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Risk Disclosure Futures trading contains substantial risk and is not for every investor. An investor could potentially lose all or more than the initial investment. Risk capital is money that can be lost without jeopardizing ones' financial security or lifestyle. Only risk capital should be used for trading and only those with sufficient risk capital should consider trading. Past performance is not necessarily indicative of future results.

Reversal entries are not governed by, trends, ranging or choppy markets. In fact, none of this matter. The only things we need to know, will the market reverse sometime and can we catch it.

As technology has advanced it has become easier to develop software utilities that may detect a reversal and locate this entry based on market position, volume imbalance, velocity, momentum, price action and probability.

Through the use of NinjaTrader® 8 and a high-speed internet connection we have developed utilities that may locate a reversal entry. The system looks for the highest high and lowest low over past bars, then the system tags the entry with a line that is proportional to your entry settings. Then the strategy calculates:

- Imbalance, (the calculation with the difference between Ask & Bid volume with price as an error).
- Velocity, (the amount of price moves over time in the bar) Greater the number is greater the velocity.
- Momentum, (the amount of Ask & Bid volume changes that are in each tick) greater the number equals greater the momentum.
- Probability, a calculation to determine if the current bar is going to continue in the same direction.

The system will use this data and other filter settings to determine an entry.

Specifications and Minimum Requirements;

- NinjaTrader® 8 desktop
- High Speed Internet Connection
- Broker Account
- Developed and Tested for Futures Traders
- ES, MES, NQ, MNQ, RTY, M2K, YM, MYM, M2K & OTHERS
- *We have not tested for FOREX or Stocks*
- Live connection with Ask and Bid volume & price data supported "NinjaTrader Continuum works" others may need subscription support.
- **The BET Reversals Automated Strategy will only work with;**
- **Chart only**
- *Tick Bars*
- *Time Bars "Seconds and Minutes"*
- *Volume Bars*
- ***Tick replay must be enabled.***

Overview of BET Reversals Auto Strategy 2.5



1. Tool Bar Buttons

- Text Button; Clicking this button will move the Blue Box Text Data #3 to each corner
- Arm Long; Clicking this button will arm the strategy for a long entry and start calculating lower line length.
- Arm Short; Clicking this button will arm the strategy for a short entry and start calculating upper line length.
- ATM Strategy Name; this area will display the current ATM that will be used for the entry.

- Chart Button, Close ATM;** Clicking this button will close the ATM that has entered into the market without stopping and closing the strategy. Using the "system" close button will disable the strategy and close all positions.

3. Blue Information Box; This box displays information about the current bar.

Current Bar Momentum

Velocity

Imbalance of Ask & Bid volume

Probability

Ask price count, last price & when it completed as % of bar

Bid price count, last price & when it completed as % of bar

Volume, Bar percentage complete

Unrealized P/L \$

Total P/L \$

TIP; Changing the Chart label font size font will change the font size in the Blue Data Box.

Blue Information Box

Momentum	258.38
Velocity	78.48
Imb	1.04
Pr	69.83%
Ask 18	\$17675.75 23 %Bar
Bid 2	\$17660.75 2.67 %Bar
Volume 7693	Bar 26.67%
Unrealized P/L	\$0
Total P/L	\$0



1. **Green Line**; Start Time Line, this line will be displayed whenever the start time has begun based on the start time property. Only when the start time begins does the strategy begin to look for entries.
2. **Short Entry Down Arrow**; this arrow will be displayed whenever a short entry is made.
3. **Upper Bar Line**, this line sets a possible long entry, the bar passing above this line can trigger a long entry. (Displayed only when the Arm Long button is on).

4. **Long Entry Up Arrow**; this arrow will be displayed whenever a long entry is made.
5. **Lower Bar Line**; this line sets a possible short entry, the bar passing below this line can trigger a short entry. (Displayed only when the Arm Short button is on).
6. **Low Bar Dot**; this dot is displayed under the lowest bar, based on the Low Bar Period in the strategy properties.
7. **High Bar Dot**; this dot is displayed over the highest bar, based on the High Bar Period in the strategy properties.
8. **Red Line**; End Time Line, this line will be displayed whenever the end time has begun based on the end time property. Only when the end time begins does the strategy stop looking for entries.

Blue Information Box 1

```
Momentum 139.56
Velocity      62.32
Imb  0.83
Pr  82.02%
Ask 6 $17664 57.67 %Bar
Bid 26 $17627.75 80 %Bar
Volume 13515 Bar 80.67%
Unrealized P/L $0
Total P/L $0
```

Blue Information Box 2

```
Momentum 376
Velocity  108.14
Imb  1.04
Pr  30.5%
Ask 24 $17638.25 21 %Bar
Bid 3  $17612.5 2 %Bar
Volume 11711 Bar 28%
Unrealized P/L $5
Total P/L $0
```

So How Does It Work?

Let's say we are on the MNQ at the start of the day 8:30 CME time. Both Buttons, Long and Short are armed. We have set the parameters of the strategy to begin at 8:30 am CME time and End at 3:00 pm CME time.

We set the current parameters as follows;

Chart data series set at 5 minutes

Imbalance High	1.03
Imbalance Low	0.97
Entry Ask to Bid Difference Count	3
Entry Bid to Ask Difference Count	3
Momentum Filter	200
Velocity Filter	20
Bar Line Upper Ticks	8 (2 points)
Bar Line Lower Ticks	8 (2 points)
High Bar Period	5
Low Bar Period	5
Probability	40

The day has started and we are following the chart on the market.

