

Chapter 2

Installation

AmiBroker runs under Windows, including versions 95, 98, Millennium, 2000, NT, XP, and Vista. Both 32 bit and 64 bit operating systems are supported.

All versions of AmiBroker – trial and registered, standard and professional, end-of-day and real-time – begin with a visit to the AmiBroker web site and downloading the installation file. Using your Internet browser, visit <http://www.amibroker.com>, then select the download tab. Select either the file for a New and complete installation or an Upgrade installation. If this is your first installation of AmiBroker, choose the New installation. Download the file to your computer – the New installation is about 7 MB. When the download is complete, double-click the installation file (AmiBroker510.exe, or the latest version) to run the AmiBroker Setup Wizard. Follow the directions and answer the prompts.

AmiBroker
for Windows 95/98/Me/NT/2k/XP

welcome features news **download** order support faq wish list links

Advanced stock charting and analysis program

► **NEW! AmiBroker 5.10 (official release)**

Stock charting and analysis program, **trialware**, 32-bit Windows version. Works on both 32- and 64- bit Windows

Universal installer for BOTH Standard and Professional versions.

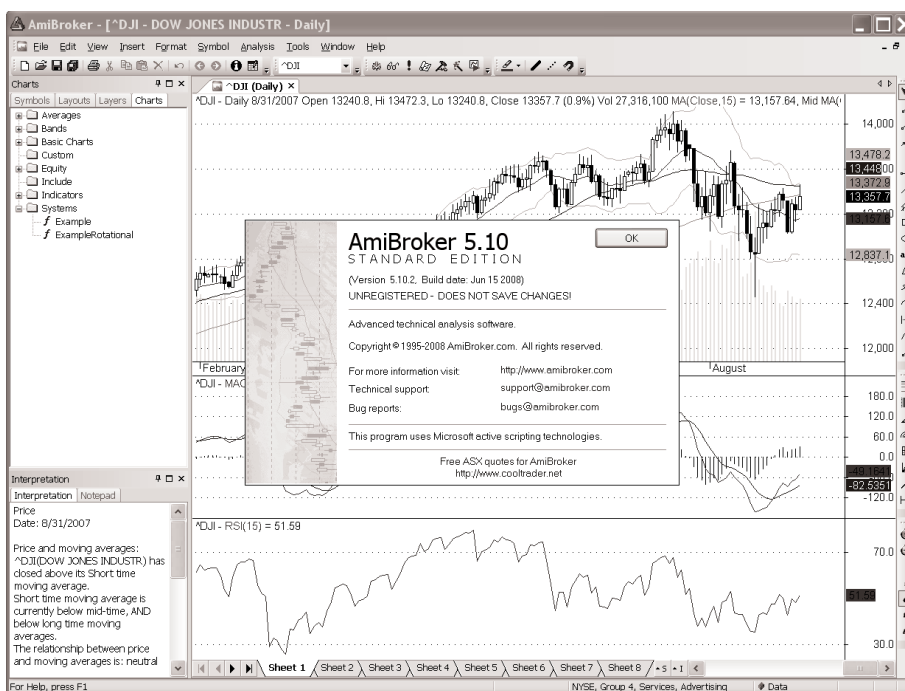
If you are using Windows 95, Internet Explorer 4 or higher must be installed. [Find out more](#)

File	Version	Release date	Size	Platform	Description
NEW! AmiBroker 5.10	5.10 (6.10.2)	June 15, 2008	7MB	Windows Vista, Windows XP, Windows 2000, Windows Me, Windows NT, Windows 98, Windows 95	NEW AmiBroker 5.10 official release, Standard & Professional Editions, Full setup with program, help and example files. Self-Extracting EXE. Suitable for FIRST TIME REGISTERED and FREE TRIAL users.
NEW! AmiBroker 5.10 UPGRADE ONLY	5.10 (6.10.2)	June 15, 2008	6MB	All systems - UPGRADE ONLY	NEW AmiBroker 5.10 official release, Standard & Professional Editions, Upgrade distribution with program, help files. Self-Extracting EXE. This is FOR USERS OF PREVIOUS VERSIONS.

Both AmiBroker and this author recommend accepting the default options and file locations during installation.

When the installation is complete, launch AmiBroker. The installation will have created an AmiBroker icon on your desktop. Just double-click that. When AmiBroker starts, it displays a message that it is Standard Edition and Unregistered. This is the trial version, but will be instantly converted to Registered (and Professional Edition, if you requested that) when your AmiBroker Registration file is processed.

In the mean time, AmiBroker is ready for your use in Trial mode.



AMIBROKER IN TRIAL MODE

AmiBroker in trial mode is fully functional with a few exceptions.

- The trial version will run only 30 days. To run longer than that, it must be registered.
- When processing multiple symbols, the maximum in the trial version is five; the registered version handles an unlimited number.
- Changes, particularly to the database, will not be saved. Also, if you modify one of the chart panes, the changes you made will not be saved when AmiBroker closes.

DEFAULT DATABASE

When you install AmiBroker, a small database is also installed. Its name is DATA and it contains end-of-day price history for the stocks in the Dow Jones Industrial Average and for the average itself. The date range is short and the quotes are not up-to-date. But it is useful for verifying that the installation was successful and for investigating AmiBroker.

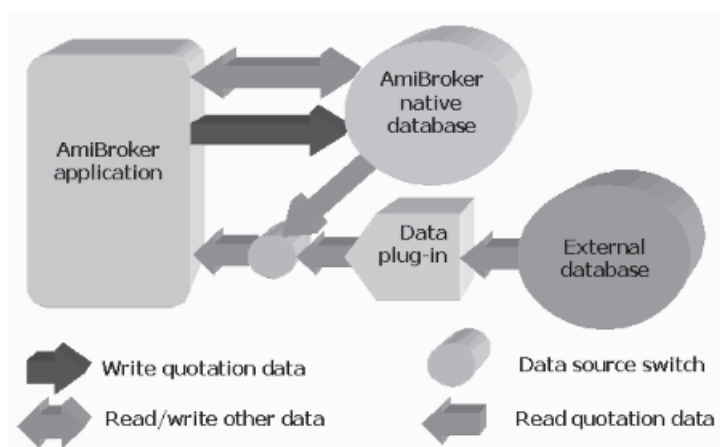
You can use AmiBroker and the default database while in trial mode.

Chapter 3 - 30 Minutes to Useful Results, has some suggestions.

You will probably want a longer history and more issues. You can have as many databases as you wish. DATA is one. You can expand it or add other databases.

BLOCK DIAGRAM OF DATABASE

As the block diagram shows, AmiBroker has two levels of database files. The *native database* is maintained by AmiBroker and AmiQuote, and can be modified by you using the Quote Editor within AmiBroker. The DATA database is an AmiBroker native database.



When you subscribe to a data provider, that provider will set up an *external database* that they exclusively maintain. As AmiBroker needs quotes to place on a chart or process in a backtest, the Data Plug-in reads the external database and passes the data to AmiBroker.

DATABASE SETUP - END-OF-DAY

Setting up a database is a two step operation. Step one is establishing the database within AmiBroker and specifying which tickers will be stored in it. Step two is filling the database with historical price quotations. Depending on the processes being used, you may be aware of the two separate steps, or they may be combined and appear to you as a single step.

If you will be subscribing to a data service, such as Quotes Plus, the installation procedure for that service will set up a database specifically

for quotes from that service and will be maintained by that service. We will discuss setting up a Quotes Plus database in a few pages.

If you want to use one of the free data providers, such as Yahoo, you can either expand DATA or create a new database. The following pages describe how to do that.

FREE DATABASE USING AMIQUOTE

AmiQuote is a companion program to AmiBroker that manages downloading of price quotes, from either Yahoo or msn, and storing those quotes in the AmiBroker database.

Return to <http://www.amibroker.com> and download the setup file for AmiQuote. The current version is 2.00. Double-click aq2000.exe and follow the installation instructions, accepting the defaults.

The screenshot shows the AmiBroker website interface. At the top, there is a navigation menu with links for 'welcome', 'features', 'news', 'download', 'order', 'support', 'faq', 'wish list', and 'links'. Below the menu, there is a section for 'NEW! AmiBroker 5.10 (official release)' with a decorative wavy line. Below that, the 'AmiQuote' link is highlighted. A table below the link lists software versions.

File	Version	Release date	Size	Alternative sites	Description
NEW! AmiQuote 2.00	2.00	April 23, 2008	94KB		AmiQuote 2.00 Self-extracting archive. Now supports Yahoo, Yahoo Fundamentals, Google Finance (NEW) , MSN Money Central and Forex. Fundamental data import feature requires AmiBroker 4.81 or higher.

If the only information about the stocks that you want is their ticker symbol, then continue with the method described in the next few paragraphs. If you want to have the ticker and full name, and perhaps the industry sector identification, read the next section, Ticker Only; then read the section, Ticker and Full Name, that follows. It is a good idea to decide this before the database is filled with historical quotes.

Ticker Only

Begin by deciding which issues you want in your database. Find or create a list of their tickers. This does not need to be the final list – you will be able to add additional tickers and historical data at any time in the future. For example, you might want all the stocks in the Russell 1000 index – the 1000 largest capitalization stocks listed on US exchanges. (According to the Russell Investments website, <http://www.russell.com>, the Russell 1000 represents approximately 92% of the US equities market. That website also has a list of the current components of all the Russell indices.) Visit <http://www.IntroductionToAmibroker.com/resources> for links to up-to-date lists of members of various categories.

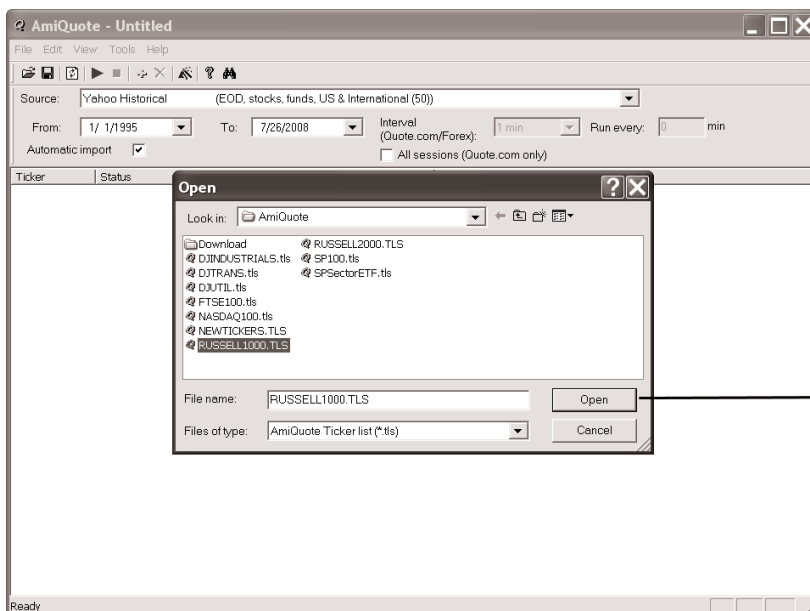
If you want to keep a copy of the original DATA database as it was distributed, here is how to make a copy of it.

