

# Bloomberg



## API (APPLICATION PROGRAM INTERFACE)

Introduction

Basics: Table Wizard

Spreadsheet Link Types

Basics: History Wizard

Bulk & Intraday Wizards

BLP Statements

# API INTRODUCTION

Integrate Bloomberg's data and analytics into your own proprietary spreadsheet applications and models using the desktop Applications Program Interface (API). The BLOOMBERG API allows users to create customized Excel spreadsheets where Bloomberg's real-time, indicative, derived and historical data can be integrated with client's proprietary data and calculations. Access to many of Bloomberg's market standard and proprietary calculators is also available which make it easier to run analytics on multiple securities or under multiple scenarios in Excel.

Bloomberg's Global Desktop Build Group (DBG) is a team of skilled Excel/VBA/VB specialists that build global applications for general client consumption as well as client specific solutions in Excel.

Find the below examples of ready-made spreadsheets directly on the Bloomberg terminal, type: GAPB <GO>

**Bloomberg** To sort columns to see best/worst performing securities double click on the appropriate column header.

HELP SETTINGS GO

**Total Return Application**

Total Return History 12/29/03 to 5/28/04, mean total return is -1.48%

Securities	Px Appreciation	Ann Px Return	Total Return	Ann Total Return	Return Currency
7267 JT EQUITY	2.81%	6.92%	3.30%	8.15%	JPY
7751 JT EQUITY	12.60%	33.23%	12.60%	33.23%	JPY
AA LN EQUITY	-19.56%	-40.91%	-18.81%	-39.56%	USD
AAL LN EQUITY	-6.54%	-15.07%	-4.84%	-11.30%	GBP
AC FP EQUITY	-3.58%	-8.43%	-0.44%	-1.06%	EUR
BAY GY EQUITY	0.65%	1.57%	2.91%	7.19%	EUR
CS FP EQUITY	-1.00%	-2.40%	1.14%	2.79%	EUR
DWWE GR EQUITY	-4.67%	-10.92%	-4.67%	-10.92%	EUR
G IM EQUITY	0.62%	1.50%	2.20%	5.40%	EUR
GE LN EQUITY	0.94%	2.29%	1.56%	3.81%	USD
IFN US EQUITY	-19.57%	-40.93%	-19.57%	-40.93%	USD
IJ LN EQUITY	-9.09%	-20.58%	-9.09%	-20.58%	GBP
KEGIX US EQUITY	-9.41%	-21.26%	-9.41%	-21.26%	USD
KEGIX US EQUITY	-8.99%	-20.36%	-8.99%	-20.36%	USD
KOPFX US EQUITY	-9.13%	-20.65%	-9.13%	-20.65%	USD
MKS LN EQUITY	24.07%	68.44%	24.07%	68.44%	GBP
MWM LN EQUITY	0.04%	0.09%	0.93%	2.26%	USD
DEGIX US EQUITY	-2.33%	-5.53%	-2.33%	-5.53%	USD
PDFDX US EQUITY	9.62%	24.85%	9.62%	24.85%	USD
VOO LN EQUITY	-6.39%	-14.75%	-6.39%	-14.75%	GBP

Note: Accumulation Fund

**Bloomberg** Enter a list of securities in the order cells in column B. Please click the Settings button to select Standard Financial Fields and create Custom Financial Fields. Please click the Help button to get more assistance with this application. Click the Go button to download standard/based criteria.

HELP SETTINGS GO

**Custom Equity Fundamentals**

Field Summary - Median Average for ALL Securities

	FQ1 2004	FQ4 2003	FQ3 2003	FQ2 2003	FQ1 2003	FQ4 2002	FQ3 2002	FQ2 2002
Income Statement								
Earnings Per Share	0.60							
Net Income/Net Profit (Losses)	681.50							
Sales/Revenue/Turnover	3,754.00							
Balance Sheet Summary								
Accounts & Notes Receivable	1,700.00							
LT Borrowing	9,642.00							
LT Investments	230.00							
Shares Outstanding	1,717.00							
Cash Flow Summary								
Cash From Financing Activities	-195.00							
Cash From Investing Activities	-179.00							
Cash From Operations	881.00							
Ratios								
Net Share	8.23							
Volatility	0.80							
Capital	12.00							
Net Cap	25,676.23							
Cap Exp	14.32							

Standard Financial Fields Custom Financial Ratios

In this section you may create up to 10 custom financial ratios. Select the fields from the "Fields Available" box on the left. Then create the ratio by clicking on the "Create Custom Ratio" button. Your custom ratio will then be shown at the bottom right.

