

# Graphical Budget Planner 1.4.0

## User Manual

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## 2. License, Disclaimers and Source Code Repository

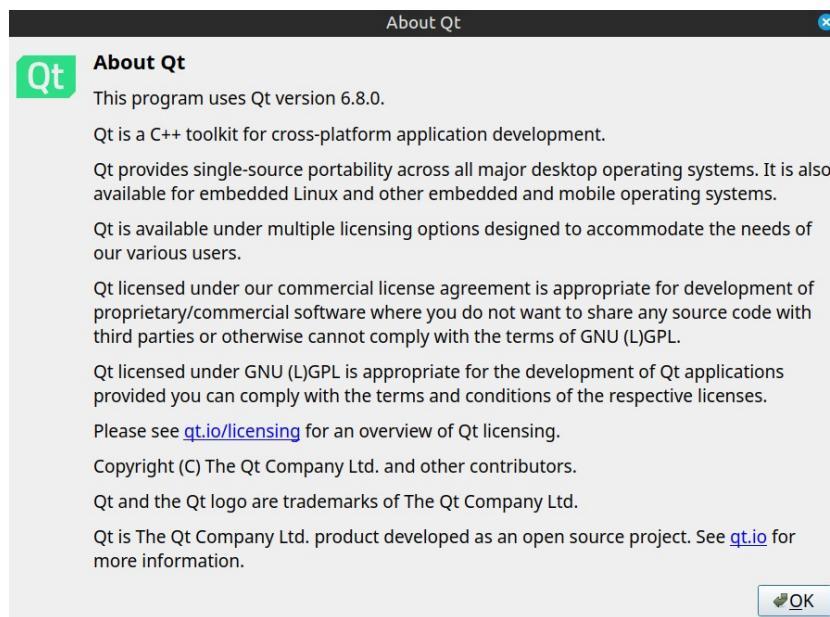
Graphical Budget Planner (a.k.a graphical-budget-planner or GBP or gbp) is a free and open source Qt desktop application intended to ease significantly the process of creating, maintaining and analyzing a personal budget.

This application and all its source code are licensed under the GNU Affero General Public License version 3 or later (**AGPL-3.0-or-later**). It's Free Software. See <https://www.gnu.org/licenses/#AGPL/>

Software repository for GBP can be found at :

[https://codeberg.org/claude\\_dumas/gbp](https://codeberg.org/claude_dumas/gbp)

Being built with the Qt toolkit, GBP is subject to the Qt terms and conditions : see [qt.io/licensing](https://qt.io/licensing)



Credits :

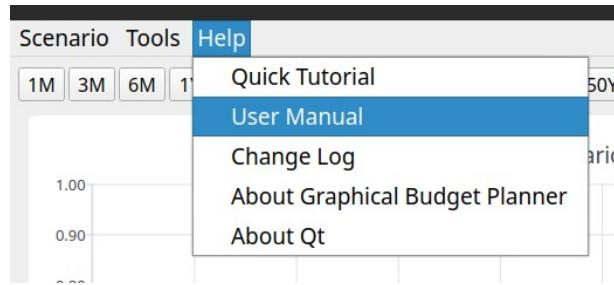
- **Tobias Leupold** : code to calculate difference between 2 dates -> see <https://nasauber.de/blog/2019/calculating-the-difference-between-two-qdates/>

Any feedback relating to this documentation can be provided by creating a ticket or a pull request against this repository.

This documentation is released under the GPL 3.0 license

### 3. Accessing this User Manual from the Application Itself

It is possible to access a PDF version (english only) of this User Manual from within the application itself. Select menu “Help → User Manual”. The application will copy its own internal and private copy of the User Manual in a temporary directory (the exact location is system dependent) and will then launch the default PDF viewer of the Operating System.



A quick tutorial (5 pages, english) is also available in this menu.

## 4. Supported Platforms & Languages, Requirements

GBP is intended to be run first and foremost on the *Linux Operating System*. But since it is built using the Qt cross platform toolkit, a version of GBP for the Windows® Operating System have also been produced. Tests have been conducted on Windows® 10 only.

GBP does not use a lot of RAM (the absolute worst case ever seen is 225 MB for an extremely demanding testing scenario) and necessitate roughly 55 MB of disk space (not taken into account the scenario files that you will create and GBP log files, which are all pretty small anyways).

As of October 2024, GBP has been successfully tested on the following Linux platforms :

- Debian 12, KDE Plasma 5.27.5, Wayland,, Kernel 6.1.0.26
- Debian 12, KDE Plasma 5.27.5, X11, KDE 5.27.5, Kernel 6.1.0.26
- Debian 12, XFCE 4.18, kernel 6.1.0.26
- Debian 12, Gnome classic 43.9, Wayland, Kernel 6.1.0.26
- Debian 12, Gnome classic 43.9, X11, kernel 6.1.0.26
- Fedora 40, Gnome 46, Wayland, Kernel 6.11.3
- Fedora 40, KDE Plasma 6.2.1, Wayland, Kernel 6.11.3
- Linux Mint 21.3 X11 , Cinnamon 6.0.4, Kernel 6.8.0-47
- Linux Mint 22, X11, Cinnamon 6.2.9, Kernel 6.8.0-47
- LMDE 6, X11, Cinnamon 6.2.9, kernel 6.1.0-26
- Manjaro Plasma, KDE Plasma 6.1.5, X11, Kernel 6.6.54
- Manjaro Plasma, KDE Plasma 6.1.5, Wayland, Kernel 6.6.54
- MX linux 23.4, XFCE 4.18.1, Kernel 6.11.5
- MX linux 23.2, KDE Plasma 5.27.5, X11, Kernel 6.1.0
- MX linux 23.2, KDE Plasma 5.25.7, Wayland, Kernel 6.1.0
- Ubuntu 22.04.4, Gnome 42.9, X11, Kernel 6.8.0-47
- Ubuntu 22.04.4, Gnome 42.9, Wayland, Kernel 6.8.0-47
- Ubuntu 24.04.01, Gnome 46, Wayland, Kernel 6.8.0-47

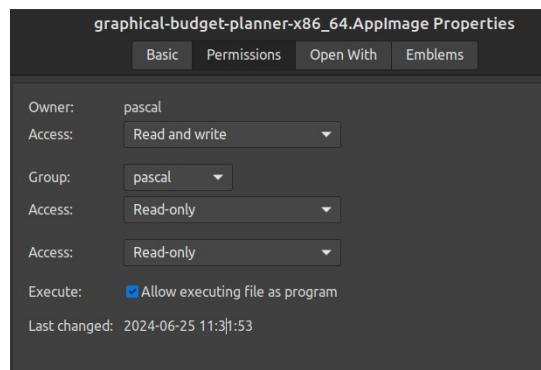
GBP supports English and French languages. By default, English is used, but if the host Operating System is in French (whatever the country), then GBP will switch to French. More languages will hopefully be added in the future, if resources to translate are available.

A mouse is required to use the software.

## 5. Installation

### 5.1 Linux Platforms

GBP is distributed as an “AppImage”, which is a single-file executable packaging format allowing a program to run on many Linux distributions. There is nothing else to install. After downloading the AppImage from GBP site, user just has to enable “executable” permission on the file and it is ready to be launched. For example, on Linux Mint, using the “properties” menu of the file :



#### 5.1.1 Ubuntu Special Case

On Ubuntu (tested on v 22.04, 24.04), additional steps must be performed. In order to run an AppImage, some packages are missing from the default distribution. Ubuntu needs the FUSE library to run AppImage like GBP. Otherwise, when launched, you will get the following error :

```
dlopen(): error loading libfuse.so.2
```

AppImages require FUSE to run. To solve this, do :

```
sudo apt install libfuse2
```

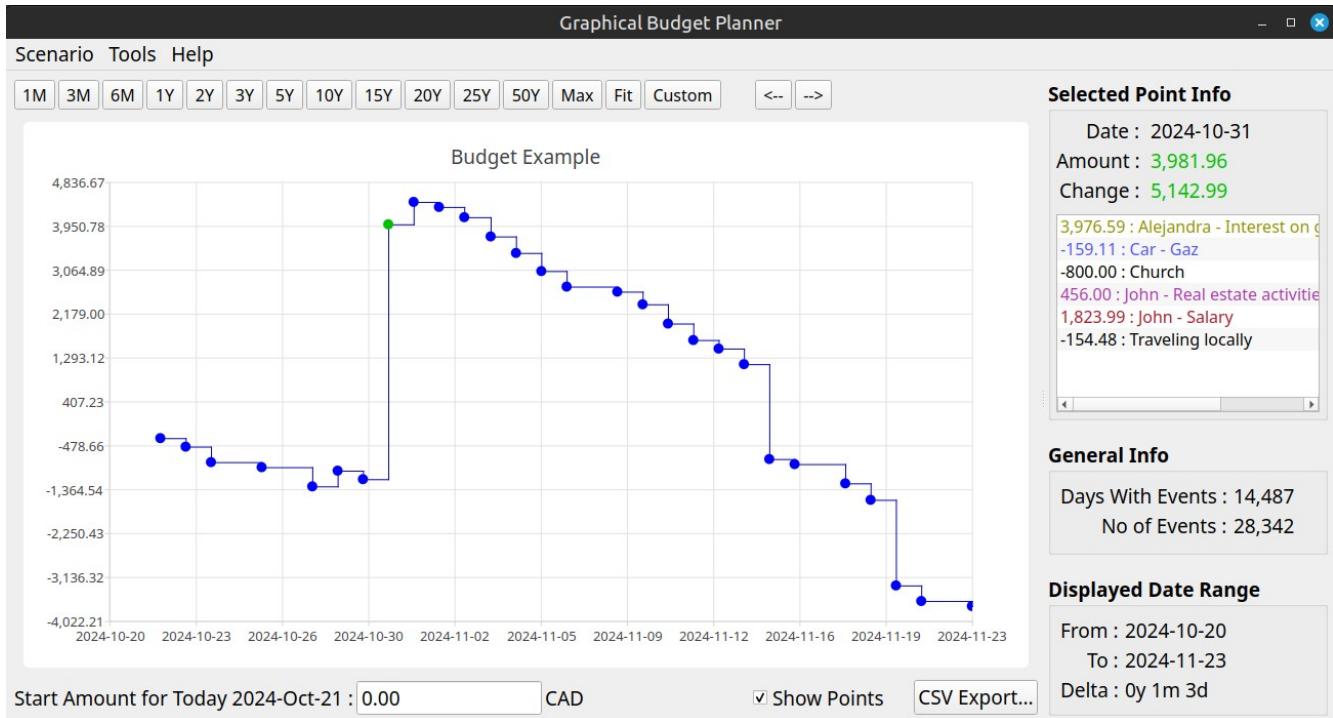
### 5.2 Windows® OS

GBP is distributed as a simple zip file : unzip it in a folder of your choice and run the gbp.exe application.

## 6. Known Issues

- On Linux Gnome, system's theme is not properly respected by GBP. Whether you select Light or Dark Theme for the computer, the application foreground and background colors will not change for GBP (this is due to some design philosophy conflicts between GTK and Qt 6).

## 7. Introduction



### 7.1 Overview

Graphical Budget Planner (GBP) is an open source Qt desktop application intended to ease significantly the process of creating and maintaining a personal budget. It allows the following :

1. See graphically the evolution of your cash balance through time, at any given moment in a period covering 1 to 100 years !
2. Easy zooming and/or panning
3. Specify painlessly all your forecasted income/expense budget items, with flexibility to define periodic or irregular flow of incomes/expenses.
4. Optionally define inflation, either as a constant value or a complex series of changing values.
5. Optionally define a custom monthly growth pattern for any income/expense specification , expressed either as a constant value or a complex series of changing values.
6. Optionally convert all Financial Event amounts to Present Values using a user-defined annual discount rate in Options Dialog.
7. Perform automatically different types of analysis on your data, like relative weight of incomes/expenses over custom period, monthly and yearly reports.
8. Your data is not locked in : all scenarios are in open JSON format, and resulting data are exportable in CSV format.
9. Fully support UNICODE in all text fields.

GBP is all about CASH BALANCE FORECASTING : the key principle adopted in the design of the software is to take into consideration only the FUTURE incomes/expenses expected to occur, starting “tomorrow”, “today” being the system date when the application starts. Consequently, this is not the right tool if you want know how and when your money has been spent in the past (that is "before today"). That also means that if you start the program, lets say once a month, you may not see the same curve in the Main Window each month. This is because events that have occurred during a given month are now past when the next month occurs and thus not taken into consideration. There is however a way in the Options Settings to overcome this behavior (see “Settings”).

## 7.2 Financial Stream Definitions

In GBP, basically, you have to define all the expected/forecasted incomes and expenses of the future, in order to see the evolution of the cash balance in the curve shown in the Main Window.

You of course don't want to manually enter all the occurrences of an income or an expense. So to ease significantly the process, one introduces the key concept of “Financial Event Stream Definition” (or just “**Financial Stream Definition**” to make it short). You can create one or many of these. It is from these definitions that *a flow of financial events* will be generated, either incomes or expenses. Said differently, a Financial Stream Definition is a *declarative specification* created by the user and that states how a flow of money (the financial event “stream”) is generated through time.

An example of a Financial Stream Definition could be a salary. You can state that an amount of 2000 USD is generated every 2 weeks for the next 50 years, without then having to enter all of them manually. Each occurrence of money coming from the definition is called a “financial event” (e.g. the salary occurrence of 2000\$ on Feb 3, 2030 is a “financial event”. Another occurrence on Mars 3, 2030 is another financial event, etc).

They are 2 types of Financial Stream Definition :

### 7.2.1 Periodic Financial Stream Definition

It defines a fixed amount of money (income or expense) that occurs at regular intervals in time. The interval is specified by first defining a period *type* :

- Year
- Month
- End-of-month
- Week
- Day

And then a “period *multiplier*”, which is an integer that is a multiplication factor of the period type selected (e.g. 3 years or 12 weeks).

Period :	Month
Period Multiplier :	3

A Periodic Stream Definition has a “Start Date” and an “End Date”. Financial events will be generated only in that interval of time. The End Date can be explicitly specified (“Custom”) or it can refer to a value that is defined at the scenario level.

The screenshot shows a user interface for defining a financial stream. At the top, there is a dropdown menu labeled "Starts on:" containing the date "2028-Mar-01". Below it, another dropdown menu labeled "Ends no later than:" has two options: "Date defined at the scenario level (currently = 2074-09-19)" (which is selected) and "Custom" followed by a date input field containing "2099-Sept-19".

An example of a Periodic Income would be a dividend received every 3 months or a salary received every 2 weeks.

### 7.2.2 Irregular Financial Stream Definition

This is a set of amounts that occur at very specific moments in time, as chosen by the user. The amounts can be completely different for each date in the set. There is no special constraints governing when such amounts can occur : it can follow periodic pattern or not. Hence the name “irregular” for that type of Stream Definition.

An example of an Irregular Stream Definition could be a set of incomes received from selling some art paintings. In that case, it is clearly not periodic :

- 1 Feb 2034 : \$300
- 23 Mar 2035 : \$1800
- 12 Sep 2036 : \$3200

Another example of an irregular income could be a periodic revenue stream from complex financial instruments (e.g. dividends from multiple stocks) calculated *outside* GBP and then *imported* : the values change every month and thus cannot be simply modeled with a “Periodic Income” with constant values or deterministic growth pattern.

## 7.3 Growth for Periodic Stream Definition

For a Periodic Stream Definition, it is possible to define a “Growth Pattern” that allows the initial fixed amount to actually change in time. There are 4 different ways to specify this grow pattern :

Editing Income of Category Type "Periodic"

Name :	Anne - Federal Pension	<input type="button" value="x"/>
Description :	Pension from Government of Canada	<input type="button" value="Full View..."/>
Amount :	925.00	CAD
Period :	Month	
Period Multiplier :	1	
Starts on :	2028-May-31	
Ends no later than :	<input checked="" type="radio"/> Date defined at the scenario level (currently = 2074-09-19) <input type="radio"/> Custom : 2099-Sept-19	
Monthly Growth :	<input type="radio"/> No growth <input checked="" type="radio"/> Scenario's inflation → multiplied by : 1.00000 <input type="radio"/> Custom - Constant 0.00000% on annual basis <input type="radio"/> Custom - Variable <input type="button" value="Edit/view..."/>	
Colorize Name :	<input checked="" type="checkbox"/> <input type="color" value="#C0392B"/> Red:230 Green:97 Blue:0	
Growth Application Period :	Every	12 financial events
Enabled :	<input checked="" type="radio"/> Yes <input type="radio"/> No	
<input type="button" value="Visualize occurrences..."/>		<input type="button" value="Cancel"/> <input type="button" value="Apply"/>

- “No growth” : The initial amount stays constant for the whole range [Start Date – End Date]
- “Scenario’s inflation” : Growth is exactly identical to the inflation pattern defined in the scenario (actually, you can multiply it by an adjustment factor, default = 1)
- “Custom – constant” : Specify a constant growth, that applies only to this Periodic Financial Stream Definition
- “Custom - Variable” : Specify a variable growth pattern, that applies only to this Periodic Financial Stream Definition

## 7.4 Scenario

In GBP, a *scenario* is a set of Financial Stream Definitions, plus other miscellaneous metadata.

Edit Current Scenario

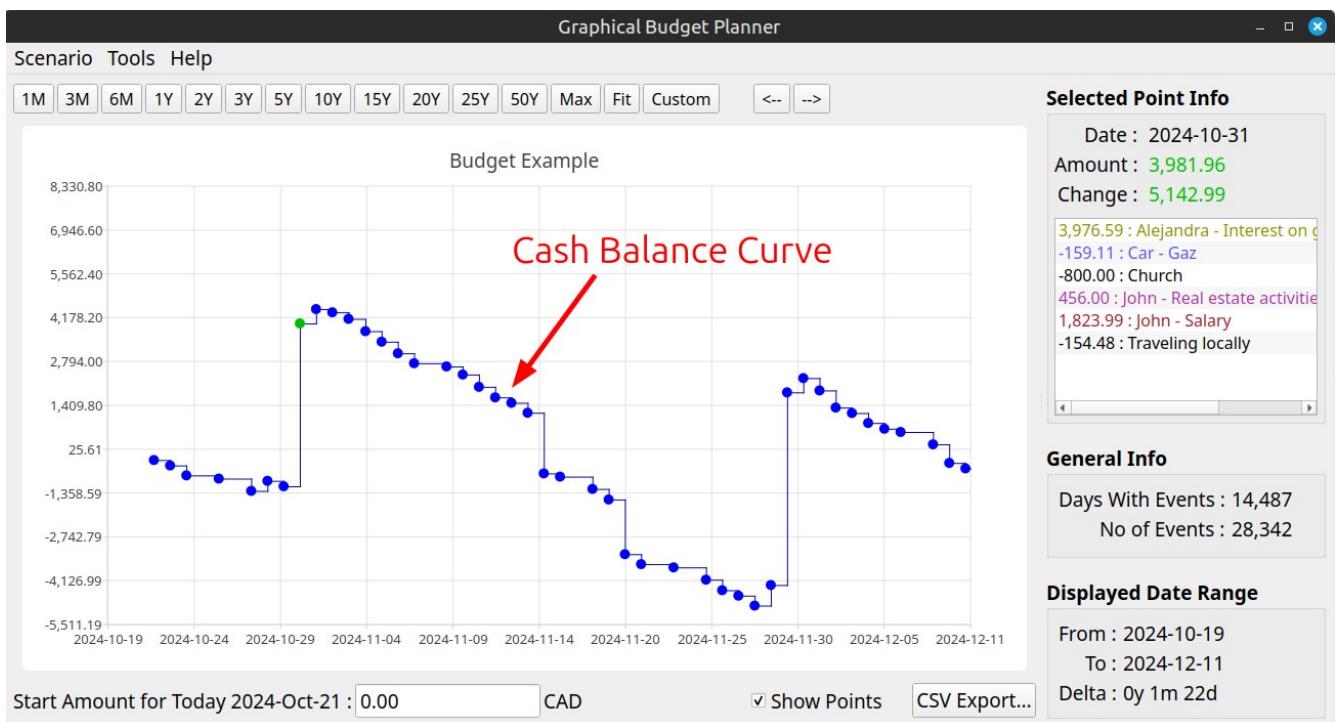
Name :	Budget Example		
Description :	All numbers are fake. Names and places are completely random. Multi-languages are used just to show that they are supported. Here are some "Lorem ipsum", obtained through <a href="https://www.lipsum.com/">https://www.lipsum.com/</a>		
Annual Inflation :	<input checked="" type="radio"/> Constant 4.00000% <input type="radio"/> Variable <a href="#">View/Edit...</a>		
Currency :	Canadian Dollar (CAD)		
Duration of calculation :	50 <input type="button" value="year(s)"/>		
<b>Metadata</b>			
<input checked="" type="radio"/> Incomes <input type="radio"/> Expenses			
<b>Filters :</b> <a href="#">Hide Periodics</a> <a href="#">Hide Irregulars</a> <a href="#">Hide Enabled</a> <a href="#">Hide Disabled</a>			
17 items			
Type	Name	Amount	Info
Irregular	Alejandra - Interest on government bonds	976.59	on 2024-01-31 and 911 more...
Periodic	Alejandra - Pension Calgary - 65 y. and more	2,345.00	Every 1 month in [2028-03-01,Scenario ...
Periodic	Anne - Federal Pension	925.00	Every 1 month in [2028-05-31,Scenario ...
Periodic	Anne - Rent income	3,100.00	Every 1 month in [2024-01-01,2028-02-28] -
Irregular	Anne - RRSP withdrawals		3,750.00 on 2024-12-15 and 6 more...
Periodic	Anne - Salary from part time job at local food store	650.00	Every 1 month in [2024-01-31,2030-12-31] -
Periodic	Anne - selling furnitures as a sideline	1,000.00	Every 1 end-of-month in ...
Irregular	Anne - Tax-Free dividends	52.96	on 2025-12-15 and 74 more...
<a href="#">New Periodic ...</a> <a href="#">New Irregular...</a> <a href="#">Edit...</a> <a href="#">Duplicate</a> <a href="#">Delete</a>			
<a href="#">Enable</a> <a href="#">Disable</a> <a href="#">Select All</a> <a href="#">Unselect All</a>			
		<a href="#">Hide</a>	<a href="#">Apply Changes</a>

List of FSD

All this information is stored in a single file called a “*scenario*”. On disk, you may have as many scenarios as you want and they may be stored anywhere you like : there are just ordinary files (JSON format). There is only one scenario at a time that can be loaded in GBP. Once loaded via the “Scenario → Open” or “Scenario → Open Recent”, scenario’s data can be inspected or edited using the “Scenario->Edit” menu. Any change made must be saved on disk for it to become permanent, through the “Scenario->Save” or “Scenario → Save As” menu.