Blue Information Box 1 displays;

Momentum	139.56
Velocity	62.32
Imbalance	0.83
Probability	82.02
Ask Count	6
Bid Count	26

The prior Bar is pinned as the lowest bar and a line is drawn showing the 20 ticks from the close of the prior bar to above the start of the new bar; "this is our bounce line". The strategy is now looking for a reversal long.

Blue Information Box 2 displays;

Momentum	376
Velocity	108.14
Imbalance	1.04
Probability	30.5
Ask Count	24
Bid Count	3

The data on the current bar meets the conditions in the properties for an entry long, the bar is now above the 20-tick lower line setting we had set in the parameters; "the bounce line". The strategy now sets an entry long with the ATM we had set in the parameters and we are now in the market.

As a result, the strategy calculates the highest and lowest bar in a sequence as defined in the parameters, then sets a test line at a distance defined in the parameters "bounce line". When the current bar passes the test line and satisfies all of the filter criteria then an entry is made.

What is;

Imbalance, Imbalance is the calculation between the ASK volume and the Bid volume with price as an error over the span of the bar. A number above 1, is more favorable for buyers "market going up", a number below 1 is favorable for sellers "market going down" and a 1 is equal buyers and sellers or neutral which could result in a sideways market.

Ask Count, the number of times the Ask price has gone up from the current Ask price in the current bar. Also logged is the Ask price and the percentage of the bar completed when the Ask price has changed.

Bid Count, the number of times the Bid price has gone down from the current Bid price in the current bar. Also logged is the Bid price and the percentage of the bar completed when the Bid price has changed.

Momentum, a calculation of the difference of Ask & Bid volume per each tick over the span of bar time. It is possible to have low to zero momentum, which could result in sideways trading or very few buyers and sellers at that time.

Velocity, the speed in which the bar changes price from tick to tick calculated using the bars time. Velocity can be low if the imbalance is neutral.

Probability, implied probability calculated from the prior bar to the current bar. This number represents the likelihood the bar will continue in the same direction. A number greater than 30 is a strong probability that the bar will continue in its current direction. A number less than 30 is a weak probability and the bar may slow or change direction. A number less than 10 indicates the bar will most likely change direction. A number greater than 95 may indicate a spoof.

Tip; When we are in the market, we will monitor the Imbalance and the Probability numbers, when the probability number starts to go low and the Imbalance number changes in the wrong direction, we will close our position.

Tip; Prior to market open, if there are a lot of long wicks on the bars e.g. "the past ten bars have unusually long wicks" then increase the high and low bar periods and check the Use Ask Bid Difference for Exit setting "this may save you a little money on losses". Typically, long wicks indicate a choppy market and your ATM stop maybe too short for the market. Once in the market you may want to adjust your profit target higher to get the most out of the market and call it a day. If you are going to directly monitor and interact with the strategy, then we would suggest using Limit orders for choppy days.

BET Reversals Properties, Presets for MNQ 3/24

1. ATM Parameters,

- a. **ATM Template Name**; the name of the ATM you want to use. This will display in the Text Box on the Tool Panel above the chart.
NOTE: You must spell the name exactly as it was spelled in the ATM manager or the system will not find it. TIP: you can leave the ATM name to **None, the system will still operate and show entries, but it would be up to you to make that entry.**
- b. **Max Ticks for ATM Limit Entry** (1-100); Tick setting for ATM limit entry, this will set the ATM limit X ticks away from the current market position.
- c. **Use ATM Limit Entry**; Checking this box will cause an ATM limit to entry at x tick away from market position. **NOTE: A limit entry may NOT go into the market depending on market position at the time of the limit entry and care should be taken to cancel the entry if needed.**

2. Back-Test parameters,

- a. **Back-Test Only**, Checkbox, pre-set Unchecked, checking this box will setup the Automatic Strategy to run on the **System Analyzer** only. The analyzer will not use ATM and requires historical tick data that is less accurate than the Real Market Data. The program will not allow the box to be checked if a Chart window is opened.
- b. **Profit Target** in Ticks for back test, this is where you would set your profit target for back-testing.
- c. **Stop Loss Target** in Ticks for back test, this is where you set your stop loss target for back-testing.

3. Imbalance Parameters,

- a. Imbalance High Filter (-5000 – 5000) preset 1.03; Imbalance must be > or = to this setting for an entry Long to occur. See page 9
- b. Imbalance Low Filter (-5000 – 5000) preset 0.97; Imbalance must be < or = to this setting for an entry Short to occur. See page 9