1. Using **Windows Explorer**, navigate to the AmiBroker directory. If you accepted all the defaults during installation, it is C:\Program Files\AmiBroker.
2. With **Explorer**, using the **File** menu, click **New**, then **Folder**. A folder named New Folder will be created.
3. Using **Explorer**, rename that to the name you want for the original database, for example **DataAsDistributed**.
4. Using **AmiBroker** and its **File** menu, click **SaveDataBaseAs**, select the folder you just created, **DataAsDistributed**, click **OK**. AmiBroker will make a copy of the DATA database in the folder DataAsDistributed.

Continuing on to update the database named DATA with the tickers in the Russell 1000.

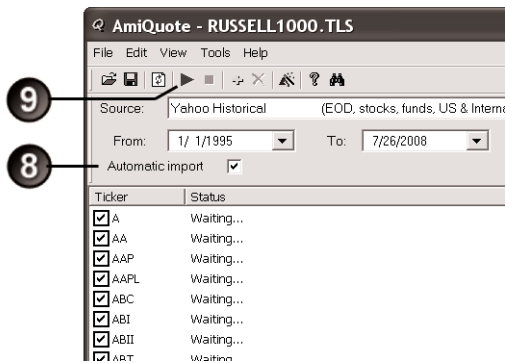
1. Using a simple text editor, such as NotePad, or a spreadsheet, create a file with one ticker per line. The tickers should be in all capital letters. Each ticker must be spelled the same as your data provider spells it. Save that file in the AmiQuote directory with a meaningful file name, such as RUSSELL1000.tls. If you accepted all the defaults during installation, that directory is C:\Program Files\AmiBroker\AmiQuote. Tls files are ordinary text files that are recognized by AmiBroker and AmiQuote as containing lists of ticker symbols.
2. Open AmiBroker.
3. Using the AmiBroker **File** menu, click **Open Database**, select the DATA database, click **OK**.

4. Leave AmiBroker open as the next steps are performed.
5. Decide the date you want the historical data to begin. If you plan to do extensive trading system development, I suggest having at least ten years of data available. The characteristics of the markets changed after the October 1987 crash, so data before that date has limited value in developing systems for current conditions. A starting date (From Date) of 1/1/1995 might be reasonable. Use today's date for the end date (the To Date).
6. Using the **Windows Start** menu, select the **AmiQuote** program and run it. You will find it under All Programs > AmiBroker > AmiQuote > AmiQuote.
7. Using **AmiQuote's File** menu, select **Open**. Then select the file with the tickers you want to get historical data for, **RUSSELL1000.tls**, and click **Open**.



Be sure that AmiBroker is running and that the database you want updated is the current database. The name of the database in current use is displayed in the status bar in the bottom right-hand corner of the AmiBroker window. If necessary, use the AmiBroker File menu and open the desired database.

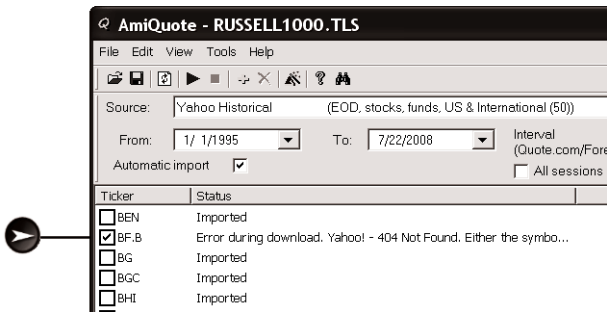
8. Be sure that AmiQuote's Automatic Import box is Checked.
9. Click the **Green Triangle** to begin the download.



You have asked for over 10,000 years of data, each with 252 sets of Open, High, Low, Close, and Volume. Depending on the speed of your Internet connection, it will take a few minutes to a few hours for the download to complete.

10. AmiQuote will inform you of the progress of the download. If the amount of data stretches the capacity of your communications or your patience, divide the `RUSSELL1000.tls` file into several smaller files and work with each part in turn. As soon as the data for any individual stock has been downloaded, it is immediately available for use within AmiBroker. You may continue to work with AmiBroker while downloading proceeds.

When the download is complete, scroll through the Ticker List in AmiQuote. If there were problems with any of the tickers, there will be messages displayed. A common problem is that the spelling of the ticker in the `tls` file is not the same as the spelling the data provider uses. In this case, note that Russell Corporation used a period when specifying the Class A stock. Yahoo uses a dash character. Make a list of all the tickers that did not download properly and create a file named `NEWTICKERS.tls`. Add the tickers of any other stocks you want. Using the same procedure, have AmiQuote download the new tickers.

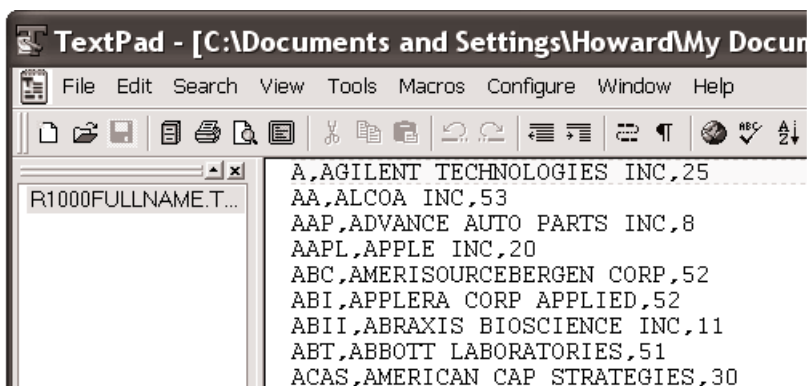


A good source for researching companies and verifying tickers that will be downloaded from Yahoo is the Yahoo financial site. <http://finance.yahoo.com/>

11. Close AmiQuote.
12. In AmiBroker, using the **File** menu, click **Save Database**.

Ticker and Full Name

If you want AmiBroker to know the full name of each issue in addition to its ticker symbol, the names must be loaded into the database. One way to do that starts with a text file, similar to the RUSSELL1000.tls file described above, but including the full name of the issue along with the ticker symbol. Optionally, the industry group number can also be included and will be used to place each ticker in its correct category. Each line of this file has the ticker, full name, and industry group number, all separated by commas, and saved in a file with a name such as R1000FULLNAME.txt (txt, not tls, as you will see in a minute).



Appendix B, Industries and Sectors, has a list of the industries and their respective group numbers. There is no simple way to assign an industry, and its associated industry number, to each ticker. At times, a

database of a large number of stocks (such as all US stocks), sometimes including a program to set up a database that is complete with industry number assignments, will appear on one of the AmiBroker discussion forums (see the links in the Appendix C, Resources). These quickly become obsolete with the addition of new stocks and changes to existing ones.

If you are very interested in assigning industry numbers to stocks, here are two alternative ways.

One. Download the lists of components of each of the Standard & Poor's sector exchange traded funds. One sector at a time, form a watchlist of the members. (See Watchlists, page 179.) Using AmiBroker's Symbol menu, select Organize Assignments and assign all the members of the watchlist the same Sector Number.

Two. Subscribe to one of the commercial data providers (see the links in the Appendix C, Resources). In the process of setting up their database, they will assign each stock to its proper market, industry, and group. Most of the services will store additional information, such as number of shares outstanding, dividend, and so forth, that you would have difficulty finding yourself.

With `R1000FULLNAME.TXT`, the file containing the ticker symbol, full name, and optionally the industry number ready, you are ready to establish the database. This must be done before symbols are entered in any other way and before quotes are downloaded. A simple javascript program, `INDUSTRIES.JS` (courtesy of Tomasz Janeczko), can be used to read the txt file and establish the database. (The program listing of `INDUSTRIES.JS` is in Appendix C, Resources, and is in the download materials associated with this book.)

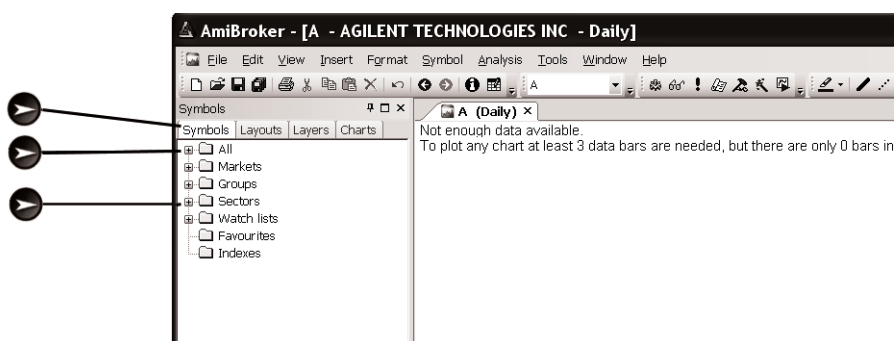
Warning: If your database is already established and has historical price data, Do Not run this script – it will result in a badly confused database. Use this script only to establish a new database before loading historical quotes into it.

In order to run the script:

1. Using **Windows Explorer**, create a new folder under the AmiBroker directory to hold the new database. Assume it is `NEWR1000`.
2. Run AmiBroker, use the **File** menu, Open **Database**, select `NEWR1000`, click **OK**.

3. Copy or move R1000FULLNAME.txt to your Windows Desktop.
4. Copy or move INDUSTRIES.js to your desktop.
5. Double click INDUSTRIES.js.
6. The script tells you that the script is started. Click **OK**.
7. After a short time, less than one minute, the script tells you it is finished. Click **OK**.

Verify that the script worked by using AmiBroker **Symbols** menu. Expand the **All** category and note that there are 1000 tickers listed. If you supplied industry codes, expand the **Sectors** category and note that the tickers have been assigned to sectors. There are no quotes yet.



To fill the database with historical quotes:

1. Create a .tls file containing the tickers from the first column of R1000FULLNAME.txt. Name it RUSSELL1000.tls.
2. Follow the directions given in the section above, Ticker Only, to have AmiQuote retrieve historical data from Yahoo.
3. In AmiBroker, using the **File** menu, click **Save Database**.
4. Exit AmiBroker.

Additional Symbols

Whenever you want to add issues to your database, use this procedure:

1. Enter their ticker symbols, one per line, in the file NEWTICKERS.tls. (It is convenient to keep all tls files in the AmiQuote directory.)
2. With AmiBroker running, open the database you want to add to.
3. Run AmiQuote.
4. Using AmiQuote's **File** menu, open NEWTICKERS.tls.

