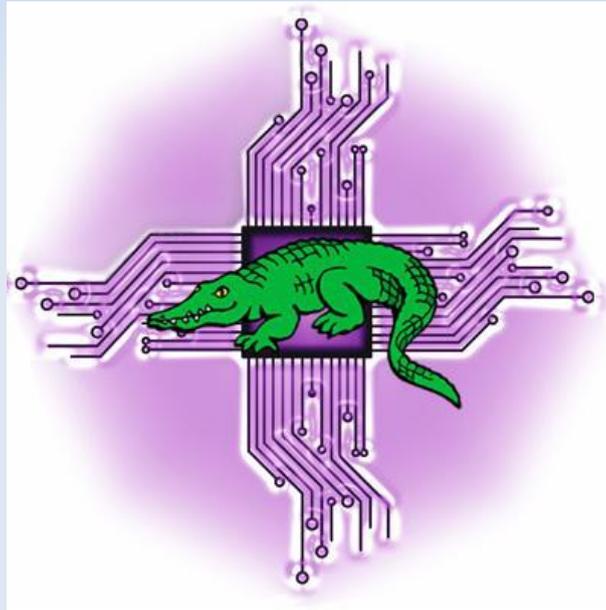


# A GnuCash Tutorial

## Presentation to Young Professionals CPA Discussion Group



**19<sup>th</sup> November 2014, Victoria University**

<http://levlafayette.com>

# Introducing GnuCash

GnuCash is free and open source software accounting program, originally designed to have similar functionality to Quicken. It was originally released in 1998 and it under active development (last release 2.6.4 on September 28) with a release schedule up to September 2017.

Multiple operating systems and architectures. GnuCash is available for Microsoft Windows XP/Vista/7/8, MacOS X for Intel or PowerPC, and Linux packages on a variety of architectures available for Fedora, Mandriva, RedHat/CentOS, or Ubuntu. There are older packages available for Debian, third-party RPMs for OpenSuSE, and documentation for Slackware, Gentoo, Solaris, and if all else fails, a tarball of the source files is available. Installation is from the following URL:  
<http://www.gnucash.org/download.phtml>



# Introducing GnuCash

GnuCash by default stores data in an xml format and stores and reads each country's special character sets by using UTF-8. Starting with version 2.4, GnuCash financial data can be stored in a SQL database using SQLite3, MySQL or PostgreSQL - all FOSS databases. It uses pure fixed-point arithmetic to avoid rounding errors which would arise with floating-point arithmetic (e.g., Magento).

GnuCash is multilingual with the application's menus and popups have been translated to 21 languages. Documentation is available in English, French, Portuguese and Spanish. Excellent documentation; detailed application Manual, and a Tutorial and Concepts guide. There are user mailing lists in seven different languages, a developers mailing list, an announce and patches list. There is an IRC group and a tip-of-the-day built in. There is also an Android application which can then be used to import data into the desktop version.

Much of tonight will consist on an introduction to the key features and follow the \*excellent\* documentation and hands-on tutorial that comes with GnuCash. This is VERY BORING set of slides on its own.

# Summary of Features

Basic accounting features include:

- Double entry bookkeeping; every transaction must debit one account and credit others by an equal amount.
- Chart of Accounts; A master account can have a hierarchy of detail accounts underneath it.
- Chequebook-Style Register; includes split transactions, mark as cleared or reconciled, autofill, multiple accounts in a single window, etc.
- Scheduled Transactions; with a very high level of customisation and a dialogue for setting mortgages and other loan repayments.
- Reports and Graphs; e.g., Other 30 prebuilt reports, including Account Summary, Balance Sheet, Profit & Loss, Portfolio Valuation etc.
- Statement Reconciliation; to compare the transactions entered in an account against a bank statement.
- Income/Expense Types; Income/Expense Account Types (Categories) allow you to categorize your cash flow, which in turn allows for highly customised reports.
- Import from Quicken QIF files, OFX (Open Financial Exchange) protocol used by many banks and financial services, along with MT940 format.
- Transaction finder. Advanced search functions to find that missing transaction!

