

# **FreeCoins**

## **Guide, manual and developer's reference**

**by Vlad (diz) Mereuță**

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# Dedication

To Kate

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# Preface

This manual is very much work in progress. Sections are mainly created or updated in response to questions and requests from users. The speed at which the manual is taking shape is dependent on my disposition for writing documentation instead of coding (you probably guessed, not very likely) and the amount of free time I have on my hands (not a lot).

Any feedback is welcome (even grammar or style corrections - English is not my first language) and if you have any ideas on FreeCoins that you would like to share, please send them to me so that they can be integrated in the manual. The quicker the manual is completed, more users can take advantage of it ;-). Send all contributions to <dizzy@users.sourceforge.net> or post them through the project page hosted by SourceForge (<http://www.sourceforge.net/projects/freecoins>)

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# Chapter 1. Quickstart

This chapter contains installation and usage guide for FreeCoins, together with a brief introduction to the accounting concepts behind FreeCoins. Please refer to the full manual (Chapter 2) for detailed usage instructions.

## Installing FreeCoins

For information on how to install FreeCoins from source refer to Chapter 4.

There are several FreeCoins binaries, for different languages. Pick the binary with the right language code for you (for example `FreeCoins-en.prc` for the English language) to your Palm/emulator in the usual way. You are now ready to use the program. Note that you have to either install the currency database `sample_currencies.pdb` and select a default currency or start FreeCoins and create a currency yourself and select it as default. This is needed for proper operation of FreeCoins.

### Warning

if you have been using a previous version you will have to delete the old version before installing the new one (because the format in which data is saved changed since the last release).

## FreeCoins and double entry accounting

The reminder of this chapter is an adaptation of "*Gnucash and double entry accounting*" by Joseph Mack (C) 2001 jmack @ wm7d.net. The original is available online [<http://www.ncsysadmin.org/july2001/ncsa-gnucash-talk.html>] and was released under GPL.

### Why you work

For the purposes of this document, your goal in working is to get as much money as you can for your time. In accounting parlance this is called maximising your return on investment (ROI).

Of course your employer will tell you that your goal is to give the best service possible, and of course you'll agree with him.

In turn your employer when he goes to his customers will tell them that the reason his company exists is to provide the best service possible to them.

Your employer will tell you that he's running his company to get the most money in return for your efforts (his ROI). When he talks to his customers, he tells them that the reason his company exists is to provide the best service possible to them.

It's possible you want to make the world a better place etc, and you use your job for that, but in the end, if you weren't getting money from your job, you wouldn't be able to save the world. So no matter what we tell other people, what we're really interested in is (ta da) *the money*.

Not only is your money of interest to you, there's other people looking over your shoulder and it's of interest to them too, Here's a partial list of these people.

- you
- the tax people
- bankers, creditors, investors

These people want to know about your money to the penny.

## Tracking your money

We need to track our money. The two methods used are as follow.

### Cash book or single entry accounting

This method is used only for personal accounting. It sees your finances as one (or a small number of) piles of money (accounts). The pile increases (with salary) and decreases (with purchases).

Single entry accounting is simple if your money is in a single (or small number of) accounts (eg a checking account).

### Double entry accounting

In business accounting, money is divided into many piles (accounts) and each account is treated differently.

In your tax form, you'll see that the whole of your expenses for office supplies are taken off the top of your profits, while you can only take off half the expenses for food. To make life easier for yourself, you'll have one account for office supplies and another for food and entertainment. You track the money in each account separately.

You also need to be able to transfer money between accounts. This transfer is called a transaction.

In double entry accounting, there are:

- many accounts
- movement of money (a transaction) is from one account another (*i.e.* 2 accounts are required for every transaction). This is where the name "double entry accounting" comes from.
- movement of money for different purposes is a matter of making a transaction between the appropriate pairs of accounts

### Examples of Accounts, with their standard accounting names

Your personal check account which is a 'cash' account, would be named for example 'cash:check'. Meaning that you have an account named 'cash' and a sub account named 'check'.

Accounts for phone and other utilities are 'expense' accounts. For example 'expense:phone' and 'expense:utilities'.

### Examples of transactions

Every time you spend, receive or transfer money is a "transaction". When you write a check to pay your phone bill, that's a transaction. When your paycheck goes into your account - another transaction. When you go to the ATM to get some cash for a night out, that's a transaction. When you buy a burger with that cash ... you guessed it, it's a transaction.

—From the Linux Journal article by Robert Merkel in the Apr 2001 issue, p122

In double entry accounting parlance, what happened was:

- you need some cash, you go to the ATM and take some money out of your check account (cash:check) and put it in your pocket (cash:petty).



- you buy a burger, you credit cash (cash:petty), you put the receipt in a folder and you debit the expense to expenses:food\_and\_entertainment.
- to pay your phone bill you remove some money from your cash:check account and you send it to the phone company (recording it in the expense:phone account).

In all cases money just moves from one place to another. Money does not appear, disappear, get created or destroyed.

## What is a double entry accounting program?

Conceptually it's a spreadsheet with:

- variable number of tables (accounts).
- number of columns in the accounts is the required number for accounting (i.e. all tables have the same number of columns).
- different types of accounts (cash, asset, liability, expense...)
- columns are pre-labelled according to account type.
- an entry in one account is linked a matching entry in another account. If you correct/change an entry in one account, the matching entry and balance will be updated in the other account.
- rules are hard wired so that the correct entry will do something sensible to other tables. The wrong entry will produce results that are obviously wrong (even to non-accountants like myself). This won't tell you the correct thing to do (you'll need to understand accounting for this) but at least you'll know there is a problem.
- dates automatically generated (or you can enter dates manually).
- report generation

Due to the nature of the device FreeCoins is running on, some of these features are not available. For example there is no report generation (FreeCoins relies on external export/conduit programs to gather data and generate meaningful reports) and there are no differently labelled columns in the transaction register. In fact there are no columns at all due to the small size of the screen. However the button labels when entering transactions from different account types change accordingly.

## About double entry accounting

Double entry accounting is a lot more work than is single entry method. It only makes sense when you have a lot of money compared to the cost of keeping track of it (ie you're rich - accountants are cheap it seems).

You do it to catch errors and to accurately track the various streams of money in your business, not only for yourself, but because others want to know your finances and you need to have the information available in a format they understand. The agreed language is double entry accounting.