5. Set the From Date and To Date.
6. Check the **Automatic Import box**.
7. Click the **Green Arrow** to begin the download.
8. When the download is finished, close AmiQuote.
9. In AmiBroker, **Save database**.

If you want to record the full name of the issue:

1. In AmiBroker, using the **Symbol** menu, select **Information**.
The information window for this stock will open.
2. Edit the **Full Name field**.

If you want to assign categories:

In AmiBroker either:

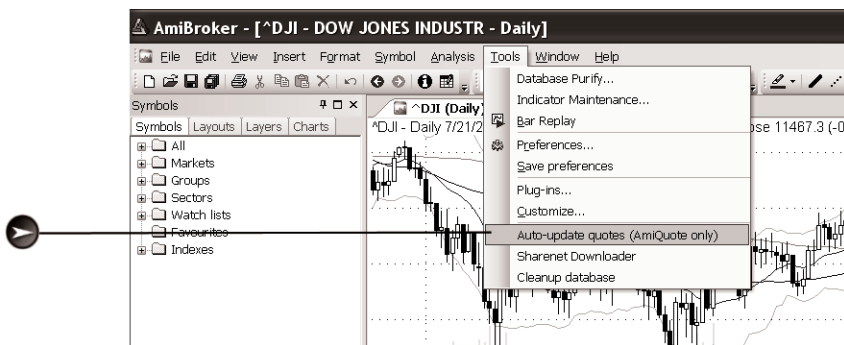
1. Using the **Symbol** menu, select **Information**.
2. In the Categories section, make whatever assignments you wish for the one ticker you are working with.

Or:

1. Using the **Symbol** menu, select **Organize Assignments**.
2. Make whatever assignments you wish for the list of tickers you select.

Data Updates

Once the database has been established and the historical data loaded, maintaining the data by adding the latest quotes is very easy. In AmiBroker, using the **Tools** menu, select **AutoUpdateQuotes**. AmiBroker will examine the database that is open, determine the date range needed to bring the quotes for all the issues in this database up to current date, and call AmiQuote to do the download. Since only a few days data is needed for each ticker, the process takes only a short time.



Sources of Free Data

The examples above illustrate using Yahoo as the source of historical data. There are other sources. For US markets, msn also provides free end-of-day historical data. If you wish to use that source, use the pull down menu in AmiQuote to select msn instead of Yahoo. Keep in mind that consistency is important. Different data suppliers will have different ways of preparing and presenting the data. For example, the volume multiplier may be different, or the ticker spelling may be different. After you load your database with quotes from one supplier, keep the database up-to-date using that same supplier.

ASCII Import

There are two methods of importing ASCII data: the ASCII Import Wizard (file menu, Import Wizard), and the full ASCII Importer (file menu, Import ASCII). The wizard is good for one-off imports. Its features are a subset of the full importer. If you will be importing the same files regularly, set up the full importer. (Note: the ASCII Import Wizard can create a format definition file for later use with the ASCII Importer.)

Before you start, decide which database you want the imported data to go into. If you are just practicing, create a test database and open it. Do not import into your high quality database until you are confident the import procedure is working correctly.

Download the data files and, if necessary, unzip or expand them. Open the files using a text editor such as Notepad. There should be one quote per line, fields separated by space, semicolon, or comma.

There may be a header line describing the fields. If not, identify the fields yourself. If necessary, go to the site from which the data was obtained and read their documentation.

The date field is the trickiest. The wizard understands many formats. If your data is in one of them, all you need to do is identify the order of month, day, and year. The codes are DMY, MDY, YMD. If your data does not follow one of the recognized date formats, you will need to reformat the date (for example, by using a spreadsheet) and rewrite the data file before proceeding.

The year can be either four digits or two (the final two of the year). The month can be either two digits or three characters (such as Dec or Jan).

The day is two digits. The separator can be / (slash), \ (backslash), - (minus), or not separated at all.

Assume the date for one quote is December 31, 2000. YMD formats that are recognized include:

20001231

2000-12-31

2000/12/31

2000-Dec-31

001231

00-12-31

00/12/31

00\12\31

If your data has a ticker symbol as a field in each line, the data will be stored under that symbol. If there is not an explicit ticker, the file name will be used. If your data file is downloaded as, for example, IBM.csv, the data will be stored as IBM. If your data file is downloaded with a generic name, such as TABLE.CSV (Yahoo uses this file name for all its individual downloads), rename it before proceeding.

Yahoo Historical Data Download

The Yahoo site is a good place to get stock and index historical data.
<http://finance.yahoo.com>

Using the investing tab, select stocks. Under research tools, click historical quotes to get this page.

Follow these steps to download the historical data for a stock or index:

1. Enter the ticker (say it is XOM)
2. Click **GO**
3. The screen will display the most recent data
4. Click **Download to Spreadsheet**
On your desktop, or wherever your default directory to receive downloads is, you will find a file named TABLE.CSV.
5. Rename TABLE.CSV to XOM.csv. Use capital letters if you want your symbol to be in capitals.
6. Proceed to import XOM.csv into AmiBroker using either the ASCII Import Wizard or Import ASCII

Yahoo! | My Yahoo! | Mail | More ▾ Make Y! My Home Page Hi, howardbandy ▾ | Sign Out | Help

YAHOO! FINANCE

Dow \downarrow 0.79% Nasdaq \downarrow 0.10% Tue, Aug 12, 2008, 2:24PM ET - U.S. Markets close in 1hr 36mins.

HOME INVESTING NEWS & OPINION PERSONAL FINANCE MY PORTFOLIOS TECH TICKER

Finance Search

Exxon Mobil Corp. (XOM) AT 2:09PM ET: **77.69** \downarrow 0.47 (0.60%)

MORE ON XOM

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- Charts
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 - Basic Chart
 - Basic Tech. Analysis
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 - Company Events
 - Message Board
- Company
 - Profile
 - Key Statistics
 - SEC Filings
 - Competitors
 - Industry
 - Components
- Analyst Coverage
 - Analyst Opinion
 - Analyst Estimates
 - Research Reports
 - Star Analysts
- Ownership
 - Major Holders
 - Insider
 - Transactions
 - Insider Roster
- Financials
 - Income Statement
 - Balance Sheet
 - Cash Flow

Historical Prices Get Historical Prices for:

SET DATE RANGE

Start Date: Jan 2 1970 Eg. Jan 1, 2003 Daily Weekly Monthly Dividends Only

End Date: Aug 12 2008

First | Prev | Next | Last

PRICES	Date	Open	High	Low	Close	Volume	Adj Close*
	11-Aug-08	78.52	78.95	77.04	78.16	24,566,800	78.16
	11-Aug-08	\$ 0.40 Dividend					
	8-Aug-08	76.90	78.85	76.31	78.72	29,318,400	78.32
	7-Aug-08	78.68	79.11	77.31	77.44	25,346,700	77.05
	6-Aug-08	78.50	78.65	77.24	78.33	30,790,600	77.93
	5-Aug-08	76.50	78.35	76.21	78.35	40,087,100	77.95
	4-Aug-08	79.63	80.13	76.14	76.60	37,887,200	76.21
	1-Aug-08	80.55	81.10	79.45	79.72	28,766,900	79.31
	31-Jul-08	81.82	82.55	80.19	80.43	40,872,900	80.02
	30-Jul-08	80.90	84.76	80.53	84.38	36,410,700	83.95
	29-Jul-08	80.83	81.20	79.75	80.90	25,869,900	80.49
	28-Jul-08	81.87	82.23	80.65	80.68	24,017,500	80.27
	25-Jul-08	81.01	82.41	80.76	81.70	27,553,800	81.28
	24-Jul-08	81.20	81.95	79.73	80.80	36,789,400	80.39
	23-Jul-08	82.98	83.00	80.60	80.99	31,083,500	80.58
	22-Jul-08	82.56	83.23	81.57	82.86	27,909,100	82.44
	21-Jul-08	81.84	82.98	81.11	82.98	24,802,500	82.56
	14-May-08	89.85	90.99	89.59	89.91	24,178,900	89.45
	13-May-08	88.87	89.95	88.53	89.68	21,165,000	89.22
	12-May-08	88.43	89.47	87.60	89.19	23,053,200	88.74
	9-May-08	89.37	89.59	87.97	88.82	24,054,700	88.37
	9-May-08	\$ 0.40 Dividend					
	8-May-08	89.00	89.95	88.52	89.93	24,332,000	89.08

* Close price adjusted for dividends and splits.

First | Prev | Next | Last

Get Historical Prices for Another Symbol: [Symbol Lookup](#)

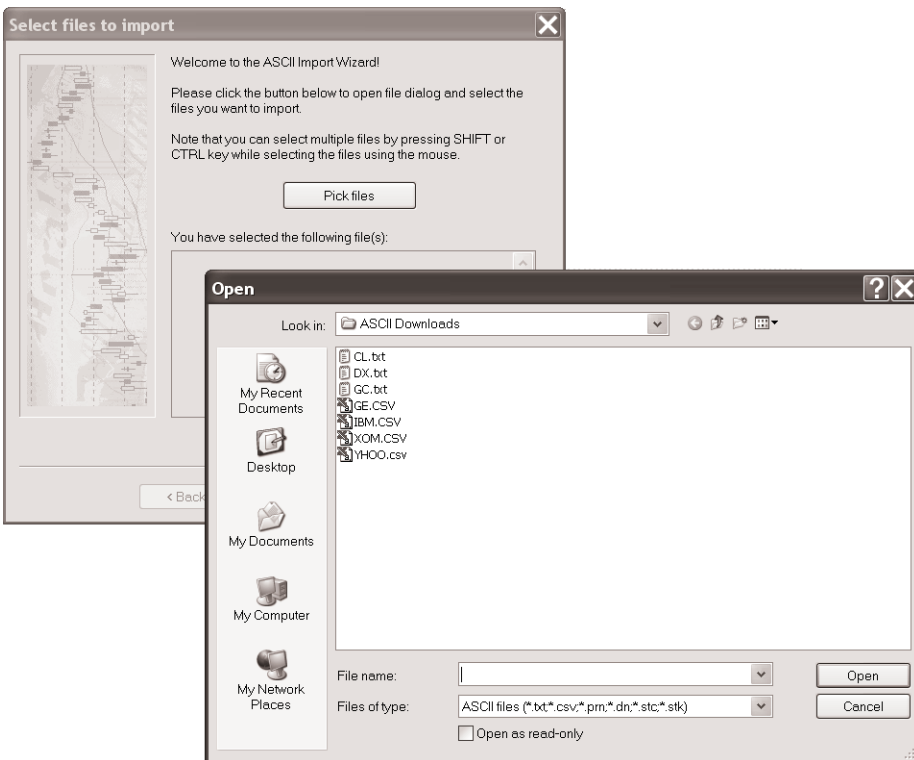
- Stock Screener
- Mergers & Acquisitions
- Splits

ASCII Import Wizard

The following steps illustrate how to use the ASCII Import Wizard. Before beginning, a database named TEST has been created and opened. It already has a few symbols and data for them. Data has been down-

loaded from Yahoo for two stocks, GE and XOM, but not yet imported. Since Yahoo downloads all data using the file name TABLE.CSV, the downloaded file was renamed between downloads, so the files are GE.csv and XOM.csv.

