



UBS MTF Market Notice

Technical changes for Periodic Auction and Dark Order Book

2 May 2018

Dear Member,

Following the publication of the UBS MTF factsheet on the forthcoming new Periodic Auction, we would like to follow-up with information on the technical changes that will be required to participate in the UBS MTF Periodic Auction.

An implementation date for our Conformance and Production environments will be communicated in a near future. However, in order to facilitate mandatory testing for the new Period Auction Order Book, we have attached a marked-up and clean version of the revised Rules of Engagement with this Trading Notice.

We would draw your attention to the following significant changes in particular:

- New tag to target the new Order Book (tag 9303): P for Periodic Auction
- New value in tag 30 LastMkt to identify the Periodic Auction: XUMP
- New Time in Force in tag 59 (Good for Auction)
- New FIX value in tag 7772 for Members that wish to settle manually internalised trades
- Pegged orders in the dark order book will be limited to mid-point price book only. The Bid and Offer order books will be removed from our dark pool when the Periodic Auction is launched;
- A new "No CCP" functionality at Member level will allow our Members to suppress post trading flow to their CCP for internalised trades only. To use this functionality please contact the MTF Supervisors.
- MAQ remaining quantity: when the remaining quantity of a partially filled order falls below the MinQty set by a Member, the MAQ will be set to the Leave quantity (instead of 1 share).

In line with MiFID pre-trade transparency requirements, the UBS MTF Periodic Auction market data will be available to interested parties. The auction price and indicative auction volume will be disseminated immediately. A new UBS MTF Market Data feed specification guide is also attached to this Trading Notice.

Once a date for deployment in our Conformance environment is published, we recommend all Members to contact our Deployment & Testing team to coordinate testing at dl-dat-uk@ubs.com.

Once we have finalised the go-live date for the Periodic Auction we will inform our Members accordingly together with consequential changes to the UBS MTF Rulebook and User Guide.

If you have any queries regarding this notice, please contact the UBS MTF Supervisors at +44 207 568 2052 or ubs_mtf@ubs.com.

UBS MTF Management

Notice N9, 2018

UBS MTF Notices and documentation are available at <https://www.ubs.com/mtf>. If you have any queries regarding this notice, or comments on the above, please contact the UBS MTF Supervisors at +44 20 7568 2052 or ubs_mtf@ubs.com.

UBS Limited is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority.

UBS Limited is a subsidiary of UBS AG.

UBS Limited is a company limited by shares incorporated in the United Kingdom registered in England and Wales with number 2035362. Registered office: 5 Broadgate, London EC2M 2QS.



UBS MTF

FIX Interface

Rules of Engagement

Classification	Public
Date	1 May 2018
Version	4.45
Status	Final



Table of Contents

FIX Interface	1
Version history	5
1. Introduction	7
2. Background	7
3. Functional Overview	7
3.1. General	7
3.2. Order Priority	8
3.3. Minimum Acceptable Quantity (MAQ)	8
3.4. Internalization	8
3.5. Session Times	8
3.5.1. Order Expiry	8
3.6. Time Stamps	8
3.7. Cancel on Disconnect	9
3.8. Pending messages	9
3.9. Drop Copy	9
3.10. Sweep functionality	9
3.11. Large in Scale execution	10
3.12. Reference Price Execution	11
3.13. Party Identifiers	11
3.14. Order Capacity & Account Type	11
4. Connectivity	12
5. Symbology	13
5.1. Uniform Symbology	13
5.2. Exchange Codes	14
6. UBS MTF-Specific FIX Fields	15
7. FIX Message details	16
7.1. Components	16
7.1.1. Standard Header	16
7.1.2. Standard Trailer	16
7.1.3. Parties	16
7.2. Session-Level Messages	17
7.2.1. Login	18
7.2.2. Heartbeat	18
7.2.3. Test Request	18
7.2.4. Resend Request	18
7.2.5. Reject	18
7.2.6. Sequence Reset	19
7.2.7. Logout	19
7.3. Messages from Member to UBS MTF	19
7.3.1. New Order Single	19
7.3.2. Order Cancel Request	22

7.3.3.	Order Cancel Replace Request	22
7.3.4.	Don't Know Trade (DK)	24
7.4.	Messages from UBS MTF to Member	25
7.4.1.	Execution Report	25
7.4.2.	Order Cancel Reject	28
7.5.	Order Rejection Codes	30
8.	References	31
9.	Disclaimer	32
	FIX Interface	1
	Version history	5
1.	Introduction	7
2.	Background	7
3.	Functional Overview	7
3.1.	General	7
3.2.	Order Priority	8
3.3.	Minimum Acceptable Quantity (MAQ)	8
3.4.	Internalization	8
3.5.	Session Times	8
3.5.1.	Order Expiry	8
3.6.	Time Stamps	8
3.7.	Cancel on Disconnect	9
3.8.	Pending messages	9
3.9.	Drop Copy	9
3.10.	Large in Scale execution	10
3.11.	Reference Price Execution	11
3.12.	Party Identifiers	11
4.	Connectivity	11
5.	Symbology	13
5.1.	Uniform Symbology	13
5.2.	Exchange Codes	14
6.	UBS MTF-Specific FIX Fields	15
7.	FIX Message details	16
7.1.	Components	16
7.1.1.	Standard Header	16
7.1.2.	Standard Trailer	16
7.1.3.	Parties	16
7.2.	Session-Level Messages	17
7.2.1.	Login	18
7.2.2.	Heartbeat	18
7.2.3.	Test Request	18

7.2.4.	Resend Request.....	18
7.2.5.	Reject.....	18
7.2.6.	Sequence Reset.....	19
7.2.7.	Logout.....	19
7.3.	Messages from Member to UBS MTF.....	19
7.3.1.	New Order Single.....	19
7.3.2.	Order Cancel Request.....	22
7.3.3.	Order Cancel Replace Request.....	22
7.3.4.	Don't Know Trade (DK).....	24
7.4.	Messages from UBS MTF to Member.....	25
7.4.1.	Execution Report.....	25
7.4.2.	Order Cancel Reject.....	28
7.5.	Order Rejection Codes.....	30
8.	References	31
9.	Disclaimer	32

