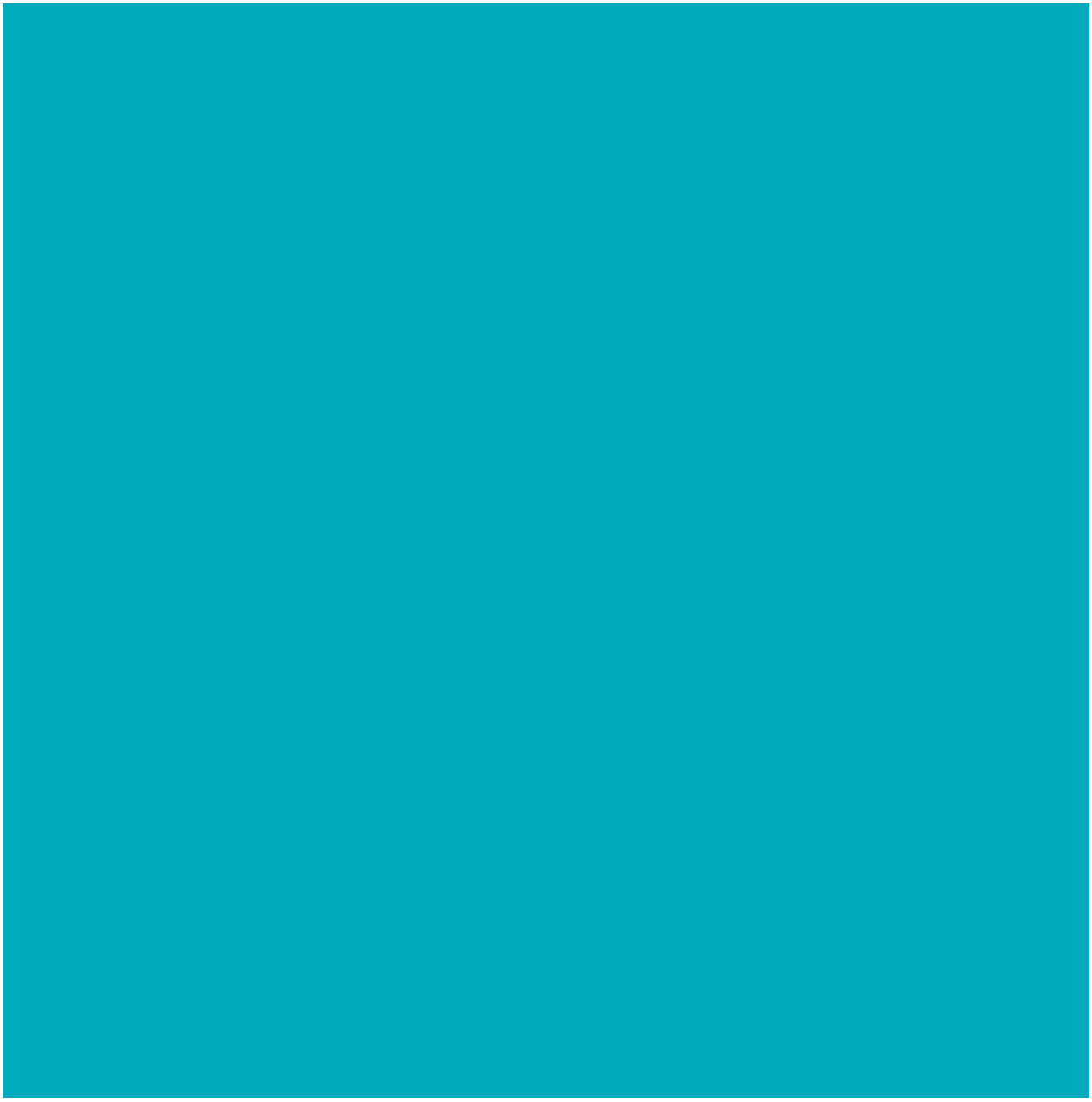
EquityClear
Real Time Confirmations

Cash equities



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1. INTRODUCTION

The EquityClear service provides members with the option to receive real time trade confirmations. The confirmations are of trades LCH.Clearnet has validated and registered for clearing, providing clarity to members.

The trade confirmations are offered using industry recognised message standards.

- ISO 15022 Trade Confirmations (MT518)
- FIX Trade Capture Report (AE).

The messages are available over the LCH.Clearnet 'Group Member Access(GMA) managed Network Service' provided by BTRadianz or over SWIFT.

The service will cover all product types and markets cleared by EquityClear:

- Markets: London Stock Exchange IOB, SIX Swiss Exchange, Equiduct, BATS Chi-x Europe, Turquoise, various OTC sources.
- Products: Single company equities, Exchange Traded Funds (ETFs), Exchange Traded Commodities (ETCs), Real estate investment trusts (REITs)

Members will have flexibility to choose the products and markets for which they receive confirmations.

