

# How to use AdaptableBlotter.JS

For use with OpenFin's Hypergid or Telerik's Kendo grid

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## Setting Up The Adaptable Blotter

### Overview

This document assumes that you will be using either the Hypergrid by OpenFin or the Kendo grid by Telerik as your underlying grid component, on top of which will sit AdaptableBlotter.JS

### Instantiating the Adaptable Blotter

To create an instance of the Adaptable Blotter you simply need to add the following code (or something like it depending on your preferences):

```
//create Adaptable Blotter
var container = document.getElementById('content');

//tradeId is the primary key for the datasource
//JohnSmith is demo username; can be plugged to authentication service if required
var blotter = new adaptableblotterhypergrid.AdaptableBlotter(
    grid,
    container,
    {
        primaryKey: "tradeId",
        userName: "JohnSmith",
        enableAuditLog: false,
        enableRemoteConfigServer: false
    });
```

For Kendo simply replace “adaptableblotterhypergrid” with “adaptableblotterkendo”

### Harness Project

(The zip file download includes indexdemo.js which is a harness project and provides a useful guide on instantiating and using the OpenFin Hypergrid or Telerik Kendo grid).

## Server Components

The Adaptable Blotter production release contains 2 server components:

- Audit Server
- Configuration Server

### Audit Server

The Adaptable Blotter logs every single user action, cell edit, function choice etc. Whatever happens in the Blotter is noted, audited and available to you. You can access this data by turning on auditing and wiring the output to your own reporting infrastructure.

We demo using the Elastic stack which works very well and can help you to set it up if you require us to.

By default, audit is turned off for demo releases, but you can easily enable it by setting 'enableAuditLog' to true in the JS file. (This option is not available if you are using the Blotter in our hosted environment).

### Configuration Server

All your layouts, settings, searches and anything else you create in the Adaptable Blotter are persisted for you to re-use.

Configuration Server allows you to specify where this data is stored and also to share it easily between team members.

It also contains the entitlements configuration, where you can specify exactly what each user is able to see, access and update.

Note; in the demo version only local persistence is allowed and entitlements configuration is not included.

## Adaptable Blotter Functions

AdaptableBlotter.JS includes a number of Functions designed to help you work quickly and more effectively.

These can be divided into 3 conceptual groups:

- Viewing Functions
- Searching Functions
- Editing Functions

Most functions create items for future use, and have property settings which can be configured by the user. These are persisted in line with what is specified in Configuration Server.

Instructions on how to use the more important of these functions is provided below.

### Help

There is context sensitive help in each screen where it is required. Simply hover over an info sign where it appears and additional information will appear to help you navigate the screen.

**Cell Validation Settings**

**Action To Take When Validation Fails**

☒ Prevent the cell edit ⓘ

☐ Show a warning ⓘ

**Cell Validation Action: Warning**

Displays a warning that the validation rule has been broken. If this is overridden, the edit will be allowed.

**Valid**

☒ Disallow ALL edits ⓘ

☐ Only allow edits where the new cell value matches rule: ⓘ

Select Rule Operator

**Expression**

### Persistence

All elements created in functions, and all settings which are changed, are persisted and then made available when the application is restarted. In this demo everything is

persisted locally, but when configuration server they can be persisted to whichever location is set by the system administrators.

#### Audit

As well as every change in cell data, all function calls, menu clicks, blotter entity-creation etc. are also audited. This allows you to see what changes and settings were updated in the Blotter at any point in time.

## Viewing Functions

AdaptableBlotter.JS contains a set of functions designed to help you easily manage your column orders, column sorts and column views.

