



Lightspeed Blackbox Developers Kit (BDK)

Console User's Guide

*Version 1.12
December 21, 2011*

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About this Document

This document describes how to use the console that is provided with Lightspeed's Blackbox Development Kit (BDK). This document describes all console features and uses screen shots to illustrate how a console feature is used.

Who Should Read this Document

This document is intended for anyone who is interested in understanding how to use the Console that is provided with Lightspeed's Blackbox Developers Kit (BDK).

Terminology

Throughout this document the following terms are used:

Term	Definition
BDK	Blackbox Developers Kit. A set of tool that allow Lightspeed customers to quickly develop Blackbox Trading Systems.
BDK Library	A compiled form of the BDK software components common to all Blackbox Trading Systems.
Source Code	The mechanism used to specify the actions to be performed by a computer. Source code is in human readable form and must be compiled before it can run on a computer.
Console	A software application used to configure, monitor and control a Blackbox Trading System.
Remote Console	A console that is running on a computer that is physically located at a different location than the computer the Blackbox Trading System application is running on.
Lightspeed's Blackbox Trading Environment	A set of services provided by Lightspeed that allow customers to develop Blackbox Trading Systems. These services include: market data service, Order entry service, risk management, short availability service, etc..
Blackbox Trading System	A software application developed for the purpose of trading for a profit with little human intervention. Throughout this document the term "Blackbox Trading System" is used to refer to an application that is created compiling the customer's software and linking it with the BDK

	Library.
Trading Strategy Logic	A component of a Blackbox Trading System that will analysis market conditions, and when conditions are met will send buy and sell order to the market.
Position Management Logic	A component of a Blackbox Trading System that will determine when positions will be covered.
Alternative Trading System	A SEC approved, non-exchange trading venue. Refer to Rule 300 (a) of the SEC's Regulation ATS for the legal definition.
API	Application Program Interface. A set of routine, protocols and tools for building software applications.
Lightspeed Gateway	Lightspeed's order entry server. Blackbox Trading Systems connect to the Lightspeed Gateway to send orders to the market and received status about orders form the market.
Short Availability	Information describing whether a security is eligible for short sale, and the number of shares that can be sold short.
Function Call	Refers to the customer's software calling a function provided by the BDK Library.
Call-Back Function	Refers to the BDK library calling a function provided by the customer's software.
Customer's software	Refers to software developed by the customer that is compiled with the BDK Library to create the Blackbox Trading System.
Console operator or Operator	The person responsible for starting, stopping, configuring and monitoring the Blackbox Trading System.

Revision History

The table below records the revision history of this document:

Revision	Date	Changes Made
1.00	March 16, 2010	Initial Document
1.01	May 14, 2010	Modified the description of the Connect to Gateway button. Lightspeed is rolling out a new Gateway and this change is required to support the new Gateway and to accommodate the migration phase.
1.02	August 12, 2010	Updated several screen shots that have changed due to supporting Futures data and Indices.
1.03	August 26, 2010	Updated several screen shots that have changed due to supporting EDGA data source.
1.04	August 31, 2010	Updated the Connect To Gateway section. Now it is much simpler to connect to the Gateway Order Processing System. The operator is simply given a confirmation dialog box. Before the operator was asked if they wanted to perform a rewind, or if they were connecting to a legacy Gateway. This has all be simplified.
1.05	September 8, 2010	Updated several screen shots that have changed due to support Imbalance (IMBL) data.
1.06	September 30, 2010	Change terminology from Black Box to Blackbox and SDK to BDK.
1.07	October 22, 2010	Removed the “Reset Sequence to 1” button from the miscellaneous Dialog box.
1.08	November 11, 2010	Added a description of the Purge Quote buttons that were added to the Market Data Configuration dialog box.
1.09	November 12, 2010	Added a description of a new button in the Miscellaneous dialog box. The new button is used to Clear All Cancel Counters.
1.10	December 16, 2010	Remove Clear Cancel Timer button from the Miscellaneous dialog box.
1.11	March 28, 2011	Made change to the screen shots to reflect that ARCA and BATS pegging orders are now supported.
1.12	December 21, 2011	Made change to the screen shots to reflect the new order type (BBSS).

Contents

1. Introduction.....	1
1.1. Main Screen	2
1.2. Displayed Information:	3
1.3. Main Window Buttons:	7
1.3.1. Connect to BBOX.....	7
1.3.2. Change Global Trading.....	8
1.3.3. Cancel All Order.....	13
1.3.4. Display Winners/Losers.....	14
1.3.5. Get Stats – One Stock	14
1.3.6. Add One Stock.....	16
1.3.7. Connect to Gateway.....	17
1.3.8. Disconnect Gateway	17
1.3.9. Miscellaneous	17
1.3.10. Drop Connection to BBOX.....	18
1.3.11. Modify (Journal) Position.....	18
1.3.12. Toggle Position List Order.....	18
1.3.13. Trade Window	19
1.3.14. Market Data Configuration.....	32
1.3.15. Short Availability Functions.....	38
1.3.16. Account Configuration	40
1.3.17. Shutdown BBOX	43
1.3.18. Liquidate Only Now!	43
1.3.19. Command Line Interface	43

1. Introduction

The source code for a console is provided as part of the BDK. The console is a simple Windows application with very limited Windows functionality. The idea is to provide a basic console that can be used to control and manage the Blackbox Trading System, and can be modified to add customer specific features by a non-Windows programmer. Experienced Windows programmers may want to write their own console application if they desire a more sophisticated Windows application.

The console uses the following windows features:

- Dialog box
- Button
- Edit box
- Text display

Using just these window's features, the console provides the operator with the basic functions needs to control and manage the Blackbox Trading System.

the Blackbox Trading System. The scroll window (not shown in the figure) is used to display information that the Blackbox Trading System wants the operator to be aware of. This will typically be information that is written to a log file.

1.2. Displayed Information:

This section describes the information displayed on the main window.

Title Bar: The Windows title bar at the top of the window shows the console version and the data it was last modified.

Versions: Displays the version of the BDK Library (40.01.08) and the version of the customer's software (1.00.00).

Connection to BBOX: Displays the status of the console's connection to the Blackbox Trading System. "Up" is displayed if the console has established a connection with the Blackbox Trading System. "Down" is displayed if the console is not connected to the Blackbox Trading System.

Active Account: Displays the Active Account number. If the Blackbox Trading System is configured for "Single Account Mode", then "Single Acct" is displayed.

Global Trading State: Displays the "global" trading state. The BDK Library defines four global trading states that are described below.

Displayed Text	Definition
Trade	Automated trading is enabled.
Don't Trade	Automated trading is disabled.
Liquidate Only	Automated trading can only cover existing positions. New positions cannot be opened.
Bail Out	In this state the Blackbox Trading System will attempt to immediately cover all open positions.

Trading Side: Displays whether the Blackbox Trading System can obtain only long positions, only short positions for both (either). The BDK Library defines three values for Trading Side

Displayed Text	Definition
Either	Both long and short positions can be acquired.
Long Only	Only long positions can be acquired.
Short Only	Only short positions can be acquired.

Auto/Manual Mode: Auto/Manual mode refers to how automated trading is started and stopped. The customer can specify a start time and a stop time in the Blackbox Trading System configuration file. When these times are reached the BDK Library will inform the customer's software via a call-back function. The BDK Library will simply notify the customer's software. The customer's software will determine whether to start and stop trading. The Auto/Manual mode features allow the operator to instruct the customer's software whether to start and stop trading when notified, or whether to ignore the notification and do not start or stop automated trading. Setting the Auto/Manual Mode to "Auto" will instruct the customer's software to start and stop trading when notified. Setting the Auto/Manual Mode to "Manual" will instruct the customer's software to ignore the notification and do not start or stop automated trading.

Conn Down Mode: The customer's software is notified by the BDK Library each time a console connection is established or dropped. This allows the customer's software to know how many consoles are connected. Conn Down Mode specifies what action the customer's software should take when no consoles are connected. Three possible actions are defined.

Displayed Text	Definition
Run	Continue automated trading when no consoles are connected.
Stop	Stop all automated trading when no console are connected..
Liquidate Only	Continue automated trading to cover existing positions. Automated trading to obtain new positions is stopped.

Typically the operator will have one ore more consoles connected to the Blackbox Trading System. If all console connection are dropped, the operator may or may not want to continue trading. Trading "blind" can be dangerous, but the operator has the option.

Trailing Stop: Using the Trailing Stop function, the operator can specify a trailing stop loss amount. The BDK Library will maintain the highest P&L obtained during the trading session. If the P&L drops below the highest marked P&L by more then the trailing stop loss amount, then the BDK Library will notify the customer's software via a call-back function. The customer's software can take whatever action it determines to be appropriate.

MDS Status: Market Data Server (MDS) Status is used to inform the operator of the data status for each data source. Each market data source is represented as either a single letter or two letters. The following letters are used:

- Q – Prints and Quote Server
- I – INET
- T – BATS
- G – Direct Edge (EDGX)
- H – Direct Edge (EDGA)
- Ao – Arca OTC
- Al – ARCA Listed
- Ae – ARCA ETF
- S – Short Availability Server

X – Futures Market Data Server (Futures data and Indices)
M – Imbalance data

The letters that represent data sources are color coded to convey the status of the data source. The following color are used:

Red – The Blackbox Trading System is not connected to the data source.
Blue – The Blackbox Trading System is connected to the data source, but has not registered to receive data.
Green – The Blackbox Trading System is connected to the data source and is registered to receive data.

Order Type Status: The Order Type Status is used to inform the operator of the status of each order type. Each order type is represented as a single letter. The following letters are used:

I – INET
A – ARCA
R – RASH
Y – NYSE
E – AMEX
T – BATS
H – EDGA
G – EDGX
O – RASH
J – Jefferies
P – BATS ‘Y’
Z – BBSS

The letters that represent the order types are color coded to convey the status of the order type. The following color are used:

Red – The order type is disabled.
Green – The order type is enabled.

Open Positions: Three values are displayed: the number of open positions, the total number of shares long, and the total number of shares short. For example, if there is 2 long position totaling 500 shares, and 4 short positions totaling 2000 shares, then “6,500,-2000” is displayed.