Version history

Version	Date	Changes and remarks
4.5	April 2018	Added Periodic Auction market segment. See especially 3, 7.3.1, and 7.4.1. MAQ behaviour modified; see 3.3. Dark Sweep functionality and best bid/best offer pegged execution instructions removed; see 3.10 – Sweep Functionality removed; also 3.11 and 7.3.1. Minor edits for clarity and removal of transitional information for MiFID II.
4.4	November 2017	AccountType is now mandatory (7.3.1). ExecID structure is modified to meet MiFID II transaction identification code requirements (7.4.1). Added information on eligibility for Reference Price Execution (3.4.2.1)
4.3	September 2017	Removed restatement of MiFID II identifiers in Parties component from Execution Report (7.4.1)
4.2	April 2017	Added new fields on order messages in support of MiFID II requirements; (see section 3.4.12, Party Identifiers, and FIX Message details, section 7) Introduces AccountType for specification of CCP account to use at 3.13 Mandatory granularity of microseconds on message timestamps at 3.6 Remove field 20061(WaiverType) in favour of the standard field 8013 on Execution Report at 6 and 7.4.1. Updated symbology examples (5.1), and added details of further order rejection codes (7.5).
4.1	January 2017	Added specification for content of ExecId and ExecRefId (section 7.4.1, Execution Report)
4.0	November 2016	Sweep order and Large in Scale execution support (sections 3.4.1.1 and 3.4.10) Introduce optional granularity of microseconds on message timestamps at 3.6
3.5	August 2016	Added information on session times session times and order expiry order expiry at end of day (section 3.5). Typographical correction at 3.4.
3.4.1	August 2016	Updated UBS Ltd company address.
3.4	June 2016	Return an execution report following attempted order modification/cancellation where this is prevented by an execution immediately prior (3.8, Pending messages Pending messages).
3.3	April 2016	Added tag 15 – Currency in FIX Message details FIX Message details . Updated examples in Uniform Symbology Uniform Symbology to reflect recent changes by Reuters for XVTX instruments.
3.2	February 2016	Added tag 1 – Account.
3.1	October 2015	Clarifications on requirement to send tag 47, and reject reasons documented for tags 102 and 103. Corrected description of replace request handling for unacknowledged orders.
3.0	September 2015	Major update for new connectivity model. Transact time now sent on all execution reports.
2.5	June 2015	New layout. Timestamp precision increased.
2.4	December 2014	Updated to reflect new names of external organisations.
2.3	September 2013	Clarified MinQty usage.
2.2	June 2012	Tag 9004 – Internalization.
2.1	April 2012	Minor clarifications.
2.0	September 2011	Sent LastLiquidityInd on execution reports.
1.9	August 2011	Refer to ESMA, rather than CESR.
1.8	August 2011	Introduces Bid and Offer order books.

1.7	March 2011	Minor clarifications for pegged orders.
1.6	November 2010	Initial version at launch.

1. Introduction

This document defines UBS MTF's implementation of the FIX protocol. The document is designed to facilitate the work required to establish trading connectivity and is intended to supplement the published FIX protocol specification [1] and the UBS MTF Rule Book [2].

2. Background

The Markets in Financial Instruments Directive (MiFID) was a catalyst for change in the European execution market place, with the result that the importance of credible electronic trading technology and the ability to harness technology to source liquidity have become paramount for the broking community.

As part of the industry adaptation to the changes introduced by MiFID II, UBS MTF operates as is introducing a "darklit, periodic auction order book" and to operate in parallel with the existing dark, continuous matching is performed at the mid, bid or offer price of the primary market auction order book.

Access to UBS MTF is restricted to its members and requires separate documentation to the standard trading terms and conditions that regulate other execution services provided by UBS. This documentation can be obtained via your usual relationship manager, on the web at <http://ubs.com/mtf/http://ubs.com/mtf/>, or by contacting UBS MTF directly at ubs_mtf@ubs.comubs_mtf@ubs.com.

3. Functional Overview

3.1. General

UBS MTF operates two market segments, a dark, continuous, order book, and a lit, periodic auction, order book.

On the dark order book, UBS MTF accepts orders for execution under both reference price (RPW), and large in scale (LIS) pre-trade transparency waivers. On this segment, UBS MTF accepts and matches Pegged orders only, on a non-discretionary basis using a waiver/price/time priority at the Bid, Mid or Offermid-point of the Primaryreference market.

On the periodic auction segment, UBS MTF accepts limit orders only. Price determination and allocation priority is as described in the Rule Book and associated User Guide.

There is no minimum order size on UBS MTF.

Members of UBS MTF may send either IOC or Day duration orders, and have the ability to set a Minimum Acceptable Quantity and Limit Price on all orders. Open orders are automatically cancelled at the end of each trading day.

3.2. Order Priority

Orders are matched ~~according to waiver eligibility, price and time~~ as specified in the UBS MTF Rulebook. ~~If multiple orders are eligible to execute at the prevailing reference price, they are executed in the order in which they were received.~~

3.3. Minimum Acceptable Quantity (MAQ)

Where a partial fill occurs on an order that had an MAQ, should the remaining quantity on that order ~~be fall~~ below the MAQ the effective Minimum Acceptable Quantity will ~~fall to one share~~ become the remaining quantity of the order. Orders received by UBS MTF with an MAQ that is greater than the order quantity are rejected.

3.4. Internalization

By default, orders from a member may be self-crossed.

Members can use a FIX instruction of '9004=4' on orders to prevent self-trading or intra-team trading (within the same member entity, see section 6 below).

Where a member operates under more than one member code, these may be configured by UBS MTF to act as a single family for the purpose of this instruction.

3.5. Session Times

UBS MTF operates during regular market hours in Europe, between 08:00 and 16:30 (UK time), and session times match those of the primaryreference market where the underlying security is listed. Matching is not performed outside the primaryreference market's continuous trading phase. There is no trading during auctions or halts. If trading on the primaryreference market is suspended UBS MTF will suspend execution for each affected ~~instrument~~ instruments until continuous trading is resumed. During these times orders may be entered, amended, and cancelled, but will not be executed. Orders entered before market open, or after market close, will be rejected.

3.5.1. Order Expiry

Day orders remaining on the order bookbooks after market close will be cancelled at or shortly after 16:45. An unsolicited Execution Report (35=8) will be returned via FIX, with ExecType=Cancelled (150=4), OrdStatus=Cancelled (49=4).

3.6. Time Stamps

The *UTCTimestamp* fields (TransactTime, SendingTime, and OrigSendingTime) may be sent to UBS MTF in either whole seconds, milliseconds, or microseconds UTC, as specified in [3]. UBS MTF will transmit timestamps at microsecond granularity in all timestamps.

3.7. Cancel on Disconnect

Order entry sessions are configured by default to automatically cancel all open orders in the event of disconnection. Any outstanding execution reports will be returned during session recovery when connectivity is re-established.

3.8. Pending messages

UBS MTF allows cancellation when a new order has not yet been acknowledged, i.e. the order is in a 'Pending New' state. Amends / Cancels will be rejected by UBS MTF if the order is already in a 'Pending Amend' or 'Pending Cancel' state.

If an order Cancel or Cancel/Replace request is received by the FIX gateway, and is not accepted due to a fill occurring on the order immediately beforehand, a reject message will also be returned in a second Execution Report following the initial Execution Report notifying the member of the fill.

In summary:

Current Order State	Request	Outcome
Pending New	Pending Cancel	Allowed
Pending New	Pending Amend	Amend is Rejected
Pending Amend / Pending Cancel	Pending Amend/ Pending Cancel	Second Request is Rejected
Working, Fill message in flight	Replace requested	Fill is delivered Replace Request is rejected as order is fully filled
Working, Partial Fill message in flight	Replace Requested	Fill is delivered Replace Request is rejected if unsuccessful
Working, Fill message in flight	Cancel requested	Fill is Delivered Cancel request is rejected as order is fully filled
Working, Partial Fill message in flight	Cancel requested	Fill is Delivered Cancel request is accepted

3.9. Drop Copy

Members may request a drop copy feed for executions on their FIX sessions. The format of the execution reports provided by this feed, and session-level messages, correspond to the details in section 7 below.

3.10. Sweep functionality

As an alternative to specifying a single peg price as an execution instruction, a participant may instruct that an order conduct either a half, or a full, sweep across peg types.

