TFM.co Mobile Market Manager
User Guide and Developer Documentation

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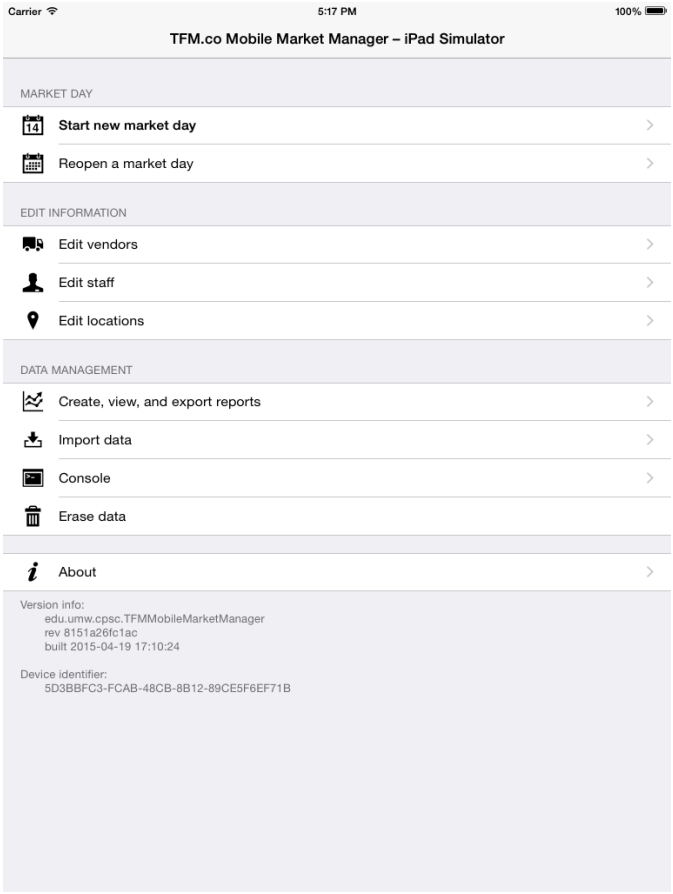
User Guide

