

# Project Scope and Implementation of the CrispLedes for FreshBooks Program

---

## 1. Introduction

**Problem:** As of now, FreshBooks is unable to output one or multiple invoices directly into a LEDES1998B format, thereby preventing lawyers from being able to upload invoice data into LEDES1998B consumers such as Serengeti for electronic billing.

**Project Summary:** The LEDES Conversion Program is able to take the CSV export of one or more FreshBooks invoices and convert those invoices into LEDES1998B format as validated by uploads into Serengeti, a LEDES1998B consumer. This requires taking the original invoices as a single CSV file and reprocessing it to generate the LEDES1998B output in a new text file. Several fields required by LEDES can be computed directly from the invoice data, others require making assumptions about how a company uses FreshBooks to generate the LEDES field, still other fields require design decisions outlined below. This program is based upon an earlier ROL Group LEDES Conversion Program written in Ruby, whose proof of concept was a success for Richardson Oliver Law Group LLP (ROL Group). The current Javascript CrispLedes for FreshBooks Program is being released by ROL Group to the public under an open source MIT license.

**Future Directions:** Based on the success of the proof of concept, future directions for the project include direct API integration with FreshBooks (automatically retrieve invoices) as well as greater development of a user interface for managing configuration, and more robust budget and spending tracking.

**Language:** Javascript, HTML 5.0

**Accessible for use at URL:** [XXXXXX](#)

## 2.Scope

The CrispLedes for FreshBooks Program is intended to be implemented based on FreshBooks as used by ROL Group on its invoices.

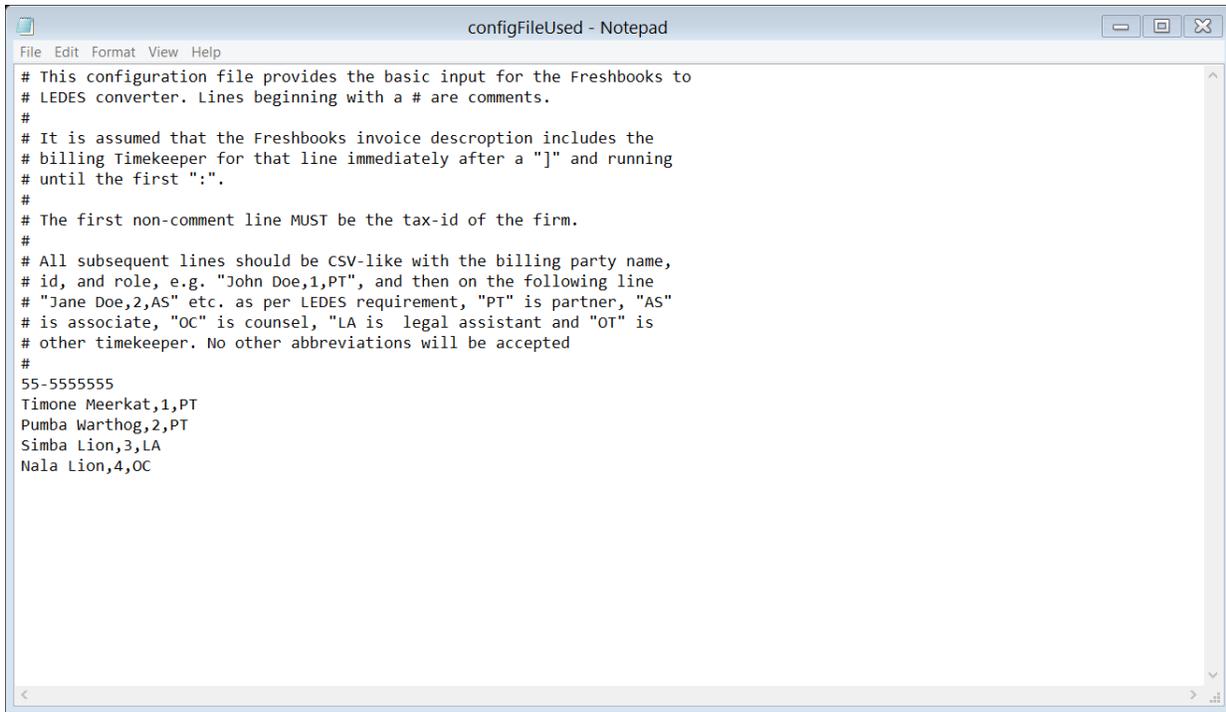
The CrispLedes for FreshBooks Program has been tested using a variety of sample invoice data from FreshBooks that correspond to key changes in the way LEDES199B consumers such as Serengeti interpret invoices. In addition to the output LEDES file, an error file and two CSV files are generated. The CSV file with “summary” in its name gives a summary of each invoice in terms of the invoice’s total, its earliest date, its latest date, the date the invoice was created, and its total amount.