## The history of double entry accounting

People had been tracking money (to pay bills, collect taxes) for thousands of years, but it wasn't till the 1400's that the Italians invented double entry accounting. This made banking reliable, enhanced trade and commerce and very quickly Italy became the banking capital and wealthiest country in Europe. It was the 1400's equivalent of the invention of the Internet and the dotcom boom. They had buckets of money to spend. They spent it on paintings of Adam talking to God done on black velvet. Well they would have but velvet hadn't been invented yet. They

made do with what they had, which was plaster ceilings. They spent money on painters, sculptors and people like Leonardo da Vinci.

In grade school this period is called the Renaissance, a flowering of art and intellect, that appeared in Italy for no obvious reason and then spread to the rest of Europe.

Quite why all these geniuses suddenly appear without any warning is not explained by your history teachers (who spend their life pondering deep questions like this), but Jared Diamond (Guns, Germs and Steel, Pub: Norton 1997) is happy to tell you. He says that geniuses like Michealangelo and Einstein are rather commonplace. Most of them are oppressed and are living in abject poverty, and are busy surviving if they even do that. Give them a good feed, treat them well, put them in the company of peers and pretty soon they'll be coming up with all sorts of things you hadn't dreamed of.

The Renaissance then was a result of the invention of double entry accounting, not (as we've been told) a flowering of intellect and art that happened for no reason at all.

## Comparison of double entry accounting with calculus

About 200 years after the invention of double entry accounting, the scientific revolution occurred. People realised that you could ask questions of nature (by doing an experiment) and you got answers. Not only that, you got the same answers every time. It was much easier than asking questions of people, who never give the same answer twice. The simple questions were asked first ("do heavier objects fall faster?" - no-one had ever asked nature about this before). This led to more complicated and more interesting questions. With lots of data rolling in, a mathematical revolution soon followed, one part being calculus.

I found double entry accounting more difficult to learn than calculus. The fact that calculus was invented 200yrs after double entry accounting would indicate that calculus is conceptually more difficult than double entry accounting, but I'll offer the following evidence to support the opposite postulate.

Calculus:

- The need for it is obvious. Any 10 year old who tries, even in principle, to calculate the distance travelled by a car by tracking the varying position of a car speedometer needle, is working on deriving integration and numerical methods from first principles.
- When presented, calculus is instantly recognisable as the solution to many problems.
- People have been able to expand calculus.
- The people who invented and expanded science and calculus are known and the circumstances of their work is known.
- you can mathematically prove that calculus is correct.

Double Entry accounting:

- The need for it is not obvious and so there was never any pressure to invent it.
- When presented to you, it doesn't appear to solve any problems. It seems to make them worse. Your first reaction is "you want me to do all that! what for?"
- It is revealed wisdom. The names of the inventor(s) of double entry accounting have been kept secret. You can't prove anything about double entry accounting - no-one has proved or derived the self consistent orthogonal set, even 600yrs later. All we know is that it just works. It may as well be magic.

- No-one has been able to improve or expand it.

You have to be a lot smarter to invent something for which there is no need, that no-one can understand and for which there is no proof that it's right (other than it works) and for which no modifications have been possible, than to invent something whose need is obvious and which you can check by proof for correctness as you go.

Not only this, the total salaries paid to people who understand accounting is much higher than that paid to the people who understand calculus.

QED.

## Example business, RocketScience LLC

### Incurring liability: starting the business

Let's start a one person business, RocketScience LLC. Here's the FreeCoins screen for the moment the business springs into life. The FreeCoins screen comes up blank and I have primed FreeCoins with a minimal set of accounts.

Note that I have grouped accounts of the same type into their own tree. FreeCoins allows you to have accounts in trees like this or to have accounts branching directly from the root. The accounts in the same tree must be of the same type. I found it easier to have accounts of the same type in their own tree. All the expense accounts live in one tree. All the cash accounts live in another. I could have had 2 (or more) cash trees (say) if I wanted. FreeCoins recognises about 5 types of accounts. I'll talk more what a "type" is later.

**Figure 1.1. Start of business**

Account List	▼ All	Account List	▼ All
▼ cash	0.00	▼ cash	0.00
check acc	0.00	check acc	0.00
Joseph Mack	0.00	Joseph Mack	0.00
petty cash	0.00	petty cash	0.00
► equity	0.00	▼ equity	0.00
▼ expenses	0.00	acc prof&loss	0.00
advertising	0.00	profit&loss	0.00
food&entert.	0.00	► expenses	0.00
office suppl.	0.00	▼ liabilities	0.00
► liabilities	0.00	Joseph Mack	0.00
▼ Total	0.00	▼ Total	0.00
Quick trans...		Quick trans...	

The business needs some capital to buy things, so that you can start work. Since you are the owner, let's assume you're going to put \$5000 of your personal money into the business. It's going into the business's check account, which one of the cash accounts (the cash:check account). Here's the cash:check account screen as I'm part way through recording the entry. I record that I deposited check #1234 from my personal check account #9876541 for \$5000 into the business's check account.

Figure 1.2. Deposit to check

Remember that money only moves around, it didn't just appear. It had to come from somewhere. When I record the deposit, I also record (in the transfer column) where the money came from. Since the owner Joseph Mack put \$5000 into the business, the business now owes \$5000 to Joseph Mack. This \$5000 is called a liability. I record that the money in the business's check account came from the account liabilities."Joseph Mack", capital. The account button in the transfer box allows you to select the "liabilities"Joseph Mack", capital account as the matching account, completing the entry.

Here's the same entry as seen in the matching liabilities:capital account. Note I didn't make the entry seen here. FreeCoins did this automatically, when I selected the liabilities.capital account in the transfer column, in the screen above. Note that the entry is identical (comments, date, amount of money) except that the money is logged as 'credit' this time.

Figure 1.3. Capital account

## Black Ink and Red Ink

If you read in the newspapers that a company is running a lot of red ink, it means they have a too many liabilities and they're in financial trouble. Companies (at least in newspapers) are "in the black" or "in the red". A black balance in an account means you have an asset, a red balance means you have a liability.

In the transaction above, a matching pair of entries creates an account with a black balance (the check account) and another account (the liability account) with an equal red balance. Remember money is not created or destroyed,

it's just moved around. We started with 2 accounts at \$0 and moved \$5000 from one account to another. The target account wound up with (black) \$5000 and the source account with (red) \$5000. It's the same principle as the creation of matter at the big bang, where in an instant you had the creation of equal amounts of matter and anti-matter. Accountants have been doing the same thing with money for 600 years.