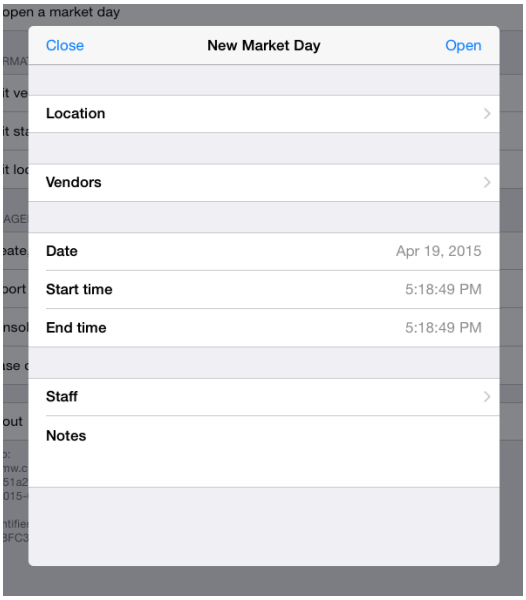
Managing a market day



The Market Manager main menu

Starting a market day

Creating a new market day



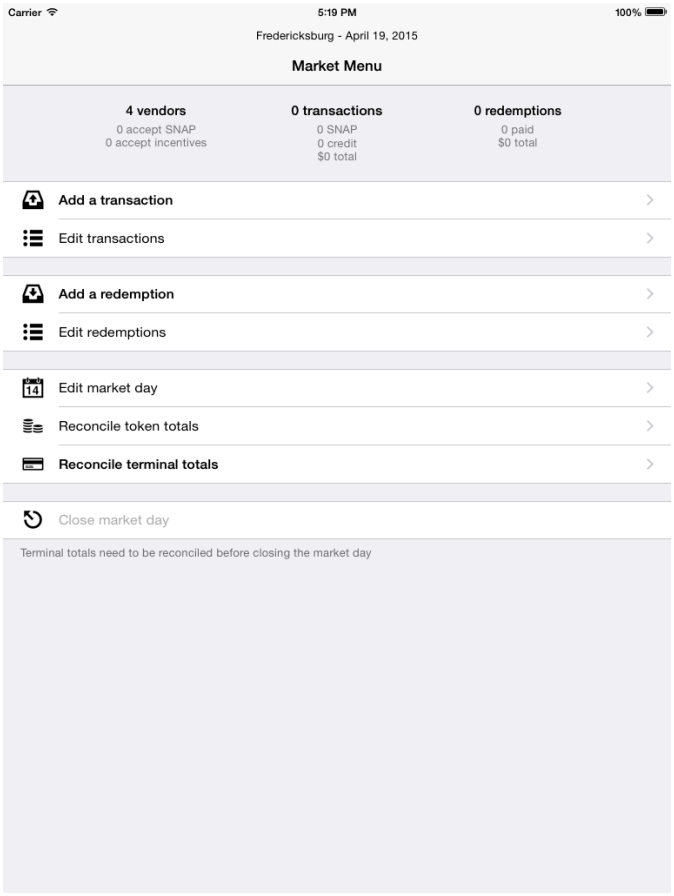
The New Market Day window

From main menu, press *Start a new market day*. From here, select a location, vendors who will be present at the market day, a date (already set to today's date), a start and end time (already set to the current time), staff, and any notes. This information can be changed later. Press *Open* at the upper right to open the market day and begin recording transactions.

Reopening an old market day

From main menu, press *Reopen a market day*. Select a previously closed market day, press *Open* at the upper right, and it will take you to the Market open menu where transactions can be recorded. You can also create a new market day from this screen by pressing the + icon at the upper right.

Once the market day is open, the Market Open menu will appear, with the name of the current market day on top.



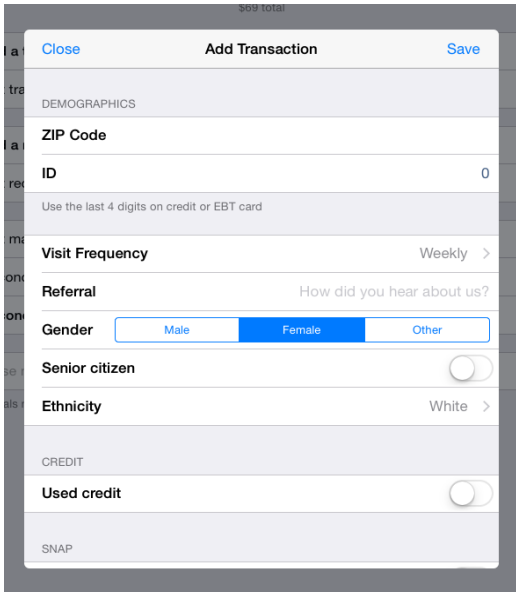
The Market Open menu

Editing market day information during a market day

From the Market Open menu, press *Edit market day*. This will display the same form used when opening the market day, and you can edit any of its information and press *Save* to save your changes.

Recording transactions with customers

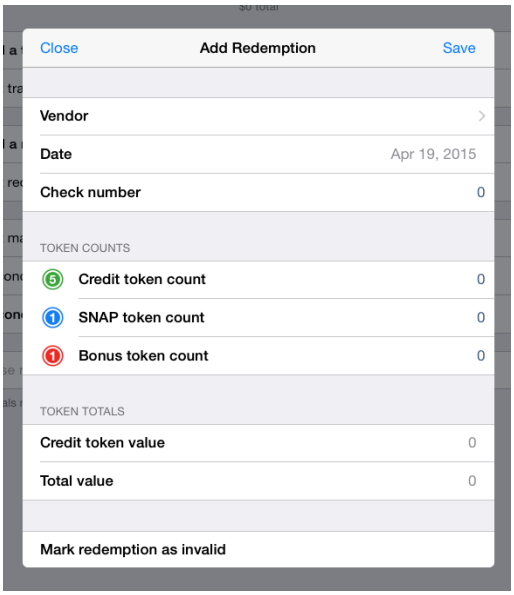
From the Market Open menu, press *Add a transaction*, fill out the form, and press *Save* at the top (or *Close* to cancel).



To view past transactions, press *View transactions*. You cannot edit or delete transactions that have already been made, but you may mark the transaction as invalid (by swiping the transaction you'd like to mark as invalid to the left and pressing *Mark invalid*, or by tapping it and checking the *Mark as invalid* option at the bottom and saving), and record a new one instead. Invalid transactions will be crossed and greyed out, and won't factor into totals.

