MEFFServer

USER GUIDE

MEFF SMART v11.20

June 2020

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1. Introduction

MEFFServer is the core application of the utilities that obtains the market data, processing and storing the information received, making it available to client applications in distinct formats and media. It offers both real-time and historic information.

The Market data can be offered to other applications during the session through:

- DDE links (Dynamic Data Exchange)
- Real-time database tables.

Or for processing at the end of the session through:

- Transfer files.
- Historical database tables.

This manual describes how the application works and various options for its configuration and their implications.

1.1 Before starting

1.1.1 What do you need to know

MEFFServer receives information from a Market session, processes it and makes it available in an open information system which client applications can access to provide users data from the session.

This application is exclusively a data server: it obtains Market data, processes them and stores this information in tables. It can also offer these data through DDE links. However, to use this information client applications are required which elaborate the information and make it available in other formats (lists, alarms, etc.).

Given that MEFFServer deals with Market information, it is essential that you understand how the Market works to make full use of the information provided, as well as the terms used related to trading

1.1.2 What type of clients can use the information provided by MEFFServer

MEFFServer offers the following data formats:

- DDE links. MEFFServer offers information in real-time using DDE links (Dynamic Data Exchange) that can be used by any DDE client application.
- Real-time database tables.
- Transfer data in ASCII files.
- Historical database tables.

Given these data formats, the applications which use this information must behave in the same way as one of the following applications:

- Clients that inspect the databases.
- DDE clients.
- Applications that access the ASCII files.

1.1.3 What type of data MEFFServer offers

MEFFServer provides information on the session. This information can be offered in different formats (DDE links, Paradox tables and ASCII files) and at different times (real-time or historical).

It offers both master and audit trails. The difference between the master and audit trails data is that master data do not normally change on a daily basis as they are relate to the market in general, whereas the audit trails depend on the session and are different for each session.

The information that MEFFServer calculates and offers through DDE links can be organised in the following groups:

- Trading. Offers data on the Market trading (bid, ask, etc.)
- Reports. Information in dynamic list format.
- Feed. Feed messages.
- General information. Session data (date, etc...)

The information that MEFFServer generates and offers via tables and files is structured as:

- Real-time. Generates the session information, for both masters and audit trails, updating it continuously through the session. This information is cleared at the start of each new session.
- Historical. Generates all the information, for both masters and audit trails, at the end of the session, adding information to that of previous sessions.

1.2 Physical environment

MEFFServer can receive market information via MEFFAccess or communication server of MEFF through TCP/IP network.

2. Starting and exiting

This chapter explains how to start and exit the application.

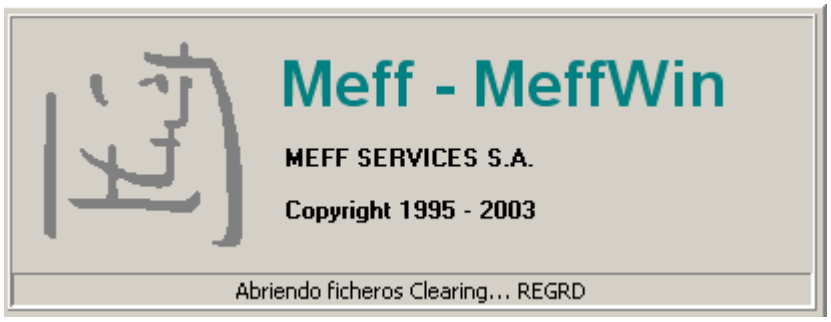
MEFFServer is an application that obtains Market data. Therefore the way it connects to obtain these data must be configured. It is assumed that the MEFFServer communications have been correctly configured. Should you require further information regarding this configuration, consult “Communications configuration” later in this manual.

2.1 Starting

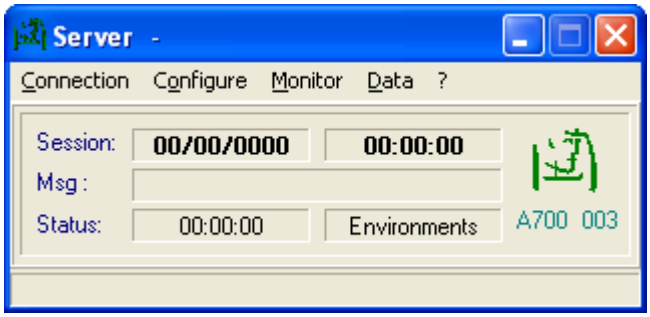
2.1.1 Starting MEFFServer

Double click on the MEFFWIN.EXE program icon

A window will appear indicating that the program is being loaded:



The main screen is immediately displayed:



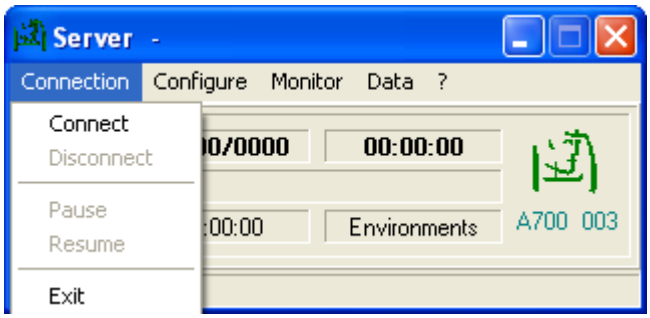
At this point the MEFFServer application has been started but the reception and processing of HOST messages have not, so information from the current session is not available.

Note In this situation MEFFServer already offers DDE links, but the information provided is from the last session correctly received.

It is necessary to connect to the system to have access to the current session information in real-time.

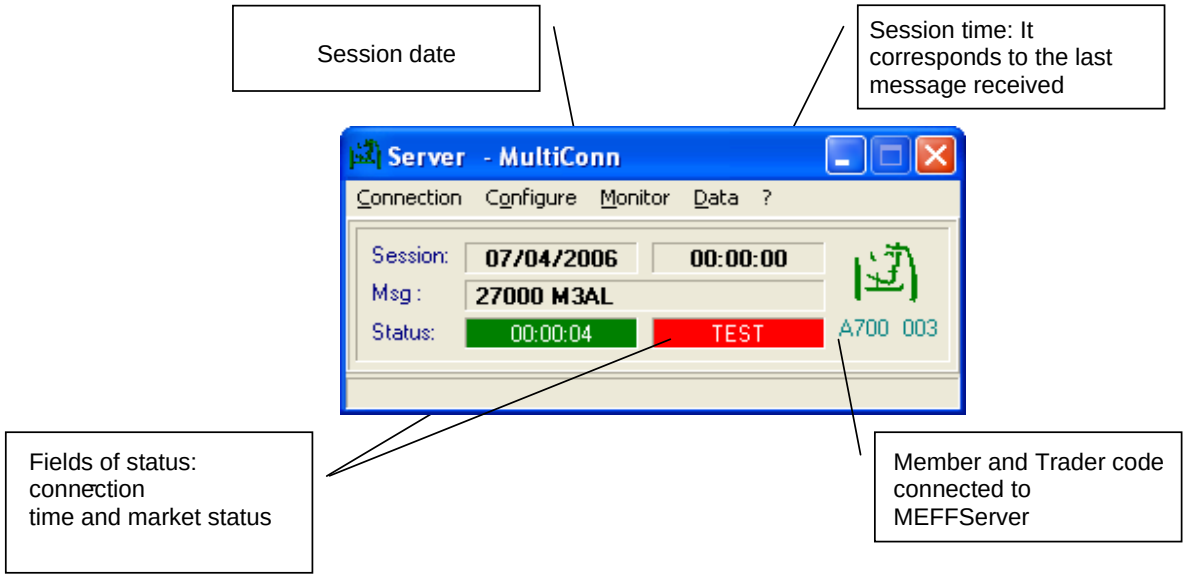
This connection can be made through the communications controller (MEFFAccess).

2.1.2 Establishin a connection with the active session in MEFFServer



Select the option “Connect” in the “Connection” menu.

The data on the main screen will be updated when the connection is made.



2.1.3 Pausing and restarting MEFFServer

MEFFServer allows its activity to be paused, freezing the market situation at that moment. This facilitates the analysis of information in a static market situation.

The MEFFServer can also be paused to free up system resources. This may be appropriate when system resources are required for other processes.

2.1.3.1 Pausing the activity of MEFFServer

Select the “Pause” on the “Connection” menu.

New data will not be processed, but the links remain active with the information held when the pause was activated.

You will observe that the main screen data are not updated.

Note MEFFServer can be paused at any moment without the loss of any messages. When MEFFServer restarts it will continue from the last message handled before the pause.

2.1.3.2 Restarting the MEFFServer:

Select the option “Resume” in the “Connection” menu.

On restarting MEFFServer will continue receiving and handling data. It processes data at maximum speed until it clears the backlog and reaches its normal state (REAL TIME).

2.2 Existing

2.2.1 Exiting completely from MEFServer

Select the “Exit” option in the “Connection” menu.

There may be times when it is preferable to disconnect from the current MEFFServer session without exiting the program. For example, changing the configuration.

2.2.2 Exiting the session without exiting the aplication

Select the “Disconnect” option of the “Connection” menu.

Note When the MEFFServer session is disconnected, the DDE links can be consulted, providing data up to the time of disconnection.

3. Configuring data

3.1 Exporting data

MEFFServer enables data to be exported in ASCII format making it available to other applications.

