

Control accounts and sub-ledgers

In this series of tutorials we will continue building on the concepts covered in the basic accounting tutorials. We suggest that if you have not gone through the basic accounting tutorials already, you go through them now, as we will continue to use the You-Can-Learn business we created in tutorial 3 of the basic accounting series to illustrate concepts. Also, have a look at the workbook that we created and improved over the course of those tutorials as we will continue to use and develop this workbook. Why not open the Accounting Workbook by clicking on the link on the web page?

In the sixth tutorial of the free basic accounting series we briefly covered the concept of control accounts (sometimes called controlling accounts) and the use of sub-ledgers. In this tutorial we will expand upon these topics, introduce taxation in the form of VAT (value added tax) which is an unfortunate fact of life in most countries and we will revisit clearing accounts.

So lets get started on [control accounts and subsidiary ledgers](#).

A few definitions first:

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A **subsidiary ledger** (sub-ledger) is a ledger used to house particular groups of accounts such as accounts receivable (debtors) {abbreviation AR} and accounts payable (creditors) {abbreviation AP} so that the general ledger does not become cluttered with large numbers of accounts and so that specialised functions such as ageing and statements of accounts can be included in the functions of the ledger.

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A **control account** is a general ledger account to which entries made to subsidiary ledgers are posted, normally in the form of batch totals, for the purpose of integrating, in a summarised form, those entries into the general ledger and to keep control over the subsidiary ledger by balancing the control account total to the total of all the accounts in the subsidiary ledger. By doing this one is assured of the numeric accuracy only.

To refresh your memory we have replicated the simple example of control accounts and sub-ledger given in Tutorial 6 of the Basic Accounting series.

Sales Journal				1	
Date	Account & Detail	Ref.	Debit	Credit	
10 Jun 10	J Smith	S010	15 00		
	To Sales - Shears	130			15 00
15 Jun 10	A Jones	J010	25 00		
	To Sales - Growing Kits	140			25 00
28 Jun 10	J Smith	S010	25 00		
	To Sales - Growing Kits	140			25 00
	Totals		65 00		65 00

This very simple sales journal makes no provision for analysis columns or a provision for a tax column for taxes like VAT (see Wikipedia [VAT](#)) or sales tax. One of first tasks in this tutorial will be to improve this sales journal to accommodate more complex business requirements.

Although there are numerous computerised accounting systems that will automate the whole sales and accounts receivable process we will illustrate with the aid of the old fashioned accounting books because they illustrate the principles clearly.

Here are the entries to the AR sub-ledger:

Accounts Receivable from		J Smith		S010	
Address and contact details:-					
10 Jun 10	Shears	Sj 1	15 00		
28 Jun 10	Growing Kits	Sj 1	25 00		
	June Balance		40 00		

He owes the business this, so it is an asset (Dr)

Accounts Receivable from		A Jones		J010	
Address and contact details:-					
15 Jun 10	Growing Kits	Sj 1	25 00		

This example accounts receivable sub-ledger allows us to keep a record of what each client (debtor) owes us but little else. We will discuss the specialised aspects of sub-ledgers later in this tutorial.

Then of course the entries to the GL:

General Ledger		Accounts Receivable - Control Account		430	
30 Jun 10	June Sales Journal	Sj 1	65 00		

General Ledger		Sales - Shears		130	
30 Jun 10	June Sales				15 00

General Ledger		Sales - Kits		140	
30 Jun 10	June Sales				50 00

The general ledger accounts used in the example.

Expanding on subsidiary ledgers

To explain the functioning of subsidiary ledgers and control accounts we will expand on the above example of *accounts receivable*. As the principals involved will be very similar in the *accounts payable* subsidiary ledger, and its functions very similar, we won't go into detail on this ledger in this tutorial. In the invoice below we refer to inventory, however as the inventory subsidiary ledger differs quite a bit in its specialised aspects from other subsidiary ledgers we will cover it in detail in a subsequent tutorial.

Firstly lets have a look at an example of a typical sales invoice which is just about always the first entry in the accounts of the accounts receivable ledger. Remember that there might be specific legal requirements for the format of an invoice in your jurisdiction so why not try and collect a few invoices from local businesses in your jurisdiction and have a good look at them and establish what the required format is?

Here is an example of a typical invoice. The layout could also be used as a credit note.

