

Overview

The Canadian Securities Exchange supports FIX 4.2 for order entry and provides a multicast market data feed. Clients are responsible for selecting their preferred method of production connectivity and access arrangements for order entry and market data gateways.

Product Descriptions

- **Order Entry:** Order entry access is available to CSE Dealers. This service provides dealers with the ability to submit orders and execute trades in the CSE's trading engine.

Note: Clients are reminded that a sequence reset is required when moving FIX sessions intraday between TR2 and TR1.

- **Multicast Market Data Feed:** a real-time broadcast feed service that includes all trades, bid/offer information, and all committed orders for securities traded on the CSE. The feed also contains bulletins, market summaries and statistics.

Note: Clients can only packet arbitrage between Side A and Side B within the same data centre.

- **FIX Drop Copy:** A FIX drop copy feed is available to market participants to stream a copy of public and private portions of messages on a specified FIX session. This service can be used to feed downstream applications such as risk systems and to support back office activities.

Note: Drop Copy Sessions are specific to a data centre and cannot be moved between TR2 and TR1.

Production Connectivity

The CSE offers direct access to its services from its Toronto data centres. The CSE has three hosting facilities.

Copper (1 Gig) and Single Mode Fiber (1 and 10 Gig) connectivity is available for all data centres.

Q9 Networks Inc.

100 Wellington Street
Toronto, Ontario M5K 1J3

Equinix Inc. - TR1

151 Front Street
Toronto, Ontario M5J 2N1

Equinix Inc. - TR2

45 Parliament Street
Toronto, Ontario M5A 2Y5

The CSE supports the following production connectivity methods:

- **Cross-Connect:** Clients that are co-located at the Q9 data centre or the Equinix data centres may request in-house cross-connect from their Point of Presence (PoP) to the CSE.
- **Extranet Provider:** The CSE is currently on-network with the following extranet providers. Please contact the provider directly to arrange for connectivity to the CSE.

In alphabetical order:

BT Radianz
Gregory Knopp
212-205-1849
gregory.knopp@bt.com

CenturyLink (formerly known as Savvis)
Alicia VanDeVeer
630-229-8724
gems@centurylink.com

GuavaTech Inc.
GT Sales Team
312-604-4300
sales@guavatech.com

Hibernia Atlantic
Dennis Bradley
908-516-4209
dennis.bradley@hiberniaatlantic.com

Interactive Data 7ticks
Dave Conrad
312-893-6107
david.conrad@interactivedata.com

Intercontinental Exchange (NYSE: ICE)
Brian Norris
312-282-3645
brian.norris@theice.com

Options Technology Ltd.
Sales
646-205-2500
sales@options-it.com

Pico Quantitative Trading LLC
Bruce P. Boytim
312-466-5766
bruce.boytim@picotrading.com

Transaction Network Services Inc. (TNS)
Financial Services Division Exchange &
Venue Team
FSDEVT@tnsi.com

TMX Atrium
John Andrew
416-947-4289
john.andrew@tmx.com

- **Point-to-Point:** Clients may connect using a point-to-point connection through leased lines. Carriers with facilities at Q9 include Bell Canada, Telus, AllStream and Cogeco.

Connectivity for Testing Purposes

The CSE Gateway Test Environment (GTE) is available to clients for testing purposes. For an immediate connection, clients can connect via the internet to our public address. Clients are required to provide the public IP address from which their traffic will be sourced. Clients also need to identify which services they wish to access, and supply a technical contact.

Hours of Testing

Session	CSE Listed Securities	Other Listed Securities (TSX/TSX-V)
Pre-open	07:00	07:00
Open	09:30	08:00
Close	21:00	22:00
System Shutdown	22:15	22:15

Bandwidth Requirements

The table below provides the current bandwidth guideline for Multicast Market Data Feed.

Bandwidth Guideline as of January 1, 2017	
Multicast Market Data Feed	10 Mb/s

Bandwidth requirement for order entry depends on the order flow submitted to the CSE. In general, 400 messages per second usually equals to 1 Mb/s.

Technical Specifications

The following technical documents are available. To request a copy, please email trading@thecse.com.

- **Order Entry** - FIX Programmers' Guide

- **Multicast Market Data Feed** - Market Data Programmers' Guide

Certification

The CSE requires clients wishing to access the FIX gateway to certify their connectivity and application through an automated test suite.

Certification confirms that a gateway can be used by a client or vendor as a method of reliable communication between the CSE's system and the client or vendor, and doesn't impact the operation of the gateway or its use by other clients.

When certified, clients will be permitted to conduct trading or trading-related activities through the gateway on the CSE.

Agreements and Forms

In order to access CSE trading and real-time information services, clients must execute the appropriate CSE agreements and forms, depending on access method and intended usage.

Vendors offering client access to one of the trading gateways must execute the "Gateway Access Agreement". This document also covers the issues around the vendor's use and redistribution of real time market information from CSE Vendors looking to redistribute real time market data only are required to execute the CSE "Market Information Agreement".

Production Bundles

Following completion of the tasks set out below, production bundles (sign-on credentials for dedicated sessions) will be assigned by the CSE Market Operations team:

- Certification on the FIX gateway
- Completion of connectivity testing to the production system
- Execution of the appropriate CSE agreements
- If applicable, registration as a CSE Dealer

Production bundles may also be provided to dealers through an authorized order entry vendor.

Contacts

CSE Trading

416-367-7347

trading@thecse.com