These files can be obtained during the session or at the end of the session.

See 'MEFF Trading – Raw data Files' document to obtain a detailed description of the files.

3.1.1 Separators of fields and records

All the fields are separated by the semi-colon character ("**;**").

All the records of each of the files are separated by the characters CR, LF.

3.1.2 Syntax in the files. Data types

These types of data correspond with ASCII values and all are of variable length. These are:

- **int:** Sequence of digits without separators for thousands or decimals and optionally with sign (ASCII characters "**-**" and "**0**" – "**9**"). The sign character uses one byte (that is, int is " **99999**" whereas negative int is "**-99999**"). Note that int values can represent figures that begin with zeros (that is "**00023**" = "**23**").

- **float:** Sequence of digits, optionally with decimal comma and sign (ASCII characters "**-**" , "**0**" – "**9** and "**,**"); the absence of the decimal comma in the value of the field should be interpreted as the "float" representation of a whole value. All the float fields will have a maximum of **fifteen significant digits (the sign and the decimal comma are not counted)**. The number of decimals used will be a factor of the requirements of the trade. Note that the float values can represent figures that begin with zeros (that is "**00023**" = "**23**") and can contain or omit zeros at the end after the decimal comma (that is "**23,0**" = "**23,0000**" = "**23**").

    - **Qty:** Float field able to store a complete number (without decimals) of "contracts".

    - **Price:** Float field that represents a price. Note that the number of decimals may vary.

    - **Amt:** Float field that represents an amount. Note that the number of decimals may vary.

- **char:** field of a single character. It can contain any alphanumeric character or punctuation character except the delimiter. All the char fields are case sensitive (that is, **m ≠ M**) and are delimited by punctuation marks (**"**).

- **String:** Chain of alphanumeric characters. Can include any alphanumeric character or punctuation character except the delimiter. All the String fields are case sensitive (that is, **ref ≠ Ref**) and are delimited by punctuation marks (**"**). The annotation "String(n)" is used to indicate the maximum number of characters in the String field. In some cases, "n" implies the exact number of characters and, in this case it will be specified clearly under the column "Valid values".

    - **Currency:** String field that represents a currency using the values defined in the standard ISO 4217 Currency code (3 characters).

    - **LocalDate:** Local date in YYYYMMDD format.

      Valid values: YYYY = 0000-9999, MM = 01-12, DD = 01-31.

    - **LocalTime:** Local time of file generation in HH:MM:SS format

Valid values: HH = 00-23, MM = 00-59, SS = 00-59

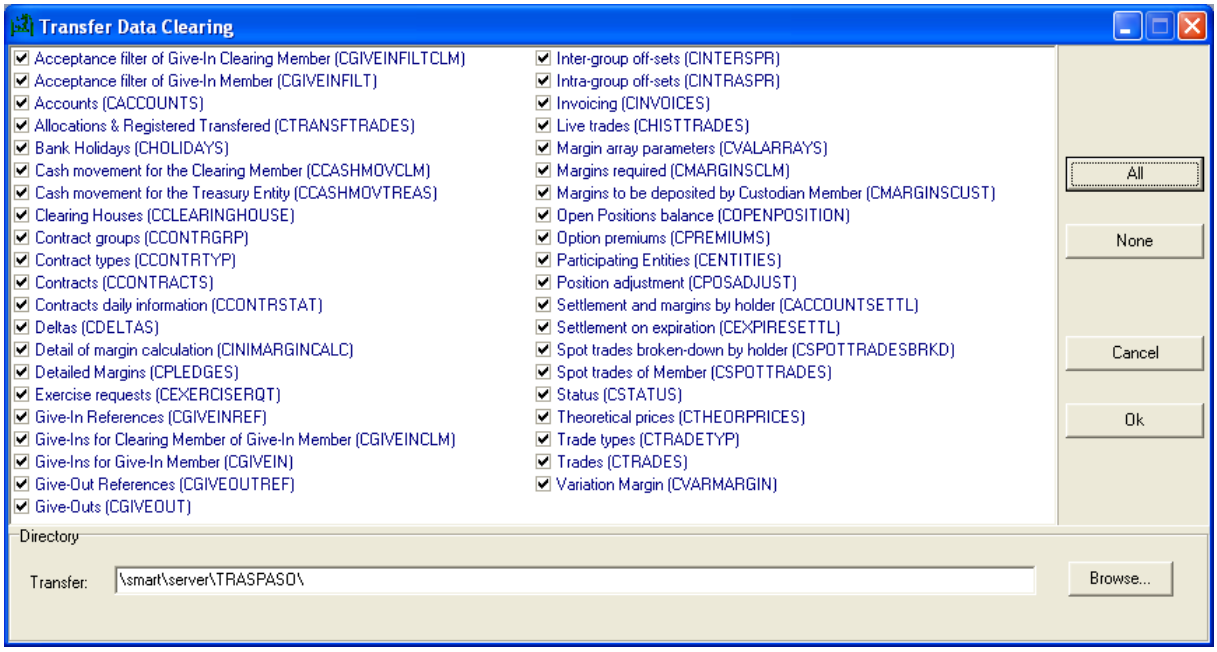
3.1.3 Generating Raw Data Files

MEFFServer allows data from the active session to be saved in ASCII format. If configured, these files are updated automatically at the of the session.

3.1.3.1 Raw data files at the end of the session

Configuring the generation of the raw data files clic on the 'Transfer Data ….' option in the 'Configure' menú.

The following configuration window will be displayed:



In this window you can configure the raw data files to be generated automatically at the end of the each session received.

The folder where the files have to be generated can be configured.

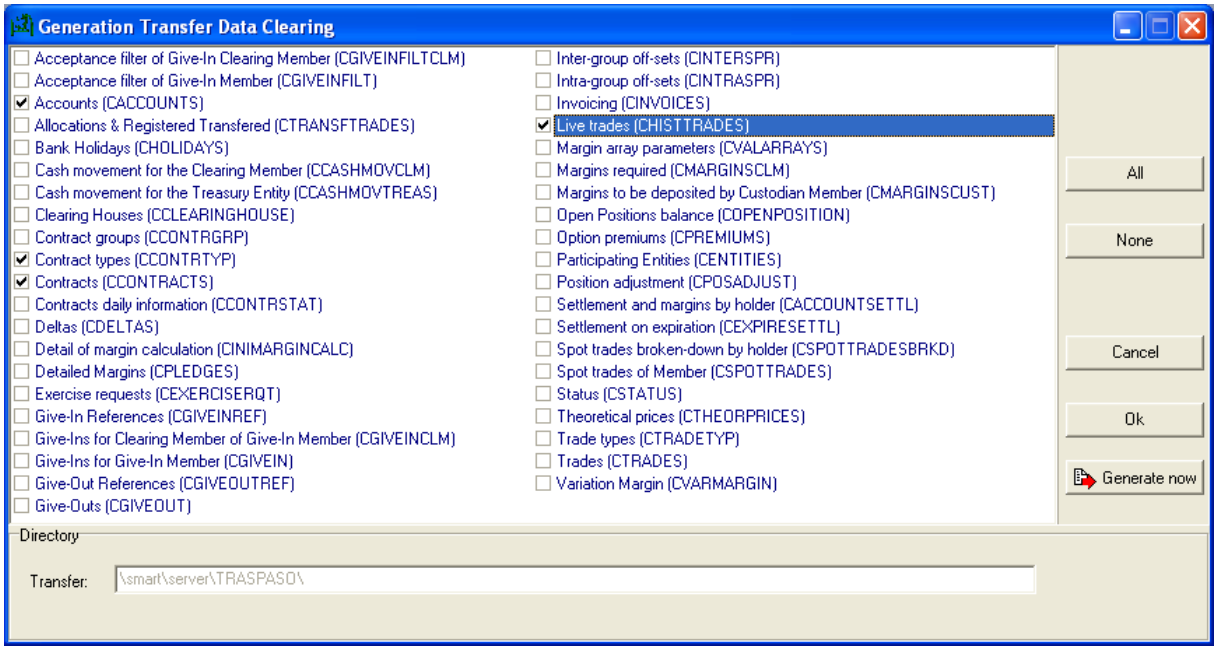
3.1.3.2 Raw data files during the session

The files can be generated at any moment during the session. Select 'Generation transfer data …' option in 'Data' menú.

In this case MEFFServer shows a warning box indicating that communications will be paused during the generation of the files.

If generation is confirmed, MEFFServer shows the following window:

By default, it will be showed the files configured last time.



3.1.3.3 Trading. Raw data files

All the files have as extension the code of their corresponding market (generically, "mk").

The structure of the files is the same for any MEFF workstation you have (MEFFTop, MEFFServer,…). The description of these files can be consulted in 'MEFFTop Trading – Raw Data Files' document.

3.2 Generating Tables

MEFFServer allows the Session information to be generated in Paradox tables.