It is expected that the real time message service benefits will be realised by:

- General Clearing Members (GCMs), to have visibility of the trades being executed by their Non-Clearing Members (NCMs), to which they become principal counterparty, and to risk manage these accordingly;
- Clearing Members, to generally have visibility of the trades to which they become principal counterparty

The purpose of this document is to fully describe this service extension, providing:

- A business description of the service.
- The technical message specifications.
- The technical interface infrastructure.

2. BUSINESS DESCRIPTION OF THE SERVICE

2.1 Message receipt options

Members can choose to receive trade confirmations based on the following criteria:

- Member account (Member mnemonic + House or Client)
- Trade source (i.e. market)
- Instrument type (cash equity or equivalents)

For each set of criteria, the member can further specify:

- the message format
  - ISO 15022 Trade Confirmations (MT518), or
  - FIX Trade Capture Report (AE)
- a destination identifier for the message, generally a BIC (Bank Identification Code). This will be used to action the member's delivery requirement, being either:
  - to route the MT518 message via SWIFT to the BIC, or
  - to route the message via the BTRadianz network

2.2 Message content

Each trade confirmation message will be sent on a real time basis as soon as the trade has been validated and registered.

Each message will contain the following information.

Data item	Description	Mandatory[1]	Note (see below)	Data Item ID[2]
Trade Source ID	Unique reference for the "Trade Source"	Y	1	A
Trade ID	Trade Source generated trade reference	Y	2	B
Trade Date/Time	Date and time when the trade was executed	Y	3	C
ISD	Intended Settlement Date	Y	4	D
Instrument	Identifier of the traded instrument	Y	5	E
	Held for future use	*N*	*6*	*F*
Quantity	Quantity of instrument traded	Y	7	G
Trade Price	Price and currency at which the trade was executed	Y	8	H
Consideration	Rounded amount and currency	Y	9	I
Trade Type	Trade type - used for trade processing	Y	10	J

[1] Mandatory: **Y**es, the data will always be provided. **N**o, the data will only be provided if it exists.

[2] Used to cross reference the interface message fields in section 3.

Data item	Description	Mandatory[1]	Note (see below)	Data Item ID[2]
Contra / Cancellation Reference	For a contra trade or trade cancellation, the Trade ID of the original trade	N	11	K
Settlement Place	BIC of the CSD where the equity instrument would settle	N	12	L
Dealing Firm ID (Buy)	Dealing Firm identifier in "Trade Source"	Y	13	M
Dealing Capacity (Buy)	Legal capacity in which dealing firm ID has executed the trade. (Agency or Principal)	Y	14	N
Dealing Firm Order Reference (Buy)	Reference attached to the order on input.	N	15	O
Clearing Account (Buy)	Member mnemonic and sub-account.	Y	16	P
Dealing Firm ID (Sell)	Dealing Firm identifier in "Trade Source"	Y	13	Q
Dealing Capacity (Sell)	Legal capacity in which dealing firm ID has executed the trade. (Agency or Principal)	Y	14	R
Dealing Firm Order Reference (Sell)	Reference attached to the order on input.	N	15	S
Clearing Account (Sell)	Member mnemonic and sub-account.	Y	16	T
Settlement Firm ID	The settlement firm ID	Y	17	U
Settlement Firm Sub Account	The settlement firm sub account, only applicable for Spanish settled executions.	N	18	V
CCP register identifier	The CCP register identifier, only applicable for Spanish settled executions.	N	19	W

Notes

The message will show two sides, one being the member's side and the other the LCH.Clearnet side with limited information.

1. Usually the ISO Market Identification Code (MIC) of the trade source. However, it may be beneficial or necessary to have more than one code per trade source to segment the business appropriately and if so these codes will be provided. To meet the FIX standard these are limited to being 4 characters, the SWIFT standard can support more.
2. This will at least be unique per trade source, per trade date.
3. The local date and time at which the trade was executed at the trade source. It should be noted that the FIX standard requires date/time fields to be sent as UTC/GMT.
4. The intended settlement date (ISD) for a cash equity trade.

5. The ISIN of the equity instrument.
6. *Held for future use.*
7. The quantity of the instrument traded as defined by the contract.
8. The ISO currency code and the price in that unit. Therefore sterling prices will always be quoted in pounds (GBP) and not in pence.
9. The ISO currency code and the consideration in that unit. The consideration will be rounded to the appropriate number of decimal places settleable for the currency (e.g. 2 d.p. for GBP, being pence).
10. The trade types are:
    a. Cash equity trade
    b. Cash equity 'off book' trade – risk limit check applied before the trade is accepted for clearing
11. Where the trade is a contra (reversal) or cancellation of an earlier trade, the original Trade ID will be provided. This is mandatory for cancellations and optional for contras.
12. Where the traded instrument is a cash equity, the BIC of the CSD used to settle that instrument.
13. The unique identifier provided by the trade source. Often, but not necessarily, a BIC. Provided on the LCH.Clearnet side.
14. The legal capacity in which the dealing firm has executed the trade, either as agent or principal. The LCH.Clearnet side will always be principal.
15. This is intended to be a reference entered by the dealing party on their order or trade side to be used by them or their clearer for post trade processing. Not provided on the LCH.Clearnet side.
16. The clearing account – being the member mnemonic plus the sub-account. E.g. XXXH being the house account of member XXX. Not provided on the LCH.Clearnet side.
17. Not provided on the LCH.Clearnet side.
18. Only provided on Spanish settled executions and not provided on the LCH.Clearnet side.
19. Only provided on Spanish settled executions and not provided on the LCH.Clearnet side.