Live Orders: Displays the number of live buy orders and the number of live sell orders. Live buy orders are displayed on the left, and Live sell orders are displayed on the right. For example, if there are 22 live buy orders and 98 live sell orders, then 22/98 is displayed.

Gross P&L: The Realize Gross P&L is displayed. Realized P&L refers to the P&L of covered positions. Open positions are not included in the Gross P&L calculation.

Shares Traded: Displays the total number of shares traded.

Orders Entered: Displays the total number of orders entered.

SEC Fees: Displays the SEC fees for all trades. The current SEC fee rate is stored in the Blackbox Trading System configuration file and is used to compute the total SEC fees.

ECN/Exch Fees: Displays the ECN and Exchange fees for all trades. The fees charged by each ECN and Exchange are defined in the Blackbox Trading System configuration file and is used to compute the total fees. A negative value indicates a rebate would be received. Note, the console software can be compiled to display the ECN and Exchange fees as one value (as show in the above figure). The console can also be compiled to display each ECN and Exchange fee separately. This results in a more information being displayed and a larger main window. A compiler directive is used to determine which version of the console should be compiled.

Commissions: Displays the Lightspeed commission for all trades. The Lightspeed commission rate is stored n the Blackbox Trading System configuration file and is used to compute the commissions.

Exposure: Displays the exposure for all open positions. Exposure represents the potential Profit or Loss that would be realized if all open position we covered. When calculating exposure, the bid price is used for long positions and the offer price is used for short positions. A negative exposure represents a potential profit. A positive exposure represents a potential loss.

Net P&L: The Realize Net P&L is displayed. Realized P&L refers to the P&L of covered positions. Open positions are not included in the Net P&L calculation. Net P&L is calculated by subtracting fees and commission from the Gross P&L.

NOTE: the P&L, fees and commissions are estimates based on the commission and fee rates provided in the Blackbox Trading System configuration file. ECNs and Exchagnes have complex formulas for calculating fees. The calculation performed by the BDk Library is a simplification of these formulas that results in a good estimate of P&L.

Top Winners and Losers: The 10 most profitable symbols and the 10 symbols with the largest lose are displayed.

Enabled/Disabled Trading Letters: Below the buttons on the left side of the main window are all 26 letters A through Z. Each letter is color coded to indicate whether or not the customer's software has been instructed to trade or not to trade symbols that start with the letter. Green indicates the customer's software has been instructed to trade symbols that start with the letter. Red indicates the customer's software has been instructed not to trade symbols that start with the letter.

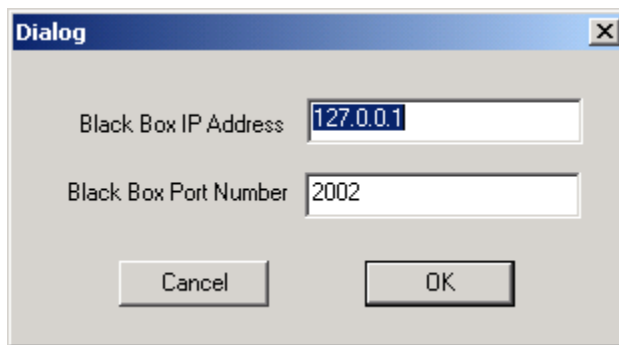
Open positions are listed on the right side of the main window under the headings "**Symbol Pos Exp Price NP&L**". For each open position, the symbol, the current position size, the current exposure, the position price, and the realized Net P&L are displayed. The main window can be enlarged (widened) to display two columns of open positions.

1.3. Main Window Buttons:

This section describes the button located on the left side of the main window.

1.3.1. Connect to BBOX

This button is used to establish a connection with the Blackbox Trading System. When this button is clicked, the following dialog box is displayed.



To establish a connection with the Blackbox Trading System, the operator must type in the IP address of the system the Blackbox Trading System is running on and the port number the Blackbox Trading System listens for console connections on. The port number on which the Blackbox Trading System listens for console connections is specified in the Blackbox Trading System configuration file.

1.3.2. Change Global Trading

This button is used to change trading related parameters. When this button is clicked, the following dialog box is displayed.



Start Trading: When this button is clicked, the console will send a message to the customer's software instructing it to enable automated trading (start trading). When this button is clicked a confirmation dialog box will appear allowing the operator to cancel this function or confirm that they want to perform this function.

Stop Trading: When this button is clicked, the console will send a message to the customer's software instructing it to disable automated trading (stop all trading). When this button is clicked a confirmation dialog box will appear allowing the operator to cancel this function or confirm that they want to perform this function.

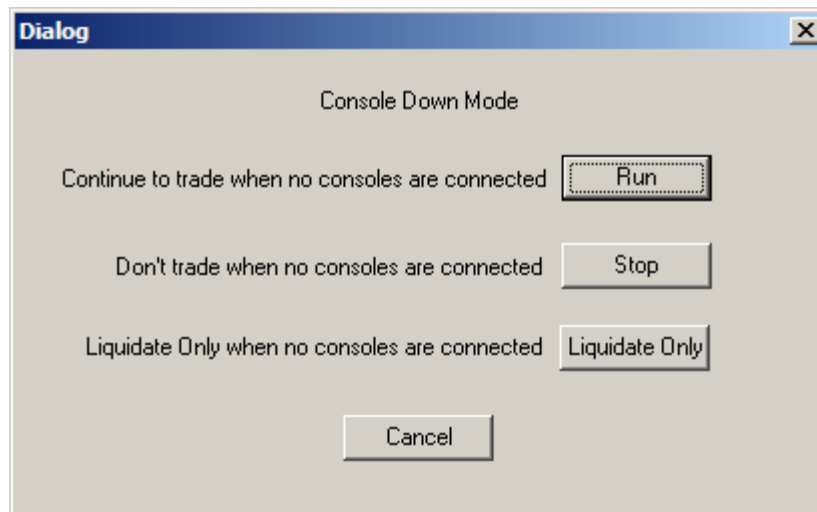
Liquidate Only: When this button is clicked, the console will send a message to the customer's software instructing it to only allow automated trading to cover existing positions. Automated trading will be disabled for opening new positions. When this button is clicked a confirmation dialog box will appear allowing the operator to cancel this function or confirm that they want to perform this function.

Bail Out Now! When this button is clicked, the console will send a message to the BDK Library instructing it to cover all open positions at the market price. Note, the BDK Library will make one attempt to cover a position. When this button is clicked a confirmation dialog box will appear allowing the operator to cancel this function or confirm that they want to perform this function.

Auto (Enable Auto Mode): When this button is clicked, the console will send a message to the customer's software instructing it to automatically start and stop trading based on start and stop times defined in the Blackbox Trading System configuration file. When this button is clicked a confirmation dialog box will appear allowing the operator to cancel this function or confirm that they want to perform this function.

Manual (Enable Manual Mode): When this button is clicked, the console will send a message to the customer's software instructing it to not automatically start and stop trading based on start and stop times defined in the Blackbox Trading System configuration file. When this button is clicked a confirmation dialog box will appear allowing the operator to cancel this function or confirm that they want to perform this function.

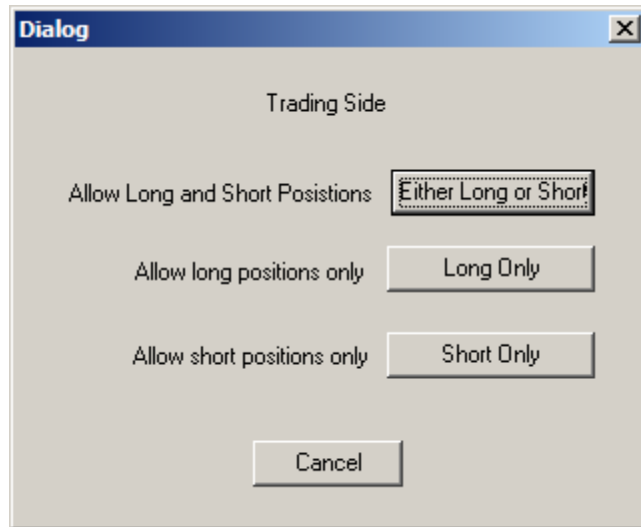
Run w/ Console Down: This button used to instruct the customer's software what action should be taken when no consoles are connected. When this button is clicked, the following dialog box will appear.



If the operator clicks the **Run** button, then the customer's software will be instructed it to continue trading when no consoles are connected. If the operator clicks the **Stop** button, then the customer's software will be instructed it to

stop trading when no console are connected. If the operator clicks the **Liquidate Only** button, then the customer's software will be instructed it to continue automated trading to cover existing position, and to stop trading to obtain new positions.

Set Trading Side: This button is used to instruct the customer's Blackbox software to open either long or short positions, or only long positions or only short positions. When this button is clicked, the following dialog box will appear.

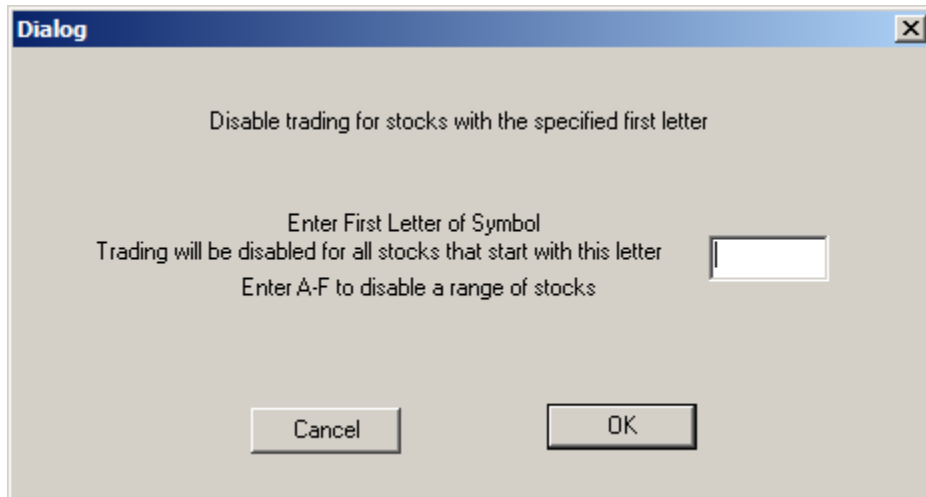


Either Long or Short: Long and short positions are allowed.

