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This Document:

MCTradesCHX.pdf – details how to install, configure and run MCTradesCHX.

Revision:

29/08/2011 – M.G. – Update (Qualification Test Passed 22/08/2011)

20/07/2011 – M.G. – Produced the first version of this manual.

Similar MCTrades Products:

Similar MCTrades products exist for other exchanges:- ASXTrade, ASX24, HKex, SGX, TSE, OSE, SBI, Chix Japan contact RJE for more details.



1. Running MCTradesCHX:

You will need a FIX (TCP/IP) connection to the Chi-X system to extract trades from Chi-X production / test systems.

MCTradesCHX will work with the following Chi-X Feeds:-

- CXA Trade Feed
- CXA 3rd Party Consolidated Feed

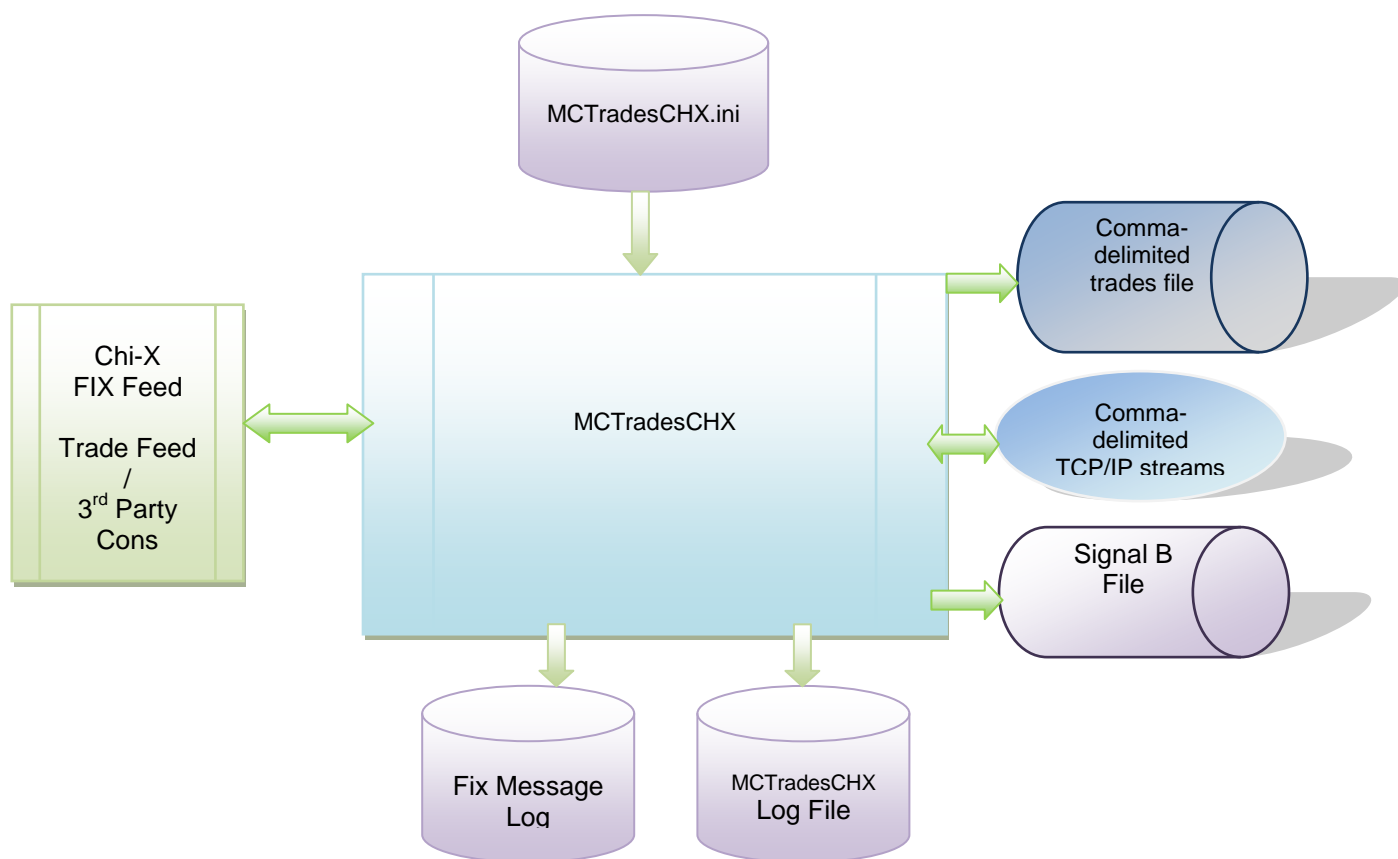


Figure 1. The MCTradesCHX Production System



1.1 Outputs:

Output Data is available as:-

- Signal B File
- Comma-delimited file (single trade side)
- Comma-Delimited TCP/IP feed (single trade side)

The Comma-Delimited TCP/IP feed is similar to all other MCTrades products.

Signal B is provided as a file only.

There is no support for MC API client connections.

1.2 GUI Screen:



The application contains a GUI screen which gives a quick visual indication that everything is working.

Typically, good status values are Green but status values may transit other states during stopping and starting.

Application Status:-

- Starting (Orange)
- Running (Green) – normal
- Stopping (Red)
- Hibernating (Grey) – normal overnight.

FIX Status:-

- Starting (White)
- Recovering (Yellow)
- Connecting (Orange)
- Connected (Green)
- Closing (Grey)

Clients Status:- (if accepting client connections)

- Listening (Orange) - accepting connections
- Connected (Green) – one or more clients connected
- Stopping (Grey)

Trades File Status:-

- Open (Green)
- Closed (Grey)
- Error (Red)

Signal B File Status:- (if producing Signal B)

- Open (Green)
- Closed (Grey)
- Error (Red)

2. Daily Cycle:

Like MCTradesAT, MCTradesCHX can be run for multiple days; it shuts down and wakes up at a certain scheduled time each day.

Refer:- [4.6 Daily Cycle Parameters:](#)

WAKE_TIME = time when program wakes up each morning,
SHUT_TIME = time when the program shutdown (hibernation) occurs.

This area functions as per existing MCTrades products.

Note: We currently have no way of detecting Market Closed in Chi-X feeds a timed shutdown is the only option.

3. Installation:

Install MCTradesCHX as follows :-

<Install Directory> :- MCTradesCHX.exe, MCTradesCHX.ini

<Install Directory>/logs :- make a subdirectory for log files.

To run the program, run MGTradesCHX.exe, provided the configuration in the .ini file is correct no other information is needed.

You must set the following parameters correctly:-

- Parameters – Fix Connection Configuration [4.1 FIX Connection Parameters:](#)
- Parameters – Fix Logon Configuration [4.2 FIX Logon Parameters:](#)

If you wish to run the program without a GUI refer:- [3.2.7 Other parameters:](#)

Note: When upgrade to a new version intra-day you should copy the FIX log file if installing in a new directory.

4 Configuration:

All configuration parameters are stored in MCTradesCHX.ini

4.1 FIX Connection Parameters:

FIX_SERVER_HOST = Name of Chi-X Fix Server.

Example **FIX_SERVER_HOST**=chx45

FIX_SERVER_PORT = Port to connect to for FIX.

FIX_SERVER_PORT=15007

Chi-X will supply values for these parameter settings.

4.2 FIX Logon Parameters:

FIX_SENDER_ID = Part of Fix header, a valid value must be specified. Chi-X will supply. Example **FIX_SENDER_ID**=RTRRJE01

FIX_TARGET_ID = Part of Fix header, a valid value must be specified. Chi-X will supply. Example **FIX_TARGET_ID**=CXA

FIX_USER_ID = user for Fix Logon. Example **FIX_USER_ID**=RJERJE01

FIX_PASSWORD = Password for Fix Logon. Example **FIX_PASSWORD**=Password

FIX_PASSWORD=[None] – Special setting for some Chi-X logons which don't have a password.