The second CSV file, which is identified by the “details” in its name, gives a CSV formatted version of the LEDES document. The “details” CSV is designed to help provide a more usable version of the LEDES document, allowing users to easily be able to review the invoice data in Excel. The original CSV file and configuration file are also included in case review is necessary.

### 3. Key Design Decisions from Our Approach

#### 3.1 Configuration file

The fields TIMEKEEPER\_ID and LAW\_FIRM\_ID are fields within LEDES1998B that are not addressed through FreshBooks. There are a couple of ways to input this information: either we input ROL Group specific data to run the program, or we need an intervention on the part of the user to input specific fields every time the program is used. The selected solution was to have a separate text configuration file to be edited by the user and then parsed by the LEDES Conversion Program to input the additional necessary information. Though an editable configuration file exists (pictured below), and is available on the ROL Group site within the fb2ledes zip file, it is also possible to create your own text file. The text configuration file must have the format explained and demonstrated within the following configuration file:



```
File Edit Format View Help
# This configuration file provides the basic input for the Freshbooks to
# LEDES converter. Lines beginning with a # are comments.
#
# It is assumed that the Freshbooks invoice description includes the
# billing Timekeeper for that line immediately after a "]" and running
# until the first ":".
#
# The first non-comment line MUST be the tax-id of the firm.
#
# All subsequent lines should be CSV-like with the billing party name,
# id, and role, e.g. "John Doe,1,PT", and then on the following line
# "Jane Doe,2,AS" etc. as per LEDES requirement, "PT" is partner, "AS"
# is associate, "OC" is counsel, "LA" is legal assistant and "OT" is
# other timekeeper. No other abbreviations will be accepted
#
55-555555
Timone Meerkat,1,PT
Pumba Warthog,2,PT
Simba Lion,3,LA
Nala Lion,4,OC
```

The user interface provides file upload buttons for both the FreshBooks csv file and the text configuration file.

### 3.2 Key Assumptions:

- **IMPORTANT:** We are assuming that the input CSV file has been exported from FreshBooks directly as a CSV. Exporting the file as an Excel and then saving it as a CSV file will cause problems with the invoice dates.
- **IMPORTANT:** The LEDES conversion program must be run using an updated version of Google Chrome or Mozilla Firefox.
- All line entries have a date; however, in the case of adjustments/discounts this is programmatically assigned by the program to the last billing date on the invoice.
- The invoice total matches the sum of the individual entries.
- Line item task codes and line item activity codes are denoted within the item description outside of the square brackets. It is also assumed that the line item activity and task codes are preceded by a double pound sign, “##” and are ordered in the form: “##task code-activity code.”
- The Client matter ID is dictated from within the line item description and within the square brackets, just before the line item date. It is also assumed that the client matter id is preceded by a double pound sign, “##”. If the client matter id is not identified then the task code and the activity code will also not be transcribed to the LEDES output text file.
- Timekeeper names are unique, i.e. there aren’t two people named “John Doe”.
- FreshBooks invoices are generated in the “Detailed” format and each fee entry has the format “[<lawfirm matter number> <other text><##client matter id> <line item date>] <unique time keeper name>: <fee description><line item task code>-<line item activity code>”.
- Further assumptions are made about the law firm matter number, e.g. we use 4 letter client code a dash and then additional codes, e.g. CLNT-P1234. It is assumed that in the LEDES consumer, the entire string is the law firm matter #, e.g. “CLNT-P1234” and the pre-amble, e.g. “CLNT” is input as the client identifier.