Recording redemptions with vendors

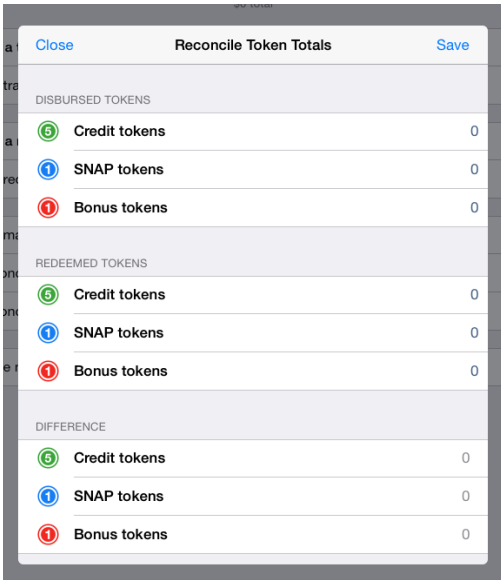
From the Market Open menu, press *Add a redemption*, fill out the form, and press *Save* at the top (or *Close* to cancel).



To view past redemptions, press *View redemptions*. You cannot edit or delete redemptions that have already been made, but you may mark the redemption as invalid (by swiping the

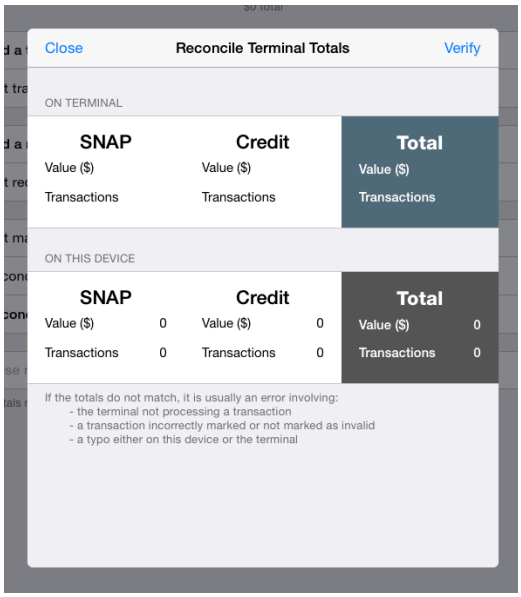
redemption you'd like to mark as invalid to the left and pressing *Mark invalid*, or by tapping it and checking the *Mark as invalid* option at the bottom and saving), and record a new one instead. Invalid redemptions will be crossed and greyed out, and won't factor into totals.

Reconciling token totals



The token reconciliation process is optional before closing the market day.. The first section, *Disbursed Tokens*, contains the number of tokens that have been given out during the market day. The second section, *Redeemed Tokens*, contains the number of tokens that have been redeemed at the end of the market day. The *Difference* section at the bottom shows any discrepancy between the token counts.

Reconciling terminal totals



The terminal total reconciliation process must be completed before closing the market day. The upper table contains the terminal's records of the total number and value of SNAP, credit, and total transactions **according to the terminal** during the market day, and must be copied manually. The lower table contains an automatic calculation of the same values **according to the device**. The two tables must be equal before the market day can be closed, i.e., the terminal totals much match the transaction totals on the device.

If the values from the terminal and the device do not match, the most likely reasons are a typo or a misrecorded transaction. There is no way to know which device has the error, so you must look at the transactions recorded on each.

Creating a new transaction will invalidate the terminal totals if they've already been completed.