2.3 Exceptions

2.3.1 Rejected trades

It is very rare for trades to be rejected. In this case the trade is not registered by LCH.Clearnet and hence no trade confirmation will be sent out to members. It will be for the trade source to manage the trade outside of CCP clearing.

3. TECHNICAL MESSAGE SPECIFICATIONS

3.1 ISO15022 Trade Confirmation Message (MT518)

3.1.1 Message Header

Field Name	Type	For mat	Description
Basic Header (Block 1)	Section	{1:	
Application Identifier	String	F	The Application Identifier identifies the application within which the message is being sent or received.
Service Identifier	String	01	The Service Identifier consists of 2 numeric characters. It identifies the type of data that is being sent or received.
LT Identifier	String	12!x	This 12-character SWIFT address, given in the Basic Header Block, is the address of the sending LT for input messages or of the receiving LT for output messages, and includes the Branch Code.
Session Number	String	0000	Not used (populated with 0000).
Sequence Number	String	000000	Not used (populated with 000000).
Block 1 End	Section End	}	
Application Header Output (Block 2)	Section	{2:	
Input / Output Identifier	String	I	Will always be “I” for input message.
Message Type	String	518	The Message Type consists of 3 digits which define the MT number of the message being input.
Receiver’s address	String	12!x	This address is the 12-character SWIFT address of the receiver of the message, but with a LT Code of 'X'. It defines the destination to which the message should be sent. The Branch Code is mandatory and will be validated. The default of 'XXX' may be used.
Message Priority	String	N	This character defines the priority with which a message is delivered. Always set to “N” for normal.
Block End	Section End	}	

Note: Block 3 (User Header) is not sent by LCH.Clearnet in the message header.

3.1.2 Message Body

Status	Tag	Qualifier	Detailed Field Name	Content/Option	Business Data Item	Note
Mandatory Sequence A General Information						
M	16R		Start of Block	GENL		
M	20C	SEME	Sender's Reference	:SEME//16x		1
M	23G		Function of the Message	:4!c		2
M	22F	TRTR	Transaction Type Indicator	:TRTR/LCHL/4!c	J	3
-----> Repetitive Mandatory Subsequence A1 Linkages						
M	16R		Start of Block	LINK		
M	20C	4!c	Reference	:4!c//16x	B, K	4
M	16S		End of Block	LINK		
-----¦ End of Subsequence A1 Linkages						
M	16S		End of Block	GENL		
End of Sequence A General Information						
Mandatory Sequence B Confirmation Details						
M	16R		Start of Block	CONFDET		
M	98C	TRAD	Trade Date / Time	:TRAD//YYYYMMDDHHMMSS	C	
M	98A	SETT	Setlement Date	:SETT//YYYYMMDD	D	
M	90B	DEAL	Deal Price	:DEAL//ACTU/3!a15d	H	
M	94B	TRAD	Place of Trade	:TRAD//EXCH/30x	A	5
M	19A	SETT	Settlement Amount	:SETT//3!a15d	I	
M	22H	BUSE	Buy / Sell Indicator	:BUSE//4!c		6
M	22H	PAYM	Payment indicator	:PAYM//APMT		
----->Repetitive Mandatory Subsequence B1 Confirmation Parties ***(Once for Buyer and once for Seller)***						
M	16R		Start of Block	CONFPRTY		
M	95R	4!c	Party	:4!c/LCHL/34x	M, Q	7
O	70C	PACO	Narrative	:PACO//4*35x	O, P, S, T	8
M	22F	TRCA	Party Capacity Indicator	:TRCA/[8c]/4!c	N, R	9
M	16S		End of Block	CONFPRTY		
-----¦ End of Repetitive Mandatory Subsequence B1 Confirmation Parties						
M	36B	CONF	Quantity of Financial Instruments	:CONF//UNIT/15d	G	
M	35B		Identification Of Financial Instrument	ISIN1!e12!c	E	
M	16S		End of Block	CONFDET		
End of Sequence B Confirmation Details						
Optional Sequence C Settlement Details						
M	16R		Start of Block	SETDET		
M	22F	SETR	Indicator	:SETR//TRAD		
-----> Optional Repetitive Subsequence C1 Settlement Parties						
M	16R		Start of Block	SETPRTY		
M	95P	PSET	Party	:PSET//4!a2!a2!c[3!c]	L	

Status	Tag	Qualifier	Detailed Field Name	Content/Option	Business Data Item	Note
M	16S		End of Block	SETPRTY		
-----| End of Subsequence C1 Settlement Parties						
M	16S		End of Block	SETDET		
End of Sequence C Settlement Details						
Mandatory Sequence D Other Parties						
M	16R		Start of Block	OTHRPRTY		
M	95R	INPA	Interested Party	: INPA/LCHL/13x	U	10
C	70C	PACO	Party Narrative	:PACO//ACCT/3x	V	11
C	20C	PROC	Processing Reference	:PROC//16x	W	12
M	16S		End of Block	OTHRPRTY		
End of Sequence D Other Parties						

M = Mandatory, O = Optional, C = Conditional

Note – Mandatory fields in optional sequences must be present if the sequence is present, otherwise they are not allowed.

