



**TRADING
TECHNOLOGIES**

FILL RECAPPER USER MANUAL

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Fill Recapper Overview

Fill Recapper is an add-on application to X_TRADER® Pro that can be used to manage fills, perform post-trade allocations, and export fills. Fill Recapper combines the X_TRADER Fill Window, Trade Book, and Order Book functionality. The post-trade allocation tool allows fills to be allocated to accounts based on a preconfigured percentage for each account in a group or allocated to accounts based on entered quantities. The allocation methods use algorithms which ensure fairness for each order and adhere to the guidelines provided by CFTC. Fills can be exported either manually or on a scheduled basis and the layout of the export file can be configured by the user.

Installation

1. Verify that both X_TRADER and the X_TRADER® API are installed with the appropriate TTM version. Verify that X_TRADER Pro is enabled.
2. Double-click on the installation file (i.e. Fill_Recapper_Install.exe). This opens the Fill Recapper installation wizard.
3. Click the Next button through all of the screens of the installation wizard, making sure to accept the license agreement. Change the default User Information and Destination Folder if desired.
4. The application will be installed. The last screen will display a message stating that Fill Recapper was successfully installed.
5. Click the Finish button. A Fill Recapper shortcut icon will be added to the Desktop. The computer does not need to be rebooted.

Product Features

Fill Recapper Basics

1. Fill Recapper can be launched by double-clicking the Fill Recapper desktop icon after X_TRADER Pro is started. Users can also launch Fill Recapper from the Plug-ins button off of the X_TRADER Control Panel.
2. Upon launching, Fill Recapper will automatically load up the last saved configuration.
3. It is required that Fill Recapper be re-started prior to the beginning of a new trading day. This can be done manually or through an external scheduler.

Fill Recapper Main Window

The Fill Recapper main window can be used to view and manage fills and orders in three different modes: 1) No Allocation 2) Unallocated Mode 3) Allocated Mode. The No Allocation mode contains information about all fills for the day. The Unallocated Mode contains all fills for the day which have yet to be allocated along with the capability to allocate those fills. The Allocated

Mode contains all fills for the day which have already been allocated along with specifics about the allocation. This mode can be changed from the Allocation menu.

The Fill Recapper main window is made up of four different panes. The top pane is the Trade Pane, the second pane is the Aggregate Pane, the third pane is the Summary Pane, and the bottom pane is the Allocation Pane. The Allocation Pane is not displayed when Fill Recapper is in No Allocation mode.

Pane 1: The Trade pane allows the user to select one or many fills to aggregate together. All of the columns that are represented in the X_TRADER fill window are displayed here. Clicking on the checkboxes selects the fills in order to view their details in the Aggregate and Summary panes, as well as selects the fills to be allocated. Working orders can also be displayed in the trade pane. Left click and dragging the mouse cursor across multiple checkboxes will select the fills for these trades and display their details in the Aggregate and Summary panes. Holding down the Control button while left click and dragging the mouse cursor across selected rows will deselect the rows and remove the fill details from the Aggregate and Summary panes.

Pane 2: The Aggregate pane displays the fills selected from the top pane in one of three different formats: All Fills, Aggregate Prices, or Group Products.

- *All Fills:* Displays every individual fill that makes up the selected filled orders.
- *Aggregate by Products:* The Buys and Sells are broken out at each price level for each product.
- *Aggregate by Prices:* Aggregates the selected items by price irrespective of the product. Each fill is not broken out per Buy and Sell but instead all fills are grouped together at each price level. With this view, the user can visibly see their profit/loss based on where they bought and/or sold the contracts.

Pane 3: The Summary pane aggregates the total Buys and total Sells for all of the selected fill orders into a single row.

Pane 4: In Unallocated Fills mode, the Allocation pane allows a user to allocate the selected fills to a pre-configured group of accounts or individual accounts. In Allocated mode, the Allocation Information pane allows a user to view the fill quantities and prices that were allocated to each account.

Below is a screen shot of the Fill Recapper main window in Unallocated Mode (Figure 1) along with the associated menu items, fields, and buttons.

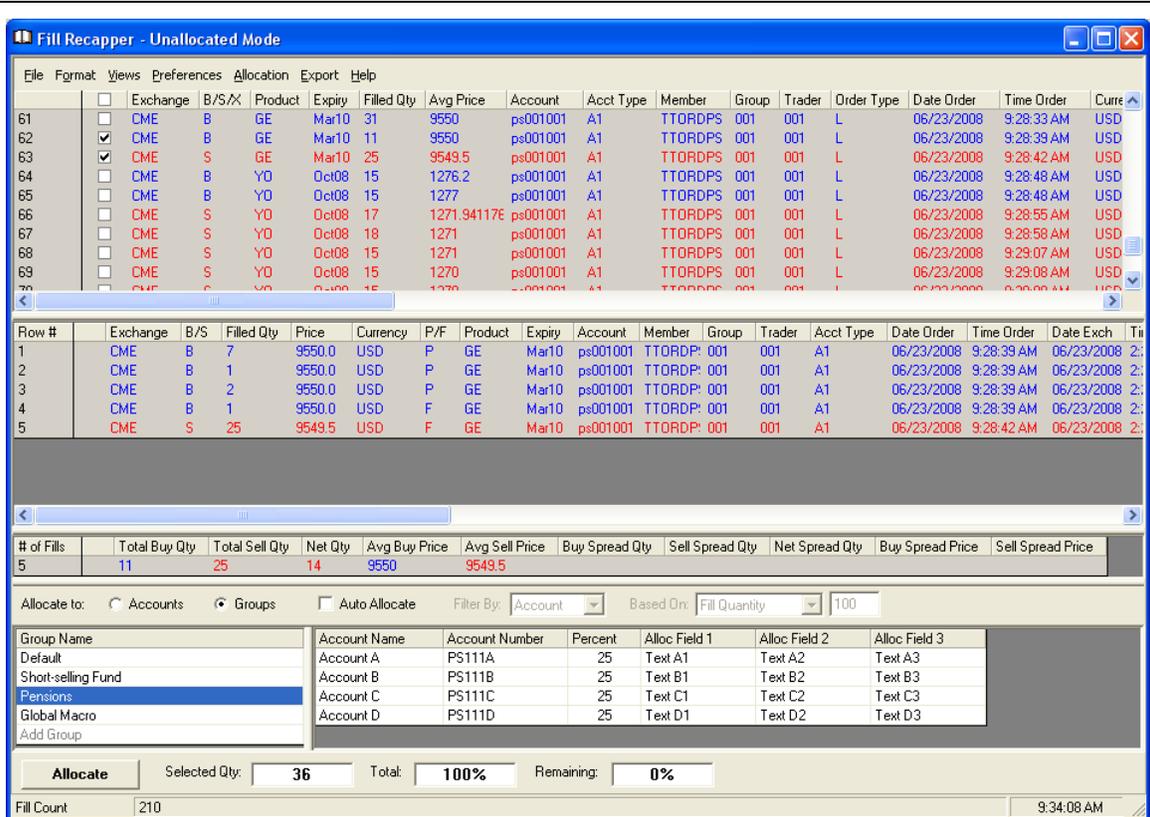


Figure 1. Fill Recapper main window – Unallocated Mode (Allocate To Group)

Fill Recapper Main Window – Menu		
File	Open TOES File	Navigate to select a TOES file in order to read TOES IDs and Descriptions into the fills displayed.
	Print	Prints the Trade Pane, Aggregate Pane, Summary Pane, Allocation Pane, or All Panes of the Fill Recapper main window. Each pane can be individually printed via their respective contact menus.
	Save	Saves the Trade Pane, Aggregate Pane, Summary Pane, Allocation Pane, or All Panes of the Fill Recapper main window. These panes are saved as *.csv files in the Fill Recapper\Saved Panes folder. Each pane can be individually saved via their respective contact menus.
	Exit	Exits Fill Recapper.
Format	Font	Formats the Font of the Fill Recapper main window.
	Font Size	Formats the Font Size.
	Bold	Bolds the text.
	Italic	Italicizes the text.
	Align Left	Left aligns the text in the columns.
	Align Center	Center aligns the text in the columns.
	Align Right	Right aligns the text in the columns.
	Color Settings	Opens a color configuration page to color code partial fills, buys, sells, and spreads.
	Restore Defaults	Restores the format settings back to the default values.

