



Government Securities Clearing Corporation

New Service Bulletin

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Real-time Trade Matching (RTTM) Service Enhancements

Introduction

GSCC announced its plans for a phased implementation of interactive messaging in a New Service Bulletin issued December 6, 1999. The first phase of this new service, Interactive Messaging to Support Real-time Trade Matching (RTTM), has just concluded its first round of participant testing, with members successfully submitting trades in real-time for matching and receiving interactive output from GSCC in standardized SWIFT message formats. A September implementation is planned.

Concurrent with this development, GSCC has been redesigning its matching and comparison procedures to better meet the needs of its members during their transition from batch to interactive environments. GSCC's central goal in this redesign is to provide straight-through processing (STP) by allowing for the easy identification and resolution of trades intra-day to achieve 100% comparison. Working in tandem, interactive messaging and enhanced RTTM processing will help to eliminate risk by ensuring more transactions are netted and guaranteed through GSCC, and by allowing for a real-time assessment of the risk associated with members' positions and obligations. Another central objective of the redesign is to effectively support trades executed via intermediaries, including both traditional voice brokers and the steadily rising number of electronic trading systems (ETS). This is vital as a growing number of voice brokers are building ETS to complement their existing businesses, and it is likely that these two brokering methods will continue to operate side-by-side in the foreseeable future.

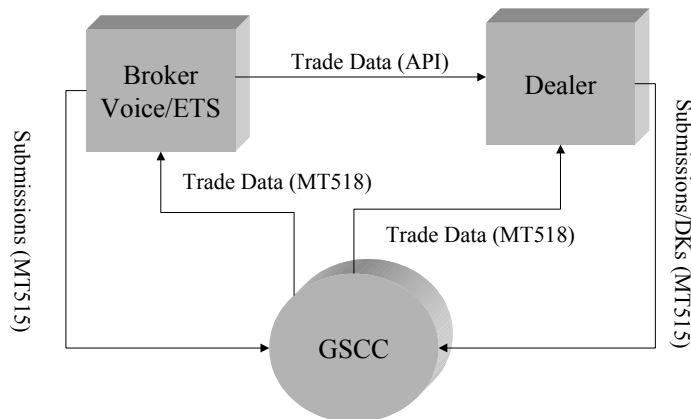
GSCC has defined a number of service features we believe are critical in achieving these objectives, the most important of which include: 1) the introduction of **demand and locked-in comparison processing** to permit 100% comparison of trades executed via intermediaries, even if dealer members are not yet able to submit and receive data interactively; 2) the ability to submit **full-size trades** to GSCC for comparison, display, reconciliation and reporting; 3) the ability for dealers to **always submit trades for matching and reconciliation**, regardless of how the trades are compared; 4) the provision of a **DK capability** allowing members to DK trades they do not know to facilitate error resolution and potentially preclude a trade from entering GSCC's net; 5) **enhanced comparison** processing to allow more trades to compare intra-day; and 6) **improved on-line capabilities** to facilitate trade processing and broker checkout.

To more easily illustrate the RTTM system objectives, GSCC developed a model, or "ideal" scenario, that demonstrates what the optimal flow of a transaction through RTTM would be. This ideal scenario assumes that the trade is executed through an inter-dealer broker that has an automated feed from its trading system to the dealers' processing systems (i.e., the dealer

receives full trade information directly from the broker). It further assumes that the trade will be processed as a demand trade (one of the three different trade submission/comparison methodologies that will be available to members, described later in this document). The optimal flow is as follows:

- The trade would be executed via an inter-dealer broker (voice or ETS).
- The broker's API would feed the trade data, in its originally executed size, to: 1) its back office for internal processing; 2) the dealers' processing systems; and 3) to GSCC (as an MT515, including all trade details).
- Upon receipt of the broker's trade input, GSCC would immediately send an advisory to the dealer counterparties for the full size of the trade (as an MT518, including all trade details).
- The trade would be automatically recorded for comparison using the demand feature. This will allow for the administrative comparison, based on the demand submitter's input, of any unresolved uncomparing trades at end of day (with the exception of demand trades that have been DKed by the dealer counterparty).
- The trade would be available for immediate review on GSCC's terminal as originally submitted (i.e., in its full size) to facilitate on-line broker checkout.
- Dealers would have the ability to DK any trade they don't know (to preclude the trade from comparing).
- Dealers would have the option of submitting matching transactions to GSCC to effect comparison, or of not submitting transactions, according to their preference.
- All trades that have not been DKed or compared intraday via matching would be administratively compared and would enter GSCC's netting system for guaranteed settlement at end of day.

