Thailand Futures Exchange (TFEX) MTS-TFEX ©MetaTrader 5 Gateway

Introduction

Stock Exchange of Thailand (SET), which includes **Thailand Futures Exchange (TFEX)**, is using a trading system called SET_CONNECT. Using the standard FIX protocol ©MetaTrader 5 TFEX Gateway acts as a bridge between SET_CONNECT trading system and ©MetaTrader 5 Platform enabling traders access to TFEX derivative products using ©MetaTrader 5 Terminal.

Thailand Futures Exchange (TFEX) *©MetaTrader 5 Gateway* as part of *©MetaTrader 5 Platform* enables brokers to provide their clients with access to TFEX FUTURES products.

Below underlying assets are currently available:

EQUITIES	*Stock Index and Individual Stocks*
DEBT INSTRUMENTS	*Bonds and Interest Rate*
COMMODITIES	*Precious Metal, Base Metal and Energy*
OTHERS INDEX	*Exchange Rate, Commodity Index and others*

A more detailed list of currently available products that can be traded using the TFEX gateway along with the link to TFEX official website for more details regarding contract specifications:

SET50 Index Futures	5-Year Government Bond Futures
Single Stock Futures	3M BIBOR Futures
50 Baht Gold Futures	6M THBFIX Futures
10 Baht Gold Futures	Brent Crude Oil Futures
Silver Futures	USD Futures
5-Year Government Bond Futures	Sector Index Futures

Education regarding futures trading is provided free of charge on TFEX website:

- Investment knowledge
- Individual investors

Network Connection

Access to SET_CONNECT environment is done via Site-to-Site VPN network based on IPSec standard which provides data encryption in the most standard secure method.

Another way of accessing SET_CONNECT is via SETNET3. All the necessary information is provided by the exchange to member brokers.

Given you are a member of the exchange you will have access to all the environments available (testing, production, etc.).

For acceptance testing the broker can use the testing environments provided by the exchange. Details on how to configure the gateway to connect to each environment are provided in this document.

Each registered broker is assigned a 4 digit member ID (i.e. 0123) which will be the basis for authentication credentials as described below:

- D0123_FIX_MD1 is the fix user for market data
- D0123_FIX_CU1 is the fix user for trading, etc.)

Each broker can request TFEX to create new test accounts by specifying the member ID, the protocol for order entry and market data (FIX protocol for both in our case), and types of transactions (normal orders, program trading, market marking).

Gateway Installation
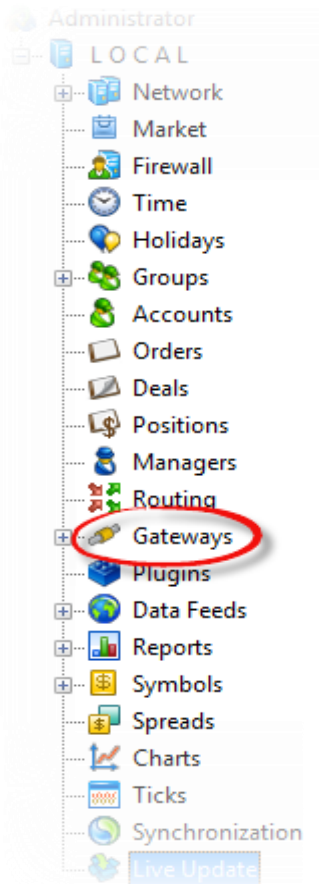
1) Please create a folder named MTS-TFEX at `MT5_DIRECTORY\History\Gateway` where `MT5_DIRECTORY` is the installation folder for ©MetaTrader5 Platform.

2) Copy MTS-TFEX.exe module into `MT5_DIRECTORY\History\Gateway\MTS-TFEX`.

3) Using ©MetaTrader 5 Administrator please create a new **Symbols** folder named "TFEX".

4) Using ©MetaTrader 5 Administrator please create a new group (i.e. demo\demoTFEX) that will be used for Futures trading.
NOTE: To ensure correct margin calculation for Futures products set Risk Management to "for Retail Forex".