Views	Add to Views...	Opens the Add View window to save the current filter and add it to the views list.
	Organize Views...	Opens the Organize Views window to view, rename and reposition the Filter View.
Preferences	All Fills	Select the display mode for the second pane. Choose either: All Fills, Aggregate by Products, or Aggregate by Prices.
	Aggregate by Products	
	Aggregate by Prices	
	Hide Orders	Does not display working orders if selected.
	Display Deleted Orders	Upon selection, when working orders shown in the top pane in No Allocation mode are deleted, the row will remain and be highlighted in beige, thus creating a "blotter" like functionality.
	Delete All Confirmation	Displays a confirmation message if selected before orders are deleted when the Delete All, Delete All Bids, or Delete All Asks buttons are clicked.
	Show SOD	Displays Start of Day records if selected.
	Scrolling	Automatically scrolls to newly added fills if selected.
	Product Alias	Displays the Products' Aliases if selected.
	Display Prices as Decimal	Displays the prices for products that tick in fractions as a decimalized value if selected.
	Order Pane Active	Allows the Order Pane to be accessible upon left-click if selected.
	Send to Market Confirmation	Displays a confirmation message when an order is sent to market if selected.
	Archive Log Files	Archives the following files upon shutdown if selected: AllocationDetails.dat, AllocationItems.dat, ExportedAllocationIDs.dat, ExportedFills.dat, ExportedPartialFills.dat.
Allocation	No Allocation	Select the Allocation mode of the screen. Choose either No Allocation, Unallocated Mode, or Allocated Mode.
	Unallocated Mode	
	Allocated Mode	
	Allocation Settings...	Opens the Allocation Settings window to specify global allocation settings.
Export	Export Fills	Upon selection, immediately exports the fills based on the specified export settings.
	Export Settings...	Opens the Export Settings window to configure the global export settings. See Figure 6.
	Export TOES Block Order File	This option is only visible while in No Allocation mode. Creates a .bot file listing all displayed working orders in the TOES .bot format and places the file in the Fill Recapper\Block Orders folder. Before creating the file, a pop-up window is displayed asking if all displayed working orders should be deleted before exporting them.
	Notes mapped from	Select the field that will be mapped to the Notes field in the .bot file.
Help	Contents	Opens the ReadMe documentation file
	About Fill Recapper	Opens the splash screen with the application version number
	Save Internal Data	Saves internal order and fill data from Fill Recapper to a file

Pane 1: Trade Pane	
Name	Definition
Row Numbers	Number of the row. Generated based on time of the order.
Selected	Indicates whether or not the fill is selected
Exchange	Exchange at which the order is working or the fill was executed
B/S/X	Buy(B), Sell(S), Buy Spread Fill (XB), or Sell Spread Fill (XS)
Filled Qty	Filled Quantity
Wrk Qty	Working Quantity
Avg Price	Average Price for Full and Partial Fills
Currency	Currency
P/F/O	Partial (P), Filled (F), Order (O), Cancelled order that's been partially filled (Cxl), or Deleted order (Del)
Product	Exchange symbol or product name. Displays the Product's Alias if Product Alias is selected in the Preferences menu.
Expiry	Expiration Month/Year
Account	Account number
Member	Trader's Member ID
Group	Trader's Group ID
Trader	Trader's Trader ID
Acct Type	Account Type
Date Order	Date of the order
Time Order	Time of the order
Date Exch	Exchange Date of the order
Time Exch	Exchange time of the order
Instrument	Product symbol plus the expiration month/year
Order Num.	Order number assigned by the exchange
Qty Order	Original quantity of the order
TT Order Key	Unique TT order number
Order Type	Limit (L) or Market (M)
Product Type	Future, Option, Spread, Energy, Bond, etc.
TIF	Time in Force of the working or deleted order.
Trans ID	Transaction ID
Strike	Exercise price of an option
C/P	Call/Put
FFT2	Free Form Text Field 2
FFT3	Free Form Text Field 3
Clr Member	Clearing Member
Exch Mbr	Direct Exchange Member ID
Exch Grp	Direct Exchange Group ID
Exch Trd	Direct Exchange Trader ID

Fee	Fee
Give Up	Give Up
Cntr Firm	Counter Firm
Cntr Mbr	Counter Member
Order Price	Price of the current working order or deleted order
TOES ID	When used within TOES, this provides an identifier for showing fill and order relationships to TOES configurations.
Description	When used within TOES, this provides a pass through description as provided by the TOES configuration. When the TOES ID field is empty this field is editable once the field is selected.
Exported	Indicates whether or not the fill has been exported.
Allocated	Displays Yes if the fill has been allocated and No if the fill has not been allocated
Allocation Id	If the fill was allocated, the id of the allocation. Each time fill(s) are allocated, a new id is generated. This id can be used for tracking purposes.
Username	The Universal Login Username for the order or fill
Fill Key	Fill ID supplied by the TT gateway

Pane 2: Aggregate Pane

Name	Definition
# of Fills	Number of partial fills for all of the trades that are selected
Exchange	Exchange at which the fill was executed
Product	Exchange symbol or product name. Displays the Product's Alias if Product Alias is selected in the Preferences menu.
Expiry	Expiration Month/Year of the selected fills
B/S	Buy or Sell
Filled Quantity	Filled Quantity
Price	Price of the selected fills
Currency	Currency

Pane 3: Summary Pane

Name	Definition
# of Fills	Number of fills for all of the trades that are selected
Total Buy Qty	Total number of lots bought. When spreads are selected, refers to the qty of the underlying legs that were bought.
Total Sell Qty	Total number of lots sold. When spreads are selected, refers to the qty of the underlying legs that were sold.
Net Quantity	Total number of lots bought minus sold
Avg Buy Price*	The average price of the lots bought. When spreads are selected, refers to the average price of the underlying legs that were bought.
Avg Sell Price*	The average price of the lots sold. When spreads are selected, refers to the average price of the underlying legs that were sold.
Buy Spread Qty	If spreads are selected, displays the number of spreads bought.
Sell Spread Qty	If spreads are selected, displays the number of spreads sold.
Net Spread Qty	If spreads are selected, displays the total numbers of spreads bought minus the total number of spreads sold.
Buy Spread Price	If spreads are selected, displays the average price at which the spreads were

	bought.
Sell Spread Price	If spreads are selected, displays the average price at which the spreads were sold.

* The averaging for Fill Recapper in Pane 3 relies on the selected price display format. Fill Recapper does not know how every instrument ticks (32nds, 64th, etc.), therefore the Ave. Buy Price/Ave. Sell Price for contracts that tick in fractional values (some CBOT contracts) may not be what is expected when fills at different handles are selected unless the prices are displayed in decimal format with the "Display Prices as Decimal" menu item selected.

Pane 4: Allocation Pane: Unallocated Mode (Allocate To Group)			
Name	Required	Default	Definition
Allocate To Groups	Yes	True	Allocate the fills to a pre-configured group of accounts
Allocate To Accounts	Yes	-	Allocate the fills to one or more accounts not established as a group
Auto Allocate	-	-	If checked, turns on automatic allocation and enables the fields for mapping fills to the correct allocation group.
Filter By:	Yes	Account	Only enabled if Auto Allocate is selected. Different options are Account, FFT2, FFT3, Group, Member, Product, Trader
Based On:	Yes	Export Schedule	Only enabled if Auto Allocate is selected. Different options are: <ul style="list-style-type: none"> • Every Fill (once an order is entirely filled or cancelled) • Export Schedule (immediately prior to each scheduled export) • Fill Quantity (when the quantity of all unallocated fills surpasses the entered fill quantity threshold).
Quantity	-	-	Displayed for automatic allocation only if Based on Fill Quantity is selected in the Based On dropdown box. Automatic allocation will occur once all unallocated fills surpass the specified quantity threshold.
Group Name	Yes	-	Name of the group of accounts to be used in the allocation. This is populated based on the groups set up in the Edit Allocation Groups window. The accounts which display in the right side of the fourth pane are dependent on the group selected.
Account Name	-	-	The name of each account in the selected group
Account Number	Yes	-	The number of each account in the selected allocation group.
Percent or Quantity	Yes	-	Depending on the Allocation Method selected on the Allocation Settings screen, either the Percent or Quantity column displays. For Percent, displays the percentage of the total number of fills which should be allocated to each account. For Quantity, displays the actual number of fills which should be allocated to each account. This value is defaulted based on

			the Group setup but can be changed for each fill.
Alloc Field 1	-	-	Optional editable free text drop down 1
Alloc Field 2	-	-	Optional editable free text drop down 2
Alloc Field 3	-	-	Optional editable free text drop down 3
Allocate	-	-	Allocates the fills to the accounts in the percentages/quantities entered. This button will not be enabled until 100% of the total selected quantity is distributed amongst the accounts.
Selected Qty	-	-	Displays the total filled quantity of the selected fills in the top pane.
Total	-	-	Depending on the Allocation Method selected on the Allocation Settings screen, either the Total percent or the Total quantity. If allocating in percentages, the Total field displays the sum of the Percent values entered for each account. It needs to equal 100% before the Allocate button is enabled. If allocating in quantities, the Total field displays the sum of the Quantity values entered for each account. It needs to equal the Selected Qty before the Allocate button is enabled.
Remaining:	-	-	If allocating by percentage, this value displays a percentage amount that needs to be distributed between the allocation accounts before allocation can proceed; this value needs to be 0% before the Allocate button is enabled. If allocated by quantity, this value displays the number of lots that needs to be distributed between the allocation accounts before allocation can proceed; this value needs to be 0 before the Allocate button is enabled.

Below is a second screen shot of the Fill Recapper main window in Unallocated Mode (Figure 2). This version is used to allocate to one or more accounts which may not be part of a group. The Account Number dropdown is populated with all accounts that are included in any groups as well as any account number which has been entered previously while allocating to accounts. The user can also enter up to three additional values for each account's fills. The fields and buttons included in this version of the Allocation Information Pane (Pane 4) are listed. The other panes are the same as Figure 1.

