MPT Adjust Trade Enhancements

Business Requirements

Product Management Group

Confidential

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About This Document

This document specifies the business and functional requirements for Adjust Trade functionality in MPT.

Document Audience

The audience for this document includes:

- Product Management
- Development
- Software Quality Management
- Technology Member Services
- Market Operations
- Business Development

Revision History

The following table provides document revision history.

Version	Date	Change	Author
0.1	3/28/2014		M. DiBenedetto
1.0	4/2/2014	Replaced Add Trade message layout tables with embedded excel spreadsheets.	M. DiBenedetto
1.1	4/29/2014	Minor Updates	M. DiBenedetto
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1.2	5/19/2014	Add requirements for the Query Trades Response	R. Bhotika
1.2	5/20/2014	Added requirements to display new fields in MPT	M. DiBenedetto
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Introduction

This chapter provides an introduction to the MPT Adjust Trade BRD

1.1 Background

Today when a market participant reaches out to market operations requesting a trade modification that cannot be handled by the built in MPT deal rectification or deal item maintenance functions, the market operations representative must fulfill the request by utilizing the 'add trade' feature found in the MPT trades view.

Using the add trade function presents a number of potential risks for both MPT users and applications consuming the created trade data, the following are a few examples:

- When creating a trade from scratch, some of the matcher specific transactional information (maker/taker, etc.) is not entered on the new trade, this makes it difficult or impossible for the billing system to create the appropriate billing code for the new trade, additionally, the billing system has no way to reconcile the new trade to the trade it is adjusting.
- Depending on the scenario, the market operations representative may be required to add multiple trades or sets of trades to change clearing information or adjust the price on a single execution. This can be made more efficient by gathering only the required information from the user and creating the new trades behind the scene.

Adding new functionality to the MPT application should streamline the add trade process for users, as well as provide the billing system with the data required to bill the new trades properly.

1.2 Scope

The high level scope of this requirement is to provide adjust trade functionality to MPT users, which in most cases will replace the add trade feature currently used to make some types of trade modifications.

1.3 Planned Benefits

The primary benefit from the new trade adjustment functionality will be the billing system's ability to accurately assign a billing code to MOPS adjusted trades based on the original trade and side (buy/sell) specified by the MPT user when initiating the trade adjustment. The parent exchange trade item IDs will be passed along to the billing system via trade manager, enabling next gen billing to reference the original trade item when determining the new trade's billing code.

Additionally, with the new features in place, Market Operations representatives should only need to use the add trade function in very limited situations. The new streamlined interface should cut down on the amount of time it takes for an MPT user to adjust trades, and the improved process should appear more intuitive to users that are unfamiliar with the steps required to make changes using the add trade window.

1.4 Delivery Requirements

Requested release is R10.0, with the subsequent next gen billing release to follow shortly thereafter.

1.5 Key Definitions, Acronyms, and Abbreviations

Acronym	Details
MPT	Market Place Tool

1.6 Priority

The priority is high.

1.7 Related Documents

- Trade Manager DFS
- MPT Master BRD

Chapter 2 Overview

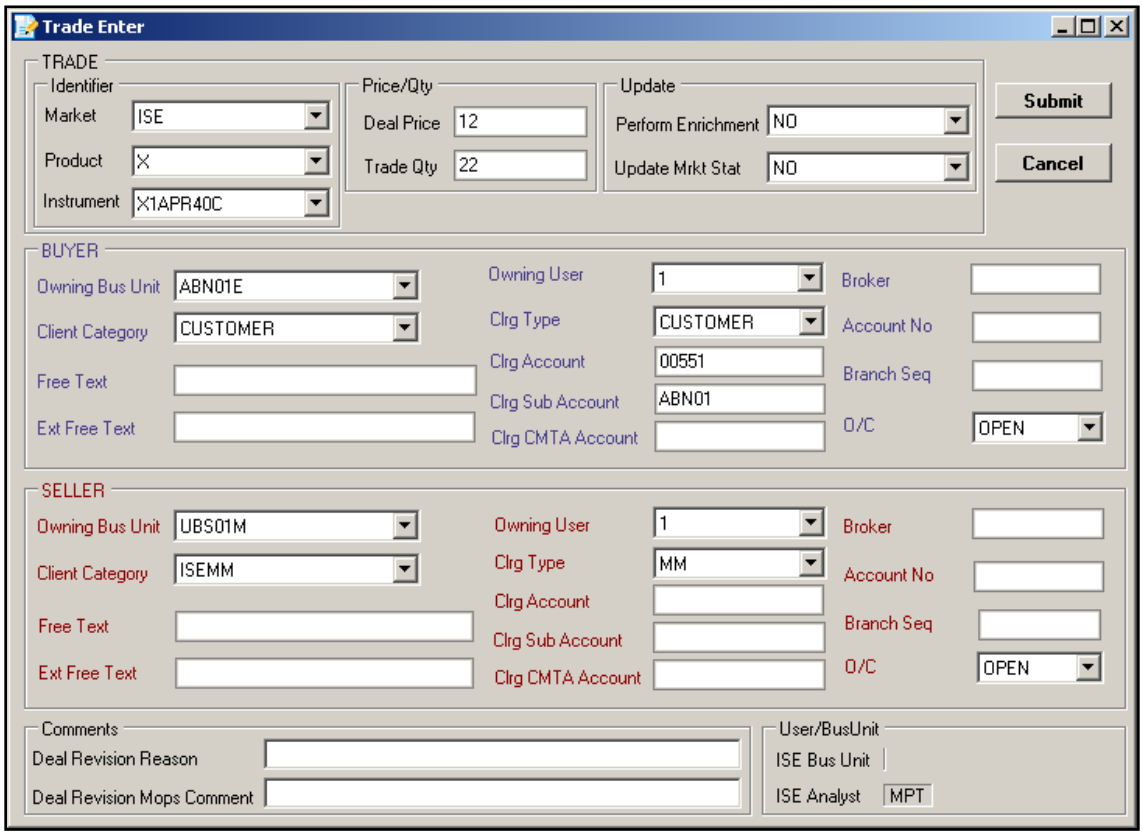
This chapter provides an overview of the current add trade functionality and the proposed adjust trade feature.

