

## VBA Project

### **Executive Summary**

#### **Business Description and Problem**

I currently work for Altitude Equipment Rental located in Heber City. I am their Assistant Controller and deal with putting together reports for Accounts Receivable (AR), Accounts Payable (AP), and Financial Statements for financial analysis. One of the issues I ran into while working was putting together reports that helped us manage AR and the reports for our Financial Statements. It is a menial task that takes more time than it should. We have to download the most recent reports, vlook-up for old info, add in certain calculations etc. This takes a lot of time when there are better things we could be doing with our time.

#### **Solution**

My project is built to help solve some of the menial tasks that go along with putting together these reports. For AR my system works to help pull in a current AR report, add notes from the past AR report, and pull in data from another system that helps us see the status of the open invoices. Before, this would take lots of time to open each file and then copy over the data. My project aims to speed up the process and help decrease the time spent trying to figure out how to make sure you had the most updated data. It also gives the user a breakdown of how AR is looking over all and allows for better tracking of customers invoices.

For putting together financial statements, I needed a program that would make it easy to pull in all the reports while also capturing the values so we could do an analysis of the company's performance. Before this would take a long time to be sure everything was formatted correctly and that all the data was matched up with what was in QuickBooks. Now with this we can insert the reports downloaded from QuickBooks into one file and have an analysis be run quickly so that we can spend more time analyzing the company's performance rather than putting together a report

'AR Setup' and 'Financial Statement Setup' are the two workbooks that make up my project and are something that I believe will be greatly speed up the process, improve the company's performance, and allow us to spend time where it really matters.

#### **Implementation Documentation**

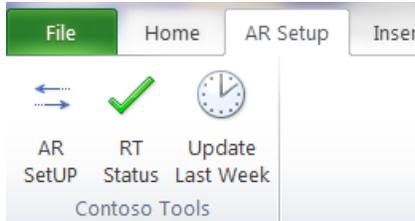
In this section I will go over the two workbooks, starting with 'AR Setup' and then moving onto 'Financial Statement Setup'. I will show how my system improves upon what was being done in the past and how it will make things more efficient.

##### ***AR Setup***

The problem with our old way of doing AR was that there really was no system in place to keep AR reports uniform. Depending on who was working on AR that week would set up the AR file in a different way that just didn't make sense to the other person. My project is designed to set up a systematic way to work on AR so that everyone is on the same page and that everyone can be more effective with their time.

I will now go over how this part of the project works, the best way to do this is to look at the excel ribbon I created for this worksheet and go over the three different buttons in the customized ribbon.

### Excel Ribbon

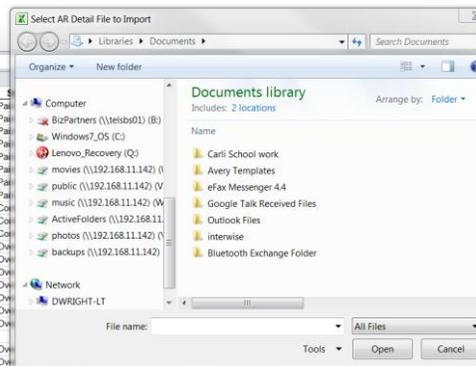


The excel ribbon is made up of three different buttons: 'AR SetUP', 'RT Status', and 'Update Last Week'.

'AR SetUP' allows the user to import the AR report from QuickBooks and format it so that the user can change the status of the invoice, see the days late, and add notes for a particular invoice. Below is a picture of what the AR report looks like when we pull it from QuickBooks. It is hard to navigate, search, analyze, or make notes of any kind.

