

TradeSim®

Advanced Trading Simulator and Back Tester

For position traders using
Metastock® Ver 7.0 and above.



Advancing the Art of Trading with Science.

TradeSim Quick Start Tutorial

Standard, Professional and Enterprise Editions

- ✓ TradeSim Version 6
- ✓ TradeSim(DLL) Metastock Plugin Beta Version 8.0.0

Last Update 19 April 2008

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Quick Start Tutorial

This document has been written to ease new comers into using TradeSim for the very first time. If you have successfully installed TradeSim according to the directions outlined in the chapter on “Software Installation” from the TradeSim User Manual then you should have no trouble completing the following tutorial. Also by completing the steps in this chapter will also allow you to check whether or not TradeSim has been correctly installed on your computer.

It is not the intent of this chapter to describe the procedures in detail but rather let the user go through the motions of creating and analysing a trade database using both Metastock and TradeSim. A trade database is a special file, which contains a collection of trading information relating to a specific trading system and set of securities. It is required by TradeSim in order to analyse a trading system.

Metastock is used as a vehicle for generating a trade database and TradeSim is used to subsequently analyse the trade database. The rich formula language available in the Metastock environment coupled with the power of the Metastock Explorer allows one to easily adapt its use to generating a trade database file. The whole process of using Metastock in conjunction with TradeSim is akin to paper trading except that the results can be obtained in minutes instead of observing and analysing the markets over a number of years. In the TradeSim User Manual we will describe the concept of the trade database in more detail and how to go about creating your own database for your own trading system.

Hopefully once you have completed this tutorial you will have a basic understanding of the processes involved in using TradeSim in conjunction with Metastock, which will be a prerequisite to reading the TradeSim User Manual. In this tutorial we will clone and rename an existing Trade Database exploration that should have been installed at the same time when TradeSim was installed. Once we have cloned a trade database exploration we can then generate a trade database and later analyse the results using TradeSim.

Note. Some of the screen shots shown in this tutorial may not match up exactly with what you see on your own computer screen.

Creating a Trade Database

Creating a new Trade Database Exploration

In this exercise we take a relatively familiar trading system called the MACD (Moving Average Convergence/Divergence) and produce a trade database from it using the Metastock Explorer along with TradeSim/Metastock plugin that should have been installed when TradeSim was installed. MACD is short for Moving Average Convergence/Divergence and is a trend following momentum indicator that shows the relationship between two moving averages of prices.

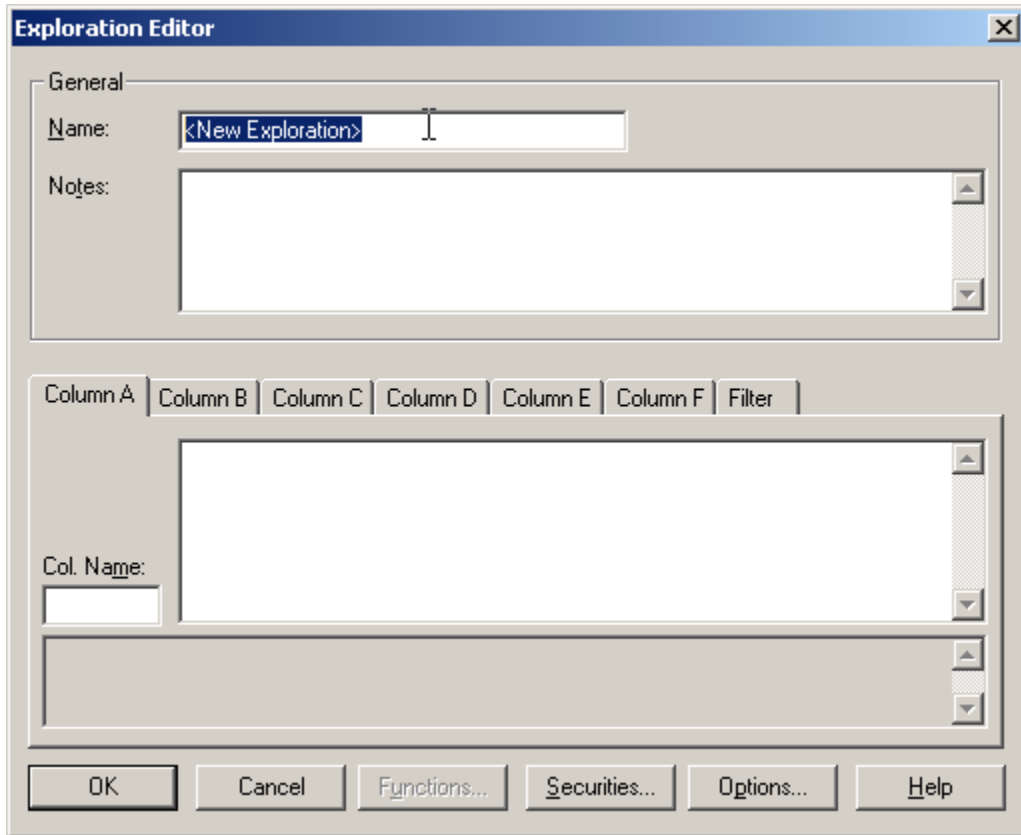
You may already have this trade database exploration already installed in your Metastock Exploration list. However if it is not you can build one up from scratch by following these steps. The Metastock code needed to run the trade database exploration is as follows:-

```
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.RecordTrades",
      "MACD Crossover Test", { Trade Database Filename }
      LONG,                  { Trade Position Type }
      EntryTrigger,         { Entry Trigger }
      EntryPrice,          { Entry Price }
      InitialStop,         { Optional Initial Stop }
      ExitTrigger,         { Exit Trigger }
      ExitPrice,           { Exit Price }
      START);              { Recorder Control }
```