## 7.5 Cash Balance Curve

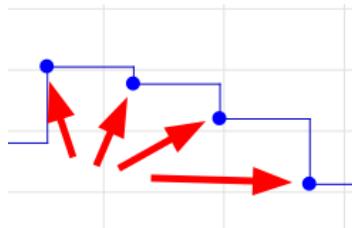
Once a scenario is loaded, in the Main Window, the resulting “cash balance” curve will be automatically shown. This curve is the result of all the income/expense events occurring through time, generated by all the Financial Stream Definitions found in the scenario. The color of the curve can be configured in the Options Dialog.



You can zoom the curve or move it with the mouse :

- Zoom / unzoom : middle-mouse wheel
- Move : left-click & hold, then move mouse or use the “←” or “→” buttons in the upper toolbar
- Set predefined Time Interval : use the predefined buttons in the upper toolbar

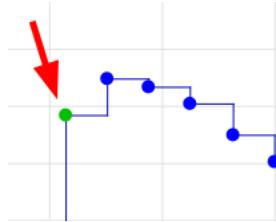
Each data point shown (the small disk on the chart)



represents an amount which is the sum of :

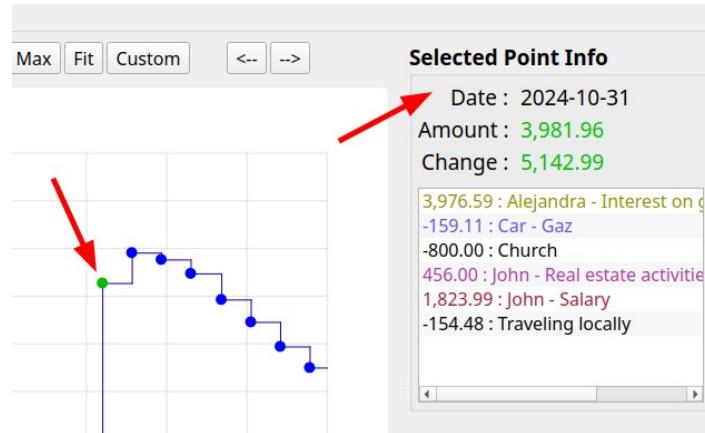
- all the financial event amounts that occurred in that very day
- the final cash balance of the previous data point.

If you click on a point, the color of the point changes (you set this color in “Options” Dialog.)



and the “Selected Point Info” panel to the right will show the details :

- *Date* : date of occurrence for that point
- *Amount* : total cash balance for that day, taking into account all the daily financial events
- *Change* : change in cash balance from the previous occurrence

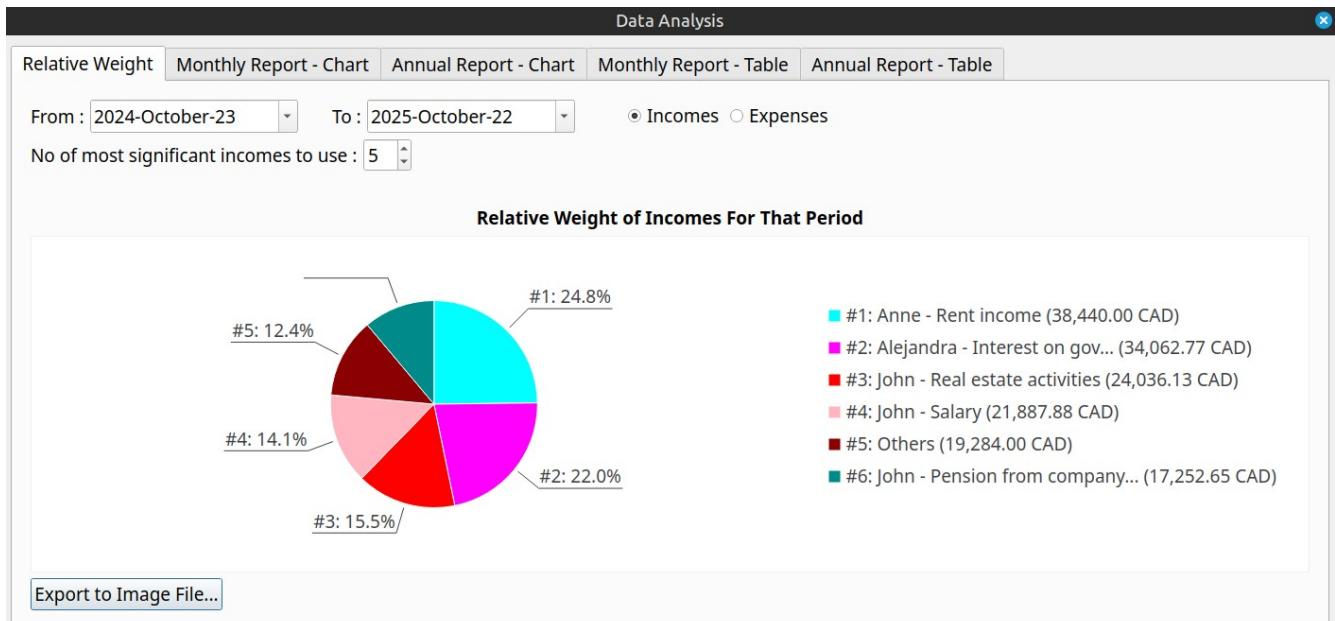


Re-clicking on the point or clicking not on a point clears this panel.

## 7.6 Analysis

GBP provides an “analysis” module in order to provide depth insight of the data generated from the scenario’s Financial Stream Definitions. More specifically :

=> A pie chart that illustrates the relative weight of each income (or expense). Very useful to understand what are the most important incomes or expenses over a specific time interval.



=> A bar chart showing the monthly/yearly total for incomes (or expenses)



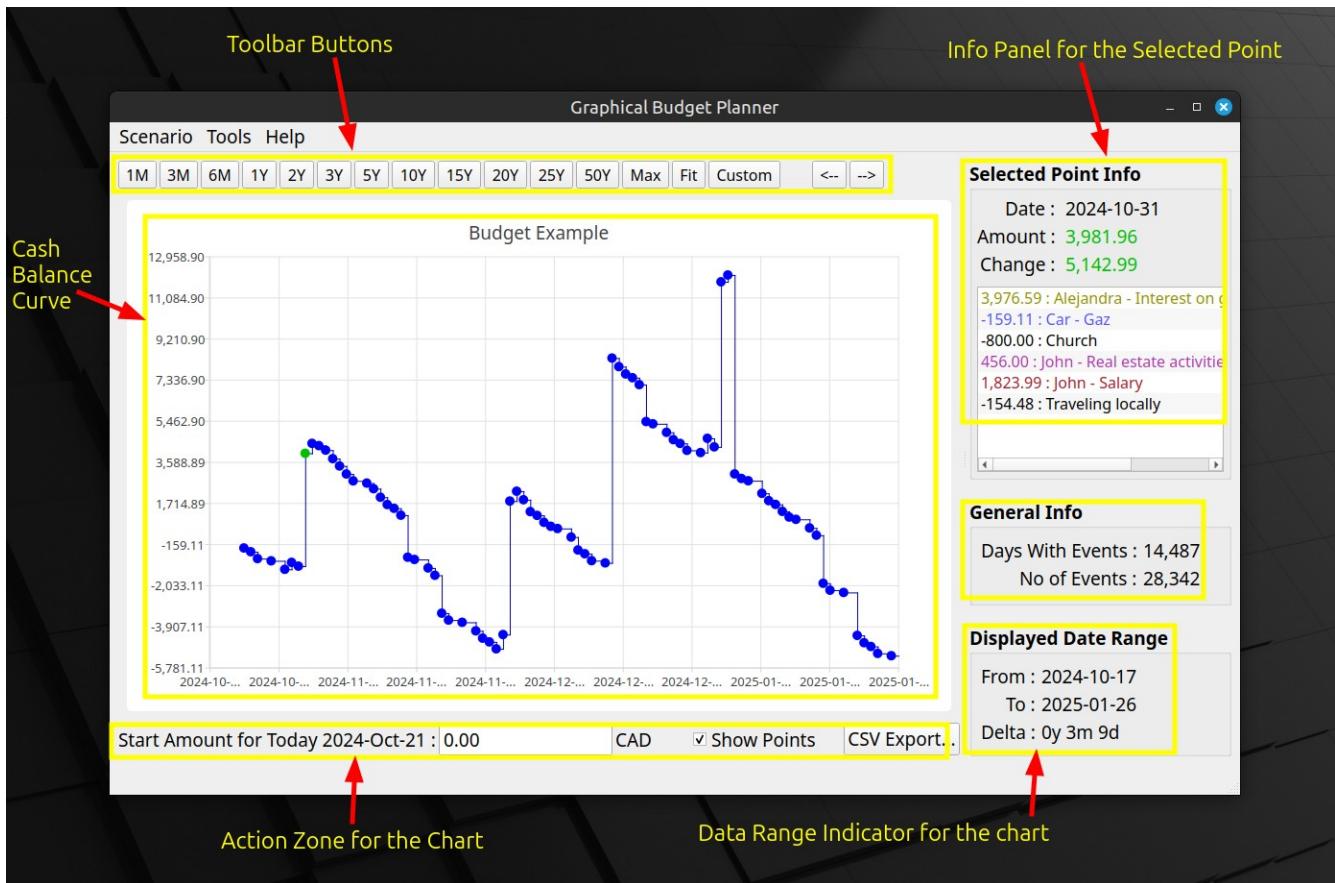
=> A tabular form of the previous

The table provides a detailed breakdown of monthly financial activity. It includes a header row and 16 data rows, each representing a month from October 2024 to January 2026. The columns track monthly incomes, expenses, and the resulting delta. The 'Delta' column uses color coding to distinguish between positive (green) and negative (red) differences.

	Month	Incomes	Expenses	Delta
1	2024 October	6,906.58	2,591.62	4,314.96
2	2024 November	10,735.50	12,913.23	-2,177.73
3	2024 December	23,655.59	13,662.73	9,992.86
4	2025 January	11,703.98	22,310.19	-10,606.21
5	2025 February	9,704.72	13,099.19	-3,394.47
6	2025 March	12,828.92	15,703.98	-2,875.06
7	2025 April	12,501.61	13,644.60	-1,142.99
8	2025 May	9,721.58	13,588.02	-3,866.44
9	2025 June	12,845.84	13,578.70	-732.86
10	2025 July	18,533.58	16,387.03	2,146.55
11	2025 August	9,738.61	15,044.19	-5,305.58
12	2025 September	12,862.92	13,989.55	-1,126.63
13	2025 October	18,550.72	13,779.67	4,771.05
14	2025 November	9,755.80	13,418.47	-3,662.67
15	2025 December	32,777.29	14,364.30	18,412.99
16	2026 January	19,319.75	23,120.34	-3,800.59

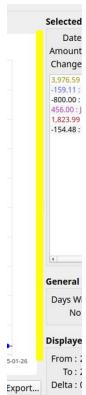
# 8. User Interface Description

## 8.1 Main Window



This is the first window displayed by GBP after being launched.

### 8.1.1 Splitter



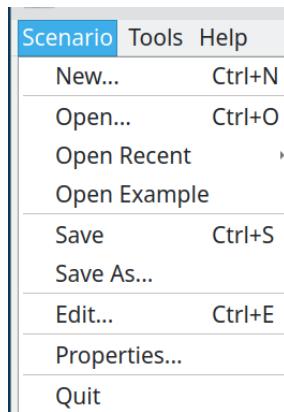
User can increase/decrease the size of the right part of the Main Window relative to the Cash Balance curve by using the “**splitter**” control found between the 2 “left” and “right” regions (see the yellow region to the left).

Just click on the yellow region identified in the figure below and move the mouse while still pressing on mouse button.

The different areas of the Main Window are described below :

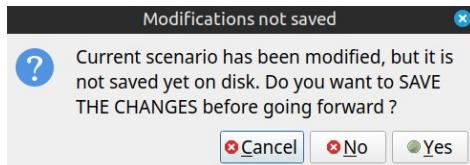
## 8.1.2 Menus

### 8.1.2.1 Scenario



#### New

Create a new scenario in memory. If a scenario is already loaded and modifications made have not been saved yet, the following prompt will appear to give the user the opportunity to save the modifications before going forward :



“Cancel” will abort the request (here, it is the creation of the new scenario), “No” will proceed with the request but will discard the changes made, “Yes” will also proceed with the request but will first save the changes in the associated scenario file.

#### Open

Open an existing scenario file on disk. If a scenario is already loaded and modifications made has not been saved yet, the same processing will happen than for “New”.

#### Open Recent

Open an existing scenario file on disk, from a list of the most recent scenario files opened. If a scenario is already loaded and modifications made has not been saved yet, the same processing will happen than for “New”.

## Open Example

Open a pre-built sample scenario just to help give an idea of what graphical-budget-planner can do. The sample scenario file is copied to the Temp directory for the OS and can then be modified at will. If a scenario is already loaded and modifications made has not been saved yet, the same processing will happen than for “New”.

## Save

Save the current scenario data to the associated scenario file. This is a JSON file, default extension is “.json”, but user can override it and select whatever he wants.

## Save As

Save the current scenario data in a file chosen by the user. If the file already exists, user will get a warning and may replace the current content it if he wants. This is a JSON file, default extension is “.json”, but user can override it and select whatever he wants.

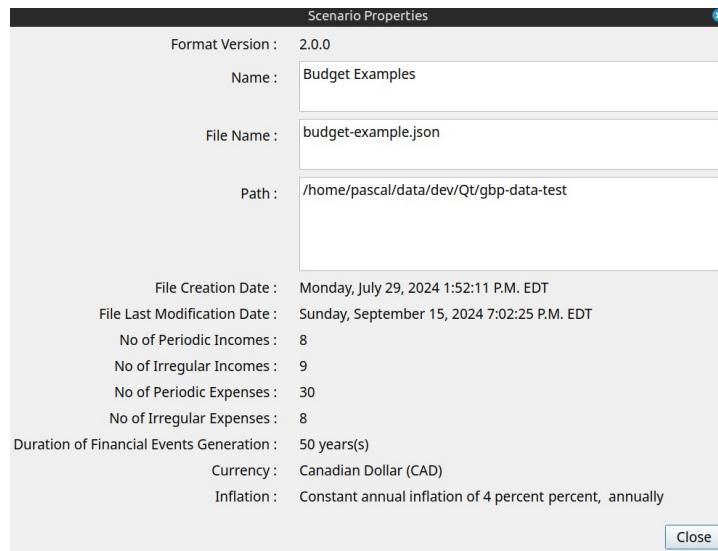
## Edit

Display the scenario data and allow the user to modify anything he wants, except the currency. Note that :

- User must press the “Apply Changes” button in order to update the currently loaded scenario in memory, and thus see the effect on the Cash Balance curve and the Analysis Dialog.
- the changes made are not saved to the scenario file on disk : this must be done explicitly using the “Scenario → Save” menu.

## Properties

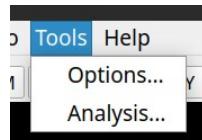
Show a Dialog displaying several properties of the scenario. The “Name”, “File Name” and “Path” controls will display scroll-bars if the content is big. This way, very big Path and/or file name strings are supported.



## Quit

Terminate the application. If a scenario is already loaded and modifications made has not been saved yet, the same processing will happen than for “New”.

### 8.1.2.2 Tools



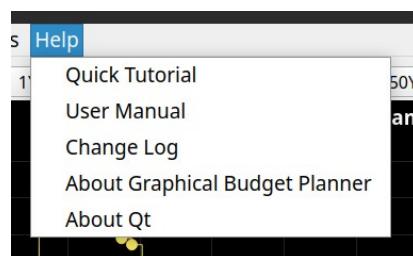
#### Options

Launch the Options Dialog to view or change the configuration.

#### Analysis

Launch the Analysis Dialog in order to conduct detailed statistical analysis on the financial event generated.

### 8.1.2.3 Help



## Quick Tutorial

Open a short (5 pages) PDF document that provides a very quick tutorial about using graphical-budget-planner. The document is opened by the default system application for PDF reading (e.g. Okular on KDE). The document is in english only.

## User Manual

Open a long and detailed PDF document that provides an in-depth description of what is graphical-budget-planner and how to use it effectively. The document is opened by the default system application for PDF reading (e.g. Okular on KDE). The document is in english only.

## Change Log

Shows all the changes made to graphical-budget-planner since version 1.

## About Graphical Budget Planner

Open a window that provides the application version, the license terms, credits mentions and location of the the source code repository.

## About Qt

Open a window showing misc info about the Qt toolkit used to build this application.

### **8.1.3 Cash Balance Curve :**

This curve shows a series of point, each one being for a specific distinct day where at least one financial event occurred. There can be no point for a day where no financial event happened. The amount associated to a point is the “final daily amount” for that day, that is the sum of :

- All financial events having occurred during that day
- The final amount for the previous point

The X axis shows the current time interval and the Y axis the amount values.

### **8.1.4 Toolbar buttons**

This area is made of 2 zones :

- the predefined range buttons (to the left)
- the panning buttons (to the right)



#### 8.1.4.1 1M to 50Y toolbar buttons

These buttons will rescale the chart for a predefined time interval range, starting at the date of “tomorrow”. “M” stands for “month(s)”, “Y” for “year(s)”

#### 8.1.4.2 “Max” toolbar button

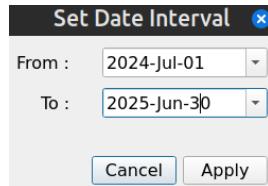
Rescale the chart so that the X range is from “tomorrow” to “last allowed date for the calculated data”. The latter is set by the option “Scenario – No of years calculated” in the Option Dialog. Scenario’s calculated data may or may not end before this date, depending on the nature of the Financial Stream Definitions in the scenario. Y axis is rescaled to include the min and max values.

#### 8.1.4.3 “Fit” toolbar button

Rescale the chart so that the X range covers exactly the date range of the Scenario’s calculated data. Y axis is rescaled to include the min and max values.

#### 8.1.4.4 “Custom” toolbar button

Allow the user to enter its own X axis range. The start of the X axis can then be different than “tomorrow”.



#### 8.1.4.5 Panning buttons

These buttons allow to “scroll” the chart to the left or to the right, by approximately the same date range width than the current date interval currently displayed.

### 8.1.5 Action Zone for the Chart

This area contains controls that may alter the chart content or appearance, or allow exporting the data to a CSV file.

#### 8.1.5.1 Start Amount

Start Amount for Today 2024-Jun-30 :  CAD

This features adds a “baseline” amount to the chart, which corresponds to the current starting amount *before* any financial events occurred. In other words, this is your **current cash balance as of today**. It

is NOT part of the scenario and thus is NOT saved on disk. **It has to be re-entered each time GBP is started**, but this is the whole point...It represents the available amount of cash for the user as of “today”. All the financial events will occurred from “tomorrow” and add/subtract to this initial amount. See “Usage” for more information about how to use it.

There is an option to set the value of “today” not to the system’s date at launch time (which is the default), but to an arbitrary value. See Options Dialog.

#### 8.1.5.2 Show Points

When OFF, the chart will not show the colored disk around the chart’s data points, used to help localize the data points on the chart. This is useful if there is a huge number of points and one want to see the overall shape of the curve.

#### 8.1.5.3 CSV Export

Allow to export ALL curve’s data points to a CSV file for futher processing by other tools (like Libre Calc). The user selects a file name : by default, a .csv extension is added if the file name does not contains one, otherwise it uses what the user has entered.

The first line of the file is a header, with fields separated by a TAB character :

Date	Total Daily Incomes	Total Daily Expenses	Total Delta	Cumulative Total
------	---------------------	----------------------	-------------	------------------

with the following semantic for the columns :

- *Date* : Date for this data point (format = YYYY-MM-DD)
- *Total Daily Incomes* : The total amount of all the incomes that occurred during that day
- *Total Daily Expenses* : The total amount of all the expenses that occurred during that day
- *Total Delta* : Total Daily Incomes - Total Daily Expenses
- *Cumulative Total* : The final amount at the end of the day (cash balance)

The rest of the file contains the data points info (one line per data point), like for example

2024-07-01	3100.00	-3031.29	68.71	20068.71
2024-07-02	0.00	-333.00	-333.00	19735.71
2024-07-03	0.00	-375.02	-375.02	19360.69
2024-07-04	0.00	-310.60	-310.60	19050.09
2024-07-06	0.00	-281.79	-281.79	18768.30

where fields are separated by a TAB character.

By default, amounts are written in the form

```
Thousands separator : none
Decimal separator : ','
```

but it is possible to generate a localized version : see Options Dialog

#### 8.1.6 Selected Point Info Panel

Provides information for the selected point on the chart.

Selected Point Info	
Date :	2024-Jul-31
Amount :	-1,769.36
Change :	7,322.31
<b>3,976.59 : Alejandra - Interest on government bonds</b>	
-800.00 : Church	
<b>6,566.50 : John - Real estate activities</b>	
-170.78 : Restos	
-2,250.00 : Winter trip - pre-payment	

#### 8.1.6.1 Date :

Date of the data point. Format is YYYY-MMM-DD

#### 8.1.6.2 Amount :

Final Daily amount, taking into account all the financial events of the day. The amount is green if  $\geq 0$ , red otherwise

#### 8.1.6.3 Change :

Total of all the incomes of the day minus total of all expenses of the day. The amount is green if  $\geq 0$ , red otherwise

#### 8.1.6.4 Financial Events Listbox Content:

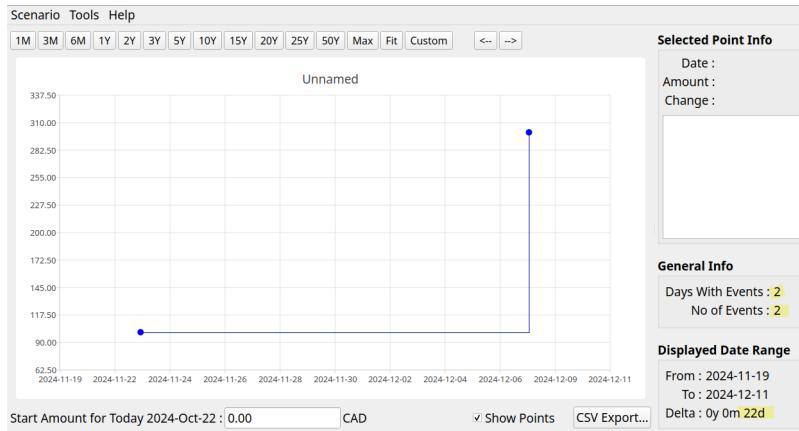
This is the list of all financial events that occurred during the day. It is sorted by Financial Stream Definition name (sorting takes into account the Locale defined on the user's computer). Expenses are number  $< 0$ . Financial Event name is colorized if defined so.