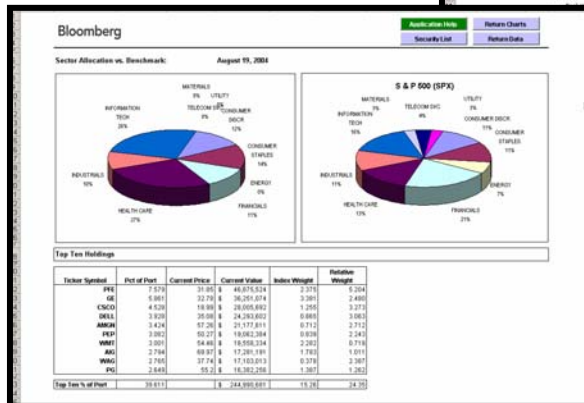
Fields Available: Financial Leverage, P/B Ratio, Gross Margin, Growth in Capital, Interest Expense Coverage, Inventory Turnover, LT Debt to Common Equity, LT Debt to Total Capital, Net Debt, Net Income Growth, Net Worth Growth, # of Days in the Period, Operating Income Growth, Operating Income per Share, Oper Inv to Total Capital, Operating Margin, Profit Margin, Cash Ratio, # of S's to Sales

Create new ratio from these choices:

Name your ratio:

To create your custom ratio, write a formula using the associated letters as representative of the fields. (i.e. Sales/Revenue/Pricebook, Cash & Near Cash/Borrowed) A Formula will look like this: (AMC)/300

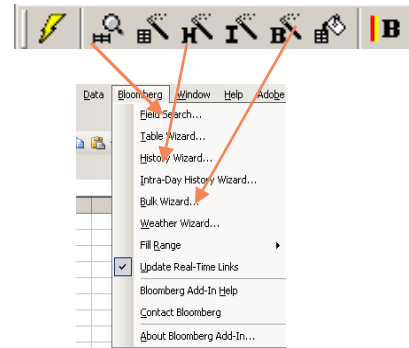
Available Fields: A = EQUITY/Am Bnf 3rd Dep & Amc, B = Net Debt




# API BASICS

## Locate the DDE Add-In Toolbar


Bloomberg should appear on the Excel toolbar between the 'Data' and 'Window' options. If you cannot locate this, check your DDE Add-In using the following method: Click on 'Tools', select 'Add-Ins', select 'Browse' and search for file name: BLPMAIN.XLA. For more information on downloading the software and understanding the components of the API and communications, on your Bloomberg terminal type **API <GO>** or **BBXL <GO>**.

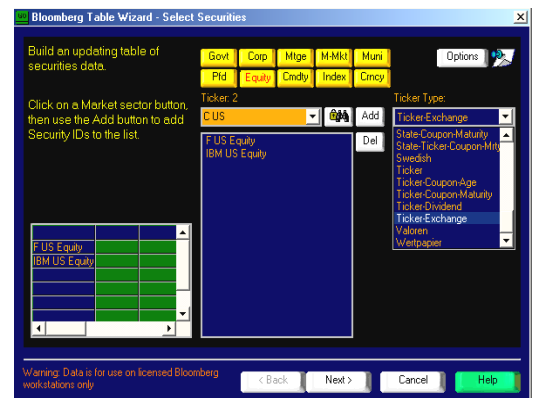


## The Table Wizard: Creating a basic Table


**Step 1:** Click on the Table Wizard Icon . Enter a security in the orange field, click on the appropriate yellow sector key and click 'Add'. (Alternatively use the yellow sector key on your keyboard and press <GO>). Repeat this process until all securities are entered and click on 'Next'.