5) Add a new MTS-TFEX configuration under Gateways and select default parameters when prompted.
NOTE: If MTS-TFEX entry is missing from the dropdown please refer back to "Step 1)" and check that the "TFEXGateway.exe" file is correctly placed in the dedicated folder.

6) Add the new group created at "Step 4)" to the Groups tab found under the gateway properties.
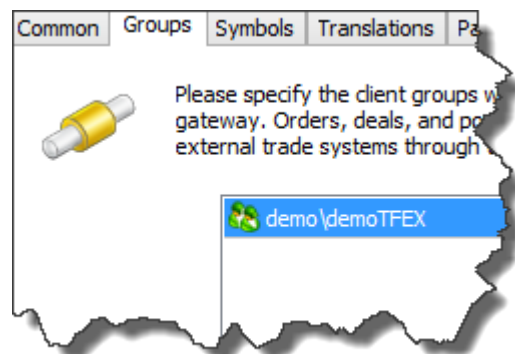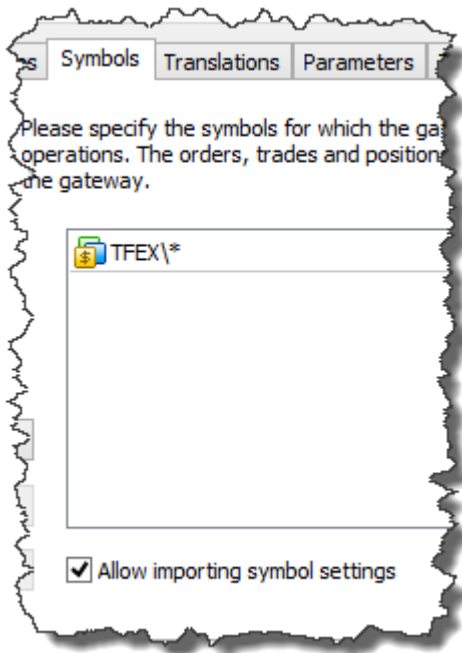
7)   Add "TFEX*" in the Symbols tab and make sure to check "Allow importing symbol settings" setting.
This will automatically import product details from the exchange.

Gateway Parameters

Parameters tab contains settings that enable the fine tuning of various technical aspects of the gateway. Their purpose and valid values are presented in detail below.

➢   ENV - **Working environment**.
An environment name identifies a network of related interconnected systems providing Market Data Services, Order Entry Services and Disaster Recovery Services for both Market Data and Trading.

There are two main categories of environments: testing and production.

TESTING ENVIRONMENTS

- **NEXT-C**
- **NEXT-A**
- **NEXT-B**
- **STAGE**

PRODUCTION ENVIRONMENTS

- **PROD1**   (SETNET3 link group 1)
- **PROD2**   (SETNET3 link group 2)

Parameter	Value
ENV	STAGE
MD_USER	0123_FIX_MD1
TR_USER	0123_FIX_CU1
MD_PASS	****
TR_PASS	****
ENTERING_TRADER	0123_FIX_CU1_TR
CLEARING_FIRM	C123
TR_ACCOUNT	*
TR_ACCOUNT_TYPE	*

➢   MD_USER   - M**arket data user.**
➢   TR_USER   - **Trading User/Central User/Acting User**.
➢   MD_PASS / TR_PASS- **Passwords for market data and trading users**.
➢   ENTERING_TRADER - **Trading group user.**
➢   CLEARING_FIRM   - **Clearing ID provided by TFEX**.
➢   TR_ACCOUNT / TR_ACCOUNT_TYPE – **Trading account details provided by TFEX.**