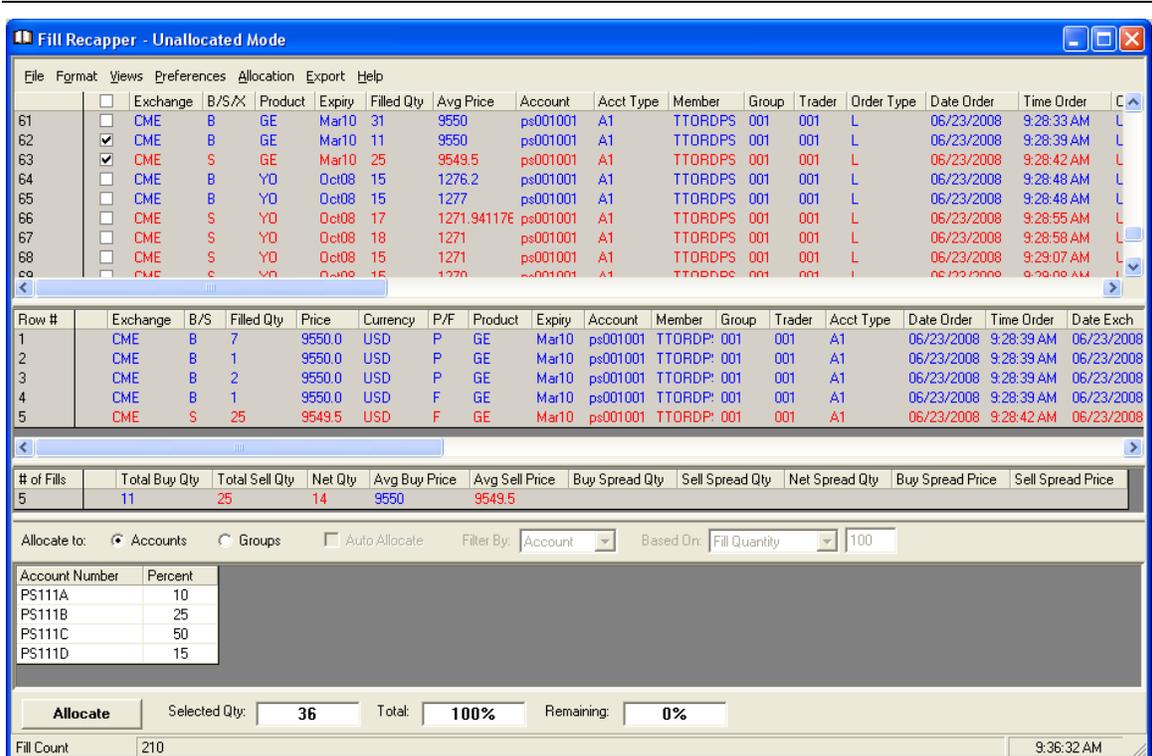


Figure 2. Fill Recapper main window – Unallocated Mode (Allocate To Accounts)

Pane 4: Allocation Pane: Unallocated Mode (Allocate To Accounts)			
Name	Required	Default	Definition
Allocate To Groups	Yes	True	Allocate the fills to a pre-configured group of accounts
Allocate To Accounts	Yes	-	Allocate the fills to one or more accounts not established as a group
Account Number	Yes		The account number of the accounts to which the fills should be allocated
Percent or Quantity	Yes	-	Depending on the Allocation Method selected on the Allocation Settings screen, either the Percent or Quantity column displays. <ul style="list-style-type: none"> Percent displays the percentage of the total number of fills which should be allocated to each account. Quantity displays the actual number of fills which should be allocated to each account.
Allocate	-	-	Allocates the fills to the accounts in the percentages/quantities entered. This button will not be enabled until 100% of the total selected quantity is distributed amongst the accounts.
Selected Qty	-	-	Displays the total filled quantity of the selected fills in the top pane.
Total	-	-	Depending on the Allocation Method selected on the Allocation Settings screen, either the Total percent or the Total quantity. If allocating in percentages, the Total field displays the sum of the Percent values entered for each account. It needs to equal 100%

			before the Allocate button is enabled. If allocating in quantities, the Total field displays the sum of the Quantity values entered for each account. It needs to equal the Selected Qty before the Allocate button is enabled.
Remaining:	-	-	If allocating by percentage, this value displays a percentage amount that needs to be distributed between the allocation accounts before allocation can proceed; this value needs to be 0% before the Allocate button is enabled. If allocated by quantity, this value displays the number of lots that needs to be distributed between the allocation accounts before allocation can proceed; this value needs to be 0 before the Allocate button is enabled.

Below is a third screen shot of the Fill Recapper main window in Allocated Mode (Figure 3). This view is used to inspect the fills which have already been allocated along with specifics about the allocation. The fields included in this view of the Allocation Information Pane (Pane 4) are listed. The other panes are the same as Figure 1.

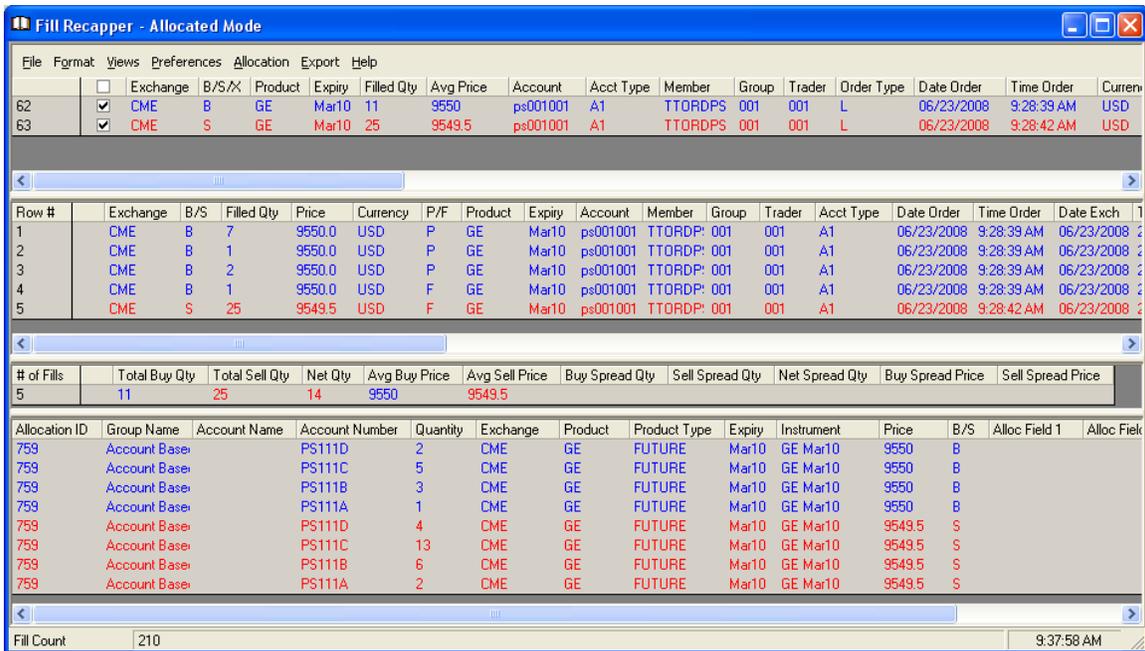


Figure 3. Fill Recapper main window – Allocated Mode

Pane 4: Allocation Pane: Allocated Mode			
Name	Required	Default	Definition
Allocation ID	-	-	The Id of the Allocation. Each time fills are allocated, a new id is generated. This id can be used for tracking purposes as it continually increments and remains unique for the install lifetime of the application.
Group Name	-	-	The name of the Allocation Group that received the selected fills
Account Name	-	-	The name of the accounts to which the fills were

			allocated
Account Number	-	-	The number of the accounts to which the fills were allocated
Quantity	-	-	The quantity allocated to each account
Exchange	-	-	Exchange at which the fill was executed
Product	-	-	The name of the product
Product Type	-	-	The product type such as FUTURE, SPREAD, OPTION, STRATEGY, etc.
Expiry	-	-	The expiration month/year of the product
Instrument	-	-	Product symbol plus the expiration month/year
Price	-	-	The price of fills allocated to each account
B/S	-	-	(B)uy or (S)ell
Alloc Field 1	-	-	Free text value 1
Alloc Field 2	-	-	Free text value 2
Alloc Field 3	-	-	Free text value 3
Exported	-	-	Indicates whether or not the allocation of the fill has been exported.

Fill Recapper Main Window – Functionality

1. On startup of the application, the fills for the day download. Once completed, they will be displayed in the top pane. New fills and working orders will be added automatically to the grid throughout the day. When in Unallocated Mode, however, Partial Fills and Working Orders will not be displayed since they cannot be allocated. Orders that were partially filled and then cancelled will display.
2. Double clicking on the data within a cell in the top pane will apply a Filter for that column with the Filter data set to the cell data that was double clicked.
3. If filters are active for Pane 1, a “Remove All Filters” button will display in the menu to indicate that filters are being used as well as provide the ability to easily remove all of the filters.
4. The Main Window is broken down into three main panes, the Trade Pane, Aggregate Pane and Summary Pane. The Trade Pane contains all of the filled, partially filled, and depending on the settings it can also contain the working and/or deleted orders. There is a selection checkbox enabling the multi-select of many fills to combine their details in the Aggregate and Summary Panes. The Aggregate Pane enables the partial fills to be viewed in three different modes: All Fills, Aggregate by Product, and Aggregate by Price. The All Fills setting will display all of the partials in the pane. The Aggregate by Product option will aggregate all of the partial fills by price for each product and side of the trade. The Aggregate by Price option will aggregate all of the partial fills by price, irrespective of the product, enabling multiple products to be merged and aggregated to the same price levels. The Summary Pane details the total quantities and average prices for the selected fills in the Trade Pane.
5. A fourth pane will be visible on the Main Window if either in Unallocated or Allocated Mode. The allocation configuration pane is visible while in the Unallocated Mode. The allocation percentages, accounts, and settings can be made in this pane. The allocated grid pane is

visible while in Allocated Mode. The Allocations can be viewed by selecting the desired fills from the Trade Pane. All fills associated with a selected allocation will also be selected to view the entire allocations fills.

6. The Trade Pane columns can be re-positioned and resized to any desired location and size. Clicking on the column header will sort the fill information by the selected column.

