



RCLogbook

Version 5.1

User's Guide

clevertangerine software

Table of Contents

Table of Contents	2
Welcome.....	5
Overview	5
Basic Concepts.....	5
What’s New in 5.1?	6
Starting RCLogbook for the First Time	6
Starting RCLogbook After Updating the Application.....	7
Updating from RCLogbook Version 4.6.2 or Earlier	8
Updating from RCLogbook Version 5.0.0 or Later.....	11
Starting RCLogbook after Changing Your Device	11
Contacting Us	11
Settings and Configuration	12
An Introduction to the User Interface	15
General Organization	15
Editing in Text Fields.....	16
List Views and Edit Mode.....	16
Filtering Information in the Interface	17
Indicating the Availability of Filtering	18
Selecting a Filter	18
Editing a Filter.....	19
Terms.....	20
An Overview of the Tabs.....	25
Activities Tab.....	25
Models Tab	26
Batteries Tab	28
Setup Tab.....	30
Pilots Section.....	31
Globals Section	34
Database Section	38
Miscellaneous Section.....	43
Scan Tab	43
Locations	45
Location User Interface.....	45

Creating a New Location.....	46
Editing an Existing Location.....	47
Reporting	50
Event/Maintenance Log Reports.....	52
Barcode Reports	53
Events	56
Significant Changes from Earlier RCLogbook Releases.....	56
Adding a New Event.....	57
Editing an Existing Event.....	58
Editing Dates in Events	59
Logging Events	62
Step 1: Selecting the Model and Batteries	63
Specifying Models and Batteries for Events Through Lists.....	63
Specifying Models and Batteries With the Barcode Scanner	64
Step 2: Performing Actions from a Pre-Event Checklist.....	65
Step 3: Setting the Date and Duration with the Timer	66
Step 4: Performing Actions from a Post-Event Checklist	69
Step 5: Gathering Post-Event Information and Saving the Event.....	69
Cancelling Event Logging	70
Continuing Interrupted Events	70
Batteries.....	72
Adding a New Battery	72
Editing an Existing Battery	75
Logged Cycle Details	76
Cycles	78
Significant Changes from Earlier RCLogbook Releases.....	79
Adding a New Cycle.....	80
Editing an Existing Cycle.....	80
Cell Parameters	82
Editing Charge and Discharge Dates	82
Logging Cycles	85
Initiating Cycle Logging from the Battery list	85
Initiating Cycle Logging Using the Barcode Scanner	86
Specifying Cycle Parameters	86

Applying Cycle Parameters to Batteries	88
Battery Performance.....	90
Comparing Multiple Batteries	91
Filtering Cycles.....	92
Plots	92
Battery Performance Overview Plot	92
Battery History Overview Plot.....	93
Average Energy Consumption Plot	94
Average Time to 80% Plot.....	95
Post-Charge and Post-Discharge Resistance and Voltages Plots	95
Happy Flying, Boating, or Racing	97
About clevertangerine software	97
Revision History	97

Welcome

Overview

RCLogbook has many capabilities that are not apparent at first glance. It is worth taking the time to read through this guide to familiarize yourself with the application.

RCLogbook is an iOS application designed by an RC pilot for RC modelers who need a convenient and effortless logging solution for their RC models and batteries. After entering basic information about your models and batteries (such as names, capacities, photos, and so on), RCLogbook helps you capture and edit information on events such as the total time or location. RCLogbook is designed to integrate seamlessly with your modeling by traveling with you to the flying field, racetrack, or lake.

With RCLogbook, you can keep a log of each flight or race that includes information such as the duration, location, fuel and the batteries that were used. RCLogbook automatically tracks information such as the total time on the model or number of flights. RCLogbook's built-in event timer is integrated with the tracking making it easy to gather information. The timer supports count up and down modes and can use voice or chimes to let you know when you need to think about bringing your model back. The timer also supports a click track to help you pace maneuvers. Events can also be logged without using the timer for situations where you want to directly specify the event information and do not want to use the timer.

RCLogbook tracks battery charge and discharge cycles, including information such as resting voltages, discharge durations, charge amounts, and storage state. RCLogbook automatically updates discharge information at the end of a flight or race and can compute various battery-related statistics. Using this information, you can watch the health of your batteries.

Beyond the basic event and battery tracking, RCLogbook supports maintenance logs and checklists that help you keep your models in top shape. It includes a built in barcode system for your models and batteries to make logging even easier. Finally, RCLogbook can filter and report on your database contents to produce reports on the flights or maintenance you have logged.

RCLogbook requires an iPhone^a, iPad, or iPod[®] Touch running iOS 10.0 or later. Like most iOS applications, it will run fine on an iPad.

We hope you enjoy RCLogbook.

Basic Concepts

RCLogbook is at its core a user interface that displays records from a database. These records correspond to items in the real world, such as a model, or concepts, such as an event.

RCLogbook is built around two main items: models and batteries. Additional items are related back to models and batteries. For example, a battery may have a related set of cycles, a model may have a related set of events, an event for a model might have a location, or a model may have a list of maintenance items. The main items, models and batteries, are straightforward and represent what you would expect: a single model (airplane, helicopter, sailplane, etc.) and a single battery pack.

The most common item associated with a model is an event¹; the events for an airplane model represent flights. RCLogbook defines an event as an interval over which a model is operating from an “energy source” (such as fuel or batteries). In other words, an event begins with model batteries being changed (or, equivalently, the model being fueled) and ends when the energy source has been depleted by some amount. The event’s duration is the period of time during this interval that the model is operating. In addition to the batteries used during the events, the event also includes location information, duration, fuel consumed, propeller used, user-defined style, pilot, notes and so on. See the *Events* section for more information.

A model may also have an associated user-defined category and a set of checklists. The checklists can be set to occur either before or after an event or to represent maintenance activities that should be undertaken regularly. Maintenance activities are captured in a per-model log as they are performed.

The most common item associated with a battery is a cycle. RCLogbook defines a *cycle* as a *discharge phase* followed by a *charge phase* that cycles the battery from a charged state, through a discharged state, and then back to a charged state. All cycles, except the most-recent cycle, must have both a discharge and a charge phase. See the *Cycles* section for more information.

What’s New in 5.1?

The major new features in RCLogbook 5.1 include:

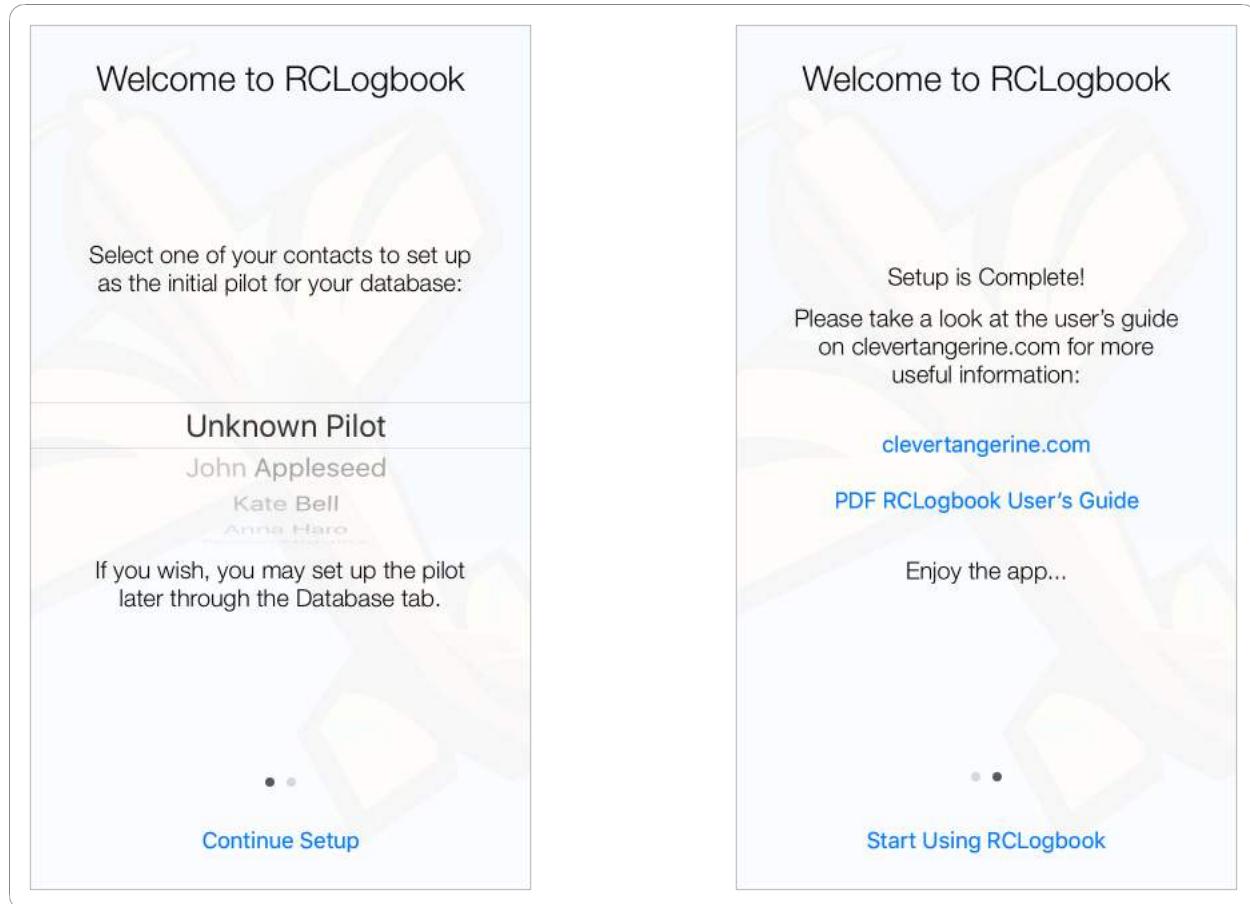
- ◆ New Activity tab presents a calendar-based look at your database.
- ◆ New organization of pilot information in Setup tab with new pilot statistics.
- ◆ Favorites for current pilot now appear in Models tab.
- ◆ iPhone X support.
- ◆ Added LiHV battery chemistry.
- ◆ Return of text-based import.
- ◆ Added link to RCLogbook App Store review page in Setup tab.
- ◆ Fixed bug in fuel purchase price, this will require re-entry of fuel prices values in Setup tab.
- ◆ Fixed bug in fuel statistics computations.
- ◆ Bug fixes and stability improvements.

For more information on these features, see the remainder of this user’s guide. A detailed change log for each release can be found at the end of the guide.

Starting RCLogbook for the First Time

When you launch RCLogbook for the very first time (that is, following a completely new install, not an upgrade), RCLogbook will create a new, empty database for you and go through a two-screen setup process.

¹ The term “Event” is generic; the interface will refer to “flights”, “races”, etc based on model type.



The first screen, on the left prompts you to select a person from your contacts to serve as the initial pilot for the database (others can be added later, see the *Database* tab). You may elect to set the pilot up later if you desire.



iOS will ask you to permit RCLogbook to access your contacts. RCLogbook only uses your contacts to build pilot records for its database. Prohibiting RCLogbook from accessing your contacts (or not selecting a pilot) will disable some features, such as per-pilot favorite models, until a pilot is selected.

Select the desired name from the list of contacts on the device and tap “Continue Setup” to select the pilot.

After selecting a pilot, RCLogbook displays a welcome message and links to interesting material. Tap “Start Using RCLogbook” to go to the *Models* tab and start using RCLogbook.

Starting RCLogbook After Updating the Application

RCLogbook makes transporting your database across different releases straightforward.



*Whenever updating RCLogbook, it is **STRONGLY** encouraged that you backup your database, just in case. This backup should be done before you update the app from the App Store.*

There are two scenarios.

Updating from RCLogbook Version 4.6.2 or Earlier

RCLogbook 5.1 uses a database implementation that is fundamentally different from all previous versions. When launching RCLogbook for the first time after updating the application from any version before 5.0, RCLogbook will go convert your legacy database to the modern format. As part of the update process, you will have the opportunity to backup your legacy database using either Dropbox or RCLogbook’s built-in web server.



RCLogbook goes through this same sequence of steps when you are restoring from a database saved by RCLogbook 4.6.2 or earlier.

The update process begins by selecting a pilot, as described above in the Starting RCLogbook for the First Time section, then the update process provides an opportunity to backup your legacy database before beginning the format conversion.

The screenshot shows two windows side-by-side during the RCLogbook 5.1 setup process:

- Left Window (Pilot Selection):** The title is "Welcome to RCLogbook". It says "Select one of your contacts to set up as the initial pilot for your database:". Below is a list:
 - Unknown Pilot** (selected)
 - John Appleseed
 - Kate Bell
 - Anne HandA note below says "If you wish, you may set up the pilot later through the Database tab." A toggle switch labeled "Use pilot in imported events" is turned on (green). At the bottom are five dots and a "Continue Setup" button.
- Right Window (Database Backup):** The title is "Welcome to RCLogbook". It says "Before updating your database to the latest format, it is strongly recommended that you backup." Below are two options:
 - Backup your current database via:
 - Dropbox
 - Web Server
 - "Do NOT Backup Database"At the bottom are five dots.

The pilot selection works as described earlier. When enabled, the “Use pilot in imported events” causes RCLogbook to set the pilot of all events that are imported from the old database to the selected pilot. If this control is left disabled, all imported events will use the “Unknown” pilot.

You can backup your database via Dropbox or the built-in RCLogbook Web Server.



*You are **STRONGLY** encouraged to backup your legacy database either during the update process or before installing RCLogbook 5.1 from versions before RCLogbook 5.0.0.*

The backup process is similar to the database backup process that the *Database Tab* section discusses. The same requirements apply; for example, for Dropbox you must have a Dropbox account and link it to RCLogbook, the web server uses a Wi-Fi network connection, etc.

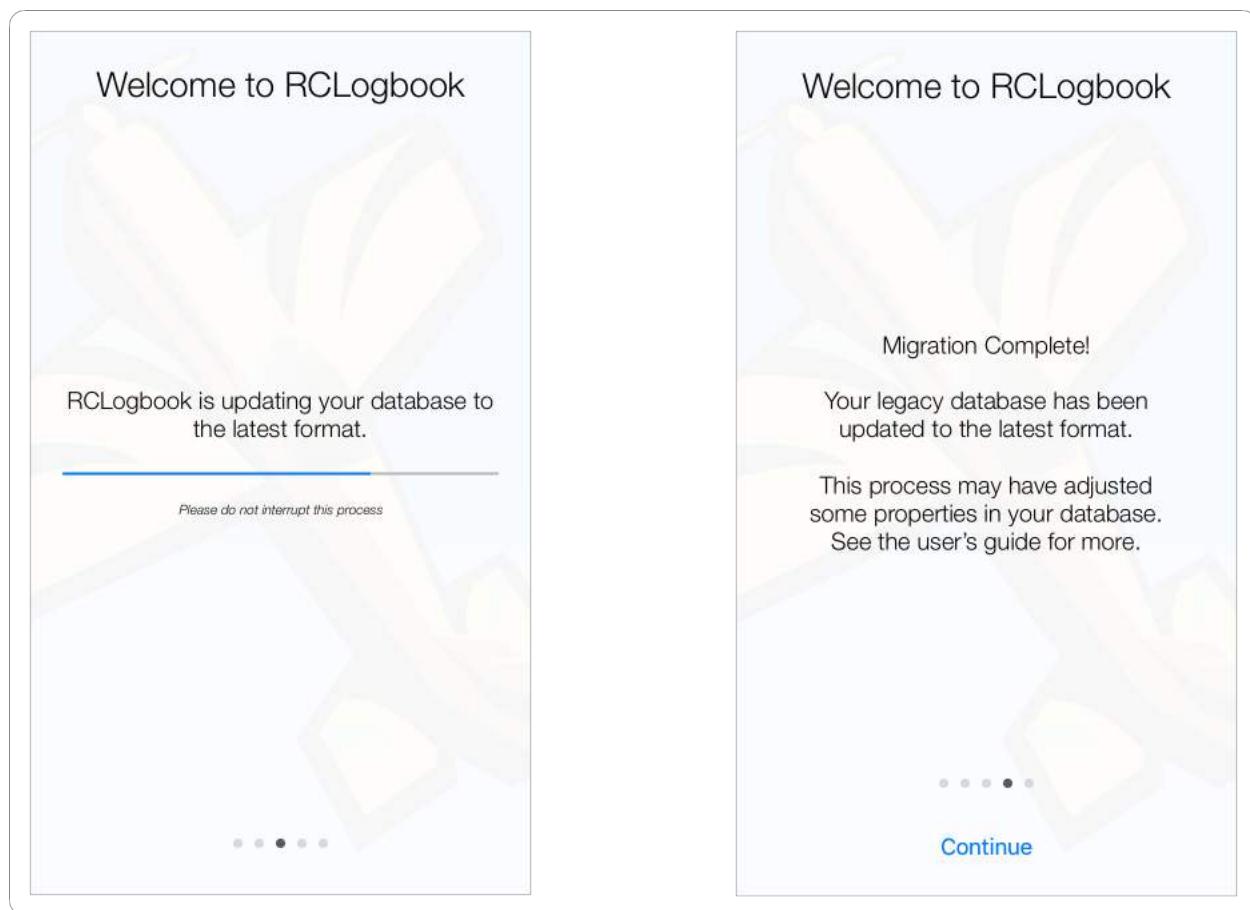
When using Dropbox for the backup, RCLogbook names the copy it makes of your legacy database in /Apps/RCLogbook/Backups based on the database version, date, and time (italicized text is replaced with the appropriate values):

```
Previous Db ({version}) - {year}{month}{day}-{hr}{min}{sec}.zip
```

When using the web server for the backup, RCLogbook will serve a page that only allows you to download the current legacy database file to your Mac or PC.

Your legacy database backup, whether saved to Dropbox, downloaded from the web server, or saved from a previous release of RCLogbook, can be used for a normal restore operation using the database restore process that the *Database Tab* section discusses below.

The update process begins once the backup is completed or explicitly declined.



Before updating the database, RCLogbook checks if there is enough free space on your device to complete the update. If there is not enough space, RCLogbook displays an alert to let you know of the problem and will not begin the update until enough space is available. If you see the “There is not enough space on the device to update the database” alert, temporarily remove some data from your device (such as other apps, music, photos, or videos) and re-launch RCLogbook to try the update again.

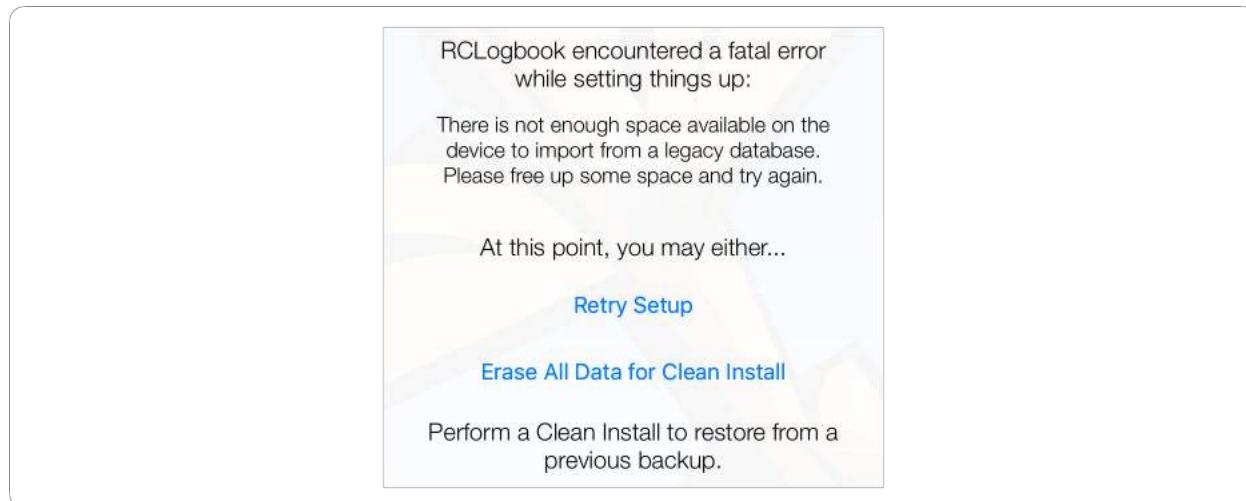
Once the update begins, you may see one or more screens similar to the view on the left. The database update takes two steps. First, the legacy database is updated to the most-recent legacy format (generally, if you are updating a recent RCLogbook release, this step is skipped as the database is already in the latest format). Next, a new modern database is created out of the contents of the legacy database. During the process, progress bars will show you the progress of the updates, be patient as the migration is fairly complex.

 *Though we have tried to code the update defensively, please do not interrupt your device during an update. If you do interrupt an update for some reason or the update crashes before reaching the main interface, you should be able to restart the application and RCLogbook will attempt the update again.*

Once the migration is complete, you will see the screen on the left. Tapping “Continue” will take you to the “Setup is Complete” view shown earlier. From that view, you can enter RCLogbook proper.

 *The migration process may adjust some attributes in your database, making it look slightly different than the original legacy database. For example, cycle numbers are handled differently. While information is not lost in the migration, RCLogbook will make changes in your database to ensure it is consistent with the rules and expectations of the modern database format. This is, unfortunately, unavoidable. This guide will point out places where the modern and legacy formats differ in this fashion.*

In the event you encounter an error or crash, **DON'T PANIC**. You made a backup when asked, right? You may see some variation on a view like this during the setup:



There are two ways to move forward: retry setup or erase all data and clean install. In this specific example (the device did not have enough space to perform the update), you could switch away from RCLogbook, free up some space on the device, come back to RCLogbook and retry the setup. If you have to resort to the clean install, you can still import the legacy database you saved earlier (remember, you **DID** make a backup, right?) using the normal database restore that the *Database Tab* section discusses. If you continue to have problems, reach out to CleverTangerine with the legacy database and we will see if there's a bug that was missed.

Updating from RCLogbook Version 5.0.0 or Later

During the first launch following an update, RCLogbook checks the version of the database currently on the device and will update this database if necessary. RCLogbook 5.1.x uses the exact same database format as version 5.0.x; there are no updates that the app needs to apply.

Starting RCLogbook after Changing Your Device

When you get a new iOS device, the device setup process may preserve your data as it migrates to the new device, depending on how you set up the device. To be completely safe, it is advisable to backup your database on your old device first. See the *Database Tab* section below for more on how to do this.



*Whenever changing devices, it is **STRONGLY** encouraged that you generate a backup of your database, just in case.*

With a backup, you can restore the RCLogbook database on your new device from this backup (again, using the process outlined below in the *Database Tab* section) in the event the database doesn’t transfer properly during migration.



You can use the backup and restore strategy even after you have moved to your new device. The backup process only requires access to a Wi-Fi network, it does not need access to a cellular network.

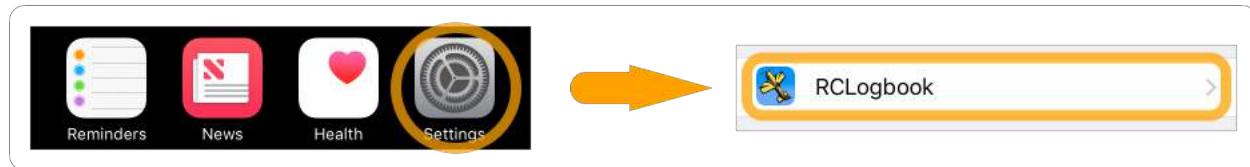
Contacting Us

We welcome your feedback. Many new features started as user suggestions. You can visit us on the web at <http://www.clevertangerine.com> for our blog and product information or contact us over email at support@clevertangerine.com. Links can also be found on the information page that is reached via the “About RCLogbook” row in the Database tab.

If you like the application, be sure to leave a review. If you do not like the app, talk to us before you post a review – we may have already addressed your concerns

Settings and Configuration

RCLogbook has several configuration options that allow you to customize its behavior to match your preferences. Tapping the RCLogbook row in the iOS Settings application on your iOS device accesses these options.



Selecting the RCLogbook row in the iOS Settings application takes you to a page where you can configure RCLogbook-specific settings.

There are four iOS-level settings at the top of the page that grant permission to RCLogbook to use some system-level services:

- ◆ **Location** – RCLogbook uses the location services to determine your location when logging events. If location access is not permitted, RCLogbook will be unable to obtain location information for events.
- ◆ **Contacts** – RCLogbook accesses your contacts to supply basic contact information when creating a pilot.
- ◆ **Photos** – RCLogbook accesses your photo library to pick a photo for use as the picture of a model.
- ◆ **Camera** – RCLogbook accesses your camera to implement its barcode scanner.

Following this section, are the RCLogbook settings proper. These settings are split into a number of different groups.

The “Basics” group of the settings configures basic application parameters, including,

- ◆ **Units** – Specifies the units to use to measure fuel consumption and propeller dimensions: US customary, UK imperial, or metric. The default is US customary.
- ◆ **Timer Dims Screen** – Allows the event timer to dim the screen if it hasn’t been touched in a while. The default is off.
- ◆ **Reset Filter System to Defaults** – When set, the next time RCLogbook is used it will reset the state of the filter system to its default values. This will not disturb saved filters but will return all filtering to “any”.

The “Events” group configures event-related application parameters, including:

- ◆ **“At Field” via Single Tap** – When this option is on, RCLogbook uses the built-in event timer as the primary means and direct specification as the secondary means to add events. When off, RCLogbook uses direct specification of the date and time as the primary means and the event timer as the secondary means to add events. The default is on.
- ◆ **“At Field” Uses Timer** – When this option is on, RCLogbook will use the built-in event timer when logging at the field. The default is on.

- ◆ **Timer Uses Buttons** – When this option is on, RCLogbook will use buttons, rather than shakes, to operate the event timer. The default is off.
- ◆ **Timer Start Delay** – Sets the delay between an event that should start the time (such as a shake) and the actual start. The default is no delay.
- ◆ **Default from Last Event** – When this option is on, RCLogbook will default the duration of “away from field events” or “at field” events with the timer off to the duration of the last event captured for a model. The default is off.

The next two groups configures sensitivity-related application parameters, including:

- ◆ **Event Timer Shake Sensitivity** – Allows you to adjust the sensitivity of the built-in event timer. Sliding the control toward the “–“ decreases the sensitivity so that you have to shake harder to trigger the timer while sliding it toward the “+” increases the sensitivity.
- ◆ **Event Location Sensitivity** – Changes the sensitivity of location matching. Sliding the control toward the “–“ decreases the sensitivity so that RCLogbook considers a wider region around a location as matching the location while sliding it toward the “+” increases the sensitivity.

The “Batteries” group configures battery-related application parameters, including,

- ◆ **Default to Full Charge** – When this option is on, RCLogbook will default the charge amount to the capacity of the battery when adding a charge phase to a cycle. The default is off.
- ◆ **Stored Packs Hidden for Events** – When this option is on, RCLogbook will not show battery packs in storage state in the list of batteries available for use in an event. The default is off.

The “Audio” group configures the audio-related application parameters, including,

- ◆ **Chime Cues** – Allows you to adjust the parameters for the non-voice chimes that RCLogbook can play while the timer operates.
- ◆ **Voice Cues** – Allows you to adjust the parameters for the voice cues that RCLogbook can play while the timer operates.
- ◆ **Click Track** – Allows you to adjust the parameters for the click track that RCLogbook can play while the timer operates.

Tapping each row takes you to another page where you can select parameters for each of the audio elements.

The settings for “Chime Cues” audio include,

- ◆ **Relative Volume** – Volume of the click track with respect to the other audio elements that RCLogbook can play (voice cues and click track).
- ◆ **Audible Chime** – Enables the audio part of the cue. Default value is on.
- ◆ **Vibrate on Chime** – Enables vibration when the cue plays on devices that support vibration. Default value is on.

- ◆ **While Armed** – Selects the interval between chime cues when the timer is armed but not yet running. Default value is every 10 seconds.
- ◆ **While Running** – Selects the interval between chime cues when the timer is running. Default value is every minute.
- ◆ **After Expiring** – Selects the interval between chime cues when the timer is in countdown mode and expires. Default value is every minute.

The settings for “Voice Cues” audio include,

- ◆ **Relative Volume** – Volume of the click track with respect to the other audio elements that RCLogbook can play (chimes and click track).
- ◆ **Voice** – Selects the voice to use for the cue. Default is “Alex”.
- ◆ **While Running** – Selects the interval between voice cues when the timer is running. Default value is every minute.
- ◆ **After Expiring** – Selects the interval between voice cues when the timer is in countdown mode and expires. Default value is every minute.

The settings for “Click Track” audio include,

- ◆ **Relative Volume** – Volume of the click track with respect to the other audio elements that RCLogbook can play (chimes and voice cues).
- ◆ **While Running** – Selects the number of clicks per minute when the timer is running. Default value is none.
- ◆ **After Expiring** – Selects the number of clicks per minute when the timer is in countdown mode and expires. Default value is none.

Due to limitations in older devices, higher BPM values for click track settings may not always operate smoothly.

An Introduction to the User Interface

To describe RCLogbook, this guide makes extensive use of screen shots of the interface with callouts that point out features of interest.

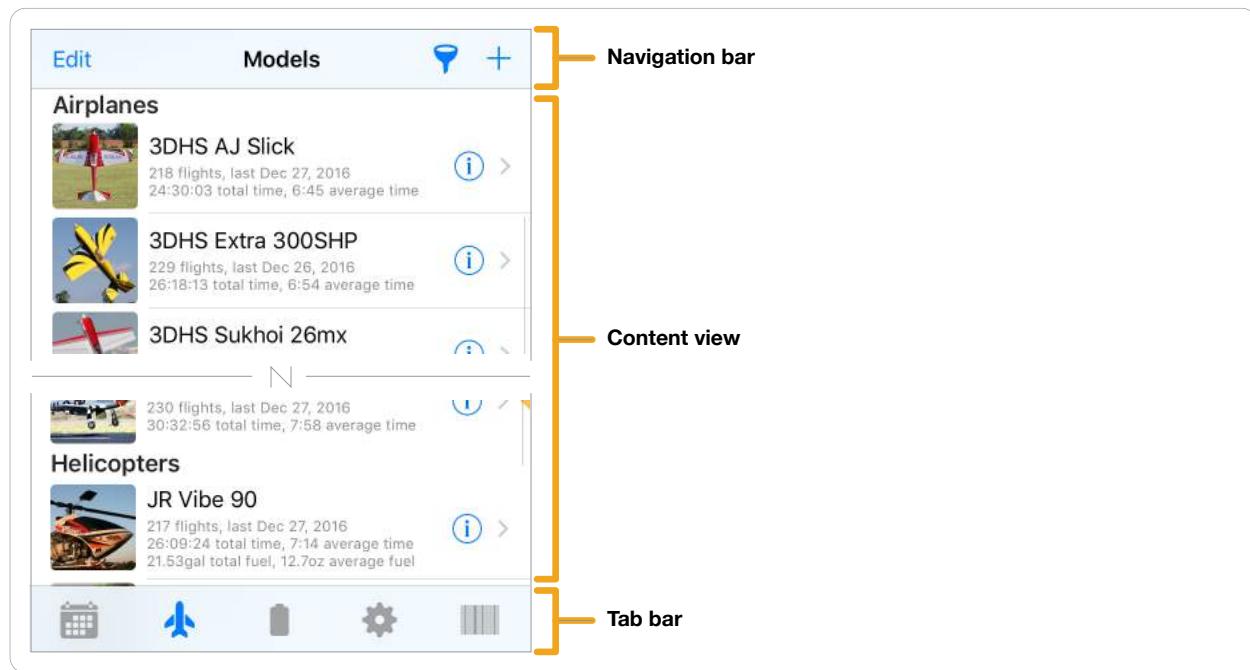


Most screen shots in this guide show RCLogbook running under iOS 10 on an iPhone 7. The interface may look slightly different on different devices or different iOS versions.

RCLogbook follows standard iOS interface idioms such as swipe left to delete in tables, navigation bars to drill down into information, etc.

General Organization

RCLogbook has a tab-based interface that provides quick access to your models and batteries. At the top of the screen is a navigation bar. The middle of the screen is the content view. The bottom of the main interface screen presents a tab bar that has tabs to allow you to interact with RCLogbook.



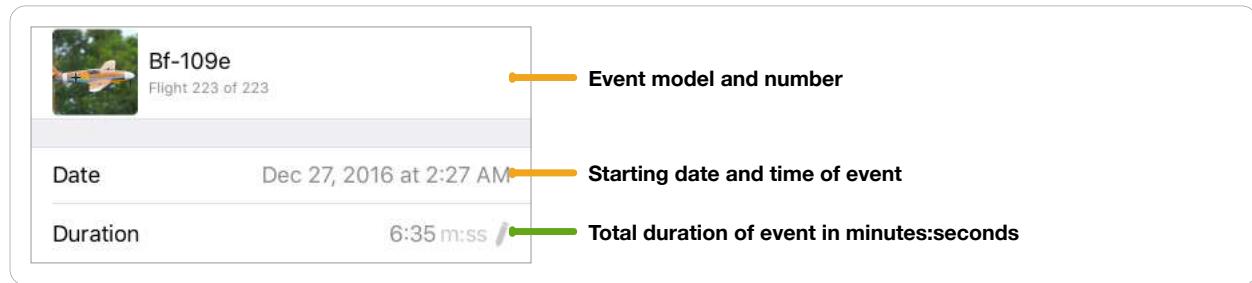
The five tabs in the tab bar at the bottom of the screen include, from left to right:

- ◆ **Activities** – Presents a calendar-based view of your events and cycles.
- ◆ **Models** – Lists all of the models that RCLogbook tracks grouped by favorites, type, and a user-specified category. From here you can explore model details or start a new event.
- ◆ **Batteries** – Lists all of the batteries RCLogbook tracks grouped by capacity (and, optionally, cell count). From here you can explore battery details or start new cycles.
- ◆ **Setup** – Provides access to global records and the RCLogbook database as well as a credits page with links to clevertangerine.com, the user’s guide, etc.
- ◆ **Scan** – Displays the barcode scanner to select items for events or cycles.

Typically, the tab bar is always visible. However, there are some situations, for example, while capturing an event, when another view will cover the tab bar.

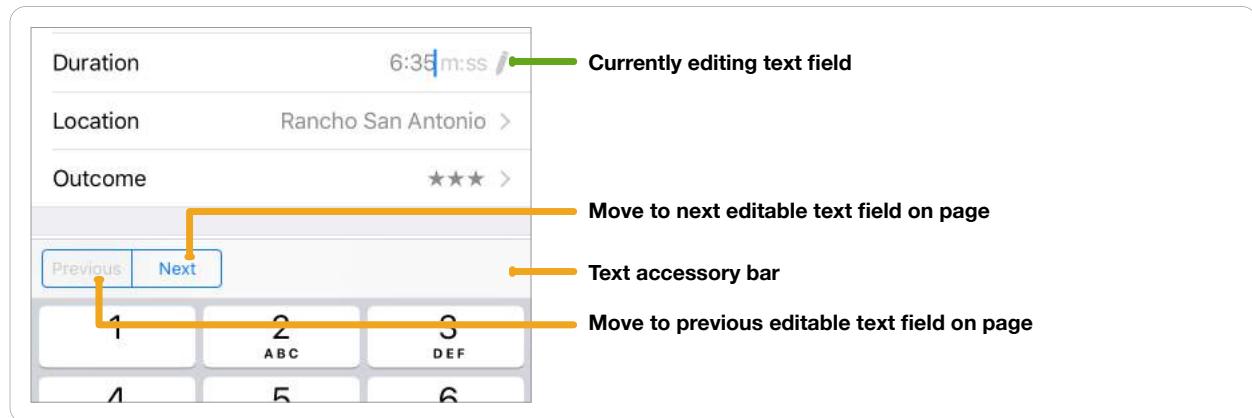
Editing in Text Fields

This guide uses a green callout to indicate a field that can be edited in place in a table and an orange callout to indicate interface controls or static items of note. For example,



Here, tapping on the value in the “Duration” row brings up a keyboard to allow you to change its value. RCLogbook automatically inserts separator characters such as “.” or “:”. For example, in the duration, “:” is automatically added between the second and third digit from the right.

RCLogbook may present a text accessory bar on top of the keyboard if there are multiple text fields on the page:

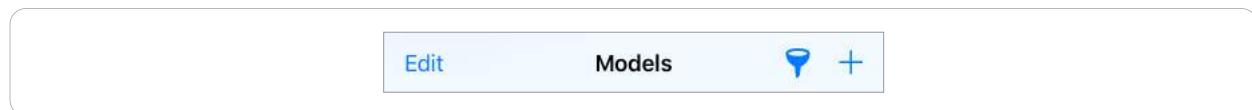


This bar includes “Previous” and “Next” buttons and may include a “Done” button on the right. The previous and next buttons move between the previous and next text fields on the page.

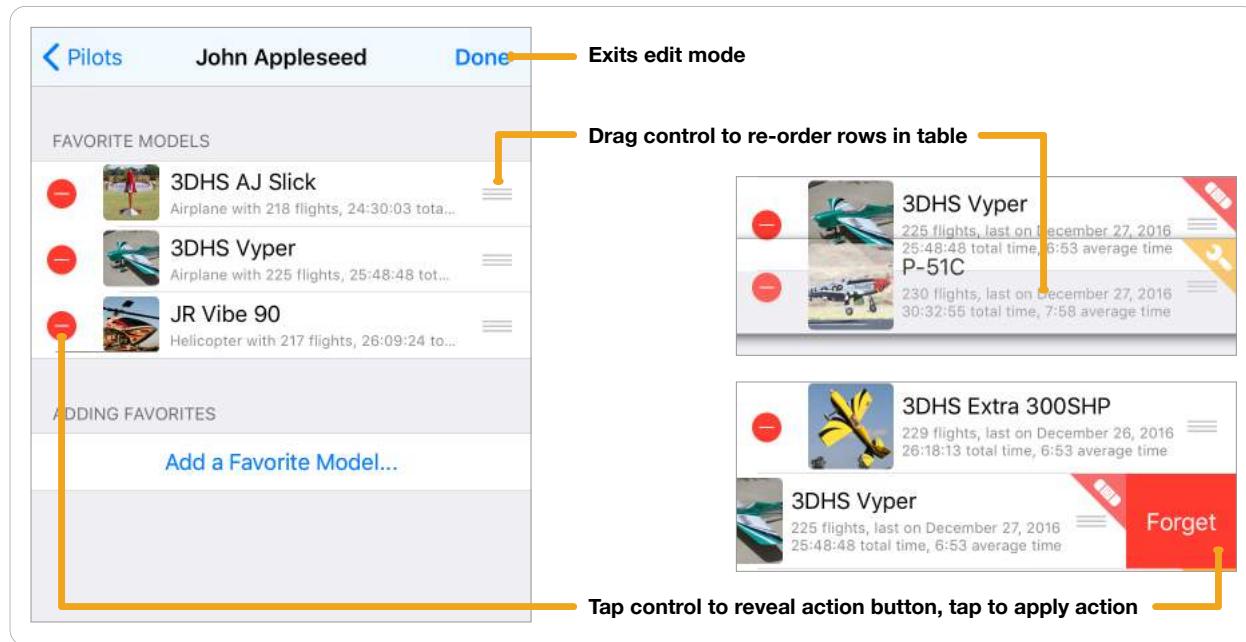
List Views and Edit Mode

Many of the views in the user interface present lists of objects that can be manipulated. For example, the *Models* tab is primarily a list of the models in the database. Many of these lists support an edit mode that allows you to manipulate the items. The manipulations may include deleting or re-ordering items in the list. The specific manipulation a view supports depends on the view.