Closing the market day

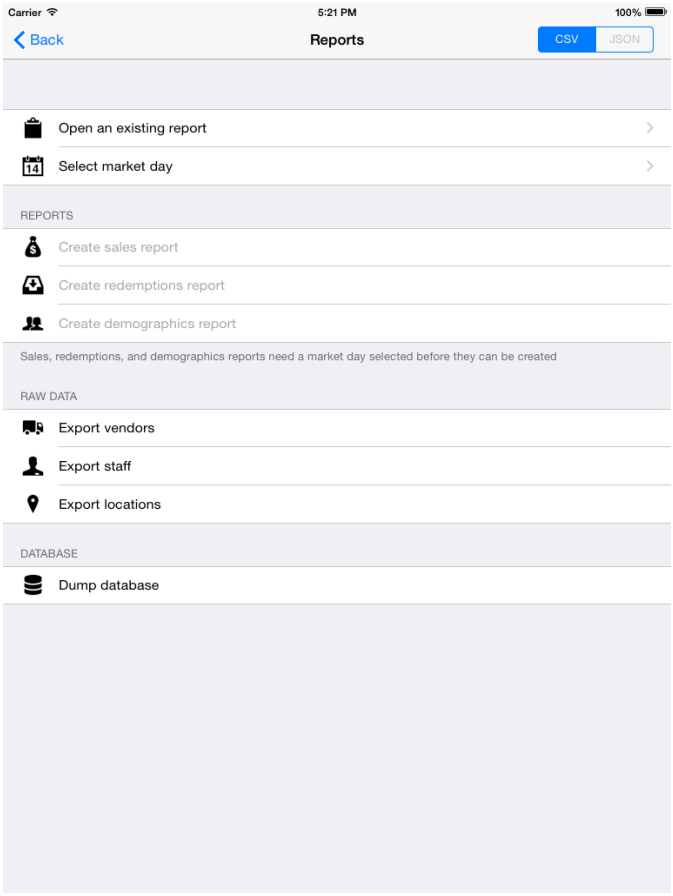
After reconciling terminal totals, you can close the market day. You may reopen the market day at any time to come back to it, to view, add, or edit redemptions or transactions, by going to the main menu and selecting *Reopen a market day*.

Managing vendors, staff, and locations

From main menu, press *Edit Vendors*, *Edit Staff*, or *Edit Locations*. You can press the + icon at the upper right to add a new item, tap on the list to edit one, or swipe across and press *Delete*

to delete one. A vendor, staff member, or location that is being used in a market day in the database cannot be removed.

Reports



Reports are used to export data in the database to a spreadsheet, where further calculations can be performed. They can also be easily viewed or edited on the device or on a computer with a spreadsheet application like Excel or Numbers.

To create a sales, redemptions, or demographic report, press *Select a market day*, select a market day, and then press the report type you would like to create.

Managing reports

To view any report on the device, press *Open an existing report*. The reports are sorted by market day, and the type of report is highlighted to make finding the correct report easier. Tap the report you'd like to view to open a preview screen. From this screen you can press the *Export* button in the top right to send the report to another program.