2.1 Current Behavior

Market Operations users use the add trade window for situations where using the built in deal rectification or deal maintenance features are insufficient for making required modifications to trades. Currently the following scenarios are handled this way:

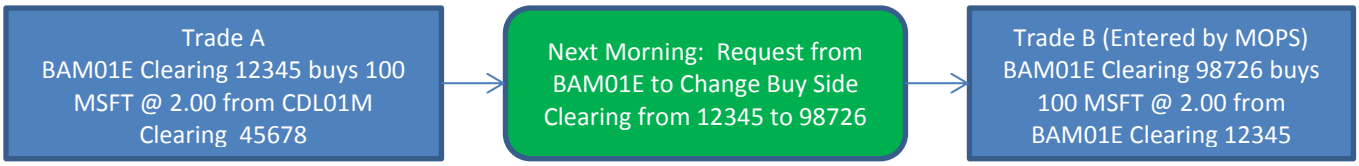
- Next day clearing/give up changes – making a clearing change using the deal maintenance function results in a broadcast being sent to all counterparties on the trade. If only a single counterparty is making a clearing change, the participant on the other side of the trade does not want to get the broadcast, so add trade is used.
- Same day price adjustments where not all counterparties agree to the change – the deal price cannot be changed, as it will change the price for all trades on the deal, which was not agreed upon by all parties.
- Market Maker agrees to improve customer's price after a trade has already taken place.

The add trade window allows an MPT user to create a new trade by selecting an existing trade to use as a template, and modifying any fields, and submitting the resulting trade as new. Below is the current layout of the Add Trade dialog:

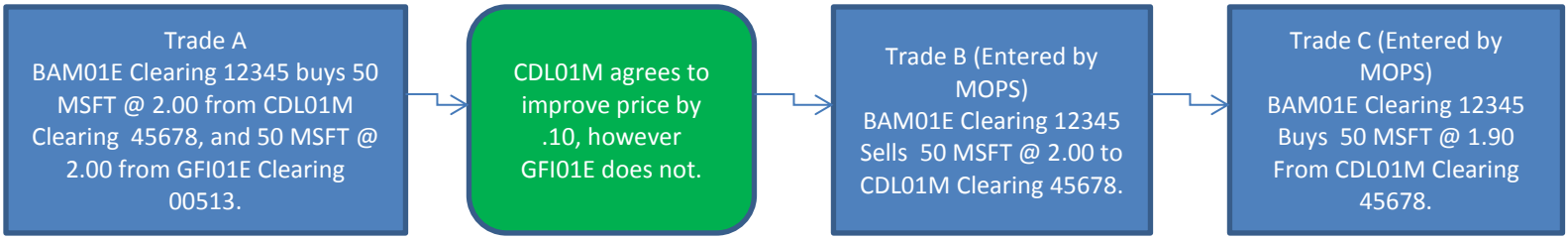


Market Operations handles the three scenarios listed above using the following methods:

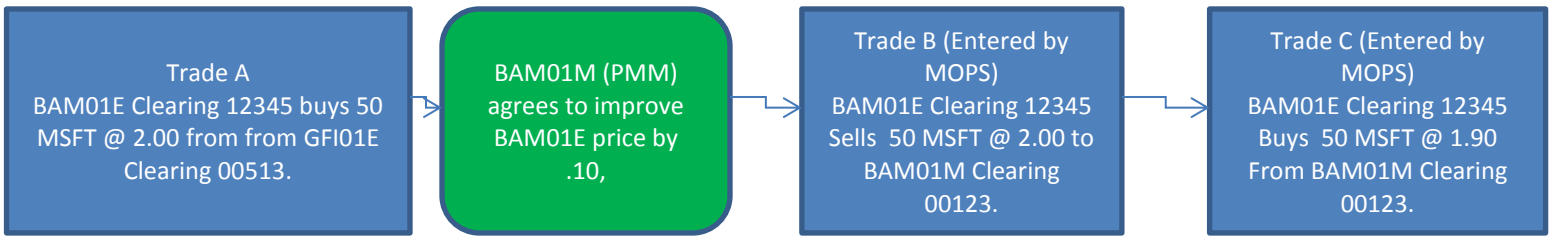
1. **Next Day Clearing/Give Up changes**: To perform a buy side clearing change, market operations would select the original trade as a template; populate the seller fields with the original buy side information, and the buyer fields with the new correct clearing information. This flattens the original position and creates the new position with the correct clearing information. This could be made more complicated when multiple clearing accounts are involved, or when changing clearing on a spread, since the individual leg trades need to be done separately.



2. **Same day price adjustments where not all counterparties agree to the change:** In this scenario, two trades are created. The first trade is created with the counterparties flipped to close out the original position at the original price, and the second adds the trade with the new price. This needs to be repeated for each counterparty that agrees to the price change.



3. **Market Maker agrees to improve customer's price after trade:** In order to accommodate the market maker and the customer in the event that a market maker wants improve price for a customer on a previously executed trade, market operations enters two new trades. One trade flattens the customer position (I,e, buyer sells if they originally bought), and the second trade improves the customer's price (selling back to customer at the lower price, or buying from customer at a higher price).



Whenever Market Operations enters a trade, several key fields (Order Category, Liquidity Indicator, Trade Condition, Preferencing Information, etc) are populated with generic values, which in turn create issues for the billing system when determining how to bill the new trade. Additionally, there is no way for the billing system to link the newly created trade(s) to the original trades. The ability to refer back to the original trade items would provide greater flexibility in how we bill in these scenarios.

Between the issues created in billing, and the risk of entering trades incorrectly, MPT needs to be further enhanced to handle the most common add trade scenarios in a more streamlined, easy to use manner.

