User Guide for the

TeleTrader Toolbox for MATLAB®

TeleTrader Software GmbH

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Contents

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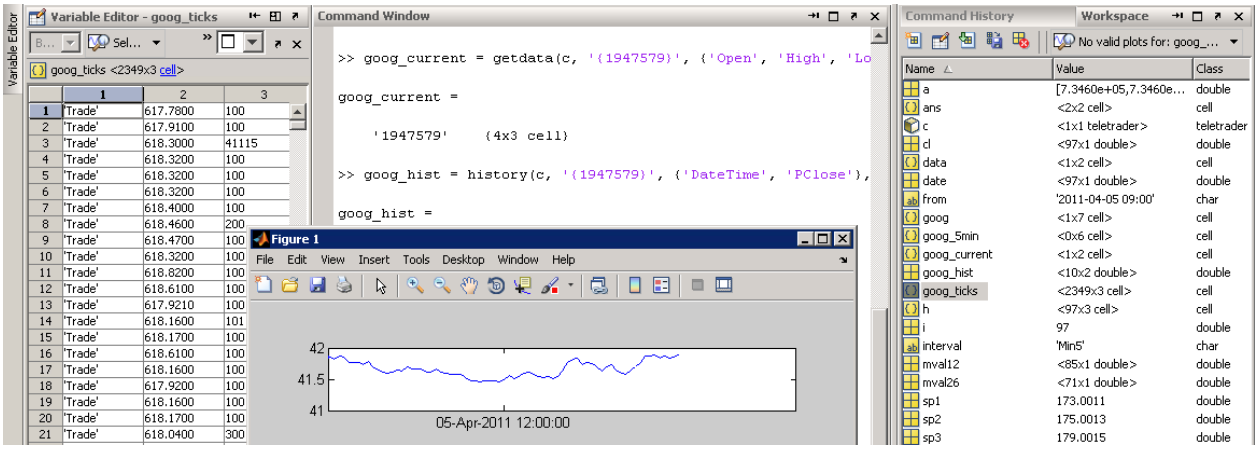
Getting Started with the TeleTrader Toolbox for MATLAB®

The TeleTrader Toolbox for MATLAB® provides full access to the TeleTrader Market Data Servers. You can request current data, subscribe to real-time ticks or retrieve historical data from about two million listings. Query billions of ticks from our historical database, process them in MATLAB or store them locally as time-series data.



The TeleTrader Toolbox offers a high degree of compatibility with the existing Datafeed Toolbox™, which allows you to quickly substitute your current data service provider.

Establish a connection to the TeleTrader Market Data Server

With you user name and password, you can easily establish a connection to the TeleTrader Market Data Server from the MATLAB command line or with the TeleTrader Toolbox user interface. The TeleTrader data feed includes tick, historical and market depth data for stocks, indices, bonds, mutual funds, ETFs, futures, commodities, currencies and much more.

Connecting to the TeleTrader Market Data Server on page 4

Retrieve current, historical or real-time financial data

You can retrieve current data, historical data in different compressions (daily, weekly, monthly), intraday data compressed to minute bars, raw tick data – or you can subscribe to a symbol to retrieve ticking real-time data (including live market depth) and process the data with MATLAB.

Retrieving Financial Data on page 6

Easy-to-use Graphical User Interface

Our interactive GUI lets you connect to the Market Data Server, query data, search for securities with TeleTrader Symbol Search, select data from a list of available fields and create command line code.

TeleTrader Toolbox for MATLAB® Graphical User Interface on page 11

Command line functions

The powerful command line functions of the TeleTrader Toolbox for MATLAB® let you create customized queries in a single function call: Retrieve current data for a list of symbols, fetch historical data for a certain set of fields and from a specific time period, deliver real-time data to a MATLAB function for further processing etc.

Function Reference on page 15

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Connecting to the TeleTrader Market Data Server

With the TeleTrader Toolbox for MATLAB®, you can connect to the TeleTrader Market Data Servers and request financial data. You can use the following functions to establish a connection, retrieve connection properties and close the connection to the server:

teletrader	Connect to the TeleTrader Market Data Server
teletrader.isconnection	Verify whether the connection is valid
teletrader.get	Retrieve specific connection properties
teletrader.display	Retrieve all connection properties
teletrader.close	Disconnect from the TeleTrader Market Data Server

You should have already received an e-mail with your login data (user name and password). If you do not know your login data, please contact the TeleTrader support team (see Customer Support on page 39).

To connect to the TeleTrader Market Data Server

- Use the `teletrader` function with your user name and password to connect to the TeleTrader Market Data Server. Enter the following command:

```
c = teletrader('myUserName', 'myPassword')
```

- This will create a connection object `c` that can be used by other functions, for example to retrieve data for a security or to later close the connection.

To check the connection to the TeleTrader Market Data Server

- Use the `isconnection`, `get` and `display` functions to check the connection to the TeleTrader Market Data Server.
- The `isconnection` function verifies whether a connection to the TeleTrader Market Data Server is valid:

```
isconnection(c)

ans =

     1
```

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- The `get` function retrieves specific properties of a connection object, such as IP address and port:

```
get(c, {'IP', 'Port'})

ans =

    'IP'      'mds.ttweb.net'
    'Port'    [         2088]
```

- The `display` function retrieves all properties of a connection object.

```
display(c)
```

To disconnect from the TeleTrader Market Data Server

- Use the `close` function to disconnect from the TeleTrader Market Data Server:

```
close(c)
```

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Retrieving Financial Data

There are several methods to retrieve financial data with the TeleTrader Toolbox for MATLAB®. Use any of the functions listed below to get current data, historical data in different compressions (daily, weekly, monthly), intraday data compressed to minute bars, raw tick data; or subscribe to a symbol to retrieve ticking real-time data and use it in other MATLAB functions.

Before you can start retrieving data, you must first establish a valid connection to the TeleTrader Market Data Server (see Connecting to the TeleTrader Market Data Server on page 4).

teletrader.getdata	Retrieve current data
teletrader.history	Retrieve historical data
teletrader.timeseries	Retrieve tick or intraday data
teletrader.realtime	Retrieve real-time data
teletrader.stop	Unsubscribe a symbol to stop real-time data retrieval
teletrader.lookup	Search for TeleTrader symbols / securities
teletrader.fetch	Alternative way to retrieve current or historical data. Not recommended, use `getdata` or `history` instead.

The following examples show you how to retrieve financial data for different timeframes.

To look up a symbol

- Connect to the TeleTrader Market Data Server and create a connection object named `c`:

```
c = teletrader('myUserName', 'myPassword')
```

- Use the `lookup` function to search for the Google stock on NASDAQ:

```
goog = lookup(c, 'GOOG', 'Stock', 'NASDAQ')

goog =

    'GOOG_1061SPC'    '{1947579}'    'Google Inc.'
    'US38259P5089'    'Stock'        'NASDAQ'       'GOOG'
```

- The search result shows the symbol's unique name, symbol ID, name, ISIN, security type, exchange and ticker. You can use the unique name (`GOOG_1061SPC`) or the symbol ID (`{1947579}`) to retrieve current, historical, tick, intraday or real-time data for the Google stock.

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To retrieve current data

- Use the `getdata` function to retrieve the current *Open*, *High*, *Low* and *Last* prices for the Google stock on NASDAQ, using the symbol ID `{1947579}` that you have looked before up:

```
goog_current = getdata(c, '{1947579}', {'Open', 'High', 'Low',
'Last'})

goog_current =

    '1947579'    {4x2 cell}
```

To retrieve historical data

- Use the `history` function to retrieve the timestamp and *Close* price for the Google stock between March 21st and April 1st 2011:

```
goog_hist = history(c, '{1947579}', {'DateTime', 'PClose'},
'2011-03-21', '2011-04-01', 'Daily')

goog_hist =

  1.0e+005 *

   7.345830000000000   0.005765000000000
   7.345840000000000   0.005773200000000
   7.345850000000000   0.005821600000000
   ...
```

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To retrieve intraday data

- Use the `timeseries` function to retrieve today's intraday data, compressed to 5-minute-bars, for the Google stock:

```
goog_5min = timeseries(c, '{1947579}', now, 'Min5', 'TradeGroup')

goog_5min =

  1.0e+005 *

  Columns 1 through 3

   7.346615625000000   0.005228900000000   0.005230000000000
   7.346615659722223   0.005212200000000   0.005214100000000
   7.346615694444445   0.005198316000000   0.005201400000000
   ...

  Columns 4 through 6

   0.005211000000000   0.005213200000000   0.642250000000000
   0.005196800000000   0.005201600000000   0.588980000000000
   0.005190396000000   0.005197600000000   0.326830000000000
   ...
```

To retrieve tick data

- Use the `timeseries` function to retrieve the last price and volume for ticks on March 1st 2011 between 15:00 and 16:00 for the Google stock:

```
goog_ticks = timeseries(c, '{1947579}', {'2011-03-01 15:00:00',
'2011-03-01 16:00:00'}, 'Tick', {'Last', 'VolLast'})

goog_ticks =

    'Trade'    [6.075100000000000e+002]    [ 100]
    'Trade'    [6.073400000000000e+002]    [ 100]
    'Trade'    [6.073600000000000e+002]    [ 100]
    ...
```

Note Timestamps used in the `timeseries` function are always handled as Greenwich Mean Time (GMT).