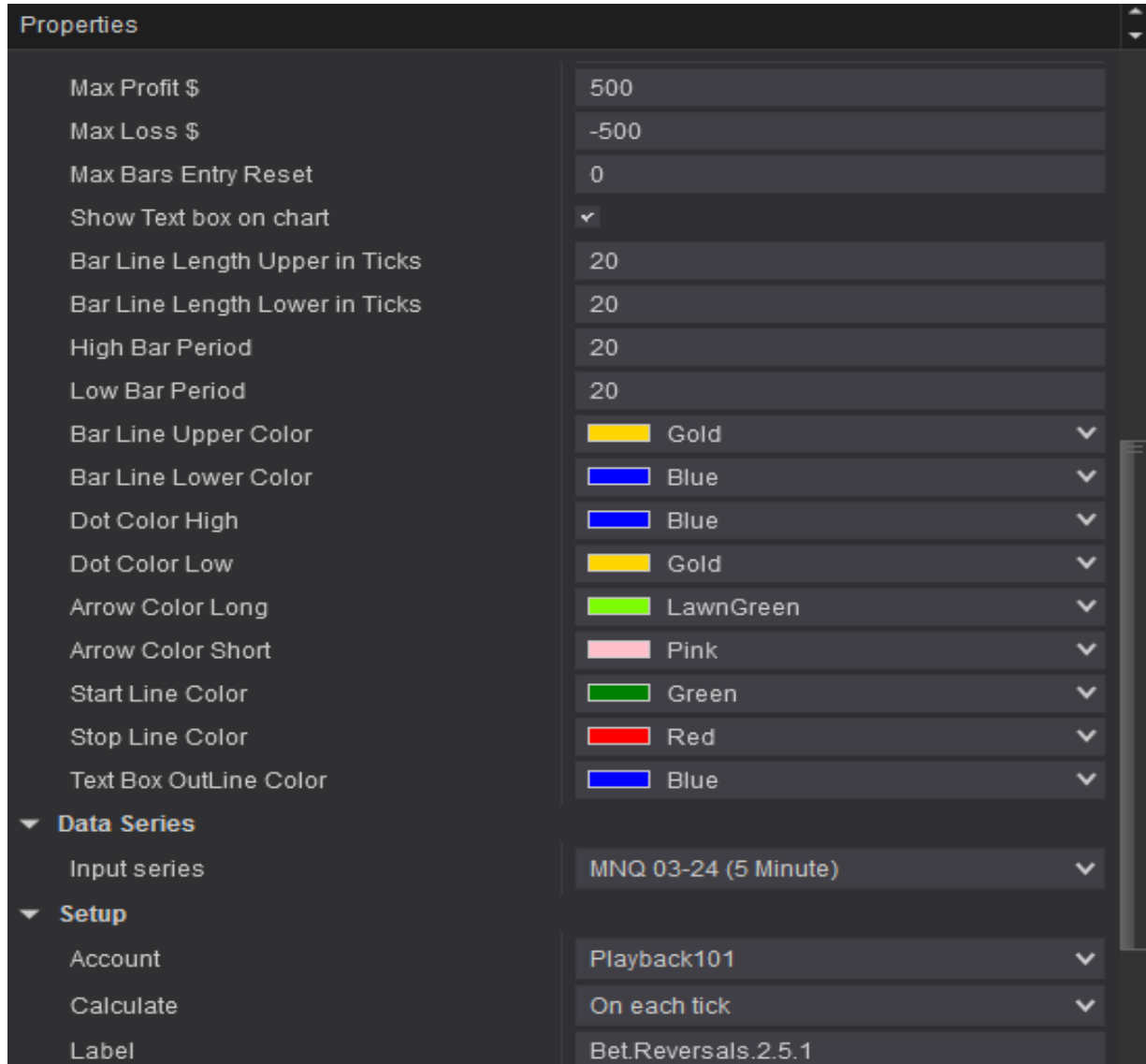
4. Momentum Parameters,

- a. **Entry Ask to Bid Difference Count** (0-100) preset 3; This filter is used to test Ask to Bid Count Difference, the total count of ASK orders in the current bar has to be greater than the total count of BID orders in the current bar by this filter number to allow an entry Long. **TIP: A zero entry "0" would cause this filter to be ignored.**
- b. **Bid to Ask Count Difference Count** (0-100) preset 3, This Filter is used to test Bid to Ask Count Difference, the total count of BID orders in the current bar has to be greater than the total count of ASK orders in the current bar by this filter number to allow an entry Short. **TIP: A zero entry "0" would cause this filter to be ignored.**
- c. **Momentum Filter** (0 > 10,000) preset 200, Momentum calculation must be = or > than this filter for an entry to occur. **TIP: A zero entry "0" would cause this filter to be ignored.** See page 9.
- d. **Velocity Filter** (0-50000) preset 20, Velocity filter must be = or > than this filter number for an entry to occur. **TIP: A zero entry "0" would cause this filter to be ignored.** See page 10.
- e. **Use Ask to Bid Difference for Exit**, preset Unchecked, checking this box would enable the difference calculation when the ATM is in the market. This calculation uses the two below Ask and Bid numbers to exit and close the ATM if the bar Ask or Bid count exceeds the ASK or Bid count settings. **TIP: We use this setting if the market seems very choppy and our ATM stop may not be adequate.** See page 10
- f. **Exit Bid to Ask Difference Count** (1-100) preset 9, If the ATM is in the market and the unrealized P/L is negative plus the Bid count has changed to = or to be > then the starting Bid count plus the preset than the ATM Long would be closed.

- g. **Exit Ask to Bid Difference Count** (1-100) preset 9, If the ATM is in the market and the unrealized P/L is negative plus the Ask count has changed to = or to be > then the starting Ask count plus the preset then the ATM Short would be closed.
- h. **Probability % Filter** (0-98) preset 40, Probability calculation must be = or > then this number for and entry to occur. **TIP: A zero entry "0" would cause this filter to be ignored.** See page 10

5. System Parameters,

- a. **Use ES & MES Volume Calculations**, preset Unchecked, The S&P Mini and S&P Micro require a different volume calculation for Imbalance, check this box if you are running the strategy with these instruments. Not checking this may result in more trades depending on market conditions.
- b. **Time Start**, preset 8:30 AM, this time setting is based on your time settings in Tools/General/Time Zone and is required for the strategy. When the start time has begun a vertical line is drawn on the chart as an indicator.
- c. **Time Stop**, preset 3:00 PM, this time setting is based on your time settings in Tools/General/Time Zone and is required for the strategy. When the stop time has begun a vertical line is drawn on the chart as an indicator.



a. **Max Profit**, (raw market income) preset \$500, when the maximum profit has been reached or exceeded the strategy will stop all entries. When this happens a green text box will appear in the middle of the chart. You can reset this by disabling the strategy then re-enabling the strategy.

