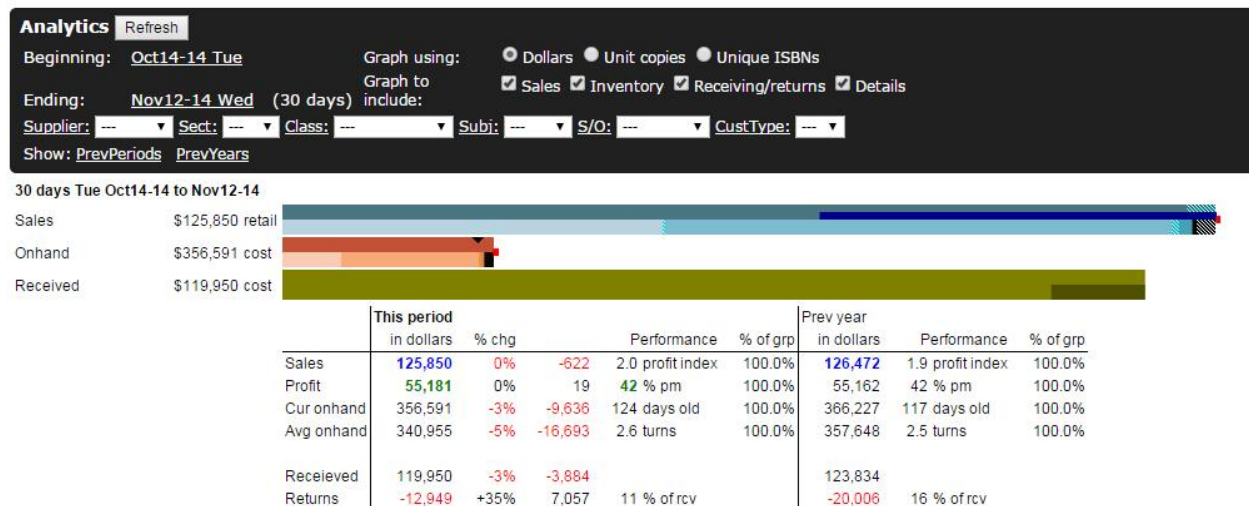


Introducing BookManager Analytics

[November 19,2014 - This document is not edited or even proofed at this point. It is intended to help those of you interested in playing with Analytics at this very early stage of release. Enjoy it, warts and all... writing at midnight is sometimes dangerous, ha!
- Michael Neill]

We have been busy! This is a sneak preview of a new reporting tool on your WebStore that promises to help you manage inventory and increase sales. BookManager Analytics unleashes your data in ways we've always dreamed of. Be careful because you might get hooked!

BookManager Analytics (using data as of 4:53pm Wednesday November 19, 2014)



This project began in early 2014 and required a huge amount of planning, design and sophisticated programming. We anticipate significant changes to its design and features over the coming months as we all work together to discover the possibilities that this type of reporting can provide.

Note: Analytics requires that you regularly send us backups from your BookManager (which is invaluable just on its own) and will eventually become an optional service that will be available for a modest additional fee, in line with similar third-party products already on the market. Until that time, we encourage everyone to help us explore. The goal is to have Analytics help you identify opportunities that will increase profits.

What does Analytics do?

Essentially, based on a date range you specify (perhaps the past week or maybe an entire year), inventory levels, as well as sales, receiving and returns activity are extracted for the period and then

compared against the same period one year earlier. The information is then graphed and displayed in a manner that allows you to understand your present situation and how it compared to the same period in the previous year. From this broad level you can then breakdown the results in a multitude of ways such as by Class, Supplier, Customer Type or over specific time periods. Viewing the titles that are driving sales or eating up your cash is always just one click away.

Where are the strong and weak areas of your inventory?

Sales for a given period are compared against average inventory levels during the same period. Sales are also grouped by the age of the product when it sold. Inventory levels are also divided by age to allow you to understand where sales are coming from, and if it's time to remove older stock. A turnover ratio will help you identify the areas or suppliers that generate the most profit. A comparison of overstock returns against past buying should help you decide if you are buying too much for a category or from a supplier. The option to remove or separate special orders can provide additional insight. If your sales are linked to customers and divided into customer types (e.g. schools) you will be able to see how much each type of customer contributes to your bottom line.

The Analytics Engine

If you are sending us nightly daily backups (and optionally have the data unpacked and integrated with your BookManager WebStore) you can enable Analytics. Once enabled, the store's backup data is also compiled into a large but very efficient data set that allows millions of computations to occur almost instantly each time a parameter is changed. "Super-mega computer is now on line!"

