

TradeSim[®]

Advanced Trading Simulator and Back Tester



Application Note 5

Survivorship Bias Free back testing using TradeSim

-
- ✓ TradeSim Standard, Professional, Enterprise Editions
 - ✓ Metastock Version 7.xx and above
 - ✓ TradeSim Version 6.4.0 and above
 - ✓ Metastock/TradeSim plugin to Metastock Version 8.3.0

Last Update 10 April 2009

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Introduction

When trading a portfolio of stocks most people usually select stocks from a certain Universe of stocks. Typically this Universe would be limited to the constituents from an industry group or Global Industry Classification Standard. The problem with these classifications is that they are not static and change over time. Therefore the stocks you select from the list today may not have been included in the list in the past. If you back test your system over a long period of time where the lists have changed then you may have been using under performing stocks that were not included in the lists in the past but are now included today. At the same time, stocks which have been excluded from the lists, today may have been included in the lists in the past but are not factored into the back tests due to survivorship bias.

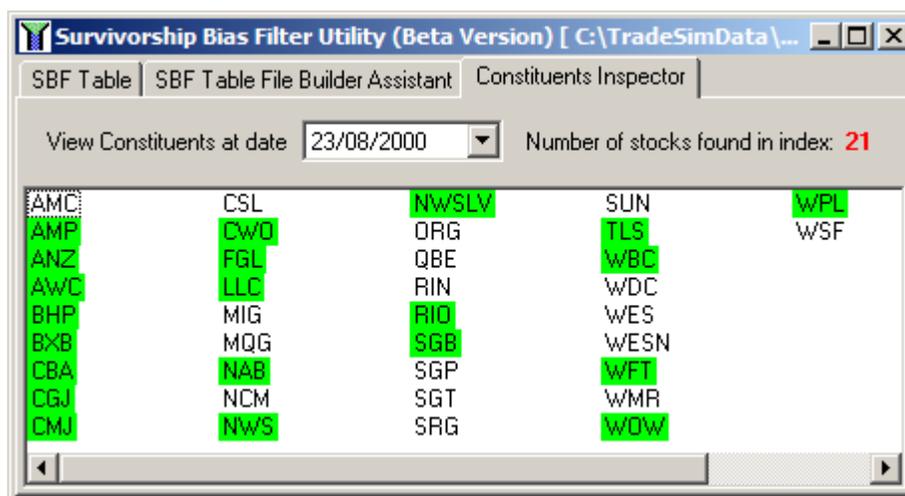
This will have the effect of skewing the back testing results so it is important to maintain a dynamic list of symbols and date inclusion ranges, which can be applied to your back testing in order to filter out any survivorship bias. Typically this list will consist of a list of stocks with an associated date inclusion range which directs the back tester to only generate trade for that particular symbol within its associated date inclusion range.

This application note will describe how to apply Survivorship Bias Filter(SBF) Tables to TradeSim in order to generate a survivorship bias free back test. Later on we will show you how to create your own SBF Table files using the SBF Builder Assistant included in the Professional and Enterprise Editions.

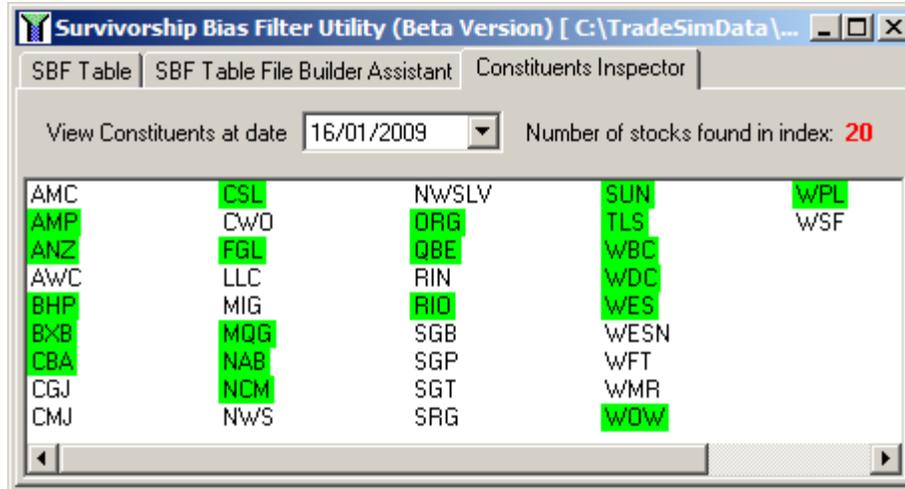
What is Survivorship Bias ?

A typical back testing scenario would be to back test a portfolio system on the current constituents of an index over a given period of time. In the case of the S&P ASX/20, this would mean that we only consider the current top twenty stocks in the index and ignore the fact that there have been many different constituents in the index or that some of these stocks may not have existed at all during this period. This fact alone introduces error or survivorship bias into the back test.

If we are testing over a 10 year period then in this case we are assuming that the current top twenty stocks are the same stocks that were in the index at the start of this interval. The problem is that they are most likely not stocks that were in the indices at the start of the period nor did some of them even exist back then. To prove a point and in the case of the S&P ASX/20, the stocks that were in the index at the start of the back test interval (23-Aug-2000) are highlighted in green as follows.



On the 16-Jan-2009 the constituents are highlighted in green as follows.



As you can see it's a different set of securities !

Running a back test with Survivorship Bias.

The following system was punched into MetaStock and only the constituents of the S&P ASX20 as of 16-Jan-2009 were used for the back test. We limited the start of the trade generation to coincide with the start of the A&P/ASX20 which is around 23-Aug-2000.

```

EntryTrigger := Ref(Cross(MACD(), Mov(MACD(), 9, E)), -1);
EntryPrice := OPEN;
ExitTrigger := Ref(Cross(Mov(MACD(), 9, E), MACD()), -1);
ExitPrice := OPEN;
InitialStop:=0;           { No Initial Stop used }

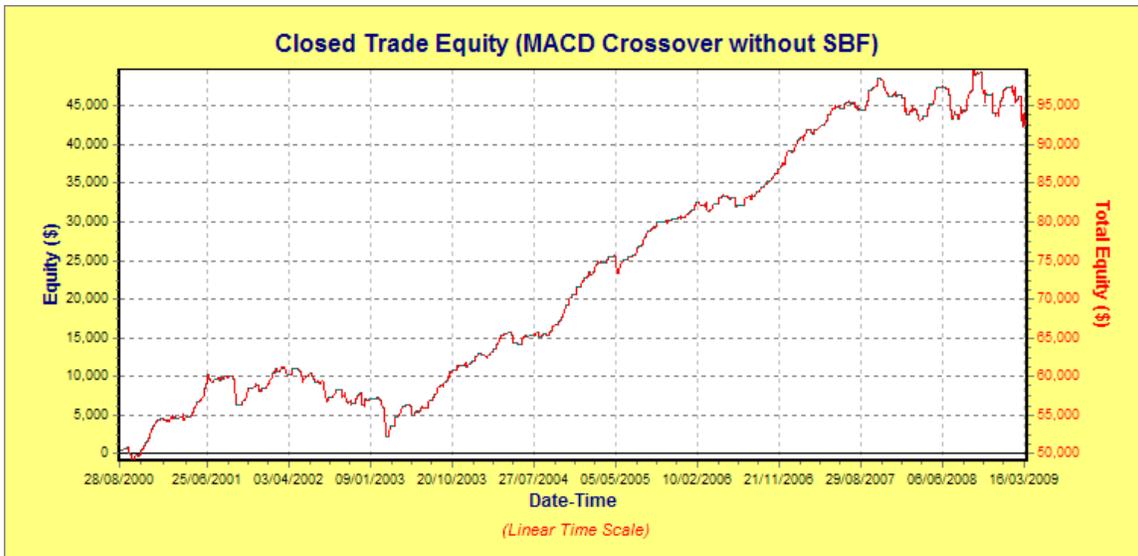
ExtFml("TradeSim.Initialize");
ExtFml("TradeSim.SetStartRecordDate", 23, 8, 2000); { set the start record date
to coincide with the start of the S&P/ASX20 }
ExtFml("TradeSim.RecordTrades",
"Survivorship Bias Free Example", { Trade Data Filename }
LONG,           { Trade Position Type }
EntryTrigger,  { Entry Trigger }
EntryPrice,    { Entry Price }
InitialStop,   { Optional Initial Stop }
ExitTrigger,   { Exit Trigger }
ExitPrice,     { Exit Price }
START);        { Start Symbol }

```

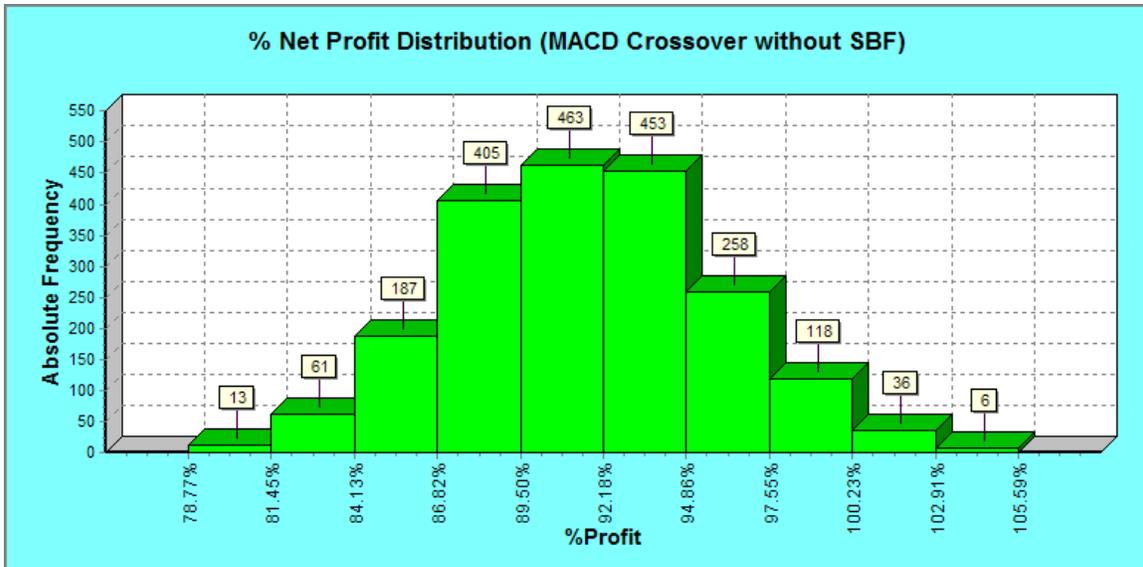
We will now run a back test on the constituents of the S&P/ASX20 as of 16-Jan-2009 and use this as a comparison for the later tests where we remove the survivorship bias. Here is the setup in TradeSim that we used for the test.

Trade Parameters		Preferences				
Position Size Model <input checked="" type="radio"/> Equal Dollar Units <input type="radio"/> Equal Percent Dollar Units <input type="radio"/> Fixed Dollar Risk <input type="radio"/> Fixed Percent Risk <input type="radio"/> Fixed Dollar Volatility <input type="radio"/> Fixed Percent Volatility <input type="checkbox"/> Pyramid Profits <input type="checkbox"/> Pyramid Trades				Trade Parameters (Stocks) Initial Trading Capital: <input type="text" value="\$50000.00"/> Transaction Cost (each way): <input type="text" value="\$0.000"/> <input type="checkbox"/> Use Transaction Cost from Trade Database Portfolio Limit: <input type="text" value="100.00%"/> Margin Requirement: <input type="text" value="100.00%"/> <input type="checkbox"/> Use Margin Req from Trade Database Total Maximum Open Positions: <input type="text" value="100"/> <input type="checkbox"/> Magnify Position Size (and Risk) according to Margin Requirement Daily Maximum Open Positions: <input type="text" value="20"/>		
Simulation Type <input checked="" type="radio"/> Portfolio Simulation <input type="radio"/> Portfolio Simulation (Ignore Dates) <input type="radio"/> Basket test <input type="radio"/> Monte Carlo Analysis		Parameters - Equal Dollar Units Capital per Trade: <input type="text" value="\$5000.00"/>				
Simulation Options <input checked="" type="radio"/> Use Original Ordering <input type="radio"/> Random Walk		Margin Requirement Interest Rate Long Trades (Debit): <input type="text" value="0.0000%"/> Short Trades (Credit): <input type="text" value="0.0000%"/> <input type="checkbox"/> Specify Daily Interest Rate <input type="checkbox"/> Select Position Size Model from Trade Database <input type="checkbox"/> Enable Provisional Trades <input type="checkbox"/> Enable Survivorship Bias Filter				

Here is what the closed trade equity curve looks like.



When we run a Monte Carlo analysis using the Enterprise Edition we can see the distribution of end profits, which for this system doesn't look to bad !



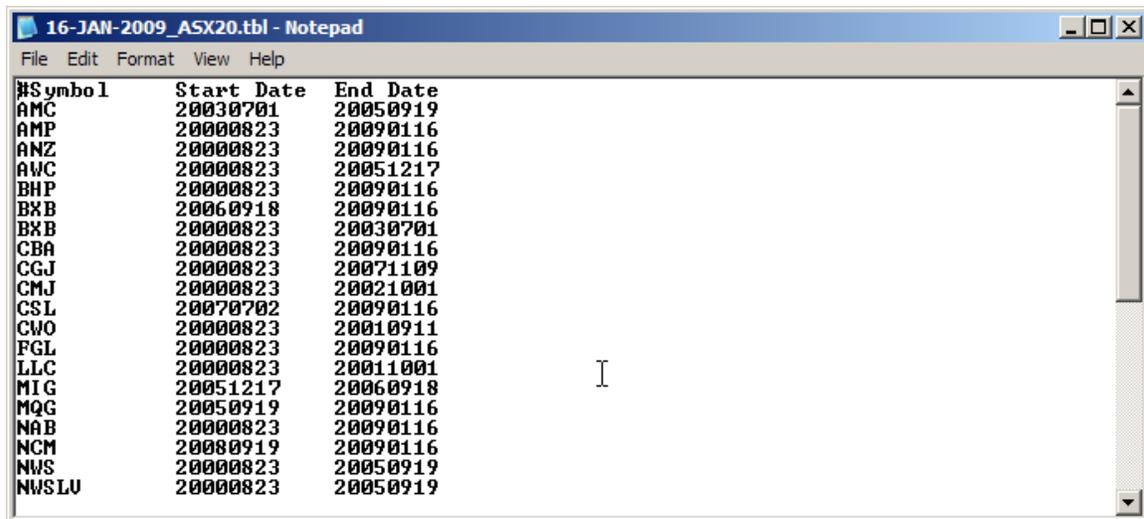
Later on we will compare the results when survivorship bias is removed.

The SBF Table Files

The SBF Table File is central in creating a survivorship bias free back test using TradeSim. Typically this file consists of a list of stock symbols and their associated date inclusion ranges, which indicates the period of time where the stock was included in the list.