If a half sweep is instructed (FIX tag 18=h), UBS MTF will attempt to execute the order at the primary peg, and if no immediate execution is possible, the order will be eligible for execution at the mid-peg price.

If a full sweep is instructed (FIX tag 18=f), UBS MTF will attempt to execute the order at the primary peg, and if no immediate execution is possible, the order will be eligible for immediate execution at the mid-peg. If still not executed partially or fully at the mid, the order is lastly eligible for execution at the market peg.

If a day order is partially filled, the remaining quantity will be eligible for execution solely at the reference price at which the first execution occurred.

3.11.3.10. Large in Scale execution

Orders that are large in scale (LIS) compared to normal market size as defined in MiFID are eligible for execution on UBS [MTF's dark order book](#) under a MiFID pre-transparency waiver ("Large in Scale waiver"). Orders will only execute under the Large in Scale waiver if both the buy and sell orders meet the LIS criteria. If not fully filled against facing LIS orders, the remaining quantity of a resident LIS-eligible order may execute against either further Large in Scale orders, or against non-large in scale orders under the reference price waiver.

Orders that are not large in scale (LIS) compared to normal market size may only be executed on UBS [MTF-MTF's dark order book](#) under the reference price waiver (RPW). Alternatively, orders may instead be sent to the UBS MTF periodic auction order book.

All orders on UBS MTF execute using the prevailing reference price of the instrument, i.e. the ~~bid~~, mid ~~or offer prices~~[price](#) from the most relevant market for the instrument.

At each point in time where crossing may occur, if an order may be executed against either a large in scale order or a non-large in scale order, the former will take priority. Where multiple large in scale orders are eligible to execute against, price and time priority will then apply.

UBS MTF offers a choice to its members, and when submitting a LIS order a member may instruct UBS MTF that orders must match against other orders exclusively under the LIS waiver, by using the order attribute RequestedCrossingWaiverType, defined below.

For all instruments available for trading on UBS MTF, the minimum order value which qualifies as large in scale is determined using the Average Daily Turnover published by ESMA, considered in conjunction with the Large in Scale table as specified under MiFID¹. For instruments that are not priced in Euros, UBS MTF applies a currency conversion using the foreign exchange reference rates published the previous working day by the European Central Bank.

Orders that do not meet the criteria to be Large in Scale compared with normal market size under MiFID may only execute on UBS MTF [dark order book](#) under Reference Price Waiver according to the conditions set out in MAR 5.7.1(2)a, and will therefore be rejected if instructed as LIS only. If not instructed as LIS only they will be eligible for execution under reference price waiver only.

¹ FCA Handbook, MAR 5.7 Pre-trade transparency requirements for shares, <https://www.handbook.fca.org.uk/handbook/MAR5/7.html>

3.12.3.11. Reference Price Execution

~~With the entry into force of MiFID II, orders will~~Orders are not be eligible for execution under Reference Price Waiver on the dark order book unless entered as mid-pegged (FIX tag 18=M).

Additionally, where use of Reference Price Waiver in an instrument is suspended, due to volume caps or otherwise, no orders may be accepted for execution under Reference Price Waiver. Orders may ~~continue~~continue to be entered onto the dark order book if large in scale compared to normal market size, or onto the periodic auction order book.

For each instrument available to trade on UBS MTF, the capping status and minimum order value to qualify as large in scale on UBS MTF are as specified in our Guide to Reference Data [2].

3.13.3.12. Party Identifiers

UBS MTF supports submission of MiFID II identifiers via short code in the *Parties* component on order messages. These will become mandatory, where applicable, on the implementation of MiFID II but may be optionally submitted before this time.

MiFID II Field ²	Party Role	PartyRoleQualifier
Client Identification code	ClientId (3)	Firm or Legal Entity (23)
		Natural Person (24)
Execution within firm	Executing Trader (Executing decision maker) (12)	Algorithm (22)
		Natural Person (24)
Investment decision within firm	Investment Decision Maker (122)	Algorithm (22)
		Natural Person (24)

The following four values are reserved and may not be registered as short codes, but should be used as applicable on order messages:

For PartyRole=3 (ClientId):

- 0 = NONE – No client for this order
- 1 = AGGR – An aggregation of multiple client orders
- 2 = PNAL – Clients are pending allocation

For PartyRole = 12

- 3 = CLIENT - Time and venue of the order instructed by the client of the participant

3.14. Order Capacity & Account Type

~~Effective with UBS MTF's Q4 functional release prior to MiFID II implementation Order Capacity is no longer used to determine the CCP account to use, and AccountType must be specified.~~

² RTS 27 Annex, Table 2

4. Connectivity

UBS MTF is vendor neutral, although there is existing connectivity with the following providers: Radianz, TNS and Fixnetix. It is also possible for members to cross-connect if they have presence in the Equinix LD4 Data Centre in Slough, or in Interxion London. Full details are available in the UBS MTF Connectivity Guide, available on our website [2].

A restricting factor on the number of FIX sessions a member can have is the overall bandwidth of the member's line. The suggested bandwidth for a managed service is a 1MB line and 1G or 10G for a direct cross-connect.

Each member is allocated a TCP/IP port per connection – this port is unique to the member and a single connection is allowed per port.

In UAT or conformance testing, the use of an Internet session is recommended, as this allows members to begin testing and certification whilst awaiting the establishment of production connectivity. A test session via the member's chosen transport vendor is also possible, but certification would be delayed until this connectivity is in place.

5. Symbology

UBS MTF lists a subset of stocks in the ESMA list of approved securities for regulated markets, as well as Swiss listed stocks.

5.1. Uniform Symbology

In all cases the Symbol[55] value must be the Uniform Symbology (UMTF) code. This code has been adopted by a number of European execution venues to uniformly identify securities traded across Europe. The following details on how this code is generated have been extracted from the Wikipedia article - [Uniform Symbology](#) [4].

The Uniform Symbology Algorithm is designed to be human readable, fit into 6 characters, have no symbol clashes and where possible, be derivable from another, freely available code.

It will consist of a stock code followed by a single, lower case letter designating the primary listing exchange. The stock code will be derived from the "local code" published by the primary exchange. These will be truncated where necessary.

If the local code contains a single letter class designator of A through Z (eg. "STE A") then the single letter class designator shall be retained and the code will be truncated to a maximum of 4 characters, plus the single letter class (A through Z) designator. For some Nordic stocks the share designator will be prefixed with "SDB" (eg. "SDBA"). In this case the "SDB" should be removed and the single letter class (A through Z) designator will be retained.

Any codes containing spaces, periods, underscores or second words (other than the single letter class (A through Z) described above) will be truncated at the space, period, etc. All remaining non-alphanumeric characters should be removed.