How to access the Analytic's page

Use your WebStore's main menu **Reports --> Analytics** to start discovering. You will not see this option until you use the **Setup --> Permissions** area to decide who will be able to see your store's sales.

In the **Setup --> Permissions** area we have added two new levels:

Edit Permissions:

Anyone with this access can change *anyone's* privileges. (This is much like the "Master" rights permission in your BookManager's <Alt> <S>etup -> Passwords & Clerk codes setup). Until now, most booksellers felt this level of security in their WebStore was not needed. To restrict access to Analytics, you will need to create a personal account (using your personal email address), then add yourself as an employee and then finally apply or remove the needed permissions from each feature of the WebStore.

Adding yourself as an employee: Use the "Add Employee by email address". If your personal email address does not work, then you likely need to logout of your site and then choose "I'm new" where the login box is. Once the new account is created, log out and then log in again as the store. Now select **Setup --> Permissions** and try your email address again. Once your name

is added, click through the various "employees" including the store's primary entry and click to enable the permissions to be granted to each account. If you remove the Edit Permissions from the store's entry (and enable it for yours) then only you will have access to this page in future.

Analytics

Click this item for everyone you want to have access. If you now click home, and the user logged in has access to Analytics, you should now see Reports --> Analytics. Yay!

Your inventory classifications are probably a mess!

Most of you will instantly discover that your Section codes, Classes and sub-classes will need an overhaul before you can really discover what areas need attention in your store. A basic guideline is to use no more than ten Section codes, then a larger but carefully selected number of base Classes (the first 8 characters of the Class field), and finally as many sub-classes as you need for shelving and identifying product. Analytics will help you identify the Sections and Classes that are too broad or detailed. In BookManager you can then use the F4 Class file and start eliminating and merging Classes. Many of you do not use Section codes (the SE two character field in F4), but they help group your store's sales and inventory into more useful larger categories or profit centres. At our store, we have multiple children's classifications, but we give them all the section code of JV so that we can get statistics on them as a whole. Have no fear, the changes are applied to your store's history so that the next backup that Analytics receives will group your current and past activity properly.

Choosing some data to explore



The screenshot shows the 'Analytics' header with a 'Refresh' button. Below it are several filter sections: 'Beginning:' with a date 'Jan1-14 Wed' and a 'Graph using:' section with radio buttons for 'Dollars', 'Unit copies', and 'Unique ISBNs'. 'Ending:' is set to 'Today (324 days)'. 'Graph to include:' has checkboxes for 'Sales', 'Inventory', 'Receiving/returns', and 'Details', all of which are checked. Below these are dropdown menus for 'Supplier:', 'Sect:', 'Class:', 'Subj:', 'S/O:', and 'CustType:'. At the bottom, there are links for 'Show: PrevPeriods' and 'PrevYears'.

Start with the big picture; your sales over the past 365 days with no breakdown. First choose the "Beginning:" date. You can hover over the date to see a dropdown of some common periods. Choose 365 days (the Calendar Year option uses January 1st, which will be less than a full year of activity).

Tip: If you click the actual "Beginning:" date shown (it's underlined) you can navigate a calendar and choose any start date rather than choosing from the dropdown menu. This can be useful if you want to look at a "weekend to weekend" comparison over the past few weeks – there is no dropdown option for a "weekend".

Next, look at the "Ending:" date and make sure it has "yesterday"; or the same day as you last sent a backup (this is the date shown next to the "BookManager Analytics" header). In this example, be sure to use this date because most backups are sent late in the day, and the current day's data is likely not available to incorporate into the current period. Such missing data can possibly distort comparisons with other periods.

Whenever a value or option is changed, the screen should refresh automatically. The "Refresh" button is needed only in case we have not programmed an auto-refresh for an option (Analytics is still very new and will have bugs).

All the check boxes after "Show:" should be checked. Later on, when many groups are being listed, it might be better to avoid clutter and hide the graphs you are not interested in. For example, you might want to only see the monthly sales graph for each group, and exclude the onhand and received graphs.



Blue bar:

The blue bar looks at your sales (in dollars for this example). The bottom half of the bar graph divides the sales based on the age the stock was when it sold. At the end of the graph will be either a red bar (as shown) or a green bar depending on whether sales for the period decreased (red) or increased (green) as compared to the previous year. In this example, the small red portion represents a 1% drop in sales from the same period in the previous year.

Tip: Hover on each portion of the bar to show what each portion represents.

Brown bar:

The brown bar is your Inventory onhand *as of the ending date*. It is also broken down by age and shows either a red or green bar to indicate how much it changed from the same period last year.

