



Client Software Feature Guide

INTRODUCTION

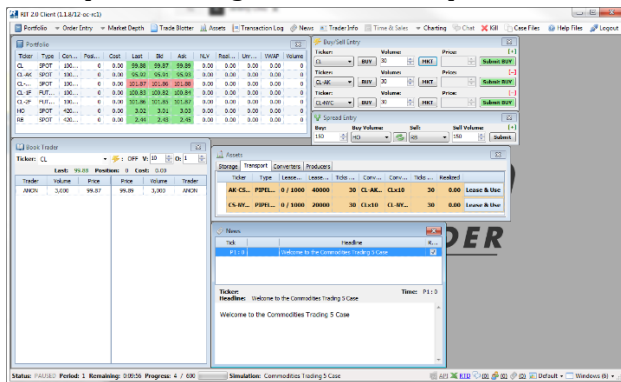
Welcome to the RIT Market Simulator (RIT 2.0). This document assumes that you have installed the RIT Market Simulator 2.0 client application (RIT Client).

Please go to <https://inside.rotman.utoronto.ca/financelab/rit-downloads/> if you have not yet installed the RIT Client.

This document will provide a step-by-step tutorial of the RIT Client interface using the Liability Trading 3 (LT3) Case.

TRADING INTERFACE

The RIT Client has been designed with a customizable and modular trading interface. Each module has its own distinct functions and will allow you to observe different types of data available to the market (i.e. prices or news). Upon logging into the RIT Client, you will either see a customized workspace with multiple modules (left), or an empty workspace (right). RIT 2.0 saves the workspace arrangement of the previous trader's screen whenever the program is closed.



Example of a previous trader's workspace



Example of an empty workspace

For learning purposes, it is best to start with an empty workspace. You can either individually close each module by clicking the X in the upper right corner of each module, or you can select the "Close All" option from the "Windows" menu located in the bottom-right-hand corner of the RIT Client.

MODULES - MENU

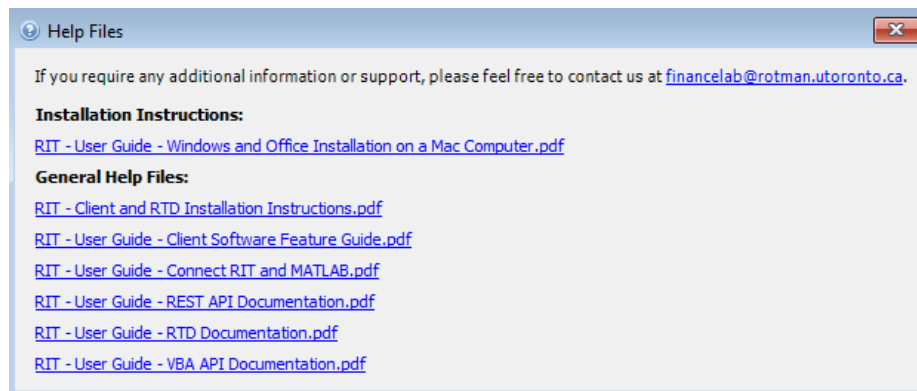
The top bar of the RIT Client is the main navigation menu. Each button on the menu represents a different module in RIT. You can open a new module by clicking on its corresponding button. Note that you can have copies of the same module open at the same time (i.e. you can have two news modules open by left clicking on the News button twice).



This section below will walk you through the functions performed and data presented by each module, as well as the module information presented in the bottom bar of RIT Client (see further below).

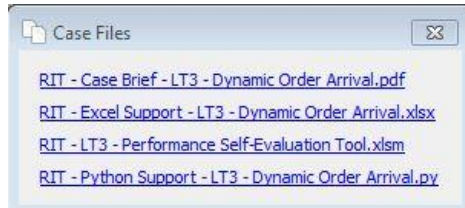
“Help Files”

Help Files allows you to access or download the installation instructions for the RIT Client and Real Time Data (RTD) add-in, the RIT Client Software Feature Guide, and the RTD, REST, VBA Application Programming Interface (API) Documentation.