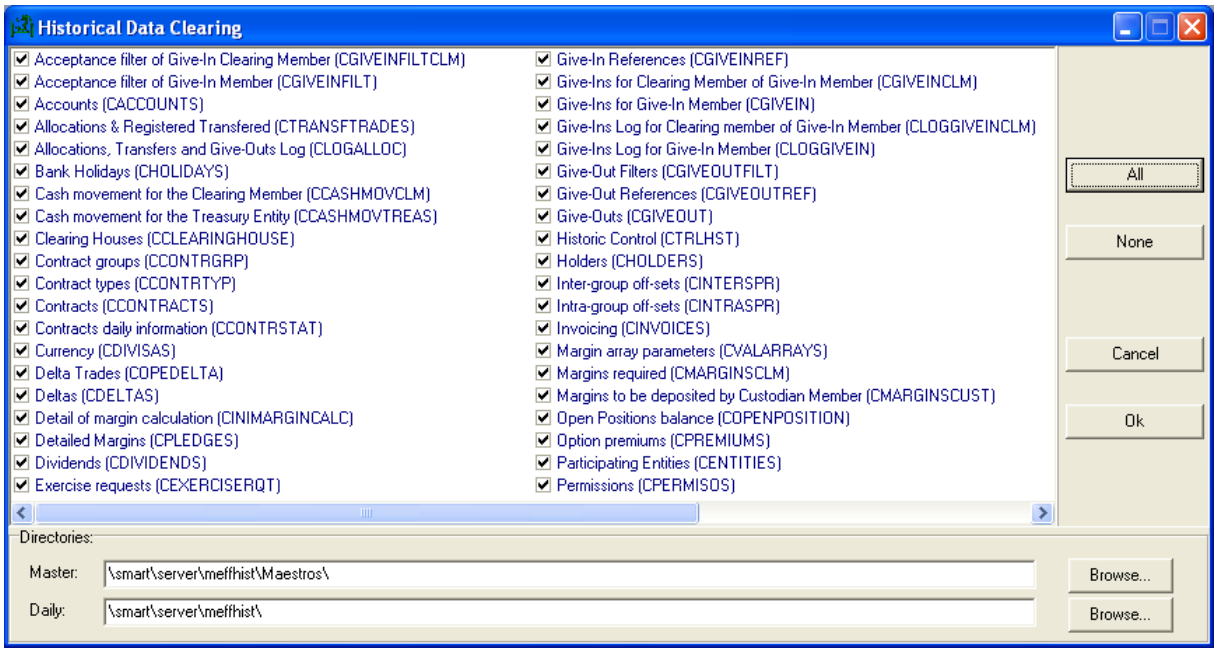
These tables are stored in the directories specified in the configuration window and can be consulted from any application.

In the appendix "Tables" there is a detailed description of each table.

3.2.1 Historical data

In the Historical data configuration window you can define the tables that are to be updated at the end of each Session to maintain the Historical data tables in Paradox format.

Configuring the historical data tables: Select the option "Historical Data..." in the "Configure" menu. The configuration window will be displayed:



It enables the configuration of the information for master data and audit trails, and the configuration of the directories where they are to be stored.

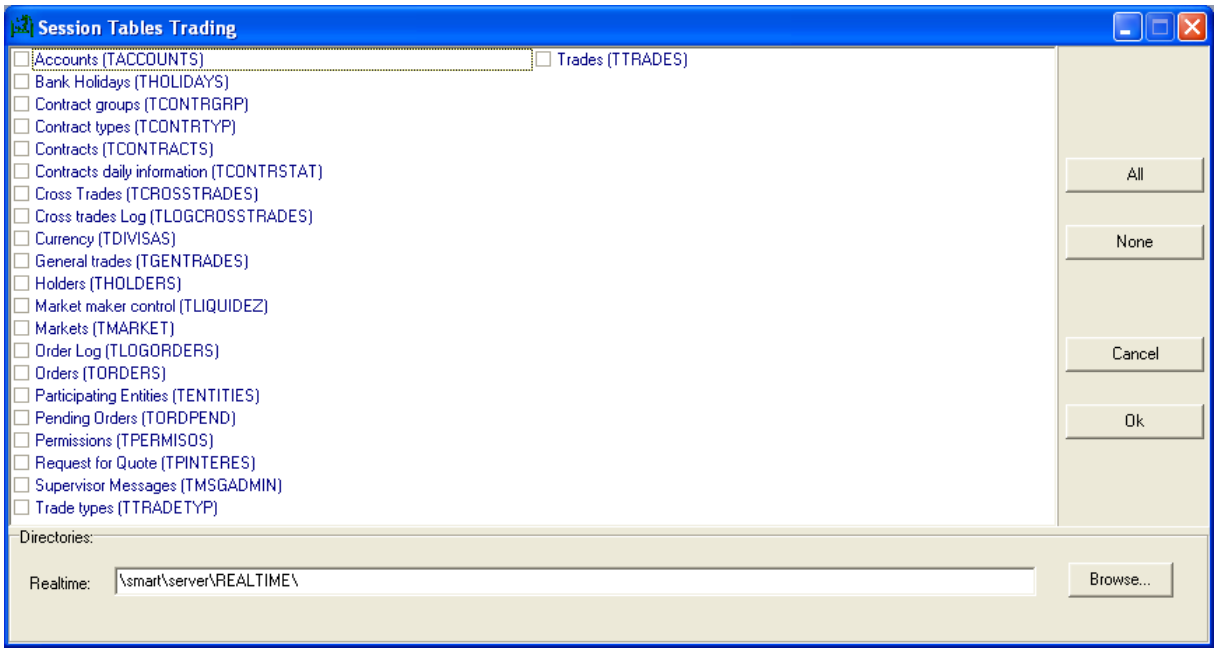
3.2.2 Realtime

It is possible to generate tables with information from the active session. You can access these tables as they are generated. They are known as “Real-Time Tables” and are available so that users can consult them during the trading period.

The tables are generated in Paradox format. They are created every time MEFFServer is initiated and increase in size through the course of the session, ensuring that they can be consulted and lists taken in real-time using external tools.

Configuring tables in real time: Select “Session tables…’” in the “Confifure” menu.

The following configuration window will appear:



The tables to be generated during the Session are specified in the Configuration window. Both master data and audit trails can be generated in real-time.

The place where these tables will be created is indicated in “Directories”.

3.2.3 List of the tables

The description of each Paradox table is detailed in the Appendix.

Following a list of available tables is included indicating if they are RealTime (RT), Masters (M) or Historical data (H)

1 Trading tables

Table	RT	M	H	Description
TACCOUNTS.DB	√	√		Information of the available accounts
TCONTRACTS.DB	√	√		General information of the contracts available in the session
TCONTRGRP.DB	√	√		Contract groups
TCONTRSTAT.DB	√		√	Contract daily data. Only for those contracts with at least one of that fields: Last, Traded volume, SessionHighBid, SessionLowOffer
TCONTRPRICES.DB	√		√	Contract daily prices
TCONTRTYP.DB	√	√		Contract types
TCROSSTRADES	√		√	Estados de las aplicaciones en que el Miembro participa como intermediario
TCCURRENCY.DB	√		√	Currencies availables in the system
TENTITIES.DB	√	√		Public information of the entibies that participated in the market
TGENTRADES.DB	√		√	Public information of executed trades
THOLIDAYS.DB	√	√		Calendar of holidays when the trading platform is closed
TIOI.DB	√		√	Indication of interest
TMARKET.DB	√	√		General information about the market

Table	RT	M	H	Description
TORDERS.DB	√		√	Orders sent by trader and registered in the market
TPINTERES.DB	√		√	Request for quote
TTRADES.DB	√		√	Executed trades
TTRADETYP.DB	√	√		Information on trade types handled in the market

4. Links

MEFFServer acts as a DDE server, offering information on the active session through DDE links. A link is the connection that exists between the data server and other applications, such as spreadsheets and other programs that can act as DDE clients.

MEFFServer makes sure that all data sent to other applications reach their destination. It does this by requiring confirmation of each data element from the application with which it maintains the active link.

Normally, confirmation of data sent to another application is received immediately, but this depends on the process that the receptor application (or client) employs.

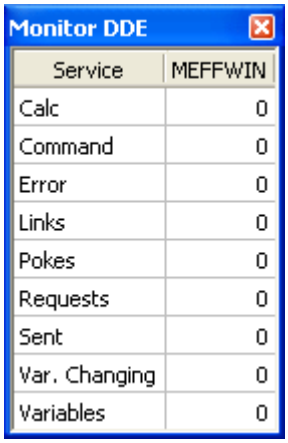
4.1 Information on active links

4.1.1 Information window

MEFFServer has an information window on the state of links in the system. This information can be useful to control the system.

Viewing the information window: Select the option “Monitor...” in the “Data” menu.

The following information window will be displayed:



This window displays internal information on the linked data and global variables in the MEFFServer. Each of the items is described in the following table:

Ítem	Description
Calc	Total number of calculations made for data requested
Command	Number of commands executed
Error	Number of errors registered
Links	Total number of correct and active links
Pokes	Number of commands received
Requests	Number of requests handled (linked or not)
Sent	Number of messages sent
Var Changing	Number of changes in the values of the variables

Ítem	Description
Variables	Number of correct and active variables

4.2 Data offered by MEFFServer

4.2.1 Variables

MEFFServer allows you to define variables to make it easier to obtain data links for which the parameters are provided from the client application in a variable form

Each of the variables is referenced using a name choosen by the user. Subsequently, it is possible to inclued these variables in the links between MEFFServer and other applications, such that when the value of a variable is changed, the data links that depend on it are updated.

