

Auto-RFQ v. 2.0 Documentation

The Auto-RFQ job allows the user to automatically respond to strategy RFQs without requiring manual interaction in Metro. The job allows the user to customize their strategy RFQ response quotes by assigning different bid/ask quantities, desired bid/ask edge widths, initial delay in seconds (optional), and response timeout (in seconds) based on the characteristics of the strategy. Settings granularity can be based upon any combination of constraints involving symbol, outright vs. strategy, strike range, maturity, unlimited number of delta buckets, strategy type, max number of legs, max leg strike width (in ticks), and others. The job grids are composed of one Main grid and one or more sub-grids containing the delta-bucketed quote settings.

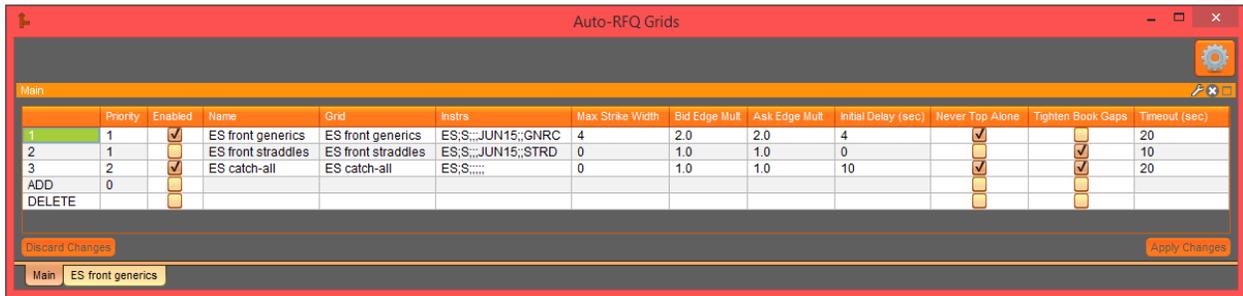
Once the job is active, it will assign the quote settings for, and send an RFQ response for, any RFQ that matched an active row in the Main grid. Any RFQ not matching any row in the Main grid will be sent back to Metro and will be handled based on Metro's settings. Once an RFQ response quote has been sent by the Auto-RFQ job, any further market updates are handled by Metro until the user either refreshes quotes using the supplied button (to reset any quotes back to their default settings) or turns the job off and back on.

The job also contains a control panel with several buttons to start/stop the job, refresh quotes, etc. If running concurrently with the "Axonetric LLC: Active Volatility Manager" job (also offered in the Algo Store), the user can choose to pull quotes and stop the Auto-RFQ job in the event of a breach of any of the security parameters set within the Active Volatility Manager's configuration screen.

Metro Interaction Details

- The job is not intended to be used on any instruments the user is also auto-quoting.
- The job is not intended to be used while the Metro Edge Equalizer is active; the Edge Equalizer will contend with the job and will likely try to set different quote settings.
- The job will overwrite the 4 "local" quote settings field in the Metro quote settings page (bid size, bid edge, ask edge, ask size) for the instruments it is configured for. The algo effectively sets these values prior to submitting the RFQ response. The algo does not affect any "global" settings (used for how Metro handles new instruments).
- Once the response quote is submitted, Metro takes over for handling the updating of prices due to underlying moves, pulling quote upon timeout, and other realtime considerations. This means Metro joining rules can also be applied to the RFQ response generated by the job; they will be applied immediately after the response has been submitted.
- The job is not intended to be used on any instruments that are simultaneously set up for RFQ responding via any Metro RFQ Responding missions. The two entities would conflict for control of the response and it's non-deterministic on who would win out. In most use cases, the job will completely replace the user's Metro RFQ Responding missions.
- All submitted RFQ responses will appear normally in Metro's RFQ Response viewer window.

