



NSC — 2004 DEVELOPMENTS

AUTOMATIC TRADING HALT FOR WARRANTS

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DOCUMENT DESCRIPTION

This document describes the technical impact in 2004 caused by the implementation of the automatic trading halt for warrants in NSC.

INDEX

AUTOMATIC TRADING HALT FOR WARRANTS	5
1. DESCRIPTION	5
2. FUNCTIONS.....	5
MODIFICATIONS IN TOPCAC FLOW	6
EXTRACT FROM TOPCAC DOCUMENTATION: MESSAGE 05 “INSTRUMENT STATE CHANGE ”	7

Automatic trading halt for warrants	4/10	30-07-2004
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AUTOMATIC TRADING HALT FOR WARRANTS

1. DESCRIPTION

With this new functionality, trading in warrants is automatically halted when trading in the underlying instrument is halted.

This is achieved by an automatic system in NSC, which modifies the state of warrants to reflect the state of the underlying instrument.

The automatic trading halt for warrants will be implemented :

- on External User Acceptance platform at the end of October 2004
- on the production platform mid-December 2004.

2. FUNCTIONS

The automated system modifies a warrant's status to reflect the state of the underlying instrument:

- It reserves all warrants, except those that have been manually halted by Market Operation, as soon as the underlying instrument reserves.
- It halts trading in all warrants, except those that have been manually halted by Market Operation, as soon as the corresponding underlying instrument is halted
- It re-opens all warrants, as soon as trading in the underlying instrument resumes.

A/ How the automated system deals with warrants that are not already halted by Market Operation

a) When the underlying instrument reserves, the warrant is also reserved in the same direction:

- Upward when the underlying instrument reserves upward
- Downward when the underlying instrument reserves downward

b) If the underlying instrument is halted, the warrant will be automatically halted until trading resumes in the underlying instrument.

c) Opening of an underlying instrument:

When an underlying instrument is opened, the automated system schedules a deferred opening for the warrant. The opening time is calculated by adding to the time of reception of the underlying instrument opening message the value of a parameter set by Market Operation(see § Parameters below)

Note: if the warrant opening is already scheduled, the automated system will cancel it with an "Instrument state change" message (opening cancellation), and then re schedules, with an "Instrument state change" message (programming a deferred opening), a new opening time calculated as described above.

B/ How the automated system deals with warrants that have been already halted by Market Operation

If a warrant is halted by the Market Operation and not by the automated system, any change in the state of the underlying instrument will have no impact on the warrant; even if the underlying instrument is reserved, the warrant will remain halted.

C/ Parameters

All the warrants will not be processed automatically. The Market Operation can set parameters for :

- groups subject to automatic processing
- lags in opening times for warrant groups (e.g., 1 minute)

C/ Special cases

- If the warrant is frozen when its underlying instrument reserves, the warrant will automatically be reserved with refusal of the order.
- If the underlying instrument reserves between 9:00 AM and 9:05 AM, and even if a deferred opening is set on it later 9:05 AM, the warrant will quote with its group opening (9:05).

MODIFICATIONS IN TOPCAC FLOW

A field for MMTP TOPCAC 05 (FIX U5) message values has been extended to distinguish automated system actions from manual actions by the Market Operation.

Three new values have been added to the field "Action affecting the instrument state" of MMTP TOPCAC 05 (FIX U5) messages, to identify the automated system actions.

- U: modification of warrant state due to change in state of underlying instrument
- W: programming of deferred opening for a warrant due to the warrant robot
- X: cancellation of deferred opening of a warrant due to an action of the warrant robot.

The message sequence remains unchanged.

For further details on the FIX U5 messages, please consult the FIX documentation V1.2.1

EXTRACT FROM TOPCAC DOCUMENTATION: MESSAGE 05
“INSTRUMENT STATE CHANGE ”

◦	Message 0005	
-	<i>Headings (Mgmt + Techn + Instruments characteristics)</i>	172 characters
-	Instrument trading status indicator (alphanumeric)	1 character
-	Origin of reservation (alphanumeric)	1 character
-	Start date of halting (YYYYMMDD)	8 characters
-	Start time of halting (HHMMSS)	6 characters
-	Instrument state (alphanumeric)	2 characters
-	Actions affecting the instrument state (alphanumeric)	1 character
-	Programmed opening time for instrument (HHMMSS)	6 characters
-	Instrument state in TCS (alphanumeric)	1 character
-	Filler (alphanumeric)	22 characters
-	<i>End of text (ETX)</i>	<i>1 character</i>

		49 characters

(excluding headers)

◦ **Occurrence when a message is sent**

- This type of message is sent:
 - . When an instrument has been frozen.
 - . When an instrument is halted or reserved by Market Operation **or the warrant robot**
 - . When trading on an instrument is resumed following a Market Operation action **or the warrant robot action**
 - . When an opening or an opening auction is programmed by Market Operation **or the warrant robot.**
 - . When a programmed opening or opening auction is cancelled by Market Operation **or the warrant robot.**
 - . To carry over instruments halted the day before.