FIX_SENDER_ID= **FIX_USER_ID** for Chi-X these fields are currently treated the same.

Note: We are not aware of any function of automatic password changing in Chi-X trade feeds.

4.3 Optional FIX Parameters:

FIX_HEARTBEAT=<Heartbeat interval> (Seconds) – default = 5

Example **FIX_HEARTBEAT**=10

Note: You should consult Chi-X before setting this parameter, the default of 5 seconds is recommended.

4.4 Trade Feed Parameters:

These are TCP/IP ports that applications can connect to receive a feed of trade data.

The format of the data is described in [4. Application Development](#).

ALL_TRADES_PORT = TCP/IP port for all trades.

Example **ALL_TRADES_PORT**=12008

4.5 Logging Parameters:

The application log and FIX log are text files that can be used for trouble shooting.

APP_LOG_FILE = file base for application log, a new log is taken each run; the application log includes the current date and time.

Example **APP_LOG_FILE**= MCTradesCHX ,
The filename produced will be (MCTradesCHX .20110729_150113.log)

APP_LOG_DIRECTORY=Directory where the application log is stored.
Example **APP_LOG_DIRECTORY**=logs

APP_DATA_DIRECTORY=Directory where the Trades file is stored.
Example **APP_DATA_DIRECTORY**=data

APP_DATA_DIRECTORY defaults to **APP_LOG_DIRECTORY** if not specified.

FIX_LOG_FILE = file base for FIX Message Log, the filename always includes the current date. Example **FIX_LOG_FILE**=fix.messages,
The filename produced will be (fix.messages.20011729.log)

FIX_LOG_DIRECTORY=Directory where FIX Message Log is stored.
FIX_LOG_DIRECTORY=logs

If you don't specify these settings, defaults will apply.

Note: In this application the FIX Message Log is important see [7.1 FIX Message Log](#): for more details.

4.6 Daily Cycle Parameters:

Refer:- [2. Daily Cycle](#):

WAKE_TIME = time when program wakes up each morning (hour:min), default 07:00.
Example **WAKE_TIME**=07:30

SHUT_TIME = time when the program shutdown (hibernation) occurs (hour:min)
default 23:30.
Example **SHUT_TIME**=21:00

4.7 Signal B Parameters:

You only need to specify these parameters if you require a Signal B file output.

SIGNAL_B=YES – Turns on Signal B processing, which produces a Signal B file.

BROKER_TRANS=FirmID+ClearingFirm|BrokerNo,.....

COND_CODES=Chi-X Code|SignalB Code,.....

SIGNAL_B_FILE=File name.

SIGNAL_B_EXT=File Extension.

APP_OUTPUT_DIRECTORY=Directory.

4.7.1 Translation of Broker No and Cost Centre:

MCTradesCHX translates a FIX FirmID + ClearingFirm into an ASX 4 digit broker number (broker+cost centre).

FIX FirmID + ClearingFirm  ASX 4 digit broker no (broker+costcentre).

These settings are required to maintain compatibility with the ASX Signal B format.

Example

BROKER_TRANS=CXA+11111|9021,CXA+22222|9022

- FirmID=CXA+ClearingFirm=11111 maps to BrokerNo=9021
- FirmID=CXA+ClearingFirm=22222 maps to BrokerNo=9022

Note: Customers who use the Signal B format would be required to maintain these parameters.

4.7.2 Translation of Condition Codes:

MCTradesCHX translates a Chi-X Single Character Condition Code into a Signal B two Character condition code.

Chi-X code  Signal B (ASX) Condition Code

These settings are required to maintain compatibility with the ASX Signal B format.

If this translation table is not specified single character Chi-X codes are used in Signal B output.

Example

COND_CODES=B|BP,P|SX,.....

- Chi-X=**B** maps to Signal B=**BP**
- Chi-X=**P** maps to Signal B=**SX**

Note: Customers who use the Signal B format would be required to maintain these parameters.

The Chi-X condition codes are:-

B = Block Trade

P,p = Large Portfolio Trades

T,t = Large Principal Transaction

S = Trades at or within the spread

L = Permitted Trade during Post Trading Hours Period

M = Permitted Trade during Pre Trading Hours Period

E = Out of hours trade

4.7.3 Signal B File Name:

You can specify these optional settings to change the name of the Signal B File.

Example

`SIGNAL_B_FILE=ChiXSigB.`

`SIGNAL_B_EXT=.OUT`

Signal B Filename=`SIGNAL_B_FILE`<date>`SIGNAL_B_EXT`

In this case  “ChiXSigB.20110824.OUT”

The current date is always included in the file name.

4.7.4 Signal B File Directory:

This is configured via the `APP_OUTPUT_DIRECTORY` setting.

`APP_OUTPUT_DIRECTORY`=Directory where the Signal B file is stored.

Example **`APP_OUTPUT_DIRECTORY`**=output

`APP_OUTPUT_DIRECTORY` defaults to `APP_DATA_DIRECTORY` if not specified.

4.8 Configuration File Example :

```

* MCTradesCHX.ini
*****
* RUN WITHOUT GUI      *
*****
*NO_GUI=YES
*
*****
* FIX Session properties *
*****
FIX_SERVER_HOST=chx45
FIX_SERVER_PORT=15007
FIX_SENDER_ID=RTRRJE01
FIX_TARGET_ID=CXA
FIX_USER_ID=RTRRJE01
FIX_PASSWORD=[None]
*FIX_HEARTBEAT=16
*
*****
* TCP Clients properties *
*****
ALL_TRADES_PORT=12008
*
*****
* Application Log File properties *
*****
APP_LOG_FILE=MCTradesCHX
APP_LOG_DIRECTORY=logs
*
*****
* Fix Log File properties *
*****
FIX_LOG_FILE=fix.messages
FIX_LOG_DIRECTORY=logs
*
*****
* WAKE UP/SHUT DOWN      *
*****
WAKE_TIME=08:30
SHUT_TIME=18:18
*
*****
* Signal B              *
*****
SIGNAL_B=YES
BROKER_TRANS=CXA+1111|9021,CXA+22222|9022
COND_CODES=B|BP,P|SX,p|SX,T|SP,t|SP,S|CX,L|LT,M|OS,E|OS

```

5 Comma-Delimited Application Development:

One option for developers is to make a TCP/IP connection to MCTradesCHX trade feed ports and receive trades data in comma-delimited format.

Data is simply sent when it is available; there is no need to request data.

This are functions identically to the corresponding area in MCTradesAT.

In this case trades are single sided, all data received from Chi-X is included.

The port for clients connections is configured in :- [4.4 Trade Feed Parameters:](#)

5.1 Comma-Delimited Header:

Most applications would process the header as it gives a list of field names corresponding to field positions.

```
country|S:2,exchange|S:4,market|S:4,trade_date|D,firm_id|S,trader_id|S,trade_no|N,order
Id|S,clOrderId|S,exec_id|N:10,execRefID|N:10,execTransType|N:1,OrdStatus|N:1,LastCa
pacity|N:1,Account|S,quantity|N:9,sec_code|S,price|N:12.7,value|N:18.2,time_trade|T,utc
_timestamp|TS,Side|C,OrderQty|N,AvgPrice|N:12.7,CumQty|N,TransactTime|TS,ExecBr
oker|S,ClientID|S,ExecType|C,LeavesQty|N:10,ClientCrossRef|S,TransactID|S,TradeLiq
uidInd|S:2,SecurityID|S,IDSsource|N:10,SecurityExchange|S,ClearingFirm|S:5,ClearingA
ccount|S,ShortSellNakedQty|N:10,ShortSellCoveredQty|N:10,ShortSellLongQty|N:10,
OffExchangeTrade|N:10,AsAtDate|D,TradeReportType|S:1,RemoveFromClearing|S:1,~
```

5.2 Comma-Delimited Data:

The same format is used for all trades.