### 8.1.7 General Information

General Info	
Days With Events :	14,487
No of Events :	28,342

This section provides miscellaneous information about the scenario's calculated data (a.k.a. "flow data"). It changes only when a new scenario is loaded.

In the following example, although the range of displayed dates is 22 days, only 2 of those have one or more financial events associated with : they are the data points we can clearly see.

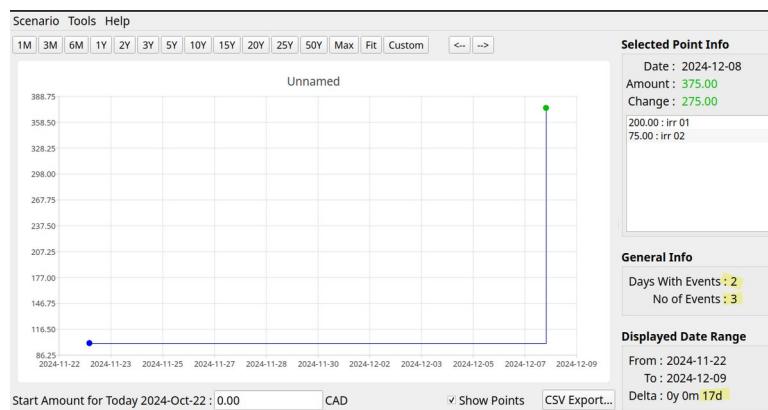


### 8.1.7.1 Days with Events :

For the whole Cash Balance curve, it tells how many days have at least one financial events associated with each of them. It corresponds also to the total number of data points on the Cash Balance curve.

### 8.1.7.2 No Of Events :

Total number of financial events for all “Days with events”. In the example below, there are 17 days displayed, but only 2 of them have 1 or more financial events associated. The first point has 1 financial event, the second one has 2 (this point is selected on the figure). The total no of events is thus 3.



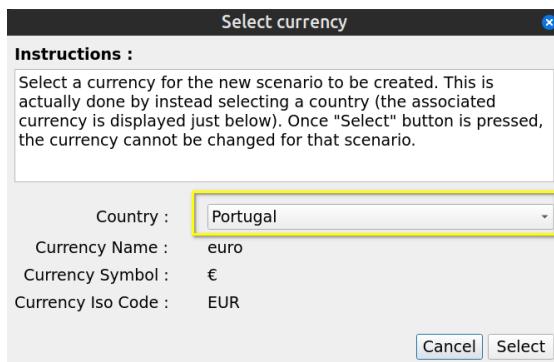
### 8.1.8 Displayed Date Range

Shows the time interval (X axis) currently used by the chart. Real-time refreshed when zooming or panning occurs.

## 8.2 Create New Scenario Windows

Accessed with the “Scenario → New” menu. This is used to create a **new** scenario. To save it, use the “File → Save” or “File → Save As” menu.

### 8.2.1 First step : Choose a currency



When a scenario is created, the first thing to do is to select a currency to be associated to it. This is required because it defines how many decimal units the amount shown will have (e.g. Yen has 0 decimal, Euro has 2). But it is easier to select a country instead, since there is a 1-to-1 relationship between both. The country must be chosen with the “Country” combobox (in yellow in the figure above).

Once selected, a currency cannot be changed for a given scenario.

### 8.2.2 Second Step : Edit the scenario

See “Edit Scenario Dialog”. It is the same content and behavior, except for 2 things :

- When pressing the “Create Scenario” button, the Create Scenario dialog will disappear.
- Pressing “Cancel” will cancel the process of a creating new scenario : the currently loaded scenario is kept loaded.

## 8.3 Edit Scenario Window

Accessed with the “Scenario → Edit” or “Scenario → Recent” menu. This window is intended to view and/or change the content of an existing scenario. Changes are NOT saved in the scenario file on disk until you select “File → Save” or “File → Save As” menu.

This window is not modal (the only one in GBP), meaning that its content can be edited while still having access to the Main Window that shows the charts. This is on purpose and intended to ease and accelerate the work on a scenario. A typical use is to have the Main Window maximized on a monitor and the Edit Scenario window shown on another monitor. This way, change in parameters can be seen immediately in the Main Window, allowing for example zooming and panning.

All changes made to a scenario can be committed for the update of the cash balance curve by pressing the “Apply” button. Again, this does NOT save the data on disk.

### 8.3.1 Metadata Editing

Metadata are located at the top half area of the Edit Scenario window :

The screenshot shows the 'Edit Current Scenario' window with the following fields:

- Name : Budget Examples
- Description : 

All numbers are fake. Names and places are completely random.  
Multi-languages are used just to show that they are supported. Here are some "Lorem ipsum", obtained through <https://www.lipsum.com/>

\* On écrit depuis longtemps aux travailleurs avec du texte visible et contenant du sens et cause de distraction... et

[Full View...](#)
- Annual Inflation :  Constant 4.00000%  Variable [View/Edit...](#)
- Currency : Canadian Dollar (CAD)
- Duration of calculation : 50 year(s)

#### 8.3.1.1 Name

Just enter the new name in the right field. There is a limit of 100 characters for the name. This is NOT the name of the scenario file on disk !

#### 8.3.1.2 Description

User's notes about the scenario. An be up to 4000 characters. Click “Full View” to edit the Description in a much bigger window.

#### 8.3.1.3 Annual Inflation

A growth pattern specific to this scenario and used to define an inflation value that may affect all incomes/expenses (increase or decrease their values, depending on the inflation value). Inflation is made available to all Financial Stream Definitions to be used or not (this is optional).

Constant :

A constant growth value ranging from -100% to 10000%. It stays the same in past, present, future. This is an ANNUAL value, but it is the equivalent monthly growth value that **is actually applied on a monthly basis on the 1st of each month**.

Variable :

A variable growth pattern : this is for *advanced use*. It can be used to define a complex and changing growth pattern for inflation.

It consists of a list of (month date, annual inflation value) "pairs", each defining a new inflation value to be applied from this date, until a new pair is defined or otherwise for ever. Before the

first pair is defined, inflation value is 0. Each time a new pair is defined, a new inflation value becomes in force from that date. Inflation is always applied on the first day of each month.

For example, lets say we have the following pairs defined :

(1 jan 2000, 10%) , (1 jan 2002, -10%)

Here are the values of an amount of 1000 that starts existing on 1 jan 1998 and is submitted to this growth pattern:

- 1 jan 1999 : 1000 (growth = 0%)
- 1 jan 2000 : 1100 (new growth value=10%,)
- 1 jan 2001 : 1210 (growth value still at 10%)
- 1 jan 2002 : 1089 (new growth value=-10%)
- 1 jan 2003 : 980.10 (growth still at -10%, for ever)

If the amount of 1000 starts existing on 1 jan 2003, then we have

- 1 jan 2003 : 1000 (no growth applied on the first occurence)
- 1 jan 2004 : 900 (growth is -10% as lastly defined in 1 jan 2002)
- 1 jan 2005 : 810 (growth is -10% as lastly defined in 1 jan 2002)

Here is what looks like the definition of variable inflation (values different from above) :

**Edit Variable Inflation**

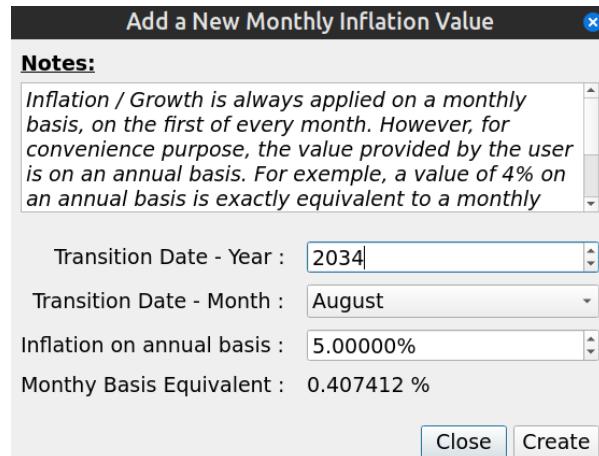
*Inflation : Value is 0 before the oldest transition date is defined. It is always applied on a monthly basis, even if defined on an annual basis (for convenience purpose). Value stays the same until a new transition date + value is defined.*

Transition Date	Inflation (annual basis)	Inflation (monthly basis)
Tuesday, July 1, 2025	5.00000 %	0.407412 %
Friday, May 1, 2026	4.00000 %	0.327374 %
Sunday, February 1, 2032	2.00000 %	0.165158 %
Saturday, July 1, 2034	-1.00000 %	-0.083718 %

Add... Edit... Delete Select All Unselect All

Cancel Apply

The buttons “Add”, “Edit”, “Delete” at the bottom are to change the list of “pairs”. a.k.a “transition points”. Note that “Delete” remove all the selected rows. The “Add” button pops up the following Window :



When adding a new “transition point” (date + inflation value), the value entered is always on an Annual Basis, but as mentioned before, it is actually the equivalent Monthly Basis that is used internally and applied every month on the 1<sup>st</sup>. This is why is shown the “Monthly Basis Equivalent” at the bottom. Note that you cannot create a new “transition point” with a date that already exists.

Editing a “transition point” uses essentially the same Dialog. One notable difference is that if you enter a date that already exists, it will be accepted and the new value of inflation replaces the old one for that date.

#### 8.3.1.4 Duration of Calculation

This value determines what is the limit date over which no financial events will be generated for the current scenario, whatever what the Financial Stream Definitions specify. The limit date is “tomorrow” + the value of this field minus 1 day.

The idea here is to limit the amount of calculation GBP has to do. The smaller this value is, the faster the calculation is done and the lesser system’s memory is consumed. The default of 25 years is probably more than adequate for most use. You can increase this amount however, up to 100 years.

#### 8.3.2 Financial Stream Definitions Editing

There are 4 zones in this part of the Edit Scenario Dialog (middle section of the window) :

Edit Current Scenario

Name :	Budget Example		
Description :	All numbers are fake. Names and places are completely random. Multi-languages are used just to show that they are supported. Here are some "Lorem ipsum", obtained through <a href="https://www.lipsum.com/">https://www.lipsum.com/</a>		
Annual Inflation :	<input checked="" type="radio"/> Constant 4.00000% <input type="radio"/> Variable <a href="#">View/Edit...</a>		
Currency :	Canadian Dollar (CAD)		
Duration of calculation :	50 year(s)		
<b>Filters</b> <span style="float: right;">Incomes/Expenses Selector</span>			
<input checked="" type="radio"/> Incomes <input type="radio"/> Expenses			
Filters : <a href="#">Hide Periodics</a> <a href="#">Hide Irregulars</a> <a href="#">Hide Enabled</a> <a href="#">Hide Disabled</a>			
17 items			
Type	Name	Amount	Info
Irregular	Alejandra - Interest on government bonds	976.59	on 2024-01-31 and 911 more...
Periodic	Alejandra - Pension Calgary - 65 y. and more	2,345.00	Every 1 month in [2028-03-01,Scenario ...]
Periodic	Anne - Federal Pension	925.00	Every 1 month in [2028-05-31,Scenario ...]
Periodic	Anne - Rent income	3,100.00	Every 1 month in [2024-01-01,2028-02-28] ...
Irregular	Anne - RRSP withdrawals		3,750.00 on 2024-12-15 and 6 more...
Periodic	Anne - Salary from part time job at local food store	650.00	Every 1 month in [2024-01-31,2030-12-31] ...
Periodic	Anne - selling furnitures as a sideline	1,000.00	Every 1 end-of-month in ...
Irregular	Anne - Tax-Free dividends	52.96	on 2025-12-15 and 74 more...
Irregular	Expected inheritance	25,000.00	on 2030-07-01
Periodic	John - Federal Pension	1,345.57	Every 1 month in [2028-05-31,Scenario ...]
Periodic	John - Pension from company ABC	1,700.00	Every 1 month in [2024-12-31,Scenario ...]

**FSD List** Action Buttons

[New Periodic ...](#) [New Irregular...](#) [Edit...](#) [Duplicate](#) [Delete](#)  
[Enable](#) [Disable](#) [Select All](#) [Unselect All](#)

[Hide](#) [Apply Changes](#)

### 8.3.2.1 Incomes / Expenses Selector

Specifies if the Financial Stream Definitions List will contains either Incomes or Expenses (cannot have both).

### 8.3.2.2 Filters

Allows hiding some Financial Stream Definitions in the list. Press on (toggle) any of the 4 buttons to activate or deactivate the corresponding filter. This is just for visualization purpose : **hidden items are STILL taken into account to create the chart** of the main window.

### 8.3.2.3 Financial Stream Definitions (FSD) List

List some properties of the Financial Stream Definitions contained in the scenario (either Incomes or Expenses). To view the details, select one item and press the “Edit” button. Or just double-click n it. Names are colorized according to the Financial Stream Definition settings. A disabled Financial Stream Definition is rendered as ~~strike-through~~ font and is NOT taken into account into the calculation of the cash balance curve.

The list is always sorted by name (“locale-aware”).

#### 8.3.2.4 Action Buttons

Actions available in the editing process. Note the following :

- It is allowed to have identical names for 2 or more Financial Stream Definitions, although it is not a good practice. This is possible because under the cover, each one has a unique ID (not shown in the dialog), name is just a property.
- “Delete” remove all the selected rows (remove the Financial Stream Definitions from the scenario)
- “Duplicate” make a copy of each selected Financial Stream Definition. The name of the duplicate will be “Copy of” + name.

#### 8.3.3 Applying the modifications

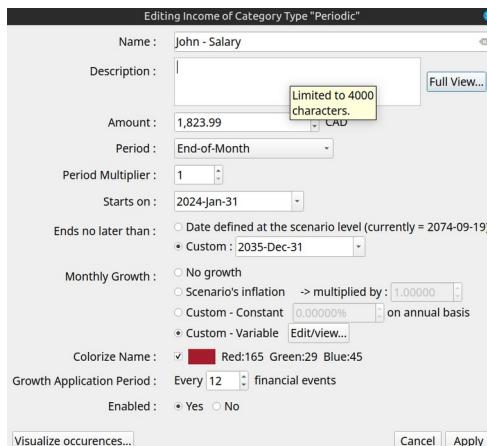
All changes made must be committed to see the current scenario modified and the chart updated. This is accomplish by pressing the “Apply Changes” button. Once pressed, the dialog will not be closed though : this is because in practice one may make many changes in exploring different options and opening-closing this window would be a burden. Pressing “Close” discards any change made and close the window.

**\*\*\* Please note that “Apply” does NOT save the newly modified scenario on disk ! \*\*\***

## 8.4 Creating/Editing a Periodic Financial Stream Definition

While editing a scenario:

- Pressing “New Periodic...” will display a dialog to create a new Periodic Financial Stream Definition.
- Pressing “Edit...” while a Periodic Financial Stream Definition is selected will bring essentially the same window (names of the bottom buttons change though).



### **8.4.1 Name**

Name of the Periodic Financial Stream Definition (e.g. “Salary”). 100 characters maximum. It can be an exact copy of another Financial Stream Definition’s name, but it is not a good practice.

### **8.4.2 Description**

User notes for this particular Periodic Financial Stream Definition . 4000 characters maximum. Pressing the “Full View” allows for editing the content in a much bigger window.

### **8.4.3 Amount**

The initial amount of money to be repeated periodically, before any inflation or growth is applied. If there is no growth pattern defined, this amount will stay constant. Note that if the advanced option “Convert to present value” is selected in Options Dialog, the amount will change even when no growth is defined.

### **8.4.4 Period and Period Multiplier**

The interval of repetition for the amount is specified by first defining a period *type*, then a period *multiplier*.

#### **8.4.4.1 Period Type**

- Year
- Month
- End-of-month
- Week
- Day

A note on “End-of-month” : this force the events to occur at the very end of a month. Since the last day of the month changes with month (and year for leap year and February), the actual date will vary.

Consider a Periodic Financial Stream defined with a period of 1 end-of-month, with validity range of [29 Feb 2000 – 5 mar 2001]. The financial events generated will be (note in particular the date “2001-02-28”) :

```
2000-02-29 : 1,000.00
2000-03-31 : 1,000.00
2000-04-30 : 1,000.00
2000-05-31 : 1,000.00
2000-06-30 : 1,000.00
2000-07-31 : 1,000.00
2000-08-31 : 1,000.00
2000-09-30 : 1,000.00
2000-10-31 : 1,000.00
2000-11-30 : 1,000.00
2000-12-31 : 1,000.00
2001-01-31 : 1,000.00
```

2001-02-28 : 1,000.00

#### 8.4.4.2 Period Multiplier

This is an integer that is used as a multiplication factor of the period type selected (e.g. 3 years or 12 weeks).

#### 8.4.5 Start Date

A Periodic Financial Stream can only start at the date specified by the Start Date field. The only exception to this is when the Period Type “End-of-month” is selected. The application will actually start the stream at the NEXT end-of-month from this date.

#### 8.4.6 End Date

Specify when the Financial Stream will end : no financial event will be generated past this date. Note that it is possible that the last financial event occur before this date. There are 2 options offered to the user :

1. Specify explicitly the End Date : this is the “Custom” option. The data limit specified in the scenario metadata still hold however.
2. Use the date limit defined at the Scenario Level (see “Duration of calculation” for the scenario metadata).

“Start Date” must not occur after “End Date” date.

#### 8.4.7 Monthly Growth

The amount defined can actually change with time, by following a specified growth pattern. There are 4 options :

- “No growth” : The initial amount stays constant for the whole validity range
- “Follow inflation” : Growth is exactly identical to the inflation pattern defined in the scenario (whether “constant” or “variable”)
- “Custom – constant” : Specify a constant growth, that applies only to this Periodic Stream Definition
- “Custom - Variable” : Specify a variable growth pattern, that applies only to this Periodic Stream Definition. See “Inflation” above to have more information about how to specify a variable growth. Here, inflation is exactly like growth.

#### 8.4.8 Colorize Name

To make it easier to distinguish one Financial Stream Definition from another in the user interface, it is possible (meaning optional) to associate a color to the name. There are 2 cases :

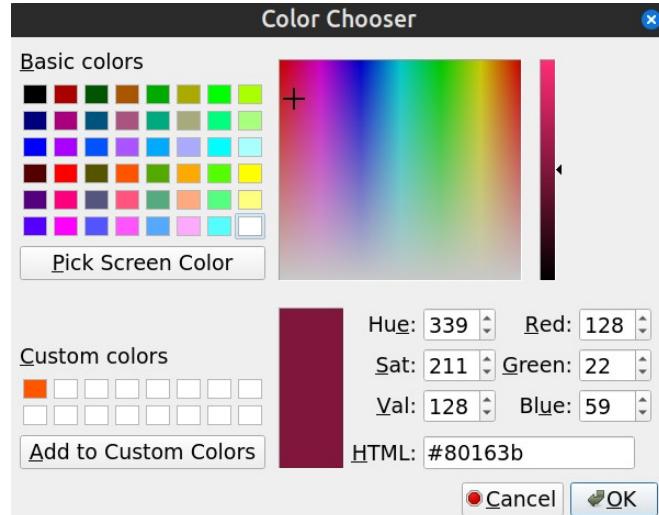
- 1) If an empty checkbox appears (default for newly created item), it means no custom color is associated to this name and system default color will be used.

Colorize Name :

2) If the checkbox is checked, with a colored square and RGB value to its right (sometimes also with a color name when it is a “standard color”), then this color is associated with the name

Colorize Name :   Red:230 Green:97 Blue:0

To associate a color to the name for case #1, select the checkbox : a color selection dialog will appear. To edit the custom color in case #2, click on the colored square : a similar color selection dialog will appear.



Select a color and press OK to have the color associated with the name. To apply the same color to many Financial Stream Definitions, you can copy the content of the “HTML” field and paste it as many time as required.

#### 8.4.9 Growth Application Period

Determine how often the “cumulative” growth is applied to the flow of financial event occurrences. By default, it is 1, meaning that every occurrence of the amount will be adjusted with the growth pattern defined.

Sometimes however, it may be required to restrict the application of the specified growth every “n” occurrences. A good example is a rent. The amount stays constant for the duration of the rent, but needs to be augmented when the rent is renewed, by the growth accumulated over 1 year.

