

An Enterprise approach to  
**Trading Infrastructure  
and FIX Testing**

## Abstract

This eBook provides comprehensive operational strategies of complete FIX testing scenarios and infrastructure validation, which reduces the cost associated with the development and deployment of electronic trading systems and gateways.

# Understanding the requirements of comprehensive Automated Testing of Trading Scenarios

Automating the expensive and error-prone process of manual testing of the trading systems will reduce the dependencies on counterparty test environments, and it enables trading firms to quickly simulate trade scenarios, which impacts the firms to realize the trading system's reliability and efficiencies before going live with complex environments.

In today's critical and regulation-based trading scenarios, the best implementation of FIX testing is required to meet regulatory requirements and to create an optimum risk averting environment at the lowest operational cost.

Over the period, trading operations are converted into complex grids of various multiple applications with diversified technologies coerced into an overall trading infrastructure. Testing has evolved with cluttered and varied deployments, which made the firms lack an overall 'enterprise' perspective, instead of depending on a multitude of different testing scenarios.

Testing should be deployed from client mode for complete connectivity, functional and performance testing system should run from interactive GUI mode.

A positive and negative use-case scenario of buy-side, sell-side, venues and intermediaries will be tested, and It can be widely used during all stages of the system development life cycle to assist developers during unit testing, quality assurance (QA) testing, certification, and post-deployment maintenance.

## Enterprise-level Infrastructure Maintenance and its challenges

The complex testing process needs to validate all the exchange-related services from pre-trade till post trade, which also needs to makes sure every counterparty supports different protocols and various versions in each protocol which might require adequate session testing. To test multiple exchange gateway and to handle high volume market data processing, there is a need for robust testing of the complex trading infrastructure. Instead, the manual testing process is quite tedious as well as expensive, and its longer test cycles delayed the LIVE production environment, thus increased the risk in business continuity.



*To test multiple Exchange Gateway and to handle high volume market data processing, there is a need for robust testing of the complex trading infrastructure.*

The proposed solution addresses,

Multiple exchange related test cases are validated and supports multi-protocol (FIX, FAST, EMAPI, ITCH & OUCH) and Supports FIX versions 4.0, 4.1, 4.2, 4.3, 4.4, 5.0, 5.0 SP1, 5.0 SP2. The multiple test case scenarios can be easily converted.

Automating end-to-end infrastructure testing and displaying the past test results. Testing multiple gateways scenario and accepts customized FIX dialects to validate the incoming messages.

## Key Business Benefits Why it is important

Through trading infrastructure validation and FIX session testing functionalities, a trading firm can achieve,

Reduced order handling time:

*Overcoming manual testing will reduce the order handling time*

Improved testing efficiency:

*Automation increases efficiency & reduces complex test scenario*

Single test solution for multi-protocol (FIX, ITCH & OUCH, EMAPI, FAST):

*Supports Multi-protocol & Multiple versions*

Reduced operational expenses: *Faster test cycles reduces operational expenses*

Accelerated test results: *The test results are validated with multiple test case scenarios*

Increased testing accuracy & QoS: *Robust testing of complex trading infrastructure will increase the testing accuracy and the quality of service*

Faster time to market: *No more delayed test cycles*

# Trading Infrastructure Validation: Best Implementation Practices

- ✔ Functional and Non-Functional compliance verification of buy-side, sell-side, venues & intermediaries applications
- ✔ Validating high transactional message testing including regression test and performance test in different pace levels
- ✔ Creating valid, invalid, and malformed messages to perform positive and negative test messages along with the customized FIX dialects. Each test scenarios can be easily transferrable
- ✔ Supports FIX versions 4.0, 4.1, 4.2, 4.3, 4.4, 5.0, 5.0 SP1, 5.0 SP2
- ✔ User-Friendly import and export format of test executions, results customization and easy migration from third party platform
- ✔ Automated testing of multiple complex scenarios
- ✔ Perform log analyzer and monitor to various client and server sessions
- ✔ Rich user interface to watch and analyze test results in various forms like HTML, PDF, and CSV
- ✔ Generate test execution reports in .HTML and .XLS formats

Enabling the right infrastructure validation will lead the system to much better and efficient scenarios, which are the basis for implementing best practices and it includes,



A comprehensive, accessible view of deployment, management & reports



Real-time view of testing progress through dashboards



The complete enterprise testing deployment will be consolidated. Previous test case results will be stored and analyzed

Firms without best test case strategies will either pay a hefty fine or hit with huge trading loss and reputational risks if their trading system breaks down. Infrastructure validation helps to automate the expensive and error-prone manually testing, which reduces dependencies on counterparty test environments. The industry standard for comprehensive FIX testing offers an enterprise level approach to validate the complete trading infrastructure to meet today's complex testing. Testing and deployment need to be part of a trading strategy and the solutions to execute low latency trading.

What's required is the ability to maintain and test on an organization's scale; to create an error-free infrastructure while reducing the cost and improving the operational efficiency.

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