Allocation Pane: Unallocated Mode – Functionality

1. Group information is saved in a flat file called GroupAllocation.cfg and it is located in the Fill Recapper\Config directory.
2. An Account Number is required for each account in each group. Duplicate account numbers cannot be entered within the same group.
3. Scrollbars will display in the Group Names and Account Names list boxes if all rows cannot display within the viewing area.
4. The user can enter into the Automatic allocation criteria column one or more criteria values; it is important to note that the criteria values entered for one group must be unique to that group. For example if the automatic allocation is based on Trader, one or more Trader Id values (separated by commas) can be mapped to each group. A wildcard "*" (no quotes) can be used to indicate that if all other filters are not met than to use this allocation group. The same Trader Id cannot be mapped to more than one group.
5. If Fill Recapper is set up to automatically allocate, it is possible to have unallocated fills at the end of the trading session, particularly if the Frequency selected is Based on Fill Quantity or Export Schedule. Note well that for best results, use Frequency of Every Fill. Tie-breaking information is stored on a per-allocation account basis in the GroupAllocation.cfg file in the Fill Recapper\Config folder; when automatically allocating by Every Fill, this tie-breaking accuracy retains the best distribution results.
7. Fills can be allocated based on Percentages or Quantities. This is set on the Allocation Settings screen.
8. When allocating, if the percentages or quantities are changed and the total does not equal 100% or the selected fill quantity, the Allocate button will not be enabled. The Allocate button is only enabled after all fills have been accounted for.
9. The quantity allocated to each account is based on the specified Percentage or the Quantity entered. If Percentages are entered, the Quantity Allocation Process is run in order to determine the appropriate quantities (see Figure 10).
10. If the Allocation Settings are set so that only fills for certain accounts require allocation (see Figure 5), then only fills for those accounts will display while in Unallocated mode.

Allocated fills can be de-allocated. In order to de-allocate, select the appropriate fill(s) in Allocated Mode and right-click in the Allocation Pane. A menu will appear with the option to Delete Allocation ID: #. Clicking on that option will remove the allocation information for all fills that were allocated at that time (all fills with that Allocation ID). See the Export – File section for information on how allocated and de-allocated fills are displayed in the export file.

Filter Information

The Fill Recapper has an advanced filtering system similar to X_TRADER®. Multiple filters can co-exist allowing the user to view selected rows in the top Trade pane. Double clicking on an individual cell will apply a filter for the column with the filter set to the cell's contents. Right clicking on the column headers displays a filtering window enabling the user to select a range or group of items to filter. One or many items or a range can be selected to filter against. Below is a screen shot of the Filter Fill Information window (Figure 6).

Clicking on the single forward arrow (>) adds the highlighted item to the right-hand side. Clicking the double forward arrow (>>) will add all of the items to the right-hand side. Similarly, clicking on the single back arrow (<) or double back arrow (<<) will remove either the selected item or all of the items from the right-hand side respectively. All of the items on the right-hand side will be used as the filter criteria. Range filtering is available for numerical fields. If the user enables the Select on Click feature (visible when the filter is being applied to a column that doesn't filter by a range), a filter criteria will be added to the right-hand side when the user clicks on the criteria in the left-hand column.

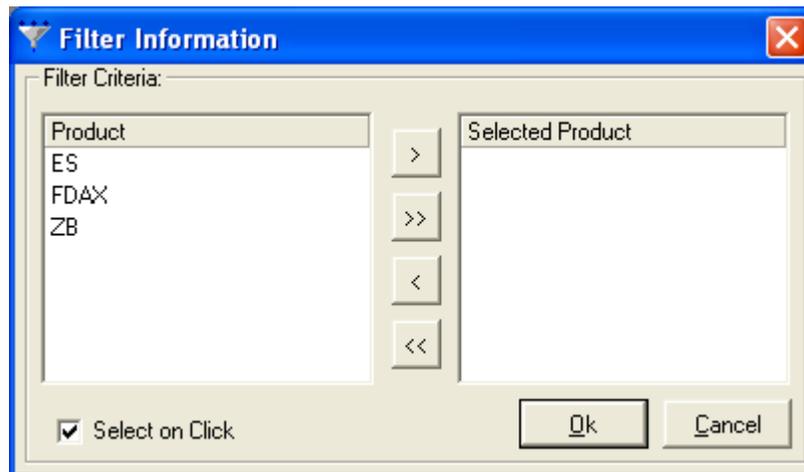


Figure 6. Filter Fill Information

Add View

The Add View window enables the user to save the current filter set with a unique name. This name will then be added to the list of available Views. Selecting this view from the available list of views will filter the data according to the filter set within this view. If this value is set to an existing view name, the user can choose to overwrite that filter view with the current filter set.

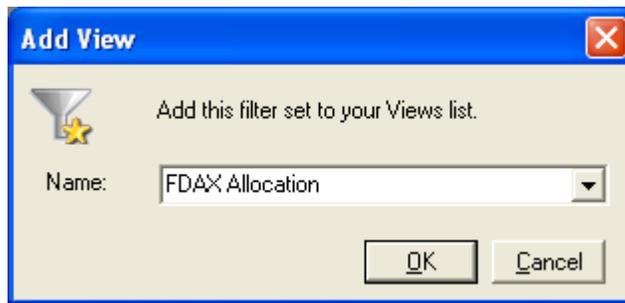


Figure 7. Save Filter View

Organize Views

The Organize Views window allows the user to interact with the saved views. The user can select the view in the top pane and the details of that filter are displayed in the second pane. View names can be changed through double clicking on the view name. Views can be deleted by right clicking on the desired view and selecting Delete View from the popup menu. Views can be rearranged by left clicking and dragging the filter view name to the new desired position within the list of views.

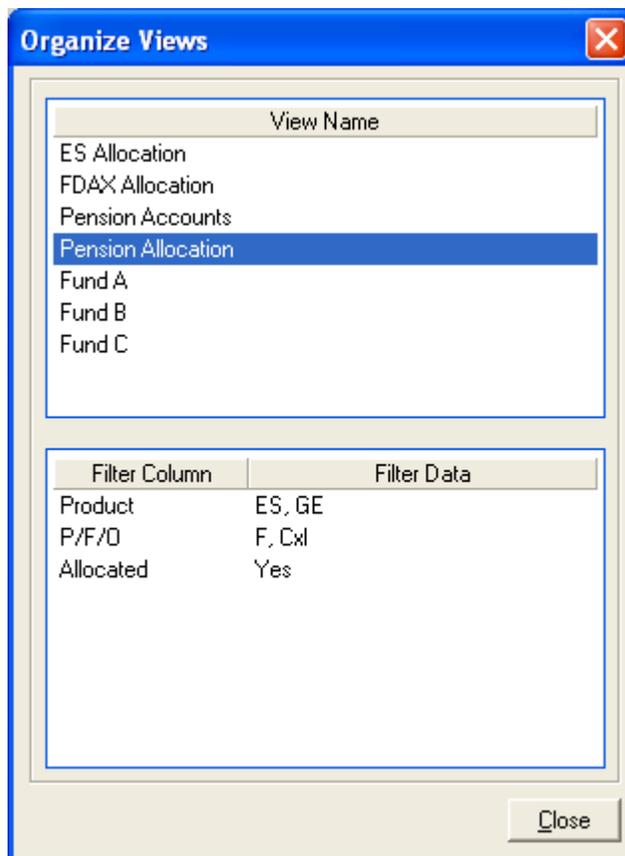


Figure 8. Organize Filter Views

Hide/Show Columns

The columns in the top Trade pane of Fill Recapper can be hidden or shown to display a custom column layout. Right clicking on the top pane and selecting Hide/Show columns from the pop-up menu will display the Hide/Show Columns window as in Figure 9.



Figure 9. Hide/Show Columns

Grid Formatting

All of the grids can be custom formatted by changing the colors, font, font characteristics and text justification. Partially filled orders can be highlighted in a different back color; the default back color is yellow. Completely filled orders can be highlighted in a different back color, the default color is gray. Outright Sell, Outright Buy, Buy Spread and Sell Spread Fills can be highlighted in a different foreground color code to distinguish between them. The default values are: red, blue, dark blue and dark red respectively. Working orders that are not partially filled can also be highlighted with a custom back color, the default color is white. Held and Deleted orders can also be highlighted with a different back color, the default back colors are Orange and Light Brown. Figure 10 below illustrates the *Select Colors* windows.