Before we go on with constructing a detailed sales journal and accounts receivable system we need to understand a bit about how the VAT system of taxation works. Although certain jurisdictions still use the "Sales Tax" system we will assume that Esor Island (home of the UC currency, see the second tutorial for more about Esor) has a VAT system.

An invoice is Also a marketing tool

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email info@youcanlearn.co.fo

5 Floral Terraces
Esor Island

Client details:
Mr John Smith
Jersey Lane No. 5
Esor Island

A VAT number shown on the face an invoice is a common requirement if the business is registered for VAT

DATE	10 June 2010
ACCOUNT NO	S010
Invoice No.	1
PAGE	1
VAT No.	258/9878/96

Inventory/ Service	Description	Quantity	Unit Price	VAT	Total
TPS010	Garden shears - small	1.00	15.00	1.50	16.50
Total		1.00	15.00	1.50	16.50

We will cover Inventory in a later tutorial

See below for for a discussion on VAT

What is VAT?

Why not have a look at Wikipedia [VAT](#). Read through this, and as it is pretty comprehensive we will give only bear bones details here.

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VAT, as the name implies is a tax on the value added by each entity in the chain of processes required to bring a particular item or service to the final consumer.

Here is a typical example.

An iron ore miner sells his iron ore to an iron and steel mill which converts the ore into iron and steel. The steel mill sells the iron and steel in various forms to various manufacturers of consumer goods, who then convert the raw steel into products useful to the consumer. The manufacturer then sells these products to a retailer who sells the product finally to a consumer. For this example lets assume that the product is the garden shears that our business sells.

In the following table we follow the hypothetical production of garden shears from the basic raw material (iron ore) to the sale to the final consumer. It is an oversimplification of the real world for the purposes of illustrating the VAT cycle.

Business activity	Output VAT Sales			Input VAT Purchases			Value Added	VAT Payable
	Exclusive	VAT	Inclusive	Inclusive	VAT	Exclusive		
The Miner mines ore and sells it for:- <i>This is just enough ore to make 1 shear</i>	1.00	.10	1.10	.00	.00	.00	1.00	.10
The steel mill buys ore for:- and sells it for:-	4.00	.40	4.40	1.10	.10	1.00	3.00	.30
The shears manufacturer buys for:- and makes shears, each sells for:-	10.00	1.00	11.00	4.40	.40	4.00	6.00	.60
You-Can-Learn buys shears for:- and sells them for(each):-	15.00	1.50	16.50	11.00	1.00	10.00	5.00	.50
Totals		3.00			1.50		15.00	1.50

Some things you need to know about VAT at this stage:

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1. The VAT charged on the sale of goods is known as *Output VAT*
2. *Input VAT* is the *Output VAT* charged to the purchaser by the seller in the previous stage of the chain of activity. This can be clearly seen in the above table. Remember that until an item reaches the final customer (consumer or unregistered vendor) the supplier's Output VAT becomes the input VAT of the purchaser.
3. The amount due to the tax authority is *the difference between the Output VAT charged to the purchaser less the Input VAT charged by the preceding seller. In other words the tax is only levied on the value added.*
4. Under most circumstances for VAT to be payable the entity has to be registered for VAT and Input VAT is only claimable if the purchase is made from an entity registered for VAT. *An entity registered for VAT is generally known as a VAT vendor.*

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This is an important consideration when comparing prices from different vendors of goods. In more advanced tutorials we will go into more detail on this subject and the pro's and con's of being VAT registered.

5. Most jurisdictions have rules regarding who may be registered for VAT and who has to be registered. This is normally based on on the level of turnover (sales) of a particular entity.
6. We have used 10% as our assumed tax rate percentage. The rate of VAT varies from jurisdiction to jurisdiction and some jurisdictions have more than one level of VAT. For instance in some cases basic foodstuff might be "zero rated" so as to protect the poor from excessive food costs.
7. VAT is payable at each stage of the chain of economic activity, however it is only payable to the extent of the tax on the "Value added" because the tax on inputs is deductible. It is only payable by entities registered with the tax authorities for VAT.
8. Remember, only registered vendors' invoices will reflect an amount for VAT and which will therefore be deductible, unregistered entities' invoices will not have VAT reflected on them and obviously can't be used as a VAT deduction. (this includes for example salaries)
9. A registered VAT vendor is in effect an agent for the tax authority as they have the responsibility of collecting VAT and paying over the net amount to the tax authority. Therefor the VAT charged to a customer *is not part of the sales* of the entity.
10. This is very much a simplified example where we have assumed there is only one input and one output . In reality it is never this simple and therefore the books of account need to be set-up so as to ensure easy administration of VAT.

