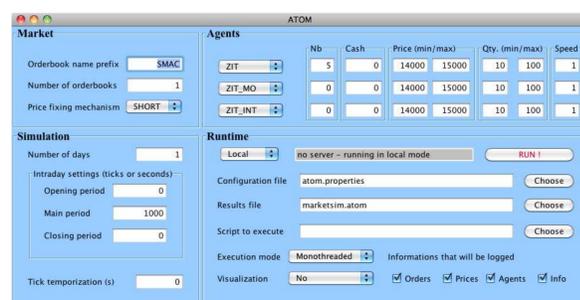
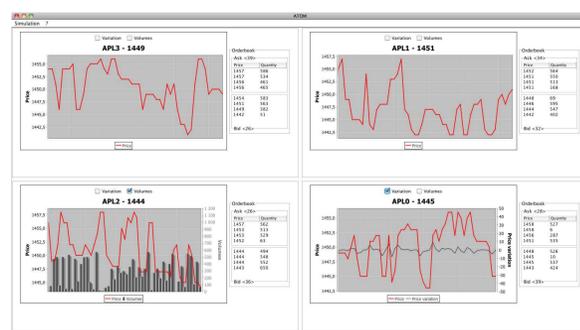


## What is ATOM ?

ATOM is a general environment for agent-based simulations of stock markets. Platform independent, fully flexible, ATOM can perform distributed simulations as well as local-host, fast simulations. It can also be used for experiments mixing human beings and autonomous, artificial traders. Agents are endowed with Artificial Intelligence and range from simple zero-intelligence robots to highly evolved cognitive agents. ATOM is platform independent and can be run on any kind of system.



## What can be done with ATOM ?

### Technological research and Applied Quantitative Finance:

- ATOM can be used in various fields of quantitative Finance : Algorithmic Trading, Risk Management, and Portfolio Management among others.
- The platform can serve as a replay-engine using real-world order flows or generate new typical market regimes ("high volatility", "bear market"...). In both of these cases, ATOM offers an environment to test algorithmic trading methods.
- ATOM can be used to evaluate execution strategies and can be tuned to serve as best "best-execution" expert-system.
- Artificial price motions span over different time horizons and granularities : from ultra-high frequency (tick-by-tick data) to daily closing prices.
- The platform is multi-asset oriented and any kind of matching or execution mechanism can be implemented (even "dark-orders" or PEG orders)

### Scientific research:

- ATOM is modular. It can be viewed as a 3 meta-components system: i) Agents and their behaviours), ii) Market microstructure and iii) Artificial Economic World. Each of these components can be used independently as well as in complete interaction.
- ATOM can be used for the evaluation of new regulation or market procedures, or to assess the potential effects of taxes or new trading strategies in a sophisticated artificial financial environment.

## Main Features

1. Agents trade on a single market defined by its microstructure. Competition among several trading systems can be programmed.
2. The market hosts as many financial commodities as needed.
3. Each commodity is traded through a central order book mimicking the Nyse-Euronext stock-exchange (this microstructure can be swapped for another one if necessary).
4. Order formulation covers any usual type of orders, from the most basic ones (limit orders) to sophisticated orders (stop orders, mid-match point orders ...).
5. Validity rules are taken into account as well as order updates and cancel orders.
6. Any simulation can include human agents interacting with Artificial Intelligence Agents.
7. The platform can serve as a replay engine for a whole trading day (using real-world order flows). It then delivers the same results as the original stock market.
8. Users can monitor the entire agents population and get access to each of the artificial agents' parameters.

**Educational aspects:** ATOM is a smart tool to learn finance : it can be used as an experimental finance software in a classroom or as a simulator for finance newcomers. "Serious-Games" applications can be build using the ATOM API for front or middle-office training.



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