Creating a variable from Excel:

1. Put MeffDDE.dll and MeffDDE.xla in the working directory
2. Open an Excel file. Under “Tools” menu, “Complements” option, click the “Examine” button and select MeffDDE.xla from the directory where is installed.
3. In a cell select the function MEFF_DDECreaVariable(“MEFFWIN”, Variable, Value) from the list of available functions in Excel.

The arguments are explained below:

- **“MEFFWIN”:** It is the name of the application that provides the DDE links. It depends on the name of Meffserver exe (it use to be MEFFWIN)
- **Variable:** It refers to the name you want to assign to the variable
- **Value:** It refers to the value you want to assign to the variable

All these arguments can make reference to cell addresses where the required data are.

Example:

In cell B1 we write:

=MEFF_DDECreaVariable(A1,B2,B3)

where the cell A1 contains the text MEFFWIN, cell B2 contains the text Contr and cell B3 contains the text IX10000D. That is, we have created a variable called Contr with the current value of IX10000D. As we change cell B3 the variable will change the value.

Note When opening an Excel spreadsheet that contains variables it is necessary to create them in the system. A way of doing this is to place the MEFFWIN text in a separate cell and all the CALL functions make reference to this cell. This way the variables can be created editing (manually or with a macro) the cell where the MEFFWIN text is located.

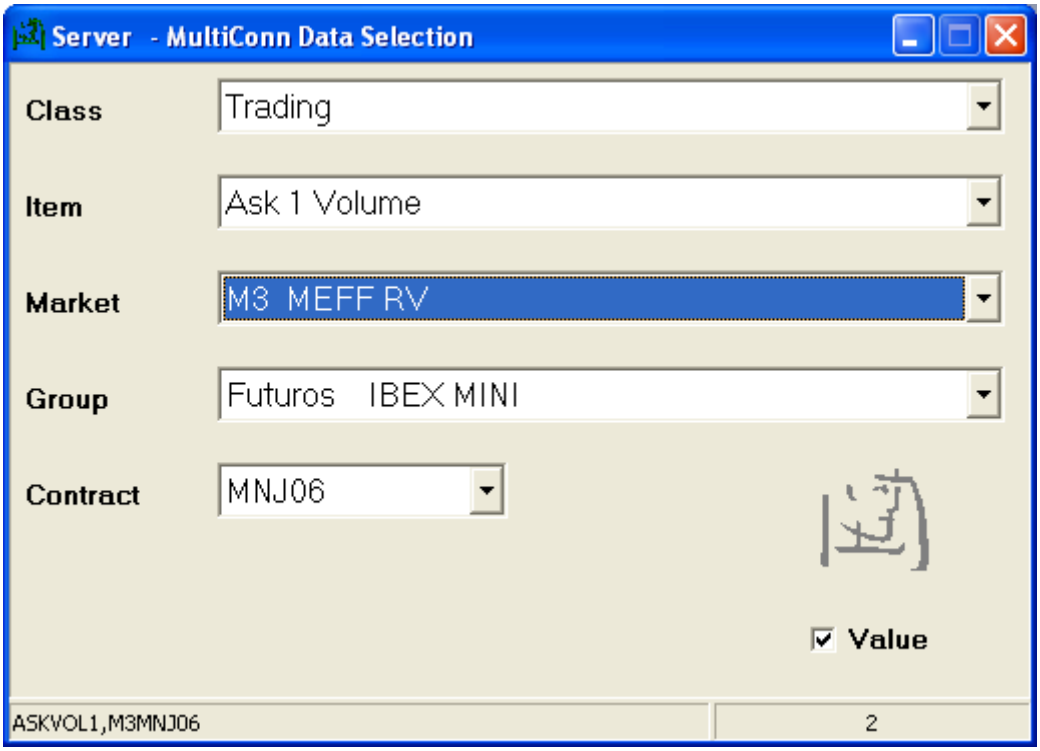
Once these steps have been taken the list of variables will be accessible in the “Variables DDE” option of the “Monitor” menu.

4.2.2 Data selection

MEFFServer allows viewing of all the topics offered as links. It also enables you to specify the parameters for each topic and displays its current value.

Displaying the Data selection window: Select the option “MultiConn Data Selection” in the “Data” menu.

The following window will appear:



The fields needed to make the calculation must be completed for each topic. If the user clicks in “Value”, the result of the calculation is displayed below.

A specific value must be selected from the MEFFServer list for each of the parameters. On occassions this value can be a wildcard.

When data is viewed using this window, it will be deposited in the Windows Clipboard so that it is available for other applications.

Once the required data is viewed on screen, you can “Paste” the value directly in any Windows application that allows this (a spreadsheet with DDE links, for example).

Additionally, in some applications the “Link” can be made by using the option “Paste Link”.

If the later method is used, the two programs are related so that changes in real-time are sent to the application where the data “link” was made.

To enter a variable within a link it is necessary to change the corresponding part of the link with the variable created, using the symbol “#” before and after.

Concepts

The data are organised in categories. Within each category there is a list if types of data, called topics.

In the appendiox “Predefined codes” there is a detailed list of topics used by MEFFServer, grouped by category.

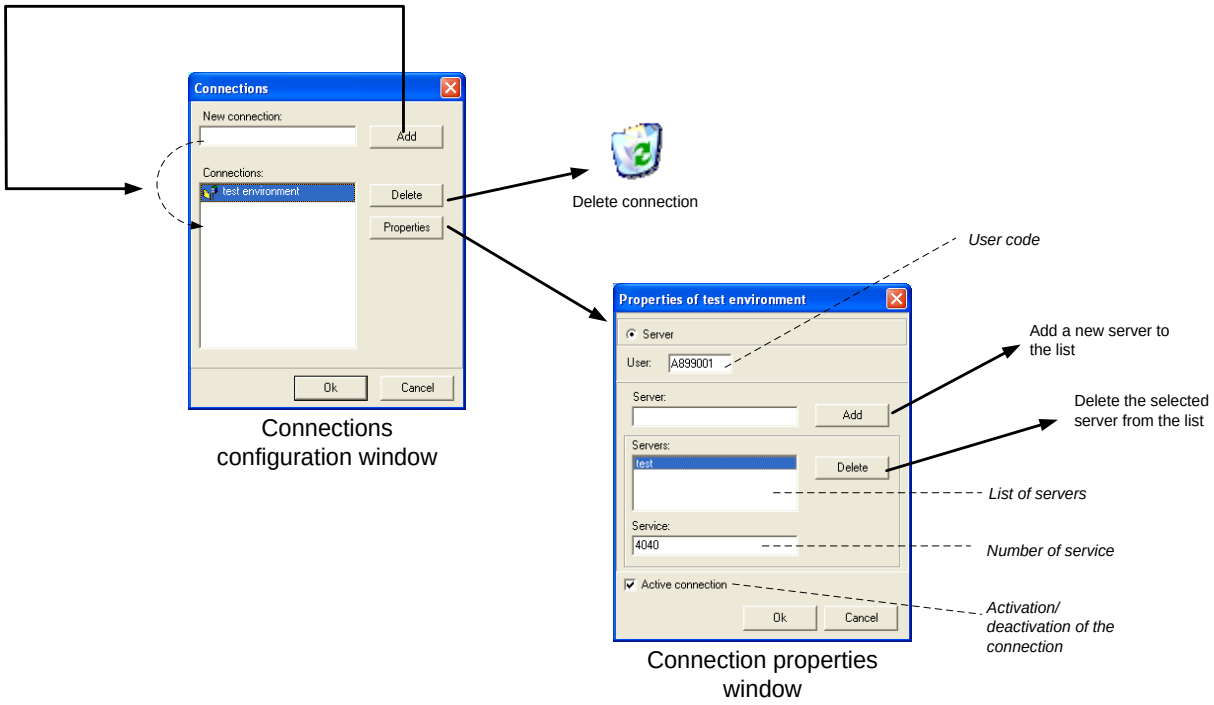
5. Other configurations

5.1 Communications

Menu option: **Configure – Connection**

Function: Define the system connection parameters.