Market codes by market centre (including examples)

Market Centre	MIC	Market Code	Sample Local Code	Sample UMTF Code	Sample Company Name	RIC Suffix
Copenhagen Stock Exchange	XCSE	c	DANSK	DANSKc	Danske Bank Ord	CO
Deutsche Borse/Germany	XETR	d	BAS	BASd	BASF SE	DE
Euronext Amsterdam	XAMS	a	AGFB	AGFBb	AGFA-Gevaert NV	AS
Euronext Brussels	XBRU	b	INB	INBb	INBEV	BR
Euronext Paris	XPAR	p	RNO	RNOp	Renault	PA
Euronext Lisbon/Portugal	XLIS	u	ALTR	ALTRu	ALTRI SGPS	LS
Helsinki Stock	XHEL	h	HUH1V	HUH1Vh	Huhtamaki	HE

Exchange					OYJ	
Irish Stock Exchange	XDUB	i	IPDC	IPDCi	Independent News & Media PLC	I
Prague Stock Exchange	XPRA	k	CEZ	CEZk	CEZ AS	PR
London Stock Exchange	XLON	l	VOD	VODI	Vodafone Group Ord	L
Madrid/Spain (Espana)	XMCE	e	SAN	SANe	Banco Santander SA	MC
Borsa Italiana/Milan	XMIL	m	SPM	SPMm	Saipem	MI
Oslo Stock Exchange	XOSL	o	NHY	NHYo	Norsk Hydro	OL
Stockholm Stock Exchange	XSTO	s	ABB	ABBs	ABB Ltd	ST
Budapest Stock Exchange	XBUD	t	OTP	OTPt	OTP Bank PLC	BU
Vienna Stock Exchange	XWBO	v	VIG	VIGv	Vienna Insurance Group	VI
Swiss Exchange/Zurich (blue chip)	XVTX	z	SCHN	SCHNz	Schindler Holding AG	S
Swiss Exchange/Zurich (non-blue chip)	XSWX	z	UHR	UHRz	Swatch Group AG/The	S

5.2. Exchange Codes

UBS MTF [sends/returns](#) its assigned ISO 10383 MIC [Code/Codes](#) in the LastMkt<30> field on execution reports.

The [operating](#) MIC code for UBS MTF is **XUBS**.

~~On the incoming order, there is no need to specify an exchange and hence ExDestination<100> is not required. Any value sent in this field will be ignored.~~ UBS MTF operates market segments; using the [following MIC codes](#):

[XUBS](#) – dark order book

[XUMP](#) - periodic auction order book.

6. UBS MTF-Specific FIX Fields

The following FIX fields are specific to UBS MTF:

MsgType	Tag	Field Name	Notes	Required
D	9004	Internalization	Provides crossing restrictions 4 (Do not execute against own orders). See section 3.4 above.	N
D	9303	RoutingInst	Indicate market segment to which order should be routed D Dark order book P Periodic auction order book Default: D	N
D	20060	RequestedCrossingWaiverType	Specifies whether ana dark order may be executed under 1 Either Reference Price Waiver (RPW) or Large In Scale (LIS) Waiver, or 2 Only under LIS Waiver. Only meaningful if routing to the dark order book.	N

7. FIX Message details

7.1. Components

7.1.1. Standard Header

Present on all messages

Tag	Name	Notes	Required
8	BeginString	FIX.4.2 Must be the first field in the message.	Y
9	BodyLength	Must be the second field in the message.	Y
35	MsgType	Must be the third field in the message.	Y
43	PossDupFlag	Always required for retransmitted messages, whether prompted by the sending system or as the result of a resend request.	N
52	SendingTime		Y
49	SenderCompID	As specified by UBS MTF	Y
56	TargetCompID	As specified by UBS MTF	Y
34	MsgSeqNum		Y
50	SenderSubID	May be used to provide the identity of the trader who entered the order.	N
97	PossResend	Required when message may be duplicate of another message sent under a different sequence number.	N
122	OrigSendingTime	Required for message resent as a result of a ResendRequest. If data is not available set to same value as SendingTime	N

7.1.2. Standard Trailer

Present on all messages

Tag	Name	Required	Required
10	Checksum	Three byte, simple checksum (see [1] Volume 2: "Checksum Calculation" for description).	Y

7.1.3. Parties

~~Supported on New Order – Single, Order Cancel Replace Request, and Execution Report.~~
Supported on New Order – Single, Order Cancel Replace Request, and Execution Report.

Tag	Name	Comments	Required	Possible Values
453	NoPartyIDs	Repeating group below must contain unique combinations of PartyID, PartyIDSource, and PartyRole	Post MiFID II implementation	
448	PartyID	The short code representing the client or decision maker represented by this block. Data corresponding to this short code must have been previously supplied, or will be supplied by the end of the calendar day.	If NoPartyIDs (453) > 0.	Whole number short code. Values 0,1,2, and 3 are reserved; see Party IdentifiersParty Identifiers
447	PartyIDSource		If NoPartyIDs (453) > 0.	P Short code identifier
452	PartyRole	See Party IdentifiersSee Party Identifiers	If NoPartyIDs (453) > 0.	3 ClientID 12 Executing Trader (Executing decision maker) 122 Investment Decision Maker
2376	PartyRoleQualifier	Used to further qualify the value of PartyRole	If NoPartyIDs (453) > 0.	22 Algorithm (for PartyRole 12 or 122) 23 Firm or legal entity (for PartyRole 3) 24 Natural Person (for PartyRole 3,12, or 122)

7.2. Session-Level Messages

The following messages are supported in both directions:

MsgType	Description
A	Logon
0	Heartbeat
1	Test Request
2	Resend Request
3	Reject
4	Sequence Reset
5	Logout

7.2.1. Login

Tag	Field Name	Comments	Required
	Standard Header Standard Header	MsgType = A	Y
98	EncryptMethod	0 (<i>Always unencrypted</i>)	N
108	HeartBtInt	Note same value used by both sides	Y
141	ResetSeqNumFlag	Indicates both sides of a FIX session should reset sequence numbers	N
	Standard Trailer Standard Trailer		Y

7.2.2. Heartbeat

Tag	Field Name	Comments	Required
	Standard Header Standard Header	MsgType = 0	Y
112	TestReqID	Required when the heartbeat is the result of a Test Request message.	N
	Standard Trailer Standard Trailer		Y

7.2.3. Test Request

Tag	Field Name	Comments	Required
	Standard Header Standard Header	MsgType = 1	Y
112	TestReqID		Y
	Standard Trailer Standard Trailer		Y

7.2.4. Resend Request

Tag	Field Name	Comments	Required
	Standard Header Standard Header	MsgType = 2	Y
7	BeginSeqNo		Y
16	EndSeqNo		Y
	Standard Trailer Standard Trailer		Y

7.2.5. Reject

Tag	Field Name	Comments	Required
	Standard Header Standard Header	MsgType = 3	Y
45	RefSeqNum	MsgSeqNum of rejected message	Y
371	RefTagID	The tag number of the FIX field being referenced.	N
372	RefMsgType	The MsgType of the FIX message being referenced.	N
373	SessionRejectReason	Code to identify reason for a session-level Reject message.	N

58	Text	Where possible, message to explain reason for rejection	N
	<i>Standard TrailerStandard Trailer</i>		Y

7.2.6. Sequence Reset

Tag	Field Name	Comments	Required
	<i>Standard HeaderStandard Header</i>	MsgType = 4	Y
123	GapFillFlag		N
36	NewSeqNo		Y
	<i>Standard TrailerStandard Trailer</i>		Y

7.2.7. Logout

Tag	Field Name	Comments	Required
	<i>Standard HeaderStandard Header</i>	MsgType = 5	Y
58	Text		N
	<i>Standard TrailerStandard Trailer</i>		Y

7.3. Messages from Member to UBS MTF

The following messages may be sent by a Member to UBS MTF:

MsgType	Description
D	New Order - Single
F	Order Cancel Request
G	Order Cancel/Replace Request
Q	Don't know trade

7.3.1. New Order Single

Tag	Name	Comments	Required	Possible Values
	<i>Standard HeaderStandard Header</i>	MsgType =D	Y	
109	ClientID	The member ID. If not set will use default configured per session. We will validate set of members per session.	N	As assigned by UBS MTF
11	ClOrdID	Identifier of the order as assigned by the member.	Y	

		Must be unique per session, per day.		
18	ExecInst	Instructions for order handling. Amendments to tag 18 are rejected.	<u>Y</u> if routing to the dark order book.	M if buying or selling at the mid. P if buying at offer or selling at bid (market peg) R if buying at bid or selling at offer (primary peg) h Half-sweep f Full sweep
55	Symbol	Ticker Symbol	Y	UMTF Code
54	Side	Side of order	Y	1 Buy 2 Sell
38	OrderQty	Number of shares ordered	Y	
40	OrdType	Order type	Y	P Pegged (<u>dark order book only</u>) 2 Limit (Periodic auction segment only)
60	TransactTime	Time the order was initiated	Y	
47	OrderCapacity	Designates the capacity of the firm placing the order	Y	Pre MiFID-II implementation: A Agency (default) P Principal R Riskless-Principal Post MiFID-II implementation: A (default) 'AOTC' P 'DEAL' R 'MTCH'
59	TimeInForce	<u>Dark: Day</u> , or IOC <u>Periodic: Day</u> , or Good for Auction	Y	0 Day 3 IOC B Good for auction (GFA) 3 IOC
44	Price	Optional price limit, specified in the currency of the instrument	<u>Y</u> if OrdType = Limit. <u>N</u> if Pegged	

15	Currency	If specified, must match the instrument currency code as specified in UBS MTF symbology file.	N	ISO 4217 Currency code; with the addition of GBX for instruments traded in Pence sterling.
110	MinQty	Displaying the minimum quantity of an order to be executed acting as an MAQ within UBS MTF	N	The value placed in tag 110 must be either equal or less than the OrderQty (tag 38). If the remaining quantity of a partially filled order falls below the value given here, the effective MinQty becomes one (1)the outstanding quantity of the order. Default: 1
9004	Internalization	Self-execution prevention	N	4 (Do not execute against own orders). See section 2.5. Default: Can cross against own orders
1	Account	Returned on execution reports associated with this order	N	
20060	RequestedCrossing WaiverType	Specific whether an order may be executed under (1) either Reference Price Waiver (RPW) or Large In Scale (LIS) Waiver, or (2) only under LIS Waiver See Only meaningful if routing to the dark order book; see 3.1110 above.	N	1 Either 2 LIS only Default: 1 (Either)
581	AccountType	Specifies the CCP account	Y	1 Client 3 House
8015	OrderAttributeTypes	Flattened set of order attribute flags. If more than one attribute is applicable to an order, this field can contain multiple attributed separated by space. Absence of a flag indicates that	N	2 Liquidity Provision activity flag 4 Algorithmic order flag. Indicates that the order was placed as a result of an investment

		the corresponding order attribute is false.		firm engaging in algorithmic trading.
1724	OrderOrigination	Indicates DEA activity, as defined by MiFID II	N	5 Order received from a direct access or sponsored access customer
9303	RoutingInst	Indicate market segment to which order should be routed.	N	D Dark order book P Periodic Auction Order book Default: D
	Parties	Parties component		
	Standard TrailerStandard Trailer		Y	

7.3.2. Order Cancel Request

Tag	Name	Comments	Required
	Standard HeaderStandard Header	MsgType =F	Y
109	ClientID	The member ID. If not set will use default configured per session. We will validate set of members per session.	N
11	ClOrdID	Unique identifier of cancel request as assigned by participant	Y
41	OrigClOrdID	ClOrdID of the originating order	Y
55	Symbol	Must match original order	Y
54	Side	Must match original order	Y
60	TransactTime	Time the cancel request was initiated	Y
	Standard TrailerStandard Trailer		Y

7.3.3. Order Cancel Replace Request

Only the Price (44), OrderQty (38), and MinQty (110) may be modified on cancel/replace. All other fields must be consistent with the original order.

Tag	Name	Comments	Req'd	Possible Values
	Standard HeaderStandard Header	MsgType =G	Y	
109	ClientID	The member ID. If not set will use default configured per session. We will validate set of members per session.	N	As assigned by UBS MTF

11	ClOrdID	Identifier of the order as assigned by the participant. Must be unique per session, per day.	Y	
41	OrigClOrdID	ClOrdID of the order to be replaced.	Y	
18	ExecInst	Must match original order.	Y	
55	Symbol	Must match original order.	Y	UMTF Code
54	Side	Must match original order.	Y	
38	OrderQty	New order quantity	Y	
40	OrdType	Must match original order.	Y	PP Pegged (dark order book only) 2 Limit (Periodic auction segment only)
60	TransactTime	Time the replace request was initiated	Y	
47	OrderCapacity	Designates the capacity of the firm placing the order. Must match original order if set.	N	Pre-MiFID-II implementation: A Agency (default) P Principal R Riskless Principal Post-MiFID-II implementation: A (default) 'AOTC' P 'DEAL' R 'MTCH'
59	TimeInForce	Must match original order if set.	N	
44	Price	New limit price	N	Optional price limit
15	Currency	Must match original order if set.	N	ISO 4217 Currency code; with the addition of GBX for instruments traded in Pence sterling.
110	MinQty	Displaying the minimum quantity of an order to be executed acting as an MAQ within UBS MTF.	N	The value placed in tag 110 must be either equal or less than the OrderQty (tag 38). If the remaining quantity of a partially filled order falls below the value given here, the effective MinQty becomes

				one (1) the outstanding quantity of the order. Default: 1
9004	Internalization	Must match original order if set.	If received on original order	
1	Account	Returned on execution reports associated with this order Must match original order if set. Otherwise amend will be rejected.	If not set value from original order is preserved	
	Parties	Parties component		
	Standard TrailerStandard Trailer		Y	

7.3.4. Don't Know Trade (DK)

Tag	Field Name	Comments	Required	Possible Values
	Standard HeaderStandard Header	MsgType = Q	Y	
109	ClientID	The member ID. If not set will use default configured per session. We will validate set of members per session.	N	As assigned by UBS MTF
37	OrderID	Order ID as identified on problem execution	Y	
17	ExecID	Execution ID of problem execution	Y	
127	DKReason		Y	A = Unknown Symbol B = Wrong Side C Quantity exceeds order D No matching order E Price exceeds limit Z Other

55	<i>Symbol</i>	Must match original order	Y	
54	<i>Side</i>	Must match original order	Y	
38	<i>OrderQty</i>	Must match original order	N	
	Standard TrailerStandard Trailer		Y	

7.4. Messages from UBS MTF to Member

UBS MTF may send the following messages to members:

7.4.1. Execution Report

Tag	Name	Comments	Required	Possible Values
	Standard HeaderStandard Header	MsgType =8	Y	
37	OrderID	Identifier of the order as assigned by UBS MTF. Unique across all orders on a daily basis.	Y	
11	ClOrdID	Identifier of replacement order as assigned by participant.	Y	
41	OrigClOrdID	OrderID for which cancellation or replacement was requested	Y ³	
17	ExecID	Identifier of the transaction. Unique on a daily basis for each transaction For new executions (ExecTransType=0), the ExecId is structured as follows: (1) Four character code segment MIC ('XUBS' or 'XUMP') (2) Two digit matching engine identifier (3) Integer match identifier (unique per matching engine identifier per day) For cancelled trades (ExecTransType=1), the ExecId follows the same syntax, with the addition of a one-character prefix of the digit '1'	Y	New trades e.g: <ul style="list-style-type: none"> • XUBS062906 • XUBS071342237 • XUMP07134223 Cancellation e.g: <ul style="list-style-type: none"> • 1XUBS2906
150	ExecType	Describes the type of execution report	Y	0 New 1 Partial Fill 2 Fill 4 Cancelled 5 Replaced

³ Required if sent in response to Cancel or Cancel/Replace

				8 Rejected
20	ExecTransType	Identifies transaction type	Y	0 New 1 Cancel
19	ExecRefID	Identifies cancelled execution. The value given will correspond to an ExecId from an earlier new Fill or Partial Fill.	Y ⁴	ExecId of the cancelled execution, if ExecTransType=1
18	ExecInst	On ExecType=New, Cancelled, Replaced, Rejected - reflects value entered by member on corresponding prior message. On ExecType=Fill or Partial Fill, reflects the Peg on which the trade occurred, i.e. <u>one of always M, P, or R. See M See 3.101.1 above</u>	<u>Y if from dark order book, otherwise not set.</u>	M if buying or selling at the (mid-peg only)
				P if buying at offer or selling at bid
				R if buying at bid or selling at offer
				h Half-sweep
				f Full-sweep
55	Symbol	As sent on the originating order	Y	
54	Side	As sent on the originating order	Y	
38	OrderQty	As sent on the originating order	Y	
39	OrdStatus	Current status of the order	Y	0 New 1 Partially Filled 2 Filled 4 Cancelled 5 Replaced 6 Pending Cancel (i.e. result of Order Cancel Request) 8 Rejected E Pending Replace (i.e. result of Order Cancel/Replace Request)
32	LastShares	Quantity of shares bought/sold on this	If 150=1	Integer

⁴ If ExecTransType=1 (Trade cancel)

		(last) fill	or 2	
31	LastPx	Price of this (last) fill	If 150=1 or 2	
15	Currency	Populated if specified on New Order – Single message (35=D 35=D)	If sent on 35=D	ISO 4217 Currency code; with the addition of GBX for instruments traded in Pence sterling.
30	LastMkt	Venue of Segment MIC for this execution of this (last) fill	If 150=1 or 2	XUBS , or XUMP
29	LastCapacity	Capacity on order execution. This reflects the order capacity.	If 150=1 or 2	1 Agent → AOTC 3 Riskless Principal (cross as principal) → 'MTCH' 4 Principal → DEAL
151	LeavesQty	Amount of shares open for further execution	Y	
14	CumQty	Amount of executed shares on the order	Y	
6	AvgPx	Average price of all fills on the order	Y	
60	TransactTime	Time the transaction represented by this Execution Report occurred	Y	
851	LastLiquidityInd	Applicable only on ExecTransType (150) of Partial or Filled.		1 Added Liquidity 2 Removed Liquidity 4 Auction 2 Removed Liquidity
58	Text	Additional information if ExecType=8 (Rejected)	N	
103	OrdRejReason	Additional information if ExecType=8(Rejected)		0 Broker Option 1 Unknown Symbol 2 Exchange Closed 3 Order Exceeds Limit (?) 6 Duplicate Order

1	Account		If received on original order	
8013	TrdRegPublication Reasons	Indicates the pre-trade transparency waiver under which the trade was conducted.	If 150 applicable, on150 =1 or 2	3 = Reference Price (RFPT) 9 = Large in Scale (LRGS)
581	AccountType	Specifies the CCP account	N , required in future Y	1 Client 3 House
8015	OrderAttributeTypes	Flattened set of order attribute flags. If more than one attribute is applicable to an order, this field can contain multiple attributed separated by space. Absence of a flag indicates that the corresponding order attribute is false.	If received on original order	2 Liquidity Provision activity flag 4 Algorithmic order flag.
1724	OrderOrigination	Indicates DEA activity, as defined by MiFID II	As received on original order	5 Order received from a direct access or sponsored access customer
7772	CentralCounterParty	The Central Counterparty, or 'NONE' if the trade is eligible for clearing suppression	If 150 =1 or 2	EMCF = European Multilateral Clearing Facility LCHL = LCH.Clearnet XCLR = SIX x-clear NONE = self-clear (no CCP)
	Standard TrailerStandard Trailer		Y	

7.4.2. Order Cancel Reject

Tag	Name	Comments	Required	Possible Values
	Standard HeaderStandard Header	MsgType =9	Y	
37	OrderID	Identifier of the order as assigned by UBS MTF.	Y	

39	OrdStatus	Current status of the order	Y	0 New 1 Partially Filled 2 Filled 4 Cancelled 5 Replaced 6 Pending Cancel (i.e. result of Order Cancel Request) 8 Rejected E Pending Replace (i.e. result of Order Cancel/Replace Request)
11	ClOrdID	ClOrdID as assigned by the order cancel or replace request	Y	
41	OrigClOrdID	As sent on the originating order	Y	
58	Text		N	
102	CxlRejReason		Y	0 Too late to cancel 1 Unknown order 2 Exchange option 3 Order already in Pending Cancel or Pending Replace status
434	CxlRejResponseTo		N	1 Order cancel request 2 Order cancel/replace request
	<i>Standard Trailer</i>	<i>Standard Trailer</i>	Y	

7.5. Order Rejection Codes

The following Rejection Codes may be sent back to Members in the event of an order reject; these are in addition to the reason code in tag 103. This is not a comprehensive list, and other messages may also appear in tag 58. Additional values for tags 102 and tag 103 are reserved for future use.

Code Text (Tag 58)	Description
EXEC INST	Execution Instruction missing, or invalid
INVALID ACCOUNT TYPE	AccountType is missing, or invalid
Invalid waiver type (LIS) crossing instruction	The RequestedCrossingWaiverType value received on New order – Single message is undefined
Market closed	Market is closed
MIN QTY	The given MAQ is invalid
MinQty exceeds OrderQty	The given MAQ is larger than the OrderQty
NOT AUTH	The member is not authorised to submit orders in this instrument (no central counterparty relationship defined)
Order does not meet required LIS threshold	The order was submitted for execution under solely Large in Scale Waiver, but does not meet the notional value threshold for doing so.
Reference Price Waiver Suspended	Order was rejected due to dark volume cap – order was not large in scale.
ORDERTYPE	The specified OrderType is invalid
UNKNOWN SECUID	The given symbol is not available for trading
Validation breach:{reason}	The order failed pre-trade controls. One of more reasons are given in the message, eg:e.g.: OrderQuantity (OrderQty exceeds pre-defined risk limit) OrderNotional (notional value of the order exceeds pre-defined risk limit)
XE001	System is not enabled
XE002	Market is not open
XE003	Order is not eligible for trading
XE004	Order is not eligible for crossing
XE006	Instrument is not open
XE007	Market manually disabled
XE008	Instrument manually disabled
XE010	Account disabled
XE011	Instrument suspended

8. References

- [1] FIX Protocol Ltd, "FIX 4.2," 2001. [Online]. Available:
<http://www.fixtradingcommunity.org/pg/structure/tech-specs/fix-version/42>.
- [2] UBS Ltd, "Member Information," 2015. [Online]. Available: <http://ubs.com/mtf>.
- [3] FIX Trading Community, "EP206 Clock Synchronization Datatype Enhancement," 14 February 2016. [Online]. Available: <http://www.fixtradingcommunity.org/pg/extensions/extension-pack?ExtensionID=EP206>.
- [4] Wikipedia contributors, "Uniform Symbology," Wikipedia, The Free Encyclopedia, July 2015. [Online]. Available:
https://en.wikipedia.org/w/index.php?title=Uniform_Symbology&oldid=664368300.

9. Disclaimer

The key symbol and UBS are registered and unregistered trademarks of UBS. All rights reserved. UBS specifically prohibits the redistribution of this material and accepts no liability whatsoever for the actions of third parties in this respect.

UBS, by publishing this document, does not guarantee that any information contained herein is and will remain accurate or that use of the information will ensure correct and faultless operation of the relevant service or equipment.

UBS MTF

Market data feed specification



Table of contents

1. Version history	3
2. Introduction	3
2.1. <i>Background</i>	3
3. Functional overview	3
4. Connectivity	3
5. Data types	4
6. Session-Level Messages	5
6.1. <i>Login</i>	5
Application-Level Messages	5
6.2. <i>Auction messages</i>	5
6.3. <i>Trade Messages</i>	7
6.4. <i>Administrative messages</i>	8
7. Sample Messages	10
8. References	12
9. Disclaimer	12

1. Version history

Version	Date	Changes and remarks
1.0	May 2018	Initial release

2. Introduction

This document describes the UBS MTF Market Data Feed (UMDF). This document is intended for software developers who would like to receive UBS MTF pre- and post-trade data.

2.1. Background

UBS MTF is implementing a second market segment, offering a periodic auction order book to participants in addition to the existing dark, continuous auction segment.

3. Functional overview

The UMDF provides auction and trade information. For order entry, see the UBS MTF Fix Rules of Engagement [1]. UMDF provides data in a series of ASCII messages. The length of each message depends of the message type. UBS MTF may add additional messages types, and extend existing messages. Users should be prepared to ignore unknown message types, and messages of longer than current length. Messages will only be extended to add additional information at the end of the message.

Messages are delivered using SOUP 2.0 to provide message sequencing, and session management, including login/logout request, heartbeats, and message redelivery. The dialect of SOUP 2.0 is the same as that of other market operators. In accordance with SOUP 2.0, messages consist solely of printable ASCII characters 32-126.

4. Connectivity

UBS MTF is vendor neutral, although there is existing connectivity with the following providers: Radianz, TNS and Fixnetix. It is also possible for members to cross-connect if they have presence in the Equinix LD4 Data Centre in Slough, or in Interxion London. Full details are available in the UBS MTF Connectivity Guide, available on our website [1].

5. Data types

timestamp	A left zero-padded string of eleven ASCII digits representing microseconds since midnight UTC. eg: 29701000000 (08:15:01 UTC)
price	A left-zero-padded string of nineteen ASCII digits, consisting of an eleven digit mantissa and eight digit fraction eg: 0000000010200000000 (102) 0000000000061900000 (0.619)
numeric	A string of ASCII digits ,0-9. zero-padded on the left
alphanumeric	A string ASCII characters A-Z,a-z,0-9. Left justified, and space padded on the right
sym	An alphanumeric UBS MTF symbol in Uniform Symbology. Space padded on the right up to six characters eg: "UBSGz "
char	A single ASCII character

6. Session-Level Messages

Session level messages are as defined in SOUP 2.0. For reference a sample SOUP login message is given below.

User name and password are as allocated by UBS MTF.

Requested Session should be either all blanks (' ') or the the current date as as 'yyyy-mm-dd'.

6.1. Login

<i>Field</i>	<i>Value</i>	<i>Offset</i>	<i>Length</i>	<i>Description</i>
Packet Type	"L"	0	1	Login Request Packet
Username	alphanumeric	1	6	As above
Password	alphanumeric	7	10	As above
Requested Session	alphanumeric	17	10	As above
Requested Sequence Number	numeric	27	10	The next sequence number the client wants to receive, or 0 to receive the most recent message
Linefeed	char	1	37	ASCII LF, hex 0x10
<i>Total length</i>			38	

Application-Level Messages

6.2. Auction messages

Auction Update

<i>Field</i>	<i>Value</i>	<i>Offset</i>	<i>Length</i>	<i>Description</i>
Timestamp	timestamp	0	11	Timestamp of message
Message type	"u"	11	1	<i>Auction update</i>
Symbol	sym	12	6	UMTF symbol
Auction type	char	18	1	"P" periodic auction
Indicative Price	price	19	19	Price at which the auction will uncross if completed
Indicative Volume	numeric	38	10	Executable volume at the indicative price, in shares
<i>Total length</i>			48	

Auction Summary

<i>Field</i>	<i>Value</i>	<i>Offset</i>	<i>Length</i>	<i>Description</i>
Timestamp	timestamp	0	11	Timestamp of message
Message type	"s"	11	1	<i>Auction Summary</i>
Symbol	sym	12	6	UMTF symbol

Auction type	char	18	1	"P" periodic auction
Price	price	19	19	Price at which the auction completed 0 if no executions occur
Volume	numeric	38	10	Total executed volume during the auction, in shares. 0 if no executions occur
<i>Total length</i>			48	

On completion of an auction, an Auction Summary message will be returned. If the volume is > 0, this will be followed by one or more *Trade* messages.

6.3. Trade Messages

Trade

Field	Value	Offset	Length	Description
Timestamp	timestamp	0	11	Timestamp of message
Message type	"t"	11	1	Trade
Symbol	sym	12	6	UMTF symbol
Price	price	18	19	Price at which the transaction executed
Volume	numeric	37	10	Total executed volume, in units (i.e. shares)
Execution ID	alphanumeric	47	12	Transaction identification code (TVTIC) e.g: "XUBS062906 " "XUMP07134223"
Trade Flags	alphanumeric	59	14	(MMT flags, see [below] for full MMT mapping)
Currency		73	3	An ISO 4217 Currency code, with the addition of GBX for instruments traded in Pence sterling. eg: EUR; CHF; GBP; GBX
Segment	alphanumeric	76	4	Segment MIC "XUBS" (dark segment), or "XUMP" (periodic auction segment)
TransactTime	Timestamp	80	11	Timestamp of transaction
Total length			91	

Trade Flags

These follow MMT 3.04 (<https://www.fixtrading.org/mmt/>) [2]. Values as current implemented by UBS MTF are as listed; however consumers should be prepared to accept any values as defined in MMT 3.04.

Offset	MMT Level	Name	Description
0	1	Market Mechanism	"3" Dark "5" Periodic Auction
1	2	Trading Mode ¹	"2" Continuous Auction "1" Undefined Auction
2	3.1	Transaction Category ²	"D" Dark trade "- " n/a
3	3.2	Negotiated Trade	"-" n/a
4	3.3	Crossing Trade	"-" n/a
5	3.4	Modification Indicator	"C" Trade cancellation

¹ UBS MTF Dark segment trades are reported as trade mode '2' (Continuous auction). Periodic auction trades are reported with Trading Mode '1' (Undefined auction).

² Periodic auction trades are flagged with TransactionCategory ' ' (n/a).

<i>Offset</i>	<i>MMT Level</i>	<i>Name</i>	<i>Description</i>
			"-" New trade
6	3.5	Benchmark/Reference Price Indicator	"S" Reference price trade "-" n/a
7	3.6	Special Dividend	"-" n/a
8	3.7	Off Book / Automated Indicator	"-" n/a
9	3.8	Price Formation/Discovery Process	"P" Plain-vanilla trade
10	3.9	Algorithmic Indicator	"H" Algorithmic trade "-" Non-algorithmic trade
11	4.1	Publication Mode/Deferral Reason	"-" n/a
12	4.2	Deferral or Enrichment Type	"-" n/a
13	5	Duplicative Indicator	"-" n/a

Trade Cancellation

Where a trade is subsequently cancelled, a second trade message will be sent, using the details of the original trade, but with the *Cancellation* flag set (MMT Level 3.4, above).

6.4. Administrative messages

Trading Status

Indicates current trading status on an instrument. A trading status message is sent whenever an instrument's trading status changes. Where an instrument is suspended before start of trading, a trading status message will be sent to this effect.

<i>Field</i>	<i>Value</i>	<i>Offset</i>	<i>Length</i>	<i>Description</i>
Timestamp	timestamp	0	11	Timestamp of message
Message type	"H"	11	1	<i>Trading Status</i>
Symbol	sym	12	6	UMTF symbol
Status	char	18	1	"T" trading "C" closed "S" suspended
Segment	alphanumeric	19	4	Segment MIC "XUBS" (dark segment), or "XUMP" (periodic auction segment)
<i>Total length</i>			23	

Security Definition

At the start of each day, UBS MTF will disseminate a series of Security Definition messages for all active instruments, including those which are suspended.

Messages may also be sent intra-day in the event that a field value is changed, or a new instrument is admitted.

<i>Field</i>	<i>Value</i>	<i>Offset</i>	<i>Length</i>	<i>Description</i>
Timestamp	timestamp	0	11	Timestamp of message

<i>Field</i>	<i>Value</i>	<i>Offset</i>	<i>Length</i>	<i>Description</i>
Message type	"i"	11	1	<i>Security Definition</i>
Symbol	sym	12	6	UMTF symbol
Currency	char	18	3	Currency of trading. An ISO 4217 Currency code, with the addition of GBX for instruments traded in Pence sterling. eg: EUR; CHF; GBP; GBX
ISIN	alphanumeric	21	12	ISO 6166 security identifier
Country of Listing	alphanumeric	33	2	ISO 3166-1 Alpha-2 Country Code
Reference Market	alphanumeric	35	4	ISO 10383 Market Identifier Code (MIC Code)
Minimum LIS	numeric	39	12	Minimum notional order value required to be eligible for execution under Large in Scale Waiver. Expressed in Currency of trading. Blank if instrument is ineligible for Large in Scale execution
Capping Status	char	51	1	" " Not Capped "d" Capped at discretion of UBS MTF "4" Venue-specific cap (4% limit) "8" Pan-venue cap (8% limit)
Dark supported	char	52	1	Available for trading on dark segment "Y" / "N" (Yes/ No)
Periodic Auction Supported	char	53	1	Available for trading on periodic auction segment "Y" / "N" (Yes/ No)
<i>Total length</i>			54	

7. Sample Messages

SOUP Login

#Log in to current session as user M00101, starting from sequence number 1:

LM00101d618c1c89a 000000001

#Log in to specific session as user M00101, resume from sequence number 2020:

LM00101d618c1c89a2018-05-01000002020

Security Definition

04:02:03 UTC, defining symbol VOD1, ISIN: GB00BH4HKS39, currency GBX, reference market XLON, country GB, LIS if > 570,082.50 GBP, dark capped, dark is supported, periodic auction is supported

012345678901234567890123456789012345678901234567890123

14523019777iVOD1 GBXGB00BH4HKS39GBXLON0000570082508YY

PLTm, currency: EUR, reference market XMIL, country IT, not capped, LIS if > 450,000 EUR

14523019867iPLTm EURIT0003826473ITXMIL000000450000 YY

07:00:00 UTC, VOD1 is open

25200075626HVOD1 TXUBS

25200075626HVOD1 TXUMP

07:00:00 UTC, PLTm is open

25200654556HVOD1 TXUBS

25200654558HVOD1 TXUMP

15:30:00 UTC, VOD1 is closed

55800045681HVOD1 CXUBS

55800045681HVOD1 CXUBS

Periodic auction

```
# Auction update; indicative price: 11.78, indicative volume: 21
51091933795uFURa P000000001178000000000000021
# Auction summary; price: 11.78, volume: 21
51091979482sFURa P000000001178000000000000021
# 11 shares executed in FURa. price: 11.78 EUR, on the Periodic Auction order book. Trade executed at 14:11:31.979491 UTC
51091979663tFURa 00000000117800000000000021XUMP018 51-----PA---EUR 51091979491

# Auction is triggered in LVEp:
31552375326uLVEp P000000071000000000000000011
# Expires without any resulting executions:
31552421577sLVEp P000000000000000000000000000
```

Dark trades

```
# 1285 shares executed in ASHML. price: 37.535 GBX, under Reference Price Waiver on the dark order book. Trade is
algorithmic. Trade executed at 08:01:32.882394 UTC:
28892883205tASHML 00000003753500000000001285XUBS010 32D---S--PH---GBX 28892882394
# Trade above is cancelled (MMT Cancellation flag is set):
28892883209tASHML 00000003753500000000001285XUBS010 32D--CS--PH---GBX 28892883206
```

8. References

- [1] UBS Ltd, "Member Information," 2015. [Online]. Available: <http://ubs.com/mtf>.
- [2] Wikipedia contributors, "Uniform Symbology," Wikipedia, The Free Encyclopedia, July 2015. [Online]. Available: https://en.wikipedia.org/w/index.php?title=Uniform_Symbology&oldid=664368300.
- [3] FIX Protocol Ltd, "FIX 4.2," 2001. [Online]. Available: <http://www.fixtradingcommunity.org/pg/structure/tech-specs/fix-version/42>.
- [4] FIX Trading Community, "EP206 Clock Synchronization Datatype Enhancement," 14 February 2016. [Online]. Available: <http://www.fixtradingcommunity.org/pg/extensions/extension-pack?ExtensionID=EP206>.
- [5] Fix Trading Community, "Market Model Typology," 2017. [Online]. Available: <https://www.fixtrading.org/mmt/>.

9. Disclaimer

The key symbol and UBS are registered and unregistered trademarks of UBS. All rights reserved. UBS specifically prohibits the redistribution of this material and accepts no liability whatsoever for the actions of third parties in this respect.

UBS, by publishing this document, does not guarantee that any information contained herein is and will remain accurate or that use of the information will ensure correct and faultless operation of the relevant service or equipment.

UBS Limited
5 Broadgate
London, EC2M 2QS
Tel. +44-20 7567 8000

www.ubs.com

UBS Limited is a subsidiary of UBS AG