# Summary of Features

Advanced accounting features include;

- Customer and Vendor tracking, Jobs, Invoicing and Bill Payment, and Tax and Billing Terms.
- Payroll management through Accounts Receivable and Accounts Payable accounts.
- Budgeting strategies.
- Multiple currencies fully balanced with double-entry.
- Stock/Mutual Fund Portfolios with online quotes updating portfolio automatically.
- Transaction matching system to ensure that duplicate transactions are accurately recognised and automatically deleted during file imports.
- Cheques may be printed in standard formats. A customization GUI allows custom check layouts to be developed.
- Support the German Home Banking Computer Information protocol (HBCI), allowing German users to perform statement download and initiate bank transfers and direct debits.
- Ability to further develop with custom scripts from Python.

# Core Concepts

GnuCash starts with the four basic accounts; assets, liabilities, income, and expenses, and their result through basic calculations, equity (e.g., The Accounting Equation:  $\text{Assets} - \text{Liabilities} = \text{Equity} + (\text{Income} - \text{Expenses})$ ) and uses a double-entry system in accounts. Every change of value in one account in the equation will be balanced with a corresponding change in another, using the Principle of Balance. When you work with GnuCash, you will always be concerned with at least 2 accounts, to keep the accounting equation balanced.

There are three levels of organisation in which GnuCash divides your data: files, accounts and transactions. These levels are presented in their order of complexity, one file contains many accounts and one account contains many transactions. GnuCash stores information at the highest level in files. An account keeps track of assets, liabilities, expenditure and receipts. Each GnuCash file can contain any number of accounts, and each account can contain sub-accounts. A transaction represents the movement of money among accounts; transactions always involve at least two accounts - a source account and a destination account.

# Core Concepts

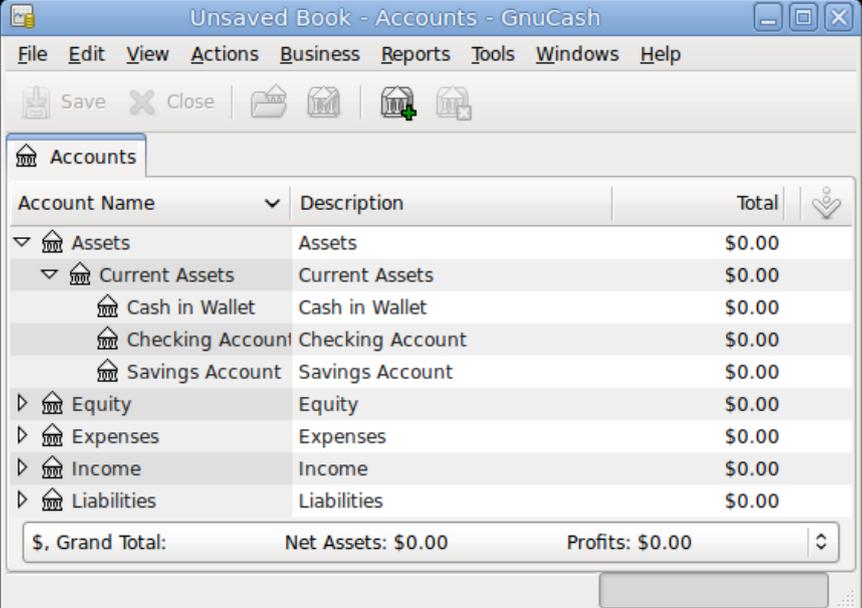
The Account window provides an overview of data contained in the current file; a list of account names and their current balances. From this window, any of the account can be opened. The individual account windows are called account registers. The Account Register windows are used to enter and edit your account data. When an account name in the Accounts window is selected, the Register window for that account will open. The account window and the register window contain Toolbar buttons which provide quick access to common functions such as Save and Open in the account window and Record and Delete in the register window.

To set up a new file, select from the GnuCash Menubar, and choose File -> New File. The New Account Hierarchy setup assistant will start. To save select Save or Save As from the Menubar. Select the Data Format of the file you are saving from the drop down list; the default is XML and it will automatically save with the extension .gnucash. If you wish to duplicate the structure of a datafile, select File -> Export -> Export Accounts, which sets up the structure but with no content, which then can be saved.