2.2 Overview of New Functionality

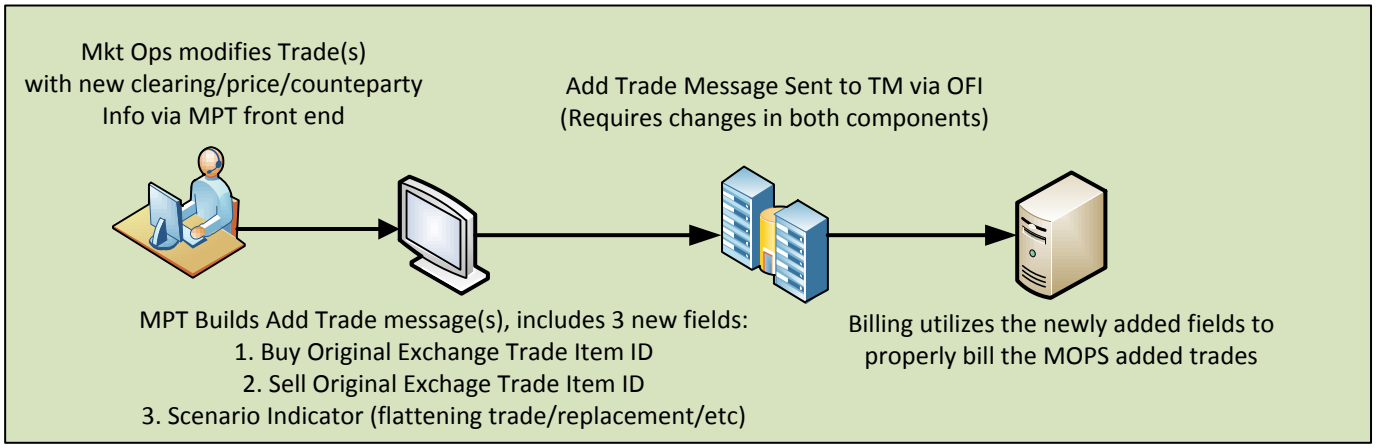
New functionality will be added to MPT to streamline the process of changing clearing information or adjusting the price (or both) of a trade or group of trades without using the add trade feature. The MPT user will only be required to specify the side of the trade(s) to be modified (if applicable) and enter the data elements relevant to the modification they wish to perform.

After entering the required information for the change to be made, MPT will source any additional required information from the original (parent) trade selected for modification, including the Exchange Trade Item ID(s), and use the MOPS Add Trade request to create the necessary trades.

Including the parent Exchange Trade Item ID on the new trades will allow the billing system to reference the original trade side when determining how to bill the new trades. This link between the original trades and new trades is not available today.

The Trade Manager MOPS Add Trade request will be modified to accept the additional data elements from MPT via OFI and pass them through to the billing system.

High Level Data Flow:



MPT Front End

MPT will provide users the ability to complete the scenarios listed in section 2.1 without requiring the use of the add trade window. A new interface will be available for each of the following scenarios:

- **Next Day Clearing/Give Up Change**: User will select the trade or trades that are subject of the clearing change, then select to change either buy or sell side clearing. The resulting interface will allow the user to specify the new clearing account or accounts. It will also allow the user to split the selected quantity into multiple clearing accounts if necessary. If the user requires clearing changes on both buy and sell sides of trades (i.e. for some spreads), two separate actions will need to be taken, one for the buy side, and one for the sell side.
- **Same Day Price Adjustments where not all counterparties agree to new price**: User selects the individual trade to be adjusted, then selects price adjustment, and enters the new deal price. The user can also update clearing information (CMTA, Sub Account, etc.) on either the buy or sell side of the new trade.
- **Market Maker Price Improvement**: User selects the trade to be price improved, and chooses price adjustment with new counterparty. The user then enters the new price, and new counterparty information for the contra side of the trade.

MPT Adds Trades Behind the Scene

After entering the required information for the selected action, the MPT user will submit the modification request. A new trade, or series of new trades will be created based on the original trade and scenario selected by the user. When creating the new trade(s), MPT will source the parent Exchange Trade Item IDs from the trade being modified. The new trade(s) will include the IDs from the originals, along with adjustment scenario indicators, which will allow the billing system to identify which trades are just flattening original positions (these will be treated differently by billing) and which trades are replacements.

Along with the parent Exchange Trade Item IDs, one of the following six scenario indicators will be added to the MOPS Add Trade message:

Scenario	Name	Description
1	Buy Side Clearing Change	This trade represents a buy side clearing change.
2	Sell Side Clearing Change	This trade represents a sell side clearing change.
3	Price Adjustment Flattening	Trade entered to flatten an original position, in most cases this trade will not be billed.
4	Price Adjustment Replacement	Trade entered to replace an original trade at a new price.
5	New CP Price Adjustment Flattening	Trade entered with a new counterparty, flattening an original position, in most cases this trade will not be billed.
6	New CP Price Adjustment Replacement	Trade entered with a new counterparty, replacing an original trade at a different price.

OFI/Gateway

Three new free text fields will be added to the OFI message layout to support MPT sending the buy and sell exchange trade item IDs from the reference trade along with the adjust trade scenario indicator to Trade Manager and Billing. Trade Manager and Billing will be the only consumers of these new values, and no new validation is required by the OFI when processing the message from MPT.

Trade Manager

The same three new fields will need to be added to the TM MOPS enter trade message layout. These three fields will be passed through to the billing system, which will allow the billing system to link the new trades back to the originals, and identify the scenario for which the new trades are being added.

Billing Enhancements based on each scenario & parent exchange trade item ID.

Next Gen Billing will gain the ability to link the new MOPS entered trades back to their originals. The billing system will be enhanced to reference these original trades, and determine how the new trades should be billed according to the adjustment scenario indicator included with the new trades.

2.3 Assumptions

Market Operations will assure the following assumptions are met when using the new functionality:

- The scenarios outlined above will cover the majority of the uses of the MOPS Add Trade functionality – if some unexpected, or rarely seen scenario presents itself, the add trade window my still need to be used. This will result in the same issues that we currently face in billing today.
- Market Operations will use the existing deal rectification or deal maintenance functionality where possible. The new add trade functionality will only be used in the appropriate situations (i.e. same day clearing changes will still be done using Deal Maintenance).
- Modified trades will always reference an existing trade.

Chapter 3 Detailed Requirements

3.1 MPT

3.1.1 Introduction

The Market Place Tool application provides MOPS staff the tools to handle member requests and perform market monitoring throughout the trading day. MPT includes the capability to modify or bust trades and deal items, and to delete market maker orders and quotes. MPT also provides a direct link into the audit trail (Query Viewer) for researching the reasons for late responses, price issues and other member questions. These requirements focus on adding new features aimed at minimizing the use of the 'add trade' functionality as an alternative to modifying deals or deal items.

3.1.2 Current Behavior

Currently, market operations uses the 'Add Trade' window to make certain types of deal modifications that are not supported by the MPT front end's built in Deal and Deal Item rectification features. Making modifications via the add trade window can sometimes result in issues for downstream systems such as billing due to certain data elements not being available in the CL trade database.

The following sections describe three commonly encountered scenarios that result in the use of the add trade window, and highlight the drawbacks of the current behavior:

3.1.2.1 Next Day Clearing / Give Up Change

When a member contacts market operations requesting a post day clearing change, rather than use the deal maintenance feature (which would result in a broadcast being sent to both counterparties on the trade), market operations will use the add trade window to make the change. This is done in the following steps:

1. Find original trade in the trades view, select trade and open add trade window.
2. In the resulting Add Trade view, if the user is changing the clearing on the buy side of the trade, they will replace the sell side information with the original buy side info, and replace the buy side info with the new clearing information. The newly added trade will flatten the original position, and create the new position for the correct CMTA or clearing account.
3. For a situation where one trade is being split into multiple give ups, this process is repeated for each CMTA, with the quantity adjusted accordingly on each new trade.