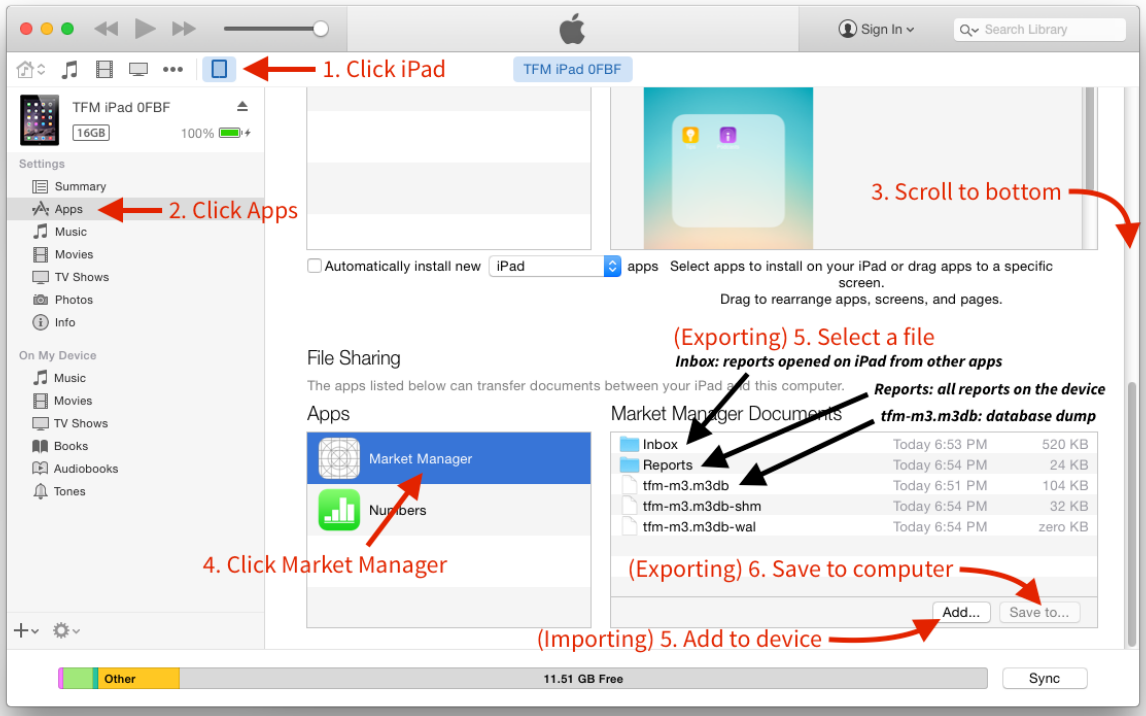
Raw data reports & database dumps

Raw data reports do not need a market day selected in order to be created. These reports do not do any kind of processing or calculations, and are generally used to simply export data from the database for backup, recordkeeping, or importing on to another device later.

Database dumps are binary data, meaning they are immutable and can't be directly edited, but they are the best way to back up the device's database in its current state. A market day does not need to be selected in order to dump the database. Market days, transactions, redemptions, vendors, staff, and locations are all included in the dump, and that data and all of its relationships are retained and are immediately transferable to another device.

Managing data through iTunes

(Make sure iTunes is installed first.)



0. Connect the device to a computer and open iTunes
1. Click the iPad icon in the top navigation bar
2. Click the *Apps* section in the left panel
3. Scroll to the bottom to the *File Sharing* section
4. Click the *Market Manager* app

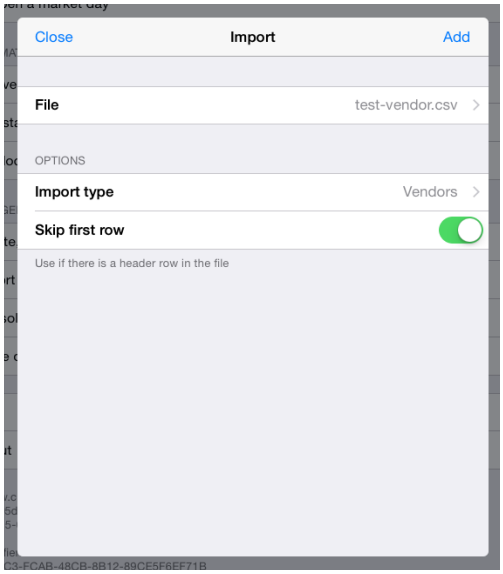
Adding data to the device

5. Press *Add* to add the data you'd like to put onto the device
    - iTunes does not let you add files to a folder, so the data must be uploaded into the main documents folder.
6. Press *Sync*
7. Open Market Manager on the device and select *Import data* on the main menu
8. Select the files you'd like to import and press *Import*
    - Only one file can be added at a time; there is no way to add multiple files at once to the database

Taking data off the device

5. Select the *Reports* folder
6. Press *Save to…* to save the data to the computer
    - iTunes does not let you open folders on the device and save individual files from them, so the whole folder of reports must be saved at once.
    - Be sure not to overwrite an existing Reports folder on your computer. You should rename the Reports folder once you've transferred it off of the device to keep from accidentally overwriting it.
    - Saving reports doesn't remove them from the device. To remove reports from the device, open the *Select an existing report* menu option in the *Reports* menu and swipe across a report you'd like to delete and press *Delete*, or press *Delete All*.

Importing data



To import data to the device, open a supported file type (`csv`, `m3db`, or `m3table`) on the device and open it in Market Manager. You can also upload a file to import into the app's document folder through iTunes. (Steps are detailed in the previous section.)

The app detects the destination automatically based on the filename, but if necessary, change the destination of the data using the picker (*Import type*). If you are importing a CSV

and there is a header row, make sure the *Skip first row* switch is turned on (**it is on by default**). If there is no header row, be sure to switch it off. Press *Import* to add the data to the database.