Long Only: Only long positions are allowed.

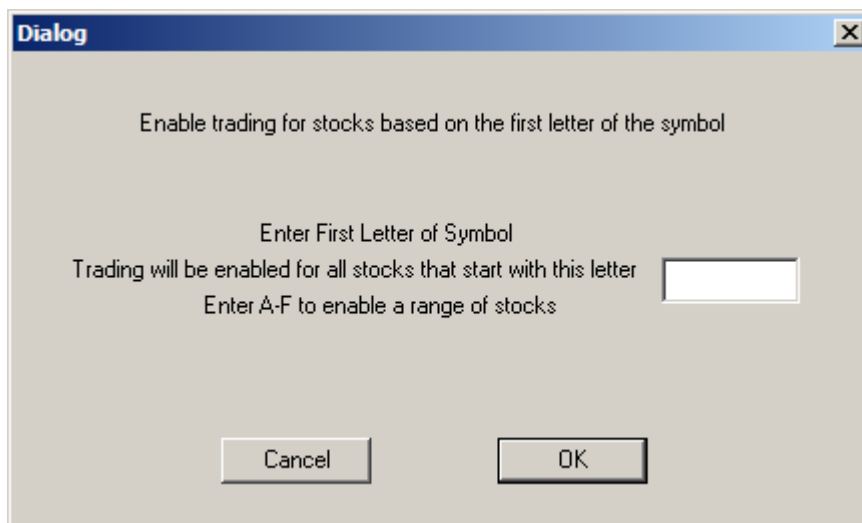
Short Only: Only short positions are allowed.

Disable Trading Letter: This button is used to disable automated trading for security symbols in a specified range based on the first letter of the symbol. When this button is clicked, the following dialog box will appear.



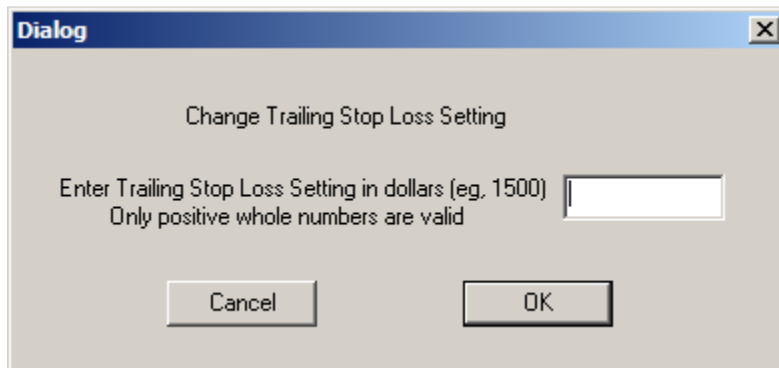
Enter a single letter to disable automated trading for all symbols that start with that letter. To disable trading for a range of symbols, enter the first letter in the range, followed by a dash (-), followed the last letter in the range. For example, enter A-F to disable trading for symbols in the range A through F.

Enable Trading Letter: This button is used to enable automated trading for security symbols in a specified range based on the first letter of the symbol. When this button is clicked, the following dialog box will appear.

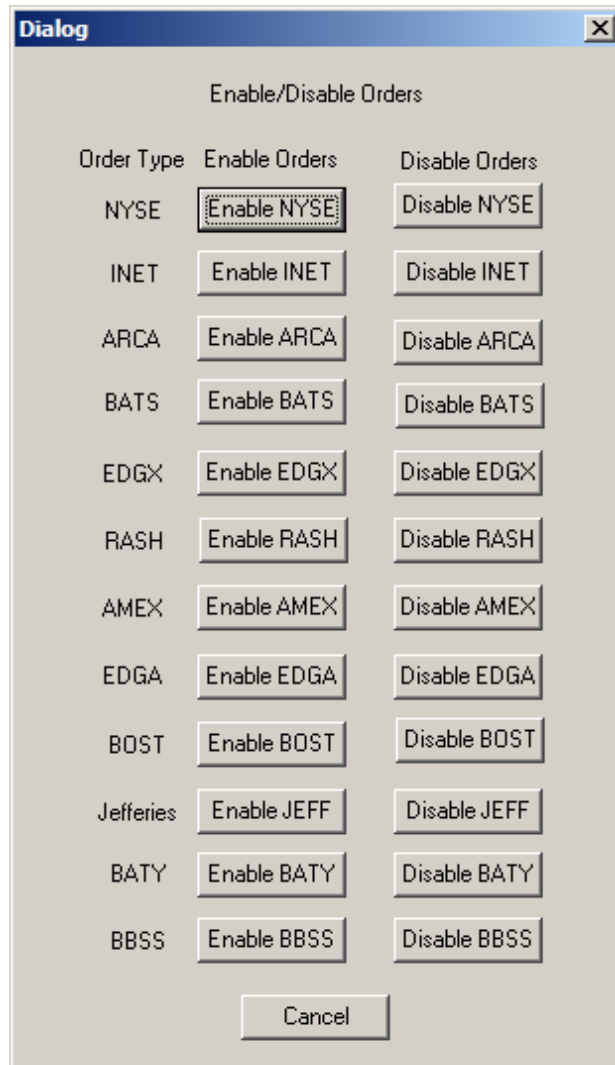


Enter a single letter to enable automated trading for all symbols that start with that letter. To enable trading for a range of symbols, enter the first letter in the range, followed by a dash (-), followed the last letter in the range. For example, enter A-F to enable trading for symbols in the range A through F.

Change Trailing Stop Loss: This button is used specify a trailing stop loss amount. The BDK Library will maintain the highest P&L obtained during the trading session. If the P&L drops below the highest marked P&L by more then the trailing stop loss amount, then the BDK Library will notify the customer's software via a call-back function. The customer's software can take whatever action it determines to be appropriate.



Enable or Disable Order Type: This button is used to instruct the customer's software whether or not to either enter orders of the specified type (enable) or not to enter orders of the specified type (disable). When this button is clicked, the following dialog box will appear.



1.3.3. Cancel All Order

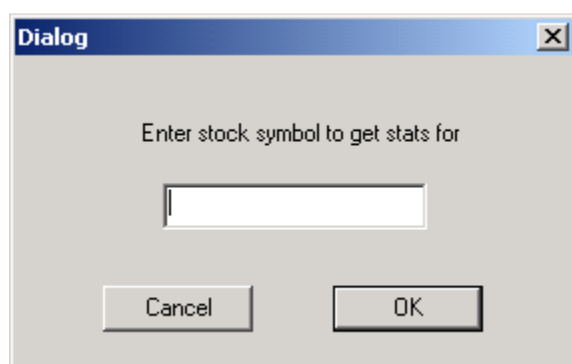
This button is used to cancel all liver orders. The operator should disable automated trading for using this button to cancel all live orders. When this button is clicked a confirmation dialog box will appear allowing the operator to cancel this function (do not cancel all live orders) or confirm that they want to perform this function (cancel all live orders).

1.3.4. Display Winners/Losers

This button is used to display, or refresh the display, of the top 10 most profitable stocks and the 10 largest losing stocks. When this button is clicked, the console will query the Blackbox Trading System for the top 10 winners and losers. The top 10 winners and loser are displayed when the response to the query is received by the console. Note, the top 10 winners and loser are not updated continuously. The display is only updated when this button is clicked. The top 10 winners and losers are displayed in the lower, middle section of the main window.

1.3.5. Get Stats – One Stock

This button is used to display, or refresh the display, of statistics that pertain to one stock. The Statistics for one stock are displayed in the lower, middle section of the main window. See the figure of the main window below. When this button is clicked the following dialog box will appear. The operator can enter the security symbol they want to obtain statistics for.



When a symbol is entered and the OK button is clicked, the console will query the Blackbox Trading System for the statistics. When the console received the query response the following statistics are displayed:

- Stats For Single Stock: The symbol the statistics pertain to (eg, AMZN).
- Last Updated: The time the display was last updated.
- Gross P&L: The gross P&L for the symbol.
- SEC Fees: The SEC fees for the symbol.
- Commissions: The Lightspeed commission for the symbol.
- ECN/Exch Fees: The ECN and Exchange fees for the symbol. This field will be negative if the customer is to receive a rebate.
- Shares Traded: The total number of shares traded for the symbol.
- Orders Entered: The total number of orders entered for the symbol.
- Net P&L: The net P&L for the symbol.
- Current Position: The position size at the time of the query.
- Position Price: The position price at the time of the query.
- Trading State: The symbol's trading state (Trade, Don't Trade, or Liquidate Only)

Lightspeed Gateway Console - Version 1.00.33 - Last Updated 12/19/2011

Symbol	Pos	Exp	Price	NP&L
MSFT	200	1,000	25.00	0
DELL	-200	-3,176	30.00	0

Connect to BBOX	Versions: 40.01.42 1.00.00
Change Global Trading	Connection to BBOX: Up
Cancel All Orders	Active Account: Single Acct
Display Winners/Losers	Global Trading State: Liquidate Only
Get Stats - One Stock	Trading Side: Either
Add One Stock	Auto/Manual Mode: Manual
Connect to Gateway	Conn Down Mode: Stop
Disconnect Gateway	Trailing Stop: -300
Miscellaneous	MDS Status: QIT GH XM Ao Al Ae S
Drop Connection to BBOX	Order Type Status: IAR YETHGOJPZ
Modify (Journal) Position	Open Positions: 2/200/200
Toggle Position List Order	Live Orders: 0/0
Trade Window	Gross P&L: 2,710.00
Market Data Configuration	Shares Traded: 78,000
Short Availability Functions	Orders Entered: 94
Account Configuration	SEC Fees: 47.29
Shutdown BBOX	ECN/Exch Fees: 234.00
Liquidate Only Now!!	Commissions: 195.00
Command Line Interface	Exposure: -2,176.00
	Net P&L: 2,233.71
	Stats For Single Stock: AMZN
	Last Updated: 14:40:13
	Gross P&L: 256.00
	SEC Fees: 4.01
	Commissions: 8.00
	ECN/Exch Fees: 9.60
	Shares Traded: 3,200
	Orders Entered: 16
	Live Orders: 0/0
	Net P&L: 234.39
	Current Position: 0
	Position Price: 0.00
	AMZN Trading State: Trade