We shall create a new exploration in Metastock. Within Metastock open up the Explorer dialog box.

i.e., from Metastock go [Tools] → [The Explorer...] → [New]

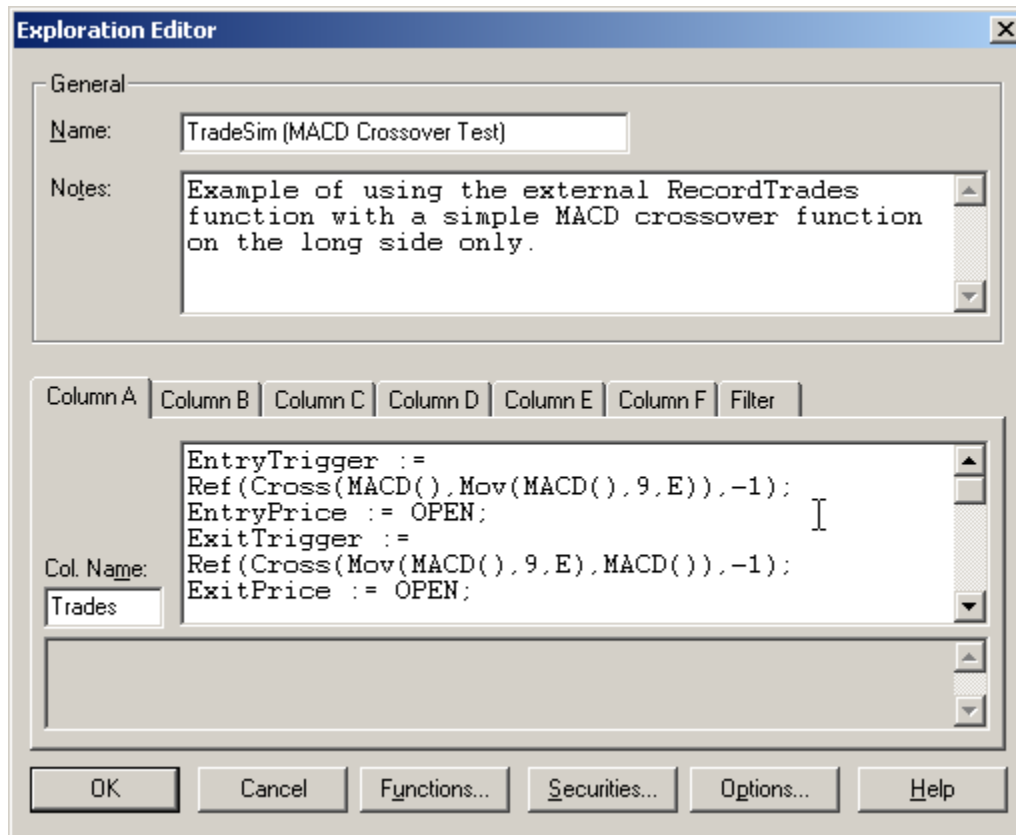


In the Name field type “TradeSim (MACD Crossover Test)”

In the ‘Column A’ tab you need to copy the code above. Rather than type it all in you can copy and paste it from your Acrobat reader. To do this make sure the ‘Select Text Tool’ mode is active in your Acrobat Reader.



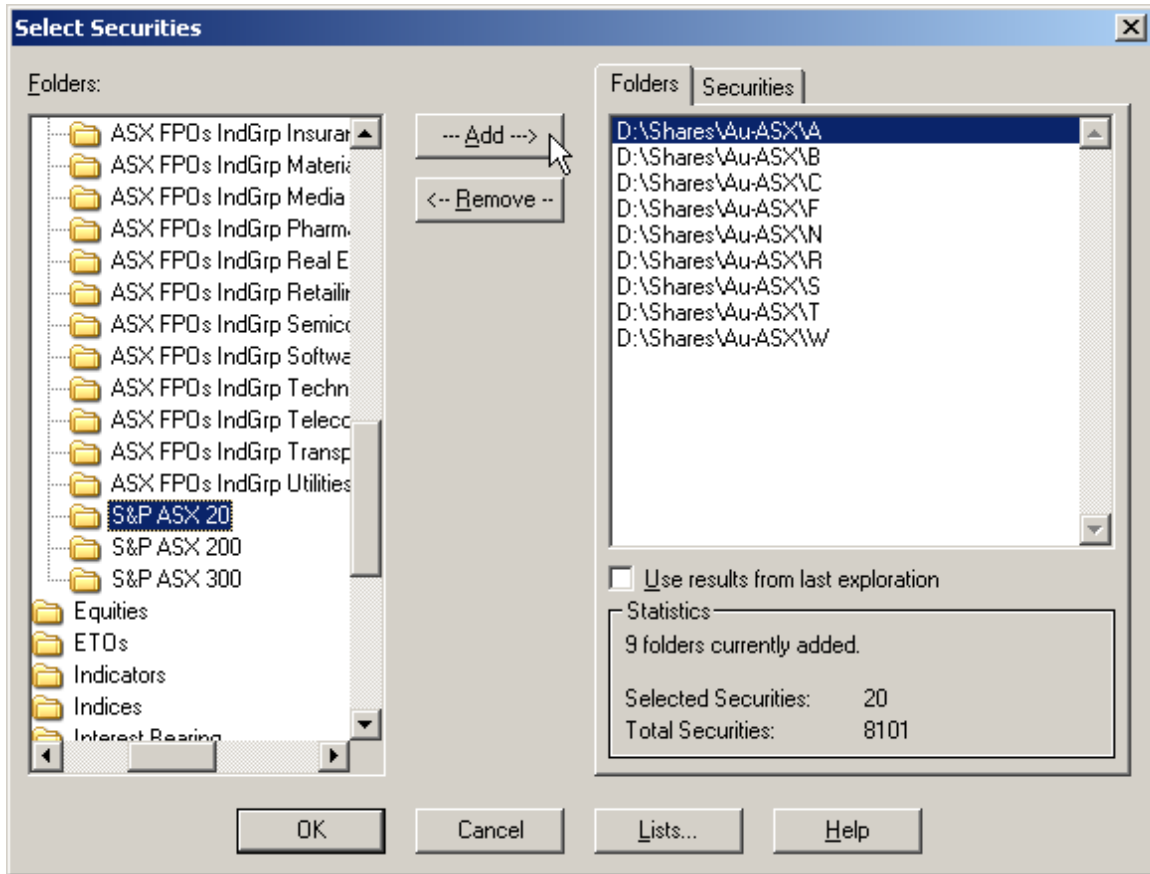
Highlight the text as you would in any other text editor (left mouse button click and drag). Then copy it to the clipboard i.e., [Edit] → [Copy] or use the key combination [‘Ctrl’ + ‘C’]. Within Metastock click in the ‘Column A’ code space and then paste the code into it by clicking the [‘Ctrl’ + ‘V’] keyboard combination.