The result of this scenario in the CL trade table is the following:

Add Trade Scenario - Clearing Change.xlsx

3.1.2.2 Same Day Price Adjustments Where Not All Counterparties Agree to Change (Trade Price Adjustment)

Sometimes a participant will reach out to market operations requesting a price adjustment on a deal, and not all counterparties on the deal will agree to the new price. In this situation, the deal rectification functionality cannot be used, and the Market Operations representative will need to adjust the price for each counterparty individually by adding two trades for each counterparty agreeing to the new price – one trade to flatten the original trade, and the second to recreate the trade at the new price. This is done in the following steps :

1. Find original trade in the trades view, select trade and open add trade window.
2. In the resulting Add Trade view, swap the buyer and seller information and add the trade. This flattens the original trade.
3. Open a new add trade window from the original trade identified in step 1, enter new deal price. This adjusts the price on the original trade.
4. Repeat this process for each counterparty agreeing to the new price.

The result of this scenario in the CL trade table is the following:

One Counterparty price adjustment usin

3.1.2.3 Market Maker Agrees to Improve Customer's Price After Trade

A market maker might agree to improve price on a customer trade, this is accomplished by the following steps:

1. Find original trade in the trades view, select trade and open add trade window.
2. In the resulting Add Trade view, swap the buyer and seller information, and switch the contra-side info (contra of the customer getting price improvement) with the market maker information and add the trade. This flattens the original trade.

   Example: If the customer is on the buy side of the original trade, then switch the customer to the sell side on the new trade, and enter the Market Maker information on the buy side.
3. Open a new add trade window from the original trade identified in step 1, enter Market Maker information in the contra side (leave the customer information on how it is), and enter the new deal price. This adjusts the price on the improved trade.

   Example: If the customer is on the buy side of the original trade, then change the seller information to the Market Maker, and enter the new improved price.

The Result of this scenario in the CL trade table is the following:

New CP Price Adjustment - Before..:

3.1.3 Proposed Changes

New user interfaces will be added to account for the scenarios outlined in the previous sections. The new functionality will require the user to simply select the trades that are being modified (and in some cases specify the side of the trade), and enter only the values that are being changed. This will enable MPT to source the parent Exchange Trade Item IDs and include them with the add trade message to trade manager.

Additionally, several new fields must be added to the Trades and Trades by BU views.

The following enhancements will be made in MPT:

3.1.3.1 Post Day Clearing Changes

From the Trades view, after the MPT user highlights the trade or trades to be adjusted, right clicking should open a context menu allowing the user to select 'adjust buy side clearing' or 'adjust sell side clearing'.

A new grid should open, displaying the trades selected by the user. Along with the original trade information, the grid should include additional fields that allow the user to enter the new clearing information and quantity for either the buy or sell side of the trade depending on the action chosen from the trades view.

When the new grid is populated, the "New" fields (Clearing, CMTA, Sub Acct, Free Text, Qty, Position) should be defaulted to the same value as the corresponding original fields. I.e. new qty should be populated by default with the quantity of the original trade.

The following fields should be displayed on the new grid:

Field Name	Data Type	Modifiable	Required	Example
Buy/Sell BU		No		GFI03E
Buy/Sell User		No		1
Original Buy/Sell Client Category		No		Customer
New Buy/Sell Client Category	Drop Down	Yes	Yes	Customer
Orig Buy/Sell Clrg Type		No		Customer
New Buy/Sell Clrg Type	Drop Down	Yes	Yes	Customer
Original Clearing Acct		No		00642
New Clearing Acct	5 Digit Num	Yes	Yes	00642
Original CMTA		No		
New CMTA	5 Digit Num	Yes	Yes	
Orig Sub Acct		No		
New SubAcct		Yes		
Orig Broker		No		
New Broker	Text	Yes		
Orig Account Number		No		
New Account Number	Text	Yes		
Orig Branch Seq No		No		
New Branh Seq No	Text	Yes		
Orign Position		No		Open
New Position	Drop Down (Open/Close)	Yes	Yes	Open
Original Free text		No		
New Free Text	Text	Yes		
Original Ext Free Text		No		
New Ext Free Text	Text	Yes		
Original Qty		No		472
New Qty	Num	Yes	Yes	472
Price		No		1.01
Parent ExchangeTradeItemID		No		B12345

The new grid should have a single location for the user to enter the following:

- Revision Reason
- Revision MOps comment

- Event Business Date
- TxnDateTimestamp

The values entered in these fields should be applied to all trades being adjusted in the request.

For information on request submission, message validation, and system feedback see section *3.1.3.5 Submission, Validation, and Feedback*.

Example of MPT Interface for clearing adjustments

Step 1: Find Original Trades in Trades View

Step 1: Find Original Trades in Trades View

Buy BU	Buy Clearing	Buy CMTA	Sell BU	Sell Clearing	Sell CMTA	Qty	Price
GFI03E	00642		SIG01M	00551		472	1.01
GFI03E	00642		OPV01M	00813		16	1.01
GFI03E	00642		OPV01M	00813		12	1.01
SIG01M	00551		GFI03E	00642		472	6.47
OPV01M	00813		GFI03E	00642		16	6.47
OPV01M	00813		GFI03E	00642		12	6.47

Step 2: Select trades, and select 'Adjust Buy Side Clearing'. New grid appears with selected trades, allowing user to modify the clearing information and adjust the quantity for the modified trade. (note: not all fields are included in mock up below, refer to table above for full list of fields to display)

Buy BU	Original Buy Client	New Buy Client	Orig Buy Clrg	New Buy Clr	Original Clear	New Clearing	Original CMT	New CMTA	Orig Sub Acc	New SubAc	Orig Brok	Original Qty	New Qty	Price	Orign Po	New Position	Orig Exchange Trade
GFI03E	Customer	Customer	Customer	Customer	00642	00642						472	472	1.01	Open	Open	B12345
GFI03E	Customer	Customer	Customer	Customer	00642	00642						16	16	1.01	Open	Open	B12346
GFI03E	Customer	Customer	Customer	Customer	00642	00642						12	12	1.01	Open	Open	B12347

Delete | 1 | Split | Reset | Submit | Cancel

Step 3: User makes the desired changes, and submits the buy side clearing change request. Changes in mock up below are highlighted with red text.