3.1.3 Notes

1. Sender's Reference

Format :20C::SEME//16x

Description

This field contains a unique identifier for the message. This is generated by LCH.Clearnet.

Although SWIFT allows for up to 16 characters, the LCH message reference will always be 11 characters, of format:

"xaaaannnnnn"

Where x = "I" for cash equity trade confirmations.

2. Function of Message

Format :23G:4!c (Function)

Description

This field will contain one of the following values:

- NEWM to indicate a new trade or contra trade
- CANC to indicate a trade cancellation

3. Trade Transaction Type Indicator

Format :22F::TRTR/LCHL/4!c (Qualifier) (Data Source Scheme) (Indicator)

Description

This field will contain one of the following values:

- TRTR/LCHL/TRAD to indicate a cash equity order book trade
- TRTR/LCHL/OFTR to indicate a cash equity off order book trade

4. Reference

Format :20C::4!c//16x

Description

Qualifier	Status	Description
COMM	M	This field specifies the source system's trade reference for this trade.
PREV	O	This field specifies the reference of the original trade that has been reversed (as a result of a contra trade) or cancelled. This field will only be present for contra trades or trade cancellations.

5. Place of Trade

Format :94B::TRAD//EXCH/30x

Description

This field contains the identifier for the trade source or trading system from which the trade originated (usually its MIC code) and its associated market, if applicable.

e.g. :94B::TRAD//EXCH/XVTX

6. Buy / Sell Indicator

Description

This field is mandatory but no meaning should be derived from it.

7. Party (Buyer / Seller)

Format :95R::4!c/LCHL/34x (Qualifier) (Data Source Scheme) (Proprietary Code)

Description

Qualifier	Status	Description
BUYR	M	This field/subsequence specifies the Buyer of the trade
SELL	M	This field/subsequence specifies the Seller of the trade.

The Party ID for LCH.Clearnet will be LCHLGB2E.

e.g. :95R::BUYR/LCHL/LCHLGB2E

8. Party Information

Format :70C::PACO//4*35x

Description

This field will always contain the Clearing Account (member mnemonic and sub-account).

The dealing firm order reference (client reference) will be present where it exists. It can be up tp 35 characters long, so given the message structure up to 7 characters may spill onto the next line.

e.g. :70C::PACO//SGCA/MNEH

/CLREF/ORDER 123456789 SPECIAL OF T

YPE S12

9. Party Capacity Indicator

Format :22F::TRCA//4!c (Qualifier) (Indicator)

Description

The valid values are:

- TRCA//PRIN to indicate that the party is trading as Principal
- TRCA//AGEN to indicate that the party is trading as an Agent

10. Interested Party

Format :95R::INPA/LCHL/13x

Description

This field contains the Settlement Firm ID. Not supplied on the LCH side.

11. Party Information

Format :70C::PACO//ACCT/3x

Description

This field contains the Settlement Firm Sub Account ID. This is only provided for Spanish settled executions and is not supplied on the LCH side.

12. Processing Reference

Format :20C::PROC//16x

Description

This field contains the Iberclear PTI CCP Register Identfier. This is only provided for Spanish settled executions and is not supplied on the LCH side.

3.2 FIX Trade Capture Report (AE) – 4.4

Both raw FIX and FIXML messages are supported as follows.

Required	Field or Component	Field Name	Data Type	Content/Option	FIXML Name	Business Data Item
M	StandardHeader					
M	8	BeginString	String	'FIX.4.4'		
M	9	BodyLength	Length (int)			
M	35	MsgType	String	'AE'	@MsgTyp	
M	49	SenderCompID	String		@SID	
M	56	TargetCompID	String	Maximum 34 characters	@TID	
M	34	MsgSeqNum	SeqNum (int)			
M	50	SenderSubID	String	'ECL'	@SSub	
M	57	TargetSubID	String	'CERT' or 'PROD'		
M	97	PossResend	Boolean	'N'		
M	52	SendingTime	UTCTimestamp (String - YYYYMMDD-HH:MM:SS)			
M	End StandardHeader					
M	571	TradeReportID	String		@RptID	
M	487	TradeReportTransType	int	0, 1, or 4	@TransTyp	
M	828	TrdType	int	0 or 1	@TrdTyp	J
C	818	SecondaryTradeReportID	String		@RptID2	W
M	17	ExecID	String		@ExecID	B
C	527	SecondaryExecID	String		@ExecID2	K
M	570	PreviouslyReported	Boolean	'N'	@PrevlyRpted	
M	Instrument					
M	55	Symbol	String	ISIN	@Sym	E
M	End Instrument					
M	32	LastQty	Qty (float)		@LastQty	G
M	31	LastPX	Price (float)		@LastPx	H
M	30	LastMkt	String		@LastMkt	A
M	75	TradeDate	LocalMktDate		@TrdDt	C
M	60	TransactTime	UTCTimestamp (String - YYYYMMDD-HH:MM:SS)		@TxnTm	C
C	64	SettlDate	LocalMktDate		@SettlDt	D
M	TrdCapRptSideGrp					
M	552	NoSides	Int	2		
	Buy Side					
M	54	Side	Char	1	@Side	
M	37	OrderId	String		@OrdID	
C	11	ClOrdId	String	Maximum 35 characters	@ClOrdId	O