The SBF table consists of three columns of data. The first column is the stock symbol. The second and third columns are the start and end date respectively. The table files are stored as a standard text based file, which can be created or edited with any text editor such as Notepad. Any line of data that starts with a hash symbol '#' indicates that the line is to be treated as a comment. DO NOT REMOVE THIS HASH OR INSERT ANY CHARACTERS BEFORE IT if you want the line to be treated as a comment!!

All table files have a tbl file extension and are basic text files that can be loaded into any text editor and edited if necessary. An example of an SBF table file that has been loaded into Notepad is shown below. Dates are written in numeric long date format, which is of the form YYYYMMDD where YYYY represents the year, MM represents the month (1-12) and DD represents the day (1-31)



#Symbol	Start Date	End Date
AMC	20030701	20050919
AMP	20000823	20090116
ANZ	20000823	20090116
AWC	20000823	20051217
BHP	20000823	20090116
BXB	20060918	20090116
BXB	20000823	20030701
CBA	20000823	20090116
CGJ	20000823	20071109
CMJ	20000823	20021001
CSL	20070702	20090116
CWO	20000823	20010911
FGL	20000823	20090116
LLC	20000823	20011001
MIG	20051217	20060918
MQG	20050919	20090116
NAB	20000823	20090116
NCM	20080919	20090116
NWS	20000823	20050919
NWSLU	20000823	20050919

Note that some symbols maybe repeated. This is because the particular stock may have moved in and out of the index over time. This table file was generated with the SBF Table File Builder assistant available in the Professional and Enterprise Editions.

Applying a Survivorship Bias Filter to the trade data.

There are two methods of applying an SBF to your trade data. The first method is to apply the SBF during the creation of a trade database and the second method is to apply it after you have loaded a trade database into TradeSim. The first method has the advantage of filtering out unnecessary trades and securities during the trade database generation phase and reducing the size of the trade database. The second method has the advantage of being able to easily switch the SBF on or off for comparison purposes. The second method always requires the Professional and Enterprise editions but has the advantage of being able to supply survivorship bias filtering even if you don't use Metastock.

Apply the SBF Table file during trade database generation.

To apply the SBF Table File to your trade database exploration you need to add the following function to your code after the call to the Initialize function.

```
ExtFml( "TradeSim.ApplySBFTable", SBF_TABLE_FILE, OPTION );
```

The SBF_TABLE_FILE includes the file path as well as the file name and extension.

The OPTION parameter can be one of the following two values.

- **RemoveUnwantedTrades**
Removes trades that fall outside the filter dates and sets the Survivorship Bias Filter Trade Enabled (SBFTE) flag to true.
- **KeepUnwantedTrades**
Keeps trades that fall outside the filter dates but sets the SBFTE flag to false. This enables a comparison between back testing with or without survivorship bias to be made.

The following example of trade database exploration code highlights the use of this function as marked in red text.

```
EntryTrigger := Ref(Cross(MACD(), Mov(MACD(), 9, E)), -1);
EntryPrice := OPEN;
ExitTrigger := Ref(Cross(Mov(MACD(), 9, E), MACD()), -1);
ExitPrice := OPEN;
InitialStop:=0;           { No Initial Stop used }

ExtFml( "TradeSim.Initialize");
ExtFml( "TradeSim.SetStartRecordDate", 23, 8, 2000); { set the start record date
to coincide with the start of the S&P/ASX20 }
ExtFml( "TradeSim.ApplySBFTable", "C:\TradeSimData\TableFiles\SBF\ASX20\16-JAN-
2009_ASX20.tbl", KeepUnwantedTrades);           { Apply the SBF Table File }
ExtFml( "TradeSim.RecordTrades",
"Survivorship Bias Free Example",   { Trade Data Filename }
LONG,                               { Trade Position Type }
EntryTrigger,                       { Entry Trigger }
EntryPrice,                         { Entry Price }
InitialStop,                        { Optional Initial Stop }
ExitTrigger,                        { Exit Trigger }
ExitPrice,                          { Exit Price }
START);                             { Start Symbol }
```

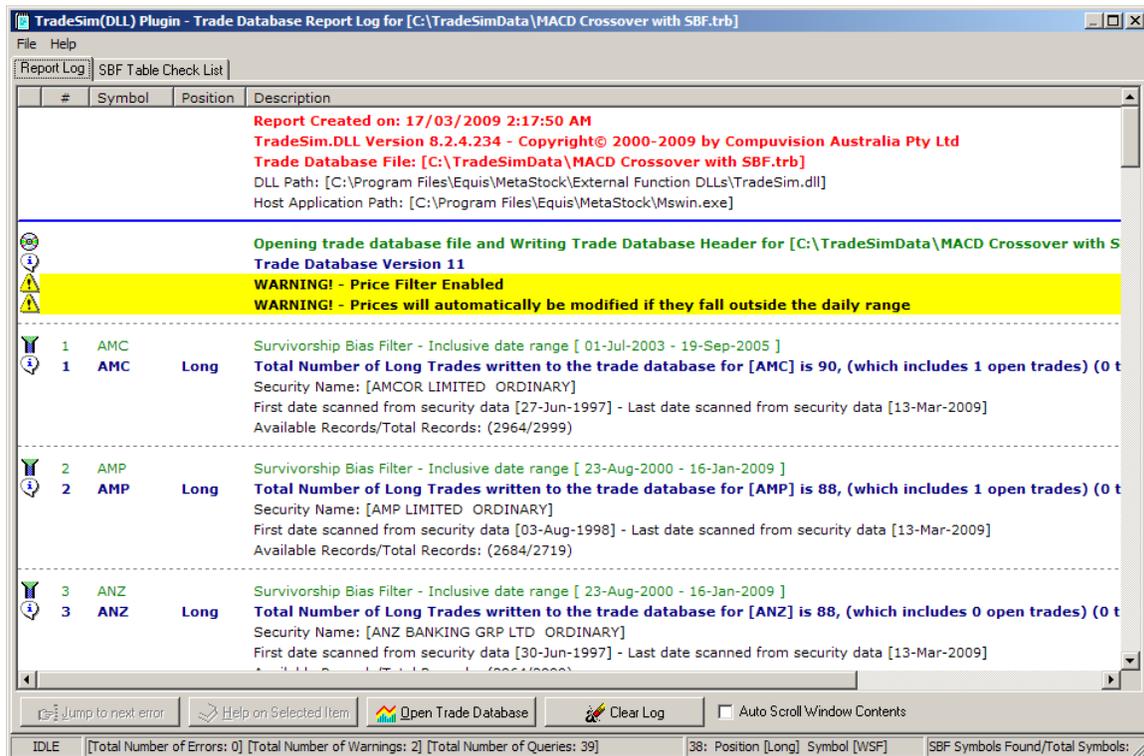
When the SBF table used in this example was created the first constituent date used was 23-Aug-2000. It is therefore recommended that you limit the date at which the securities are scanned to this date. This can be done at the time the trade database is created by adding the following line to the exploration code.

```
ExtFml( "TradeSim.SetStartRecordDate", 23, 8, 2000);
```

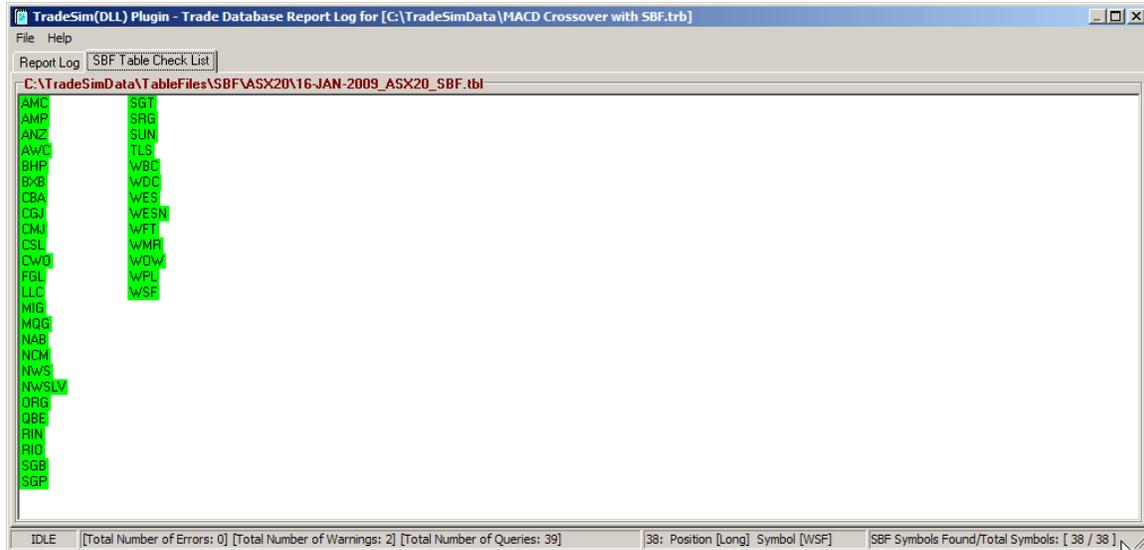
Which securities to include in your trade database exploration ?

When running a trade database exploration that includes an SBF Table file it is important that you include all of the securities that were present over the period of interest. For example if you were doing Survivorship Bias Filtering for the S&P ASX20 you would add the lists from A to Z to your exploration or from the All Ords. You need to make sure that the securities list includes any de-listed and expired securities. Some data vendors allow you to keep the de-listed securities whilst other data vendors separate the de-listed securities into a separate folder so you should add those to the exploration as well. Please contact your security data vendor for instructions on how to access the de-listed securities.

The SBF will automatically filter out any securities not included in the SBF Table so if you want the exploration to complete quicker then you could narrow down the search by excluding the securities from the exploration.



When the exploration has completed click on the 'SBF Table Check List' tab. This will display all of the symbols in the SBF table and each entry will be highlighted in green if they have been found during the exploration. This is a good way of checking that all of the relevant securities have been included in the exploration. If they haven't then you need to include these securities in the exploration.



Before you load the trade database it is recommended that you include the open trades when you load the trade database. This will take into account trades that have started within the period at which a security was in the index and had subsequently been closed off when the security had expired or become de-listed. To do this open up the global preferences dialog box from the Tools Menu and de-select 'Ignore Open Trades' from the Trade Database Loading options.



After you have loaded the trade database into TradeSim you will notice that the Survivorship Bias Filter Trade Enable(SBFTE) column displays both included and excluded trades as marked as 'Yes' and '-' respectively. This is because we have included unwanted trades the trade database exploration. Unwanted trades are trades, which have been filtered out by the Survivorship Bias Filter but have been included in the trade database with the SBFTE flag set to false.

Note: For complete survivorship bias free back testing these unwanted trades should not be included in the back test by either removing them at the time the trade database file is created (using the RemoveUnwantedTrades parameter) or later on by switching on the 'Enable Survivorship Bias Filter' option in the Trade Parameters. If you have removed the unwanted trades from the trade database then this option will have no effect on the results.

Trade	Sys ID	Pos	Symbol	Periodicity	CE	SBFTE	Entry Date-Time	Exit Date-Time	P-Group	
<input checked="" type="checkbox"/>	1	0	Long	NCM	Daily	Yes	-	23/08/2000	25/08/2000	1
<input checked="" type="checkbox"/>	2	0	Long	ANZ	Daily	Yes	Yes	24/08/2000	01/09/2000	1
<input checked="" type="checkbox"/>	3	0	Long	AWC	Daily	Yes	Yes	24/08/2000	04/09/2000	1
<input checked="" type="checkbox"/>	4	0	Long	NWSLV	Daily	Yes	Yes	24/08/2000	22/09/2000	1
<input checked="" type="checkbox"/>	5	0	Long	WBC	Daily	Yes	Yes	24/08/2000	06/09/2000	1
<input checked="" type="checkbox"/>	6	0	Long	WSF	Daily	Yes	-	24/08/2000	30/08/2000	1
<input checked="" type="checkbox"/>	7	0	Long	AMP	Daily	Yes	Yes	25/08/2000	31/08/2000	1
<input checked="" type="checkbox"/>	8	0	Long	CSL	Daily	Yes	-	25/08/2000	01/09/2000	1
<input checked="" type="checkbox"/>	9	0	Long	NCM	Daily	Yes	-	28/08/2000	31/08/2000	2
<input checked="" type="checkbox"/>	10	0	Long	SGB	Daily	Yes	Yes	28/08/2000	13/09/2000	1
<input checked="" type="checkbox"/>	11	0	Long	ORG	Daily	Yes	-	29/08/2000	05/09/2000	1
<input checked="" type="checkbox"/>	12	0	Long	CWD	Daily	Yes	Yes	04/09/2000	08/09/2000	1
<input checked="" type="checkbox"/>	13	0	Long	SUN	Daily	Yes	-	06/09/2000	20/09/2000	1
<input checked="" type="checkbox"/>	14	0	Long	BHP	Daily	Yes	Yes	11/09/2000	26/09/2000	1

Start Entry Date: 23/08/2000 Stop Entry Date: 20/01/2009 2802 trades selected from a total of 2802 trades

If you run a simulation the SBFTE flag will be ignored and all trades will be considered. To enable the Survivorship Bias Filter you need to enable it from the Trade Parameters tab as shown below.