Main Grid

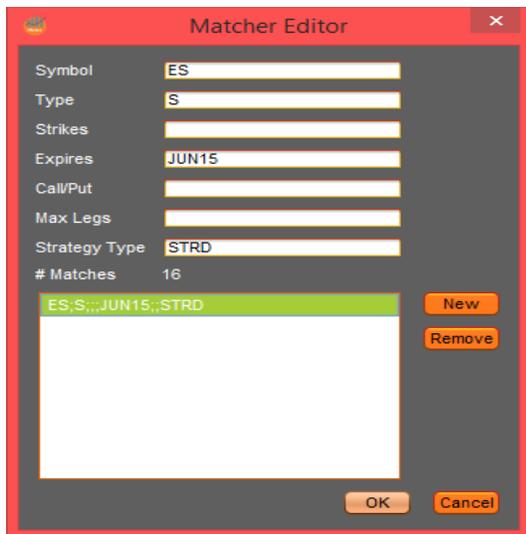


The screenshot shows the 'Auto-RFQ Grids' application window. The main area contains a table with the following columns: Priority, Enabled, Name, Grid, Instrs, Max Strike Width, Bid Edge Mult, Ask Edge Mult, Initial Delay (sec), Never Top Alone, Tighten Book Gaps, and Timeout (sec). The table has four rows: three data rows and one control row. The first data row is highlighted in green. Below the table are buttons for 'Discard Changes' and 'Apply Changes'. At the bottom, there is a breadcrumb trail: 'Main > ES front generics'.

	Priority	Enabled	Name	Grid	Instrs	Max Strike Width	Bid Edge Mult	Ask Edge Mult	Initial Delay (sec)	Never Top Alone	Tighten Book Gaps	Timeout (sec)
1	1	<input checked="" type="checkbox"/>	ES front generics	ES front generics	ES,S;;;JUN15;GNRC	4	2.0	2.0	4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	20
2	1	<input type="checkbox"/>	ES front straddles	ES front straddles	ES,S;;;JUN15;STRD	0	1.0	1.0	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	10
3	2	<input checked="" type="checkbox"/>	ES catch-all	ES catch-all	ES,S;;;;	0	1.0	1.0	10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	20
ADD	0	<input type="checkbox"/>								<input type="checkbox"/>	<input type="checkbox"/>	
DELETE		<input type="checkbox"/>								<input type="checkbox"/>	<input type="checkbox"/>	

The Main grid (see screenshot above) contains the information about what strategies and instruments you are interested in responding to RFQs for. When an RFQ arrives, the instrument must match the "Instrs" filtering expression for at least one row in the main grid (otherwise no response will be generated). All legs of a strategy must also match the specified expiries (eg, months) in the instrument matching expression as well. If two or more rows match, the one with most priority will be used. If none match, no action is taken. The default "grid name" used for this grid is "RFQ_Main", but this can be changed using the "Job Configuration" section.

The below screenshot shows how one could set up an instrument matching expression for all ES June 2015 (monthly) straddles. The "# Matches" shows 16 current matches:



Main Grid Columns:

1. **Priority:** In the event a new RFQ matches more than one row, this value will be used as the tie-breaker. This value also defines the sort order by which rows are displayed in the grid (highest priority are displayed at the top). A lower number denotes a higher priority (eg, "1" is higher priority than "2").
2. **Enabled:** This checkbox column allows per-row setting of enabled or disabled. No incoming RFQs can match a disabled row (and thus no response will be generated for a disabled row). Note that the job's overall quoting state (more on this below) must still be set to "ON" before any Enabled row can send an RFQ response.
3. **Name:** This column allows to the user to provide any description he desires for the row.
4. **Grid:** This column specifies the name of the sub-grid (that contains the delta-bucketed quote settings) that will contain the quote settings linked to this row. Note that multiple rows in the Main grid can point to the same sub-grid, if desired. This sub-grid will be covered in more detail below.

5. *Instrs*: This column cell, when double-clicked, will pop open the Instrument Matcher Editor dialog the trader will use to enter the instrument matching expression for the row. New RFQs will be compared to this expression to determine if the row is a potential match for responding to that RFQ.
6. *Max Strike Width*: For some strategies, the user may wish to control the maximum allowed distance between the leg with the lowest strike and the leg with the highest strike. That distance (in option ticks) can be specified here. If zero (0) is entered, this filter will be ignored and matching strategies can have any strike width.
7. *Bid Edge Multiplier / Ask Edge Multiplier*: These columns allow the user to quickly apply a factor to each bid or ask edge value (respectively) in every delta bucket row of the linked sub-grid. A multiplier of 1.0 will use the edges as specified in the sub-grid. A multiplier of 2.0 would double them. Note that if the user changes the multiplier here, he will need to click the "Refresh Quotes" button before this change is applied to any instruments previously responded to.
8. *Initial Delay (sec)*: In some cases, the user may wish to delay his response to the RFQ in order to allow other market participants a chance to first create a market. If this value is zero (0), there will be no delay and the response will be submitted immediately if possible.
9. *Never Top Alone*: This optional checkbox column allows the user to specify the "never top-of-book alone" condition for this row. If checked, the job will check the existing market prior to submitting the RFQ response. If no market exists on one or both sides, the corresponding side(s) of the job's RFQ response will be cancelled (that side's size set to zero). If a market does already exist, the job will check that the planned response does not