Views that support edit mode will provide an “Edit” button in their navigation bar.



Tapping the “Edit” button will enter edit mode and reveal controls to delete and re-order items in the list.



You can leave edit mode by tapping the “Done” button in the navigation bar.

The action and drag controls may or may not appear depending on the view. For example, while edit mode in the *Favorites* tab supports re-ordering, edit mode in the *Models* tab does not. Generally, the action deletes items from the list, though it may also do “delete-like” operations such as forget a favorite. RCLogbook also may consider a swipe left on a row to also specify a “delete-like” operation. For example, in the figure above, you could forget a favorite by swiping left on the favorite row when you are not in edit mode.

Filtering Information in the Interface

RCLogbook provides the ability to filter items that the user interface displays based on a set of criteria you specify. Here, items can be things that RCLogbook tracks in its database such as a model, a battery, or cycles related to a particular battery. The user can elect to save favorite sets of criteria for later. In general, a filter is made up of a set of criteria that must all be true for the information to be displayed.



RCLogbook 5.1 only supports expressions that are the logical-AND of individual terms; thus, the expression is true if and only if all the component terms are also true.

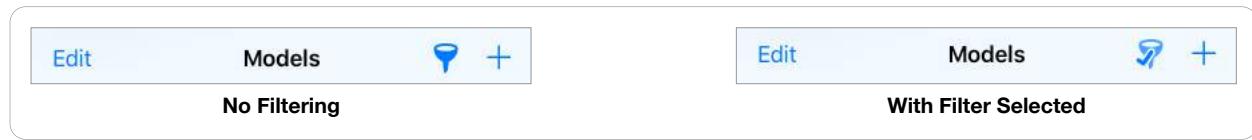
For example, a filter expression for filtering models might look like this:

Type is ‘Airplane’ **AND** Time is at least 1:00 **AND** Notes contains “pattern work”

This example has three terms; a term specifies allowed values of an attribute for the item being filtered. RCLogbook sets the underlined portions, the *italicized* portions are the terms that the user configures, and the **bold** portions determine how the terms are combined. Under this filter, a helicopter model would not be displayed nor would an airplane model with 2:00 of total time and notes of “3D work”.

Indicating the Availability of Filtering

RCLogbook uses a funnel icon to indicate that the user can apply a filter to the data being shown in the interface. Typically, this icon appears at the right of the navigation bar.

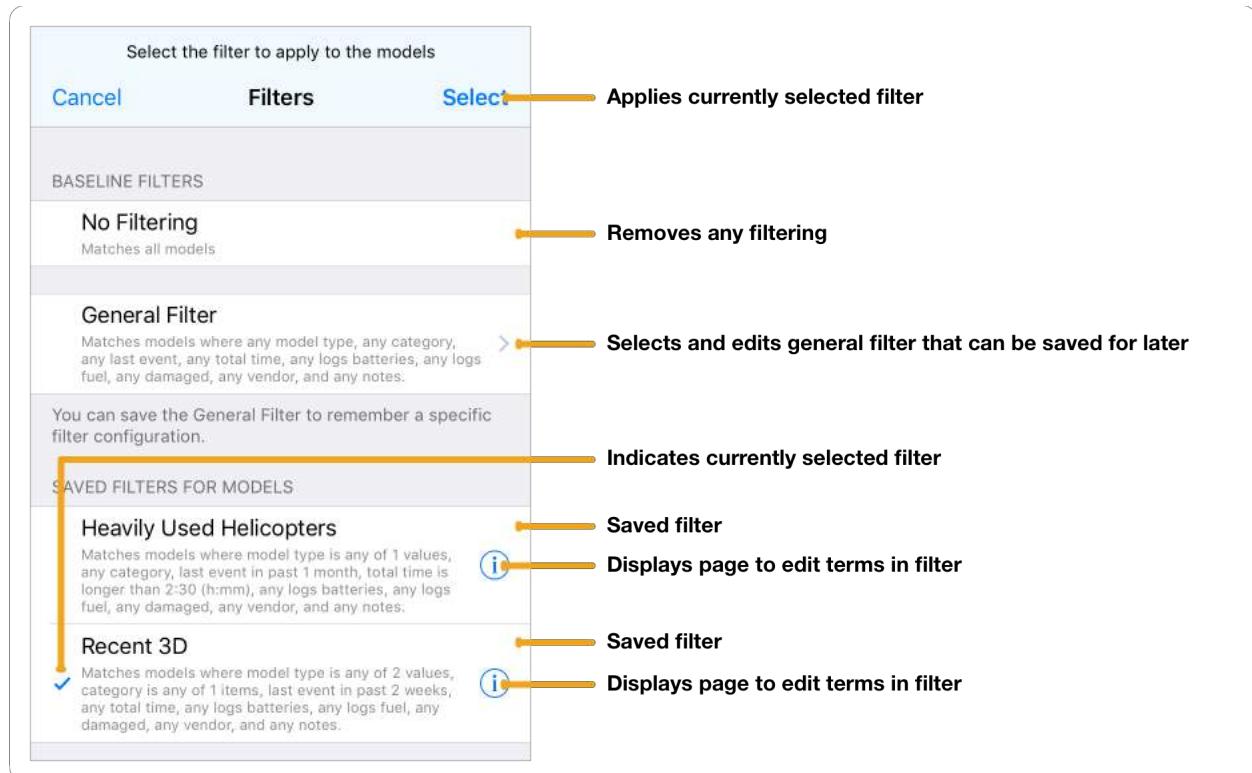


This funnel icon (left of the “+” icon) may be badged with a “+”, as shown on the right, to indicate that the currently selected filter may potentially hide information from the interface. Tapping on a filter icon, either with or without a badge, will bring up a list of available filters.

Selecting a Filter

When you tap on the filter icon, RCLogbook displays a list of currently defined filters that can be applied to the information shown by the view. The terms present in a filter are fixed by RCLogbook and are specific to the information being filtered. Each view that can be filtered has its own view-specific set of filters so, for example, you will not find filters built for batteries on the filter list for a models view and vice versa.

In general, the filter list has two sections: a section with a baseline filter that will not hide any information and a general filter that may hide information, and a section with saved filters the user has previously defined.



In this example, there are four possible filters:

- ◆ **No Filtering** – This filter presents all information without filtering.

- ◆ **General Filter** – This filter can be configured to filter information and is intended for use when you want to filter the data but not save a filter for later.
- ◆ **Heavily Used Helicopters** – This filter selects helicopters that have more than 2:30 (H:MM) of total flight time that have been flown in the last month.
- ◆ **Recent 3D** – This filter selects helicopters and airplanes in the 3D category that have been flown in the past two weeks.

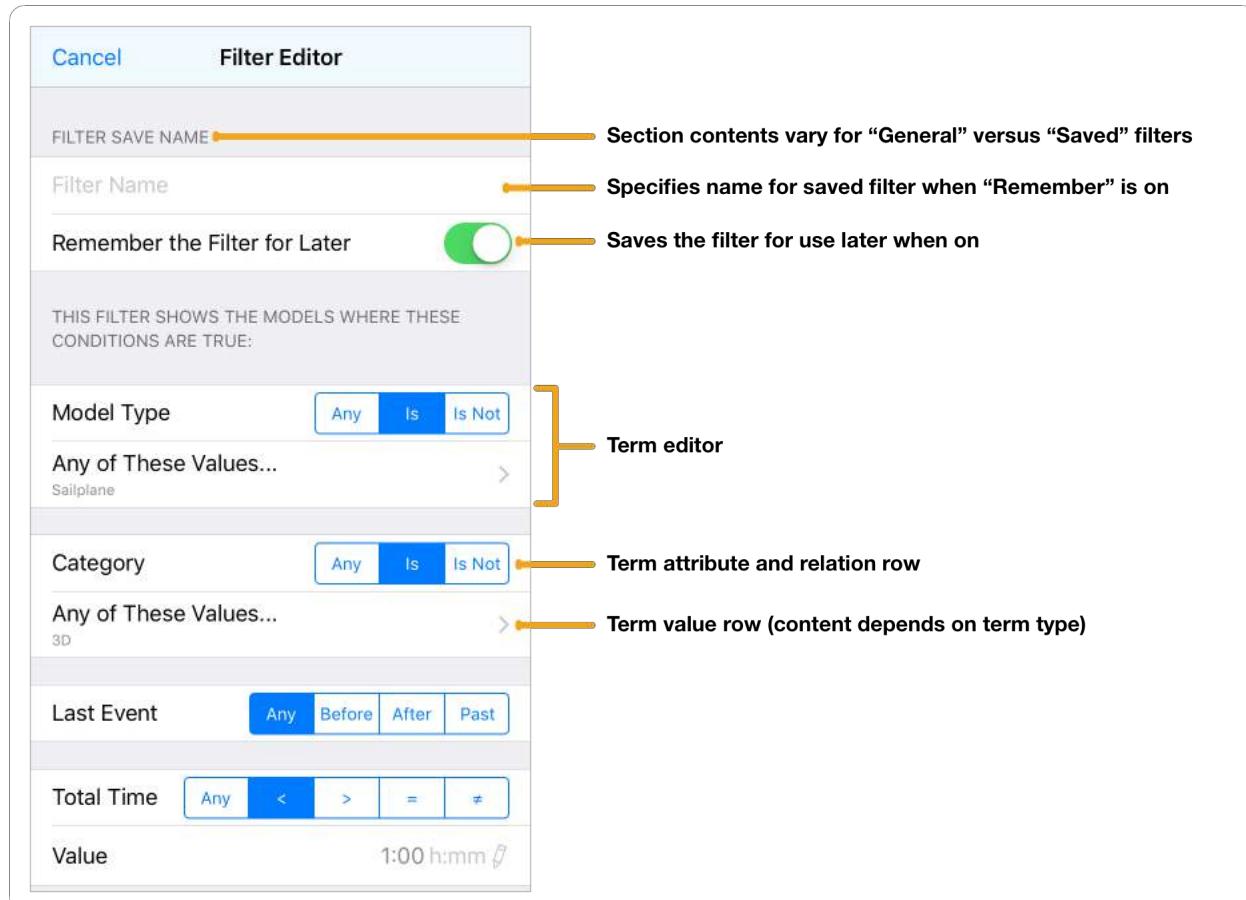
The “Recent 3D” filter is selected, as indicated by the check mark at the left.

Tapping “Cancel” in the navigation bar will leave the filter configuration unchanged from what it was when the selection screen was presented. Tapping on either the “No Filter” row or any of the rows in the saved filter section and then tapping the “Select” button in the navigation bar will return to the previous page with the selected filter applied.

Tapping on either the “General Filter” row or the “i” icon next to a saved filter row will take you to the filter editor page. Note that editing the “General Filter” in this fashion implicitly selects it when you return to the filter list.

Editing a Filter

When you select either the “General Filter” or a saved filter from the filter selection list, RCLogbook displays the filter editor view:



The details of this view will vary from filter to filter, but its overall structure of the view remains the same. The view is broken down into two general parts:

- ◆ Name and save controls that allow you to save the filter for later and change its name.
- ◆ Term controls that allow you to change the specific configuration of the terms that the filter uses. The specific set of terms available to you will depend on the filter you are editing and may not be changed; not all filters have the same terms.

The name and save controls will differ depending on which filter you are editing. Saved filters will only show a name field that the user can edit to change the name under which the filter appears in the filter selection view. The general filter will show a “Remember Filter for Later” row that can be toggled to save the filter or not. When the filter is set to be saved, the name and save controls will also show a name field that operates as the name field for saved filters.

The terms section of the view specifies the terms that make up the filter. Again, RCLogbook fixes the set of possible terms for a particular filter. By setting a term to “Any” as described below, you can make the term not participate in the filtering process.

Terms

A term specifies a range of possible values for an attribute of items or information that the filter can select from. Typically, one can think of terms as something of the form:

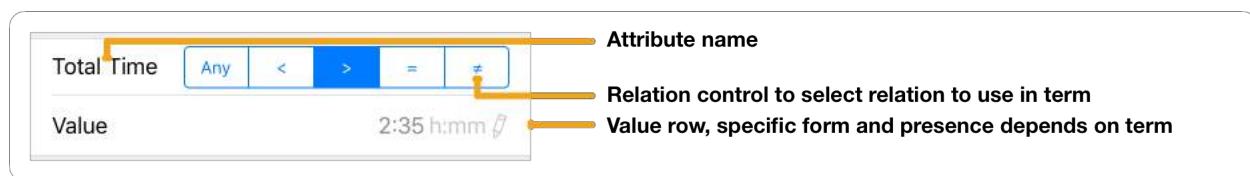
Attribute Relation Value

Here, *Attribute* is an attribute of the things being filtered, *Value* is a value (or values) to show, and *Relation* is the relation between the attribute and value. Terms always have an *Attribute* and *Relation*; however, the *Value* may be optional depending on the attribute and relation. Information will not be shown if the term evaluates to false. For example,

Model’s “Total Time” is greater than 10 minutes

The three underlined segments correspond to the *Attribute* (“Model’s Total time”), *Relation* (“is greater than”), and *Value* (“10 minutes”). This term is “true” on a model with 11:00 of total time.

As shown in the following figure, term controls generally have three parts:



The first row of the term specifies the *Attribute* and *Relation* portions of the term; the latter is selected from the segmented control at the right side of the row. The *Relation* “Any” allows any value of the associated attribute to pass through the filter. The rows other than the first specify the *Value* for the term, for those terms that require values.

All term controls initially default to an “Any” *Relation* that implies the term will not have any influence on the information that is filtered. The following sections will describe each of the possible term types that RCLogbook supports. Remember not all terms will be available or make sense for all filters.

Boolean Terms

These terms specify constraints on Boolean (i.e., “Yes” or “No”) attributes of the item or information. For example, a possible Boolean term available for model-related filters could be “Does the model track fuel?” The user interface for a Boolean term appears as follows:

Logs Batteries	Any	Yes	No
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These terms do not have a *Value* as the *Relation* (i.e., “Yes”, “No”, or “Any”) completely specifies the term.

Date Terms

These terms specify constraints on date attributes of the item or information. For example, a possible date term available for cycle-related filters could be “Cycle’s Charge Date”.

Last Event	Any	Before	After	Past
Date	December 31, 2016			
September	28	2013		
October	29	2014		
November	30	2015		
December	31	2016		
January	1	2017		
February	2	2018		
March	3	2019		

Last Event	Any	Before	After	Past
In Past	3 Months			
1	Days			
2	Weeks			
3	Months			
4	Years			
5				
6				

Date terms come in two forms, based on the *Relation*. In the Before/After form, the term looks for date attributes that fall before or after a particular target date. In the Past form, the term looks for date attributes that fall within the past time interval; that is, after a target date located in the past.

The second row displays the current *Value* selected for the term; tapping on the row reveals or hides a picker in a third row that allows you to change the current *Value*. For Before/After *Relations*, the *Value* is a date picker that selects the target date as shown on the left of the above figure. For Past *Relations*, the *Value* is a picker that selects a time interval such as “1 week”, “2 months”, etc. as shown on the right of the above figure.

Numeric Terms

These terms specify constraints on numeric attributes of the item or information. For example, a possible numeric term available for model-related filters could be “Model’s Total Event Count”.

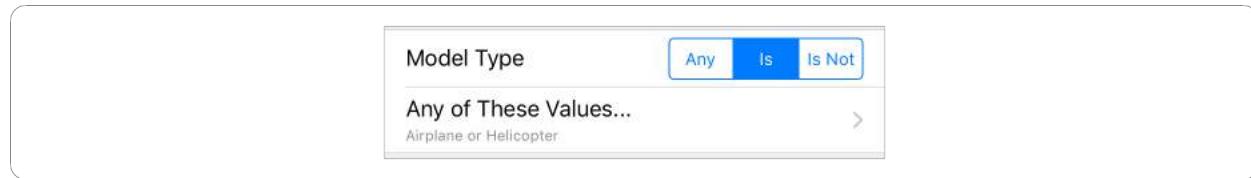
Total Time	Any	<	>	=	≠
Value	2:35 h:mm				

The *Relation* allows for typical comparisons between the *Value* and *Attribute*; that is, “A is greater than B”, “A is equal to B”, and so on.

The second row of the term allows the user to specify the *Value*. For numeric terms, the type of the *Value* depends on the attribute. For example, a flight count has an integer value while a flight duration attribute has a M:SS value (represented internally as a number of seconds).

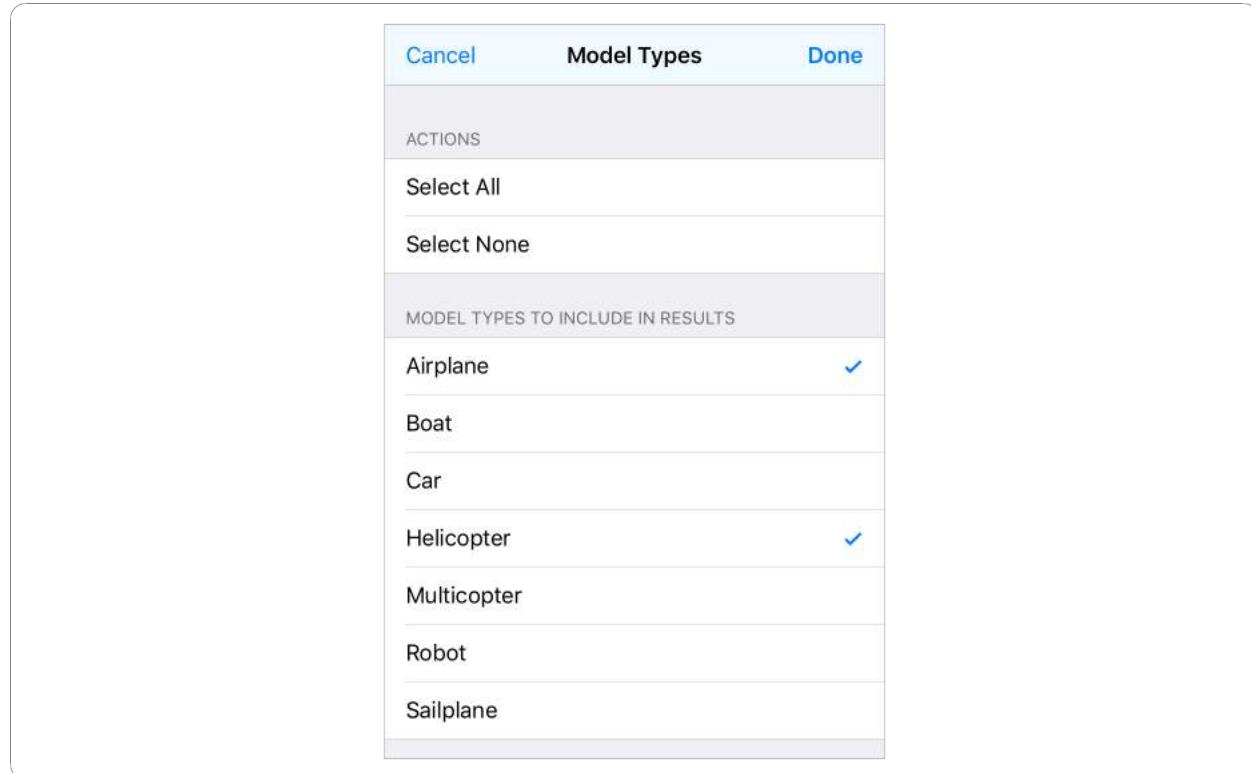
Enumerated Type Terms

These terms specify constraints on enumerated type attributes of the item or information. An enumerated type is an attribute that must take on exactly one of a set of possible values. For example, a possible enumerated type term available for model-related filters could be “Model’s Type” which is an enumerated type that can only take on values such as “Airplane”, “Helicopter”, “Sailplane”, etc.



The *Relation* allows you to express either membership or not in a set of possible values; that is “A is either B or C”, “A is not B or C”, etc.

The *Value* for an enumerated type term is a set of valid types for the enumerated type. Tapping on the second row reveals a list of possible values that you can select from.



Tapping either of the action rows will select or deselect all possible values of enumerated types. Otherwise, tapping a row will add or remove the associated element to or from the set. For

example, the set in the example would include “Airplane” and “Helicopter” attributes. Tap the “Done” button when you have selected the set.

Depending on the *Relation* selected, combinations of selections from the value selection table may not be allowed. For example, for an “Is” *Relation*, there must be at least one row selected since the attribute must have a value for the enumerated type.

Relationship Terms

These terms specify constraints on relationship attributes of the item or information. A relationship is an attribute that can indicate another item or information. For example, an event item has a relationship to the model that performs the event. Relationship terms are similar to the enumerated types just described; however, there is one difference in the selection view.

Cancel	Categories	Done
ACTIONS		
Select All Select None		
CATEGORIES TO INCLUDE IN RESULTS		
3D Sport / Pattern Warbirds Unspecified Category		<input checked="" type="checkbox"/>

The *Relation* allows you to express either membership or not in a set of possible values just like the enumerated types; that is “A is either B or C”, “A is not B or C”, etc.

For relationship terms, the value selection also includes the option “Unspecified” that matches attributes that are unspecified. For example, a model has a relationship to a category but “none of the above” is a reasonable value for a relationship (and not a reasonable value for an enumerated type).

String Terms

These terms specify constraints on string attributes of the item or information. For example, a possible string term for a model could be “Model’s Notes”.

Vendor	Any	Contains	Missing
The Text	<input type="text" value="”3DHS”"/> >		

The *Relation* allows you to express either presence (“Contains”) or absence (“Missing”) of a string within the attribute.

The *Value* for a string type term is some text that is looked for in the attribute. Tapping the value row displays an editor to specify the text. The matching is case insensitive.

An Overview of the Tabs

As mentioned earlier, the RCLogbook interface is based around tabs.



From left to right, the tabs include: Activities, Models, Batteries, Setup, and Scan.



RCLogbook 5.1 replaced the Favorites tab that dates back to RCLogbook 1.0 with the Activities tab. The Favorites are now included in the Models tab as discussed below.

This section introduces each of these tabs and provides an overview of how they operate.

Activities Tab

The Activities tab provides a calendar-based view of the events and cycles (charges and discharges to storage) in your database.

The screenshot shows the Activities tab interface. At the top is a calendar for November 2017. A blue circle highlights November 22, 2017, which is labeled as the "Currently selected date". Below the calendar, two sections display activity details:

- Events on November 22, 2017:**
 - Bf-109e: 12:07 PM: Flight 230 for 5:33 at Roosevelt School
 - 3DHS Extra 300SHP: 12:24 PM: Flight 228 for 7:15 at Roosevelt School
- Cycles on November 22, 2017:**
 - 3DHS 3S/1850 #1: 7:25 PM: Cycle 75 charges bv 1530mAh (82%)
 - 3DHS 3S/1850 #3: Charged for storage

At the bottom of the screen are five navigation icons: Activities (calendar), Models (airplane), Batteries (battery), Scan (barcode), and Setup (gear).

Annotations with numbers 1 and 2 point to specific areas of the interface:

- Annotation 1:** Points to the calendar area. Callouts explain:
 - Jumps to next calendar entity with activity
 - Jumps to previous calendar entity with activity
 - Tapping title bar scrolls calendar to display selected date
 - Indicates event activity occurred on the date
 - Indicates cycle activity occurred on the date
 - Currently selected date
 - Selects today and scrolls the calendar to display that date
 - Drag to switch between month and week calendars
- Annotation 2:** Points to the activity list area. Callouts explain:
 - Model with event on selected date, tapping row displays details on the event
 - Battery charged on selected date, tapping row displays details on the cycle
 - Battery placed in storage on selected date, tapping row displays details on the cycle

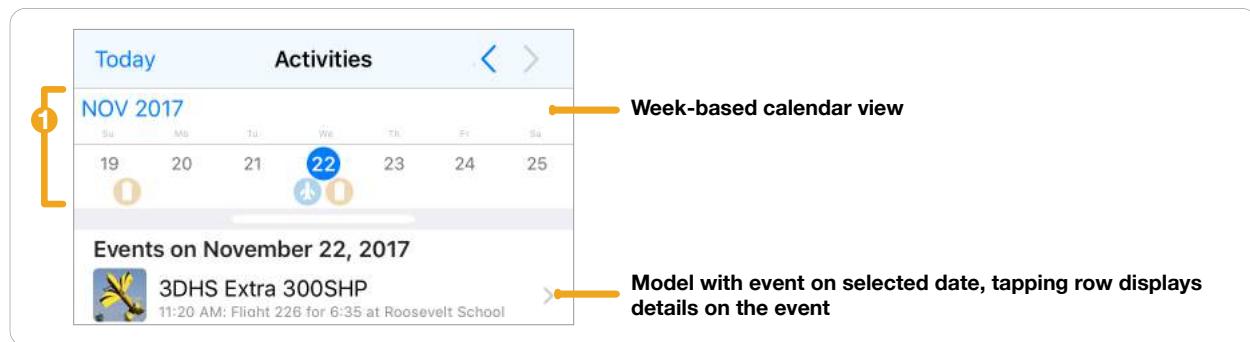
The screen is divided into two parts: a calendar view on the top (marked “1” above) that can present a month- or week-based calendar and an activity list on the bottom (marked “2” below). A blue circle indicates the selected date that provides information for the activity list.

Across the *Activities* navigation bar at the top of the screen, RCLogbook provides three controls:

- ◆ Tapping the “Today” button selects the current date and scrolls the calendar view to display the current date if it is not already visible.
- ◆ Tapping the title (“Activities”) of the navigation bar scrolls the calendar view to display the presently selected date (if it is not already visible and there is a selection).
- ◆ Tapping the arrows on the right edge of the bar moves to the next month or week or previous month or week that has activity. The arrows are dimmed if there is no relevant activity before or after the calendar display.

The calendar portion of the screen provides a view of the activity on a group of dates. A light blue circle with a model icon (indicating events) and a light orange circle with a battery icon (indicating cycles) identify the dates with activity. Above these icons appears the date. Tapping on a date (either the date itself or the area where the activity icons appear) selects the date and updates the activity list at the bottom of the screen accordingly.

The calendar can present a month or week view of your data. Dragging the divider between the calendar and activity list changes the calendar between these two types of calendar display.

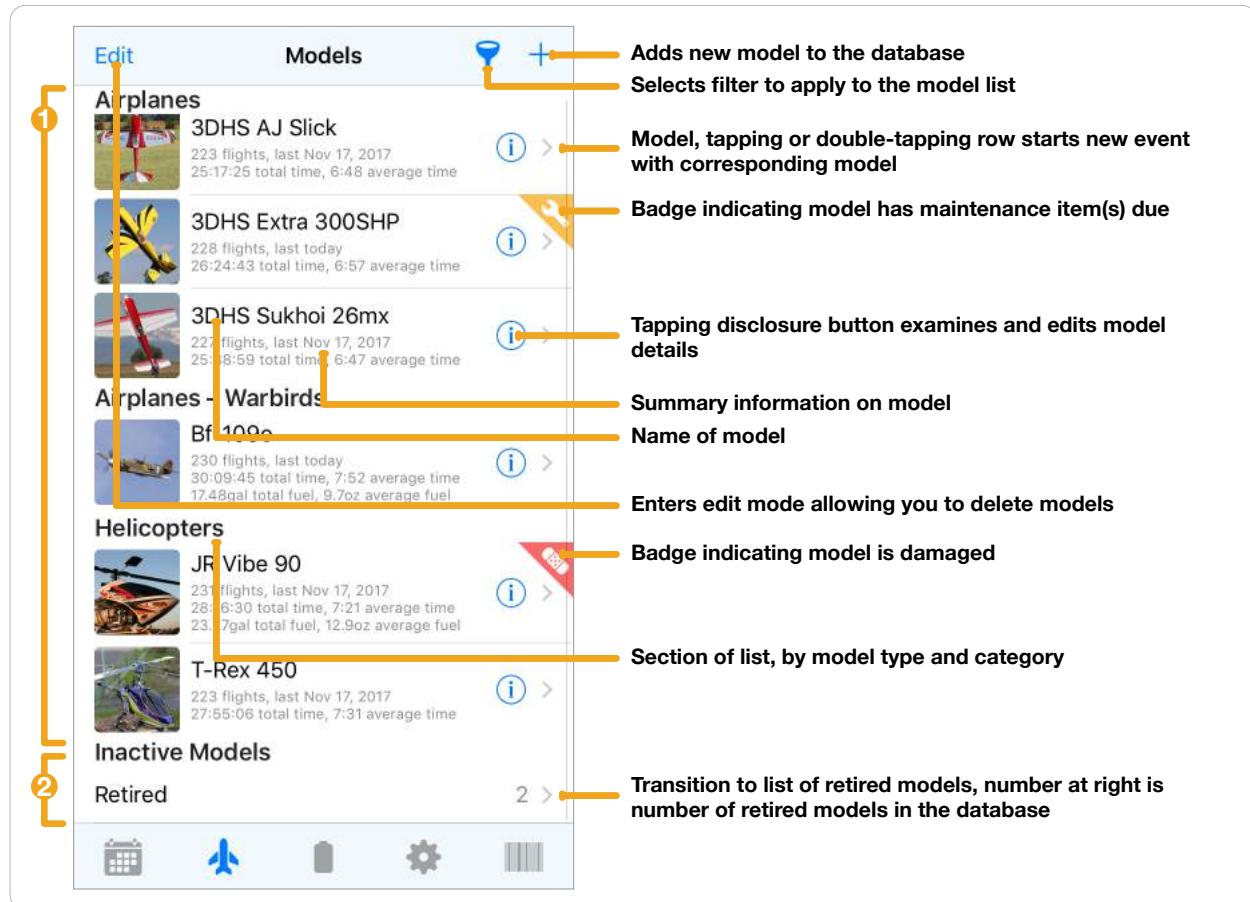


Swiping up and down (when the calendar displays months) or left and right (when the calendar displays weeks) moves between the previous and next month or week, respectively. Note that the directions of the arrows at the right edge of the navigation bar hint which way to swipe the calendar view.

The rows in the activity list present the activities in the database on the selected date. Tapping on any of these rows transitions to a detailed view of the event or cycle that occurs on the date. The detail views are the same views RCLogbook uses elsewhere to present events and cycles; however, from the *Activities* tab it is not possible to change date-related fields in these records.

Models Tab

The *Models* tab lists all of the models in your database and provides a jumping off point to interact with these models.



The list contains model rows that correspond to a model in the database (marked “1” above) and a special “Retired” row for inactive models (marked “2” above). RCLogbook badges model rows to indicate the associated model has maintenance items currently due or is damaged.

The model list is divided into sections based on model type and category. In addition, if the current pilot has favorites defined (see the *Setup* tab below), the first section of the model list will contain those favorites.



RCLogbook 5.1 eliminates the Favorites tab present in earlier releases in favor of placing the favorites in the Models tab.

RCLogbook recognizes three interactions with a model row in the models list:

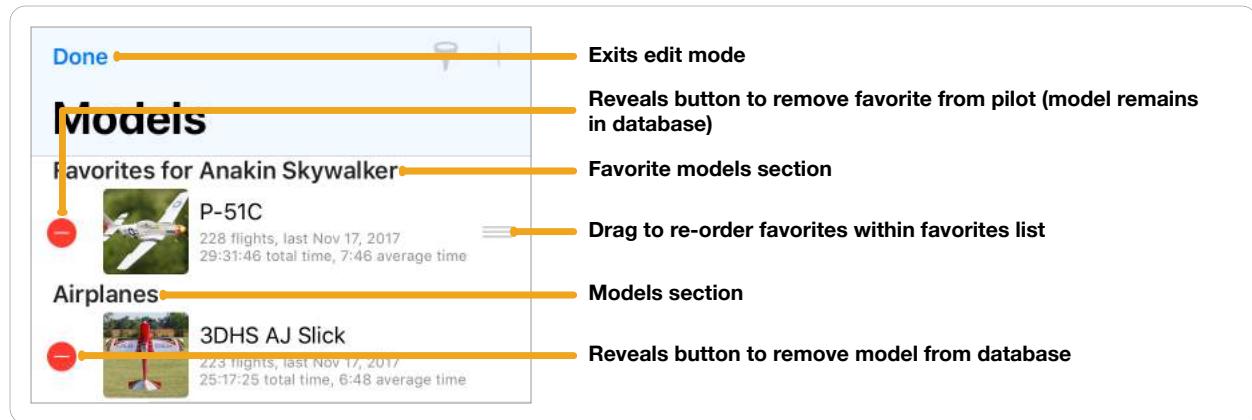
- ◆ Single- or double-tapping the row starts a new event for the model. See the *Logging Events* section for more information.
- ◆ Tapping the disclosure button at the right of the row takes you to a model detail view that allows you to edit information associated with the model. See the *Models* section.
- ◆ Horizontally swiping the row reveals a button to remove the model and associated events from the database (this does not change any batteries or cycles).

Tapping the “+” button at right on the *Models* navigation bar creates a new model and allows you to set it up before adding it to the database. See the *Models* section for more.

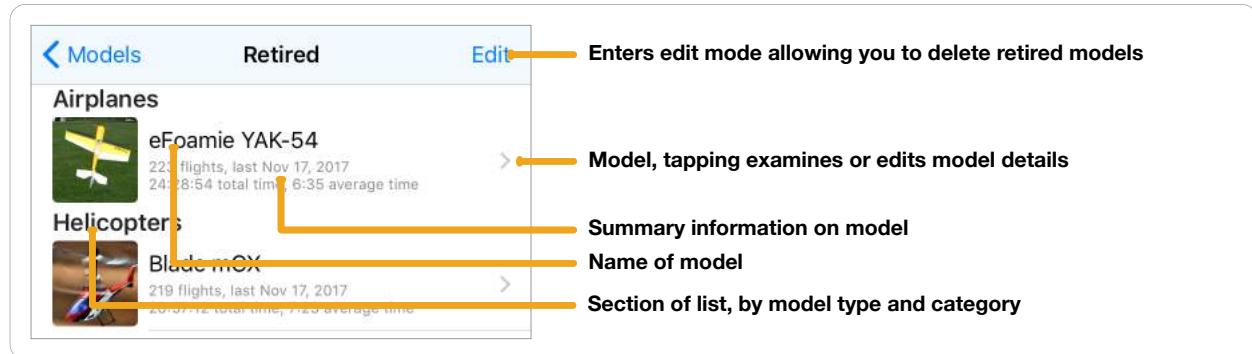
Tapping the filter button at right on the *Models* navigation bar brings up the filtering interface for models. See the *An Introduction to the User Interface* section for more on specifying filters.

Tapping the “Edit” button at left on the *Models* navigation bar allows you to remove models from the list and database using edit mode. See the discussion on edit mode in the *An Introduction to the User Interface* section. Deleting a model also removes any associated events but will not affect any cycles associated with the model or its events. You can also delete a model by swiping left across the row.

The models in the favorites section are treated slightly differently. Not only can favorites be reordered using the drag control, removing a favorite does not delete the corresponding model from the database, but instead, only removes the association between the model and the pilot.



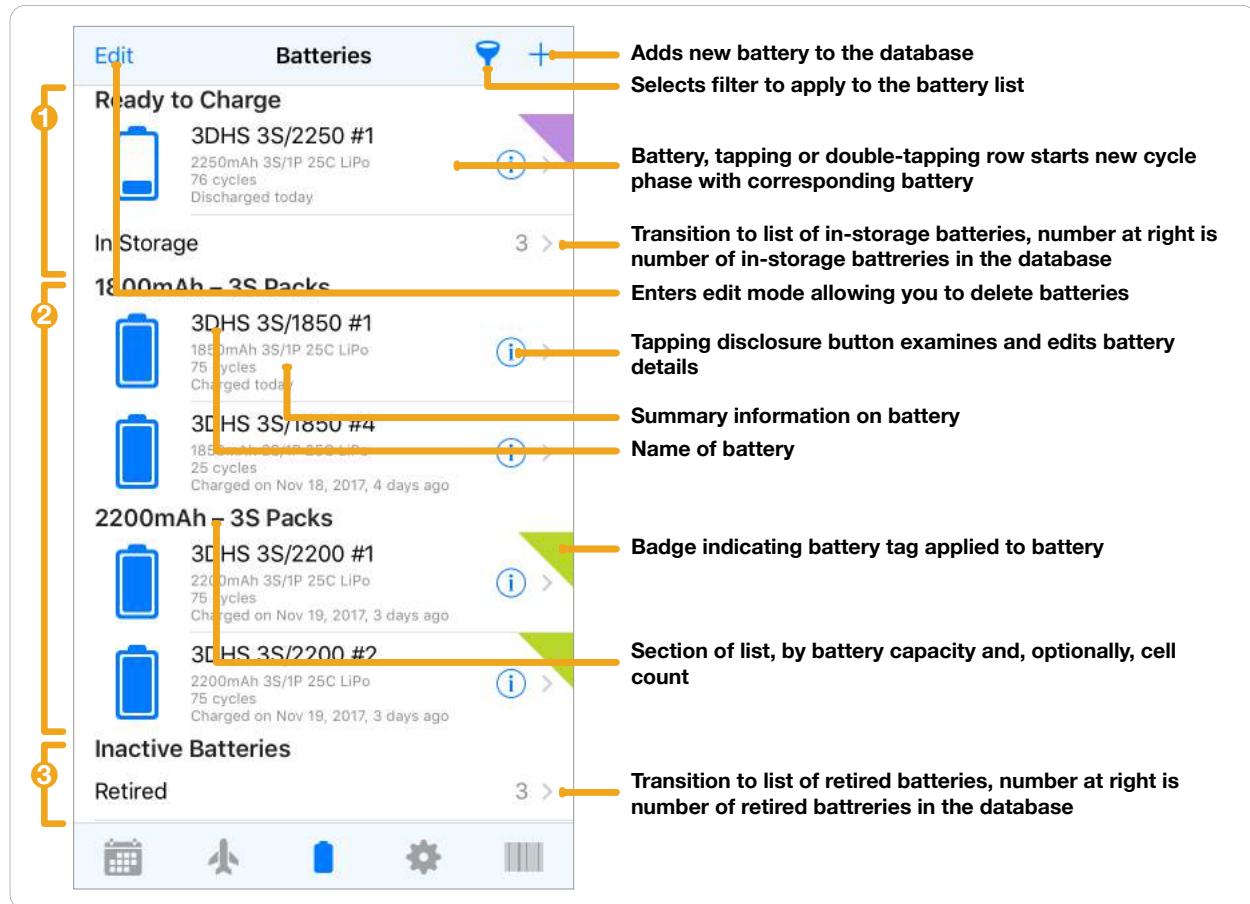
Tapping the “Retired” row in the model list transitions to a list of retired models in the database.