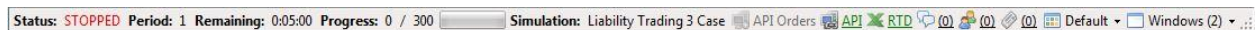
“Case Files”

The Case Files module allows you to access and download the Case Briefs, as well as Excel Support Files and other documents relevant to the Decision Case you are trading. For example, with the Liability Trading 3 Case, the Case Brief will allow you to discover the general setup, the goals, as well as some relevant discussion questions for the case. The Excel Support Sheet and the Python Support File will also allow you to monitor the limit order book for both securities in real-time. The Performance Self-Evaluation Tool allows you to quantify your results once the Case has finished.



Modules – Information

The bottom bar of the RIT Client represents the information regarding the Case currently being traded. You can find whether the Case is running or not, which period the Case is currently in (certain Cases are traded over multiple periods), the time remaining, and which Case you are currently trading. On the right side, you can also find more information regarding the API features available in the Case which will be explained in detail later below. By clicking on the “Default” icon, you can view options to save and load the RIT Client “workspace” allowing you to save the current windows and modules in the current RIT Client workspace and load them later. This feature is extremely useful for setting up a tailored workspace so that you can load it for a later use. The last icon, “Windows”, controls the layout of the windows and modules opened.



RIT API features

The “API Orders” icon on the bottom bar refers to being able to submit orders outside of the RIT Client using Excel VBA API¹ or REST API² through applications or programming languages such as Excel (VBA API), Python (REST API), Matlab (REST API), or C# (REST API), etc. The “API” and “RTD” icons refer to the data retrieval permission via API or Excel RTD. In other words, if these two icons are active, you will be able to “pull” the data from RIT Client into Excel (using Excel RTD) or other applications listed above. If these features are turned off, the icons will be greyed out. If these features are active, the icons will be green. If there are any errors, the icons will be red. By default, both the “API” and “RTD” features are enabled and the “API Orders” feature is turned off for all RIT Cases available from RIT Server except for ALGO Cases where the “API Orders” feature is also turned on.

You can click on the “API” icon to access more detailed information and to configure API settings.

¹ For more detailed information, please refer to the “RIT – User Guide – VBA API Documentation.pdf” document available from “Help Files” from RIT Client

² For more detailed information, please refer to the “RIT – User Guide – REST API Documentation.pdf” document available from “Help Files” from RIT Client

VBA API
Documentation can be found [here](#) and requires the companion [Excel RTD Links](#) installation.

REST API
Interactive documentation can be found at <http://rit.306w.ca/RIT-REST-API/>.

Port: 9999

API Key: DZ4Q7VWQ

Save Cancel

In addition, you can click on the “RTD” icon to access more detailed information about the RTD syntaxes. You can also check the current RTD refresh rate (throttle interval) settings by clicking on this link. If you would like to know more about this refresh rate, please refer to the ‘*RIT – Client and RTD Installation instructions.pdf*’ document.

RTD Info

Documentation can be found [here](#) and requires the companion [Excel RTD Links](#) installation.

Excel Syntax: =RTD("RIT2.RTD",,"[Field1]","[Field2]","[Field3]")

RTD Refresh Interval (ms): 1000

OK

“Portfolio”

The Portfolio module gives you a snapshot of all securities in the market and your positions in each of them.

Ticker	Type	Contract Size	Position	Cost	Last	Bid	Ask	NLV	Realized P&L	Unrealized P&L	VWAP	Volume
CRZY	STOCK	1 Shares	0	0.00	8.98	9.04	9.05	0.00	0.00	0.00	9.29	435,300
TAME	STOCK	1 Shares	0	0.00	24.77	24.71	24.77	0.00	0.00	0.00	24.58	410,600

Ticker: An alphanumeric short form of a longer security name. E.g. Home Depot’s stock ticker is “HD”, a 6 Month Treasury bill is “TB6M”.