Why is the balance in the liability account red? Isn't a liability already negative and therefore a red liability positive? Accountants presumably could have chosen to do it this way, but instead they chose to make liabilities in *all* accounts red. That way the accountant doesn't have to flip to somewhere else and find out the account type and risk making a mistake.

While a balance can be black or red, the entries in the debit and credit columns are always black. The numbers in the debit and credit columns are the amount of money that was transferred in the transaction and this is always positive. The effect on the balance can be in the red or black direction depending on whether the entry was a debit or credit.

Liabilities are not necessarily bad. RocketScience LLC required a liability (to the owner) before it could start business. Banks have liabilities to the people who make deposits. Planned liabilities, which you can cover in the period in which they come due, are a normal part of business. The "red ink" problem are unplanned liabilities or unplanned shortages of cash which don't allow the company to meet its financial obligations as they become due.

## Debit and Credit

There always is a debit and a credit column in an account (seen in the liability account above). The words "debit" and "credit" are an arbitrary pair of words, like positive/negative, male/female, left/right. Because of double entry accounting, every debit is matched by an equal sized credit. Both debits and credits are good.

Normal citizens like you and me may think that credits are good and debits are bad. This is because when you get a copy of your bank statement, and you see a credit amount and you are happy. It turns out, you aren't getting a record of the amount of money you have (although you may think it is). What they send you is a copy of one of their accounts which shows their financial situation i.e. a liability to you. A credit entry then means that that they have to be prepared to pay you money. You are seeing the bank's view of their financial situation, not your view of your situation.

If you were using double entry accounting on your personal finances and had walked into the bank with a pocket full of money, you would have debited the money to your personal petty cash account to match the credit in their account.

A credit in the bank's account which is showing their view of their business with you, just means that they have a liability to you for a certain amount of money, and that you are one of their creditors. The statement doesn't say that you have money. In fact you don't have the money at all, they do. If they go bankrupt, no-one has the money.

A credit doesn't mean that you have money and a debit doesn't either. It's the balance that is important.

Accountants know which is the debit and credit part of a transaction. They spend years learning this stuff. If you ask them, they'll tell you that the credit is the right hand column and the debit is the left hand column. That's the beginning and end of it. However for weenies like you and me there is no hope of remembering whether the action you're taking on an account is debiting or crediting and you'll get it wrong half the time. To help you recognise whether you're crediting or debiting, FreeCoins gives a name to the credit and debit column that is more in line with non-accountant's perception of the transaction. In the check account, when you put money into it, you put the money into the "Receive" (i.e. debit) column and FreeCoins will make the corresponding credit entry for you in the liability account.

## Types of Accounts

All accounts of a particular type (e.g. cash, liability, expense) have the same names in their debit and credit columns (e.g. all cash accounts have "Receive" and "Spend", all expense accounts have "Expense" and "Rebate").

The transactions that most of us think about are between accounts of different types. The account types is the nearest thing to an orthogonal set that I can see in accounting. I don't know whether there is a finite number of account types, or whether the number has changed since double entry accounting was invented.

## Expenses: Time to spend some money

We're ready to start business.

RocketScience LLC wants to tout its unique skill set to the world to earn some revenue and decides to spend some money on advertising. The tax people require you to track your advertising expenses separately from all other expenses, so you set up an expense.advertising account. RocketScience LLC spends \$1000 on a webpage with the latest in Java applet technology. You write a check on the RocketScience LLC bank account and send it to WebSite-R-US.

Here's the entry in expenses:advertising. I'm selecting the matching entry from from the cash:check account (you record your check number, #1001, the first written on your bank account). Note that a debit for an expense account in FreeCoins speak is the familiar term "Expense".

**Figure 1.4. Advertising expense**

Transaction details	
Date:	1/23/03
Num:	
Desc:	Website:website-r-us
Acc:	cash:check acc
<input type="button" value="Expense"/> <input type="button" value="Rebate"/>	
Amount:	1000.00 <input type="checkbox"/> Cleared
Payment:	▼ Card
<input type="button" value="Splits..."/> <input type="button" value="Scheduling..."/> <input type="button" value="Note"/>	
<input type="button" value="OK"/> <input type="button" value="Cancel"/> <input type="button" value="Delete"/>	

advertising	
01/23 Website:website-r-	1000.00 <input type="checkbox"/>
D R Total/clred: 1000.00 0.00	
<input type="button" value="New trans..."/> <input type="button" value="Account list"/>	

Here's the main screen after recording the advertising expense.

**Figure 1.5. Screen after advertising**

Account List ▼ All	
check acc	4000.00
Joseph Mack	0.00
petty cash	0.00
▶ equity	0.00
▼ expenses	0.00
advertising	1000.00
food&entert.	0.00
office suppl.	0.00
▼ liabilities	0.00
Joseph Mack	-5000.00
▼ Total	0.00
Quick trans...	

The amount of cash has decreased \$1000. Nothing surprising here. We didn't really need double entry accounting to see this. We've only had 2 transactions.

### Revenue: we earn some money

That afternoon, FastTrack Inc has seen our website and gives you \$500 of work, which you do the same day. The customer comes over to say hello and check you out. He's fine with the work, which he picks up. He leaves a check, which you deposit in the bank the same day.

For this you record Income (FreeCoins speak for credit) in the revenue:fees\_earned account, recording their check number. The matching account is your cash.check account, which gets debited.

Here's the main screen after recording the revenue.

**Figure 1.6. Screen after revenue**

Account List ▼ Income&Expense	Transaction details ⓘ
▼ expenses 0.00	Date: 1/23/03 Num: 12345
advertising 1000.00	Desc: fasttrack ind
food&entert. 0.00	Acc.: cash:check acc
office suppl. 0.00	Charge Income
▼ revenue 0.00	Amount: 500.00 <input type="checkbox"/> Cleared
fees earned 0.00	Payment: ▼ Cheque
▼ Total -1000.00	Splits... Scheduling... Note
Quick trans...	OK Cancel Delete

Note that since you earned money, the matching principle of double entry accounting increased the blackness of both accounts by \$500. The revenue account was raised from \$0 to \$500. The cash account, was raised from \$4000 to \$4500.

Now wait a minute. Did I say that? When I was putting money into the bank to start off the business, I said the same thing: I credited one account and debited another. That time instead of both going more "in the black", one account went red and the other went black.

What's happening?