The “Edit” button works just like it does on the main model list, enabling you to delete models (and their associated events) from the database. Also, like the main model list, you can delete by swiping left on the battery row. For the “Retired” list, tapping the row will transition to a model editor; RCLogbook does not allow you to launch events on a retired model.

Batteries Tab

The Batteries tab lists the batteries in your database and provides a jumping off point to interact with these batteries.



The screen is broken into three regions:

- ◆ A “Ready to Charge” region (marked “1”) above that lists all discharged batteries that are not in storage. This region may include an “In Storage” row if there are batteries in storage.
- ◆ A battery region (marked “2”) that lists all active charged batteries.
- ◆ An “Inactive Batteries” region (marked “3”) that includes a “Retired” row for retired batteries.

RCLogbook recognizes three interactions with a battery row in the batteries list:

- ◆ Single- or double-tapping the row cycles the battery. See the *Cycling Batteries* section for more information.
- ◆ Tapping the disclosure button at the right of the row takes you to a battery detail view that allows you to edit information associated with the battery. See the *Batteries* section.
- ◆ Horizontally swiping the row reveals a button to remove the battery and associated cycles from the database (this does not change any models or events).

Tapping the “+” button at right on the *Batteries* navigation bar creates a new battery and allows you to set it up before adding it to the database. See the *Batteries* section for more.

Tapping the filter button at right on the *Batteries* navigation bar brings up the filtering interface for batteries. See the *An Introduction to the User Interface* section for more on specifying filters.

Tapping the “Edit” button at left on the *Batteries* navigation bar allows you to remove batteries from the list and database using edit mode. See the discussion on edit mode in the *An Introduction to the User Interface* section. Deleting a battery also removes any associated cycles but will not affect any events associated with the battery’s cycles. You can also delete a battery by swiping left across the row.

Tapping the “In Storage” or “Retired” rows in the battery list transitions to a list of in storage or retired batteries in the database, respectively.

The “Edit” button works just like it does on the main battery list, enabling you to delete batteries (and their associated cycles) from the database. Also, like the main battery list, you can delete by swiping left on the battery row.

For the “Retired” list shown at left above, tapping the row will transition to a battery editor; RCLogbook does not allow you to cycle a retired battery. For the “In Storage” list, as shown at right above, single- or double-tapping the row will cycle the battery and tapping the disclosure indicator will transition to a battery editor just like the main battery list.

Setup Tab

The *Setup* tab provides access to globally shared database records along with database statistics and operations to manage the database.



You may recognize this tab as the tab formerly known as *Database*. RCLogbook 5.1 changed the name of this tab for reasons deep and mysterious.

This tab has several sections:

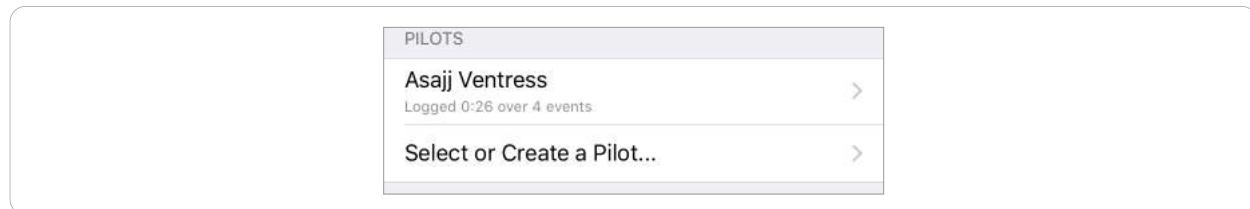
- ◆ **Pilots:** Manages pilots known to RCLogbook.
- ◆ **Globals:** Provides access to the globally shared records including the event locations, event styles, model categories, model fuels, model propellers, and list templates.
- ◆ **Database:** Summarizes database statistics and supports management operations such as saving to and restoring from backups..

◆ **Miscellaneous:** Version and release information on the application

The remainder of this section covers these activities in further detail.

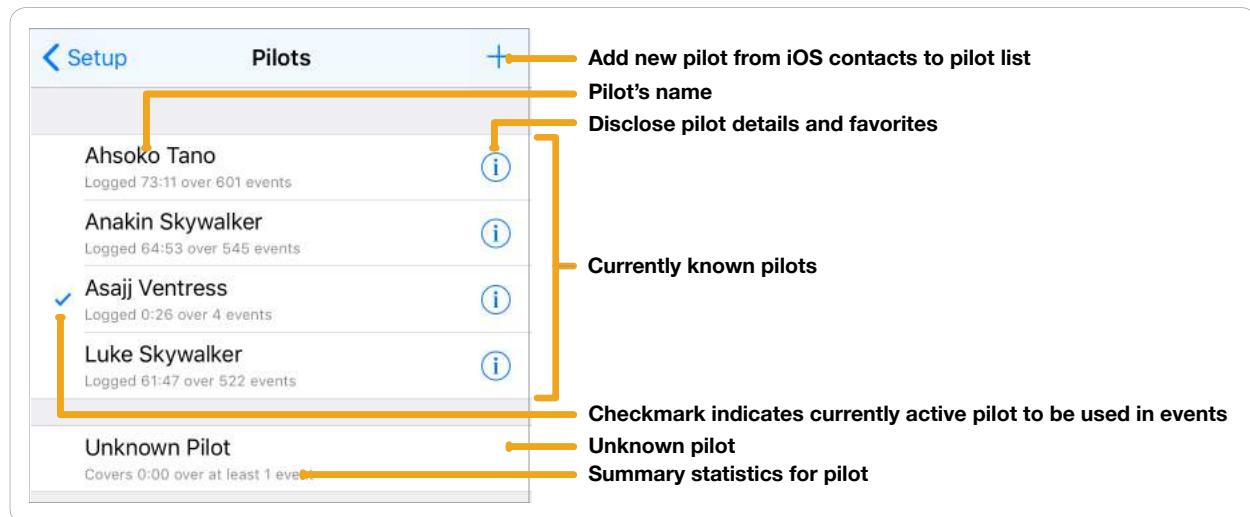
Pilots Section

The *Pilot* section has either one or two rows that identifies the pilot currently selected along with some basic summary information.



When the pilot is unknown, only the “Select or Create a Pilot...” row is displayed.

Tapping the “Select or Create a Pilot...” row transitions to a list of pilots known to RCLogbook.



Each row provides some summary information on the amount of activity by that pilot in your database. A checkmark on the left edge of the screen indicates the currently active pilot (this pilot is the one that RCLogbook will use by default when logging events). Tapping the row changes the selected pilot.

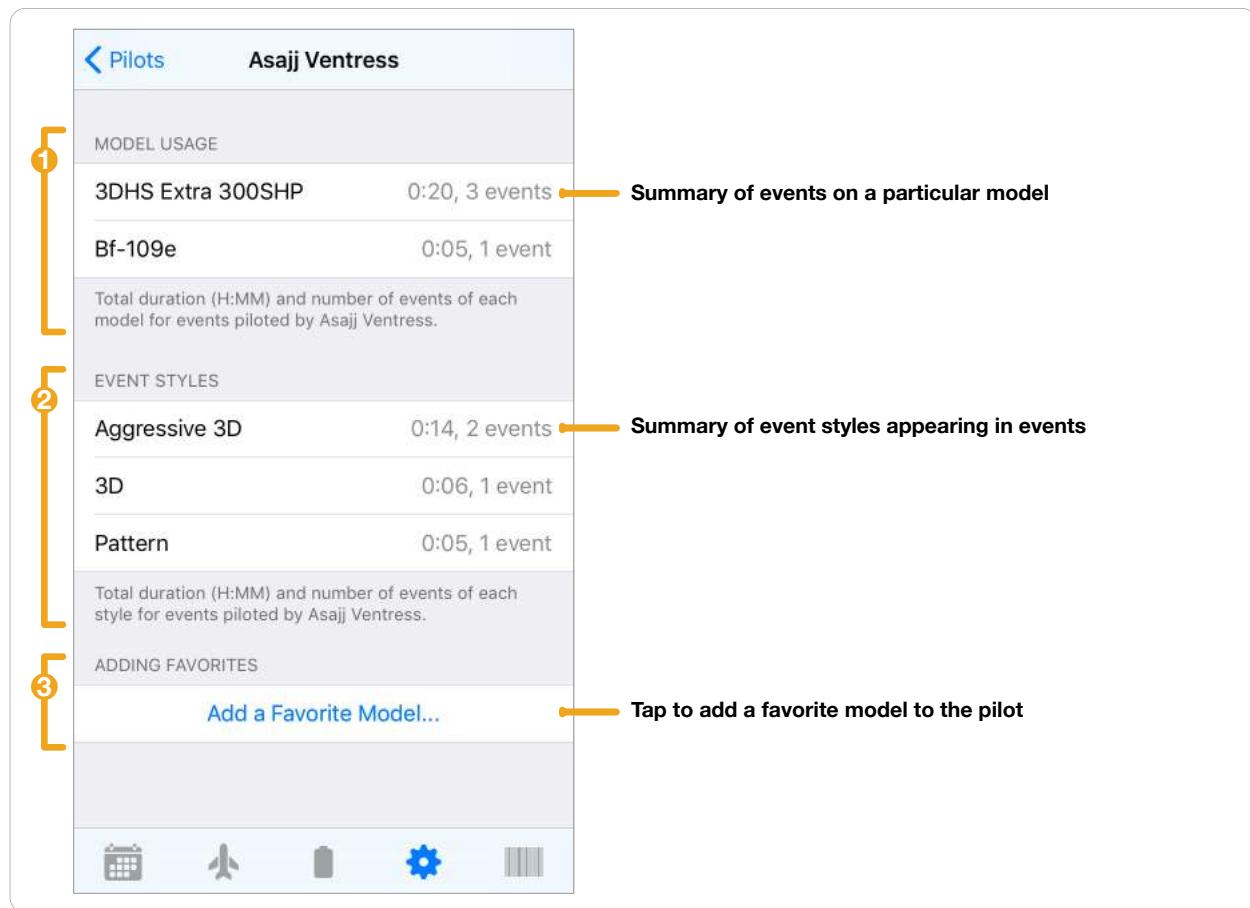
To add a pilot, tap the “+” icon on the right side of the “Pilots” navigation bar. This will bring up a list of your contacts from which you can select the pilot.

⚠️ *RCLogbook 5.1 can only set up pilots from your contacts. As a result, it requires access to your contacts. The first time the application tries to access your contacts, iOS will display an alert allowing you to approve or prohibit access. If you prohibit access, RCLogbook will be unable to create a pilot but will otherwise work fine.*

RCLogbook only uses the contacts to populate name information in the pilot record.

You can delete a pilot by swiping left on the pilot’s row. Any events that use the deleted pilot will change to an “unknown pilot” following the delete but be otherwise unaffected.

Tapping the disclosure indicator at the right end of the row, or tapping on the pilot row from the main Pilots section in the Setup Tab takes you to a screen that lists details on the pilot.



There are three sections. The first section summarizes the models that the pilot uses in events in your database. The second section summaries the styles of events that the pilot uses in your database. The final section allows you to associate favorite models with the pilot.

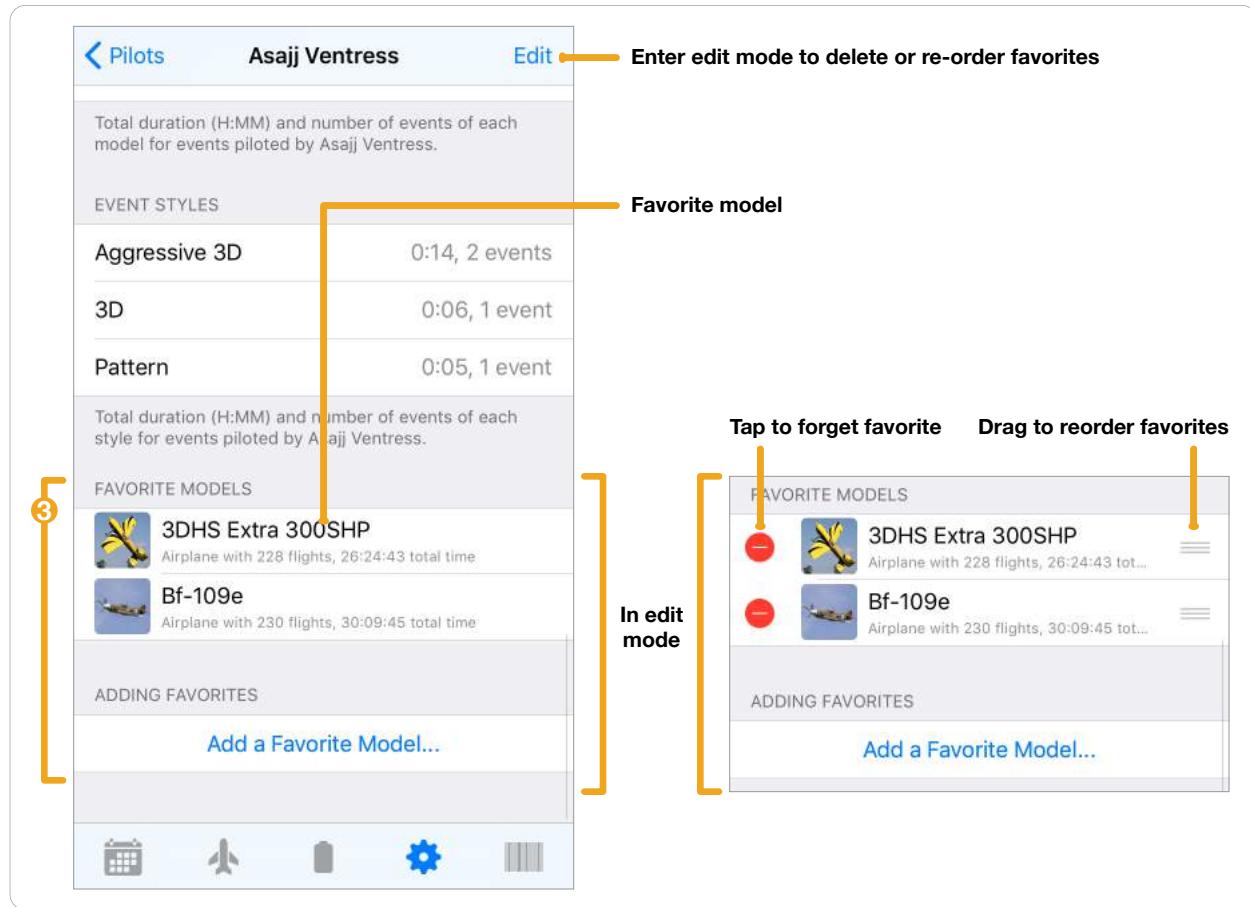


This system replaces the favorites system that was in place in earlier releases of RCLogbook.



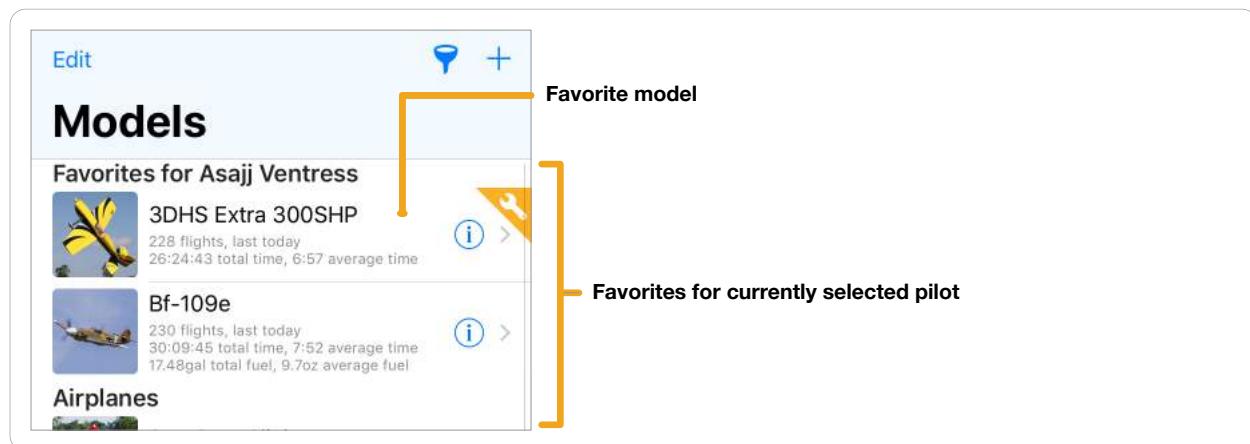
Due to the changes in the favorites system, favorites specified in legacy databases are not migrated to the modern database when updating from versions of RCLogbook before 5.0.0.

Tapping the “Add a Favorite Model...” button displays a sheet from which you can select a model to use as a favorite. Once added to a pilot, favorites appear immediately above the add button. Also, when a pilot has favorites, an edit button appears on the right side of the navigation bar.



You may forget a favorite by swiping left on the row or by using edit mode. Forgetting a favorite simply removes the association between the model and the pilot, it does not otherwise change existing event or model records in the database.

Once defined, the favorites appear in the first section of the *Models* tab and can be interacted with as described earlier.



The favorites section is only shown if the currently selected pilot has at least one favorite model selected.

Globals Section

The *Globals* section allows you to update global database records that define things like model categories, propellers, or event locations that may be shared across and associated with multiple models or events.

Event Locations

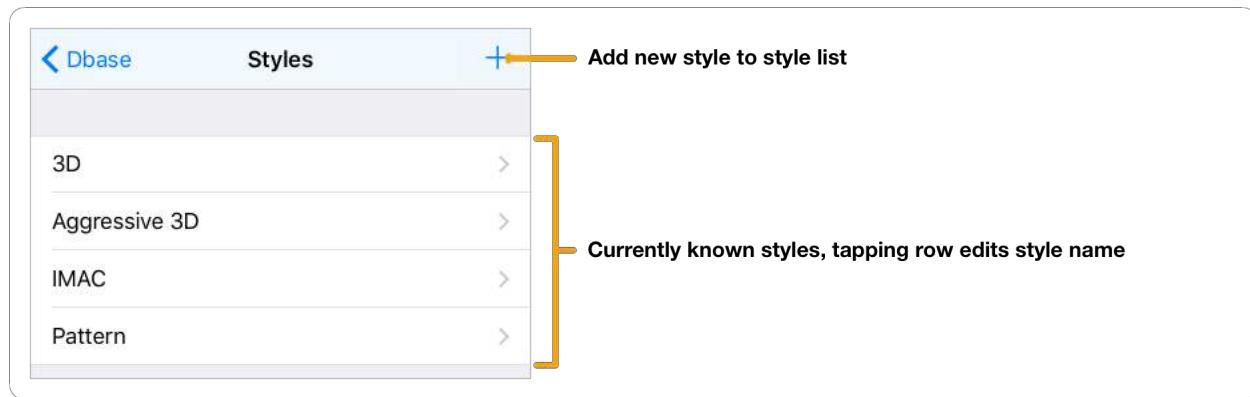
Each event in the database may be associated with a location that you define (see the *Events* and *Logging Events* sections below). Tapping the “Event Locations” row in the *Globals* section transitions to a view that lets you manage the locations in the database. Since RCLogbook relies on the mapping services in iOS, the locations page requires permission to use your location as well as a data connection to the network to download mapping data.

 *RCLogbook 5.1 requires access to your location to determine event locations. The first time the application tries to access your location, iOS will display an alert allowing you to approve or prohibit access. If you prohibit access, RCLogbook will be unable to track location information but will otherwise work fine.*

The *Locations* section below covers the operation of the locations user interface in detail.

Event Styles

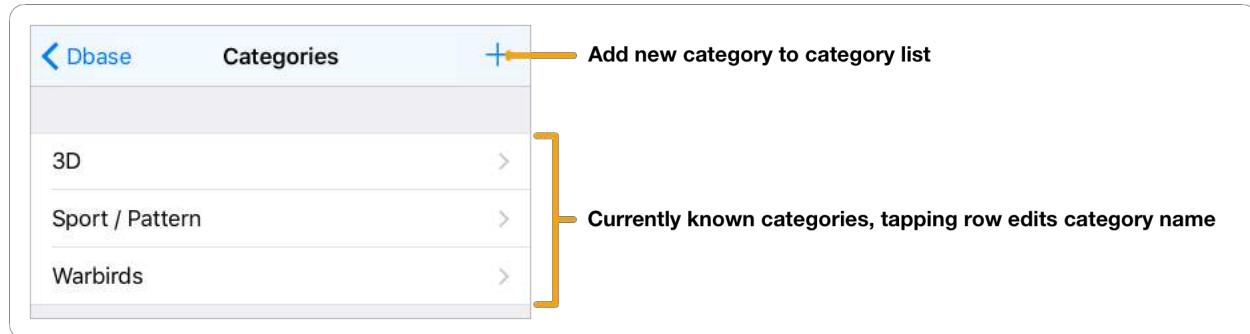
Each event in the database may be associated with a style that you define (see the *Events* and *Logging Events* sections below). Styles are tags that you can apply to individual events to classify their general style. For example, an RC pilot might use a “3D” style for flights where she performs 3D maneuvers or a “Pattern” style for flights where she works on take offs and landings. Tapping the “Event Styles” row on the *Setup* tab takes you to a view that lists of the currently defined styles.



Tap the “+” button at upper right to add a new style. You can edit the style name by tapping its row in the table. You can delete a style by swiping left on the style’s row. Any events that use the deleted style will change to an “unknown style” after the delete but be otherwise unaffected.

Model Categories

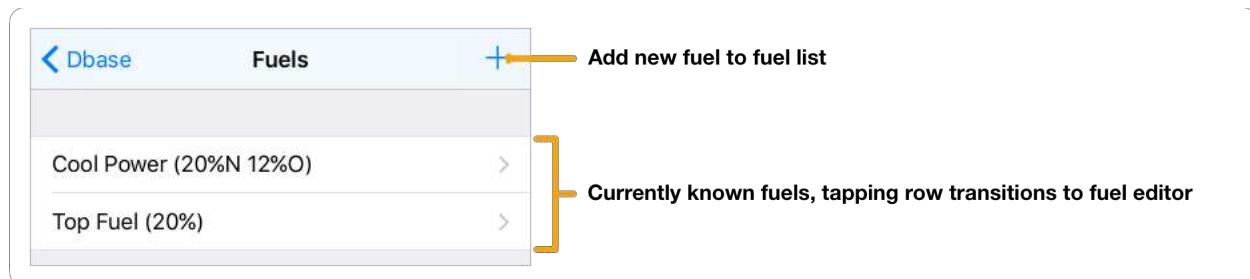
Each model in the database may be associated with a category that you define (see the *Models* sections below). For example, you might want to classify your airplanes as “3D”, “Warbird”, and “Glider”. Tapping the “Model Categories” row on the *Setup* tab takes you to a list of the currently defined categories.



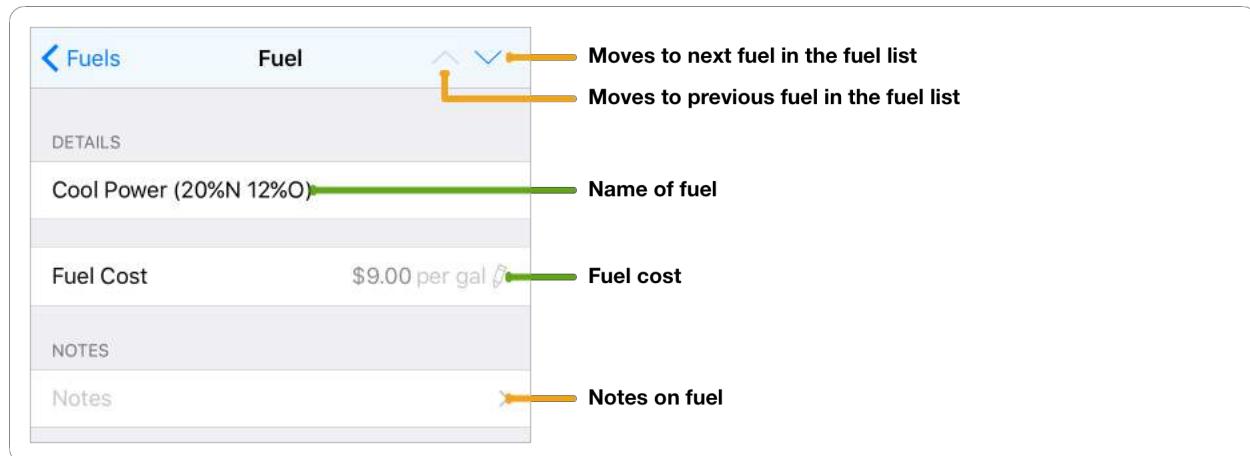
Tap the “+” button at upper right to add a new category. You can edit the category name by tapping its row in the table. Category updates are automatically reflected in the models. You can delete a category by swiping left on the category’s row. Any models that use the deleted category will change to an “unknown category” after the delete but be otherwise unaffected.

Model Fuels

Each event in the database may be associated with a fuel that you define (for events on models that enable fuel logging, see the *Models* sections below). Tapping the “Model Fuel” row on the *Setup* tab takes you to a list of the currently defined fuels.



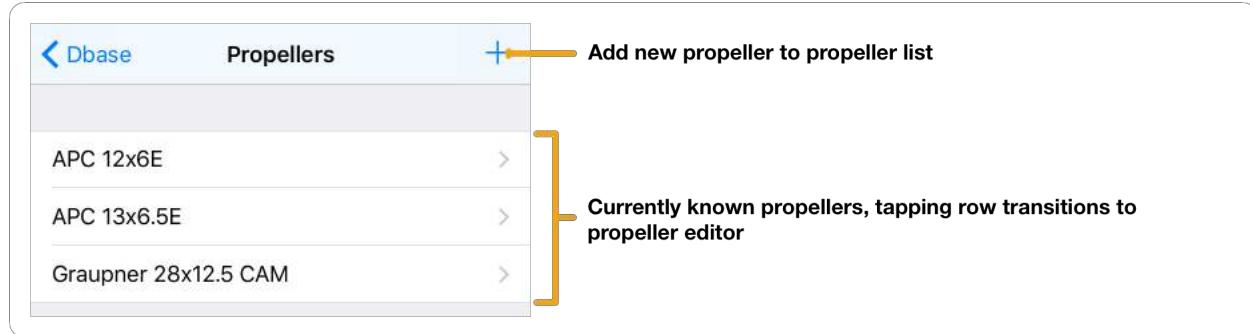
Tap the “+” button at upper right to add a new fuel. Swiping a row reveals a “Delete” button to delete the fuel from the database. Any events that use the deleted fuel will change to an “unknown fuel” after the delete but be otherwise unaffected. You can edit the fuel by tapping its row in the table, taking you to a page to edit the propeller.



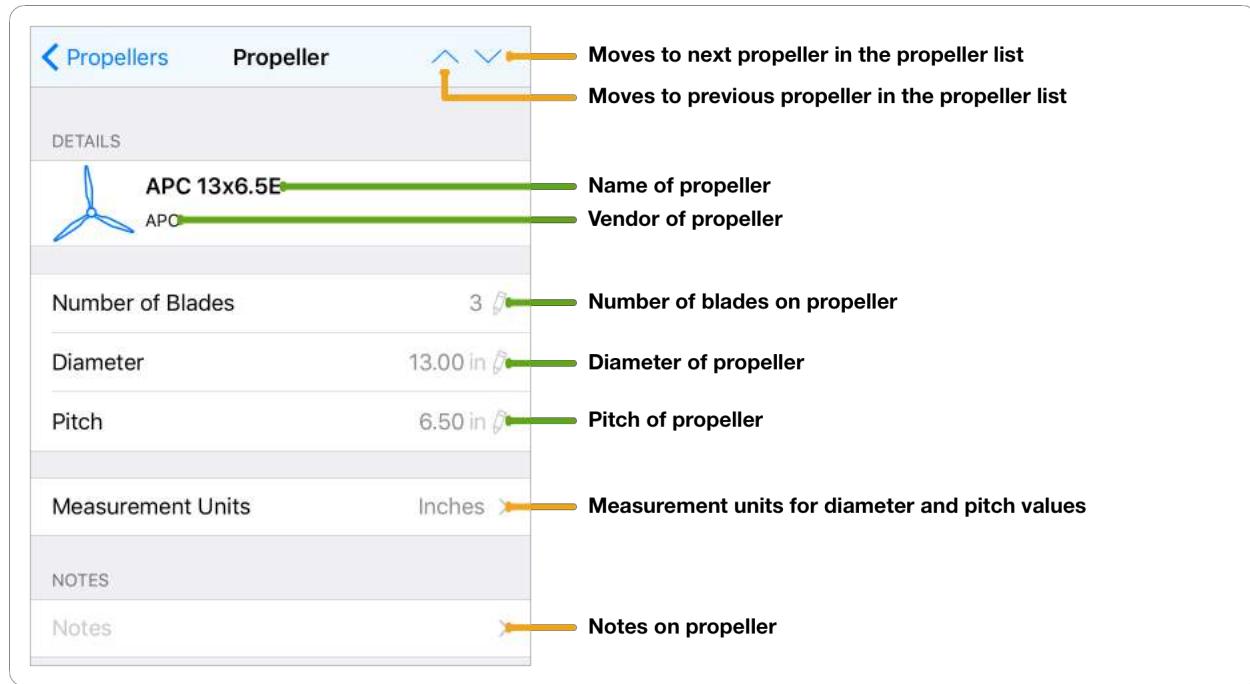
From the fuel editor, you can specify the name, price per unit volume, and notes for the fuel. The units for the volume are based on the units setting in the RCLogbook settings (see the *Settings and Configuration* section).

Model Propellers

Each event in the database may be associated with a propeller that you define (for events on models that use propellers, see the *Models* sections below). Tapping the “Model Propellers” row on the *Setup* tab takes you to a list of the currently defined propellers.



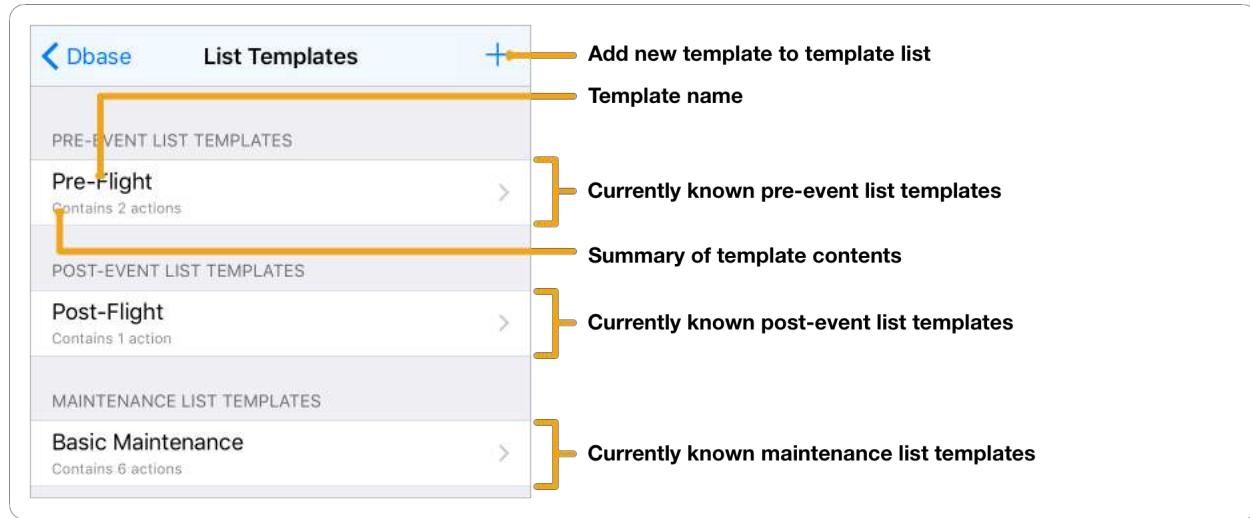
Tap the “+” button at upper right to add a new propeller. Swiping a row reveals a “Delete” button to delete the propeller from the database. Any events that use the deleted propeller will change to an “unknown propeller” after the delete but be otherwise unaffected. You can edit the propeller by tapping its row in the table, taking you to a page to edit the propeller.



From the propeller editor, you can specify the name, manufacturer, number of blades, diameter, pitch, units of measurements (inches or centimeters) and notes for the propeller.

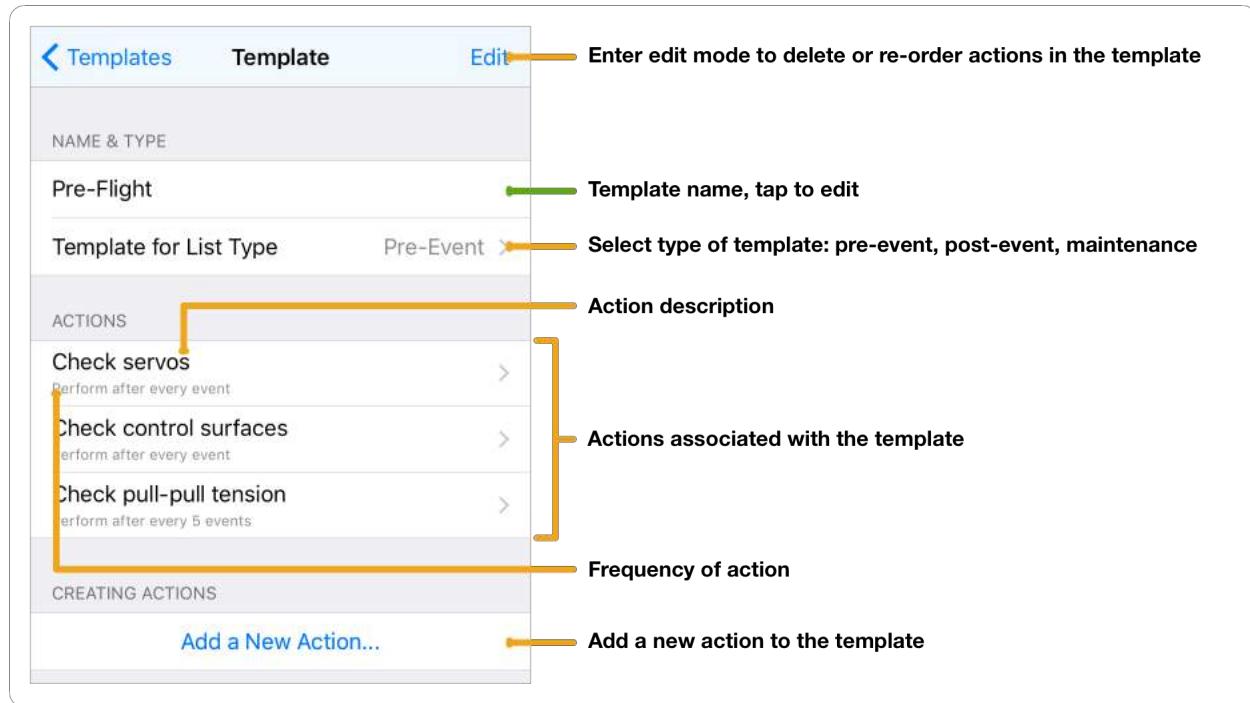
List Templates

Each model in the database may have its own set of items to perform as pre- and post-event checklists, or as maintenance tasks. As different models may use similar lists, RCLogbook allows you to define list templates that provide starting points for model lists. Tapping the “List Templates” row on the *Setup* tab takes you to a list of the currently defined templates.



Tap the “+” button at upper right to add a new list template. Swiping a row reveals a “Delete” button to delete the template from the database. Deleting (and other changes) to checklist templates are not reflected in models that use the template – the template is simply a quick way to “seed” a new checklist in a model.

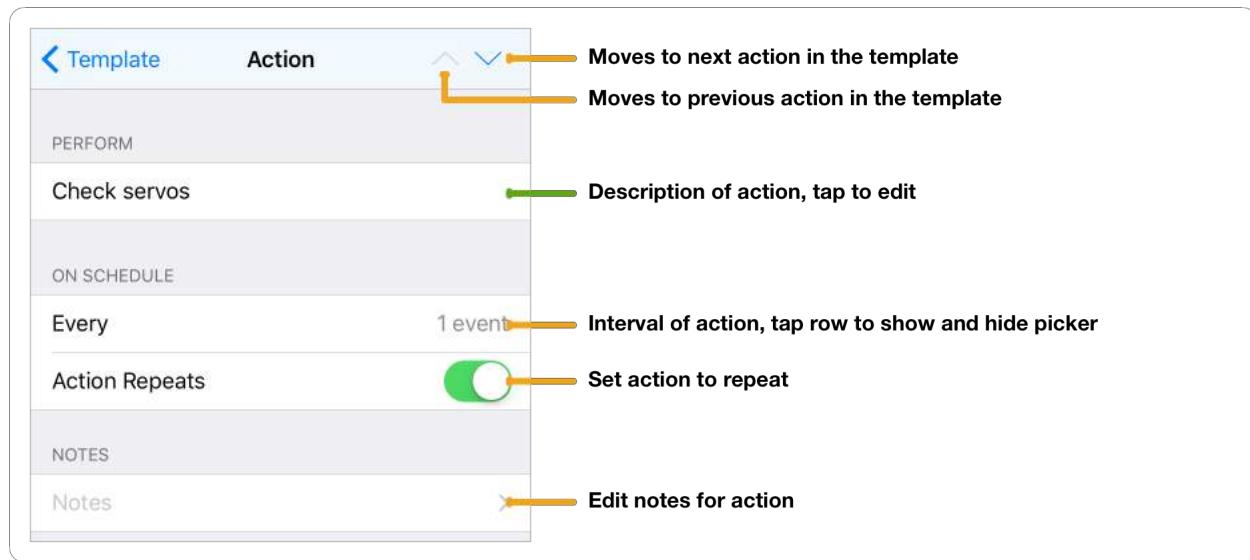
Tapping a template row edits that template.