Lets say you have an annual rent, with 1000\$ paid monthly. The renewal is on July 1st. Lets say also that you want to specify a growth of 5% annually for this amount. Then the Periodic Financial Stream Definition to create would be something like this :

The value of Growth Application Period must be 12, in order to have 12 months of constant rent price. This would give the following financial events :

**Creating Periodic Income**

Name :	My annua rent
Description :	<input type="text"/> <a href="#">Full View...</a>
Amount :	1,000.00 CAD
Period :	Month
Period Multiplier :	1
Starts on :	2034-Jul-01
Ends no later than :	<input type="radio"/> Date defined at the scenario level (currently = 2074-09-19) <input checked="" type="radio"/> Custom : 2074-Dec-01
Monthly Growth :	<input type="radio"/> No growth <input type="radio"/> Scenario's inflation -> multiplied by : 1.00000 <input checked="" type="radio"/> Custom - Constant 5.00000% on annual basis <input type="radio"/> Custom - Variable <a href="#">Edit/view...</a>
Colorize Name :	<input type="checkbox"/>
Growth Application Period :	Every <input type="text" value="12"/> financial events
Enabled :	<input checked="" type="radio"/> Yes <input type="radio"/> No
<a href="#">Visualize occurrences...</a>	
<a href="#">Close</a> <a href="#">Create</a>	

```

2034-07-01 : 1,000.00 CAD (cummul=1,000.00 CAD)
2034-08-01 : 1,000.00 CAD (cummul=2,000.00 CAD)
...
2035-06-01 : 1,000.00 CAD (cummul=12,000.00 CAD)
2035-07-01 : 1,050.00 CAD (cummul=13,050.00 CAD)
2035-08-01 : 1,050.00 CAD (cummul=14,100.00 CAD)
...
2036-06-01 : 1,050.00 CAD (cummul=24,600.00 CAD)
2036-07-01 : 1,102.50 CAD (cummul=25,702.50 CAD)

```

As expected, the monthly amount paid for the rent stays the same until 2035-07-01, when it is increased by 5%. If Growth Application Period would have stayed at the default value of 1, we would have obtained :

```

2034-07-01 : 1,000.00 CAD (cummul=1,000.00 CAD)
2034-08-01 : 1,004.07 CAD (cummul=2,004.07 CAD)
2034-09-01 : 1,008.16 CAD (cummul=3,012.23 CAD)
2034-10-01 : 1,012.27 CAD (cummul=4,024.50 CAD)
2034-11-01 : 1,016.40 CAD (cummul=5,040.90 CAD)
2034-12-01 : 1,020.54 CAD (cummul=6,061.44 CAD)
2035-01-01 : 1,024.70 CAD (cummul=7,086.14 CAD)
2035-02-01 : 1,028.87 CAD (cummul=8,115.01 CAD)
2035-03-01 : 1,033.06 CAD (cummul=9,148.07 CAD)
2035-04-01 : 1,037.27 CAD (cummul=10,185.34 CAD)
2035-05-01 : 1,041.50 CAD (cummul=11,226.84 CAD)
2035-06-01 : 1,045.74 CAD (cummul=12,272.58 CAD)
2035-07-01 : 1,050.00 CAD (cummul=13,322.58 CAD)
2035-08-01 : 1,054.28 CAD (cummul=14,376.86 CAD)
2035-09-01 : 1,058.57 CAD (cummul=15,435.43 CAD)
2035-10-01 : 1,062.89 CAD (cummul=16,498.32 CAD)
2035-11-01 : 1,067.22 CAD (cummul=17,565.54 CAD)
2035-12-01 : 1,071.56 CAD (cummul=18,637.10 CAD)
2036-01-01 : 1,075.93 CAD (cummul=19,713.03 CAD)

```

```

2036-02-01 : 1,080.31 CAD (cummul=20,793.34 CAD)
2036-03-01 : 1,084.71 CAD (cummul=21,878.05 CAD)
2036-04-01 : 1,089.13 CAD (cummul=22,967.18 CAD)
2036-05-01 : 1,093.57 CAD (cummul=24,060.75 CAD)
2036-06-01 : 1,098.03 CAD (cummul=25,158.78 CAD)
2036-07-01 : 1,102.50 CAD (cummul=26,261.28 CAD)

```

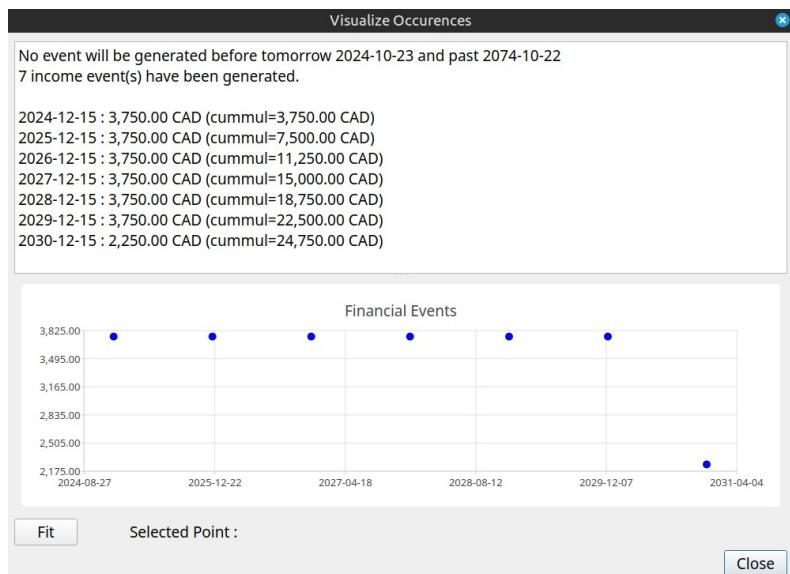
Note the same amounts for date 2035-07-01 and 2036-07-01 !

#### 8.4.10 Enabled

If “Yes” is selected (default), the Periodic Financial Stream Definition will be taken into account in all the calculation and chart displays. If set to “No”, it wont be taken into account anywhere.

#### 8.4.11 Visualize Occurrences

A very useful feature that takes all the values of the fields above and display all the resulting occurrences for the defined validity range. This also takes into account the option to “Convert to Present values” all amounts, as defined in the Options Dialog. Curve can be zoomed in/out with the mouse wheel. “Fit” button restore the scaling back to the maximum possible.



## 8.5 Creating/Editing an Irregular Financial Stream Definition

While editing a scenario:

- Pressing “New Irregular...” will display a dialog to create a new Irregular Financial Stream Definition.
- Pressing “Edit...” while a Irregular Financial Stream Definition is selected will bring essentially the same window (names of the bottom buttons change though).

Editing Income of Category Type "Irregular"

Name :	John - RRSP withdrawals	
Description :	<input type="text"/>	
Colorize Name :	<input type="checkbox"/>	
Enabled :	<input checked="" type="radio"/> Yes <input type="radio"/> No	
<b>List of Financial Events</b>		
Date	Amount	Notes
Sunday, December 15, 2024	7,500.00	net, ...
Monday, December 15, 2025	7,500.00	net, ...
Tuesday, December 15, 2026	7,500.00	net, ...
Wednesday, December 15, 2027	7,500.00	net, ...
Friday, December 15, 2028	7,500.00	net, ...
Saturday, December 15, 2029	7,500.00	net, ...
Sunday, December 15, 2030	3,750.00	net, ...

\* Elements in gray are past events and will not be taken into consideration

### 8.5.1 Name

Same as Periodic Financial Stream Definition

### 8.5.2 Description

Same as Periodic Financial Stream Definition

### 8.5.3 Colorize Name

Same as Periodic Financial Stream Definition

### 8.5.4 Enabled

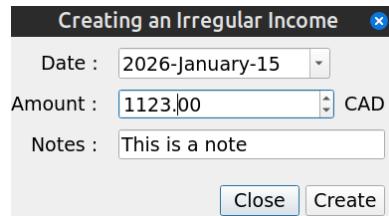
Same as Periodic Financial Stream Definition

### 8.5.5 List of Financial Events

List of all the financial events to be generated by this Irregular Stream Definition. Note that the amounts defined here are always “future values”.

### 8.5.6 Actions Buttons

“Add” :



Create a new financial event (occurrence) for the Irregular Stream Definition. The date must not be already used by an existing financial event defined in this Irregular Stream Definition

“Edit” :

Same as “Add”, but if there is already another financial event that is using this date, the new amount replace the old one.

“Delete” :

The selected financial events are removed from this Irregular Stream Definition

### *8.5.7 Visualize Occurrences*

Show the actual financial events that will be generated (same as for Periodic Financial Stream Definition Edition). Normally, they will be the same as the ones defined in the table. However, if option to “Convert to Present values” in Options Dialog is activated, the amounts will be different, since each one will be converted to their present value.

### *8.5.8 Load From File*

Import a list of financial events defined in a CSV text file. Current content is completely removed and replace by the new one. This is very useful if the financial events are computed from a complex model that is beyond the scope of this application (e.g. dividends generated by a complex portfolio of stocks) and are in great number. Entering them manually could be a tedious in that case.

The file to be imported must be a UNICODE-ENCODED text file. UTF-8 , UTF-16 and UTF-32 encodings are supported. Each line contains exactly 1 Irregular financial event. Empty lines are not allowed. Format of each line is :

<date>TAB<amount>TAB<notes>CR

where :

<date> :

date of the event. Must be in ISO 8601 format (YYYY-MM-DD). E.g. 2025-12-31

TAB :

is the TAB character (0x09)

<amount> :

a double number, without thousand separator. Decimal separator must be ". ". Not smaller than 0 and not greater than :

999,999,999,999,999 for currencies with 0 decimals (e.g. Yen)

99,999,999,999,999.9 for currencies with 1 decimal

9,999,999,999,999.99 for currencies with 2 decimals  
999,999,999,999.999 for currencies with 3 decimals

<notes> :

a brief description of this item. Max 100 characters. Note that this field is OPTIONAL.

CR :

carriage return character (\n )

All imported items will be tagged as "active", meaning they will be considered for the cash balance curve.

## 8.6 Options Window

Accessed through the “Tools → Options...” menu, this dialog allows you to see and modify the miscellaneous configuration parameters of GBP .

The configuration of GBP is written in an INI-style configuration file named “graphical-budget-planner.ini”. On Linux, it is located in the ~/.config directory. Exact name and location can be seen in the Help → About Graphical Budget Planner.

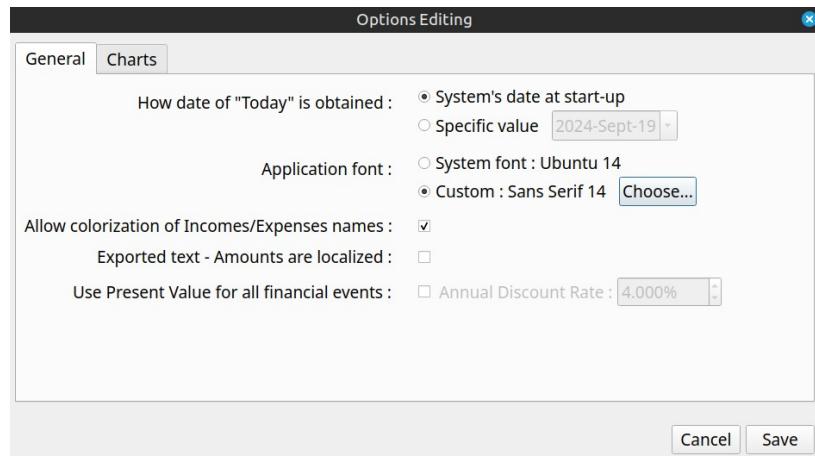
When GBP starts, it tries to find this configuration file. If found, it loads its content, otherwise it assigns default values to the configuration parameters.

When button “Save” is pressed in the Options dialog, all changes are saved into this INI file. When “Cancel” is pressed, any changes made is discarded.

Most changes take effect immediately, unless stated otherwise by GBP with a special warning window. For example, changing the GBP font shows the following message after “Save” is pressed :



## 8.6.1 Category “General”



### 8.6.1.1 How date of “today” is obtained

GBP is built to generate financial events from the date of “tomorrow”, which is “*today*” + 1 day. By default, “*today*” is set to the system’s date as read by GBP when it starts. This is the expected behavior, because one is interested only to future events. Every time GBP is started, user updates the field “Start Amount for Today”, which provide the current amount of cash available as of “*today*”. The section “Usage” describes how GBP is expected to be used and provide more details.

There are some use cases however where it is beneficial to always have “*today*” set to a specific and constant value. One such case is testing, where repeatability of initial conditions is required. Another case is when user decides to “freeze” the view in time at a specific moment, because it fits better his own way to update scenario data.

For those cases, it is possible to “freeze” the value of “*today*” to a specific date. Every time GBP will start, it will use this value and discard the true current date obtained from the system. The value of “*Today*” is displayed at the bottom of the Main Window.

### 8.6.1.2 Application Font

By default, GBP uses the default system font to display text strings. If user prefers a different font style and/or font size, it may set this font by selecting first the “Custom” radio button and then press the “Set” button. He will then be able to select the required font. Application must be restarted for the change to take effect.

To return to default font, just select the “System Font” radio button.

If ever the user selects a font that make the text unreadable, GBP can be started in a terminal window with the argument “-usesystemfont”. This will reset the font to system font.

### 8.6.1.3 Allow colorization of Incomes/expense names

Enable or disable the colorization of names for **all** Financial Stream Definitions. This can be useful if a scenario is used on an OS where custom theming makes difficult the reading of colorized name.  
“Disable” means that default Operating System text color will be used.

### 8.6.1.4 Exported text – Amount are localized

When checked, any amount used in any CSV export process will be written using the conventions of the system Locale. For example, on a French system, the amount 12345.67 would be written : 12 345,67. When unchecked, no “thousands separator” is used and the “decimal separator” is “.”.

### 8.6.1.5 Use Present Value

This is an advanced topic.

When checked, this option will make all the Financial Event amounts of the calculated scenario data set converted from future values (default) to present values, using the annual discount rate selected to the right.

Use Present Value for all financial events :  Annual Discount Rate : 8.000%

This applies for the Cash Balance curve in the Main Window, as well as all the data displayed in the Analysis Window. The formula used for the conversion is :

$$FV = PV / (\text{pow}((1 + 0.01 * \text{discountRatePercent}), \text{period}))$$

where :

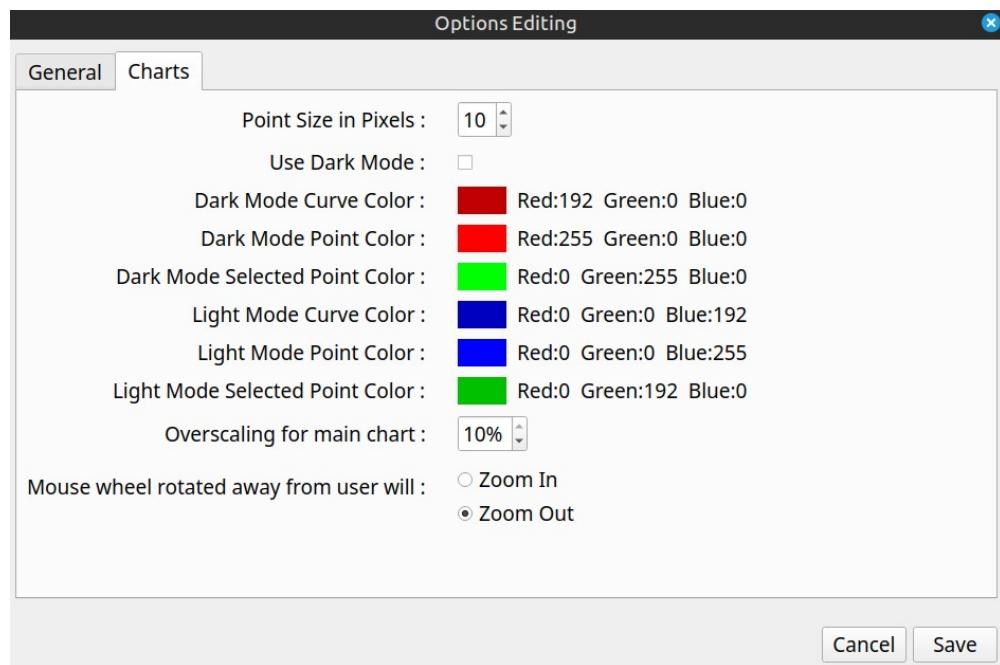
- FV : Future Value
- PV : Present Value
- pow : power function
- discountRatePercent : monthly discount rate in percent, derived from the annual rate specified
- period : no of months away from “present”. 0 means in the same month than present

Note that the calculation is a monthly basis : it means that the present value is the same for any day of the month for which a financial event occurs.

The section “Future Values vs Present Values” describes in more details why one would want to use Present instead of Future Values, but basically, PV gives a better view of the equivalent current values of future incomes/expenses.

## 8.6.2 Category “Charts”

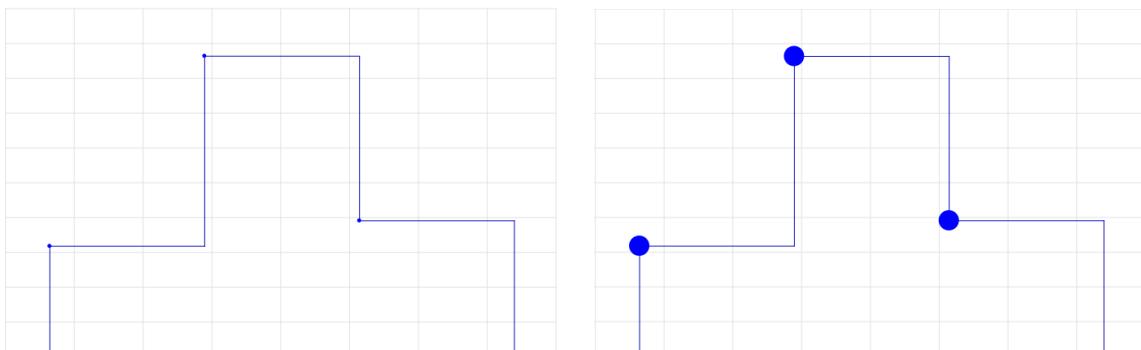
These settings are specific to curves and charts.



### 8.6.2.1 Point Size in Pixels

This parameter set the diameter of the disc superimposed on data points.

For example, here is the difference between 5 and 25 pixel wide point size : 10 point size is probably the most preferred option.

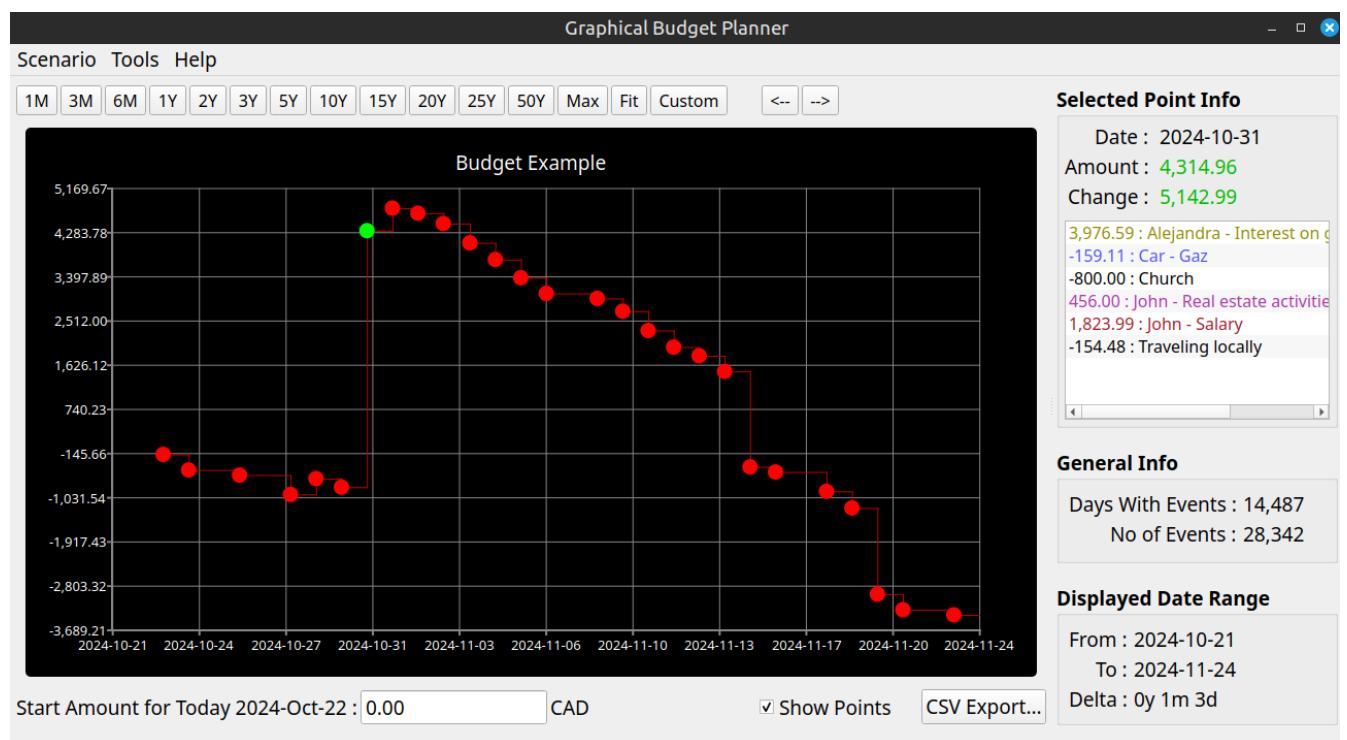


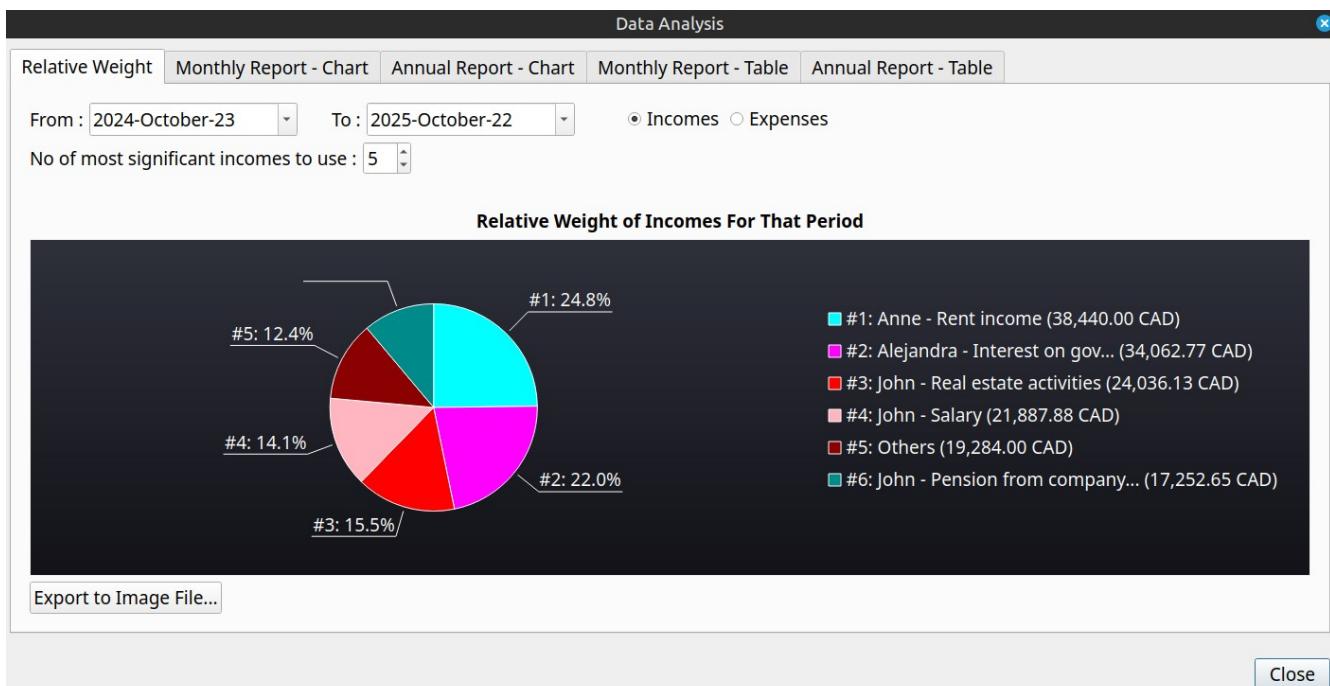
### 8.6.2.2 Use Dark Mode

When not using the KDE Desktop Environment, GBP cannot detect which theming mode is in used. In particular, with GNOME, GBP's widgets colors may not correspond to the theming colors selected (they always appears "light"). This is due to some incompatibilities between Qt and Gtk.