Buy BU	Original Buy Client	New Buy Client	Orig Buy Clrg	New Buy Clr	Original Clear	New Clearing	Original CMT	New CMTA	Orig Sub Acc	New SubAc	Orig Brok	Original Qty	New Qty	Price	Orign Po	New Position	Orig Exchange Trad
GFI03E	Customer	Customer	Customer	Customer	00642	00105		00642				472	445	1.01	Open	Open	B12345
GFI03E	Customer	Customer	Customer	Customer	00642	00105		00161				16	51	1.01	Open	Open	B12346
GFI03E	Customer	Customer	Customer	Customer	00642	00105		00572				12	4	1.01	Open	Open	B12347

Delete | 1 | Split | Reset | Submit | Cancel

Step 4: Repeat process for GFI sell side trades. Choose 'Adjust Sell Side Clearing' in step 2.

Trades Entered by MPT

Upon user confirmation, MPT should use the MOPS enter trade message to submit new trades using the information entered by the user.

The new trades will be entered as if the user made the changes manually (i.e. for buy side clearing change: same BU on both sides of the trade, original clearing information on the sell side, new clearing information on the buy side). The trades should include the parent Exchange Trade Item IDs, and a scenario indicator of '**1**' or '**2**' to specify that new trades are clearing changes

Scenario Indicator 1 = Buy Side Clearing Change

Scenario Indicator 2 = Sell Side Clearing Change

Details and the exact message layout of how the trade(s) should be created can be found in the attached spreadsheet:

3.1.3.2 Trade Price Adjustment

From the Trades view, the user finds and highlights the trades to be adjusted, then right clicks and selects the new menu item: "**Trade price adjustment**".

A new grid similar to the change clearing grid (shown in section 3.1.3.1) should open, and allow the user to set the new price for each displayed trade. The new grid should force the user to enter the price in a dollars and cents format (example: $123.45).

The grid should include details from both the buy and sell side of the selected trades and should allow for clearing and quantity changes to be made as well.

When the new grid is populated, the "New" fields (Clearing, CMTA, Sub Acct, Free Text, Qty, Position) should be defaulted to the same value as the corresponding original fields. I.e. new qty should be populated by default with the quantity of the original trade.

To adjust clearing information using the trade price adjustment grid, the user should simply overwrite the existing clearing information with the new details. If a field has been modified, it should be distinguishable from the rest of the grid in some way (color, font, etc). Changes can be undone by right clicking the row and selecting 'reset', this will reset the row back to the default values.

The following fields should be displayed in the Trade Price Adjustment Grid:

Field Name	Data Type	Modifiable	Required	Example
Orig Trade Id		No		1231
Instrument		No		SPY3OCT174.0C
Buy BU		No		GFI03E
Buy User		No		
Buy Broker		Yes		
Buy Client Category	Drop Down	Yes	Yes	
Buy Clg Type	Drop Down	Yes	Yes	
Buy Account No		Yes		
Buy Branch Seq No		Yes		
Buy Clearing Acct	5 Byte Numerical	Yes	Yes	642
Buy CMTA	5 Byte Numerical	Yes	Yes	
Buy Sub Acct		Yes		
Buy Position	Drop Down	Yes	Yes	Open
Buy Free Text	Free Text	Yes		
Buy Ext Free Text	Free Text	Yes		
Parent Buy Exchange Trade Item ID		No		B12341
Sell BU		No		SIG01M

Sell User		No		
Sell Broker		Yes		
Sell Client Category	Drop Down	Yes	Yes	
Sell Clg Type	Drop Down	Yes	Yes	
Sell Account No		Yes		
Sell Branch Seq No		Yes		
Sell Clearing Acct	5 Byte Numerical	Yes	Yes	551
Sell CMTA	5 Byte Numerical	Yes	Yes	
Sell Sub Acct		Yes		
Sell Position	Drop Down	Yes	Yes	Open
Sell Free Text	Free Text	Yes		
Sell Ext Free Text		Yes		
Parent Sell Exchange Trade Item ID		No		S84413
Original Qty	Number	No		472
New Qty	Number	Yes	Yes	445
Price	Dollar Amount	No		1.01
New Price	Dollar Amount	Yes	Yes	1.01

The new grid should have a single location for the user to enter the following:

- Revision Reason
- Revision MOps comment
- Event Business Date
- TxnDateTimestamp

The values entered in these fields should be applied to all trades being adjusted in the request.

For information on request submission, message validation, and system feedback see section *3.1.3.5 Submission, Validation, and Feedback*.

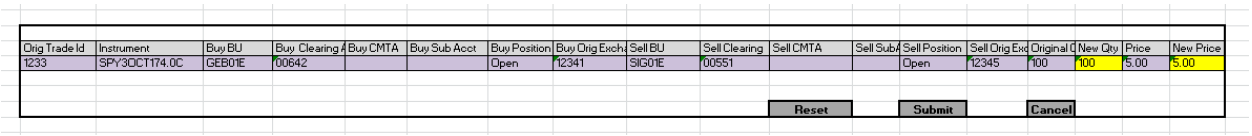
MPT Trade Price Adjustment Interface Example:

Step 1: Find original trade(s) in trades view.

Step 1: Find Original Trade(s) in trades view

Orig Trade Id	Instrument	Buy BU	Buy Clearing	Buy CMTA	Sell BU	Sell Clearing	Sell CMTA	Qty	Price
1231	SPY3OCT174.0C	GEB01E	00642		GFI01E	00838		200	5.00
1232	SPY3OCT174.0C	GEB01E	00642		CDL01E	00357		200	5.00
1233	SPY3OCT174.0C	GEB01E	00642		SIG01E	00551		100	5.00

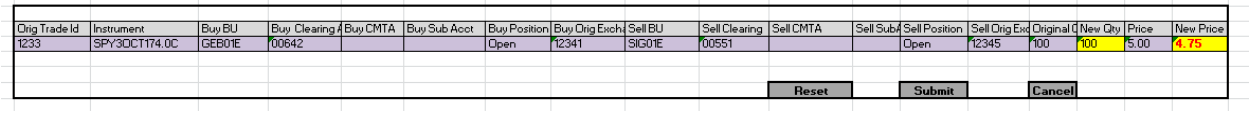
Step 2: Select trade, and choose 'Trade Price Adjustment' from right click menu. This results in a new grid opening, displaying both the buy and sell side details of the selected trade(s), along with additional fields for new quantity and new price. The new quantity and new price fields should be pre-populated with the same values as the original quantity and original price. Note: like in the previous example, not all fields are displayed in the mock up below. Refer to the table above for the full list of fields to display in the grid.