TFEX Symbols

The gateway will automatically import tradeable products from the exchange or update existing products while it is online. The products will be imported into a tree like structure according to their market ID and sector ID.
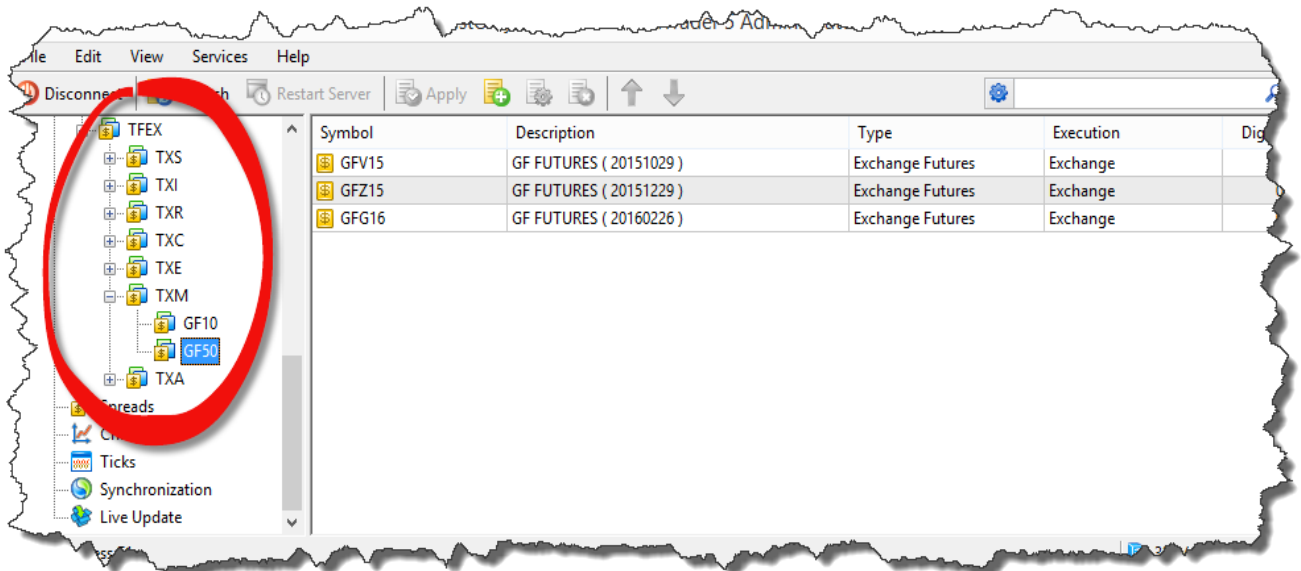
The products are structured into a subtree with the following meaning:
TFEX/MARKET/SEGMENT/SERIES

For example the October 2015 10 Baht Gold Futures will be under the below path:
TFEX/TXM/GF10/GF10V15

NOTE: The new TFEX products will be available to traders only after ©MetaTrader 5 Main Trader Server and ©MetaTrader 5 History Server are restarted. Servers can be safely restarted between trading sessions. Restarting servers takes only few seconds.

NOTE: Expired futures contracts or products simply not available anymore will automatically be moved to TFEX/EXIPIRED folder using the same tree-like structure

Symbol Group Settings

Under "Group settings" the broker controls what TFEX products are available to clients (products visible and tradable in ©MetaTrader 5 Client Terminal).

An example of symbol configuration for a Futures trading group is presented below:
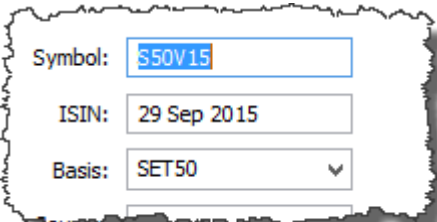
Symbol	Spread	Trade
TFEX\TXI\S50IF*	Default	Default
TFEX\TXM*	Default	Default
TFEX\TXE*	Default	Default
TFEX\TXC*	Default	Default
TFEX\TXA*	Default	Default
TFEX\TXS\SSF3*	Default	Default
TFEX\TXS\SSF4*	Default	Default

Symbol Settings and Configuration

This section will provide instructions on setting up and configuring the symbols to function correctly according to TFEX specifications.