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To retrieve real-time data

- Use the `realtime` function to subscribe to the Google stock's last price and volume, and send the received data to the custom MATLAB function `mdscallback`:

```
[timer goog] = realtime(c, '{1947579}', {'Last', 'VolLast'},
@mdscallback)
```

- Use the `stop` function to unsubscribe the Google stock:

```
stop(c, timer, goog)
```

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Demos

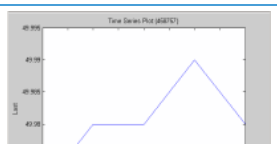
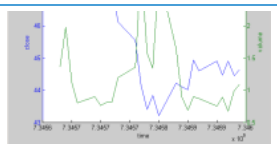
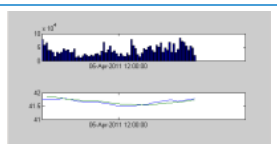
The TeleTrader Toolbox for MATLAB® includes several demos in the form of M-files. Click the **Start** button in MATLAB and choose **Toolboxes > TeleTrader > Demos**.

You can also find them in the following location:

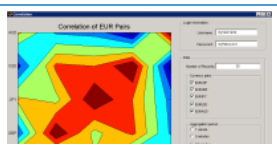
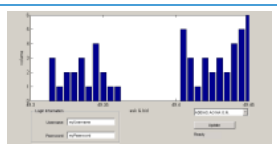
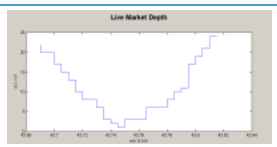
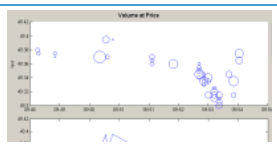
C:\Program Files\TeleTrader\ToolboxforMATLAB\ttdemos

When you run any demo, you will be asked for your TeleTrader user name and password to connect to the TeleTrader Market Data Server.

Command line demos

	**teletrader_demo.m**	Connects to the TeleTrader Market Data Server and performs a series of sample requests.
	**mdscallback.m**	Sample function for real-time requests: Processes real-time data for a subscribed symbol and shows it in a tick chart. See also teletrader.realtime on page 25 .
	**price_and_volume.m**	Retrieves price and volume data for a stock and shows it in a chart.
	**macd_sample.m**	Retrieves price and volume data for a stock and shows it in a chart, including the MACD indicator.

Demos including a graphical user interface (GUI)

	**gui_correlation.m**	Shows the correlation of a set of currency pairs for different data compressions.
	**gui_marketdepth.m**	Shows a snapshot of market depth data for a stock.
	**gui_livemarketdepth.m**	Shows live market depth for a stock.
	**gui_vol_at_price.m**	Shows accumulated volume at certain prices for a certain time period.

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TeleTrader Toolbox for MATLAB® Graphical User Interface

You can use the TeleTrader Toolbox for MATLAB® Graphical User Interface (GUI) to connect to the Market Data Server, query data, search for securities with TeleTrader Symbol Search, select data from a list of available fields and create command line code.

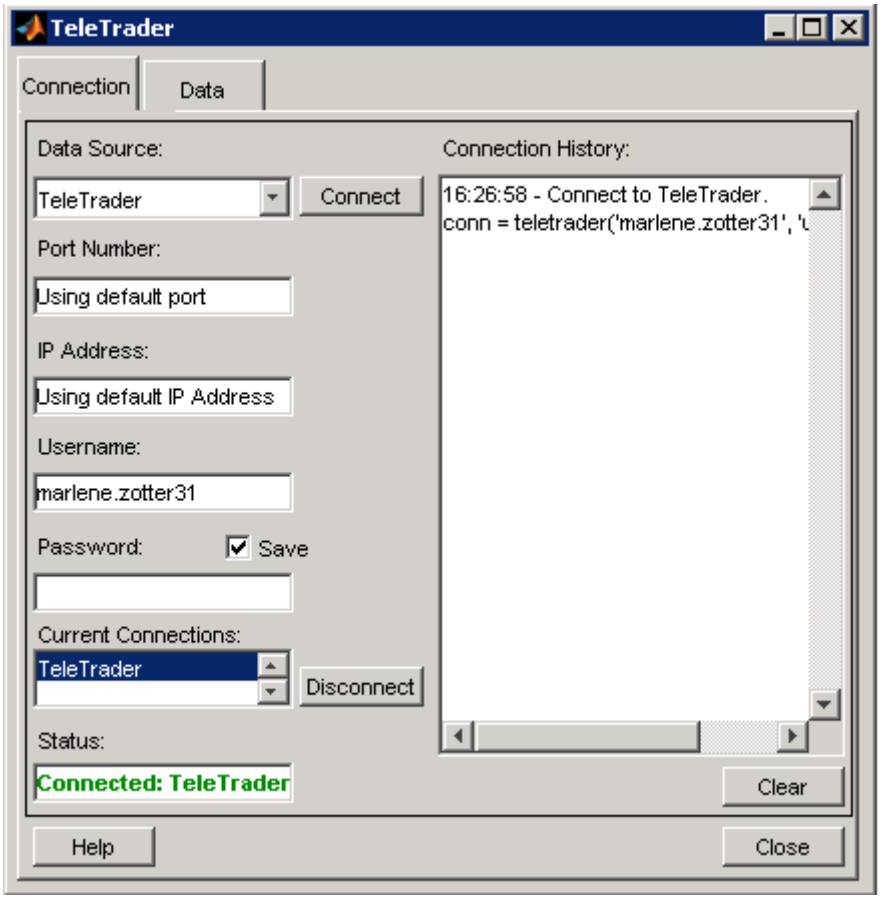
The GUI consist of two dialogs:

- The **TeleTrader** dialog, which lets you connect to the Market Data Server on the **Connection** tab and retrieve data on the **Data** tab.
- The **TeleTrader Symbol Search** dialog, which lets you look up specific symbosl to add them to the **Data** tab of the TeleTrader dialog.

To display the **TeleTrader** dialog, type `tttool` at the MATLAB command line.

Connecting to the Market Data Server with the TeleTrader Dialog

On the **Connection** tab of the TeleTrader dialog you can establish and close a connection to the TeleTrader Market Data Server.



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To connect to the TeleTrader Market Data Server

- Type `tttool` to open the TeleTrader dialog.
- Enter your user name and password in the fields **Username** and **Password**.
- Select **Save** to save your user name and password for later reuse .
- If you must use a different port or IP, enter those in the fields **Port Number** and **IP Address**.
- Click **Connect**.
- The message `Connected: TeleTrader` appears in the **Status** field. You can now start retrieving data on the **Data** tab of the dialog – see Retrieving Financial Data with the TeleTrader Dialog on page 12.