b. **Max Loss**, (raw market loss) preset -\$500, when the maximum loss has been reached or exceeded the strategy will stop all entries. When this happens a red text box will appear in the middle of the chart. You can reset this by disabling the strategy then re-enabling the strategy. **Note**; *Calculated Total P/L in the blue data box is raw market income/loss and may not include commissions and broker fees.*

The screenshot displays the configuration settings for the Bars Edge Trader (BET) application. The settings are organized into several sections:

- Maximum bars look back:** 256
- Bars required to trade:** 20
- Start behavior:** Wait until flat
- Enabled:**
- Historical fill processing:**
 - Order fill resolution:** Standard (Fastest)
 - Fill limit orders on touch:**
 - Slippage:** 0
- Order handling:**
 - Entries per direction:** 1
 - Entry handling:** All entries
 - Exit on session close:**
 - Exit on session close seconds:** 30
 - Stop & target submission:** Per entry execution
- Order properties:**
 - Set order quantity:** Strategy
 - Time in force:** DAY

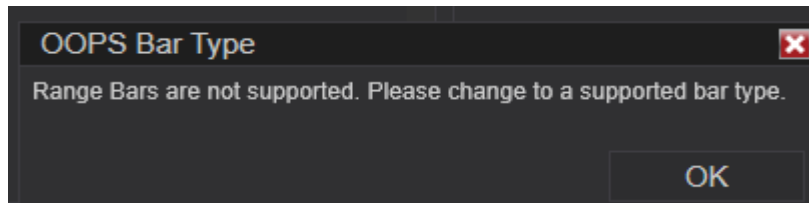
The word "template" is visible in the bottom right corner of the settings panel.

5. Maximum bars to look back, preset 256, Changing this will affect the way the system loads and how long it takes to update.
6. Bars required to trade, preset 20, 20 is a good number and there is not any reason that it should be changed.
7. Start behavior, preset Wait till Flat, it benefits the system to wait for all market entries to be done prior to running the automated strategy.
8. **Enable check box**, preset Unchecked, check this box and apply to start the strategy and run.

Order Properties

1. Set order quantity, preset Strategy, the quantity is part of the ATM system and should not be changed here.
2. Time in force, preset to Day, this is set internally, but you may change it to fit your needs, **don't forget to save your setting as a template.**

Errors



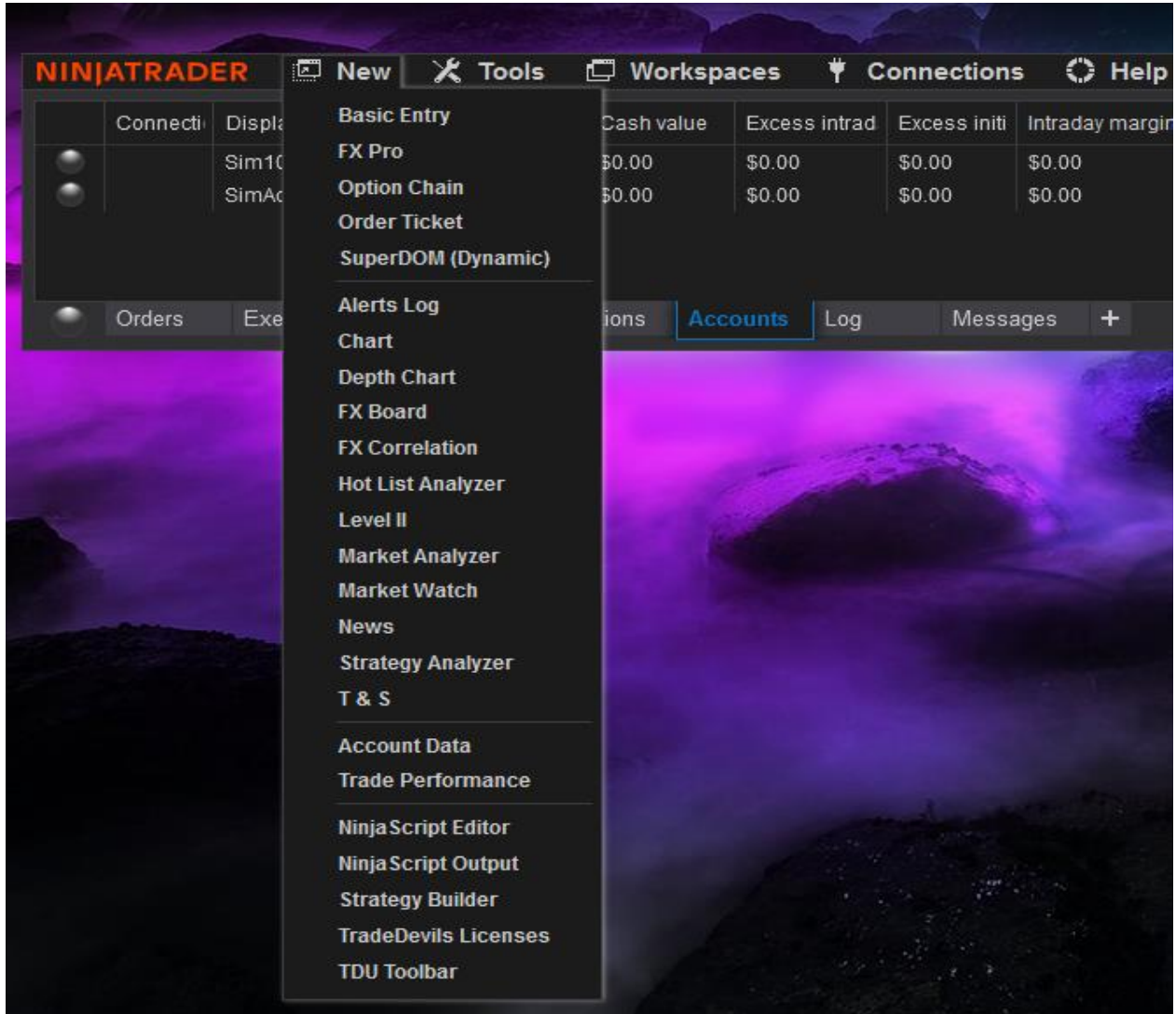
Error screens that may pop up,

If you try to run an unsupported bar type you will get the above error.