Type: Indicates the type of the security traded. The five types of securities in RIT 2.0 are: STOCK, SPOT, FUTURE, INDEX, and OPTION.

Contract Size: Indicates the unit multiplier of each position held in the respective security.

Position: Indicates how many contracts or shares of a particular security you are currently holding, or how many contracts you are short. A positive quantity indicates a long position and a negative quantity indicates a short position. To get the actual holding of a security, multiply the position with the contract

size. For example, a position of 5 in a security with contract size “1 Share(s)” means that you are currently long 5 shares of the security.

Cost:	Indicates the Volume Weighted Average Price of your current position. If you purchased 500 shares of CRZY stock at \$10.00 and 500 at \$11.00, your cost for these 1000 thousand shares of CRZY would be \$10.50. If you have a short position, the cost is the average selling price of those shares.
Last:	Indicates the price of the last transaction. A green background indicates that the last transaction was higher than the previous trade (up tick). A red background indicates the opposite (down tick).
Bid:	Indicates the highest price a market participant is willing to pay for the security.
Ask:	Indicates the lowest price a market participant is willing to sell the security at.
NLV:	Indicates the value of the security if the current position is closed immediately at the best bid (for long positions) or ask (for short positions).
Realized P&L:	Indicates how much money you have made or lost on the positions that you have already closed. Trading commissions paid on trades are automatically marked as a loss in the Realized P&L column.
Unrealized P/L:	Indicates how much you would make or lose from your current position if you were to close out the entire position at the best bid (for long positions) or ask (for short positions), excluding commissions.
VWAP:	Indicates the Volume Weighted Average Price of all trades in the market for the security.
Volume:	Indicates the cumulative number of shares traded.

“Market Depth”

There are two different styles of Market Depth view: Book Trader and Ladder Trader. Each one is discussed in the following sections.

Book Trader

The Book Trader allows you to see the central limit order book for a particular security. It summarizes the demand and supply of the market, and creates an environment where traders can see the buy/sell orders in order of descending competitiveness.

The Book Trader has two sections: BID and ASK. Every active market has participants willing to buy and sell securities. BID, located in the three columns on the left side of the order book, displays participants advertising their willingness to purchase securities. ASK, located

Trader	Volume	Price	Price	Volume	Trader
ANON	11,200	10.00	10.02	4,900	ANON
ANON	300	9.99	10.05	8,400	ANON
ANON	8,500	9.99	10.07	11,400	ANON
ANON	11,900	9.97	10.08	11,200	ANON
ANON	200	9.96	10.08	9,900	ANON
ANON	11,600	9.95	10.12	10,900	ANON
ANON	8,100	9.94	10.12	10,300	ANON
ANON	9,200	9.93	10.12	8,400	ANON
ANON	7,400	9.86	10.12	11,400	ANON
ANON	10,900	9.80	10.13	10,300	ANON
ANON	8,300	9.79	10.13	10,700	ANON
ANON	11,100	9.74	10.14	9,700	ANON
ANON	11,200	9.62	10.14	9,600	ANON
ANON	11,600	9.56	10.19	11,400	ANON
ANON	12,100	9.18	10.38	10,400	ANON
ANON	9,500	9.08	10.47	9,600	ANON

in the three columns on the right side of the order book, displays participants advertising their willingness to sell securities.

A **bid** is an order to buy a certain volume of a security at a specific price. Each row on the left side of the order book is a bid. As you can see from the screenshot, Broker ANON submitted a bid to buy 11,200 shares of CRZY at \$10.00. This bid will stay in the order book until the stock price moves to that level, i.e. until someone is willing to sell the stock at \$10.00. Once someone sells 11,200 shares of CRZY to ANON (“hits ANON’s bid”), we say the order is filled and it will disappear from the order book.