Trade Parameters		Preferences
Position Size Model <input checked="" type="radio"/> Equal Dollar Units <input type="radio"/> Equal Percent Dollar Units <input type="radio"/> Fixed Dollar Risk <input type="radio"/> Fixed Percent Risk <input type="radio"/> Fixed Dollar Volatility <input type="radio"/> Fixed Percent Volatility <input type="checkbox"/> Pyramid Profits <input type="checkbox"/> Pyramid Trades		
Simulation Type <input checked="" type="radio"/> Portfolio Simulation <input type="radio"/> Portfolio Simulation (Ignore Dates) <input type="radio"/> Basket test <input type="radio"/> Monte Carlo Analysis		
Simulation Options <input checked="" type="radio"/> Use Original Ordering <input type="radio"/> Random Walk		
Trade Parameters (Stocks) Initial Trading Capital: \$50000.00 Portfolio Limit: 100.00% Total Maximum Open Positions: 100 Daily Maximum Open Positions: 20		Transaction Cost (each way): \$0.000 <input type="checkbox"/> Use Transaction Cost from Trade Database Margin Requirement: 100.00% <input type="checkbox"/> Use Margin Req from Trade Database <input type="checkbox"/> Magnify Position Size (and Risk) according to Margin Requirement
Parameters - Equal Dollar Units Capital per Trade: \$5000.00		Margin Requirement Interest Rate Long Trades (Debit): 0.0000% Short Trades (Credit): 0.0000% <input type="checkbox"/> Specify Daily Interest Rate <input type="checkbox"/> Select Position Size Model from Trade Database <input type="checkbox"/> Enable Provisional Trades <input checked="" type="checkbox"/> Enable Survivorship Bias Filter

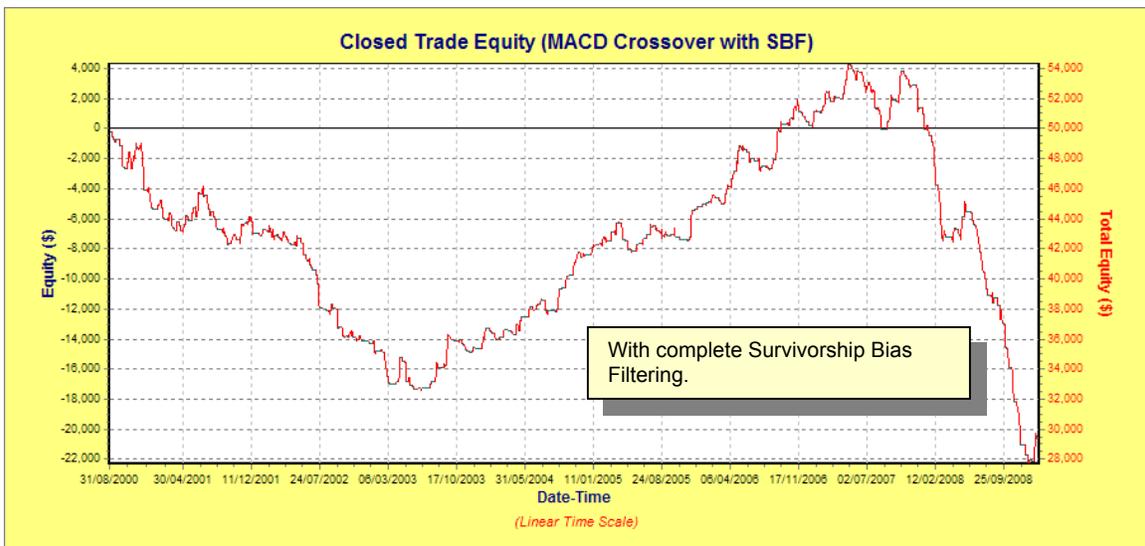
When the SBF is enabled the Trade Database manager will display all of the filtered out trades grayed out. These grayed out trades will never be used in a simulation.

Note: For complete survivorship bias free back testing these unwanted trades should not be included in the back test by either removing them at the time the trade database file is created (using the RemoveUnwantedTrades parameter) or later on by switching on the 'Enable Survivorship Bias Filter' option in the Trade Parameters. If you have removed the unwanted trades from the trade database then this option will have no effect on the results.

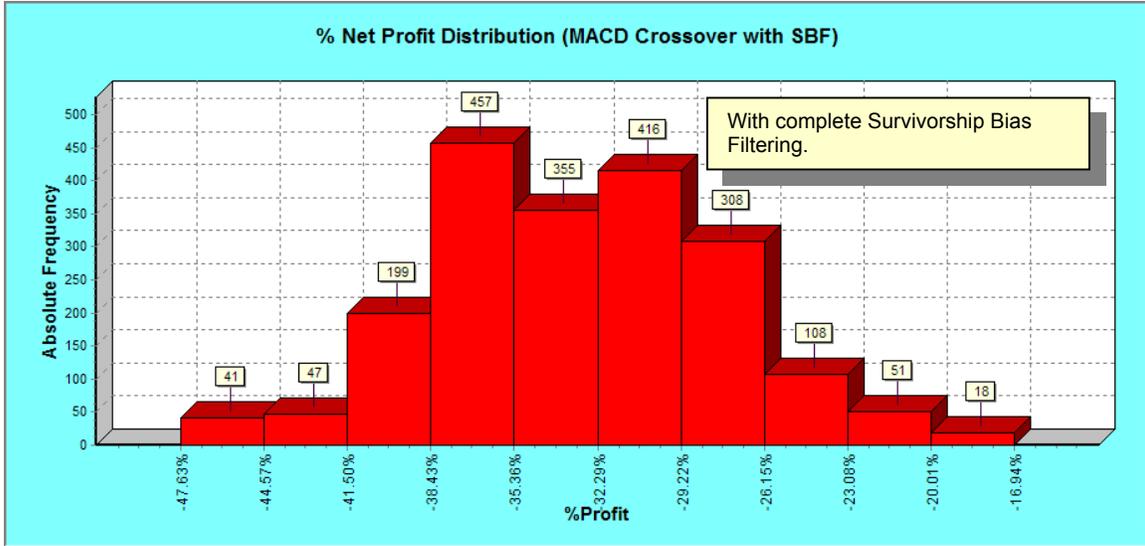
Trade	Sys ID	Pos	Symbol	Periodicity	CE	SBFTE	Entry Date-Time	Exit Date-Time	P-Group
1	0	Long	NCM	Daily	Yes	-	23/08/2000	25/08/2000	1
2	0	Long	ANZ	Daily	Yes	Yes	24/08/2000	01/09/2000	1
3	0	Long	AWC	Daily	Yes	Yes	24/08/2000	04/09/2000	1
4	0	Long	NWSLV	Daily	Yes	Yes	24/08/2000	22/09/2000	1
5	0	Long	WBC	Daily	Yes	Yes	24/08/2000	06/09/2000	1
6	0	Long	WSF	Daily	Yes	-	24/08/2000	30/08/2000	1
7	0	Long	AMP	Daily	Yes	Yes	25/08/2000	31/08/2000	1
8	0	Long	CSL	Daily	Yes	-	25/08/2000	01/09/2000	1
9	0	Long	NCM	Daily	Yes	-	28/08/2000	31/08/2000	2
10	0	Long	SGB	Daily	Yes	Yes	28/08/2000	13/09/2000	1
11	0	Long	DRG	Daily	Yes	-	29/08/2000	05/09/2000	1
12	0	Long	CWD	Daily	Yes	Yes	04/09/2000	08/09/2000	1
13	0	Long	SUN	Daily	Yes	-	06/09/2000	20/09/2000	1
14	0	Long	BHP	Daily	Yes	Yes	11/09/2000	26/09/2000	1

Start Entry Date: 23/08/2000 Stop Entry Date: 20/01/2009 2802 trades selected from a total of 2802 trades

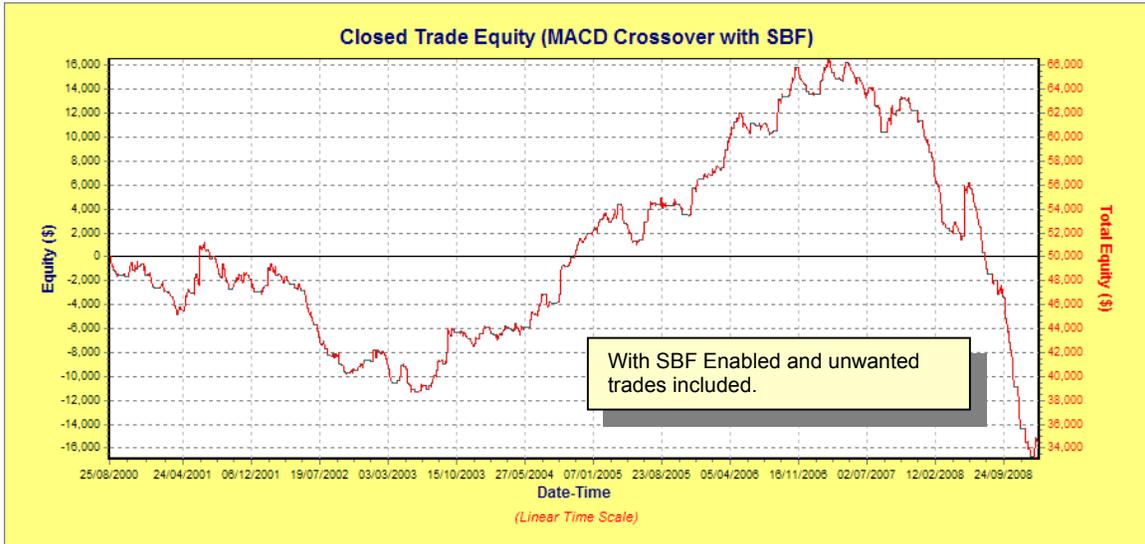
The following closed equity chart shows the results with the SBF enabled and unwanted trades are ignored.



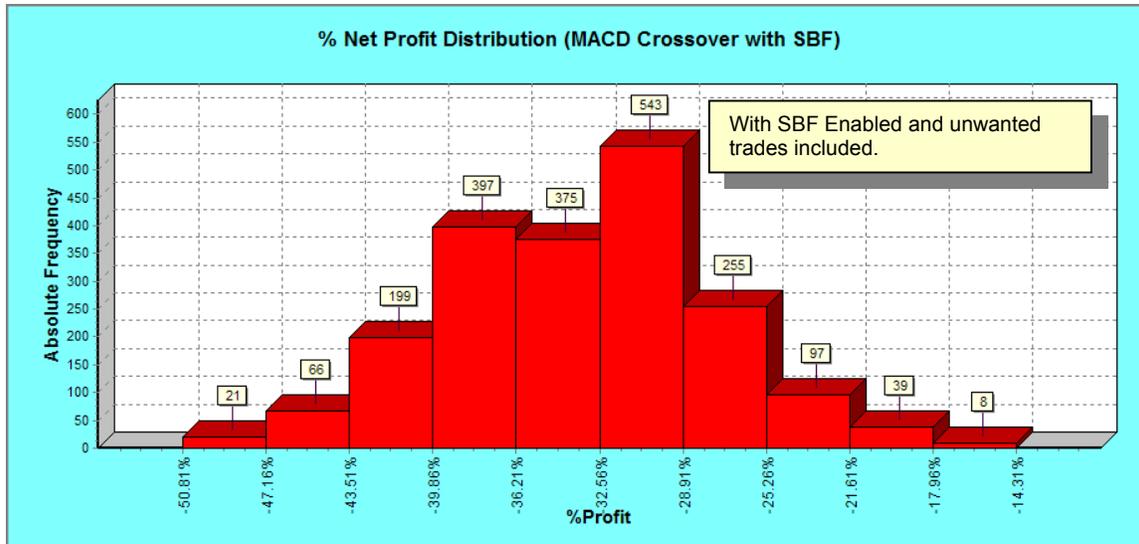
When we run a Monte Carlo analysis we can see a distribution in the profit results for this system.



With the unwanted trades included there is a remarked difference in the closed trade equity curve.



However, proper statistical analysis using the Monte Carlo analysis in the Enterprise Edition shows otherwise which demonstrates the importance of proper statistical analysis of any portfolio trading system !!



Summary

There appears to be a lot of difference between the results with and without the survivorship bias !! This is to be expected and in actual fact the results with survivorship bias for this system are quite misleading and could lead someone to draw the wrong conclusions about the profitability of the system !!

With survivorship bias filtering you can now use TradeSim to create more accurate modeling and back testing of your trading system.

In the next section we will describe the very important steps of how to create a survivorship bias filter table, which is at the heart of creating a survivorship bias free back test.

Building a Survivorship Bias Filter Table

The heart of survivorship bias free back testing in TradeSim is the Survivorship Bias Filter Table or SBF Table for short. Since the SBF Table is essentially a text file with a symbol versus date range, it is possible to construct this table with a text editor, but for large indexes with 100 or more constituents this could become wieldy and prone to error. However, the Professional and Enterprise Editions come with an SBF Utility which allows you to construct an SBF Table from HT dynamic lists or information that is freely available from the Standard and Poors website located at:-

<http://www.standardandpoors.com>

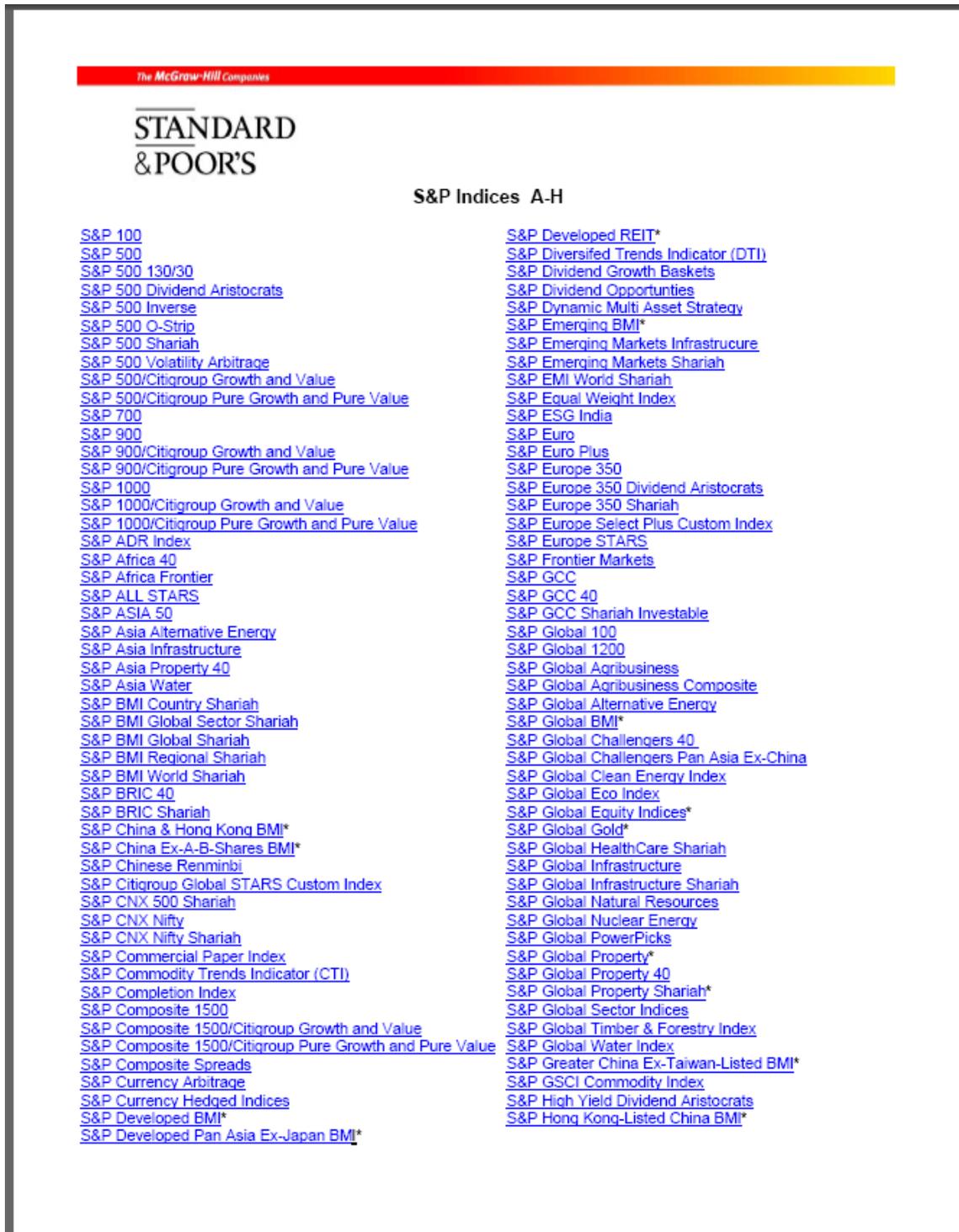
Building an SBF Table from Standard & Poors lists

To construct an SBF Table you essentially need three tables from the S&P website. The first one is the Index Change Table and the other two are the earliest and latest constituents tables which are all available from the S&P website. An optional code change listing changes in codes can be obtained from your local exchange.