Orig Trade Id	Instrument	Buy BU	Buy Clearing A	Buy CMTA	Buy Sub Acct	Buy Position	Buy Orig Exch	Sell BU	Sell Clearing	Sell CMTA	Sell Sub	Sell Position	Sell Orig Exc	Original Q	New Qty	Price	New Price
1233	SPY3OCT174.0C	GEB01E	00642			Open	12341	SIG01E	00551			Open	12345	100	100	5.00	5.00

Reset Submit Cancel

Step 3: User makes desired changes (changing price from 5.00 to 4.75 in this example) and submits the price adjustment request



Orig Trade Id	Instrument	Buy BU	Buy Clearing A	Buy CMTA	Buy Sub Acct	Buy Position	Buy Orig Exch	Sell BU	Sell Clearing	Sell CMTA	Sell Sub	Sell Position	Sell Orig Exc	Original Q	New Qty	Price	New Price
1233	SPY3OCT174.0C	GEB01E	00642			Open	12341	SIG01E	00551			Open	12345	100	100	5.00	4.75

Reset Submit Cancel

Note: if either counterparty (buy or sell side) is requesting to have some quantity of the trade split and assigned different clearing information, the user must perform this action in a separate action using the change clearing function. The change must be made to the new trade entered as a result of the price adjustment.

Trades Entered by MPT

After the request is submitted, MPT will enter two new trades for each original trade being price adjusted.

The first trade will be entered to flatten the customer's position from the original trade, the second trade is entered to replace the original trade at the new price.

The flattening trade should be created with original buying and selling parties flipped i.e. buyer is now selling, and seller is now buying. The MOPS enter trade message should include the Exchange Trade Item IDs from the referenced trade, and a scenario identifier of '**3**' to notify the billing system that this is a price adjustment flattening trade.

The replacement trade should be created using information entered by MPT user, including the new quantity and price. The Exchange Trade Item ID from the original trade should be included in the MOPS enter trade message, along with a scenario identifier of '**4**' to notify the billing system that this is a price adjustment replacement trade.

Details and the exact message layout of how the trades should be created can be found in the attached spreadsheet:

Trade Price Adjustment.xlsx

3.1.3.3 Trade Adjustment With New Counterparty

A third level of trade adjustment functionality should be available for situations that require adding a new counterparty to the trade (i.e. PMM agrees to improve price for a customer that traded with another Business Unit).

This functionality should be similar to the interface used for Trade Price Adjustment, however in this scenario the BU information is also modifiable.

User finds and highlights trades to be adjusted, then right clicks and selects "**Trade Adjustment (New Counterparty)**".

A new grid should open with the selected trade(s) listed, the grid should appear similar to the trade price adjustment grid described in section 3.1.3.2. The new grid should allow for changes to be made on both the buy and sell side of the trade, and should allow for updates to the price and quantity as well.

When changing the Business Unit on either side of the trade, the user should choose the new BU from a drop down selection box. The user can begin to type in the BU name, and the selection box should auto-fill based on what is being entered. It should not be possible to enter a BU name that does not exist.

After selecting a new BU, the clearing account the modified side of the trade should be updated to the default clearing account for the new BU.

Note: It should not be possible to change the BU on both sides of an adjustment record. If both BUs are changed when the user submits the adjustment request, an error should pop up notifying the user that the BU can only be changed on one side of the trade, not both. Once the user acknowledges the error (i.e. presses 'OK', etc), they should be returned to the grid to correct the mistake.

To further adjust clearing information using the trade adjustment grid, the user should simply overwrite the existing clearing information with the new details. If a field has been modified, it should be distinguishable from the rest of the grid in some way (color, font, etc).

Changes can be undone by right clicking the row and selecting 'reset', this will reset the row back to the default values.

The following fields should be displayed in the Trade Adjustment (New Counterparty) Grid:

Field Name	Data Type	Modifiable	Required	Example
Orig Trade Id		No		1231
Instrument		No		SPY3OCT174.0C
Buy BU		Yes	Yes	GFI03E
Buy User		Yes	Yes	
Buy Broker		Yes		
Buy Client Category	Drop Down	Yes	Yes	
Buy Clg Type	Drop Down	Yes	Yes	
Buy Account No		Yes		
Buy Branch Seq No		Yes		
Buy Clearing Acct	5 Byte Numerical	Yes	Yes	642
Buy CMTA	5 Byte Numerical	Yes	Yes	
Buy Sub Acct		Yes		
Buy Position	Drop Down	Yes	Yes	Open
Buy Free Text	Free Text	Yes		
Buy Ext Free Text	Free Text	Yes		
Parent Buy Exchange Trade Item ID		No		B12341
Sell BU		Yes	Yes	SIG01M
Sell User		Yes	Yes	
Sell Broker		Yes		
Sell Client Category	Drop Down	Yes	Yes	
Sell Clg Type	Drop Down	Yes	Yes	

Sell Account No		Yes		
Sell Branch Seq No		Yes		
Sell Clearing Acct	5 Byte Numerical	Yes	Yes	551
Sell CMTA	5 Byte Numerical	Yes	Yes	
Sell Sub Acct		Yes		
Sell Position	Drop Down	Yes	Yes	Open
Sell Free Text	Free Text	Yes		
Sell Ext Free Text		Yes		
Parent Sell Exchange Trade Item ID		No		S84413
Original Qty	Number	No		472
New Qty	Number	Yes	Yes	445
Price	Dollar Amount	No		1.01
New Price	Dollar Amount	Yes	Yes	1.01

The new grid should have a single location for the user to enter the following:

- Revision Reason
- Revision MOps comment
- Event Business Date
- TxnDateTimestamp

The values entered in these fields should be applied to all trades being adjusted in the request.

For information on request submission, message validation, and system feedback see section *3.1.3.5 Submission, Validation, and Feedback*.

MPT Trade Adjustment with New Counterparty Interface Example

Step 1: Find Original Trade(s) in Trades View

Orig Trade Id	Instrument	Buy BU	Buy Clearing	Buy CMTA	Sell BU	Sell Clearing	Sell CMTA	Qty	Price
1231	SPY3OCT174.0C	GEB01E	00642		GFI01E	00838		200	4.50
1232	SPY3OCT174.0C	GEB01E	00642		CDL01E	00357		200	4.75
1233	SPY3OCT174.0C	GEB01E	00642		SIG01E	00551		100	5.00

Step 2: Select trade, and choose 'Trade Price Adjustment (New Counterparty)' from right click menu. This results in a new grid opening, displaying both the buy and sell side details of the selected trade(s), along with additional fields for new quantity and new price. The new quantity and new price fields should be pre-populated with the same values as the original quantity and original price. Note: like in previous examples, not all fields are displayed in the mock up below. Refer to the table above for the full list of fields to display in the grid.

