

Technical guidance note
Trading Service Enhancements
April 2001

Reconfiguration of SETS prices
broadcast data group



London **STOCK EXCHANGE**

1. Introduction

We are making a number of enhancements to our trading services on 30 April 2001. One element of this involves a technical change to the B44 broadcast data group.

To accommodate expected message output following TSE April 2001, two new additional broadcast data groups will be introduced. B45 will disseminate SETS Prices and B46 International Retail Service prices.

The purpose of this document is twofold:

- to assist technical teams with the implementation of the new broadcast data groups
- to provide specific guidance to committed principals regarding the entry and maintenance of CP orders when using the International Retail Service.

2. Current service configuration

We disseminate market data to subscribers through a number of services or broadcast data groups. Every broadcast data group will have a maximum message throughput that is determined by the allocated bandwidth and message size(s). Network capacity is also reduced by the overhead imposed by acknowledgement frames between the subscriber and the Exchange.

The SETS Prices broadcast service currently disseminates UK order book prices over the B44 broadcast data group. Assuming a bandwidth of 63.5kps, an average message size and an allowance for network overheads, the theoretical maximum number of messages that can be broadcast over B44 is approximately 50 messages per second.

Each message output from a broadcast group is contained within a single packet, which in turn is contained within a single frame. Up to seven messages will be sent by a broadcast group without waiting for any acknowledgements by subscribers. The service will then wait for one or more of these messages to be acknowledged by all subscribers to that broadcast group. Once a message has been acknowledged, the message can be discarded and the next message in the sequence sent. Typically, individual customers will acknowledge messages within 60 milliseconds, in which case message throughput would be close to the theoretical service capacity.

When a message is sent a timer is started which determines the maximum length of time that the service will wait for acknowledgements before discarding a message. This is currently configured to 200 milliseconds. Although most subscribers will acknowledge messages within 60 milliseconds, persistent slow acknowledgements (up to 200 milliseconds) from individual subscribers can prevent the theoretical service capacity from being achieved.

3. Configuration after 30 April 2001

From 30 April 2001 an additional broadcast data group B45 will be introduced to disseminate SETS prices for selected instruments alongside B44 and a new broadcast data group B46 to disseminate International Retail Service prices. The combined bandwidth of the three groups will share the existing physical circuit allocated to B44 and will never exceed 64kbps. A decision has been made not to introduce any requirement for additional lines specific to these services.

Using three broadcast groups to disseminate SETS and IRS prices essentially allows up to 21 messages to be sent at a time (across the three groups) without waiting for any acknowledgements by subscribers. The theoretical maximum message throughput will remain unchanged but the minimum message throughput will be increased, regardless of persistent slow acknowledgements from individual customers.

4. Conformance and customer testing

Existing customers will not need to demonstrate conformance with the new broadcast data groups. New customers will be required to conform to B45 and B46 within the same conformance cycle as for the B44 broadcast data group.

To allow customers to test their systems with the new broadcast data groups the Customer Development Service has been aligned with the post 30 April configuration*.

* International Retail Service will use the IRES segment for testing purposes only. The service will use the INTR segment on live service.

5. Message generation

The International Retail Service Prices broadcast data group B46 will disseminate updated CP order messages to the market in response to CP order entry, deletion, expiry or execution.

When a participant enters a new CP order, a **500** Order Details message will be generated that is then broadcast to the market. Partial execution of the order will generate additional **500** Order Details messages that will specify the remaining size of the order.

500 messages may continue to be sent until the order has been fully matched, expires or is deleted by the participant. A **50E** Order Deletion/Expiry/Fully Matched message is then broadcast to the market.

To modify the price or volume of a CP order the order must first be deleted then re-entered with the new order details (generating **50E** and **500** messages respectively). Both buy and sell CP orders must be updated independently.

Impact of CP order entry on message throughput

Each CP order entry by a committed principal and subsequent execution has the potential to generate a succession of messages that are broadcast over the B46 broadcast data group.