better the existing top-of-book on either side. If it does, the violating side will be widened out until it has joined the existing top-of-book price. Note that this condition is only applied once, right before the response is sent. Once the response is sent, the condition will not be checked any further (for that response quote).

10. *Tighten Book Gaps*: If specified, this optional checkbox column will examine the existing market prior to submitting the RFQ response. If the planned response (on either side) is at a price level more than 1 tick behind the existing top-of-book price, that side will be tightened until it is only 1 tick behind the existing top-of-book. Note that this condition is only applied once, right before the response is sent. Once the response is sent, the condition will not be checked any further (for that response quote).

11. *Timeout (sec)*: Use this column to specify the lifetime of the RFQ response in seconds. The lifetime "timer" starts at the moment the response is submitted to the exchange. After the duration has expired, any unfilled quote response will be cancelled.

Delta-Bucketed Quote Settings (Sub-)Grids

	Delta	Bid Qty	Bid Edge	Ask Edge	Ask Qty
1	10	10	1.0	1.0	10
2	20	5	1.5	1.5	5
3	30	3	2.0	2.0	3
ADD	0				
DELETE					

The job will also contain one or more sub-grids (see above screenshot) that contain the delta-bucketed quote settings to be linked to rows in the Main grid. The linkage occurs via the sub-grid's "grid name" field, which must match the "Grid" column value specified on the Main grid's rows. It should be noted that the Delta column indicates that the quote settings in that row should be used "up to" that delta. Using the above grid as an example, the quote settings in row "1" would be used for deltas 0 to 10. Row "2" would be used from deltas of 10 to 20. Row "3" would be used for deltas of 20 to 30. Anything with a delta above 30 would be ignored (no RFQ response generated). The "Bid Edge" and "Ask Edge" values are entered in terms of ticks. One tick is the smallest price fluctuation the exchange allows for the option or instrument.

Adding / Deleting Rows In Grids

In each type of grid, the user is able to add and delete rows as needed. To add a row, simply enter the settings for the new row in the row that is marked "ADD". Any columns that

are left blank will be filled in with default values designed to not cause immediate action (e.g. sizes of zero). To delete a row, simply enter the row identifier number of the target row into the "Priority" column of the row marked "DELETE". The row identifier is simply the value in the far left (unlabeled) column. This value will be a unique integer automatically assigned by the job.

Please keep in mind the following points related to the grids:

- The job must be in the Started state (2 green circles appear on the job instance line in the Jobs pane) in order for the grid row information to appear. Users cannot edit grid information if or while the job is stopped.
- No changes made in the grid are known to the job up and until the "Apply Changes" button is clicked. The yellow background of edited cells should serve as a reminder that those changes have not yet been committed. Once "Apply Changes" has been clicked, the job will be informed of the user's edits and the yellow cells will return to a normal background color.