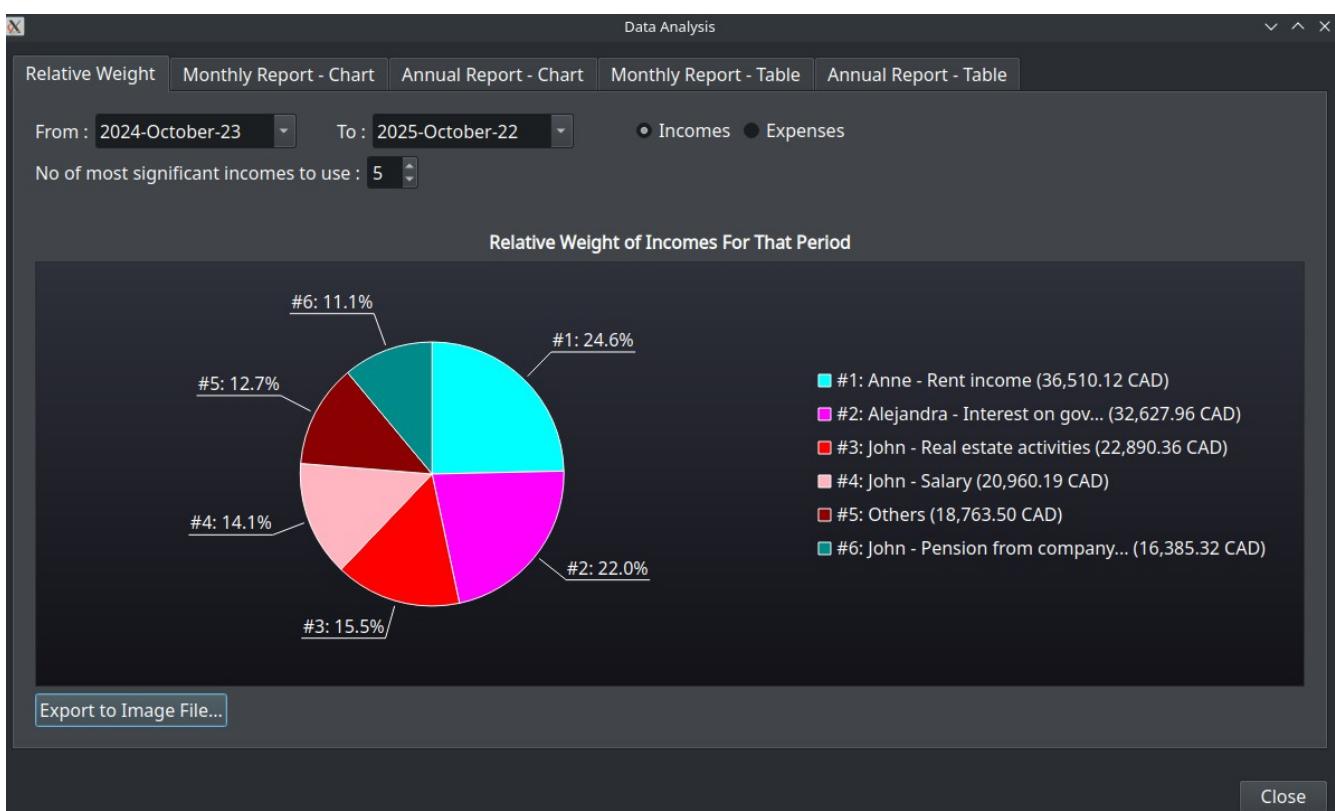
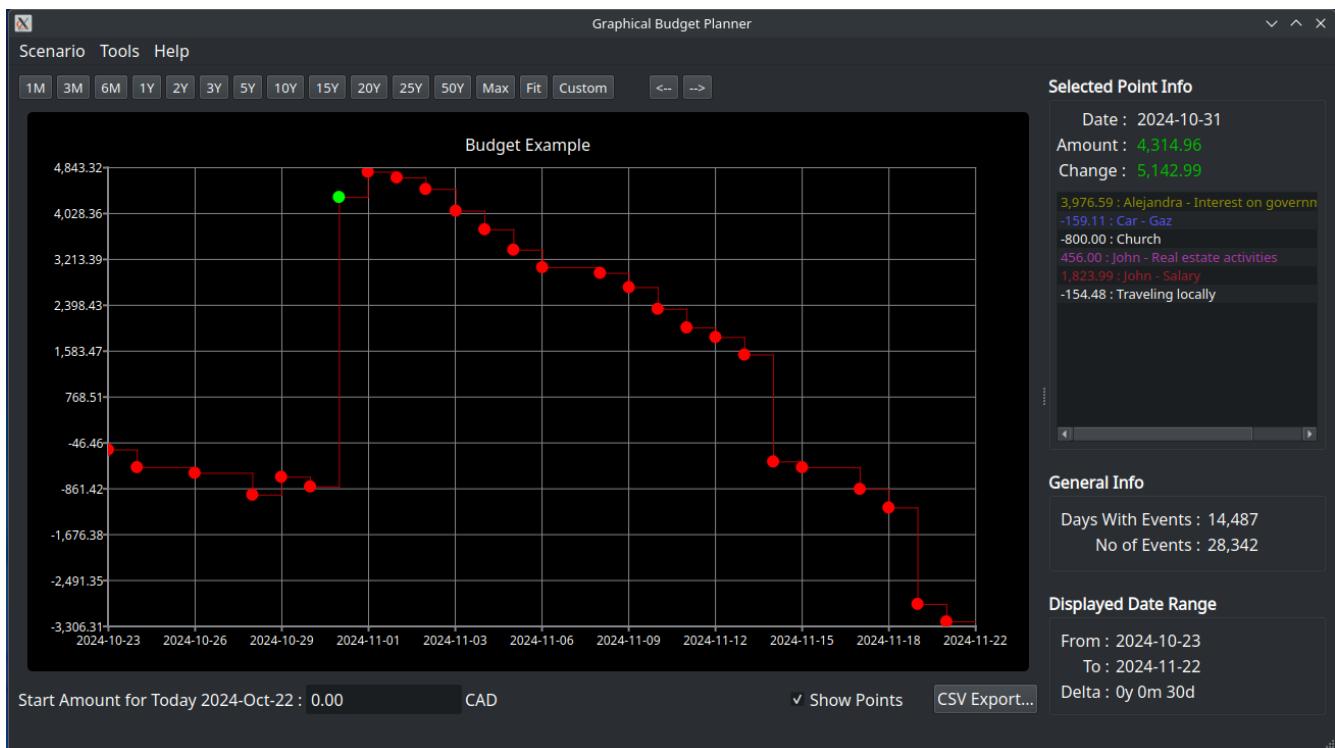
So to help alleviate the inconvenient this produce, the Options Dialog offers a way to change explicitly how the charts look. When "Use Dark Mode" is checked, Dark Mode is used for all the charts (black background with bright foreground text) in GBP.

The following are screenshots from Linux Mint 22 (GTK-based Desktop Environment) with Dark Theme enabled in Mint and "Use Dark Mode" selected in GBP.



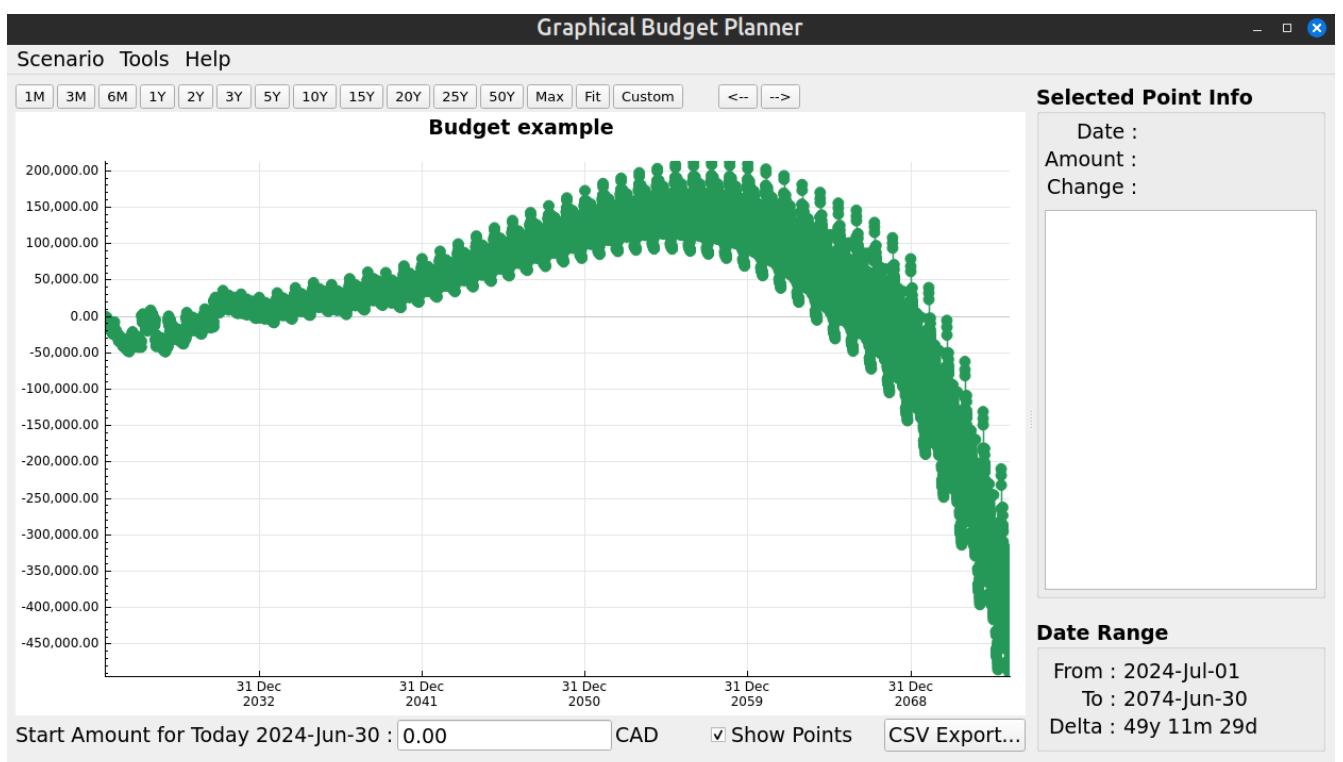


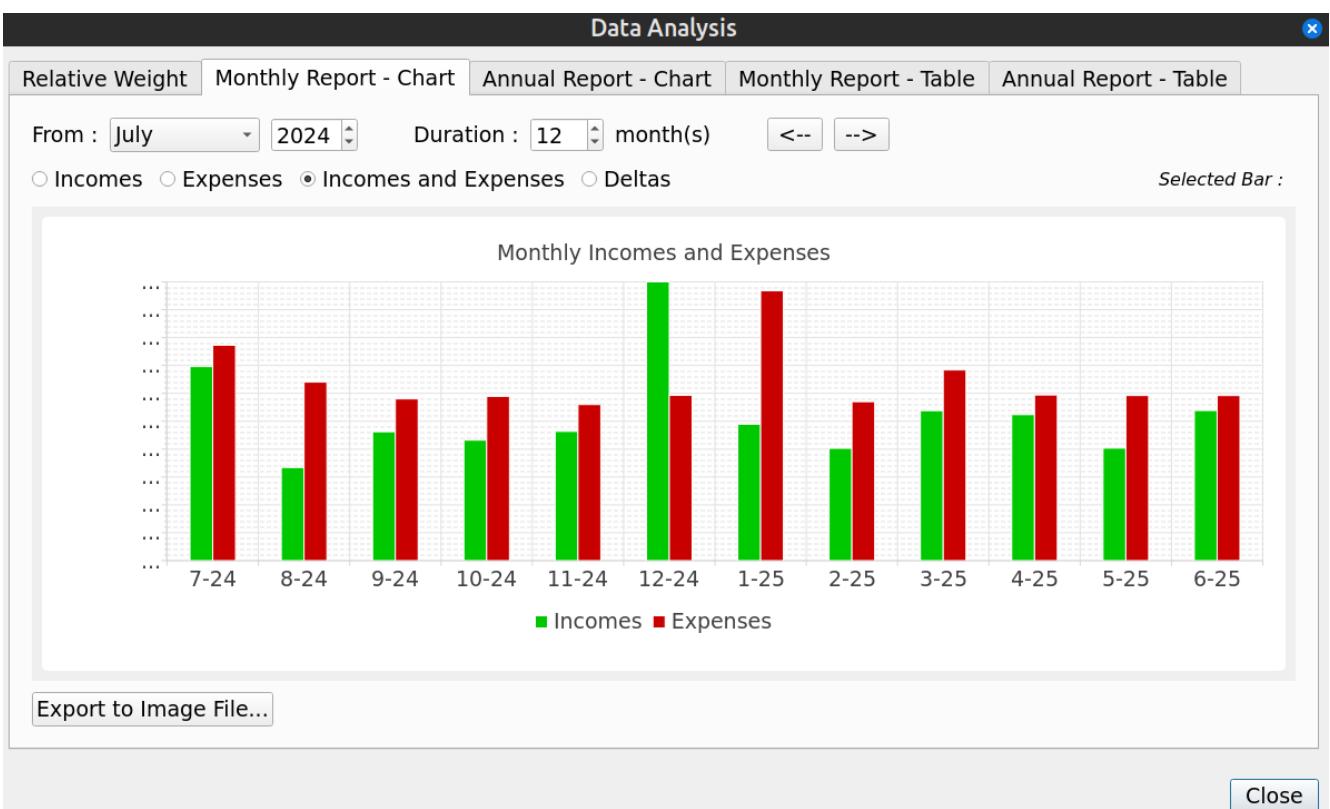
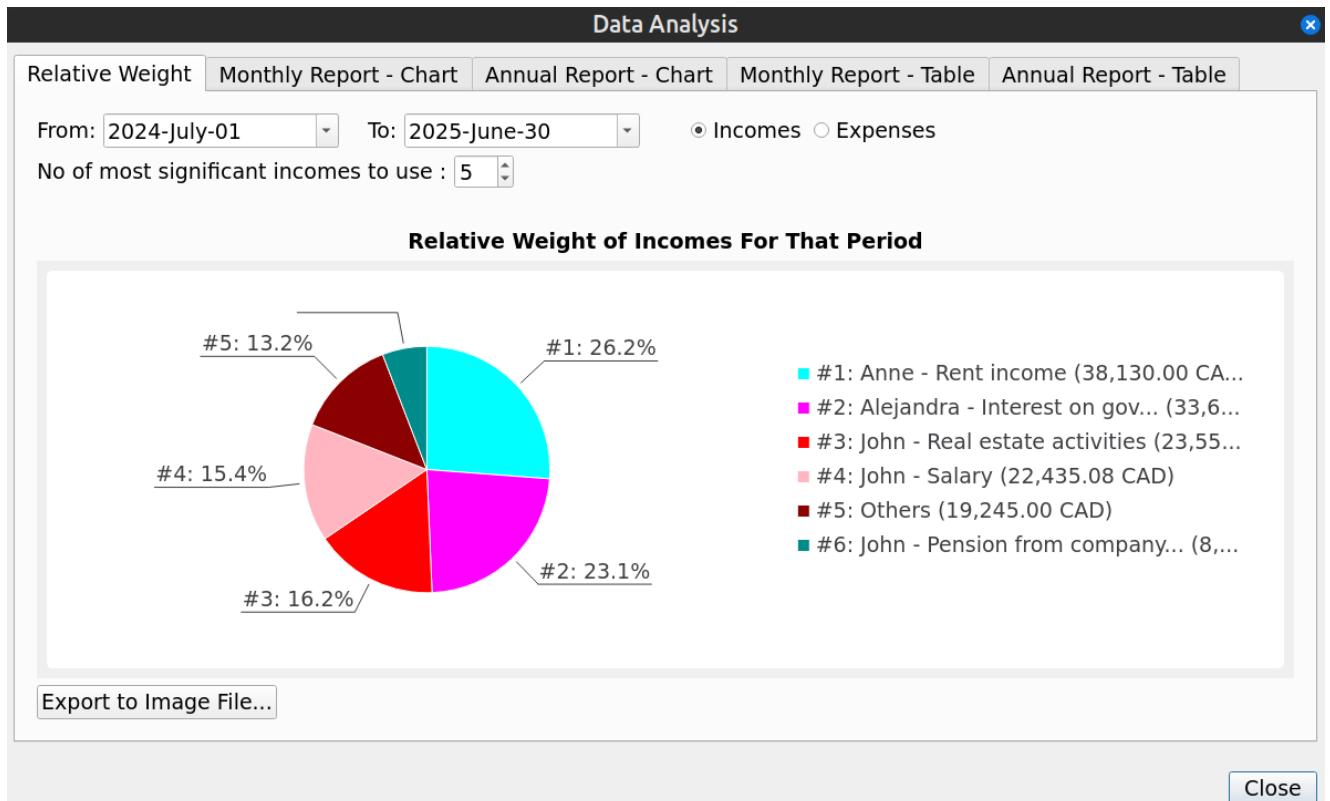
For sake of comparison, here is the same on Fedora 40 KDE with “Breeze Dark Theme” enabled. Clearly, GBP is themed 100% correctly in a KDE environment.





On Mint 22, when “Use Dark Mode” is unchecked in GBP, Light Mode theming is used for the charts. That means white background on dark colored text.





### 8.6.2.3 Dark Mode Curve Color

This set the color of the Cash Balance curve of the Main Window when Dark Mode option has been checked. To set the color, press on the colored square.

### 8.6.2.4 Dark Mode Point Color

This set the color of the data points in the Cash Balance curve of the Main Window when Dark Mode option has been checked. To set the color, press on the colored square.

### 8.6.2.5 Dark Mode Selected Point Color

This set the color of the **selected** data point in the Cash Balance curve of the Main Window when Dark Mode option has been checked. To set the color, press on the colored square.

### 8.6.2.6 Light Mode Curve Color

This set the color of the Cash Balance curve of the Main Window when Dark Mode option has been **unchecked**. To set the color, press on the colored square.

### 8.6.2.7 Light Mode Point Color

This set the color of the data points in the Cash Balance curve of the Main Window when Dark Mode option has been **unchecked**. To set the color, press on the colored square.

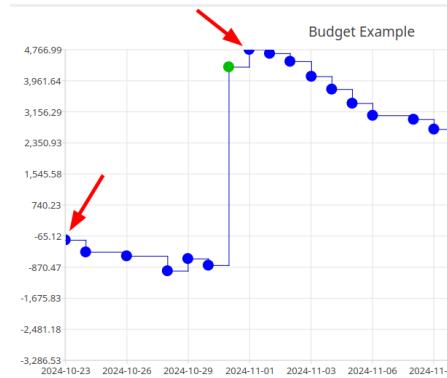
### 8.6.2.8 Light Mode Selected Point Color

This set the color of the **selected** data point in the Cash Balance curve of the Main Window when Dark Mode option has been **unchecked**. To set the color, press on the colored square.

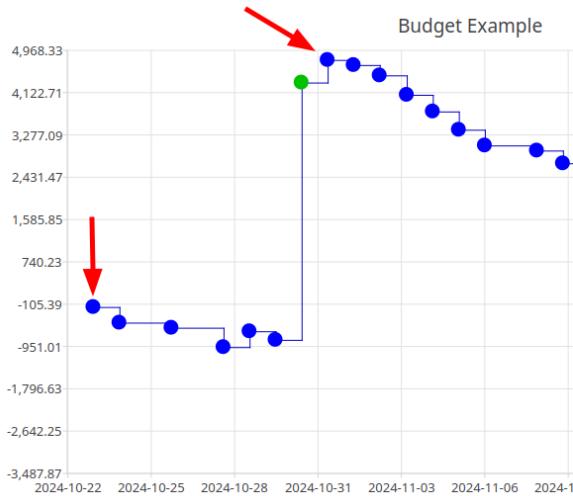
### 8.6.2.9 Overscaling for main chart

This applies only for the Cash Balance curve displayed in the Main Window. It sets the level of “overscaling” to be applied on the charts X and Y axis. 0% means no overscaling,

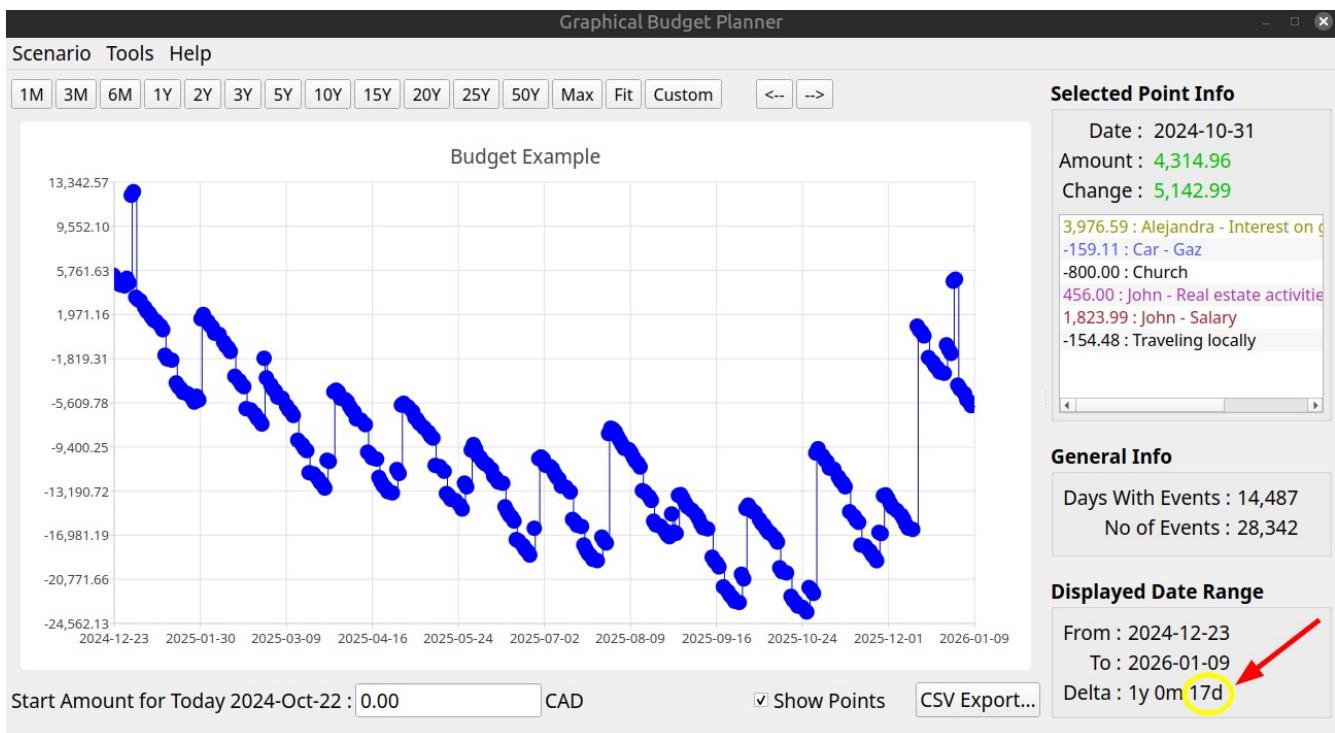
By default, there is no overscaling applied. That means that the X and Y axis minimum and maximum match exactly the min/max values of the data points shown. This may lead to a problem clicking on such points, because the representation disk is clipped :



To alleviate this problem, GBP can “overscale” the X and Y axis, so that the min/max points are fully contained in the chart. For example, a 5% overscaling would produce the following result with the previous data shown :



The inconvenient of overscaling is that, when one specifies a range with the upper toolbar buttons, the displayed chart is actually wider. For example, using the “Custom” range button to set an interval of [1 jan 2025 – 31 dec 2025], we get the following result for a 5% overscaling :



Note the “17 more days” over the 1 year requested. 17 days is roughly 5% of 1 year.