1. Using the **File** menu, select **Import Wizard**.
2. When the dialog box opens, click **Pick Files**.
3. Navigate to the directory holding the files you have downloaded.



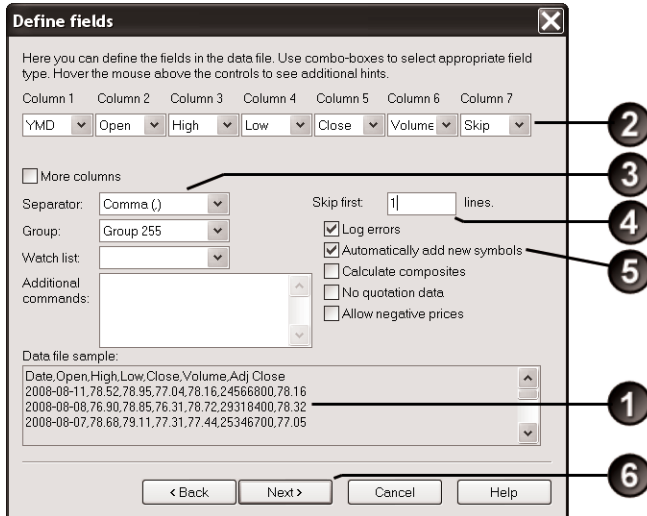
4. Since the files have identical formats, you can process multiple files in one pass, so select both GE.csv and XOM.csv. (Click one file, press the Control key and click the other.)
5. Click **Open**.

The Define Fields dialog box will open.

1. Note the format of the data in the .csv files.
2. Using the pull-down menus, define the fields for each element of data. Each element in the entire row of data must be defined.

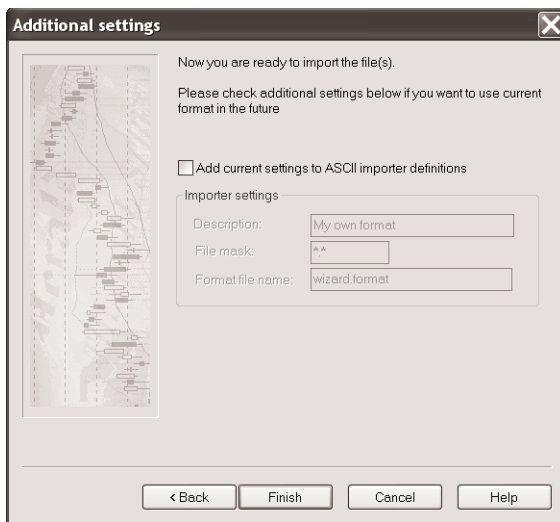
Select **SKIP** to ignore data in the csv file that you do not want in your AmiBroker database.

3. Select **comma** as the separator.
4. Skip 1 line - the header.
5. Check **Automatically add new symbols**.
6. Click **Next**.



The Additional Settings screen will come up. It is on this screen that you can save the format settings that you just used. They will not help for future uses of the ASCII Import Wizard, but they will be available in the full ASCII importer. To do this, Check **Add current settings to ASCII importer definitions**, and give meaningful Description and File Name. You will see your format as we look at the full ASCII Importer in the next section.

7. Click **Finish**.



The data will be converted from ASCII, imported into the open database, and be immediately ready for use in AmiBroker.

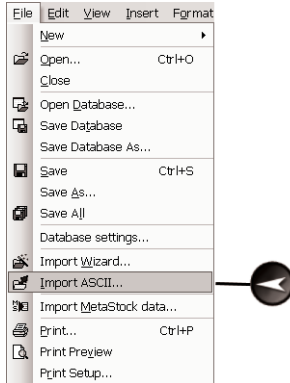
ASCII Importer

The full ASCII Importer is much more efficient, has more capabilities, and is more complex. Rather than having to fill in a form each time you want to import an ASCII file, you can set up a format definition file, or use one of the pre-defined files. The file that was created for the import done manually using the wizard in the previous section is:

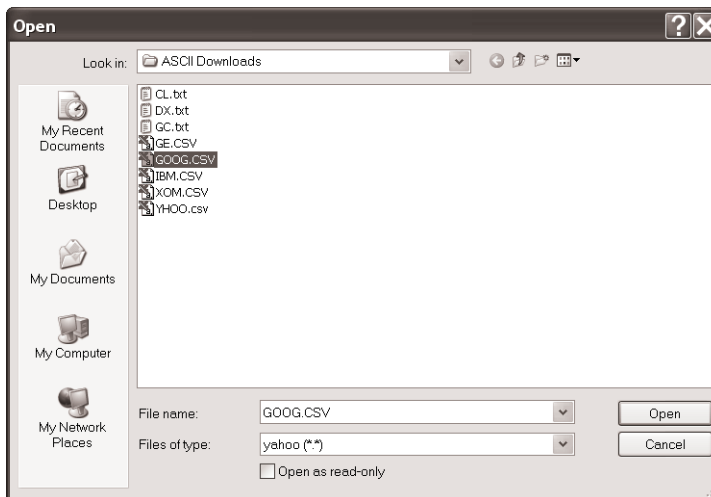
```
# Format definition file generated automatically
# by AmiBroker's ASCII Import Wizard
$FORMAT Date_YMD, Open, High, Low, Close, Volume, Skip
$SKIPLINES 1
$SEPARATOR ,
$CONT 1
$GROUP 255
$AUTOADD 1
$DEBUG 1
```

The definition files are stored in the C:\Program Files\AmiBroker\Formats directory. By copying the format file that you will be using regularly to be DEFAULT.FORMAT, all that is necessary to import ASCII files is:

1. Using the **File** Menu, select **Import ASCII**.



2. On the Open screen, select the file you want to import.
3. Click **Open**.



The file will be converted, imported, and made available within AmiBroker for immediate use.

The options available for controlling the processing of ASCII data are extensive. Read about them all in the AmiBroker User's Guide.

SUBSCRIPTION DATA PROVIDERS

Free data has a cost to you – the cost of checking the data for missing quotes, bad values, unadjusted splits, and so forth, and correcting those problems. Subscription data services, such as Quotes Plus, Premium Data, CSI, and others, provide that maintenance for you and deliver cleaner, more consistent data with less effort on your part. End-of-day stock data costs about \$40 per month – more for some services, less for others. Some end-of-day vendors include mutual funds at no charge; others charge extra. Commodities and futures data is an additional cost, depending in part on the fees the exchanges that clear those trades and report that data charge. Some subscription vendors provide custom indices, custom indicators, and have a wider selection of issues – and often charge an extra amount for those. Some services charge a one-time fee for loading the historical data, others do not.

If you plan to use a subscription service, be aware that each service has its own database format. Once you begin with one subscription service, they will be the only service that can keep your data up-to-date.

The installation procedure for each service will be unique to that service, but it is generally simple and well documented. Typically, the installation does three things for you:

1. Establishes the external database and the communications between the database and AmiBroker.
2. Loads the definitions of the tickers, including the ticker symbol, the full name, and the industry assignment.
3. Loads the historical price data.

After the close of trading each day, you initiate communication with the data vendor. The database is brought up-to-date, and errors and inconsistencies are corrected and re-downloaded, all automatically. Some vendors provide intraday updating – treating the latest price as though it is the closing price. At subsequent updatings, the earlier prices are replaced by the more recent ones.

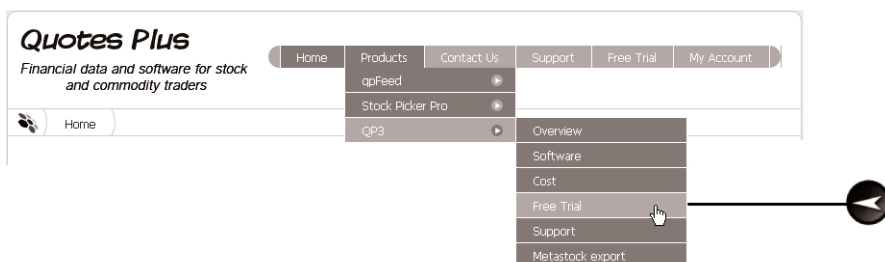
Quotes Plus End-of-Day Data

Here is the procedure to set up a Quotes Plus subscription end-of-day database.

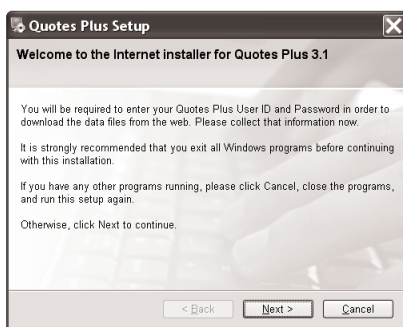
Each data provider will have their own specific details and methods,

but the end result is the same – an end-of-day database that is established and loaded with historical data by the data vendor. Tickers, full names, industry associations, and other information related to that stock are all provided by the vendor, stored in the external database for that subscription, and made available to AmiBroker through an interface that is transparent to you as a user.

1. Begin with a visit to Quotes Plus' website: <http://www.qp2.com/joomla/index.php>.
2. Pull down the **Products** menu, select QP3, and click **Free Trial**.

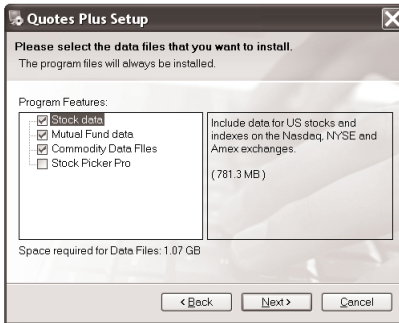


3. Fill in the contact information. You will receive an email from Quotes Plus containing a User ID, Password, and the URL link to a download utility.
4. Follow the link to the download utility and download the Qp3Setup.exe file.
5. Execute that file to start the installation of the database and download of the historical quotation data. This is the first screen you will see.



As you follow the instructions, you will be asked for your User ID and Password.

- Select the data files you want.