Auto-RFQ Control Panel

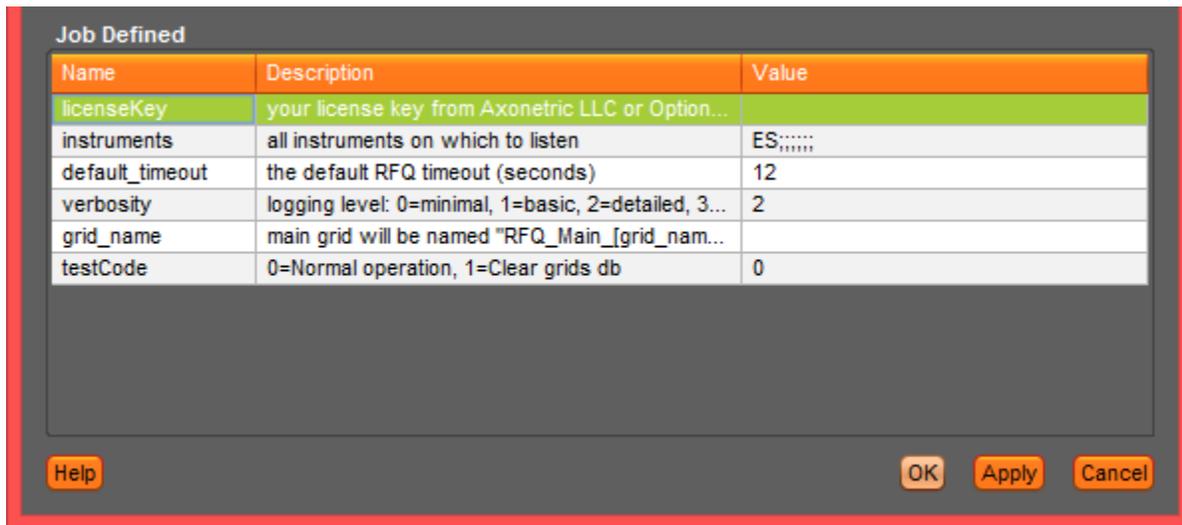


“Refresh Quotes”: This button causes the job to refresh the quote settings for all instruments that were previously encountered since starting the job, using the most recent delta of the instrument.

“Turn Quoting On/Off”: These toggle buttons dictate whether the job will respond to any incoming RFQs. The job state is set to “OFF” on startup so that the user has a chance to change any quote settings before actively responding, if needed. Note that Main grid rows must have the Enabled column checked AND quoting state must be "ON" in order for an RFQ response to be generated for any row. The current job state is displayed in the white text at the bottom of the control panel. If the state is displayed as "???", please use the wrench icon to remove the old probe and re-add the `_quoting` probe from your server (this is required one-time only for new users). Once you restart the job, the state will report "ON" or "OFF" correctly.

“Stop Quoting, End Job”: This pulls all quotes and stops the job. It is intended to be used primarily in the case of emergency.

Job Configuration



Name	Description	Value
licenseKey	your license key from Axonetric LLC or Option...	
instruments	all instruments on which to listen	ES;,,,,;
default_timeout	the default RFQ timeout (seconds)	12
verbosity	logging level: 0=minimal, 1=basic, 2=detailed, 3...	2
grid_name	main grid will be named "RFQ_Main_[grid_nam...	
testCode	0=Normal operation, 1=Clear grids db	0

Relevant settings unique to this job:

- *licenseKey*: Paste in your license key emailed to you by using the CTRL+V key combination.
- *instruments*: Double-click the cell to pop open the Instrument Matcher Editor dialog. Here you will enter the "superset" (or most encompassing filter string) for all RFQs the job will deal with. In other words, every row's instrument matching string must be encompassed by what is entered here. In most cases, this will consist of symbol and maturity filters. To enter multiple symbols, the user can click the "New" button multiple times and stack multiple filter expressions into this entry.
- *default_timeout*: This is the duration in seconds for which your RFQ responses will remain in the market. The per-row "Timeout (sec)" value will override this on an individual basis, but this value will be used to populate the cell when new rows are first created. Enter the value in seconds.

- *verbosity*: This value controls the detail level logged in the job's log text output (in the Log pane). In most cases, a value of 1 or 2 is sufficient here.
- *grid_name*: Leave this blank to use the default Main "grid name" of "RFQ_Main". If the user entered "test" here, for example, the Main "grid name" would then be changed to "RFQ_Main_test". This also affects what the quoting preferences will be saved as in the database, so you can optionally use this to maintain separate settings for different situations.
- *testCode*: Enter "0" here for all normal situations. "1" will clear the database of previously saved work (use with care).

Appendix: Recognized Options Strategy Type Codes

CPCNDR - Condor

CPBTRF - Butterfly

DGNL - Calendar Diagonal

IBTRF - Iron Butterfly

STRG - Strangle

STRD - Straddle

REV - Risk Reversal

IC - Iron Condor

_3WAY - 3-Way

CPHZNTL - Calendar Horizontal

HSTRD - Horizontal Straddle

VRTCL - Vertical

XMASTR - Xmas Tree

GNRC - Generic

DBL - Double

_12RTO - Ratio 1x2

_23RTO - Ratio 2x3

CVRD - Covered

OUT - Outright