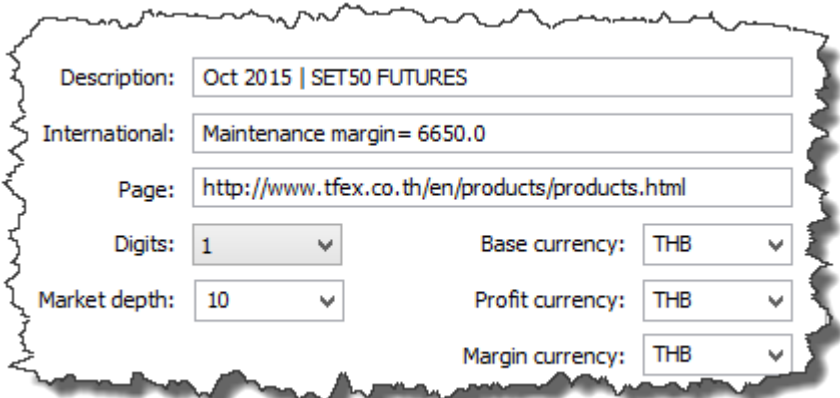NOTE: fields marked with TFEX are populated using TFEX provided data and should not be modified.

NOTE: fields marked with THB contain money value in Thai Baht.

Symbol:	S50V15
ISIN:	29 Sep 2015
Basis:	SET50

Symbol - Futures contract name. TFEX

ISIN - Settlement date. TFEX (NOTE: not the actual ISIN code)

Basis - Underlying asset (in this case SET50 index). TFEX

Description:	Oct 2015	SET50 FUTURES
International:	Maintenance margin= 6650.0
Page:	http://www.tfex.co.th/en/products/products.html
Digits:	1
Market depth:	10
Base currency:	THB
Profit currency:	THB
Margin currency:	THB

Description – short description of the product including the standard notation for Futures (month and year of the expiration date – **Oct 2015**) followed by the contract name. TFEX

International - additional information about the contract. <mark>TFEX</mark>

Page -link to official TFEX products page.

Digits - number of digits after the decimal point. <mark>TFEX</mark>

Market depth – specify the number of levels of book depth displayed in the terminal.

All currency - In accordance to TFEX all the currency fields need to be in Thai Baht.

Contract size: 200	Tick size: 0.1	Tick value: 20.00000000
Calculation: Exchange Futures	Limit & stop level: 0	pt

Contract size **-** contract multiplier. <mark>TFEX</mark>

Tick size - minimum tick change. <mark>TFEX</mark>

Tick value - the money value for one tick. <mark>TFEX</mark>

Settlement price: 948.0	
Minimum price: 663.6	Maximum price: 1232.4

Settlement price - last settlement price (the date this price was recorded is in the ISIN field). <mark>THB</mark> <mark>TFEX</mark>

Minimum/Maximum price - order price limits (orders with prices outside these values will immediately be rejected). <mark>THB</mark> <mark>TFEX</mark>

Execution: Exchange

Execution – "Exchange" states that orders for this product will be processed by an external exchange as opposed to being processed by the

©MetaTrader 5 platform.

Initial margin: 9500.00	Maintenance margin: 0.00

Initial margin – Money amount of initial margin as advised by the exchange. <mark>THB</mark> <mark>TFEX</mark>

Maintenance margin – Money amount of maintenance margin.

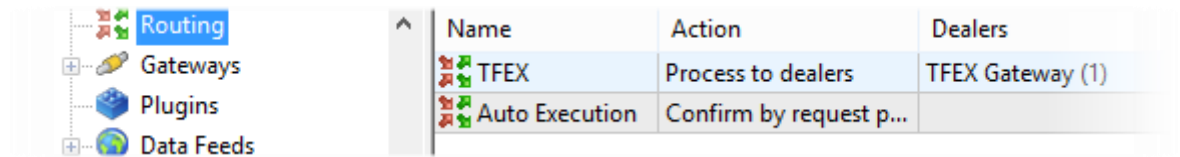NOTE: This amount needs to be 0 (exchange amount specified in the International field).

Margin Call and Stop Out levels will automatically be calculated by ©MetaTrader 5 Platform using margin settings for the group.

To - contract expiration date (last trading day).