Fields that are not relevant are simply empty:-

```
AU,CHX,CHX,20110721,CXA,RTRRJE01,1,2,2011072108000312862032,B2011072115000001
-0,,0,2,4,,500,AAD,10.00,50.00,08:00:22,20110720-22:00:22,1,500,10.00,500,20110720-
22:00:22.120,SMA,SMA01,2,0,,q000000001,A,,,,11111,,,,,,,,,~
```

Note: Additional examples are available from RJE.

5.3 Trades File:

A .trades file is produced each run with a comma-delimited header and a comma-delimited trade record for each trade.

The contents of this file are identical to the data that would be sent for a trades feed of all trades.

On a restart the internal copy of the trade is recreated from the FIX Message Log and a new Trades File is produced.

APP_DATA_DIRECTORY=Directory where the Trades file is stored.

APP_DATA_DIRECTORY defaults to APP_LOG_DIRECTORY if not specified.

6 Signal B Application Development:

Signal B is only produced as a text file in the APP_LOG_DIRECTORY.

Signal B is only produced when the SIGNAL_B parameter is set

:- [4.7 Signal B Parameters:](#)

6.1 Chi-X Signal B Mapping:

Signal B Field	Chi-X Field	Comment
Sequence Number	Exec ID	6 digits before – in B20101118150000001-0 * Note -1
Message Type	ExecTransType	Code as TA/TG
RetransmitID	-	Always 0
ExchangeID	-	1=ASX, 2=Chi-X?
Time	TransactTime	UTC Time Converted to Local Time
Issuer Code	Symbol	First 3 characters
Security Code	Symbol	Next 3 characters
Security Type	-	Always set to 01?
Ticker Permission	-	RemoveCrossingFromClearing - Note5
Buyer ID	ExecBroker/ClearingFirm	Requires Translation * Note-2
Seller ID	ExecBroker/ClearingFirm	Requires Translation * Note-2
Sale Price	LastPx	
Sale Volume	Last Shares	
Sale Value	-	Calculated TradeValue = LastPx X LastShares
Serial Trade Qualifier	TransactID	* Note 3
Trade Date	TransactTime	UTC Time Converted to Local Time
Trade Serial No	TransactID	* Note 3
Condition Codes	-	TradeReportType – Note 6
As At Date	-	TradeDate
Settlement Date	-	N/A ? - * Note 4
Basis of Quotation	-	N/A ? - * Note 4
Special Markets Ind	-	N/A ? - * Note 4
Buyer Order Reference	ClientCrossRef /	ClearingAccount – Note 7
Seller Order	ClientCrossRef /	ClearingAccount – Note 7

**Reference
Exchange Rate**

N/A ? - * Note 4

Signal B records are always coded as TA/TG regardless of the trade type. This and other aspects of Signal B may need fine tuning depending on customer requirements.

Notes 1-7 only apply to customers getting data in Signal B format.

Note 1 – Sequence Number

RJE generates sequence numbers. The order of FIX messages during a day is constant. On a restart the Signal B file is rebuilt from the FIX Message log, for this and other reasons it is important that you don't delete the FIX Message Log.

Note 2 – Buyer ID / Seller ID

We may need to translate **ExecBroker/ClearingFirm** into Signal B – **Broker no/Cost centre**.

Customers would need to maintain a program configuration file which drives this translation. Example CXA|11111=9022

ExecBroker= CXA,
ClearingFirm=11111
Broker No=902
Cost Centre=2

Customers using a Signal B format would need to maintain this translation table.

Note 3 –Serial Trade Qualifier / Trade Serial No

This is provided by Chi-X similar to the ASX.

Transaction ID Update

Following the release of ASX's final specification concerning the Trade Acceptance Service and internal testing we are implementing a change to FIX Tag 6807. Previously referred to as CHESSTransactID this field will now be called TransactID and have the following format:

Length = 10 alpha numeric

XXXXXXXXXX

X = Serial Trade Qualifier (4 Char)

Y = Trade Serial Number (6 Integer)

Vendors and Participants can use these identifiers to reconcile with the CHESSTransaction ID that is disseminated on the CHESSTM164 message.