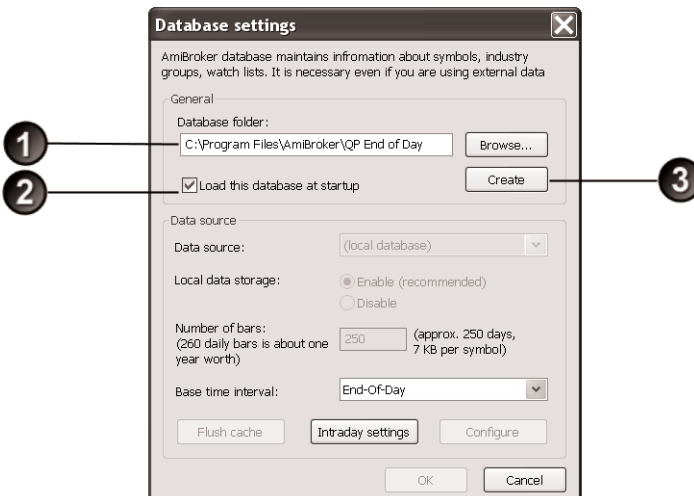
- Accept the defaults for the location of the program (which you will use to keep the data up-to-date) and the data files. The path to the program will be C:\Program Files\Quotes Plus, and to the data files will be C:\Quotes Plus Data.
- When the download is complete, click **Finish**.

If you selected the stock data, mutual fund data, and commodities data, the total data transmitted will be about 260MB. If that will strain your communications capabilities, Quotes Plus will mail you a CD.

CONNECT THE DATABASE TO AMIBROKER.

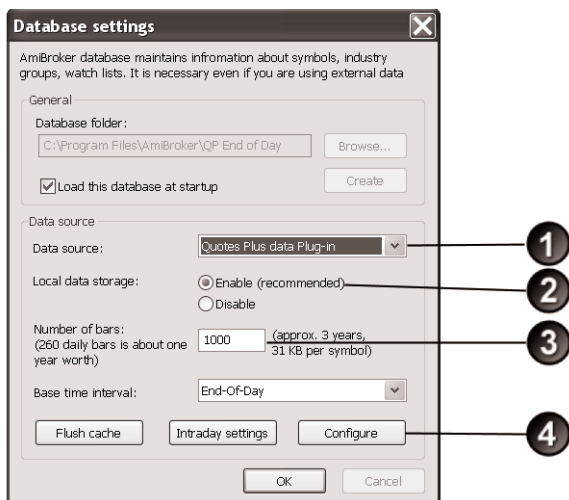
In AmiBroker, from the **File** menu, select **New**, and **Database**. Working in the top half of the Database settings window:

- In the **Database Folder** box, enter the name you want for your new database.
- Check **Load this database at startup**.
- Click **Create**.



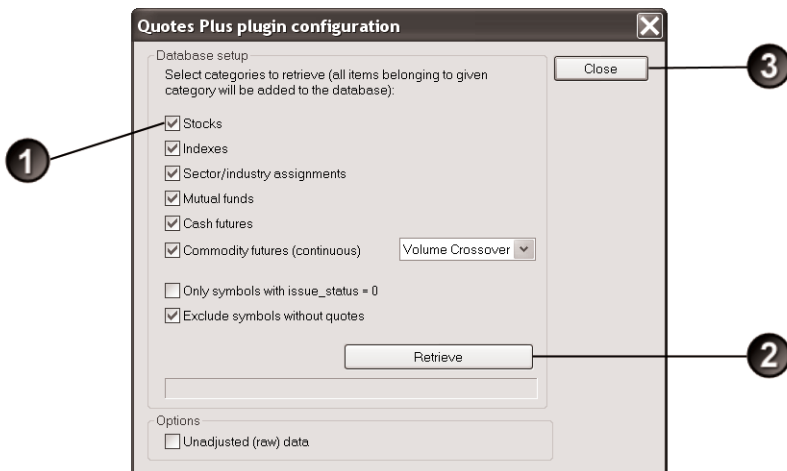
Now working in the bottom half of the Database settings window:

1. Pull down the **Data Source** menu and select **Quotes Plus data Plug-in**.
2. Click **Enable Local data storage**.
3. Enter **1000** for the Number of bars.
4. Click **Configure**.



On Configuration:

1. Select the categories you want in the database.
2. Click **Retrieve**. Wait while the data is retrieved.
3. Click **Close**.



Back on Database settings, Click **OK**.

Your Quotes Plus database is now established, loaded with historical quotes, installed in AmiBroker, and ready for use.

To load a chart:

1. In AmiBroker, using the **Symbols** menu, expand the **All** category (click the + sign).
2. Click on any of the ticker symbols. The data for that ticker will load into the main chart window.
3. In AmiBroker, **Save database**.

Norgate Premium Data - End-of-Day

Norgate Investor Service provides quality end-of-day data for stock markets in Australia (ASX), Asia (SGX), and the United States (NYSE, NASDAQ, AMEX, OTC-BB, PinkSheets). Extensive historical data is available, including data for delisted stocks (an important feature for those interested in studying survivorship bias).

The data integrates very well with the symbol lists, and includes over 900 pre-built and automatically maintained watchlists for the Australian and US databases. Hourly snapshot data is available for the ASX and SGX.

Data is provided in MetaStock data format. (If you are installing Premium Data as an AmiBroker database, you will not be aware of the format of the external database.)

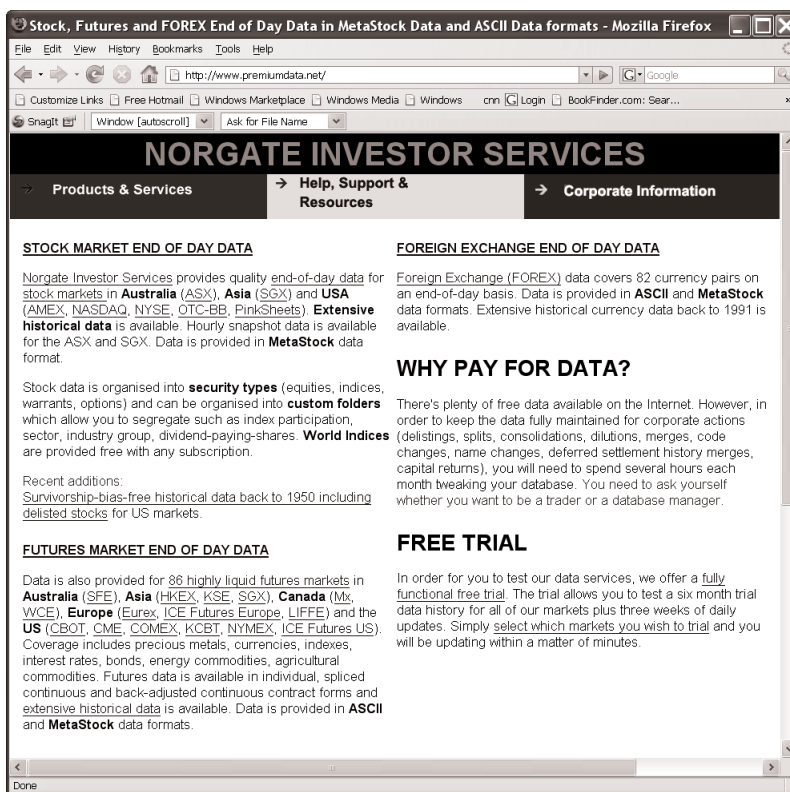
Norgate also provides end-of-day data for 86 liquid futures markets. Futures data is available in individual, spliced continuous, and back-adjusted continuous contract forms. All the fields required for serious backtesting (margin, point value, tick size, etc.) are populated. Data is provided in ASCII and MetaStock data formats.

Norgate is in the process of improving their integration with AmiBroker. A new native AmiBroker data plugin that will provide additional speed and features is under development. Visit <http://www.premiumdata.net/support/amibroker.php> for the latest details.

Free trials are available.

The next pages discuss setting up Norgate end-of-day data for the Australian stock market.

1. Sign up for a subscription or free trial at their web site:
<http://www.premiumdata.net>.



2. You will receive an e-mail with your user name and password, and a link to the download page.
3. Go to that web page and login.
4. The services you have subscribed to will be noted in the download screen. You will need to download at least three files:
 - A. Program Installer
 - B. History Installer
 - C. AmiBroker Setup.

Premium Data / DataTools / Premium Forex Downloads

File Type	Description/FileName	Size	Approx Download Time for 56K Modem/1.5Mbps Broadband	Click below to DOWNLOAD from
Stocks				
Program Installer	Premium Data & Premium Charts setup.premiumdata.exe	3.1 MB	14 mins/1 mins	East Coast USA Server West Coast USA Server Australian Server European Server
History Installer	Australian Securities Exchange (Stocks) Database - Limited 12 month history for all currently listed stocks, except for listed codes starting with 'A' which have full history. InstallHistory ASX.trial.20080608.exe	7.9 MB	34 mins/1 mins	East Coast USA Server West Coast USA Server Australian Server European Server
AmiBroker Files				
The following files are applicable for users of the AmiBroker charting software ONLY . Only download them if you have AmiBroker installed on your PC. More information about these files can be found at AmiBroker FAQ				
AmiBroker Setup	AmiBroker ASX Workspace Setup with GICS classifications, groups and extensive watchlists AmiBroker-ASX-PremiumData-v1.41.exe	0.8 MB	4 mins/1 mins	East Coast USA Server West Coast USA Server Australian Server European Server
Market Analyst Files				
The following files are applicable for users of the Market Analyst charting software ONLY . Only download them if you have Market Analyst installed on your PC.				
Market Analyst	All versions of Market Analyst have a bug related to dates prior to January 1900. This historical installer replaces just the World Indices with data that extends after this date. This file is only required if you have Market Analyst installed on your computer. This file is NOT applicable the HomeTrader version of Market Analyst as it has no MetaStock reading capabilities. InstallHistory WorldIndices.MarketAnalyst.20070810.exe	2.3 MB	10 mins/1 mins	East Coast USA Server West Coast USA Server Australian Server European Server

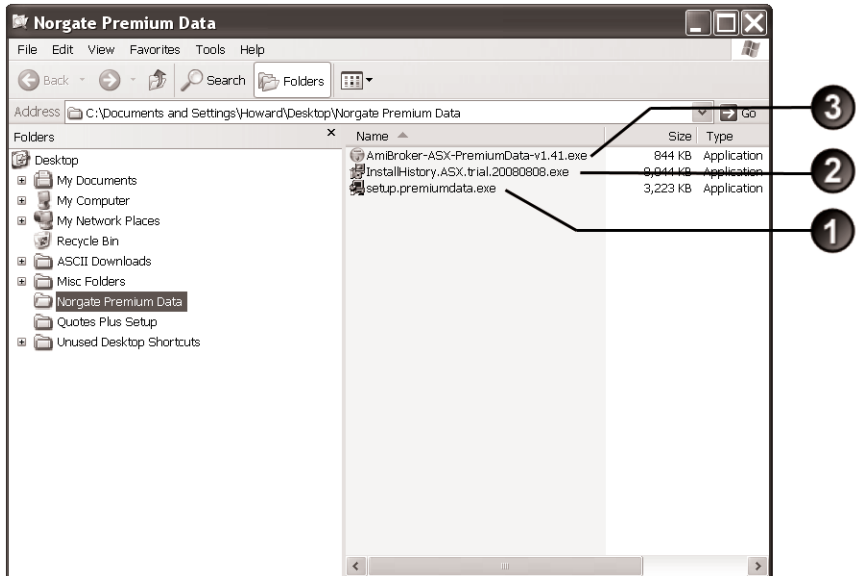
To download a program or history installer, click on the corresponding server closest to you (Australia, Europe or USA).