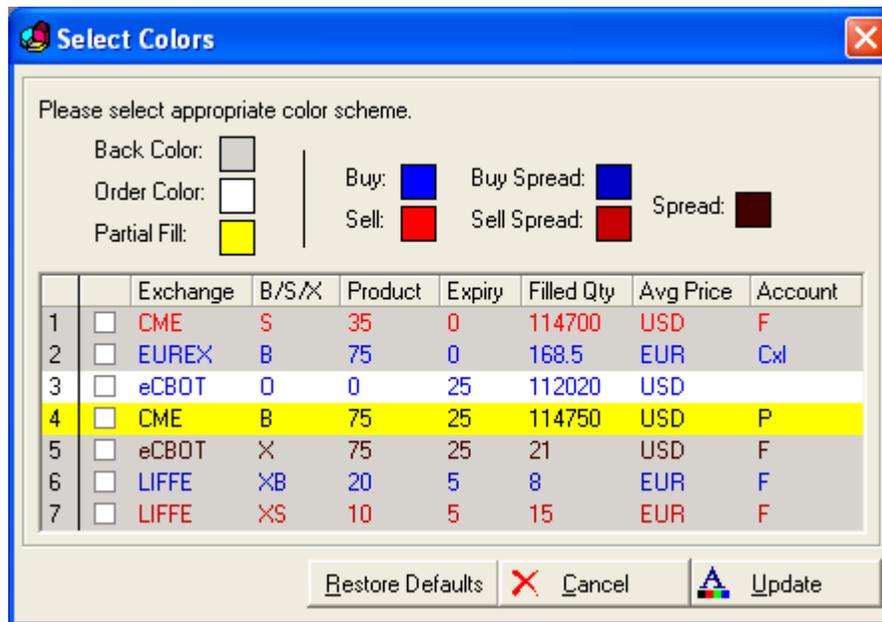


Figure 10. Select Colors Window

Allocation Settings

The Allocation Settings window allows a user to choose the algorithm which should be used for allocation as well as set several other settings used during the allocation process. A user can also specify whether to allocate the leg fills for a spread or the spread fill itself. This window is used to determine whether the allocation will be done by percentages or by specific quantities. This window can also be used to set up the accounts which will require allocations. By default all accounts can be allocated. However, if the user configures certain accounts to be allocated then only fills for those particular accounts will be displayed in the Unallocated mode, making that window easier to manage. See the Allocation Algorithms section for more information about the four algorithm choices. Below is a screen shot of the Allocation Settings window (Figure 11) along with the associated fields and buttons.

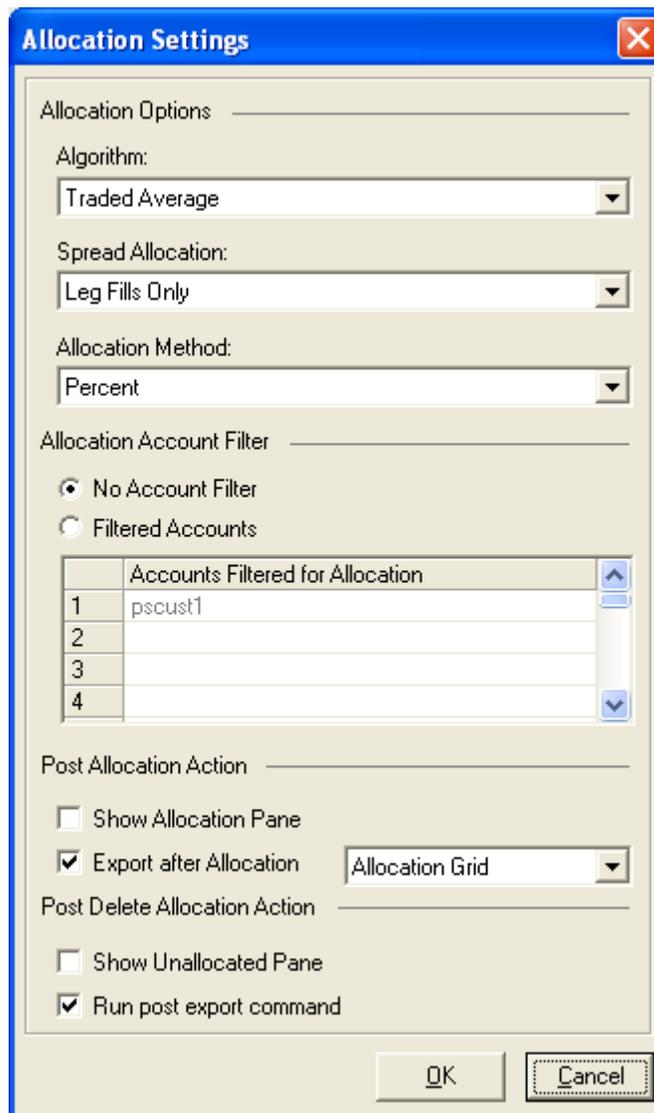


Figure 11. Allocation Settings

Allocation Settings			
Field Name	Required	Default	Definition
Algorithm	Yes	Highest Price to Highest Account Number	<p>There are five options in this dropdown list.</p> <ul style="list-style-type: none"> • Rotation of Accounts: One lots are distributed rotating through each account in the group until each account reaches its allocation quantity. The starting account is rotated through the group after each allocation. • Random Allocation: One lots are distributed randomly to each account in the group until each account reaches its allocation quantity. The lowest priced lots are allocated first. • Highest Price to Highest Account Number: Lots are distributed starting with the highest account number and highest priced lots until each account reaches its allocation quantity. • Average Price and Quantity: A mathematical average of the price is calculated based on the quantity of fills being allocated and the prices of these fills. • Traded Average: Lots are distributed by calculating the theoretical quantity for each account at each price level.
Spread Allocation*	Yes	Leg Fills Only	<p>There are two options in this dropdown list.</p> <ul style="list-style-type: none"> • Spread Fills: Allocate a Calendar Spread based on the spread fill and not on the individual legs. • Leg Fills Only: Allocate the leg fills for a Calendar Spread and not the spread fill
Allocation Method	Yes	Percent	<p>There are two options in this dropdown list.</p> <ul style="list-style-type: none"> • Percent: Allocation account breakdowns are based on percentages • Quantity: Allocation account breakdowns are based on specific quantities for each account
No Account Filter	Yes	True	Designates all accounts as requiring allocation
Filtered Accounts	Yes	-	Designates only the accounts specified as requiring allocation. When selected, only fills for the entered accounts will be displayed in the Unallocated mode.
Accounts Filtered for Allocation	Yes	-	Only enabled if Filtered Accounts is selected. List the accounts that are specified as requiring allocation.
Show Allocation Pane	-	Unchecked	Automatically switch the Fill Recapper main window to Allocated mode after an allocation is complete.
Export after Allocation	-	Unchecked	Automatically export after each allocation. The export format will occur based on the export settings specified. Select the corresponding Allocation Export mode from the adjacent combo box.
Show Unallocated	-	Unchecked	Automatically switch the Fill Recapper main window to Unallocated mode after an Allocation ID has been de-

Pane			allocated.
Run post export command	-	Checked	Run the post export command for the deleted Allocation ID if it has been previously exported.
OK	-	-	Saves the Allocation Settings and closes the window.
Cancel	-	-	Closes the window without saving any modifications made to the Allocation Settings.

* Currently Calendar Spreads are the only officially supported spread type although others may also allocate successfully.

Allocation Context Menus

The Allocation context menus allow for a quick access to either switch modes or modify the characteristics of the Groups. Figures 12a, 12b and 13 below illustrate these menus, where the Allocation Mode set to Percent in figure 10a and to Quantity in figure 10b. There are different items available based on the current Allocation Method and Allocation mode.

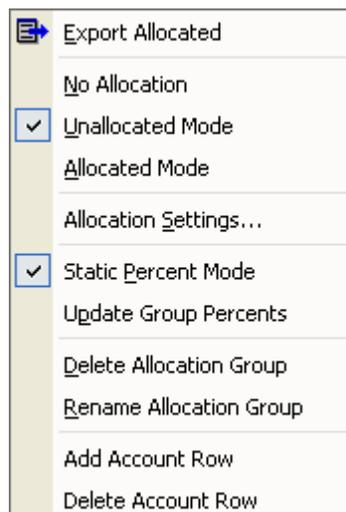


Figure 12a. Unallocated Menu

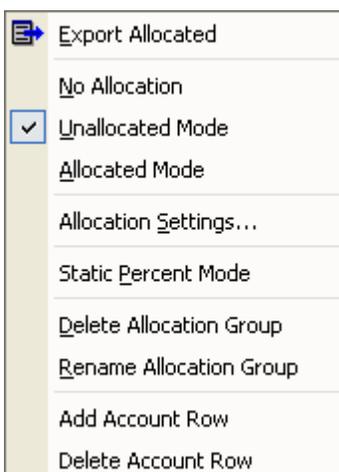


Figure 12b. Unallocated Menu

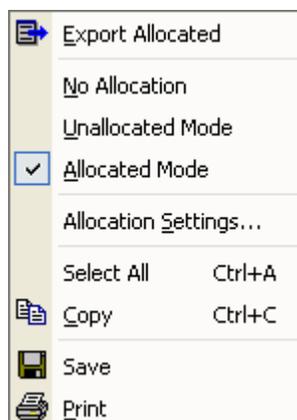


Figure 13. Allocated Menu

Fill Recapper Main Window – Menu	
Export Allocated	Create an export file based on the current Export Settings. The possible menu text for this item is “Export Fills”, “Export Aggregate”, or “Export Allocated”.
No Allocation	Select the Allocation mode of the screen. Choose either No Allocation, Unallocated Mode, or Allocated Mode.
Unallocated Mode	
Allocated Mode	
Allocation Settings...	Opens the Allocation Settings window to specify global allocation settings.
Static Percent Mode	When deselected the updates to the account percentages will dynamically update the Group's percentages and remain while moving between Groups or after allocating. When selected the updates will only apply for the next allocation and will revert back to their original or default values.

Update Group Percents	Works in conjunction with Static Percent Mode to update the groups default percents when Static Percent Mode is enabled.
Delete Allocation Group	Deletes the selected allocation Group. All account configurations and tie breakers for this group will be deleted.
Dynamic Quantity Mode	When selected, while in Allocation Quantity Mode and allocating based on groups, the selected group's quantity values will update to each accounts percentage of the selected quantity. The quantity field will be blue if the value is below, red if the value is above and black if it is the same as calculated quantity value.
Rename Allocation Group	Enables the Group name to be renamed
Add Account Row	Adds a new row to the end of the Accounts Grid
Delete Allocation ID	Deletes the selected Allocation ID

Export

The Export window allows the user to set up the timing and format of the exported fills. Below is a screen shot of the Export window (Figure 14) along with the associated fields and buttons.

