Demo Quickstart

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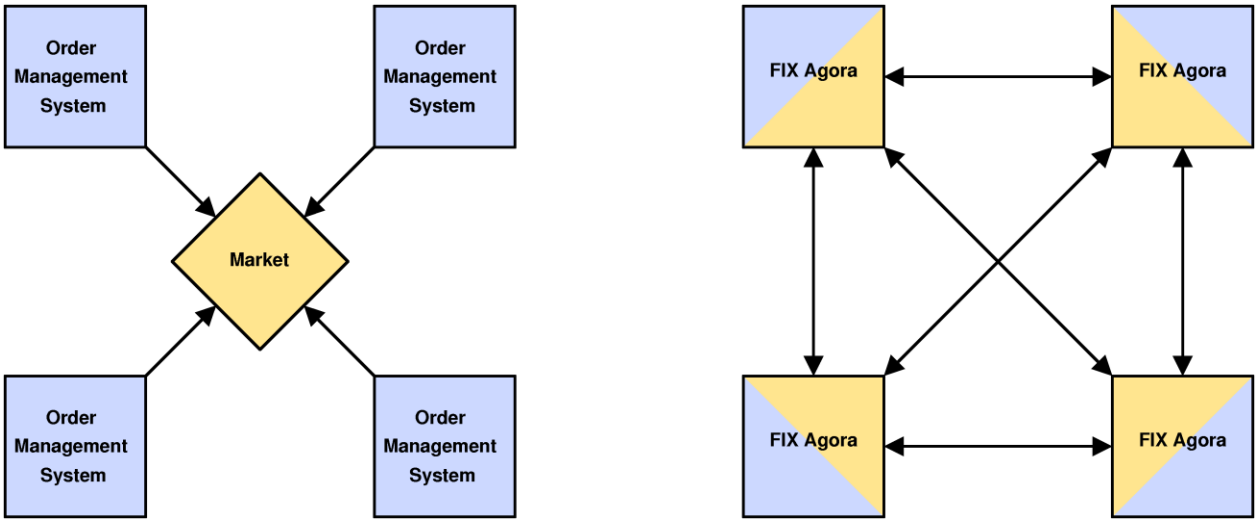
Objectives

This guide gives step-by-step instructions for working with the demo version of FIX Agora. The paper starts with the installation of the software and describes the business blueprint used in the demonstration. It explains how a typical order workflow is processed by the system.

About FIX Agora

FIX Agora is a peer-to-peer OTC trading network for financial institutions with an integrated order management system. The application can act as buy side and sell side. FIX Agora supports indicative quoting and processing of order requests. It is equipped with multiuser spreadsheets for price calculations as market maker.
FIX Agora ships with the option for exporting trade reports into Excel® sheets and SAP® Financial Supply Chain Management (requires SAP® JCO). The application is client/server based, modular and extensible.



FIX Agora is working with the Financial Information eXchange ("FIX") protocol. The FIX protocol is an industry driven standard for the electronic communication of trade related messages, released and maintained by FIX Protocol, Ltd.
FIX Agora is a 100% Java open source implementation running on Windows, Linux/UNIX and Mac OS (client only). It requires Oracle JRE version of 1.6 or higher.
This software is published under the GNU Lesser General Public License, Version 2.1 (LGPLv2.1).

Download and Installation

Make sure you have a Java environment installed. The latest version is available here:

http://www.oracle.com/technetwork/java/javase/downloads/index.html

FIX Agora requires version 1.6 or higher. Download the latest Version of FIX Agora from:

http://fixagora.sourceforge.net

System Requirements:

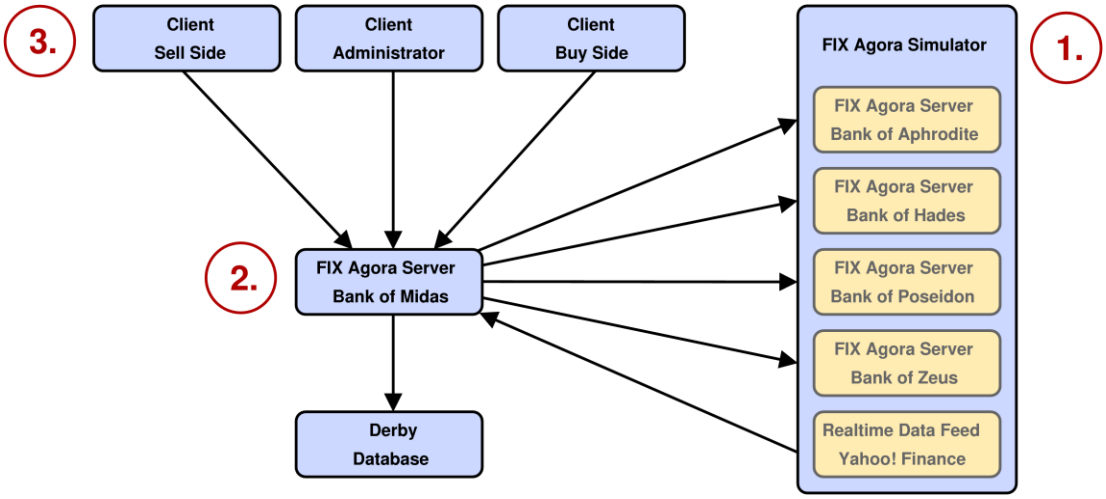
- RAM:
  - Minimum: 4GB
  - Recommended: 6GB
- CPU:
  - Minimum: Intel® Core™2 Duo 2.4 GHz
  - Recommended: Intel® Core™ i7 2.2 GHz

Mac OS is currently only supported for clients, but you can also try the UNIX version.
The further steps assume that you are working with a Windows OS. Extract the downloaded zip file into a local folder.

Launching the Demo

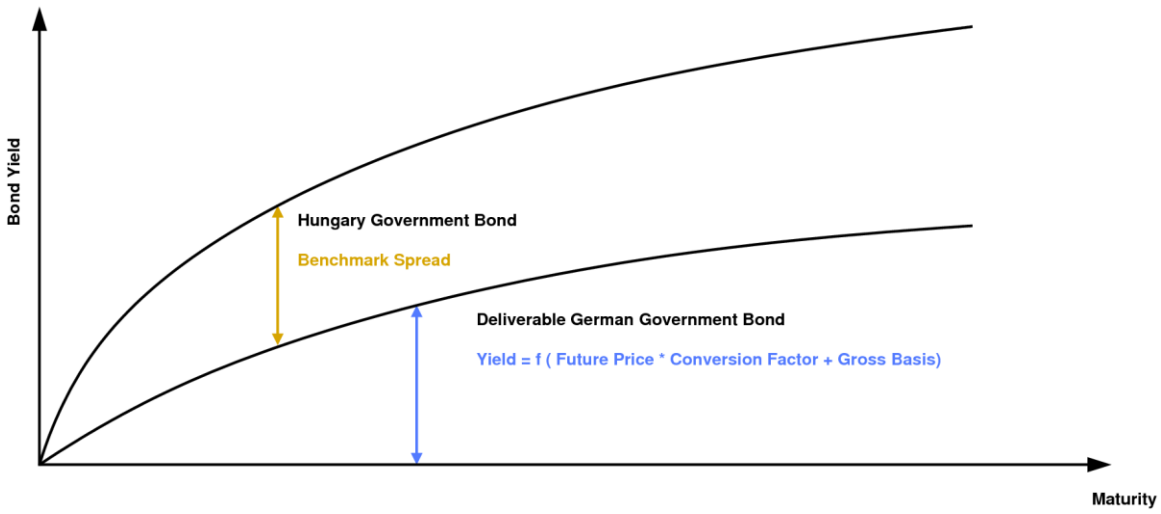
Navigate to the folder named fixagora and hit the "A" icon.

The demonstration starts and opens the simulator in demo mode. At first port availability is checked. The demo is using the port range 4711-4718. Ensure that these ports are not used by another application.
A FIX protocol based real-time data feed is simulated using the Yahoo! Finance web service. Therefore it is necessary to have access to the Internet or you will not see any ticking quotes. The demo ships with a business blueprint constructed on real-time data from Eurex, Dow Jones and CME. Outside their business hours you will only see closing values instead of real-time data.
As next step, a simulation of the counterparties Bank of Aphrodite, Bank of Hades, Bank of Poseidon and Bank of Zeus is started.
Upon completing this step the physical FIX Agora server of your institution Bank of Midas is started. A new console will pop up. Do not close this window!
Finally, three clients with different business roles are started on top of the server.