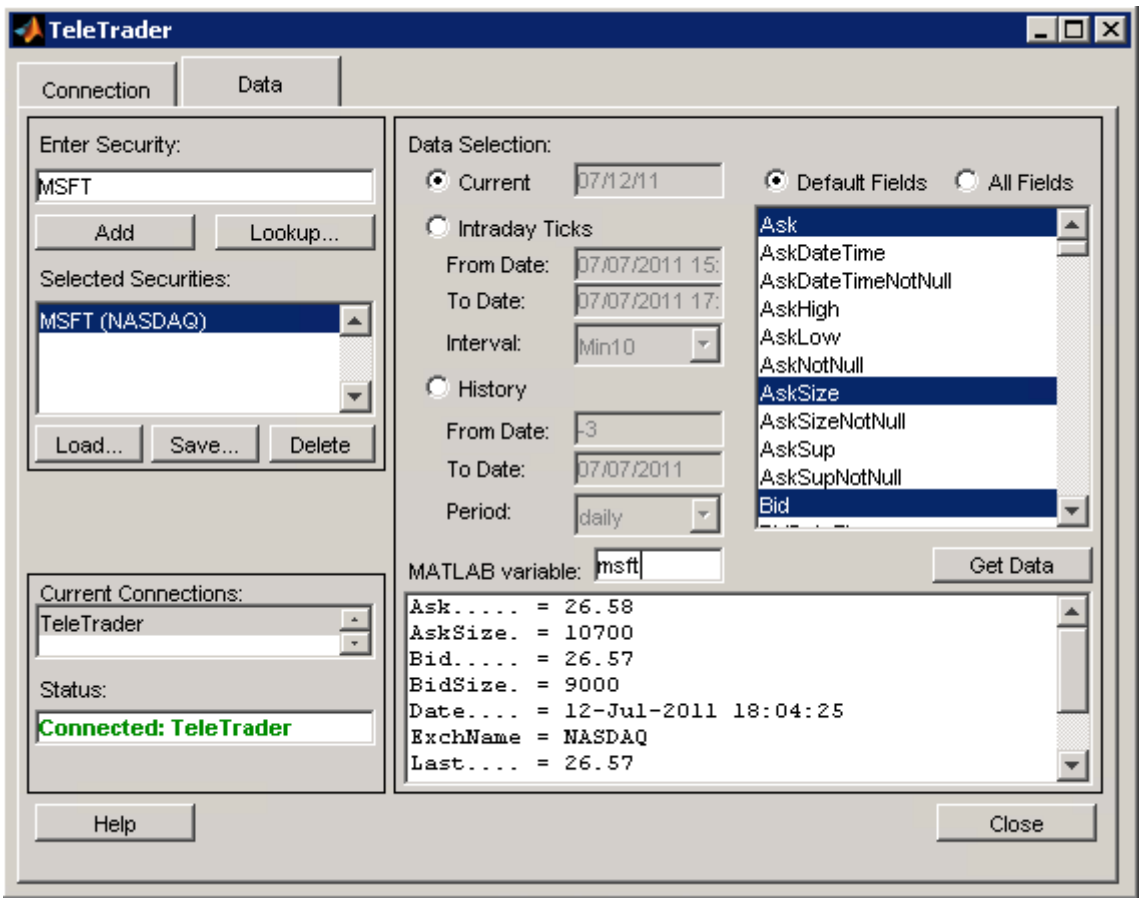
To diconnect from the TeleTrader Market Data Server

- Click **Disconnect** or close the TeleTrader dialog.

Retrieving Financial Data with the TeleTrader Dialog

On the **Data** tab of the TeleTrader dialog you can retrieve current data, historical data in different compressions (daily, weekly, monthly); intraday data compressed to minute bars and raw tick data.

Before you can start retrieving data, you must first establish a valid connection to the TeleTrader Market Data Server (see Connecting to the Market Data Server with the TeleTrader Dialog on page 11).



To retrieve financial data

- Enter the symbol ID or unique name in the field **Enter Security** (for example `{1947579}` or `GOOG_1061SPC`). Or enter the symbol's ticker with the exchange name in brackets, for example `GOOG (NASDAQ)`.

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- Click **Add** to add the symbol to the list of **Selected Securities**.

> **Note** You can also use the **TeleTrader Symbol Search** dialog to look up information about a specific symbol and add it to the **Selected Securities**. See Using the TeleTrader Symbol Search Dialog on page 13.

- In the **Data Selection** group, choose the type of data that you want to retrieve:

Current	Retrieve current data
Intraday Ticks	Retrieve tick or intraday data You can choose the date/time range for which you want to retrieve data (**From Date** and **To Date**) and the period of the retrieved data (**Interval**). The field **FromDate** can also contain the number of records that should be retrieved instead of a date.
History	Retrieve historical data You can choose the date range for which you want to retrieve data (**From Date** and **To Date**) and the period of the retrieved data (**Period**). The field **FromDate** can also contain the number of records that should be retrieved instead of a date.

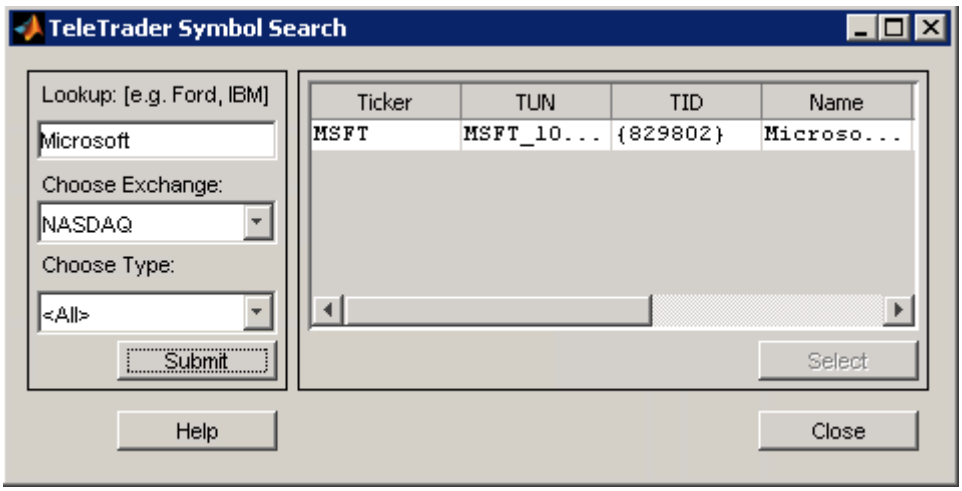
- Choose the fields for which you want to retrieve data:

Default Fields	Select the default fields from the list of available fields
All Fields	Select all fields from the list of available fields You can add or remove fields by holding the CTRL key and clicking on the fields.

- Enter the name of the **MATLAB variable** that should hold the retrieved data.
- Click **Get Data** to retrieve the data from the Market Data Server.

Using the TeleTrader Symbol Search Dialog

The **TeleTrader Symbol Search** dialog can be used to look up information about a specific symbol using its name, ticker symbol or ISIN. The search results can be added to the **Selected Securities** list on the **Data** tab (see Retrieving Financial Data with the TeleTrader Dialog on page 12).



To look up a symbol

- On the **Data** tab of the TeleTrader dialog, click **Lookup**.
- In the **TeleTrader Symbol Search** dialog, enter your search term in the field **Lookup**. This can be the name of a security, its ticker symbol or ISIN.

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- If you want to limit your search, choose an exchange or security type from the **Choose Exchange** and/or **Choose Type** list. If you want to include all exchanges / types, select **<All>**.
- Click **Submit**. The search results are displayed on the right side of the dialog.
- Select a symbol from the list and click **Select**.
- The selected symbol is added to the **Selected Securities** list on the **Data** tab.

Managing Symbol Lists

If you have added symbols to the list of **Selected Seucrities** in the TeleTrader dialog, you can save them in a .mat file for later reuse.

To save a symbol list

- On the **Data** tab of the TeleTrader dialog, add symbols to the list of **Selected Securities** (see Retrieving Financial Data with the TeleTrader Dialog on page 12 and Using the TeleTrader Symbol Search Dialog on page 13).
- Click **Save** to save the symbol list to a .mat file.

To load a symbol list

- On the **Data** tab of the TeleTrader dialog, click **Load**.
- Choose the .mat file that contains a previously saved symbols list.

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Function Reference

The following functions are available in the TeleTrader Toolbox for MATLAB®:

Connection

teletrader	Connect to the TeleTrader Market Data Server
teletrader.isconnection	Verify whether the connection is valid
teletrader.get	Retrieve specific connection properties
teletrader.display	Retrieve all connection properties
teletrader.close	Disconnect from the TeleTrader Market Data Server

Data retrieval

teletrader.getdata	Retrieve current data
teletrader.history	Retrieve historical data
teletrader.timeseries	Retrieve tick or intraday data
teletrader.realtime	Retrieve real-time data
teletrader.stop	Unsubscribe a symbol to stop real-time data retrieval
teletrader.lookup	Search for TeleTrader symbols / securities
teletrader.fetch	Alternative way to retrieve current or historical data. Not recommended, use `getdata` or `history` instead.

teletrader

This function is used to connect to the TeleTrader Market Data Server (MDS). The created connection object `conn` must be used subsequently in all other functions.

Note If you receive the error **TeleTrader Toolbox for MATLAB® not activated for this user account** after trying to connect to the TeleTrader Market Data Server, please contact our support team (see Customer Support on page 39).

Syntax

```
conn = teletrader('UserName', 'Password')
conn = teletrader('UserName', 'Password', 'IP', 'Port')
```

Arguments

`'UserName'`	Your TeleTrader MDS user name.
`'Password'`	Your TeleTrader MDS password.
`'IP'`	**Optional.** The URL / IP address used to connect to the TeleTrader MDS. **Default:** `'mds.ttweb.net'`
`'Port'`	**Optional.** The port number used to connect to the TeleTrader MDS.