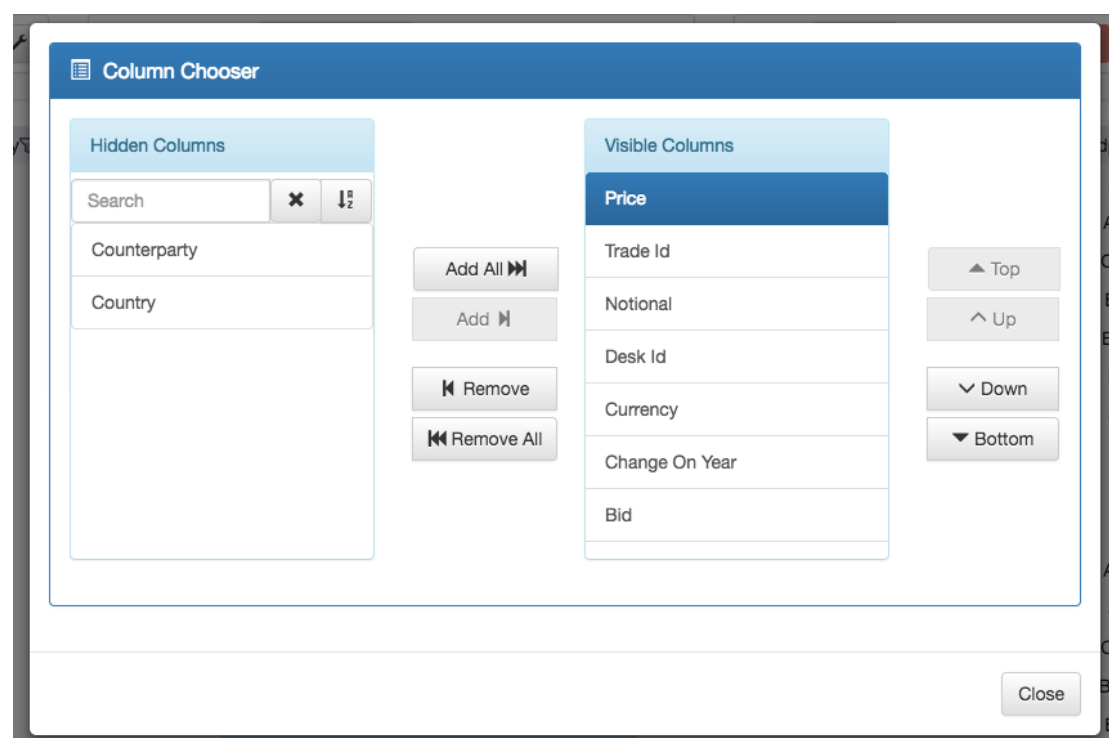
They also allow you to see at a glance which cells are updating and set up rules so columns get styled according to your data and preferences.

### Column Chooser

Select 'Column Chooser' from the Functions Menu to show / hide and order columns.

Remove columns from the Blotter by moving them (either individually or as a group) from the 'Visible Columns' listbox to the 'Hidden Columns' listbox. You can use either the buttons on the form or simply drag and drop between the two list boxes.

Additionally, you can change the order of columns by moving items around in the 'Visible Columns' listbox. You can move columns up or down, or to the top or bottom of the list.



All changes you make are immediately reflected in the Blotter.

If you want to save a particular column configuration that you have created, then create a new Layout and it will then be available to you from the Layout dropdown.



## Layouts

Use layouts to create as many different views of your columns as you want.

Just as Filters, Quick Search and Advanced Search allow you to control how many rows are visible, so Layouts allows you to control how many columns are visible.

### Load a Layout

You can load layouts from the dropdown in the layout toolbar. There is always one default layout which uses the initial column configuration. This cannot be edited or deleted. And you can add as many others as you require.

### Create a New Layout

You can create a new layout at any time by clicking New from the layout toolbar control. This will prompt you for a layout name and then create a new layout based on the CURRENT columns order and visibility.

Ask ▼	Bid ▼	Bid Offer Spread▼	Bloomberg Ask▼	Bloomberg Bid▼	Change On Year▼	Percent Change ▼	Price ▼
158.7183	159.0183	0.3	158.7283	159.0083	-50.7839	-0.5499752767878083	158.8683
58.5431	58.6431	0.1	58.5531	58.6331	-35.004	0.30099386822892704	58.5931
148.6523	148.9023	0.25	148.6623	148.8923	9.9205		148.7773
95.358	95.508	0.15	95.368	95.498	-130.3854	0.383303576124449	95.433
101.3729	101.6229	0.25	101.3829	101.6129	-14.4045	0.007027892094238375	101.4979
75.7555	75.8555	0.1	75.7655	75.8455	-105.8286	-0.6619164360278771	75.8055
135.3707	135.7207	0.35	135.3807	135.7107	99.7549		135.5457
101.3982	101.5982	0.2	101.4082	101.5882	41.4481		101.4982
121.995	122.295	0.3	122.005	122.285	-50.5478		122.145
115.4948	115.6448	0.15	115.5048	115.6348			
90.4539	90.6539	0.2	90.4639	90.6439			
150.8121	151.1121	0.3	150.8221	151.1021			
135.9192	136.2192	0.3	135.9292	136.2092			
77.2025	77.4525	0.25	77.2125	77.4425			
137.2029	137.5029	0.3	137.2129	137.4929			
94.515	94.665	0.15	94.525	94.655			
93.9556	94.0556	0.1	93.9656	94.0456	-112.8619	0.08189417640213992	94.0056
97.1256	97.2256	0.1	97.1356	97.2156	28.4319	-0.7864604130510273	97.1756