Shaded Blue and Brown bars:

Below these two bars is a shading of the same bar. For sales, the shades represent the age of the stock at the time it was sold. For Onhand, it is the age of the inventory that was onhand as of the end of the period. You can click these areas to see the titles represented. The goal was to visually demonstrate where sales are coming from in terms of how long stock sat on the shelf before it sold, and to show you if your remaining stock was aging and thus needing attention. So far, I am not happy with how this is able to help me understand how much stock needs immediate attention. We are on the right track but this concept needs adjusting.

Orange bar:

An orange bar (not shown here) is appended to the end of the brown onhand bar to represent the amount of stock currently on order. At this stage of development there is no breakdown as to identify future releases, special orders, pending orders and so on. We intend to build on this because it will be important in helping you determine if you have enough coming to replace depleted stock from future sales. Also, when the period you are viewing ends at more than a week ago, the orange onorder bar will not be shown (because we do not store the data that would tell how much was on order at any given time).

Note about date comparisons: The previous year's comparison period is always the same number of days, however, it starts from the same weekday and not the same day of the month (because retail sales often differ greatly from one weekday to the next.) For example, business on Fridays may differ greatly from Saturdays, so it is likely more useful to compare Saturday, November 15, 2014 to Saturday, November 16, 2013 (same day of the week in the previous year) rather than Saturday, November 15, 2014 to Friday, November 15, 2013 (same day of the month in the previous year). The exception is when you use the dropdown to select Month-to-date, Quarter or Calendar-year (these use the 1st day of the month regardless of what day of the week they fell on).

Green bar:

The green bar is the receiving activity over the period. No comparison to the previous year is shown. Instead, a dark green area represents the volume of returns over the same period. In the example above it shows about 26% of the inventory purchased this year was offset by returns done during that same period (but not necessarily the same books).

Scaling the bars:

You will notice that the Sales and Receiving bars are often the same relative length no matter if you are looking at one day or one year of sales. For visual scaling purposes, only sales are annualized (sales are divided by the number of days in the period and then multiplied by 365 days). For example, \$1,000 in sales for one day vs. \$365,000 sales for a year will visually look the same in length. Without doing this, we found that short date periods would show a sales bar that was too small relative to your inventory (meaningless). By annualizing the sales and receiving bars, you should start to develop a visual sense of whether sales are correctly proportionate to inventory. It's too early to know if this will help or hinder our goals, but at least you know the theory.

Viewing titles:

You can click anywhere on a coloured bar to see the titles that were involved in the total. They are sorted by sales quantity or by onhand quantity when clicking the onhand bar. Our short term goal is to make these lists printable or have them sent to your BookManager. The longer term goal is to provide options to sort the titles in more ways and tag them to generate a subset of titles (e.g. to build a return list).

The Details:

	This period			Prev year				
	in dollars	% chg	Performance	% of grp	in dollars	Performance	% of grp	
Sales	1,578,931	-1%	-23,022	2.2 profit index	100.0%	1,601,953	2.2 profit index	100.0%
Profit	692,500	0%	-2,585	43 % pm	100.0%	695,085	42 % pm	100.0%
Cur onhand	356,591	-3%	-9,636	124 days old	100.0%	366,227	117 days old	100.0%
Avg onhand	314,899	-2%	-7,991	2.8 turns	100.0%	322,890	2.8 turns	100.0%
Received	1,185,249	-12%	-157,613			1,342,862		
Returns	-303,899	+19%	73,329	26 % of rcv		-377,228	28 % of rcv	

The details area shows the actual values for the requested period as well as the same period in the previous year.

Important! When dollars is the chosen unit of measure, Sales are in retail (i.e. what you sold after any discounting) and Onhand is at your cost. Ideally, we need to show Onhand also at retail (or have the option of doing so) but at best, a retail number would be an estimated value because BookManager retains no history of the suggested retail price from the past. It only knows for certain your present retail price of what is onhand. Sales, however, store both the retail and cost when it was sold. The cost of each sale is what is used to calculate the all important turn ratio (explained later).

% chg - is the change in each value compared to the same period in the previous year. To the right of this is the actual difference in dollars (or whatever unit value you are viewing).

Profit Performance: The amount of profit relative to the sales. A book purchase at \$6 and sold at \$10 will show 40%. The same book costing \$6 and sold at \$8 will show 25% (2\$ profit divided by \$8 sale = 0.25, or 25%)

Cur onhand Performance: Current onhand is the value (at cost!) as of the "Ending:" date of the chosen period. The Performance column indicates how many days on average the inventory has been sitting on the shelf unsold.