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	Default: `'2088'`

Description

- `conn = teletrader('UserName', 'Password')` creates a connection object `conn` with the TeleTrader user name `'UserName'` and password `'Password'`.
- `conn = teletrader('UserName', 'Password', 'IP', 'Port')` creates the connection object `conn` using the given `'UserName'`, `'Password'`, `'IP'` and `'Port'`.

Example

Establishing a connection to the TeleTrader Market Data Server:

```
c = teletrader('myUserName', 'myPassword')
```

teletrader.close

This function is used to disconnect from the TeleTrader Market Data Server.

Syntax

```
close(conn)
```

Arguments

`conn`	Connection object created with the `teletrader` function.

Description

- `close(conn)` closes the connection `conn` to the TeleTrader Market Data Server.

Example

Establishing a connection to the TeleTrader Market Data Server:

```
c = teletrader('myUserName', 'myPassword')
```

Closing the connection `c`:

```
close(c)
```

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teletrader.display

This function is used to retrieve the connection properties of a TeleTrader connection object. Returns a cell array with the user name, IP address and port number used in the connection. See also teletrader.get on page 19.

Syntax

```
display(conn)
```

Arguments

`conn`	Connection object created with the `teletrader` function.

Description

- `display(conn)` returns all available connection properties for the connection `conn`.

Example

Establishing a connection to the TeleTrader Market Data Server:

```
c = teletrader('myUserName', 'myPassword')
```

Retrieving the connection properties for the connection `c`:

```
value = display(c)
```

teletrader.fetch

This function can be used to retrieve current or historical data. It has been implemented for compatibility with other data feed providers. We recommend using `teletrader.getdata` or `teletrader.history` instead (see also `teletrader.getdata` on page 20 and `teletrader.history` on page 21).

Syntax

```
fetch(conn, 'Symbol', 'Field')
fetch(conn, 'Symbol', 'Field', 'Date')
fetch(conn, 'Symbol', 'Field', 'FromDate', 'ToDate')
fetch(conn, 'Symbol', 'Field', 'FromDate', 'ToDate', 'Period')
```

Arguments

`conn`	Connection object created with the `teletrader` function.
`'Symbol'`	A string containing the identification of TeleTrader symbols. You can either use the symbol's ID (for example `{829802}`) or its unique name (for example `MSFT_1061SPC`). See also

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	TeleTrader Symbols on page 30. To look up the ID or unique name of a symbol, see `teletrader.lookup` on page 23.
`'Field'`	A string or cell array of strings containing the field(s) for which you want to retrieve data. If no date or time region is given, you can use all fields supported by `teletrader.getdata` (see `teletrader.getdata` on page 20). If a single date or date range is given, you can use all fields supported by `teletrader.history` (see `teletrader.history` on page 21). You can also pass an empty array `[]` – the default fields will then be used.
`'Date'`	**Optional.** Date for which historical daily data should be retrieved (day, month, year). If not set, current data is returned (similar to the `getdata` function).
`'FromDate'`	**Optional.** Start date for the time region that should be retrieved (day, month, year). If not set, current data is returned (similar to the `getdata` function).
`'ToDate'`	**Optional.** End date for the time region that should be retrieved (day, month, year). If not set, current data is returned (similar to the `getdata` function).

`'Period'`	**Optional.** Period of the retrieved data. Valid periods are:
	`'Daily'`
	`'Weekly'`
	`'Monthly'`
	Default: `'Daily'`

Description

- `fetch(conn, 'Symbol', 'Field')` returns current data for the given security `'Symbol'` and the fields `'Field'`, using the connection `conn`.
- `fetch(conn, 'Symbol', 'Field', 'Date')` returns daily data for the given security `'Symbol'`, the fields `'Field'` and the date `'Date'`.
- `fetch(conn, 'Symbol', 'Field', 'FromDate', 'ToDate')` returns daily data for the given security `'Symbol'`, the fields `'Field'` and the date range defined by `'FromDate'` and `'ToDate'`.
- `fetch(conn, 'Symbol', 'Field', 'FromDate', 'ToDate', 'Period')` returns historical data for the given security `'Symbol'`, the fields `'Field'` and the date range defined by `'FromDate'` and `'ToDate'`, using the given period `'Period'`.

Examples

Retrieving current data – gives same results as similar `getdata` function:

```
f = fetch(c, '{829802}', 'Last')
```

Retrieving daily data for a specific date – gives same results as similar `history` function:

```
f = fetch(c, '{829802}', {'High', 'Low'}, '2011-04-05')
```

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Retrieving daily data for a time range – gives same results as similar `history` function:

```
f = fetch(c, '{829802}', {'High', 'Low'}, '2011-01-01', '2011-01-31')
```

Retrieving weekly data for a time range – gives same results as similar `history` function:

```
f = fetch(c, '{829802}', {'High', 'Low'}, '2011-01-01', '2011-04-01', 'Weekly')
```

teletrader.get

This function is used to retrieve the connection properties of a TeleTrader connection object. Returns a cell array with the requested property values.

Syntax

```
get(conn)
get(conn, 'Property')
```

Arguments

`conn`	Connection object created with the `teletrader` function.

`'Property'`	**Optional.** A string or cell array of strings containing one or more property names. Available properties are:
	`'UserName'`
	`'IP'`
	`'Port'`
	`'Version'`
	Default: Returns all available properties.

Description

- `get(conn)` returns all available connection properties for the connection `conn`.
- `get(conn, 'Property')` returns the specified properties `'Property'` for the connection `conn`.

Example

Establishing a connection to the TeleTrader Market Data Server:

```
c = teletrader('myUserName', 'myPassword')
```

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Retrieving IP address and port number for the connection `c`:

```
value = get(c, {'IP', 'Port'})
```

teletrader.getdata

This function is used to retrieve current data for a symbol or set of symbols. Returns a cell array with the requested symbol names or IDs in the first column and the retrieved fields in the second column. For the retrieved fields, the cell array contains the field name and field value.

Syntax

```
getdata(conn, 'Symbol')
getdata(conn, 'Symbol', 'Field')
```

Arguments

`conn`	Connection object created with the `teletrader` function.
`'Symbol'`	A string or cell array of strings containing the identification of TeleTrader symbols. You can either use the symbol's ID (for example `{829802}`) or its unique name (for example `MSFT_1061SPC`). See also TeleTrader Symbols on page 30. To look up the ID or unique name of a symbol, see `teletrader.lookup` on page 23.
`'Field'`	**Optional.** A string or cell array of strings containing the field(s) for which you want to retrieve data. For a list of supported fields, type `help fids` or open `tttypes.mat`. You can also retrieve market depth data for some exchanges. See also Available Fields - getdata on page 33. **Default:** If not set, returns data for the following fields: `'Last', 'Bid', 'Ask', 'Ticker', 'Name', 'Vol', 'BidSize', 'AskSize', 'DateTime', 'ExchName'`

Description

- `getdata(conn, 'Symbol')` returns current data for the given security `'Symbol'` or a list of securities, using the connection `conn`. Returns data for the following fields: `'Last', 'Bid', 'Ask', 'Ticker', 'Name', 'Vol', 'BidSize', 'AskSize', 'DateTime', 'ExchName'`
- `getdata(conn, 'Symbol', 'Field')` returns current data for the given security `'Symbol'` with the fields `'Field'`.

Examples

Retrieving default data for the given security with connection `c`, using the symbol's unique name:

```
data = getdata(c, 'MSFT_1061SPC')
```

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Retrieving default data for the given security, using the symbol's ID:

```
data = getdata(c, '{829802}')
```

Retrieving the current `Last` price for a list of securities:

```
data = getdata(c, {'{829802}', '{1947579}'}, 'Last' )
```

Retrieving a custom list of fields for the given security:

```
data = getdata(c, '{829802}', {'Open', 'High', 'Low', 'Last'})
```

Retrieving market depth data (Bid and Ask on the top depth level) for the given security:

```
data = getdata(c, '{458955}', {'MDBid[0]', 'MDAsk[0]'})
```

teletrader.history

This function is used to retrieve historical data for a symbol. Requested data is returned as a matrix.

Syntax

```
history(conn, 'Symbol', 'Field', 'FromDate', 'ToDate')
history(conn, 'Symbol', 'Field', -NumRecords, 'ToDate')
history(conn, 'Symbol', 'Field', 'FromDate', 'ToDate', 'Period')
history(conn, 'Symbol', 'Field', -NumRecords, 'ToDate', 'Period')
```

Arguments

`conn`	Connection object created with the `teletrader` function.
`'Symbol'`	A string containing the identification of TeleTrader symbols. You can either use the symbol's ID (for example `{829802}`) or its unique name (for example `MSFT_1061SPC`). See also TeleTrader Symbols on page 30. To look up the ID or unique name of a symbol, see `teletrader.lookup` on page 23.
`'Field'`	A string or cell array of strings containing the field(s) for which you want to retrieve data. For a list of supported fields, type `help fids` or open `tttypes.mat`. See also Available Fields - history on page 36. You can also pass an empty array `[]` – the field group `'TradeGroup'` will then be used by default.
`'FromDate'`	Start date for the time region that should be retrieved (day, month, year). You can use `NumRecords` instead of this argument.
`-NumRecords`	Number of records that should be retrieved. Must be a negative number. This argument can

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	be used instead of `'FromDate'` to specify the number of records that should be retrieved up to a certain date defined by `'ToDate'`.
`'ToDate'`	End date for the time region that should be retrieved (day, month, year).