Export Settings

Export Configuration

Configuration Name	Export Mode	Fills Exported	New Fills Only	Export Details
Fill Export	Trade Grid	All Fills	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Export Timing

Scheduled Run on Weekends

Frequency	Trigger Time	Dates	Date Range	Times	Time Range
Daily	12:00:00 PM	<input type="checkbox"/>	11/13/2007 11/20/2006	<input type="checkbox"/>	9:00:00 PM 1:59:59 PM

Export Upon Closing Fill Recapper

Output

Output Path	File Mode	Prefix	Extension	Delimiter	Text ID
P:\Projects\Fill Recapper\src\export	New File	Export	.csv	,	(None)

Post Export Command C:\postexport.bat %f

Fields

Available Fields	Selected Fields
Blank 01	Row Number
Blank 02	Exchange
Blank 03	B/S/X
Blank 04	Filled Qty
Blank 05	Wrk Qty
Blank 06	Avg Price
Blank 07	Currency
Blank 08	P/F/D
Blank 09	Product
Blank 10	Expiry

Buttons: Move Up, Move Down, Trade Grid Layout, Include Header Row (checked)

Buttons: Export Fills, Apply, OK, Cancel

Figure 14. Export Settings

Export Settings			
Name	Required	Default	Definition
Configuration Name	Yes	Fill Export	Name of this particular export settings configuration.
Export Mode	Yes	Trade Grid	Please refer Table 1 - Export Details below.
Fills Exported	Yes	All Fills	There are three options in this dropdown list. <ul style="list-style-type: none"> All Fills: Export All Fills that are in the Trade Pane Selected Fills: Only export fills that have been selected in the Trade Pane. Visible Fills: Only export fills that are visible in the pane that is being exported. The Trade Pane can have items that are visible and not selected

			but the Aggregate and Allocation panes can only have items that are Visible. These items can only become visible if they are selected in the Trade Pane.
New Fills Only	-	Checked	Option to only export fills which are new since the last export. If no export occurred since starting the application, all fills will be exported.
Export Details	-	Unchecked	Please refer Table 1 - Export Details below.
Scheduled	Yes	Unchecked	If checked, fills are exported on a scheduled basis.
Run on Weekends	-	Unchecked	Only enabled if Scheduled is selected. If checked, the export will run on weekends (as well as weekdays).
Frequency	Yes	Daily	Only enabled if Scheduled is selected. There are four options in this dropdown list: Daily, Hours, Minutes, Seconds.
Trigger Time	-	12:00:00AM	Only enabled if Scheduled is selected. Only visible if Daily is selected in the Frequency dropdown. Specifies the time during the day when fills will be exported based on the settings that have been configured.
Trigger Rate	-	1	Only enabled if Scheduled is selected. Only visible if Hours, Minutes, or Seconds is selected in the Frequency dropdown. Specifies the time interval at which fills will be exported based on the settings that have been configured.
Dates	-	Unchecked	Only enabled if Scheduled is selected. If checked it designates that the export should start and end on the specified dates
Date Range	-	Current date	Only enabled if Scheduled is selected. Specifies the start date and end date for which the export is scheduled.
Times	-	Unchecked	Only enabled if Scheduled is selected. If checked, it designates that the export should start and end at the specified times.
Time Range	-	12:00AM to 11:59:59	Only enabled if Scheduled is selected. Specifies the start time and end time for which the export is scheduled.
Export Upon Closing Fill Recapper	-	-	Option to export the fills upon shutdown of Fill Recapper based on the specified export settings.
Output Path	Yes	-	Directory where the export file should be saved.
File Mode	-	New File	There are three options in this dropdown list. <ul style="list-style-type: none"> • New File: Creates a new export file if the designated file already exists. The name of the new file is auto-incremented. • Append to File: Appends the data in the existing export file if it already exists. If no file exists, a new export file will be created. • Replace File: Creates a new export file and replaces the existing file if the designated file already exists.
Prefix	-	Export	Prefix of the export file name
Extension	Yes	.csv	The extension of the file name, which denotes the type of file to be created (e.g. .csv or .xls)
Delimiter	Yes	,	Delimiter to be used in the text file. Values are comma,

			tab, semi-colon, and pipe.
Text ID	-	-	Option to use a text identifier for text values; the values are (None), single quote, or double quote.
Post Export Command	-	Unchecked	If checked, indicates that a program should be run each time an export occurs.
Post Export Command	-	-	File path and name of the command that should be executed upon export.
Post Export Command parameter(s)	-	-	Parameters which should be included when the command is run. If there are multiple parameters they should be separated by spaces. If "%f" is included as a parameter, the export file name will be included as a parameter to the command.
Available Fields	-	-	Fields to choose from to be included in the export file.
>	-	-	Moves the selected fields to the right side list box to be included in the export
>>	-	-	Moves all fields to the right side list box to be included in the export
<	-	-	Moves the selected fields from the right side list box to the left list box to no longer be included in the export
<<	-	-	Moves all fields from the right side list box to the left list box to no longer be included in the export
Selected Fields	Yes	-	Fields included in the export file
Move Up	-	-	Moves the selected field forward one position in the export
Move Down	-	-	Moves the selected field back one position in the export
Trade Grid Layout	-	-	Duplicates the existing columns and column order corresponding to the Export Mode.
Include Header Row	-	-	If checked, the first row in the export file will be the field names.
Export Fills	-	-	Immediately exports the fills based on the specified export settings.
Apply	-	-	Saves the current export settings but doesn't close the Export Settings window.
OK	-	-	Saves the export settings and closes the Export Settings window.
Cancel	-	-	Closes the Export Settings window without saving the changes made to the settings.

<i>Export Details</i>		
<i>Export Setting</i>	<i>Export Details Unchecked</i>	<i>Export Details Checked</i>
Trade Grid	Export All Fills that are in the Trade Pane.	Export the Partial Fills for all of the Fills that are in the Trade Pane.
Aggregate Product	Export the fills as they appear in the Aggregate Pane while in Aggregate by Product mode.	Export data broken down by Buys and Sells with the total bought and sold and the average price.
Allocation Grid	Export the Allocation Summary	Export the partial fill details that make up the allocated quantities.

Table 1. Export Details Matrix

Export – Functionality

1. The Post Export Command should be entered with the file path followed by the file name. In Figure 14 the application which should run is postexport.bat and it is located in the root C drive. If the export file name should be included as a parameter to the command, “%f” should be added in post export command parameters textbox as in Figure 14. Then the user created command could automatically replace the export file name for %f as parameter 1 if it included the following line of code: rename %1 newname.csv.

Export – File

1. If an export occurs, but no rows will be included in the file based on the specified export settings, a file will not be created. For example, if New Fills Only is checked, and no new fills have been received, a file will not be created if an export occurs at that time.
2. For fills which are not allocated, the Export file will contain a single row for each order (each TT Order Key) exported unless Export Details is checked. Selecting this checkbox will cause Fill Recapper to export each partial fill as a separate line item in the file when the Export Mode is Trade Grid.
3. For exported fills which are Allocated, the file will contain a row for each of the accounts and each of the price levels to which the order is allocated. For example, if a single order filled at a single price is allocated to three accounts, there will be three rows created in the export file. If a single order was instead filled at two different prices and allocated to three accounts, there could be up to six rows created in the export file. All of these rows will have an Alloc Action of “Add”.
4. For exported fills which are Allocated but then De-Allocated, the file will contain rows for the allocation with an Alloc Action of “Add” as explained above in #2. The file will also contain a second set of those allocated rows, except that the Alloc Action will be “Delete”. A separate file will be created when a previously exported allocation is deleted if the option is enabled on the Allocation Settings window.
5. For fills that were allocated with the Average Price and Quantity allocation, the Allocation Grid export will be exported without Export Details, regardless of whether the Export Details checkbox is selected. This is a result of the individual fill details being lost during averaging process. All other allocation styles will follow the selected export settings.

Allocation Algorithms

1. There are two parts of the fill allocations process: 1) Allocating the Quantity of lots to each account in the group and 2) Allocating the Prices of the lots to the accounts. While these two steps are dependent on each other, the allocation of prices of the lots becomes simpler if the number of lots to be allocated to each account is determined first.
2. The allocating of quantity process involves the following 5 steps. See Figures 15-17 for examples of this process. Note that the tie and rotation tallies cycle on a per account basis. This information is stored in the GroupAllocation.cfg file located in the Fill Recapper\Config folder.
 - Step 1. Multiply the Target Allocation % by the Fill Quantity to get the Target Quantity for each Account. Allocate the whole number quantities of the Target Quantity to each Account.
 - Step 2. If there are still remaining lots to be allocated because of decimal values in the Target Quantity, allocate based on the largest decimal value.
 - Step 3. If there are still remaining lots to be allocated and there is a tie amongst the largest decimal values of the Target Quantity, allocate based on the smallest Tie Winning %. (The Tie Winning % is calculated by dividing the total number of ties the particular Account has won by the total number of ties the Account has participated in).
 - Step 4. If there are still remaining lots to be allocated and there is a tie amongst the largest decimal values of the Target Quantity and the Tie Winning %, allocate based on the smallest # of Winning Ties.
 - Step 5. If there are still remaining lots to be allocated and there is a tie amongst the largest decimal values of the Target Quantity and the Tie Winning %s and the # of Winning Ties, allocate to the accounts on a rotating basis.
3. On the Allocation Settings screen, one of the five algorithms can be selected in order to allocate the appropriately priced lot to each account. CFTC regulations state that the procedures for allocation of orders must be consistently applied by a firm; therefore it is recommended that this setting not be changed.
4. Each of the five algorithms ensures fairness for each order, regardless of the targeted percentage allocated to each account, and adheres to the guidelines provided by CFTC Regulation 1.35.
5. The five algorithms used to allocate the prices of lots to the accounts are: Rotation of Accounts, Random Allocation, Highest Price to the Highest Account Number, Average Price and Quantity, and Traded Average.
 - **Rotation of Accounts:** One lots are distributed rotating through each account in the group until each account reaches its allocation quantity. The starting account is rotated through the group after each allocation. If the fills are allocated to accounts (as opposed to a group), a random number generator will be used to determine which account starts. The lowest priced lots are allocated first. Since larger accounts will reach their allocation quantity last, they will receive more higher prices. Therefore this method is biased against larger accounts when

buying and biased in favor of larger accounts when selling. See Figure 18 for an example of this method.