Orig Trade Id	Instrument	Buy BU	Buy Clearing A	Buy CMTA	Buy Sub Acct	Buy Position	Buy Orig Exch	Sell BU	Sell Clearing	Sell CMTA	Sell Sub	Sell Position	Sell Orig Exc	Original Q	New Qty	Price	New Price
1233	SPY3OCT174.0C	GEB01E	00642			Open	12341	SIG01E	00551			Open	12345	100	100	5.00	5.00

Reset Submit Cancel

Step 3: User updates BU/Clearing information, along with new quantity and new price. After desired information is updated, user submits the trade request. In this example, the sell side BU was updated to GEB01M, and the buyer's price was improved to $4.90.

Orig Trade Id	Instrument	Buy BU	Buy Clearing A	Buy CMTA	Buy Sub Acct	Buy Position	Buy Orig Exch	Sell BU	Sell Clearing	Sell CMTA	Sell Sub	Sell Position	Sell Orig Exc	Original Q	New Qty	Price	New Price
1233	SPY3OCT174.0C	GEB01E	00642			Open	12341	GEB01M	00123			Open	12345	100	100	5.00	4.90
										Reset		Submit		Cancel			

Note: if either counterparty (buy or sell side) is requesting to have some quantity of the trade split and assigned different clearing information, the user must perform this action in a separate action using the change clearing function. The change must be made to the new trade entered as a result of the price adjustment.

Trades Entered by MPT

After the request is submitted, MPT will enter two new trades for each original trade being price adjusted. The trades will be between the new counterparty and the counterparty receiving the price improvement.

The first trade will be entered to flatten the customer's position from the original trade, the second trade is entered to replace the original trade at the new price.

MPT should identify which side of the adjustment record contains the modified business unit, this will determine which side of the flattening trade will be created with information from the original trade:

- If the BU has been changed on the buy side of the trade adjustment grid, the new BU information should go on the sell side of the flattening trade, with the original sell side trade details (BU, User, Clearing, Free Text, etc) on the buy side of the flattening trade.
- If the BU has been changed on the sell side of the trade adjustment grid, the new BU information should go on the buy side of the flattening trade, with the original buy side trade details (BU, User, Clearing, Free Text, etc) on the sell side of the flattening trade.

The flattening trade should be created with the same quantity, price, and reference exchange trade item IDs from the original trade, as well as an scenario identifier of **'5'** to notify the billing system that this is a New Counterparty Price Adjustment Flattening Trade.

The replacement trade should be created using the information in the adjust trade grid. The Exchange Trade Item ID from the original trade should be included in the MOPS enter trade message, along with a scenario identifier of **'6'** to notify the billing system that this is a new counterparty price adjustment replacement trade.

Details and the exact message layout of how the trade(s) should be created can be found in the attached spreadsheet:

*Note: the spreadsheet below is an example of the Buy Side BU changing.

Trade Adjustment with new Counterpar

3.1.3.4 Special Functions

The following special functions should be available to the user in any of the adjust trade views described in the previous sections:

- **Split Trade **(only available in change clearing grid)*** - Splits the selected trade record, this should duplicate all original values from the selected row, and allow the user to populate the 'new' fields (clearing info & quantity). The split off trades should reference the same Exchange Trade Item ID as the original.

The split trade interface should be similar to the split deal item functionality. The user can select the trade, and enter the split quantity. This will result in a new record created directly below the selected trade with all fields duplicated, except the new quantity, which should reflect what was entered in the split quantity field. It should be possible to distinguish the split records from the original adjustment record in some way, (i.e. cell background color: purple for the original vs white for the new splits).

Example: GFI wants to change clearing on a 500x SPY trade, original clearing is 642. They request to send 200 contracts to clearing account 105 CMTA 642, 200 contracts to clearing account 105 CMTA 161, and 100 contracts to clearing account 105 CMTA 572.

Step 1: Find Original Trade in Trades View

Buy BU	Buy Clearing	Buy CMTA	Sell BU	Sell Clearing	Sell CMTA	Qty	Price
GFI03E	00642		SIG01M	00551		500	1.01

Step 2: Open buy side change clearing grid and update clearing information.

Buy BU	Original Clearing Acct	Original CMTA	Orig Sub Acct	New Clearin	New CMTA	New SubAcct	Original Qty	New Qty	Price	Orign Positic	New Posi	Orig ExchangeTradeItemID
GFI03E	00642			00105	00642		500	500	1.01	Open	Open	B12345
Delete		100	Split		Reset					Submit		Cancel

Step 3: Select trade in new grid, enter number of contracts to split off in the quantity field (located next to the split button) and execute split. Repeat if necessary. Result is new record created - All values aside from quantity are copied from original adjustment record (Clearing, CMTA, price, etc). New quantity on original adjustment and new trade will be updated.

Buy BU	Original Clearing Acct	Original CMTA	Orig Sub Acct	New Clearin	New CMTA	New SubAcct	Original Qty	New Qty	Price	Orign Positic	New Posi	Orig ExchangeTradeItemID
GFI03E	00642			00105	00642		500	200	1.01	Open	Open	B12345
GFI03E	00642			00105	00642		500	200	1.01	Open	Open	B12346
GFI03E	00642			00105	00642		500	100	1.01	Open	Open	B12346
Delete		100	Split		Reset					Submit		Cancel

Step 4: Update the clearing information on the new post-split records, and submit the request.

Buy BU	Original Clearing Acct	Original CMTA	Orig Sub Acct	New Clearin	New CMTA	New SubAcct	Original Qty	New Qty	Price	Orign Positic	New Posi	Orig ExchangeTradeItemID
GFI03E	00642			00105	00642		500	200	1.01	Open	Open	B12345
GFI03E	00642			00105	00161		500	200	1.01	Open	Open	B12346
GFI03E	00642			00105	00572		500	100	1.01	Open	Open	B12346
Delete		100	Split		Reset					Submit		Cancel

Trades Entered by MPT

Upon submitting the request above, a number of add trade request messages are created by MPT in the same fashion as described in section **3.1.3.1 Post Day Clearing Changes** (The Split trades feature is only available for post day clearing changes). A new request would be created for each record in the Change Clearing grid. For details regarding the messages sent to Trade Manager refer to the spreadsheets in section 3.1.3.1.