### Create New Layout

CancelOK

You can subsequently change and save this layout, or you can first create the columns order you want via Column Chooser and then create the layout.

### Save a Layout

At any time you can update the existing layout by clicking the Save button in the Layout toolbar. The updated layout will contain the column order and visibility as currently present in the Blotter.

### Delete a Layout

You can delete any layouts you have created by clicking the Delete button in the Layout toolbar. This will prompt you that you are sure before deleting the layout.

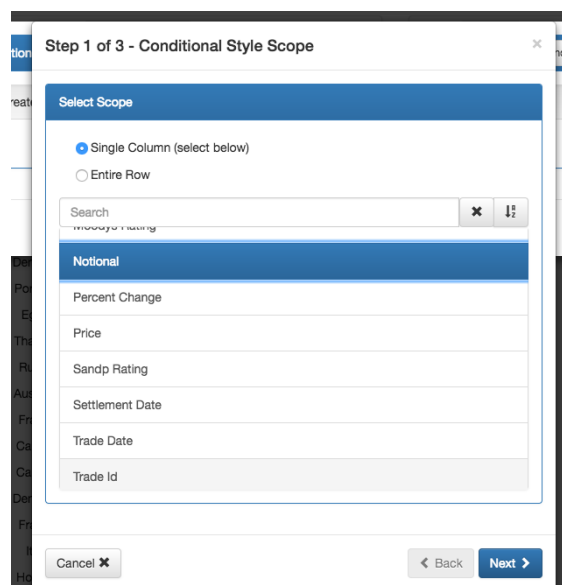
## Conditional Styles

Conditional Styles allow you to create rules for how cells should look visually according to rules that you create. You do this using the same Expression Builder that is also used in Advanced Search, Plus/Minus and many other functions.

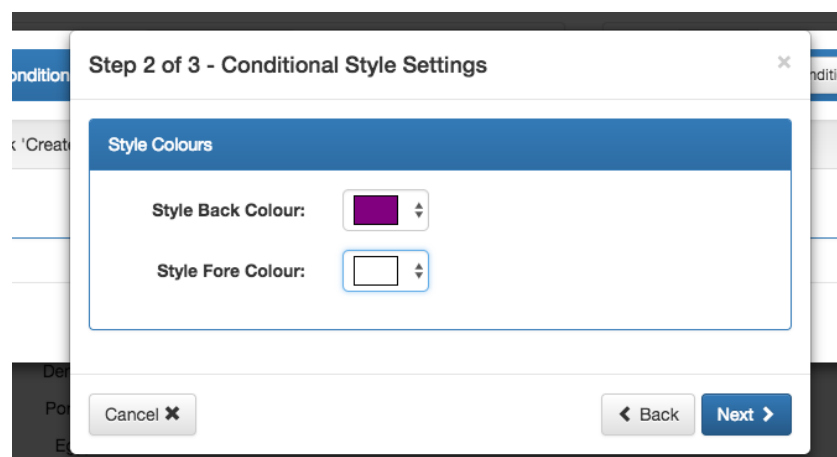
### Creating a Conditional Style

You can create your own conditional style with the following steps (we will create a style that will colour Notional purple when its greater than 7,000,000)

1. Choose 'Conditional Styles' from the Functions dropdown in the toolbar.
2. Click the 'Create Conditional Style' button
3. Choose whether the style will colour a single column when its applied, or the entire row. If you choose to colour a single column, select the column from the listbox.



4. Choose a back colour and a fore colour for the style to be applied



5. Build the expression to evaluate when the Style should be applied.

By default the Expression Builder will open with the Column pre-selected that will have the style applied. But you can choose different columns for the expression and the style (e.g. Style on 'Notional' when Currency = 'EUR'). Or you can choose to have a column styled based on an Expression using multiple columns.