*Note: Ticker-Exchange is the default entry mode, e.g. IBM US. If you wish to add securities by another identifier, e.g. Sedol # or Isin #, simply change the Ticker Type using the drop-down window.*

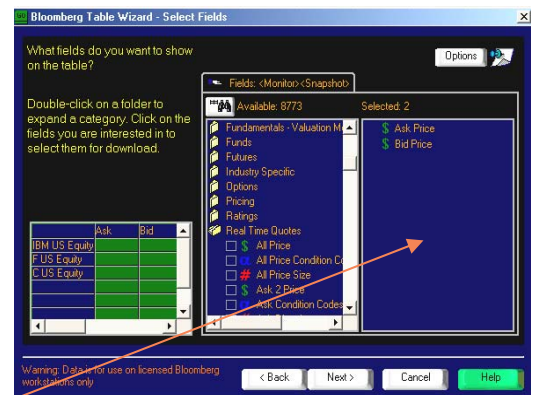
 Drag and drop multiple securities into the table wizard! Click on the push pin icon which appears on various Bloomberg screens (e.g. WEI <GO>) to quickly transport all securities.



**Step 2:** Choose data from over 30 categories, including 'Real Time Quotes' and 'Descriptive Info' and select a field. Continue selecting other fields. If you cannot find a particular field, click the FIND icon to carry out a search. You can right click your mouse on the field for a Definition. When finished Click Next>.

If you cannot find a particular field, click the binoculars or FIND icon  to carry out a search. You can right click your mouse on the field for a Definition. When all data columns are selected, click on 'Next'.

*Note: Right mouse click on any data items selected to view a definition or delete the item.*



**Step 3:** Specify the orientation of the table and choose from one of the 5 'Spreadsheet link types' provided. Click on 'Finish'.

	Ask	Bid		
2	IBM US Equity	76.31	76.3	
3	F US Equity	9.79	9.78	
4	C US Equity	47.94	47.93	

## SPREADSHEET LINK TYPES

**Multi-cell DDE links:** This is the most efficient way of placing DDE links into a spreadsheet. It takes all the fields you have chosen, and bundles them into 1 single DDE link.

Although this option provides the fastest data download (ideal for large amounts of data) it is the least flexible for spreadsheet manipulation.

**Single cell DDE links:** Although this link type is not as fast as the multi-cell link, it offers greater flexibility. The user is able to 'slice and dice' their spreadsheet, as single cells can be inserted/deleted without receiving the 'cannot change part of an array' error message.

**Multi-cell BLP function:** This option will place BLP macros into the spreadsheet rather than native DDE links. While this is not as efficient as the native DDE links, it offers more flexibility in allowing for changes in securities and fields. It also binds all fields into a single link, just like multi-cell DDE links.

**Single cell BLP function:** This is the most flexible option for downloading data onto the spreadsheet, though not as efficient as the other types. It places a single BLP function into every cell for each security-field combination. It is the default.

**Snapshot of data (no links):** This option fetches and displays data on the sheet without any link. Hence, this sheet does not update thereafter, whether it is left opened or closed and reopened.

## Editing the Spreadsheet

**Making Changes:** Click on the 'home cell' (first cell above the first security and to the left of the first field) – the blank cell in the upper left corner of the table (A1 in the example shown). Now click on the Table Wizard icon and make any changes

**Adding Securities:** It is possible to add securities to your spreadsheet without using the Table Wizard. Simply type the ticker, and exchange code followed by yellow sector key beneath the original securities (as shown in red text). Then click on "home cell" and click on the Fill Range icon on the DDE toolbar. The orange area of the spreadsheet will instantly populate with data.


**Adding Data Fields:** If you know the mnemonic of the data field you wish to add simply type it in the next available empty column (ASK\_YIELD shown in example), To look up a field expression, click on the Field Search icon. A box appears where you can enter a word(s) and find all matching pneumonics. You may also select the type of field e.g. monitoring, snapshot, historical, and specify a yellow key if the field relates to a specific market sector(s). Click to select the field(s) you require and click 'Apply'. To fill the cells with new data -click on the "home cell" and then the Fill Range icon .