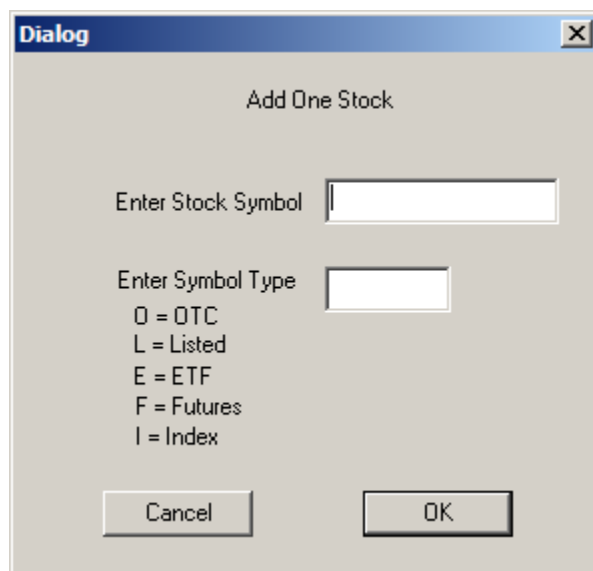
A B C D E F G H I J K L M
 N O P Q R S T U V W X Y Z

1.3.6. Add One Stock

This button is used to inform the BDK Library that a security has been added. The BDK Library needs to know that a new symbol has been added so that it can register to receive market data for the new security. Typically, securities are specified in the symbol.list file. However, the symbol.list file is only read when the Blackbox Trading System is started. This button can be used to add securities after the Blackbox Trading System has been started. When a symbol is added using this button, the symbol is NOT added to the symbol_list file. The operator must manually add the stock to the file if the stock is to be permanently added.

This button will also inform the customer software that a symbol has been added. However, this button only provides the security symbol and symbol type. To actually trade this symbol, the customer's software may need additional information. If the customer's software needs additional trading related information, then the customer must write the code to send the trading information from the console to the customer Blackbox software.

When this button is clicked the following dialog box appears. The operator must enter the symbol and symbol type. Five symbols types are allowed: An 'O' specifies an OTC stock. An 'L' specifies a Listed stock. An 'E' specifies an ETF. An 'F' specifies a Futures contract, and an 'I' specifies an Index.



1.3.7. Connect to Gateway

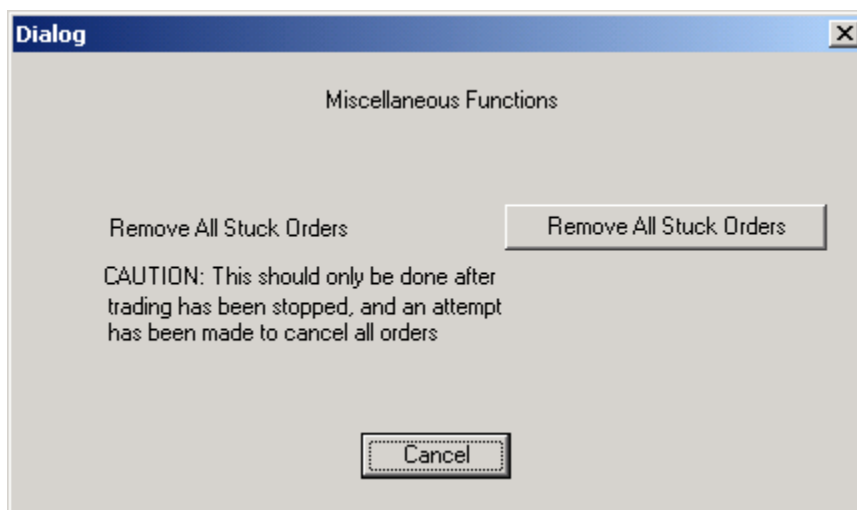
This button is used to establish a connection with the Gateway Order Processing system. When this button is clicked a confirmation dialog box will appear allowing the operator to cancel this function or confirm that they want to perform this function.

1.3.8. Disconnect Gateway

This button is use to drop the connection with the Gateway. When this button is clicked a confirmation dialog box will appear allowing the operator to cancel this function or confirm that they want to perform this function.

1.3.9. Miscellaneous

This button is used to perform miscellaneous function. When this button is clicked, the following dialog box will appear.



Currently there is only one miscellaneous function at this time.

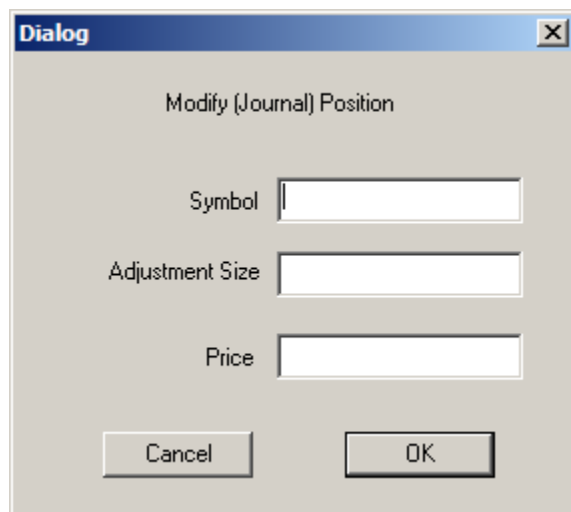
Remove All Stuck Orders: This button is used to remove all “stuck” orders. A stuck order is an order that cannot be canceled. Stuck orders rarely occur and typically only occur when there is a problem with Gateway Order Processing System. If stuck orders occur, this button gives the console operator the ability to remove all stuck orders from the Blackbox Trading System. Caution should be exercised when removing stuck orders. Removing stuck orders should only be done after trading has been stopped, and all attempts have been made to cancel the orders.

1.3.10. Drop Connection to BBOX

This button is used to drop the console's connection to the Blackbox Trading System.

1.3.11. Modify (Journal) Position

This button allows the operator to manually adjust a position. For example, assume a clearing error occurred and the Blackbox Trading System was told by the Gateway that a position of 100 shares of DELL at 15.05 exists. The operator could remove this erroneous position, by using this button to enter a sell of 100 shares of DELL at 15.05. When this button is clicked, the following dialog box will appear.



The image shows a standard Windows-style dialog box titled "Dialog" with a close button (X) in the top right corner. The main title of the dialog is "Modify (Journal) Position". Below the title, there are three text input fields arranged vertically. The first field is labeled "Symbol", the second is labeled "Adjustment Size", and the third is labeled "Price". At the bottom of the dialog, there are two buttons: "Cancel" on the left and "OK" on the right.

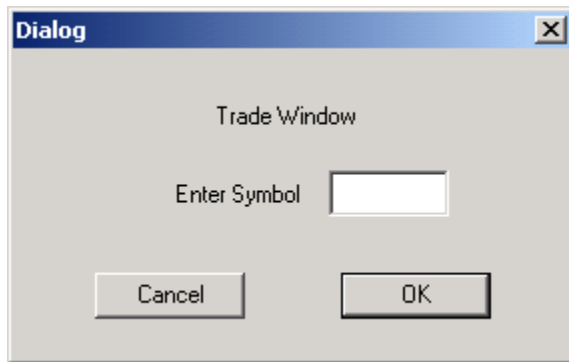
The operator must enter the symbol, the adjustment size, and a price. The adjustment size should be negative to journal a sell (or short position). The adjustment price should be positive to journal a buy (or long position).

1.3.12. Toggle Position List Order

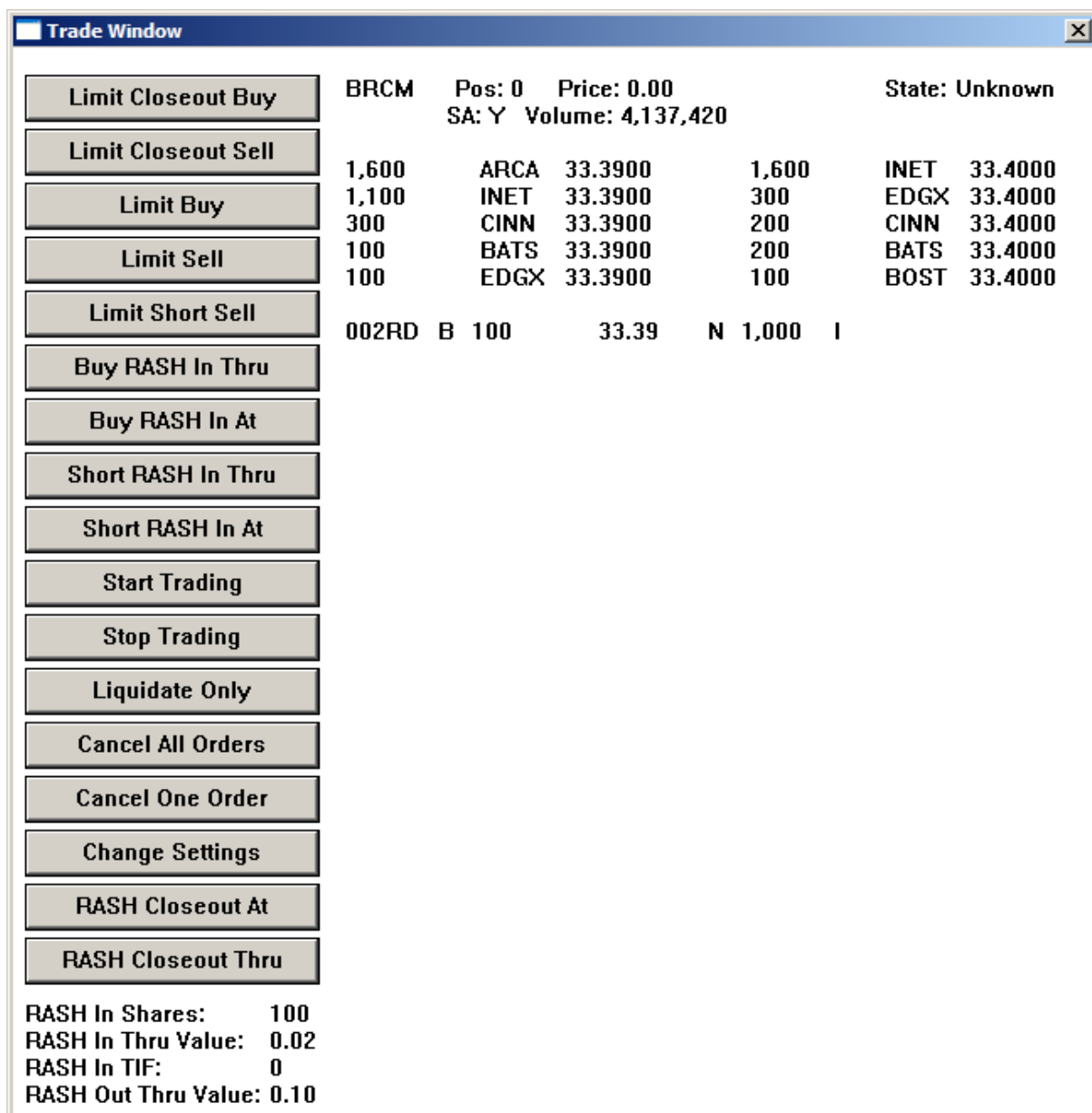
This button is used to change to order in which positions are displayed. Up to 80 positions can be displayed on the right side of the main window. The positions are sorted based on exposure. A negative exposure represents a potential winning trade, and a positive exposure represents a potential losing position. The list of positions can be sorted from low exposure to high exposure, or from high exposure to low exposure. Clicking this button will toggle the way positions are sorted for display.