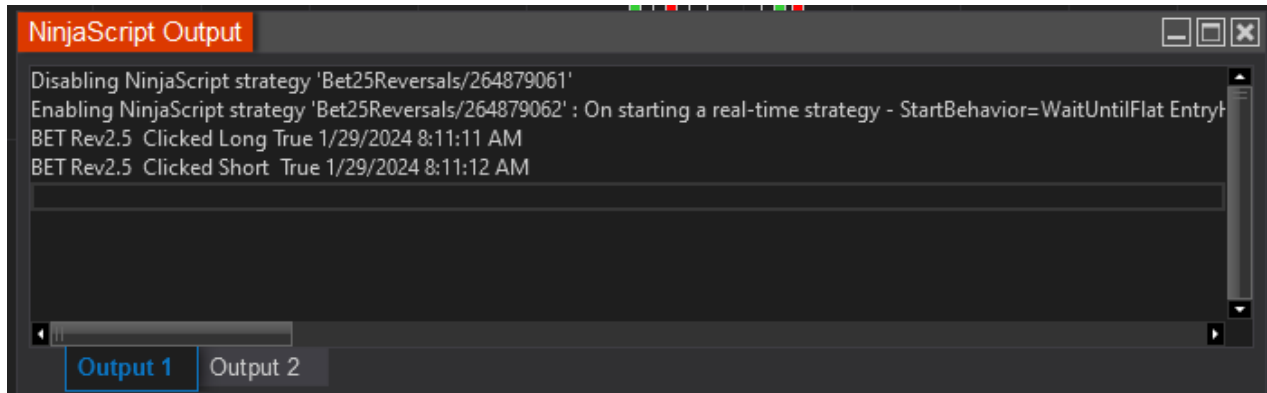
All other errors will be entry and ATM errors that will either be reported to the output screen or in the case of an ATM error Check ATM Spelling it will be both a pop up and reported to the output screen.

Monitor the System with NinjaScript Output

You can monitor the automated system functions and errors using the NinjaTrader 8 NinjaScript Output window.



On the NinjaTrader 8 main screen, go to New, then Ninja Script Output, select and click, this will open up the NinjaScript Output window.



Above is the NinjaScript Output window after the BET MACD has loaded.

Information that maybe displayed; all with time date stamp

BetRev ATM status

BetRev ATM errors

BetRev Entry Long, when long button is armed

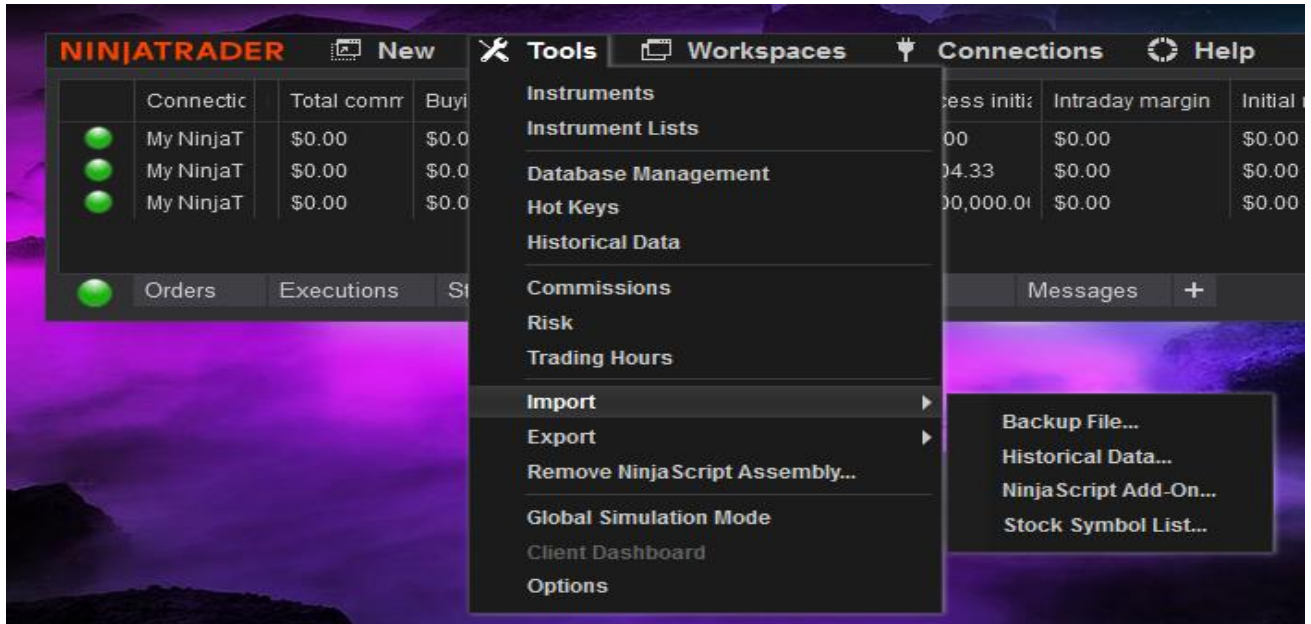
BetRev Entry Short, when short button is armed