In the following example we will use data from the S&P website to build a SBF Table for the S&P/ASX20 index. On the [S&P website](#) select Indices from the Products & Services menu. Click on the [S&P Indices A-Z](#) document link or click on the following link.

http://www2.standardandpoors.com/spf/pdf/index/A-Z_Indices_List.pdf

Either save the pdf file onto your hard drive or open it up in your browser and then find and select the relevant index link that corresponds to the index of interest, which in this case is the S&P/ASX20.



The screenshot shows the Standard & Poor's website with a red and yellow header. The main heading is "STANDARD & POOR'S" and the sub-heading is "S&P Indices A-H". Below this, there are two columns of blue hyperlinks listing various S&P indices. The first column lists indices from S&P 100 to S&P Developed Pan Asia Ex-Japan BMI*. The second column lists indices from S&P Developed REIT* to S&P Hong Kong-Listed China BMI*.

S&P Indices A-H

[S&P 100](#)
[S&P 500](#)
[S&P 500 130/30](#)
[S&P 500 Dividend Aristocrats](#)
[S&P 500 Inverse](#)
[S&P 500 O-Strip](#)
[S&P 500 Shariah](#)
[S&P 500 Volatility Arbitrage](#)
[S&P 500/Citigroup Growth and Value](#)
[S&P 500/Citigroup Pure Growth and Pure Value](#)
[S&P 700](#)
[S&P 900](#)
[S&P 900/Citigroup Growth and Value](#)
[S&P 900/Citigroup Pure Growth and Pure Value](#)
[S&P 1000](#)
[S&P 1000/Citigroup Growth and Value](#)
[S&P 1000/Citigroup Pure Growth and Pure Value](#)
[S&P ADR Index](#)
[S&P Africa 40](#)
[S&P Africa Frontier](#)
[S&P ALL STARS](#)
[S&P ASIA 50](#)
[S&P Asia Alternative Energy](#)
[S&P Asia Infrastructure](#)
[S&P Asia Property 40](#)
[S&P Asia Water](#)
[S&P BMI Country Shariah](#)
[S&P BMI Global Sector Shariah](#)
[S&P BMI Global Shariah](#)
[S&P BMI Regional Shariah](#)
[S&P BMI World Shariah](#)
[S&P BRIC 40](#)
[S&P BRIC Shariah](#)
[S&P China & Hong Kong BMI*](#)
[S&P China Ex-A-B-Shares BMI*](#)
[S&P Chinese Renminbi](#)
[S&P Citigroup Global STARS Custom Index](#)
[S&P CNX 500 Shariah](#)
[S&P CNX Nifty](#)
[S&P CNX Nifty Shariah](#)
[S&P Commercial Paper Index](#)
[S&P Commodity Trends Indicator \(CTI\)](#)
[S&P Completion Index](#)
[S&P Composite 1500](#)
[S&P Composite 1500/Citigroup Growth and Value](#)
[S&P Composite 1500/Citigroup Pure Growth and Pure Value](#)
[S&P Composite Spreads](#)
[S&P Currency Arbitrage](#)
[S&P Currency Hedged Indices](#)
[S&P Developed BMI*](#)
[S&P Developed Pan Asia Ex-Japan BMI*](#)

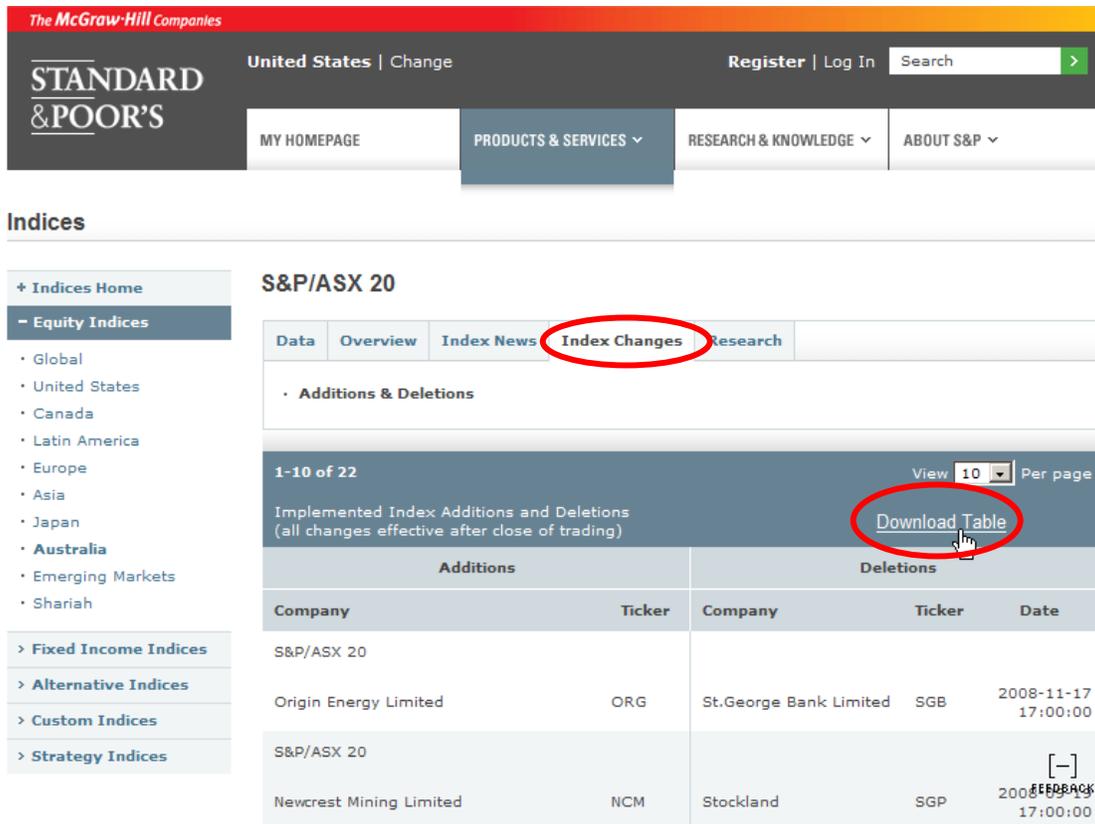
[S&P Developed REIT*](#)
[S&P Diversified Trends Indicator \(DTI\)](#)
[S&P Dividend Growth Baskets](#)
[S&P Dividend Opportunities](#)
[S&P Dynamic Multi Asset Strategy](#)
[S&P Emerging BMI*](#)
[S&P Emerging Markets Infrastructure](#)
[S&P Emerging Markets Shariah](#)
[S&P EMI World Shariah](#)
[S&P Equal Weight Index](#)
[S&P ESG India](#)
[S&P Euro](#)
[S&P Euro Plus](#)
[S&P Europe 350](#)
[S&P Europe 350 Dividend Aristocrats](#)
[S&P Europe 350 Shariah](#)
[S&P Europe Select Plus Custom Index](#)
[S&P Europe STARS](#)
[S&P Frontier Markets](#)
[S&P GCC](#)
[S&P GCC 40](#)
[S&P GCC Shariah Investable](#)
[S&P Global 100](#)
[S&P Global 1200](#)
[S&P Global Agribusiness](#)
[S&P Global Agribusiness Composite](#)
[S&P Global Alternative Energy](#)
[S&P Global BMI*](#)
[S&P Global Challengers 40](#)
[S&P Global Challengers Pan Asia Ex-China](#)
[S&P Global Clean Energy Index](#)
[S&P Global Eco Index](#)
[S&P Global Equity Indices*](#)
[S&P Global Gold*](#)
[S&P Global HealthCare Shariah](#)
[S&P Global Infrastructure](#)
[S&P Global Infrastructure Shariah](#)
[S&P Global Natural Resources](#)
[S&P Global Nuclear Energy](#)
[S&P Global PowerPicks](#)
[S&P Global Property*](#)
[S&P Global Property 40](#)
[S&P Global Property Shariah*](#)
[S&P Global Sector Indices](#)
[S&P Global Timber & Forestry Index](#)
[S&P Global Water Index](#)
[S&P Greater China Ex-Taiwan-Listed BMI*](#)
[S&P GSCI Commodity Index](#)
[S&P High Yield Dividend Aristocrats](#)
[S&P Hong Kong-Listed China BMI*](#)

S&P Indices I-Z

S&P India 10	S&P/ASX 300
S&P Indian Rupee	S&P/ASX 300 Metals & Mining
S&P India Select	S&P/ASX 50
S&P Japan 500	S&P/ASX All Australian 200
S&P Japan 500 Shariah	S&P/ASX All Australian 50
S&P Japan Emerging Stock (JES) 100	S&P/ASX All Ordinaries
S&P Japan MidCap 100	S&P/ASX All Ordinaries Gold
S&P Japan SmallCap 250	S&P/ASX Industrials and Resources
S&P Latin America 40	S&P/ASX MidCap 50
S&P Listed Private Equity Index	S&P/ASX Sectors
S&P Long-Only Merger Arbitrage	S&P/ASX Small Ordinaries
S&P Mid-Year Global PowerPicks	S&P/Businessweek Global Innovation
S&P MidCap 400	S&P/Case-Shiller Home Price Indices
S&P MidCap 400/Citigroup Growth and Value	S&P/CITIC 100
S&P MidCap 400/Citigroup Pure Growth and Pure Value	S&P/CITIC 200
S&P MLP Index	S&P/CITIC 300
S&P National Municipal Bond Index	S&P/CITIC 50
S&P North American Sector Indices	S&P/CITIC China A-Share Dividend Opportunities
S&P North American Technology Indices	S&P/CITIC China 30
S&P Overseas China 10	S&P/CITIC China Style
S&P Pan Africa	S&P/CITIC Composite Bond Index
S&P Pan Arab Index Series	S&P/CITIC Convertible Bond Index
S&P Pan Asia 50 High Dividend	S&P/CITIC Corporate Bond Index
S&P Pan Asia Ex-Japan & Taiwan BMI*	S&P/CITIC Government Bond Index
S&P Pan Asia Shariah	S&P/CITIC Inter-Bank Bond Index
S&P PMI Commodity and Resources	S&P/CITIC SmallCap
S&P PMI World Shariah	S&P/HKEx GEM
S&P Pure Style Strategy Index	S&P/HKEx LargeCap
S&P Russia 10	S&P/IFCG
S&P Select Frontier	S&P/IFCG Extended Frontier 150
S&P Select Industry Indices	S&P/IFCI
S&P SmallCap 600	S&P/IFCI Large-MidCap Shariah
S&P SmallCap 600/Citigroup Growth and Value	S&P/LSTA U.S. Leveraged Loan 100
S&P SmallCap 600/Citigroup Pure Growth and Pure Value	S&P/MIB
S&P Southeast Asia 40	S&P/TOPIX 150
S&P Target Date Indices	S&P/TOPIX 150 Shariah
S&P Target Risk Indices	S&P/TSX 60
S&P Total Market Index	S&P/TSX 60 Capped
S&P U.S. Credit Default SWAPS (CDS)	S&P/TSX Canadian Dividend Aristocrats
S&P U.S. Preferred Stock Index	S&P/TSX Capped Composite
S&P U.S. Select Plus Custom Index	S&P/TSX Capped Energy Trust
S&P U.S. STARS	S&P/TSX Capped REIT
S&P United Kingdom	S&P/TSX Capped Sectors
S&P Vietnam 10	S&P/TSX Completion (fka S&P/TSX MidCap)
S&P World Property Shariah*	S&P/TSX Composite
S&P X-Alpha EUR Excess Return Strategy	S&P/TSX Equity
S&P X-Alpha EUR Total Return Strategy	S&P/TSX Equity Completion
S&P X-Alpha USD Excess Total Return Strategy	S&P/TSX Equity SmallCap
S&P X-Alpha USD Total Return Strategy	S&P/TSX Global Gold
JOINT INDICES	S&P/TSX Global Mining
RTS Index	S&P/TSX Income Trust
S&P/ASX 100	S&P/TSX Preferred Share Index
S&P/ASX 20	S&P/TSX SmallCap
S&P/ASX 200	S&P/TSX Venture Composite

*Name changed as part of the new S&P Global Equity Index Series

Once you have loaded the pdf document find the relevant index link in the document and click on it. The link should take you to the S&P/ASX20 page on the S&P website as shown in the following screen grab.