Created with Metastock by Equis © 2001

Selecting the securities

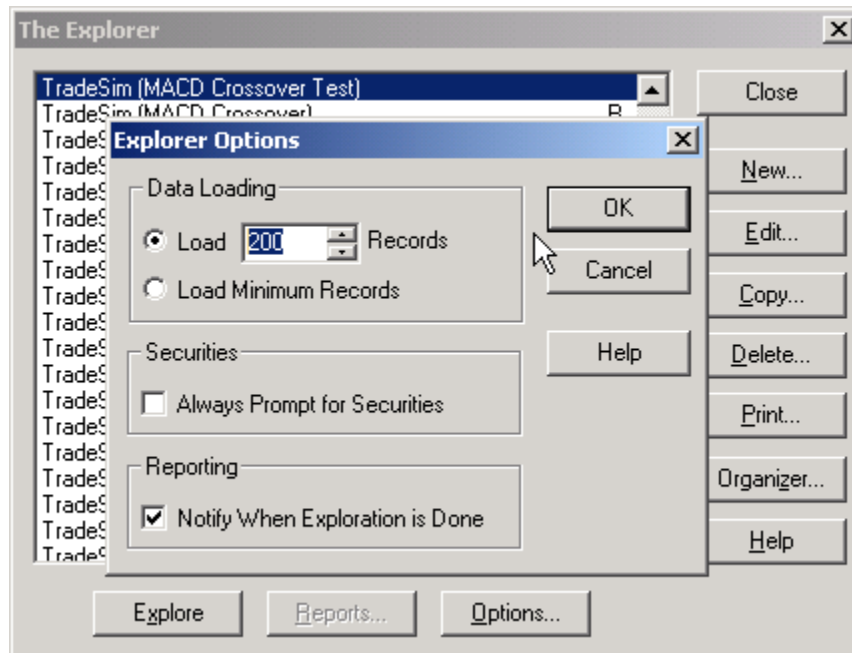
Now that you have created the trade database exploration you need to specify the securities that you are interested in including in the simulation. Like any other Metastock Exploration you do this by editing the Security List by clicking on the **Securities** button in the Exploration Editor. Initially the security list will be empty so you must choose some securities to explore otherwise when you run the trade database exploration the trade database will not contain any trading information. For the purposes of this exercise we will choose all of the securities from the Australian ASX20. This is easy to do if your data supplier provides a separate folder for each grouping. You should also consult your Metastock User Manual for the exact procedure of how to do this because different versions of Metastock have different procedures. The following screen shot is from Version 7.02 of Metastock.



Created with Metastock by Equis © 2001

Note: Although it is possible it is not recommended to generate trade data from thinly traded securities such as warrants, options and some stock options. Including trade data from thinly traded or illiquid securities will only produce erratic results in the simulation. You can deselect any of these securities by clicking on the Securities tab and deselecting the relevant securities.

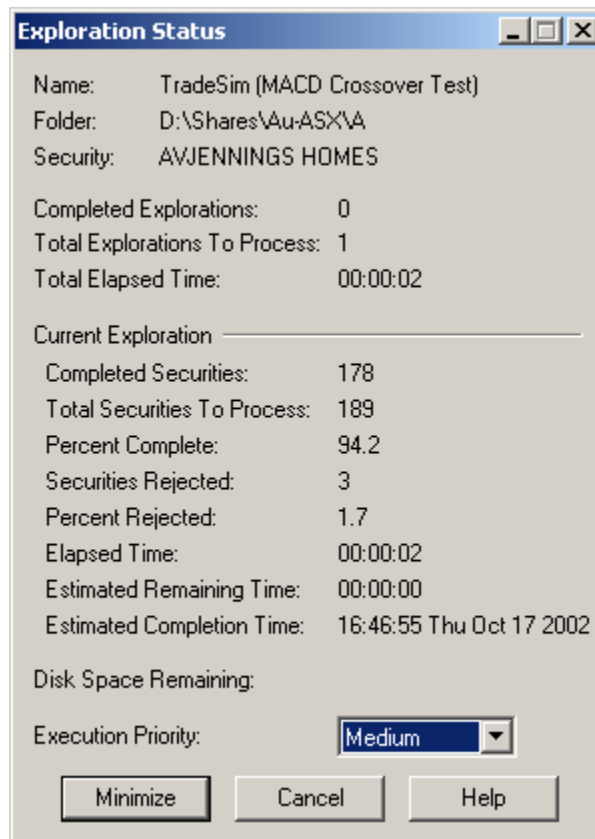
Click on the **OK** button to exit the security list dialogue box and then click on the **OK** button again to exit the Exploration Editor. Now click on the **Options** button and make sure you have a minimum of at least 200 records loaded for each security as shown in the following screen shot. This will insure that when you run the Trade Database exploration you have enough data to generate an adequate size trade database for TradeSim to analyse.



