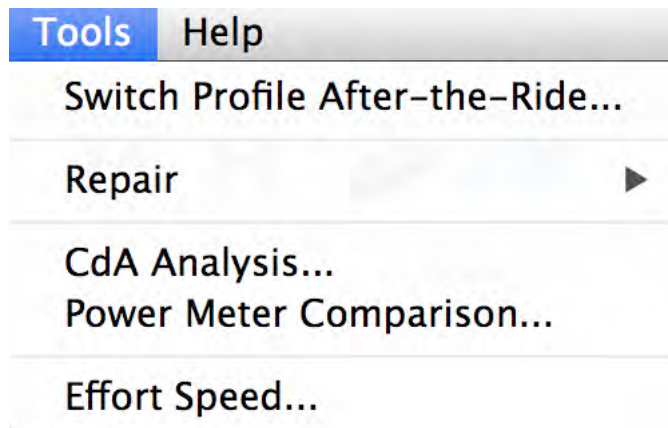
Analyze/Undo Analysis

Use this command to undo the step you just performed.

Analyze/Return to Original Download

Use this command to return to the original data downloaded from your Newton

TOOLS MENU

Switch Profile After the Ride

If you accidentally loaded the wrong profile into your Newton before starting your big ride then your data won't be as accurate as it could be. No worries: just use the "Switch Profile After the Ride" command to select the profile you should have used. Your ride data will be displayed with the correct factors and your results will be at their highest accuracy. Here's what the screen looks like:
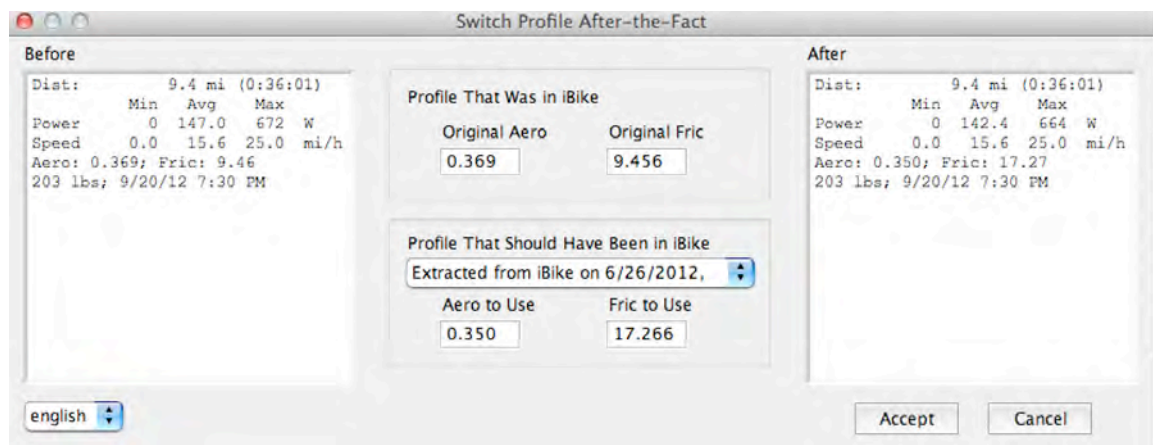
In the bottom center window, select the profile you want to use, then click the Accept button.

NOTE: Use the Device/Send Profile to iBike… command to send the correct profile to your Newton.