1.3.13. Trade Window

The trade window is used to display the book for a symbol and to enter manual orders for that symbol. When this button is clicked, the following dialog box will appear.



The operator should enter the desired symbol and click OK. When OK is clicked the following window will appear.



The window above is referred to as the Trade Window. The display portion of the window displays the following information:

Symbol: BRCM is shown in the figure above

Pos: The number of shares long or short. This number will be negative for a short position. There is no position in BRCM in the figure above, so the position is 0.

Price: Indicates the price of the position. In the figure above there is no position, so the price is 0.00.

State: Indicates the automated trading state for the symbol. Possible states are Trade, Don't Trade and Liquidate Only.

SA: Short availability flag. 'Y' indicates the security is available for short sale. 'H' indicates hard to borrow. 'X' indicates not available for short sale. 'T' indicates threshold security, and 'N' indicates short availability is unknown.

Volume: The total daily volume traded for the security.

Bids: The top five bid levels of the level II quotes are displayed. The size, venue and price are displayed. For example, in the figure above, ARCA is bidding 1,600 shares at \$33.39.

Offers: The top five offer levels of the level II quotes are displayed. The size, venue and price are displayed. For example, in the figure above, INET is offering 1,600 shares at \$33.40.

Live orders: Live orders are displayed below the level II quote data. The following information is displayed for live orders:

Order Reference Number:	002RD in the figure above.
Buy or Sell indicator:	B (Buy) in the figure above.
Number of shares:	100 the figure above.
Price:	33.39 the figure above.
Display:	N – Do not display (hidden order), Y – display.
Time in force:	1,000 seconds in the figure above.
Order Type:	In the figure above, 'I' indicates the order type is INET.

Order Parameters: Order parameters are displayed in the lower, left corner of the trade window. The buttons on the left side of the trade window are used to enter orders. Some of the order buttons will cause a dialog box to be displayed and the operator must manually enter all the parameters associated with an order. Other order buttons, which are used to enter orders more quickly, will launch the order when the button is clicked. The operator must specify, a head of time, some of the order parameters for the order buttons that immediately launch orders. For example, the "Buy Rash In Thru" button will launch a RASH order to buy 100 shares (which is specified by the "Rash In Shares" parameter) at a price of 33.42 (the inside offer price plus the .02, which is specified by the RASH In Thru Value parameter), with a time-in-force of 0 (which is specified by the RASH In TIF parameter).

The operator can change the Order Parameters using the "Change Settings" button.

Order Buttons

The order buttons are used to enter orders. The following information must be provided when entering an order:

- Symbol
- Buy/Sell/Short indicator
- Order type (venue)
- Price
- Shares
- Display
- Time-in-force
- Display Shares
- Discretion Offset
- Use DirectPlus
- SuperDot conversion if DirectPlus not available
- Routing Strategy
- Smart Algorithm
- RASH Outbound
- Peg Code
- Peg Difference

Some of the order buttons will cause a dialog box to be displayed and the operator must manually enter the parameters associated with an order. Some buttons will pre-load some of the field to reduce the amount of information the operator must enter. The following dialog box will be displayed for those buttons that require manual entry of some or all of the order parameters.

The image shows a 'Dialog' window titled 'Enter Order'. It contains the following fields and values:

Field Label	Value
Side (B, S, T)	B
Symbol	BRCM
Order Type (I, A, R, Y, E, T, H, G, O, L, B, J, P, Z)	I
Price (eg, 10.05)	33.390
Shares	100
Display (Y, N, P, M, or I)	N
Time In Force (in seconds)	1000
Display Shares	0
Discretion Offset (stop price for Jefferies order)	0.00
Use DirectPlus	Y
SuperDot Conversion if DirectPlus not available	N
Routing Strategy (destination for Jefferies, Broker for BBSS)	
Smart Algorithm	
RASH Outbound	
Peg Code	
Peg Difference	

At the bottom of the dialog are two buttons: 'Cancel' and 'OK'.

Other order buttons, which are used to enter orders more quickly, will launch the order when the button is clicked. The operator must specify, a head of time, some of the order parameters for the order buttons that immediately launch orders.

The following describes the Trade Window Buttons:

1.3.13.1. Limit Closeout Buy

This button is used to cover a short position. When this button is clicked the order dialog box appears and the order parameters will be pre-loaded as follows. The operator can change any of the parameters before clicking OK to launch the order:

Symbol	The symbol the trade window was opened with
Buy/Sell/Short indicator	B
Order type (venue)	INET
Price	The best bid price
Shares	The size of the current short position
Display	N
Time-in-force	1000 seconds
Display Shares	0
Discretion Offset	0.00
Use DirectPlus	Y
SuperDot Conversion	N
Routing Strategy	Empty (Space will be used if not filled in)
Smart Algorithm	Empty (Space will be used if not filled in)
RASH Outbound	Empty (Space will be used if not filled in)
Peg Code	Empty (Space will be used if not filled in)
Peg Difference	Empty (0 will be used if not filled in)

1.3.13.2. Limit Closeout Sell

This button is used to cover a long position. When this button is clicked the order dialog box appears and the order parameters will be pre-loaded as follows. The operator can change any of the parameters before clicking OK to launch the order:

Symbol	The symbol the trade window was opened with
Buy/Sell/Short indicator	S
Order type (venue)	INET
Price	The best offer price
Shares	The size of the current long position
Display	N
Time-in-force	1000 seconds Display Shares
Discretion Offset	0.00
Use DirectPlus	Y
SuperDot Conversion	N
Routing Strategy	Empty (Space will be used if not filled in)
Smart Algorithm	Empty (Space will be used if not filled in)
RASH Outbound	Empty (Space will be used if not filled in)
Peg Code	Empty (Space will be used if not filled in)
Peg Difference	Empty (0 will be used if not filled in)

1.3.13.3. Limit Buy

This button is used to enter a buy limit order. When this button is clicked the order dialog box appears and the order parameters will be pre-loaded as follows. The operator can change any of the parameters before clicking OK to launch the order:

Symbol	The symbol the trade window was opened with
Buy/Sell/Short indicator	B
Order type (venue)	INET
Price	The best bid price
Shares	100 (this is the default)
Display	N
Time-in-force	1000 seconds
Display Shares	0
Discretion Offset	0.00
Use DirectPlus	Y
SuperDot Conversion	N
Routing Strategy	Empty (Space will be used if not filled in)
Smart Algorithm	Empty (Space will be used if not filled in)
RASH Outbound	Empty (Space will be used if not filled in)
Peg Code	Empty (Space will be used if not filled in)
Peg Difference	Empty (0 will be used if not filled in)

1.3.13.4. Limit Sell

This button is used to enter a sell limit order. When this button is clicked the order dialog box appears and the order parameters will be pre-loaded as follows. The operator can change any of the parameters before clicking OK to launch the order:

Symbol	The symbol the trade window was opened with
Buy/Sell/Short indicator	S
Order type (venue)	INET
Price	The best offer price
Shares	100 (this is the default)
Display	N
Time-in-force	1000 seconds
Display Shares	0
Discretion Offset	0.00
Use DirectPlus	Y
SuperDot Conversion	N
Routing Strategy	Empty (Space will be used if not filled in)
Smart Algorithm	Empty (Space will be used if not filled in)
RASH Outbound	Empty (Space will be used if not filled in)
Peg Code	Empty (Space will be used if not filled in)
Peg Difference	Empty (0 will be used if not filled in)

1.3.13.5. Limit Short Sell

This button is used to enter a short sell limit order. When this button is clicked the order dialog box appears and the order parameters will be pre-loaded as follows. The operator can change any of the parameters before clicking OK to launch the order:

Symbol	The symbol the trade window was opened with
Buy/Sell/Short indicator	T
Order type (venue)	INET
Price	The best offer price
Shares	100 (this is the default)
Display	N
Time-in-force	1000 seconds
Display Shares	0
Discretion Offset	0.00
Use DirectPlus	Y
SuperDot Conversion	N
Routing Strategy	Empty (Space will be used if not filled in)
Smart Algorithm	Empty (Space will be used if not filled in)
RASH Outbound	Empty (Space will be used if not filled in)
Peg Code	Empty (Space will be used if not filled in)
Peg Difference	Empty (0 will be used if not filled in)