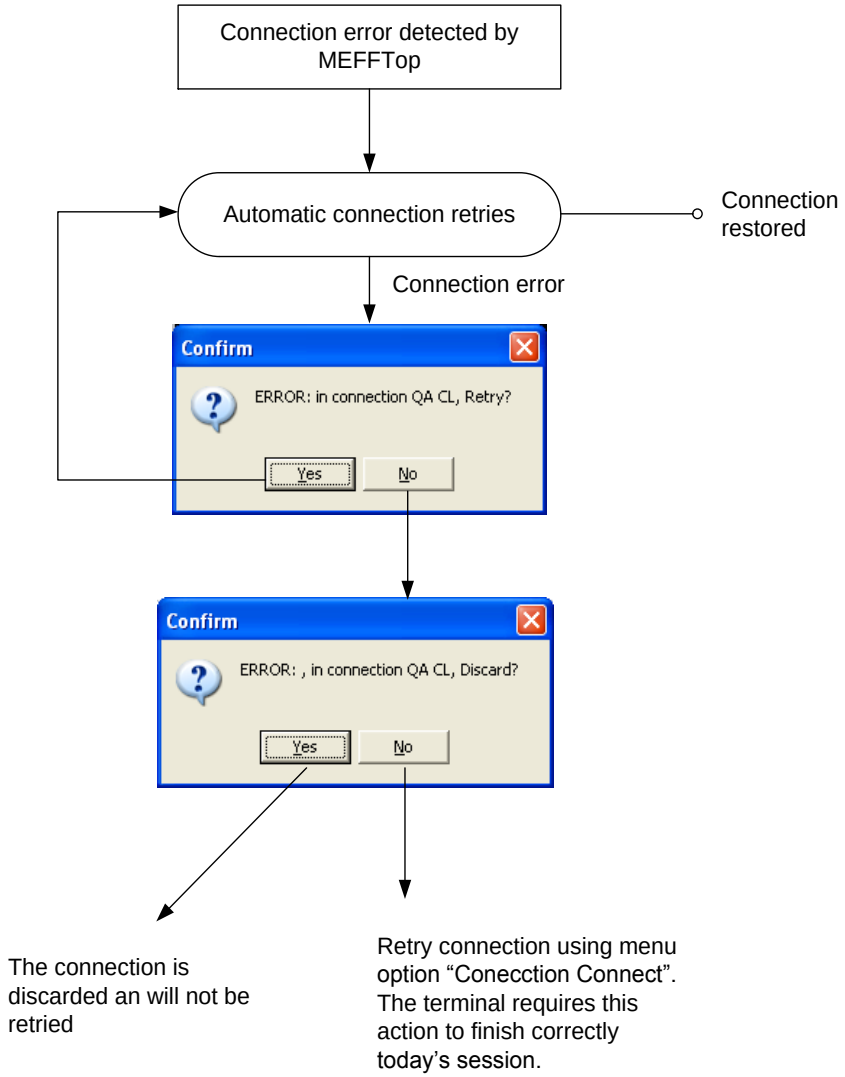
The configuration data are provided by MEFF.



- Connection configuration windows -

5.1.1 Managing connection errors

When MEFFTop detects an error in some of its connections, it will notify the user, who can opt to retry or accept the disconnection. If the disconnection is accepted he will have to decide if he wants to discard the connection, such that the terminal does not require this connection to end correctly, or not discard it, whereby the terminal considers it necessary to end the sessions associated with the connection.

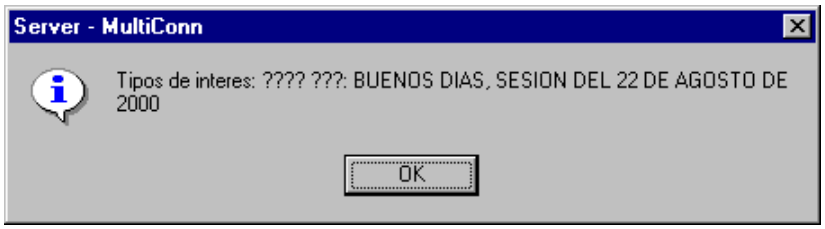


- Actions in the case of disconnection -

5.2 Messages from the Supervisor

In the system there is a message mechanism that allows messages to reach the trader from Market Surveillance and the trader’s own system. MEFFServer receives these messages and displays them to the user.

The messages appear in a window like the following:



When a message window appears, MEFFServer pauses its activity until the user clicks on the “OK” button. This ensures that the user does not miss any messages.

The message display time can be configured.

Configuring the display time of the message window: Select the option “Clearing House messages...” in the “Configure” menu.

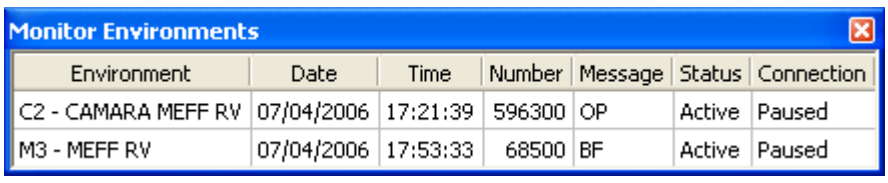
A window will appear like the following:

The display time is configured in milliseconds. If you enter the value zero (0), the messages will not appear.

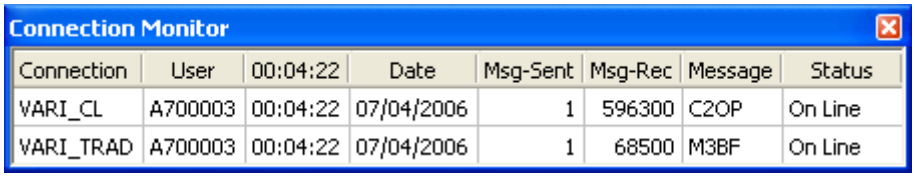
5.3 MEFFServer state

MEFFServer can display two different small scale windows by double clicking on the Environments or Connection Time state fields respectively. The windows will always be visible and can be moved anywhere on the screen. The position of the windows is saved for subsequent executions of MEFFServer. It is displayed below:

Environment Monitor



Connections Monitor



Connection	User	00:04:22	Date	Msg-Sent	Msg-Rec	Message	Status
VARI_CL	A700003	00:04:22	07/04/2006	1	596300	C2OP	On Line
VARI_TRAD	A700003	00:04:22	07/04/2006	1	68500	M3BF	On Line

Appendix A Structure of tables

This appendix describes the structure of each table generated by MEFFServer. It is also indicated in which database is generated: ***REALTIME***, ***MEFFHIST*** and ***MAESTROS.***

- ***REALTIME*** has tables which are maintaned during the session. They are created when the MEFFServer connection is made and remain until the next connection, when they are created again.
- ***MEFFHIST*** contains the historical tables. At the end of each session new records are added to these tables.
- ***MAESTROS*** contains the general tables. They are updated at the end of each session, modifying the existing contents and adding new records.

A.1 Special value NULL

When a field with type String has no value, this field will be filled with '-' value.

A.2 Trading Data

A.2.1 General Data

Market

	TMARKET.DB
Group	General Data
Description	General information about the market
Group of tables	RealTime - Maestro

#	*	Field	Type	Description
1	🗝	Mercado	String(2)	Market code
2		Descripcion	String(75)	Market description
3		Camara	String(2)	Clearing House associated to this market
4		FechaAct	Date	Last updated

Currencies

	TCCURRENCY.DB
Group	General Data
Description	Currencies avalilable in the Clearing House
Group of tables	RealTime – Historical data

#	*	Field	Type	Description
1	🗝	Fecha	Date	Session date
2	🗝	Camara	String(2)	Market code
3	🗝	Currency	String(3)	Currency. For the FX Contracts, the quote currency or the second of the pair.
4		SettlCurrency	String(3)	Currency in which cash amounts are settled
5		ConversionRate	Float	Conversion rate to the settlement currency

Holidays

	THOLIDAYS.DB
Group	General Data
Description	Calendar of holidays when the trading platform is closed
Group of tables	RealTime - Maestro

#	*	Field	Type	Description
1	🗝	Mercado	String(2)	Market code
2	🗝	Fecha	Date	Holiday date
3		FechaAct	Date	Last updated

Participating entities

	TENTITIES.DB
Group	General Data
Description	Public information on the entibies that participate in the market
Group of tables	RealTime - Maestro

#	*	Field	Type	Description
1	🗝	Mercado	String(2)	Market code
2	🗝	Codigo	String(4)	Code of the Entity in the market
3		CodigoBCE	String(6)	Code of the Entity in the European Central Bank
4		Descripcion	String(75)	Name of the Entity
5		NombreCorto	String(20)	Short name of the Entuty
6		Clase	Char	Type of Entity See Table 14 in document “Codification Tables”
7		FechaAlta	Date	Date when Entity was added
8		FechaAct	Date	Last updated
9		NumIdentif	String(18)	Identification number. Only informed for ADM
10		FechaBaja	Date	Date when Entity has been removed
11		Pais	String(2)	Country Codification ISO 3166:1993
12		Estado	Char	Status "S"=Temporary removed "T"=New but not operative "A"=Operative "B"=Removed
13		CodIdioma	String(2)	Idiom Codification ISO 639-2
14		LEI	String(20)	LEI de la entidad

Contracts groups

	TCONTRGRP.DB
Group	General Data
Description	Contract groups
Group of tables	RealTime - Maestro

#	*	Field	Type	Description
1	🗝	Mercado	String(2)	Market code
2	🗝	Grupo	String(2)	Group of contract
3		Descripcion	String(20)	Description
4		FechaAct	Date	Last updated
5		CodPais	String(2)	Country Codification ISO 3166:1993
6		CodSector	String(3)	Sector code “--“=No procede (f.e. Bonds)
7		Subyacente	String(22)	Code of spot contract for group
8		Activo	String (8)	Underlying code that identifies this group

Contract types

	TCONTRTYP.DB
Group	General Data
Description	Contract types
Group of tables	RealTime - Maestro