An **ask** is an order to sell a certain volume of a security at a specific price. Each row on the right side of the order book is an ask. In the screenshot above, Trader ANON is willing to sell 4,900 shares of CRZY at a price of \$10.02 per share. This ask will stay in the order book until someone is willing to buy 4,900 or more shares at \$10.02. Bids and asks that are hit will flash red and stay on the screen for $\frac{1}{4}$ of a second before disappearing.

- Note that the bids are ranked in descending order and the asks in ascending order. This is so that the best bid (highest bid) and best ask (lowest ask) are always shown at the top of the order book. If you need to buy or sell immediately, you can look at the top few lines to see the price(s) that you can transact at. The difference between the best bid and best ask is called the **bid-ask spread**.
- If you want to buy shares but are unwilling to pay the price of the best ask, an alternative method is to submit a bid as a limit order. This will insert your order into the order book (or limit order book) and broadcast the order to all traders via their order books. This will be discussed further below under the “Order Entry” section.
- A valuable piece of information the order book provides is the liquidity of the market. Liquidity can be described as the degree to which a large number of shares can be transacted

with a minimum impact on price. A practical way of assessing liquidity is to see how close the bids and asks (in terms of price) are, and the volume available at each price level.

- The order book is colour-coded so that users can easily identify what is happening. Any new order that is placed into the limit order book will flash green for ¼ of a second, any order that is transacted against flashes red for ¼ of a second, and any limit order in the book that belongs to you will be highlighted in blue.
- Note that your position and cost for a particular security are displayed at the top of the order book for your convenience. This corresponds to the “Position” and “Cost” field also displayed in your Portfolio.

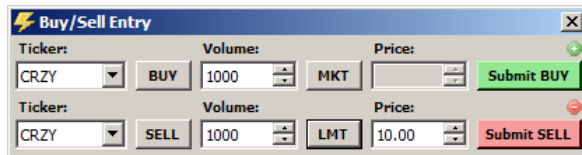
Ladder Trader

The ladder trader analyzes the current market liquidity by displaying the aggregate number of shares that market participants wish to buy/sell at each specific price.

- There are five columns in the Ladder trader: Bid Qty, Bid Size, Price, Ask Size and Ask Qty.
- The Price Column lists in descending order the prices closest to the current market price.
- The Bid Size column lists the total bid volume available for each price. The Ask Size column lists the total ask volume available for each price.
- The distance between the top-most bid row and the bottom-most ask row is the bid-ask spread.
- The Bid Qty column displays the volume of your limit buy order at a specific price. The Ask Qty column displays the volume of your limit sell order at a specific price.
- Similar to the Book Trader, your position and cost on the security are displayed at the top of the Ladder Trader window.
- As you place an order at a specific price that is below (above) the best ask (bid) price, the Bid/Ask Size on the Ladder Trader will automatically increase by the specific quantity that you ordered. (Take a look at the circled shape on the screenshot above which illustrates this point).
- To cancel the limit order, simply left click on the quantity ordered in the “Bid Qty” or “Ask Qty” column.

Bid Qty	Bid Size	Price	Ask Size	Ask Qty
		22.73		
		22.72		
		22.71	10,100	2,000
		22.70		
		22.69		
		22.68		
		22.67		
		22.66		
		22.65		
		22.64		
		22.63		
		22.62		
		22.61		
		22.60		
3,000	18,200	22.59		
		22.58		
		22.57		
		22.56		

“Order Entry”



The screenshot shows a window titled "Buy/Sell Entry" with two identical forms stacked vertically. Each form has three columns: "Ticker:", "Volume:", and "Price:". The top form has "CRZY" in the Ticker dropdown, "BUY" in the order type dropdown, "1000" in the Volume field, and "MKT" in the order type dropdown. The bottom form has "CRZY" in the Ticker dropdown, "SELL" in the order type dropdown, "1000" in the Volume field, and "10.00" in the Price field. Both forms have "Submit BUY" and "Submit SELL" buttons respectively. There are also "+" and "-" signs in the top right corner of each form.