Each template has a name and a type (pre-event, post-event, or maintenance); tapping the appropriate row edits these fields. Each template also has actions that specify an activity to perform at some frequency; for example, “check control linkages every 5 events”.

Tapping the “Edit” button at left on the *Template* navigation bar allows you to delete or re-order the actions in the template using edit mode. See the discussion on edit mode in the *An Introduction to the User Interface* section. You can also delete an action by swiping left across the row.

Tapping the “Add a New Action...” adds a new action to the template and transitions to the action editor. You can also reach the editor for an existing action by tapping the action’s row.



Tapping the “Every” row allows you to change the frequency of the action. RCLogbook currently supports frequencies specified in days, weeks, months, events, and model minutes. Setting the repeats control sets the action to continue to occur at the interval the every control specifies.

Database Section

The *Database* section provides access to database statistics, backup and restore functionality, and reporting capabilities.

Database Vitals

Tapping the “Vitals” row transitions to a list of basic information about the database including the version, record count, size, and date of last modification. The view also has a button to reset the database.



Please use caution when resetting the database. It will remove all records from your database and there is no undo!

Database Access

The “Access With” and “Access” rows control operations on the database file itself including backup/restore or export/import. The “Access With” row specifies how RCLogbook supports the operations.

- ◆ **Dropbox** – Access to the database occurs through your Dropbox. This method requires you to have a Dropbox account. You can visit <http://www.dropbox.com> to sign up.
- ◆ **RCLogbook Web Server** – Access to the database occurs through a web server built in to RCLogbook. This method requires a Wi-Fi network connection and a local Mac or PC.

Once the access method is set with the “Access With” row, tapping the “Access” row will transition to the interface appropriate for the action.

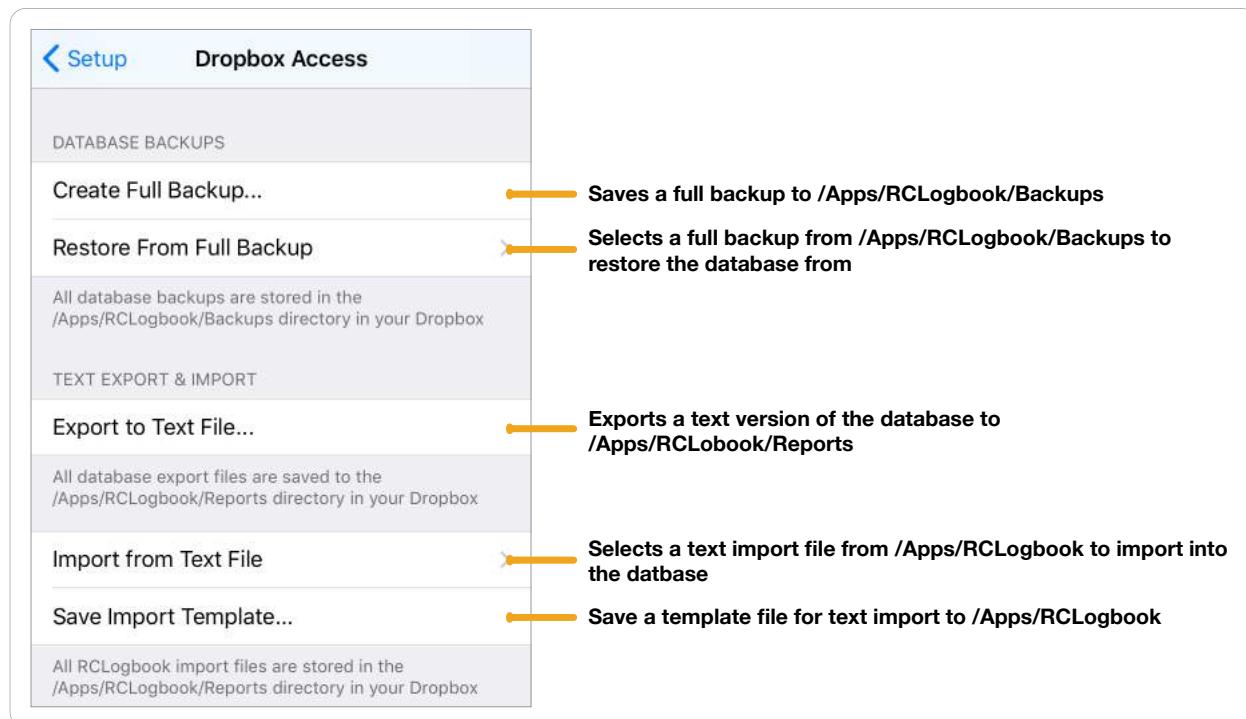
The backup/restore functionality transfers a complete binary image of your database from and to RCLogbook on your device. The export/import functionality generates a text representation of a subset of your database (export) and adds/edits records based on a text representation of database records (import).

 *The capabilities in RCLogbook 5.1 are similar to the copy to, restore from, export, and import operations in earlier versions. RCLogbook 5.0 significantly changed the text format for import and export, however. See the RCLogbook Import/Export Guide for more information on those changes.*

Access via Dropbox

The first time you access your Dropbox from RCLogbook, the application will ask for your Dropbox user ID and password to link the application and your Dropbox. Once linked, RCLogbook typically will not need to prompt you for your password. All interaction with RCLogbook takes place through the /Apps/RCLogbook folder in your Dropbox. Dropbox creates the /Apps/RCLogbook folder, if necessary, when it links with RCLogbook.

The Dropbox interface page allows you to perform the backup, restore, import, and export operations on the current database.



A full backup contains the entire RCLogbook database and any other information necessary to restore the state of the application. When creating a full backup, RCLogbook names the save file in /Apps/RCLogbook/Backups based on the database version, date, and time (italicized text is replaced with the appropriate values):

Dbase ({version}) – {year}{month}{day}-{hour}{minute}{second}.zip

The text export file contains a tab-separated text version of important database records that you can edit in a spreadsheet or text editor. This format is not suitable for backing up your

database as it only contains a **subset** of the database. When creating a text export, RCLogbook names the save file in /Apps/RCLogbook/Reports based on the date and time (italicized text is replaced with the appropriate values):

Export – {year}{month}{day}-{hour}{minute}{second}.txt

The import template provides a machine-generated template you can work from when building text files for importing (you can also use an edited version of the export file). When creating an import template, RCLogbook names the template file in /Apps/RCLogbook/Reports:

Dbase Import Template.txt



When writing to Dropbox, RCLogbook will over-write any existing file with the same name without warning.

When restoring from a full backup or importing from a text file, a view that lists all of the files currently in the relevant Dropbox folder (that is, /Apps/RCLogbook/Backups for backups and /Apps/RCLogbook/Reports for imports) allows you to select the file to use:

The button at the right of the navigation bar refreshes the contents of the list from Dropbox. Tapping a row selects the file to be used. Depending on the operation performed (that is, backup or import), the interface will display an alert to confirm the operation.



*With great power comes great responsibility. There is no undo for restore or import operations and they can make a mess of your database if you are not careful. As a result, it is **STRONGLY** suggested that you have a full backup saved before proceeding. For example, when importing, it is a good idea to first backup your database so that you can restore to a known-good point if something goes wrong.*

The interface will report an error if the selected file is not in the correct format for the operation.

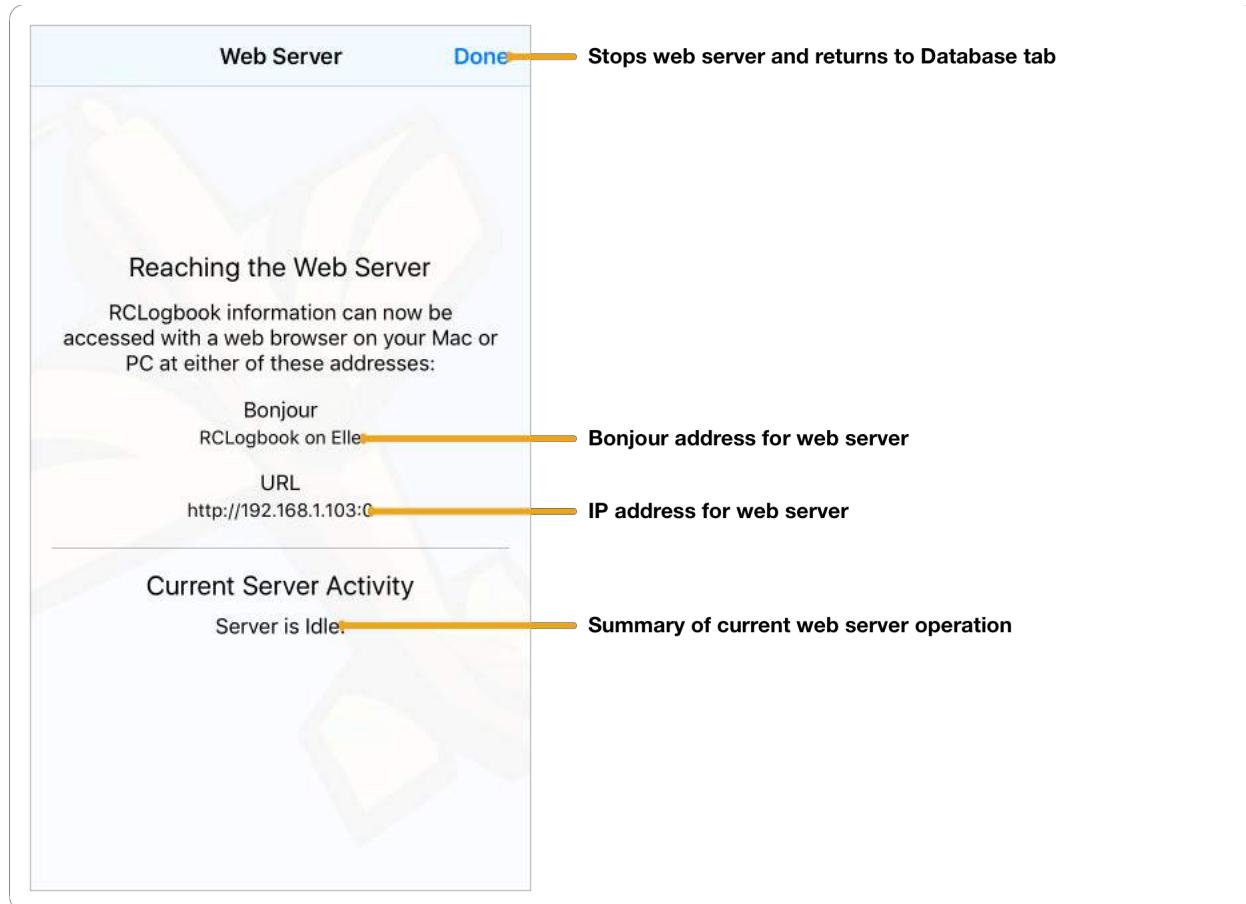
RCLogbook supports restoring from database files generated by any version of RCLogbook. If you select a database archive generated by an earlier version of RCLogbook, the database will be updated to the latest format during the restore process.

Through importing, you can make some edits and add some records to the RCLogbook database. This operation is primarily intended for making small edits or bulk additions to the database. For more information, see the *RCLogbook Import/Export Guide*.

Access via RCLogbook Web Server

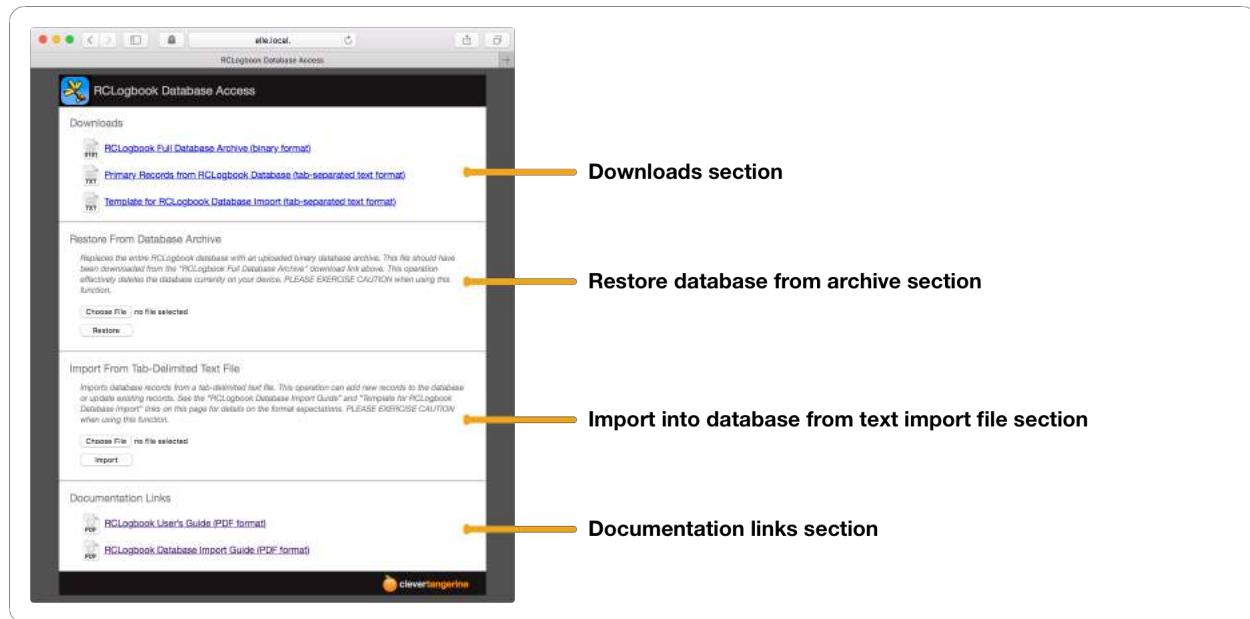
Tapping the “Access” row when the RCLogbook Web Server is selected as the “Access With” approach will launch a web server that makes select files available over Wi-Fi from your Mac or PC through a web browser like Safari or Firefox. The operations supported here are identical to the Dropbox access method just described.

After launching the web server, RCLogbook displays a view that provides connection information along with an activity indicator.



Once you are done accessing information from your Mac or PC, tap the “Done” button to return to the *Setup* tab.

The information view includes two addresses at which you can access the RCLogbook web server: a Bonjour address and a standard URL address. Providing one of these addresses to your favorite web browser on your computer will take to you to a web page that RCLogbook serves. Only Wi-Fi access is supported.



Through the “Downloads” section of the web page, you can download

- ◆ A full archive of the RCLogbook database containing the complete database that is currently in use by RCLogbook.
- ◆ The RCLogbook database as a tab-delimited text file suitable for processing in a spreadsheet program with a subset of the complete database currently in use by RCLogbook.
- ◆ A blank template file for use in the text import (see below).

The “Restore From Database Archive” section of the web page allows you to upload a previously downloaded binary database file and uses it to **completely replace** the current database file for RCLogbook, like the dropbox import operation.

The “Import From Tab-Delimited Text File” section of the web page allows you to import a text database import file and apply it to the current RCLogbook database file, like the Dropbox import operation.

In either the restore or import sections, you upload a file by first choosing a local file from your Mac or PC by clicking the “Choose File” button and then clicking the “Restore” or “Upload” button to begin the transfer. Once the file is transferred, the interface will operate in a similar fashion to the Dropbox operations described above with RCLogbook asking for confirmation, reporting an error if the file is not in the correct format, etc.



*With great power comes great responsibility. There is no undo for restore or import operations and they can make a mess of your database if you are not careful. As a result, it is **STRONGLY** suggested that you have appropriate backups saved before proceeding. For example, when importing, it is a good idea to first backup your database so that you can restore to a known-good point if something goes wrong.*

Finally, the “Documentation” section of the web page provides links to this document as well as the *RCLogbook Import/Export Guide* that are available from the RCLogbook product page on <http://clevertangerine.com>.

Miscellaneous Section

The miscellaneous section has two rows that allow you to look at the about page for the application as well as read in-application release notes. These pages can be helpful to check the version of RCLogbook and other notes.

There is also a row that takes you directly to the RCLogbook review page on the App Store where you can leave a review. We welcome any review; however, we do ask that if you are going to leave a negative review, please reach out to us first at support@clevertangerine.com to see if we can address your concerns. In the past, we have had reviews posted that were factually incorrect and claimed RCLogbook did not have a feature that had been supported for years by the time of the review.

Scan Tab

The Scan tab provides access to a barcode scanner that can launch events and cycle batteries for models and batteries that have barcodes defined (see the *Models* and *Batteries* sections). The barcode scanner relies on the rear-facing camera to provide images of the barcode being scanned.



RCLogbook 5.1 requires access to your camera to use it to scan barcodes. The first time the application tries to use the camera, iOS will display an alert allowing you to approve or prohibit access. If you prohibit access, RCLogbook will be unable to use the barcode scanner.

Typically, you print your barcodes and affix them to their model or battery so that you can directly scan the model or battery to generate events or cycles.



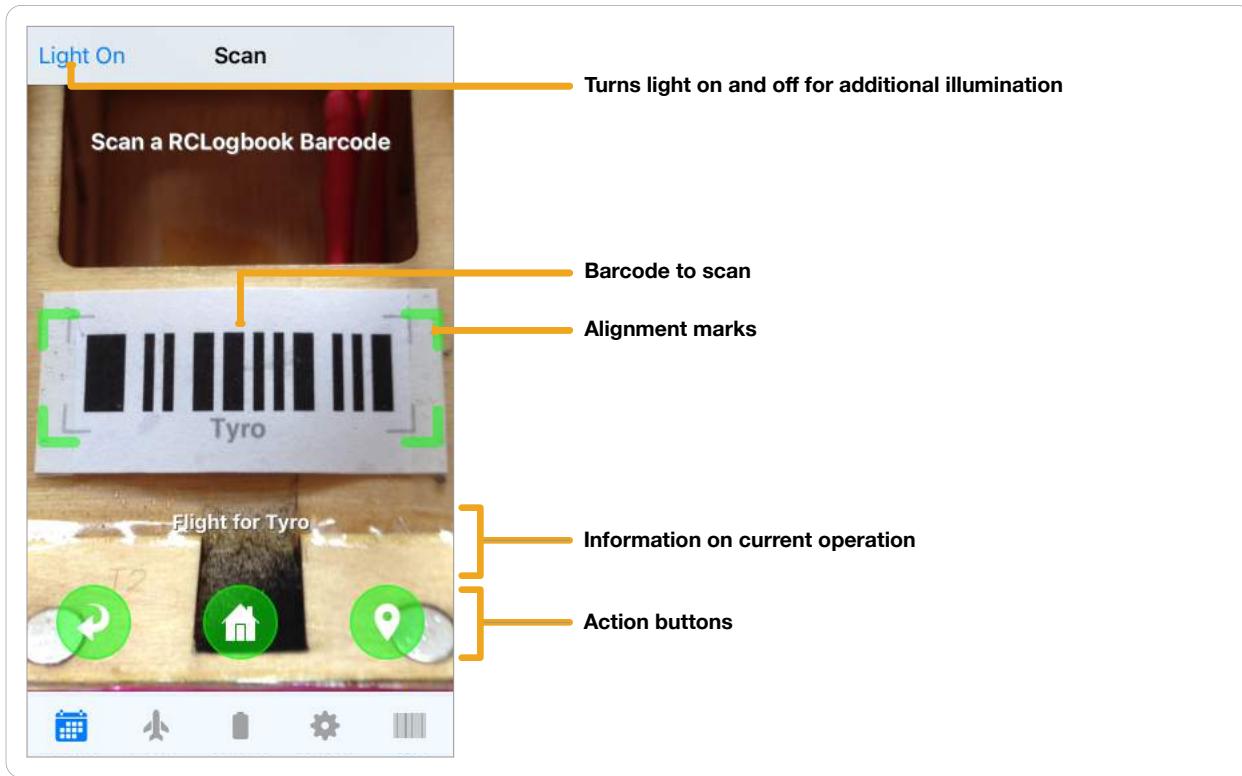
If you affix barcodes to your models using tape, make sure the tape either has a matte surface or does not cover the barcode proper. Glossy surfaces can create reflections that make it difficult for RCLogbook to recognize the barcode.

You can print assigned barcodes using the reporting function the *Reporting* section describes.



RCLogbook 5.0 moved the barcode PDFs to the reporting functionality. Earlier versions handled this through the database access in the Setup tab.

When there are at least one model or battery in the database that has a barcode, the Scan tab displays a live preview from the rear-facing camera. Scanning a barcode is a matter of lining up the barcode within the registration marks overlaid on the camera’s view.



The corner marks on the screen should be aligned with the corner marks on the barcode, though the alignment need not be exact. When a barcode is scanned successfully, RCLogbook will chime and vibrate.

The “Light On” button will turn on the light on your device to provide additional illumination. This can be helpful if the scanner is having a hard time reading the barcode.

The specific controls on the screen will depend on your actions. For more information on how to use the barcode scanner to launch events and cycle batteries, see the *Logging Events* and *Cycling Batteries* sections

Locations

The *Setup* tab in the main user interface list provides access to all of the locations in the database. This can be found in the “Event Locations” row in the Globals section.

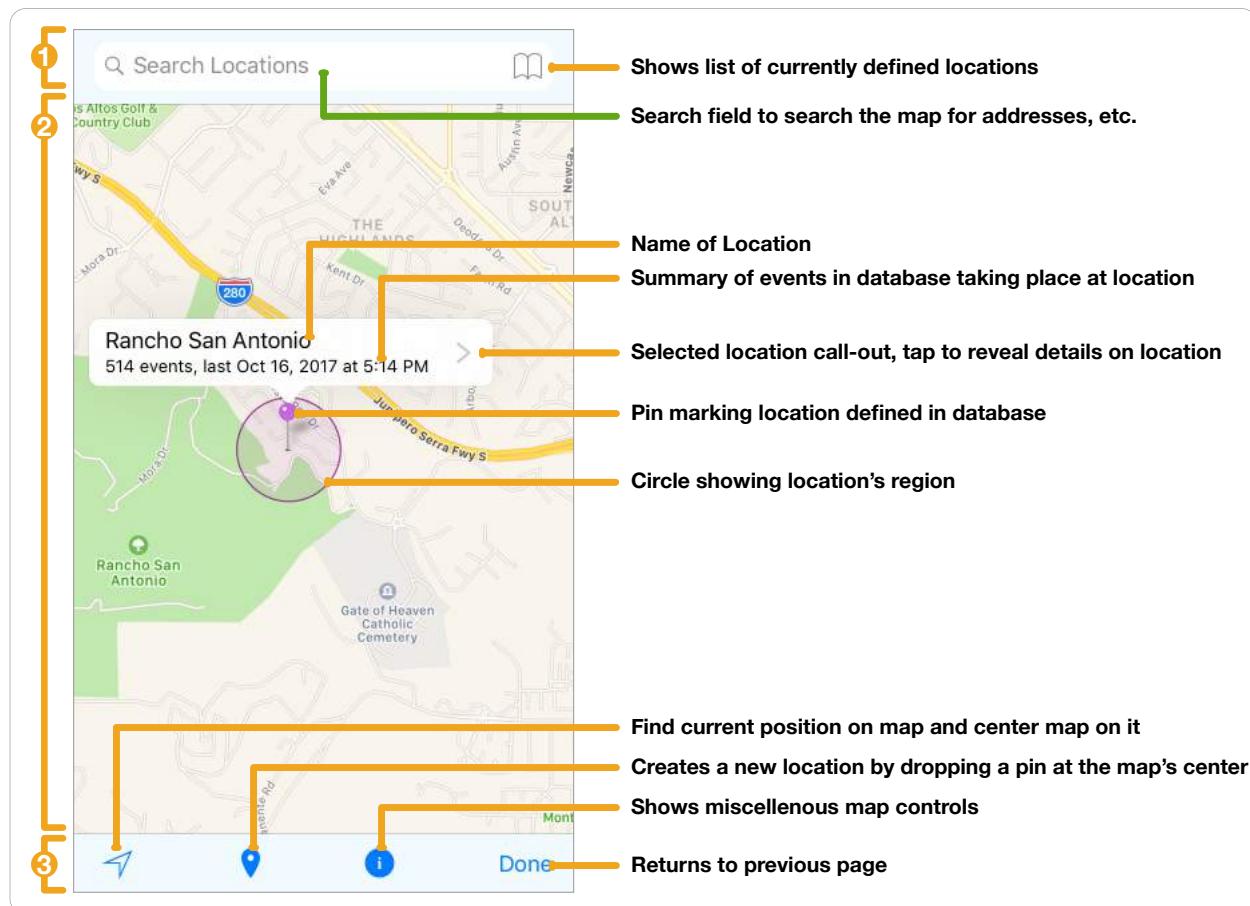
RCLogbook tracks a variety of information on each location in its database, including:

- ◆ The name of the location
- ◆ Notes on the location
- ◆ The latitude and longitude of the location

RCLogbook may infer additional information as described below from this list. This section covers editing and creating models in more detail.

Location User Interface

RCLogbook displays locations through a map view that lets you manage locations you can associate with events (see the *Events* and *Logging Events* sections). This interface may be reached through a variety of points in the application.



The view includes a search bar (marked “1” above), a map (marked “2” above), and a toolbar (marked “3” above).

The search bar includes a text field that you can use to type in an address to center the map on. Use the “Search” button on the keyboard to find the address you typed in. Tapping the

book icon at the right of the search bar shows a list of all of the locations that are currently in the database along with a “zoom to all” option. Tapping a row in this list will center and zoom the map on the appropriate location (or to show all locations for “zoom to all”).

The map in the middle of the view can show all of the defined locations marked with pins on a map. You can swipe to move the map around, pinch-to-zoom, tap and hold a pin to drag it around, and so on. The circles around the base of the pins identify the approximate area that RCLogbook considers to fall within of the location. The “Event Location Sensitivity” application setting (see the *Configuration and Settings* section) described above sets the diameter of this circle.

Since RCLogbook relies on the mapping services in iOS, the map view requires a data connection to the network to download mapping data.

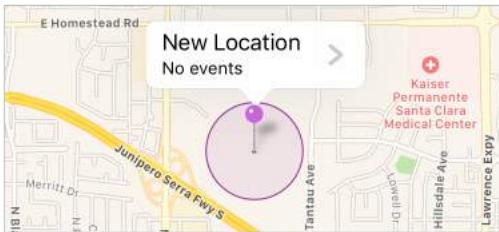


RCLogbook 5.1 requires access to your location to determine event locations. The first time the application tries to access your location, iOS will display an alert allowing you to approve or prohibit access. If you prohibit access, RCLogbook will be unable to track location information but will otherwise work fine.

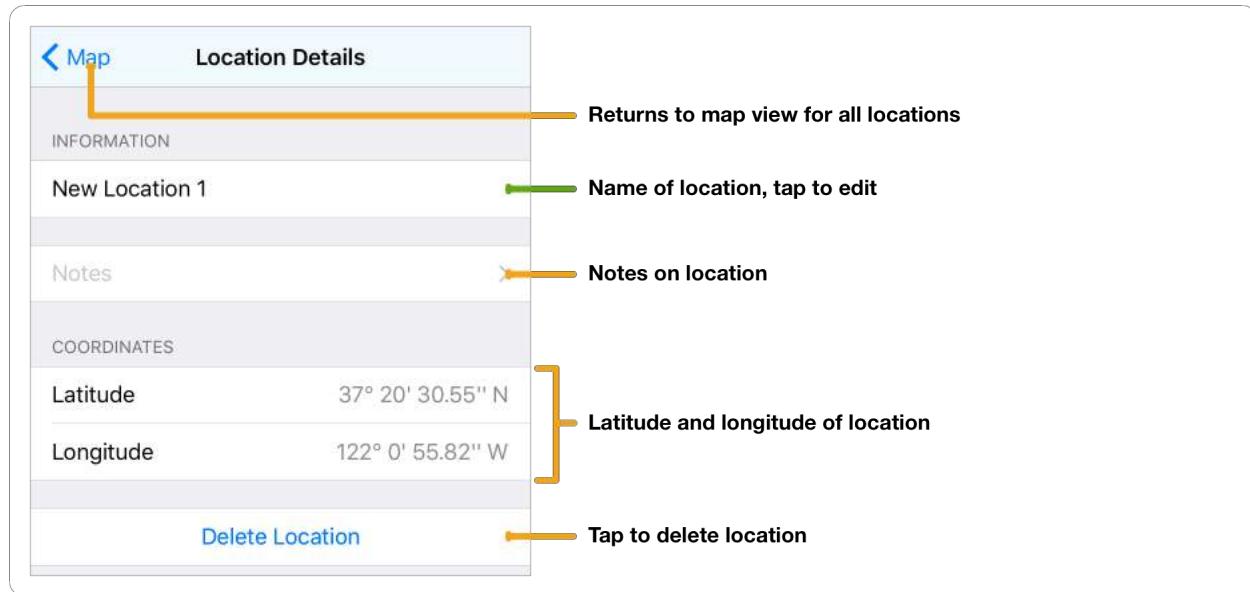
From left to right, the controls on the toolbar allow you to center on your current location (shown on the map as a blue dot), drop a pin in the center of the map to create a new location, open a drawer to change map options, and return to the previous view.

Creating a New Location

New locations are added to the database using the location user interface accessed by tapping the “Event Locations” row in the *Globals* section of the *Setup* tab. After tapping the pin icon on the toolbar at the bottom of the view, RCLogbook will create a new location at the current center of the map and select it.



You can reposition the location by dragging the pin around the map. Tapping the callout presents an editor view which that you can set up the location.



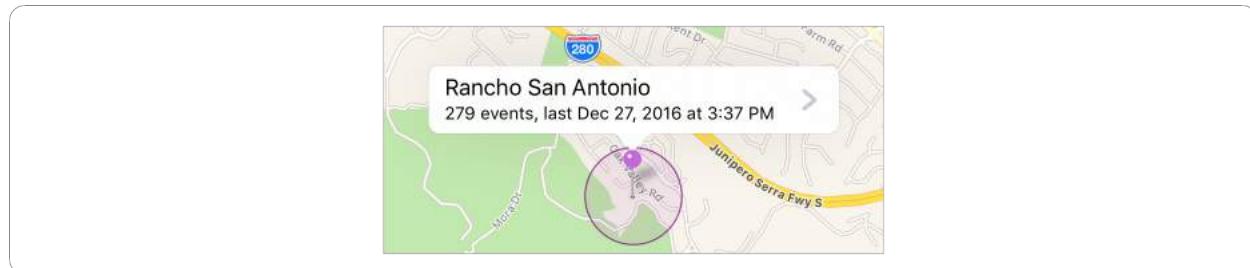
The first two rows edit the location’s name and notes. The name is edited in-place in the table. Tapping the notes row transitions to a page that allows you to edit free-form text notes associated with the model. Swiping left on this row reveals a button to clear the notes.

The latitude and longitude are shown in this view for reference. To change these values, drag the location’s pin to the proper location on the map view.

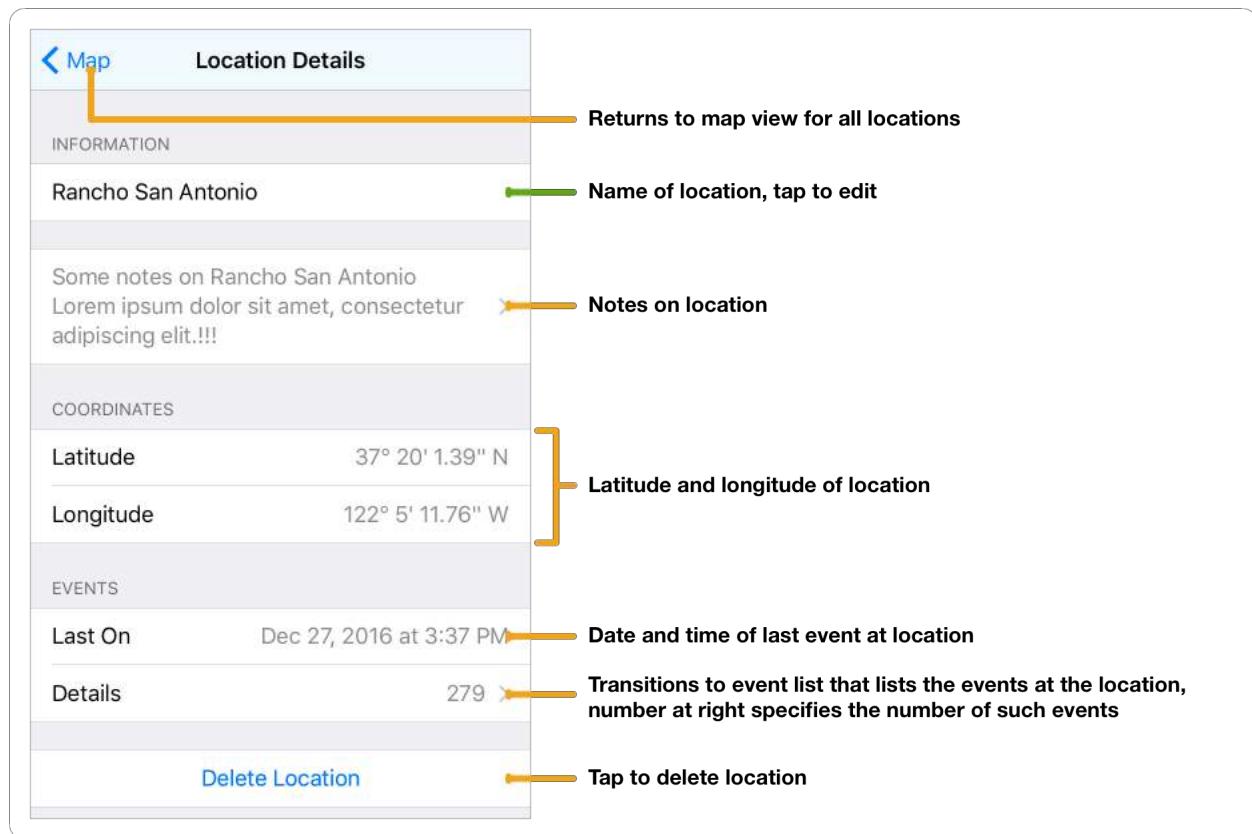
Finally, at the bottom of the view is a button that allows you to delete the location. Deleting a location will not remove any other records from the database; however, the location of all events that were associated with the deleted location will be changed to “Unknown”.

Editing an Existing Location

Tapping a pin reveals a callout that provides basic information on the location.



Tapping on the callout transitions to a view you can use to edit an existing location. This view is similar in appearance and operation to the new location view described earlier.



As mentioned, the detail is similar to the new location view; however, if there are events associated with the location, the view will have two additional rows to present event information to the user.

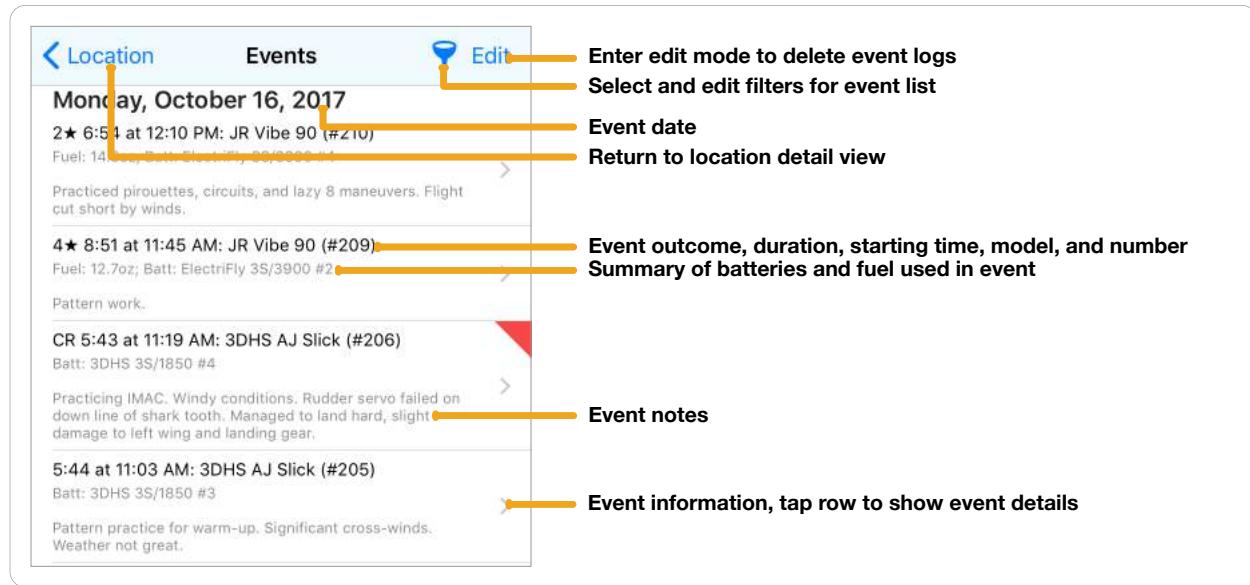
The “Last On” row lists the date and time of the last event logged at the location.

You can typically view the events logged at a location using the “Details” row of the location detail view. See the *Events* section for more on events.



The interface may not allow you to drill down into events from the location detail view when you are already drilling into events from a previous location detail.

Tapping the “Details” row on a location detail page transitions to an event list page that summarizes the information on all events logged at the selected location.



Tapping the “Edit” button at left on the *Events* navigation bar allows you to remove events from the list and database using edit mode. See the discussion on edit mode in the *An Introduction to the User Interface* section. Deleting an event here has the same effect on the database as deleting the event from the model event list (see the *Models* section). You can also delete an event by swiping left across the row.

Tapping a row in the event list jumps to a page that lets you edit details on the event. From this page, you can change the event attributes. See the *Events* section for more information.

Reporting

RCLogbook can generate a number of reports, each configurable by the user. A report is a set of information extracted from the current contents of the database according to some criteria; for example, list all maintenance performed on models of a given type over the past month.



The reporting functionality covers the barcode and logbook PDF capabilities from earlier versions. RCLogbook 5.0 significantly expanded the capabilities.

RCLogbook supports two types of reports:

- ◆ **Event/Maintenance Log Reports** – These reports summarize logged events or maintenance items for a set of models.
- ◆ **Barcode Reports** – These reports capture barcodes assigned to models or batteries for use by the barcode scanner.