The above are just some important points regarding VAT. Each country that has instituted the VAT system will have its own regulations controlling this taxation process, and if you are going to become a VAT vendor it is important that you get to know the rules applicable in your particular country or jurisdiction.

Well, lets get on and formulate a sales journal that caters for VAT and for higher volumes of transactions than we have used up to now.

Sales Journal
Title: Can_Learn
Period: June 2010

Account Numbers				650	Net		30	140	
Check & Totals			431.00	39.18	-391.82		-2.73	-100.00	
Account Receivable	No.	Date	Reference	Total	VAT	Net (Total Sales)	Allocation	Sales – Gardening Tools	Sales – Kits
A010		25 June	IN 1	100.00	-9.09	-90.91	130	-90.91	
A010		26 June	IN 2	101.00	-9.18	-91.82	130	-91.82	
A010		27 June	IN 3	110.00	-10.00	-100.00	140		-100.00
B010		28 June	IN 4	120.00	-10.91	-109.09	150		
				0.00	0.00				

Callouts:
 - The item sold is debited to the the AR no A010
 - VAT automatically calculated. We owe it to the tax people so its a credit.
 - Allocation to a sales account number. Its a credit because its an income.

Sample of the monthly combination sheet we have provided in the AR workbook. The entries are for demonstration purposes only. See [layout](#) below.

It contains the Sales Journal, Credit Note Journal and Receipts Journal.

Debtors Listing

Title: You_Can_Learn
Period: 2010

	Balance check	0.00	0.00	0.00	0.00	0.00
	Totals from Totals 2010	431.00	-110.00	-100.00	221.00	650.00
Account	Total of debtors list	431.00	-110.00	-100.00	221.00	650.00
Account	Account Name	June				
		Invoices	Credit notes	Receipts	Balance	Invoices
A010	Anderson Mr J	311.00	-110.00	-100.00	101.00	100.00
B010	Baldwin Mrs A	120.00	0.00	0.00	120.00	220.00

Posting Totals

Title: You_Can_Learn
Period: 2010

Numeric accuracy check **BALANCED** **OK**

Account Numbers		430	650	Net		130	140	150
Check & Totals		1,731.00	-157.36	-1,573.64		-364.55	-100.00	-1,109.09
Check	Running Total - Sales	Month	Total	VAT	Net (Total Sales)	Sales - Gardening Tools	Sales - Kits	Sales - Accessories
Sales Journal								
0.00	-391.82	June	431.00	-39.18	-391.82	-182.73	-100.00	-109.09
0.00	-982.73	July	650.00	-59.09	-590.91	-90.91	0.00	-500.00
0.00	-1,573.64	August	650.00	-59.09	-590.91	-90.91	0.00	-500.00

The AR workbook also contains a debtors transactions and balance listing sheet.

This sheet automatically summarises all monthly transaction by debtor.

The totals sheet automatically accumulates monthly totals by sales account.


Why not open the AR workbook now and have a look through it? Its pretty straight forward and will be a useful learning aid, however it should be realised that spreadsheet programs are not really suitable for processing anything but the smallest AR ledger requirements, the limitations will become apparent when one comes to such things as statements, ageing and so on.

Put a few entries through in a couple of the months and have a look at the "Debtors listing" and "Totals 2010" sheets to see how the various amounts total. We will be using the AR workbook in the second tutorial of this series which will be a practical tutorial tying this all together and extending your knowledge of these sub-ledgers.

Okay so now we have the basic idea of the entries into an account in the AR ledger. To recap before we move on to the specialised functions performed in an AR ledger lets have

Experiment with the AR worksheet provided and draw-up "T" accounts to see how you would post the entries to the general ledger. We will discuss the posting of the entries from subsidiary ledgers to the GL in a later tutorial.