The McGraw-Hill Companies

STANDARD & POOR'S

United States | Change Register | Log In Search

MY HOMEPAGE PRODUCTS & SERVICES RESEARCH & KNOWLEDGE ABOUT S&P

Indices

- + Indices Home
- Equity Indices
 - Global
 - United States
 - Canada
 - Latin America
 - Europe
 - Asia
 - Japan
 - Australia
 - Emerging Markets
 - Shariah
- > Fixed Income Indices
- > Alternative Indices
- > Custom Indices
- > Strategy Indices

S&P/ASX 20

Data Overview Index News **Index Changes** Research

· Additions & Deletions

1-10 of 22 View 10 Per page

Implemented Index Additions and Deletions (all changes effective after close of trading)

Download Table

Additions		Deletions		
Company	Ticker	Company	Ticker	Date
S&P/ASX 20				
Origin Energy Limited	ORG	St.George Bank Limited	SGB	2008-11-17 17:00:00
S&P/ASX 20				
Newcrest Mining Limited	NCM	Stockland	SGP	2008-11-17 17:00:00

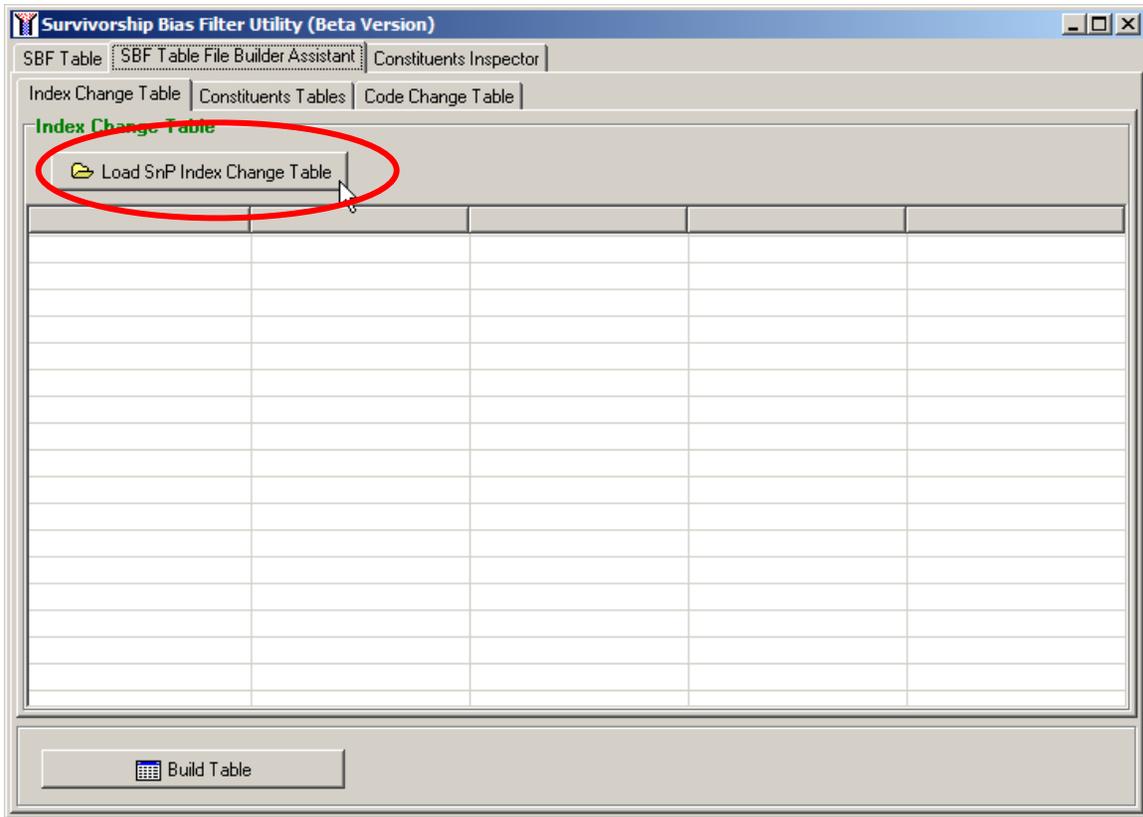
Click on the 'Index Changes' Tab and then click on 'Download Table' and save the csv file (IndexChange_ASX20.csv) into the SBF Table Files directory, which is located in the C:\TradeSimData directory. You can create an additional directory within the SBF directory for each different index, which is what I have done for the ASX20 index.

C:\TradeSimData\TableFiles\SBF\ASX20

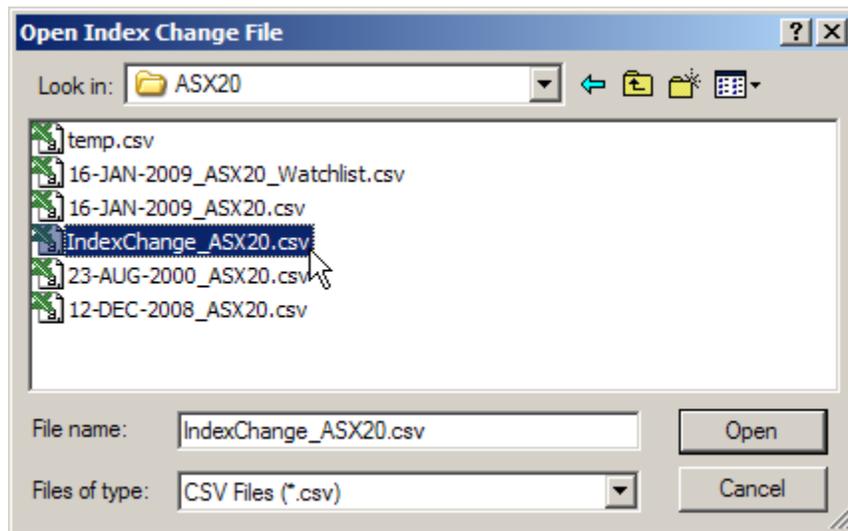
Now we need the constituent's list for the earliest and latest dates. Click on 'Overview' and then click on 'Constituents'. Select the latest date and download the csv table. Then change the date to the earliest date possible and download the csv table.

When you have finished you should have the following three files in the ASX20 directory.

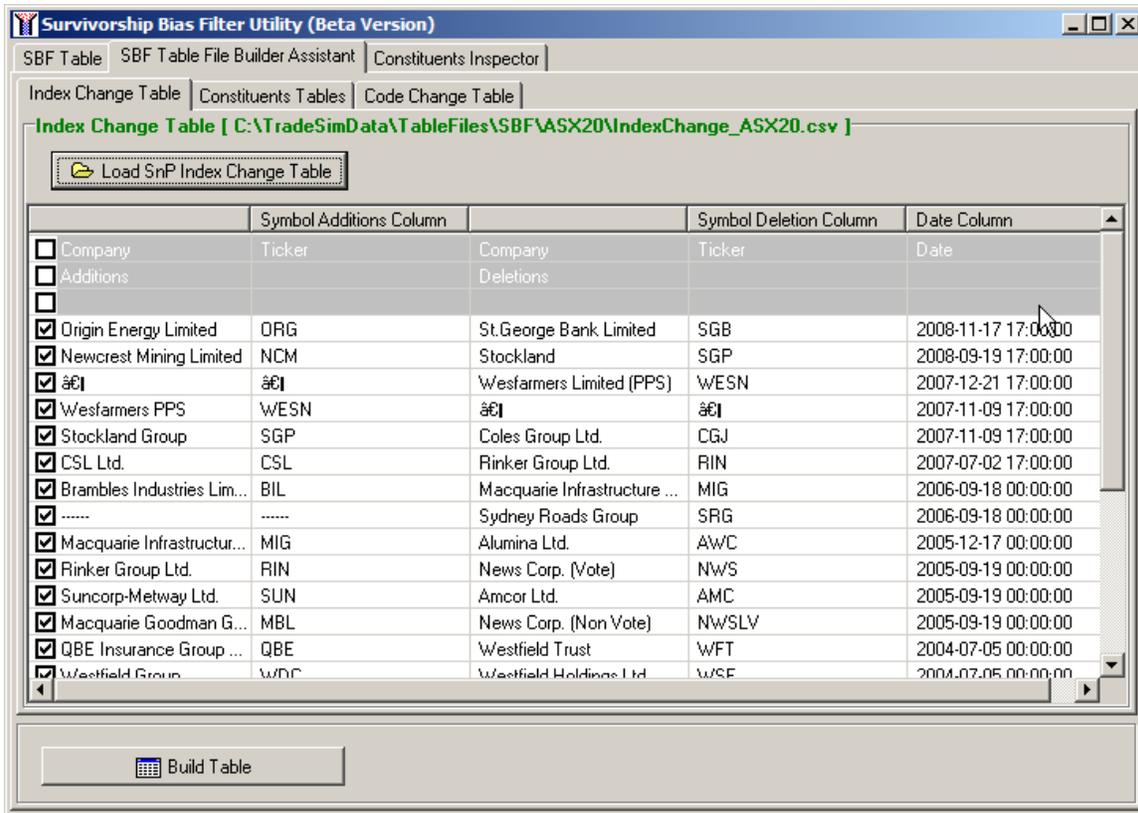
IndexChange_ASX20.csv
 16-JAN-2009_ASX20.csv
 23-AUG-2000_ASX20.csv



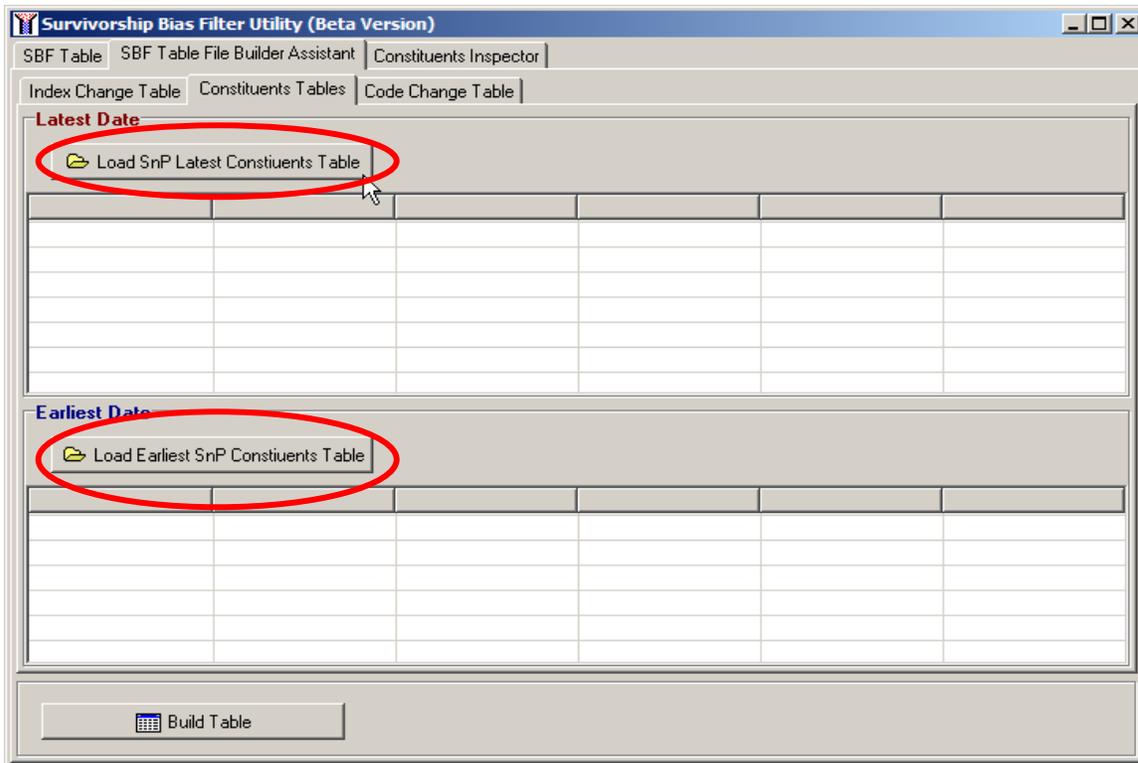
Select the 'IndexChange_ASX20.csv' from the ASX directory that you previously downloaded.



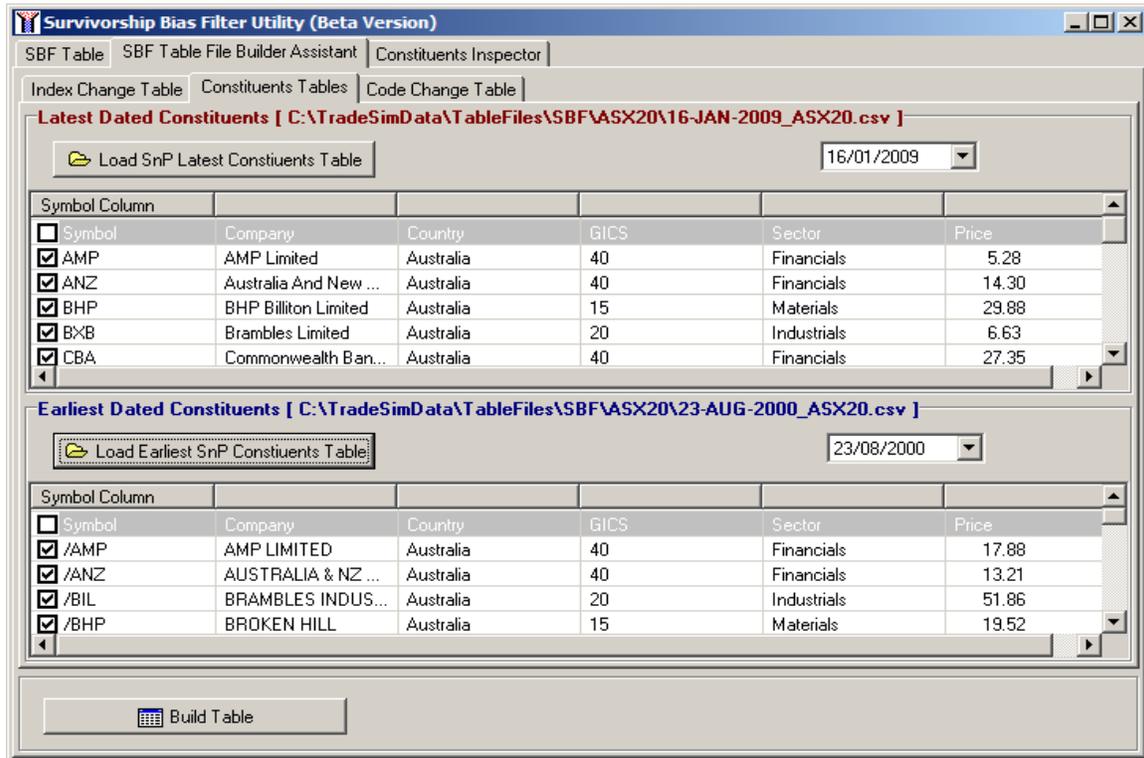
Once the table has been loaded note that the first three lines are deselected and greyed out automatically because these lines are not used. These three lines are the only ones that should be deselected.



Now select the 'Constituents Tables' tab which shows two constituent table viewer.



Click on the 'Load SnP Latest Constituents Table' and load the latest constituents file (16-JAN-2009_ASX20.csv) and then followed by the earliest constituents file (23-AUG-2000_ASX20.csv).



Loading the Code Change Table

The next procedure is optional but recommended in order to minimize any editing later on.

The Code Change Table is a list of code changes applied to listed companies.