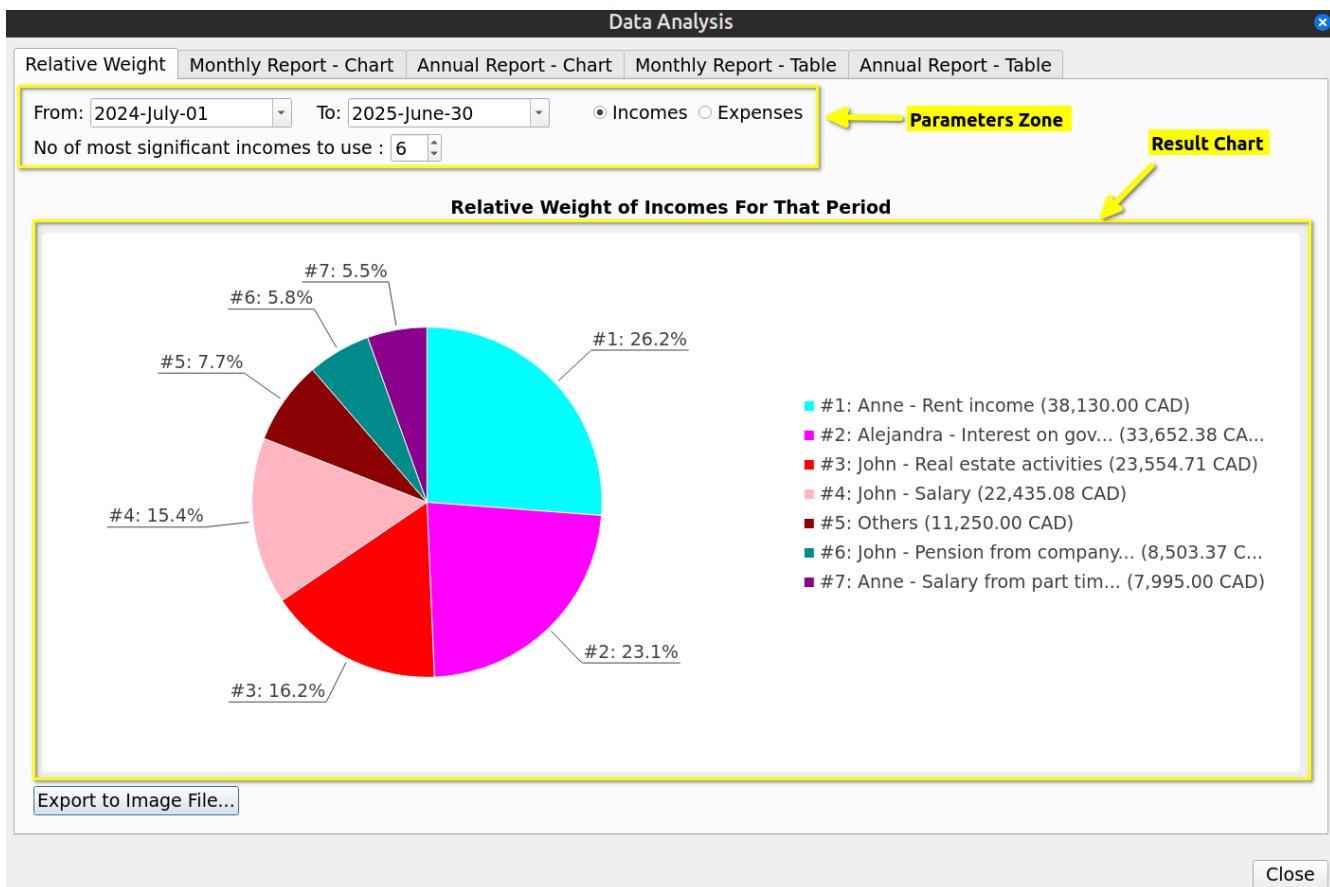
## 8.7 Analysis Window

This window provides more in depth analysis of the resulting financial events stream displayed by the Cash Balance curve in the Main Window.

### 8.7.1 Relative Weight Tab

A very important analysis module that provides quite useful information on the current scenario budget. Its goal is to show on a pie chart the comparative weight of either incomes or expenses, spread over a user-specified time interval.

For example, it will tell you what are the biggest expenses expected during the next 2 years or what is the percentage of the 10 most important incomes compared to all the expected incomes for the next 10 years.



### 8.7.1.1 Parameters Zone

This is where you can change parameters that affect the calculation of the Pie Chart below

#### From

Specify the start of the date interval to consider in the calculation. Financial Events occurring **before** this date will not be taken into account.

#### To

Specify the end of the date interval to consider in the calculation. Financial Events occurring **after** this date will not be taken into account. Must not be smaller than "To" date.

#### Incomes / Expenses Radio buttons

Specify if we want to consider incomes or expenses (cannot do both at the same time)

#### No of most significant incomes/expenses

Specify how many slices the pie chart will have. If this number is greater or equal to the total number of incomes (or expenses), then it is the latter that is used. Otherwise, there will be 1 more slice than this number, dedicated to all the "other" incomes (or expenses) taken all together (named "Others" on the chart).

### 8.7.1.2 Result Chart

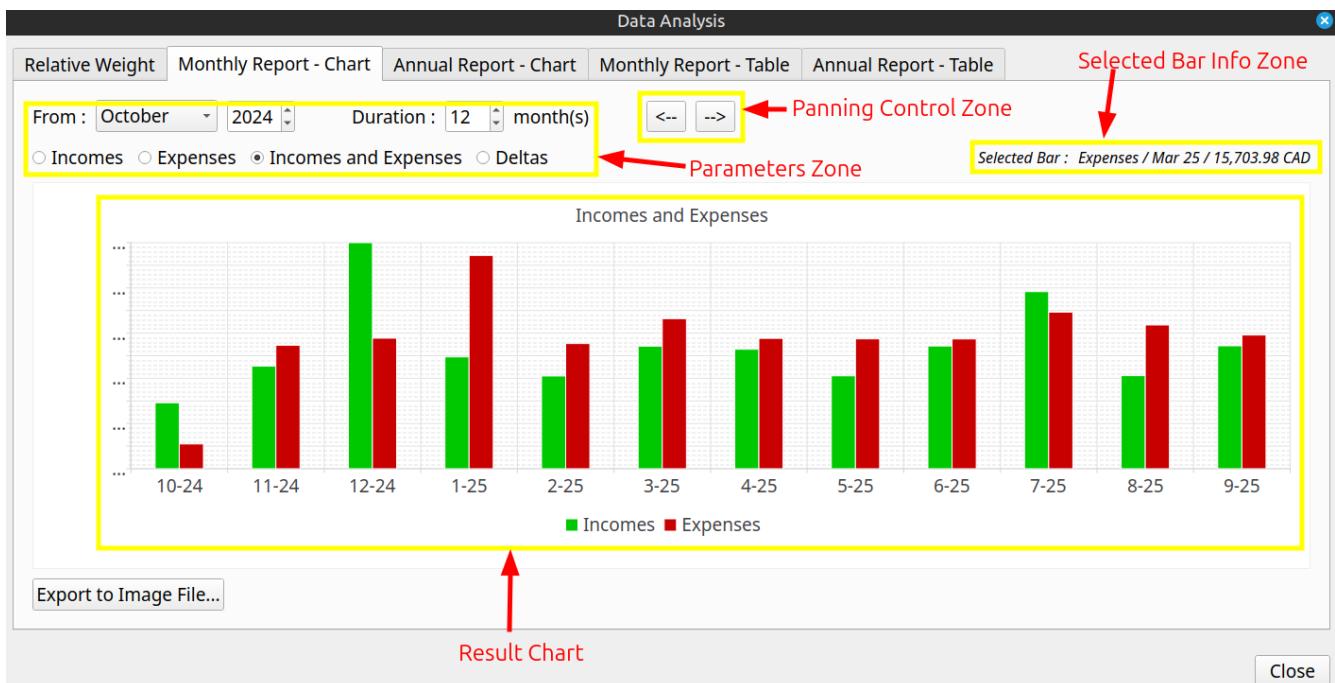
The area where the chart is displayed, along with the legend mapping the pie color to the actual incomes (or expenses). Colors of the slices are pre-configured and cannot be changed by the user.

### 8.7.1.3 Exporting to Image File

Pressing this button allows the chart to be saved in an image file. A dialog will be shown required a file name and a destination directory. The image file created will always be a PNG file with lossless compression.

## 8.7.2 Monthly Report - Chart

This chart is a monthly report, displayed as a Bar Chart.



### 8.7.2.1 Parameters Zone

This is where you can change parameters that affect the calculation of the Bar Chart below

#### From

Specify the start of the time interval to consider in the calculation, that is the first month considered. Financial Events occurring **before** this date will not be taken into account.

#### Duration

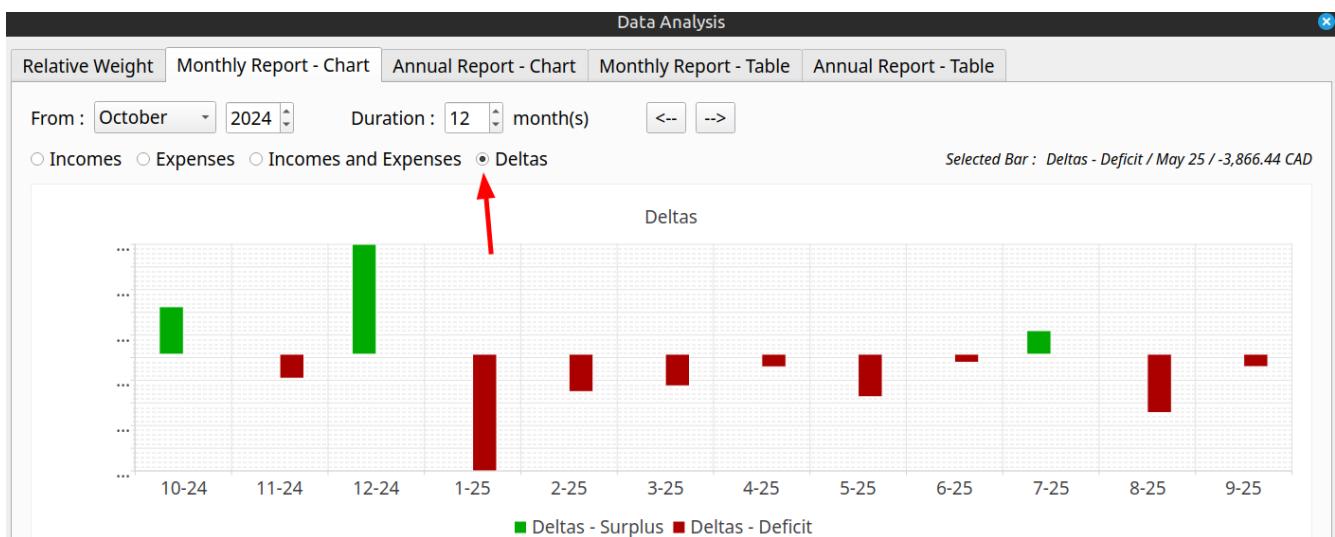
Set how many months to display in the bar chart, including the month specified by "From".

## Incomes / Expenses / Deltas

Specify what information will be displayed in the Bar Chart.

- Incomes : Only Financial Events that are incomes will be used in the calculation of the Bar Chart
- Expense : Only Financial Events that are expenses will be used in the calculation of the Bar Chart
- Incomes and Expenses : All Financial Events (incomes and expenses) will be used in the calculation of the Bar Chart
- Deltas : All Financial Events are used, but the Bar Chart will display the results of Incomes – Expenses.

The Deltas option is particularly useful to watch the evolution of “monthly surplus” over the years : bars in green show surplus, bars in red show deficit



### 8.7.2.2 Result Chart

This is where the Bar Chart is displayed. User can click on a specific bar to see more related information in the “Selected Bar Info Zone”.

The “Export to Image File” button allows for exporting the displayed Bar Chart as an image file. See section Relative Weight Tab.

### 8.7.2.3 Panning Controls Zone

The 2 buttons shift the Bar Chart to the left or right, by an amount of months equal to the “Duration”. It is as a matter of facts a way to scroll the Bar Chart.

## 8.7.3 Annual Report – Chart

Exactly like the “Monthly Report – Chart”, except that the data is aggregated by year instead month.

#### 8.7.4 Monthly Report – Table

For all the Financial Events generated for the scenario, produces a table holding, for each month, the following information :

- the month
- Total incomes for the month
- Total expenses for the month
- Delta – The differences between those two. Positive values (monthly surplus) are green, negative (monthly deficit) are red

Data Analysis				
Relative Weight	Monthly Report - Chart	Annual Report - Chart	Monthly Report - Table	Annual Report - Table
	Month	Incomes	Expenses	Delta
1	2024 August	7,735.50	14,789.97	-7,054.47
2	2024 September	10,705.59	13,389.83	-2,684.24
3	2024 October	10,006.58	13,595.61	-3,589.03
4	2024 November	10,735.50	12,913.23	-2,177.73
5	2024 December	23,655.59	13,662.73	9,992.86
6	2025 January	11,703.98	22,310.19	-10,606.21
7	2025 February	9,704.72	13,099.19	-3,394.47
8	2025 March	12,828.92	15,703.98	-2,875.06
9	2025 April	12,501.61	13,644.60	-1,142.99
10	2025 May	9,721.58	13,588.02	-3,866.44
11	2025 June	12,845.84	13,578.70	-732.86
12	2025 July	18,533.58	16,387.03	2,146.55
13	2025 August	9,738.61	15,044.19	-5,305.58
14	2025 September	12,862.92	13,989.55	-1,126.63
15	2025 October	18,550.72	13,779.67	4,771.05
16	2025 November	9,755.80	13,418.47	-3,662.67

[Export to CSV...](#)

[Close](#)

##### 8.7.4.1 Export To CSV

See CSV Export

#### 8.7.5 Annual Report - Table

Exactly like the “Monthly Report – Table”, except that the data is aggregated by year instead month.

## 9. Usage

### 9.1 Preparing to create a budget

#### 9.1.1 Collecting Information

A budget in GBP is called a “scenario”. The name comes from the fact that you can create as many budgets as you want with the application, each one being a specific “scenario” covering a given set of options or possibilities.

Before creating a new budget, you must remember that GBP will focus only on the future incomes and expenses to come. The past is irrelevant for GBP and essentially discarded.

First, make a list of all sources of incomes and expenses you think will happen from tomorrow to several years in the future (the time frame depends on your needs). Each one will be implemented in GBP as a Financial Stream Definition. For each of them, determine :

- if it is a **recurring** amount, that is, it repeats itself at **identical** time intervals of either days, weeks, months, end-of-month or years : if so, it is probably a Financial Stream Definition of type “Periodic”. Otherwise, the type is “Irregular”
- for Periodic Financial Stream Definition, what is the first day it occurs and when will it ends ?
- for Periodic Financial Stream Definition, is the amount constant through time or is it changing ? In the latter case, if the change is not governed by one of the 2 rules below, then it is most probably better to use an “Irregular” type
  - constant growth : a simple constant growth percentage, per year or per month
  - variable growth : a complex growth pattern that identifies exactly all the growth transitions that occur in time, using a list of (date, growth value in percentage)

Then try to determine the level of inflation you want applied to the scenario. As a reminder, inflation, once defined, is offered as one possible option to define growth for a Periodic Stream Definition. It is NOT applied automatically to all incomes/expenses. A simple case to define the value of inflation is to set it constant through the years (can be 0% or even negative if you want). For a more complex situation (this is more advanced stuff), you can model inflation that varies through the months and years. See the example below

#### 9.1.2 Modeling Inflation that Varies Through the Months and Years

\*\*\* Advanced Topic \*\*\*

Lets say that we want to model inflation more precisely than the “constant” value option offered. Lets say we want this :

- From 1 Feb 2025 : 5% on an annual basis
- From 1 nov 2025 : 4% on an annual basis
- From 1 Jan 2027 : 2% on an annual basis

For that, we need to define a “variable inflation” pattern for the scenario.

The list of transition dates and values will be entered as follows :

Transition Date	Inflation (annual basis)	Inflation (monthly basis)
Saturday, February 1, 2025	5.00000 %	0.407412 %
Saturday, November 1, 2025	4.00000 %	0.327374 %
Friday, January 1, 2027	2.00000 %	0.165158 %

With that definition, the inflation used in the scenario would be as follow :

- From past to Jan 1 2025 : 0% applied on the 1<sup>st</sup> of every month
- From Feb 1 2025 to Oct 1 2025 : 0.407412% applied on the 1<sup>st</sup> of every month
- From Nov 1 2025 to Dec 1 2026 : 0.327374% applied on the 1<sup>st</sup> of every month
- From Jan 1 2027 to infinity : 0.165158% applied on the 1<sup>st</sup> of every month

### 9.1.3 Practical Examples of Periodic Financial Stream Definition

#### 9.1.3.1 Salary Received Every 2 Weeks, No Growth

Period is “week”, Period Multiplier is 2. Start Date in the Validity Range must be the first day of occurrence (here on Friday).

The salary will repeat until it reaches the End Date

```
2034-07-30 : 1,234.56 CAD (cummul=1,234.56 CAD)
2034-08-13 : 1,234.56 CAD (cummul=2,469.12 CAD)
2034-08-27 : 1,234.56 CAD (cummul=3,703.68 CAD)

...
2039-12-11 : 1,234.56 CAD (cummul=174,072.96 CAD)
2039-12-25 : 1,234.56 CAD (cummul=175,307.52 CAD)
```

### 9.1.3.2 Salary Received Twice a Month (15<sup>th</sup>, End of Month), No Growth

This one is a little bit tricky, because when we look at it closely, it is a strange “regular” time interval (end of month can be 28,29,30,31). To fix that, we need to have **2 separate incomes** : Salary 1 and Salary 2. The first one is on the 15th with a period of 1 Month. The second will cover the end-of-month. Here we specify 30 July, which is 1 day less than the real end of month. GBP will help us by generating the first event on the real end-of-month, which is 31 July.