Created with Metastock by Equis © 2001

Running the Trade Database Exploration

Click OK to exit the Explorer Options dialogue box and then click the Explore button to run the explorer.

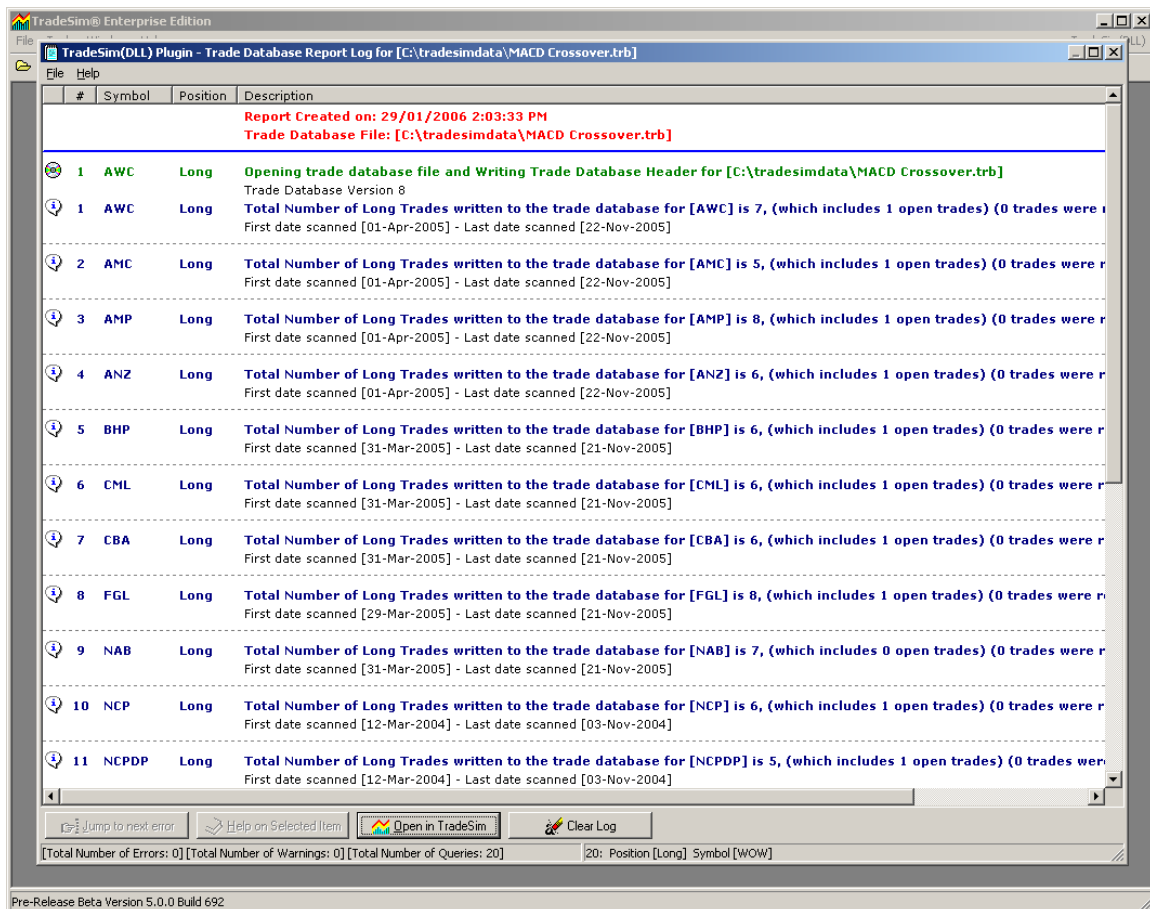


Created with Metastock by Equis © 2001

As the explorer runs Metastock communicates with TradeSim and a Report Log window will be displayed outlining the current status of the trade database exploration. If there are no errors a trade database file will be created with the file name that you specified in the exploration formula except it will have a trb file extension appended to it to signify that it is a binary trade database file ie **“MACD Crossover Test.trb”**. This trade database will later be used by TradeSim for detailed analyse and simulation of the trading system. When the Trade Database Exploration has completed you can also click on the Metastock Report button to display the Reports dialogue box, which also includes a summary report.