BetRev Entry Long and Short Reset

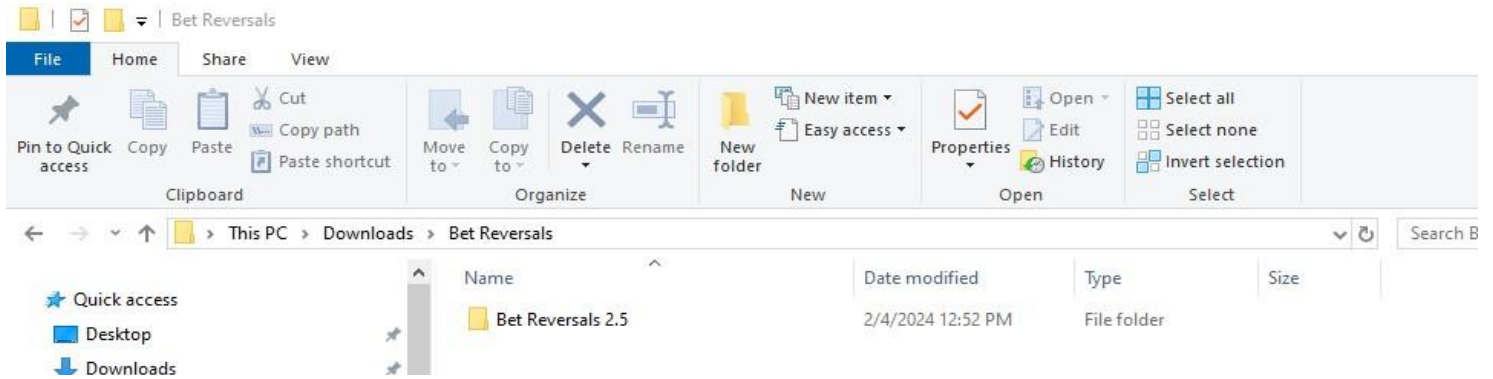
BetRev Wrong Bar type errors

TIP: Right click on the window and set "Always On Top" this will keep the window from being minimized.

Installation of Bet Reversal 2.5 Strategy



On the main window, Click Tools, go to Import, then click on Ninja Script Add-On



Next go to the file area where you downloaded the Bet Reversals 2.5 Strategy.

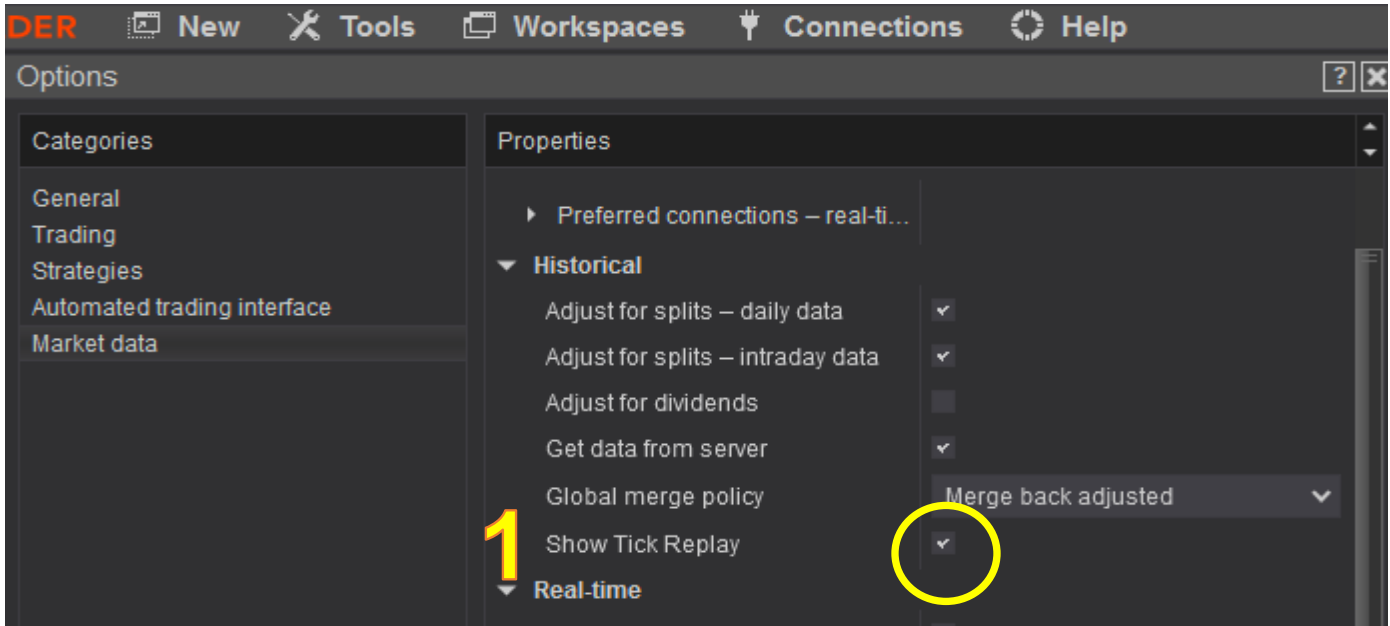
Then Click on the file name, this will open up the file to display a ZIP file. Next double click the zip file and this will start the installation process.

