

Added Value Real Time Information services

technical guide



London **STOCK EXCHANGE**

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1 Introduction

The London Stock Exchange is committed to the development of its trading and information services. As part of this, we are enhancing the real time data currently delivered via London Market Information Link.

What changes are being made?

We will be providing official real time added value information including an enhanced best price, a volume weighted average price, cumulative volumes and uncrossing volume.

Why are the changes being implemented?

The new messages address the market demand for commonality of data by having one official source. Currently this information is calculated independently by vendors, which can result in differing values.

How will it work?

The main features are:

- four new message types
- new broadcast data groups
- delivery over the Exchange's proposed new IP network.

The four new message types will follow the existing message structure for LMIL messages, and will only be available over new broadcast data groups on the IP network. A table showing to which market segments the new messages will be relevant can be found in section 3.

New contracts, for both testing and live services, will need to be completed before gaining access to the new messages.

Document scope

The purpose of this document is to detail the structure, content and delivery of the new messages. The document contains sufficient information to allow customers to begin development.

An updated version of the technical specifications (TIS101-104) incorporating the proposed new messages will be published during Q3 2001.

2 New message types

The four new message types, introduced specifically for this release, are;

- 5SF – Enhanced Best Price
- 5DV – Cumulative Number and Volume of Trades
- 5VW – Volume Weighted Average Price (VWAP) from Trades
- 5UD – Uncrossing Price and Volume

Each message is detailed in the following section.

2.1 5SF - Enhanced Best Price message

The Enhanced Best Price message is based on the existing 5SE 'Best Price' message and will be disseminated in all order book-based segments where the existing message is currently disseminated. In addition to providing the best bid, offer, and mid prices, details of the number and volume of orders at best price will also be disseminated. The Enhanced Best Price message does not replace the Best Price message.

Message Type: '5SF'

Message Version Identifier: 'AA'

Field Name	Offset	Length	Format
Tradable Instrument Code	37	12	A
Country of Register	49	2	A
Market Segment Code	51	4	A
Currency Code	55	3	A
Market Sector Code	58	4	A
Volume of Orders at Best Bid Price	62	12	N
Volume of Orders at Best Offer Price	74	12	N
Number of Orders at Best Bid Price	86	3	N
Number of Orders at Best Offer Price	89	3	N
Bid Market Orders Indicator	92	1	A
Offer Market Orders Indicator	93	1	A
Best Bid Price	94	18	N
Best Offer Price	112	18	N
Mid Price	130	18	N
Best Price Status Indicator	148	1	A
Date of Preparation	149	8	N
Time of Preparation	157	6	N

Total Length 163 bytes

Broadcast of the Enhanced Best Price message will be triggered whenever any element of the message changes, ie whenever an order entry, deletion, expiry or execution results in a change to the best price or its constituent orders. The message will be disseminated in real time throughout the day in all order book-based segments.

The Bid and Offer Market Orders Indicators highlight whether market orders are present on either side of the book. An indicator of "Y" is set where market orders exist on the Buy and/or Sell sides of the book respectively; otherwise a value of "N" will be disseminated.

In all cases, market orders will contribute to the Volume of Orders and Number of Orders fields since they are unpriced and are therefore always considered to be at the best price.

Where a priced order exists on either side of the order book, market orders on the same side of the book will not contribute to the content of the Best Bid and Offer Price fields.

Customers can refer to the Guide to Release 3.1 for further information on the 5SE 'Best Price' message dissemination. This document is also available on our website at:

<http://www.londonstockexchange.com/techlib/pdfs/sets/Release3-1.pdf>

2.2 5DV - Cumulative Number and Volume of Trades message

This message will disseminate the daily cumulative number and volume of trades in realtime, with all fields reset at the start of each day.

It will not be disseminated in any segments in which the existing **5CV** 'Cumulative Volumes' message is currently disseminated, as the two messages are mutually exclusive.

Message Type: '5DV'

Message Version Identifier: 'AA'

Field Name	Offset	Length	Format
Tradable Instrument Code	37	12	A
Country of Register	49	2	A
Market Segment Code	51	4	A
Currency Code	55	3	A
Automatic Trades Indicator	58	1	A
Volume of Trades	59	12	N
Number of Trades	71	8	N
Date of Preparation	79	8	N
Time of Preparation	87	6	N

Total Length 93 bytes

The message will be disseminated from the beginning of the day, whenever a change to any of the elements takes place, ie the first message for a given instrument will be disseminated when the first trade occurs.