While all reports are one of these two types, the user can customize the specific contents. Customizations can be saved for later use. New databases (and databases that are updated from earlier RCLogbook releases), start with two reports: one generates a log of all events and maintenance items across all models and one generates barcodes for all models and batteries that have barcodes.

The main reporting view, reached from the “Reporting” row in the Setup tab, allows you to customize and generate reports:

The screenshot shows the RCLogbook Reporting screen. At the top, there's a navigation bar with 'Setup' (with a back arrow), 'Reporting' (selected), and 'Edit' (with a pencil icon). Below the navigation is a section titled 'DESTINATION' with a dropdown labeled 'Output Report To' set to 'Dropbox'. A note below says 'Reports will be saved to /Apps/RCLogbook/Reports on your Dropbox.' To the right of this note is a callout pointing to the 'Edit' button in the navigation bar with the text 'Enter edit mode to re-order and delete reports'. Below the destination section is a button 'Add a New Report...' with a callout pointing to it labeled 'Add a new report'. The main content area lists several report categories:

- EVENT/MAINTENANCE LOG REPORTS**: Includes 'Event & Maintenance Log' (Summary, Events: All, Maintenance: All) and 'Airplane Maintenance, Past Month' (Summary, Events: All, Maintenance: "Airplanes, Past Mon..."). Both have disclosure icons. A note below says 'Tapping a row generates the corresponding report to the output selected above.' Callouts point to the disclosure icons with 'Name of report' and 'Saved event/maintenance log reports'. Another callout points to the note with 'Tap report's row to generate report to selected destination'.
- BARCODE REPORTS**: Includes 'Model & Battery Barcodes' (Models: All, Batteries: All) and a note below saying 'Tapping a row generates the corresponding report to the output selected above.' A callout points to the disclosure icon with 'Tap report's disclosure icon to edit report'.
- Summary of report contents**: A general callout pointing to the notes below the report rows.
- Saved barcode reports**: A callout pointing to the 'Model & Battery Barcodes' section.

At the bottom of the screen are five icons: a calendar, an airplane, a battery, a gear, and a barcode.

Tapping the “Edit” button at left on the *Reporting* navigation bar allows you to delete or re-order the reports in the list using edit mode. See the discussion on edit mode in the *An Introduction to the User Interface* section. You can also delete a report by swiping left across the row.

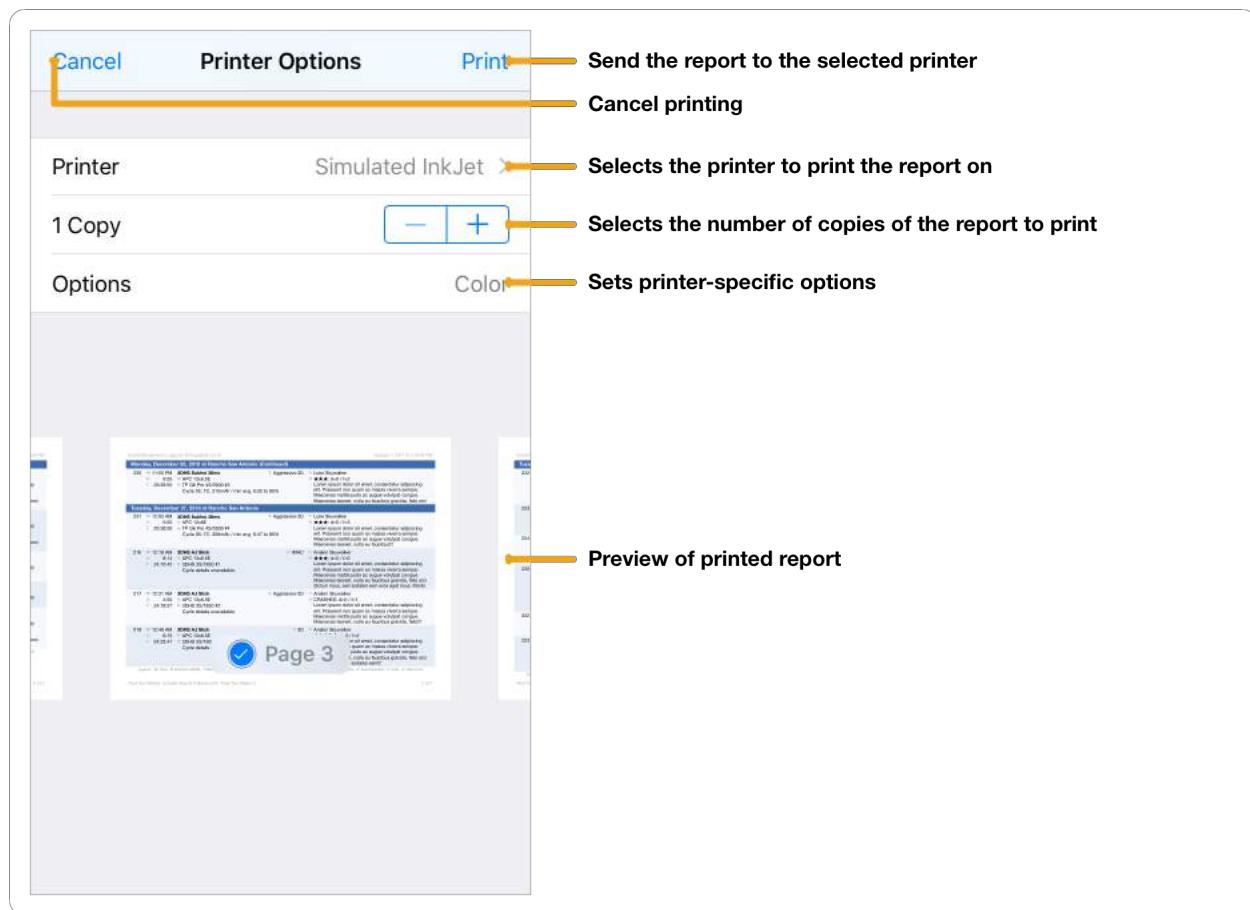
The “Event/Maintenance Log Reports” and “Barcode Reports” sections in this view list the saved reports that RCLogbook can generate. You can use the “Edit” button to enter edit mode and re-order or delete reports (you may also delete reports by swiping left on a report’s row).

When generating a report, the “Output Report To” row specifies the destination that will receive the report. The possible destinations include,

- ◆ **AirPrint** – Sends the report to a printer you access via iOS AirPrint.
- ◆ **Dropbox** – Saves a PDF file with the report as to the /*Apps*/RCLogbook/Reports folder on your Dropbox.
- ◆ **RCLogbook Web Server** – Makes a PDF file with the report available through the RCLogbook web server.

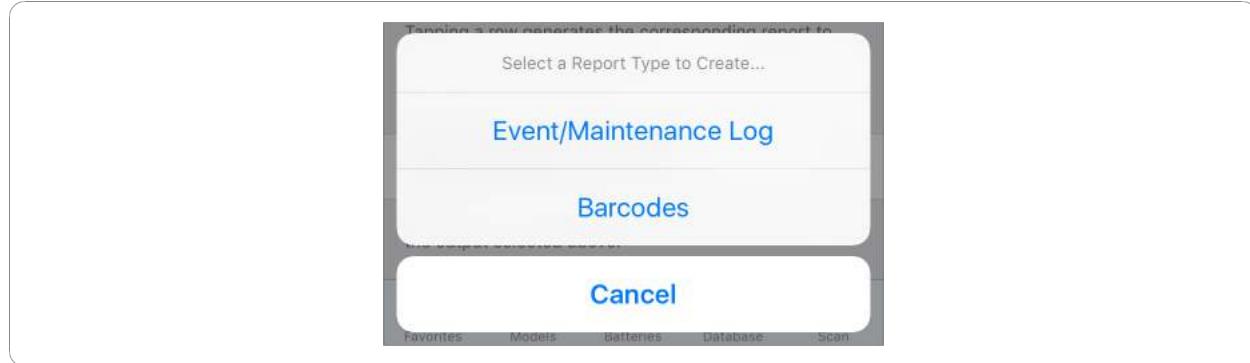
Tapping the “Output Report To” row allows you to select the destination.

Tapping on the row for a report creates the report and sends it to the selected destination. When the destination is “AirPrint”, RCLogbook will display the standard iOS printing interface to allow you to select and setup the printer that will print the report.



When the destination is “RCLogbook Web Server”, RCLogbook will display the web server address view, see the discussion of backing up your database in the *Setup* tab for more.

To create a new report, tap the “Add a New Report...” button on the page. RCLogbook will first prompt you for the type of report to create:

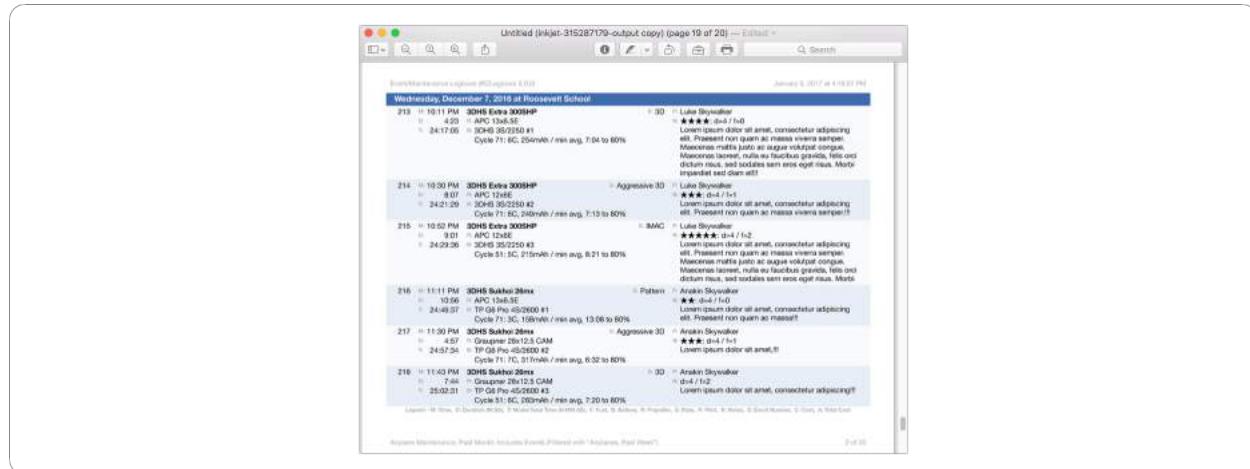


After selecting the type, RCLogbook transitions to the proper report editor.

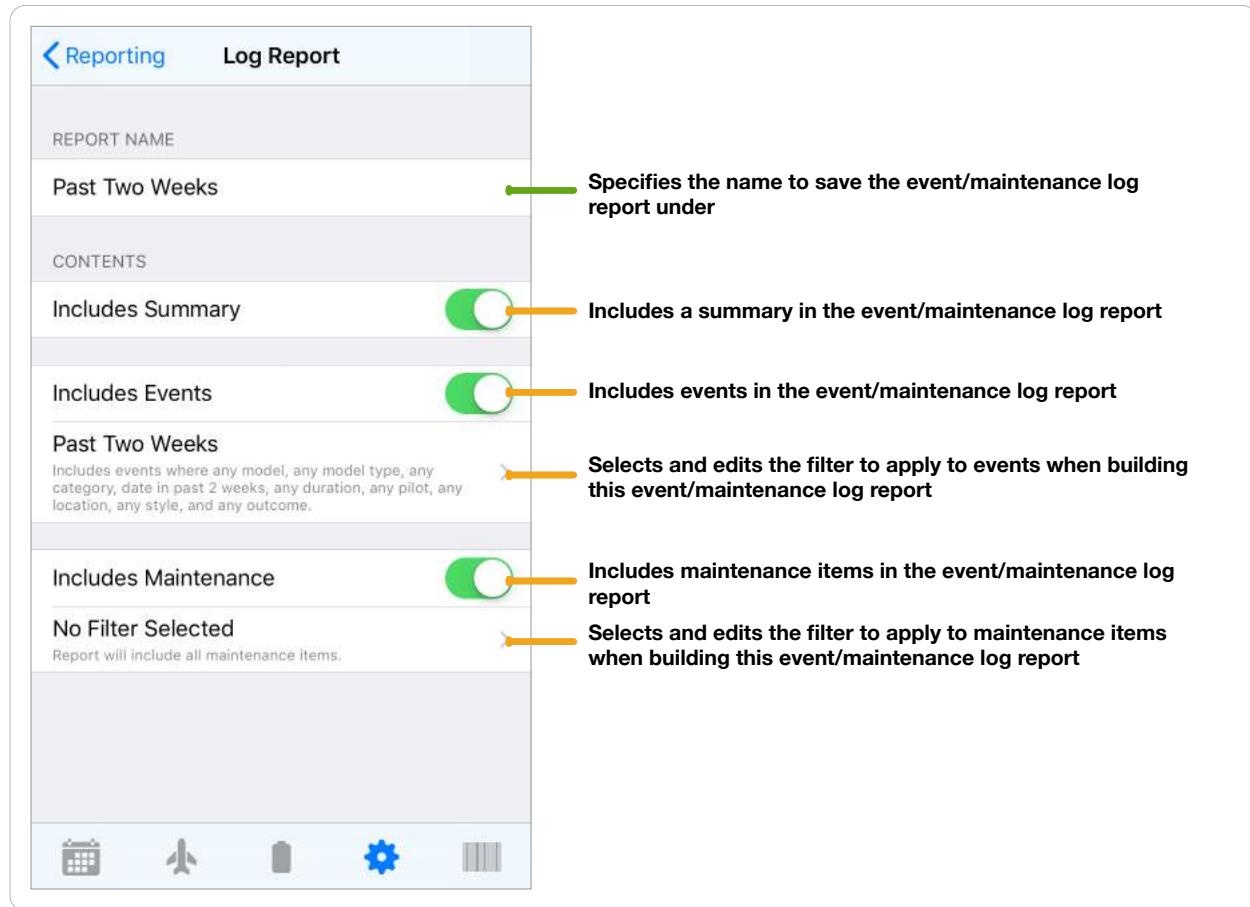
Tapping the disclosure button in any of the report rows will transition to the report editor appropriate for the report.

Event/Maintenance Log Reports

The event/maintenance log reports include events or maintenance log items from your database that match a set of criteria. For example,



RCLogbook generates this type of report by examining each event and maintenance log item in your database to see if it meets the criteria. If it does, it is included in the report output. You select the criteria through the event/maintenancne log report editor.



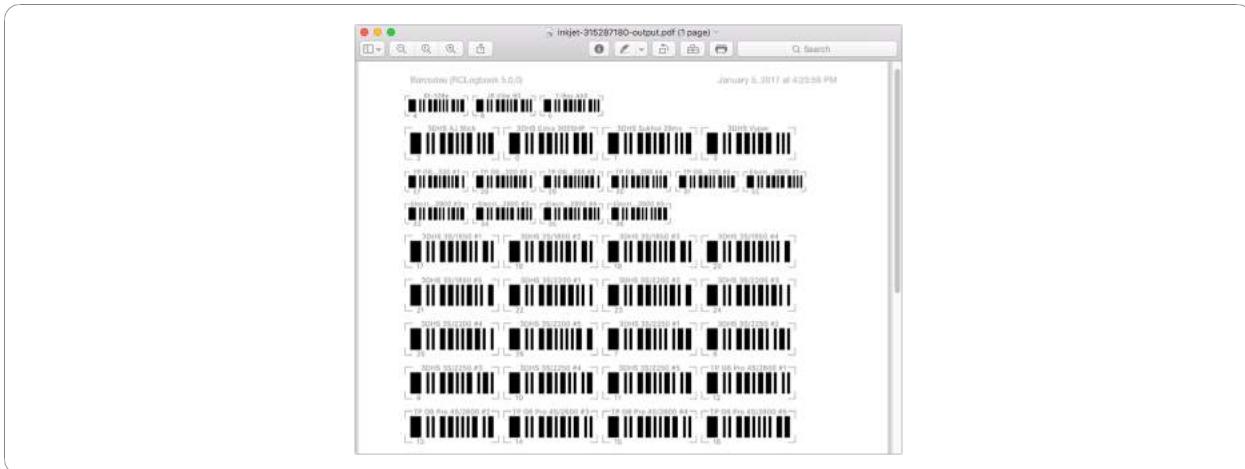
The contents section of the view sets the contents of the report. There are three pieces:

- ◆ **Summary** – Provides a summary of the total event times for all models in the database.
- ◆ **Events** – Provides information on each event in the database that matches a filter.
- ◆ **Maintenance** – Provides information on each maintenance item in the database that matches a filter.

You can include or exclude each of these three pieces of information from the report using the switch in the “Includes” rows. When you select a filter for events or maintenance items by tapping a filter row, RCLogbook presents a filter selection page just like the filtering capability for the user interface. From there, you can create, edit, and save filters just like the filtering functionality for user interface items (see the filtering discussion in the *An Introduction to the User Interface* section).

Barcode Reports

The barcode reports include barcodes from the model and battery items in your database that match a set of criteria. For example,



The barcodes are grouped by size and, for example, could be printed on a full-sheet label and then cut into individual labels to be attached to your models and batteries.

RCLogbook generates this type of report by examining each battery and model item in your database to see if it meets the criteria. If it does, it is included in the report output. You select the criteria through the barcode report editor.

Section	Description	Setting
REPORT NAME	Specifies the name to save the barcode report under	Airplane & Large LiPo Barcodes
CONTENTS	Includes models in the barcode report	<input checked="" type="checkbox"/> Includes Models
	Selects and edits the filter to apply to models when building this barcode report	<input checked="" type="checkbox"/> Airplanes Includes models where model type is any of 1 values, any category, and any last event.
	Includes batteries in the barcode report	<input checked="" type="checkbox"/> Includes Batteries
	Selects and edits the filter to apply to batteries when building this barcode report	<input checked="" type="checkbox"/> LiPo Includes batteries where chemistry is any of 1 values, and capacity is greater than 1500.

The first row of the view allows you to edit the name to use for the report. The remainder of the view defines the content of the report.

The contents section of the view sets the contents of the report. There are two pieces:

- ◆ **Models** – Provides barcodes for models in the database.
- ◆ **Batteries** – Provides barcodes for batteries in the database.

You can include or exclude each of these two pieces of information from the report using the switch in the “Includes” rows. When you select a filter for batteries or models by tapping the filter row, RCLogbook presents a filter selection page just like the filtering capability for the user interface. From there, you can create, edit, and save filters just like the filtering functionality for user interface items (see the filtering discussion in the *An Introduction to the User Interface* section). For example, in the figure above, the report only includes LiPo batteries in its results.

Events

Events can be viewed from several places in the user interface such as the “Logged Event Details” row on a model detail view or the “Details” row on a location detail views. Though viewable from several different places, events are only created in response to event logging; see the *Logging Events* section for further details.



RCLogbook 5.0 added additional information to the database record that it tracks for events. When updating from earlier versions, most of this information is left unspecified.

While “Event” is generic, the user interface often uses the specific terminology for an event appropriate for the model type the event is associated with; for example, a “flight” for an airplane, a “race” for a car, etc. We will use the term “Event” here, but recognize that the interface may use a more specific term in some circumstances.

RCLogbook tracks a variety of information on each event in its database, including:

- ◆ The model that participated in the event.
- ◆ A serial number for the event.
- ◆ The date and time of the event.
- ◆ The duration of the event.
- ◆ The location of the event.
- ◆ The outcome of the event.
- ◆ The pilot during the event.
- ◆ The style of the event.
- ◆ The propeller used in the event (if the model uses propellers)
- ◆ The fuel and amount consumed during the event (if the model enables fuel logging)
- ◆ The batteries and battery-related parameters for batteries used during the event (if the model enables battery logging).
- ◆ Notes on the event.

This section covers editing and creating events in more detail.

Significant Changes from Earlier RCLogbook Releases

Version 5.0 of RCLogbook made a number of changes in the underlying database around events that cause events to behave differently in modern releases than version 4.6.x and earlier.

- ◆ You can no longer remove an event from the log without permanently deleting it. As a result, RCLogbook assumes that, if a model has N events, those events are the N most-recent events using the model.
- ◆ Changes to event dates must preserve relationships between cycle phases and events.

These changes were necessary to ensure efficient operation of the new database format.



To meet the new expectations, RCLogbook 5.1 may need to make changes during import to a legacy database. When upgrading your database from an earlier release, you may see changes to your data. RCLogbook tries to preserve the intent, but may tweak details. For example, typically, event numbers will change.

Adding a New Event

New events are added to the database by logging events. See the *Logging Events* section for further details on this process. As the final step of that process, RCLogbook presents a view from which you can edit the new event.

1

OVERVIEW	
3DHS Extra 300SHP	Name of the model participating in the event
Flight 228 On Nov 24, 2017 at 8:25 PM	Event number, date, and time
Date	Nov 24, 2017 at 8:25 PM Date and time of new event
Duration	8:00 m:ss Duration of new event, must be non-zero
Location	Roosevelt School Location of new event, initially set up based on location reported by iOS Location Services
Outcome	Unspecified Outcome of new event
Propeller	APC 12x6E Propeller used in new event, initially set up based on model's default propeller
Fuel	Unspecified Fuel used in new event, initially set up based on model's default fuel
Fuel Consumed	Value oz Fuel consumed during new event
Pilot	Anakin Skywalker Pilot performing new event, initially set up based on current pilot
Style	3D Event style for new event, initially set up based on model's default style
NOTES	
Notes	Edits the free-form notes for the model
POST-FLIGHT FOR 3DHS 3S/2200 #3	
Pack Resting Voltage	Value V Resting voltage for battery pack, post-event
Pack Resistance	Value mΩ Sets the per-cell resting voltages for battery pack, post-event
Per-Cell Resting Voltages	Resistance for battery pack, post-event
Per-Cell Resistances	Sets the per-cell resistances for battery pack, post-event

2



The contents of and supported edits in this view differ depending on the configuration of the model and how you are logging the event. For example, fuel-related fields are only shown if the model enables fuel logging.

This view has two regions. The content of the first region (marked “1” above) is the same when editing new or existing events. The content of the second region (marked “2” above), is different when editing a new or existing event (it appears as is show above when editing a new event).

Tapping the “Save” button on the right of the navigation bar saves the event to the database and returns you to the point in the user interface from which you logged the event. The steps necessary to cancel the event depend on how the event is logged; see the *Logging Events* section for further details. Tapping in any of the editable fields displays a keyboard to allow you to update the fields as desired.

The first section of the table lists the model, event number RCLogbook assigned to the event, date and time of the event, event duration, event location, and outcome.

When editing an existing event or completing the logging of an away-from-field event, tapping the “Date” row reveals a date picker you can use to can change the event date. RCLogbook will only allow you to make changes to the dates that preserve event and cycle order. If you try to change to an invalid date, RCLogbook will select the nearest valid date instead (see the date discussion below).

The duration must be non-zero.

Tapping the “Location” row reveals a map view from which you can edit and select the location for the event. For more information on this interface, see the *Locations* section.

Tapping the “Outcome” row allows you to specify a star rating for the event. In addition, you can mark the outcome as “crashed” to indicate a crash. When doing so, RCLogbook will mark the model as damaged, just as if you had done so through the model interface (see the *Models* section).

Tapping the “Propeller”, “Fuel”, “Pilot”, and “Style” rows allows you to select the relevant item to associate with the event. The *Globals* section in the *Setup* tab defines the set of, for example, propellers that you can select from. The “Propeller” row is only visible if the model uses propellers while the “Fuel” row is only visible if the model enables fuel logging.

The “Fuel Consumed” row is only visible if the model enables fuel logging and edits the amount of fuel in the units selected in the settings (see *Settings and Configuration* section).

Tapping the notes row transitions to a page that allows you to edit free-form text notes associated with the event. Swiping left on this row reveals a button to clear the notes.

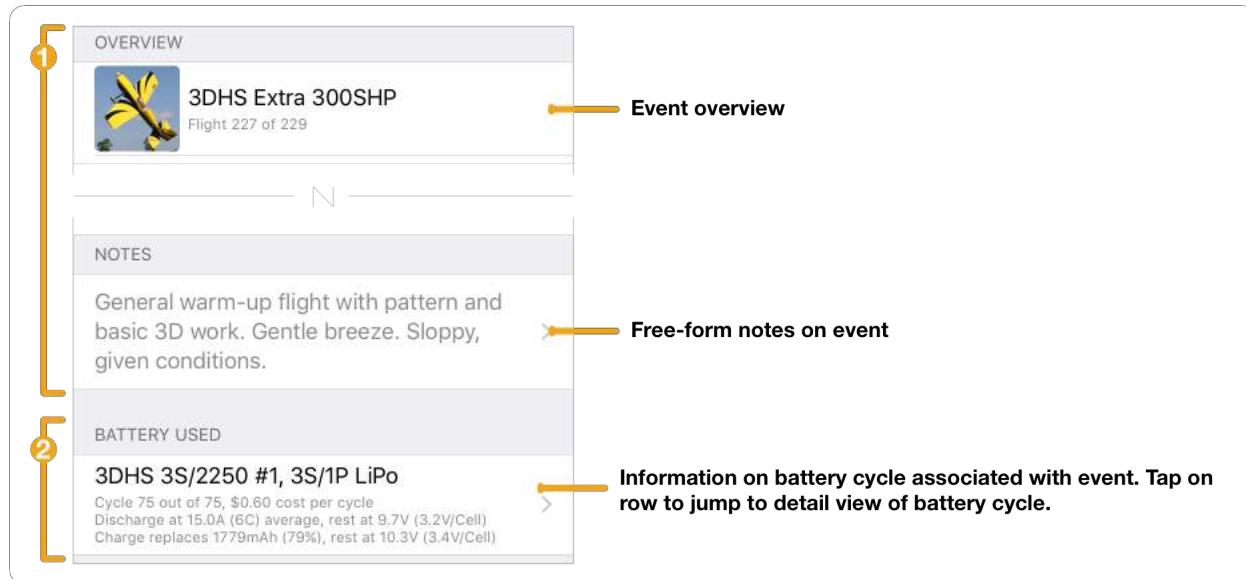
Editing an Existing Event

Tapping an event row in any of the event lists (for example, see the “Logged Event Details” row of the model editor that the *Models* section describes) transitions to a view that shows the details on the event. This view looks similar to the new event view just described, though some attributes are no longer editable and presented differently. The navigation bar differs slightly from the one present on new events.



Using the back button on the left of the navigation bar, you can return to the parent event list. The up and down arrows at the right of the navigation bar move to the previous and next event in the list that you originally selected the event from.

The event detail view for an existing event is similar to the view for a new event.

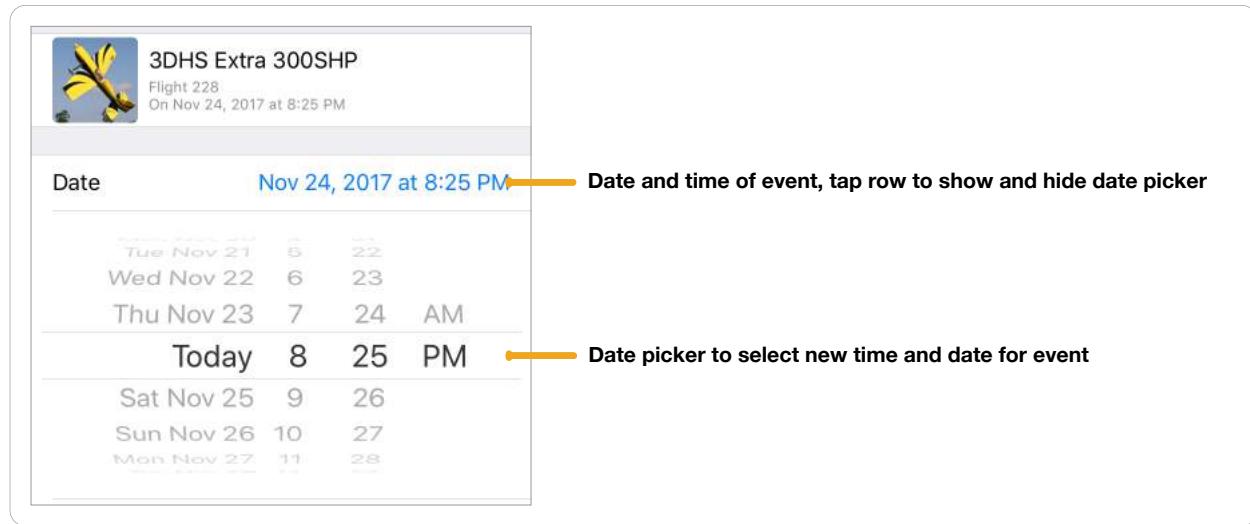


The information in the first region (marked “1” above) corresponds to the content described earlier in the discussion of adding a new event. As in that earlier discussion, the specific content of the region depends on the model and its configuration. When editing existing events, the date can be updated by tapping on the date row. See below for more on editing dates.

The second region (marked “2” above) differs from the corresponding region in the view used for adding a new event. When editing an existing event, this region has a row for each battery and cycle associated with the event (if the event has any associated cycles). Tapping a row will transition to a cycle editor view that allows you to view the associated cycle. See the *Cycles* section for more.

Editing Dates in Events

In some situations (for example, when logging an away-from-field event, see the *Logging Events* section for more), you can edit the date of an event by tapping the “Date” row of the view to reveal a date picker. Editing an event date implicitly changes the date of any cycle discharge phases associated with the event.



There are some limitations to changing the event dates in the interface, some of which can be overcome by using the text import format, see the *Database Import Guide* for more information.

The date picker in the interface will only allow you to change the event date such that the proposed change meets several criteria:

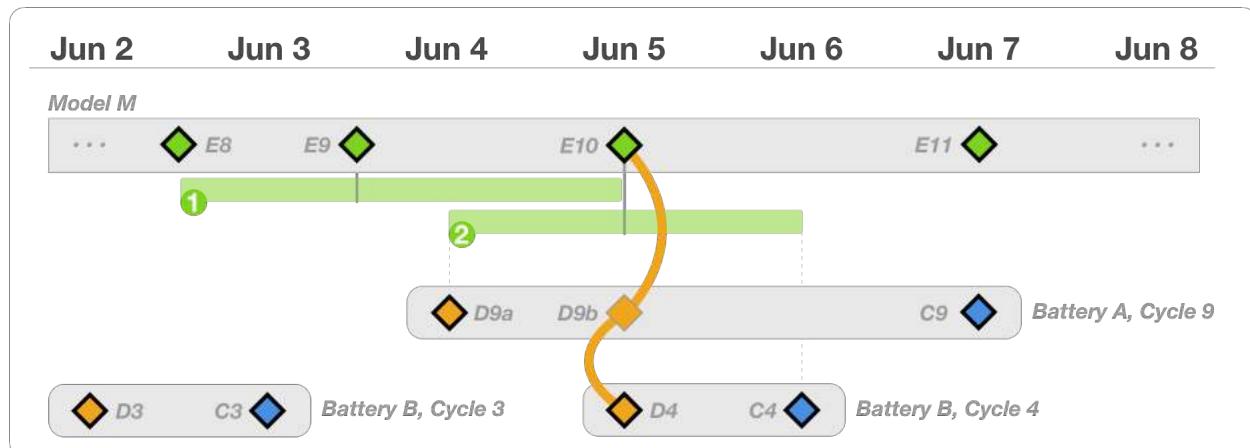
- ◆ It must maintain cycle properties (cycles are non-overlapping, discharge phases occur before charge phases, phases do not change order) in all cycles associated with the event.
- ◆ It may not re-order events associated with the model.

If you attempt to select a date on the picker that violates any of these criteria, RCLogbook will change it to the nearest date that meets the criteria.



RCLogbook 5.1 has become significantly pickier about event configurations than version 4.6.x and earlier due to underlying changes in the database introduced in RCLogbook 5.0.

To illustrate the implications of these constraints, consider the following example,



In this example, the database includes, in part, a model M and two batteries A and B. On June 5, both batteries are used during event E10 on Model M (thus, E10, D4, and D9b are linked);

otherwise, the events are not linked with batteries. The green bars show the range over which different event dates can change. Specifically,

- ◆ E9 must fall between E8 and E10 (bar “1”). E9 cannot move earlier than E8 or later than E10 as that re-orders events in model M. Because E9 is not associated with any cycles, it is not constrained by any cycles.
- ◆ E10 must fall between D9a and C4 (bar “2”). E10 cannot move earlier than D9a or later than C4 as that would re-order actions in Cycle 9 on Battery B or Cycle 4 on Battery A, respectively.

These examples are typical, but not exhaustive.

Logging Events

As described in the *Events* section, an event in RCLogbook captures a variety of information such as the model used, where the event takes place, batteries that participate, event duration, and so on. Logging an event is the process by which you add new events to the database. RCLogbook supports two logging modes

- ◆ **At Field** – For event logging as you are using your model at the field. Events and cycles RCLogbook creates or updates in this case must be the most-recent. This approach cannot operate on events and cycles in the past or future.
- ◆ **Away From the Field** – For event logging after-the-fact to directly enter events where RCLogbook was not available.

Logging a new event is a five-step process in RCLogbook:

1. Select the model that is logging the event and, optionally, the batteries to use during the event.
2. Optionally perform any actions from a pre-event checklist.
3. Set the date and duration of the event, optionally using the built-in event timer.
4. Optionally perform any actions from a post-event checklist
5. Capture post-event information.

Not all steps may be necessary depending on factors such as the model configuration. For example, RCLogbook skips Step 2 when the model selected in Step 1 does not define any pre-event checklists.

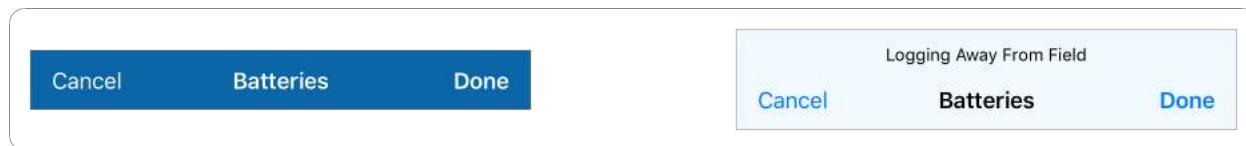


Yes, yes, yes. RCLogbook can log events without using the built-in event timer, read on for details...

The following table outlines how the different logging modes change the steps necessary to log an event.

Step	At the Field	Away From the Field
1 Specify model and batteries	✓	✓
2 Pre-event checklists	✓	
3 Set event date and duration	Done with event timer or directly specified post-event in Step 5	Directly specified post event in Step 5
4 Post-event checklists	✓	
5 Capture post-event information	✓	✓

To distinguish between the two logging modes, the navigation bar changes during event logging based on the mode you are using as shown below.



When logging at the field, the interface is dark and lacks the prompt that is present when logging away from the field.

Step 1: Selecting the Model and Batteries

In RCLogbook, there are two approaches to start logging an event and select the models and, optionally, the batteries that take part in the event.

1. By selecting models and batteries through lists displayed by the user interface.
2. By scanning barcodes for models and batteries using the barcode scanner.

You can select exactly one model for an event, but RCLogbook does not restrict the number of batteries that you can select to participate in a event. This supports configurations such as multiple engines, separate batteries for engines and radio gear, and so on.

The approach taken to start an event also determines how the user indicates whether she is logging “at the field” or “away from the field”.

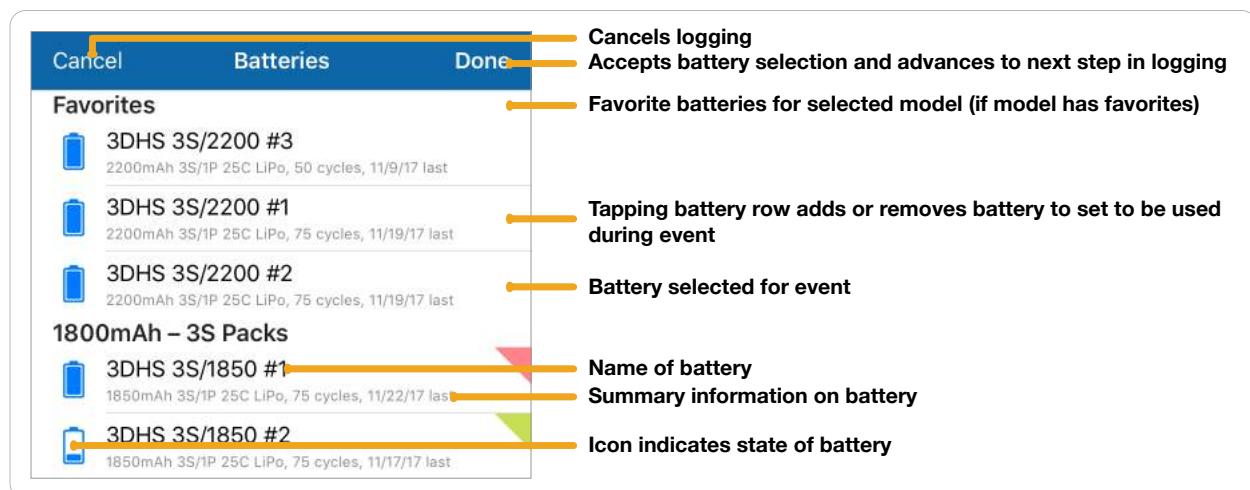
Specifying Models and Batteries for Events Through Lists

When you use lists in the user interface to start an event, you begin by tapping or double-tapping a model row on a models list such as the ones found on the *Models* tab or *Favorites* tab (see the *An Overview of the Tabs* section). Based on how you tap the model row and the application’s settings (see the *Settings and Configuration* section), RCLogbook determines whether you are logging at the field or away from the field:

“At Field” via Single Tap Setting	Single Tap	Double Tap
On	At the Field	Away from the field
Off	Away from the field	At the Field

Trying to use a model that has pending maintenance items or is marked damaged will cause RCLogbook to ask you if you are sure you want to use the model. You cannot log an event on a model marked as retired

After selecting the model, you can select batteries for use in the event if the database contains battery items and the selected model has enabled battery logging. Favorite batteries for the model always appear at the beginning of the battery list. You cannot use a battery that is marked as retired in an event.