# Core Concepts

Each time you save your data file, a backup copy will also be saved with the extension

.YYYYMMDDHHMMSS.gnucash. This backup file is a complete copy of your previous data file, and the filename format refers to the data file, year, month, day and time of the backup. Each time you open and edit a file in GnuCash, GnuCash creates a log file of changes you have made to your data file. The log file uses a similar naming format as the backup files: .YYYYMMDDHHMMSS.log. Log files record changes you have made to the data file in the current GnuCash session. In case you exit GnuCash by mistake (e.g., a power outage) you can recover your work by opening the last saved copy of the file and selecting File->Import->Replay GnuCash .log ; make sure you select the right one!



The screenshot shows the GnuCash interface with the 'Accounts' window open. The window title is 'Unsaved Book - Accounts - GnuCash'. The menu bar includes File, Edit, View, Actions, Business, Reports, Tools, Windows, and Help. The toolbar contains icons for Save, Close, and other functions. The main area displays a tree view of accounts with columns for Account Name, Description, and Total. The accounts are organized into a hierarchy: Assets (Current Assets, Cash in Wallet, Checking Account, Savings Account), Equity, Expenses, Income, and Liabilities. A summary table at the bottom shows the Grand Total for Net Assets and Profits, both at \$0.00.

Account Name	Description	Total
Assets	Assets	\$0.00
Current Assets	Current Assets	\$0.00
Cash in Wallet	Cash in Wallet	\$0.00
Checking Account	Checking Account	\$0.00
Savings Account	Savings Account	\$0.00
Equity	Equity	\$0.00
Expenses	Expenses	\$0.00
Income	Income	\$0.00
Liabilities	Liabilities	\$0.00
\$, Grand Total:		Net Assets: \$0.00      Profits: \$0.00

# Accounts and Transactions

The three Balance Sheet Accounts are Assets, Liabilities, and Equity. Balance Sheet Accounts are used to track the changes in value of things you own or owe. The two Income and Expense Accounts are used to increase or decrease the value of your accounts. A GnuCash account must have a unique name and belong to one of the twelve predefined GnuCash "account types"; 6 asset accounts (Cash, Bank, Stock, Mutual Fund, Accounts Receivable, and Other Assets), 3 liability accounts (Credit Card, Accounts Payable, and Liability), 1 equity account (Equity), 1 income account (Income), and 1 expense account (Expense).

The predefined assets accounts are largely self-explanatory; 'cash' is cash-in-hand; 'bank' is the cash balance in institutions such as banks, credit unions, savings and loan, or brokerage firms; 'stock' is the value of individual stocks and bonds; 'mutual fund' where funds represent ownership shares of a variety of investments; and 'accounts receivable' records outstanding debts owed to you. The group category, "Other Assets", covers all assets not listed, which itself can be subject to finer graining. The predefined liabilities has three accounts; 'credit card' which tracks card receipts and reconciliations; 'accounts payable', essentially unpaid bills; and 'liability', suggested for all other loans and especially larger and long-term loans (mortgages, vehicles repayments etc)