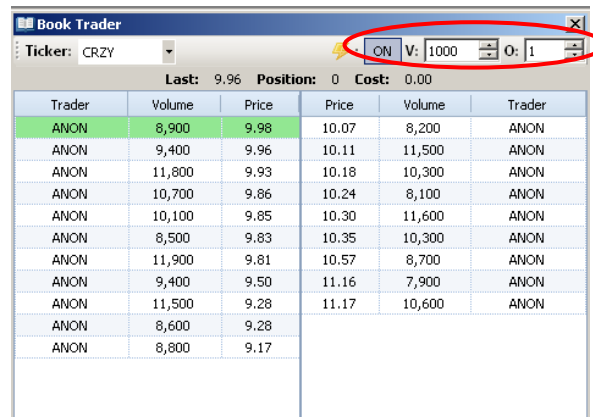
The order entry screens allow you to specify trade parameters before submitting your trading orders to the trading server. Your order will either transact with existing orders in the limit order book (you submitted a market order), or be added to the orders listed in the limit order book (you submitted a limit order). For every order, you will need to specify the security that you wish to trade by selecting its ticker. Then, click on the “BUY” button (toggle) to switch between BUY and SELL, and input the volume of shares you would like to transact. There are two types of orders you can use – a market order or a limit order. This is controlled by the LMT/MKT toggle. Lastly, if you are submitting a limit order, you will need to specify a price. Changing parameters on the order entry screen will not submit an order. The only time an order will be submitted to the limit order book is when you click “Submit BUY” or “Submit SELL”. The picture above depicts two order entry windows.

- When you submit a **market order**, it transacts at the current best bids or asks, taking into account the liquidity of the market. The benefit of the market order is that your trade goes through immediately. To execute a market order, first click on the “LMT” toggle once. It would become MKT. Note that you cannot specify a price for a market order because your order will be filled at the best prices available in the limit order book. Then click on “Submit BUY” or “Submit SELL” to transmit the order to the server. Your position should change immediately.
- A **limit order** is used to execute a trade at a specific price. There is no guarantee the order will be filled. To submit a limit order to sell 1000 shares of CRZY at \$10.00, set the volume to 1000 shares and set the price to \$10.00, set the MKT/LMT toggle to LMT, and then press “Submit SELL.” If your limit buy order is below the best ask or your limit sell order is above best bid, you will see your order added to the order book. Otherwise, it will be treated as a market order.
- The volume and price control buttons change the values by 10 shares and 1 cent respectively. Alternatively, you can type directly into the fields.
- To open multiple order entry windows, click on the “+” sign located at the top right corner of the first order entry window. To close extra order entry windows, click on the “-” sign located at the top right corner of each entry window.

Alternative to Order Entry Module to enter trades: Book Trader and Ladder Trader Shortcuts


For faster trade execution, trades may be submitted within the Market Depth View under the Book Trader module and the Ladder Trader module.

Book Trader:



The screenshot shows the 'Book Trader' window for ticker 'CRZY'. At the top, there is a lightning bolt icon followed by a box containing 'ON', a volume field 'V: 1000', and an offset field 'O: 1'. Below this, the current market state is shown: Last: 9.96, Position: 0, Cost: 0.00. The main part of the window is a table of orders:

Trader	Volume	Price	Price	Volume	Trader
ANON	8,900	9.98	10.07	8,200	ANON
ANON	9,400	9.96	10.11	11,500	ANON
ANON	11,800	9.93	10.18	10,300	ANON
ANON	10,700	9.86	10.24	8,100	ANON
ANON	10,100	9.85	10.30	11,600	ANON
ANON	8,500	9.83	10.35	10,300	ANON
ANON	11,900	9.81	10.57	8,700	ANON
ANON	9,400	9.50	11.16	7,900	ANON
ANON	11,500	9.28	11.17	10,600	ANON
ANON	8,600	9.28			
ANON	8,800	9.17			