1.3.13.6. Buy RASH In Thru

This button is used to immediately enter a RASH buy order. When this button is clicked the order is immediately launched. No dialog box will appear. The following order parameters will apply when this button is clicked:

Symbol	The symbol the trade window was opened with
Buy/Sell/Short indicator	B
Order type (venue)	RASH
Price	The best offer price plus the “RASH In Thru Value”
Shares	Specified by the “RASH In Shares” parameter
Display	N
Time-in-force	Specified by the “RASH In TIF” value
Display Shares	0
Discretion Offset	0.00
Use DirectPlus	Y
SuperDot Conversion	N
Routing Strategy	Space
Smart Algorithm	Space
RASH Outbound	Space
Peg Code	Space
Peg Difference	0

1.3.13.7. Buy RASH In At

This button is used to immediately enter a RASH buy order. When this button is clicked the order is immediately launched. No dialog box will appear. The following order parameters will apply when this button is clicked:

Symbol	The symbol the trade window was opened with
Buy/Sell/Short indicator	B
Order type (venue)	RASH
Price	The best offer price
Shares	Specified by the “RASH In Shares” parameter
Display	N
Time-in-force	Specified by the “RASH In TIF” value
Display Shares	0
Discretion Offset	0.00
Use DirectPlus	Y
SuperDot Conversion	N
Routing Strategy	Space
Smart Algorithm	Space
RASH Outbound	Space
Peg Code	Space
Peg Difference	0

1.3.13.8. Short RASH In Thru

This button is used to immediately enter a RASH Short sell order. When this button is clicked the order is immediately launched. No dialog box will appear. The following order parameters will apply when this button is clicked:

Symbol	The symbol the trade window was opened with
Buy/Sell/Short indicator	T
Order type (venue)	RASH
Price	The best bid price minus the “RASH In Thru Value”
Shares	Specified by the “RASH In Shares” parameter
Display	N
Time-in-force	Specified by the “RASH In TIF” value
Display Shares	0
Discretion Offset	0.00
Use DirectPlus	Y
SuperDot Conversion	N
Routing Strategy	Space
Smart Algorithm	Space
RASH Outbound	Space
Peg Code	Space
Peg Difference	0

1.3.13.9. Short RASH In At

This button is used to immediately enter a RASH short sell order. When this button is clicked the order is immediately launched. No dialog box will appear. The following order parameters will apply when this button is clicked:

Symbol	The symbol the trade window was opened with
Buy/Sell/Short indicator	T
Order type (venue)	RASH
Price	The best bid price
Shares	Specified by the “RASH In Shares” parameter
Display	N
Time-in-force	0 seconds
Display Shares	0
Discretion Offset	0.00
Use DirectPlus	Y
SuperDot Conversion	N
Routing Strategy	Space
Smart Algorithm	Space
RASH Outbound	Space
Peg Code	Space
Peg Difference	0

1.3.13.10. Start Trading

This button is used to enable (start) automated trading for the symbol the trade window was opened with. When is button is clicked, the customer’s software will be instructed to start automated trading for the specified symbol.

1.3.13.11. Stop Trading

This button is used to disable (stop) automated trading for the symbol the trade window was opened with. When this button is clicked, the customer’s software will be instructed to stop automated trading for the specified symbol.

1.3.13.12. Liquidate Only

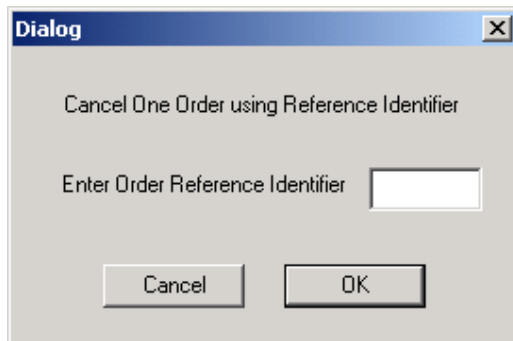
This button is used to set the trading state to “Liquidate Only” for the symbol the trade window was opened with. When this button is clicked, the customer’s software will be instructed to stop automated trading to open position, but continue automated trading to cover existing positions.

1.3.13.13. Cancel All Orders

This button is used to cancel all live orders for the symbol the trade window was opened with. When this button is clicked, the customer’s software will be instructed to cancel all live order for the specified symbol.

1.3.13.14. Cancel One Orders

This button is used to cancel one order for the symbol the trade window was opened with. When this button is clicked the following dialog box appears:



The operator must enter the Order Reference Identifier for the order they want to cancel. For example, the trade window displayed above shows the following live order:

```
002RD B 100 33.39 N 1,000 I
```

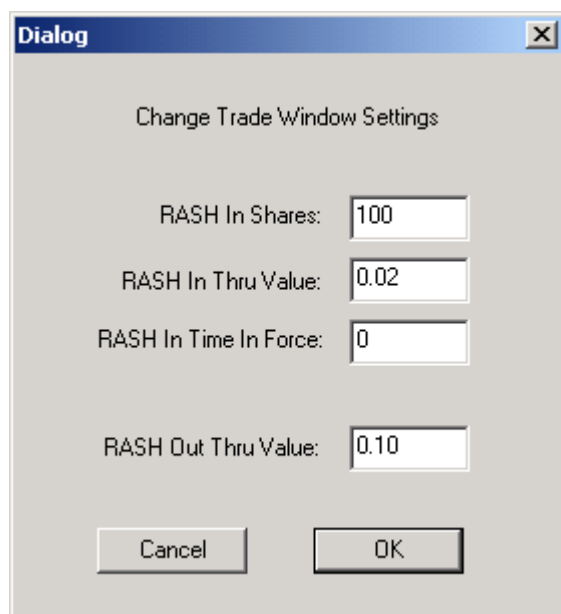
The operator would enter 002RD to cancel this order.

1.3.13.15. Change Settings

This button is used to change to order parameters that are used with the order buttons that immediately launch orders. The following order parameters can be changed using this button:

- RASH In Shares
- RASH In Thru Value
- RASH In TIF
- RASH Out Thru Value

When this button is clicked, the following dialog box appears:



The current values for these parameters are displayed in the lower part of the display portion of the Trade Window.

1.3.13.16. RASH Closeout AT

This button is used to immediately enter a RASH order to cover the current position. When this button is clicked the order is immediately launched. No dialog box will appear. The following order parameters will apply when this button is clicked:

Symbol	The symbol the trade window was opened with
Buy/Sell/Short indicator	B if the current position is a short position, S if the current position is long
Order type (venue)	RASH
Price	The best offer price if the current position is short. The best bid price if the current position is long.
Shares	The size of the current position
Display	N
Time-in-force	0 seconds
Display Shares	0
Discretion Offset	0.00
Use DirectPlus	Y
SuperDot Conversion	N
Routing Strategy	Space
Smart Algorithm	Space
RASH Outbound	Space
Peg Code	Space
Peg Difference	0

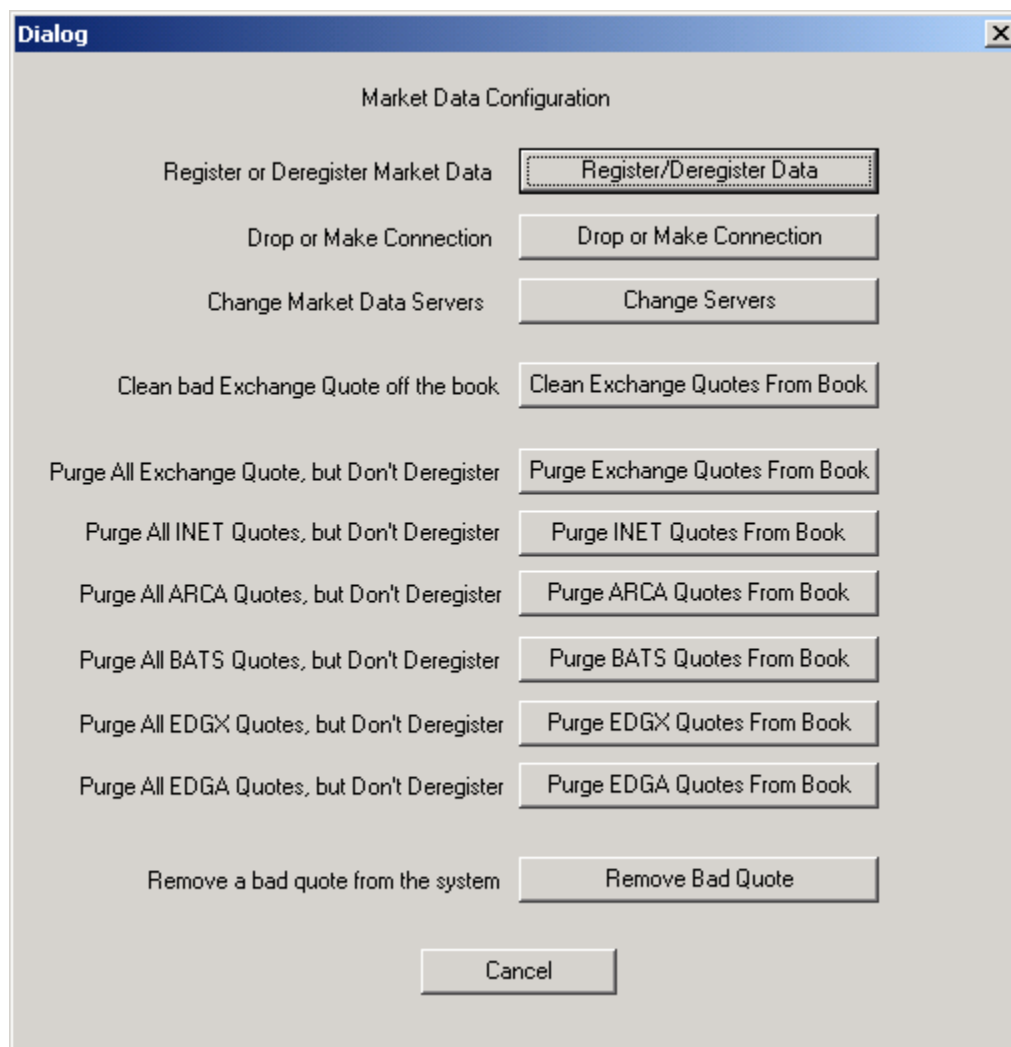
1.3.13.17. RASH Closeout Thru

This button is used to immediately enter a RASH order to cover the current position. When this button is clicked the order is immediately launched. No dialog box will appear. The following order parameters will apply when this button is clicked:

Symbol	The symbol the trade window was opened with
Buy/Sell/Short indicator	B if the current position is a short position, S if the current position is long
Order type (venue)	RASH
Price	If the current position is short, then the price will be the best offer price plus the value specified in the “RASH Out Thru Value” parameter. If the current position is long, then the price will be the best bid price minus the value specified in the “RASH Out Thru Value” parameter.
Shares	The size of the current position
Display	N
Time-in-force	0 seconds
Display Shares	0
Discretion Offset	0.00
Use DirectPlus	Y
SuperDot Conversion	N
Routing Strategy	Space
Smart Algorithm	Space
RASH Outbound	Space
Peg Code	Space
Peg Difference	0

1.3.14. Market Data Configuration

This button is used to perform Market Data related configuration changes. When this button is clicked, the following dialog box will appear.