6. Click Finish and the style will be applied immediately.

Notional	Desk Id	Counterparty
\$10,000,000	206	Morgan Stanley
\$5,000,000	53	Societe Generale
\$7,500,000	126	Lloyds TSB
\$7,500,000	209	BNP
\$7,500,000	138	Goldman Sachs
\$5,000,000	200	BNP
\$5,000,000	98	MUFJ
\$2,000,000	224	RBS
\$2,000,000	16	Barcap
\$7,500,000	105	Nomura
\$1,000,000	6	Rabobank
\$10,000,000	33	Rabobank
\$10,000,000	211	Lloyds TSB
\$2,000,000	69	Goldman Sachs
\$5,000,000	144	JP Morgan
\$10,000,000	202	Barcap
\$1,000,000	217	JP Morgan
\$7,500,000	181	Lloyds TSB

### Editing a Conditional Style

For any conditional style you are able - inline in the Conditional Style popup - to change the Column that is being styled, and the Fore and Back colours.

If you want to make other edits to the style, then click the Edit button at the end of the row and this will open the same Editor you used to create the style.

### Deleting a Conditional Style

You can delete any conditional style by clicking the delete button at the end of the row in the Conditional Style popup.

## Flashing Cells

Turn on flashing cells to see numeric cells briefly change colour as their contents change.

Country	Change On Year	Price	Bid	Ask	Bid Offer Sp
Portugal	17.4064	30.7641	31.0141	30.5141	0.5
France	19.2721	103.2871	103.3371	103.2371	0.1
Hungary	-132.7151	88.1261	88.3261	87.9261	0.4
China	49.992	40.6159	40.7409	40.4909	0.25
Kenya	131.6895	22.1931	22.3681	22.0181	0.35
Russia	132.1814	124.7629	124.8879	124.6379	0.25
Spain	3.9105	49.9481	50.0481	49.8481	0.2
Portugal	-58.6112	37.6828	37.8328	37.5328	0.3
Canada	-82.38	84.5109	84.6359	84.3859	0.25
Egypt	-68.2855	40.5399	40.7149	40.3649	0.35
Luxembourg	24.6441	51.2027	51.3277	51.0777	0.25
Russia	-27.5925	141.8541	141.9041	141.8041	0.1
Japan	-128.397	29.0869	29.2619	28.9119	0.35
Italy	-47.6579	128.8197	128.9697	128.6697	0.3
Kenya	141.9676	-5.9395	-5.8395	-6.0395	0.2
Japan	-88.6802	35.0811	35.2561	34.9061	0.35
Kenya	-78.6644	126.4159	126.5409	126.2909	0.25
Thailand	13.6445	60.4713	60.5713	60.3713	0.2
Brazil	19.5188	18.2971	18.3971	18.1971	0.2
Portugal	20.0093	126.3752	126.5252	126.2252	0.3
Denmark	76.4736	53.66	53.785	53.535	0.25
Holland	16.7271	88.8002	88.9752	88.6252	0.35
Kenya	-31.1327	15.68	15.88	15.48	0.4

## Flashing Cells Configuration Screen

Access the Flashing Cells Configuration Screen from the Functions dropdown in the toolbar to turn on flashing cells either for all numeric columns (using the checkbox at the top) or just for the columns you specify.

By default cells will flash Green or Red for half a second as their values go up or down respectively. But you can change this for any column by selecting a different duration, or your own up and down colours.

⚡ Flashing Cell Columns

☐ All Columns

Live	Column Name	Flash Duration	Up Color	Down Color
<input checked="" type="checkbox"/>	Ask	1 Second	<div>Green</div>	<div>Red</div>
<input checked="" type="checkbox"/>	Bid	1/2 Second	<div>Green</div>	<div>Red</div>
<input type="checkbox"/>	Bid Offer Spread	1/2 Second	<div>Green</div>	<div>Red</div>
<input type="checkbox"/>	Bloomberg Ask	1/2 Second	<div>Green</div>	<div>Red</div>
<input type="checkbox"/>	Bloomberg Bid	1/2 Second	<div>Green</div>	<div>Red</div>