- **Random Allocation:** One lot is distributed randomly to each account in the group until each account reaches its allocation quantity. The lowest priced lots are allocated first. The chance of each account being selected for a single lot is: $(1/\text{Total Quantity Left}) * \text{Total Quantity Left for Account}$. See Figure 19 for an example of this method.
- **Highest Price to Highest Account Number:** Lots are distributed starting with the highest account number and highest priced lots until each account reaches its allocation quantity. Unlike the first two methods, the entire quantity for an account is allocated before moving onto the next account. Since lower account numbers will reach their allocation quantity last, they will receive lower prices. Therefore this method is biased against higher accounts when buying and biased in favor of higher accounts when selling. See Figure 20 for an example of this method.
- **Average Price and Quantity:** A mathematical average of the price is calculated based on the quantity of fills being allocated and the prices of these fills. At this point, the lots are distributed based on the percentages or quantities that are supposed to go to each account, and the price for each allocated quantity is the mathematical average that was calculated. This method uses rounding and tie-breaking rules as specified in the Quantity Allocation process. See Figure 21 for an example of this method.
- **Traded Average:** Lots are distributed by calculating the theoretical quantity for each account at each price level. This method uses quantity rounding and tie-breaking rules for each price level as specified in the Quantity Allocation process, except when allocating spread legs, when this process can be overruled to ensure that spread legs are paired accurately. See Figure 22 for an example of this method.

Quantity Allocation Process

Example 1					
Fill Quantity:	25				
	Target %	Target Quantity	Step 1	Step 2	Total Allocated
Account A	20%	5	5	-	5
Account B	25%	6.25	6	-	6
Account C	35%	8.75	8	1	9
Account D	20%	5	5	-	5
Totals	100%	25	24	1	25

Figure 15. Quantity Allocation Process – Example 1

Example 2						
Fill Quantity:	32					
	Target %	Target Quantity	Step 1	Step 2	Step 3	Total Allocated
Account A	20%	6.4	6	-	1	7
Account B	25%	8	8	-	-	8
Account C	35%	11.2	11	-	-	11
Account D	20%	6.4	6	-	-	6
Totals	100%	32	31	-	1	32
	Previous Ties			Updated Ties (after Example 2)		
	Total # of Ties	# of Winning Ties	Tie Winning %	Total # of Ties	# of Winning Ties	Tie Winning %
Account A	11	5	45.45%	12	6	50.00%
Account B	19	10	52.63%	19	10	52.63%
Account C	11	5	45.45%	11	5	45.45%
Account D	9	5	55.56%	10	5	50.00%
Totals	50	25		52	26	

Figure 16. Quantity Allocation Process – Example 2

Example 3							
Fill Quantity:	3						
	Target %	Target Quantity	Step 1	Step 2	Step 3	Step 4	Total Allocated
Account A	20%	0.6	-	-	-	-	0
Account B	25%	0.75	-	1	-	-	1
Account C	35%	1.05	1	-	-	-	1
Account D	20%	0.6	-	-	-	1	1
Totals	100%	3	1	1	-	1	3
	Previous Ties			Updated Ties (after Example 3)			
	Total # of Ties	# of Winning Ties	Tie Winning %	Total # of Ties	# of Winning Ties	Tie Winning %	
Account A	12	6	50.00%	13	6	46.15%	
Account B	19	10	52.63%	19	10	52.63%	
Account C	11	5	45.45%	11	5	45.45%	
Account D	10	5	50.00%	11	6	54.55%	
Totals	52	26		54	27		

Figure 17. Quantity Allocation Process – Example 3

Refer to the statistics below for Figures 11-14:

Account	A	B	C	D
Total Quantity	3	12	5	5

Quantity	Price
5	11105
10	11110
10	11115
<hr/>	
25	11111.00

Allocation 1 - Buy 25

Starting Price = **Lowest**, Starting Account = **A**

Lot #	Lot Acct.	A	B	C	D
1	A	11105	-	-	-
2	B	-	11105	-	-
3	C	-	-	11105	-
4	D	-	-	-	11105
5	A	11105	-	-	-
6	B	-	11110	-	-
7	C	-	-	11110	-
8	D	-	-	-	11110
9	A	11110	-	-	-
10	B	-	11110	-	-
11	C	-	-	11110	-
12	D	-	-	-	11110
13	B	-	11110	-	-
14	C	-	-	11110	-
15	D	-	-	-	11110
16	B	-	11115	-	-
17	C	-	-	11115	-
18	D	-	-	-	11115
19	B	-	11115	-	-
20	B	-	11115	-	-
21	B	-	11115	-	-
22	B	-	11115	-	-
23	B	-	11115	-	-
24	B	-	11115	-	-
25	B	-	11115	-	-
Average Price:		11106.67	11112.92	11110.00	11110.00

Results	
A	2 @ 11105, 1 @ 11110
B	1 @ 11105, 3 @11110, 8 @ 11115
C	1 @ 11105, 3 @11110, 1 @ 11115
D	1 @ 11105, 3 @11110, 1 @ 11115

Allocation 2 - Sell 25

Starting Price = **Lowest**, Starting Account = **B**

Lot #	Lot Acct.	A	B	C	D
1	B	-	11105	-	-
2	C	-	-	11105	-
3	D	-	-	-	11105
4	A	11105	-	-	-
5	B	-	11105	-	-
6	C	-	-	11110	-
7	D	-	-	-	11110
8	A	11110	-	-	-
9	B	-	11110	-	-
10	C	-	-	11110	-
11	D	-	-	-	11110
12	A	11110	-	-	-
13	B	-	11110	-	-
14	C	-	-	11110	-
15	D	-	-	-	11110
16	B	-	11115	-	-
17	C	-	-	11115	-
18	D	-	-	-	11115
19	B	-	11115	-	-
20	B	-	11115	-	-
21	B	-	11115	-	-
22	B	-	11115	-	-
23	B	-	11115	-	-
24	B	-	11115	-	-
25	B	-	11115	-	-
Average Price:		11108.33	11112.50	11110.00	11110.00

Results	
A	1 @ 11105, 2 @ 11110
B	2 @ 11105, 2 @11110, 8 @ 11115
C	1 @ 11105, 3 @11110, 1 @ 11115
D	1 @ 11105, 3 @11110, 1 @ 11115

Figure 18. Rotation of Accounts

Allocation 1 - Buy 25

Starting Price = **Lowest**

Chance of each account = ((1/Total Quantity Left) * Total Quantity Left for Account)

Lot #	Lot Acct.	A	B	C	D
1	B	-	11105	-	-
2	B	-	11105	-	-
3	A	11105	-	-	-
4	C	-	-	11105	-
5	B	-	11105	-	-
6	D	-	-	-	11110
7	C	-	-	11110	-
8	B	-	11110	-	-
9	D	-	-	-	11110
10	B	-	11110	-	-
11	C	-	-	11110	-
12	B	-	11110	-	-
13	B	-	11110	-	-
14	A	11110	-	-	-
15	D	-	-	-	11110
16	B	-	11115	-	-
17	B	-	11115	-	-
18	D	-	-	-	11115
19	B	-	11115	-	-
20	D	-	-	-	11115
21	C	-	-	11115	-
22	A	11115	-	-	-
23	B	-	11115	-	-
24	C	-	-	11115	-
25	B	-	11115	-	-
Average Price:		11110.00	11110.83	11111.00	11112.00

Results	
A	1 @ 11105, 1 @ 11110, 1 @ 11115
B	3 @ 11105, 4 @ 11110, 5 @ 11115
C	1 @ 11105, 2 @ 11110, 2 @ 11115
D	3 @ 11110, 2 @ 11115

Allocation 2 - Sell 25

Starting Price = **Lowest**

Chance of each account = ((1/Total Quantity Left) * Total Quantity Left for Account)

Lot #	Lot Acct.	A	B	C	D
1	B	-	11105	-	-
2	D	-	-	-	11105
3	B	-	11105	-	-
4	C	-	-	11105	-
5	B	-	11105	-	-
6	C	-	-	11110	-
7	A	11110	-	-	-
8	B	-	11110	-	-
9	B	-	11110	-	-
10	B	-	11110	-	-
11	D	-	-	-	11110
12	C	-	-	11110	-
13	A	11110	-	-	-
14	B	-	11110	-	-
15	D	-	-	-	11110
16	B	-	11115	-	-
17	C	-	-	11115	-
18	D	-	-	-	11115
19	B	-	11115	-	-
20	C	-	-	11115	-
21	B	-	11115	-	-
22	B	-	11115	-	-
23	D	-	-	-	11115
24	A	11115	-	-	-
25	B	-	11115	-	-
Average Price:		11111.67	11110.83	11111.00	11111.00