This is why there are different types of accounts. Some accounts become more black when they are debited (e.g. cash, liabilities) and some become more red (e.g. expenses, revenue). This is what double entry accounting has over single entry accounting. In single entry accounting you are only concerned with whether you have more money or less (black and red). With double entry accounting you are concerned whether an entry is a debit or a credit. The system handles the black or red part without any intervention on your part. (This is why accounting is smarter than calculus).

## Profit and Loss

Lets fast forward to the end of the accounting period (say to 30 September) and lets say you do no more business till then. At that time you determine the profit and loss. For this you fold the revenue and expense accounts into a profit and loss account. This process is known as closing out the accounts.

An accountant can look at the balance in an account and will know whether a credit or debit is needed to close out the account. I don't know these things. Instead since the number of transactions in the accounts are small (here 1), you can enter a debit or credit for the value of the balance which zeroes out the account.

Here's the profit and loss account after closing out revenue and expenses.

**Figure 1.7. Profit and loss account**

The screenshot displays four windows from an accounting software interface:

- Transaction details (Left):** Date: 9/30/03, Num: [blank], Desc: close out advertis., Acc.: expenses:advertising, Amount: 1000.00, Cleared checkbox, Payment: Transfer, and buttons for Splits..., Scheduling..., Note, OK, Cancel, Delete.
- Transaction details (Middle):** Date: 9/30/03, Num: [blank], Desc: close out revenue, Acc.: revenue:fees earned, Amount: 500.00, Cleared checkbox, Payment: Transfer, and buttons for Splits..., Scheduling..., Note, OK, Cancel, Delete.
- acc prof&loss (Right):** A summary window showing:
 

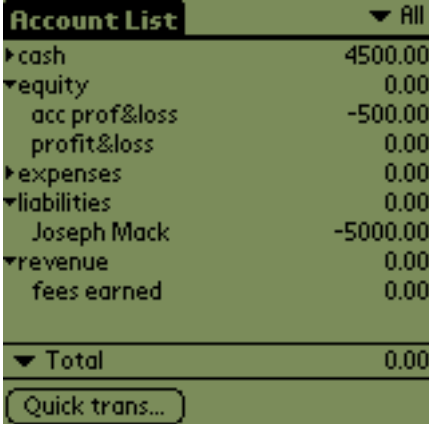
09/30 close out revenue	500.00	<input type="checkbox"/>
09/30 close out advertis.	-1000.00	<input type="checkbox"/>
<hr/>		
D R Total/clred:	-500.00	0.00

 Buttons at the bottom: New trans..., Account list.

Profit and loss has a balance that is \$500 in the red. This is no big deal, you already knew you'd made a \$500 loss. A loss here is not problem in the beginning as long as you have enough capital to pay the financial obligations as they come due (e.g. Amazon.com).

Here's the mainscreen after closing out the revenue and expense accounts (the balances in expenses and in revenue are all \$0). Profit and loss has a liability (red) of \$500.



**Figure 1.8. Main screen after profit and loss**

Account List	▼ All
▶ cash	4500.00
▼ equity	0.00
acc prof&loss	-500.00
profit&loss	0.00
▶ expenses	0.00
▼ liabilities	0.00
Joseph Mack	-5000.00
▼ revenue	0.00
fees earned	0.00
▼ Total	0.00
Quick trans...	

## Owner's Equity

The owner of a business doesn't get a salary. The owner gets money through an increase in his equity. When the equity has increased sufficiently he can withdraw some of it for his own use. The owner also cops any loss. So profit and loss are fine and dandy, but what the owner is really interested in is his equity.

Let's see if we can calculate the owner's equity at the end of the accounting period without using double entry accounting. You've put in \$5000 initially. On top of that you made a loss of \$500 (revenue \$500 - expenses \$1000). Using single entry accounting you ask the question "how much are you in the hole now?" (stop for a second here to get an answer).

To get the new owner's equity you keep some (or all) of the profit within the company to help finance activities for the next accounting period. You close out the rest into the owner's equity. In this case a loss was made and the owner gets the whole loss.

Here's the profit and loss account after closing it out into the owner's equity.

**Figure 1.9. Profit and loss after owner's equity**

The screenshot displays four windows from the software interface:

- Transaction details (top left):** Date: 9/30/03, Desc: close out prof&loss, Acc.: liabilities:Joseph Mack, Amount: 500.00, Payment: Transfer.
- Transaction details (top right):** Date: 9/30/03, Desc: close out expenses, Acc.: expenses:advertising, Amount: 1000.00, Payment: Transfer.
- Transaction details (bottom left):** Date: 9/30/03, Desc: close out revenue, Acc.: revenue:fees earned, Amount: 500.00, Payment: Transfer.
- profit&loss (bottom right):** A summary window showing the following entries:
 

Date	Description	Amount	Balance
09/30	close out revenue	500.00	
09/30	close out expenses	-1000.00	
09/30	close out prof&loss	500.00	
<b>Total/clred:</b>		<b>0.00</b>	<b>0.00</b>

Here's the mainscreen after closing out the profit and loss account into the owner's equity.

**Figure 1.10. Main screen after owner's equity**

Account List		▼ All
▼ cash		0.00
check acc		4500.00
Joseph Mack		0.00
petty cash		0.00
▼ equity		0.00
acc prof&loss		-500.00
profit&loss		0.00
► expenses		-1000.00
► liabilities		-4500.00
► revenue		-500.00
▼ Total		0.00
Quick trans...		

The amount of cash in the bank is reasonable. The business started with \$5000 and lost \$500, leaving \$4500.

Why isn't the owner's involvement in the business now \$5500? After all it was initially \$5000 and the business then lost a further \$500. The owner is going to have to work harder to recover the extra \$500. When I was setting this up, I made lots of mistakes. Is this another of my mistakes? (pause to think here).

The problem turns out to be that the question "how much am I in the hole?" is badly posed. Here are the questions accountants can answer.

**What obligation/liability does the business now have to the owner?**

\$4500.

The business had an obligation of \$5000 and lost \$500. It only has \$4500 to give back to the owner. This is the same question as "how much is the business worth or how much would the owner recover today, if the receivers came in and liquidated it?" (You can't get blood out of a stone, the business only has \$4500 in assets.) If instead, the business loses the whole \$5000, there's nothing the owner can recover.

This is the only question about the owner's equity that's of interest to an accountant looking at the business's books. The business is only interested in what it owes the owner and that's all that is of interest to an accountant.

**How much money has the owner invested in the business?**

\$5000.

He has a cancelled check from the bank proving it.

**How much profit would the business need to make, for the owner to recoup his \$5,000 investment?**

\$5500.

