

Canadian Marketplace Communication Protocol for Unplanned Service Interruptions

The objective of this Protocol document is to provide a clear framework detailing the minimum standards/benchmarks for communications when Canadian marketplaces experience an unplanned, material service interruption. The Protocol is a non-binding, best-practice guideline for industry-wide reference and adoption, intended to provide industry stakeholders with relevant information in a predictable and consistent manner when such interruptions occur. All Canadian markets as at the date of this document have agreed to use their best efforts to comply with the Protocol.

1. Scope

The Protocol covers any unplanned material interruption to, or degradation of, a marketplace's service where the problem would cause the loss of integrity to the data stream; the loss of messages; stoppage or delay of updates; corruption of message formats or errors in content during normal operations; connectivity problems; stoppage or delay of order entry, order routing or other trading services (Material Service Interruption).

The scope of the Protocol is limited to notification schedules and communication processes, and includes the following elements:

- initial notice of the problem including what is affected and an estimate for restoring service;
- periodic follow-up until the problem is resolved;
- notice when service has been restored;
- preliminary and final description of the problem and how/when it will be / was fixed; and
- the requirement for contact names, numbers, points for escalation, and an open conference line that direct recipients can dial into wherever possible during actual events.

2. Determination of Impact

It is in the discretion of each marketplace to determine if a problem is material in nature. In doing so, the following factors should be considered:

- number of participants unable to use the applicable marketplace service;
- degree of control the marketplace has over the service;
- impact on market liquidity and/or quality; and
- availability of other alternatives / workarounds.

Notification Guidelines	Preliminary Determination	Interim Updates	Service Restoration	Problem Resolution
<p>Frequency</p>	<p>Upon becoming aware of a Material Service Interruption, the marketplace should notify all marketplace participants, service providers and/or stakeholders as appropriate (Recipients).).</p>	<p>For longer outages, status updates should be provided whenever material information becomes known. Where no new information is available, marketplaces should communicate that fact to Recipients on at least an hourly basis.</p>	<p>The marketplace should provide notice that the service has been restored as soon as possible.</p>	<p>Within 24 hours after the problem has been resolved, the marketplace should provide a written (preliminary) assessment of the incident..</p> <p>If any further information comes to light, marketplaces should provide a final, written description of the incident within 1 week after this information becomes known.</p>
<p>Content</p>	<p>The initial notice should include, to the extent that the information is available:</p> <ul style="list-style-type: none"> • a description of the problem; • what content and/or which systems are affected (particularly if the marketplace provides multiple feeds or services); • notice (or a reasonable projection) of when service will be restored or, if this is not possible, the next projected status update time; and • customer statements to Recipients (who can in turn pass on to their customers). <p>If the outage is the result of a telecommunications problem, the marketplace should, when such information is known, provide details of the entity responsible for fixing the problem (e.g. the communications vendor, marketplace IT department or Recipient) and describe whether a restart of downstream devices or restart of an IP session is required.</p> <p>Timeliness of notification should supersede completeness of information when marketplaces are faced with such a trade-off.</p>	<p>Interim updates should indicate progress toward resolution and an updated estimate of the resolution timeframe.</p> <p>The updates should also include any new information about the causes and impacts of the interruption.</p>	<p>The notice should:</p> <ul style="list-style-type: none"> • provide times of when the incident began and when it was resolved • indicate whether restoration is partial or full <p>detail any elements of the service that may remain degraded</p>	<p>Marketplaces should provide a final, written description describing the problem, the permanent fix and any other steps, such as procedural, communications, hardware or software changes that have been or will be implemented to prevent a recurrence of the interruption.</p> <p>If the matter is still under investigation, this should be explained and further updates should be provided to fill in missing details.</p> <p>If the fix is a temporary work-around with a permanent fix to come, this should be explained and target dates should be provided for the final resolution.</p>

3. Communication Channels

Notice should be disseminated via the appropriate electronic mechanisms, including telephone, e-mail, web site, pager, etc. Notice via logically formatted messages in the marketplace's data feed is the recommended method if the service itself is still available.

Follow-up updates may be provided in the same manner as the initial communication, or may be disseminated on a website accessible to Recipients, if the initial communication or any follow-up updates provide for such a procedure.

Where appropriate, marketplaces should also establish an open conference line that Recipients can dial into during a Material Service Interruption.