Business Scenario

Bank of Midas (fictive BIC code: BOM) is trading German and Hungary Government Bonds, U.S Treasuries and equities. The financial institution has four counterparties to trade with: Bank of Aphrodite (BOA), Bank of Hades (BOH), Bank of Poseidon (BOP) and Bank of Zeus (BOZ). Each is acting as buy side and sell side.
The trading department of Bank of Midas consists of two traders Bill Buyside and Sally Sellside. An administrator is managing the FIX Agora application.
Sally Sellside is using a FIX real-time data feed to calculate the prices as market maker. U.S. equities and German equities are simply priced against the quotes received from DAX and Dow Jones. Bid- and ask-prices are adjusted using a spread on the mid-price. Sizes are set manually.
U.S Treasuries are priced using U.S. Treasury rate indices for 13 weeks and 5, 10 and 30 years respectively. The yield is estimated of a spline interpolation based on the maturity date of the treasuries. The mid prices for indicative quotes are calculated from the yield. Bid- and ask-prices are adjusted using a spread on the mid-price. Quote sizes are set manually.
German Government Bonds are priced using Bobl, Bund, Schatz and Buxl Futures. Deliverable bonds for each future are priced against the future value according to their conversion factor and manually adjusted by their gross basis. The yields of these bonds are calculated from their price. The yield of non-deliverable bonds is interpolated based on the maturity date of the securities. Bid and ask prices are adjusted using a spread on the mid-price. Quote sizes are set manually.
Hungary Government Bonds are yield quoted. The yields are calculated against a benchmark curve. The quotes for German Government Bonds are used as benchmark values.
Sally Sellside is providing Bank of Aphrodite, Bank of Hades, Bank of Poseidon and Bank of Zeus with indicative quotes and is handling order requests from these counterparties. Sally has two order books, one for equities and one for bonds.



Bill Buyside is receiving indicative quotes from Bank of Aphrodite, Bank of Hades, Bank of Poseidon and Bank of Zeus for the assets described above. He can initiate order workflows with these business partners. Bill has two order books, one for bonds and one for equities.
The trades for all assets processed by sell and buy side are aggregated in one trade capture.

Working with FIX Agora

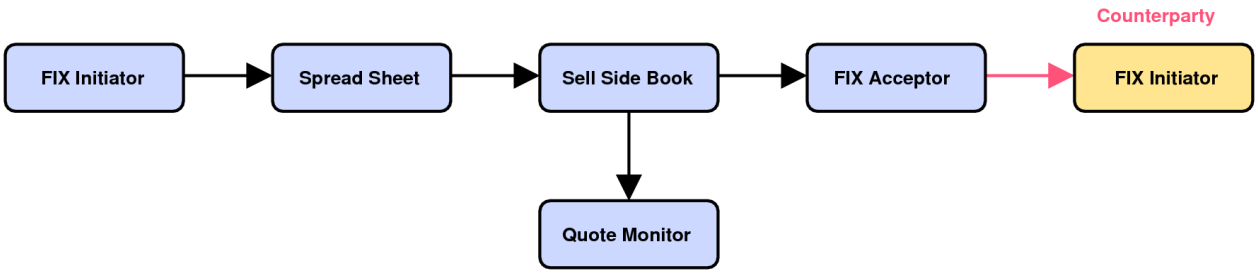
The simulator is starting three different clients. Every client is representing a business role:

- Sell side:
  - Person: Sally Sellside
  - User: sally
  - Password: sally123
- Buy side:
  - Person: Bill Buyside
  - User: bill
  - Password: bill123
- Administrator:
  - User: Admin
  - Password: admin