This is the answer I expected when I asked "how much are you in the hole now?". This amount may be of interest to the owner, but it doesn't show up in the business's accounts.

**What's wrong with the original statement "you put in \$5000 and then you lost \$500"?**

The problem is that there are two different "you"s in that statement. The first "you" is the owner and the other "you" is the business. The mix-up comes about because the owner identifies with his business. The owner invested \$5000 and the business lost \$500. The two transactions affect the owner's equity in opposite directions.

**Coda**

As a technical person I always find it amazing or amusing that people can happily sit in front of a TV without knowing or even wanting to know how it works. I'm quite proud of my technical knowledge.

After finding that the answer in the previous section was \$4500 rather than \$5500, I realised that in the accounting world I was in the same position as the people who sit in front of a TV set and think there's a little band playing inside it.

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# Chapter 2. Reference to FreeCoins

## Copying and Pasting in FreeCoins

At the moment there are no menu entries and no key shortcuts to use copy/cut/paste in FreeCoins. However, you can use the diagonal stroke (‘/’) in order to pop up the PalmOS edit menu whenever you are in a text field. From here you can tap on the icons for Copy/Cut/Paste to carry out the desired action.

## Currencies

Each currency has a code which uniquely identifies it (for example, USD, EUR or GBP) a longer textual description and an exchange rate with respect to the default currency.

You can use several different currencies in FreeCoins. Each account you hold can only use one currency. Currency conversions are handled by transferring money between account with different currencies.

There is one ‘special’ currency: the *default currency*. Each currency has a given exchange rate with respect to the default currency. This enables FreeCoins to calculate an approximate exchange rate in between any two currencies.

You need to select the default currency when first using FreeCoins

## Managing currencies

Most of the currency management is handled through the currency editor.

**Figure 2.1. The currency editor**



You can access this from the accounts screen by opening the Misc menu.

The currency editor enables you to add create new currencies, and manipulate existing ones. You can select a currency from the list and then edit it. You have the following options:

- Setting the currency as default. This will both make the currently edited currency the default one and will recalculate existing conversion rates to reflect this.
- Delete a currency
- Change the currency code or description

- Alter the exchange rate.

## Exchange rates

Consider this example: GBP is your default currency and your current account is an GBP account. You gave 100 GBP to one of your american friends as a gift and you want to record this information in FreeCoins. What you need to do is setup an account (say 'USD gifts') and transfer money from your current account to the USD account.

You need to record the relation between the amount that leaves your account (100 GBP) and the amount that reaches your friend's account (say 160 USD). This relation is the exchange rate and for FreeCoins the exchange rate represents the number that you need to multiply the default currency by in order to get the new currency. In our case it is 1.6 as  $100 \text{ GBP} * 1.6 = 160 \text{ USD}$ .

There are several ways to use and record this information. One of them is to fill in the exchange rates yourself in the currency editor. This will enable you to quickly record transactions when in a hurry without having to work out the exact exchange rate (which in some cases, such when you use credit/debit cards is not know until the transaction clears and you can check your bank statement). An alternative way is to go ahead and record the transaction. Whenever your transaction involves two different currencies, FreeCoins will add a 'Rates' button to the transaction editor. You can use this to calculate one of the following 3 variables (source currency amount, destination currency amount and exchange rate) from the other two. You can also use this dialog to record the currently displayed exchange rate for future use.

In our case, one possible scenario would be that you know that your friend got 160 USD so you record the transaction filling in 100 GBP, 160 USD and then tap Calculate to obtain the exchange rate, which would fill in 1.6. You can record this exchange rate so that next time when you give your friend some money, the exchange rate of 1.6 would automatically be filled in and the amount he receives would be calculated correctly.

## Organising and viewing accounts

### Creating and categorising accounts

#### Account types

Each account is assigned to a different type. This feature can be used to group accounts and get meaningful totals. For example you can group all your bank accounts (i.e. assets) and when choose to view your bank accounts only, you will get a total for your assets.

This feature can also be useful to reduce screen clutter. You won't look at your Income and Expense accounts very often so there is no point in having them on the screen all the time

It is worth pointing out the main accounts type and their usage:

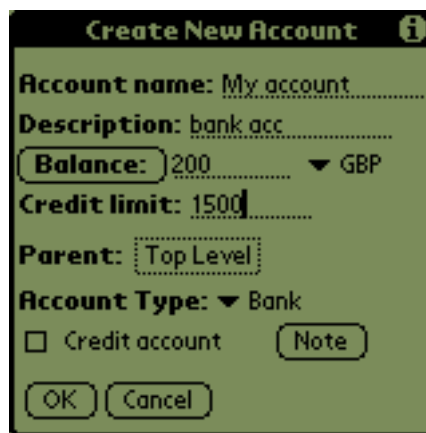
- Assets for all bank accounts (such as current, checking, savings, etc) and other assets (shares, bonds, etc).
- Liabilities accounts for credit cards and other liabilities (such as loans, mortgage, etc.).
- Income accounts to log all your different incomes. For example you would have an account for you company so that whenever you get paid you create a transaction from Income:your\_company to your current account.
- All expense accounts (such as Travel, Food, Bills, etc) are created under the Expense category.

- Finally all adjustments to balances for various reasons, or transactions which record opening an account should originate from equity accounts.

## Entering and modifying account information

New accounts can be created from the account view (the main screen of the program) using the Account->New option from the drop-down menu. If you already created an account and want to alter its details, open the transaction register for the account by tapping on it and use the Account->Account Details option from the drop-down menu. The account-related information that can be manipulated this way is described in the paragraphs below.

**Figure 2.2. Entering account information**



The *Account name* field holds the short name of the account. This is the name that is going to be displayed by the program when referring to the account. A longer description can be provided in the *Description* field (this will soon be replaced by notes).

Next, you can enter a starting balance for the account (the default is 0). You can do so by using the calculator which can be obtained by tapping on the *Amount* button or by simply writing in the desired amount. Note that this will create an unbalanced transaction for the desired amount (or, if you are editing an existing account, it will create an unbalanced transaction for an amount that will take the existing account balance to the desired one). It is highly recommended that you create an equity typed account and assign all the transactions obtained from modifying the balance in such a way to this account. When you first create an account you can also select the currency used by this account. Note that once you select a currency for the account, you will not be able to change it by editing the account at a later date.

The *Credit limit* field is used to specify how much you can spend from the account if the balance would be 0. That is, the credit allowance for credit cards or overdrafts for current accounts. This sum is used to calculate the available totals in the account view (i.e. current balance + credit limit).