Note: A code change table for the ASX has already been provided in the following directory:-

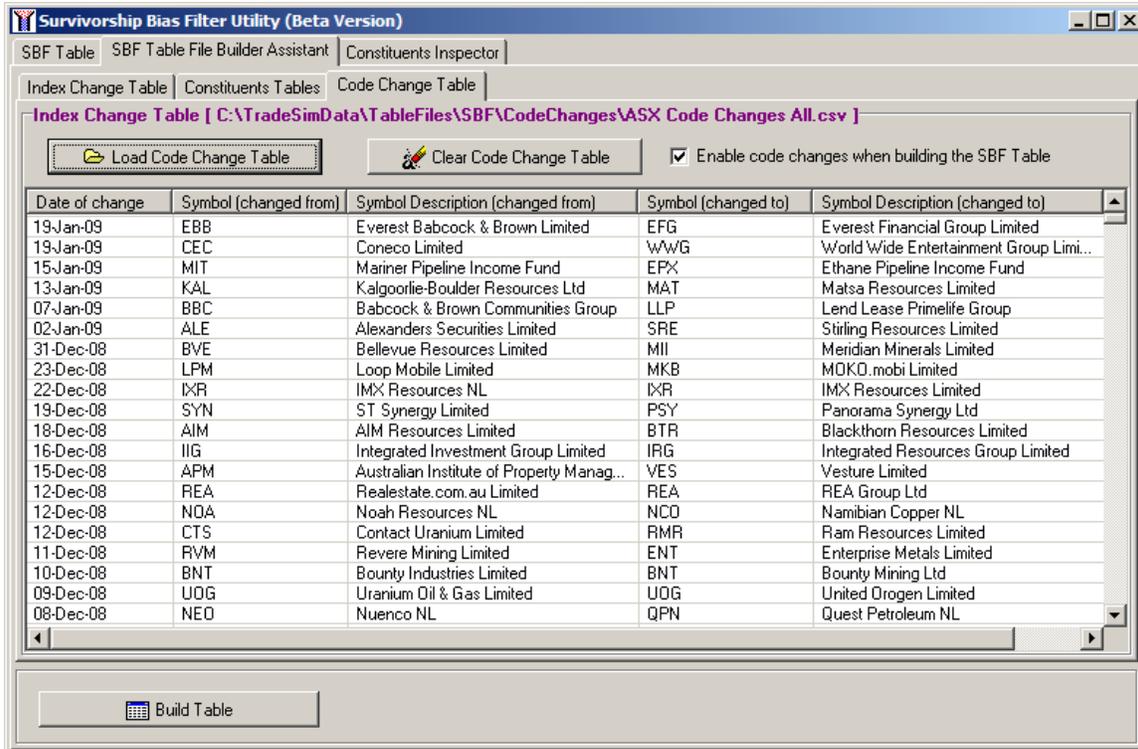
C:\TradeSimData\TableFiles\SBF\CodeChange

This Code Change csv table has been generated from lists available from the ASX website

<http://www.asx.com.au/resources/codes/changes/2009.htm>

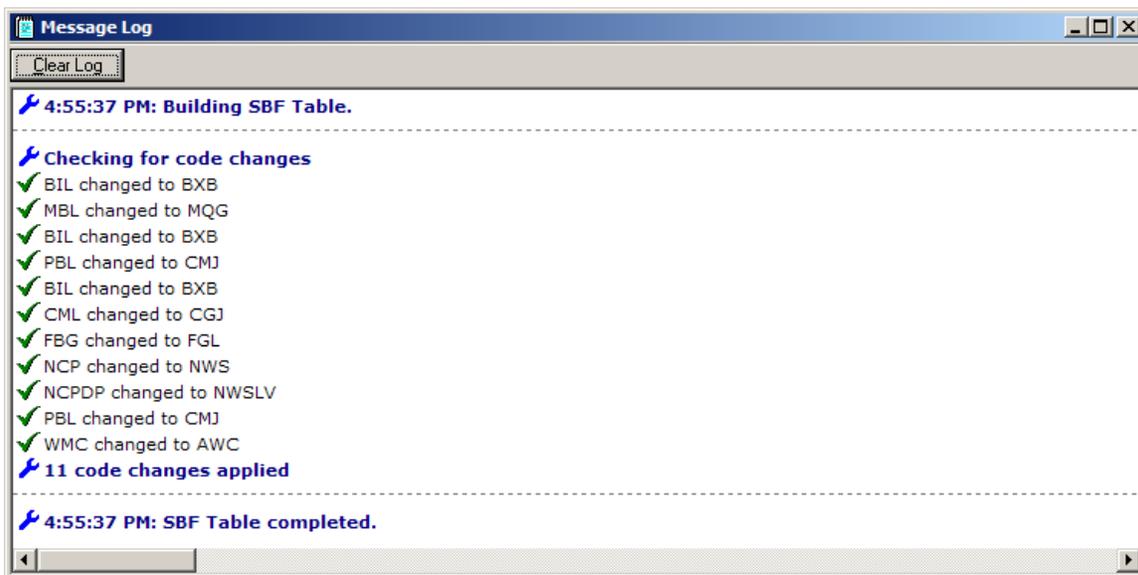
and has been compiled into a single csv file which can be edited.

Click on the Code Change Tab and load up the ASX code change table from the CodeChange directory.



The Code Change table is divided into 5 columns. The relevant columns are 1st, 2nd and 4th columns which correspond to the Date, Symbol(change from), Symbol(change to). When the SBF Table is being created code changes are made automatically.

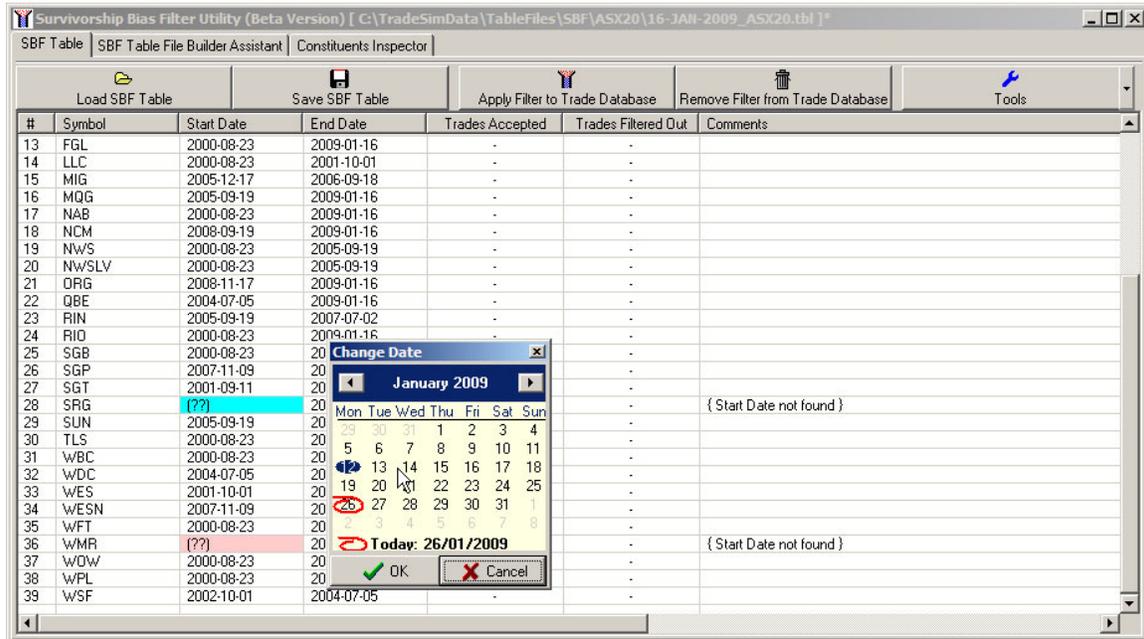
Now that we have all of the tables loaded up, click on the 'Build Table' button to create the table. The Message Log window will appear providing feedback including any code changes that were made.



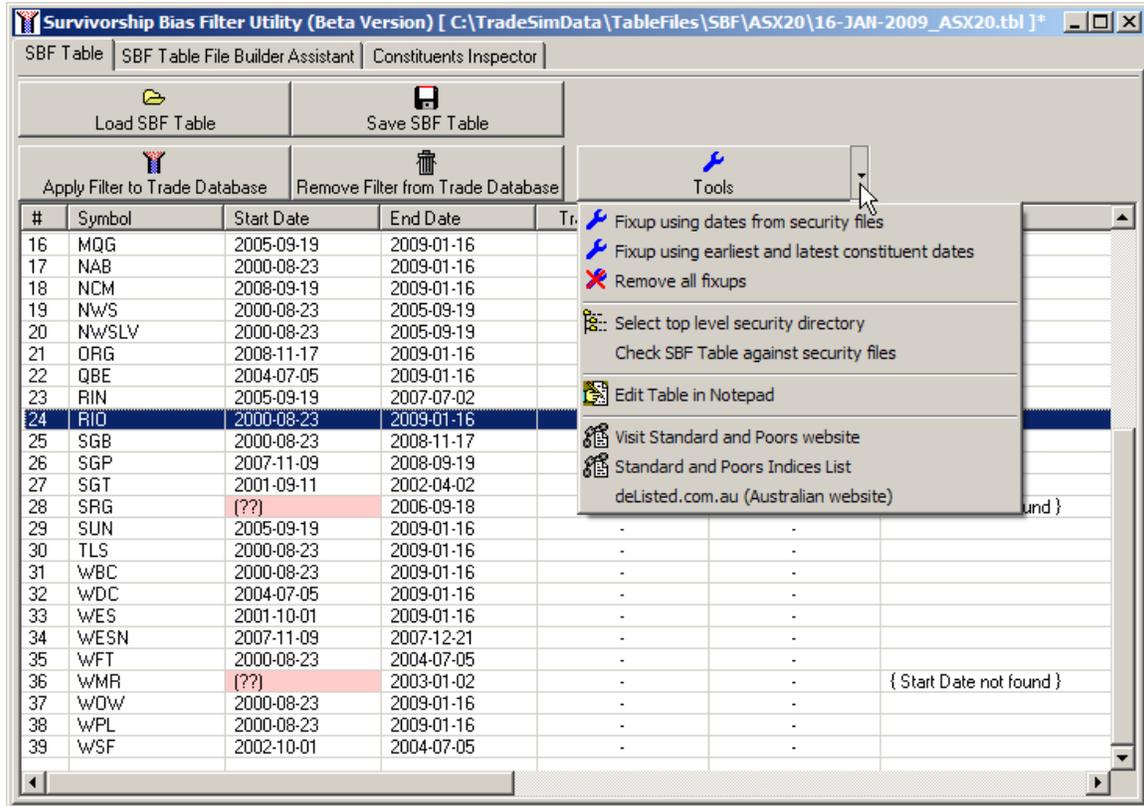
The 'SBF Table' tab will be automatically selected with the symbol versus date ranges displayed.

Fixing up the missing dates

Sometimes the information provided by the S&P website is not complete and will need some editing and fixing up. In this case two start dates are undefined and will need to be added. You can manually edit the dates by right clicking on the date and selecting the edit option from the popup menu. You then choose the date from the date picker.

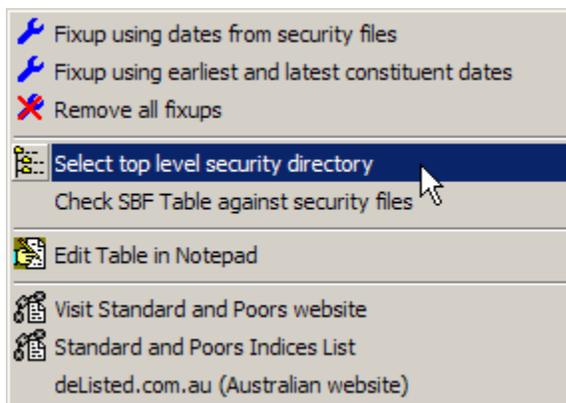


The tools menu button on the right has some tools that allow you to fixup missing dates for the undefined start and end dates. You can scan the security folders for the undefined start and end dates or use the start and end dates of the constituent files that you have downloaded from the SnP website. To access these tools click on the drop down to the right of the Tools button on the toolbar.

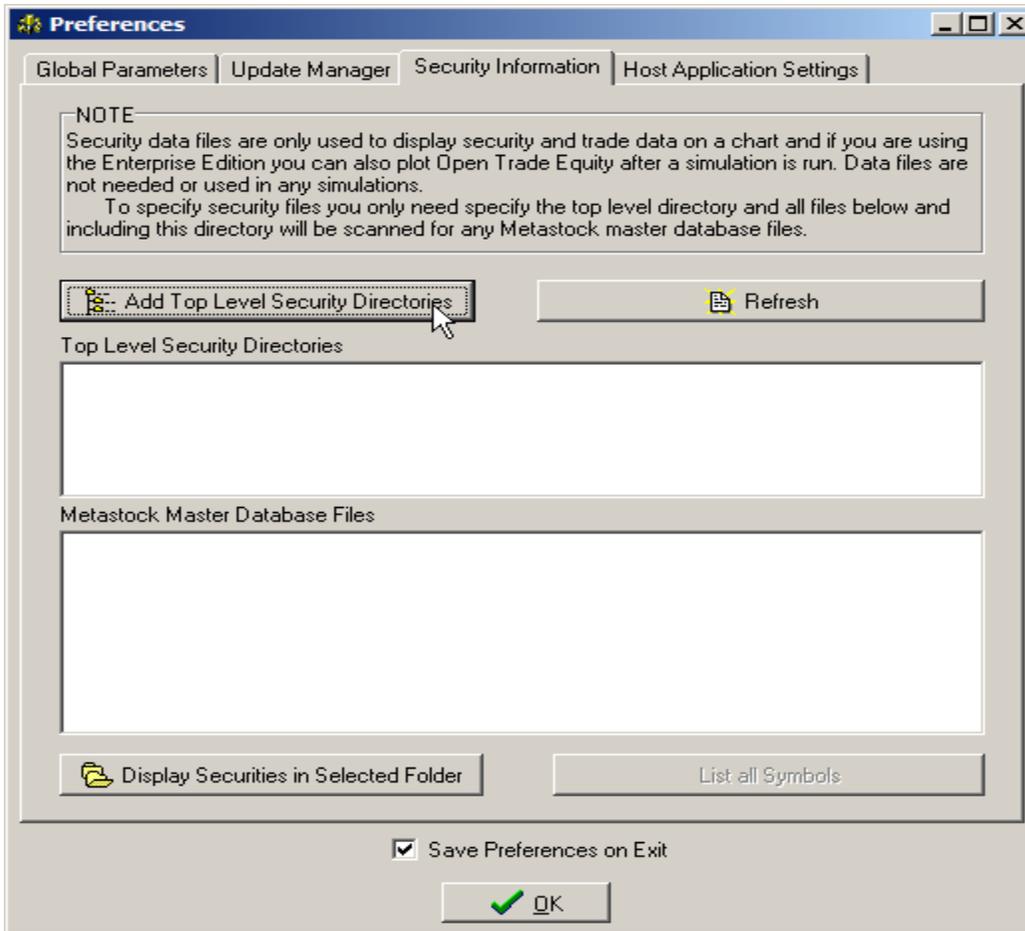


Fixing up dates from security files

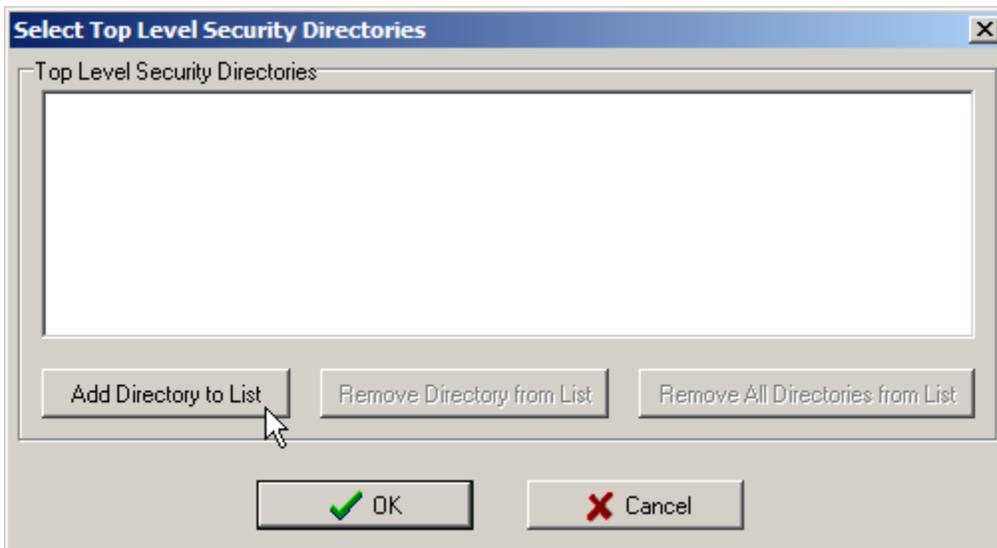
Before you can fix up the dates using the security files you need to select the top-level security directories by selecting this option from the tools menu.