- **Apply to All -** User should have the ability to select a value, and apply that value to the selected field for all records in the grid.
- **Apply to Selected –** Same as apply to all, however should only be applied to selected rows.
- **Reset** – A command to reset the entire grid should be available to the user. Any split trades should be deleted, and any modified fields should be restored to their original values.

- **Reset Row -** Right clicking anywhere on a row should display a context menu allowing a user to reset the values entered in the selected row.
- **Delete –** Selected row(s) should be deleted
- **Grid Customization & Field Selection –** Users should have the ability to customize the grid by choosing which fields are displayed, and how those fields are ordered. These grid settings should be saved per user.

3.1.3.5 Submission, Validation, and Feedback

After making all desired modifications in the adjustment grid, the user can submit the changes. When submitting the changes made in the grid, the user should be prompted by MPT to confirm the changes. The confirmation prompt should include the number of new trades to be created.

Note: No Quantity Validation or Trade Selection Validation will be performed by MPT - MPT will only validate that the required fields are populated correctly where noted in this document (i.e. correct data types and BU validation in the case of BU replacement) .

After changes are submitted, MPT should display a status screen including any errors returned by the gateway or trade manager.

3.1.3.5.1 Error Handling

There is a small chance that while submitting a trade adjustment that consists of multiple add trade records being sent to the Trade Manager, an error occurs at some point that interrupts the message transmission (network issue, catastrophic error, etc.). These errors will be handled as follows:

1. For price adjustment scenarios that require sending a flattening trade then a replacement trade, if the flattening trade does not get created successfully, there will be no attempt to create the corresponding replacement.
2. If a flattening trade is created successfully, and the replacement trade is not created successfully, market operations will need to handle this manually, either via busting the flattening trade that was created and retrying the adjustment, or by entering the replacement trade manually using the MOPS Enter Trade.
3. MPT will provide sufficient feedback to ensure users know which trades were successfully adjusted and which were not:
    a. The response window will display an expandable record for each adjustment (which should expand to display either single new trade (clearing adjustment), or a pair of trades (price adjustment)).
    b. One of three status messages will be displayed for each adjustment record:
        i. Adjustment successful – all trade(s) were created successfully.
        ii. Adjustment Failed – no trades were created.
        iii. Adjustment partially successful – one or more trades being created for the adjustment failed. Manual intervention needed.
    c. The window will show Original Trade ID, BU, Clearing Type, Clearing Account, CMTA Account, Clearing SubAccount, Postion Effect, Qty, Price so the user can distinguish which trades failed.
    d. The adjustment attempts are non-atomic, so if a single adjustment fails, the others will still be sent, a separate status will appear for each adjustment attempt.

e. The response window will display a count of how many successful adjustments and how many failures occurred.

Upon completion of the request and response, the user should be returned to a refreshed trades view.

3.1.4 New Data Elements

To support Market Operations use of the new adjust trade functionality, and to provide the ability to track a new trade back to the original, the following new fields must be added to the Trades and Trades By BU views.

- Buy Parent Exchange Trade Item ID
- Sell Parent Exchange Trade Item ID
- Trade Adjust Scenario Indicator

These fields will be present on the Trade Manager MOPs Query Trade Response and MOPs Query Trades on Deal Revision Response messages (for more information on the Trade Manager Requirement see section 3.3 below).

3.2 OFI/Gateway

The following New Fields will be added to the MOPS Enter Trade request from MPT, they must be added to the OFI message layout.

- Adjustment Scenario Indicator – 1 byte unsigned INT
- Trade Leg Group: parent Exchange Trade Item ID.

The new layout can be found in the attached excel spreadsheet:

Trade Adjustment Message Layout - All

3.3 Trade Manager

Trade Manager currently handles the MOPS Enter Trade request from MPT. The Adjustment Scenario Indicator will be added to the trade record, and the Parent Exchange Trade Item ID will be added to the Trade Leg Group on the MOPS Enter Trade message. Trade Manager will consume these additional fields and include them on the ETS broadcast to RTP.

The “Adjustment Scenario Indicator” should be persisted in the trade database schema and the buy/sell “Parent Exchange Trade Item ID” should be persisted in the trade item database schema. These 3 new fields should be returned in the

- MOPs Query Trades Response message
- MOPs Query Trades on Deal Revision Response message

3.4 RTP

Order Writer must process the new fields included on the ETS broadcast:

- Adjustment Scenario Indicator
- Bid Parent Exchange Trade Item ID
- Offer Parent Exchange Trade Item ID

The three fields should be added to the Trade TM and CL Trade tables to be used by billing. No special validation or verification of the new values is required at this stage.

3.5 Billing and Reports

Next Gen Billing will be enhanced to use the new fields passed from MPT to Trade Manager to be present in the CL Trade table. Refer to the following spreadsheets for examples of how the new fields will appear in CL trade in the various scenarios discussed in this document:

1. Post Day Clearing Change:

Buy Side Clearing Change.xlsx

2. Price Adjustment Scenario:

Price Adjustment Same CP.xlsx

3. Price Adjustment with New Counterparty Scenario:

Price Adjustment New CP.xlsx

Chapter 4 Non-Functional Requirements

4.1 Security

There are no explicit security requirements for this functionality

4.2 Operational Deployment

There are no explicit Operational Deployment requirements for this functionality

4.3 Maintainability

There are no explicit Maintenance requirements for this functionality

4.4 Reliability

There are no explicit reliability requirements for this functionality

4.5 Availability

There are no explicit availability requirements for this functionality

4.6 Auditability

There are no explicit auditability requirements for this functionality

4.7 Documentation

There are no explicit documentation requirements for this functionality

4.8 Data Requirements

There are no explicit data requirements for this functionality

4.9 Acceptance Criteria

The application must confirm to ISE Operations standards. Specifically, the application must go through BAT, OAT, PAT and MAT process for acceptance.

4.10 Rollout Strategy

TBD

Chapter 5 Open Questions / Potential Pitfalls

- Do we need to impose some kind of artificial limit on how many trades can be modified at a time by the MPT user? Trade Manager performance enhancements may not happen in R10. May increase need of limit on new trades.

Appendix A. Examples

A.1. Examples

Add Examples Here

A.2. Add Trade Layouts

Add OFI/TM Add Trade Layouts Here