Accounts can be structured in a hierarchy. Any account can have several sub-accounts. For example the Expense account may have as sub-accounts the "Food" and "Travel" accounts. You can place the current account in such a hierarchy by choosing a parent account for it. So if you are creating an "Air" sub-account for the "Travel" account, you need to choose the "Expense:Travel" account as parent by tapping on the button next to the *Parent* label and choosing the account from the list.

The *Account type* drop-down can be used to assign a type to the current account. Account types are useful in getting various quick statistics from the program -- see the section called "Account types" for more information.

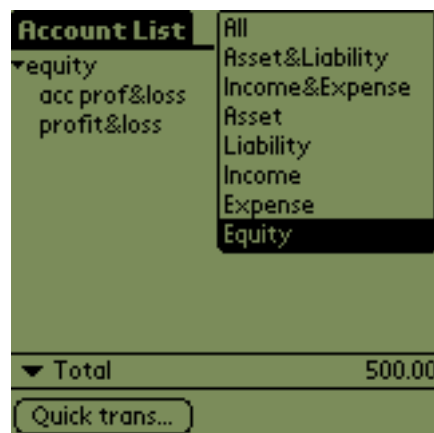
Finally, you have the option of marking the account as a *Liability account*. The idea with credit accounts is that the balance starts from 0 (as with normal asset accounts) and then transactions can be charged onto the account. That would mean that if you log your credit card expenses, the balance would always show as negative, as you spend money on your card and then it would go back up (hopefully to 0) whenever you pay off the credit card.

However, whenever you want to find out how much money you put on your credit card it is nicer to read, say '\$30' than '-\$30'. Checking the credit check-box will simply invert the sign of the balance displayed in the account list, for aesthetic purposes only.

## The account display selector

The account display selector is located at the top-right of the account screen, as shown in Figure 2.3

**Figure 2.3. The account selector**



You can use this tool to select which account categories are displayed and, implicitly, the meaning of the 'Total' line on the bottom of the screen.

The meaning of the Total line depends on your current view. If you choose to see All accounts the Total will show the total of all unbalanced transactions in all accounts. Consider the following account distribution:

- a Bank:Checking account, opened with a balance of 0 (of type 'Asset')
- an Expense:Misc account opened with a balance of 0 (of type 'Expense')
- an Income account with a balance of 0 (of type 'Income')
- Enter a transaction from Income to Checking for 20 units
- Enter a transaction from Checking to Misc for 15 units

As the accounts are completely balanced, the total when displaying All accounts is 0. If you add 2 new transactions from Checking to no account (unbalanced) of 5 units each, the total will show -10, the amount which is unbalanced.

Similarly, if you display the Income/Expense accounts only the total will be income minus expense, i.e. your profit.

For the Asset&Liability category the displayed total signifies your assets (i.e. total in bank account minus total of credit card accounts). The signification of the total line for the other options (Asset, Liability Income, Expense, etc) is simpler -- just a total of the displayed accounts, within the same category.

## Working with transactions

### Transactions and splits

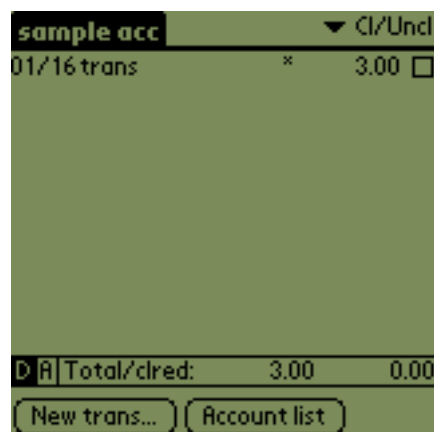
A split is the smallest quantity that FreeCoins can work with. Basically, a split is a piece of information that ties together an account an amount and an action (deposit or withdrawal). A transaction is a collection of several splits together with other information (date, description, note, scheduling information, etc).

For example if you create a transaction moving 100 EUR from account A to account B, you are really creating one transaction split withdrawing 100 EUR from account A and one transaction split depositing 100 EUR into account B. Of course, you can use this to record more complex things, such as your salary. You may get 1000 EUR gross, but you pay 50 for your pension, 300 in TAX and the rest goes into your bank account. You can record this by using one transaction with several splits.

### Unbalanced transactions

A transaction is unbalanced whenever the sum of all its splits does not sum up to 0 (the withdrawals are subtracted). FreeCoins will let you ask for you confirmation when trying to enter a unbalanced transaction. Unbalanced transactions will also be marked with a \*. For transactions involving multiple currencies, the currencies will be converted to a single currency using the given rate before adding up, so a transaction involving 100EUR, 160USD and an exchange rate of 1.6 would show up as balanced, even though the exact amounts aren't strictly equal.

**Figure 2.4. Unbalanced transaction**





It is generally a bad idea to have unbalanced transactions, as this means that you are not keeping an accurate record of your transaction. It is preferable to set up a new account and link the transaction to that account than leaving it unbalanced.

## Scheduled transactions

FreeCoins offers basic scheduling facilities for transactions. Once you create a transaction, by going into the scheduling tab, you can set the transaction to be automatically entered into the register at specific time intervals up to a certain date or only a given number of times. Once you set up one of these transactions, the transaction will be removed from 'Cleared/Uncleared', it will be placed under 'Scheduled'. For example you can set you salary as a scheduled transaction which occurs every month, on 5th. Each time go start FreeCoins on the 5th (or the first start after the 5th) a copy of your scheduled transaction will be entered as a normal transaction (Cleared/Uncleared depending on your choice).

**Figure 2.5. Transaction scheduling**



You can use the scheduling interface to manipulate the scheduled transactions. For example you can enter a transaction early by using 'record now'. You can also temporally suspend the recording of transactions. The date at which the transactions would be scheduled would change as normal but no new transactions would be created.

Note that the transactions containing scheduling information (in the scheduled category) are completely independent from the transactions created by the scheduled transaction. This is important when you are trying to delete them. If you delete a transaction with scheduling information, it will simply be removed and it will not generate other transactions. Ever. All transactions created by the scheduled transaction are just like any other transactions so you need to delete them one by one. Deleting them will not affect the scheduled transaction.