Tools/Repair…
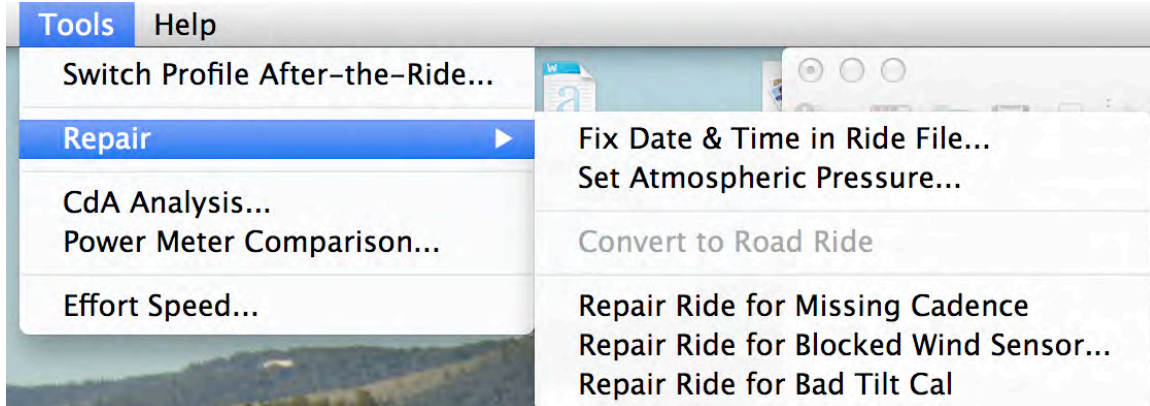
The first two commands are self explanatory.

Repair/Convert to Road Ride

If you did an outdoor ride and accidentally had your Newton set to Trnr On (trainer on), then you will get wacky watts readings.

If this command is not "greyed out" then your ride was, indeed, recorded as a trainer ride, and you can convert your ride file into an outdoor version. The data won't be quite as accurate as if you had Trnr Off while doing your ride, but it will be pretty good.

Repair/Repair for Missing Cadence

During a bike ride, if you knock your cadence sensor out of position your reported watts will go to zero (cadence = 0 means power = 0). However, with this command you can restore your power readings, even where cadence equals zero.

Click-drag on the main screen to highlight the area to be corrected, then execute the command.

Repair Selection for Blocked Wind Sensor

When riding in the rain, if too much rain gets in the wind port then the Newton can show some crazy watts. If you ride frequently in the rain we recommend that you purchase a Remote Wind Sensor, a device that will keep water from entering the wind port.

If you do have a ride file where your wind port is blocked, use this command to remove the effects of incorrect wind readings. Highlight the area of the ride where wind readings are incorrect, then apply the command. The Isaac software will estimate the value of opposing wind in the area highlighted and compute the corresponding level of watts.

Note that this repair won't be accurate for group ride situations.

Tools/CdA Analysis

If you have a ride file which was recorded with a Newton+ or iAero, AND and a DFPM, you can look at your CdA at each moment of your ride, as well as the time benefit (time advantage) of changing your ride position.

Tools/Power Meter Comparison

If you have a ride file which was recorded with a Newton+ or iAero, AND and a DFPM, you can look at your CdA at each moment of your ride, as well as the time benefit (time advantage) of changing your ride position.

Here is an example of what you'll find:

Tools/Effort Speed…

Every cyclist knows that it is easier to ride with the wind at your back, compared to when the wind is in your face. But, just how much easier is it?

And, when you're riding solo and a speedy group ride goes zooming by you, it's natural to ask: are those cyclists working as hard as you are on your solo ride?

The exclusive Effort Speed command answers both questions. At any point of your bike ride, Effort Speed is how fast you would travel, without the benefit of any tail wind, or the penalty of head wind.

Here's an example. In this section of the ride, between miles 8.4 and 9.3 the cyclist is riding into a 3 mph headwind, and average bike speed is 17.2 mph.

The cyclist turns around at mile 9.3—now, there is a comparable tail wind. The cyclist's average speed over the same part of road is 20.6 mph. But, is the cyclist still working as hard?

Highlight the area between miles 8.4 and 10.1, then use Tools/Effort Speed. Here is the result:

The plot shows the headwinds (between 0 and mile 9.6), then the almost symmetrical tail wind on the return trip.

The white line is measured road speed (bike speed). The cyclist averages about 18.2 mph in the headwind section, then goes well above 22 mph on the tailwind section.