`'Period'`	**Optional.** Period of the retrieved data. Valid periods are:
	`'Daily'`
	`'Weekly'`
	`'Monthly'`
	Default: `'Daily'`

Description

- `history(conn, 'Symbol', 'Field', 'FromDate', 'ToDate')` returns daily data for the given security `'Symbol'`, the fields `'Field'` and the date range defined by `'FromDate'` and `'ToDate'`, using the connection `conn`.
- `history(conn, 'Symbol', 'Field', -NumRecords, 'ToDate')` returns `NumRecords` records of daily data for the given security `'Symbol'` and the fields `'Field'`, up to the date specified with `'ToDate'`.
- `history(conn, 'Symbol', 'Field', 'FromDate', 'ToDate', 'Period')` returns historical data for the given security `'Symbol'`, the fields `'Field'` and the date range defined by `'FromDate'` and `'ToDate'`, using the given period `'Period'`.
- `history(conn, 'Symbol', 'Field', -NumRecords, 'ToDate', 'Period')` returns `NumRecords` records of historical data for the given security `'Symbol'` and the fields `'Field'`, up to the date specified with `'ToDate'`, using the given period `'Period'`.

Examples

Retrieving daily Trade data of the last five days for the given security with connection `c`, using the symbol's unique name:

```
hist = history(c, 'MSFT_1061SPC', 'TradeGroup', now-5, now)
```

Retrieving daily Bid data for a specific time region, using the symbol's ID:

```
hist = history(c, '{829802}', 'BidGroup', '2011-01-01', '2011-03-
01')
```

Retrieving 30 records of daily data with a custom list of fields, up to a certain date (the last retrieved record is from March 1st 2011):

```
hist = history(c, '{829802}', {'Date', 'High', 'Low'}, -30,
'2011-03-01')
```

Retrieving weekly data with a custom list of fields for a specific time region:

```
hist = history(c, '{829802}', {'Open', 'AskOpen', 'BidOpen'},
'2011-01-01', '2011-03-01', 'Weekly')
```

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Retrieving 12 records of monthly data with a custom list of fields, up to the current date:

```
hist = history(c, '{829802}', {'Date', 'PClose'}, -12, now,
'Monthly')
```

teletrader.isconnection

This function is used to verify whether a connection to the TeleTrader Market Data Server (MDS) is valid. It returns `x = 1` (true) if the connection to the TeleTrader MDS is valid, and `x = 0` (false) otherwise.

Syntax

```
isconnection(conn)
```

Arguments

`conn`	Connection object created with the `teletrader` function.

Description

- `x = isconnection(conn)` returns `x = 1` (true) if the connection `conn` is valid, and `x = 0` (false) otherwise.

Example

Establishing a connection to the TeleTrader Market Data Server:

```
c = teletrader('myUserName', 'myPassword')
```

Verifying that the connection `c` is valid:

```
x = isconnection(c)
```

teletrader.lookup

This function is used to search for certain attributes of TeleTrader symbols / securities. Search results are returned as a cell array containing the symbol's unique name, symbol ID, name, ISIN, security type, exchange and ticker.

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Syntax

```
lookup(conn, 'SearchString')
lookup(conn, 'SearchString', 'Type')
lookup(conn, 'SearchString', 'Type', 'Exchange')
```

Arguments

`conn`	Connection object created with the `teletrader` function.
`'SearchString'`	A search string, containing a name, ticker, ISIN or WKN.

`'Type'`	**Optional.** A string or cell array of strings containing the security type(s) that you want to include in your search. Valid types are:
	`'Stock'`
	`'Future'`
	`'Index'`
	`'Currency'`
	`'Warrant'`
	`'Bond'`
	`'MutualFund'`
	`'InterestRate'`
	`'Option'`
	`'PutOption'`
	`'CallOption'`
	`'Certificate'`
	
	Default: If no security type is specified, all types will be included in the search.

`'Exchange'`	**Optional.** A string or cell array of strings containing the name of the exchanges that should be included in the search. **Default:** If no exchange is specified, all markets will be included in the search.

Description

- `lookup(conn, 'SearchString')` returns search results for the search string `'SearchString'`, using the connection `conn`. The search string can contain a symbol's name, ticker, ISIN or WKN.
- `lookup(conn, 'SearchString', 'Type')` returns search results for the search string `'SearchString'`, restricted to the given security types `'Type'`.
- `lookup(conn, 'SearchString', 'Type', 'Exchange')` returns search results for the search string `'SearchString'`, restricted to the given security types `'Type'` and the given list of exchanges `'Exchange'`.

Examples

Searching for the MSFT ticker on all available exchanges:

```
searchresult = lookup(c, 'MSFT')
```

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Searching for Soybean futures:

```
searchresult = lookup(c, 'ZS', 'Future')
```

Searching for the Siemens stock and Siemens Put options on the exchanges Xetra and Eurex:

```
searchresult = lookup(c, 'DE0007236101', {'Stock', 'PutOption'},
{'Xetra', 'Eurex'})
```

teletrader.realtime

This function is used to retrieve real-time data for a symbol. Returns a `timer` object and a `symbol` string, which are needed for unsubscribing (stopping real-time data retrieval, see `teletrader.stop` on page 26). The received data can be displayed on the console or processed with a MATLAB function.

Syntax

```
[timer symbol] = realtime(conn, 'Symbol', {'Field'})
[timer symbol] = realtime(conn, 'Symbol', {'Field'}, callback)
```

Arguments

`conn`	Connection object created with the `teletrader` function.
`'Symbol'`	A string containing the identification of TeleTrader symbols. You can either use the symbol's ID (for example `{829802}`) or its unique name (for example `MSFT_1061SPC`). See also TeleTrader Symbols on page 30. To look up the ID or unique name of a symbol, see `teletrader.lookup` on page 23.
`'Field'`	A cell array of strings containing the field(s) for which you want to retrieve data. For a list of supported fields, type `help fids` or open `tttypes.mat`. You can also retrieve market depth data for some exchanges. See also Available Fields - realtime on page 33.
`callback`	**Optional.** MATLAB function that will receive the data with the symbol's unique name and field as arguments. For example: `mycallback(SymbolUN, Fields)` **Default:** If no callback function is specified, the received data will be displayed on the console as it comes in.

Description

- `[timer symbol] = realtime(conn, 'Symbol', {'Field'})` returns real-time data for the given security `'Symbol'` and the fields `'Field'`, using the connection `conn`. The received data will be displayed on the console as it comes in.
- `[timer symbol] = realtime(conn, 'Symbol', {'Field'}, callback)` returns real-time data for the given security `'Symbol'` and the fields `'Field'`, and passes the data to a MATLAB function specified with `callback`. This function will receive the data with the symbol's unique name and field as arguments. For example: `mycallback(SymbolUN, Fields)`. The sample function `mdscallback` demonstrates the usage.

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Examples

Subscribing to a given security and showing real-time data for the `Last` price on the console:

```
[timer symbol] = realtime(c, '{829802}', {'Last'})
```

Subscribing to a given security and passing the incoming real-time data on to the function `mdscallback`:

```
[timer symbol] = realtime(c, '{829802}', {'Last'}, @mdscallback)
```

teletrader.stop

This function is used to unsubscribe a symbol, that means to stop real-time data retrieval (see `teletrader.realtime` on page 25).

Syntax

```
stop(conn)
stop(conn, timer, symbol)
```

Arguments

`conn`	Connection object created with the `teletrader` function.
`timer`	Timer object created with the `realtime` function.
`symbol`	A string containing the identification of the subscribed TeleTrader symbol. You must use the same method for identification as when subscribing to the symbol with the `realtime` function, which means you must either use the symbol's ID (for example `{829802}`) or its unique name (for example `MSFT_1061SPC`) in both calls.

Description

- `stop(conn)` unsubscribes all previously subscribed symbols for the connection `conn`.
- `stop(conn, timer, symbol)` unsubscribes a specific symbol `symbol` with the timer object `timer`.