The illustration below shows a high-level processing flow of our model of trade submission:



The remainder of this service description outlines the service features that will be implemented to provide for a more robust and efficient RTTM. Information has been organized into the following sections:

- I. Trade Submission/Comparison Types and Associated Processing
- II. Eligibility/Authorization Requirements for Demand and Locked-In Processing
- III. Submission of Full-Sized Trades
- IV. Enhanced Comparison Processing
- V. Improved On-Screen Capabilities
- VI. Next Steps
- VII. Contacts

I. Trade Submission/Comparison Types and Associated Processing

In the current batch environment, most trades are compared within the GSCC system as a result of bilateral matching.¹ To facilitate real-time comparison while still providing participants with the flexibility to transition from batch to interactive submission according to a time-frame most suitable to their own needs and resources, GSCC will provide three modes of trade submission/comparison. These are: 1) Bilateral; 2) Demand; and 3) Locked-in. Each of these methods is delineated more fully below.

Bilateral Submission/Comparison

What is it?

This method requires that the two trade counterparties submit trades to GSCC in which certain mandatory details either match or fall within predefined parameters to effect a match. A new feature of this traditional processing method is the ability for members to DK any trades they do not know.

Who should use it?

This will remain the primary submission/ comparison mode for dealer-to-dealer trades, and will be available in both real-time and batch. It should be noted, however, that batch processing does not allow time for intra-day reconciliation to support 100% comparison.

Bilateral submission/comparison would also be effective for trades executed via intermediaries, provided the dealer member is an interactive participant (or one that is submitting multiple batches throughout the day) that has the ability to review and respond to trades in real-time. This method is not recommended for trades executed through intermediaries if the dealer is submitting in a single batch at end of day because bilateral matching creates the potential for exposure arising from an unmatched trade.

What is the associated processing?

Members will submit trade details to GSCC interactively or in batch. It should be noted that how a member submits is not predicated on how its counterparty submits. That is, members may elect to submit interactively regardless of whether their trade counterparties submit interactively or in batch.

¹ The one exception to this process is the locked-in submission of members' auction purchases by the Federal Reserve Bank.

Upon trade receipt, GSCC will generate an acknowledgement for the submitter and an advisory (request for comparison) for the submitter's counterparty. The counterparty will also submit trade details to GSCC to effect a match. Matching will run interactively throughout the day, and once a trade is matched, GSCC will generate a comparison message for both parties. Interactive members will receive output immediately, while batch members will receive their output at end of day. Participants may also monitor their trades intra-day using on-screen functions available in real-time.

Each participant will have the right to DK any trades it does not know. (This is a new feature of bilateral submission/comparison.) If a participant determines that a request for comparison is not valid or is incorrect, it can send a DK to GSCC, which will be forwarded to the original trade submitter. This DK will prevent the trade from comparing on the GSCC system. DK's may be submitted using interactive messages or via an on-screen function.

Demand Submission/Comparison

What is it?

This method has been designed to provide members with the ultimate flexibility and control over the comparison process for trades executed via intermediaries. It is best suited to interactive members that use a hybrid of voice and ETS for their brokered trade executions.

Demand processing allows for the automatic recording of trades based on input submitted to GSCC by approved intermediaries (e.g., brokers, ETS, exchanges, etc.). Its DK feature permits the trade recipient to preclude any trade it does not know from being compared and entering GSCC's netting and settlement processes. Members will have the option of either submitting corresponding trades for matching through GSCC, or may not submit trades at all, depending on their preference. Demand processing also provides for the automatic administrative comparison of any trades that remain unresolved and uncompleted (and that have not been DKed) at end of day. This allows members to still achieve 100% comparison, even if they drop a trade in error.

Who may use it?

This option is primarily for trades executed via intermediaries. In order to participate in demand processing, intermediaries must be interactive users. Although dealer members are also encouraged to be interactive users or multi-batch submitters to maximize the benefits of the service, they may alternatively elect to submit in batch at end of day, or to not submit at all. Demand processing is flexibly designed so that it may be used to accommodate special dealer trading scenarios that may evolve in the marketplace (such as trades executed with the buy side in a dealer's proprietary ETS system, etc.).

