



**TO:** BOX Participants  
**FROM:** Participant Connectivity Coordinator  
**SUBJECT:** Max Improvement Price  
**DATE:** March 29, 2010

---

The Boston Options Exchange is pleased to announce the release of a new functionality associated with the Price Improvement Period (PIP) auctions. This functionality is called Max Improvement Price (MIP). The MIP functionality will allow the initiating Participant (InitO) of a PIP to specify a Max Improvement Price up to which the InitO is willing to “auto-match”.

**Note: Participants that currently use the BOX PIP and do not wish to use the Max Improvement Price functionality, do not have to make any changes.**

When a MIP value is defined, most aspects of the PIP, as they are known today, will remain unchanged, with a few exceptions regarding Improvement Orders and guaranteed quantity allocation.

### **Key Features**

- Available for both FIX and SAIL users.
- MIP can be entered directly or through a Directed Order (DO).
- Ability to specify a Max Improvement Price in addition to the auction start price.
- Max Improvement Price can be a limit or market (match all improvements) order.
- InitO will “Auto match” at all better price levels, including the Max Improvement Price.
- InitO will “Auto match” for the entire quantity at each improved price level, except the level where the MBF will be completely filled.
- InitO will have the lowest priority at each improved price level.
- In a PIP with a MIP defined, at the price level where the MBF will be completely filled, the allocation algorithm will be the same as for a regular PIP with the only exception being that the guaranteed quantity for the InitO will be based on the **remaining** MBF quantity and not the original quantity.
- No dissemination of “Auto Improvements” by InitO to the market.
- Improvement Orders entered by the InitO while the MIP is in progress will be rejected.

## Protocol Changes

### SAIL

The tables below describe changes to the SAIL protocol to support Max Improvement Price.

New Field Name	Value	SAIL Message	Description	Field Length
QuantityTerm	J	OA / OD	Defines Auction Type as MIP	1
AdditionalPrice	MIP value*	OA / OD	Specifies the Max Improvement Price	10
IML Handling	3	OA	Price validation within Linkage rules	1
Special Price Term	<blank>	OA	Specifies Guaranteed Auction	1
Additional Quantity	<blank>	OA	Not used / For future use	8

New Field Name	Value	Usage
QuantityTerm	J / <blank>	Indicates that the Auction Type is MIP / PIP
AdditionalPrice	MIP value*	Indicates the price up to which the InitO will match against Improvement Orders
	<blank>	Indicates that the InitO will match up to the best available price opposite the MBF at the end of the auction

\* MIP value must be > 0.

## SAIL messages

*New OA message structure (new fields are in bold):*

Field Name	Field Type	Req/Opt
Incoming Message Header		R
Group	Group ID	R
Instrument	Instrument ID	R
Verb	Verb	R
Quantity	Quantity	R
Price	Price	R
Buying Clearing Data	Clearing Data	R
Selling Clearing Data	Clearing Data	R
Buying Owner Data	Owner Data	O
Selling Owner Data	Owner Data	O
<b>IML Handling</b>	<b>IML Handling</b>	<b>O</b>
<b>Special Price Term</b>	<b>String (1)</b>	<b>R</b>
<b>AdditionalPrice</b>	<b>Price</b>	<b>O</b>
<b>QuantityTerm</b>	<b>String (1)</b>	<b>O</b>
<b>Additional Quantity</b>	<b>Quantity</b>	<b>O</b>
<b>Buying Post Trading Instruction **</b>	<b>String(50)</b>	<b>O</b>
<b>Selling Post Trading Instruction **</b>	<b>String(50)</b>	<b>O</b>

*New OD message structure (new fields are in bold):*

Field Name	Field Type	Req/Opt
Incoming Message Header		R
Group	Group ID	R
Instrument	Instrument ID	R
Referenced Order ID	Order ID	R
Auction Starting Price	Price	R
Clearing Data (dealer)	Clearing Data	R
Owner Data (dealer)	Owner Data	R
<b>Additional Price</b>	<b>Price</b>	<b>O</b>
<b>QuantityTerm</b>	<b>String (1)</b>	<b>O</b>
<b>PostTradingInstruction **</b>	<b>String(50)</b>	<b>O</b>

\*\* See additional SAIL changes section for details.