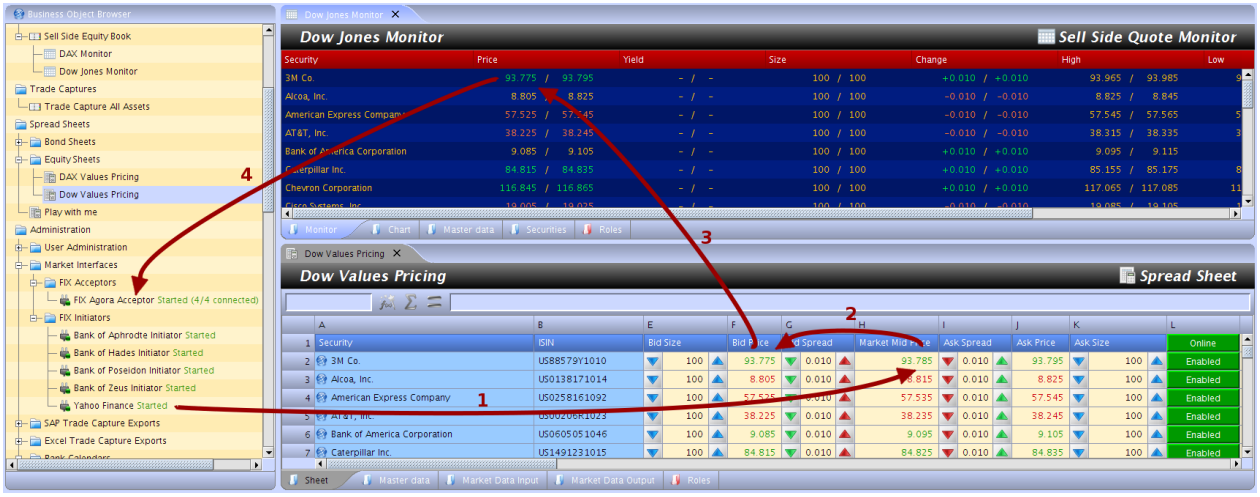
The simulator is bypassing the login procedure. To distinguish between the clients, you should take a look at the bottom right of the application. If you work on a slow machine, close two of the clients.

Sell Side

The sell side is receiving real-time quotes in a FIX Initiator. These quotes are routed to the spread sheets where indicative quotes are calculated. Calculated indicative quotes are sent to a sell side book. A sell side book can have multiple quote monitors to check what is indicated to the counterparties. The sell side book is routing indicative quotes to a FIX Acceptor. FIX Initiators of the counterparties are connected to the FIX Acceptor and receive these indicative quotes.

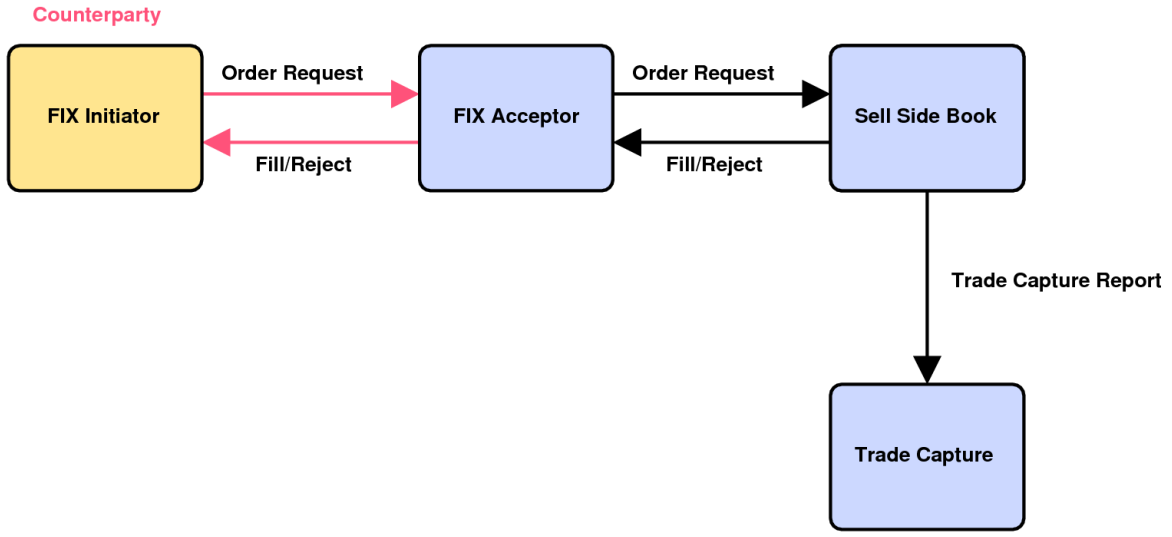


Example:
FIX Initiator *Yahoo Finance* is receiving real-time quotes for *3M Co*. These quotes are routed to the spread sheet *Dow Values Pricing*. The mid-price is adjusted with a spread of 0.010, forwarded as bid-price 93.775 to *Sell Side Equity Book* and monitored in *Dow Jones Monitor*. From there the quote is routed to FIX Acceptor named *FIX Agora Acceptor*. The FIX Acceptor is publishing this quote to Bank of Aphrodite, Bank of Hades, Bank of Poseidon and Bank of Zeus.