Of course once we have done all our entries for the month we will want our customers know what they owe us. For this purpose we use a statement – a typical example is

<h1 style="font-family: cursive;">You-Can-Learn</h1> <p>We help you grow perfect roses.</p> 					
5 Floral Terraces Esor Island			Phone 08783 212 email info@youcanlearn.co.fo		
Statement					
Client details: Mr J Anderson 2 Monarc Ave Esor Island				DATE	30 June 2010
				ACCOUNT NO	A010
				PAGE	1
Date	Reference	Details	Debit	Credit	Balance
1 June 2010		Balance brought forward			0.00
25 June 2010	IN 1	Invoice	100.00		100.00
26 June 2010	IN 2	Invoice	101.00		201.00
27 June 2010	IN 3	Invoice	110.00		311.00
30 June 2010	CN 1			110.00	201.00
25 June 2010	Rec 1			100.00	101.00
Total					<u>101.00</u>
Ageing					
		Over 90 Days	60-90 Days	30-60 Days	Current
		0.00	0.00	0.00	101.00

depicted below.

I think you should be able to understand the logic of the statement – its pretty straight forward in this example. The only thing new here is the ageing fields, which, as the name implies is simply how long amounts have been outstanding. If for instance A010 does not pay the balance of his account of R 101.00 by the end of July (30 days later) the amount will be reflected in the 30-60 Day block, and if unpaid at the end of August it will move to the 60-90 Days block and so on. The aged balances added together must equal the balance.

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This is a good time to mention there are two generally accepted methods of maintaining AR ledgers (and AP ledgers for that matter), *the balance forward method which, as the name suggests, carries forward from one month to the next the month-end balance*, so in the above example July statement will start with R 101.00 balance.

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Then there is the open item system in terms of which originating transactions are matched against related subsequent transactions, and, until they cancel each other out, related transactions remain on the system and are shown on the statement, hence the term open item. The item remains open until fully matched.

By way of an example, in the above statement CN 1 matches IN 3 so these two transactions will disappear in the following month. If on the other hand the credit note was only for UC 70 both these transactions would be carried forward. In a balance forward system payments and credit notes are generally set-off against the oldest balances and only the balance of the account is carried forward. The advantage of open item systems is that it provides more information about the balance of an account if so required; the disadvantage is that each non-originating entry to the account has to be matched to its intended originating transaction. Not always possible and of course it requires human intervention.

To recap – in a balance forward system the April statement for the above example would show a balance carried forward of R 101.00 whereas in an open item system invoice IN 2 for R 101.00 would be shown (there would be no balance carried forward) and would remain on the statement until completely matched by either credit notes or payments.

Most modern AR computer based programs allow you to mix the two methods within a single AR ledger, so you can pick a method depending on the debtor. For instance an account which has only a few large transactions and part-payments that are specified for a particular invoice would be a candidate for open item.

All computer based AR systems come with a variety of reports some giving information on debtors transactions and AR balances while others give sales information. Most of these systems are really a combination of a sales information system and an AR system. In our example workbook we have the *debtors listing* which gives a summarised view of each debtors account month by month and then we have the *postings totals* sheet which gives us summarised sales and AR totals information.

Possibly the most common AR report is the *age analysis report* which is simply a list of accounts in the AR ledger with columns for the length of time a particular portion of a balance has been outstanding. Our statement above shows the ageing of an account. The age analysis report is an extension of this and lists all accounts in the ledger or the accounts in a specified range within the ledger and has columns for the various “age” groups.

It is of course in the area of ageing, integrated invoicing and statements that spreadsheet based systems of accounting are limited. It is possible through the use of functions and macro's to overcome this shortcoming to a degree but such methods often are unstable and require quite a lot of user intervention. Businesses that are sales and AR intensive should carefully research available accounting programs – both open source (and therefore are free but require some input from the user to get them functioning) and

commercial packages which have the advantage of "working out of the box" in most cases. Also becoming popular is internet based accounting systems run from within a browser, but more about accounting systems in a later tutorial.

To close this tutorial a brief discussion on how the *accounts payable (AP)* sub-ledger differs from the AR ledger we have just discussed.