The lightning icon  is a shortcut trading feature in RIT that allows you to enter orders quickly and without using the Order Entry module. If you want to activate this shortcut feature, simply click on the box beside the lightning icon to “ON” which is highlighted in the screenshot above

- Once the “ON” symbol appears, fill in the specified quantity of shares you wish to trade beside “V:” (volume). Then, beside “O:” (offset), set the desired offset value.
- The purpose of the offset function is to increase the best bid or decrease the best ask by the chosen amount to make your order the new best bid/ask.
Note: The value in the offset box is in cents. **O: 1** = \$0.01; **O: 2** = \$0.02

To execute a shortcut limit order:

BUY: LEFT click on the bid order closest to your desired price. This will submit a limit order that is X cents higher than the order you clicked on (X is the value you set for the offset).

- Left clicking an order at the top of the bid book will result in your order being labeled as the best bid and it will be more likely to be filled than others. In the screenshot above, the best bid is currently \$9.98 for 8,900 shares. Based on your current settings, once you LEFT click this order, you will place a new best bid of “\$9.99” for 1,000 shares.

SELL: LEFT click on the sell order closest to your desired price. This will submit a limit order that is X cents lower than the order you clicked on (X is the value you set for the offset).

- Left clicking an order at the top of the ask book will result in your order being labeled as the best ask and it will be more likely to be filled than others. In the screenshot above, the best ask is currently \$10.07 for 8,200 shares. Based on your current settings, once you LEFT click this order, you will place a new best ask of “\$10.06” for 1,000 shares.

* To cancel all your bids/asks: **Alt + Left click on your bids/asks**

To execute a shortcut market order:

BUY: RIGHT click anywhere in the ask book. This will result in your order being filled immediately at the best ask in the order book and for the desired input quantity (“V”) of shares.

SELL: RIGHT click anywhere in the bid book. This will result in your order being filled immediately at the best bid in the order book and for the desired input quantity (“V”) of shares.

* If the desired input quantity (V) is greater than the quantity of shares being quoted at the best bid/ask, the remaining shares will be sold/bought at next best bid/ask and so on, until the desired input quantity of shares is fulfilled.

To execute a swipe order:

- To perform a “swipe buy order”: **Shift + Right Click** on the order with the highest price you are willing to pay in the ask book. You will purchase all shares available for sale up to the price you have selected. Similarly, to perform a “swipe sell order”: **Shift + Right Click** on the order with the lowest price you are willing to sell at in the bid book.

Ladder Trader:

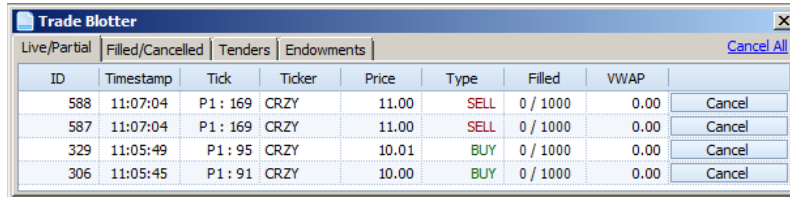
To execute a shortcut limit order:

- With the Ladder Trader, limit orders can be executed by simply left clicking in the “Bid/Ask Size” column next to the desired price. Note the specific quantity you ordered by glancing at the “Bid/Ask Quantity” column.
- In contrast with the Trader Book, there are no market orders with the Ladder Trader as it displays the quantity of shares available at each price. If your volume order is greater than the number of shares available in the market at that price, your order will be partially filled.
- The Ladder Trader does not have an offset button because the ladder view displays the range of the prices at which you may place your order.