You can think of transactions with scheduling information as rules for creating transactions

## Cleared and uncleared transactions

The general usage is to enter all transactions as uncleared and clear them when you know they actually happen and you are sure you recorded the right amount. If you are using GnuCash, you will probably know that it implements three different states. Uncleared, cleared when you think the transaction happened (for example when you write cheques it takes 5 days or more for them to be cashed in and for the money to leave your account) and reconciled when you match your electronic record to your paper or electronic bill.

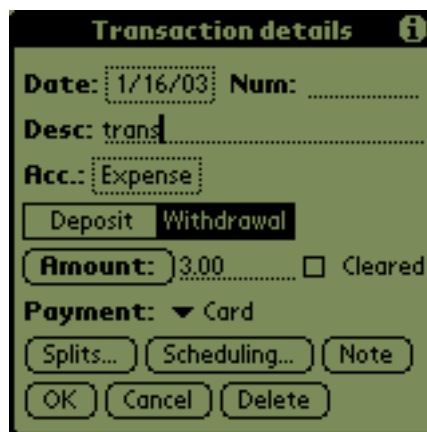
For FreeCoins, enter all transactions as uncleared and clear them when they are both Cleared and Reconciled (in GnuCash terms).

As different totals are calculated for cleared and uncleared transactions, you may find several other uses for this. For example you can clear all your current transactions and leave the future ones uncleared. This would give you a current and future balance.

## Creating transactions

There are two ways to start creating a transaction: you can either go into an account by tapping on it and then select new, or you can chose a default account from the preferences screen and tap quick transaction in the account listing. This is equivalent to going into the account you set as default and creating a new transaction.

**Figure 2.6. Entering transaction details**



Whenever you create a new transaction you need to fill in some data:

- the date at which the transaction occurred
- a transaction reference number (for personal information only, FreeCoins does not make use of it and you do not have to write anything in it)
- a destination account. If you enter a simple transaction which involves only two accounts, one of them is going to be the account from which you started entering the transaction and the other one you can fill in here. This is easier then creating the splits manually. Note that you cannot use this if you are editing a transaction with more then two splits.
- You can select whether this transaction represents a deposit or a withdrawal. You cannot enter negative numbers for the amount you transfer so use these controls to indicate whether the money is leaving your account or coming into it
- You can use a calculator to enter the amount by tapping the 'amount' button.
- You can select whether this transaction is cleared or not
- You can attach a note to the transaction containing whatever information you want to add to it
- You can add/remove/edit splits by tapping splits. This will take you to the split editing screen
- If your transaction involves two (and only two) accounts with different currencies a 'Rates' button will appear which takes you to a dialog where you can edit the amount in each currency and the exchange rate

- Finally you can enter or amend scheduling details if you press the scheduling button,
- The type you select for the transaction is arbitrary and is only used for personal information only. FreeCoins does not make any distinction between different transaction types.

Whenever you start writing in the *Payee* FreeCoins will attempt to find another transaction with a payee which starts with the same characters that you wrote. If such a transaction is found and it involves the account from which your transaction originates, then all the details from the found transaction will be copied into the current form. This includes the full payee name, all splits involved, the type of transaction, etc. However if a transaction not involving the current accounts is found, only the *Payee* field and the *Payment* field are auto-completed.

## FreeCoins preferences

Below is a list of options that can be set from the preferences screen, as it can be seen in Figure 2.7

Checking 'Display CLEARED column' turns the check-boxes for clearing and unclearing transactions in the transaction register on.

Checking 'Trans cleared by default' enters new transactions as automatically cleared.

'Default view in Trans' specifies which category of transactions is initially displayed when you open an account's transaction register.

'Default acc' is the default account. This is the account in which the 'New trans.' button on the main form enters transactions.

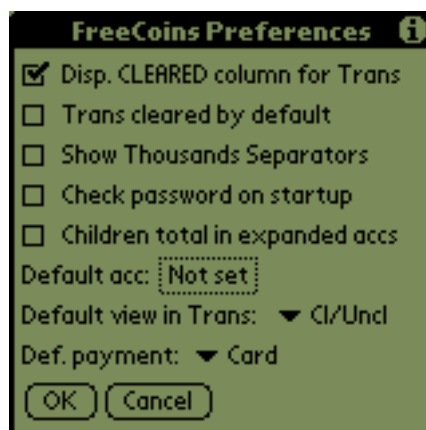
Checking 'Children total...' will result in the overall total of an account (including the balances of its children) to be displayed even when the account is not collapsed. The default behaviour is to include the children total only the account is collapsed.

Checking 'Check password' will make the program prompt for a password (the system password), provided one is set from the Security program.

'Default view in trans' sets the default view in the transaction ledger. You can choose between specifying a default one (such as cleared only for example) or just remembering the previously chosen one.

'Def payment' sets the default payment method selected when entering new transactions.

**Figure 2.7. Preferences**

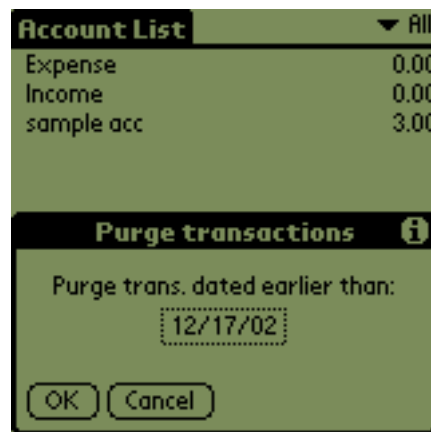


## Maintenance operations

### Purging transactions

It is generally a good idea to get rid of old transactions, once you do not need them any longer. This will free up some space on your device, and most importantly, will speed up the working speed of FreeCoins. The more transactions the program has to keep track of, the slower it will move. Purging transactions will not affect your current balances, it will simply remove transactions older than a certain date.

**Figure 2.8. Purging transactions**



### Clearing Income and Expense accounts

Another thing you may find useful is to periodically reset the balance of the Income and Expense accounts to 0. Suppose that you do this at the start of each month. By the end of the month you will have a clear picture of how much you earned by looking at your Income accounts, how much you spent and what you spent money on by looking at your Expense accounts.

### Modifying the balance of an account

Should you wish to modify the balance of an account, you have several ways of doing this. The best way, is to create a transaction from that account to an equity account for the amount you need to adjust the balance by. Otherwise you can just adjust the balance by opening the 'account details' dialog and simply entering a new balance.

There are another two tools you can use. One of them is the 'Adjust balance' menu entry. This will prompt you for a new balance and enter a new transaction to bring the account to the new balance. If for some reason the cleared and uncleared balance of an account get out of sync, you can adjust the cleared balance only by using the 'Adjust cleared balance' menu entry. You can get to these entries by opening the transaction ledger for the account you wish to manipulate and then opening up the 'Account' menu.