### 4. Process

The LEDES Conversion Program was tested by feeding in example FreshBooks data in the form of a CSV as well as editing the “configuration\_file.txt”. In order to properly test the LEDES Conversion Program the FreshBooks CSV had significantly varied invoice entries to ensure the LEDES Conversion Program could handle a variety of allowable inputs. For example, the FreshBooks CSV had at least one fee, one expense, one line item adjustment and one invoice level discount. We then compared the output from the LEDES Conversion Program with what a normal LEDES file would be if someone were to do it by hand, as well as performed a comparison on the debugging output of invoice numbers, begin/end dates, and invoice totals with our own calculations. The output from the LEDES Conversion Program matched what we expected from the hand-crafted LEDES file. The summary outputs matched and additionally in tests, Serengeti was successfully able to consume the output.

The highest priority was to make sure the LEDES Conversion Program consistently foots each invoice output with the invoice total. A miscalculation of the invoice total would be the key error, and so extra diligence was focused on this.

## 5. LINT Checking

The LEDES Conversion Program has a list of checks it performs to help the user detect certain potential problems with their invoices. Some of these catches must be changed in order for the LEDES file to be properly read, others are violations of LEDES-dictated best practices. If an error is found it will be displayed on the page and an error file will be created within the zip folder, but it will not in any way affect the LEDES document that has been created. All errors are categorized by: *invoice number, date, timekeeper*.

Lint Check	Associated Warning (minus preamble of invoice number, date and timekeeper)
<b>Timekeeper in description is not in configuration file</b>	ERROR timekeeper cannot be found in configuration file - <line item description>
<b>Invoice total is over \$20 k</b>	WARNING total for invoice is over \$20k, actual amount: <invoice total>
<b>Date is not given for a fee</b>	Error no date - <line item description>
<b>Description is over 30 words</b>	WARNING long description, over 30 words - <line item description>
<b>Word or phrase used in description is flagged</b>	WARNING <flagged word> is a flagged word or phrase - <line item description>
<b>Patent number in description</b>	WARNING patent number may be in description - <line item description>
<b>Single expense over \$5k</b>	Expense is over \$5k may need to be reviewed
<b>Time unit is not in tenths of an hour</b>	WARNING a time unit that is not a factor of a tenth of an hour is discouraged <number of units>
<b>Fee doesn't have Timekeeper</b>	ERROR timekeeper cannot be found in configuration file - <line item description>
<b>No task code</b>	ERROR client matter id exists but there is no task code - <line item description>
<b>No activity code</b>	ERROR client matter id exists but there is no activity code - <line item description>
<b>Possible duplicate entry</b>	Check entries for duplicates- <line item description 1>, <line item description 2>
<b>More than 16 hours by the same timekeeper have been billed in the same day</b>	WARNING more than 16 hours have been billed on this date.
<b>Multiple entries on the same invoice on the same day for a timekeeper</b>	Suggest merging line items

### Table of LEDES vs. FreshBooks Fields and Key Assumptions

The columns list the FreshBooks input fields provided to the program. The rows list the required output LEDES fields. For each output field the actions, assumptions, comments and limitations are indicated.