NB: In the messages 0005 that are sent by TCS, only the "Instrument state in TCS" field is significant.

◦ **Instrument trading status indicator**

- Definition / Purpose:
 - . Indicates whether trading on an instrument is halted, or if trading was halted whether trading has been resumed.
- . **When the message is sent by the Warrant robot due to a reservation of the underlying instrument, the warrant is reserved:**
 - **upward when the underlying instrument is reserved upward**
 - **downward when the underlying instrument is reserved downward**
 - **upward when the underlying instrument is simple reserved**
- Possible values / Restrictions:
 - . S halted.
 - . H reserved, price outside upper limit.
 - . B reserved, price outside lower limit.
 - . R trading resumed after the instrument was reserved.
 - . P simple reservation.
 - . ' ' other types of transmission (for example cancellation of a programmed opening).

◦ **Origin of reservation**

- Definition / Purpose:

- . Indicates the origin of the reservation of the instrument when the price is outside the upper or lower limit; that is, indicates whether the instrument was reserved automatically or was reserved manually by Surveillance.

- Possible values / Restrictions:

- . A automatic.
- . M manual.
- . ‘ ‘ if an instrument is halted or if trading is resumed.

◦ **Instrument state**

- Definition / Purpose:

- . The instrument's status (state) for trading.
- . The instrument state determines the functions that are authorized on the instrument and the management rules related to order entry and processing.
- . A value is always provided for this field.

- Possible values / Restrictions:

- . 1st character: I for forbidden
A for authorized
- . 2nd character: ’ ’ open
S halted
R reserved
G frozen

◦ **Action affecting the instrument state**

- Definition / Purpose:

- . Provides the code of the action that caused a change in the instrument state.
- . Indicates the phase of the trading day that the instrument is in currently.

- Possible values / Restrictions:

- . P a deferred opening or fixing has been programmed for the instrument.
- . M instrument reserved or halted manually by Surveillance.
- . C the instrument is currently being traded.
- . O the instrument is now open (after R or S).
- . R the instrument has been automatically reserved after opening of its group.
- . D a deferred opening or auction has been cancelled.
- . A order entry has been authorized for the instrument.
- . I order entry has been forbidden for the instrument.
- . E orders in the book have been eliminated.
- . N the instrument is being initialised (beginning of the trading day).
- . F Instruments in Fast-Market state.
- . S Return to normal activity (Slow-Market state).
- . G the instrument has been frozen or unfrozen.
- . **U modification of the state of a warrant due to a change of state of its underlying instruments**
- . **W programming of a deferred opening for a warrant due to an action of the warrant robot**
- . **X cancellation of a deferred opening of a warrant due to an action of the warrant robot**

. Data always provided for NSC.

. Data never provided for other applications

. Those data item can take the value U, W, or X if and only if the instrument is a warrant and is processed by the automated system.

◦ **Programmed opening time for instrument**

- Definition / Purpose:

- . Indicates the instrument's programmed opening or auction time.
- . If the message is sent by the Warrant Automated system, the deferred opening of the warrant will be calculated by adding to the time of reception of the opening message of the underlying instrument, the value of a parameter set by Market Operation

- Possible values / Restrictions:

Automatic trading halt for warrants

10/10

30-07-2004

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- . HHMMSS the instrument's opening or auction time.
- . 000000 cancellation of an instrument opening or auction.

. A value is provided if and only if the message was sent by NSC with an action code at "P" or "W".

◦ **Instrument state in TCS**

- Definition / Purpose:

- . The state of the instrument in TCS determines whether negotiations for the instrument can be entered, and thus whether declarations can be executed as trades.
- . In TCS, instrument state changes are decided by Surveillance.

- Possible values / Restrictions:

- . S instrument forbidden.
- . A instrument authorized.