# Accounts and Transactions

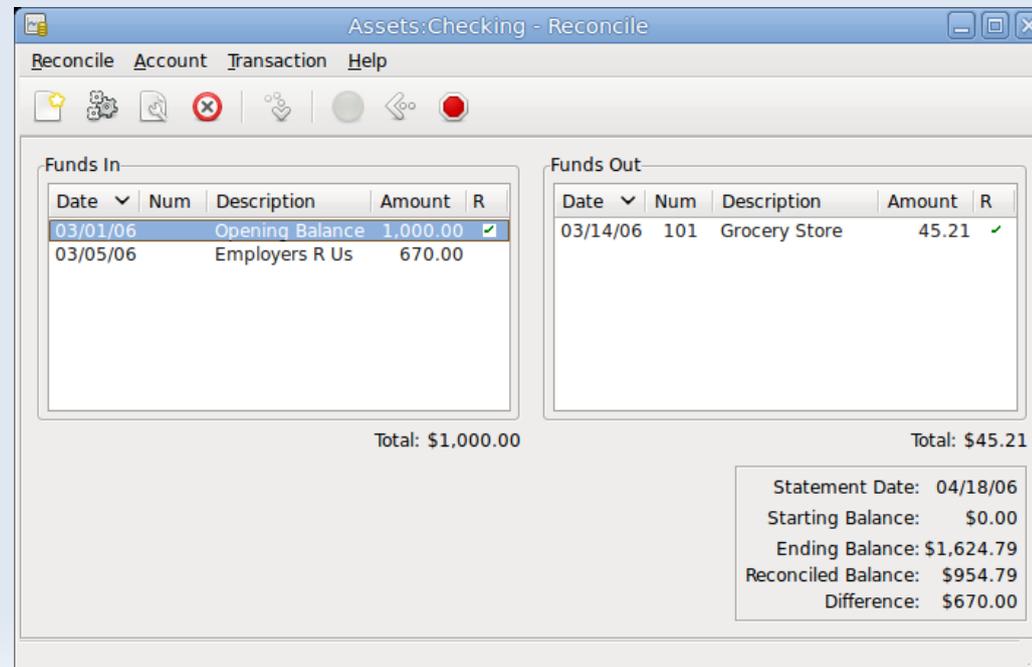
A transaction is a double entry exchange between at least two accounts. Thus, a single transaction must always consist of at least two parts, a from and a to account. Transaction records in GnuCash uses an account register, which one exists for every account. Transactions can be split across multiple accounts (e.g., multiple receipts or expenses in a single transaction). To add the paycheck split transaction from the Assets:Checking account register window, select a new transaction line and select Split. GnuCash keeps track of the reconciliation status of transactions, by the R field in the account register. The account window has two running balances, the cleared and reconciled balance, and the total balance. Schedules transactions are created from either the ledger editor, or from the Scheduled Transaction Editor, which is quicker if you want to create several at once.

Date	Num	Description	Transfer	R	Deposit	Withdrawal	Balance
06/03/06		Transfere Money	Assets:Savings	y	100.00		679.79
06/03/06	106	ABC Hardware	-- Split Transaction --	y		100.00	579.79
14/03/06		Employers R Us	-- Split Transaction --	y	670.00		1,249.79
24/03/06		Transfer Money	Assets:Savings	y	500.00		1,749.79
25/03/06		ATM withdrawal	Assets:Cash	y		100.00	1,649.79
28/03/06		Internet Subscription	Expenses:Internet	y		20.00	1,629.79
28/03/06	102	Light Company	Expenses:Electricity	y		78.00	1,551.79
28/03/06	103	Phone Company	Expenses:Phone	y		45.00	1,506.79
28/03/06	104	April Rent	Expenses:Rent	y		350.00	1,156.79
31/03/06		Service Charge	Expenses:Service Charge	y		5.00	1,151.79
28/04/06		May Rent	Expenses:Rent	n		350.00	801.79
05/05/06		Partial Payment of Visa Bill	Liabilities:Visa	n		300.00	501.79

Present: USD 1,151.79 Future: USD 501.79 Cleared: USD 1,451.79 Reconciled: USD 1,451.79 Projected Minimum: USD 501.79  
Tuesday 18 April 2006

# Reconciliation, Cheques and Credit Cards

To use the reconciliation windows, select an account from the account hierarchy and select Actions -> Reconcile. The two panes called Funds In and Funds Out, lists all the unreconciled transactions that belongs to the account that is going to be reconciled. The R columns show whether the transactions have been reconciled. Use the New button on the Toolbar, or the Transaction -> New menu item in the menu, to open a register window and enter any missing transactions. The new item will appear in the Reconcile window when you press the Enter button in the register after entering the transaction. When the amounts agree, click on the item in the Reconcile window. A check mark will appear in the R column beside the selected transaction.