Routing
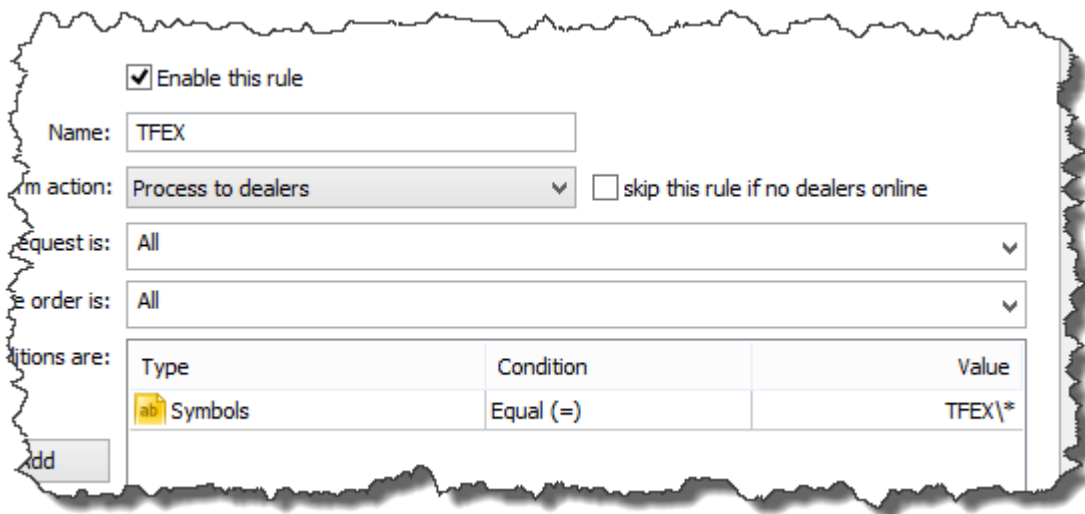
A new "Routing" rule will need to be added and configured as shown below. The TFEX rule should be before "Auto Execution" rule.

The rule will instruct the ©MetaTrader5 Platform to send TFEX Futures orders to the TFEX Gateway for correct processing.

The "Common" of the routing rule:

The "Dealers" tab of the Routing rule:

NOTE: rule definition is mandatory for a correct processing of TFEX Futures orders.

Trading Futures with MetaTrader 5 Terminal

Market Watch: 17:20:34

Symbol	Bid	Ask	Last	Volume
⬆ S50Z15	773.6	774.6	774.6	1.00
⬆ S50H16	877.9	879.0	879.0	1.00
⬆ S50V15	780.0		700.0	1.00
⬆ S50X15			1200.0	1.00
⬆ S50M16			970.0	1.00
⬆ S50U16			780.2	10.00
⬆ USDV15			34.00	1.00
○ USDX15				
⬆ USDZ15			33.72	1.00
⬆ USDH16			34.00	10.00
⬆ BRV15			2000	25.00
⬆ BRX15			2252	1.00
⬆ BRZ15			1900	25.00
⬆ BRF16			2001	1.00
⬆ GF10V15	20000		20000	25.00
⬆ GF10Z15			18900	1.00
⬆ GF10G16	19000		18500	1.00
⬆ GFV15			20000	25.00
⬆ GFZ15			17600	2.00
⬆ GFG16			18500	1.00

Market Watch (left) window displays a list of TFEX listed Futures instruments along with latest Bid, Ask, Last Trade Price and Last Trade Volume.

Volume	Price	Trade	
20	888.0	⌄	⌃
10	886.0	⌄	⌃
10	885.0	⌄	⌃
10	880.0	⌄	⌃
21	879.0	⌄	⌃
109	877.9	⌄	⌃
10	876.9	⌄	⌃
20	875.9	⌄	⌃
10	874.9	⌄	⌃
10	873.9	⌄	⌃

sl 0 | vol 1 | tp 0

Sell | Close | Buy

Depth of Market (right) window shows a five level deep prices book for a TFEX futures product.