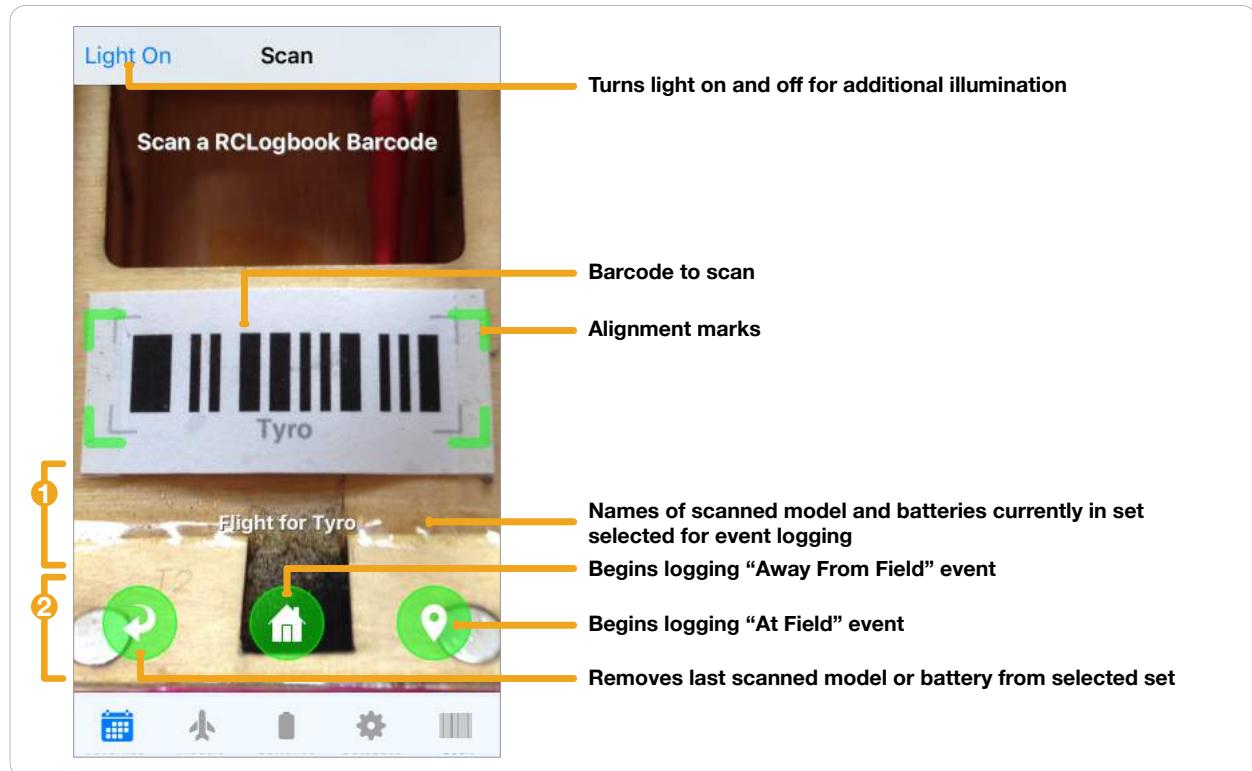


The battery icon indicates the current charge and storage state of the battery. RCLogbook will ask you to confirm the selection of a battery that is not currently charged.

A checkmark at the right of the row indicates a battery is part of the event; tapping the row toggles this checkmark. Once you have selected all of the batteries to participate in the event, tap the “Done” button to proceed to the next step. Tapping the “Cancel” button will abort the event and return you to the model or favorites lists.

Specifying Models and Batteries With the Barcode Scanner

Scanning a model barcode with the barcode scanner on the Scan tab begins the process of setting up an event to log.



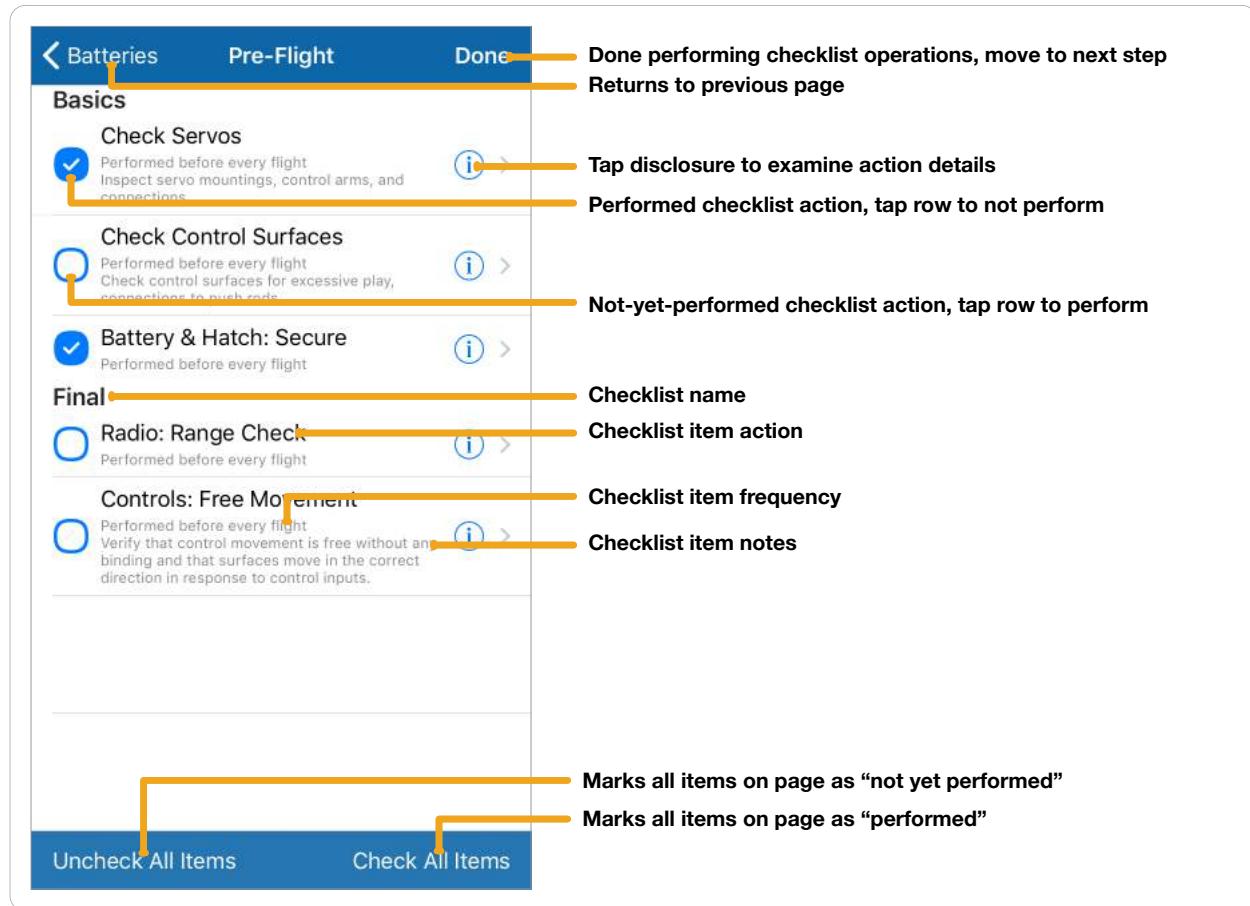
Scanning a model that has pending maintenance items or is marked damaged will cause RCLogbook to ask you if you are sure you want to use the model. You cannot log an event on a model marked as retired.

After scanning the model successfully, you may scan batteries to use in the event, if the selected model has enabled battery logging. As you scan batteries, they are added below the model information. Scanning a battery that is not charged will cause RCLogbook to ask you if you are sure you want to use the battery.

As you scan models or batteries, they are listed in the information area (marked “1” above) of the scan view. Tapping the right-most button in the button area (marked “2” above) to remove the last thing you scanned from the set. Tapping middle or right buttons logs an “away from field” or “at field” event, respectively, using the models and batteries that were previously scanned.

Step 2: Performing Actions from a Pre-Event Checklist

If the model has any pre-event checklist actions defined through it's set of checklists (see the *Models* section) and you are logging at the field, RCLogbook displays all of the pre-event items on a list so you can check off the items as you complete your pre-event checklists.



The table is grouped by pre-event checklist name. Each row in the table corresponds to an checklist item that is due before the current event. Depending on the item's frequency, not all items may appear in the checklist on a given event.

Tapping the disclosure indicator on a row will show a page with additional details on the checklist item including the notes, frequency, etc.

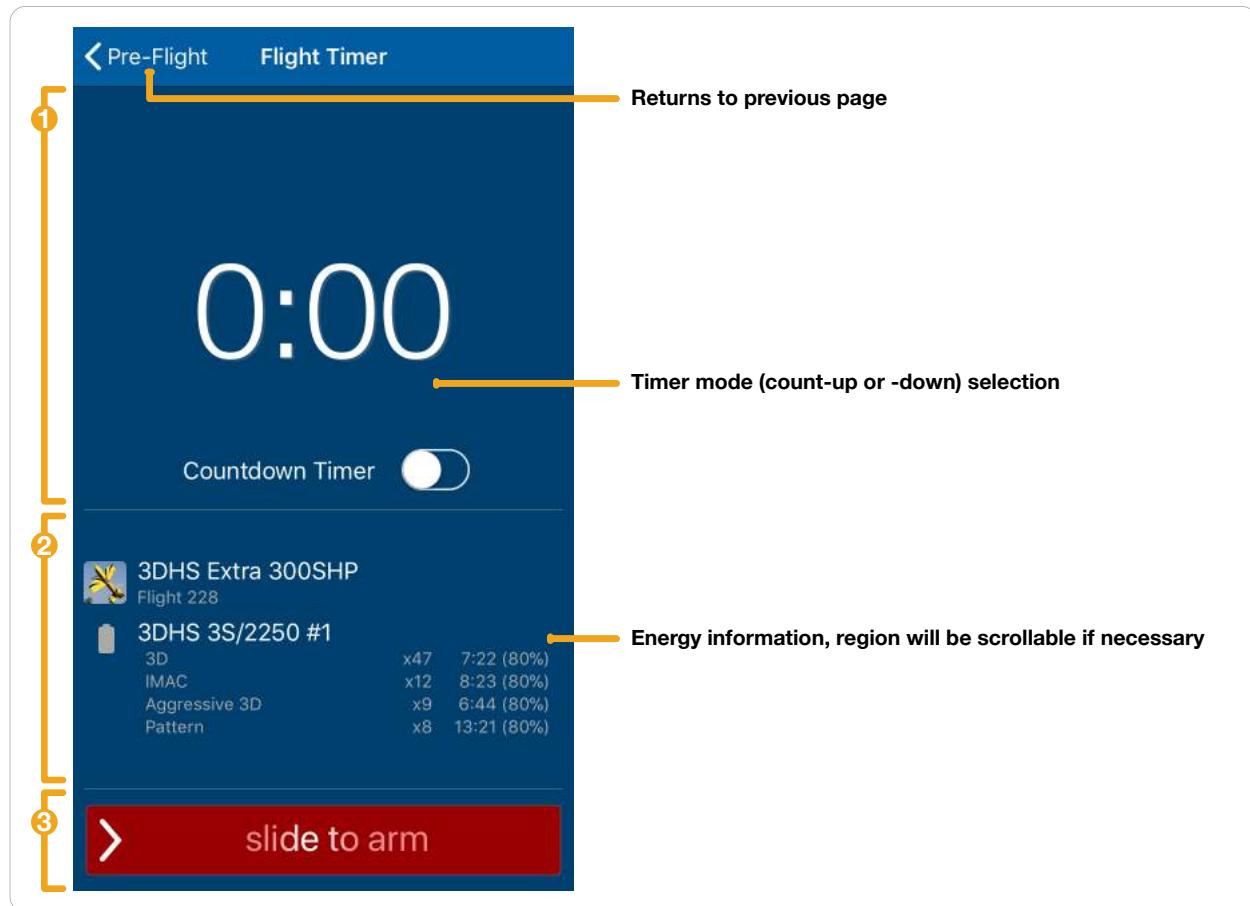
Tapping a row will toggle the item between performed (checked) and not yet performed (unchecked) states. You can check or uncheck all items in the lists with the tool bar buttons at the bottom of the screen. Tapping the “Done” button at the top right of the screen will advance the user interface. It is not necessary to check off all of the actions to advance the user interface.

Once the event is logged, the checklists are updated to indicate that the checked items were taken on the event. This helps RCLogbook determine when the items should be performed next.

Step 3: Setting the Date and Duration with the Timer

When logging events at the field and the “At Field via Timer” setting is enabled (see the *Settings and Configuration* section), RCLogbook uses its built in event timer to set the date and duration of the event. Otherwise, the date and time are specified through the event complete view in Step 5 as described below.

To use the timer, you begin by configuring it. The timer view has three major components as shown below.



The top of the view (marked “1” above) shows the timer or timer configuration. Model and energy statistics appear in the middle of the view (marked “2” above). The bottom of the view (marked “3” above) holds the arm/disarm controls.

The energy statistics (marked “2” above) presents information and projections of energy usage (that is, fuels or batteries) for the event in a scrollable region.

- ◆ The name and picture of the model as well as the event number.
- ◆ Battery performance information based on past events that use the selected batteries if the model enables battery logging.
- ◆ Fuel consumption based on past events if the model enables fuel logging.

RCLogbook determines the battery projections based on past events where the selected model used the battery.



For example, in this example RCLogbook found 45 earlier events marked with the style “3D” where the model used this 3S/2250mAh battery. Based on the average energy consumption from those previous events, RCLogbook estimates that, with similar usage, consuming 80% of the capacity of this battery will take about seven-and-a-half minutes (7:23).

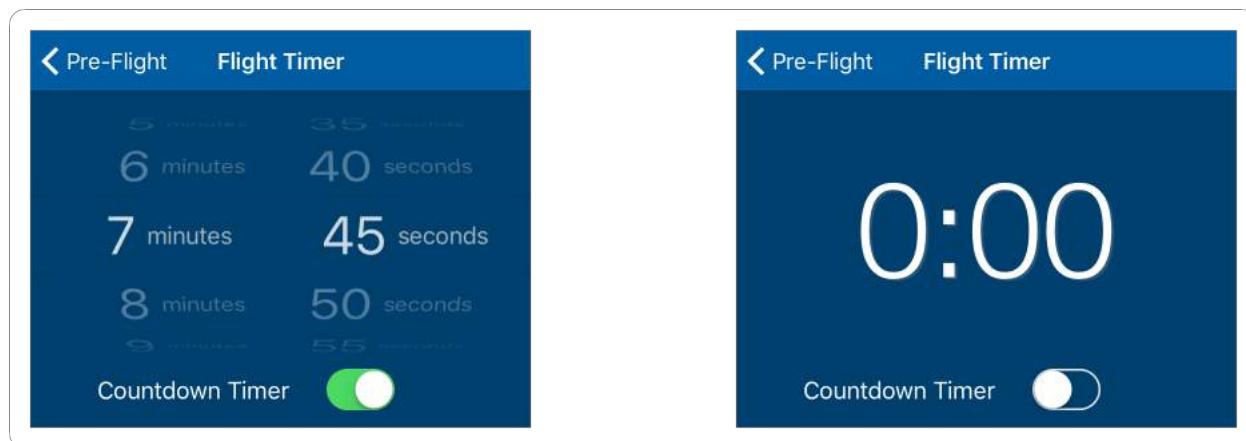
The projections for fuel are similar and are likewise based on the past performance of the model for various styles.



In all cases, the estimates RCLogbook provides are just that: estimates. There are many factors that could cause the actual values to differ significantly.

To use the timer, you begin by configuring the event timer through the timer configuration.

When configuring the timer, you can select between count-up (at right below) and -down (at left below) timer modes by switching the “Countdown Timer” control. When countdown is selected, the event timer displays a picker that lets you select the starting time.



For the model and each of a model’s favorite batteries, RCLogbook tracks the most recent event timer configuration that was used with the model and battery combination. RCLogbook initially sets up the timer mode and, in countdown mode, the duration, to match this configuration every time you use the same combination. When multiple favorite batteries are used, the first favorite specifies the timer configuration. If there are no favorites being used, the configuration falls back to the last one used with the model.

Once the timer is configured, you use the arm/disarm controls to operate the timer. These controls can be either accelerometer- or button-based depending on settings (see the *Settings and Configuration* section).

With the accelerometer-based controls, you use a slide control to arm and disarm the timer. While armed, shaking the device starts or stops the timer.



With the button-based controls, you use one button to arm and disarm the timer and another button to start and stop the timer once the timer is armed.



Once the timer is armed, RCLogbook loads the timer with the appropriate initial value (either 0:00 or the initial countdown value) and waits for you to signal the start of the event. While armed, RCLogbook periodically chimes to indicate it the timer is ready to start. The interval between chimes is set through the “While Armed” preference in the settings; see the *Settings and Configuration* section.

To start the timer, shake the device or tap the run/pause button while the timer is “armed”. RCLogbook will chime to indicate the timer has started and then may periodically chime to indicate the passage of time based on the settings of the “Chime”, “Voice”, and “Click Track” preferences. In countdown mode, the timer will also chime with 30 seconds to go, 20 seconds to go, and every second from 10 seconds all the way down to zero. Based on the voice setting, the timer may use voice cues to tell you how many minutes have elapsed, remain, etc. Finally, when the click track is enabled, the timer will click at a fixed rate.

To stop the timer, shake the device or tap the run/pause button again. At this point, you can restart the timer by shaking the device or tapping the run/pause button again or finish the event by swiping the disarm slider or tapping the disarm button to disarm the timer.

You can adjust the sensitivity of the timer to shakes when using the accelerometer-based interface by changing the “Event Timer Sensitivity” setting in RCLogbook’s settings as mentioned earlier (see the *Settings and Configuration* section).



When your device is not playing audio, you can also use the play/pause control on the headphones to start or stop the timer.

While the event is in progress, your iOS device will not automatically lock regardless of the current auto-lock settings in the system settings. If screen dimming is enabled, RCLogbook will dim the screen while the flight timer is running to conserve battery. Tapping on the screen will restore the brightness.

Step 4: Performing Actions from a Post-Event Checklist

This step is similar to Step 2 but uses the post-event checklists rather than pre-event checklists. If you are logging “away from the field” or the selected model does not have any post-event checklists, RCLogbook skips this step.

Step 5: Gathering Post-Event Information and Saving the Event

In the final step, RCLogbook displays the event complete view that allows you to make final edits to information on the event.

The screenshot shows the 'Event Complete' view in RCLogbook. At the top, there are three buttons: 'Cancel', 'Log Flight', and 'Save'. The 'Save' button has two callouts: one pointing to it labeled 'Save event to database' and another pointing away from it labeled 'Cancel event logging and do not change database'. Below these are sections for 'OVERVIEW' (showing a P-51C model icon and 'Flight 229 On Nov 24, 2017 at 8:01 PM'), 'NOTES' (with a 'Notes' field), and a table of post-flight data. The table includes rows for 'POST-FLIGHT FOR BBLIPO 2S/300MAH' (labeled 'Battery that participated in event'), 'Pack Resting Voltage' (labeled 'Battery pack resting voltage, post-event'), 'Pack Resistance' (labeled 'Battery pack internal resistance, post-event'), 'Per-Cell Resting Voltages' (labeled 'Battery pack per-cell resting voltages, post-event'), and 'Per-Cell Resistances' (labeled 'Battery pack per-cell internal resistance, post-event'). A vertical orange line on the left side is labeled with two numbers: '1' above the event overview section and '2' below it. Callouts point from these numbers to specific UI elements: '1' points to the 'Save' button at the top and the 'Event overview' section; '2' points to the 'Event date and time' field, 'Event notes', and three battery-related sections.

The items in the region marked “1” above function largely as they do in the event detail view; see the *Events* section for further details. As described in the *Events* section, fields are only shown when relevant to the event; that is, if the model that performs the event does not enable fuel logging fuel-related parameters are not included.

In the event complete view, the event date is only editable when logging “away from the field”. Otherwise, the event date is the current date. Further,

Many parameters in the view may be set to initial values. When logging at the field, the event timer provides the duration and RCLogbook uses iOS location services along with the locations in your database (see the discussion of the *Setup* tab in the *An Overview of the Tabs* section) to try to establish the location of the event. The location sensitivity selected in the RCLogbook settings (see the *Settings and Configuration* section) determines how close (between 0km and 1km) you must be to a defined location for RCLogbook to match with your current location.

The battery information (in the region marked “2” above) is different from the event detail view the *Events* section describes. When logging events, the battery section of this view contains a section for each participating battery that allows you to edit post-event resting voltages and internal resistances for the corresponding battery. If a battery has more than one cell, you can also edit the per-cell values using the per-cell parameter editor as the *Cycles* section describes.

Tapping the “Cancel” button will return to the main models or favorites page (depending on where you started the event from) without logging any information to the database.

Tapping the “Save” button logs the event to the database. In doing so, RCLogbook not only updates parameters such as total times and event count for the model but may also create a new discharge phase for the participating batteries, this may result in new cycles being added to the batteries along with other updates to the batteries. These discharge phases use the duration and resting voltages set through this view. Generally, RCLogbook will create a new cycle if the most recent cycle on the battery has a charge phase.

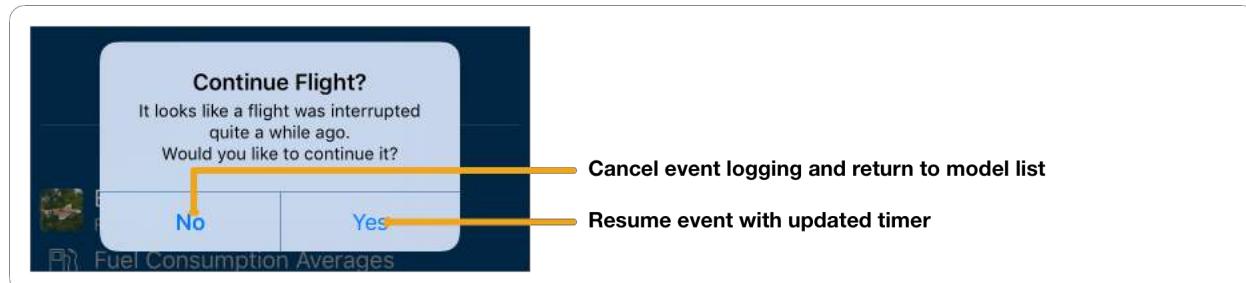
Cancelling Event Logging

The process of cancelling an event depends on how you are logging the event, the specific configuration of the model, and where you are in the process. For example, if you are using the barcode scanner, you can simply remove the objects you have scanned using the remove button on the right of the button row in the scan view.

When you are logging away from the field, you typically use the back button on the navigation bar to step back to the start of the sequence in the user interface until you reach a view with a “Cancel” button on the left of the navigation bar.

Continuing Interrupted Events

If the event timer was running when you interrupt RCLogbook (by, for example, switching to another application), returning to RCLogbook will update the timer appropriately to account for the time that passed while RCLogbook was interrupted. If the interruption is longer than 5 minutes, RCLogbook will display an alert to allow you to cancel out of the event.



Selecting “No” will forget the in-progress event and will not update the database. Selecting “Yes” will return you to the event in progress at the point of interruption. The timer values will

pick up as if the event had not been interrupted. For example, if you start a event at 1:00PM using the count-up timer mode, take a call at 1:05PM and restart RCLogbook at 1:10PM, resuming the event will take you back to the timer page with the timer at 10:00.

Batteries

The *Batteries* tab in the main user interface lists all of the batteries in the database. As mentioned earlier, from this list, you can create or edit a battery.

RCLogbook tracks a variety of information on each battery in its database, including:

- ◆ A name for the battery pack.
- ◆ The name of the manufacturer.
- ◆ The total capacity of the battery pack in mAh.
- ◆ The total number of series and parallel cells in the battery pack (depending on chemistry).
- ◆ The maximum discharge rate of the battery pack.
- ◆ The chemistry of the battery pack (LiPoly, NiMH and so on).
- ◆ The total number of cycles on the battery pack.
- ◆ A color tag to use when displaying the battery in the user interface.
- ◆ Barcode information to generate a barcode for the battery for use by the barcode scanner.
- ◆ Notes on the battery.

RCLogbook may infer additional information as described below from this list. This section covers editing and creating models in more detail.

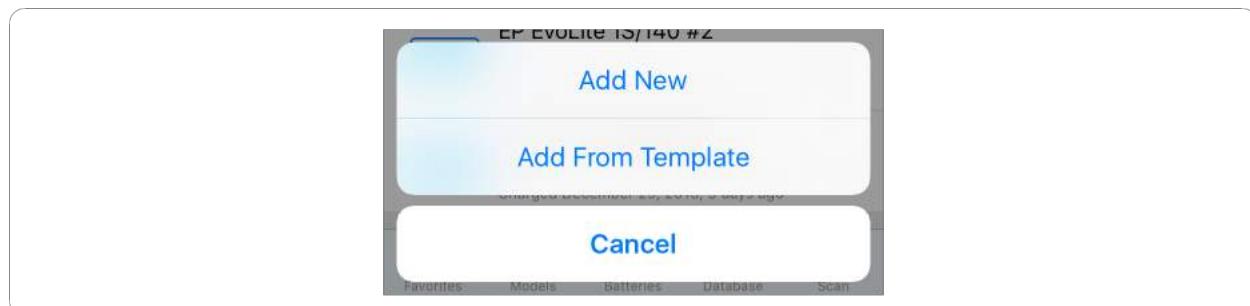
Adding a New Battery

New batteries are added to the database using the “+” button on the navigation bar of the main page of the *Batteries* Tab. After tapping this button, RCLogbook displays a page from which you can setup a new model.



The contents of this view will differ depending on the configuration of the new battery. For example, the cell configuration depends on the selected chemistry.

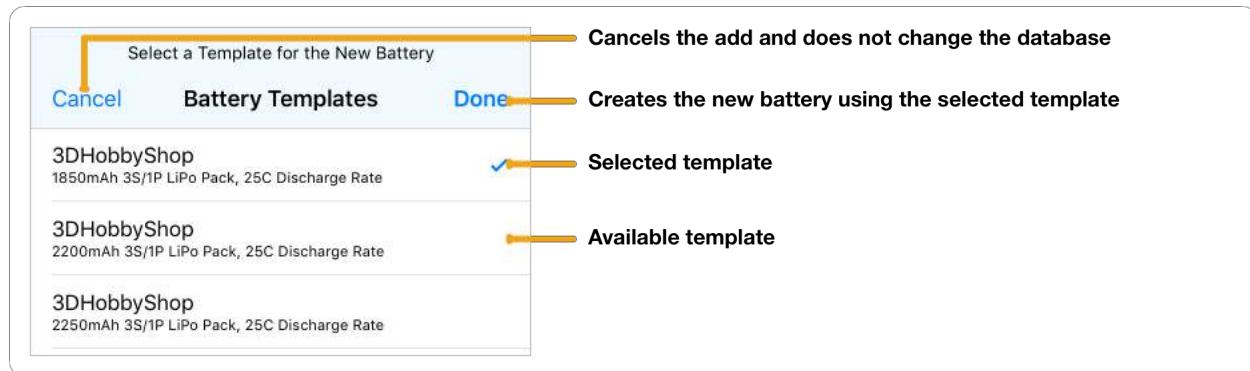
There are two approaches to create a new battery,



The options for creating a new battery include

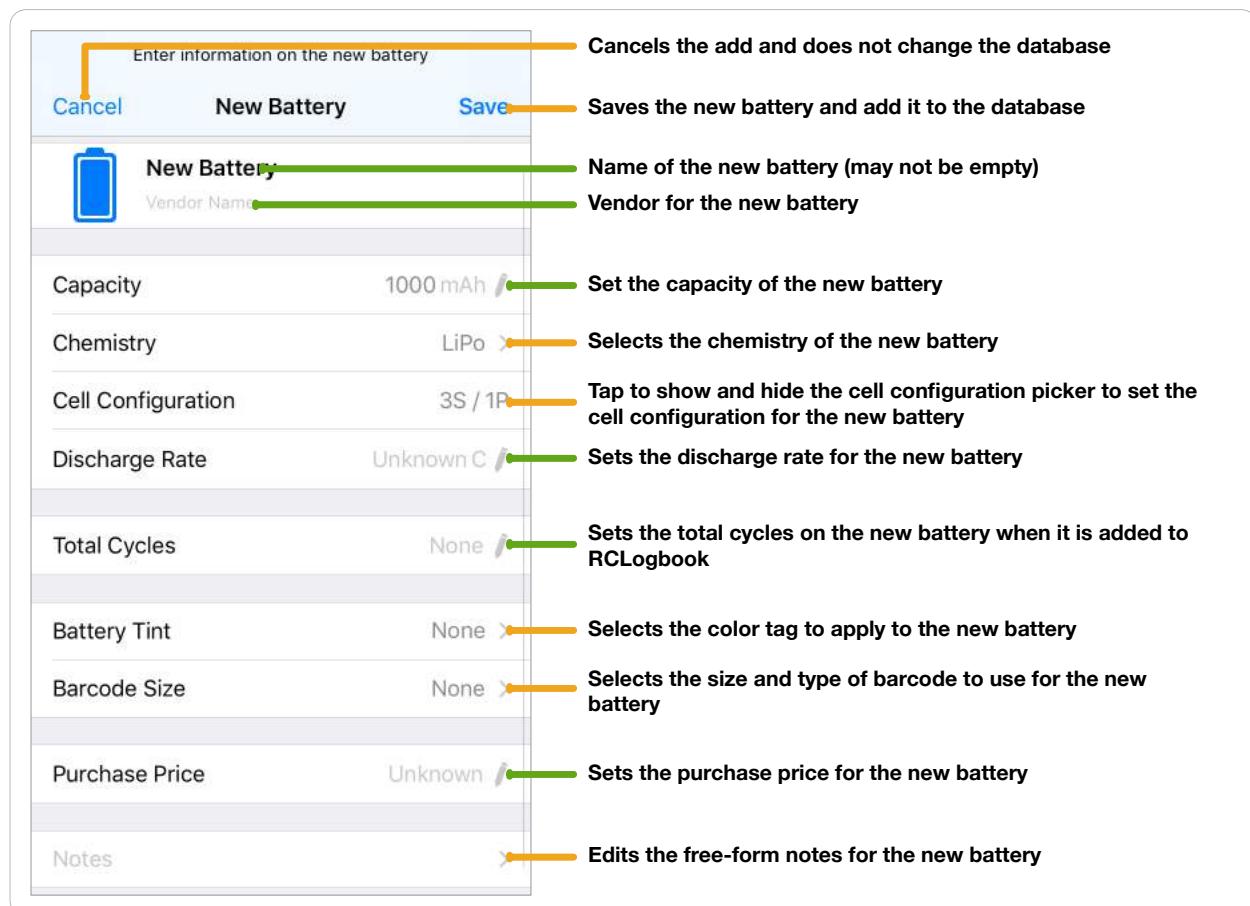
- ◆ **Add New:** Creates a new battery with a completely blank configuration.
- ◆ **Add From Template:** Creates a new battery filling in some fields to match a “template” battery.

When adding from a template, RCLogbook groups your batteries into sets of similar parameters (that is, capacity, cells, etc.), known as template groups, and then presents you with a list of the groups that you can select to use as a template for the new battery.



RCLogbook uses the selected template to populate many of the battery fields. RCLogbook will also propose a name for the new battery if your batteries are named like <name><number>, for example “TP 2200/3S #5”. RCLogbook will propose a name with a new <number> that is one more than the largest one it found in a set. The color tag and barcode size will be set to the corresponding values from the first non-retired battery in the template group.

Once RCLogbook knows how you want to create the battery, it displays a page with the details on the new battery. If you created from a template, some fields will be filled in.



Tapping the “Save” button on the right of the navigation bar on the new battery page saves the battery to the database and returns you to the main battery list. Tapping “Cancel” cancels the addition of the battery to the database. Tapping in any of the editable fields displays a keyboard to allow you to update the fields as desired.

All batteries must have a non-zero capacity. You cannot save a new battery until the capacity is set to a non-zero value.

Tapping the “Chemistry” row allows you to set the battery chemistry. RCLogbook supports LiPo, Lilon, LiFe, NiCd, NiMH, and others. Once set, the chemistry cannot be changed.

Tapping the cell configuration row will reveal a picker that allows you to select the cell configuration for the battery. The specific form of the picker depends on the chemistry of the battery.

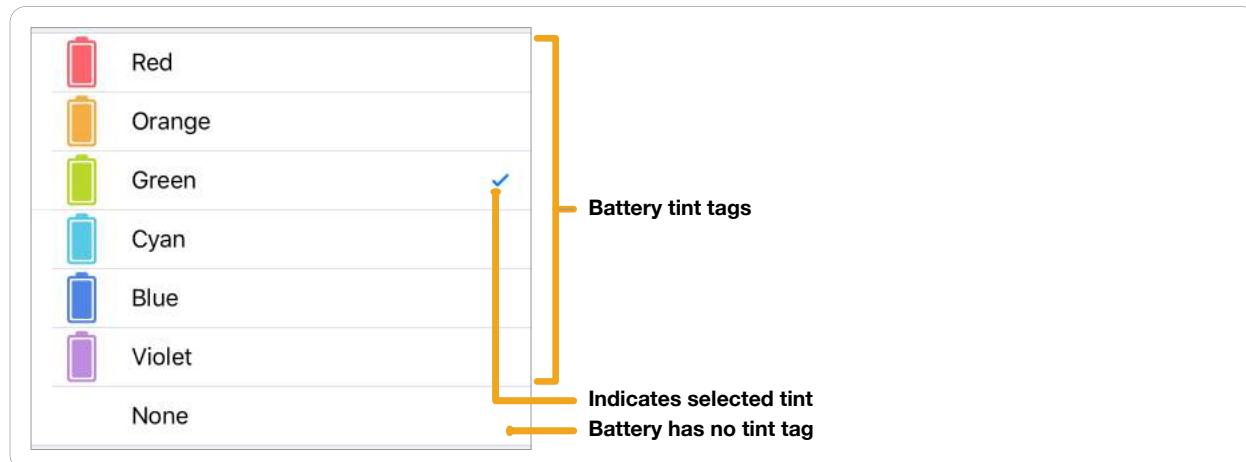


For LiPo-like batteries, the picker allows you to select series and parallel cell counts as shown at left. For NiCd-like batteries, the picker allows you to select series cell counts as shown at right.

A discharge rate can be set through the “Discharge Rate” row.

The “Total Cycles” row allow existing batteries to be added to RCLogbook accounting for cycles on the batteries that are not logged in RCLogbook. Alternatively, one could add the previous cycles either manually or through the import functionality.

The battery tint is a color tag that is applied to the battery. After tapping the “Battery Tint” row, select the desired tag from the list.



RCLogbook uses the tint to badge batteries in lists.

The “Barcode Size” row determines whether or not to allocate a barcode for the battery. Barcode size is either none, large, or small. When the barcode size is none, the battery does not have an assigned barcode and any barcode that was allocated for the battery may be assigned to another model or battery. The large and small settings assign a barcode to the battery and will render it in the PDF barcode log (see the *Reporting* section) as either a large or small size.

The “Purchase” Price row records in the price of the battery in the local currency.

Tapping the notes row transitions to a page that allows you to edit free-form text notes associated with the battery. Swiping left on this row reveals a button to clear the notes.

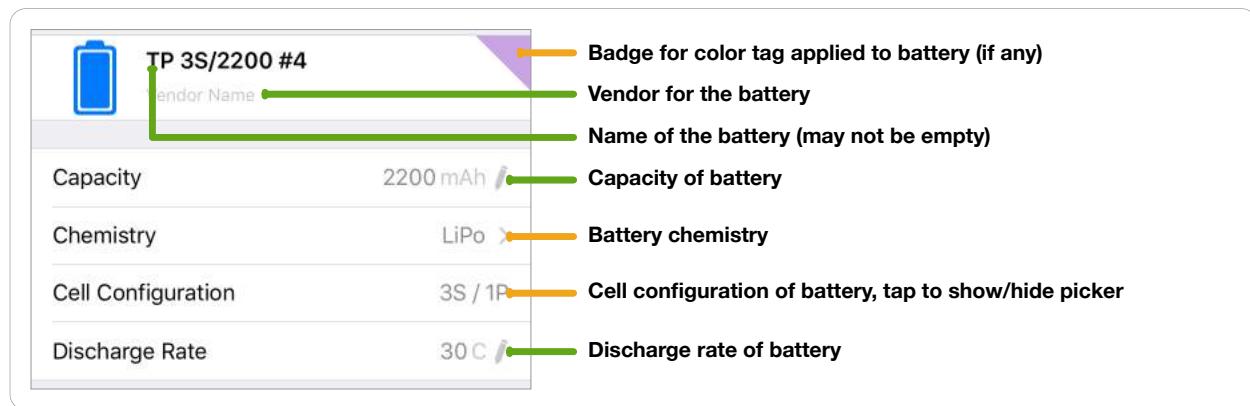
Editing an Existing Battery

Tapping the disclosure button on a battery row from any of the battery lists transitions to a page that shows the details on the battery. This page looks and operates similar to the new battery page described above, though some attributes are no longer editable and there are some additional options. The navigation bar differs slightly from the one present on new batteries.



Using the back button on the left of the navigation bar, you can return to the battery list (either the battery, in storage, or retired lists, depending on where you came from). The up and down arrows at the right of the navigation bar move to the previous and next battery in the list that you originally selected the battery from.

The first two sections of the table present overview and summary information.

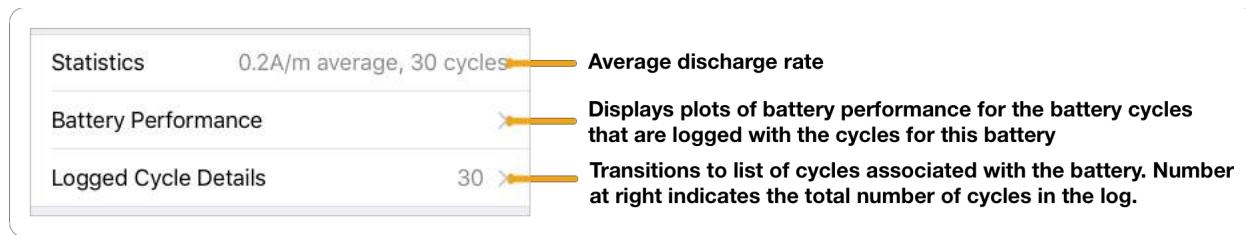


The overview section consists of a row with name and manufacturer fields. If the battery has a color tag associated (see below), the overview row will be badged with the appropriate color.

Tapping in the name or vendor text fields in the row will allow you to edit the field. Again, keep in mind that batteries must always have non-empty names.