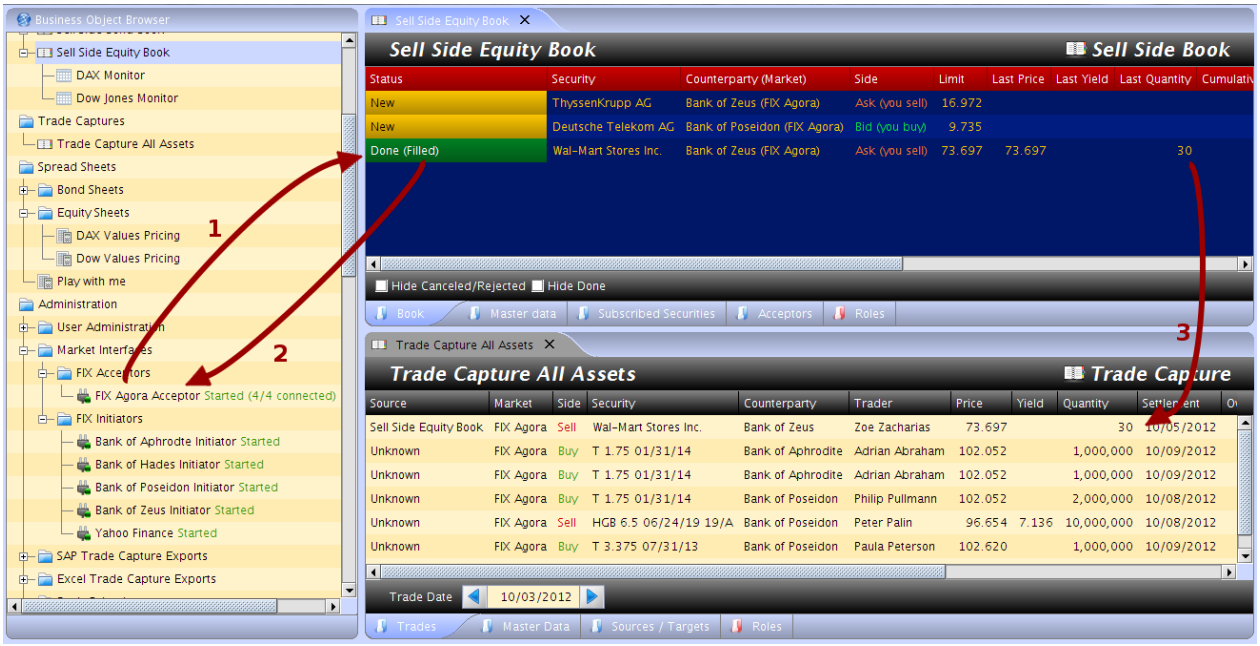
The system is restricted by a role-based access control approach. The buy side trader role does not have read permissions for spread sheets and sell side books. This means Bill Buyside does not see the sell side book or any spread sheet. The sell side trader role has execute-permissions for the sell side book and the spread sheets used for pricing. This means Sally Sellside can answer order requests and modify cell values in the spread sheets. Sally cannot modify cell formats for which she would need write-permissions. The sheet cells are all locked by the administrator to prohibit modifications of used formulas or securities.
Sally does have write permissions for the sheet named *Play with me*. This sheet is not part of the business workflow and can be used for testing purposes. Be careful when you work as the administrator. He has the permission to do everything.

FIX Acceptors are receiving order requests from counterparties and route them to a sell side book. Order requests can be filled or rejected from within the order book. The answer is sent back to the originator.

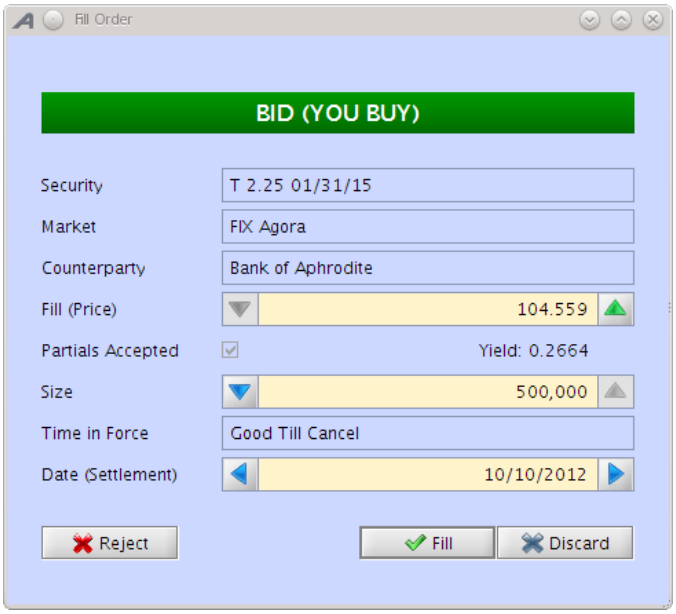


If the order is filled or partially filled, a report is sent to a trade capture related to the order book.