S50H16, SET50 FUTURES (20160330)

○ Tick Size	0.1
○ Tick Value	20.00000
○ Initial margin	9500.00
○ Lower Limit	540.8
○ Upper Limit	1004.2
○ Settlement Price	772.5
⬆ Bid	877.9
⬆ Ask	879.0
⬆ Last	879.0
⬆ Last High	884.4
⬆ Last Low	877.9
⬆ Price Change	13.79%
⬆ Volume	1.00
○ Open Interest	3199
○ Open Price	884.4
⬆ Average Weighted Price	878.1

Details (left) window displays additional statistics provided by the exchange about a SET50 Futures product including Open Interest, Settlement Price, Price Limits, Opening Price and real-time Price Change as percentage.

Margin calculation for Futures.

When trading Futures only a fraction of the contract's full value is required to be available in the trader's account. This fraction, also known as the Initial Margin, has a different value for each type of contract and it's calculated and provided by the exchange.

TFEX Gateway <u>automatically</u> populates Initial Margin amounts for all TFEX imported products in ©MetaTrader 5 Platform.

The screenshots demonstrate how the Initial Margin amounting to THB 9500 gets locked from trader's balance while he is trading on a SET50 Futures contract.

Mark-to-Market

Shortly Mark-to-Market is the process of locking-in daily losses and gains.
It is triggered at the end of the trading day when the settlement price for each product is calculated and published by the exchange.
Mark-to-Market is supported and automatically executed by TFEX Gateway as soon as the Settlement price is published by the exchange.

Deals generated by the Mark-to-Market process.

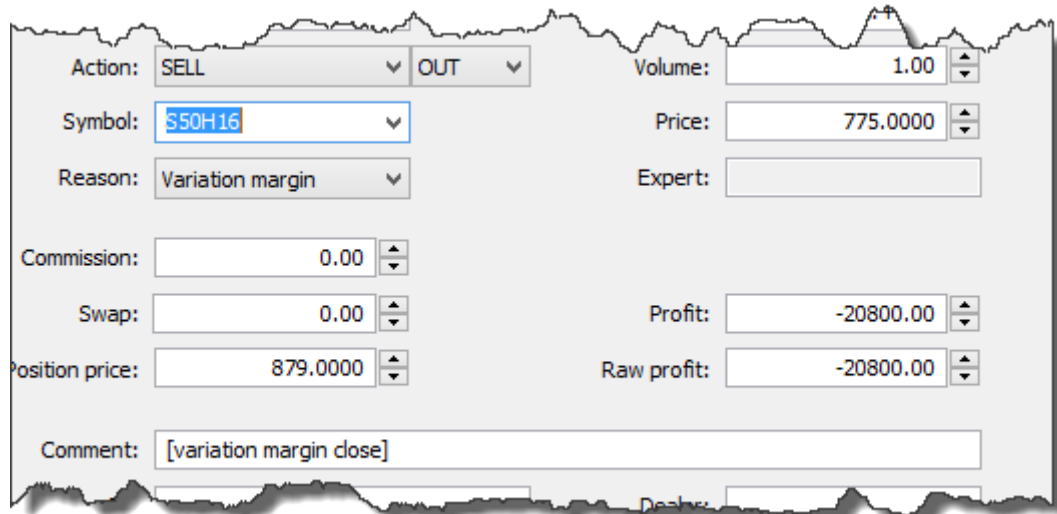Mark-To-Market process generates two Deals inside the ©MetaTrader5 Platform as follows:

1. An "OUT" type deal for closing the existing position at the current settlement price.
2. An "IN" type deal for opening a new position with the same volume and product at the current settlement price.