Required	Field or Component	Field Name	Data Type	Content/Option	FIXML Name	Business Data Item
M	Parties					
M	453	NoPartyIDs	Int			
M	448	PartyID	String		@ID	M
M	447	PartyIDSource	Char	'D'	@Src	
M	452	PartyRole	Int	1 or 21	@R	
C	448	PartyID	String	CSD BIC	@ID	L
C	447	PartyIDSource	Char	'B'	@Src	
C	452	PartyRole	Int	10	@R	
C	448	PartyID	String		@ID	U
C	447	PartyIDSource	Char	'D'	@Src	
C	452	PartyRole	Int	4	@R	
C	448	PartyID	String		@ID	V
C	447	PartyIDSource	Char	'D'	@Src	
C	452	PartyRole	Int	38	@R	
M	End Parties					
C	1	Account	String		@Acct	P
C	15	Currency	Currency		@Ccy	H, I
M	528	OrderCapacity	Char	'A' or 'P'	@Cpcty	N
C	381	GrossTradeAmt	Amt		@GrossTrdAmt	I
	End Buy Side					
	Sell Side					
M	54	Side	Int	2	@Side	
M	37	OrderId	String		@OrdID	
C	11	ClOrdId	String	Maximum 35 characters	@ClOrdId	S
M	Parties					
M	453	NoPartyIDs	Int			
M	448	PartyID	String		@ID	Q
M	447	PartyIDSource	Char	'D'	@Src	
M	452	PartyRole	Int	1 or 21	@R	
C	448	PartyID	String	CSD BIC	@ID	L
C	447	PartyIDSource	Char	'B'	@Src	
C	452	PartyRole	Int	10	@R	
C	448	PartyID	String		@ID	U
C	447	PartyIDSource	Char	'D'	@Src	
C	452	PartyRole	Int	4	@R	
C	448	PartyID	String		@ID	V
C	447	PartyIDSource	Char	'D'	@Src	
C	452	PartyRole	Int	38	@R	
M	End Parties					
C	1	Account	String		@Acct	U
C	15	Currency	Currency		@Ccy	H, I

Required	Field or Component	Field Name	Data Type	Content/Option	FIXML Name	Business Data Item
M	528	OrderCapacity	Char	'A' or 'P'	@Cpcty	R
C	381	GrossTradeAmt	Amt		@GrossTrdAmt	I
	End Sell Side					
M	End TrdCapRptSideGrp					
M	StandardTrailer					
M	10	CheckSum	String			
M	End StandardTrailer					

3.2.1 Component and Tag notes:

The 'Required' codes used in the table above are as follows:

M (bold)	FIX mandatory - not necessarily in FIXML (see notes)
M	LCH mandatory – always provided
C	Conditionally provided (see additional notes)

Required	Tag or Component	Field Name	Notes
M	49	SenderCompID	Identifier notified by LCH.Clearnet to the member for session configuration.
M	56	TargetCompID	Identifier agreed between LCH.Clearnet and the member for session configuration
M	34	MsgSeqNum	This tag is generated for raw FIX messages but not for FIXML messages.
M	57	TargetSubID	This tag is generated for raw FIX messages but not for FIXML messages. Possible values are: CERT – test system/data PROD – production system/data
M	97	PossResend	This tag is generated for raw FIX messages but not for FIXML messages. Always set to 'N'.
M	52	SendingTime	This tag is generated for raw FIX messages but not for FIXML messages.
M	487	TradeReportTransType	0 – New trade 1 – Trade cancellation 4 – Contra trade (reversal)
M	828	TrdType	Trade confirmations are sent for trades accepted for clearing. These codes indicate whether the trade is of a type for which risk limit checking is required and has been passed. 0 – Regular trade – no risk limit check applied prior to acceptance 1 – 'Off book trade' - limit check applied prior to acceptance
C	818	SecondaryTradeReportID	The CCP register identifier, provided for Spanish settled executions only
M	17	ExecID	The Trade ID from the trade source.
C	527	SecondaryExecID	The Trade ID (Tag 17 ExecID) of the original trade where this trade is a contra trade.
M	570	PreviouslyReported	Always set to 'N'.
M	30	LastMkt	The 4-character MIC of the Trade Source.
M	75	TradeDate	Trade source date at the time of trade execution.
M	60	TransactTime	Using UTC/GMT as per FIX standard.
C	64	SettlDate	The intended settlement date (ISD) for cash equity trades.
M	552	NoSides	Both the member side and the LCH side are reported. This tag is generated for raw FIX messages but not for FIXML messages.
M	37	OrderId	The Trade ID from the trade source (copy of ExecID).
C	11	ClOrdId	Maximum 35 characters. Only provided where there is a value. Not provided on LCH.Clearnet side.
M	453	NoPartyIDs	The number of party IDs, which will be between 2 and 4, depending on the scenario. This tag is generated for raw FIX messages but not for FIXML messages.
M	448	PartyID	Buy or sell party identified