Example

Subscribing to a given security and showing real-time data for the `Last` price on the console:

```
[timer symbol] = realtime(c, 'MSFT_1061SPC', 'Last')
```

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Unsubscribing the above security to stop real-time data retrieval:

```
stop(c, timer, symbol)
```

teletrader.timeseries

This function is used to retrieve tick or intraday data for a symbol. Data is returned as a cell array.

Note Timestamps used in the `timeseries` function are always handled as Greenwich Mean Time (GMT).

Syntax

```
timeseries(conn, 'Symbol', 'Date')
timeseries(conn, 'Symbol', {'FromDateTime', 'ToDateTime'})
timeseries(conn, 'Symbol', {-NumRecords, 'ToDateTime'})
timeseries(conn, 'Symbol', 'Date', 'Period')
timeseries(conn, 'Symbol', {'FromDateTime', 'ToDateTime'},
'Period')
timeseries(conn, 'Symbol', {-NumRecords, 'ToDateTime'}, 'Period')
timeseries(conn, 'Symbol', 'Date', 'Period', 'Field')
timeseries(conn, 'Symbol', {'FromDateTime', 'ToDateTime'},
'Period', 'Field')
timeseries(conn, 'Symbol', {-NumRecords, 'ToDateTime'}, 'Period',
'Field')
```

Arguments

`conn`	Connection object created with the `teletrader` function.
`'Symbol'`	A string containing the identification of TeleTrader symbols. You can either use the symbol's ID (for example `{829802}`) or its unique name (for example `MSFT_1061SPC`). See also TeleTrader Symbols on page 30. To look up the ID or unique name of a symbol, see `teletrader.lookup` on page 23.
`'Date'`	Single date `'Date'`, or date / time range in the form `{'FromDateTime', 'ToDateTime'}` (day, month, year, hours, minutes). When a single date is used, all tick or intraday data for this day will be retrieved (00:00:00 – 23:50:59). When a date / time range is used, `'FromDateTime'` gives the start date and time, and `'ToDateTime'` gives the end date and time for the time region that should be retrieved. You can use `NumRecords` instead of this `'FromDateTime'` to retrieve a fixed number of records.
`-NumRecords`	Number of records that should be retrieved. Must be a negative number. This argument can be used instead of `'FromDateTime'` to specify the number of records that should be retrieved up to a certain point in time defined by `'ToDateTime'`.
`'Period'`	**Optional.** Period of the retrieved data. Valid periods are: `'Min1'` 1-minute-bars `'Min2'` 2-minute-bars `'Min3'` 3-minute-bars

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	`'Min4'`	4-minute-bars
	`'Min5'`	5-minute-bars
	`'Min6'`	6-minute-bars
	`'Min10'`	10-minute-bars
	`'Min12'`	12-minute-bars
	`'Min15'`	15-minute-bars
	`'Min20'`	20-minute-bars
	`'Min30'`	30-minute-bars
	`'Min60'`	60-minute-bars
	`'Tick'`	raw tick data
	Default: `'Tick'`	
	You can also pass an empty array `[]` – the default period `'Tick'` will then be used.	
`'Field'`	**Optional.** A string or cell array of strings containing the field(s) for which you want to retrieve data. For a list of supported fields, type `help fids` or open `tttypes.mat`. See also Available Fields - timeseries on page 37.	
	Default: If not set, returns data for pre-defined field set `'TradeGroup'`.	

Description

- `timeseries(conn, 'Symbol', 'Date')` returns all tick data for the given security `'Symbol'` and the date `'Date'` (00:00:00 to 23:59:59 on the given day), using the connection `conn`.
- `timeseries(conn, 'Symbol', {'FromDateTime', 'ToDateTime'})` returns tick data for the given security `'Symbol'` and the time period defined by `'FromDateTime'` and `'ToDateTime'`.
- `timeseries(conn, 'Symbol', {-NumRecords, 'ToDateTime'})` returns `NumRecords` records of tick data for the given security `'Symbol'` up to the time specified with `'ToDateTime'`.
- `timeseries(conn, 'Symbol', 'Date', 'Period')` returns intraday data for the given security `'Symbol'` and the date `'Date'`, using the given period `'Period'`.
- `timeseries(conn, 'Symbol', {'FromDateTime', 'ToDateTime'}, 'Period')` returns intraday data for the given security `'Symbol'` and the time period defined by `'FromDateTime'` and `'ToDateTime'`, using the given period `'Period'`.
- `timeseries(conn, 'Symbol', {-NumRecords, 'ToDateTime'}, 'Period')` returns `NumRecords` records of intraday data for the given security `'Symbol'` up to the time specified with `'ToDateTime'`, using the given period `'Period'`.
- `timeseries(conn, 'Symbol', 'Date', 'Period', 'Field')` returns tick or intraday data for the given security `'Symbol'` and the date `'Date'`, using the given period `'Period'`, for the fields specified by `'Field'`.
- `timeseries(conn, 'Symbol', {'FromDateTime', 'ToDateTime'}, 'Period', 'Field')` returns tick or intraday data for the given security `'Symbol'` and the time period defined by `'FromDateTime'` and `'ToDateTime'`, using the given period `'Period'`, for the fields specified by `'Field'`.
- `timeseries(conn, 'Symbol', {-NumRecords, 'ToDateTime'}, 'Period', 'Field')` returns `NumRecords` records of tick or intraday data for the given security `'Symbol'` up to the time specified with `'ToDateTime'`, using the given period `'Period'`, for the fields specified by `'Field'`.

Examples

Retrieving all tick data for a certain day for the given security with connection `c`, using the symbol's unique name:

```
ts = timeseries(c, 'MSFT_1061SPC', '2011-03-11')
```

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Retrieving tick data for a specific time region for the given security with connection `c`, using the symbol's ID:

```
ts = timeseries(c, '{829802}', {'2011-03-11 15:30:00', '2011-03-
11 16:00:00'})
```

Retrieving the latest 10 records of tick data:

```
ts = timeseries(c, '{829802}', {-10, now})
```

Retrieving all intraday data for a certain day in 10-minute-bars:

```
ts = timeseries(c, '{829802}', '2011-03-11', 'Min10')
```

Retrieving intraday data in 5-minute-bars for a specific time region:

```
ts = timeseries(c, '{829802}', {'2011-03-14 00:00:00', now},
'Min5')
```

Retrieving the latest 100 records of 5-minute-bars:

```
ts = timeseries(c, '{829802}', {-100, now}, 'Min5')
```

Retrieving only the Close prices for a certain day in 10-minute-bars:

```
ts = timeseries(c, '{829802}', '2011-03-11', 'Min10', 'PClose')
```

Retrieving intraday data in 60-minute-bars with a custom list of fields:

```
ts = timeseries(c, '{829802}', {'2011-03-14 00:00:00', now},
'Min60', {'High', 'Low'})
```

Retrieving the latest 5 records of 60-minute-bars for the pre-defined field list `BidGroup`:

```
ts = timeseries(c, '{829802}', {-5, now}, 'Min60', 'BidGroup')
```

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TeleTrader Symbols

When retrieving financial data, you have to specify the internal identification of the TeleTrader symbol for which you want to get data. A symbol is the unique identification given to every security that is traded on an exchange or over-the-counter market (for example stocks, futures, options, indices and other types of securities).

You can either use the symbol identification number (for example `{829802}`) or its unique name (for example `MSFT_0FSPC`). To find out the identification of a symbol, you can either use the `lookup` function (see teletrader.lookup on page 23), or you can display the necessary information in TeleTrader Professional price pages. The symbol ID is also visible in the **Chart Properties** dialog for a symbol in TeleTrader Professional.

For futures contracts, additional functionality is available to create forwards and continuous contracts.

> **Note** We recommend to use symbol IDs, as unique names are subject to change (for example due to changes on the side of the exchanges).

Symbol identification numbers and unique names

To display the symbol ID in TeleTrader Professional price pages

- Start TeleTrader Professional and log in to your user account.
- Open a price page for the symbol(s) that you are interested in. You can for example use the QuickBar:
  - Click an icon in the **QuickBar**.
  - In the menu that appears, select the group that you want to open, for example **NASDAQ 100**.
  - In the submenu, select **All Symbols**.
  - All symbols of this group are displayed in a price page.
- Click in the row of the symbol and press F2. The symbol ID is displayed and can be copied from here.

To display symbol ID and unique name in separate price page columns

- Right-click the price page and choose **Properties**
- In the **Price Page Properties** dialog, click **Columns**.
- From the **Available Columns** list, choose the column **TID** (for symbol ID) or **TUN** (for symbol unique name).

> **Note** To search for a column, type its name into the **Filter** field below the list.

- Click the **>>** button.
- The chosen column is now moved to the **Displayed Columns** list and is visible in the price page.
- You can copy the symbol ID or unique name by right-clicking the cell and choosing **Copy as Text**.

