



# TRADE RECONSTRUCTION REQUIREMENTS: CHALLENGES AND SOLUTION



## Context

Trade reconstruction requirements are primarily driven by the Dodd-Frank Act in United States and MiFID II in the European Union - broadly for aspects related to record-keeping, event reconstruction, market abuse detection and prevention. These requirements impose a daunting challenge for the concerned firms' compliance officers; requiring them to generate a time sequenced comprehensive reconstruction of the trade within 72 hours of a request being made by the regulatory bodies.



## What are the key regulatory requirements?

Dodd-Frank Act, SEC Rule 17a-4 and Rule 17a-3 had specified the requirements

regarding record retention & production for the Swap Dealers (SD) & Major Swap Participants (MSP). MiFID II has also specified requirements for the retention

of records & communication of activities and transactions (related to OTC products and exchange traded equities) in Europe.



	Dodd Frank Act	MiFID II
<b>Requirement</b>	<ul style="list-style-type: none"> <li>Firms need to reproduce time-sequenced reconstruction of swap trades (from the pre-trade communication to the swap expiration stages)</li> </ul>	<ul style="list-style-type: none"> <li>Record keeping requirements for services, activities and transactions for the reconstruction of lifecycle of a trade</li> <li>Additionally, firms need to also monitor prohibited market activity</li> </ul>
<b>Products impacted</b>	<ul style="list-style-type: none"> <li>All swap products</li> </ul>	<ul style="list-style-type: none"> <li>OTC products and exchange traded market products</li> </ul>
<b>Record keeping scope</b>	<ul style="list-style-type: none"> <li>Swap trade records to be retained till the life of the swap, plus five year</li> <li>Non transaction records, including oral &amp; written communications to be retained for five years</li> </ul>	<ul style="list-style-type: none"> <li>All trade transactions records including electronic communications, voice recordings, minutes of meetings to be retained for minimum of five years (and in some cases seven years)</li> </ul>
<b>Storage Medium</b>	<ul style="list-style-type: none"> <li>Write-Once-Read-Many (WORM) medium with data normalized to Coordinated-Universal-Time (UTC) and possessing the ability to search through data</li> </ul>	<ul style="list-style-type: none"> <li>Durable and searchable medium which allows to read &amp; copy but cannot tamper the original record</li> </ul>
<b>Record Retrieval</b>	<ul style="list-style-type: none"> <li>Simulate and reconstruct complete life cycle within 72 hours of request</li> </ul>	<ul style="list-style-type: none"> <li>No explicit ask on time for retrieval, but records should be 'readily accessible' based on the type of transaction involved</li> </ul>
<b>Timeline</b>	<ul style="list-style-type: none"> <li>April 2013</li> </ul>	<ul style="list-style-type: none"> <li>3rd January 2018</li> </ul>

## What data to retain?

Trade reconstruction is becoming inherently complex, because, traders have more ways to communicate via calls, text, mail, social media etc. All of this data has to be retained along with order and execution data.



Pre-trade data	
<ul style="list-style-type: none"> <li>Oral communications (voice calls – desk, turret &amp; mobile phones)</li> <li>Instant Messages</li> <li>Social Media</li> <li>Other business documents</li> </ul>	<ul style="list-style-type: none"> <li>Email</li> <li>SMS</li> <li>Minutes from face to face meetings</li> </ul>
Trade and post-trade execution data	
Structured Data	
<ul style="list-style-type: none"> <li>All of the information entered in the trade order system that are necessary for the trade execution</li> <li>SD/MSP should include the Primary-Economic-Term (PET) data entities as reported to the Swap-Data-Repository (SDR)</li> </ul>	<ul style="list-style-type: none"> <li>All information specific to post-trade: including Termination, Confirmation, Novation, Assignment, Amendment, Netting, Reconciliation, Compression, Valuation, Margining &amp; Collateralization</li> <li>All transaction data to be identified with data entities - such as Legal-Entity-Identifier (LEI), Unique-Swap-Identifier (USI), &amp; international time standard of Coordinated-Universal-Time (UTC)</li> </ul>
Unstructured Data	
<ul style="list-style-type: none"> <li>Relationship documentation</li> <li>SD/MSP documentation related to registration</li> <li>Biographies &amp; resumes of the executives</li> <li>Audit and compliance data</li> </ul>	<ul style="list-style-type: none"> <li>Sales &amp; marketing material</li> <li>Governance documents / organizational charts of the SD/MSP</li> <li>Job descriptions</li> <li>Financial records &amp; complaints</li> </ul>

## Key Challenges for FIs in meeting the requirements

Below are the key challenges that FIs face vis-à-vis the trade reconstruction requirements.