**Note 1:** When the **QuantityTerm** field is set to **<blank>**, no "MIP value" needs to be defined in the **AdditionalPrice** field of the OA / OD message. If a participant still specifies a "MIP value", the whole OA / OD message will be rejected.

**Note 2:** Participants using **SAIL protocol A1** will have to make sure to properly populate the field **IML Handling** with value **"3"** in the OA message. This is the only setting appropriate for the MIP functionality. Should a participant either omit to set the IML Handling value to **"3"** or set it to a different value; the whole OA message will be rejected.

**Note 3:** Participants will have to make sure to properly populate the field **Special Price Term** with value **<blank>** in the OA message. This is the only setting appropriate for the MIP functionality. Should a Participant set this field to a different value; the whole OA message will be rejected.

**FIX**

The tables below describe the changes to the FIX protocol to support Max Improvement Price.

Field Name	Tag #	Value	FIX Message	Description	Field Length
QtyType	854	J	PI / 8	Defines Auction Type as MIP	1
PricImprovement	639	MIP value	PI / 8	Specifies the Max Improvement Price	1 to 9
CombinedOrderType	7906	3	PI / 8	Price validation within OLA rules	1

New Field Name	Tag #	Value	Usage
QtyType	854	J / <Not Transmitted>	Indicates that the Auction Type is MIP / PIP
PricImprovement	639	MIP value	Indicates the price up to which the InitO will match against Improvement Orders
		<Not Transmitted>	Indicates that the InitO will match up to the best available price opposite the MBF at the end of the auction

**Note 4:** When the **QtyType** field is **<Not Transmitted>**, no "MIP value" needs to be defined in the **PricImprovement** field of the **PI** message. If a Participant still specifies a "MIP value", the whole PI message will be rejected.

**Note 5:** In message **PI**, Participants need to make sure to properly populate the field **CombinedOrderType <tag 7906>** with the value "3". This is the only setting appropriate for the MIP functionality. Should a Participant set this field to a different value; the whole PI message will be rejected. However, if Participants do not transmit this tag, the trading system will by default set its value to "3".

**Example**

MIP Starts with InitO Buy 100 @ 1.01 and a Max Improvement Price of 1.05:

Improvements at end of PIP duration	InitO 'Auto Matches'
Improvement Order#4 – 20 @ 1.06	
Improvement Order#3 - 10 @ 1.05	10 @ 1.05
Improvement Order#2 - 40 @ 1.04	40 @ 1.04
Improvement Order#1 - 50 @1.03	50 @ 1.03

**Note:** InitO does not "Auto Match" at price 1.06 because the price is above the Max Improvement Price of 1.05 specified by InitO at the start of the MIP.

### Additional SAIL changes

As a follow up to the Give Up release, fields "PostTradingInstruction" and "ClearingOperationMode" are being added to the **OA, OD and OI** messages in the SAIL protocol.

New Field Name	Value	Description	Field Length
ClearingOperationMode	C	When one CMTA firm is defined in the field ClearingDestination	1
	G	When one Give Up firm is defined in the field ClearingDestination	
	I	When one Give Up and one CMTA firm is defined in the new field PostTradingInstruction	
	<blank>	When using default clearing firm defined in configuration	
PostTradingInstruction	A string of characters (end of the message)	Contains the Firm ID of one Give Up and one CMTA firm with the following format: C + CMTA FIRM ID + G + GIVE-UP FIRM ID <b>Example: "C950G980"</b>	50

*Please refer to BOX Technical Notice 10-004 for additional details on Give Up.*

**BOX ISV environment will be available for Participants starting March 31, 2010.**

### Contacts

Please contact the Market Operations Center at (866) 768-8845 or by e-mail at [BOXMOC@bostonoptions.com](mailto:BOXMOC@bostonoptions.com) if you require additional information.

Thank you,  
BOX Participant Connectivity Coordinator