Importing a `csv` or `m3table` will always create new records, which might result in duplicate data. Importing a database dump (`m3db`) will add the data in the dump with the data that already exists in the database, which may also create duplicates. If you would like to avoid creating duplicates using a CSV, you must edit the data before importing it. To avoid creating duplicates with a database dump, your only options are to manually delete duplicates on the device before or after the import, or to completely reset the database before importing.

Import format

The importer is not very smart. It expects imported data in the order specified in the tables below. It will reject any data that does not have the right number of columns, but does not know if the data it is importing is actually what is in the column.

For text values, make sure the data is enclosed in quotation marks (e.g. `"text"`), so that any commas or spaces that are inside will not be interpreted as the start of the next column. “Yes” or“No” values are not case-sensitive, and can be replaced with 1 or 0, “y” or “n”, or “true” or “false”.

Vendors

Business Name (text)	**Product Types** (text)	**Operator Name** (text)	**Address** (text)	**Phone** (text)	**Email** (text)	**Accepts SNAP** (“yes” or “no”)	**Accepts Incentives** (“yes” or “no”)	**State Tax ID** (text)	**Federal Tax ID** (text)

Staff

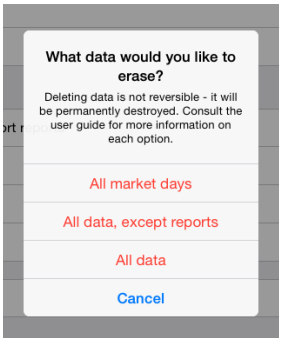
Name (text)	**Phone** (text)	**Email** (text)	**Position** (integer)

See Enumerated value reference for valid values for position.

Locations

Name (text)	**Address** (text)

Erase data



To erase data on the device, press *Erase data* on the main menu. From this dialog, you can erase just market days, all data excluding reports, or all of Market Manager's data stored on the device. Pressing an action will delete the data immediately and permanently, so use caution.

All market days

Erasing market days will only remove market days and their associated transactions and redemptions.

All data, except reports

Erasing all data except reports will clear all market days, transactions, redemptions, vendors, staff, and locations. Reports are not stored in the database and will not be modified. Only use this after transferring all data off of the device, so that no data is lost.

All data

Erasing all data including reports will completely empty the Market Manager app of all data, resetting it completely.

Using the console

The console is intended primarily for diagnosing database errors, and for performing arbitrary queries that aren't or can't be included in reports. SQL knowledge may needed to use this window, and referring to the `NSPredicate` syntax documentation is highly recommended.

Developer Documentation

Project settings

- Created with Xcode version 6.2 with 3.2-compatible format
- Tested on iPad Simulator and 2nd-generation iPads (iPad 2) with iOS 8.0, 8.1, and 8.2
- Read-only Git repository at http://repos.ael.me/TFMMobileMarketManager

Project file structure

- Assets.xcassets/
  - Image files used in the program
- CHCSVParser/
  - CSV parser used for data import
  - https://github.com/davedelong/CHCSVParser/
- FXForms/
  - Super-easy-to-use forms library
  - https://github.com/nicklockwood/FXForms/
- ImportTool/
  - Library used for importing data to the database from CSVs
- ReportTool/
  - Library for generating reports from the database as CSVs
- storyboards/
  - Storyboard layouts for UI flow and appearance of some windows
  - Other windows' appearance is handled automatically by FXForms, or their view controller file in views/
- SyncTool/
  - Library used for synchronizing databases
- types/
  - Data structures for entities in the database
- UITextField+PrefixSuffix/
  - `UITextField` category used for displaying prefix and suffix labels on the sides of text inputs
  - http://stackoverflow.com/a/12267979
- views/
  - View controllers and some XIBs for the user interface
  - Organized by role into subfolders
- tfm-m3.xcdatamodeld
  - Database model

Enumerated value reference

Types used in reports

Ethnicity (`Transactions.cust_ethnicity`)

Ethnicity	Value	Typedef Value
White	0	`EthnicityWhite`
Black	1	`EthnicityBlack`
Hispanic	2	`EthnicityHispanic`
Asian	3	`EthnicityAsian`
Other	4	`EthnicityOther`

Frequency (`Transactions.cust_frequency`)

Frequency	Value	Typedef Value
First time	0	`FrequencyFirstTime`
Few times a season	1	`FrequencySeason`
Monthly	2	`FrequencyMonthly`
Every few weeks	3	`FrequencyNQWeekly`
Weekly	4	`FrequencyWeekly`