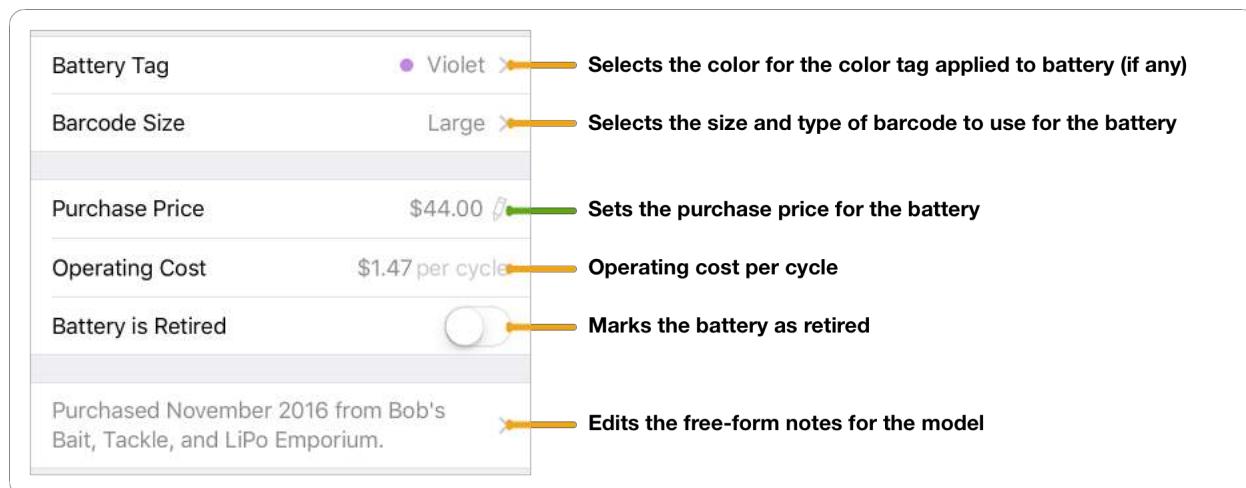
The summary section contains capacity, chemistry, configuration, and discharge rate. Of these fields, only the capacity and discharge rate may be edited on existing batteries, much like they are edited on new batteries. Like new batteries, the capacity must be non-zero.

The next section covers statistics.



The statistics section includes a summary of the average discharge rate over the logged cycles. Tapping the “Battery Performance” row transitions to a set of battery performance plots based on the cycles logged for the battery. For more information on these plots, see the *Battery Performance* section. Tapping the “Logged Cycle Details” row transitions to a list of cycles associated with the battery and is also described below.

The final 3 sections cover miscellaneous information on the battery.



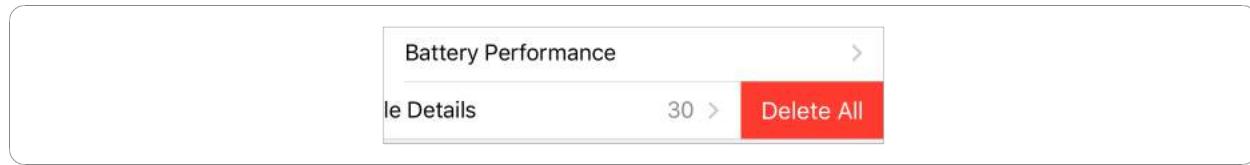
The battery tag and barcode configuration operate as the same content on the new battery page.

The miscellaneous information also includes the purchase price, operating costs, retired setting, and notes. The purchase price operates as it does in the new model screen. Setting the retired switch to “On” will retire the battery and remove it from active use (this effectively moves the battery into the retired list accessed from the main list). Retired batteries cannot participate in events or appear as favorites.

Logged Cycle Details

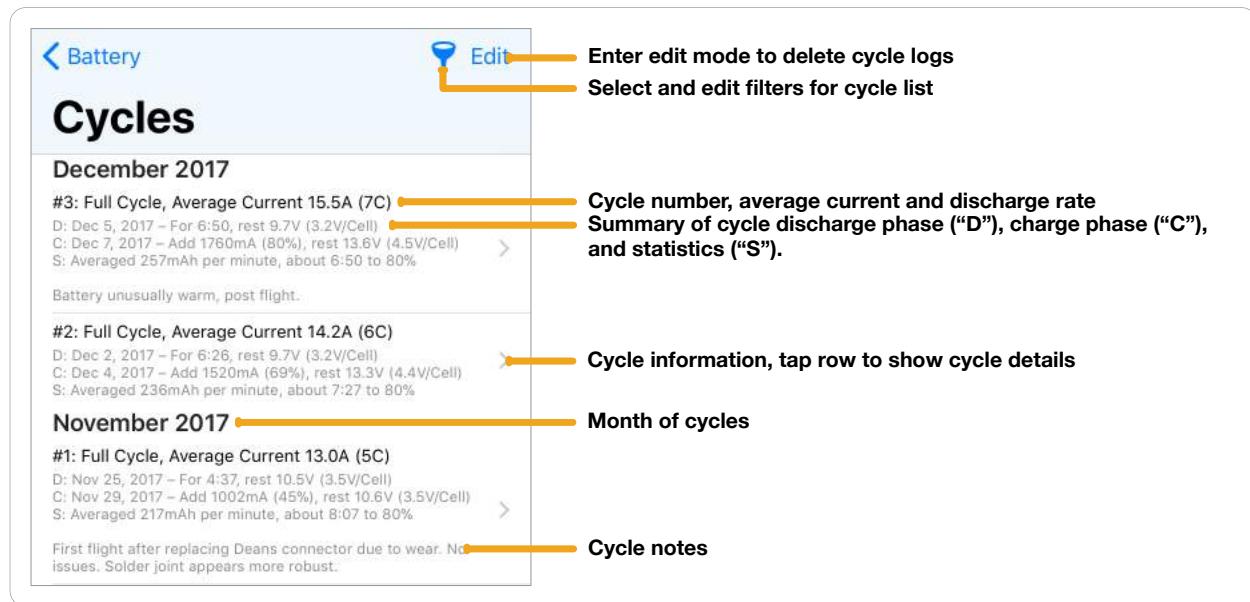
You can view the cycles logged for a battery using the “Logged Cycle Details” row of the battery detail view. See the Cycles section for more on events.

Swiping left on the “Logged Cycle Details” row on the battery details page reveals a button that removes all of the logged cycles for the model (this does not disturb the cycle counts, just the detailed per-cycle information that is kept in the database).



Use care when deleting all of a battery’s cycles using the “Delete All” button. There is no undo for this action.

Tapping the “Logged Cycle Details” row on a battery detail page transitions to a cycle list page that summarizes the information on all logged cycles.



Tapping the “Edit” button at left on the *Cycles* navigation bar allows you to remove cycles from the list and database using edit mode. See the discussion on edit mode in the *An Introduction to the User Interface* section. Deleting a cycle does not affect any events associated with it; however, deleting an event does reduce the cycle count on the battery that performs the cycle. You can also delete an cycle by swiping left across the row.



RCLogbook 5.1 can no longer automatically cull older cycles from the log in order to track only the most-recent cycles. With version 5.0, the application always tracks all logged cycles unless the user explicitly deletes an event.



RCLogbook 5.1 treats all deletes as “Delete Cycle”, to use the terminology from prior versions. There is no longer any ability to remove the log entry alone as prior versions supported via “Remove Log Entry”.

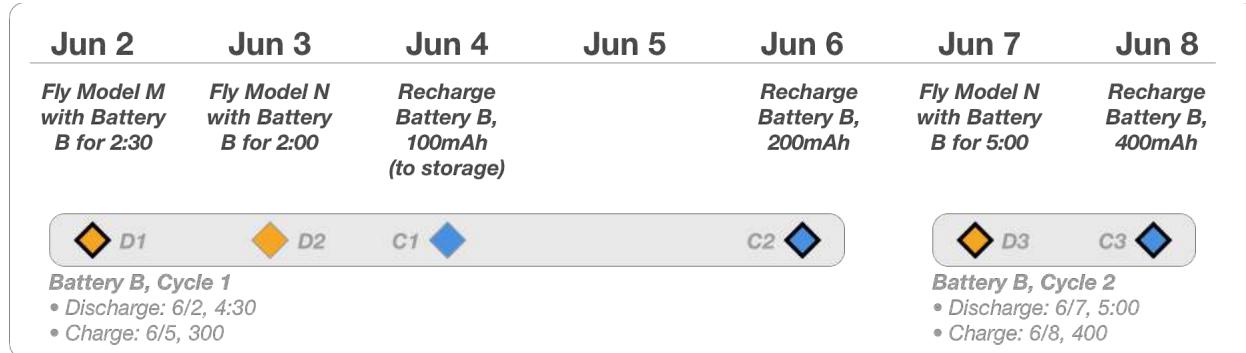
Tapping a row in the cycle list jumps to a page that lets you edit details on the cycle. From this page, you can change the cycle attributes. See the *Cycles* section for more information.

Cycles

As the *Basics* section describes, the RCLogbook usage of “cycle” differs from the typical usage. Cycles in RCLogbook represent discharge and charge actions applied to a specific battery. A cycle is comprised of a *discharge phase* followed by a *charge phase*. Each phase may be made up of multiple actions.

 In RCLogbook, a cycle takes a charged battery through one or more discharge phases followed by one or more charge phases to return the battery to a charged state.

The following figure shows how RCLogbook maps a set of actions on a Battery B onto cycles.

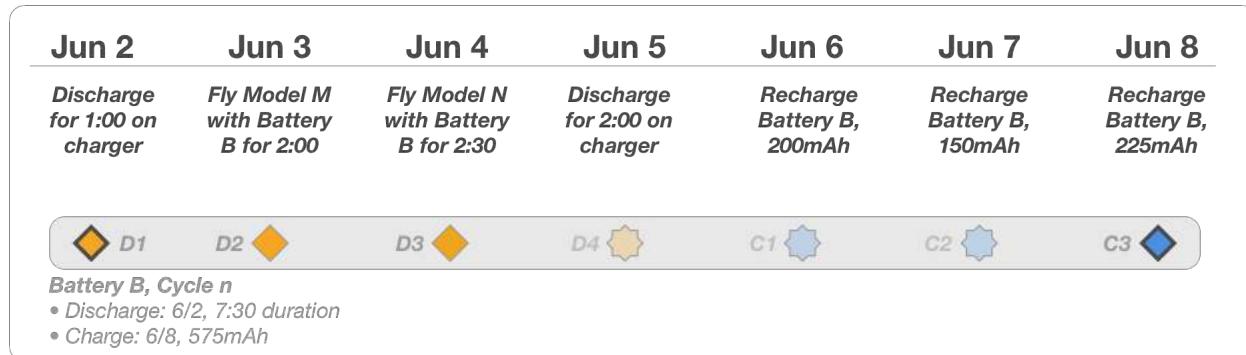


In this example, Battery B has two cycles. The discharge phases are made up of a set of successive discharge actions (e.g., events, typically); charge phases are made up of a set of successive charge actions. A cycle always has a discharge phase; it may not have a charge phase if it is the most recent cycle of a battery that is not charged.

RCLogbook expects that the cycles for a given battery are non-overlapping in time. That is, if battery X has two cycles, the last charge phase of the first cycle *must* precede the first discharge phase of the second cycle.

 RCLogbook 5.0 became significantly pickier about this requirement than previous releases due to underlying changes in the database.

There are several subtle details. First, RCLogbook does not track individual charge actions. Once performed, they are collapsed into a charge action that takes place at the cycle’s charge date. Second, RCLogbook only tracks discharge actions that are associated with events. Discharge actions that are not associated with an event are collapsed into a discharge action that takes place at the cycle’s discharge date. Consider the following example,



In this figure, RCLogbook does not track the details of the actions marked with stars (D4, C1, and C2) only their aggregate effect on the cycle. The diamonds with bold borders show the discharge (D1) and charge (C3) dates associated with the cycle. It is as if D4 takes place at D1 and C1 and C2 take place at C3.

RCLogbook tracks a variety of information on each cycle in its database, including:

- ◆ The battery that owns the cycle.
- ◆ A cycle number within the owning battery.
- ◆ The date of the first discharge action in the cycle.
- ◆ The total duration of all discharge actions in the discharge phase of the cycle.
- ◆ The date of the last charge action in the cycle.
- ◆ The total energy put into the battery in the charge phases of the cycle.
- ◆ Pack and cell voltages and resistances following the last discharge action in the discharge phase.
- ◆ Pack and cell voltages and resistances following the last charge action in the charge phase.
- ◆ Whether or not to include the cycle in battery performance plots.
- ◆ A list of the events that are associated with discharge actions in the discharge phase of the battery.
- ◆ Notes on the cycle.

RCLogbook may infer additional information as described below from this list. This section covers editing and creating cycles in more detail.

Significant Changes from Earlier RCLogbook Releases

Version 5.0 of RCLogbook made a number of changes in the underlying database around cycles that cause cycles to behave slightly differently in modern releases than they did on releases before 5.0.

- ◆ You can no longer remove a cycle from the log without permanently deleting it. As a result, RCLogbook assumes that, if a battery has N cycles, those cycles are the N most-recent cycles applied to the battery.
- ◆ The discharge date is now the date of the first discharge applied in the cycle. In previous versions of RCLogbook, the discharge date was the date of the most recent discharge applied to the battery.
- ◆ Changes to charge and discharge phase dates must preserve relationships between cycle phases, cycles, and events.
- ◆ The requirement that a battery’s cycles not overlap necessarily makes it more difficult to edit the dates of cycles.

These changes were necessary to ensure efficient operation of the new database format.



To meet the new expectations, RCLogbook 5.1 may need to make changes during import to a legacy database. When upgrading your database from an earlier release, you may see changes to your data. RCLogbook tries to preserve the intent, but may tweak details. For example, typically, cycle numbers will change.

Adding a New Cycle

RCLogbook can create a new cycle in response to a specific user request or automatically based on other user activities like logging an event with a model that enables battery logging. Generally, you will update discharge phases by logging events and update charge phases explicitly through the user interface.

For more on explicitly adding cycles using the user interface, see the *Logging Cycles* section. The *Logging Events* section describes how that action can result in cycles being added.

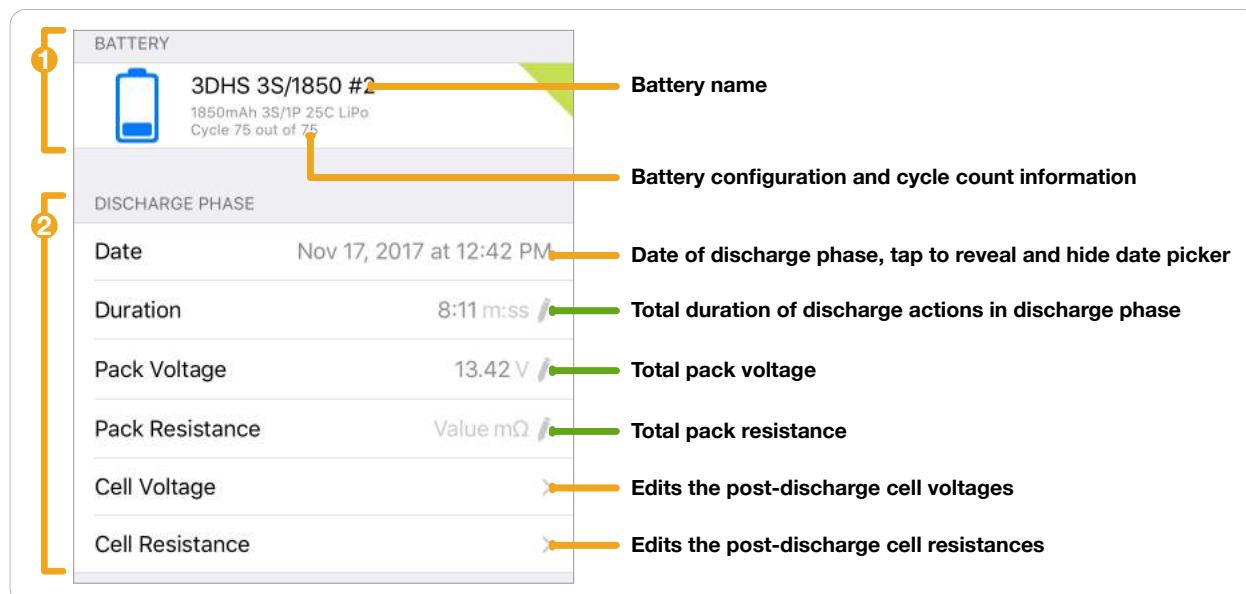
Editing an Existing Cycle

Tapping a cycle row from any of the cycle lists (for example, see the “Logged Cycle Details” row of the battery editor that the *Battery* section describes) transitions to a view that shows the details on the cycle. This view looks and operates similar to the new cycle view the *Logging Cycles* section describes, though some attributes are no longer editable.



Using the back button on the left of the navigation bar, you can return to the previous cycle list. The up and down arrows at the right of the navigation bar move to the previous and next cycle in the list that you originally selected the cycle from.

The first two sections of the cycle detail view present overview information and details on the discharge phase of the cycle.



The overview section (marked “1” above) has a single row that lists the battery name, configuration, and cycle number. The icon indicates whether the battery is charged, discharged, or in a storage state. RCLogbook manages the cycle number; the user cannot edit it.

From the discharge phase section (marked “2” above), you can edit the date, duration, and pack and cell voltages and resistances. Tapping the date row reveals a date picker (see below for more on changing the date of phases in a cycle). Editing the cell voltages or resistances transitions to a per-cell editor (see below for more information).

The next section describes the charge phases of the cycle and is only visible for cycles that have charge phases.

CHARGE PHASE	
Date	Dec 23, 2016 at 11:46 PM
Amount	910 mAh
Percent of Capacity	49.2%
Pack Voltage	9.46 V
Pack Resistance	27.095 mΩ
Cell Voltage	
Cell Resistance	

Date of charge phase, tap to reveal and hide date picker

Total energy replaced during charge actions in charge phase

Percentage of capacity replaced

Total pack voltage

Total pack resistance

Edits the post-discharge cell voltages

Edits the post-discharge cell resistances

The operation of this section is similar to that of the discharge phase section.

The final two sections of the view present statistics and notes.

CYCLE STATISTICS	
Energy per Minute	203 mAh
Time to 80%	7:16 m:ss
Exclude from Plots	<input checked="" type="checkbox"/>
NOTES	
Notes	

Average energy consumption per minute of discharge

Time to discharge 80% of capacity

Exclude this cycle from battery performance plots

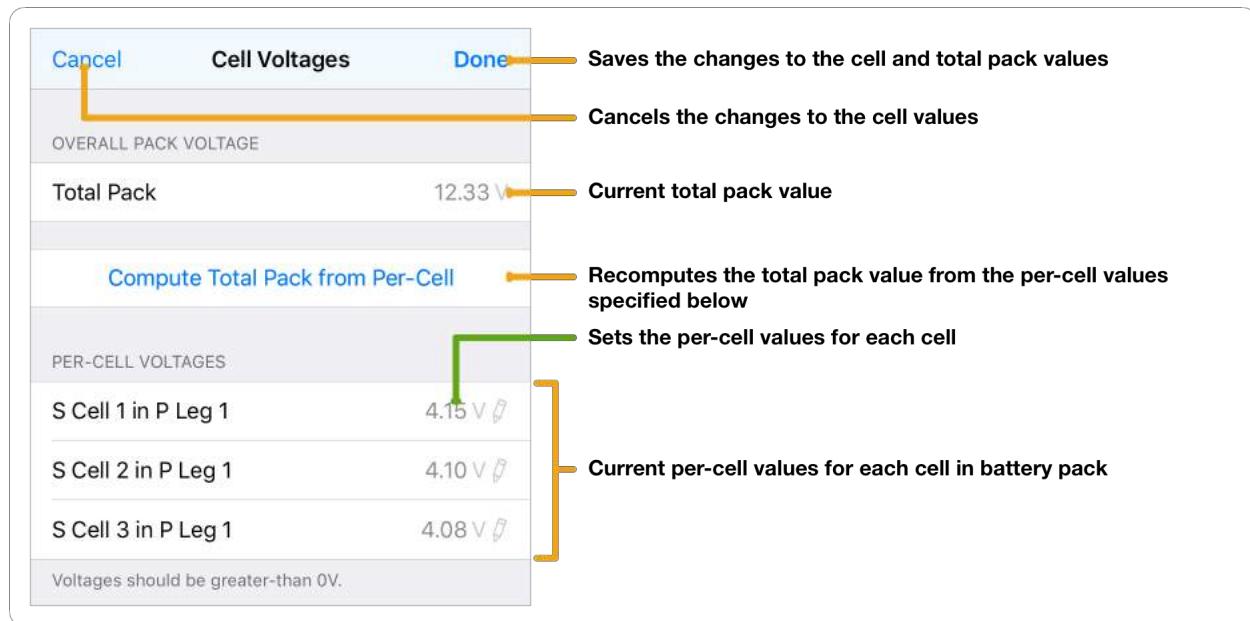
Notes on cycle

The statistics are computed based on the values in the charge and discharge phases. If the cycle does not have a charge phase, the view will not include the “Energy per Minute” and “Time to 80%” rows. These rows represent the average energy expended per minute of discharge along with the time it would take to discharge 80% of the battery’s capacity. Enabling the “Exclude from Plots” control will remove the cycle from all performance plots.

Tapping the notes row transitions to a page that allows you to edit free-form text notes associated with the cycle. Swiping left on this row reveals a button to clear the notes.

Cell Parameters

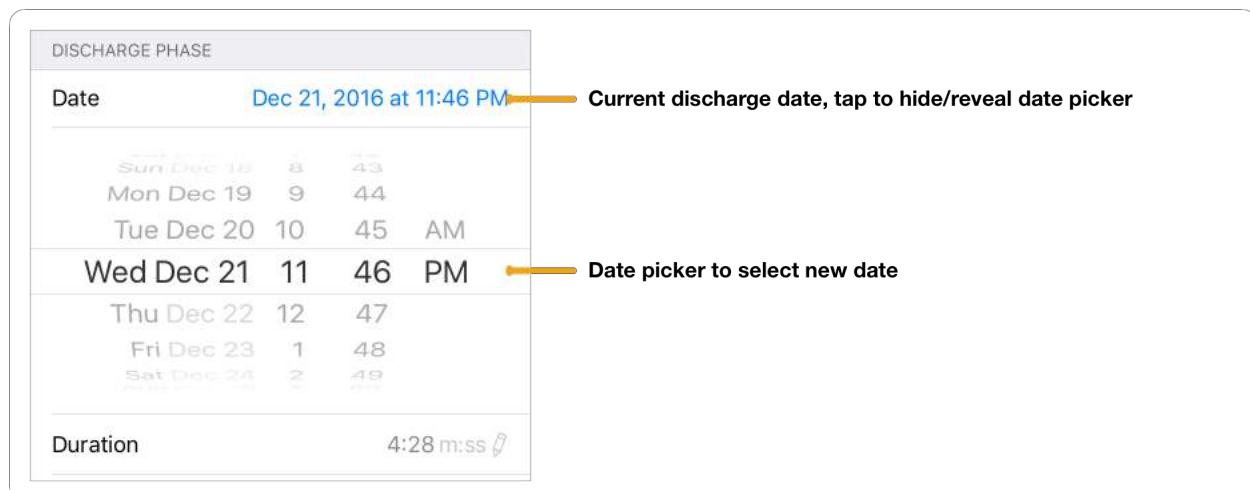
The per-cell rows for voltage and resistance allow you to edit the corresponding parameters for each cell in the battery pack. These rows are only visible if the battery that owns the cycle has more than one cell. You specify the per-cell values through a per-cell parameter editor.



The editor for per-cell resistances is similar to the per-cell voltage editor. The number of per-cell rows will depend on the configuration of the batteries. Tapping the “Compute Total Pack from Per-Cell” row will re-compute and update the total pack value based on the per-cell values at the bottom of the table.

Editing Charge and Discharge Dates

Tapping the corresponding row in the cycle edit view reveals (or hides) a date picker to edit the date of the charge or discharge phases. Editing a discharge phase date implicitly changes the date of any event associated with the action.



There are some limitations to changing the charge and discharge phase dates in the interface, some of which can be overcome by using the text import format, see the *Database Import Guide* for more information.

The date picker in the interface will only allow you to change the date of the charge or discharge phase of a cycle such that the proposed change meets several criteria:

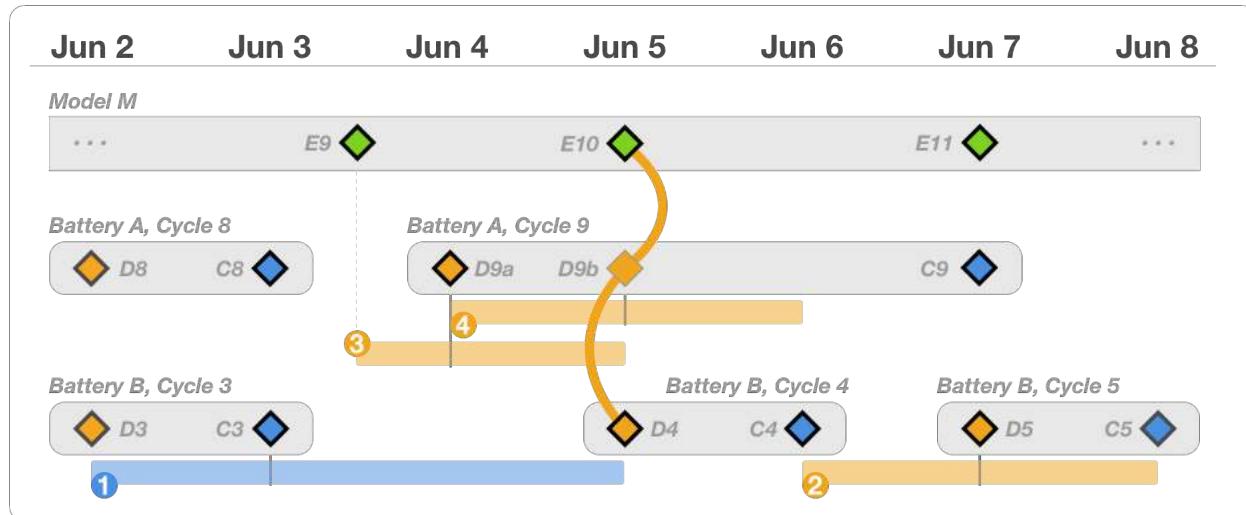
- ◆ It must keep all discharge phases before all charge phases in the cycle.
- ◆ It may not cause the cycle to overlap with any other cycles associated with the battery.
- ◆ It may not re-order any actions in the cycle.
- ◆ It may not re-order actions of any cycles that are associated through events.
- ◆ It may not re-order associated events.

If you attempt to select a date on the picker that violates any of these criteria, RCLogbook will change it to the nearest date that meets the criteria.



RCLogbook 5.0 became significantly pickier about cycle configurations than previous releases due to underlying changes in the database.

To illustrate the implications of these constraints, consider the following example,



In this example, the database contains, in part, a Model M and two batteries A and B. On June 5, both batteries are used during the same event on Model M (thus, E10, D4, and D9b are linked); otherwise, the batteries are used independently. The blue and orange bars show the range over which different charge and discharge dates can change. Specifically,

- ◆ C3 must fall between D3 and D4 (bar “1”). C3 cannot move earlier than D3 as places a charge before a discharge. C3 cannot move later than D4 as that creates an overlap between cycles 3 and 4.
- ◆ D5 must fall between C4 and C5 (bar “2”). D5 cannot move earlier than C4 as that creates an overlap between cycles 4 and 5. D5 cannot move later than C5 as that places a charge before a discharge.

- ◆ D9a must fall between E9 and D9b (bar “3”). D9a cannot move earlier than E9 as that reorders events E9 and E109. D9a cannot move later than D9b as that reorders actions D9a and D9b.
- ◆ D9b must fall between D9a and C4 (bar “4”). D9b cannot move earlier than D9a as that reorders actions D9a and D9b. D9b cannot move later than C4 as that places a charge before a discharge. Because D4 and D9b are associated with the same event, moving one must move the other. As a result, changes to cycle 9 must maintain consistency for cycle 4.

These examples are typical, but not exhaustive.

Logging Cycles

As described in the *Cycles* section, a cycle in RCLogbook is divided into a discharge phase followed by a charge phase. To log a cycle, you first specify the battery (or batteries) to cycle and then specify the parameters, such as charge or discharge, to apply.

RCLogbook supports both single and parallel cycling where the cycle is applied to one (single cycle) or multiple (parallel cycle) batteries. When selecting batteries to cycle in parallel, you may only choose batteries that have the same number of series cells.

There are two approaches to initiating a cycle and selecting batteries: interacting with a battery list or using the barcode scanner on the *Scan* tab. Once batteries are selected, there is a single way to specify the parameters for the cycle.

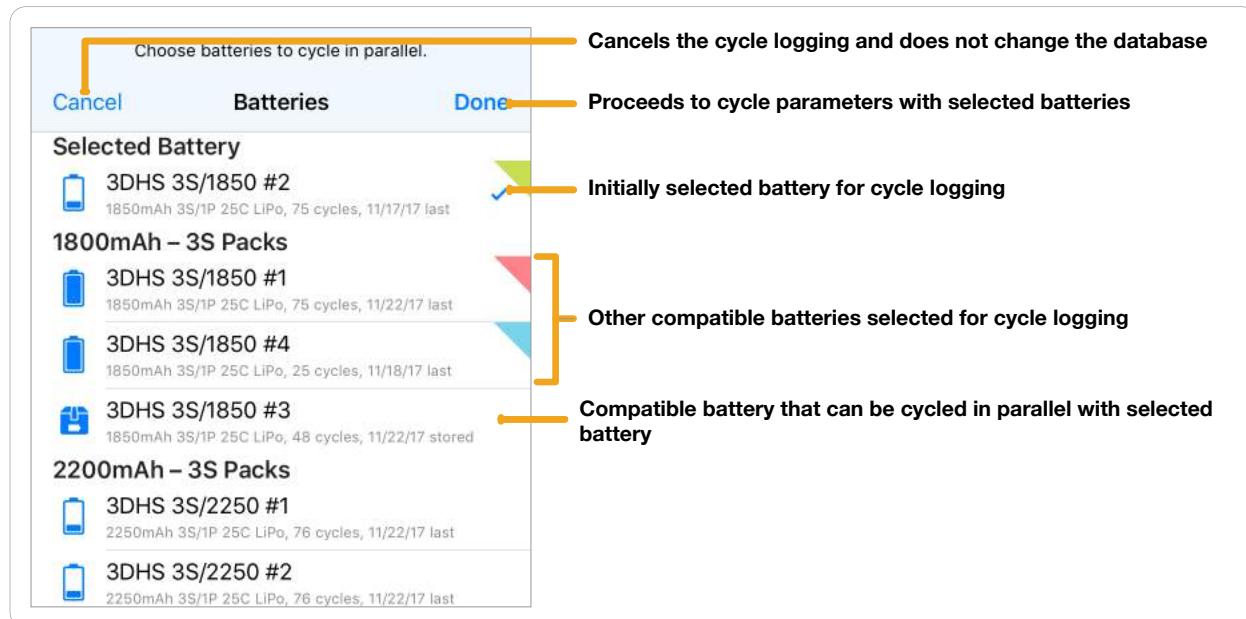
Initiating Cycle Logging from the Battery list

Single- or double-tapping a battery row in a battery list (see the *An Overview of the Tabs* section) will initiate a cycle.

- ◆ A single tap selects a single battery to cycle.
- ◆ A double tap selects the first battery to cycle and causes RCLogbook to prompt for additional batteries.

Once the single tap is noted, RCLogbook has all the information it needs to initiate the cycle and it transitions to a view that lets you specify the parameters of the cycle.

On double-taps, RCLogbook must gather additional information; specifically, the other batteries participating in the cycle before moving on to parameter specification. To select the other batteries to cycle in parallel, RCLogbook presents a list of potential batteries.

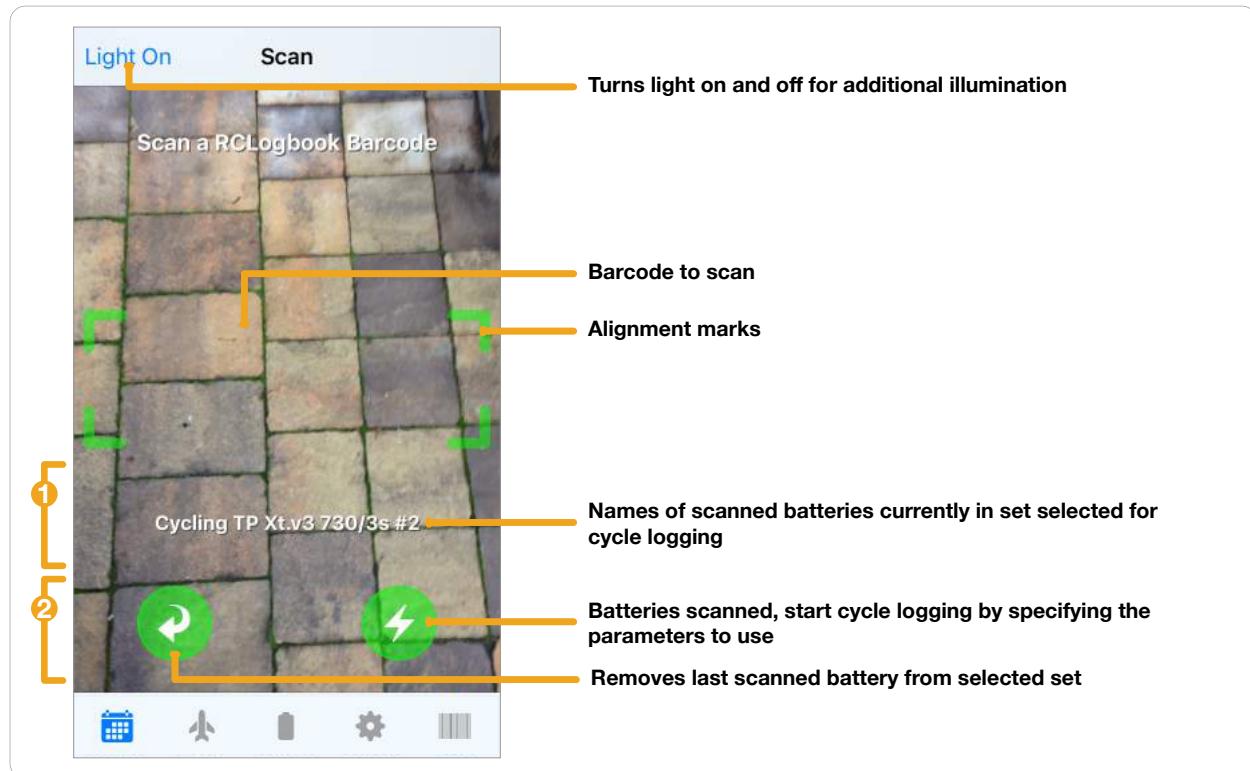


This list includes only “compatible” batteries that have the same number of series cells as the battery you double-tapped. For example, if you double-tap a 3S/1P battery, the list will contain all other 3S batteries eligible to cycle (i.e., not retired) to update even if they have different P cell counts or different capacities. From this list, you tap the additional batteries you want to select and tap the “Done” button to dismiss the list.

Once this list is dismissed, RCLogbook transitions to a view that lets you specify the parameters of the cycle.

Initiating Cycle Logging Using the Barcode Scanner

Scanning a battery barcode with the barcode scanner on the *Scan* tab begins the process of selecting batteries to cycle.

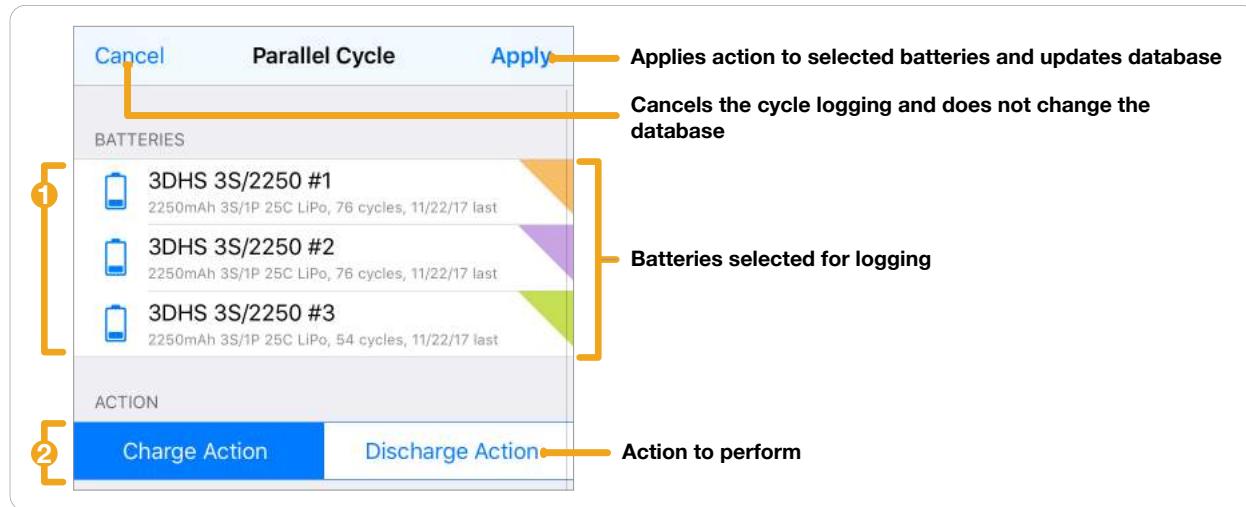


As the barcode for each battery to cycle is scanned, the battery’s name appears in the information area of the view (marked “1” above). The button area (marked “2” above) contains buttons that allow you to configure the cycle logging. Tapping the remove button on the left in the button area removes the most-recently scanned battery from this list. Tapping the cycle button on the right in the button area transitions to the view to specify parameters for cycles on batteries on the scan list.

Specifying Cycle Parameters

Once one or more batteries are selected, either through a battery list or the barcode scanner, RCLogbook transitions to a page that allows you to specify the parameters, such as charge or discharge, to apply to the selected batteries. Once accepted, RCLogbook applies the parameters to the selected batteries updating or adding cycles to the selected batteries as necessary.