#	*	Field	Type	Description
1	🗝	Mercado	String(2)	Market code
2	🗝	Grupo	String(2)	Contract group
3	🗝	Tipo	String(4)	Contract type
4		Descripcion	String(20)	Description
5		Multiplicador	Float	Multiplier that has to be apllied to the contract price
6		Nominal	Float	Nominal value
7		Divisa	String(3)	Currency code
8		MetodoCalculo	Char	Method for calculating prices and volatility for this type of contract "1"=Black-76 "2"=Binomial
9		CFICode	String(6)	Codification of financial instruments in accordance with ISO standard 10962 See Table 16 in document “Codification tables”
10		FechaAct	Date	Last updated
12		NumeroDecimales	SmallIn	Number of decimals
13		TipoOpcion	Char	Option type "A"=American "E"=European "V"=Automatic European
14		SubTipo	String(2)	SubType "C"=Spot "I"=Índices "R"=Rollover "X"=External "FA"=Stock Futures "FF"=Fix Income Futuros "FI"=Index Futures "FS"=Sectorial index futtures "OA"=Stock options "OI"=Index options "OS"=Sectorial index options "OF"=Fix income options
15		EntornoAnotacion	String(1)	“P” = S/MART “S” = SIBE (externak platform)
16		FamiliaProducto	String(5)	see Table 28 in document “Codification Tables”
17		IdentificacionAII	String(12)	AII Identifier
18		TipoProducto	String(1)	“E”= Strategy “F”=Future “M”=Forward “O”=Option “R”=Roll-over “W”=Swap “X”=Other
19		SubtipoProducto	String(6)	see Table 30 in document “Codification Tables”
20		IndFlexible	String(1)	“Y” – No standard “N” - Standard

#	*	Field	Type	Description
21		MetodoLiq	String(1)	“P” – physical “C” - cash
22		PutCall	String(1)	Tipo de opción “P” – Put “C” - Call
23		Periodicidad	Strin(1)	“Y” – Yearly “Q” – Quarterly “M” – Monthly “K” – full week (Mon-Sun) “B” – weekly working days (Mon-Fri) “E” – week-End (Sat-Sun) “D” – Daily
24		TipoAjuste	String(1)	Tipo de ajuste “E” – Sólo extraordinarios “T” - Todos
24		UnitOfMeasure	String(20)	Unidad de medida del multiplicador
25		BaseCurrency	String(3)	Divisa en la que se expresa el nominal de los contratos de este tipo

Contracts

	TCONTRACTS.DB
Group	General Data
Description	General information on the contracts available in the session
Group of tables	RealTime - Maestro

#	*	Field	Type	Description
1	🗝	Mercado	String(2)	Market code
2	🗝	Contrato	String(22)	Contract code
3	🗝	Grupo	String(2)	Contract group
4	🗝	Tipo	String(4)	Contract type
5	🗝	Strike	Float	Strike price
6	🗝	FechaVencimiento	Date	Maturity date
7		FechaAlta	Date	Initial trading date
8		FechaFinNeg	Date	Last trading date
9		RollTomo	String(22)	Buying time-spread contract code (as for the buying order)
10		RollDoy	String(22)	Selling time-spread contract code (as for the selling order)
11		TSZeroBase	Float	Zero base for time-spread
12		IdVencimiento	String(8)	Identifier of maturity Formats: YYYYMM YYYYMMDD YYYYMMwW (YYYY=year, MM=month, DD=day, w="w", W=week)
13		ISIN	String(12)	ISIN contract code for information purposes. Need not be provided
14		FechaAct	Date	Last updated
15		NumeroVencimientoNeg	SmallIn	Expiration number of trading
16		LimiteSuperior	Float	Upper limit
17		LimiteInferior	Float	Lower limit
18		Rango	Float	Range
19		StartMaturityMonthYear	Date	Fecha de inicio de entrega (contratos de energía)
20		EndMaturityMonthYear	Date	Fecha de fin de entrega (contratos de energía)
21		AssetClass	String(4)	
22		BaseProduct	String(4)	
23		SubProduct	String(4)	
24		FurtherSubproduct	String(4)	
25		SSTI_Pre	Float	
26		LIS_Pre	Float	
27		SSTI_Post	Float	
28		LIS_Post	Float	
29		VersionNumber	Char	Versión del contrato (0 si no ha sufrido ajustes)

#	*	Field	Type	Description
30		ClosingPositionType	String(1)	It indicates whether the position can be closed by one of the counterparties before the expiry date M: Market C: By buyer V: By seller A: By either
31		BuyReferenceRate	String(1)	Buy reference rate S: €STR F: FISAnalitics M:MEFF lending rate 0: Zero ‘ ‘: N/A In FLEX it will only be informed in one of the two sides (buy or sell) the one corresponding fo the financed party.
32		BuyReferenceRateMarkup	float	Markup on top of buy reference rate Percentage with sign and up to 4 decimal places
33		SellReferenceRate	String(1)	Sell reference rate S: €STR F: FISAnalitics M:MEFF lending rate 0: Zero ‘ ‘: N/A In FLEX it will only be informed in one of the two sides (buy or sell) the one corresponding fo the financed party.
34		SellReferenceRateMarkup	float	Markup on top of sell reference rate Percentage with sign and up to 4 decimal places
35		DividendPercentageApplied	float	Percentage applied to dividend payments. Percentage without sign and up to 2 decimal places. It is used to include an effect similar to the corresponding tax or part of it.
36		DividendDateOffset	int	Offset between dividend date and actual payment. 0 indicates exdate 999 indicates effective date

Trade types

	TTRADETYP.DB
Group	General Data
Description	Information on trade types handled in the market
Group of tables	RealTime - Maestro

#	*	Field	Type	Description
1	🗝	Mercado	String(2)	Market code
2	🗝	TipoOperacion	Char	Trade type See Table 19 in document “Codification tables”
3		Descripcion	String(20)	Description
4		FechaAct	Date	Last updated
5		ActPrecioVolumenUltima	Char	Indicates if price, last volume, high, low and tendency has to be updated “S”=Yes "N"=No "T"=Depends on the contract type
6		ActRegNegociacion	Char	Indicates if trade register number has to be updated “S”=Yes "N"=No
7		ActVolNegContrato	Char	Indicates if total volume has to be updated “S”=Increased "N"=No "R"=Decreased
8		DisparaOrdenesStop	Char	Stop orders have to be triggered “S”=Yes "N"=No
9		SeEnviaDistribuidores	Char	Sent to distributors “S”=Yes "N"=No
10		VisualizaTickerOper	Char	View in trader ticker "M"=Market (Order type is shown) "O"="Tr" + Trade type "A"="Ap" + Trade type "N"=It is not shown (except ADM)
11		VisualizaTickerGen	Char	View in general ticker “S”=Yes "N"=No
12		VerificaLimitesFluc	Char	Check fluctuation limits in cross trades entry “S”=Yes "N"=No
13		Intermediada	Char	Brokered trade “S”=Yes "N"=No
14		AdmitePrecAplicOpcion	Char	“S”=Yes "N"=No
15		ProcedeOrdenes	Char	Originate from orders “S”=Yes "N"=No
16		AcumulaVolGeneral	Char	Update general volumen “S”=Increased "N"=No "R"=Decreased

#	*	Field	Type	Description
17		ClaseOperacion	Char	Trade class "N"=Electronic trading "A"=Telephone trade outside of Market session "H"=Telephone trade during Market session "J"=Trades with large volume "L"=Delta trades "V"=Expiry "E"=Exercise "T"=Transfers "G"=Give-up "D"=Assignment from daily account "P"=Adjustment of position
18		AdmitidaGestionApli	Char	Trade admitted in Expit trade admin “S”=Yes "N"=No

A.2.2 Public daily information

Contract daily data

	TCONTRSTAT.DB
Group	Public daily information
Description	Contract daily data. Only for those contracts with at least one of that fields: Last, Traded volume, SessionHighBid, SessionLowOffer
Group of tables	RealTime - Historical data

#	*	Field	Type	Description
1	🗝	Fecha	Date	Session date
2	🗝	Mercado	String(2)	Market code
3	🗝	Contrato	String(22)	Contract code
4		Alto	Float	High price
5		Bajo	Float	Low price
6		First	Float	First price
7		Last	Float	Last price
8		Cierre	Float	Closing price
9		VolatCierre	Float	Closing volatility at the close of session. This field is not completed for long term options
10		DeltaCierre	Flota	Closing delta at the close of the session. This field is not completed for long term options
11		Open	Float	Previous day closing price
12		VolatApertura	Float	Previous day closing volatility
13		DeltaApertura	Float	Previous day closing delta
14		VolumenNegociado	Integer	Total traded volume
15		NumTrades	Integer	Number of trades
16		BidCierre	Float	Buying price when Market is closed Its value is zero during the session.
17		AskCierre	Float	Selling price when Market is closed Its value is zero during the session
18		PrecioMedio	Float	Average price
19		EfectivoNegociado	Amt	Effective = Average price * Volume
20		SessionHighBid	Float	Price of the highest bid order
21		SessionLowOffer	Float	Price of the lowest offer order
22		ForwardPrice	Float	Reference price (forward) for D+1 (only informed in currency derivative contracts)
23		PreviousDayForwardPrice	Float	Previous day reference price (forward) (only informed in contracts with deferral feature)

Contract daily prices

	TCONTRPRICES.DB
Group	Public daily information
Description	Contract daily prices
Group of tables	RealTime - Historical data

#	*	Field	Type	Description
1	🗝	Fecha	Date	Session date
2	🗝	Mercado	String(2)	Market code
3	🗝	Contrato	String(22)	Contract code
4		Cierre	Float	Closing price
5		VolatCierre	Float	Closing volatility at the close of session. This field is not completed for long term options
6		DeltaCierre	Flota	Closing delta at the close of the session. This field is not completed for long term options
7		Open	Float	Previous day closing price
8		VolatApertura	Float	Previous day closing volatility
9		DeltaApertura	Float	Previous day closing delta
10		ForwardPrice	Float	Reference price (forward) for D+1 (only informed in currency derivative contracts)
11		PreviousDayForwardPrice	Float	Previous day reference price (forward) (only informed in contracts with deferral feature)