Choose to **Save** the file to your Windows Desktop, or to some other location where you can find it readily.

Click on the server nearest to you (Australia, Europe or USA).

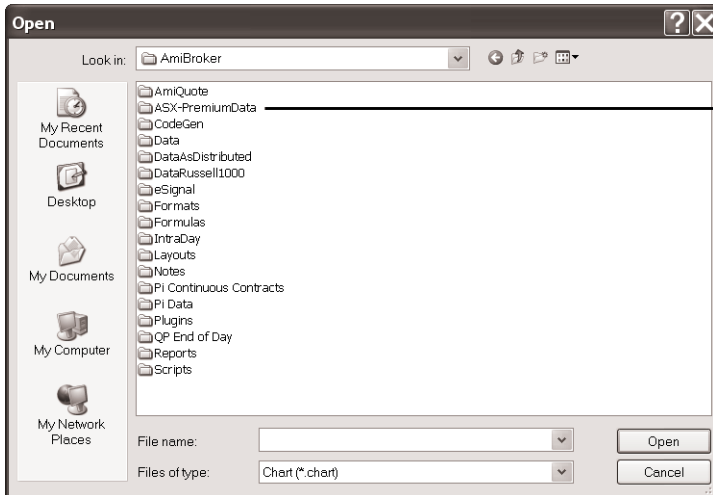
5. Save the files and accept all the defaults for file locations.
6. The Program Installer and History Installer must be in the same subdirectory on your computer.
7. Insure that AmiBroker is not running.
8. Locate the program installer, run it and follow the prompts. The program installer will recognise the history installer and offer to install the history for you as part of the process. If the files are too large for your communications, you may prefer to order a data history CD which will be sent out to you by ordinary mail.

9. Execute the files in this order:
 - 1) Program Installer.
 - 2) Historical Data Installer.
 - 3) AmiBroker Setup.



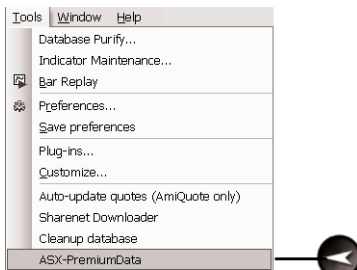
When the AmiBroker Setup runs, it will open a browser-based FAQ page explaining how to install the interface necessary for AmiBroker to use the Premium Data files.

AmiBroker Setup will establish a database in the AmiBroker directory, but it will not be usable yet. Here is how to connect the two:

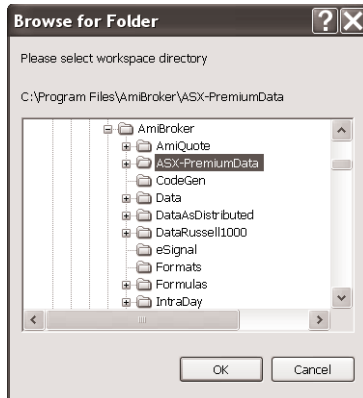


10. Start AmiBroker.

11. Using the **Tools** menu, click **ASX-Premium Data**. This will run a script with seven stages that takes several minutes.



12. Using the **File** menu, select **Open Database**, select **ASX-PremiumData**, click **OK**.



13. Here is AmiBroker with BHP in the chart window.



DATABASE SETUP - INTRADAY AND REAL-TIME DATA

Intraday data is data with bars shorter than a full trading day. Taking great care and using a data vendor that supports it, it is possible to combine intraday and end-of-day data in the same database. But most AmiBroker users who use intraday data maintain a separate intraday database. The next few pages describe setting up intraday and real-time data.

FREE INTRADAY HISTORICAL DATA

If you are interested in developing systems with intraday data, but are not ready to commit to a real-time data subscription, you can download intraday bars into an AmiBroker database and work with them. If your systems test out to be profitable, you will eventually need real-time data to execute them.

There are several sources of free intraday historical data. Visit <http://www.IntroductionToAmiBroker.com/resources> and scroll down to the data area for links to some of them. AN Futures sells intraday data for the e-mini S&P 500, e-mini NASDAQ 100, e-mini Russell 2000, Euro, and Yen in 1 minute bar and tick resolution. Visit them at: <http://www.anfutures.com/>. They have a demo file, ES0206MG.csv with 1 minute bars for the e-mini S&P June 2002 contract – 3/6/2002 through 6/12/2002. The third column is the date, with 20306 meant to be 2002, March, 6.

```
ES01MIG,I,20306,15:50,1165.5,1165.5,1165.5,1165.5,8,1159.5
ES01MIG,I,20306,15:51,1165.5,1165.5,1165.5,1165.5,3,1159.5
ES01MIG,I,20306,15:52,1165.5,1165.5,1165.5,1165.5,9,1159.5
ES01MIG,I,20306,15:53,1164.25,1164.25,1164.25,1164.25,6,1158.25
ES01MIG,I,20306,15:54,1162.25,1162.25,1162.25,1162.25,1,1156.25
ES01MIG,I,20306,15:55,1164.5,1164.5,1164.5,1164.5,3,1158.5
ES01MIG,I,20306,16:20,1164.25,1164.25,1164.25,1164.25,1,1158.25
ES01MIG,I,20306,16:21,1164,1164,1164,1164,1,1158
ES01MIG,I,20306,16:24,1164.25,1164.25,1164.25,1164.25,1,1158.25
```

AmiBroker can accept many date formats, but not that one, so a spreadsheet is used to transform the date into one of the acceptable formats and 20306 becomes 2002-03-06. The Excel formula to do this is: `="200"&LEFT(C1,1)& "-"&MID(C1,2,2)& "-"&MID(C1,4,2)`, where the 20306 is in cell C1. Make a copy of the original data file, replace the date, and save it with a new name, for example ES0206Mod.csv.

The following procedure will set up a database into which we will load the e-mini S&P intraday data. This is the same procedure used to set up the Quotes Plus end-of-day database, so the illustrations will be omitted.

1. In AmiBroker, from the **File** menu, select **New**, then **Database**.

Working first in the top half of the window:

2. In Destination Folder, choose a meaningful name for the database – such as IntraDay.
3. Uncheck **Load this database at startup**.
4. Click **Create**.

Now working in the bottom half of the window:

1. Data Source: (local database)
2. Local data storage: Enable
3. Number of bars: 100000
4. Base time interval: 1 minute
5. Accept the defaults for Intraday settings
6. Click **OK**

The database is established, but has no data in it. The ASCII importer will load the data from the csv file using the ASCII Import Wizard in the following procedure:

1. In AmiBroker, from the **File** menu, select **Import Wizard**.
2. Click **Pick Files**.
3. Navigate to the location of your modified file and select it.
4. Click **Open**.
5. Click **Next**.
6. Fill in the fields.

Define fields

Here you can define the fields in the data file. Use combo-boxes to select appropriate field type. Hover the mouse above the controls to see additional hints.

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Ticker	Skip	YMD	Time	Open	High	Low
Column 8	Column 9	Column 10	Column 11	Column 12		
<input checked="" type="checkbox"/> More columns	Close	Volume	Skip			

Separator: Comma (,) Skip first: 0 lines.

Group: Group 255 Log errors

Watch list: Automatically add new symbols

Additional commands: Calculate composites

No quotation data

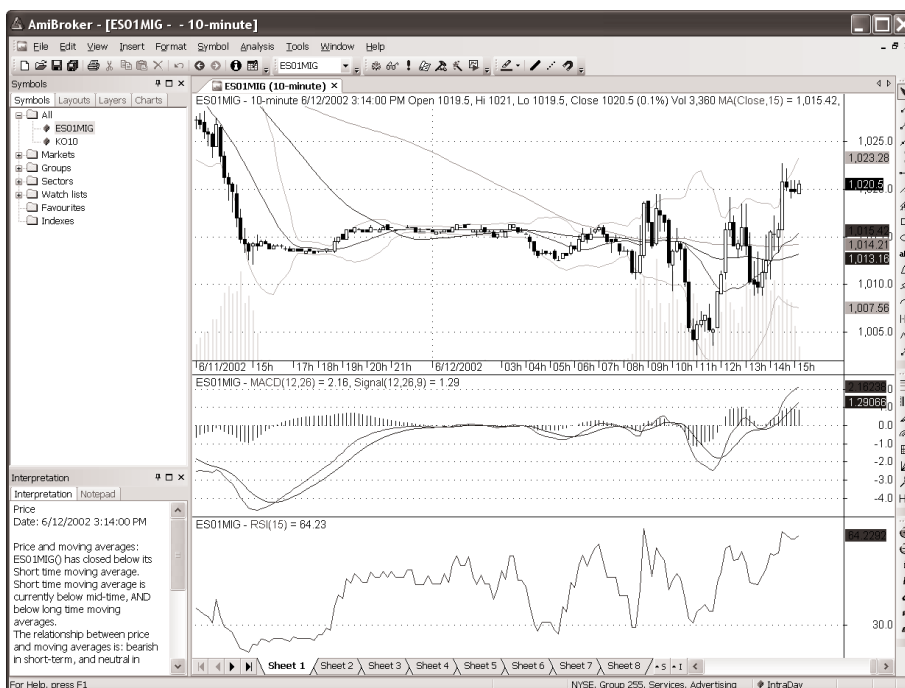
Allow negative prices

Data file sample:

```
ES01MIG.I2002-03-06,15:50,1165.5,1165.5,1165.5,1165.5,8,1159.5
ES01MIG.I2002-03-06,15:51,1165.5,1165.5,1165.5,1165.5,3,1159.5
ES01MIG.I2002-03-06,15:52,1165.5,1165.5,1165.5,1165.5,9,1159.5
ES01MIG.I2002-03-06,15:53,1164.25,1164.25,1164.25,1164.25,6,1158.25
```

< Back Next > Cancel Help

7. Click **Next**.
8. Click **Finish**. The data will be imported and the active chart will display the intraday data you just loaded.



