

## 10.14 Synchronization of Clocks

Each marketplace and each Participant shall synchronize the clocks used for recording the time and date of any event that must be recorded pursuant to UMIR to the clock used by the Market Regulator for this purpose.

**Defined Terms:** UMIR section 1.1 – “Market Regulator”, “marketplace”, “Participant” and “UMIR”

**Regulatory History:** In connection with the recognition of IIROC and its adoption of UMIR, the applicable securities commissions approved an amendment to section 10.14 that came into force on June 1, 2008 to replace the phrase “these Rules” with “UMIR”.

**Guidance:** The following is the text of Market Integrity Notice 2002-007 issued on May 6, 2002 under the heading “Time Synchronization”. **Market Integrity Notice 2002-007 was repealed and replaced effective April 11, 2008 by Market Integrity Notice 2008-007 – Guidance – Time Synchronization (April 11, 2008).**

Rule 10.14 of the Universal Market Integrity Rules (“UMIR”) requires that each marketplace and Participant synchronize clocks used for recording the time or date of any event which must be recorded under UMIR be synchronized to the clock used by the Market Regulator. Market Regulation Services Inc. (“RS”), as the Market Regulator retained by The Toronto Stock Exchange Inc. (“TSX”) and the Canadian Venture Exchange Inc. (“CDNX”) as their regulation services provider, will utilize the National Research Council Canada Cesium Clock as its clock.

It should be noted that the Cesium Clock referenced above is the clock currently utilized by the TSX and CDNX to synchronize the clocks in each exchange’s trading systems.

Pursuant to Rule 10.14 each marketplace and each Participant shall synchronize their clocks with the Cesium Clock operated by the National Research Council Canada or other atomic clock utilized for determining the International Atomic Time (TAI).

**Guidance:** The following is the text of Market Integrity Notice 2008-007 issued on April 11, 2008 under the heading “Time Synchronization”.

### Summary

This Market Integrity Notice provides guidance on the expectations of the Investment Industry Regulatory Organization of Canada (“IIROC”) regarding compliance with the time synchronization requirements under the Universal Market Integrity Rules (“UMIR”) for marketplaces and Participants.

**This Market Integrity Notice repeals and replaces Market Integrity Notice 2002-007 – Guidance – Time Synchronization (May 6, 2002).**

### Background

#### Compliance with UMIR Order Handling Requirements

UMIR imposes a number of order handling requirements on a Participant including:

- Rule 5.2 which requires a Participant to make reasonable efforts to ensure that certain client orders are executed at the “best price”;
- Rule 5.3 which requires a Participant in certain circumstances to provide priority to client orders over principal orders or non-client orders at the same or better prices than the client orders; and
- Rule 8.1 which requires a Participant to when executing a principal order or non-client order with certain client orders to do so at a “better price”.

Pursuant to Rule 7.1 of UMIR, each Participant has supervision and compliance obligations for the requirements under UMIR including the order handling rule referred to above. In order that information which is available to a Participant to undertake its compliance obligations is accurate, IIROC encourages each Participant to take steps to minimize discrepancies in the recording of time.

#### Audit Trail Requirements

Part 11 of National Instrument 23-101 (“Trading Rules”) imposes various audit trail requirements on dealers with respect to their handling of orders. In particular, a dealer must record the time that:

- each order is originated or received;
- each order is transmitted to a marketplace or another dealer;
- each variation, correction or cancellation of an order is originated or received;
- each variation, correction or cancellation of an order is transmitted to a marketplace or another dealer; and
- an order is executed.

For those dealers that qualify as a Participant under UMIR, Rule 10.11 of UMIR adopts the requirements set out in the Trading Rules with respect to the recording of time.

Similarly, Part 11 of National Instrument 21-101 ("Marketplace Operation Instrument") imposes various audit trail requirements on marketplaces including requirements that each marketplace record the time that:

- each order is originated or received by the marketplace;
- each message respecting each order was sent to or received from an information vendor or marketplace; and
- an order is executed.

Under the Marketplace Operation Instrument, each marketplace is required to provide this information to a securities regulatory authority or a regulation services provider such as IIROC.

In order for the information under the audit trail requirements of Participants and marketplaces to be comparable and manageable, marketplaces and Participants are under an obligation under Rule 10.14 of UMIR to synchronize the clocks used for recording and time and date to the clock used by IIROC.

### **Synchronization of Clocks**

#### **Marketplace System Clocks**

Rule 10.14 of UMIR requires that each marketplace synchronize clocks used for recording the time or date of any event which must be recorded under UMIR to the clock used by IIROC. Presently, the Toronto Stock Exchange ("TSX") is the principal technology provider for IIROC. Throughout each trading day, the TSX undertakes a continual synchronization utilizing Network Time Protocol ("NTP") offered through the National Research Council ("NRC"). More information on NTP can be obtained through the website of the NRC at:

[http://inms-ienm.nrc-cnrc.gc.ca/time\\_services/network\\_time\\_protocol\\_e.html#technical](http://inms-ienm.nrc-cnrc.gc.ca/time_services/network_time_protocol_e.html#technical)

Under NTP, the default setting is to check every 1,024 seconds and to then automatically adjust the system time if a variance with the NRC's Cesium Clock is detected. Based on information provided by the NRC, continual adjustment should provide accuracy to within a few milliseconds.

IIROC expects that each of the marketplaces that have retained IIROC as its regulation services provider will undertake continual time synchronization of their trading system clocks through the use of NTP. If it becomes necessary to "restart" the synchronization process, IIROC recommends that this be done once per day (preferably around midnight to avoid interference with any order entry procedures).

#### **Participant Clocks**

Rule 10.14 of UMIR also requires that each Participant synchronize clocks used for recording the time or date of any event which must be recorded under UMIR to the clock used by IIROC. Rule 7.1 of UMIR requires each Participant to adopt written policies and procedures to be followed by directors, officers, partners and employees of the Participant that are adequate, taking into account the business and affairs of the Participant, to ensure compliance with UMIR. Part 3 of Policy 7.1 sets out certain minimum compliance procedures for trading on a marketplace including the requirement that time synchronization contemplated by Rule 10.14 should be undertaken at least daily. IIROC expects that "mechanical" clocks used for such purposes as time stamping trade tickets will be synchronized at least daily. However, given the importance of the accuracy of the recorded time for compliance purposes, IIROC recommends that, with respect to the trading systems under the control of a Participant, the Participant undertake continual time synchronization through the use of NTP (as described above under "Marketplace System Clocks"). Continual time synchronization through the use of NTP will ensure that there are minimal discrepancies in time from that recorded by the Participant's systems and those of the marketplace on which orders have been entered.

IIROC recognizes that many Participants rely to some extent on systems offered by third-party providers. IIROC encourages such providers to also adopt continual time synchronization through the use of NTP in order to facilitate the compliance function that must be undertaken by each Participant by minimizing the recorded time discrepancies between the various systems of the marketplaces, the Participant and the third-party provider.