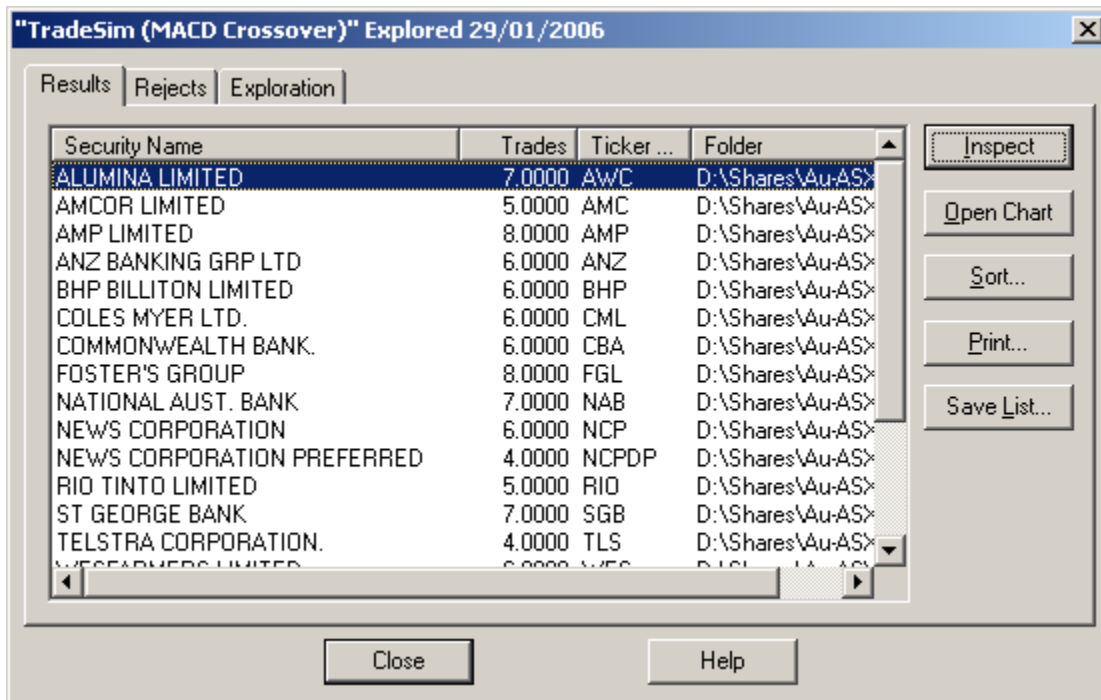
Inspecting the TradeSim Report Log

The Report Log is a comprehensive detailed report that is produced by TradeSim in order to report any errors, warnings or provide information to the user. You should always inspect this report for any warnings or errors.



Inspecting the Exploration Report

The Exploration Report is produced by Metastock and contains a summary of the results from each security as well as any errors.



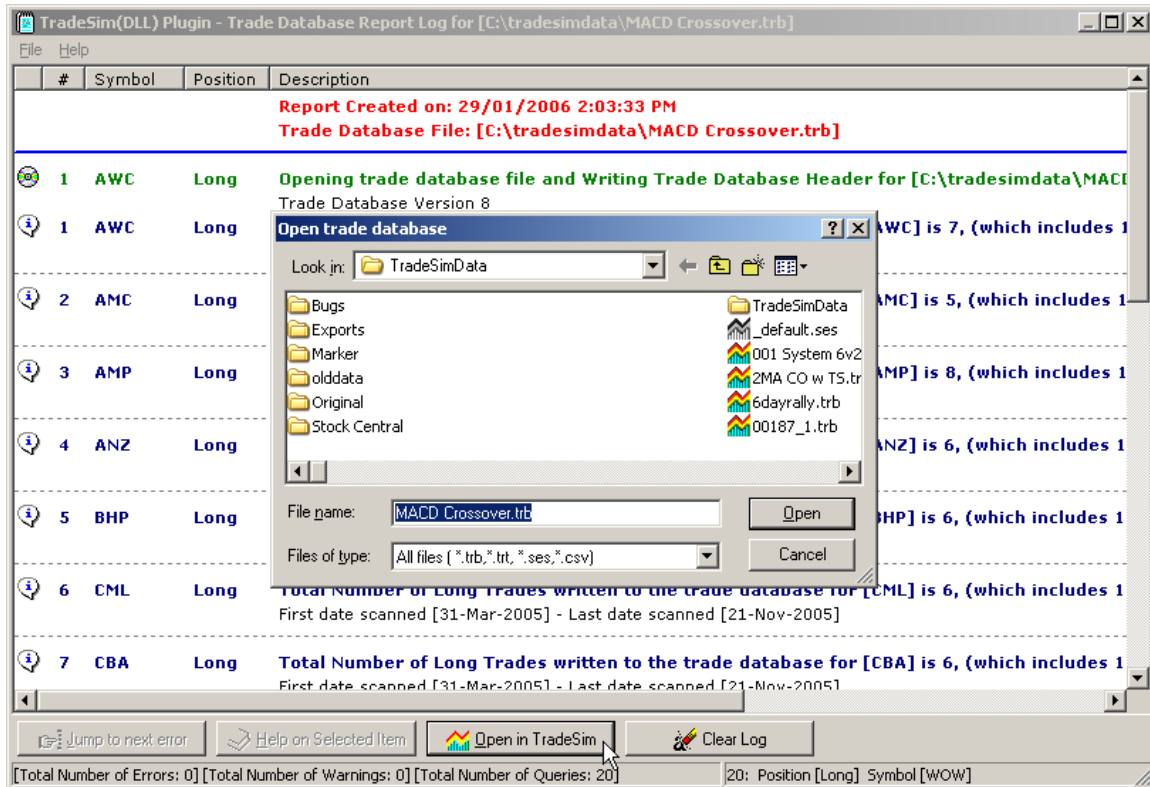
Created with Metastock by Equis © 2001

With the Exploration Report dialogue box open you can see the list of securities that were scanned during the exploration. The second column called **Trades** indicates the number of complete trades (Entry/Exit) found for each security respectively. These are the trades that will have been written out to the trade database file during the trade database exploration. Clicking on the Rejects tab will also list the securities where problems occurred. For the purpose of this exercise we shall ignore the errors for the moment assuming that most of the securities explored did not cause any problems. In the following chapter there is a section on Problems using the TradeSim Plug-In, which goes into great depth into diagnosing and correcting problems using the Metastock/TradeSim Plug-In.