The "Automatic Trades Indicator" field is used to indicate whether the message content relates to automatic or manual trade totals. A value of "Y" indicates that the message pertains to the status of automatic trades whereas a value of "N" indicates that the message pertains to the status of manual trades.

Automatic trades

Automatic trade cumulative totals will be incremented by all automatic trades, both during continuous trading and resulting from uncrossing.

For uncrossing, each individual trade will count towards the Number of Trades field per tradable instrument, ie uncrossing execution will not count as a single trade. However, the new message will only be disseminated once per transaction, ie multi-fill and uncrossing execution may result in the dissemination of a single message.

All system generated contras for automated and uncrossing trades (whether novated or non-novated) will result in a reduction of the cumulative volume and number of automatic trades. Contra trades for automatic trades processed using the PC trade type will not be included.

Manual trades

Manual trade totals will be incremented by all manual trade reports for trades on the current day, where the trade type has a publishable publication regime. In addition, the totals will similarly be reduced for trade cancellations where the original trade was published on the same day.

Where a trade is delayed, the cumulative volume and number of trades for the instrument will not be updated until the trade is published, ie the Cumulative Number and Volume of Trades message will be disseminated when the Trade Report is disseminated. This also applies if a delayed trade is pre-released, ie the message will be disseminated when the Trade Report is published. Trade Cancellations pertaining to delayed trades will result in a reduction in the volume and number fields if the original trade was published on the same day.

2.3 5VW - VWAP from Trades message

The VWAP from Trades message will disseminate the Volume Weighted Average Price, based on automatically executed order book trades, to the market as it changes throughout the trading day. This is maintained separately from the existing period based VWAP calculation.

Message Type: '5VW'

Message Version Identifier: 'AA'

Field Name	Offset	Length	Format
Tradable Instrument Code	37	12	A
Country of Register	49	2	A
Market Segment Code	51	4	A
Currency Code	55	3	A
Market Sector Code	58	4	A
Order Book Trades Cumulative VWAP	62	18	N
Date of Preparation	80	8	N
Time of Preparation	88	6	N

Total Length 94 bytes

This message will disseminate a daily VWAP calculated on all automated trading volumes for order-based segments from the beginning of the day. The VWAP does not apply to manually entered trade reports.

All system generated contras for automated and uncrossing trades will result in the removal of the original trade from the VWAP from trades calculation. System generated contra trades can only occur on the same day as the original trade. Contra trades for automatic trades processed using the PC trade type are not included in the VWAP calculation.

This message will be disseminated in real time throughout the trading day whenever the contents of any element of the message change. It will be disseminated once per transaction rather than once per trade, ie multi-fill and uncrossing execution may result in the dissemination of a single message.

2.4 5UD - Uncrossing Price and Volume message

This message will disseminate uncrossing price and volume information to the market. Currently, when the system calculates the uncrossing price, this price is disseminated using the **5UP** 'Uncrossing Price' message. The **5UD** message will now also be disseminated in addition to the **5UP** message, and will also contain the uncrossing volume corresponding to the price.

Message Type: '5UD'

Message Version Identifier: 'AA'

Field Name	Offset	Length	Format
Tradable Instrument Code	37	12	A
Country of Register	49	2	A
Market Segment Code	51	4	A
Currency Code	55	3	A
Market Sector Code	58	4	A
Best Bid Price	62	18	N
Best Offer Price	80	18	N
Mid Price	98	18	N
Uncrossing Price	116	18	N
Uncrossing Volume	134	12	N
Uncrossing Status	146	1	A
Date of Preparation	147	8	N
Time of Preparation	155	6	N

Total Length 161 bytes

The **5UD** message will be disseminated under the same conditions as the existing **5UP** message, but additionally, on change of uncrossing volume. Hence the message will be disseminated when the price or volume changes. In the event that the uncrossing status is "V", the uncrossing volume disseminated will be zero. In addition, at the time when an auction call extension or price monitoring override is invoked, an Uncrossing Price and Volume message will always be disseminated.

3 Summary table of new messages by market segment

The following table shows the relevant market segments for the new message types.