Creating Periodic Income

Name :	Salary 2
Description :	<input type="button" value="Full View..."/>
Amount :	1,234.56 CAD
Period :	End-of-Month
Period Multiplier :	1
Starts on :	2034-Jul-30
Ends no later than :	<input type="radio"/> Date defined at the scenario level (currently = 2074-09-19) <input checked="" type="radio"/> Custom : 2040-Jan-01
Monthly Growth :	<input type="radio"/> No growth <input type="radio"/> Scenario's inflation -> multiplied by : 1.00000 <input type="radio"/> Custom - Constant 0.00000% on annual basis <input type="radio"/> Custom - Variable <input type="button" value="Edit/view..."/>
Colorize Name :	<input type="checkbox"/>
Growth Application Period :	Every 1 financial events
Enabled :	<input checked="" type="radio"/> Yes <input type="radio"/> No
<input type="button" value="Visualize occurrences..."/> <input type="button" value="Close"/> <input type="button" value="Create"/>	

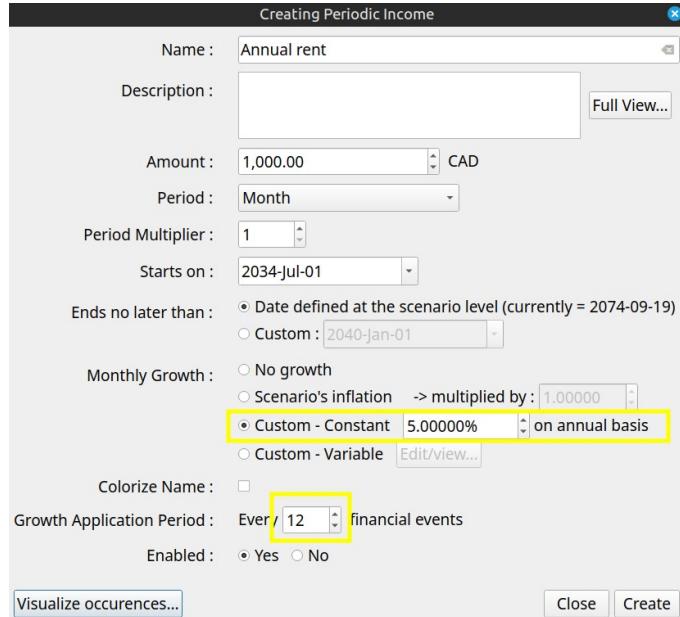
Salary 2 will generate the expected Financial Events : note how the end-of-month date changes

```
2034-07-31 : 1,234.56 CAD (cummul=1,234.56 CAD)
2034-08-31 : 1,234.56 CAD (cummul=2,469.12 CAD)
2034-09-30 : 1,234.56 CAD (cummul=3,703.68 CAD)
2034-10-31 : 1,234.56 CAD (cummul=4,938.24 CAD)

...
2039-10-31 : 1,234.56 CAD (cummul=79,011.84 CAD)
2039-11-30 : 1,234.56 CAD (cummul=80,246.40 CAD)
2039-12-31 : 1,234.56 CAD (cummul=81,480.96 CAD)
```

### 9.1.3.3 An Annual Rent with Fixed Monthly Payment

Lets say we have a rent with a 1000\$ monthly payment, renewed every 12 month with a rent increase of 5 %. Monthly payment are constant within a 12 month contract. This can be modeled in GBP the following way :

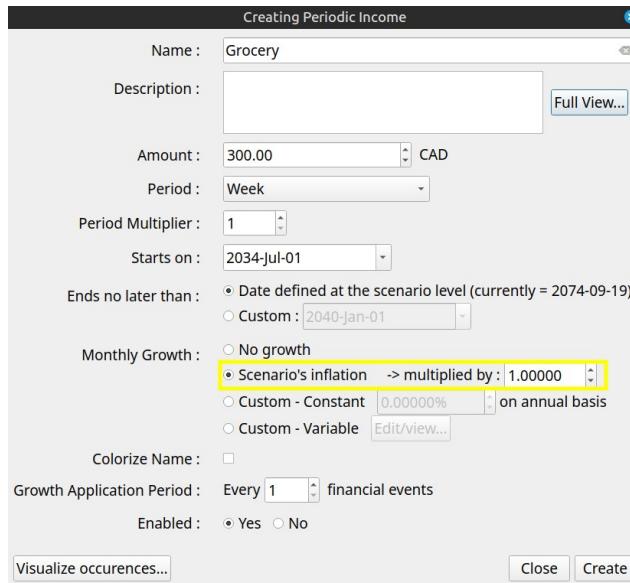


The Period is “1 monthly”, since we pay the rent every month. The amount is 1000. Growth is set to “Constant – 5% annually). The trick here is to set “Growth Application Period” to 12, because we want the rent raise to be applied only once a year, at renewal. The generated Financial Events will be, as expected :

```
2034-07-01 : 1,000.00 CAD (cummul=1,000.00 CAD)
2034-08-01 : 1,000.00 CAD (cummul=2,000.00 CAD)
2034-09-01 : 1,000.00 CAD (cummul=3,000.00 CAD)
...
2035-06-01 : 1,000.00 CAD (cummul=12,000.00 CAD)
2035-07-01 : 1,050.00 CAD (cummul=13,050.00 CAD)
2035-08-01 : 1,050.00 CAD (cummul=14,100.00 CAD)
...
```

### 9.1.3.4 Weekly Grocery Bill that Follows Scenario's Inflation

This is a weekly expense that should follow inflation, which we set at 5% in the scenario. So Period is “1 week” and growth must be set to “Follow inflation”. Lets assume a 300\$ weekly grocery expense. Lets also add some notes in the description. In GBP, we then have this Periodic Financial Stream Definition :



Since inflation (and any defined growth for any Financial Stream Definition) is always converted internally to monthly value and applied on the 1<sup>st</sup> of each month, we should have the weekly grocery expense stay the same for a whole month. Monthly growth will be 0.4074% (equivalent of 5% annual). Also, remember that the first occurrence never has growth applied. We then get, as expected :

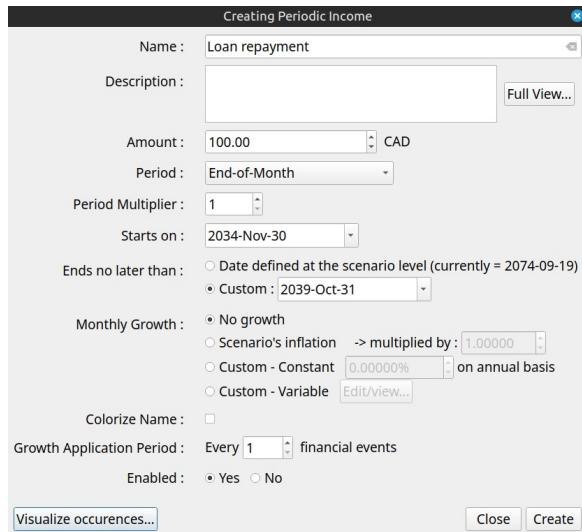
```

2034-07-01 : 300.00 CAD (cummul=300.00 CAD) <= no growth applied for first occurrence
2034-07-08 : 300.00 CAD (cummul=600.00 CAD)
2034-07-15 : 300.00 CAD (cummul=900.00 CAD)
2034-07-22 : 300.00 CAD (cummul=1,200.00 CAD)
2034-07-29 : 300.00 CAD (cummul=1,500.00 CAD)
2034-08-05 : 301.22 CAD (cummul=1,801.22 CAD) <= Monthly inflation applied
2034-08-12 : 301.22 CAD (cummul=2,102.44 CAD)
2034-08-19 : 301.22 CAD (cummul=2,403.66 CAD)
2034-08-26 : 301.22 CAD (cummul=2,704.88 CAD)
2034-09-02 : 302.45 CAD (cummul=3,007.33 CAD)
2034-09-09 : 302.45 CAD (cummul=3,309.78 CAD)

```

### 9.1.3.5 Monthly Loan Payment at Each End-Of-Month

Lets say we have a loan payment of 100\$ that is due at every end of month, with the first occurrence being on 30 nov 2024 and end on 31 oct 2039. In GBP, that translates to :



The use of “End-of-Month” for the Period make sure that, as we go forward in time, one always get the real end of month, and not just “date + 1 month” as it would be if we would use Period = “Month”. The resulting Financial events are, as expected :

```

2034-11-30 : 100.00 CAD (cummul=100.00 CAD)
2034-12-31 : 100.00 CAD (cummul=200.00 CAD)
2035-01-31 : 100.00 CAD (cummul=300.00 CAD)
2035-02-28 : 100.00 CAD (cummul=400.00 CAD)
2035-03-31 : 100.00 CAD (cummul=500.00 CAD)
...

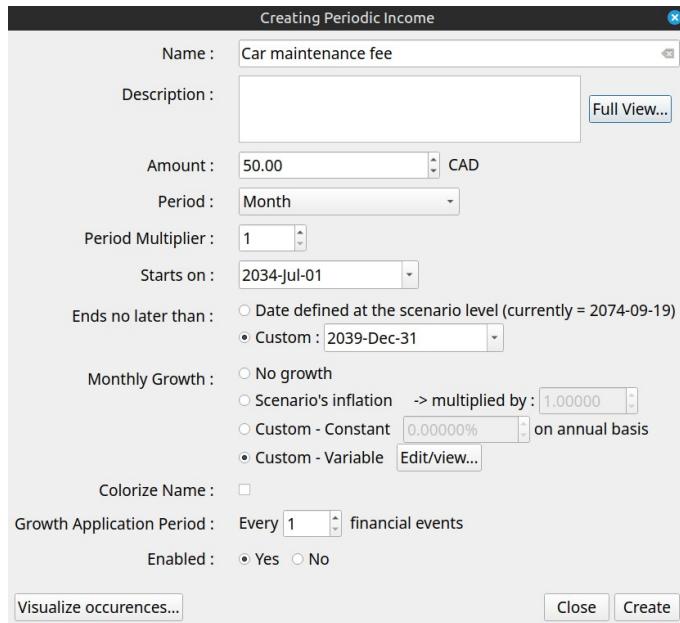
```

#### 9.1.3.6 Monthly Car Maintenance That Increases By a Variable Amount

Lets say we have a 50\$ monthly car maintenance fee. We want this amount to increase by a different growth rate each year, because the car is getting older. Let say that :

- Year 1 : 5% increase (annual basis)
- Year 2 : 10% increase (annual basis)
- Year 3 : 15% increase (annual basis)
- Year 4 and following : 20% increase (annual basis)

To model that in GBP, we have to use a variable growth rate applied to a Period Stream Definition. Like this :



with the definition of the variable growth like the following :

Edit Variable Growth		
<i>Growth : Value is 0 before the oldest transition date is defined. It is always applied on a monthly basis, even if defined on an annual basis (for convenience purpose). Value stays the same until a new transition date + value is defined.</i>		
Transition Date	Growth (annual basis)	Growth (monthly basis)
Saturday, July 1, 2034	5.00000 %	0.407412 %
Sunday, July 1, 2035	10.00000 %	0.797414 %
Tuesday, July 1, 2036	15.00000 %	1.171492 %
Wednesday, July 1, 2037	20.00000 %	1.530947 %

We get the following Financial events, which are as expected :

```

2034-07-01 : 50.00 CAD (cummul=50.00 CAD)    <= growth never applied on the first occurrence
2034-08-01 : 50.20 CAD (cummul=100.20 CAD)    <= growth of 0.4074%
2034-09-01 : 50.41 CAD (cummul=150.61 CAD)    <= growth of 0.4074%
...
2035-06-01 : 52.29 CAD (cummul=613.61 CAD)    <= growth of 0.4074%
2035-07-01 : 52.70 CAD (cummul=666.31 CAD)    <= new growth of 0.7974%
2035-08-01 : 53.12 CAD (cummul=719.43 CAD)    <= growth of 0.7974%

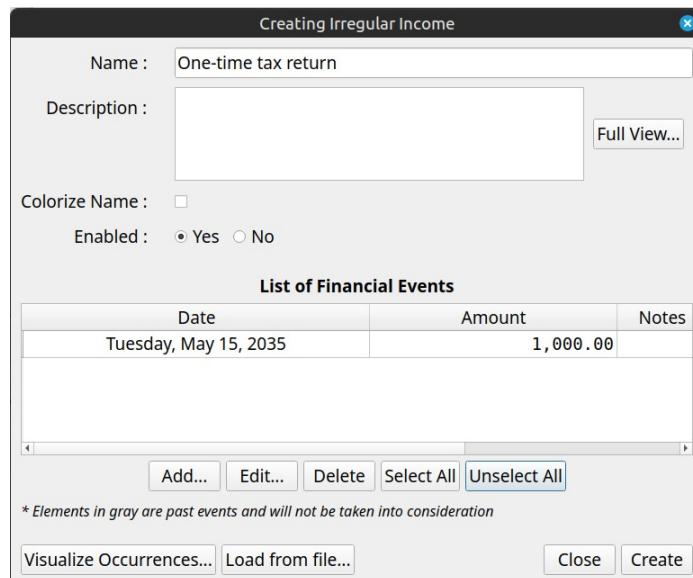
2036-06-01 : 57.52 CAD (cummul=1,274.55 CAD) <= growth of 0.7974%
2036-07-01 : 58.19 CAD (cummul=1,332.74 CAD) <= new growth of 1.1715%
...
2037-06-01 : 66.14 CAD (cummul=2,019.61 CAD) <= growth of 1.1715%
2037-07-01 : 67.16 CAD (cummul=2,086.77 CAD) <= new growth of 1.5309%
...
2038-06-01 : 79.37 CAD (cummul=2,896.93 CAD) <= growth of 1.5309%
2038-07-01 : 80.59 CAD (cummul=2,977.52 CAD) <= STILL growth of 1.5309%

```

## 9.1.4 Practical Examples of Irregular Incomes/Expenses

### 9.1.4.1 One-time Tax Return

A one-time event is easily modeled in GBP with an Irregular Financial Stream Definition. If for example one plans to receive a 1000\$ tax return on May 15 2035, this would look like this :



The list of Financial Events hold the expected Financial Events. Use “Add” button to create a new one, “Edit” to modify an existing one, “Delete” to remove all items selected.

### 9.1.4.2 Irregular Incomes from Selling Goods

When a set of incomes occurred at irregular intervals, the best approach is to use Irregular Stream Definition. For example, if you expect the following incomes from selling some furnitures before moving to a new place :

- 25 nov 2036 : 2000\$
- 30 jan 2037 : 1500\$
- 4 jun 2037 : 1200\$

This would translates in GBP with the following Irregular Financial Stream Definition :

Creating Irregular Income

Name :	Selling furnitures	
Description :	<input type="text"/>	
Colorize Name :	<input type="checkbox"/>	
Enabled :	<input checked="" type="radio"/> Yes <input type="radio"/> No	
<b>List of Financial Events</b>		
Date	Amount	Notes
Tuesday, November 25, 2036	2,000.00	
Friday, January 30, 2037	1,500.00	
Thursday, June 4, 2037	1,200.00	

\* Elements in gray are past events and will not be taken into consideration

#### 9.1.4.3 Periodic Expenses but Irregular Amounts

Even if a set of Financial Events occur at regular periodic intervals, it does not mean this should be modeled as Periodic Financial Stream. In the case where amounts are not constant or cannot be simply determined by Growth pattern (constant or variable), then Irregular Stream Definition is the way to go.

Lets say we get dividends from a investment portfolio every 3 months. The amount varies enormously and are given by :

- 31 jan 2036 : 5000\$
- 30 avr 2036 : 10000\$
- 31 juyl 2036 : 25000\$

In GBP, we would have the following Irregular Financial Stream Definition :

Creating Irregular Income

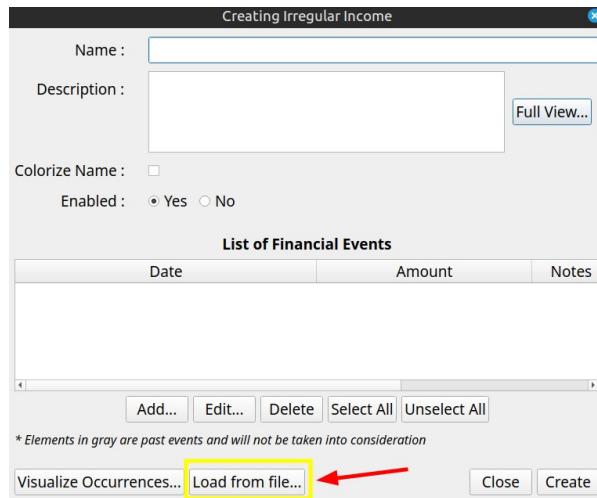
Name :	Dividends	
Description :	<input type="text"/>	
Colorize Name :	<input type="checkbox"/>	
Enabled :	<input checked="" type="radio"/> Yes <input type="radio"/> No	
<b>List of Financial Events</b>		
Date	Amount	Notes
Thursday, January 31, 2036	5,000.00	
Wednesday, April 30, 2036	10,000.00	
Thursday, July 31, 2036	25,000.00	

\* Elements in gray are past events and will not be taken into consideration

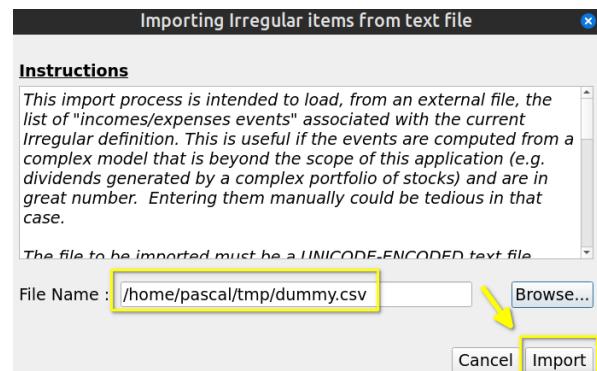
#### 9.1.4.4 Importing a Complex Set of Incomes

In the case where a set of incomes are determined by a complex model external to GBP, it is possible to import the result in a GBP Irregular Stream Definition with the help of a CSV file.

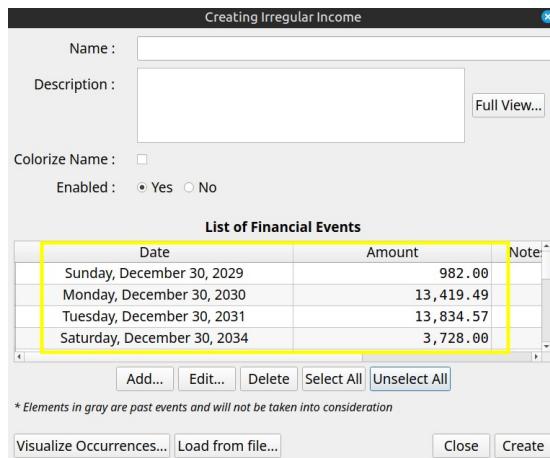
To do so, create a new Irregular Stream Definition and press the “Load from file” button at the bottom left :



The File import Dialog is shown : proceed by selecting a CSV file using the “Browse” button and press “Import” :



The content of the CSV file will be brought into the irregular income, replacing the current content :

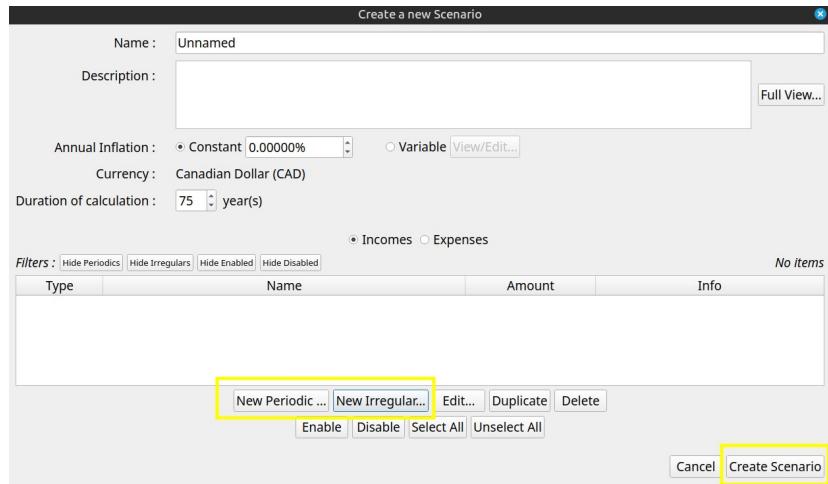


## 9.2 Creating the Budget in GBP

Once you gather all this information, you can create a new scenario by using the “Scenario → New...” menu. The following Dialog will be shown :



Select the currency to be used in the scenario by selection a country. After pressing “Select”, you will have access to the “Edit Scenario” Dialog : enter the collected data and then press “Create Scenario” button at the bottom right.



The last step would be to save the scenario in a disk file, using the “Scenario → Save As...” menu.

## 9.3 Using a Budget Scenario Over Time

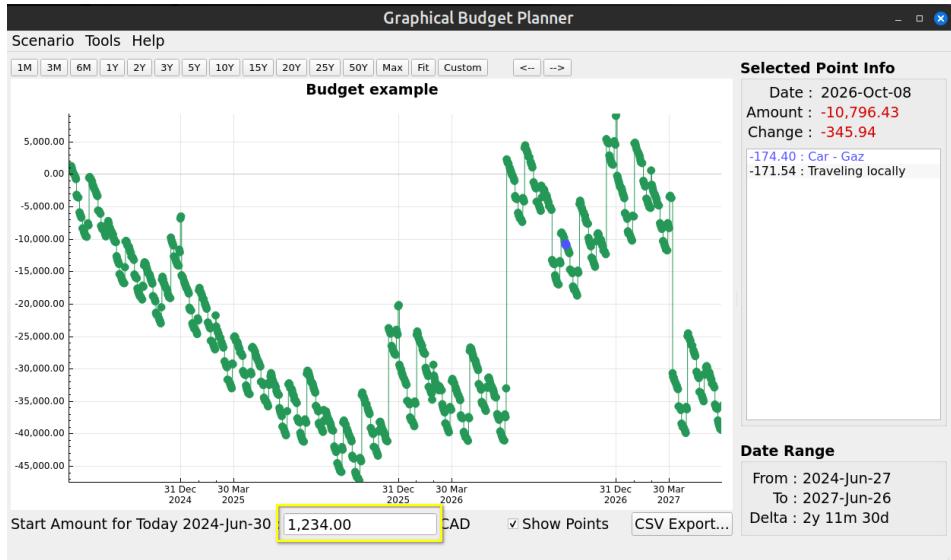
### 9.3.1 Typical Workflow

Once a budget is created, user will launch the program from time to time in order to either look at the budget, to modify the scenario’s data or to make some analysis. The following is a brief description of the typical way to use GBP, as intended by the author.

The standard workflow relies on the default behavior of GBP to read the date of “today” from the system’s date at launch time. This can be changed in the Options Window, but in that case it leads to the “alternate workflow” described in the following section.

#### 9.3.1.1 Set “Start Amount for Today” Value

First, right after launching GBP and a scenario is loaded, the user should update as soon as possible the “Start Amount for today” value. The basic assumption behind this approach is that it is easy to collect the net cash balance of the user (e.g. by looking at the balance of all “checking” bank accounts) or net value. This is what is entered in the “Start Amount for Today” field, as it represent the current cash balance as of “today” (or net value) and constitutes the initial condition on top of which the future incomes/expenses will be added. Think of it as a “baseline”.



### 9.3.1.2 Inspect the Cash Balance Curve and Analysis Module

Once this is done, user will typically do the following :

- Spend a lot of time changing the range of the displayed Cash Balance curve (zooming, panning, predefined range buttons at the top) and looking at **how the cash balance evolves over time**. This gives a good idea of how well the user is doing.
- Selecting miscellaneous points in order to know what Financial Events occurred in a specific day and see their effects.
- Looking at the Analysis module to inspect the evolution of monthly/yearly cash balance or to evaluate the relative weight of incomes/expenses over a custom period of time. The latter allows for quick identification of the **most impactful incomes or expenses**.