For more information on installing add-on; go to link below

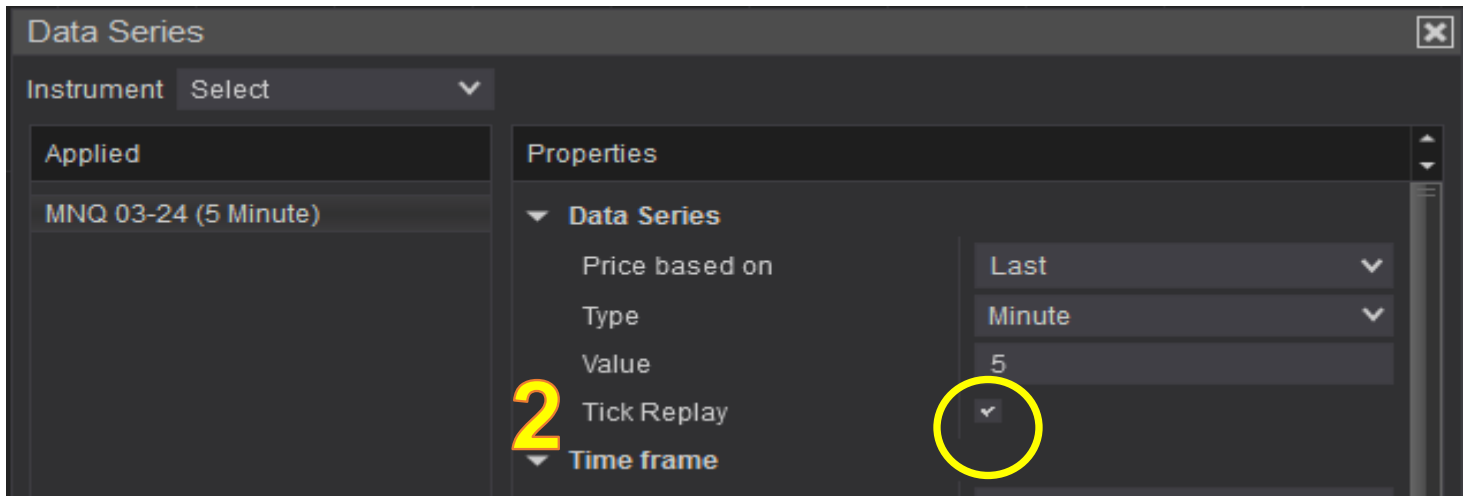
https://ninjatrader.com/support/helpGuides/nt8/NT%20HelpGuide%20English.html?using_3rd_party_add-ons.htm

Setting up Tick Replay

1. Main Menu Tools, Go to Options, Go to Market Data, Click on Show Tick Replay



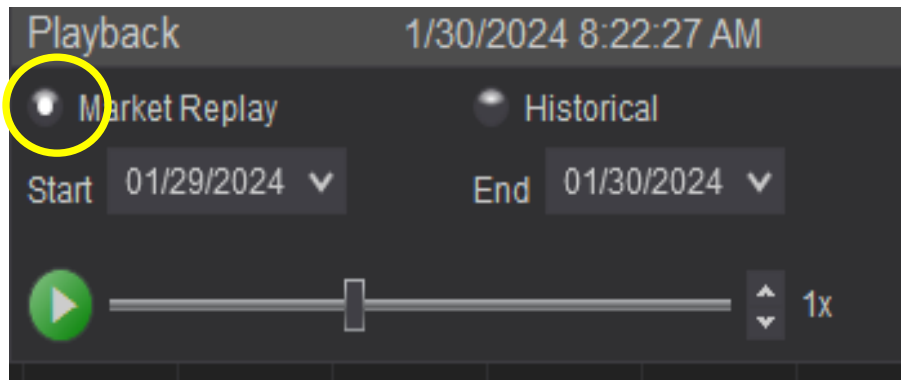
2. Go to New, Chart, Data Series, select Instrument, then Check Tick Replay



NinjaTrader® Tick Replay Support

https://ninjatrader.com/support/helpGuides/nt8/NT%20HelpGuide%20English.html?tick_replay.htm

Using Play Back



It is a requirement that when you use Playback you must use Market Replay with Tick Replay set. If not, the data may not populate and no entries will be taken. The program requires tick by tick data to calculate its' entries and exits, without this data the program will not know how to respond.

Using Strategy Analyzer

Settings

- General**
 - Backtest type: Backtest (1)
 - Strategy: Bet.Reversals.2.5.5 (1)
- ATM Parameters**
 - ATM Template Name: None
 - Max Ticks for ATM Limit Entry: 6
 - Use ATM Limit Entry:
- BackTest Parameters**
 - BackTest Only, Disable ATM Enable Strategy Market Entry:
 - Profit_Target BackTest Only: 70 (2)
 - Stop_Loss_Target BackTest Only: 70 (2)
 - Order_Quantity BackTest Only: 1 (2)
- Imbalance Parameters**
 - Imbalance High: 1.03
 - Imbalance Low: 0.97
- Momentum Parameters**
 - Entry Ask to Bid Diff Count: 3 (3)
 - Entry Bid to Ask Diff Count: 3 (3)
 - Momentum Filter: 75 (3)
 - Velocity Filter: 20 (3)
 - Use Ask Bid Difference for Exit:
 - Exit Bid to Ask Diff Count: 9
 - Exit Ask to Bid Diff Count: 9
 - Probability Filter %: 40 (4)
- System Parameters**
 - Use ES & MES Volume Calculations:
 - Time Start: 08:30 AM
 - Time Stop: 03:00 PM
 - Max Profit \$: 500
 - Max Loss \$: -500
 - Max Bars Entry Reset: 0
 - Show Text box on chart:
 - Bar Line Length Upper in Ticks: 20 (5)
 - Bar Line Length Lower in Ticks: 20 (5)
 - High Bar Period: 20
 - Low Bar Period: 20

1. Use the pull-down menu to find the strategy you want to test "Bet.Reversals 2.5.5"
2. Check the Back Test Only Box, and set your Profit Target and Stop Loss Target. (The Strategy Analyzer will not back-test ATM based strategies). For help using the Strategy Analyzer use the below link;

https://ninjatrader.com/support/helpGuides/nt8/NT%20HelpGuide%20English.html?backtest_a_strategy.htm

3, 4 & 5 You can make whatever adjustments to these parameters and the analyzer will respond. If you are unsure what to do review the properties configuration settings for the basics.