Note 4 – Basis of Quotation/ Special Markets etc

These fields have no obvious corresponding field in the Chi-X system, further information may become available or we may be able to derive them. If customers have a definite requirement to obtain this data from Chi-X we will follow up with Chi-X.

Note 5 – Remove Crossing From Clearing

As this is potentially a very important piece of information we will store it in the Signal B Ticker Permission field.

If required we can support configuration options to filter out crossings that will not be sent to clearing.

Note: Customers can specify the RemoveCrossingFromClearing option on trade reports.

Note 6 – Trade Report Type

MCTradesCHX adds SH & XT as required, single character Chi-X Trade report types can be translated via [4.7.2 Translation of Condition Codes](#).

These are defined in Chi-X as follows:-

B = Block Trade

P,p = Large Portfolio Trades

T,t = Large Principal Transaction

S = Trades at or within the spread

L = Permitted Trade during Post Trading Hours Period

M = Permitted Trade during Pre Trading Hours Period

E = Out of hours trade

In Chi-X you cannot currently specify Short Sell on Trade Reports.

Note 7 – Buyer / Seller Order Reference

We use ClearingAccount if ClientCrossRef is empty. (You can't specify ClientCrossRef in Chi-X Trade Reports).

Note 8 – Additional Data Fields / Extended Format

The following Chi-X fields cannot easily be accommodated in Signal B format-

- ClearingAccount
- TradeLiquidityIndicator
- ShortSellNakedQty
- ShortSellCoveredQty
- ShortSellLongQty

This is not a complete list, but we have covered the more significant fields. Customers who need this information should use a comma-delimited format, or if required we can produce an optional 'extended' Signal B format with more information. Any extended format will not match the ASX Standard.

7 FIX Session Sequence Numbers:

Typically FIX session sequence numbers start from 1 each day.

By default when reconnecting/restarting the sequence numbers at both ends continue on from their previous values and any missing messages are recovered.

This is especially true for Chi-X as the version of this they are using (4.2) does not support resetting sequence numbers.

Hence, on a restart the application reprocesses the FIX Message log to reestablish from/to sequence numbers.

7.1 FIX Message Log:

But, typically the FIX session is continued across runs and there is a single FIX Message log for each day. In that mode, traffic sent / received (including trades) is recovered from the FIX Messages log at startup.

Hence all trades data including the Signal B file is rebuilt from the message log each start up.

When resuming the FIX session the application typically only fetches new trades.

You can specify a filename/ directory for this file in :- [4.5 Logging Parameters:](#)

For MCTradesCHX you should never delete the FIX message log, if the rare event that is corrupted, you should rename the file.

7.2 Missing FIX Message Log:

A missing FIX message log could be caused by the following things:-

- Running from a different directory or with different .ini settings.
- Deleting or renaming the file.

For MCTradesCHX this can cause a problem with the sequence number of the login message we send to Chi-X. If the sequence number is less than expected Chi-X will ignore this message and you will eventually get the following error:-

```
*****  
*** Fatal Error - Exceeded FIX Logon retries - Check Config FIX_SERVER_PORT / FIX_SERVER_HOST. ***  
*** If settings above are correct then could be a problem with the Fix Message log. ***  
*** See MCTradesCHX.PDF - 6.2 Missing Fix Message Log. ***  
*** You can run MCTradesCHX -s 'nnn'. Where 'nnn' = last message sequence no from our end. ***  
*****
```

This error could mean the FIX Message log has been deleted or you could simply be connecting to the wrong host / port.

Note: A message log error can only be a problem if you have successfully connected earlier.

7.3 Specifying a Restart Sequence No:

If you know what the outbound FIX sequence number from your end should be you can specify it as follows:- MCTradesCHX -S nnn – Where nnn is the sequence number.

You should be able to get the number from the previous FIX Message Log.

If you don't know this number you can obtain it from Chi-X or Chi-X can reset the FIX session.

In this mode the application will re-request all trades for the day from Chi-X.

If you specify an incorrect sequence number we will still attempt to recover, but it is strongly recommend you restart with the correct number.