	A	B	C	D
1		Ask	Bid	ASK_YIELD
2	IBM US Equity	76.37	76.36	
3	F US Equity	9.76	9.75	
4	C US Equity	48	47.99	
5	MSFT US EQUITY			
6	BUD 9 09 CORP			
7				

Name	Mnemonic	Category
<input type="checkbox"/> Ask Yield	ASK_YIELD	Real Time Quotes
<input type="checkbox"/> Ask 2 Yield	ASK2_YLD	Real Time Quotes
<input type="checkbox"/> Ask Yield Direction	ASK_DIR_YLD	Real Time Quotes
<input type="checkbox"/> Today's Ask Yield	ASK_YLD_TDY	Real Time Quotes
<input type="checkbox"/> Ask Yield To Next Call	YLD_YTC_ASK	Analytics - Yield/Discount Mar...
<input type="checkbox"/> Ask Yield To Maturity	YLD_YTM_ASK	Analytics - Yield/Discount Mar...
<input type="checkbox"/> Ask Yield To Worst Convention	YLD_GWV_ASK	Analytics - Yield/Discount Mar...
<input type="checkbox"/> Ask True Yield	YLD_TRUE_ASK	Analytics - Yield/Discount Mar...
<input type="checkbox"/> Ask Annual Yield	YLD_ANNUAL_ASK	Analytics - Yield/Discount Mar...
<input type="checkbox"/> Ask True Gross Yield	YLD_TRUE_GROSS_ASK	Analytics - Yield/Discount Mar...
<input type="checkbox"/> Ask Current Yield	YLD_CUR_ASK	Analytics - Yield/Discount Mar...
<input type="checkbox"/> Ask Yield To Longest Average ...	YLD_LAVL_ASK	Analytics - Yield/Discount Mar...
<input type="checkbox"/> Ask Yield To Shortest Average	YLD_SAVL_ASK	Analytics - Yield/Discount Mar...

# API BASICS

## The History Wizard: Retrieve a historical time-series

**Step 1:** Click on the history wizard icon . Follow the same procedure as the table wizard:

- Enter security tickers and yellow sector keys, click 'Next'
- Search and add data columns/fields, click 'Next'.

### Additional choices:

- Choose a time period from the 6 options provided.

### Specific start and end dates

This will result in a time-series that does not change. This configuration would display a fixed period of data. E.g. "between Sept 1, 1996 and August 15, 1997".

### Fixed time period from start date

The user chooses a start date. It is a fixed set of data that will not change when the sheet is opened on different days. This configuration would be used to get data for a period such as "2 Months following April 15, 1996".

### Fixed time period from current

A fixed time period (e.g. 1 year, 2 months etc) which ends on the current date. The end date will not be constant, but rather the fixed time period from the day the sheet is reopened or refreshed. Thus, data in this configuration will vary from day to day.

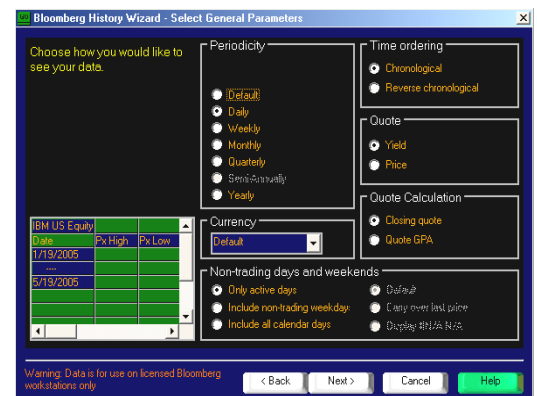
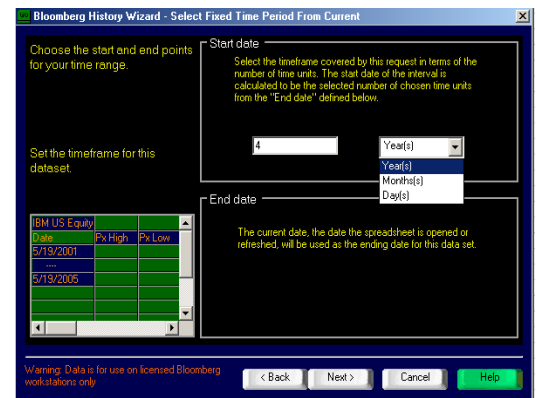
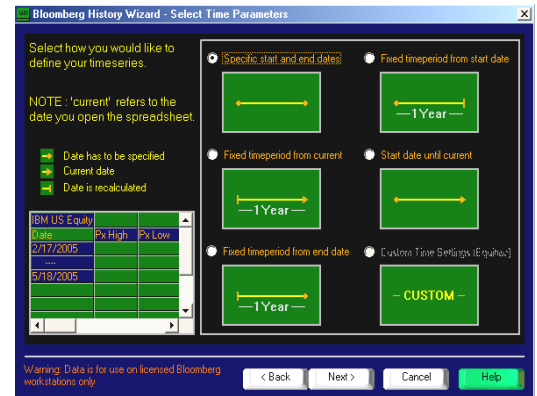
### Start date until current