Close

## Custom Sort

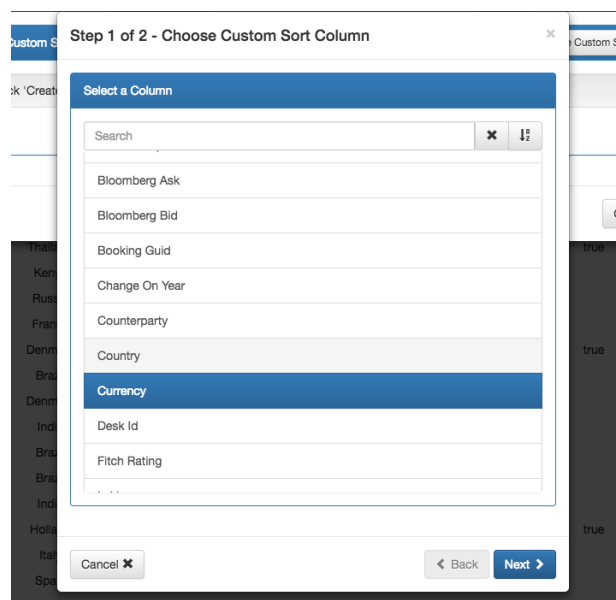
By default columns will sort alphabetically or in date order. (You sort a column in Hypergrid by double-clicking in that column's header and in Kendo by clicking once.)

The defaults are fine most of the time but there will be occasions when you want to sort in a bespoke way: e.g. you might want to list currencies in a different order, or sort your Sectors by ones you most commonly use.

### Create a Custom Sort

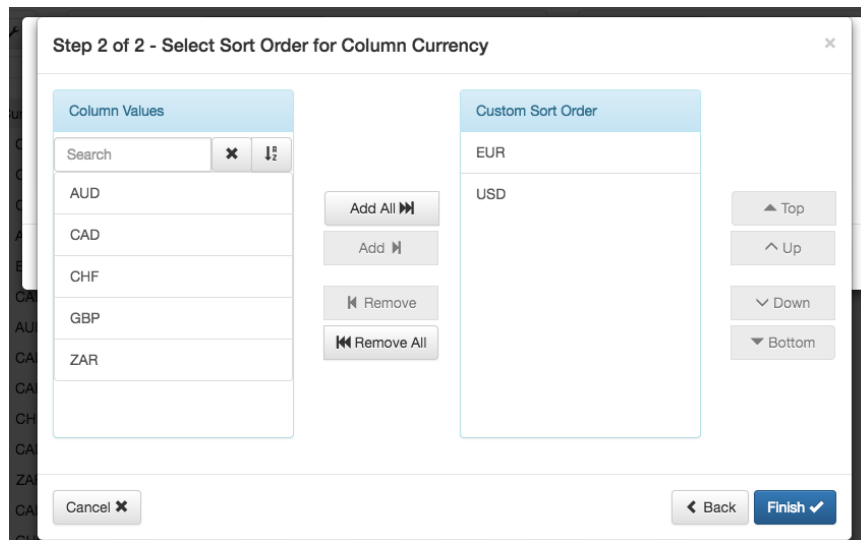
You can create your own custom sort with the following steps:

1. Choose 'Custom Sort' from the Functions dropdown in the toolbar.
2. Click the 'Create Custom Sort' button in the popup wizard
3. Select the column you want to build a custom sort for

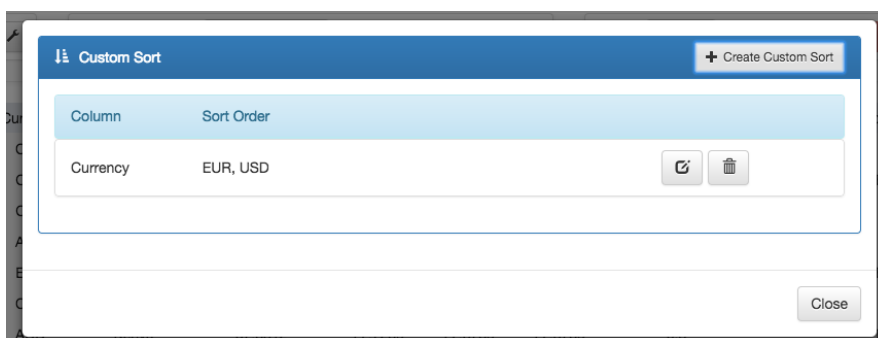


4. Use the chooser to decide which values you want in the sort. The new sort will order by the values you put in the Custom Sort Order listbox. Any values NOT in that listbox will be sorted alphabetically.