Required	Tag or Component	Field Name	Notes
M	447	PartyIDSource	D – Proprietary code
M	452	PartyRole	1 – Executing Firm 21 – LCH.Clearnet (Clearing organization - CCP)
C	448	PartyID	CSD BIC
C	447	PartyIDSource	B – BIC code
C	452	PartyRole	10 – Settlement Place (CSD)
C	448	PartyID	Settlement Firm ID Not provided on LCH.Clearnet side.
C	447	PartyIDSource	D - Proprietary code
C	452	PartyRole	4 - Clearing Firm
C	448	PartyID	Settlement Firm sub account, provided for Spanish settled executions only Not provided on LCH.Clearnet side.
C	447	PartyIDSource	D - Proprietary code
C	452	PartyRole	38 - Position Account
C	1	Account	The clearing account – being the member mnemonic plus the sub-account. E.g. XXXH being the house account of member XXX. Not provided on LCH.Clearnet side.
C	15	Currency	The ISO code of both the price and the consideration. Not provided on LCH.Clearnet side.
M	528	OrderCapacity	The dealing capacity of the party identified by the PartyID. A – Agent P – Principal Always principal for LCH.Clearnet side.
C	381	GrossTradeAmt	Not provided on LCH.Clearnet side.

3.3 FIX Trade Capture Report (AE) – 5.0(SP1)

Both raw FIX and FIXML messages are supported as follows.

Required	Field or Component	Field Name	Data Type	Content/Option	FIXML Name	Business Data Item
M	StandardHeader					
M	8	BeginString	String	'FIXT.1.1'		
M	9	BodyLength	Length (int)			
M	35	MsgType	String	'AE'	@MsgTyp	
M	49	SenderCompID	String		@SID	
M	56	TargetCompID	String	Maximum 34 characters	@TID	
M	34	MsgSeqNum	SeqNum (int)			
M	50	SenderSubID	String	'ECL'	@SSub	
M	57	TargetSubID	String	'CERT' or 'PROD'		
M	97	PossResend	Boolean	'N'		
M	52	SendingTime	UTCTimestamp (String - YYYYMMDD-HH:MM:SS)			
M	End StandardHeader					
M	571	TradeReportID	String		@RptID	
M	1003	TradeID	String		@TrdID	B
C	1040	SecondaryTradeID	String		@TrdID2	W
M	487	TradeReportTransType	int	0, 1, or 4	@TransTyp	
M	828	TrdType	int	0 or 1	@TrdTyp	J
C	1126	OrigTradeID	String		@OrigTrdID	K
M	570	PreviouslyReported	Boolean	'N'	@PrevlyRpted	
M	Instrument					
M	55	Symbol	String	ISIN	@Sym	E
M	End Instrument					
M	32	LastQty	Qty (float)		@LastQty	G
M	31	LastPX	Price (float)		@LastPx	H
M	15	Currency	Currency		@Ccy	H, I
M	30	LastMkt	String		@LastMkt	A
M	75	TradeDate	LocalMktDate		@TrdDt	C
M	60	TransactTime	UTCTimestamp (String - YYYYMMDD-HH:MM:SS)		@TxnTm	C
C	64	SettlDate	LocalMktDate		@SettlDt	D
M	TrdCapRptSideGrp					
M	552	NoSides	Int	2		
	Buy Side					
M	54	Side	Char	1	@Side	
C	11	ClOrdId	String	Maximum 35 characters	@ClOrdId	O

Required	Field or Component	Field Name	Data Type	Content/Option	FIXML Name	Business Data Item
M	Parties					
M	453	NoPartyIDs	Int			
M	448	PartyID	String		@ID	M
M	447	PartyIDSource	Char	'D'	@Src	
M	452	PartyRole	Int	1 or 21	@R	
C	448	PartyID	String	CSD BIC	@ID	L
C	447	PartyIDSource	Char	'B'	@Src	
C	452	PartyRole	Int	10	@R	
C	448	PartyID	String		@ID	U
C	447	PartyIDSource	Char	'D'	@Src	
C	452	PartyRole	Int	4	@R	
C	448	PartyID	String		@ID	V
C	447	PartyIDSource	Char	'D'	@Src	
C	452	PartyRole	Int	38	@R	
M	End Parties					
C	1	Account	String		@Acct	P
M	528	OrderCapacity	Char	'A' or 'P'	@Cpcty	N
	End Buy Side					
	Sell Side					
M	54	Side	Int	2	@Side	
C	11	ClOrdId	String	Maximum 35 characters	@ClOrdId	S
M	Parties					
M	453	NoPartyIDs	Int			
M	448	PartyID	String		@ID	Q
M	447	PartyIDSource	Char	'D'	@Src	
M	452	PartyRole	Int	1 or 21	@R	
C	448	PartyID	String	CSD BIC	@ID	L
C	447	PartyIDSource	Char	'B'	@Src	
C	452	PartyRole	Int	10	@R	
C	448	PartyID	String		@ID	U
C	447	PartyIDSource	Char	'D'	@Src	
C	452	PartyRole	Int	4	@R	
C	448	PartyID	String		@ID	V
C	447	PartyIDSource	Char	'D'	@Src	
C	452	PartyRole	Int	38	@R	
M	End Parties					
C	1	Account	String		@Acct	T
M	528	OrderCapacity	Char	'A' or 'P'	@Cpcty	R
	End Sell Side					
M	End TrdCapRptSideGrp					
M	381	GrossTradeAmt	Amt		@GrossTrdAmt	I