	A	B	C	D	E	F	G	H	I
1	<b>Altitude Equipment Rentals, LLC</b>								
2	<b>A/R Aging Detail</b>								
3	<b>As of November 3, 2014</b>								
4									
5		<b>Date</b>	<b>Transaction Type</b>	<b>Num</b>	<b>Client</b>	<b>Due Date</b>	<b>Amount</b>	<b>Balance</b>	
6	91 or more days past due								
7		03/07/2013	Check		779 WZ Properties	03/07/2013	932.00	238.25	
8		05/23/2013	Credit Card Expense		779 WZ Properties	05/23/2013	864.63	0.26	
9		05/01/2013	Invoice	RT169	138 Heber City	05/31/2013	51.84	51.84	
10		06/10/2013	Payment	03968C	430 dirt dawgs	06/10/2013	-155.87	-63.01	
11		05/13/2013	Invoice	RT325	2 Rocky Mountain West Telecom	06/12/2013	1,096.58	247.36	
12		06/12/2013	Payment	09468C	430 dirt dawgs	06/12/2013	-63.01	-63.01	
13		05/18/2013	Invoice	RT406	294 Moonlight Construction	06/17/2013	152.57	152.57	
14		05/23/2013	Invoice	RT458	319 Marshal Mcfarland	06/22/2013	220.08	220.08	
15		05/28/2013	Invoice	RT634	157 Wasatch County Parks and Rec ATTN Tom Bonner	06/27/2013	47.81	47.81	
16		05/31/2013	Invoice	RT520	319 Marshal Mcfarland	06/30/2013	39.71	9.71	
17		06/15/2013	Invoice	RT577	157 Wasatch County Parks and Rec ATTN Tom Bonner	07/15/2013	949.31	949.31	
18		06/20/2013	Invoice	RT756	456 John Gallagher	07/20/2013	30.56	30.56	
19		06/20/2013	Invoice	RT865	484 Kelly Walker	07/20/2013	363.75	363.75	
20		07/02/2013	Invoice	RT859	296 nick mecham costruction	08/01/2013	57.38	57.38	
21		07/02/2013	Invoice	RT853	296 nick mecham costruction	08/01/2013	94.13	94.13	
22		07/10/2013	Invoice	RT916	138 Heber City	08/09/2013	43.12	43.12	
23		07/15/2013	Invoice	1053	578 Heber City Public Works	08/14/2013	116.14	116.14	

After the user clicks the 'AR Setup' button they are prompted to 'Select AR Detail File to Import'.



Once the file is selected and the user clicks 'Open', the system will update the columns and clean up the AR Detail file. The cleaned up version of the detail file will look like the one below.

	A	B	C	D	E	F	G	H	I	J
	Date	Transaction Type	Num	Status	Client	Due Date	Days Late	Amount	Balance	Notes
	03/07/2013	Check			779 WZ Properties	03/07/2013	644	932.00	238.25	
	05/23/2013	Credit Card Expense			779 WZ Properties	05/23/2013	567	864.63	0.26	
	05/01/2013	Invoice	RT169		138 Heber City	05/31/2013	559	51.84	51.84	
	06/10/2013	Payment	03968C		430 dirt dawgs	06/10/2013	549	-155.87	-63.01	
	05/13/2013	Invoice	RT325		2 Rocky Mountain West Telecom	06/12/2013	547	1,096.58	247.36	
	06/12/2013	Payment	09468C		430 dirt dawgs	06/12/2013	547	-63.01	-63.01	
	05/18/2013	Invoice	RT406		294 Moonlight Construction	06/17/2013	542	152.57	152.57	
	05/23/2013	Invoice	RT458		319 Marshal Mcfarland	06/22/2013	537	220.08	220.08	
	05/28/2013	Invoice	RT634		157 Wasatch County Parks and Rec ATTN Tom Bonner	06/27/2013	532	47.81	47.81	
	05/31/2013	Invoice	RT520		319 Marshal Mcfarland	06/30/2013	529	39.71	9.71	
	06/15/2013	Invoice	RT577		157 Wasatch County Parks and Rec ATTN Tom Bonner	07/15/2013	514	949.31	949.31	
	06/20/2013	Invoice	RT756		456 John Gallagher	07/20/2013	509	30.56	30.56	

Now in the status column the user can select from a drop down list whether the invoice has been paid, if the person has been contacted, if the person needs to be contacted, etc. The user can now see how many days' late invoices are and can focus their attention on the more important clients. They also have a notes column where they can keep track of what is going on with that particular invoice.

Next the 'Update Last Week' button in the ribbon allows the user to select last weeks or a previous periods AR to update the current AR sheet with the status and notes from the old one. This helps to ensure that they don't do the same thing twice, which is something that happens and I am hoping will be fixed with this project. Now we can work more efficiently and know what things have happened in the past. Once the user clicks the 'Update Last Week' button in the ribbon they are prompted to get last week's AR in a similar window as that shown above. Once last week's AR is selected, the status and notes will be updated to reflect what was done last week, as shown below.