1.3.14.1. Register/DeregisterData

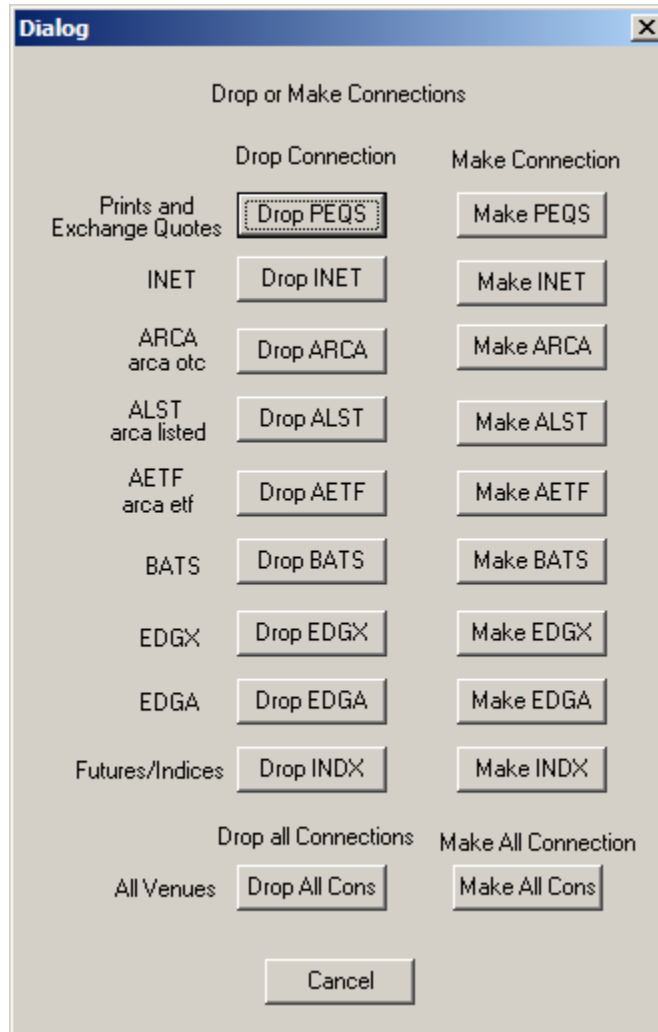
This button is used to register and deregister for market data. When this button is clicked, then following dialog box appears:



This dialog box has two buttons for each venue. One button is used to register to receive data from the venue. The other button is used to deregister and stop receiving data from the venue. At the bottom of the dialog box there are two buttons that are used to register and deregister all venues.

1.3.14.2. Drop or Make Conn

This button is used to establish (make) connections to data sources and to disconnect (drop) connections from data sources. When this button is clicked, then following dialog box appears:



This dialog box has two buttons for each venue. One button is used to establish a connection to the data source. The other button is used to disconnect from the data source. At the bottom of the dialog box there are two buttons that are used to establish all connections or drop all connections.

1.3.14.3. Change Server

This button is used to change the data source from which market data is obtained. The operator must know the IP address and Port Number for the data server they would like to use. When this button is clicked, then following dialog box appears:

The dialog box is titled "Change Market Data Servers" and contains the following text: "Enter IP address for each venue" and "Leave 0.0.0.0 to not change". It features a table with two columns: "IP Address" and "Port Number". The rows represent different market data venues. The "Prints and Exchange Quotes (PEQS)" row has "0.0.0.0" in the IP Address field and "36010" in the Port Number field. The other rows have "0.0.0.0" in the IP Address field and their respective port numbers in the Port Number field. At the bottom of the dialog are "Cancel" and "OK" buttons.

	IP Address	Port Number
Prints and Exchange Quotes (PEQS)	0.0.0.0	36010
INET	0.0.0.0	46500
ARCA OTC	0.0.0.0	58510
ARCA Listed	0.0.0.0	58500
ARCA ETF	0.0.0.0	58520
BATS	0.0.0.0	47500
EDGX	0.0.0.0	51500
EDGA	0.0.0.0	11150
Futures/Indices (INDX)	0.0.0.0	11122

Two edit boxes are used for each venue. One edit box is used to enter the IP address. The other is used to enter the Port Number. The operator must enter the IP address and Port Number of the data server they would like to change. Leave the IP Address equal to 0.0.0.0 for venues that are not to be changed.

1.3.14.4. Clean Exchange Quotes From Book

This button is used to “clean” quotes that were received from the Prints and Quotes server. The term “clean” means to remove quotes where the bid and offer are locked (the same price), and when the bid and offer are crossed (bid price is greater than offer price). When this button is clicked a confirmation dialog box will appear allowing the operator to cancel this function or confirm that they want to perform this function.

1.3.14.5. Purge Exchange Quotes From Book

This button is used to remove (purge) all quotes that were received from the Prints and Quotes server. All quotes from the Prints and Quote Sever are removed from the book at the time this button is clicked. Subsequent quotes that are received will be applied to the book. When this button is clicked a confirmation dialog box will appear allowing the operator to cancel this function or confirm that they want to perform this function.

1.3.14.6. Purge INET From Book

This button is used to remove (purge) all quotes that were received from the INET Book Server. All quotes from the INET Book Server are removed from the book at the time this button is clicked. Subsequent quotes that are received will be applied to the book. When this button is clicked a confirmation dialog box will appear allowing the operator to cancel this function or confirm that they want to perform this function.

1.3.14.7. Purge ARCA From Book

This button is used to remove (purge) all quotes that were received from the ARCA Book Server. All quotes from the ARCA Book Server are removed from the book at the time this button is clicked. Subsequent quotes that are received will be applied to the book. When this button is clicked a confirmation dialog box will appear allowing the operator to cancel this function or confirm that they want to perform this function.

1.3.14.8. Purge BATS From Book

This button is used to remove (purge) all quotes that were received from the BATS Book Server. All quotes from the BATS Book Server are removed from the book at the time this button is clicked. Subsequent quotes that are received will be applied to the book. When this button is clicked a confirmation dialog box will appear allowing the operator to cancel this function or confirm that they want to perform this function.

1.3.14.9. Purge EDGX From Book

This button is used to remove (purge) all quotes that were received from the EDGX Book Server. All quotes from the EDGX Book Server are removed from the book at the time this button is clicked. Subsequent quotes that are

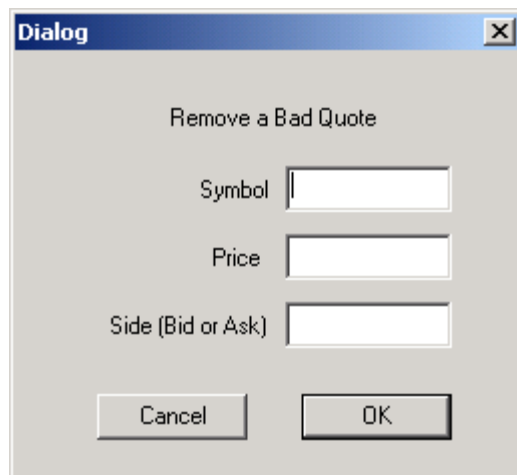
received will be applied to the book. When this button is clicked a confirmation dialog box will appear allowing the operator to cancel this function or confirm that they want to perform this function.

1.3.14.10. Purge EDGA From Book

This button is used to remove (purge) all quotes that were received from the EDGA Book Server. All quotes from the EDGA Book Server are removed from the book at the time this button is clicked. Subsequent quotes that are received will be applied to the book. When this button is clicked a confirmation dialog box will appear allowing the operator to cancel this function or confirm that they want to perform this function.

1.3.14.11. Remove Bad Quote

This button is used to remove a bad quote from the book. This button can remove any quote from the book, but is typically used when the operator has detected a quote that appears erroneous. When this button is clicked the following dialog box appears.

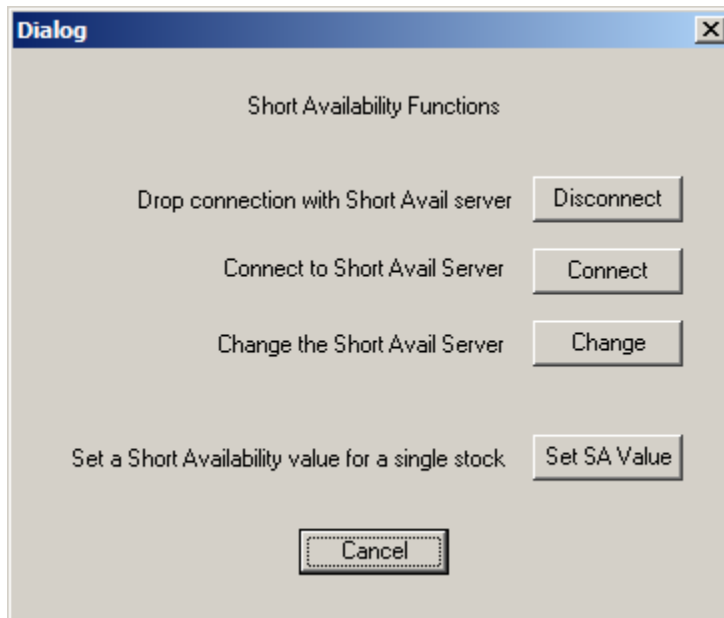


The image shows a standard Windows-style dialog box. The title bar is blue and contains the word 'Dialog' and a close button (X). The main area has a light gray background. At the top, it says 'Remove a Bad Quote'. Below this are three text input fields, each with a label to its left: 'Symbol', 'Price', and 'Side (Bid or Ask)'. At the bottom of the dialog are two buttons: 'Cancel' on the left and 'OK' on the right.