Avg onhand Performance: Average onhand looks at the daily closing inventory values between the Beginning: and Ending: dates and then averages those levels. From this you will be able to tell if you are currently carrying more or less stock than on average over the chosen period. The example above indicates we are ramping up inventory for Christmas.

The Turn rate

This is shown to the right of the Average onhand (2.8 turns in the example).

What does a turn rate mean?

Sales at cost for the period are annualized by dividing them by the number of days in the period (to get average daily sales) and then multiplied by 365 to arrive at a theoretical number of what your cost of sales would have been had you done the same amount of business in this period for the whole year. This number is then divided by what you had left in stock at the end of each day over the period being reviewed. The result is called the Turnover rate (the number of times you had to replenish your inventory to maintain a constant level).

Just for the nerds: The workings behind the scenes is massive and very complex. In the olden days, turns were quite rough numbers and were often much different depending on the ending date chosen. For example, if eleven months of the year your inventory was very high, and then you sold 90% of it during the last week of the year, your turn rate would be completely different if you used the end of the year inventory value as opposed to a week earlier. We spent over a month developing a means to take millions of records from all the daily closing inventory levels for every ISBN in stock to arrive at a true

average value of your inventory over any time frame you chose. With each click of your mouse, millions of these computations are being made.

Why are turns important?

The average turn rate in the book industry is around 3.0. This means that if you always stocked exactly 100 books in your store over a year, and at the end of the year you had sold a total of 300 books, you take 300 units divide by the 100 unit daily average to arrive at 3.0 turns. Put another way, on average it took about 4 months to sell each book (12 months divided by 3.0 turns). Now, if you were able to cut your selection back to 50 books on average but still managed to sell 300 books; 300 units divided by 50 units = 6.0 turns (or two months to sell each book). In essence, higher turns require less inventory and therefore less cash outlay or borrowing. Milk at the grocery stores sells out nearly every day, resulting in 365 turns! And we have to survive on 3 turns? The answer is that milk is sold for a tiny profit compared to books. The higher profit on books allows us to finance the costs of carrying the books for a long period and also providing the space to display them.

High turns are great in most cases but they can also indicate that you might be able to increase your selection (to provide more variety or never be sold out) and generate more sales. On the contrary, low turns means you should really have a closer look at what is sitting on your shelf (and costing you interest on that bank loan) that does not really need to be there to generate sales. For example, you might buy 12 of something that sells one per month (1 turn). It may be better to have 3 in stock at any given time but aim to never be out (4 turns). If you took this to the max you could try to stock just one copy and get a replacement copy in as soon as the copy sold (12 turns). The problem with carrying only one copy is that you will never know if that customer wanted two copies or if there was another customer wanting one after the first was sold out. Those high turns look great (and keeps your bank loan small) but you are also losing potential sales.

Finally, it is important know that product that has a high margin of profit (e.g. cost is \$2 and sold at \$10) can turn at a lower rate than items that have low margins (e.g. cost is \$8 and sold at \$10). You should not strive to have each category of product in your store (e.g. books, magazines and high margin giftware) turn at the same rate. What is needed (and not yet fully developed) is a means to guide you to optimal turns based on the profit margin for a category. In the meantime, looking at both turns and profit margins might help those of you mathematically inclined.