4. Marketplace Resources and Contact Lists

Appendix A provides a list of contacts

These contacts are responsible for initiating notices to recipients, and responding to any necessary inquiries from direct recipients; they should not also be responsible after recovery of the service, to ensure that there is no conflict with the requirement for customer notification and support. Attached is a list of the names and contact information. It is the obligation of each marketplace to inform the other marketplaces of any changes to this contact information.

5. Marketplace Restart Procedures Following a Material Service Interruption

If a marketplace has suffered a Material Service Interruption, it will follow the procedures set out in Appendix B upon the restart of services.

6. Marketplace Self-Help Procedures

If a marketplace declares self-help against another marketplace, it will follow the procedures set out in Appendix C.

Appendix A – Canadian Marketplace Contacts

Marketplace	Primary			Secondary			Open Conference Line
	Contact	Phone	Email	Contact	Phone	Email	
Alpha	General Client Services/ Operation Representative	647-259-0450	clientservices@alphatradingsystems.ca	Lloyd Clarke, Manager, Trading Operations and Services Ranee Pavalow, Head of Business Operations & Regulatory Matters	647-259-0460, 647-259-0420	lloyd.clarke@alphatradingsystems.ca Ranee.pavalow@alphatradingsystems.ca	
Chi-X	Chi-X Canada Operations	1-888-310-1560	operations@chi-xcanada.com	Peter Trudeau, Director Subscriber and Vendor Services Dan Kessous, Chief Operating Officer	416-304-6373 416-304-6372	peter.trudeau@chi-xcanada.com dan.kessous@chi-xcanada.com	
Liquidnet		646-674-2100	memberservices@liquidnet.com				
Omega	Support	416 646-2428	support@omegaats.com	Raymond Tung Greg King	W: 416 646-2429 M: 416 660-6073 W:416 646-2764 M:416 300-1585		

Marketplace	Primary			Secondary			Open Conference Line
	Contact	Phone	Email	Contact	Phone	Email	
Pure Trading	CNSX Market Operations	416-306-0772	marketops@cnsx.ca	David Timpany	(b) 416-572-2000 ext 2290 (c) 416-917-1008,	david.timpany@cnsx.ca	
TriAct – MATCH Now	Rob Durham – Trading Systems Administrator	416-861-1010 x0	support@triactcanada.com	Tom Doukas – Manager, Operations Heather Killian – Chief Operatng Officer	416-861-1010 x0 416-861-1010 x0262	support@triactcanada.com hkillian@triactcanada.com	Distributed as required
TSX	Trading Services	416 947-4357or TSX Vendor Services 416-9474705	trading_services@tsx.com	Mark Jarrett – Director Equity Operations John Washburn – Vice President, Business Operations	416 947-4693 416-947-4497	mark.jarrett@tsx.com john.washburn@tsx.com	Distributed as required

Appendix B
Canadian Marketplace Restart Procedures

Procedure	TSX/TSX-V	Alpha	Omega	Pure Trading	Chi-X	TriAct	Liquidnet	
System outage however connection up	No net new order flow/order modifications	No new orders/ amends permitted until pre-open.	All orders are cancelled	All gateway connections are terminated	Status Orders	Cancel orders	Trading Halted. Negotiation cancelled	
Notice to Members or Subscribers of Time of Restart	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Type of Communication	Clients contacted through usual communication channels	Notice to Subscribers sent out via email.	E-mail to dealers and vendors	E-mail to CNSX Market Operations list and an admin msg over feed	E-mail to distribution list	E-mail to distribution list	E-mail to Members	
Pre-open rotation	Yes	Yes, during pre-open cancels and amends are allowed.	n/a	Yes		Yes	Not applicable	
Typical time for Rotation	minimum of 30 minutes	Minimum of 30 minutes pre-open unless special circumstances. In each case notice of time period will be provided.	n/a	Depends		10 minutes+ 5 minutes /hour of outage	--	
Post mortem e-mail		Yes, will be sent within 24 hours of service interruption	Sent to affected clients requesting a report		Within 24 hours		Incident report created to document the event with root cause	
Trading to not resume after a certain time		No				3:45 pm	Incident-by-Incident	

Appendix C

Marketplace Self-help Procedures

Market Participants, including marketplaces, can declare self-help against a marketplace when a marketplace is having operational issues (failure, malfunction or material delay of its systems or equipment) which would make the routing of orders to that marketplace inappropriate. Notwithstanding any declaration of self-help by other marketplace participants, if a marketplace is aware of its own operational problems it should communicate in accordance with the principles set out in the Protocol document. Also, a marketplace participant can not declare self-help against a marketplace when it is experiencing its own issues or is having problems with its vendor.