Bar Line Upper Color	Gold
Bar Line Lower Color	Blue
Dot Color High	Blue
Dot Color Low	Gold
Arrow Color Long	LawnGreen
Arrow Color Short	Pink
Start Line Color	Green
Stop Line Color	Red
Text Box OutLine Color	Blue
▼ Data Series	
Instrument	Select
Price based on	Last
Type	Minute
Value	1
Tick Replay	<input type="checkbox"/>
▼ Time frame	
Start date	01/01/2024
End date	03/05/2024
Trading hours	<Use instrument settings>
Break at EOD	<input checked="" type="checkbox"/>
▼ Setup	
Include commission	<input type="checkbox"/>
Maximum bars look back	256
Bars required to trade	20
▼ Historical fill processing	
Order fill resolution	Standard (Fastest)
Fill limit orders on touch	<input type="checkbox"/>
Slippage	0
▼ Order handling	
Entries per direction	1
Entry handling	All entries
Exit on session close	<input checked="" type="checkbox"/>
▼ Order properties	
Set order quantity	Strategy
Time in force	DAY
<i>template</i>	
Run	

1. Select the instrument you want to test and **type**, "**this is very important**", the only types that will work are Seconds, Minutes, Ticks and Volume, any others will not work. You must use **Tick Replay** or it will not work correctly.
2. Start and end dates, the larger the span the longer it will take to process.
TIP; if you open Ninja Script Output window you will be able to see trade resets happening with long, short, time and dates of the trades. If you do not see anything you will need to change your configuration. This can take several minutes.

Properties configuration settings for Futures Markets, MNQ, NQ, MES, ES, RTY, M2K, MYM & YM

The attached configuration settings are some we have used and are available for your reference. We wanted to give you a starting point for a few of the futures instruments so you may experiment and develop a configuration that best suits your needs and experience. **By no means do we guarantee the results of these settings.**

TIP: If you are not seeing the performance you were hoping for, try changing the Data Series Value of the chart "Time, Ticks or Volume" slightly e.g. (from 10 minutes to 9 minutes) this will change the frequency of the high and low bars in the series and may improve your performance. Also, we will change the High and Low Bar period to increase or decrease the number of trades depending on market conditions. *We test this weekly!*

Risk Disclosure Futures trading contains substantial risk and is not for every investor. An investor could potentially lose all or more than the initial investment. Risk capital is money that can be lost without jeopardizing ones' financial security or lifestyle. Only risk capital should be used for trading and only those with sufficient risk capital should consider trading. Past performance is not necessarily indicative of future results.

Bet Reversals 2.5 2023 2024 Basic Properties Configuration for testing									
Instrument		MNQ	NQ	MES	ES	RTY	M2K	MYM	YM
Data Series	Last								
Type	Minute								
Value		5 min	5 min	10 min	10 min	10 min	15 min	10 min	10 min
ATM Target		80 ticks	55 ticks	16 ticks	18 ticks	25 ticks	30 ticks	18 ticks	18 ticks
ATM Stop		60 ticks	50 ticks	12 ticks	12 ticks	16 ticks	20 ticks	12 ticks	12 ticks
Arm Long	User	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Arm Short	User	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ATM Template Name	User								
Max Ticks for ATM Limit Entry	User	6	6	6	6	6	6	6	6
Use ATM Limit Entry	User								
EMA Period	User								
Use EMA Trend for Trades	User								
Imbalance High		1.03	1.03	1.03	1.03	1.03	1.03	1.05	1.05
Imbalance Low		0.97	0.97	0.97	0.97	0.97	0.97	0.95	0.95
Entry Ask to Bid		3	3	3	3	3	3	3	3
Entry Bid to Ask		3	3	3	3	3	3	3	3
Momentum Filter		75	50	30	30	20	17	10	20
Velocity Filter		20	20	5	3	5	5	5	5
Use Ask to Bid Difference for Exit	User								
Exit Bid to Ask Diff Count ticks		9	9	9	6	6	4	4	4
Exit Ask to Bid Diff Count ticks		9	9	9	6	6	4	4	4
Probability filter		45	45	45	45	65	45	45	55
Use ES MES Volume Calculations				Yes	Yes				
Time Start	User								
Time Stop	User								
Max Profit	User								
Max Loss	User								
Max Bars Entry reset		0	0	0	0	0	0	0	0
Show Text on Chart	User								
Bar Line Line Length Upper in Ticks		20	20	7	5	5	5	20	20
Bar Line Line Length Lower in Ticks		20	20	7	5	5	5	20	20
High Bar Period		20	20	20	20	12	5	12	12
Low bar Period		20	20	20	20	12	5	12	12
Average Total Entries per Day		5	5	5	5	3	3	3	3
Colors	User								
Calculate On each Tick		On Each Tick							