Area	Challenge Faced
<b>Searchability</b>	<p>In order to identify specific structured/unstructured records relevant for trade reconstruction, there is need for tagging the records with identifiers such as Legal-Entity-Identifiers (LEI) &amp; Unique-Swap-Identifiers (USI). However:</p> <ul style="list-style-type: none"> <li>• LEIs are maintained by Global-Markets-Entity-Utility (GMEI). Matching firm data to the LEI data can run into issues such as inaccurate legal-hierarchy-information &amp; duplicate data across systems</li> <li>• Firms need to possess the ability to regularly update &amp; amend LEIs as GMEI's database is non-static</li> <li>• Swap and counterparties in a transaction can be identified by assigning them with a Unique-Swap-Identifiers (USI). However, it becomes difficult if the USI don't exist at the time of pre-trade communications</li> </ul>
<b>Timestamp in UTC</b>	<p>All of the transaction records have to be tagged along with the timestamp in international time standard UTC. This helps in reconstructing the timeline of the trades very easily. However:</p> <ul style="list-style-type: none"> <li>• Extensive changes &amp; enhancements are required in the source systems to handle these UTC requirements</li> </ul>
<b>Storage</b>	<p>Firms need to ensure all system including unstructured data are writing into WORM media. For this:</p> <ul style="list-style-type: none"> <li>• Firms will need to be able to identify the point at which the trade lifecycle record becomes relevant for trade reconstruction &amp; when it has to be written to the WORM media. Making this decision can be challenging for firms</li> </ul>
<b>Unstructured data</b>	<p>Pre-trade documentation and communications during the life cycle of the trade are unstructured data. The associated challenges are:</p> <ul style="list-style-type: none"> <li>• Communication can span over various systems and mediums like oral communications, emails, social media etc.</li> <li>• Related to accurately recording the data and providing faster searchability on them</li> </ul>
<b>Timeline for production of data</b>	<p>Firms have 72 hours timeline to produce the relevant records for trade reconstruction to the regulators. The challenge for firms are:</p> <ul style="list-style-type: none"> <li>• Firms usually rely on data from multiple systems and third party vendors for trade reconstruction</li> <li>• Effort for parsing through structured and unstructured data for relevant data can run into days and weeks</li> </ul>

A photograph of a modern glass skyscraper. The building's facade is composed of large glass panels reflecting the sky and surrounding environment. A prominent feature is a horizontal band of tan-colored panels across the middle of the frame. On this band, the word "BANK" is displayed in large, blue, three-dimensional serif letters. The letters are mounted on the tan panels and have a slight shadow, giving them a 3D appearance. The background shows the upper floors of the building, with glass windows reflecting the sky and other parts of the structure. The overall scene is brightly lit, suggesting a clear day.

**BANK**

## Solution recommendation for FIs



Concerned FIs should work towards automating the trade reconstruction aspects using a **four step process**:

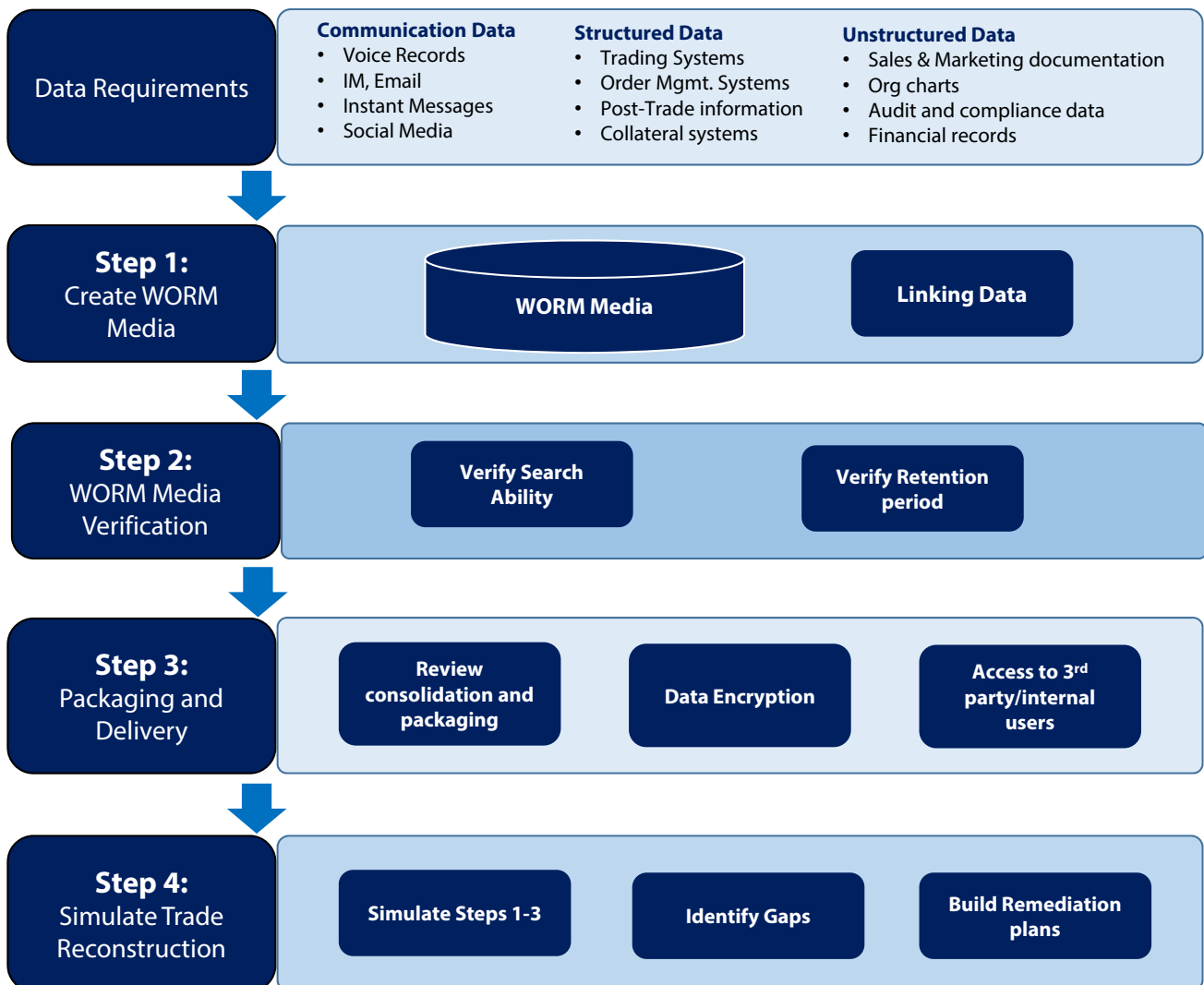


Exhibit 1: Trade Reconstruction Approach

1. **Step 1:** In this step, firms should identify the data & systems that are needed for reconstructing a trade and store them to the WORM media. Concerned firms should review and ensure that all systems are able to write the unstructured data (including communication data) and the structured data (pre-trade, trade & post-trade records) related to the trade reconstruction into the WORM media. Linking of disparate data within the media is the critical activity of trade reconstruction. There are various pattern recognition & predictive modeling based algorithms available for linking of the data. These linking algorithms need to be updated as per the circumstances specific to the SD/MSP.
2. **Step 2:** In this step, firms should focus on the searchability of data within the WORM media based on the unique identifiers. The result of each search would be used for responding to the trade reconstruction request. Firms need to ensure that enterprise-wide solutions are in place to uniquely identify and tag LEI, USI and UTC. Some of the unstructured data like oral communications cannot be searched, hence such data should be converted to text transcription. The result of the search should be in a format consumable by the authorities.
3. **Step 3:** This step is focused on formatting, packaging and delivery of properly sequenced trade reconstruction. In this step, firms should carefully consider aspects related to the mechanism for review/consolidation/packaging of reconstructed trade, how the data would be provided securely to the requesting regulatory authority, and the technology for enabling third-party the access to the data once they have been collated.
4. **Step 4:** In this step, firms should focus on executing trade reconstruction simulation that involves the earlier three steps that have been mentioned. This step needs to be repeated multiple times so as to identify & address the gaps in the trade reconstruction process. Also, firms' compliance officers should conduct this simulation exercise regularly so as to create the internal awareness amongst staff and to demonstrate to the regulators the firm's commitment in this regard.