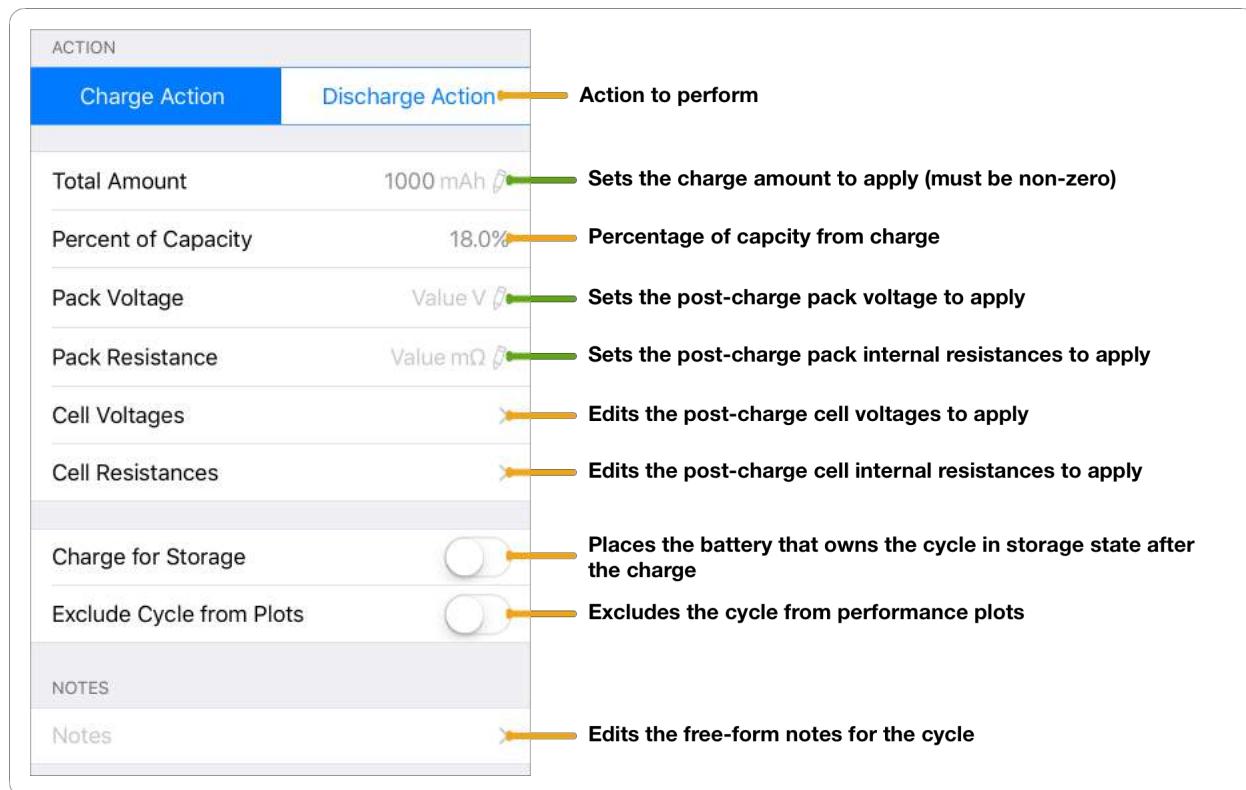
The cycle parameter view is broken into two parts. The top part of the view is independent of the selected action.



The navigation bar has “Cancel” and “Apply” buttons to cancel or apply the action to the selected batteries. The title on the navigation bar indicates whether the operation is a single or parallel cycle. The battery list (marked “1” above) lists all batteries that the operation will be applied to. Finally, the segmented control (marked “2” above) selects either a charge or discharge action to apply to the selected batteries.

The content that the lower portion of the view presents will change based on the selected action. In this portion of the view, you set the parameters for the action. Some row titles may differ slightly depending on whether you are doing a single or parallel cycle.

For charge actions, the lower portion of the cycle parameter view contains the following parameters.



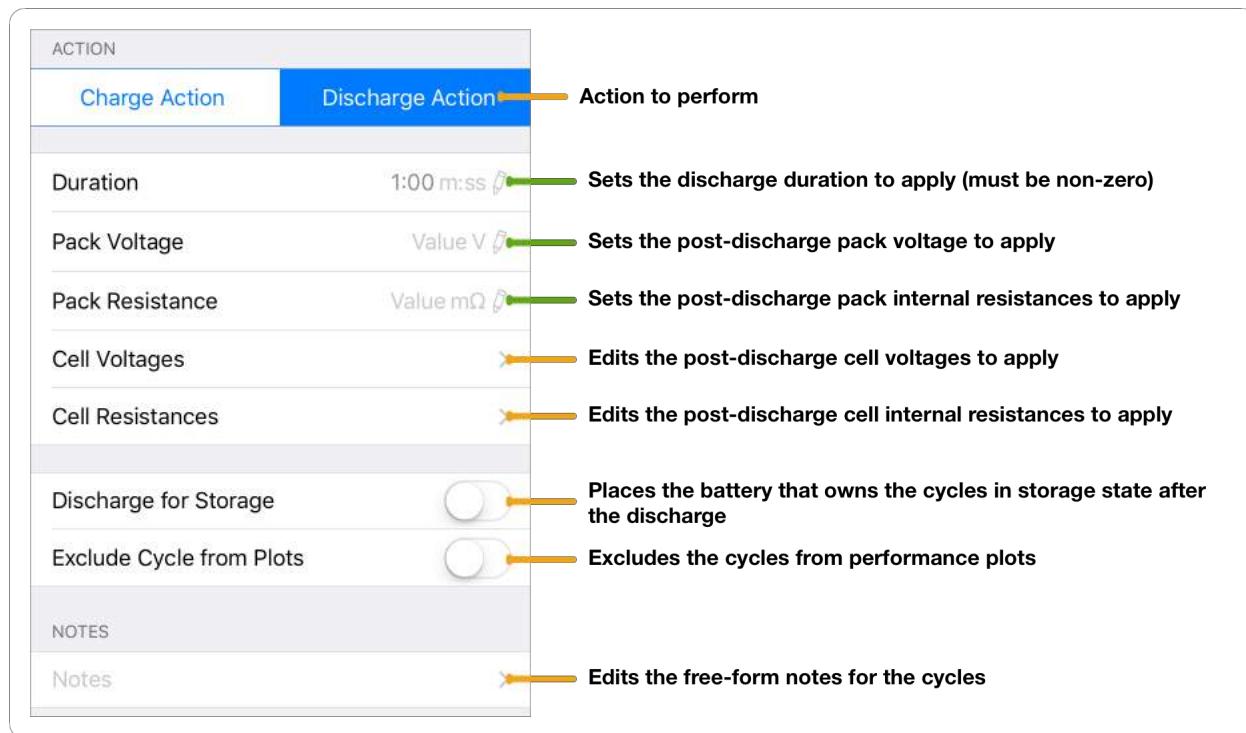
The “Total Amount” row tracks the amount of charge supplied to the batteries during the charge action. If the default to full charge preference is set, RCLogbook sets the total amount to the capacity of the battery initially. This value may not be zero and RCLogbook will hide the “Apply” value until this constraint is met. The voltage and resistance rows allow you to specify the per-pack and per-cell values.

The per-cell rows are only visible if all selected batteries have the same configuration (for example, all are 3S/1P) and have more than one cell. Tapping either of these rows transitions to a per-cell editor as the *Cycles* section describes. Computing the pack value from the per-cell values in this editor will update the appropriate pack value.

The rows at the bottom of the view allow you to place the selected batteries in storage state following the action and exclude any cycles created or edited by the action from performance plots. If you are using a LiPo battery and enter a pack voltage below 3.8V per cell, RCLogbook will automatically set the storage control to on for you.

Tapping the notes row transitions to a page that allows you to edit free-form text notes associated with the model. Swiping left on this row reveals a button to clear the notes.

For discharge actions, the lower portion of the cycle parameter view contains the following parameters.



The discharge parameters and view operation are similar to that of the charge editor. The main difference is that the discharge action requires a non-zero discharge duration. Otherwise, the view, controls, and parameters function in the same fashion.

Applying Cycle Parameters to Batteries

After specifying the parameters and selecting “Apply”, RCLogbook first determines, for each selected battery, which cycle the updates should apply to. Then, it applies the updates. RCLogbook selects cycles based on the following rules.

Action	Most-Recent Cycle Configuration	Updates Apply To
Charge	None, battery is new	Action not permitted because new batteries assumed fully charged
	Has discharge phase, no charge phase	Most-recent cycle, new charge phase
	Has both discharge and charge phases	Most-recent cycle, charge phase
Discharge	None, battery is new	New cycle, new discharge phase
	Has discharge phase, no charge phase	Most-recent cycle, discharge phase
	Has both discharge and charge phases	New cycle, new discharge phase

When creating a new phase in either a new or existing cycle, the date and time is set to the current date and time.

Once cycles and phase are identified, the provided parameters are applied to the cycles according to the following table.

Parameter	Single Cycle	Parallel Cycle
Amount / Total Amount	Added to value in selected cycle	Added to value in selected cycles in proportion to the battery’s contribution to the total capacity. For example, if you change a 100mAh and 200mAh pack with 150mAh, the 150mAh pack gets 100mAh and the 100mAh pack gets 50mAh.
Duration	Added to value in selected cycle	Added to value in selected cycles
Pack Voltage	Replaces value in selected cycle	Replaces value in selected cycles
Pack Internal Resistance	Replaces value in selected cycle	Replaces value in selected cycles
Cell Voltages	Replaces values in selected cycle	Replaces values in selected cycles if they all batteries have identical cell configurations. Otherwise, the parameter is not changed.
Cell Internal Resistance	Replaces values in selected cycle	Replaces values in selected cycles if they all batteries have identical cell configurations. Otherwise, the parameter is not changed.
Storage?	Replaces value in selected cycle	Replaces value in selected cycles
Notes	Replaces value in selected cycle	Replaces value in selected cycles

Generally, the new parameters replace any existing parameters; however, charge amounts and discharge durations are added to any existing value in the target phase and cycle.

Battery Performance

The battery performance view presents several different plots that show how your batteries are operating and also allow you to make comparisons between up to four different batteries. Cycles provide the underlying data for these plots.

When viewed from the model statistics in a model detail view (see the *Models* section), the plots show information on cycles, potentially from different batteries, associated with a specific model. When viewed from the battery performance in a battery detail view (see the *Batteries* section), the plots show information on cycles associated with a specific battery.

The plots include:

- ◆ **Performance Overview** – Plots duration of the discharge versus the amount of charge replaced in the battery during recharge.
- ◆ **History Overview** – Plots duration of the discharge versus the amount of charge replaced in the battery during recharge breaking the data up by the cycle age.
- ◆ **Average Energy Consumption** – Plots the average consumption per minute versus the event number.
- ◆ **Average Time to 80%** – Plots the average time to discharge 80% of the capacity at the average energy consumption rate versus the event number.
- ◆ **Post-Charge Internal Resistance** – Plots event versus post-charge internal resistance. Either per-pack or per-cell values may be plotted.
- ◆ **Post-Charge Resting Voltage** – Plots event versus post-charge resting voltage. Either per-pack or per-cell values may be plotted.
- ◆ **Post-Discharge Internal Resistance** – Plots event versus post-discharge internal resistance. Either per-pack or per-cell values may be plotted.
- ◆ **Post-Discharge Resting Voltage**: Plots event versus post-discharge resting voltage. Either per-pack or per-cell values may be plotted.

These plots exclude data from cycles that are marked as excluded from performance plots (see the *Cycles* section).

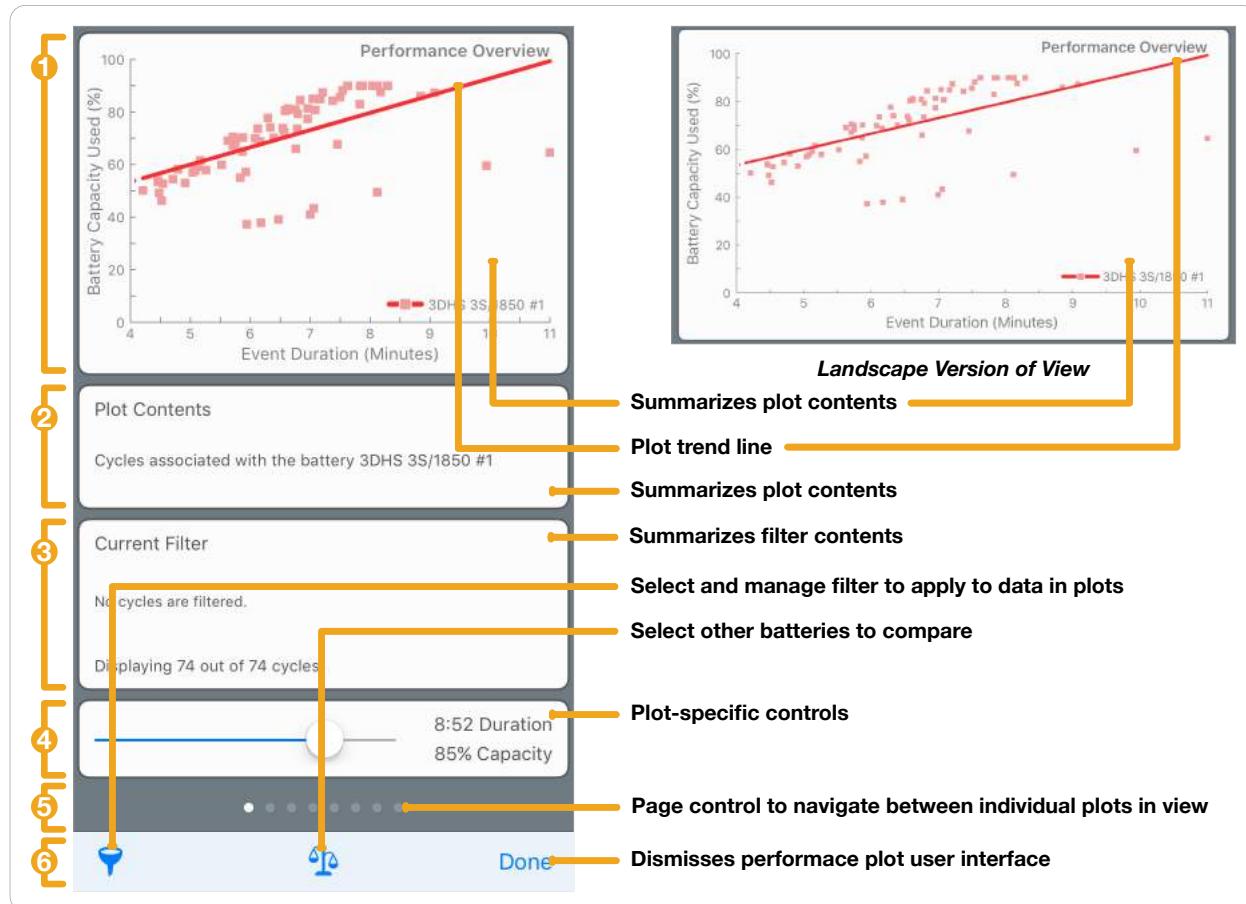
The data in the plots can be filtered through a variety of criteria such as events associated with a particular model. This view allows you to get a rough idea of how your battery performance is changing over time as well as what kinds of event times you might expect².



Answering questions around batteries is complicated and RCLogbook lacks the information needed to provide definitive answers. The battery performance views provide very rough guidance and should be approached with caution.

The basic configuration of a performance plot is as shown in the following figure.

² Generally, this is a very non-linear, multi-dimensional, yucky (technically speaking) problem. We understand that even though we are doing things like linear fits to the data and so on ☺.



With your device in portrait orientation, the view includes a scatter plot (marked “1” above), a description of the plot contents (marked “2” above), a filter description (marked “3” above), optional plot-specific controls (marked “4” above), a page control to navigate between plots (marked “5” above), and a toolbar with controls (marked “6” above). In landscape orientation, the view only includes the scatter plot.

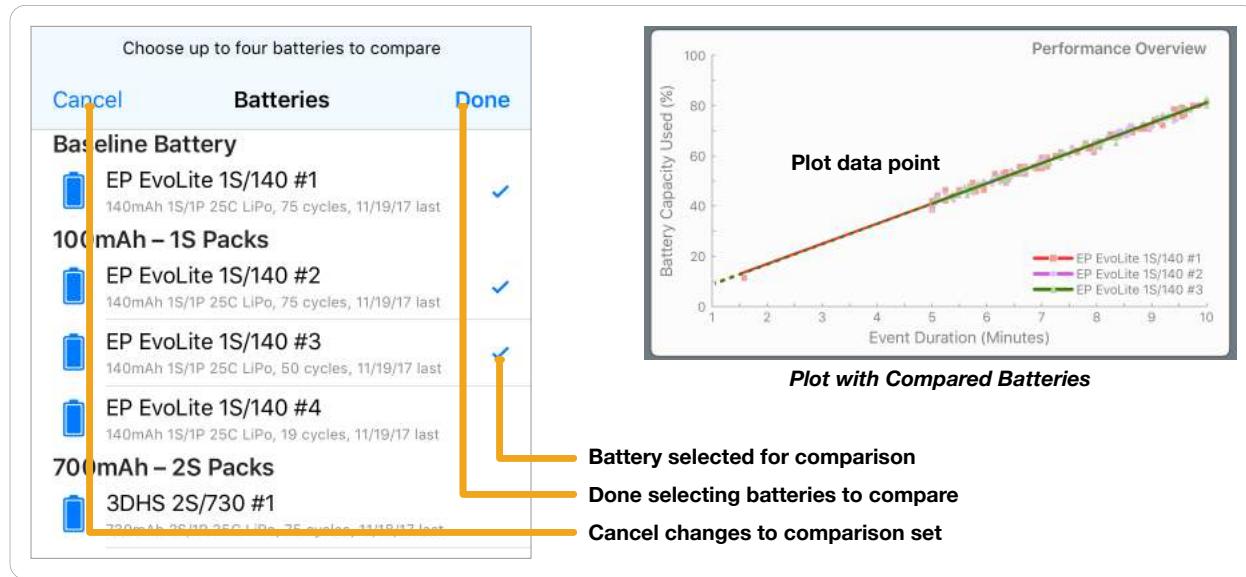
Swiping horizontally across the plot view or tapping on the page control will move you between the various plots.

The icons on the toolbar (marked “4” above) allow you to change filtering criteria, select batteries to compare, or dismiss the performance plot.

Comparing Multiple Batteries

When you are looking at the performance for single battery³, you can select up to three other batteries to compare by tapping the scale icon in the center of the toolbar. The interface will transition to a list of available batteries. Select up to three others to compare against by tapping a row to toggle the inclusion of the battery.

³ That is, the battery performance page was entered from a battery detail page.



Unselecting the batteries will restore the plots to single batteries.

Filtering Cycles

In the performance view, tapping the filter icon at the left edge of the toolbar allows you to specify how to filter the dataset using a filter. You select, edit, and manage these filters exactly as other filtering in the user interface. The icon is badged with a “+” when a filter is applied. See the information filtering discussion in the *An Introduction to the User Interface* section.

When a filter is selected, the “Current Filter” portion of the plot (visible only in portrait orientation) will provide a summary of the filter along with the number of cycles it includes.

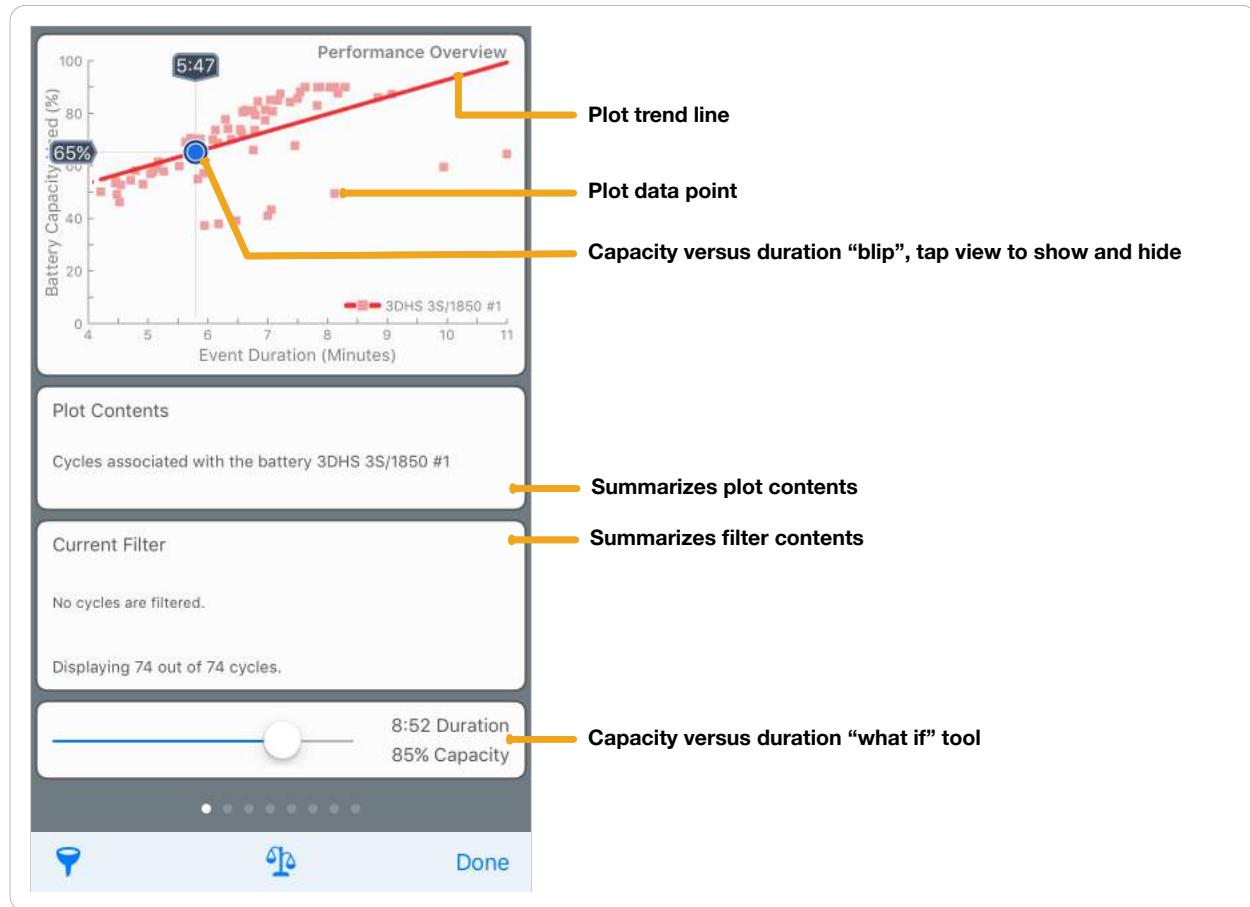
Cycles that are excluded from performance plots (see the *Cycles* section) are never shown even if they match the filter criteria.

Plots

The overall interface for the plots is roughly similar with some small differences.

Battery Performance Overview Plot

The battery performance overview plot shows the recharge amount versus discharge duration for each cycle. Generally, the discharge portion of a cycle corresponds to an event and the interface will frequently use “event” as shorthand for discharge phase of a cycle. The plot also includes a trend line that shows a linear regression to the plot dataset.



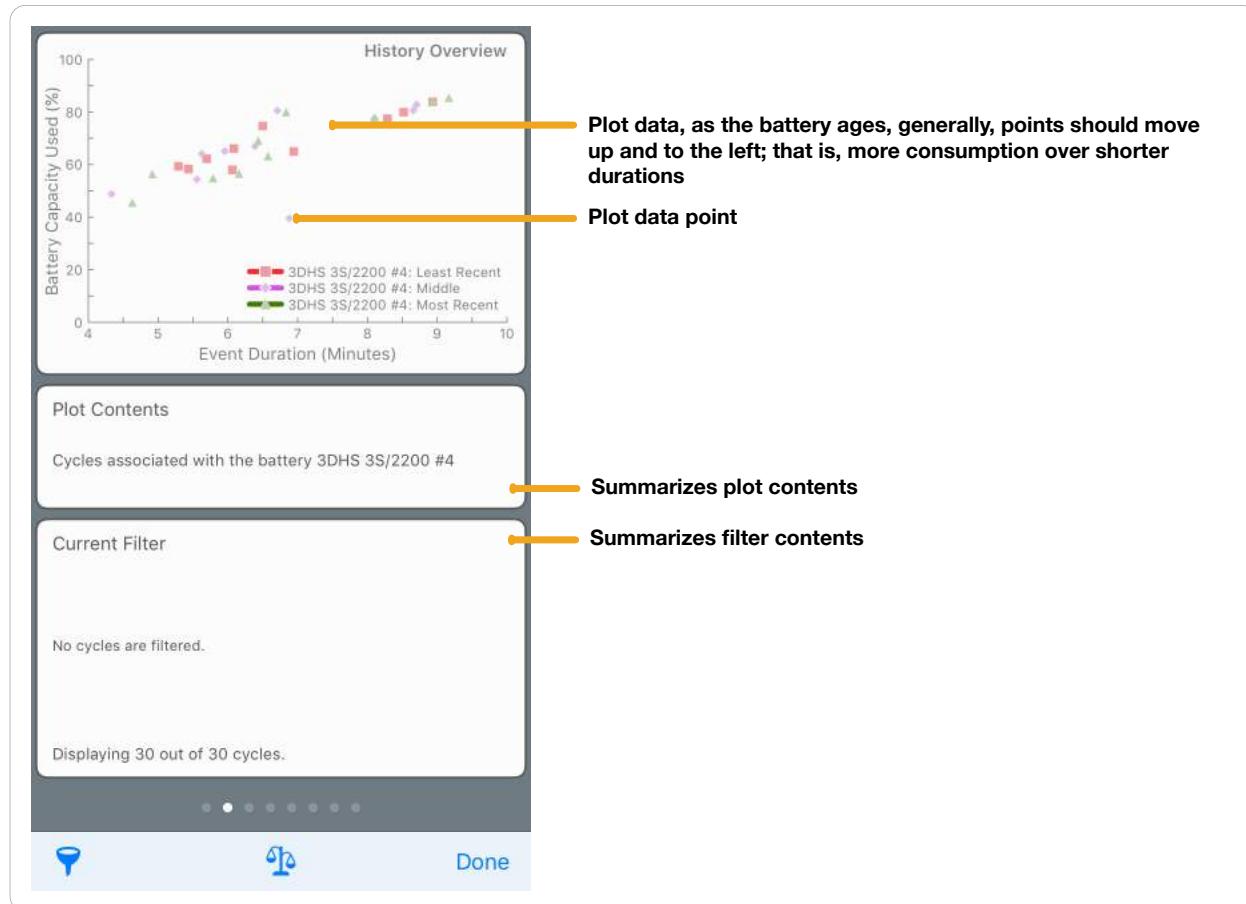
The trend line is solid in the range of durations for which data exists, and dashed elsewhere. Over the full range of durations, the discharge curve is non-linear. As a result, you must be careful extrapolating outside of the measured data. If you tap on the plot, a blip will show up on the regression line that you can drag along the trend line. The callouts at the edges of the plot will show you the location of the blip in terms of duration and percentage of capacity discharged. Tapping the view again hides the blip.

The plot-specific controls provide a slider that lets you move along the regression line to provide a “what if?” control to examine how time and charge are related according to the dataset (exercise caution when going outside the bounds of collected data).

Battery History Overview Plot

The battery history overview is similar to the battery performance overview plot in that both plots show recharge amounts versus event durations across the cycles. However, the history overview plot breaks the cycles into up to four subsets by age⁴.

⁴ The number of groups depends on the total size of the data set.

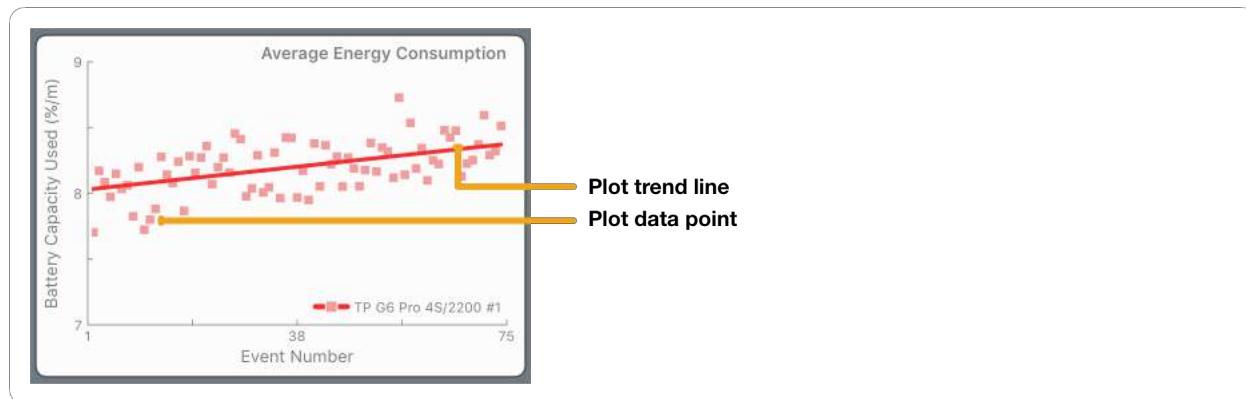


Unlike the battery performance overview plot, the history overview plot does not have any plot-specific controls.

This plot can provide insight into how the battery ages. Generally, to first order, one would expect that as the battery ages, it tends to consume more of the battery to operate for a given duration (that is, a battery that lasted for 8:00 on its first use may only last for 6:00 on its 100th use). This behavior requires similar usage styles across the different cycles in the plot.

Average Energy Consumption Plot

The average energy consumption plot shows the average energy consumed (in mAh) per minute during the discharge phase of the cycles. This value is plotted for each cycle.

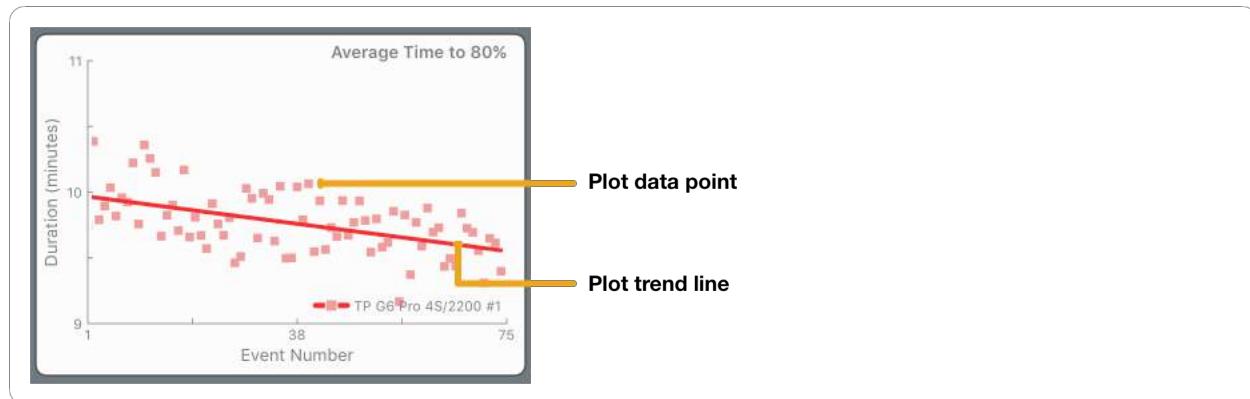


The remainder of the interface is similar to the battery history overview plot with the plot contents, filter summary, page control, and toolbar parts not shown in the above figure.

This plot can help determine how the battery is performing over time. In this example, the rising trend line shows that the battery becomes less efficient over time (assuming the way you are using the battery is similar across different events). That is, more recent events are depleting the battery faster than earlier events. When reading these plots you need to be aware of how you have been using the battery.

Average Time to 80% Plot

The average time to 80% plot plots the amount of time you could discharge at the average consumption rate to reach 80% discharged for each event.

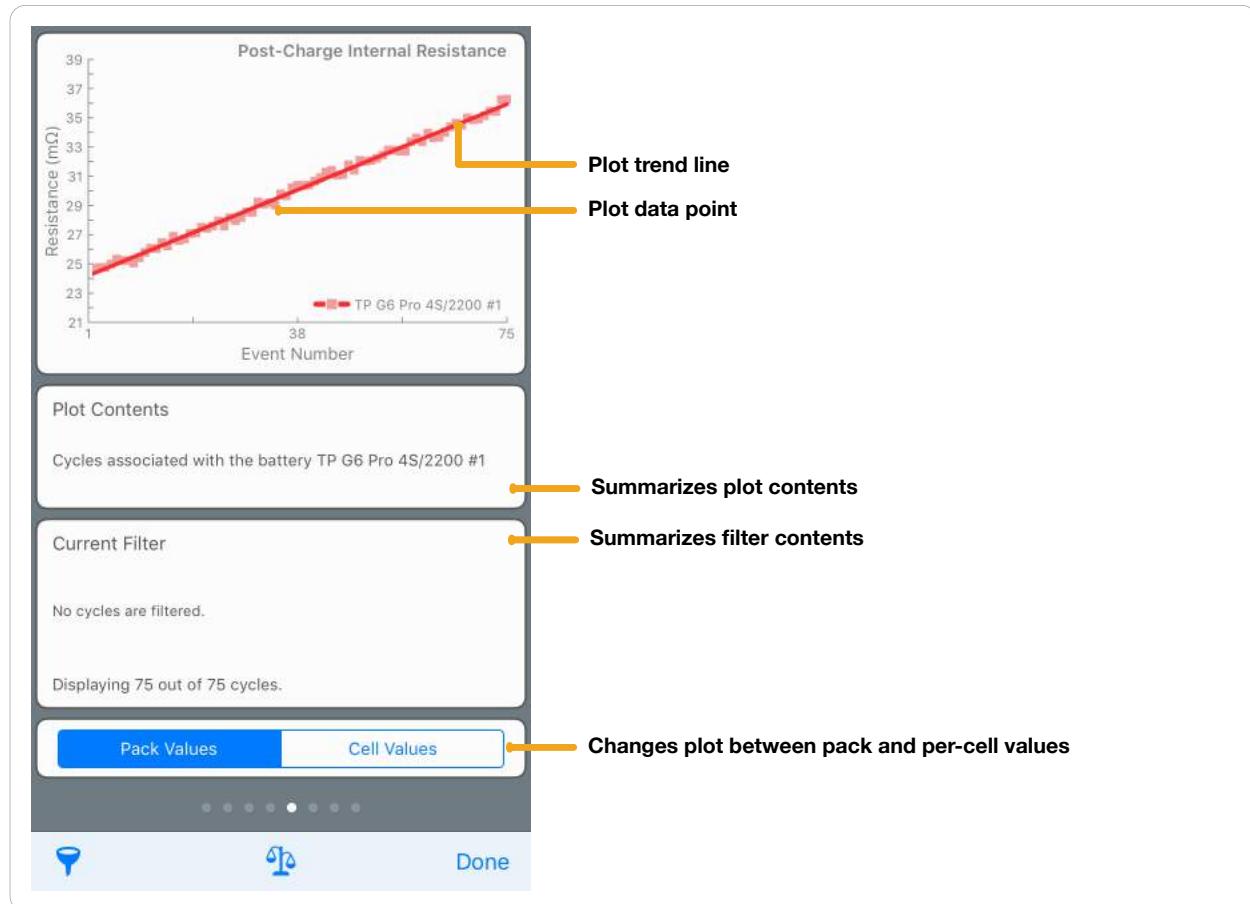


The remainder of the interface is similar to the battery history overview plot with the plot contents, filter summary, page control, and toolbar parts not shown in the above figure.

This plot can also help determine how the battery is performing over time. In this example, the falling trend line shows that the battery becomes less efficient over time (assuming the way you are using the battery is similar across different events). Like the average consumption plots, when reading these plots you need to be aware of how you have been using the battery.

Post-Charge and Post-Discharge Resistance and Voltages Plots

Each cycle can track pre-charge and post-discharge resting voltages and internal resistances of the battery pack and cells. In this plot, the voltage or resistance values are plotted across the events and the trend line is a linear regression on the data points. These plots all use the same interface



The segmented control in the plot-specific controls region allows you to switch between per-pack and per-cell values in the plot.

The resistance plots can show how the internal resistance changes over time. Older batteries will have larger internal resistances. You can also watch the spread of the per-cell resistances. Typically, the per-cell resistances should be fairly similar. If one or more cells start to show internal resistances significantly different from other cells in the pack, it could be indicative of an unhealthy battery.

Happy Flying, Boating, or Racing

Thank you for purchasing RCLogbook, we hope it proves a useful addition to your RC gadgetry. We are always looking to improve RCLogbook and welcome your feedback at support@clevertangerine.com or on the web at <http://www.clevertangerine.com>. We will even try to blog every now and then.

About clevertangerine software

clevertangerine software is a very small software company made up of crafty *Citrus Reticulata* who are committed to developing cool and useful software for the iOS. Though they are just hack pilots, the fruit also love to fly and aspire to someday be able to 3D with the middle of the pack. RCLogbook was the result of tiring of scribbling on scraps of paper at the field to track battery usage.

Revision History

5.1.0 (3602) was released in December 2017 and includes

- ◆ New Activity tab presents a calendar-based look at your database.
- ◆ New organization of pilot information in Setup tab with new pilot statistics.
- ◆ Favorites for current pilot now appear in Models tab.
- ◆ iPhone X support.
- ◆ Added LiHV battery chemistry.
- ◆ Return of text-based import.
- ◆ Added link to RCLogbook App Store review page in Setup tab.
- ◆ Fixed bug in fuel purchase price, this will require re-entry of fuel prices values in Setup tab.
- ◆ Fixed bug in fuel statistics computations.
- ◆ Bug fixes and stability improvements.

5.0.3 (3428) was released in October 2017 and includes

- ◆ Matched sort order of favorite batteries with prior releases.
- ◆ Fix issue with battery location in battery list following creating a new battery from a template.
- ◆ Bug fixes and stability improvements.

5.0.2 (3420) was released in September 2017 and includes

- ◆ Matched sort order of favorite batteries with prior releases.
- ◆ Fix issue with battery location in battery list following creating a new battery from a template.
- ◆ Bug fixes and stability improvements.

5.0.1 (3404) was released in September 2017 and includes

- ◆ Bug fixes and stability improvements.

5.0.0 (3397) was released in July 2017 and includes

- ◆ Major updates under the hood to modernize the database and UI code.
- ◆ New database architecture.
- ◆ Ability to filter items in the interface using complex criteria.
- ◆ Additional tracking of information such as crashes, outcomes, and costs.
- ◆ Expanded model statistics.
- ◆ Expanded reporting to generate maintenance or event logs.
- ◆ Better support for pilots.
- ◆ Bug fixes, UI tweaks, and stability improvements.

Many, many other releases...

1.0.0 – October 2008

- ◆ Initial release.

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