General trades

	TGENTRADES.DB
Group	Public daily information
Description	Public information of executed trades
Group of tables	RealTime – Historical data

#	*	Field	Type	Description
1	🗝	Fecha	Date	Session date
2	🗝	Mercado	String(2)	Market code
3	🗝	Secuencia	Integer	Sequence number
4		NRegNeg	String(12)	Trade register number
5		Contrato	String(22)	Contract code
6		HoraOperacion	String(15)	Execution time
7		Precio	Float	Price
8		Volumen	Integer	Volume
9		TipoOperacion	Char	Trade type See Table 19 in document “Codification tables”
10		MarketID	String(4)	Operating MIC
11		MarketSegmentID	String(4)	Segment MIC
12		MarketMecanism	String(1)	Mecanismo de negociación: 0: Continuous Auction 3: Quote Driven Market. 4: Dark Order Book. 1: Off Book (including Voice or Messaging Trading). 5: Periodic Auction 6: Request for Quotes.
13		ISINCode	String(12)	Código ISIN del contrato a efectos informativos. Puede no estar presente.
14		PublishTime	Time	Hora de publicación
15		PostTransparencyFlags	String(59)	Flags de posttransparencia, separados por comas. BENC NPFT LRGS ILQD SIZE TPAC XFPH CANC AMND LMTF FULF DATF FULA VOLO FULV FWAF FULJ IDAF VOLW COAF

#	*	Field	Type	Description
16		PreviousTradeExecId	String(12)	En caso de retrocesión, corrección y en las operaciones de las patas de una estrategia. Para las operaciones correspondientes a patas de una estrategia este campo contiene el Número de Registro de Negociación de la operación en la estrategia.
17		ExecDate	Date	Fecha de ejecución
18		PublishDate	Date	Fecha de publicación

A.2.3 Private configuration dataAccounts

	TACCOUNTS.DB
Group	Private configuration data
Description	Information on the available accounts
Group of tables	RealTime - Maestro

#	*	Field	Type	Description
1	🗝	Mercado	String(2)	Market code
2	🗝	Miembro	String(4)	Trading Member
3	🗝	Titular	String(3)	Holder
4	🗝	SubCuenta	String(2)	Account
5		FechaAct	Date	Date when the holder was added
6		Estado	Char	Indicates if the account is currently active or not
7		FechaUltModif	Date	Last update
8		FechaAltaCuenta	Date	Date when the account was added
9		PropClient	String(1)	Cuenta propia/cliente
10		TipoPersona	String(2)	Person type See Table 25 in “Codification Tables” document
11		EntAuth	Char	Authorised entity code
12		Descripcion	String(40)	Holder name

A.2.4 Private daily information

Orders

	TORDERS.DB
Group	Private daily information
Description	Orders sent by trader and registered in the market
Group of tables	RealTime – Historical data

#	*	Field	Type	Description
1	🗝	Fecha	Date	Session date
2	🗝	Mercado	String(2)	Market code
3	🗝	Miembro	String(4)	Tradng Member
4	🗝	Operador	String(3)	Trader code
5	🗝	NumOrden	Integer	Order number assigned by trader Workstation
6		NumOrdenSistema	String(12)	Order number assigned by central system
7		ClOrdId	String(30)	FIX order identifier
8		Contrato	String(22)	Contract code
9		FechaAceptacion	Date	Last modification date
10		HoraAceptacion	String(15)	Last modification time
11		Titular	String(3)	Holder
12		Subcuenta	String(2)	Account
13		Referencia	String(18)	Reference
14		Precio	Float	Price
15		Signo	Char	Sign "1"=Buy "2"=Sell
16		Volumen	SmallIn	Total volumen
17		TipoOrden	String(3)	Order type See Table 9 in document “Codification tables”
18		VolumenPendiente	SmallIn	Pending volume
19		FechaAnulEjec	Date	Cancelaltion / execution date
20		HoraAnulEjec	String(15)	Cancelaltion / execution time
21		EstadoOrden	String(2)	Order status see Table 10 in “Codification tables” document
22		PrecioDisparoStop	Float	Trigger price
23		MotivoAnulacion	String(3)	Cancellation motive see Table 11 in “Codification tables” document
24		TipoOrdenFIX	Char	Order type in FIX See Table 12 in “Codification tables” document
25		VigOrdenFIX	Char	Time in force in FIX See Table 13 in “Codification tables” document
26		MnemonicGiveOut	String(10)	Mnemonic that has a Give-In member and a Give-Up reference associated. It has been filled by the trader.
27		MiembroGiveIn	String(4)	Clearing Broker
28		RefGiveUp	String(18)	Give Up Reference
29		RefIntGiveOut	String(18)	Give-Out Internal Reference used by the Executing Broker for internal purposes.

#	*	Field	Type	Description
30		TipoPersistencia	char	Type of persistence in case of disconnection “P”=Persistence “C”=cancel
31		DEA	Char	DEA order flag
32		LiquidityProvision	Char	Liquidity provision flag
33		TradingCapacity	Char	D=Dealing on own account M=Matched principal A=Any Other Trading Capacity blanks
34		SelfExecPrevID	Integer	Self-execution prevention ID
35		ClientID	Number	Short code Client identification
36		DecisionID	Number	Short code to identify the party for the Investment Decision within Firm
37		ExecutionID	Number	Short code to identify the party for the Execution within Firm

Cross trades

Avaiable up to version 9.0

	TCROSSTRADES.DB
Group	Private daily information
Description	Status of cross trades in which Member participated as broker
Group of tables	RealTime – Historical data

#	*	Field	Type	Description
1	🗝	Fecha	Date	Session date
2	🗝	Mercado	String(2)	Market code
3	🗝	MiembroInterm	String(4)	Broker
4	🗝	OperadorInterm	String(3)	Trader
5	🗝	NumApliPropio	Integer	Cross trade number
6		MiembroTomo	String(4)	Buying Member
7		OperadorTomo	String(3)	Buying trader
9		TitularTomo	String(3)	Buying holder
10		SubCuentaTomo	String(2)	Buying account
11		MiembroDoy	String(4)	Selling Member
12		OperadorDoy	String(3)	Selling trader
13		TitularDoy	String(3)	Selling holder
14		SubCuentaDoy	String(2)	Selling account
15		ReferenciaInterm	String(18)	Reference
16		Contrato	String(16)	Contract code
17		Precio	Float	Price
18		Volumen	Integer	Volume
19		HoraAceptacion	Time	Confirmation time
20		Estado	Char	Cross trade status "P"=Pending "R"=Registered "E"=Error
21		TipoOperacion	Char	Trade type See Tabla 19 in “Codification tables” document
22		NumRegNeg	String(12)	Trade register number. Available when cross trade has been registered
23		CrossOrdId	String(30)	FIX cross order identifier
23		NumApliCamara	String(10)	Cross trade number assigned by Clearing House
24		FormaRechazo	Char	Rejected/Acceptance reason "1"=Error data "2"=Automatic croteris appled by HOST "3"=Automatic criteria applied by ADM "9"=By supervisor
25		ErrorContrato	Char	Indicates if exists any error in the contract “S”=Yes "N"=No
26		ErrorTipoOper	Char	Indicates if exists any error in trade type “S”=Yes "N"=No
27		ErrorPrecio	Char	Indicates if exists an error in the price “S”=Yes "N"=No

#	*	Field	Type	Description
28		ErrorVolumen	Char	Indicates if exists an error in the volume “S”=Yes "N"=No
29		ErrorMiembroTomo	Char	Indicates if exists an error in the buying member code “S”=Yes "N"=No
30		ErrorCuentaTomo	Char	Indicates if exists an error in the buying account code “S”=Yes "N"=No
31		ErrorMiembroDoy	Char	Indicates if exists an error in the selling member code “S”=Yes "N"=No
32		ErrorCuentaDoy	Char	Indicates if exists an error un the selling account “S”=Yes "N"=No
33		ErrorVolaSubya	Char	Indicates if exists and error in the volatility of the underlying “S”=Yes "N"=No
34		ErrorReferencia	Char	Indicates if exists and error in referente field “S”=Yes "N"=No
35		PrecioCompraHorq	Float	Buying spread price
36		PrecioVentaHorq	Float	Selling spread price
37		VolumenCompraHorq	Integer	Buying spread volume
38		VolumenVentaHorq	Integer	Selling spread volume
39		ClOrdIdTomo	String(10)	FIX identifier for buying order
40		ClOrdIdDoy	String(10)	FIX identifier for selling order

Trades

	TTRADES.DB
Group	Private daily information
Description	Executed trades
Group of tables	RealTime – Historical data

#	*	Field	Type	Description
1	🗝	Fecha	Date	Session date
2	🗝	Mercado	String(2)	Market code
3	🗝	Numerador	Integer	Sequence number
4		NRegNeg	String(12)	Trade register number
5		Signo	Char	Side "1"=Compra "2"=Venta
6		Miembro	String(4)	Trading Member
7		Operador	String(3)	Trader code
8		Titular	String(3)	Holder
9		Subcuenta	String(2)	Account
10		Contrato	String(22)	Contract code
11		TipoOp	Char	Trade Tipo
12		Precio	Float	Price
13		Volumen	Integer	Volume
14		Referencia	String(18)	Trade reference. Can be the order reference or this assigned in the cross trade
15		NumOrdenSistema	String(12)	Order number assigned by central system
16		ClOrdId	String(30)	Order identifier in FIX
17		NroApli	Integer	Cross trade number in case of cross trade
18		CrossOrdId	String(30)	Cross trade Identifier in FIX
19		MiembroInter	String(4)	Broker Member
20		OperadorInter	String(3)	Broker trader
21		HoraEjec	String(15)	Executing time
22		FechaEjec	Date	Executing date
23		NumOrden	Integer	Order number assigned by trader's Workstation
24		Bid	Float	Bid price
25		VolBid	Integer	Volume at bid price
26		Ask	Float	Ask price
27		VolAsk	Integer	Volume at ask price
28		EfectivoOpe	Amt	Efectivo/Nominal de la operación
29		TrasactID	Int	Transaction Identifier,
30		MarketID	String(4)	Operating MIC
31		MarketSegmentID	String(4)	Segment MIC
32		MarketMecanism	String(1)	0: Continuous Auction 3: Quote Driven Market. 4: Dark Order Book. 1: Off Book (including Voice or Messaging Trading). 5: Periodic Auction 6: Request for Quotes.