Gender (`Transactions.cust_gender`)

Gender	Value	Typedef Value
Male	0	`GenderMale`
Female	1	`GenderFemale`
Other	2	`GenderOther`

Position (`MarketStaff.position`)

Position	Value	Typedef Value
Volunteer	0	`PositionVolunteer`
Manager	1	`PositionManager`
Accountant	2	`PositionAccountant`
Administrator	3	`PositionAdministrator`

Internal types

ImportType

Database destination	Value	Typedef Value
Database merge/replace	-1	`ImportTypeDump`
Vendors	0	`ImportTypeVendors`
Staff	1	`ImportTypeStaff`
Locations	2	`ImportTypeLocations`

ImportFormat

File format	Value	Typedef Value
Comma separated values	0	`ImportFormatCSV`
JSON	1	`ImportFormatJSON`

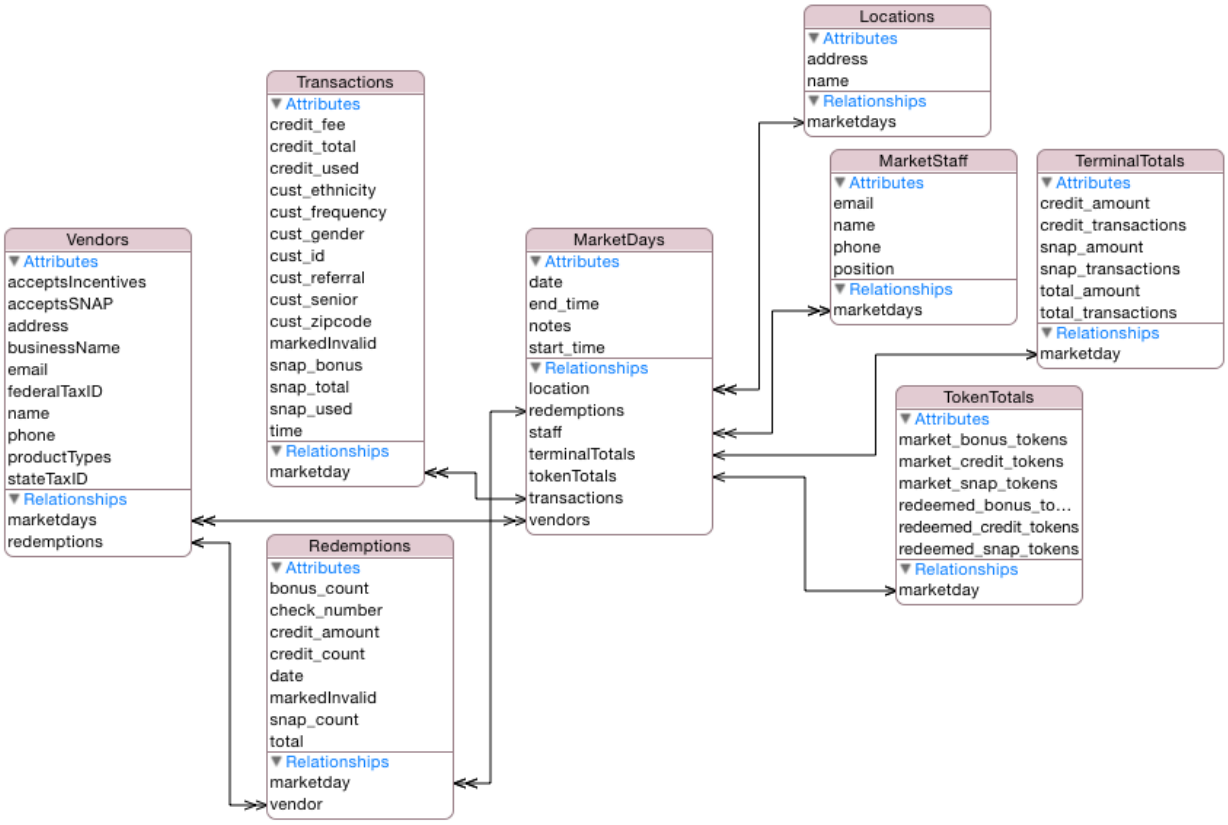
ImportDumpOptions

Sync behavior	Value	Typedef Value
Delete existing records and use only new records	0	`ImportDumpReplace`
Merge data with current database; adding new records and updating existing ones	1	`ImportDumpMerge`
Add records that already exist on the device; do not update any records that are already on the device	2	`ImportDumpAdd`
Update records that already exist in on the device; do not add any records that are not already on the device	3	`ImportDumpUpdate`

Used for both importing and synchronization in ImportTool and SyncTool.