So in the example below, Currencies will sort first by 'EUR', then 'USD' and then sort the rest alphabetically.



- Click Finish and your Sort is now ready.



- Click (or Double-click if using Hypergrid) in the column header and you will now see the values sorted using your sort order

Interparty	▲ Currency ▼	Count
n Stanley	EUR	Hollar
Generale	EUR	Russi
ds TSB	EUR	Russi
3NP	EUR	Canac
ian Sachs	EUR	Argenti
3NP	EUR	Denme
1UFJ	EUR	Portug
3BS	EUR	Egyp
arcap	EUR	Thailar
amura	EUR	Russi
obank	EUR	Austra
obank	EUR	Franc
ds TSB	EUR	Canac
ian Sachs	EUR	Canac
lorgan	USD	Denme
arcap	USD	Franc
lorgan	USD	Italy
ds TSB	USD	Hollar
3NP	USD	Denme
it Suisse	USD	Spair
it Suisse	USD	Austra
Generale	USD	Spair
ds TSB	USD	Franc

### Editing a Custom Sort

You can edit any custom sort you have created by clicking the edit button for that Custom Sort in the Custom Sort popup.

This will open the same wizard that you used to create the custom sort.

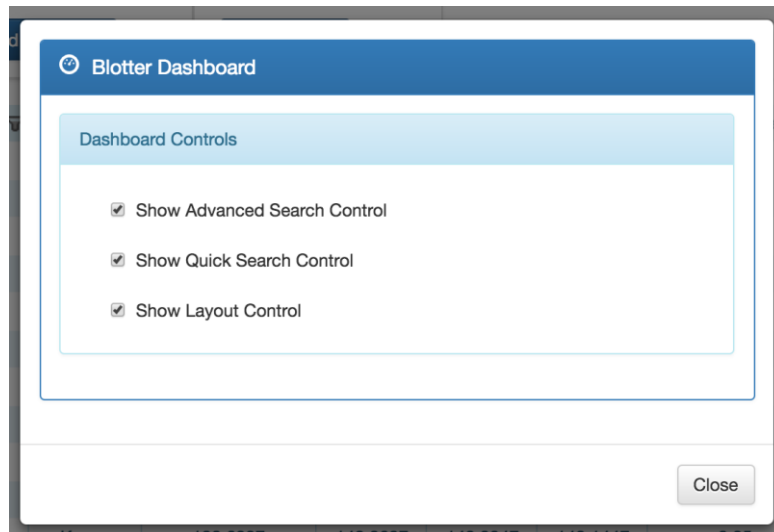
### Deleting a Custom Sort

You can delete any custom sort you have created simply by clicking the delete button for that Custom Sort in the Custom Sort popup.



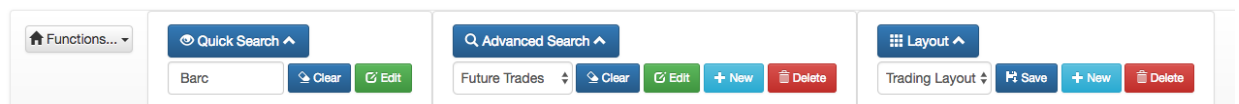
## Dashboard

Dashboard enables you to choose which of the Toolbar controls (Quick Search, Advanced Search and Layout) you wish to be included in the top panel.



## Dashboard Persistence

The Adaptable Blotter persistence will save which toolbar controls are expanded or collapsed and they will open in the same way when the application is restarted.



A forthcoming release will be adding more options to this Function.

## Searching Functions

AdaptableBlotter.JS contains 3 search-related functions: Advanced Search, Quick Search and Filters, which together give you total control over which rows appear in your Blotter at any time.

### Advanced Search

Advanced Search enables you to search across multiple columns using a huge range of search options. Each search is named so it can be subsequently accessed whenever you want.

#### Creating an Advanced Search

You create an Advanced Search using the following steps.

