

FIX Recommended Practices

Self-Match Prevention



FINANCIAL INFORMATION EXCHANGE (FIX)

RECOMMENDED PRACTICES

Asia Pacific Technical Subcommittee

Self-Match Prevention

March 2024

Version 1.0 (Final)

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DOCUMENT HISTORY

Revision	Date	Author	Revision Comments
0.1	Jan 2, 2024	Jim Kaye, FIX Executive Director	Initial draft
0.2	Jan 16, 2024	Hanno Klein, FIX Technical Director	Added general description of SMP functionality.
1.0	Mar 4, 2024	Jim Kaye, FIX Executive Director	Publication post public review

1 Executive Summary

Self-match prevention (SMP) is a functionality that may be offered by a matching engine of an execution venue to avoid orders or quotes from the same submitter for specific products to match against each other. This can occur in the context of high-frequency trading where algorithms submit a large number of buy and sell orders or two-sided quotes within a very short time frame. There may be regulatory requirements to prevent a self-match and define the scope of the "submitter", e.g. an individual trader, a business unit or the entire firm. FIX does not define this scope and leaves it to the venue offering an SMP service.

The FIX Protocol supports an identifier for SMP with the field `SelfMatchPreventionID(2362)`. Providing an SMP ID on an order or quote is equivalent to requesting the prevention of a self-match. The absence of an SMP ID may still trigger SMP as defined by standing rules of the execution venue.

Upon detection of a potential self-match, there are different options in terms of the action to be taken beyond preventing the match itself, i.e., whether to:

- Cancel the aggressive (incoming) and / or passive (resting) order or quote,
- Reduce the quantity of the aggressive (incoming) and /or passive (resting) order or quote.

The FIX Protocol supports the submission of an SMP instruction on an order with the field `SelfMatchPreventionInstruction(2964)`. Alternatively, the execution venue may have standing rules for the action to be taken to prevent a self-match. The rules may be pre-defined by the venue or made part of the user configuration that automatically applies to all orders.

Cancelling a resting order due to SMP requires an unsolicited `ExecutionReport(35=8)` message to be sent to the submitter of the resting order with an appropriate reason related to SMP. This is supported by different values of `ExecRestatementReason(378)`.

2 Objectives

This document is intended to provide guidance for using the FIX Protocol to support SMP and subsequent flagging of executions and trades of orders and quotes using SMP on reporting messages.

3 Scope

This document covers the SMP functionality for orders, quotes, executions and trades supported by the FIX Protocol.

4 Target Audience

This document is aimed at technologists and project planners/managers engaged in the provision of infrastructure used to trade with counterparties or platforms that support SMP.

5 Business Requirements

This document covers scenarios whereby an execution counterparty or venue supports self-match prevention (SMP). The term "order" is used to represent orders (single and multileg) and quotes (single or mass quote) as SMP may be supported for both. The order submitter has to specify an SMP ID with `SelfMatchPreventionID(2362)`. The identifier may be issued by the order submitter or by the receiver, e.g. when uniqueness of SMP IDs across submitters is required.

Optionally, an SMP instruction may be provided with `SelfMatchPreventionInstruction(2964)` to define the action to be taken in case of a potential self-match. Alternatively, the execution venue may have standing rules for the action to be taken to prevent a self-match.

When the order receiver detects that the incoming order will hit one or more resting orders having the same SMP ID, the order receiver will, based on the SMP instruction of the incoming order or on standing rules, determine the action to take:

- If the SMP instruction of the incoming order or the standing rule is to cancel the aggressive order, the incoming order will be cancelled when it hits a tradable resting order with same SMP ID.
- If the SMP instruction of the incoming order or the standing rule is to cancel the passive order, the tradable resting order with the same SMP ID will be cancelled. The aggressive order may be executed or become a resting order on the book.
- If the SMP instruction of the incoming order or the standing rule is to cancel both the aggressive and the passive order, the incoming order as well as the tradeable resting order with the same SMP ID will be cancelled.
- If the SMP instruction of the incoming order or the standing rule is to reduce the quantity of the aggressive order, it will be reduced by the quantity that would have matched with the tradeable resting order having the same SMP ID. If the match quantity is equal or greater than the quantity of the aggressive order, then the incoming order will be cancelled.
- If the SMP instruction of the incoming order or the standing rule is to reduce the quantity of the passive order, it will be reduced by the quantity that would have matched with the incoming order having the same SMP ID. If the match quantity is equal or greater than the quantity of the passive order, then the tradeable resting order will be cancelled.
- If the SMP instruction of the incoming order or the standing rule is to reduce the quantity of both the aggressive and the passive order, both will be reduced by the quantity that would have matched. If the match quantity is equal or greater than the quantity of the aggressive/passive order, then the respective order will be cancelled.

The order receiver should relay order acknowledgements using the `ExecutionReport(35=8)` message and these should carry the same SMP ID and SMP instruction as from the order.

When a resting order is cancelled or reduced in quantity due to an SMP instruction, the order receiver should send an unsolicited `ExecutionReport(35=8)` message with `ExecType(150)=4` (Cancelled) or `D` (Restated) and `OrdStatus(39)=4` (Canceled) or `0` (New)/`1` (Partially Filled) (send previous order state) to the submitter. This message should also include `ExecRestatementReason(378)` to indicate that such cancellation or reduction in quantity is due to SMP, including the type of SMP instruction of the incoming order or standing rule causing the cancellation.

6 Implementation Details

The following elements of the FIX Protocol support these requirements:

The fields `SelfMatchPreventionInstruction(2964)` and `SelfMatchPreventionID(2362)` are available in the following messages and components:

- `NewOrderSingle(35=D)`
- `OrderCancelReplaceRequest(35=G)`
- `Quote(35=S)`
- `MassQuote(35=i)`
- `ExecutionReport(35=8)`
- `NewOrderMultileg(35=AB)`
- `MultilegOrderCancelReplace(35=AC)`
- `TradeReportOrderDetail` (Component)

The `SelfMatchPreventionInstruction(2964)` field is intended to indicate the SMP instruction when the incoming (aggressive) order has the same value in `SelfMatchPreventionID(2362)` as a resting (passive) order, and takes the following values:

- 1 = Cancel aggressive [*cancel incoming order*]
- 2 = Cancel passive [*cancel resting order with the same SelfMatchPreventionID(2362)*]
- 3 = Cancel aggressive and passive [*cancel both incoming and resting order with the same SelfMatchPreventionID(2362)*]

The following new enumerations have been added to the `ExecRestatementReason(378)` field in order to allow an `ExecutionReport(35=8)` message to indicate, where an order is cancelled due to the invocation of self-match prevention logic, the SMP instruction that caused the cancellation:

- 17 = Cancelled, self-match prevention [*cancelled order based on standing rules for self-match prevention (i.e. SelfMatchPreventionInstruction(2964) specified or used)*]
- 18 = Cancelled, self-match prevention aggressive order [*cancelled due to incoming order with the same SelfMatchPreventionID(2362) and SelfMatchPreventionInstruction(2964)= (Cancel aggressive)*]
- 19 = Cancelled, self-match prevention passive order [*cancelled due to incoming order with the same SelfMatchPreventionID(2362) and SelfMatchPreventionInstruction(2964)= (Cancel passive)*]
- 20 = Cancelled, self-match prevention aggressive and passive order [*cancelled due to incoming order with the same order with the same SelfMatchPreventionID(2362) and SelfMatchPreventionInstruction(2964)=3 (Cancel aggressive and passive)*]

The reduction of the quantity of the incoming and/or resting order by the potential match quantity is currently not supported by explicit instructions and requires standing rules. However, the field `ExecRestatementReason(378)` supports user-defined values of 100 and above. This allows indicating that the quantity of an order was reduced due to SMP and can be used in the `ExecutionReport(35=8)` message confirming the order entry or modification.

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