Required	Field or Component	Field Name	Data Type	Content/Option	FIXML Name	Business Data Item
M	StandardTrailer					
M	10	CheckSum	String			
M	End StandardTrailer					

3.3.1 Component and Tag notes:

The 'Required' codes used in the table above are as follows:

M (bold)	FIX mandatory - not necessarily in FIXML (see notes)
M	LCH mandatory – always provided
C	Conditionally provided (see additional notes)

Required	Tag or Component	Field Name	Notes
M	49	SenderCompID	Identifier notified by LCH.Clearnet to the member for session configuration.
M	56	TargetCompID	Identifier agreed between LCH.Clearnet and the member for session configuration
M	34	MsgSeqNum	This tag is generated for raw FIX messages but not for FIXML messages.
M	57	TargetSubID	This tag is generated for raw FIX messages but not for FIXML messages. Possible values are: CERT – test system/data PROD – production system/data
M	97	PossResend	This tag is generated for raw FIX messages but not for FIXML messages. Always set to 'N'.
M	52	SendingTime	This tag is generated for raw FIX messages but not for FIXML messages.
M	1003	TradeID	The Trade ID from the trade source.
C	1040	SecondaryTradeID	The CCP register identifier, provided for Spanish settled executions only
M	487	TradeReportTransType	0 – New trade 1 – Trade cancellation 4 – Contra trade (reversal)
M	828	TrdType	Trade confirmations are sent for trades accepted for clearing. These codes indicate whether the trade is of a type for which risk limit checking is required and has been passed. 0 – Regular trade – no risk limit check applied prior to acceptance 1 – 'Off book trade' - limit check applied prior to acceptance
C	1126	OrigTradeID	The Trade ID (Tag 17 ExecID) of the original trade where this trade is a contra trade.
M	570	PreviouslyReported	Always set to 'N'.
M	30	LastMkt	The 4-character MIC of the Trade Source.
M	15	Currency	The ISO code of both the price and the consideration.
M	75	TradeDate	Trade source date at the time of trade execution.
M	60	TransactTime	Using UTC/GMT as per FIX standard.
C	64	SettlDate	The intended settlement date (ISD) for cash equity trades.
M	552	NoSides	Both the member side and the LCH side are reported. This tag is generated for raw FIX messages but not for FIXML messages.
C	11	ClOrdId	Maximum 35 characters. Only provided where there is a value. Not provided on LCH.Clearnet side.
M	453	NoPartyIDs	The number of Party IDs, which will be between 2 and 4, depending on the scenario, This tag is generated for raw FIX messages but not for FIXML messages.
M	448	PartyID	Buy or sell party identified
M	447	PartyIDSource	D – Proprietary code
M	452	PartyRole	1 – Executing Firm 21 – LCH.Clearnet (Clearing organization - CCP)

Required	Tag or Component	Field Name	Notes
C	448	PartyID	CSD BIC
C	447	PartyIDSource	B – BIC code
C	452	PartyRole	10 – Settlement Place (CSD)
C	448	PartyID	Settlement Firm ID Not provided on LCH.Clearnet side.
C	447	PartyIDSource	D - Proprietary code
C	452	PartyRole	4 - Clearing Firm
C	448	PartyID	Settlement Firm sub account, provided for Spanish settled executions only Not provided on LCH.Clearnet side.
C	447	PartyIDSource	D - Proprietary code
C	452	PartyRole	38 - Position Account
C	1	Account	The clearing account – being the member mnemonic plus the sub-account. E.g. XXXH being the house account of member XXX. Not provided on LCH.Clearnet side.
M	528	OrderCapacity	The dealing capacity of the party identified by the PartyID. A – Agent P – Principal Always principal for LCH.Clearnet side.

4. TECHNICAL INTERFACE SPECIFICATION

Members can connect to LCH.Clearnet Ltd via the Managed Network Service provided by BT Radianz.

The FIX 4.4 messages are available over the FIX 4.4 protocol and the FIX 5.0 (SP1) messages are available over the FIX T1.1 protocol (http://www.fixprotocol.org).