1. Click the New button in the Advanced Search toolbar.
2. This opens the Expression builder where you can create as simple or complex an Expression as you want. Each expression consists of one or more Column Conditions. A Column Condition matches a column against Search Criteria. The search criteria can be one of 3 types:
  - a. Column Values
  - b. Filters
  - c. Ranges you create

In the figure below, the Search Expression consists of 3 Column Conditions:

1. Counterparty: 3 Column values – ‘Barcap’, ‘Credit Suisse’, ‘Goldman Sachs’
2. Change on Year: Filter – ‘Positive’
3. Price: Range – ‘Greater than 20’

Step 1 of 2 - Advanced Search Create Expression

**Build Expression** Add Condition

Step 1: Select Column Price

Step 2: Create Criteria

**Values**

Search
-3.4581
10.8432
10.9504
11.7487
13.0088
13.1279
14.0695
14.4003

**Filters**

Positive
Negative
Zero
Blanks
Non Blanks

**Ranges** Add Range Entry

>	20
---	----

**Preview**

**Counterparty**

Barcap
Credit Suisse
Goldman Sachs

**Change On Year**

Positive
----------

**Price**

> 20
------

Cancel Back Next

Then give the Search a name and it will be automatically applied.

It will also now be available in the dropdown in the Advanced Search Toolbar.

#### Selecting / Editing an Advanced Search

You can select any Advanced Searches you have created from the dropdown in the Advanced Search Toolbar.

Once you have selected a search, you have the option of editing it (via the Edit button); this will open the same Expression Builder screen that you used to create the search.

#### Clearing Advanced Search

You can clear a selected Advanced Search by clicking the 'Clear' button in the Advanced Search Toolbar. This will no longer apply the Search so all rows will be shown (unless you also have Quick Search or Filters applied). But the search will still be available in the dropdown for use in the future.

#### Deleting an Advanced Search

You can delete any Advanced Searches you have created by clicking the 'Delete' button in the Advanced Search Toolbar. This will un-apply the search and remove it from the dropdown.

## Quick Search

Quick Search is designed to enable you to perform a simple text search across all visible columns in the Blotter.

It matches on each cell's display value (rather than underlying value).

You can access the quick search from the Quick Search input in the toolbar.

By default Quick Search will highlight in yellow any cells that start with the inputted text.