## Key considerations



Considering the various disparate data sources and data volumes, implementation of trade reconstruction is a complex project. Therefore firms should take note of the below key considerations, and apply as appropriate:

- Focus on early appreciation of the challenges in data sources to thoroughly understand the pre-trade, trade and post trade data
- Create data management layer to analyze, index and correlate data from the underlying structured and un-structured data sources. This would help reduce the effort requirement for analyzing data from multiple systems
- Trading and communication data comes from multiple disparate systems. Focus on centralizing all of this data for successful trade reconstruction
- Focus on automation. Automated trade reconstruction normalizes & correlates data from structured & unstructured data sources, bringing various data elements required for the trade reconstruction together; and thereby enhancing the search capability (would consider the context of trade and offer logical conclusions)
- Have SLA with data vendors to ensure data availability within 72-hour response time
- Ensure tagging of LEI, USI & UTC - for enhanced searchability and reproduction of reconstructed trade
- Enable consistent firm-wide policy on how all of the required data & trade information are recorded & saved in appropriate place - so compliance team could find it when needed
- Maintain proper documentation of policies, procedures and the stakeholders roles and responsibilities in the trade reconstruction process
- Regular orientation and training to senior management, supervisors and other concerned staff on the trade construction regulatory requirements and the associated compliance solution that the firm has implemented
- Regular interaction with regulators vis-à-vis the trade reconstruction mandates. This would help in identifying the firm's compliance gaps and improvement areas





## Vendor solutions available for trade reconstruction



Leading compliance solution vendors have created automated solutions to simplify the time-consuming and costly tasks related to trade reconstruction. Through normalization, analysis, indexing

& correlation of data across all of the structured & unstructured data sources, these solutions are able to reduce required time for trade reconstruction from days to minutes. Some of the solutions even use

machine learning capabilities to understand the content and correlate trade executions to the trade communications. Below are few of the leading trade reconstructions solutions available in the market and their key features.

Nice Actimize trade reconstruction module	Bloomberg Vault	Fonetic & Actiance Trade reconstruction
<ul style="list-style-type: none"> <li>• Sophisticated machine learning analytics &amp; data correlation technology</li> <li>• Aggregates, cleans, indexes and enriches all structured and unstructured data into single solution</li> <li>• Seamless search of forms of data in single portal</li> <li>• Ability to create timeline view of trade reconstruction</li> <li>• Policy driven workflows with automated actions</li> </ul>	<ul style="list-style-type: none"> <li>• End-to-end solution for the enterprise archiving, surveillance search &amp; data correlation analytics</li> <li>• Integration with Instant Bloomberg communication &amp; proprietary Bloomberg Message tools</li> <li>• Integrated voice-recording archiving solutions - through ingestion from the leading voice-recording related service providers</li> <li>• Leverages the Bloomberg Directory for facilitating identification of the participants that are involved in the pre- or post-trade communications</li> <li>• Full-text search provided across all of the communication &amp; attachment text</li> </ul>	<ul style="list-style-type: none"> <li>• Capable of archiving over 80 different types of digital communications ranging from email to social media</li> <li>• Real-time capture of multiple voice sources</li> <li>• Communications unified to simplify search and review conversations</li> <li>• Scalable store with fast ingestion, search and export to meet storage and supervisory requirements; can retain transactions for 5-7 years</li> <li>• Open and extensible platform with full APIs for trade reconstruction and behavioral analysis</li> </ul>

## Conclusion

The regulatory requirements for trade reconstruction are complex and technologically demanding. As trade related regulations continue to evolve and data volumes keep increasing, firms would face more and more challenges in managing the constantly-rising costs related to the retrieval, analysis and production of data. Firms therefore need to implement robust suite of strategic solutions that would help them to effectively comply with the trade reconstruction requirements. Firms should also focus on improving their recordkeeping processes, and on secure real-time capture of all of the written and oral communications related to a trade transaction.

After thoroughly taking into account their existing systems and capabilities, firms would need to consider whether to build the required solution in-house, or buy these from leading vendor solutions. In many instances, a hybrid approach of build and buy would be required.



## About the Author



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Sreekanth has over 12 years of experience in the IT services working for large banks. He has good understanding and experience in implementing programs in the risk and compliance domain - including trade surveillance, broker compliance and anti-money laundering using Actimize and Oracle FCCM. He is currently based out of Hyderabad, India and is managing trade surveillance implementation project. He can be contacted at [Sreekanth\\_Podili@infosys.com](mailto:Sreekanth_Podili@infosys.com)

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