Results	
A	2 @ 11110, 1 @ 11115
B	3 @ 11105, 4 @ 11110, 5 @ 11115
C	1 @ 11105, 2 @ 11110, 2 @ 11115
D	1 @ 11105, 2 @ 11110, 2 @ 11115

Figure 19. Random Allocation

Allocation 1 - Buy 25

Starting Price = **Highest**, Starting Account = **D**

Biased Against Higher Accounts when Buying

Lot #	Lot Acct.	A	B	C	D
1	D	-	-	-	11115
2	D	-	-	-	11115
3	D	-	-	-	11115
4	D	-	-	-	11115
5	D	-	-	-	11115
6	C	-	-	11115	-
7	C	-	-	11115	-
8	C	-	-	11115	-
9	C	-	-	11115	-
10	C	-	-	11115	-
11	B	-	11110	-	-
12	B	-	11110	-	-
13	B	-	11110	-	-
14	B	-	11110	-	-
15	B	-	11110	-	-
16	B	-	11110	-	-
17	B	-	11110	-	-
18	B	-	11110	-	-
19	B	-	11110	-	-
20	B	-	11110	-	-
21	B	-	11105	-	-
22	B	-	11105	-	-
23	A	11105	-	-	-
24	A	11105	-	-	-
25	A	11105	-	-	-
Average Price:		11105.00	11109.17	11115.00	11115.00

Results	
A	3 @ 11105
B	2 @ 11105, 10 @ 11110
C	5 @ 11115

Allocation 2 - Sell 25 (same as Allocation 1)

Starting Price = **Highest**, Starting Account = **D**

Biased In Favor of Higher Accounts when Selling

Lot #	Lot Acct.	A	B	C	D
1	D	-	-	-	11115
2	D	-	-	-	11115
3	D	-	-	-	11115
4	D	-	-	-	11115
5	D	-	-	-	11115
6	C	-	-	11115	-
7	C	-	-	11115	-
8	C	-	-	11115	-
9	C	-	-	11115	-
10	C	-	-	11115	-
11	B	-	11110	-	-
12	B	-	11110	-	-
13	B	-	11110	-	-
14	B	-	11110	-	-
15	B	-	11110	-	-
16	B	-	11110	-	-
17	B	-	11110	-	-
18	B	-	11110	-	-
19	B	-	11110	-	-
20	B	-	11110	-	-
21	B	-	11105	-	-
22	B	-	11105	-	-
23	A	11105	-	-	-
24	A	11105	-	-	-
25	A	11105	-	-	-
Average Price:		11105.00	11109.17	11115.00	11115.00

Results (same as Allocation 1)	
A	3 @ 11105
B	2 @ 11105, 10 @ 11110
C	5 @ 11115

D	5 @ 11115
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D	5 @ 11115
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Figure 20. Highest Price to Highest Account Number

5 @ 11105	Theo Qty	Act Qty
A (12%)	0.6	1
B (48%)	2.4	2
C (20%)	1	1
D (20%)	1	1

10 @ 11110	Theo Qty	Act Qty
A (12%)	1.2	1
B (48%)	4.8	5
C (20%)	2	2
D (20%)	2	2

10 @ 11115	Theo Qty	Act Qty
A (12%)	1.2	1
B (48%)	4.8	5
C (20%)	2	2
D (20%)	2	2

Based on the quantities and prices being allocated, the calculated mathematical average is 11111.0.

Allocation 1 – Buy 25	
Results	
A	25 * .12 = 3 @ 11111.0
B	25 * .48 = 12 @ 11111.0
C	25 * .20 = 5 @ 11111.0
D	25 * .20 = 5 @ 11111.0

Allocation 2 – Sell 25	
Results (same as Allocation 1)	
A	25 * .12 = 3 @ 11111.0
B	25 * .48 = 12 @ 11111.0
C	25 * .20 = 5 @ 11111.0
D	25 * .20 = 5 @ 11111.0

Figure 21. Average Price and Quantity

5 @ 11105		Theo Qty	Act Qty
A (12%)		0.6	1
B (48%)		2.4	2
C (20%)		1	1
D (20%)		1	1

10 @ 11110		Theo Qty	Act Qty
A (12%)		1.2	1
B (48%)		4.8	5
C (20%)		2	2
D (20%)		2	2

10 @ 11115		Theo Qty	Act Qty
A (12%)		1.2	1
B (48%)		4.8	5
C (20%)		2	2
D (20%)		2	2

Allocation 1 - Buy 25

Lot #	Lot Acct.	A	B	C	D
1	A	11105	-	-	-
2	B	-	11105	-	-
3	B	-	11105	-	-
4	C	-	-	11105	-
5	D	-	-	-	11105
6	A	11110	-	-	-
7	B	-	11110	-	-
8	B	-	11110	-	-
9	B	-	11110	-	-
10	B	-	11110	-	-
11	B	-	11110	-	-
12	C	-	-	11110	-
13	C	-	-	11110	-
14	D	-	-	-	11110
15	D	-	-	-	11110
16	A	11115	-	-	-
17	B	-	11115	-	-
18	B	-	11115	-	-
19	B	-	11115	-	-
20	B	-	11115	-	-
21	B	-	11115	-	-
22	C	-	-	11115	-
23	C	-	-	11115	-
24	D	-	-	-	11115
25	D	-	-	-	11115
Average Price:		11110.00	11111.25	11111.00	11111.00

Allocation 2 - Sell 25 (same as Allocation 1)

Lot #	Lot Acct.	A	B	C	D
1	A	11105	-	-	-
2	B	-	11105	-	-
3	B	-	11105	-	-
4	C	-	-	11105	-
5	D	-	-	-	11105
6	A	11110	-	-	-
7	B	-	11110	-	-
8	B	-	11110	-	-
9	B	-	11110	-	-
10	B	-	11110	-	-
11	B	-	11110	-	-
12	C	-	-	11110	-
13	C	-	-	11110	-
14	D	-	-	-	11110
15	D	-	-	-	11110
16	A	11115	-	-	-
17	B	-	11115	-	-
18	B	-	11115	-	-
19	B	-	11115	-	-
20	B	-	11115	-	-
21	B	-	11115	-	-
22	C	-	-	11115	-
23	C	-	-	11115	-
24	D	-	-	-	11115
25	D	-	-	-	11115
Average Price:		11110.00	11111.25	11111.00	11111.00

Results	
A	1 @ 11105, 1 @ 11110, 1@11115
B	2 @ 11105, 5 @11110, 5 @ 11115
C	1 @ 11105, 2 @11110, 2 @ 11115

Results (same as Allocation 1)	
A	1 @ 11105, 1 @ 11110, 1@11115
B	2 @ 11105, 5 @11110, 5 @ 11115
C	1 @ 11105, 2 @11110, 2 @ 11115

D	1 @ 11105, 2 @11110, 2 @ 11115
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D	1 @ 11105, 2 @11110, 2 @ 11115
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Figure 22.Traded Average

Fill Recapper Files

Fill Recapper has many files used to store settings and manage persistence for allocated and exported items. During the process of allocation and exporting, Fill Recapper can create numerous files. An administrator may wish to archive and remove these files from the system from time to time. Files which should not be archived and removed are listed below. These files are critical to the reliable functioning of Fill Recapper. These files can be found within the Fill Recapper folder, installed by default at C:\TT\Prof Serv\Fill Recapper. The files within the Fill Recapper\Data directory with the date/time stamp appended to the name can be safely archived and removed as well as any file within the Export directory.

File Location	Example File Name	Description
Fill Recapper\Config	FillRecapper.cfg	Configuration file used to store all of the default settings for the application including, column location and width, Preference Settings, and Color settings.
Fill Recapper\Config	ExportSettings.cfg	Configuration file used to store all of the export configuration details. Copying this file to another computer's Fill Recapper\Config directory will enable sharing of export settings that were saved.
Fill Recapper\Config	GroupAllocation.cfg	Configuration file used to store all of the Allocation configuration details. Copying this file to another computer's Fill Recapper\Config directory will enable sharing of Allocation settings that were saved.
Fill Recapper\Data	AllocationItems.dat	A persistence file used to store the allocated TT Order Keys and Allocation IDs that were allocated during the current instance of the application. This file is loaded upon launching the application and any previously allocated fills will be flagged based on data in this file. When Fill Recapper closes, this file is updated to contain only the currently allocated items to keep this file's size to a minimum. If Archive Log Files is selected, this file will be renamed prior to this clean up process.
Fill Recapper\Data	AllocationDetails.dat	A persistence file used to store the details for the allocated items. The details contain an Allocation ID that is mapped back to the fills based on the AllocationItems.dat file. When Fill Recapper closes, this file is updated to contain only the currently allocated items to keep this file's size to a minimum. If Archive Log Files is selected, this file will be renamed prior to this clean up process.
Fill Recapper\Data	ExportedFills.dat	A persistence file used to store the TT Order Keys of the Fills that were exported. This file follows the same rules as the AllocationItems.dat file.

Fill Recapper\Data	ExportedPartialFills.dat	A persistence file used to store the TT Order Keys of the Partial Fills that were exported. This file follows the same rules as the AllocationItems.dat file.
Fill Recapper\Data	ExportedAllocationIDs.dat	A persistence file used to store the TT Order Keys of the Allocated Items that were exported. This file follows the same rules as the AllocationItems.dat file.

Note: No files are ever removed by the application, including log files and persistence files used to track allocations and exports. These may be removed by an administrator periodically and archived if so desired.

Requirements

This application requires:

- X_TRADER® API
- X_TRADER® Pro