The FIXML 4.4 messages and FIXML 5.0 (SP1) messages are available over the WebSphere MQ Series protocol.

The ISO15022 MT518 Trade Confirmation messages are available over the WebSphere MQ Series protocol.

Alternatively the standard SWIFT infrastructure can be used to receive the SWIFT MT518 Trade Confirmation messages.

4.1 FIX Session Protocol

All FIX timestamps are UTC/GMT as per the FIX standard. The clients are expected to synchronise their clocks with an external time source.

The client and LCH will agree upon the following FIX credentials - *SenderCompID*, *TargetCompID*, *SenderSubID* and *TargetSubID*. These must be sent on every message. All messages LCH sends will have the Sender and Target fields swapped, as per the FIX specification.

The FIX Session Initiator is typically the client and the Session Acceptor is typically the LCH.

The following session messages are supported in both directions:

Message	**Type**	**Comment**
Logon	A	Begin session (or resume a broken session)
Heartbeat	0	
Test Request	1	
Resend Request	2	
Reject	3	Malformed message or improper session level handling
Sequence Reset	4	Both Gap Fill (*GapFillFlag*=Y) and Reset
Logout	5	Used to gracefully close session

4.1.1 Connectivity

IP connectivity will be arranged with the extranet provider (e.g. BT Radianz).

IP Address	Address to connect to	Supplied by LCH
TCP Port	Port to connect to	Supplied by LCH

4.1.2 Sequence Numbers

Sequence numbers, both inbound and outbound, will be reset to 1 each night during the down time.

Messages are processed in sequence order. Behind sequence messages (other than Sequence Reset – Reset) cause immediate logout. Ahead of sequence messages (other than a Resend Request) trigger a message recovery via a Resend Request.

4.1.3 Logon

The Logon will be the exchange of the first messages initiated by the Session Initiator after the TCP connection is established. The *EncryptMethod* should be ignored (FIX level encryption is not supported). *HeartBtInt* must be specified by the Session Initiator in the logon message. This value will be 30 seconds and returned in the logon reply message.

If connection is unexpectedly broken, upon reconnection LCH may receive a logon request with a sequence number lower than expected. This means that one side has reset there sequence numbers without notifying the other party. In this case both sides should restart application with sequence number set to 1. If one side of the session receives a sequence number higher than expected, the other party will issue a Resend Request to retrieve the missed messages. The Resend Request is preferred to using *ResetSeqNumFlag* attribute of the Logon message.

Also, if the connection is broken any messages (like trade status/confirmation) generated by LCH will be persistently queued, waiting for the Session Initiator to reconnect.

4.1.4 Heartbeat

A Heartbeat message should be sent if the agreed upon *HeartBtInt* has elapsed since the last message sent. If any message has been sent during the preceding *HeartBtInt* a Heartbeat message need not be sent.

4.1.5 Test Request

If a *HeartBtInt* + 1 second have elapsed since the last message received, a Test Request should be issued. If another *HeartBtInt* + 1 second go by without receiving a message the TCP connection should be dropped. This ensures that a broken TCP connection will be detected even if the TCP stack doesn't notice (this has been observed to happen in WAN environments, particularly when a VPN is involved).

4.1.6 Resend Request

The Resend Request is sent by receiving application to initiate the retransmission of messages. This function is utilized if a sequence number gap is detected, if the receiving application lost a message, or as a function of the initialization process.

The Resend Request can be used to request a single message, a range of messages or all messages subsequent to a particular message.

- To request a single message: *BeginSeqNo* = *EndSeqNo*
- To request a range of messages: *BeginSeqNo* = first message of range, *EndSeqNo* = last message of range
- To request all messages subsequent to a particular message: *BeginSeqNo* = first message of range, *EndSeqNo* = 0 (represents infinity)

4.1.7 Reject

Session level rejects are used to indicate violations of the session protocol, or missing (or bogus) fields. These are to be expected during development and certification, but should be extremely rare in production. Application layer rejects (like Order Reject and Cancel Reject) are normal.

4.1.8 Sequence Reset

Sequence Reset is typically performed at the end of the business day at a mutually agreed time.

Sequence Reset – Gap Fill messages (*GapFillFlag* = "Y") must be received in sequence. Any messages (including any Gap Fills) sent in response to a Resend Request should have *PossDup* = "Y".

Sequence Reset – Reset (*GapFillFlag* not "Y") is used only as a last resort, and always by human intervention, to allow an otherwise confused session to be resumed. In these cases all chance at automatic message recovery are lost.

4.1.9 Logout

Either side may issue a logout to gracefully close the session. The side that issues the logout should process messages normally until it sees the logout reply, and then break the TCP connection. The logout Initiator will typically only request logout after the scheduled end of FIX session.

4.1.10 Error Handling

Messages which fail within the LCH FIX gateway will be rejected and a reject message sent back to the client. If a message passes beyond the FIX Gateway but it cannot be processed due to technical rather than business reasons the message will be placed in our internal error queue which will be monitored by LCH application support. The application support team will act and notify the client accordingly.