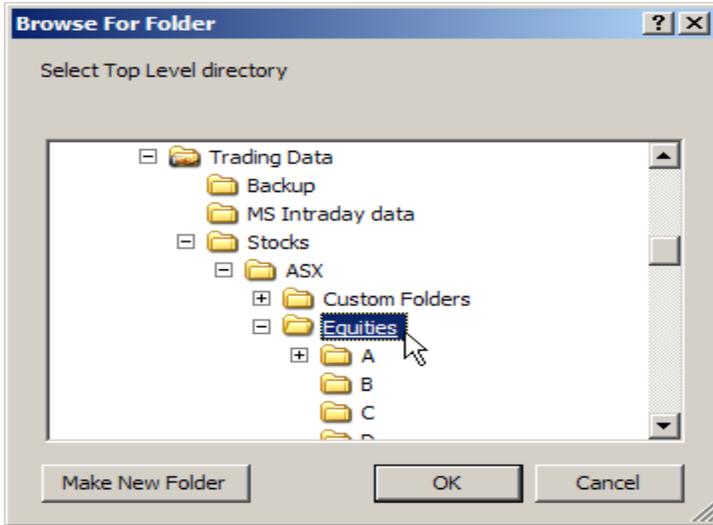
The global preferences dialog box will appear and the 'Security Information' tab will be automatically selected. This is the same dialog box used to set the top-level securities for the Open Trade Equity charts in the Enterprise Edition.



Click on 'Add Top Level Security Directories'



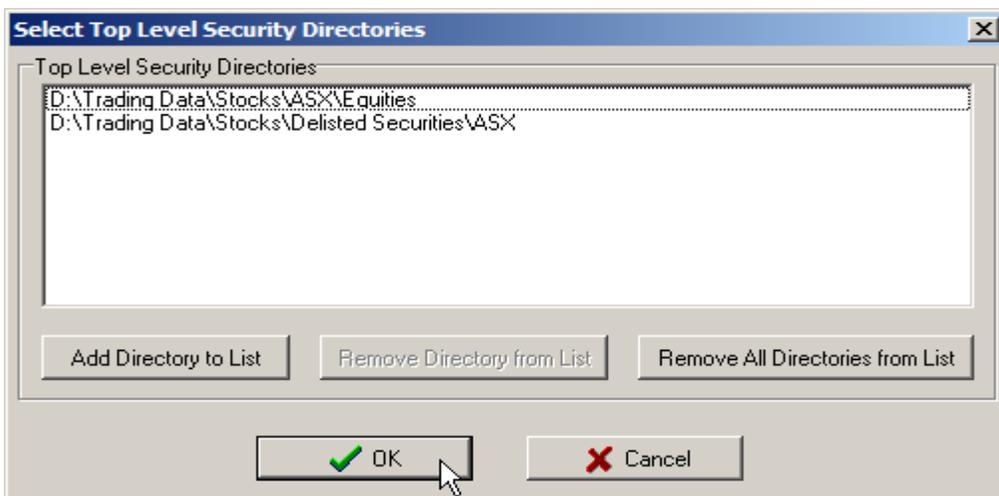
Click 'Add Directory to List' and add the top level Equities folder.



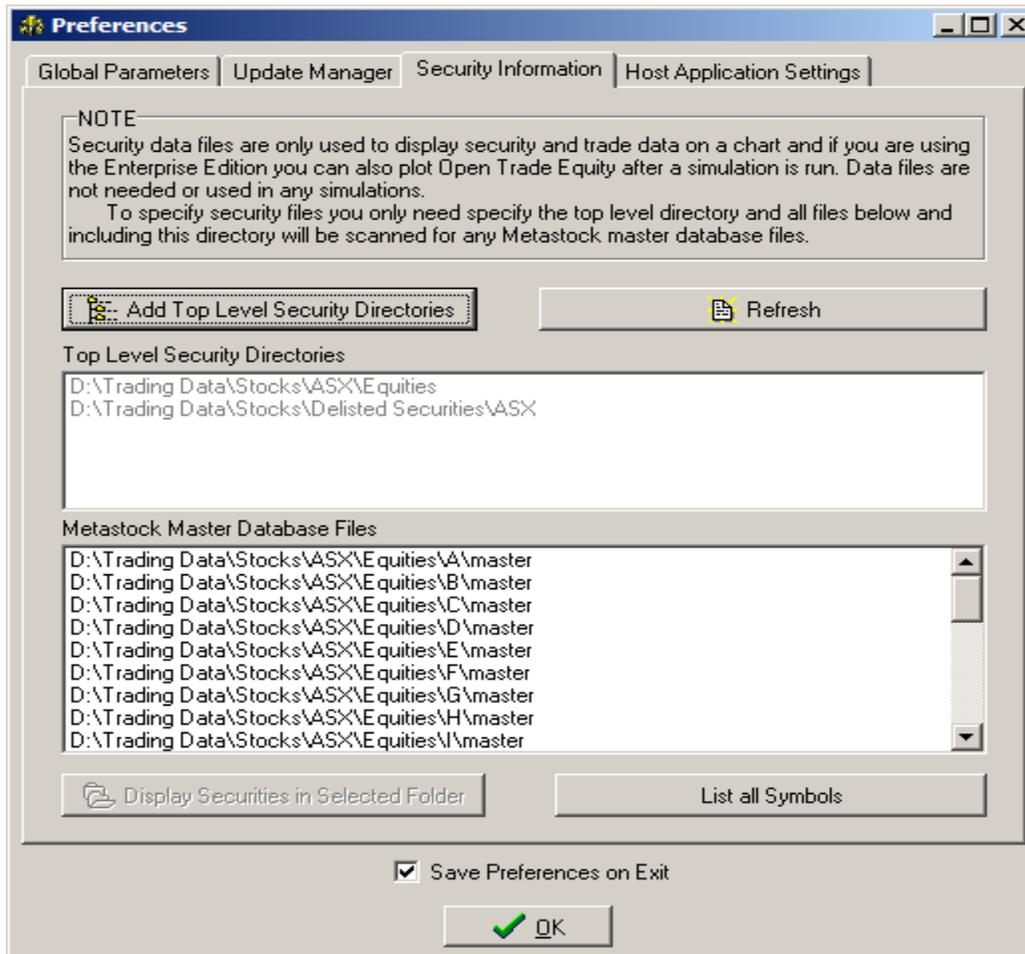
Click 'Add Directory to List' and add the top-level De-listed securities folder.



Once you have selected all of the relevant top-level security directories Click on 'OK'.

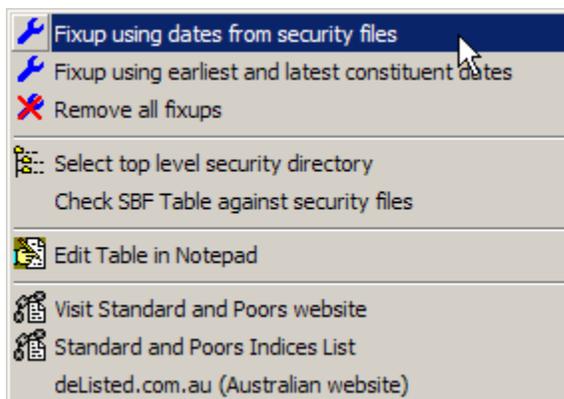


All of the master files will be searched below each top-level security directory and displayed.



These are the same folders you will be using to run a trade database exploration in Metastock using the survivorship bias filter table.

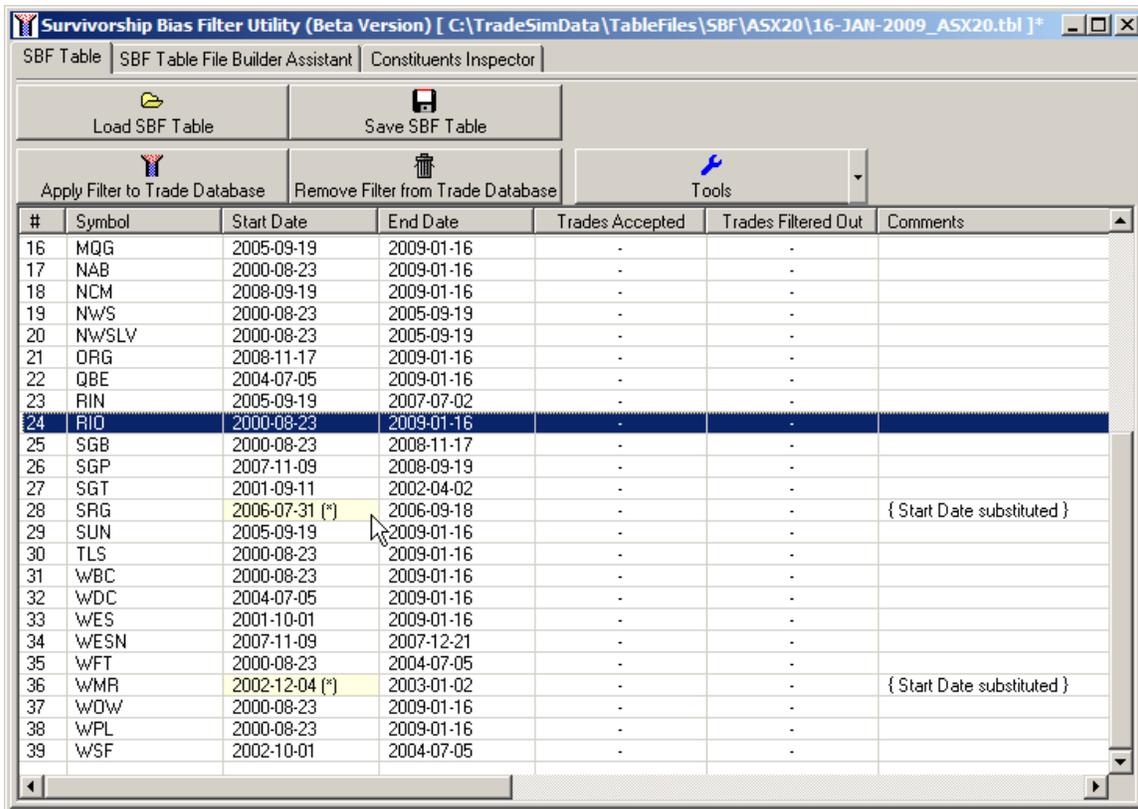
Select 'Fixup dates from security files' from the drop down Tools Menu.



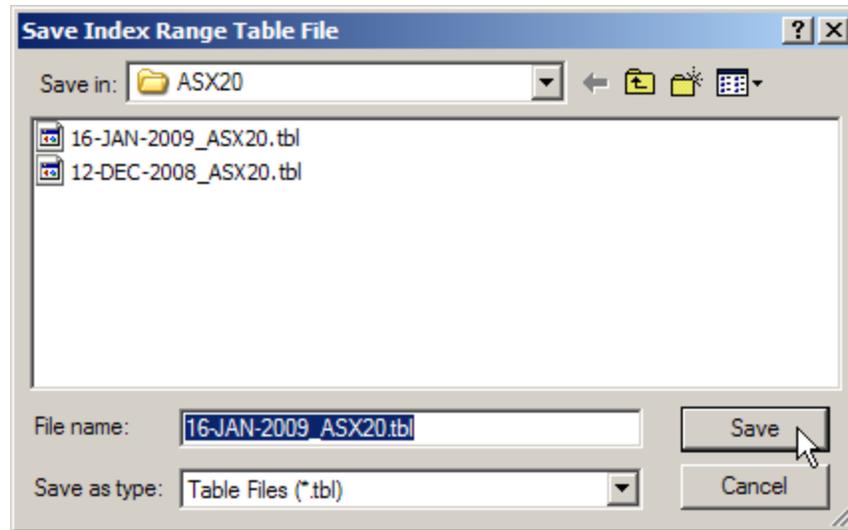
Once the fix-up have been completed the Message Log will pop-up with any modifications made.



The dates that were undefined before with a double question mark (??) have now been replaced and an asterisk (*) appended to indicate that they were modified. When the table is saved these dates will be saved as a negative date. This won't have any effect on the SBF table used in a trade database exploration but is there to remind you that these dates could not be computed from the original SnP data. If the table was supplied without fix ups then the dates with the double question mark would be saved as a negative one (-1) for the date and these entries in the table would be ignored by the trade database exploration.

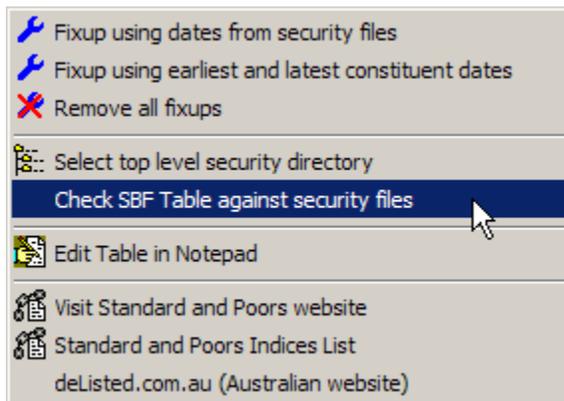


To save the SBF table for use in a trade database exploration click on the 'Save SBF Table' on the tool bar. The table filename is named with the same filename used for the latest constituents filename with a tbl file extension rather than a csv filename.



Checking the SBF table file against the security files.

Before you can use the SBF table file in a trade database exploration it is important to make sure that the security files actually exist, as well as provide the correct security data for the date ranges specified in the table file. The tools menu has an option to allow you to check for this. Click on the drop down tools menu and select 'Check SBF Table against security files'.



Every entry in the SBF table will be checked against its respective security file and any inconsistencies will be reported in the Message Log. In this case there are just a few date inconsistencies.