Segment	5SF	5DV	5VW	5UD
SET1	✓	✓	✓	✓
SET2	✓	✓	✓	✓
SET3	✓	✓	✓	✓
SEAQ	X	✓	✓*	✓*
SEQ1	X	✓	✓*	✓*
STBS	X	✓	X	X
CNVE	X	✓	X	X
GILT	X	✓	X	X
MISC	X	✓	X	X
CVDW	X	X	X	X
OINT	X	X	X	X
EULQ	X	✓	X	X
LSTD	X	X	X	X
NLLD	X	X	X	X
SEAT	X	X	X	X
SETN	X	X	X	X
AIM	X	✓	X	X
AIMN	X	X	X	X
AIMI	X	✓	X	X
IOB	✓	✓	✓	✓
INTR	✓	✓	✓	X

*This message is only disseminated for securities in the F250 and FS25 market sectors at the end of each uncrossing

4 New broadcast data groups

In order to receive the new messages, users will have to subscribe to new broadcast data groups. Details of these new groups including service codes, IP addresses and port numbers will be communicated in the next update.

5 IP Network

The new messages will only be delivered over the Exchange's IP Network. Customers will be migrated from the existing X.25 network to the new network in phases and will not be able to receive the new messages until they are IP enabled.

6 Customer testing

The Conformance and Customer Development Service's (CDS) will allow customers to fully test all new message types.

All customers wishing to subscribe to these groups will be required to undertake LMIL Conformance testing.

Customers will also have the option to conduct further testing using the CDS.

Testing will run in conjunction with the customer migration to the IP Network. Further details will be included in the next update.

7 Further support

The Client Technology Group will provide technical support during the implementation of these enhancements through the following:

- The Technical Information Desk – Tel: +44 (0)20 7797 3939, STX 33939
- E-mail Client Technology Group at ctg@londonstockexchange.com
- Technical queries may also be raised directly through your Technical Account Manager/Adviser

Appendix A: New Field Descriptions

This section provides an inventory of all new data fields that form part of the previously defined message types in Section 2.

5SF - Enhanced Best Price

Volume of Orders at Best Bid Price

The quantity of orders for a tradable instrument that may be bought at the best price.

Length: 12
Format: Numeric
ISO Standard: N/A

Volume of Orders at Best Offer Price

The quantity of orders for a tradable instrument that may be sold at the best price.

Length: 12
Format: Numeric
ISO Standard: N/A

Number of Orders at Best Bid Price

The number of orders for a tradable instrument that may be bought at the best price.

Length: 3
Format: Numeric
ISO Standard: N/A

Number of Orders at Best Offer Price

The number of orders for a tradable instrument that may be sold at the best price.

Length: 3
Format: Numeric
ISO Standard: N/A

Bid Market Orders Indicator

Indicates whether market orders are present on the buy side of the book

Length: 1
Format: Alphanumeric
ISO Standard: N/A

This field can have the following values given below:

- 'Y' – Market orders exist on the buy side of the book
- 'N' – Market orders do not exist on the buy side of the book

Offer Market Orders Indicator

Indicates whether market orders are present on the sell side of the book

Length: 1
Format: Alphanumeric
ISO Standard: N/A

This field can have the following values given below:

- 'Y' – Market orders exist on the sell side of the book
- 'N' – Market orders do not exist on the sell side of the book

5DV - Cumulative Number and Volume of Trades

Automatic Trades Indicator

Indicates whether the message content relates to automatic or manual trade totals

Length: 1
Format: Alphanumeric
ISO Standard: N/A

This field can have the following values given below:

'Y' – Message relates to automatic trades

'N' – Message relates to manual trades

Volume of Trades

The daily cumulative volume of trades for a tradable instrument

Length: 12
Format: Numeric
ISO Standard: N/A

Number of Trades

The daily cumulative number of trades for a tradable instrument

Length: 8
Format: Numeric
ISO Standard: N/A

5VW - Volume Weighted Average Price from Trades

Order Book Trades Cumulative VWAP

The daily cumulative VWAP calculated on all automated trading volumes for order-based segments from the beginning of the day.

Length: 18
Format: Numeric
Precision: 8
ISO Standard: N/A

5UD - Uncrossing Price and Volume

Uncrossing Volume

The volume that has uncrossed for a tradable instrument.

Length: 12
Format: Numeric
ISO Standard: N/A