9. In AmiBroker, **Save Database**.

If you were going to import data from this vendor regularly, you could set up a macro in the spreadsheet to convert the date field, and set up a custom ASCII format in AmiBroker specifically for that file format.

But, eventually, you will need a real-time data feed to create 1 minute bars throughout the trading day.

DELAYED REAL-TIME DATA

Some data vendors offer real-time data that has been delayed 15, 20, or 30 minutes. It is priced lower than non-delayed real-time data, and often is free. From the perspective of a developer of trading systems, about the only reasons to use delayed real-time data are to try out a data service or to build up a tick-based database. And, since most of the high quality data services have a trial period, you can try the real thing for the same amount of effort. Trying to place trades using delayed real-time data is dangerous to your wealth — a lot can happen in 15 minutes.

REAL-TIME DATA

Real-time data can be expensive. Prices range from about \$50 to several hundred per month for the basic service which includes a limited number of tickers. There are additional charges for extra services, such as charting packages, Level II quotes, or getting data for a larger number of issues. Exchange fees, which are set by the exchange that clears trades for the tickers listed by them, are also added. There are different levels of exchange fees for professional and non-professional traders. Exchange fees can add up to several hundred dollars a month. Most real-time data vendors have trial periods, but the exchange fees charged during the trial are usually not refundable.

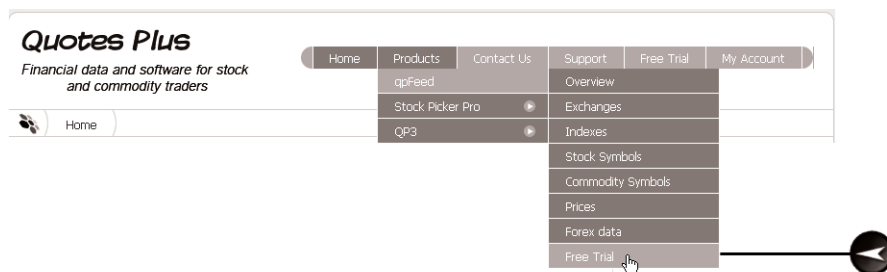
Also, check your Internet communications capacity and your communication vendor's fair use policy. Monitoring about ten symbols in the real-time quote window causes traffic of about 50 MB per hour. Done every trading day of the month, this will exceed the fair use limits of some vendors.

As mentioned earlier, some vendors support combining end-of-day and intraday data in the same database. But that can be tricky. These steps describe separate intraday databases.

Quotes Plus Real-Time Data

The procedure to set up a real-time data feed using Quotes Plus is:

1. Begin with a visit to Quotes Plus' website: <http://www.qp2.com/joomla/index.php>.
2. Pull down the **Products** menu, select **QPFeed**, and click **Free Trial**.

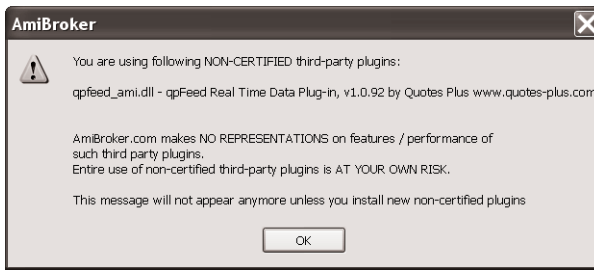


3. Fill in the contact information. You will receive an email from Quotes Plus containing a User ID, Password, and the URL link to a download utility.

4. Follow the link to the download utility and download the qpfeed_setup.exe file.
5. Execute that file to start the installation.
6. Enter your User ID and Password when requested.
7. Accept all the defaults.
8. Click **Finish** to the final dialog and the program will close.

The procedure to connect AmiBroker to the QPFeed is:

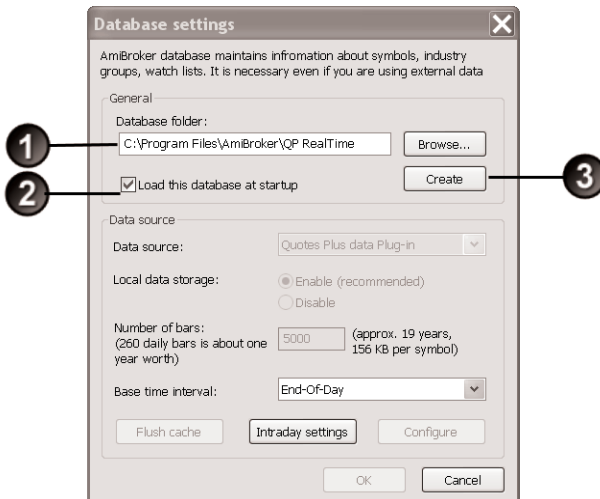
1. Start AmiBroker.
2. You will see a message saying that there is a new plug-in from qpfeed. Click **OK**.



3. Using the **File** menu, select **New**, then **Database**.

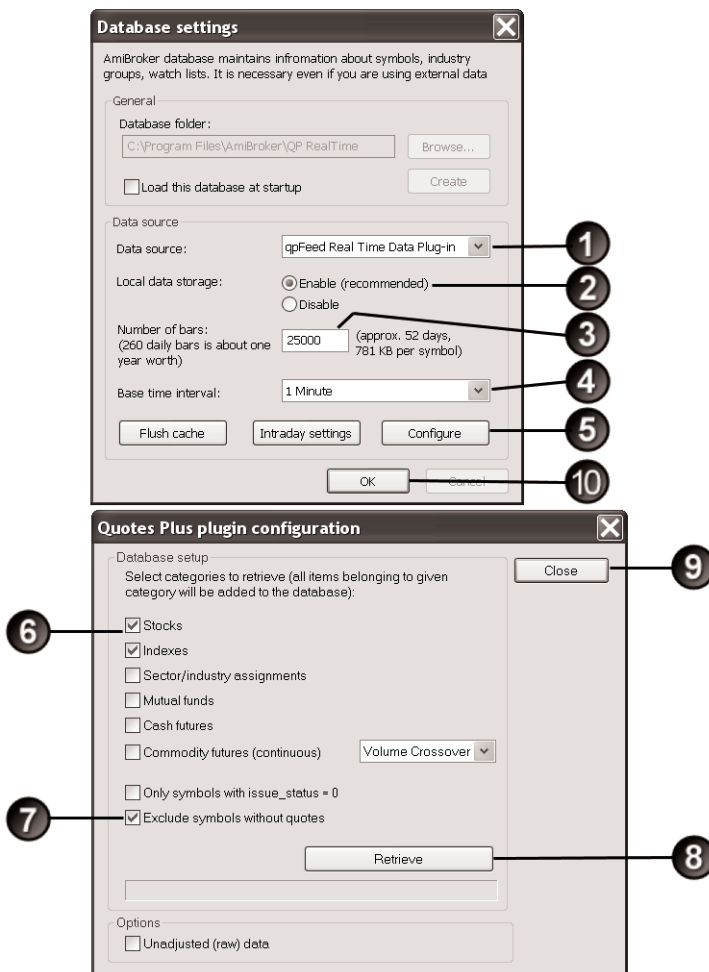
Working in the top half of the box:

1. In the **Database folder** box, enter the name you want for your new real-time database.
2. Check or uncheck, as you wish, **Load this database at startup**.
3. Click **Create**.



Now working in the bottom half of the Database settings box:

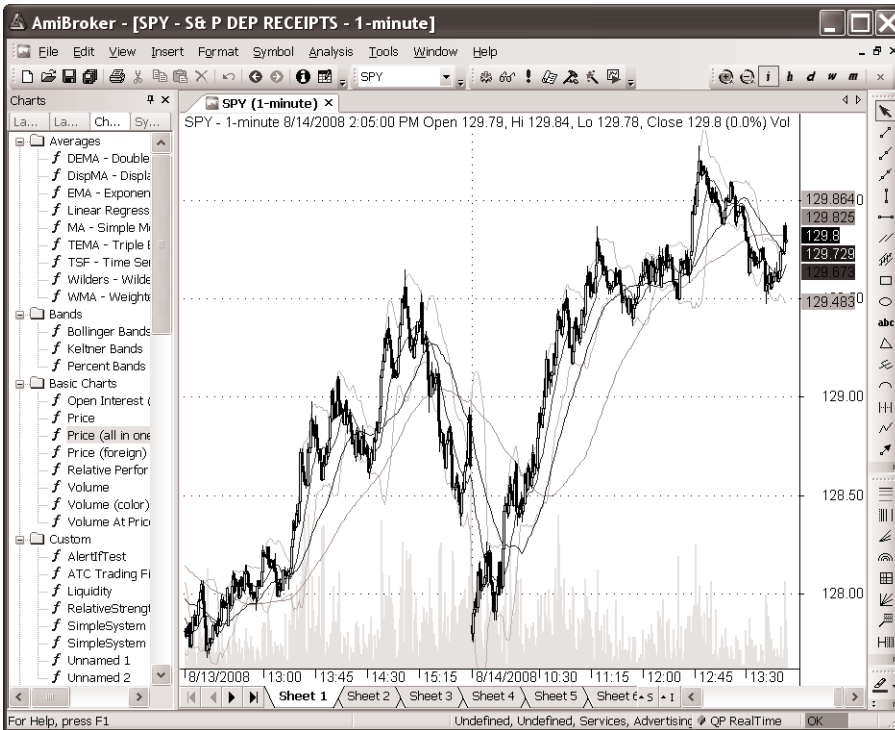
1. Pull down the **Data Source** menu and select **QPfeed Real Time Data Plugin**.
2. Click **Enable local data storage**.
3. Enter **25000** for number of bars.
4. Pull down the **Base Time Interval** menu and select **1 minute**.
5. Click **Configure**.
The configuration menu will appear.
6. Select the categories you want to receive.
7. Check **Exclude symbols without quotes**.
8. Click **Retrieve**.
9. Click **Close**.
10. Click **OK**.
Return to the Database settings screen.



At this point, you have a database established to store 1 minute bars and the QPFeed ready to supply data. To bring up a chart:

1. Using the AmiBroker **Symbol** menu, select **New**.
2. Type in a symbol, say SPY.

In a few seconds the chart will appear.