In order for a trade intermediary to submit demand trades against another GSCC member, the member must provide its written authorization to accept demand trades from that intermediary. The intermediary must also be approved and authorized by GSCC to be a demand submitter.

What is the associated processing?

Eligible intermediaries will submit trade details to GSCC interactively. Upon trade receipt, GSCC will generate an acknowledgement for the submitter and an advisory (request for comparison) for the submitter's counterparty. The counterparty has the option of submitting corresponding trade details to effect a match, or may alternatively do nothing and let trades match via an automated administrative process at end of day. If any trades

are matched throughout the day (as a result of the counterparty submitting corresponding trade data), GSCC will generate comparison messages for both parties.

Members can monitor trade activity within their accounts throughout the day either by taking in interactive messages or by reviewing activity on-screen or both. If the member does not know a trade, it may submit a DK to GSCC (again, via interactive message or using an on-line function). This DK will preclude the trade from comparing and entering GSCC's netting and settlement processes. The DK notification will also be sent to the demand submitter to facilitate follow up.

At end of day, any trade that has not been DKed but that still remains in an uncompleted status will be automatically administratively compared by GSCC. As noted previously, this feature enables members to achieve 100% comparison in the event that a trade is dropped. It further allows members that do not wish to submit trades to GSCC to have their trades automatically compared at end of day.

Locked-in Trade Submission/Comparison

What is it?

This alternative was designed for use when trading with a pure ETS (as opposed to a hybrid ETS/voice broker). It presumes the member would elect to not submit corresponding trade details to effect a match, but would instead allow the submitter's input to automatically record trades that would be administratively compared at end of day. (The member would still have the option of submitting trades for matching if it elected to do so.) Members would have the ability to DK trades they do not know, which would be handled by the system as requests for cancellation to the locked-in submitter. In order to preclude the trade from netting and settling, however, the locked-in submitter would be responsible for responding to the request (DK) by submitting a trade cancellation.

As with demand processing, intermediaries must be interactive users to submit locked-in trades. Members may either be interactive, multi-batch or batch users.

Who may use it?

Only eligible intermediaries may be locked-in submitters (again, brokers, ETS, exchanges, etc.). In order for a trade intermediary to submit locked-in trades against another GSCC member, the member must provide its written authorization to accept locked-in trades from that intermediary. The intermediary must also be approved and authorized by GSCC to be a locked-in submitter.

What is the associated processing?

Locked-in processing closely resembles demand processing. The only exception, as noted above, is that the DK will be processed within the system as a request for cancellation to the locked-in submitter. Trades for which a dealer has submitted DKs must be acted upon (cancelled) by the locked-in submitter in order to preclude the associated transaction from comparing and entering GSCC's netting and settlement processes.

Trade Reconciliation for All Submission/Comparison Types

It is important to point out that, for all submission/comparison types and for all trades, GSCC generates advisories for the trade counterparties upon receipt of the trade data from the submitters. Members therefore have a record of every trade submitted against them, and may reconcile these advisories with their own processing records (i.e., compared trades and DKs) to account for 100% of their activity.

II. Eligibility/Authorization Requirements for Demand and Locked-In Processing

In order to become eligible for demand or locked-in submission, the intermediary (applicant) must demonstrate that it has adequate operational capabilities to participate in the service, and must satisfy GSCC's stringent testing requirements. The submitter would also be required to follow any operational procedures associated with being a demand or locked-in submitter as defined in GSCC's Rules and Procedures.

In addition, each intermediary must execute an authorization form for each of its dealer counterparties specifying which type of submission/comparison the dealer has agreed to accept, i.e., demand or locked-in. Once the intermediary and the dealer enter into an agreement specifying the submission/comparison type agreed upon, all trades between the intermediary and that dealer will be processed using that specified method until another agreement is executed. GSCC will not accept demand or locked-in trade data from an intermediary on behalf of a dealer counterparty unless the dealer counterparty has executed a written agreement authorizing the intermediary.

