



Skyler C3 RegNMS Solution

RegNMS Implementation Timeline:

- **October 16, 2006:** Self-regulatory Organizations (SRO) are required to publish their final technical specifications for their system regarding compliance with the new order protection rule on their websites.
- **February 5, 2007:** SRO systems must be operational
- **May 21, 2007:** Full industry compliance with the order protection and access rules for a pilot group of NMS stocks.
- **July 9, 2007- October 8, 2007:** Full industry compliance with these two rules for all remaining NMS stock.
- **October 9, 2007:** Completion Date

Meet SEC requirements while optimizing your trading scenario

Regulation National Market System (RegNMS), developed by the SEC, has forced significant changes to the market since its passage in April 2005. While its main objective is to ensure best price through fair access to quotes, it is simultaneously changing the technological landscape of trading. In order to be compliant, considerable changes will be required for players in the U.S. equity market.

Skyler C3™ Compliance Solution is equipped to respond efficiently to the necessary technological changes. The C3 solution provides the following capabilities:

- Captures best execution by taking a snapshot of the top levels of the order book across all maintained venues as well as the NBBO at the exact moment a trading decision is made
- Stores the liquidity and NBBO information including time stamp in a time series cache for intra day analytics
- Persists the RegNMS information to an RDBMS for easy retrieval and long-term storage
- Can be customized to accommodate new data feeds while ensuring RegNMS compliance
- Can receive market data directly from the exchanges or data vendors with pre-built feed handlers and adapters
- Runs as a standalone application or embedded library within the trading application
- Avoids high overhead and maintenance costs
- Easily integrates into current trading applications

Terms of RegNMS

RegNMS consists of four main rules: Data Market Rules, Access Rule, Order Protection Rule, and the Sub-Penny Pricing Rule. Collectively, they function to ensure the best price guarantee that RegNMS strives to achieve.

Rule Number	Rule Name	Description
601 & 603	Data Market Rules	<ul style="list-style-type: none">• Allocate revenue to market centers that generate quotes with the best prices and the largest orders to deter manipulative behavior.• Give market centers and broker-dealers the freedom to distribute their own data independently.• Require that markets utilize a single three-point industry plan, currently including Securities Industry Automation Corporation (SIAC CT and CQ) or Nasdaq (UTP).
610	Access Rule	<ul style="list-style-type: none">• Prevents market centers from executing trades at uncompetitive prices through fair and equal access to prices.• Requires a price cap on the access fees of trading centers• Market centers are required to provide access to other exchanges' stock quotes.
611	Order Protection Rule	<ul style="list-style-type: none">• Protects against trade-through.• Forces companies to maintain records to show best execution to customers and regulatory bodies in case of audits.
612	Sub-Penny Rule	<ul style="list-style-type: none">• Promotes greater price transparency through the prohibition of sub-penny quotes in NMS stocks, unless the stock price is lower than \$1.00.

Overall Market Impact

The stipulations set forth in RegNMS will undoubtedly have a profound impact on the market. In general, experts expect the following changes will affect the securities industry:

- Increased automation of the market
- Hybrid and floorless exchanges
- More consolidation of feeds and services
- Increased fragmentation of liquidity
- Increased volumes and bandwidth requirements
- Greater emphasis on quantitative and algorithmic trading systems

Specifically for market players, RegNMS compliance will require significant changes to monitoring technologies in order to prove best execution. Companies will be required to change their data capture, storage, and retrieval systems and increase their level of transparency around the availability of liquidity. In addition, these upgraded systems will need to ensure time-sensitivity as required by traders.

In-house and Commercial Options for RegNMS Compliance

Many companies are turning towards home-grown data processing solutions to meet the rigors of RegNMS. However, most systems analysts recognize the difficulty in successfully developing an in-house system that meets the needs of the traders and allows for RegNMS compliance. Due to the explosion in market data volumes, many in-house systems are unable to keep up and thus fail to provide insights into the liquidity situation at the time of trading.

Others turn to commercially available applications in efforts to meet the technological demands of RegNMS. However, many of these also fall short of merging efficient trading with RegNMS compliance. Most in-memory databases can maintain orders in memory, but often lack the ability to aggregate the orders across prices and venues in real time.

While commercial solutions are an alternative to in-house ones, most lack the performance and efficiency that distinguish Skyler's order book solution from others in the market.

The Skyler C3 Compliance Solution

Skyler C3 Compliance Solution offers a unique solution for compliance with RegNMS.

In a trading scenario, the moment an order is sent out, the trading engine must capture the state of the market to prove attempt of best execution. In order to prove best effort, three things must be captured at the same instance in time: the order, the state of the order book for all maintained venues, and the NBBO (evidenced through CTS/CQS or UTDF/UQDF).

Skyler C3 Compliance Solution allows your trading application to capture all three at the exact millisecond the trading decision is made. This is achieved through C3's order book configuration that analyzes the full depth and breadth of the book for multiple venues and includes a last value cache, which maintains the NBBO in real time. Thus, when an order is sent, the details of the order, order book, and NBBO are captured. The information can then be stored by the trading application so that companies are equipped with the necessary information to prove best execution whenever it may be requested.

In addition, the Skyler C3 Compliance Solution can also capture the order book information each time it changes and store this information including time stamp in Skyler's C3 in-memory time series cache. This allows the user to quickly retrieve the order book state at a given time throughout the day.

Furthermore, the order book history including timestamp can be persisted to a traditional RDBMS for easy retrieval via standard SQL and long-term storage of TeraBytes of data required for full RegNMS compliance.

With the Skyler C3 Compliance Solution you get the best of both worlds: ultra low latency order book aggregation for fast decision making and better trading efficiency and long-term storage of RegNMS required market information.

Moreover, by virtue of this flexibility and openness, Skyler's C3 Compliance Solution can be embedded into the trading application used to send out the orders to the exchanges. This negates any lapse in time between the NBBO, the order information, and the status of the order book at the time the trading decision is made.

Skyler's ability to snapshot the order book is unique among the solution providers. In addition, C3's ease of use and the flexibility to customize the configuration to meet specific customer demands are other key benefits of this solution.

About Skyler

Skyler is an enterprise software company delivering ultra low latency trading solutions to the financial services industry. The Skyler C3 Solutions source liquidity, analyze tick data, trigger smarter trading decisions, and achieve higher fill rates at better prices. Skyler's customers benefit from faster insights into activities in the market, the ability to deploy innovative new trading strategies, and faster access to the market and therefore high trading efficiency. The Skyler C3 Liquidity Discovery, Tick Analytics, Algorithmic Container, Order Routing, and Compliance Solutions are focused on specific customer needs and emphasize flexibility, ease of use, and simplicity of integration. They combine powerful, low-latency in-memory data processing technologies with market specific business logic modules.

To test drive the Skyler C3 solutions, contact 925.689.9814 or contact@skylertech.com. Please visit us at our website www.skylertech.com.