Example:
FIX Acceptor named *FIX Agora Acceptor* is receiving an order from Bank of Zeus. Trader Zoe Zacharias asks for 30 Wal-Mart Stores Inc. with a limit price of 73.697. Sally Sellside is accepting the order. A fill message is sent back to Bank of Zeus via *FIX Agora Acceptor*. A report is sent to trade capture named *Trade Capture All Assets*.

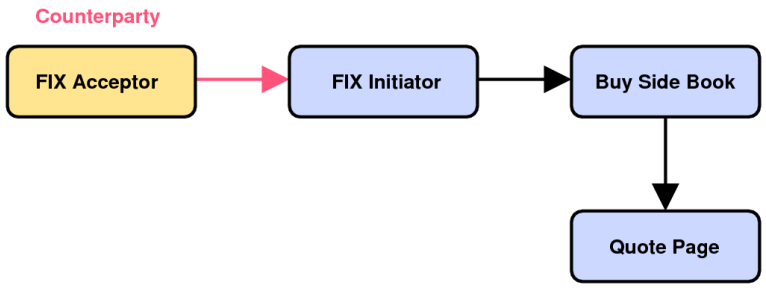


New and partially filled orders can be answered by double clicking in the row of the sell side book. A ticket to execute the order will show up.



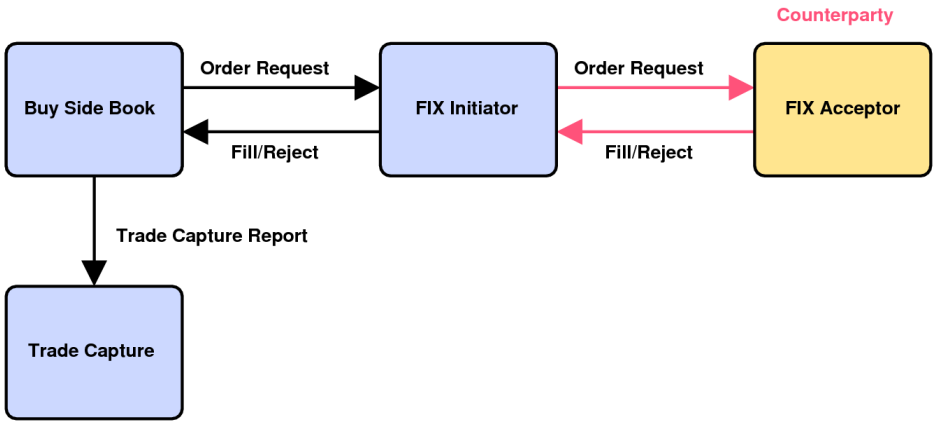
Buy Side

The buy side is receiving real-time quotes in different FIX Initiators. Each FIX Initiator is related to a specific counterparty. The buy side book is aggregating these quotes to a composite quote regarding the quote sizes. A buy side book can have multiple quote pages to visualize the market prices.