# Reconciliation, Cheques and Credit Cards

Chequebook management requires setting up the necessary accounts, with defaults available from GnuCash. One bank type account is required for each physical bank account tracked. Typical accounts include cheque and savings accounts, the latter referring to interest-bearing accounts used to hold money for a longer term than cheque accounts. Common transactions that affect these bank accounts are payments and deposits, which of course will have an associated income and expense accounts to track where that money comes from and where it goes. Deposit transactions are entered as a transfer from an income account to a bank account. Check the Tax-Related box to assign an appropriate tax category in the Income Tax Information Dialog (Edit -> Tax Report Options) when setting up taxable income accounts. Cash withdrawals (for example) are handled as a transfer from a bank account to a cash account.

Purchases made with a credit card are expenses and the card itself is a liability. A top-level liability account should be established and credit card type accounts for each credit card in use. Either enter the total payments made as an expense or track the individual expenses as required. These will also be subject to reconciliation.

# Loans, Investments, Capital Gains, Multiple Currencies, Depreciation

A loan is a liability, the interest and fees accrued is an expense. The thing purchased with the money from a loan is an asset (hopefully!). GnuCash has a number of predefined loan account hierarchies available, including Car Loans and Home Mortgage Loans. To access these predefined account structures, click on Actions -> New Account Hierarchy. Amortisation schedules, periodic payment amounts, total payment value, or interest rates are facilitated with a built-in Loan Repayment Calculator. To access the calculator, go to Tools -> Loan Repayment Calculator. Reconciling a loan statement is no different from reconciling a bank or credit card statement.

For investment accounts either use the predefined hierarchy or create one independently. The minimum requirement is to set up an asset account for each investment. The Investment Accounts option of the New Account Hierarchy Setup assistant will automatically create a basic investment account hierarchy for you. Switch to the Accounts tab, and choose Actions -> New Account Hierarchy. The value of a commodity, such as a stock, must be explicitly set. The stock accounts track the quantity of stocks you own, but the value of the stock is stored in the Price Editor (Tools -> Price Editor). To update the price automatically, use the Perl module Finance::Quote.

# Loans, Investments, Capital Gains, Multiple Currencies, Depreciation

Capital gains and losses are expressed as unrealised and realised gains and losses. It is recommended that an accounting system only need to track this for items which could be sold for cash in the future or which relate to taxation. In order to keep track of the appreciation of the asset, three account accounts are needed; Unrealised Gains asset account to collect the sum of all of appreciation, which is balanced by an Unrealised Gains income account for periodic appreciation income, an an income account, Realised Gains, which records the actual capital gains on selling an asset.

GnuCash supports over a hundred currencies, and accounts can have values in different currencies (for example, cash in different international banks). If non-ISO defined currencies are desired, an Asset can be established (e.g., Assets:Other:Bitcoin). GnuCash allows you to update the Currency Exchange Rates in two different ways, manual and automatic. To manually update exchange rates use Tools -> Price Editor and select "Add". For automatic updates, simply select "Get Quotes", which uses the Perl module Finance::Quote.

Depreciation can be carried out by linear, geometric, or sum-of-digits method. In addition to the asset itself two depreciation accounts are required. The first is an asset Accumulated Depreciation account in which to collect the sum of all of the depreciation amounts, and will contain negative values. The Accumulated Depreciation account is balanced by a Depreciation Expense account

# Accounts Receivable, Payable, and Payroll

Accounts Receivable is represented on the balance sheet as an asset, because of the expectation that payment will be received. GnuCash has an integrated accounts receivable system which requires that an account (usually a sub-account under Assets) defined with account type A/Receivable; but this account is not generally used directly. Instead A/R application components (through Business -> Customer) is most commonly used, where 'Customers' are people who sell goods or services on credit, 'Invoices' contain an itemised list of items sold, 'Jobs' are where multiple invoices to a customer can be recognised, and 'Process Payments' is where a register of payments from a customer can be record. To send an invoice to a customer use Business -> Customer -> New Invoice.