	A	B	C	D	E	F	G	H	I	J
	Date	Transaction Type	Num	Status	Client	Due Date	Days Late	Amount	Balance	Notes
2	03/07/2013	Check		Paid	779 WZ Properties	03/07/2013	644	932.00	238.25	Hi
3	05/23/2013	Credit Card Expense		Paid	779 WZ Properties	05/23/2013	567	864.63	0.26	1
4	05/01/2013	Invoice	RT169	Paid	138 Heber City	05/31/2013	559	51.84	51.84	2
5	06/10/2013	Payment	03968C	Paid	430 dirt dawgs	06/10/2013	549	-155.87	-63.01	3
6	05/13/2013	Invoice	RT325	Paid	2 Rocky Mountain West Telecom	06/12/2013	547	1,096.58	247.36	4
7	06/12/2013	Payment	09468C	Paid	430 dirt dawgs	06/12/2013	547	-63.01	-63.01	44
8	05/18/2013	Invoice	RT406	Paid	294 Moonlight Construction	06/17/2013	542	152.57	152.57	
9	05/23/2013	Invoice	RT458	Paid	319 Marshal Mcfarland	06/22/2013	537	220.08	220.08	32
10	05/28/2013	Invoice	RT634	Contact	157 Wasatch County Parks and Rec ATTN Tom Bonner	06/27/2013	532	47.81	47.81	2
11	05/31/2013	Invoice	RT520	Contact	319 Marshal Mcfarland	06/30/2013	529	39.71	9.71	3

The code for this has to set up two arrays, one for the new data and one for the old data. I found that I had to set up arrays for this to work because I have to search by multiple items and I just can't always look by invoice number (since it can sometimes be blank since other things besides invoices come into AR). The code locates the correct columns for the data I am looking for and then I am able to do a For Next statement that runs through the two arrays, finds the ones that match, and then copy over the correct data.

The last button in the excel ribbon for AR Setup is 'RT Status'. At Altitude, we use an online system called Rental Trax, where our workers are able to enter in orders, book future orders, etc. The system allows us to see what items are available to sell or rent. Once the orders are created we then have to go in and transfer the orders over to QuickBooks, where AR is tracked. Now the workers in Heber mostly deal in Rental Trax and they are the ones to change the status of orders in Rental Trax and enter in payment information. We then take this information and update AR in QuickBooks. So the 'RT Status' button is aimed to use the information from Rental Trax to help us see if an order has been cancelled or changed in Rental Trax and therefore needs to be changed in QuickBooks. For once an order is transferred over from Rental Trax to Quickbooks we cannot resubmit the order, with its changes to QuickBooks. It is a one and done kind of deal.

Once the button is clicked the user selects the orders file they downloaded from Rental Trax and then the code will set up arrays so that information can be matched up with what is in the QuickBooks report. Since invoice numbers are changed by adding "RT" to the beginning once they are added in QuickBooks, I had to be sure that the array was looking for the right information. Once the array finds a match it will copy over the status from RT Trax and put it in the new column inserted as shown below.

	A	B	C	D	E	F	G	H	I	J	K
1	Date	Transaction Type	Num	Status	RT Status	Client	Due Date	Days Late	Amount	Balance	Notes
2	03/07/2013	Check		Paid		779 WZ Properties	03/07/2013	644	932.00	238.25	Hi
3	05/23/2013	Credit Card Expense		Paid		779 WZ Properties	05/23/2013	567	864.63	0.26	
4	05/01/2013	Invoice	RT169	Paid	Completed	138 Heber City	05/31/2013	559	51.84	51.84	2
5	06/10/2013	Payment	03968C	Paid		430 dirt dawgs	06/10/2013	549	-15.87	-63.01	3
6	05/13/2013	Invoice	RT325	Paid	Contract sent	2 Rocky Mountain West Telecom	06/12/2013	547	1,096.58	247.36	4
7	06/12/2013	Payment	09468C	Paid		430 dirt dawgs	06/12/2013	547	-63.01	-63.01	44
8	05/18/2013	Invoice	RT406	Paid	Completed	294 Moonlight Construction	06/17/2013	542	152.57	152.57	
9	05/23/2013	Invoice	RT458	Paid	Completed	319 Marshal Mcfarland	06/22/2013	537	220.08	220.08	32
10	05/28/2013	Invoice	RT634	Contact	Contract sent	157 Wasatch County Parks and Rec ATTN Tom Bonner	06/27/2013	532	47.81	47.81	2
11	05/31/2013	Invoice	RT520	Contact	Completed	319 Marshal Mcfarland	06/30/2013	529	39.71	9.71	3
12	06/15/2013	Invoice	RT577	Contact	Contract sent	157 Wasatch County Parks and Rec ATTN Tom Bonner	07/15/2013	514	949.31	949.31	1
13	06/20/2013	Invoice	RT756	Over Paid	Completed	456 John Gallagher	07/20/2013	509	30.56	30.56	431

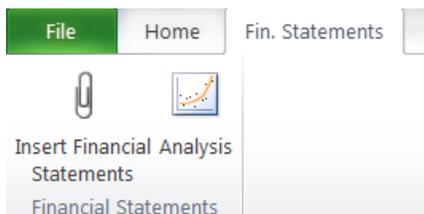
Overall these buttons in the excel ribbon allow for a simplified AR tracking sheet that will help the company keep better track of the actions it has taken to collect from different customers. What would take more than an hour to get all together can now be completed in less than 10 minutes.