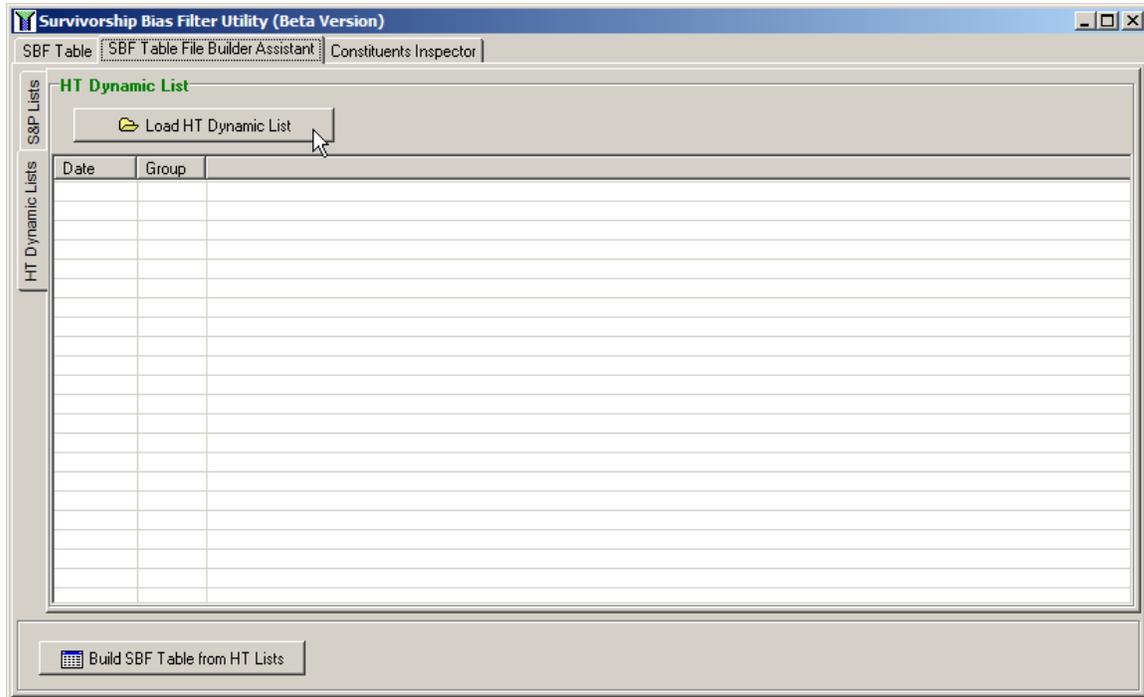


Building an SBF Table from a HT List

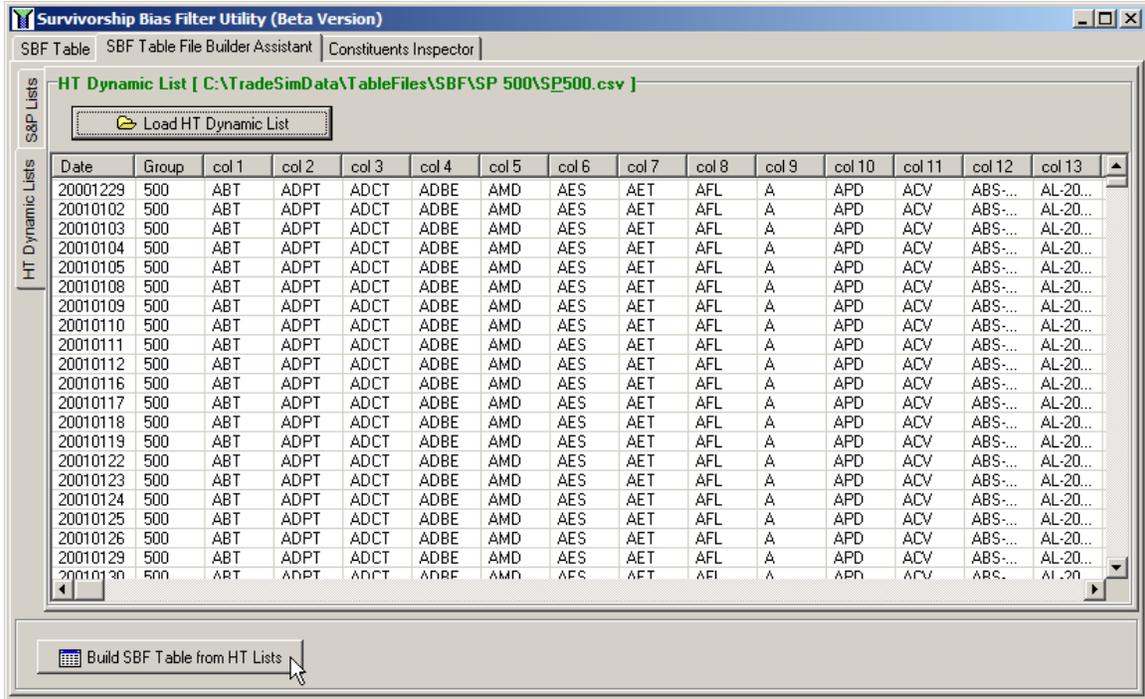
If you are a member of HT and have purchased the Survivorship Bias Database Generation Code pack for AB then you can use the dynamic lists to easily reconstruct an SBF Table.

Select the SBF Table Builder Assistant tab followed by the HT Dynamic List tab.

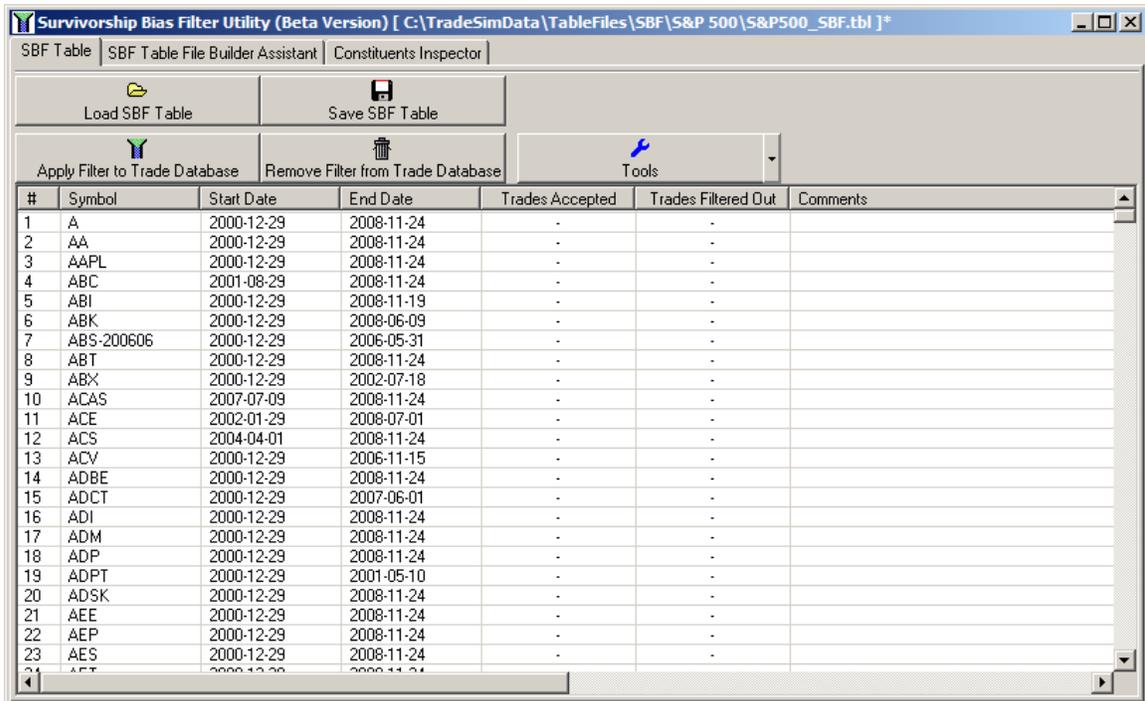
Load up the HT dynamic list. In this case we will be using the US S&P500.csv list



Click on the Build SBF button.



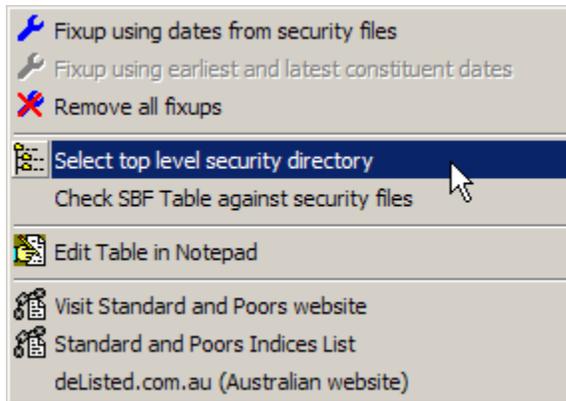
Once the translation is finished check the Message Log for any problems. If there are no problems you can now save the table for use in your trade database exploration.



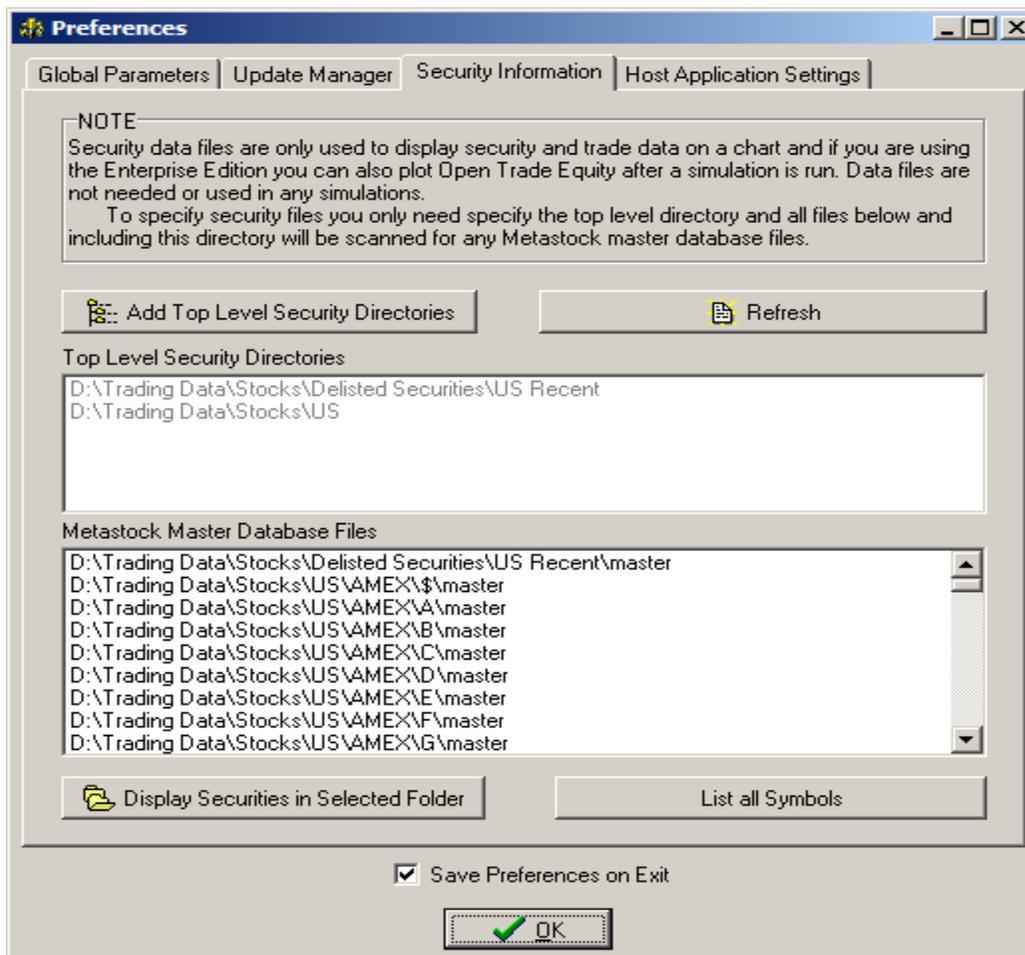
Checking the SBF table file against the security files.

Before you can use the SBF table file in a trade database exploration it is important to make sure that the security files actually exist, as well as provide the correct security data for the date ranges specified in the

table file. The Tools menu has an option to allow you to check for this. Before you can do this you need to point TradeSim at the securities folders that contain all of the securities that have been referenced in the SBF table. This procedure was explained in the section on S&P lists so we will not go into it in depth. From the Tools menu select 'Select top level security directory' from the menu.



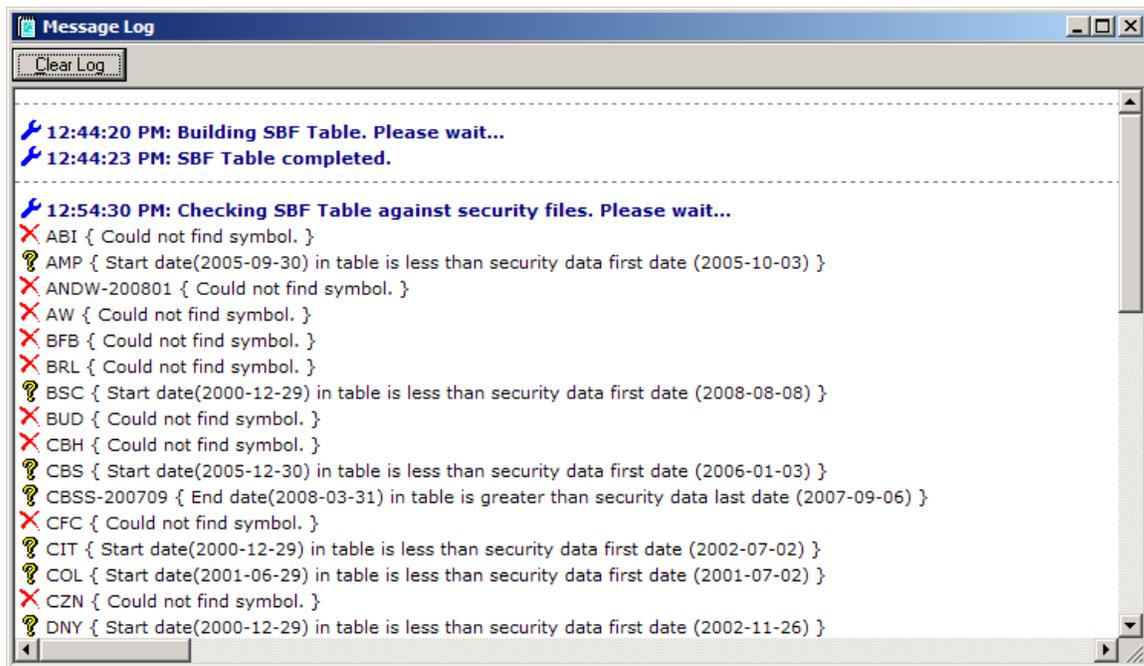
Select the relevant US directories



Click on the drop down tools menu and select 'Check SBF Table against security files'.



Every entry in the SBF table will be checked against its respective security file and any inconsistencies will be reported in the Message Log. In this case some symbols could not be found and some dates are out of range.



Reference Literature

This list of references is by no means exhaustive but represents material, which is either recommended, or for general reading.

- 1) Compuvision Australia. TradeSim User Manual.
- 2) Equis. *Metastock for Windows 95/98 & NT*. This is the user manual that comes with Metastock Version 7.0 and is a prerequisite for using TradeSim.