MARKETPLACE	REASONS FOR DECLARING SELF-HELP	COMMUNICATIONS AND ACTIONS REGARDING MARKETPLACE EXPERIENCING PROBLEMS
Alpha ATS	<ul style="list-style-type: none"> • Slow , Corrupted, or no Data from marketplace • Connectivity to the marketplace is lost • Orders are not being received or processed 	<ul style="list-style-type: none"> • Step 1 – Alpha contacts marketplace to report and inquire about issue. • Step 2 – Upon confirmation of the issue, self-help is declared with an email confirming the time and cause of the self-help declaration. A copy is sent to IIROC and OSC. • Step 3 – Notice to all marketplace participants of declaration of self help is issued. Receipt of data and routing to the marketplace is suspended. • Step 4 – Upon receipt from the marketplace of notification that the issue has been resolved, notice will be sent to marketplace, marketplace participants, and regulators that receipt of data and order routing will be resumed.
TriAct Canada Marketplace – MATCH Now	<ul style="list-style-type: none"> • Slow , Corrupted, or no Data from marketplace • Connectivity to the marketplace is lost 	<ul style="list-style-type: none"> • Step 1 – TCM contacts marketplace to report and inquire about issue. • Step 2 – Upon confirmation of the issue, self-help is declared with an email confirming the time and cause of the self-help declaration. A copy is sent to IIROC. • Step 3 – Notice to all marketplace participants of declaration of self help is issued. Market data for the affected marketplace is removed from the NBBO calculation (used to determine MATCH Now pricing) • Step 4 – Upon receipt from the marketplace of notification that the issue has been resolved, TCM will confirm with market data vendor that feeds are stable and appear reliable. • Step 5 - Notice will be sent to marketplace, marketplace participants, and regulators revoking self-help and market data will be added back to the NBBO calculation
Chi-X	<ul style="list-style-type: none"> • Data issues or delays • Connectivity to the marketplace is lost • Orders are not being received or processed 	<ul style="list-style-type: none"> • Step 1 – Chi-X contacts marketplace to report and inquire about issue. • Step 2 – Upon confirmation of the issue, self-help is declared with an email confirming the time and cause of the self-help declaration. A copy is sent to IIROC and OSC. • Step 3 – Self-help notice is sent to the trading community; Chi-X IOB and smart router remove target marketplace from consideration. • Step 4 – Upon written receipt from the marketplace that all outstanding issues

		have been resolved and stability can be confirmed, target marketplace will be reinstated for IOB and smart routing consideration.
Liquidnet ATS	<ul style="list-style-type: none"> • Self Help not applicable 	Liquidnet ATS does not route
Omega ATS	<ul style="list-style-type: none"> • Self Help not applicable 	Omega ATS does not route
TMX	<ul style="list-style-type: none"> • Material malfunction or interruption of order entry connectivity • Material malfunction or interruption of data connectivity/feeds •) • General system failure • Pattern of unreliable order execution 	<ul style="list-style-type: none"> • Step 1 – TSX Equity Operations will notify affected ATS by telephone, followed by an email, to inform the ATS that it intends or has begun to stop routing orders to ATS. The notice should include the time that problem was observed, the cause/basis of the concern, action taken by TMX and anticipated resolution criteria. • Step 2 - TSX Equity Operations will send a “Self-Help” notification to a TSX SOR e-mail distribution list which will include, but is not limited to, all TMX SOR subscribers and , IIROC. Should self-help status continue into subsequent trading day(s), Self Help Notification e-mail will be re-sent by 9:30AM of each day until resolved. • Step 3 - If the issue is resolved by TMX, TSX Equity Operations shall notify affected ATS’s that the issue has been resolved and request that the cessation of routing services be revoked. • Step 4 –TMX Equity Operations will also send a Self-Help removal notification to a TSX SOR e-mail distribution list which will include, but is not limited to, all TMX SOR subscribers and IIROC.