DTN IQ Real-Time Data

The procedure to set up a real-time data feed using DTN IQ Feed is:

1. Visit the DTN IQ Feed web site at: <http://www.iqfeed.net>

The screenshot shows the IQFeed website interface. The browser title is "Welcome to IQFeed! - Fast, Reliable, Affordable. Datafeeds and API. - Mozilla Firefox". The address bar shows "http://www.iqfeed.net/". The page content includes a navigation menu with "about", "privacy", "site map", and "fee calculator". A "Welcome to IQFeed!" section contains a promotional message. Below this, there are three columns: "About IQFeed", "Support", and "Developers". The "Support" column lists "Services", "Fees", "Compatible Software", "Get Free Trial Now", "Add Services", and "\$100 Referral Credit". The "Developers" column lists "Developer Login" and "Developer Registration". The "About IQFeed" column lists "NEED A FEED?", "For Traders", "For Developers", "Have a Question for Sales? Call 800-475-4755 or Email sales@iqfeed.net", and two "ONLINE" chat buttons for "SALES SUPPORT" and "TECHNICAL SUPPORT". Two callout boxes with numbers 2 and 3 point to "Get Free Trial Now" and "Download Client" respectively.

2. Click **Get Free Trial Now**. Complete the application forms. The trial is exactly the same as the subscription version. The trial turns into a subscription at the end of the trial period, unless you call to cancel it. DTN will send an e-mail with your User ID and PIN.
3. Return to that web site and Click **Download Client**. The current version is a file named `iqfeed_client_4_4.exe`, and is about 3 MB.

- Run `iqfeed_client_4_4.exe`.
Accept all the defaults. When you click finish on the final screen, the `iqfeed` program will be installed on your computer.

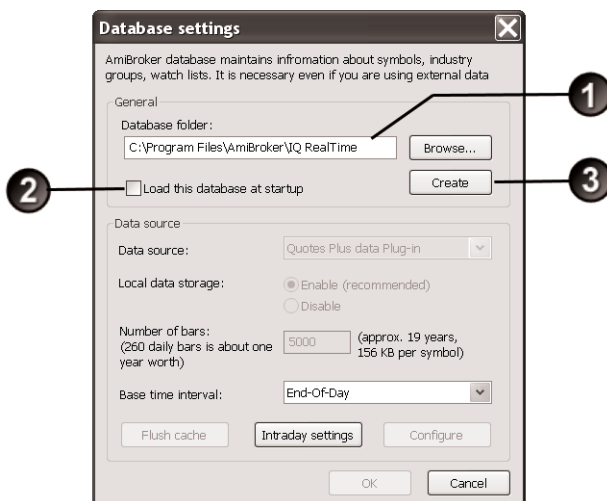


To set up an AmiBroker real-time database using DTN IQFeed:

- In AmiBroker, using the **File** menu, select **New**, then **Database**.

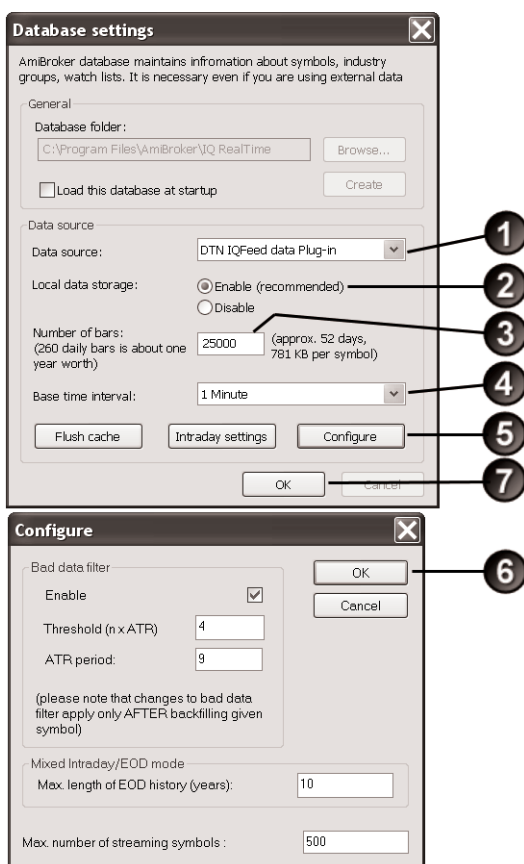
Working in the top half of the box:

- In the **Database folder** box, enter the name you want for your new real-time database.
- Check or uncheck, as you wish, **Load this database at startup**.
- Click **Create**.



Now working in the bottom half of the Database settings box:

1. Pull down the **Data Source** menu and select **DTN IQfeed data Plugin**.
2. Click **Enable local data storage**.
3. Enter **25000** for number of bars.
4. Pull down the **Base Time Interval** menu and select **1 minute**.
5. Click **Configure**.
The configuration menu will appear.
6. Note that DTN IQ has a bad tick filter. Accept the defaults.
Click **OK**
- Return to the Database settings screen.
7. Click **OK**.



The IQ Connect Login will appear.

8. Enter your **Login**.
9. Enter your **Password** or **PIN**.
10. Click **Connect**. Your computer will communicate with the DTN IQ server.

8 Login: 229999 **10** Connect

9 Password or Pin: **** Quit

Save Login And Password / Pin
 Automatically Connect Work Offline

Idle

As your agreement for the receipt and use of market data provides, DTN, the Securities Markets and Content Providers (1) reserve all rights to the data they make available; (2) do not guarantee that data; and (3) shall not

To bring up a chart:

1. Using the AmiBroker **Symbol** menu, select **New**.
2. Type in a symbol, say SPY.

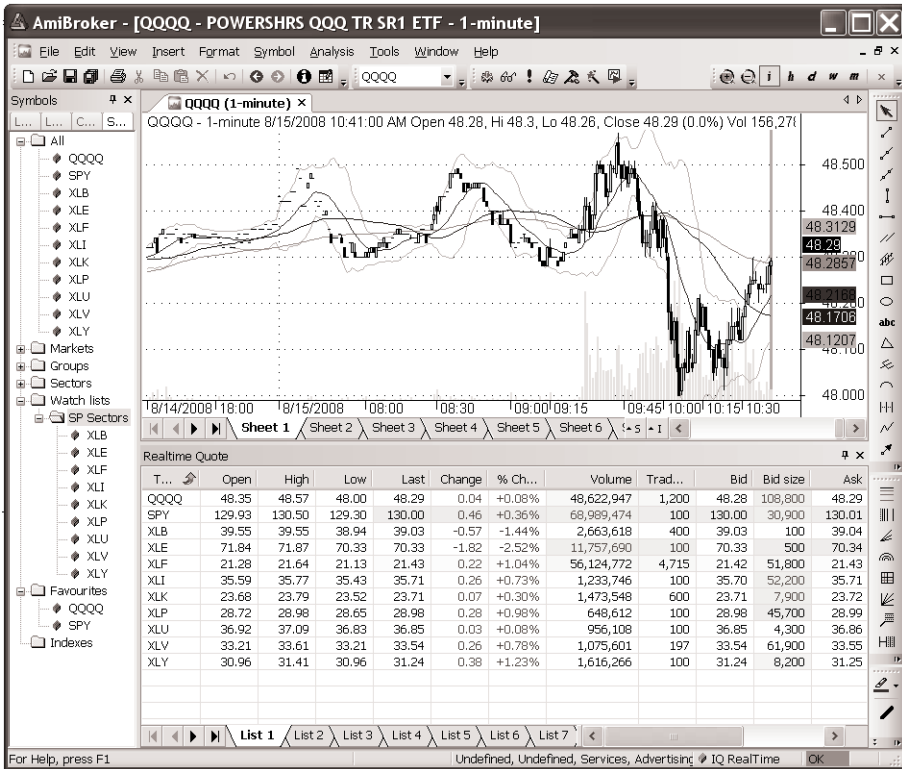
Enter a new symbol name

Enter one or more tickers to add (comma separated)

SPY

OK Cancel

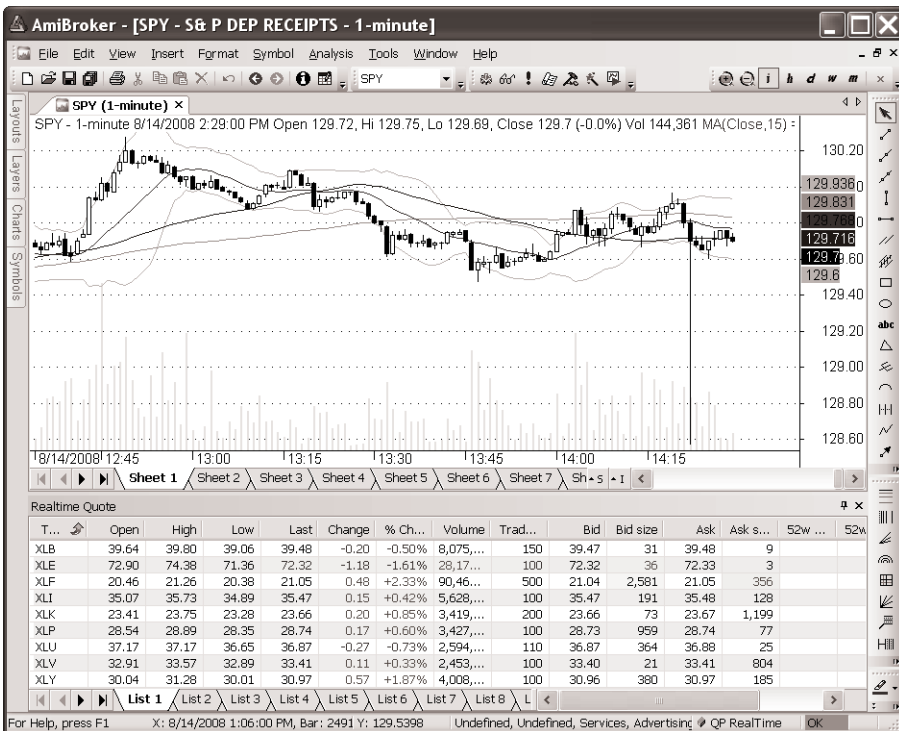
In a few seconds the chart will appear. Add other symbols, open the Realtime Quote Window, and continue.



TICK DATA

Tick data refers to market data that represents the time and transaction price, and perhaps the volume, of every trade. Depending on the exchange and the data vendor, the tick data stream may also include other information, such as changes in the bid price, the asked price, the volume on each side. Just as it is possible to make display bars that represent a given amount of time, say 1 minute, it is possible to display bars that represent a given number of ticks, say 15 ticks.

In the opinion of this author, tick data is not appropriate for use by individuals and small trading companies. The highest quality tick data includes an information packet for every transaction. Some of the difficulties with tick data include: high cost; very high volume of transactions; erroneous transactions (called bad ticks - see example below); dropping of transactions when exchange activity increases (fast market conditions) or when communications capacity is reached.



Tick data is best used by larger organizations that have high capacity equipment, redundant data feeds, and staff devoted to monitoring and correcting the data.

To use tick data in AmiBroker, the Professional version is required.

If you want to experiment with very frequent data, try working with 1 minute bars instead of tick data.

This book will not discuss tick data further.