However, the red Effort Speed graph tells a very different story: The cyclist's average Effort Speed on the headwind leg is closer to 21 mph between miles 6 and 8, and on the comparable portion of the return leg, miles 10-12, Effort Speed is about 20 mph, LOWER than the tailwind leg. So, the cyclist has actually backed-off on effort, even though road speed is greater…

This is a good way to compare your efforts on days when the wind is blowing hard, to rides on the same roads when winds are calm.

HELP MENU
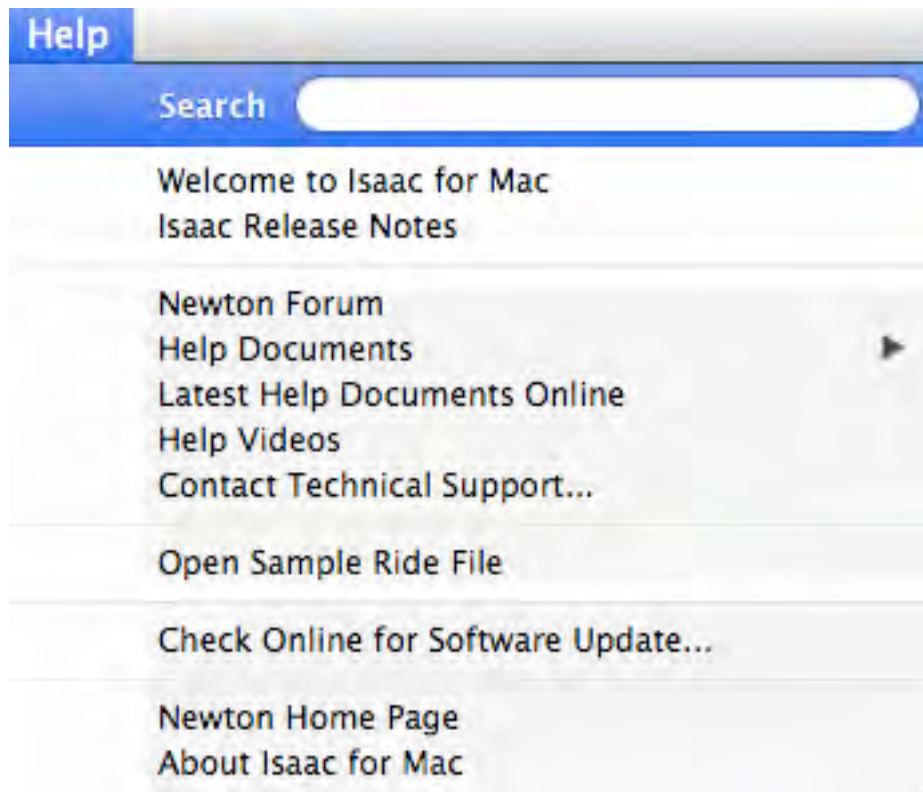
Help/Welcome to Isaac…

This item takes you to basic setup information for your software and your Newton.

Help/Release Notes

You can review this item to find out what is new in each revision of Isaac software.

Also included are direct links to www.ibikeforum.com, where you can find answers to many other questions, and to iBike Technical support.

Help Documents includes detailed instructions, in pdf format, that you can use/print.

Help Videos provide tips for Newton setup, calibration, and other topics.

Open Sample Ride File takes you to a file that shows many of the features of your Newton and of the Isaac Software.

Check Online for Software Update is the command to use to make sure your version of Isaac is the most current.

About Isaac shows the version of software you're currently using.

OTHER RESOURCES

NEWTON FORUM

There are thousands of Newton owners, and here's a great place to meet some of them and get your questions answered:

http://www.ibikeforum.com

Sign on as a member so you can learn more about Isaac software, and make sure to contribute your knowledge too!

Or, go to our Facebook page: "ibike power meters"

TECHNICAL SUPPORT

If you have questions regarding the operation of your Isaac software that can't be answered from the help documents and links, please email us at:

technicalsupport@velocomp.com

We will get back to you quickly.