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**TMX PowerStream DDE (Dynamic Data Exchange)**

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TMX PowerStream’s DDE functionality provides you with streaming dynamic, real-time quotes using a Windows protocol which allows applications to exchange data.

This powerful tool greatly extends your control, whether you simply prefer to view live market data in a spreadsheet, or wish to perform specialized calculations and use specific third-party features or applications for charting, data aggregation, conditional formatting, macros, etc.

As data updates in TMX PowerStream, the same data updates accordingly in your third-party application, embedded in streaming real-time. Summary of Features for DDE functionality (DDE Plugin):

• User-definable DDE server/topic/item for each field (open, high, low, close, volume, trade size, total volume, bid, bid size, ask, ask size, time)

• Supports up to 500 streaming symbols in real time if account is entitled to this number of symbols in Portfolio Manager.

• Supports Real-Time data interval if account is entitled to real-time data.

• No backfill of data available as this is an intraday service.

With TMX PowerStream’s DDE, you can track a wide range of stock market statistics, from basic stock quote data (last price, volume, change, bid, ask) to price statistics (52-week high, 52-week low) and valuation parameters (earnings per share, PE ratios, dividend yields).

**Having troubles connecting to the service?**

**Please see further on in this document for trouble shooting tips.**

**How to use DDE?**

Connecting DDE functionality with another third-party application will have its own configuration steps to follow depending on the application providers’ protocols, etc. TMX PowerStream’s DDE-compliant functionality (DDE Plugin) is provided on an "as-is" basis. No additional support is provided with respect to configuring our DDE service with third-party applications.

You must be logged into TMX PowerStream to set a session and receive streaming data at the level of entitlements that your TMX PowerStream application is set to receive, i.e, those exchanges for which you have real-time entitlements will stream in real-time into the third-party application.

TMX PowerStream DDE feature implementation takes advantage of the DDE (“Dynamic Data Exchange”) and OLE (“Object Linking and Embedding”) compound document standards developed by Microsoft Corporation. These standards allow the creation of objects in one application to be linked or embedded in a second application. Embedded objects retain their original format and links to the application that created them.

**Examples:**

The formula for OpenOffice Calc would resemble =DDE("quotestream";"AAPL:US";"Last").

Most documentation of DDE uses DDE syntax which looks as follows: =SERVER|TOPIC!ITEM

**There are 4 parts to a DDE function:**

1. DDE Function Call – this is how the application knows that you are calling a DDE function.

2. DDE Server Name – the name of the DDE server where the function gets processed. In this case, the value is “quotestream".

3. Stock Symbol – a symbol of a stock or other financial instrument.

Note: Symbols containing an @ (ie - options symbols) must be escaped with a single quote.

For example, @APVIN needs to be entered into Excel as '@APVIN

4. Data Point – the data point you wish to request (see “Data Points” below).

You can download **Sample DDE OpenOffice Spreadsheets** from this page:

<http://web.tmxmoney.com/account/RTDdocs/>

**Data Point Coverage**

TMX PowerStream DDE supports the following data points:

|  |  |  |  |
| --- | --- | --- | --- |
| Last Price | Volume | Close Price | Currency |
| Change | Trade Value | Open Price | Dividend |
| Percent Change | VWAP | 52 Week High | Yield |
| Bid Price | Last Trade Time | 52 Week Low | Ex-Div |
| Bid Size | Last Trade Size | 52 Week High Date | Earnings Per Share |
| Ask Price | High | 52 Week Low Date | PE Ratio |
| Ask Size | Low | Previous Close | P/B Ratio |
| TRIV (TSX Indices) | Marketplace | TWAP | Shares Outstanding |
| Symbol | Tick | Description | Market Cap |
| Average Volume 10 Day | Tick Volume | Pre Market Last | Exchange |
| Average Volume 20 Day | Performance 3 Month | Pre Market Change | Post Market Last |
| Average Volume 30 Day | Performance 1 Month | Pre Market Percent Change | Post Market Change |
| Average Volume 50 Day | Performance 6 Month | Post Market Percent Change | Pre Market Volume |
| Average Volume 90 Day | Performance 1 Year | Pre Market Trade Time | Post Market Volume |
| Average Volume 100 Day | Sector | Post Market Trade Time | Industry |
| Average Volume 365 Day | Alpha | Beta | R-Squared |
| Standard Deviation | YTD% | Short Sale Restriction | SubIndustry |
| Performance 3 Year Annualized | Performance 3 Year Cumulative | Performance 5 Year Annualized | Performance 5 Year Cumulative |
| Performance 10 Year Annualized | Performance 10 Year Cumulative | Implied Volatility | Implied Volatility Change |
| 21 Day Moving Average | 50 Day Moving Average | 200 Day Moving Average | Open Interest |
| Mark | Previous Mark | Mark Change Percent | Mark Change |
| Intrinsic Value | Extrinsic Value | Bid Implied Volatility | Ask Implied Volatility |
| Delta | Gamma | Theta | Vega |
| Rho | Enterprise Value | Return on Capital | Return on Equity |
| Return on Assets LTM | Return on Capital LTM | Return on Equity LTM | Return on Assets |
| Return on Invested Capital QTR | Return on Invested Capital 1YR | Post | Panel |
| Firm Name | Next Earnings Date | Earnings Quarter End |  |

**Data Points**

Data Points are available in long or short form for your convenience. Either may be used.