III. Enhanced Comparison Processing

Almost since its inception, GSCC has been using enhanced comparison processing to bolster comparison rates by employing money tolerances and alternative matching processes that allow trades that do not match on a few, select fields to compare based on certain presumptions of accuracy. These are described below. ***It should be noted that members receive detailed notification of all trades compared using enhanced comparison.***

Real-time Money Tolerance

GSCC employs a real-time money tolerance of \$1 per million on final money to account for calculation differences stemming from members' different rules for rounding, decimal precision and truncation. Providing this dollar tolerance on final money allows approximately 12% more trades to compare in real-time each day. (Note that the vast majority of these trades reflect penny differences.) This tolerance will continue to be employed.

Enhanced Comparison Processes Currently Run at End of Day

The enhanced comparison processes invoked by GSCC at end of day (after all exact matches have occurred) were developed based on an extensive study of historical data collected on uncomparing trades that identified the most common reasons why trades remained uncomparing at end of day. Five processes were then defined. These are, in their order of execution: ***1) counterparty flip; 2) correspondent firm; 3) trade date; 4) final money /commission differences; and 5) par summarization.*** By employing these processes, GSCC is able to compare a further 12% of trades submitted each day.

With the objective of achieving 100% comparison intra-day, GSCC is currently proposing that certain enhanced comparison processes be incorporated into RTTM and performed in real-time. Each of the five enhanced comparison service features is described briefly below. The features GSCC recommends performing in real-time are listed first, followed by the features GSCC believes should remain as end-of-day processes.

Enhanced Comparison Processes GSCC Recommends Performing in Real-time

- 1. Counterparty Flip**- Some entities have identified specific affiliate accounts that they designate as approved accounts for counterparty flip. That means that during this process, GSCC will compare a trade where a member has submitted the wrong counterparty ID on its input if: 1) all other mandatory trade details match; **and** 2) the counterparty ID on the nearly-matched trade is an approved, designated account of the counterparty ID submitted on the input. For example, if a dealer submits a repo against a broker's buy/sell account in error, if all other mandatory fields match, GSCC will flip the trade to the broker's repo account to effect comparison. GSCC recommends performing this process in real-time. It operates ideally as a batch process, but performing it in real-time could afford members the opportunity to note changes in counterparty as they occur. (Note: Approximately 3300 trades compare monthly as a result of counterparty flip.)
- 2. Correspondent Firm** - When a clearing member submits a trade on behalf of a correspondent, the clearing member is supposed to enter the exchange symbol of its correspondent in the correspondent firm field. Frequently trades remain unmatched at end of day because the clearing member's counterparty does not submit the correspondent firm on its input. When all other mandatory fields match, GSCC will compare these trades based upon the relationship between the clearing member and the correspondent firm as defined in GSCC's database. GSCC is currently modifying its existing correspondent firm matching methodology to more closely parallel street practices and to ensure we more effectively capture the approximately 31,000 trades that are compared using this feature each month. The combination of the new methodology and a real-time matching environment will allow for more timely comparison.
- 3. Trade Date** - Trade date mismatches may occur when processing dates are submitted in lieu of trade dates (for example, if trades are done in different time zones). During enhanced comparison, GSCC presumes the earlier of the two trade dates submitted to be correct. This process does not apply to repos as trade date is not matched on repos. GSCC recommends performing this process in real-time. (Note: Approximately 1800 trades compare monthly as a result of this process.)

Enhanced Comparison Processes GSCC Recommends Performing at End of Day

- 4. Final Money/Commission Differences** - The end-of-day final money tolerance was designed primarily to accommodate commission differences on brokered trades (for example, if the dealer leaves the broker's commission off the trade). This tolerance is set at the prevailing broker commission rate. GSCC recognizes that the number of these differences, already at more than 28,000 monthly, is likely to increase, especially when commissions are submitted on repos. (For repos, the tolerance is 1 basis point per day for the trade.) Although a money tolerance for commissions could be done in real-time, GSCC recommends that this match continue to be performed at end of day to give dealers the opportunity to identify and correct differences intra-day.

5. **Par Summarization** - This process is geared towards matching trades of \$50 million or less. It allows for the comparison of one or two buy sides with one or two sell sides when the total par amount and final money on the aggregated buy and sell sides are equal. (In practice, the usual combination is two trades on one side comparing to a single trade on the other side.) GSCC recommends that par summarization continue to be run at end of day. This process will operate independently from the process for full-sized trades, detailed in the next section of this document. (Note: Approximately 4400 trades compare each month through par summarization.)