	Client Name	Invoice Number	Invoice Date	Status	Date Paid	PO Number	Item	Item Description	Unit Cost	Quantity	Discount	Tax 1	Tax 2	Line Cost	Currency	Action required	Assumptions, Comments and Limitations
Invoice Date			X													Direct copy	
Invoice number		X														Direct copy	
client id																Equation, regex matching of 4 letter code, e.g. CLNT or ABCD, out of CLNT-A####.	This works well for invoices where the FIRST entry is a time entry for ROL Group, what happens if the first entry is an Expense/Adjustment? What if there are no time entries? This is assuming that each time entry is of the form "[CLNT-A#### ...]" so that the client and matter can be identified.
law firm matter id																Equation, regex matching of entire code, e.g. CLNT-A####.	See client_id comments.
invoice total														X		Equation, sum of the individual FreshBooks line cost fields	Decimal arithmetic must be used to avoid floating point rounding
billing start date			X													Equation, smallest FreshBooks line Invoice Dates field	Assumes that all line entries have a date; however, Adjustment/Discount type entries do not have a date and are given the end date of the invoice.
billing end date			X													Equation, largest FreshBooks line Invoice Dates field	See billing_start_date
invoice description								X								The program leaves this as NULL	Serengeti accepts blank
line item number																Equation, we are generating a locally unique number from a counter.	Assumption, the line item numbers are not necessary for debugging Serengeti.

item type																X	Equation, this is the key branching point between whether we decide something is a Fee, Expense of an Adjustment. We will search for the word "Expense" for expenses, for "Adjustment" or "Discount" for Adjustments. Everything else will be assumed to be a fee.	Assumption, users would label their expenses, adjustments and discounts with the first letter of the word, the first three letters of the word or the entire word. Eg, if the user wanted to make an adjustment they would label it as "a", "adj" or "adjustment". Capitalization is not important.
line item number of units																X	Direct copy	This is treated as a decimal for horizontal checking/footing purposes

line item adjustment amount																X	Equation multiply by -1, must treat as decimal	Discounts show as a positive number for everything but adjustments, where they are negative. The LEDES sample document shows them as a negative, implying that we should invert the answers we get.	
line item total																	X	Direct copy (must be stored as a decimal for computations)	
line item date																X	Matching using item description	Adjustments do not have a date, we assume that the last date of the invoice is the date.	
line item task code																	Only for Fee type; String extraction from FreshBooks item description This is a regex extraction of the string before the dash from the "##XXXX-XXXX in the line item description, after the square brackets. This will only be extracted if the client matter id is not empty.	Assumption line item task code is within the item description.	
line item expense code																	We are going to use E124 for all Expense types. However, Fee type entries will have the expense code extracted from the FreshBooks item description.	Assumption E124 for all expenses is acceptable. This is true in Serengeti.	
line item activity code																	Only for Fee type. <del>String extraction from FreshBooks item description</del> This is a regex extraction of the string after the dashed line from the "##XXXX-XXXX in the line item description, after the square brackets, . This will only be extracted if the client matter id is not empty.	Assumption activity code is within the line item description.	
timekeeper id																	Equation/lookup: Need to translate the string name, e.g. "John Doe" from FreshBooks Item Description to a unique id that is permanent; See Timekeeper Name field for string source	Configuration file mapping Timekeeper Names to IDs and classifications.	
line item description																X	Direct copy		
law firm id																	Federal Tax ID	Configuration file variable. Assumed to be the second edited line by the user.	

line item unit cost									X									Direct Copy	
timekeeper name																		String extraction from FreshBooks item description	Assumption that descriptions end in "] First Last:" and that they can be reliably extracted from that. Assumed every user has a unique name, eg there aren't two John Doe's.
timekeeper classification																		Equation/lookup: Need to translate the string name, e.g. "John Doe" from FreshBooks Item Description to a classification; See Timekeeper Name field for string source	See timekeeper id
client matter id																		String extraction from FreshBooks item description	Serengeti does not need this input. However, many other comparative companies do require this field to be filled in.
Not used column	X			X	X	X							X	X			X		