**For example:**

=DDE("quotestream";"MSFT:US";"Last Trade Time")

… will return the same result as…

=DDE("quotestream";"MSFT:US";"LTime")

|  |  |  |  |
| --- | --- | --- | --- |
| **Long Name** | **Short Name** | **Long Name** | **Short Name** |
| Symbol | Symbol | Description | Desc |
| Last Price | Last | Change | Chg |
| Percent Change | PChg | Last Trade Time | Ltime |
| Last Trade Size | LSize | Bid Price | Bid |
| Ask Price | Ask | Ask Size | Asize |
| Bid Size | Bsize | Open Interest | Int |
| Volume | Vol | 52 Week High | 52wHi |
| Yield | Yld | 52 Week Low | 52wLo |
| Dividend | Div | Ex-Div | ExD |
| Earnings Per Share | EPS | PE Ratio | PER |
| P/B Ratio | PBRAT | Exchange | Exch |
| Marketplace | Market | Currency | Curr |
| Tick | Tick | Low | Lo |
| Open Price | Open | High | Hi |
| Previous Close | Pclose | Close Price | Close |
| TRIV | TRIV | Shares Outstanding | SHOS |
| Market Cap | MCap | Volume Weight Average Price | VWAP |
| TWAP | TWAP | Pre Market Last | PreLast |
| Pre Market Change | PreChg | Pre Market Percent Change | PrePChg |
| Pre Market Volume | PreVol | Pre Market Trade Time | PreLtime |
| Post Market last | Post Last | Post Market Change | PostChg |
| Post Market Percent Change | PostPChg | Post Market Volume | PostVol |
| Post Market Trade Time | PostLTime | Value | Val |
| TICKVOLUME | Tvol | Performance 1 Month | P1M |
| Performance 3 Month | P3M | Performance 6 Month | P6M |
| Performance 1 Year | P1Y | Mark | Mark |
| Previous Mark | PMark | AVERAGE VOLUME 10 DAY | AV10D |
| AVERAGE VOLUME 20 DAY | AV20D | AVERAGE VOLUME 30 DAY | AV30D |
| AVERAGE VOLUME 50 DAY | AV50D | AVERAGE VOLUME 90 DAY | AV90D |
| AVERAGE VOLUME 100 DAY | AV100D | AVERAGE VOLUME 365 DAY | AV365D |
| 52 Week High Date | 52wHiD | 52 Week Low Date | 52wLoD |
| Sector | SCT | Industry | IND |
| SubIndustry | IND2 | Alpha | Alpha |
| Beta | Beta | R-Squared | R2 |
| Standard Deviation | Stddev | YTD% | YTD% |
| Performance 3 Year Annualized | P3YA | Performance 3 Year Cumulative | P3YC |
| Performance 5 Year Annualized | P5YA | Performance 5 Year Cumulative | P5YC |
| Performance 10 Year Annualized | P10YA | Performance 10 Year Cumulative | P10YC |
| Short Sale Restriction | regSHO | 21 Day Moving Average | MA21 |
| 50 Day Moving Average | MA50 | 200 Day Moving Average | MA200 |
| Enterprise Value | EV | Return on Capital | ROC |
| Return on Equity | ROE | Return on Assets | ROA |
| Return on Capital LTM | ROCLTM | Return on Equity LTM | ROELTM |
| Return on Assets LTM | ROALTM | Return on Invested Capital QTR | ROICQTR |
| Return on Invested Capital 1YR | ROIC1YR | Post | Post |
| Panel | Panel | Firm Name | Firm Name |
| Next Earnings Date | NextEarnDate | Earnings Quarter End | EarnQuartEnd |

**System Requirements**

DDE requires a Windows machine.

*This service is not supported in MS Excel which would require that you use RTD.*

**Trouble Shooting**

If you are having trouble connecting to the service, please start by try the following steps:

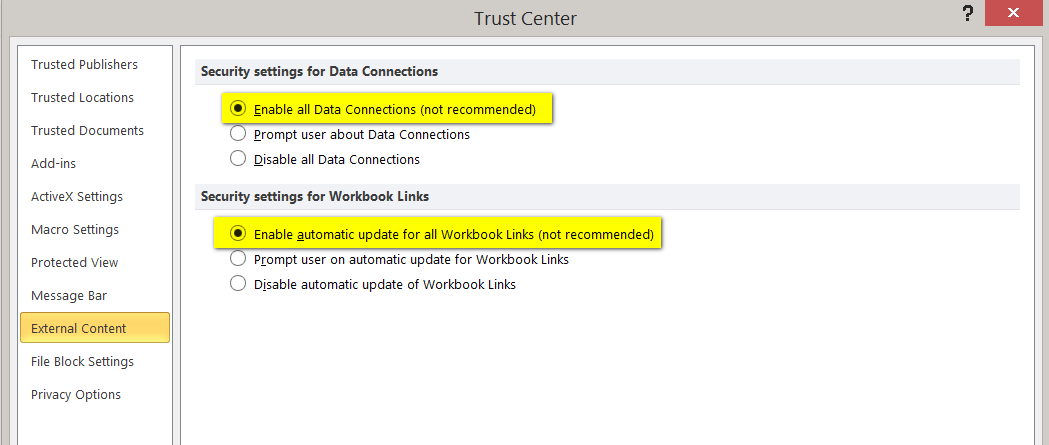
**For Windows Users**

- The Operating System, the version of PowerStream and the version of Java must be the same. If using OpenOffice, note that OpenOffice only comes in 32-bit, meaning that both PowerStream and Java (if using webstart version) must be 32-bit.

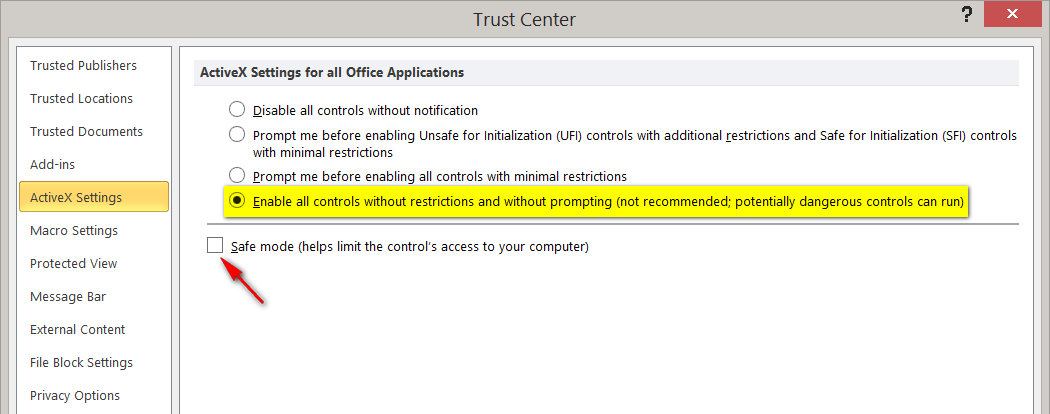
Java can be manually downloaded from <https://www.java.com/en/download/manual.jsp> (make sure to download the Windows version that is not 64-bit)

- Allow permissions to Java through your firewall, possibly both public and private depending on where you are accessing the application from. This Both a Windows and a third party firewall service should be adjusted to allow Excel and Java access.

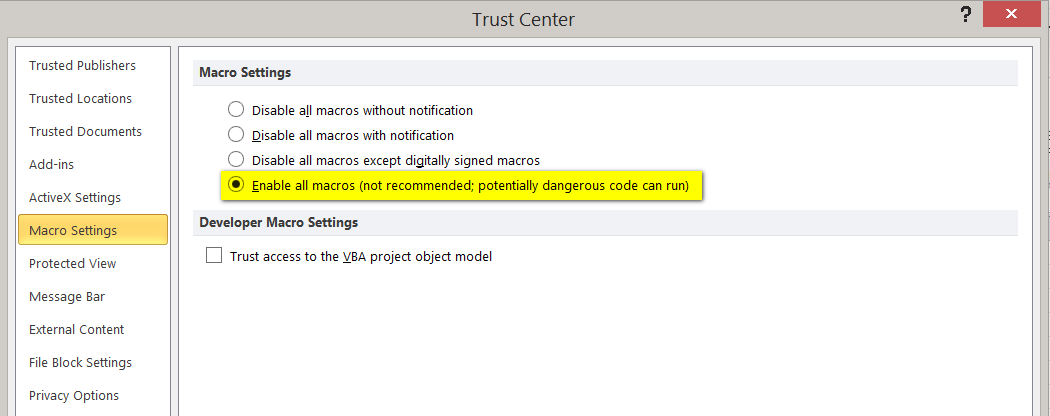
* For Win7 users: Under Trust Center Settings > Locations, select "Add new location" then select "The Sub -Folders of this location are Trusted" > click Browse and locate the following folder to add: C:\ProgramData\QuoteMedia\resources\nativelibs
* For Win8 and Win10 users: Under Trust Center Settings > External Content, select > Enable all Data Connections – and > Enable automatic update for all Workbook links



* Under Trust Center Settings > ActiveX Settings > Select “Enable all Data” and “Enable automativ update for all Workbook links”



- Under Trust Center Settings > Macro Settings > Select “Enable all Macros”



- Update Java and clear Java cache: <https://www.java.com/en/download/help/plugin_cache.xml>

- Update Windows User Control Settings; lowering controls to “Never Notify” has solved problems in the past. <http://windows.microsoft.com/en-ca/windows7/how-do-i-change-the-behavior-of-user-account-control-by-using-the-slider>