Choose a start date, with the 'current date' always being when the sheet is opened or refreshed. This configuration produces a larger set of data progressively over time using a feature called the BLPH statement. This configuration would be used to get data for a period such as "March 12, 1998 till today".

### Fixed time period from end date

This is similar to the "Fixed time period from start date" configuration. The only difference is the user chooses an end date rather than a start date. This configuration would be used to get data for a period such as "2 months preceding April 15, 2001".

- Enter a range (dependent on your previous time period choice).
- Choose the periodicity, time order, currency etc
- Choose display options, e.g. data displayed horizontally or vertically and charting.



## Step 2: Spreadsheet Link Type

There are 3 link types:

- DDE Link,
- Data snapshot (static)
- Use Excel BLPH function. The BLPH function creates a flexible formula referencing on the spreadsheet rather than the less flexible multi-cell DDE Link. With this BLPH functionality, changes can be made to the formula. Hence, data will be updated in correspondence to any changes in that formula.

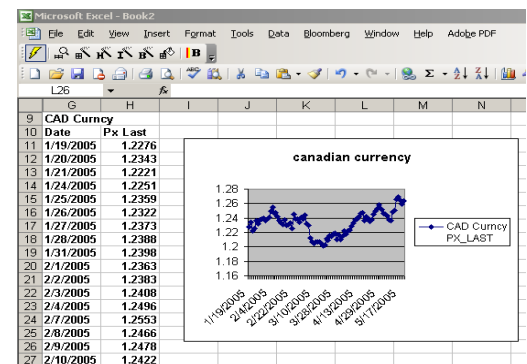
*NOTE: Care must be taken when selecting links. Excel has a limitation where the number of cells in a DDE link is limited to 1600 cells of data. Thus, if a long period is specified or multiple fields are requested, please either*

1. choose the BLPH link instead of DDE link, or
2. reduce the number of fields, or alter the period of the request.

*For example, a wider periodicity can be chosen such as weekly or monthly, instead of daily. The Wizard will notify you should there be a download problem, with the error message #N/A Size on the spreadsheet.*


## Step 3: Chart Set Up

If you selected 'display chart' the chart set-up window will allow you to select a title, determine the location, and select or deselect those securities and field(s) that you would like to graph. Click on 'Finish'.



## Other DDE Tools: Bulk and Intraday Wizards

The Intraday History Wizard  allows you to download intraday intervals.

The Bulk Wizard  allows you to download "bulk" information i.e. all index members, all options on an equity or futures contract. Including bulk description, cash-flows, and member weightings etc.

## BLP STATEMENTS

Fill data into your spreadsheet by writing simple formulas or BLP Statements that write directly to the DDE server. The statements allow flexibility in the data layout and the customization of your own proprietary formulas. The syntax is as follows: **=blp (security, fields)**

*In the example, Cell C2 can be populated by writing any combination of the following:*

- = blp (B2,C1) or
- = blp ("IBM Equity", "Px Last") or
- = blp (B2,"Px Last")

	A	B	C	D	E	F	
1			Px Last				
2	IBM	IBM Equity	113.68				
3							
4	Cell B2 contains the formula =A2 & " Equity"						

- To concatenate the security id with the yellow sector key description, i.e. cell B2 in the example: the formula is **=A2&" Equity"**
- To anchor a cell or series of cells in a formula: Hit your F4 key after the cell reference(s).

## HISTORICAL BLP STATEMENTS

Writing historical BLP Statements allows you to easily access historical data for a list of securities without having to type the list into the History Wizard. You can specify either one date in history using the **BLPSH** statement or enter a period of time using the **BLPH** statement.