The screenshot shows the 'documentation - Edit Invoice - 000001' window in GnuCash. The window has a menu bar (File, Edit, View, Actions, Business, Reports, Tools, Windows, Help) and a toolbar with icons for Save, Close, Edit Invoice, Enter, Cancel, Delete, Duplicate, Blank, Post, and Unpost. The main area is divided into several sections:

- Accounts:** Edit Invoice - 000001
- Invoice Information:** Invoice ID: 000001, Date Opened: 04/19/06, Active:
- Billing Information:** Customer: ABC Inc, Job: , Billing ID: ABC Purchase Order # 1298B, Terms: 30 Days
- Notes:** Your personal notes go here. Notes do not appear on printed invoices.
- Invoice Entries:** A table with columns: Date, Ir, Description, Action, Income Account, Quantity, Unit Price, Di, D, Discount, Te, T, T, Subtotal, Tax.

Date	Ir	Description	Action	Income Account	Quantity	Unit Price	Di	D	Discount	Te	T	T	Subtotal	Tax
04/19/06	X	Nails	Material	Income:Sales	1,000.00	0.10	%	<		X			100.00	0.00
04/19/06	X	Hammer	Material	Income:Sales	1.00	500.00	%	<	5.00	X			475.00	0.00
04/19/06		Description	Action	Income Account	Quantity	Unit Price	%	<	Discount	X			0.00	0.00

Total: \$575.00 Subtotal: \$575.00 Tax: \$0.00  
Wednesday 19 April 2006

# Accounts Receivable, Payable, and Payroll

Contrariwise, Accounts Payable refers to products or services received for which payment has not been made. This is represented on the balance sheet as a liability. GnuCash's integrated accounts payable system, requires an account of the A/Payable type. The A/Payable account is usually a sub-account under Liabilities. It is within this account that the integrated A/P system places transactions. Additional asset accounts and real expense accounts should be added according to the user's needs. Transactions generated by the A/P system are placed within the Accounts Payable account, as a record of what occurs. A/P application components (Business -> Vendor) are accessed instead of this account directly. 'Vendors' represent those where products or services are provided on credit, 'Bills' contains an itemised list of things purchased, 'Jobs' is a register of Vendor Jobs and can group multiple bill, 'Process Payments' are a register of regular payments.

Payroll is a financial record of wages, net pay, paid vacations, and deductions for an employee. Payroll is typically accounted for as an expense. Note that GnuCash does not have an integrated payroll system (this is hard for an international product with no full-time staff); payroll expenses are tracked but the calculation of taxes and deductions has to be done outside of GnuCash. Do not create per-employee sub-accounts to track individual salaries. Instead, keep all of employees' payroll records within a single account (Expenses:Salaries for example) and use reports to view per-employee information.

# GST (Australia) and Budgets

To handle GST, one can use a three-account or four-account naming scheme depending on what is best for their uses via Business->Tax Tables.

For a three-account scheme select GST as the tax table for each transaction. This will automatically add the GST amount to the Liabilities::GST::Payable account. For GST for purchases, a split transaction is required. For a four-account scheme. Using the Transaction Journal view, select "GST" as the tax table for each transaction. When payment are received, reduce the Assets:Accounts Receivable:GST by the GST amount, and increase Liabilities:Taxes:GST by the same amount. For purchases transfer the non-GST amount from the relevant asset, and the GST amount from your Liabilities:Taxes:GST account, placing the full amount in the appropriate expenses account. When GST is paid, transfer the amount that paid from Liabilities:Taxes:GST to Tax Expenses:Taxes:GST.

A budget is a tool for estimating expected income and expenses. To create a budget select Actions -> Budget -> New Budget. Select Options to establish budget period and the number of periods. Budget values can be entered manually or by using the GnuCash Estimate Budget Values tool. Once this is done, select Reports -> Budget -> Budget Report. For each account the Budget Report will show the budgeted and the actual amounts in two adjacent columns for each period in the budget.

# More Information

GnuCash Mailing Lists

[http://wiki.gnucash.org/wiki/Mailing\\_Lists](http://wiki.gnucash.org/wiki/Mailing_Lists)

Linux Users of Victoria

<http://luv.asn.au/maillinglists.html>