Bid Qty	Bid Size	Price	Ask Size	Ask Qty
		22.73		
		22.72		
		22.71	10,100	2,000
		22.70		
		22.69		
		22.68		
		22.67		
		22.66		
		22.65		
		22.64		
		22.63		
		22.62		

“Trade Blotter”

The Trade Blotter organizes all of the trades that you have submitted to the server. You can see the status of current limit orders (and cancel them), as well as review your trading history.



ID	Timestamp	Tick	Ticker	Price	Type	Filled	VWAP	Cancel
588	11:07:04	P1: 169	CRZY	11.00	SELL	0 / 1000	0.00	Cancel
587	11:07:04	P1: 169	CRZY	11.00	SELL	0 / 1000	0.00	Cancel
329	11:05:49	P1: 95	CRZY	10.01	BUY	0 / 1000	0.00	Cancel
306	11:05:45	P1: 91	CRZY	10.00	BUY	0 / 1000	0.00	Cancel

- There are four different tabs within Trade Blotter: Live/Partial, Filled/Cancelled, Tenders, and Endowments.
- A market order is always filled instantly. “Live” status applies to a limit order that has not yet been filled. “Partial” means part of the limit order has been filled. “Filled” quantity indicates how many shares have been filled. Both filled and canceled orders are non-actionable. However, traders have the option to cancel a live or partial order by clicking on the “Cancel” button in the right-most column of the Trade Blotter.” Canceling a partial order only cancels the unfilled portion. You cannot modify existing orders.

Live/Partial tab: Displays all the limit orders that are still active. The Filled column displays the quantity that has been filled out of the size of the limit order (if any).

Filled/Cancelled tab: Displays all the orders that have already been filled or cancelled.

Tenders tab: See section below.

Endowments tab: Displays all ‘endowments’ of securities. N/A for LT3 Case (i.e. no endowment for this case)

Tender Offers:

During the Liability Trading 3 Case, you will occasionally receive a tender offer (also known as an institutional order) indicating that an institution would like to make a trade with you at a specific quantity and price. You may decide to accept or decline the transaction. Several factors should be considered in your decision, as outlined below:

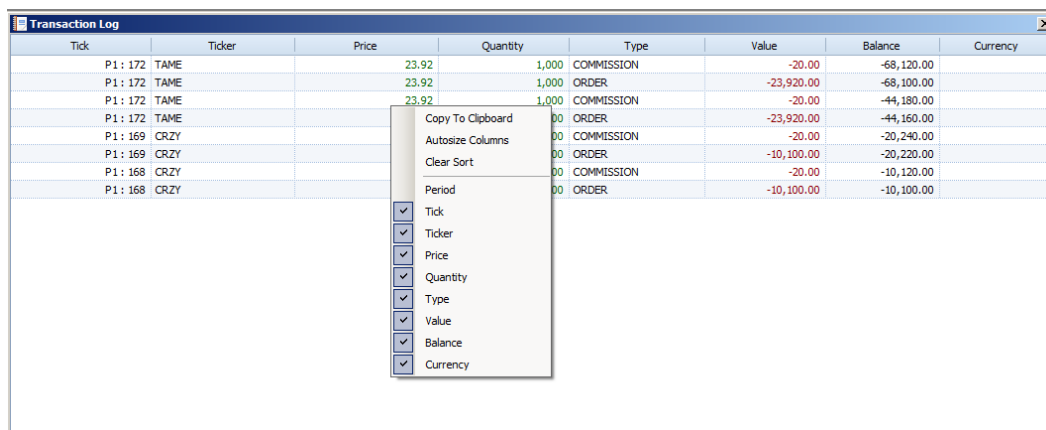


- Price: compare the price specified by the institution with the current market price. Is the price specified in the tender offer more competitive than the current price?
- Volume: compare the volume specified by the institution with the liquidity in the market. Will you be able to unload this volume without causing significant movements in price? If you accept this offer above, you will receive \$810,420 (78,000 * \$10.39) in exchange for 78,000 CRZY shares.

“Transaction Log”

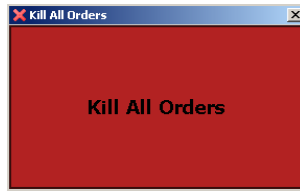
The transaction log displays all of the credits and debits affecting the balance in your trading account. You can export the information from the transaction log to Excel at any time by right clicking and then choosing “Copy to Clipboard” from the dropdown menu, as shown in the screenshot below.

Tick	Ticker	Price	Quantity	Type	Value	Balance	Currency
P1 : 201	CRZY	11.73	100	COMMISS...	-2.00	-1,202.00	
P1 : 201	CRZY	11.73	100	ORDER	-1,173.00	-1,200.00	
P1 : 201	CRZY	11.71	-100	COMMISS...	-2.00	-27.00	
P1 : 201	CRZY	11.71	-100	ORDER	1,171.00	-25.00	
P1 : 200	CRZY	11.80	100	COMMISS...	-2.00	-1,196.00	
P1 : 200	CRZY	11.80	100	ORDER	-1,180.00	-1,194.00	
P1 : 200	CRZY	11.80	100	COMMISS...	-2.00	-14.00	
P1 : 200	CRZY	11.80	100	ORDER	-1,180.00	-12.00	



Once you have copied the data, just paste it in an Excel file and you will automatically have a table.

“Kill”



The Kill All Orders button allows you to cancel all of your live limit orders.

“News”



The News module displays all the relevant news items that are released.

Tick: Indicates the time (in seconds) at which the news item was released.

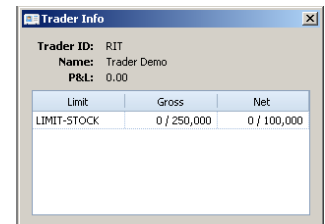
Symbol: Indicates the security associated with the news item, if applicable.

Headline: A short description of the news item.

The content of the news item is displayed in the textbox at the bottom of the News module. You can export the news items by right clicking and then choosing “Copy to clipboard” from the dropdown menu.

“Trader Info”

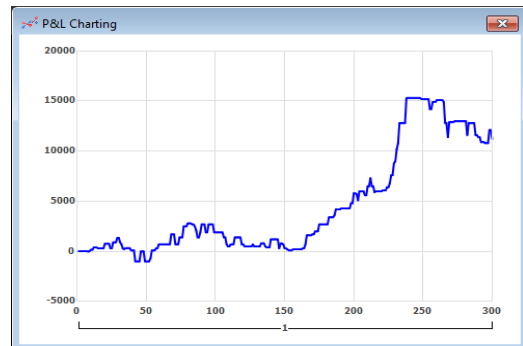
- The Trader Info module displays all information related to your account (Trader ID, Name, P&L and Trading Limits).
- The Trading Limits table at the bottom of the module displays the Gross (absolute) and Net (total) amount of a security you are allowed to be exposed to.



“Charting”

P&L charting

- The P&L Charting displays the profit gained or lost throughout the duration of your trading.
- The Y-Axis represents profit and X-Axis represents the progress of the trading period.



Security charting

- Security Charting plots the price of a security against time in a Candle graph. Enter the ticker symbol of the security you wish to plot in the “Security” text field and press Enter to display the graph. You may also select a security by clicking on the “+” button drop down menu. Find the ticker symbol of the security you wish to plot and press Enter to display the graph.



- You may also add technical indicators (EMA, MA, RSI, etc) to this window by clicking on the “+” button beside “Ind:” and selecting the desired analysis tool.
- You may also track multiple securities simultaneously by clicking on the **Y2** and following the same steps as tracking the first security. You are able to adjust the bar size by clicking on the drop down next to the “S:”, and adjust the width of the bars to the desired size.