Forwards and continuous contracts

For futures symbols, you can use special syntax to create:

- **Forwards**, which means that you always retrieve data for the current front month or any defined forward month.
- **Continuous contracts**, which means that you combine data from several futures contracts using various continuation settings to roll over from one contract to the next.

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To create forwards and continuous contracts, you have to use the root symbol of a futures contract. Like with normal symbols, root symbols have both a root symbol identification number and a unique name.

You can display the root symbol's unique name (**TRUN**) in TeleTrader Professional price pages. You can also copy forwards and continuous contracts from futures price pages in TeleTrader Professional by using F2.

To copy forwards and continuous contracts from price pages

- Open a price page with forwards or continuous contracts from the QuickBar, for example the **Commodities Futures Overview** or a similar price page.
- Click in the row of the continuous contract or forward that you want to use and press F2. The root symbol ID and correct syntax is displayed and can be copied from here. For more information about the syntax used for continuous contracts and forwards, see further below.

To display the root symbol's unique name in a price page column

- Right-click the price page and choose **Properties**
- In the **Price Page Properties** dialog, click **Columns**.
- From the **Available Columns** list, choose the column **TRUN**.
- Click the **>>** button.
- The chosen column is now moved to the **Displayed Columns** list and is visible in the price page.
- You can copy the unique name by right-clicking the cell and choosing **Copy as Text**.

Syntax for forwards

Forwards are created by adding a pound sign # before the root symbol identification, and adding the desired forward month behind the symbol. The front month is given with 1-, the following month with 2- and so on.

`#Symbol`	Identification of the futures' root symbol. You can use the symbol ID or unique name.

`;1-`
`;2-`
`...`
	Forward month. `;1-` is the front month, `;2-` the following month and so on.

To get the front month of Soybeans on CBOT, e.g. ZS 05/2011, you can use the root symbol ID as copied from a price page in TeleTrader Professional:

```
#{866918};1-
```

The following month of Soybeans on CBOT, e.g. ZS 07/2011, can be specified in the following way:

```
#{866918};2-
```

The same request using the root symbol's unique name for Soybeans:

```
#F2:ZS_15U_SPC;2-
```

Syntax for continuous contracts

Continuous contracts are created by adding a percent sign % before the root symbol identification, and adding the desired continuation settings behind the symbol as shown in the table below.

`%Symbol`	Identification of the futures' root symbol. You can use the symbol ID or unique name.

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`;FGHJKMNQUVXZn-`	Contract expiration months that are used for creating the continuous contract. Can be any ordered subset of `FGHJKMNQUVXZ`. `n-` specifies the forward month, with `1-` being the front month, `2-` the following month and so on.
Trigger	Condition that is used to trigger the rollover into the next contract.
`;TR0DnXM0`	**Expiration date**: Rollover will occur `n` days before the expiration date.
`;TR0DnBMm`	**Beginning of month**: Rollover will occur `n` days after the start of the month in which the front month contract expires and `m` months before the expiration month.
`;TR0DnEMm`	**End of month**: Rollover will occur `n` days before the end of the month in which the front month contract expires and `m` months before the expiration month.
`;TR1`	**Open Interest**: Rollover will be triggered when the open interest of the next contract is higher than the open interest of the front month contract.
`;TR2`	**Volume**: Rollover will be triggered when the volume of the next contract is higher than the volume of the front month contract.
`;TR3`	**Open interest and volume**: Rollover will be triggered when both open interest and volume of the next contract are higher than the open interest and volume of the front month contract.
`;TR4`	**Open interest or volume**: Rollover will be triggered when either open interest or volume of the next contract are higher than the open interest or volume of the front month contract.
Timing	**Optional.** Determines when the rollover takes place as soon as the trigger condition is met.
`;T0`	**Anticipate**: Rollover will occur on the exact date that you specify in the trigger settings.
`;T1`	**Align with price data**: Rollover will occur on the day after the rollover was triggered with an open interest or volume trigger. The day after the trigger will already start with the *Open* price of the new contract.
`;T2`	**When known**: Rollover will occur two days after the rollover was triggered with an open interest or volume trigger. The day after the trigger will still show the prices of the old contract, the *Open* price of the new contract will start the following day.
	Default: `;T1`
Pricing	**Optional.** Determines how the price difference between the old and the new contract is calculated to splice the contracts together.
`;PCC`	**Close old contract, close new contract**: The *Close* price of the current contract is compared with the *Close* price of the previous contract on the same day.
`;POO`	**Open old contract, open new contract**: The *Open* price of the current contract is compared with the *Open* price of the previous contract on the same day.
`;PCO`	**Close old contract, open new contract**: The *Open* price of the current contract is compared with the *Close* price of the previous contract from the previous day.
	Default: `;PCC`
Accumulation	**Optional.** Determines if the prices of older contracts are adjusted to the current contract, and in what way.

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	`;AB`	**Back adjust**: The absolute price difference between the current contract and the previous contract is added to or subtracted from all older contracts.
	`;AP`	**Percentage adjust**: The price difference between the current contract and previous contract is calculated as a percentage. The prices of older contracts are adjusted by this percentage.
	`;AN`	**No adjustment**: The prices of older contracts are not adjusted to the price of the current contract. Gaps may be visible in the chart on rollover.
	Default: `;AB`	
Confirmation	**Optional**. Details for the open interest or volume rollover conditions.	
	`;C1`	Roll on first trigger
	`;C2`	Roll on second consecutive trigger
	`;C3`	Roll on third consecutive trigger
	`;C4`	Roll on fourth consecutive trigger
	Default: `;C1`	

For example, the following FDAX continuous contract uses the root symbol ID of DAX Futures. Rollover will occur 2 days before the expiration date:

```
%{413719};FGHJKMNQUVXZ1-;TR0D-2XM0;T1;PCC;AB
```

If rollover should be triggered by open interest instead, a different trigger setting must be used:

```
%{413719};FGHJKMNQUVXZ1-;TR1;T1;PCC;AB;C1
```

Available Fields

Depending on the function used, you can retrieve different kinds of data fields. You can also see a list of this fields by typing `help fids` at the MATLAB command line or by opening the file `tttypes.mat`.

For many fields, you can also use alternative names (alias) – for example, you can also use `Stock_Exchange` or `EXCH_CODE` instead of `ExchName`. The available alias names are listed in `tttypes.mat`.

getdata and realtime

The following fields can be used for current data in the functions `teletrader.getdata`, `teletrader.fetch` and `teletrader.realtime`. For market depth data, add the depth level that you want to retrieve in square brackets, for example `MDBid[0]` for the top-most level, `MDBid[1]` for the next level and so on.

`Ask`	Best Ask price
`AskDateTime`	Date and time of the best Ask price
`AskDateTimeNotNull`	Date and time of the best Ask price (never null)
`AskHigh`	Highest Ask from last trading day or session
`AskLow`	Lowest Ask from last trading day or session
`AskNotNull`	Best Ask price (never null)
`AskSize`	Size of the best Ask price

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AskSizeNotNull	Size of the best Ask price (never null)
AskSup	Supplement to the Ask price
AskSupNotNull	Supplement to the Ask price (never null)
Bid	Best Bid price
BidDateTime	Date and time of the best Bid price
BidDateTimeNotNull	Date and time of the best Bid price (never null)
BidHigh	Highest Bid from last trading day or session
BidLow	Lowest Bid from last trading day or session
BidNotNull	Best Bid price (never null)
BidSize	Size of the best Bid price
BidSizeNotNull	Size of the best Bid price (never null)
BidSup	Supplement to the Bid price
BidSupNotNull	Supplement to the Bid price (never null)
Contr	Contributor of the last Bid, Ask and Last price (Forex only)
ContractMonths	Contract months of a futures contract
ContractSizeQuantity	Contract size quantity of a futures contract
ContractSizeUnit	Contract size unit of a futures contract
CuID	The ID of the currency for the symbol
Date	Timestamp of the last price
Decimals	Number of decimal places used for rounding price values
Delay	Delay of the symbol
DailyPriceLimit	Maximum amount a futures contract is allowed to rise or fall on a single trading day
ExchName	Exchange name
ExpDate	Expiration date of futures and options contracts. The time shown is not the time where trading ends!
ExpMonth	Month where the contract expires
ExpYear	Year where the contract expires
FXUnit	Exchange rate unit
High	Highest quote from last trading day or session
IndPrice	Indicative price calculated by the exchange
IndQty	Indicative quantity
ISIN	International Security Identification Number
Kursblatt	The so-called "Kursblatt" number
Last	Last price
LastSup	Supplement to the Last price
LocalID	Identification code used locally on the exchange
LocalIDType	Type of the identification code used locally on the exchange
LongName	Long name of a symbol
Low	Lowest quote from last trading day or session
MarketSeg	Market segment the symbol is traded in
MDAsk[depth_level]	Ask price at the specified market depth level - top level: [0]
MDAskCount[depth_level]	Number of ask orders at the specified market depth level - top level: [0]