To remove a quote the operator must enter the symbol, the price and side. The BDK Library will remove all quotes that match these parameters. For example, if the operator enters “DELL, 13.55, Bid”, then the BDK Library will remove all DELL quotes from the bid that have a price greater than or equal to 13.55.

1.3.15. Short Availability Functions

This button is used to perform Short Availability configuration changes. When this button is clicked, the following dialog box will appear.



1.3.15.1. Disconnect

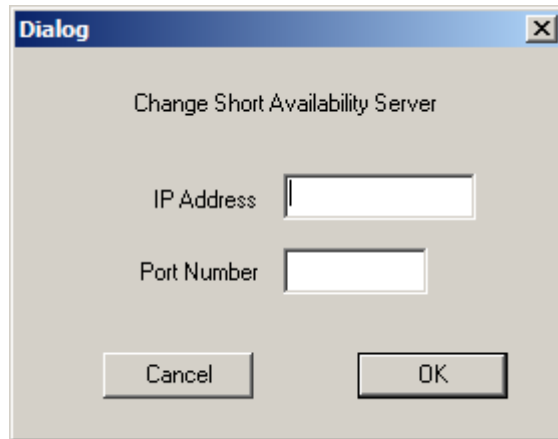
This button is used to drop the existing connection with the Short Availability Server.

1.3.15.2. Connect

This button is used to establish a connection with the Short Availability Server.

1.3.15.3. Change

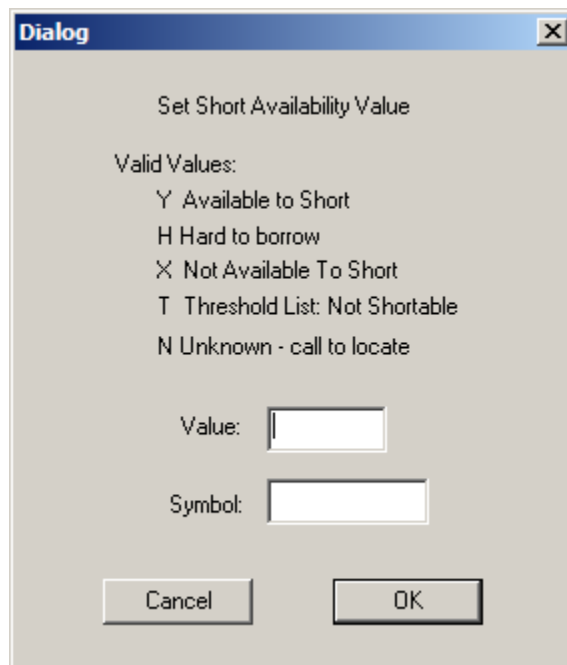
This button is used to change the source from which Short Availability information is obtained. The operator must know the IP address and Port Number of the server they would like to use. When this button is clicked, then following dialog box appears:



Two edit boxes are used. One edit box is used to enter the IP address. The other is used to enter the Port Number. The operator must enter the IP address and Port Number of the server they would like use.

1.3.15.4. Set Short Availability Value

This button is used to set the Short Availability flag for a single security. When this button is clicked, the following dialog box appears:



Two edit boxes are used. One edit box is used to enter the Short Availability Value (flag). The other is used to enter the security symbol.

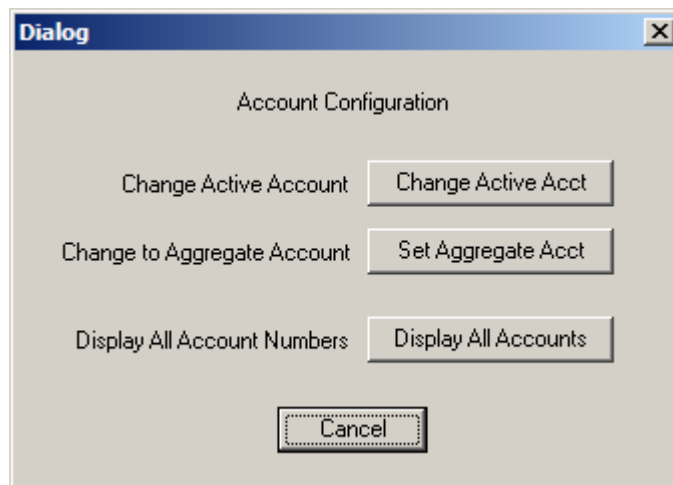
1.3.16. Account Configuration

This button is used to perform account configuration. When the Blackbox Trading System is configured, the customer can specify, via the configuration file, whether the trading system will use “Single Account Mode” or “Multi Account Mode”. Multi Account Mode allows the customer to trade multiple clearing accounts with one Blackbox Trading System. When trading multiple accounts, orders sent to the Lightspeed Gateway Order Entry Server must identify which account the trade is associated with.

The console displays information for one account at a time. Which account’s information is being displayed can be changed using this button. The account number whose information is currently being displayed is shown after the label “Active Account”, which is displayed on the main window. The account whose information is being displayed is referred to as the active account. The main window shown in the figure below has the active account set to 590000001.

When the Trade Window is used to enter manual orders, the orders will be for the “active account”.

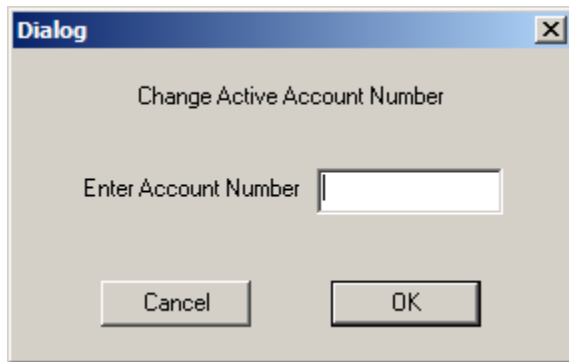
This button is used to perform account configuration. When this button is clicked, the following dialog box appears.



From the dialog above, the operator can change the active account and display all account numbers that the Blackbox Trading System can trade.

1.3.16.1. Change Active Acct

This button is used to change the active account. When this button is clicked, the following dialog box appears.



To change the active account, enter the desired account number and click OK.

1.3.16.2. Set Aggregate Account

This button is used to set the active account to the aggregate account. The term “Aggregate Account” is used to describe when the console is displaying the aggregation of all account information.

1.3.16.3. Display All Accounts

This button is used to display all accounts. When this button is clicked, the list of accounts is displayed on the main window. In the figure below, four accounts are displayed.

590000004
590000003
590000002
590000001

Lightspeed Gateway Console - Version 1.00.33 - Last Updated 12/19/2011

Connect to BBOX	Versions: 40.01.42 1.00.00	Symbol	Pos	Exp	Price	NP&L
Change Global Trading	Connection to BBOX:Up	DELL	1,000	-40	14.15	0
Cancel All Orders	Active Account: 590000001	AAPL	1,000	-290	308.01	0
Display Winners/Losers	Global Trading State:Don't Trade					
Get Stats - One Stock	Trading Side: Either					
Add One Stock	Auto/Manual Mode: Manual					
Connect to Gateway	Conn Down Mode: Stop					
Disconnect Gateway	Trailing Stop: -300					
Miscellaneous	MDS Status: QITGH XM					
Drop Connection to BBOX	Order Type Status: IAR Y E T H G O J P Z					
Modify (Journal) Position	Open Positions: 2/2,000/0					
Toggle Position List Order	Live Orders: 0/0					
Trade Window	Gross P&L: 0.00					
Market Data Configuration	Shares Traded: 0					
Short Availability Functions	Orders Entered: 0					
Account Configuration	SEC Fees: 0.00					
Shutdown BBOX	ECN/Exch Fees: 0.00					
Liquidate Only Now!!	Commissions: 0.00					
Command Line Interface	Exposure: -330.00					
	Net P&L: 0.00					
	Account Numbers:					
	590000004					
	590000003					
	590000002					
	590000001					

A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z

1.3.17. Shutdown BBOX

This button is used to shutdown (terminate) the Blackbox Trading System. When this button is clicked a confirmation dialog box will appear allowing the operator to cancel this function or confirm that they want to perform shutdown.

1.3.18. Liquidate Only Now!

This button is used to instruct the customer's software to transition to the Liquidate Only state. Transitioning to Liquidate Only state can be done using the Change Global Trading button, but required several mouse clicks. This button does not require a confirmation, and is typically used when problems occur and the operator needs to quickly stop trading.

1.3.19. Command Line Interface

There are two methods the customer can use to send messages from the console to the customer's Blackbox software. The source code for the console is provided with the BDK, and one method is for the customer to develop software to send messages to the customer's Blackbox software. Using this method the customer can create dialog boxes, buttons, text boxes and other Windows input methods to allow an operator to input information. This information can then be put in a message and sent to the customer's Blackbox software.

The second method is to use the console command line interface. The console application that is provided with the BDK contains a command line interface. The command line interface allows the operator to type in "commands". The commands will be put into a message and sent to the customer's Blackbox software.

The command line allows the operator to send information to the customer's Blackbox software without having to develop any console code. Note, the customer could choose to develop console code to create messages and send them to the customer's Blackbox software. However, if the customer does not want to develop any console code, they can define a command syntax and use the command line interface.

When this button is clicked, the following dialog box appears:

