TRADE STATISTICS FILE - DERIVATIVES MARKET (NON-SOM) (BINARY FORMAT)

Update History

No.	Issue Date	Details
1	2014-12-01	First Issue
2	2018-04-16	Data Enrichment - Section 1.1 – Add a new field “CommodityID” - Section 1.2 – Add a new field “TickStepSize” and change the description of the field “PriceQuotationFactor” - Section 1.4 – Add new field “PriceQuotationFactor” and 8-byte filler
3	2019-05-06	Data Enrichment - Section 1.3 - Replace 2-byte filler with a new field “DecimalInStrikePrice” (303) - Section 1.4 - Add a new value on existing field “SeriesStatus” and replace 1-byte filler with a new field “PriceMethod” (304) - Section 1.4 - Replace 8-byte filler with a new field “DateTimeFirstTrading” (304)

The Trade Statistics File - Derivatives Market (Non-SOM) (Binary Format) includes 2 types of information – (1) Derivatives Reference data and (2) Trade Statistic data. Please refer to the below sub-sections for the details of the types of information.

The following table lists out the data files to be found in each issue:

File Name	Contents
Non-SOM Products	
MC101_All_YYYYMMDD	Derivatives Static Reference (Partition 1)
MC201_All_YYYYMMDD	Derivatives Static Reference (Partition 2)
MC151_All_YYYYMMDD	Derivatives Static Reference (OAPI)
MC171_All_YYYYMMDD	Derivatives Trade Statistic

1) YYYYMMDD is the date of file

2) If there is no record in the file, a dummy file with zero-length size will be provided.

1. Derivatives Reference

The Derivatives Reference file is in binary format and contains five types of messages – ***CommodityDefinition***, ***ClassDefinition***, ***SeriesDefinitionBase, SeriesDefinitionExtended*** and ***CombinationDefinition***. The filenames of the 3 Derivatives Reference files are as follows:

MC101_All_YYYYMMDD – Non-SOM Partition 1 (SeriesDefinitionBase,CombinationDefinition)
MC201_All_YYYYMMDD – Non-SOM Partition 2 (SeriesDefinitionBase,CombinationDefinition)
MC151_All_YYYYMMDD – Non-SOM (CommodityDefinition,ClassDefinition,SeriesDefinitionExtended)
where YYYYMMDD is the date of the Derivatives Reference Data file

The layout of the Derivatives Reference is as follows:

<RecordLength><PacketHeader><DerivativesReference>…<RecordLength><PacketHeader><DerivativesReference>…<RecordLength><PacketHeader><DerivativesReference>

Following is the message layout of the ***RecordLength***

Offset	Field	Format	Len	Description
0	RecLen	Uint16	2	Size of the record (including this field)
Total length			2	

Following is the message layout of the ***PacketHeader***

Offset	Field	Format	Len	Description
0	PktSize	Uint16	2	Size of the packet (including this field)
2	MsgCount	Uint8	1	Number of messages included in the packet
3	Filler	String	1	
4	SeqNum	Uint32	4	Sequence number of the first message in the packet
8	SendTime	Uint64	8	UTC Timestamp. The number of nanoseconds since *January 1*, 1970, *00:00:00 GMT*, precision is provided to the nearest millisecond.
Total length			16	

<DerivativesReference> contains different combinations of the four types of messages – ***CommodityDefinition***, ***ClassDefinition***, ***SeriesDefinitionBase, SeriesDefinitionExtended*** and ***CombinationDefinition.*** For example:

In MC151 data files, the order of messages can be as following:

<CommodityDefinition><CommodityDefinition><ClassDefinition><SeriesDefinitionExtended> or ***<CommodityDefinition><CommodityDefinition><ClassDefinition><SeriesDefinitionExtended><ClassDefinition><SeriesDefinitionExtended>***

In MC101/201 data files, the order of messages can be as following:

<SeriesDefinitionBase><CombinationDefinition><SeriesDefinitionBase><CombinationDefinition>

or

<SeriesDefinitionBase><SeriesDefinitionBase><CombinationDefinition><CombinationDefinition>

Followings are the message layouts of the ***CommodityDefinition***, ***ClassDefinition***, ***SeriesDefinitionBase, SeriesDefinitionExtended*** and ***CombinationDefinition***

1.1 Commodity Definition (301)

Describes individual commodities available from the OMD-D system.

Message Fields

Offset	Field	Format	Len	Description	Values
0	MsgSize	Uint16	2	Size of the message	
2	MsgType	Uint16	2	Type of message.	301 Commodity Definition
4	CommodityCode	Uint16	2	Numerical identifier of the Underlying. This is the unique identifier of the message. The Series Definition Extended and the Class Definition are retrieved through this field which links them to the Commodity Definition. eg. 2005 (HKB).	
6	DecimalInUnderlyingPrice	Uint16	2	Number of implicit decimals in the underlying price received from external sources.	
8	ISINCode	String	12	A code which uniquely identifies a specific securities issue (International Securities Identification Number). For more information about ISIN code, see the international standard ISO 3166.	
20	BaseCurrency	String	3	Defines the trading currency for the instrument or the currency for the underlying. The representation of the currency follows the S.W.I.F.T. handbook and ISO 3166 standard.	See Currency Values in section 3.1.2 of OMD-D Interface Specification for full details.
23	UnderlyingPriceUnit	Uint8	1	The price unit for the underlying	1 Price 2 Yield * 3 Points 4 Yield Diff * 5 IMM Index * 6 Basis Points * 7 Inverted Yield * 8 Percentage of Nominal * 9 Dirty Price *

Offset	Field	Format	Len	Description	Values
24	CommodityName	String	32	Descriptive Name of the underlying Eg. Hang Seng Index	
56	NominalValue	Int64	8	Nominal Value of the Commodity	Applicable for 3-Year EFN Futures only
64	UnderlyingCode	String	20	Underlying Code of the Commodity	
84	UnderlyingType	Uint8	1	Type of the underlying	1 Stock 2 Currency 3 Interest rate 4 Energy * 5 Soft and Agrics * 6 Metal 7 Stock Index 8 Currency Index * 9 Interest Rate Index * 10 Energy Index * 11 Softs and Agrics Index * 12 Metal Index *
85	EffectiveTomorrow	Uint8	1	This declaration is for series to be traded the next day	0 False 1 True
86	CommodityID	String	6	Commodity ID of the underlying E.g. HSB	
92	Filler	String	2		
Total Length			94		

*Remark *: denotes that the value is not currently in use for existing products. However, please note that HKEX may use the value anytime when introducing new products*

1.2 Class Definition (302)

Describes individual instrument classes available from the OMD-D system. The key of a Class Definition is composed by Country, Market, Instrument Group and Commodity Code.

Message Fields

Offset	Field	Format	Len	Description	Values
0	MsgSize	Uint16	2	Size of the message	
2	MsgType	Uint16	2	Type of message.	302 Class Definition
4	Country	Uint8	1	Country Identifier	
5	Market	Uint8	1	Market Code	See section 8.4 of OMD-D Interface Specification for a list of possible values
6	InstrumentGroup	Uint8	1	Instrument Group. This field together with the Commodity, forms the unique identifier of the message	See section 8.3 of OMD-D Interface Specification for a list of possible values
7	Modifier	Uint8	1	Expiration date modified. Value is incremented by one each time the instrument is involved in an issue, split, etc. Note that the modifier value can be different for bid and ask options in the same Series.	0-255
8	CommodityCode	Uint16	2	Numerical identifier of the Underlying This field, together with the	

Offset	Field	Format	Len	Description	Values
				InstrumentGroup forms the unique identifier of the message The Commodity Definition and the Series Definition Extended are retrieved through this field which links them to the Class Definition Eg. eg. 2005 (HKB).	
10	Filler	String	2		
12	PriceQuotationFactor	Int32	4	Implies the contracted value of the product / series	Decimal places determined from Class Definition field "DecimalInContractSize"
16	ContractSize	Uint32	4	Number of Underlying entities per contract.	Decimal places determined from Class Definition field "DecimalInContractSize"
20	DecimalInStrikePrice	Uint16	2	Number of implicit decimals in the strike price.	
22	DecimalInContractSize	Uint16	2	Number of implicit decimals in the Contract Size and the Price Quotation Factor fields.	
24	DecimalInPremium	Uint16	2	The number of decimals used in Price fields	
26	RankingType	Uint16	2	This identifies how the instrument is ranked.	1 Price, Time 2 Inverted Price, Time * 3 Price, Traders before MM, Time * 4 Inverted Price, Traders before MM, Time * 5 Price, MM before Traders, Time * 6 Inverted Price, MM before Traders, Time * 7 Price, Baits before Normal Orders, Time * 8 Inverted Price, Baits before Normal Orders, Time * 11 Price, Own Orders, Time * 12 Inverted Price, Own Orders, Time *
28	Tradable	Uint8	1	Defines if the instrument is a tradable instrument or not.	1 Yes 2 No
29	PremiumUnit4Price	Uint8	1	The premium unit that describes the price unit in the order.	1 Price 2 Yield * 3 Points 4 Yield Diff * 5 IMM Index * 6 Basis Points * 7 Inverted Yield * 8 Percentage of Nominal * 9 Dirty Price *
30	BaseCurrency	String	3	Defines the trading currency for the instrument or the currency for the underlying. The representation of the currency follows the S.W.I.F.T. handbook and ISO 3166 standard.	See Currency Values in section 3.1.2 of OMD-D Interface Specification for full details.
33	InstrumentClassID	String	14	The ASCII representation of the instrument class.	
47	InstrumentClassName	String	32	The full ASCII representation. name_short	
79	IsFractions	String	1	Is the premium internally represented as fractions?	Y Yes N No
80	SettlementCurrencyID	String	32	Full descriptive name of the Settlement Currency. The representation of the currency follows the S.W.I.F.T. handbook and ISO	See Currency Values in section 3.1.2 of OMD-D Interface Specification for full details.

Offset	Field	Format	Len	Description	Values
				3166 standard.	
112	Effective Tomorrow	Uint8	1	This declaration is for series to be traded the next day	0 False 1 True
113	TickStepSize	Int32	4	Minimum Fluctuation of the product / series	Decimal places determined from Class Definition field 'DecimalInPremium'
117	Filler	String	1		
Total Length			118		

*Remark *: denotes that the value is not currently in use for existing products. However, please note that HKEX may use the value anytime when introducing new products*

1.3 Series Definition Base (303)

Describes basic series information available from the OMD-D system.

Message Fields

Offset	Field	Format	Len	Description	Values
0	MsgSize	Uint16	2	Size of the message	
2	MsgType	Uint16	2	Type of message.	303 Series Definition Base
4	OrderbookID	Uint32	4	Numerical identifier of the order book This is the unique identifier for the series The Combination Definition is retrieved through this field which links it to the Series Definition Base	
8	Symbol	String	32	Short Name	
40	FinancialProduct	Uint8	1	Financial Product	1 Option 2 Forward * 3 Future 4 FRA * 5 Cash * 6 Payment * 7 Exchange Rate * 8 Interest Rate Swap * 9 REPO * 10 Synthetic Box Leg/Reference * 11 Standard Combination 12 Guarantee * 13 OTC General * 14 Equity Warrant * 15 Security Lending *
41	NumberOfDecimalsPrice	Uint16	2	The number of decimals used in Price fields	
43	NumberOfLegs	Uint8	1	Number of legs in the series There can be up to 256 legs per series	

Offset	Field	Format	Len	Description	Values
44	StrikePrice	Int32	4	In general, it is the price at which a specific options series can be exercised. Zero implies the Strike Price is not applicable, e.g. for futures contracts For Combo Series, this field may not have meaning but can be used with other fields such as CommodityCode, ExpirationDate, InstrumentGroup and Modifier to differentiate the series from the others.	Decimal places determined from "DecimalsInStrikePrice". Not applicable for Combo Series.
48	ExpirationDate	String	8	Expiry date of the series	YYYYMMDD
56	DecimalInStrikePrice	Uint16	2	Number of implicit decimals in the strike price.	
58	PutOrCall	Uint8	1	Identifies whether the series is a put or call type	0 Undefined 1 Call 2 Put
59	Filler	String	1		
Total Length			60		

*Remark *: denotes that the value is not currently in use for existing products. However, please note that HKEX may use the value anytime when introducing new products*

1.4 Series Definition Extended (304)

Describes series static data available from the OMD-D system.

Message Fields

Offset	Field	Format	Len	Description	Values
0	MsgSize	Uint16	2	Size of the message	
2	MsgType	Uint16	2	Type of message.	304 Series Definition Extended
4	OrderBookID	Uint32	4	Orderbook ID	0 If Not Available
8	Symbol	String	32	Symbol This is the unique identifier of the message	
40	Country	Uint8	1	Country Identifier	
41	Market	Uint8	1	Market Code	See section 8.4 of OMD-D Interface Specification for a list of possible values
42	InstrumentGroup	Uint8	1	Instrument Group	See section 8.3 of OMD-D Interface Specification for a list of possible values
43	Modifier	Uint8	1	Expiration date modified. Value is incremented by one each time the instrument is involved in an issue, split, etc. Note that the modifier value can be different for bid and ask options in the same Series.	0-255
44	CommodityCode	Uint16	2	Numerical identifier of the Underlying This is the unique commodity identifier.	

Offset	Field	Format	Len	Description	Values
				The Commodity Definition and the Class Definition are retrieved through this field which links them to the Series Definition Extended Eg. HSI	
46	ExpirationDate	Uint16	2	Expiry date of the series	
48	StrikePrice	Int32	4	In general, it is the price at which a specific options series can be exercised. Zero implies the Strike Price is not applicable, e.g. for futures contracts. For Combo Series, this field may not have meaning but can be used with other fields such as CommodityCode, ExpirationDate, InstrumentGroup and Modifier to differentiate the series from the others.	Decimal places determined from Class Definition field "DecimalInStrikePrice" Not applicable for Combo Series.
52	ContractSize	Int64	8	Number of Underlying entities per contract.	Decimal places determined from Class Definition field "DecimalInContractSize" 0 If Not Available
60	ISINCode	String	12	A code which uniquely identifies a specific securities issue (International Securities Identification Number). For more information about ISIN code, see the international standard ISO 3166.	0 If Not Available
72	SeriesStatus	Uint8	1	The actual status of the series.	0 If Not Available 1 Active (both expired and not expired) 2 Suspended (temporarily stopped) 3 Issued 4 Delisted 5 Locked (suspended for trading and post-trade operations)
73	EffectiveTomorrow	Uint8	1	This declaration is for next day series	0 False 1 True
74	PriceQuotationFactor	Int32	4	Implies the contracted value of the product / series	Decimal places determined from Class Definition field "DecimalInContractSize"
78	PriceMethod	Uint8	1	Specifics the pricing method used for the combo series	0 If Not Applicable 1 Net Price 2 Net Value
79	Filler	String	1		
80	EffectiveExpDate	String	8	The effective expiration date is the actual expiration date of the series and will normally be the same as expiration_date_n in the series binary code. The effective expiration date can be changed during the lifetime of the series whereas expiration_date_n will continue to hold the original expiration date.	YYYYMMDD " " 8 blank spaces if not available

88	DateTimeLastTrading	Int64	8	The last trading date/time of the Series in UTC timestamp (nanoseconds since 1970) precision to the nearest second	UTC Timestamp
96	DateTimeFirstTrading	Int64	8	The first trading date/time of the Series in UTC timestamp (nanoseconds since 1970) precision to the nearest second For series with a non-zero value in this field, the series will not be tradable on the days before the Date in this field Time in this field can be ignored	0 – Not Applicable UTC Timestamp
Total Length			104		

1.5 Combination Definition (305)

Describes a combination orderbook available from the OMD-D system.

Message Fields

Offset	Field	Format	Len	Description	Values
0	MsgSize	Uint16	2	Size of the message	
2	MsgType	Uint16	2	Type of message.	305 Combination Definition
4	ComboOrderbookID	Uint32	4	Numerical identifier of the combination order book	
8	LegOrderbookID	Uint32	4	This is the orderbook identification number of the leg	
12	Filler	String	3		
15	LegSide	String	1	Identifies whether the leg within the combination order book is the same side as that defined for the leg in the OrderBook definition Possible values: As Defined or Opposite	B As Defined C Opposite
16	LegRatio	Int32	4	Relative numbers of bid and ask contracts between the combo legs.	
Total Length			20		

2. Derivatives Trade Statistic

The Derivatives Trade Statistic file is in binary format and contains one type of messages – ***TradeStatistic.*** The filename of the Derivatives Trade Statistic file is as follows:

MC171_All_YYYYMMDD – Non-SOM (TradeStatistic)
where YYYYMMDD is the date of the Derivatives TradeStatistic Data file

The layout of the Derivatives Reference is as follows:

<RecordLength><PacketHeader><DerivativesTradeStatistic>…<RecordLength><PacketHeader><DerivativesTradeStatistic>…<RecordLength><PacketHeader><DerivativesTradeStatistic>

Following is the message layout of the ***RecordLength***

Offset	Field	Format	Len	Description
0	RecLen	Uint16	2	Size of the record (including this field)
Total length			2	

Following is the message layout of the ***PacketHeader***

Offset	Field	Format	Len	Description
0	PktSize	Uint16	2	Size of the packet (including this field)
2	MsgCount	Uint8	1	Number of messages included in the packet
3	Filler	String	1	
4	SeqNum	Uint32	4	Sequence number of the first message in the packet
8	SendTime	Uint64	8	The number of nanoseconds since *January 1*, 1970, *00:00:00 GMT*, precision is provided to the nearest millisecond.
Total length			16	

<DerivativesTradeStatistic> contains different combinations of the one type of messages – ***TradeStatistic.*** For example:

<TradeStatistic><TradeStatistic><TradeStatistic><TradeStatistic>

Followings are the message layouts of the ***TradeStatistic***

2.1 Trade Statistics (360)

Trade information for completed deals. The trade information or statistics information carried in this message type is provided on snapshot basis.

Message Fields

Offset	Field	Format	Len	Description	Values
0	MsgSize	Uint16	2	Size of the message	
2	MsgType	Uint16	2	Type of message	360 Trade Statistics
4	OrderbookID	Uint32	4	Uniquely identifies the series	
8	Price	Int32	4	Last Traded Price	Decimal places determined from Class Definition field 'DecimalInPremium'
12	DealSource	Uint8	1	Deal Source of the last trade	See full list of deal sources at the end of this document Deal Source in Trade Statistics is only applicable to cases where Turnover is higher than that in the previous Trade Statistics for the same series, and should be ignored otherwise.
13	Session	Uint8	1	Session indicator used to distinguish between the T and T+1 sessions	0 Statistics for T Session 1 Statistics for T+1 Session
14	Filler		2		

Offset	Field	Format	Len	Description	Values
16	AggregateQuantity	Int64	8	Volume – total within the latest deal(s)	
24	Open	Int32	4	Price of the first committed Trade in the series during the repective Session	Decimal places determined from Class Definition field 'DecimalInPremium'
28	High	Int32	4	Highest price of normal trades in the session. This is calculated after all Trades, Trades Cancellations and Trade Corrections have been taken into account.	Decimal places determined from Class Definition field 'DecimalInPremium'
32	Low	Int32	4	Lowest price of normal trades in the session. This is calculated after all Trades, Trades Cancellations and Trade Corrections have been taken into account.	Decimal places determined from Class Definition field 'DecimalInPremium'
36	Filler		4		
40	TradeReportVolume	Uint64	8	Total volume of reported trades for the respective Session	
48	DealCount	Uint32	4	Number of deals completed in the respective Session	
52	Turnover	Uint64	8	Cumulative volume for the respective Session	
Total Length.....			60		