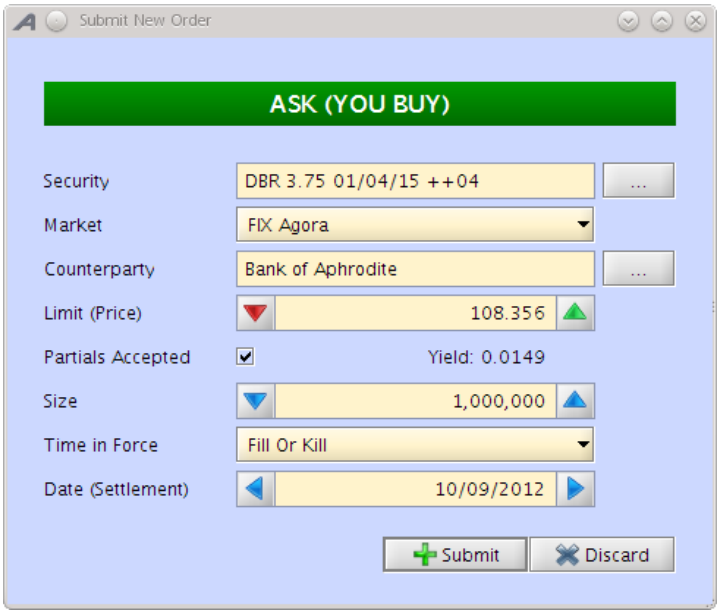


Example:
FIX Initiator *Bank of Aphrodite Initiator* is receiving a real-time quote for DBR 3.75 01/04/15 ++04. The quote is routed to buy side book *Buy Side Bond Book*. The quote is aggregated with quotes of other market participants for this security to a composite quote and displayed in the quote page *BUND Quotes*.

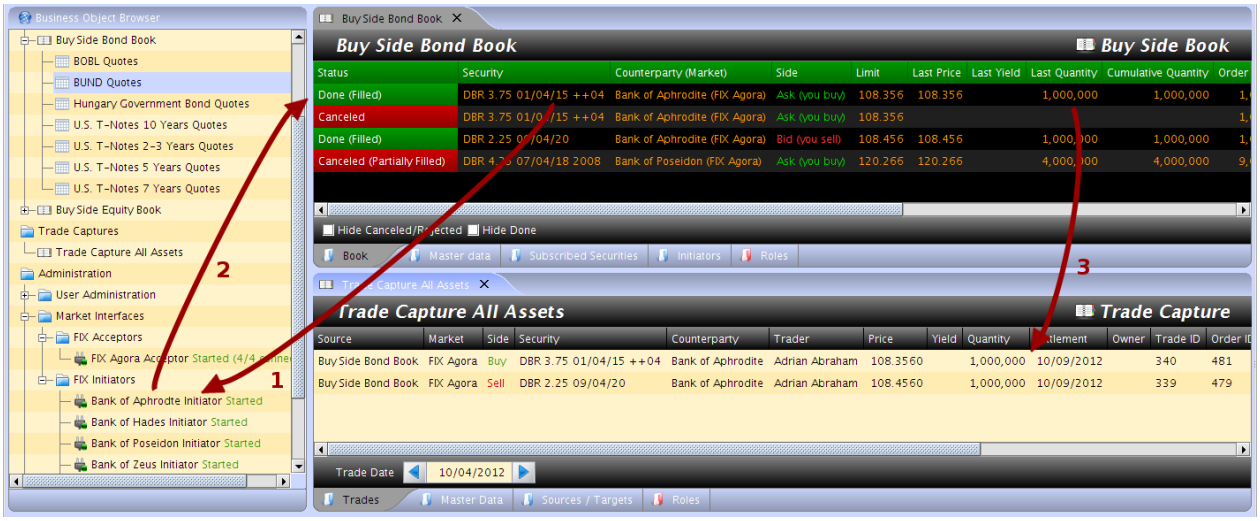
A buy side trader can initiate a new order request from within a buy side book. The request is routed to the sell side of a specific counterparty via FIX Initiator. The counterparty is accepting or rejecting the request. If the order is filled or partially filled, a report is sent to a trade capture related to the order book.



Example:
Buy side trader Bill Buyside is starting a new order request by double clicking on the quote for DBR 3.75 01/04/15 ++04 in the market depth of quote page *BUND Quotes*. A new ticket is showing up.



He would like to buy 1,000,000 DBR 3.75 01/04/15 ++04 from Bank of Aphrodite with a limit price of 108.356. The order is routed to *Bank of Aphrodite Initiator* and accepted by Bank of Aphrodite's sell side trader Adrian Abraham. A fill message is sent back to *Buy Side Bond Book* via *Bank of Aphrodite Initiator***.** The buy side book sends a report to the trade capture named *Trade Capture All Assets*.



Simulator

The simulator is providing the FIX Agora server with real-time quotes. These quotes are generated from real-time quotes received from the server. This means, if you change a quote on your sell side, the quotes on your buy side are changing, too.
The simulator is sending randomly generated order requests to your sell side based on the real-time quotes received. Order requests sent from buy side are randomly filled, partially filled or rejected.

It is possible to start the client, server and simulator manually. Use the launch scripts in the folders *fixagora-client*, *fixagora-server* and *fixagora-simulator* to start the system step by step.