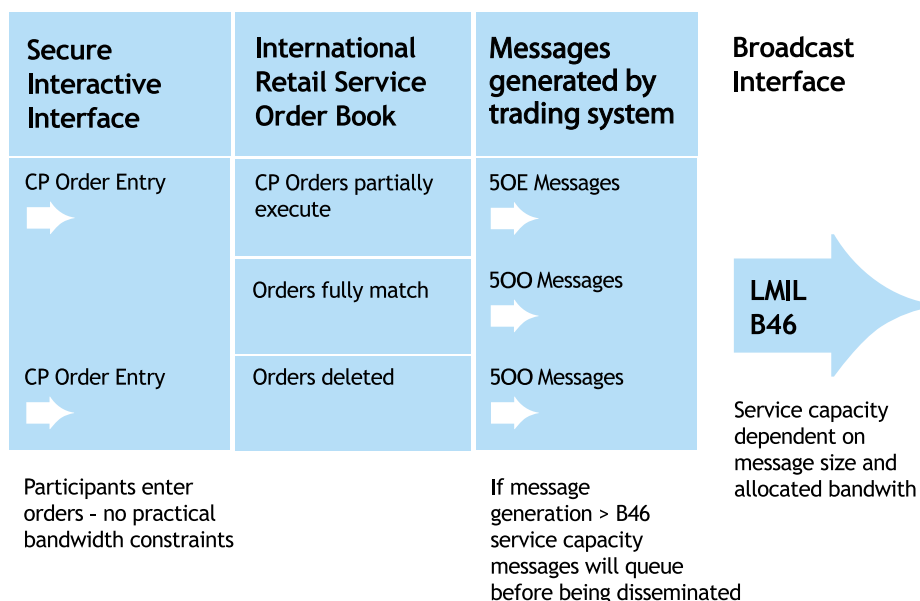
In a typical trading day it is expected that CP order entry and message throughput will peak during the Pre mandatory committed principal period (PMCP) between 07:45 and 08:15 as committed principals open prices in each of the securities in which they are registered.

During the Mandatory committed principal period (MCPP) committed principals will be obliged to maintain orders at a minimum volume. There is expected to be a reduced 'background level' of messages as CP orders on the book execute and committed principals refresh order size and price. Message throughput will be largely dependent on broker participant activity and the number of price and volume updates that committed principals will be required to make. This will be driven by price updates in the home market and, to a lesser degree, foreign exchange movements.

There are no practical bandwidth limitations on order entry – participants will always be able to enter and delete CP orders over the secure interactive interface with no delays. However, if at any point in the trading day, order entry and execution generates more messages than the service capacity of B46, it will be possible that messages will 'queue' on the LMIL service. If a large number of orders are sent to the service there may be a lag between CP order entry, execution and deletion and dissemination of corresponding order details to the market.

Message queuing is more likely to occur when a large number of orders are entered over a relatively short period. Basket trading on SETS today, when multiple participants enter orders for all constituents of the FTSE 100, can typically result in delays of a few seconds.

The IRS Prices broadcast data group will have a maximum message throughput subject to the proportion of the existing B44 bandwidth reserved for this service. This should be taken into account if you are considering implementing an automatic input facility to submit orders to the market.



6. Guidelines for best practice

Committed principals are recommended to use the following guidelines when entering and maintaining CP orders on the International Retail Service.

- Committed principals should ensure that **5EO** Enter Order messages are timed so that CP order entry is distributed as evenly as possible across the entire PMCP period and not concentrated in the closing minute(s) of the period. This aligns with best practice currently in force for SEAQ.
- Committed principals should wait to receive a **5EO** Order Deletion message before re-entering a CP order. This will ensure that the CP order has been removed from the book before the order entry message is processed.
- CP orders should be deleted using **5DS** Delete Single Order messages. Committed principals should be aware that using a **5DT** Delete All Orders message is a potentially slower batch process that runs in the background.
- Unless desired, committed principals do not need to enter **5SO** messages to delete CP orders at the end of trading. All CP orders will be deleted at the start of the CLOS period automatically.

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: **020 7797 3939 (STX 33939)**
- Email Client Technology Group at ctg@londonstockexchange.com
- Technical queries may also be raised directly through your Technical Account Manager/Adviser.



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