IV. Submission of Full-Sized Trades

As more trades are executed via ETS and other intermediaries, and the need for facilitating broker checkout grows, GSCC recognizes the need to support the submission of full-sized trades from participants. While all members will be encouraged to submit full-sized trades to ease on-screen reconciliation, GSCC recognizes that not everyone will be able to begin processing full-sized trades immediately upon service implementation. To facilitate members' transition to full-sized trade processing, GSCC will provide two submission size alternatives: 1) members may submit trades to GSCC in full-size, as executed; or 2) members may submit an equivalent number of \$50 million trades and a single tail for the remaining amount to GSCC, as they do today for large trades. (For example, a trade of \$170 million would be submitted as 3 trades of \$50 million each and a single trade of \$20 million, representing the whole tail.)

If a member submits a full-sized trade, it will be consistently processed, displayed and reported as executed. The trade will be displayed in full-size on GSCC's terminal and web-based screens to facilitate visual reconciliation. Further, the trades will be carried in GSCC's systems and reported on all output as submitted.

Real-time Matching of Full-Sized Trades

Because this is an optional feature, special matching rules must be incorporated in real-time to handle trades that do not match because one side submits a full-sized trade while the other side submits the trade in \$50 million pieces and a whole tail. GSCC will employ a two step process:

- First, all trades that match exactly will be compared (i.e., those trades having identical par amounts and settlement dollars that fall within the real-time tolerance); and
- Second, the system will compare a full-sized trade to a combination of \$50 million pieces and a single tail that match the par and settlement dollars (within tolerance) exactly.

This method should effectively capture all full-sized trades that have been submitted to GSCC according to the defined procedure.

Enhanced Comparison at End of Day of Full-Sized Trades

As part of enhanced comparison performed at end of day, GSCC will attempt to further match trades that did not match exactly in real-time. During this process, GSCC will attempt to match combinations of trades against the full-size trade, as if it had been submitted in \$50 million pieces, decrementing the outstanding amount of the full-sized trade until it has been matched to the same extent that it would have been matched in the current processing environment.

Each time a \$50 million piece is matched against the full-sized trade (or remaining portion of the full-sized trade), comparison output would be generated indicating both the matched amount and the remaining amount for the full-sized trade. For example, after the first piece of \$50 million

matched against the full-sized trade of \$170 million, the full-sized trade submitter would receive a comparison message for the trade indicating a match of \$50 million with a remaining unmatched amount of \$120 million. The remaining unmatched amount would continue to be decremented as each \$50 million piece matched against the full-sized trade. A member could therefore have a partially matched trade at end of day. This should be minimal for interactive members that have the necessary tools to resolve trade exceptions intra-day.

In any event, GSCC will ensure that matching results for full-sized trades are at least equal to current matching results. For example, in the current environment, if a broker submitted three trades for \$50 million and one trade for \$20 million, and the dealer counterparty submitted two trades for \$50 million and one for \$20 million, \$120 million would compare. Moving forward, if a broker submitted a full-size trade of \$170 million and its dealer counterparty submitted two trades for \$50 million and one trade for \$20 million, the same match of \$120 million would occur. (Note: This process will be explained to members in complete detail in the RTTM Specifications, which will be issued closer to service implementation.)

V. Improved On-Screen Capabilities

In a real-time processing environment, GSCC recognizes how important it will be to provide improved on-screen capabilities to maximize the ease of submission, review, DK and modification of trades to meet our goal of 100% comparison intra-day. GSCC is currently making enhancements to its terminal facility to achieve some of these goals within the existing environment. Concurrently, GSCC is developing a fully-secure, web-based interface that will further extend our current capabilities, and provide "intelligent" queries, potential match prompts, and other advanced reconciliation tools. These capabilities will be further described in a separate Important Notice.

VI. Next Steps

As noted in the introduction to this service description, Interactive Messaging to Support Real-time Trade Matching (RTTM) is currently being tested by members and is scheduled for implementation in September. The enhancements to RTTM detailed in this notice are scheduled for testing in the fourth quarter of this year. Revised specifications will be provided to all members prior to testing.

GSCC is working with the Joint GSCC/MBS Real-time Trade Matching Committee to review RTTM requirements to ensure their compatibility with the mortgage-backed securities market, to identify and review any outstanding operational issues, and to determine appropriate processing timeframes.

VII. Business Contacts

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