The first thing of course is that this ledger is used to house creditors (people we owe money to) which arise from purchases we have made. So it becomes an Accounts Payable ledger and we have a purchase journal instead of a sales journal and of course we pay our creditors instead of our debtors paying us. So the ledger performs the opposite function but works in a very similar way. However, instead of invoices we have *goods received vouchers* and supplier invoices and instead of statements we have *remittance advices* as examples of some of the documentation generated by a business, and, *because we owe the money for goods and services purchased the sign must be reversed in each type of entry (purchases, suppliers credit notes and payments)* to what we used in accounts receivable. We have set-up the spreadsheet to do this automatically for you so you can enter the amounts without any sign.

Something to bear in mind we will use the terms, accounts receivable and debtors, and then, accounts payable and creditors, interchangeably. Although the standard terminology now is "accounts payable or receivable" the older terminology of debtors and creditors is still widely used and it is as well for students to get used to the inter-changeability of accounting terminology.

In tutorial 2 we will do some practical AP and AR work, in the meantime play around with the spreadsheets provided to get the hang of how they work. Try and find a real-life example and enter that in the spreadsheets.

Layout
Purchase Journal

Title: You_Can_Learn
Period: June 2010

Vat percent	10
Balance check	BALANCED

Enter an Acc. No.	Name	Balance	Credit Limit	Credit Available				
CA010	Angus Tool Manufacturers	2,585.00	2,000.00	No Credit				
Account Numbers		610	650	Net 210 230				
Check & Totals		0.00	4,353.50	395.77 3,957.73 136.36 0.00				
Account Payable No.	Date	Reference/Details	Inclusive total of invoice.	VAT	Net (Total Purchased)	Allocation	Advertising	Computer Rent
CA010	8 June	101 – 80 small shears	880.00	80.00	800.00	440		
CA010	8 June	101 – 60 Large shears	990.00	90.00	900.00	440		
CB010	9 June	B 12 – 30 Small Gloves	225.00	20.45	204.55	440		
CB010	9 June	B 12 – 50 Medium Gloves	425.00	38.64	386.36	440		
CB010	9 June	B 12 – 30 Large Gloves	270.00	24.55	245.45	440		
CY010	10 June	Y 45 – 28 Kits	616.00	56.00	560.00	440		
CA010	14 June	105 – 20 Small shears	220.00	20.00	200.00	440		
CA010	14 June	105 – 35 Large shears	577.50	52.50	525.00	440		
CE010	30 June	June instalment advertising	150.00	13.64	136.36	210	136.36	
				0.00	0.00			

Supplier Credit Notes

Title: You_Can_Learn
Period: June 2010

Balance check	BALANCED
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Account Payable No.	Date	Reference	Inc. total of credit note	VAT	Net	Allocation	Advertising	Computer Rent
CA010	29 June	5 Substandard large shears	82.50	-7.50	-75.00	440		
				0.00	0.00			
				0.00	0.00			
			0.00	0.00	0.00			
				0.00	0.00			
				0.00	0.00			
				0.00	0.00			

Payments To Suppliers Journal

Title: You_Can_Learn
Period: June 2010

Account Payable No.	Date	Reference	Paid Amount	Bank
				0.00
				0.00

The layout of the monthly posting sheet showing the purchase journal followed by the credit note journal followed payments to suppliers

Picture of workbook showing the different tabs for the different spreadsheets.

Account / persons name	Contact	Businesses name	Postal Address 1	Postal Address 2	Postal Address 3	Physical Address 1	Physical Address 2	Physical Address 3	Post Code	Phone	Credit Limit	Credit Terms	Balance
CAO10	Mr Angus Mac	Angus Tool Manufacturers	P O Box 66	Indusville	Esor Island	6 Gallica Avenue	Damaskville	Esor Island	6622		2,000.00	90 from statement	-110.00
CB010	Mr Bertie Jones	Bertie's Glove Factory	P O Box 266	Indusville	Esor Island	20 Gallica Avenue	Damaskville	Esor Island	6622		2,000.00	90 from statement	0.00
CE010	Mr Jim Jonas	Esor Gardening Chronicles	P O Box 15	Prettville	Esor Island				6512		300.00	30 from statement	0.00
CY010	Mr Joel Yestie	Yestie's Gardening Supplies	P O Box 101	Indusville	Esor Island	48a Gallica Avenue	Damaskville	Esor Island	6622		1,500.00	90 from statement	0.00
													0.00
													0.00
													0.00
													0.00
													0.00
													0.00