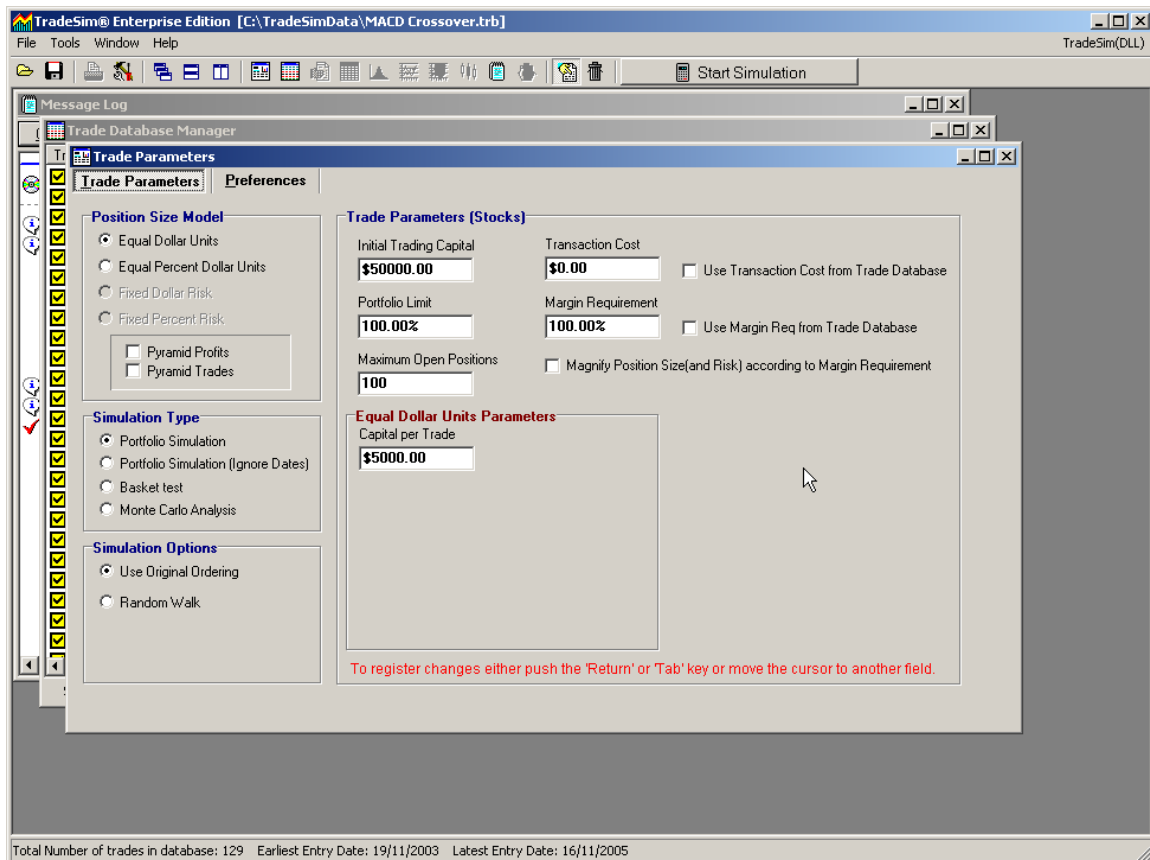
Note: You can check to see whether or not we have actually generated the trade database file. All trade database files are stored in a directory called `c:\tradesimdata`. You can easily check this by running the Windows File Explorer and inspecting the files in the `c:\tradesimdata` directory where you should find the file called **“MACD Crossover Test.trb”**.

Analysing the Trade Database File with TradeSim

Now that you have generated a trade database, which contains all of your trading data, you can now analyse it using TradeSim. The new ToolBox interface provided in the latest release of TradeSim provides a quick shortcut to loading the current trade database into TradeSim. To do this click on the “Open in TradeSim” button on the bottom of the Report Log window.



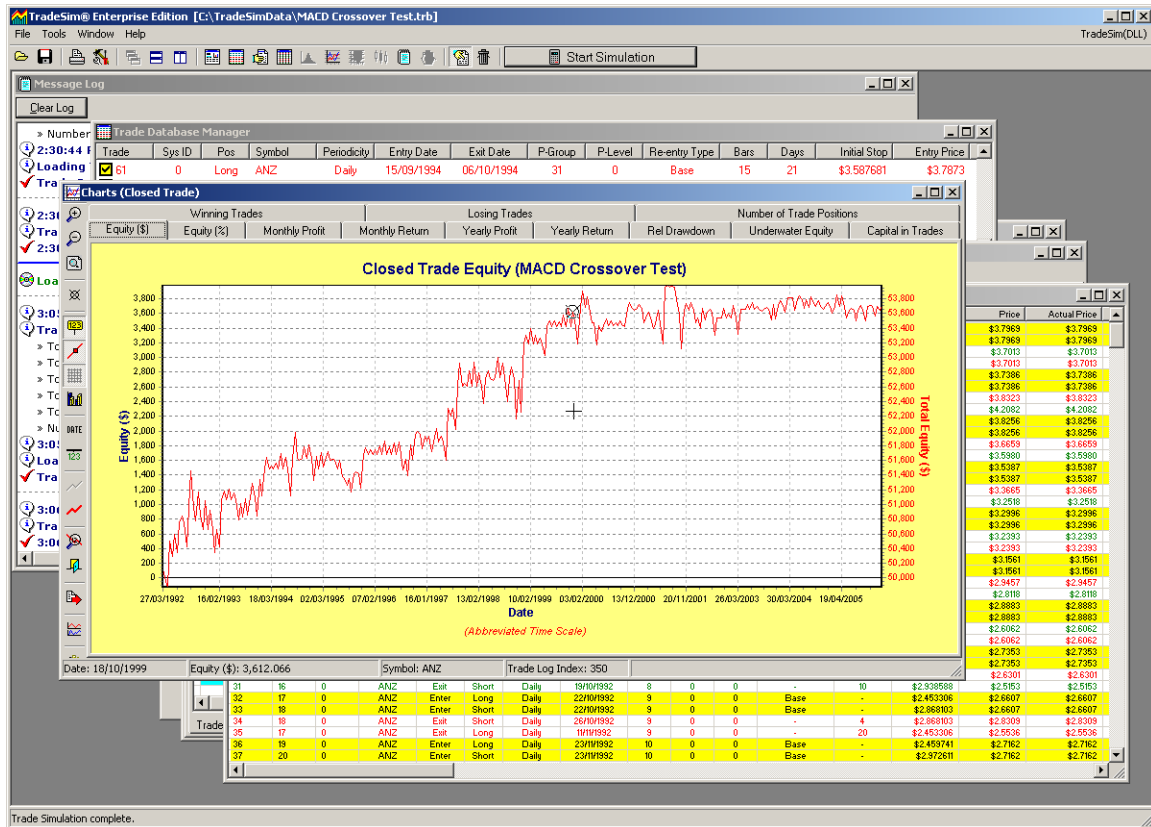
Then click on the “Open” button. This will load the trade database into TradeSim ready for a simulation.