Table schema reference

The database currently uses Core Data, a proprietary fork of SQLite by Apple specifically for use on their platforms using Objective-C. It is more specifically an “object graph and persistence framework” rather than a traditional SQL database, as it maintains relationships automatically between objects without ever manually using SQL queries.



To-do list

User interface

- *(UI)* Group items in table views
  - Market days should be grouped by location (alphabetically) then sorted by date (newest first)
  - Vendors should be grouped by active/inactive (`[MarketDays count] > 0`) then alphabetically by the business name
  - Staff should be grouped by position, then alphabetically
  - Transactions should be grouped by hour in ascending order, then sorted by time in ascending order
  - Redemptions should be grouped by paid/unpaid (`checkNumber > 0`) then by business name
- *(UI)* Fix `textDetailLabel` in `ExistingReportsViewController` so that file modification date isn't depending on `textLabel.text` to search for filename
  - Change table storage from {array within dict} to {dict within dict} containing name, filename, and file creation date (rather than just name as it is currently)
- *(UI)* Only show prompt to close on forms when data has been changed
  - Create new managed object context
  - Create new managed object with nil values in context, or grab from db if in edit mode
  - Perform changes directly on object, live while editing

- Remove save button, only have Close button
  - If `[managedObjectContext hasChanges]`, display a `UIAlertController` with 3 actions: *Save and close*, *Close without saving*, and *Don't close* (cancel)
  - Else just close without a prompt

Core functionality

- *(Core)* Don't use app delegate's managed object context as a global
  - Create a new managed object context when needed and close it properly inside each view
  - Will help in determining if there are changes specific to the view, since `-hasChanges` will be specific to the view's managed object context
- *(Core)* Ask to merge database when importing a database dump, instead of only overwriting
  - Use ImportDumpOptions enum reference
  - http://mikeabdullah.net/merging-saved-changes-betwe.html
  - http://stackoverflow.com/a/6959868
- *(Core)* Data synchronization with a central database
  - Not possible over USB due to Apple's hardware policy
  - try to not depend on third-party services; keep in-house
    - check in/out db from git/svn repo on central PC
    - https://github.com/drewmccormack/ensembles

Low-priority/feature wishlist

- *(Wishlist)* Add preferences window and keep settings in Info.plist
  - Preferences for default values for forms
  - User-specified device name (instead of using `[[UIDevice currentDevice] name]`)
- *(Low priority, UI)* Address QLPreviewController segue transition warnings
  - Preview controllers throw warning when presented: `Unbalanced calls to begin/end appearance transitions for QLRemotePreviewContentController`
  - http://stackoverflow.com/a/26310000
  - http://stackoverflow.com/q/14412890
- *(Low priority, Core)* Encrypt state and federal tax IDs for vendors, since they are personally identifiable
  - `NSValueTransformer`
  - http://stackoverflow.com/a/1646605
  - http://www.artandlogic.com/blog/2012/07/securing-your-core-data-with-transformable-attributes/
- *(Low priority, Core)* Export to JSON
  - `NSJSONSerialization`
    - Need to serialize classes first
    - `NSCoder`
  - `[CoreData saveToURL]`
- *(Low priority, Core)* Import from JSON
  - Add `-importFromJSON:` methods to `ImportTool`,

    - or add parameter to define type using `ImportFormat` enum
    - Refactor CSV import methods to `-importFromCSV:skipFirstRow:`
- *(Low priority, Core)* Should we be using Core Data at all if we want to be able to run arbitrary queries on another platform?
    - http://www.objc.io/issue-4/SQLite-instead-of-core-data.html
    - https://github.com/ccgus/fmdb
    - https://github.com/marcoarment/FCModel
    - Some initial progress was started but left aside, see `fmdb` branch in git repo