These activities will allow the user to better understand his current financial situation and help making appropriate decisions, which is the goal of GBP. For example :

- If the cash Balance curve gets dangerously close to 0 during a certain period of time, user may decide to delay or to reduce some expenses, like vacations, buying a new car, etc, or rather increase its incomes.
- A monthly cash balance (as reported in Analysis module) that is decreasing over time may lead to the conclusion that some decisions are required in order to be in better shape financially speaking

### 9.3.1.3 Play with the Scenario Data and Look at the Results

- By changing the amounts of some Financial Stream Definitions and see the effect on the curve, user can see if he can afford certain expenses (e.g. “Should I reduce the budget allocated to eating out and by how much ?”)
- Many simulations can be conducted by playing with the Financial Stream Definitions of a scenario, including enabling/disabling them, in order to see the financial impact of major life

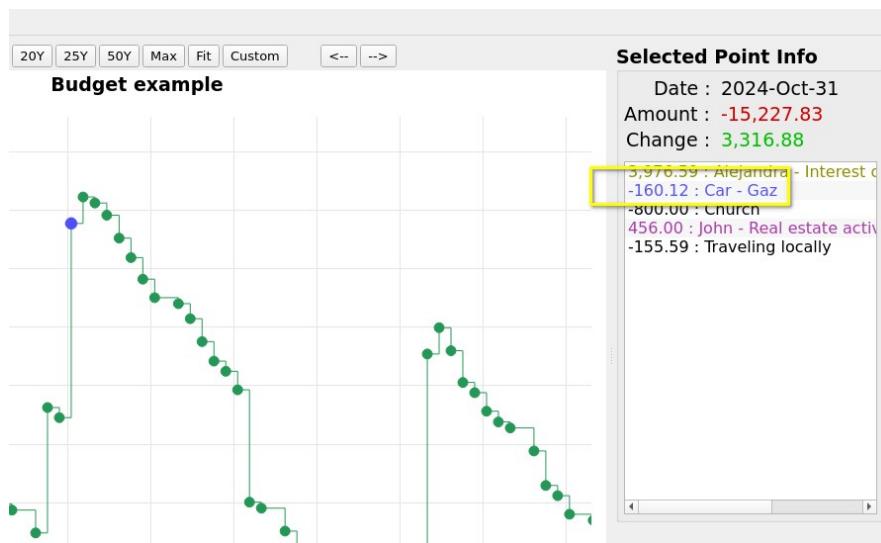
changing decisions (e.g. retirement, changing job, starting a business, moving to a different country, doing a PHD or not, go back to school, downsizing the housing expectation)

#### 9.3.1.4 Improve Readability Using Colorization of Name

In order to distinguish groups of incomes/expenses from one another, user will typically use the “Colorize Name” feature of a Financial Stream Definition. For example, he may use blue color to identify expenses related to car :

		<input type="radio"/> Incomes <input checked="" type="radio"/> Expenses
		<input type="radio"/> Periodics <input type="checkbox"/> Hide Irregulars <input type="checkbox"/> Hide Enabled <input type="checkbox"/> Hide Disabled
Name	Amount	
Appartment - Moving	2,00	
Appartment - Rent	2,100.00	Ever,
Car - Gaz	155.00	Ever,
Car - Insurance	1,500.00	Ever,
Car - Insurance - 2026	600.	
Car - Maintenance	200.00	Ever,
Car - one-time payment	26.5	
Car - Tires	1,200.00	Ever,
Church	800.00	Ever,
Cinema	100.00	Ever,
Clothing	350.00	Ever,
Family debt repayment	7,12	
Gift - Extended family	123.00	Ever,
Gift - Person A	12.00	Ever,
Gift - Person B	34.00	Ever,
Grocery	376.00	Ever,

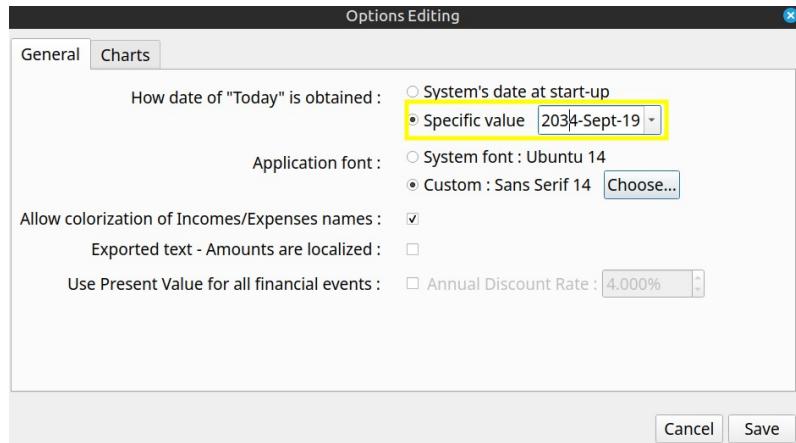
Not only is it easier to identify them in the list of Financial Stream Definitions in the “Edit Scenario” window, but identification is also easier in the “Selected Point Info” of the Main Window :



## 9.3.2 Alternate Workflow

### 9.3.2.1 What Is the Alternate Workflow ?

It is essentially the same as the “typical” one, with one very important difference : the date of “today” is not read from system’s date at startup (which is the default behavior), but is rather set to a custom value obtained from GBP configuration settings.



This means that the view provided by GBP is “frozen in time”, since the date of “today” does not change each time the program is launched. The date of “today” can be seen at the bottom of the Main Window :



### 9.3.2.2 When Can this Alternate Workflow Be Useful ?

There could be some situations where :

1. For an income/expense, you may have configured it to occur at a specific day in the month for example, but in reality **you don't know for sure when it occurs**
2. For an income/expenses, **the day of occurrence may change from time to time.**
3. The current cash balance can be **difficult to collect**

For example :

- Case 1 - Periodic monthly Health Care expense : you may set it for the 15 of every month, for convenience purpose, but in reality it may happen anytime in the month, more than one time. You could also decide to make it a daily expense, which kind of average it out and makes the use of the alternate workflow not required. But the inconvenient is that you will get a lot of Financial Events daily that are “less real”.

- Case 2 - Periodic investment incomes due for end-of-month : you may get them sometimes earlier in the month. It could be dividend payments that you scheduled every end-of-month for sake of simplicity, but in reality they occur at different moments in a month from time to time. For example :

- mars 2035
  - on the 15<sup>th</sup> : monthly dividend from stock A
  - on the 28<sup>th</sup> : trimestrial dividend from stock B
- April 2035
  - on the 15<sup>th</sup> : monthly dividend from stock A
- June 2035
  - on the 15<sup>th</sup> : monthly dividend from stock A
- July 2035
  - on the 15<sup>th</sup> : monthly dividend from stock A
  - on the 27<sup>th</sup> : trimestrial dividend from stock B

All is fine if you “retrieve” the dividends from your investment accounts at the end of the month, since they will have been collected and be part of your end-of-month Cash Balance amount. But if you get some of them on, lets say, the 15th and transfer the amount on the 16th, you will have an inaccuracy if you log in GBP the [16 – 31] period, as your cash balance will already have been increased by the dividends collected and transferred, but your Financial Event Stream definition states that you still have to receive it by the end of the month.

- Case 3 - you may have difficulty accessing the accounts or you have too many sources that contribute to determine your “current cash balance” amount.

To alleviate these situation, you may decide to use the alternate workflow and update the budget only at the end of the month for example, where all the intra-month incomes/expenses will have occurred.

Meanwhile, to work with GBP before the coming end of the month, you

- set the date of today as the “last end-of-month”
- set the same “current cash balance” you had at the end of the last month.

### 9.3.3 Future Values vs Present Values

This is an advance topic.

By default, all the Financial Event amounts produced by GBP are “future values”, meaning the actual “nominal” values, as produced by the Financial Stream Definitions. A periodic income of 1000\$ a month will still produce 1000\$ for every month until the end of the validation interval.

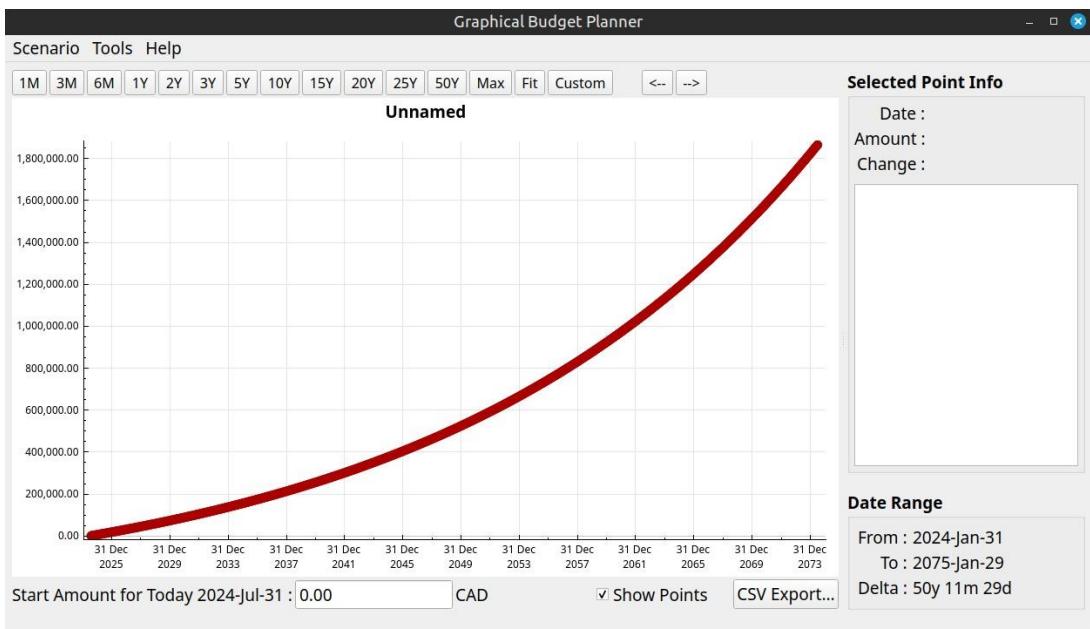
The problem is that these amounts occurring so far in the future are in fact worth less than today's equivalent nominal amounts, due to several economic factors, such as :

- **Inflation:** The value of money depreciates over time due to inflation. As prices rise, the purchasing power of a dollar decreases, making future values worth less.
- **Opportunity Cost:** Money received in the future has less value because it cannot be invested or used immediately. This means that money received today can produce return on investment (interest, dividend, capital gain, etc) or be used for immediate needs, whereas money received later has less potential for growth or utilization.

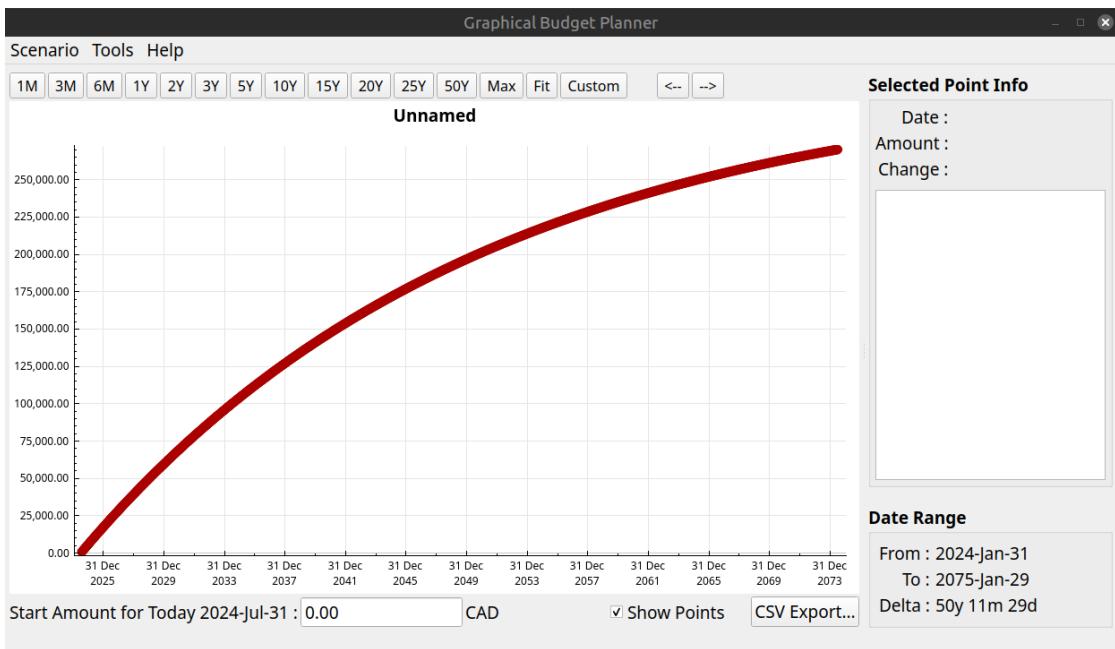
Inflation is already modeled quite well in GBP. For “opportunity cost”, it can be approximated using the conversion to Present Value. The conversion is enabled in the Options Dialog (item “Use Present Value”), where a “annual discount rate” in percentage must be provided by the user for the calculation to proceed. The conversion not only affect the Cash Balance curve displayed in the Main Window, but also all the data presented in the Analysis Window. Note that the conversion is on a monthly basis, meaning that all the amounts in a given month use the same conversion factor from future to present values. This simplification is perfectly adequate considering that we are looking at data in the far future and the annual discount rate is by itself an approximation.

The conversion to “Present Values” is useful when one looks at the general trend of the Cash Balance curve over a long period of time (many years). This can help to prevent misinterpretation of a climbing curve by thinking one accumulates a surplus over the years, as in reality it could be the inverse. The inconvenient of using this option is that all the financial event amounts (specially the short term ones because they are so close to the present) lose their intuitive interpretation : a Salary of 1000\$ in 24 months will be actually a different amount (like e.g. 800\$, depending on the discount rate used).

Take for example this 50-year cash balance curve : a simple monthly salary of 1000\$ following a 4% inflation rate.



All seems fine, as the curve is “ascending”... However, by converting to Present Values using a discount rate of 8% (the “opportunity cost”), we obtain this :



We can see that the surplus is actually diminishing every year in terms of Present Values, which may represent a problem for a personal budget. This is a conclusion that would not be possible to make as easily if only future values would be used.

## 9.4 Command Line Parameters

It is possible to alter some behaviors of GBP by passing some parameters on the command line when starting the application.

### 9.4.1 Force the Use of System Font

In Options, if ever the user selects a font that make the text unreadable to him, GBP can be started again in a terminal window with the argument “-usesystemfont”. This will reset the font to system font.

### 9.4.2 Override System Locale

By default, GBP uses the System Locale (language and regional settings). This for example influences how numbers are entered and displayed (decimal separator character, thousands separator character, etc). It is possible to alter this behavior by passing an argument on the command line that forces GBP to use a specific locale. The format of the argument is :

-locale=<L>-<T>

where :

- <L> is a 2 or 3 char string representing ISO 639, e.g. “en”, “fr”, “ar”
- <T> is a 2 or 3 char string representing ISO 3166 code, e.g. “CA”, “US”, “SA”

If ever the argument is ill formatted, GBP will revert to default System Locale. The selected final Locale is displayed in the “About box”.

Note finally that the UI language itself wont change to something other than French or English if the Locale is overridden by this method. At the moment, only French and English are available for the UI language. If the Locale has the “French” language specified (“fr”) (e.g. fr-BE), then the UI will be in French, otherwise it defaults to English.

# 10. Logs

## 10.1 Format and Location

GBP has an internal logging mechanism intended to help debugging, if the need arises.

There are 3 log levels :

- None
- Minimal (default) : contains no data that can be considered as "private", that is no file content, no directory or file name, no income or expense names and/or amounts.
- Debug : for full debug process and may contain private data

To change the log level, you must pass the following argument to GBP :

```
-loglevel=<L>
```

where L is :

- 0 = None
- 1 = Minimal (default)
- 2 = Debug

Log files location is indicated on the terminal when GBP starts. On Linux, it should be:

```
~/.local/share/graphical-budget-planner/logs
```

Log file name is created when GBP starts and follows the pattern :

```
YYYY-MM-DD__hh_mm_ss.txt
```

where :

- YYYY is the year of creation
- MM is the month (01 to 12) of creation
- DD is the day in the month of creation
- hh is the hour of creation
- mm is the minute of creation
- ss is the second of creation

When GBP starts, it launches automatically a log cleaning process : any log file that has been created more than 100 days ago is erased (i.e. trashed).

All logs are in English only.

## 10.2 Example

This is for the default “minimal” log level :

```
[2024-07-12 09:36:54] - INFO - Application started
[2024-07-12 09:36:54] - INFO - Deleting old log file /home/pascal/.local/share/graphical-budget-planner/logs/2024-04-01_11_36_26.txt :
success=1
[2024-07-12 09:36:54] - INFO - Deleting old log file /home/pascal/.local/share/graphical-budget-planner/logs/2024-04-01_11_27_53.txt :
success=1
[2024-07-12 09:36:54] - INFO - Deleting old log file /home/pascal/.local/share/graphical-budget-planner/logs/2024-04-02_09_17_46.txt :
success=1
[2024-07-12 09:36:54] - INFO - Deleting old log file /home/pascal/.local/share/graphical-budget-planner/logs/2024-03-31_21_17_20.txt :
success=1
[2024-07-12 09:36:54] - INFO - Deleting old log file /home/pascal/.local/share/graphical-budget-planner/logs/2024-04-02_09_04_13.txt :
success=1
[2024-07-12 09:36:54] - INFO - Deleting old log file /home/pascal/.local/share/graphical-budget-planner/logs/2024-03-31_21_22_57.txt :
success=1
[2024-07-12 09:36:54] - INFO - Deleting old log file /home/pascal/.local/share/graphical-budget-planner/logs/2024-04-01_09_56_24.txt :
success=1
[2024-07-12 09:36:54] - INFO - Deleting old log file /home/pascal/.local/share/graphical-budget-planner/logs/2024-03-31_21_19_21.txt :
success=1
[2024-07-12 09:36:54] - INFO - Deleting old log file /home/pascal/.local/share/graphical-budget-planner/logs/2024-04-01_11_46_03.txt :
success=1
[2024-07-12 09:36:54] - INFO - Deleting old log file /home/pascal/.local/share/graphical-budget-planner/logs/2024-04-02_10_29_01.txt :
success=1
[2024-07-12 09:36:54] - INFO - Deleting old log file /home/pascal/.local/share/graphical-budget-planner/logs/2024-04-02_09_09_57.txt :
success=1
[2024-07-12 09:36:54] - INFO - Deleting old log file /home/pascal/.local/share/graphical-budget-planner/logs/2024-04-02_09_37_49.txt :
success=1
[2024-07-12 09:36:54] - INFO - Attempting to load settings from /home/pascal/.config/graphical-budget-planner.ini
[2024-07-12 09:36:54] - INFO - Settings loaded successfully
[2024-07-12 09:36:54] - INFO - scenario_max_years = 50
[2024-07-12 09:36:54] - INFO - chart_dark_mode = 1
[2024-07-12 09:36:54] - INFO - chart_dark_mode_curve_color = #c00000
[2024-07-12 09:36:54] - INFO - chart_light_mode_curve_color = #259857
[2024-07-12 09:36:54] - INFO - export_text_amount_localized = 0
[2024-07-12 09:36:54] - INFO - main_chart_scaling_percentage = 0
[2024-07-12 09:36:54] - INFO - use_default_system_font = 0
[2024-07-12 09:36:54] - INFO - custom_application_font = Ubuntu,14,-1,5,400,0,0,0,0,0,0,0,0,0,0,1,Regular
[2024-07-12 09:36:54] - INFO - today_use_system_date = 1
[2024-07-12 09:36:54] - INFO - today_custom_date =
[2024-07-12 09:36:54] - INFO - allow_decoration_color = 1
[2024-07-12 09:36:54] - INFO - Default system font as reported by Qt : Sans Serif,9,-1,5,400,0,0,0,0,0,0,0,0,0,0,1
[2024-07-12 09:36:54] - INFO - Custom font to be used as the application font... Attempting font change
[2024-07-12 09:36:54] - INFO - Custom font to be used is : Ubuntu,14,-1,5,400,0,0,0,0,0,0,0,0,0,0,1,Regular
[2024-07-12 09:36:54] - INFO - Success of the custom font installation
[2024-07-12 09:36:54] - INFO - System Locale is : en_CA
[2024-07-12 09:36:54] - INFO - Decimal point : .
[2024-07-12 09:36:54] - INFO - Group separator : ,
[2024-07-12 09:36:54] - INFO - Language : English
[2024-07-12 09:36:54] - INFO - Territory : Canada
[2024-07-12 09:36:54] - INFO - Attempting to load translation file gbp_en_CA.qm from directory /tmp/.mount_graphikjU7TN...
[2024-07-12 09:36:54] - INFO - Translation file found and loaded
[2024-07-12 09:36:54] - INFO - Edit Scenario - infoActiveTable - Font size set from 14 to 12
[2024-07-12 09:36:54] - INFO - Edit Scenario - infoInactiveTable - Font size set from 14 to 12
[2024-07-12 09:36:54] - INFO - Edit Scenario - Description - Font size set from 14 to 12
[2024-07-12 09:36:54] - INFO - Edit Scenario - Filter Buttons - Font size set from 14 to 10
[2024-07-12 09:36:54] - INFO - Edit Periodic Dialog - Description - Font size set from 14 to 12
[2024-07-12 09:36:54] - INFO - Edit Irregular Dialog - Description - Font size set from 14 to 12
[2024-07-12 09:36:54] - INFO - Edit Irregular Dialog - Warning Label - Font size set from 14 to 12
[2024-07-12 09:36:54] - INFO - Analysis Dialog - Monthly Chart - X axis - Font size set from 14 to 10
[2024-07-12 09:36:54] - INFO - Analysis Dialog - Monthly Chart - X axis font size set from 14 to 10
[2024-07-12 09:36:54] - INFO - Analysis Dialog - Monthly and Yearly Chart - Selected Bar Info font size set from 14 to 12
[2024-07-12 09:36:54] - INFO - Analysis Dialog - Yearly Chart - X axis - Font size set from 14 to 10
[2024-07-12 09:36:54] - INFO - Analysis Dialog - Yearly Chart - X axis - Font size set from 14 to 10
[2024-07-12 09:36:54] - INFO - Main Window - FE List - Font size from 14 to 12
[2024-07-12 09:36:54] - INFO - Main Window - Toolbar - Font size from 14 to 12
[2024-07-12 09:37:49] - INFO - Scenario loaded successfully
```

# 11. Glossary

## **Financial Event (FE)**

The *occurrence* of a *single amount* of money at a *specific date* in time, adding to your global cash balance. The amount is  $\geq 0$  for an income,  $\leq 0$  for an expense. For example, an income of 100.00 on 2029-12-31 or an expense of -234.56 on 2045-01-31

## **Financial Stream Definitions (FSD)**

The set of data that defines an income or an expense, in a conceptual (i.e. *declarative*) form. From this definition, a series of Financial Events (a financial “stream”) can be generated.

## **Financial Stream Generation**

From a FSD, the application automatically “*generates*” all the financial events when the scenario is loaded. For example, a FSD could define a periodic salary of 2000 USD starting on 2032-01-15 , with no growth, to be repeated every week. The financial events that will be generated by the application would be :

- 2031-01-15 : 2000
- 2031-01-22 : 2000
- 2031-01-29 : 2000
- etc

## **Periodic Financial Stream Definition (PFSD)**

A type of FSD that defines a *periodic* financial stream, that is an amount that *repeat regularly* over time. Growth can also be defined to the amount, so that it can actually change with time.

## **Irregular Financial Stream Definition (IFSD)**

A type of FSD that defines a set of financial events occurring in time. Amounts cannot have growth associated with.

## **Scenario**

A file that contains a set of FSD (between 0 and 500), along with some information associated to the context, like a scenario name, inflation rate, etc.