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MDAskSize[depth_level]	Ask size at the specified market depth level - top level: [0]
MDBid[depth_level]	Bid price at the specified market depth level - top level: [0]
MDBidCount[depth_level]	Number of bid orders at the specified market depth level - top level: [0]
MDBidSize[depth_level]	Bid size at the specified market depth level - top level: [0]
MinimumTickSize	Minimum price increment of a futures contract
MPh	Indicates the current market phase
Name	Full name of the symbol
NumT	Number of trades or ticks on that day
OI	Number of outstanding contracts at the end of the day
Open	Opening quote from last trading day or session
P2Ask	Ask value at the end of the day before the previous trading day or session
P2AskDateTime	Date/Time of the Ask value at the end of the day before the previous trading day or session
P2Bid	Bid value at the end of the day before the previous trading day or session
P2BidDateTime	Date/Time of the Bid value at the end of the day before the previous trading day or session
P2Close	Close from the day before the previous trading day or session
P2Date	Date from the day before the previous trading day or session
P2High	High from the day before the previous trading day or session
P2Low	Low from the day before the previous trading day or session
P2NumT	Number of trades in the day before the previous trading day or session
P2Open	Open from the day before the previous trading day or session
P2Volume	Volume from the day before the previous trading day or session
PAsk	Ask value at the end of the previous trading day or session
PAskDateTime	Date/Time of the Ask value at the end of the previous trading day or session
PBid	Bid value at the end of the previous trading day or session
PBidDateTime	Date/Time of the Bid value at the end of the previous trading day or session
PChg	Change from the previous trading day or session
PClose	Close from the previous trading day or session
PDate	Date of the previous trading day or session
PHigh	High from the previous trading day or session
PLow	Low from the previous trading day or session
PNumT	Number of trades in the previous trading day or session
POpen	Open from the previous trading day or session
PVolume	Total volume from the previous trading day or session
PointValue	Point value of a futures contract
PriceQuoteDenominator	Denominator for the price quote of a futures contract
Remark	Optional remark for the description of a futures contract
Settle	Settlement price
SettlementType	Type of settlement of a futures contract
StorageServer	Storage Server name
Strike	Strike price
SurplInd	Surplus indicator

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SurplQty	Surplus quantity
TID	Unique numeric symbol ID of TeleTrader symbols
TRUN	Unique root symbol ID of TeleTrader symbols
TUN	Unique name of TeleTrader symbols
TickTrend	Trend of the last 10 ticks: + means up, - means down, . means equal
TickValue	Tick value of a futures contract
Ticker	Ticker name given by the exchange
Time	Timestamp of the last price
TradeSeg	Trading segment the symbol is traded in
TradingHours	Trading hours of a futures contract
Turnover	Total volume traded, each trade multiplied with its volume
Type	Type of the symbol
UnderlyingCategory	Category of the underlying asset or instrument of a futures contract
UnderlyingSegment	Segment of the underlying asset or instrument of a futures contract
UnderlyingSubCategory	Subcategory of the underlying asset or instrument of a futures contract
VWAP	Volume Weighted Average Price
VWAP_Prev	VWAP from the previous trading day
VWAP_Prev2	VWAP from the day before the previous trading day
VWAP_DateTime	Timestamp of the VWAP
VWAP_DatePrev	Timestamp of the VWAP from the previous trading day
VWAP_DatePrev2	Timestamp of the VWAP from the day before the previous trading day
VWAP_Chg	Change to previous VWAP
VWAP_Chg%	Change to previous VWAP in percent
VWAP_NetChg	Net change to previous VWAP
VWAP_NetChg%	Net change to previous VWAP in percent
VWAP_NetChgPrev	Net change between previous VWAP and VWAP from the day before the previous trading day
VWAP_NetChgPrev%	Net change between previous VWAP and VWAP from the day before the previous trading day in percent
VWAP_NetChgTO	Net change of the VWAP today
VWAP_NetChgTO%	Net change of the VWAP today in percent
VWAP_NetChgTS	Net change of the VWAP in the current trading session
VWAP_NetChgTS%	Net change of the VWAP in the current trading session in percent
Vol	Total volume of the last trading day or session
VolLast	Volume of the last price
WKN	German or Austrian symbol number

history

The following fields can be used for historical data in the functions `teletrader.history` and `teletrader.fetch`.

DateTime	Timestamp for bar
Open	Opening price
High	Highest price

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`Low`	Lowest price
`PClose`	Closing price
`VolLast`	Total volume for last price
`OI`	Open Interest
`AskOpen`	Opening Ask price
`AskHigh`	Highest Ask price
`AskLow`	Lowest Ask price
`AskClose`	Closing Ask price
`AskSize`	Total size for the last Ask price
`BidOpen`	Opening Bid price
`BidHigh`	Highest Bid price
`BidLow`	Lowest Bid price
`BidClose`	Closing Bid price
`BidSize`	Total size for the last Bid price
`TradeGroup`	Pre-defined field list: `DateTime, Open, High, Low, PClose, VolLast`
`AskGroup`	Pre-defined field list: `DateTime, AskOpen, AskHigh, AskLow, AskClose, AskSize`
`BidGroup`	Pre-defined field list: `DateTime, BidOpen, BidHigh, BidLow, BidClose, BidSize`

timeseries

The following fields can be used for **tick data** in the function `teletrader.timeseries` (the period argument must be empty or set to `'Tick'`).

`DateTime`	Timestamp for tick - you can also use `Date`
`Last`	Last price
`VolLast`	Volume for the last price
`Ask`	Ask price
`AskSize`	Size for the last Ask price
`Bid`	Bid price
`BidSize`	Size for the last Bid price
`TradeGroup`	Pre-defined field list: `DateTime, Last, VolLast`
`AskGroup`	Pre-defined field list: `DateTime, Ask, AskSize`
`BidGroup`	Pre-defined field list: `DateTime, Bid, BidSize`

The following fields can be used for **intraday data** in the function `teletrader.timeseries` (the period argument must be set to `'Minx'`, where `x` is one of the following numbers: 1, 2, 3, 4, 5, 6, 10, 12, 15, 20 ,30 or 60).

`DateTime`	Timestamp for bar - you can also use `Date`
`Open`	Opening price
`High`	Highest price
`Low`	Lowest price
`PClose`	Closing price
`VolLast`	Total volume for last price
`AskOpen`	Opening Ask price

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`AskHigh`	Highest Ask price
`AskLow`	Lowest Ask price
`AskClose`	Closing Ask price
`AskSize`	Total size for the last Ask price
`BidOpen`	Opening Bid price
`BidHigh`	Highest Bid price
`BidLow`	Lowest Bid price
`BidClose`	Closing Bid price
`BidSize`	Total size for the last Bid price
`TradeGroup`	Pre-defined field list: `DateTime, Open, High, Low, PClose, VolLast`
`AskGroup`	Pre-defined field list: `DateTime, AskOpen, AskHigh, AskLow, AskClose, AskSize`
`BidGroup`	Pre-defined field list: `DateTime, BidOpen, BidHigh, BidLow, BidClose, BidSize`

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Customer Support

If you have further questions about the TeleTrader Toolbox for MATLAB®, you can contact our support team by e-mail.

E-Mail support

When you write an e-mail to the TeleTrader support team, please mention your user name in your message.

- For technical requests, send an e-mail to support@teletrader.com
- For information about products and prices, send an e-mail to matlab@teletrader.com

System requirements

Please make sure that your computer meets the following system requirements:

Hardware	Any Intel or AMD x86 processor supporting SSE2 instruction set (MATLAB® requirement)
Operating System	Windows 7 (recommended) Windows Vista or Windows XP (supported)
MS .NET Framework	All operating systems need the MS .NET framework 2.0 (recommended: MS .NET 3.5) and the most recent service packs.
MATLAB®	32-Bit or 64-Bit MATLAB® software must be installed.
RAM	1024 MB We recommend at least 2048 MB.
Free Disk Space	ca. 15 MB of free hard drive space for the TeleTrader Toolbox Additional space is required for the MS .NET framework if it is installed with the TeleTrader Toolbox.
Internet Connection	Persistent Internet connection with a recommended bandwidth of at least 64 kbps
Firewall	Either port 80 or 2088 need to be open for TCP/IP traffic to the market data server (allowing HTTP traffic is not sufficient). Personal firewalls have to be set up to allow traffic for the TeleTrader Toolbox.

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User Guide for the TeleTrader Toolbox for MATLAB®

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