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# Chapter 3. Information on exporting/syncing FreeCoins

To be filled in

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# Chapter 4. Developer information

This chapter contains miscellaneous informations for FreeCoins developers.

## Compiling FreeCoins (and other PalmOS programs)

In the following paragraphs I shall detail my own setup. You should be able to follow this to obtain the same result with your own distro (I am assuming you are running Linux; if you aren't then you are on your own). I am using a standard RedHat 7.3 install, to which I added the following programs:

- First of all, install `prc-tools-2.2`. This is a port of `gcc` able to produce PalmOS executables. You can obtain this program from SourceForge. I used the packaged (RPM) version. Note that linking will fail with previous versions of `prc-tools`.
- You need `palmos-sdk-4.0` in order to compile any PalmOS programs. I use the packaged version (RPM) which installs to the `/opt/palmdev/sdk-4` directory, where it creates an `include` and a `lib` subdirectory containing the `.h` files and respectively the libraries. The unpackaged version is also available but you need to create these directories and place the files manually. Read the `README` for `palmos-sdk` for more detailed installation information. This file can be obtained from the PalmOS website [<http://www.palmos.com>] (check out the developer section)
- Install `palmos-sdk-4.0-update1`. This involves copying a bunch of `.h` files over the ones installed during the previous step. The update can be obtained from the PalmOS website [<http://www.palmos.com>]
- Create a `/opt/palmdev/sdk` symlink pointing to `/opt/palmdev/sdk-4`. Now run `palmdev-prep` as user root. This program is part of the `prc-tools` package. This will autodetect your PalmOS SDK and setup the `prc-tools` package to use it.
- Finally, you need to install `pilrc-2.9`. This program is needed to compile program resources (such as forms, menus, dialogs, etc.). Check out SourceForge [<http://www.sourceforge.net>] to find the homepage for this program. I compile it from source and then install it normally (**`configure; make install`**)
- The Palm emulator: `pose-3.5`. I compile it from source. Make sure that you install the `fltk` library, as it is needed by `pose`. I am using `fltk-1.0.11`. You need the emulator to test FreeCoins, without the hassle of having to use a real device. You also need a ROM image for the device. You can download one from your own device, or obtain images for various OSs from the PalmOS website [<http://www.palmos.com>].
- You will also need the `xmlto` package, together with `jade` or some other XML processor in order to process the documentation. `TeX` is needed to generate the PDF version of the documentation. The manual uses the `XML DocBook 4.1.2 DTD`, so make sure you have that available. All these packages should be readily available for most distros (I use RedHat 7.3 and a standard install is enough to supply all the packages needed)

Once you have the programs above installed and working unpack get the FreeCoins source code (you can obtain it from CVS -- see the website for information on how to do so) and run the following commands in the `freecoins` directory: `./bootstrap; ./configure --host=m68k-palmos; make`. This should produce a bunch of files named `FreeCoins-LL.prc`, where `LL` is a language code (such as `en`, `fr`, etc.). You can install these files on the emulator or on a real device.

It is important that you specify the `--host=m68k-palmos` parameter to `configure`. If you do not do this, `configure` will not be aware that you are trying to cross-compile.

Use the `apidoc` target of the top-level `Makefile` to generate source code documentation.

## Translations

In order to translate FreeCoins to a different language the following steps need to be taken:

1. Translate the program itself, by translating the strings in `FreeCoins.rcp.in`
2. Translate the help for the program
3. Translate this manual (not covered)

At the moment the following translations are available:

Language	Program	Help	Manual
English (en)	Y	Y	incomplete
French (fr)	Y	Y	N
German (de)	Y	Y	N

## Translating FreeCoins

Translating FreeCoins is relatively painless. First you need to get the file named `freecoins.rcp.in`. You can obtain this either from the source distribution of FreeCoins, located under the `resources` directory or from the project website [<http://www.sourceforge.net/projects/freecoins>] by downloading it from CVS (follow the CVS links from the project page).

First thing you need to do is to copy the entire translation "en" section (from `begin` to `end`) and paste it underneath. Change "en" to your language and then proceed translating (and replacing) each string on the right hand side of each line with the equivalents in the new language. Leave the other strings (the left hand side) untouched. By doing this you translate all the messages generated by the program internally.

Next step is to translate as much of the user interface as possible. In order to do so, work your way through the rest of the file picking up all the strings and translating them. For example, the first string you will encounter is "Account List". For this string, add the following line to the end of your translation section: **"Account List" = "Translation"** (where **Translation** is the translation for the **Account List** string to your new language).

### Warning

When translating the user interface it is very important to make sure that the new translated strings are not any longer than the original strings.

When you are done, post the file back to the project, by using the patch upload mechanism available from the project page or emailing one of the developers

## Translating the help for FreeCoins

In order to translate the help for the program, you need to copy the `resources/help/en/` directory to `resources/help/xx`, where `xx` is your language code. Translate all the files in this directory and send them back to one of the developers in order to be integrated into the program.

## CVS information

Instructions for obtaining the code from CVS can be obtained from the project page on SourceForge [<http://www.sourceforge.net/projects/freecoins>]

The usual conditions for submitting code to CVS apply. That is, do not commit anything that does not compile, make sure that the code you submit is (mostly) bug-free and complete (that is, avoid putting in buttons if they serve no function, etc).

All changes are committed to the current repository HEAD (not a branch). Software releases are tagged as `rel-x_y_z` where `x,y` and `z` are natural numbers.

A branch is created after every release. Branches are named as it follows `rel-x_y_z-stable`. After major patches to a stable branch, the branch should be re-tagged (with normal tags) as `rel-x_y_z-stable_v`. This should enable hassle-less merging of bugfixes from the stable branch into the main development code.

## Sites

FreeCoins releases are advertised on the following sites:

- [freecoins.sourceforge.net](http://freecoins.sourceforge.net) [<http://freecoins.sourceforge.net>] (the homesite for FreeCoins)
- [www.palmgear.com](http://www.palmgear.com) [<http://www.palmgear.com>]
- [www.freshmeat.net](http://www.freshmeat.net) [<http://www.freshmeat.net>]
- [www.opensourcirectory.org](http://www.opensourcirectory.org) [<http://www.opensourcirectory.org>]
- [www.freewarepalm.com](http://www.freewarepalm.com) [<http://www.freewarepalm.com>]