The deals are presented in more detail on the next page.
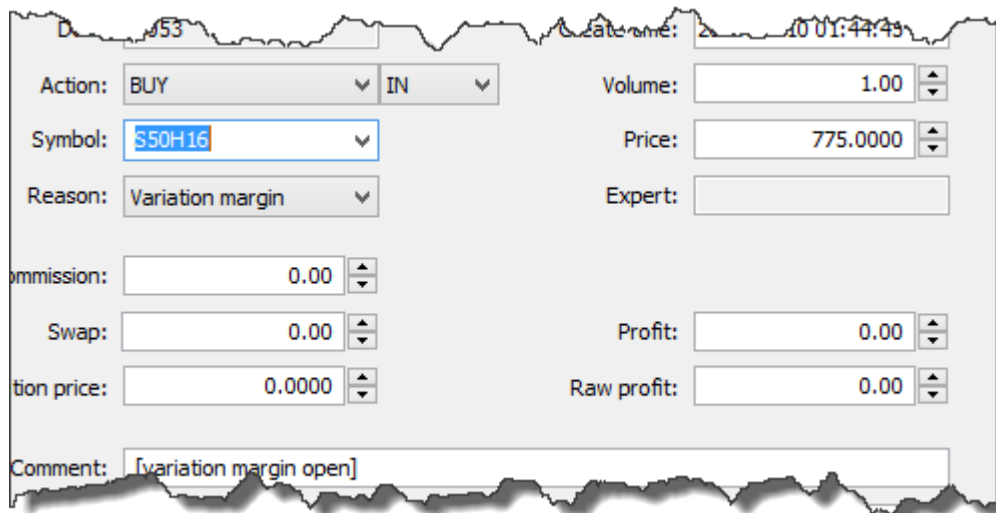
The "OUT" deal for locking-in the profit/loss.

Action:	SELL	OUT	Volume:	1.00
Symbol:	S50H16		Price:	775.0000
Reason:	Variation margin		Expert:	
Commission:	0.00			
Swap:	0.00		Profit:	-20800.00
Position price:	879.0000		Raw profit:	-20800.00
Comment:	[variation margin close]			

The "IN" deal for re-opening the old position.

Action:	BUY	IN	Volume:	1.00
Symbol:	S50H16		Price:	775.0000
Reason:	Variation margin		Expert:	
Commission:	0.00			
Swap:	0.00		Profit:	0.00
Position price:	0.0000		Raw profit:	0.00
Comment:	[variation margin open]			

The Mark-to-Market process is recorded in both server and gateway journals as shown below.

©MetaTrader 5 Main Trade Server journal records showing the Mark-to-Market process.

TFEX Gateway	'demo\demofutures': variation margin for S50H16 positions started [variation margin for S50H16, settlement price: 755.0
End of Session	'1001': variation margin deal performed [#5056 sell 1.00 S50H16 at 755.0]
End of Session	'1001': variation margin deal performed [#5057 buy 1.00 S50H16 at 755.0]
TFEX Gateway	'demo\demofutures': variation margin for S50H16 positions completed, 1 position(s) updated

©TFEX Gateway journal entries showing the Mark-to-Market process.

Gateway	execution send complete - variation margin for S50H16, settlement price: 755.0
Gateway	settlement price updated S50H16 775.0 -> 755.0 20151015->20151016
SymbolsBase	symbol 'S50H16' config updated

Gateway log

The section below explains in more detail the journal entries created as an order is processed by the ©TFEX Gateway and sent to SET_CONNECT.

©TFEX Gateway Journal entries as a new order is processed.

Gateway	'0'->'1001': request #10360420 received (#2988171 exchange buy 1.00 S50H16 at market)
Gateway	'1001': request #10360420 answered - Placed (#2988171 exchange buy 1.00 S50H16 at market)
Gateway	execution send complete - added order #2988171, buy 1.00 S50H16 at market [based on order 'ON-2-1444894061851-1']

Each detail is explained below:

➢ #2988171: is the ©MetaTrader 5 Platform order number.
➢ '0' -> '1001'
   • '0' is the Dealer ID (in this case the client itself placed the order).
     If dealer 7832 places an order on behalf of trader 1001 this value will be '7832'.
   • 1001 is the trader ID as assigned by ©MetaTrader 5 Platform.

➢ Second line indicates that the request was accepted by the Gateway and sent to TFEX but not yet executed.
➢ Third line indicates that the order sent via the gateway was successfully received and executed by TFEX and the SET_CONNECT order number is ON-2-1444894061851-1.