#	*	Field	Type	Description
33		TradingSessionID	Integer	Trading mode.
34		ISINCode	String(12)	
35		PublishTime	Time	
36		PostTransparencyFlags	String(59)	it contains the trade post-transparency flags accordingly MiFID II directive. Different flags are enclosed by doubled quotes (") and separated by a comma BENC NPFT LRGS ILQD SIZE TPAC XFPH CANC AMND LMTF FULF DATF FULA VOLO FULV FWAF FULJ IDAF VOLW COAF
37		PreviousTradeExecId	String(12)	In case of trade cancellation, trade amendment or leg trade..
38		DEA	Char	DEA order indicator
29		LiquidityProvision	Char	Liquidity provision indicator
40		TradingCapacity	Char	D=Dealing on own account M=Matched principal A=Any Other Trading Capacity blanks
41		SelfExecPrevID	Integer	Self-execution prevention ID
42		ClientID	Number	Short code Client identification
43		DecisionID	Number	Short code to identify the party for the Investment Decision within Firm
44		ExecutionID	Number	Short code to identify the party for the Execution within Firm
45		PriorityChange	Char	Priority change indicator
46		RiskReducingIndicator	Char	For risk-reducing trades in commodity derivatives
47		PasiveAgresive	Char	P=Pasive A=Agresive ‘ ‘=N/A
48		PublishDate	Date	

Request for quote

Available until version 9.95

	TPINTERES.DB
Group	Private daily information
Description	Request for quote
Group of tables	RealTime - Historical data

#	*	Field	Type	Description
1	🗝	Fecha	Date	Session date
2	🗝	Mercado	String(2)	Market code
3	🗝	Numerador	Integer	Sequence number
4		Miembro	String(4)	Member code
5		Operador	String(3)	Trader code
6		Contrato	String(22)	Contract code
7		Volumen	SmallIn	Volume
8		Activa	Char	Active request “S”=Yes "N"=No
9		HoraAlta	Time	Request time
10		HoraBaja	Time	Remove request time

Indication of interest

Available up to version 9.96

	TIOI.DB
Group	Private daily information
Description	Indication of interest
Group of tables	RealTime - Historical data

#	*	Field	Type	Description
1	🗝	Fecha	Date	Session date
2	🗝	Mercado	String(2)	Market code
3	🗝	Numerador	Integer	Sequence number
4		Miembro	String(4)	Member code
5		Operador	String(3)	Trader code
6		Contrato	String(22)	Contract code
7		Volumen	SmallIn	Volume
8		Activa	Char	Active request “S”=Yes "N"=No
9		HoraAlta	Time	Request time
10		HoraBaja	Time	Remove request time

Appendix B Predefined Codes

This appendix offers a list with the codeso f the data codes offered by MEFFServer.

Categories:

- **Trading**

  Trading information on the different contracts.

- **Feed**

  Feed messages in ticket mode, providing semi-elaborated information.

- **General Information**

  Data on the current session and the contract specifications

B.1 Trading

Item	***Description***	***Parameters (bols accept wildcard "?")***
ALTO	High price	Market+Contract
ASK	Contract ask price (best sell price)	Market+Contract
ASK1	Second best sell price	Market+Contract
ASK2	Thrid best sell price	Market+Contract
ASKVOL	Ask volume	Market+Contract
ASKVOL1	Ask 1 volume	Market+Contract
ASKVOL2	Ask 2 volume	Market+Contract
BAJO	Low price	Market+Contract
BID	Contract bid price (best buy price)	Market+Contract
BID1	Second best buy price	Market+Contract
BID2	Third best buy price	Market+Contract
BIDVOL	Bid volume	Market+Contract
BIDVOL1	Bid 1 volume	Market+Contract
BIDVOL2	Bid 2 volume	Market+Contract
CMPA	Ask n	Market+Contract+PositionNum
CMPB	Bid n	Market+Contract+PositionNum
CMVA	Ask n volume	Market+Contract+PositionNum
CMVB	Bid n volume	Market+Contract+PositionNum
DESGESTRATEGIA	Composition of the strategy	*Market + Contract*
ESTADOMERC	Market state (Open, close)	Market
IOICONTR	Active indication of interest	***Market***
LAST	Last price	Market+Contract
LASTVOL	Volume last trade	Market+Contract
MSGOP	Time last trade	Market
OPEN	First price	Market+Contract
PREMEDNEGD	Weighted Average Sell Price Acc/Contr/ TrdTyp	*Market+Contract****+Member+ PositionAccount + + TradeType***
PREMEDNEGT	Weighted Average Buy Price Acc/Contr/ TrdTyp	*Market+Contract****+Member+ PositionAccount + + TradeType***
TENDENCIA	Trend	Market+Contract
VOLASK1CTA	Pending volume on account in ASK1 of Contract	Market+Contract+Miembro***+ PositionAccount***
VOLASK2CTA	Pending volume on account in ASK2 of Contract	Market+Contract+Miembro***+ PositionAccount***
VOLASKCTA	Pending volume on account in ASK of Contract	Market+Contract+Miembro***+ PositionAccount***
VOLASUBYA	Volatility of Underlying future of last expit trade	Market+Contract
VOLBID1CTA	Pending volume on account in BID1 of Contract	Market+Contract+Miembro***+ PositionAccount***
VOLBID2CTA	Pending volume on account in BID2 of Contract	Market+Contract+Miembro***+ PositionAccount***

Item	*Description*	*Parameters (bols accept wildcard "?")*
VOLBIDCTA	Pending volume on account in BID of Contract	Market+Contract+Miembro***+ PositionAccount***
VOLNEG	Traded volume	*Market*+***Contract***
VOLNEGCTA	Traded volume Acc/Contr/TradeType (3 Fields)	Market+Contract+Miembro***+ PositionAccount + TradeType***
VOLNEGMERC	Total traded volume by market	Market
VOLNEGPTAS	Total traded volumen by market in millions	Market

B.2 Feed

All these items are made up of various fields. The separator character of them is ASCII 9 (tab).

Item	*Description*	*Parameters (bols accept wildcard "?")*
FEEDOPEGEN	General Trades (6 Fields)	***Environment***+***Contract***
FEEDOPNEG	Executed Trades (15 Fields)	***Market+Contract+Member+ PositionAccount***
FEEDOPPRO	Registered Trades (15 Fields)	***ClearingHouse+Contract+Member+ PositionAccount***
FEEDMS	Messages to Supervisor (2 Fields)	***Environment***
FEEDCO	Confirmation of orders (16 Fields)	***Market+Contract+Member+ PositionAccount***
FEEDOM	Modification of orders (9 Fields)	***Market+Contract+Member+ PositionAccount***
FEEDDS	Stops triggered (5 Fields)	***Market+Contract+Member+ PositionAccount***
FEEDCA	Cancellation of orders (8 Fields)	***Market+Contract+Member+ PositionAccount***
FEEDAQ	Cross Trades (21 Fields)	*Market+Contract+Broker*

B.3 General Information

Item	*Description*	*Parameters (bols accept wildcard "?")*
CIERRE	Closing/Settlement price	Environment+Contract
CIERREANT	Previous closing/settlement price	Environment+Contract
CODVENCI	Contract code for a maturity date	*Environment+Group+Type+MaturityDate*
CODVENCI1	Contract code (first expiry date)	*Environment+Group+Type*
DECDIVCAM	Number of decimals	*Environment*
EXPDATE	Maturity date	*Environment+Contract*
FECHASESI	Session date	***Environment***
HORASESI	Session time	***Environment***
NOMINAL	Nominal	*Environment+Contract*
NOPER	Number of Trades	Environment+**Contract**
NUMDEC	Number of Decimals for the contract	*Environment+Contract*
NUMVENCI	Expiry number	*Environment+Contract*
OINTNETULTI	Previous open interes	*Environment+Contract*
OPENINT	Open Interest	*Environment+Contract*
STRIKE	Strike price	*Environment+Contract Options*
SUBYACENTE	Underlying contract	*Environment+Contract Options*
TICKVAL	Tick value	*Environment+Contract*
TYPEINTMER	Interest rate	*Environment*
ULTIMSESI	Previous session date	***Environment***
VOLATCIERRE	Closing/Settlment volatility	Environment+Contract