Note that if the trade database file loads up correctly three new windows should open up. These are the Trade Parameters Window, Trade Database Window and the Message Log Window. We will talk at length about these windows in the TradeSim User Manual but for now the Trade Parameters Window allows you to set up the foundations for your trading strategy such as Money Management and Position Size etc. The Trade Database Window displays all of the trades that were created when you ran the Trade Database Exploration in Metastock. The Message Log Window displays status information as you executed commands in TradeSim.

Running a Trade Simulation

To run a trade simulation just click on the Start Simulation button on the main toolbar. When a Trade Simulation is running a Simulation Status Dialogue Box will popup-giving feedback to the current status of the simulation. Once the simulation is complete a number of additional windows will open up. These are the Trade Simulation Report Window, the Trade Log Window and the Charts Window. The TradeSim Simulation Report contains a number of statistics and parameters, which are useful in evaluating a trading system. More information can be found in the section on “The Trade Simulation Report Window” from the TradeSim User Manual. The Trade Log Window contains detailed information from a trade simulation on a trade-by-trade basis and displays this information in the correct chronological ordering for later inspection and analysis. More information can be found in the section “The Trade Log Window” from the TradeSim User Manual. The Charts Window contains a number of charts, which are plotted after the completion of a single trade simulation. More information can be found in the section “The Charts Window” from the TradeSim User Manual.



You have now completed the steps necessary to create a trade database and analyse it using TradeSim. The TradeSim User Manual will give you a clearer and deeper understanding of how to use Tradesim to evaluate your own Trading Systems. However we recommend that you do the following exercises to familiarize yourself with using TradeSim.

Exercises

The following exercises will help you understand the way that TradeSim integrates within the Metastock environment.

Exercise 1.

❑ Creating a Trade Database.

As an exercise make a copy of your newly created trade database exploration and reverse the entry and exit conditions by renaming EntryTrigger to ExitTrigger and ExitTrigger to EntryTrigger. Rename the Trade Database filename to **“MACD Crossover Tes (Rev).trb”** and then rerun the trade database exploration and analyse the resulting Trade Database using TradeSim. Compare the results with the previous Trade Simulation. Do you notice any differences? Note that this example is covered in more detail in the TradeSim User Manual in the chapters on “Back Testing and Simulation using TradeSim” and “Advanced System Testing using TradeSim (Enterprise Edition)”.

Exercise 2.

❑ Adding a Protective Stop.

Assign an InitialStop. Add the following code:-

```
InitialStop:=Open-ref(3*ATR(10),-1);
```

Note: Once you add a positive InitialStop value other than zero you should now be able to use to risk based position size models from within TradeSim.

Also to act on the stop you need to enable Protective Stops by adding the following line after the call to the Initialize function. If you don't enable protective then your risk will not be contained at the InitialStop value.

```
ExtFml( "TradeSim.EnableProtectiveStop",0 );
```

The complete code should look like the following.

```
EntryTrigger := REF(Cross(MACD(),Mov(MACD(),9,E)),-1);
EntryPrice := OPEN;
ExitTrigger := REF(Cross(Mov(MACD(),9,E),MACD()),-1);
ExitPrice := OPEN;
InitialStop := OPEN-ref(3*ATR(10),-1);

ExtFml( "TradeSim.Initialize");
ExtFml( "TradeSim.EnableProtectiveStop",0 ); { <- add this line }
ExtFml( "TradeSim.RecordTrades",
        "MACD Crossover Test", { Trade Database Filename }
        LONG,                  { Trade Position Type }
        EntryTrigger,          { Entry Trigger }
        EntryPrice,            { Entry Price }
        InitialStop,           { Optional Initial Stop }
        ExitTrigger,           { Exit Trigger }
        ExitPrice,              { Exit Price }
        START);                { Recorder Control }
```

Exercise 3.

□ Displaying your trading signals.

Sometimes it is convenient to display your trading signals superimposed on a chart for inspection or debugging purposes. You can do this in Metastock but an easier way is made available from within the TradeSim plugin itself. For example when you create a Trade Database and you wish to view all trading signals on the long side for symbol "ANZ" you just need to add the following code after the call to the Initialize function.

```
ExtFml( "TradeSim.ShowTrades",LONG,"ANZ"); { formerly called ShowChart }
```

The complete code should look like the following.

```
EntryTrigger := REF(Cross(MACD(),Mov(MACD(),9,E)),-1);
EntryPrice := OPEN;
```