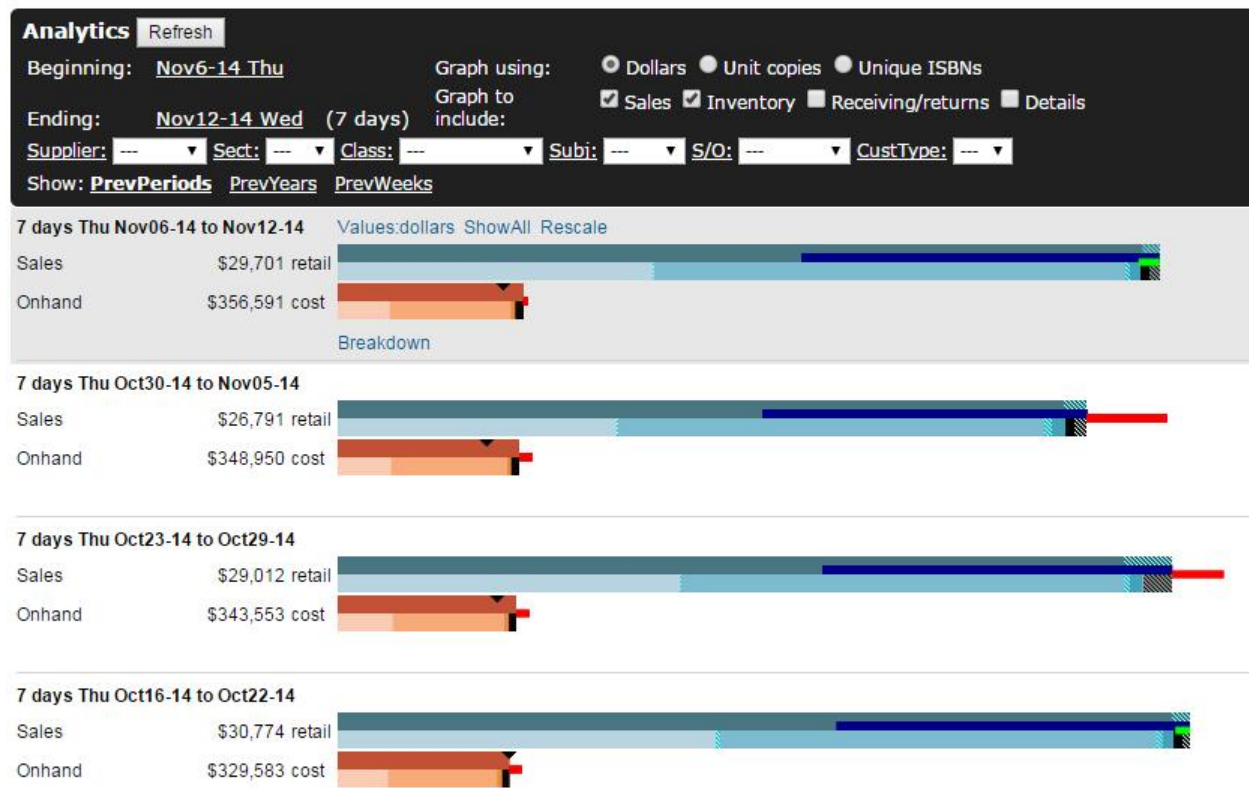
Now that I have 75.6% of you confused, we'll move on from the Turn rate discussion.

% of Grp : When groups of items are shown on the page (not yet demonstrated in our examples), this is the percentage each group represents as a total of all groups (in this example, it's 100% because there is no breakdown). The percentage for both sales and onhand is interesting in that you might find a category (or supplier) that represents 10% of your total sales but 20% of what you keep in stock. Ideally, the percentages within each group (sales/onhands) should be equal. This comparison might be easier to grasp than studying turns (they are similar concepts).

Comparing to previous periods and years

When selecting the period to analyze, you also have the option to click a [PrevPeriods](#), [PrevYears](#) or [PrevWeeks](#) link. This will show several sets of graphs, one for each of the immediate previous periods or same period in each of the previous years. The [PrevWeeks](#) options is available when 7 or fewer days are chosen and you want to see the same weekday activity in each of the previous weeks.

BookManager Analytics (using data as of 4:53pm Wednesday November 19, 2014)



Breaking sales down by category and suppliers and more

For any given period you can also have the activity broken down by grouping it. For example, clicking [Supplier](#) will generate one graph for each supplier and list them in the sequence chosen with the "Sort:" option (Sales is the default). This is where things start to get interesting.

If, while looking at one supplier's performance over the month, you now want to see their activity broken down by Class, you can click the [Breakdown](#) link (shown when you hover over a graph) to see a new set of options. Click [Class](#) from that and you will now see the supplier's inventory and sales broken into each Class.

This drill-down ability in Analytics allows you to look at your inventory in almost any way you need. For example, instead of clicking [Class](#) you select [PrevPeriods](#), which will show this supplier's trend over the past several months.

How are titles chosen to be listed with a particular supplier?

Each ISBN in Inventory has a default supplier, however, the Analytics uses the supplier you received the product from. You might buy the same book from three suppliers. The breakdown by supplier will show all three suppliers (if they were all active with the ISBN in the chosen period). The sale of an ISBN on a given day is linked to a particular supplier's invoice (using the "first in, first out" method), which makes it possible to know who you bought that copy from that sold two months ago when you had been using several wholesalers to keep stocked up. In other words, the default supplier attached to the ISBN in the Inventory record is never used to determine where your sales or current inventory came from.

Graph Using: Dollars, Unit copies, ISBNs

Choosing from these different options can be quite helpful. The ISBNs allows us to see how many unique titles are currently in a section. When looking at several months of history you can see how much the selection has changed. If sales are dropping, you probably want to know if it's because the selection has also dropped. With Dollars used instead of ISBNs this might not be obvious because you may selling be more copies (dollars) but of fewer titles.

[And that's as far as my brain will go at this time... With this draft of the manual, I hope you will find ways to make Analytics version 1.0 work in your store.

Michael Neill November 2014]