**BLPSH Function:** The **Bloomberg L.P. Single point in History** allows you to access a single historical point. The following is the syntax:

**=BLPSH(security, field(s), date, non-trading days\*, filler\*,[Omit], Currency\*)**

Security: Any valid Bloomberg security identifier.

Fields: The mnemonic representation of fields that Bloomberg provides historical data.

Date: A current or historical date format applicable to Excel. E.g. mm/dd/yy, or dd/mm/yy etc.

Non-trading days\* : **N** – show weekly days (Mon-Fri) **C** – show all calendar days.

Filler\*: **N** – show #N/A NA for non-trading days  
**C** – show the previous trading day's value (default).

Omit: Not currently used. Please skip this parameter.

Currency\*: Enter a currency of choice. It defaults to the local currency for the security.

*\* Optional Parameters*

In any statement, the parameters can either be a cell reference (A1) or a string e.g. "MSFT Equity". The Security e.g. MSFT Equity, could have been written in the formula in cell A3, for example:

**=BLPSH("MSFT Equity",A2:B2,B1)**

Or the data fields could be written as a string:

**=BLPSH(A1,"LAST PRICE,VOLUME",B1)**

	A	B	C
1	MSFT Equity	10/15/2001	
2	Last Price	Volume	
3	58.06	34229200	
4			

**BLPH Function:** The **Bloomberg L.P. History** allows you to access multiple historical points. The following is the syntax:

**=BLPH(security, field(s), start date, end date \*, number of points\*, reverse order\*, periodicity\*, non-trading days\*, filler\*, show dates\*, rows, columns, direction\*, show yield\*, currency\*)**

Security: Any valid Bloomberg security identifier

Fields: The mnemonic representation of fields that Bloomberg provides historical data.

Start Date: A current or historical date format applicable to Excel. E.g. mm/dd/yy, or dd/mm/yy

End Date\*: A date that's equal or later than the start date and cannot be in the future.

Number of Points: The number of periods to download from current (i.e. quarters, years)

Reverse Order\*: A Boolean value where TRUE represents a reversal in chronological order

Periodicity\*: D = daily, W = weekly etc

Non-trading days\* : **N** – show weekly days (Mon-Fri) **C** – show all calendar days.

Filler\*: **N** – show #N/A NA for non-trading days  
**C** – show the previous trading day's value (default).

- Show Dates\*: A Boolean value where FALSE represents no dates shown
- Rows: Skip this parameter (mark with comma if using additional parameters)
- Columns: Skip this parameter (mark with comma if using additional parameters)
- Direction\*: A Boolean value where TRUE displays the values HORIZONTALLY while FALSE Displays the data vertically (defaults to FALSE).
- Show Yield: Displays the yield or price for a fixed income security historically. Defaults to Price
- Currency\*: Enter a currency of choice. It defaults to the local currency for the security.

\* Optional Parameters

If you select some but not all parameters you must mark those you skipped over with a comma “.”. For instance if you want PX LAST on MSFT US Equity from 10/15/00 through 10/15/01 in reverse chronological order, weekdays only then you would write the following statement:

The BLPH function will account for unused parameters at the end of the statement and also add two additional parameters that will account for the number of rows and columns.

	A	B	C	D
1	MSFT Equity	10/15/1999		
2	Date	Px Last	Volume	
3	10/15/1999	88.0625	36894000	
4	10/18/1999	87.875	37656400	
5	10/19/1999	86.3125	34972800	
6	10/20/1999	92.25	44045300	
7	10/21/1999	93.0625	30400600	

**Data Messages:** If data is unable to populate in the appropriate cells you will see data messages. Below is a list of common data messages and their meanings:

- #NA Start: Start date is not a date, or in the future.
- #NA End: End date is not a date, or before start.
- #NA Points: # Points is not numeric.
- #NA RevOrd: Reverse order is not Boolean.
- #NA Data Ctrl: Data control registration problem – *Contact Bloomberg Service.*
- #NA Period: Periodicity value is not valid.
- #NA ShNTrd: Non-trading days is not valid
- #NA NtrdVal: Filler is not valid.
- #NA History: No history is available.

For a complete list of Data Messages please refer to **BBXL<GO>** Explaining Excel's error messages.