### Financial Statement Setup

Every month we have a financial review where we go over financials to see how the company is doing. This was a pain because we had to download the three different files and then put them all together. Once they were put together we had to do a few analysis calculations which was a bit annoying because we had to always jump between the different sheets to find the value we were looking for. The new system I created makes it easy to put all the downloaded files together in one file and does the analysis calculations a whole lot quicker.

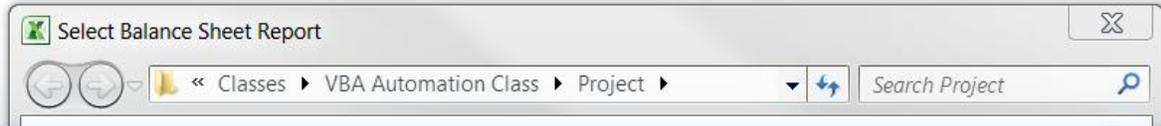
Once again, I feel like the best way to look at how I implemented my system is to go over the excel ribbon for this workbook and see how the ribbon accomplishes the goals for this workbook.

### Excel Ribbon



The excel ribbon has two buttons: 'Insert Financial Statements' and 'Analysis'

'Insert Financial Statements' is pretty straightforward. The user first has to download the three financial statements which are the Balance Sheet, Income Statement, and Cash Flow Statement. Once these are downloaded the user then clicks the 'Insert Financial Statements' button. The user is then prompted to select the Balance Sheet report as shown in the file dialog box (pictured below).



Once the report is selected the system will insert the file into the workbook and properly name the sheet according to the report. This is then done two more times until the other reports are inserted.

This is fairly simple, but essential and done very effectively with my new system.

The 'Analysis' button in the excel ribbon is a bit more complicated. This button is to create an analysis sheet where calculations and graphs can be located. The code behind this button first creates arrays for each of the financial statements so that it will be easier going forward to do the calculations. I then have to locate the accounts I need in the arrays, for which I use For Next statements that comb through the arrays and finds the accounts I need for analysis. Once found I set up them up for variables so that I can reference the specific location in the arrays for the information I need.

This part I had to mostly code in since I needed it done in a way that I wanted and that would make sense for what we have done in the past. The weakness of this here is that if I want to add a new calculation I would have to add quite a bit more code and make sure that my cells are matched up correctly.

But once the button is clicked, a new sheet is created and all the analysis calculations I want are automatically done with a chart that shows how our sales, gross profit, and net income is trending, as shown below.



Overall this greatly decreases the time I had to spend to get this kind of report together and will help the company improve!

## **Things Learned and Difficulties Encountered**

The first thing I learned while doing this project is that I am a slow coder. The project took me hours upon hours over multiple weeks. But as the project moved along I became more confident in my coding and that I didn't have to look at things we did in class as often for reference. I am glad that we were able to do this project so that I could grow in my confidence and know of the different things I can do with excel!

I learned more about arrays than I ever knew before. Arrays are extremely useful, especially when I have to deal with so much data. I learned the importance of breaking up the processes into different subs so that I can make sure each part works the way I want it too. I also learned to love the F8 button as it helped me walk through code and helped me understand how to improve things.

Difficulties I encountered dealt a lot with interacting with Internet Explorer and excel. This was mostly due to the two websites I was trying to use. At the beginning when I was trying to figure out what I could do, I wanted to use internet explorer to pull reports so that everything could be done in one continuous step BUT the websites would not allow for it and I had to move on. As was said in class, some websites are making it harder to go access them with excel. I feel like this is actually a good thing since the two websites I wanted to pull data from have a lot of sensitive information. In my I think I spent too much time on this when I could have moved forward and had time to add other features. From this I learned that if I can't get it done right away to move on and if there is time later to come back to it.

I also learned that simply recording what you want to do will not always get done what you want to do.

I wanted to add a feature where they could name the file and then it would save it. This would have been helpful with the AR Setup so that reports would be saved by date so that everyone would know what report is the most up to date.

I wanted to add a pivot table to AR to help with collections but ran out of time. This is something I plan to add in the future.

I want to add more to the analysis tab but ran out of time. The calculations I wanted to do would have been more complicated but would be useful. I plan to add these in the future as well.

## **Assistance**

I did not receive substantial assistance from anyone. All of the coding I did was done by trial and error and I feel like I learned a lot because of it.