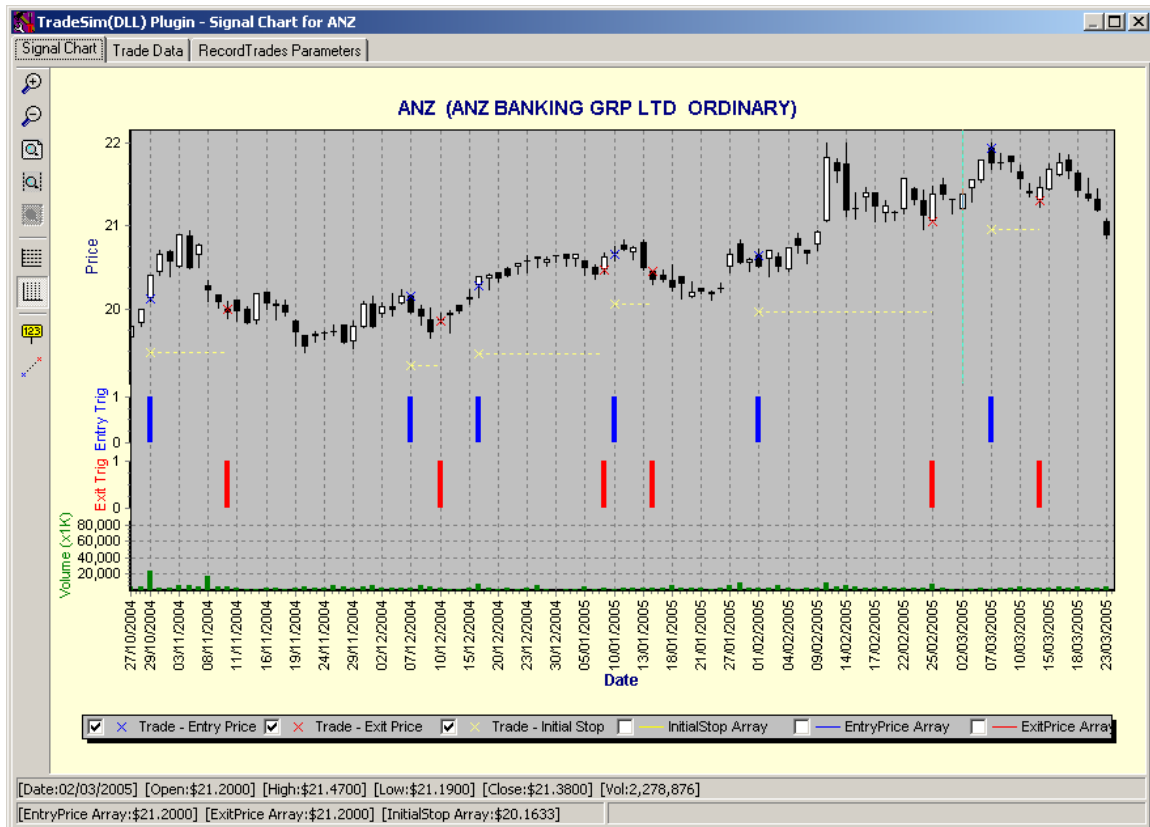
```

ExitTrigger := REF(Cross(Mov(MACD(),9,E),MACD()),-1);
ExitPrice := OPEN;
InitialStop := OPEN-ref(3*ATR(10),-1);

ExtFml("TradeSim.Initialize");
ExtFml("TradeSim.EnableProtectiveStop",0);
ExtFml("TradeSim.ShowTrades",LONG,"ANZ"); { <- add this line }
ExtFml("TradeSim.RecordTrades",
      "MACD Crossover Test", { Trade Database Filename }
      LONG, { Trade Position Type }
      EntryTrigger, { Entry Trigger }
      EntryPrice, { Entry Price }
      InitialStop, { Optional Initial Stop }
      ExitTrigger, { Exit Trigger }
      ExitPrice, { Exit Price }
      START); { Recorder Control }

```

After running the exploration a new window should popup with a number of tabbed windows on it. A detailed description of the information provided in this window is described in the TradeSim User Manual.



Exercise 4

□ Trading Both Sides of the market.

You may trade both sides of the market and need to include trades from both sides within your trade database file. This can be done quite easily. The following example illustrates this by adding extra code to handle the short trades. Try creating a new trade database exploration using the following code. The resulting trade database should now include short trades as well as long trades.

```

{ ----- LONG System code ----- }
EntryTrigger := REF(Cross(MACD(),Mov(MACD(),9,E)),-1);
EntryPrice := OPEN;
ExitTrigger := REF(Cross(Mov(MACD(),9,E),MACD()),-1);
ExitPrice := OPEN;
InitialStop := OPEN-ref(3*ATR(10),-1);

ExtFml("TradeSim.Initialize");
ExtFml("TradeSim.EnableProtectiveStop",0);
ExtFml("TradeSim.RecordTrades",
      "MACD Crossover Test", { Trade Database Filename }
      LONG,                  { Trade Position Type }
      EntryTrigger,          { Entry Trigger }
      EntryPrice,            { Entry Price }
      InitialStop,           { Optional Initial Stop }
      ExitTrigger,           { Exit Trigger }
      ExitPrice,             { Exit Price }
      START);                { Recorder Control }

{ ----- SHORT System code ----- }
EntryTrigger := REF(Cross(MACD(),Mov(MACD(),9,E)),-1);
EntryPrice := OPEN;
ExitTrigger := REF(Cross(Mov(MACD(),9,E),MACD()),-1);
ExitPrice := OPEN;
InitialStop := OPEN + ref(3*ATR(10),-1); { note the plus sign }

ExtFml("TradeSim.Initialize");
ExtFml("TradeSim.EnableProtectiveStop",0);
ExtFml("TradeSim.RecordTrades",
      "MACD Crossover Test", { Trade Database Filename }
      SHORT,                 { Trade Position Type }
      EntryTrigger,          { Entry Trigger }
      EntryPrice,            { Entry Price }
      InitialStop,           { Optional Initial Stop }

```

```
ExitTrigger,      { Exit Trigger }  
ExitPrice,       { Exit Price }  
CONTINUE);      { Recorder Control }
```

Note that if your trade database does not contain the short trades either you did not get any entry triggers for the short side, or some code prior to the second RecordTrades function generated an internal Metastock error which precluded Metastock calling the subsequent RecordTrades function.

Reference Literature

The following references are ones that provide relevant background material for using TradeSim.

- 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.
- 3) TB1 - *Problems and Issues using the TradeSim/Metastock Plug-In*.