Quick Search: <input type="text" value="De"/>			Run		Clear				Advanced Search: <input type="text" value="Select a Search"/>				Edit		Clear		New		Delete		Layout: <input type="text" value="Default"/>				Save		New		Delete		Functions...		Configure...	
Trade Id	Notional	Desk Id	Counterparty	Currency	Country	Change On Year	Price	Bid	Ask	Bid Offer Spread	Is Live	Moody's Rating	Fitch Rating	Sandp Rating	Trade Date																			
106	\$7,500,000	233	Deutsche Bank	ZAR	Spain	-46.6071	141.3556	141.2556	141.4556	0.2	true	Baa1	BBB+	BBB+	October 31, 2016																			
107	\$5,000,000	53	Rabobank	AUD	Belgium	62.3181	92.7428	92.5678	92.9178	0.35		Aa3	AA-		June 5, 2014																			
108	\$7,500,000	136	Rabobank	AUD	Portugal	25.1526	95.9431	95.7881	96.1181	0.35	true	Baa2	BBB	BBB	December 6, 2017																			
109	\$1,000,000	46	Morgan Stanley	USD	Spain	-108.4294	89.9045	89.6545	90.1545	0.5		B2	B	B	May 28, 2015																			
110	\$5,000,000	79	Nomura	ZAR	Brazil	84.5064	87.346	87.221	87.471	0.25	true	A1	A+	A+	August 1, 2014																			
111	\$5,000,000	198	Goldman Sachs	AUD	Holland	-25.6789	32.575	32.375	32.775	0.4		A3	A-	A-	August 6, 2019																			
112	\$1,000,000	26	Rabobank	CAD	Holland	118.406	51.7688	51.6188	51.9188	0.3	true	Ba2	BB	BB	April 19, 2017																			
113	\$1,000,000	109	Lloyds TSB	GBP	Argentina	-25.7813	36.6693	36.5693	36.7693	0.2		Baa3	BBB-	BBB-	December 21, 2017																			
114	\$7,500,000	26	Deutsche Bank	EUR	Kenya	106.4179	28.6054	28.4804	28.7304	0.25	true	Aa1	AA+	AA+	October 21, 2018																			
115	\$7,500,000	158	Credit Suisse	CHF	Canada	78.7903	93.0351	92.9101	93.1601	0.25		Baa1	BBB+	BBB+	March 16, 2019																			
116	\$1,000,000	1	Nomura	CHF	Australia	-136.7574	126.1056	126.0556	126.1556	0.1		B2	B	B	January 2, 2019																			
117	\$10,000,000	159	MUFI	CHF	Brazil	-136.1616	118.001	117.826	118.176	0.35	true	B2	B	B	September 24, 2011																			
118	\$10,000,000	241	BNP	AUD	Ireland	140.9773	146.9229	146.8729	146.9729	0.1	true	Aa1	AA+	AA+	June 14, 2014																			
119	\$7,500,000	49	MUFI	EUR	Luxembourg	96.6705	17.8441	17.6941	17.9941	0.3		Ba2	BB	BB	December 30, 2018																			
120	\$10,000,000	243	Deutsche Bank	AUD	Thailand	32.8851	110.1659	110.1159	110.2159	0.1	true	WR	SD	SD	October 13, 2014																			
121	\$5,000,000	237	Lloyds TSB	EUR	India	-42.8075	69.3704	69.1954	69.5454	0.35	true	NR	NR	NR	August 31, 2016																			
122	\$7,500,000	180	Bank of America	AUD	Holland	98.0422	148.9586	148.7086	149.2086	0.5	true	B1	B+	B+	May 1, 2019																			
123	\$2,000,000	198	MUFI	CHF	Spain	-17.22	64.1735	64.0485	64.2985	0.25	true	Caa	CCC	CCC	February 27, 2019																			
124	\$10,000,000	143	Barcap	CHF	Qatar	-132.9628	29.3145	29.2645	29.3645	0.1		Ca	CC	CC	May 8, 2016																			
125	\$10,000,000	210	Societe Generale	AUD	Denmark	-22.4296	74.9092	74.8342	74.9842	0.15	true	Aa2	AA	AA	June 1, 2016																			
126	\$10,000,000	213	BRS	CHF	Australia	1.796	58.2741	58.2001	58.3481	0.15		B1	BB	BB	September 9, 2014																			

## Quick Search Configuration

To change the settings click on the Settings button, which will open the Quick Search Configuration Screen.

Quick Search

Search For

De

Search

Clear

Quick Search Options

Operator:

Starts With

Display:

☒ Colour cells that match search text

☐ Display only rows with cells that match search text

☐ Display matching rows AND colour cells

BackColor:

Close

The Quick Search Configuration Screen allows you to:

- change the BackColor of highlighted cells
- decide whether to return cells that “start with” or “contain” the inputted text
- choose what to display after performing a search. Options are:
  - colour matching cells
  - just display rows that contain matching cells
  - just display rows that contain matching cells and to colour those cells

## Filters

Filters allow you easily to find data in columns. Click anywhere in the Column Header and a filter dropdown will show you all unique values in the column.

Select as many values as you want in order to filter on those values.

Trade Id	Notional	Desk Id	Counterparty	Currency	Country		Price
4	\$7,500,000	44	Rabobank	CAD	China	Filter	65.1159
22	\$5,000,000	120	MUFJ	AUD	Denmark	Search ✕	79.2311
26	\$5,000,000	179	MUFJ	EUR	China	(All)	73.4834
35	\$5,000,000	168	Lloyds TSB	EUR	Denmark	Blanks	113.8919
37	\$5,000,000	27	Barcap	USD	China	Non Blanks	24.4954
38	\$1,000,000	83	BNP	CAD	China	Argentina	47.5296
40	\$1,000,000	15	JP Morgan	GBP	Argentina	Australia	94.2113
44	\$2,000,000	128	Morgan Stanley	GBP	China	Belgium	49.8251
55	\$2,000,000	178	Bank of America	CAD	Belgium	Brazil	118.5125
58	\$1,000,000	235	Morgan Stanley	CHF	China	Canada	86.9101
65	\$1,000,000	214	Societe Generale	GBP	Denmark	China	22.4693
72	\$2,000,000	92	MUFJ	ZAR	Belgium	Denmark	31.0865
76	\$10,000,000	11	BNP	GBP	Belgium		116.7528
82	\$1,000,000	159	Societe Generale	USD	Belgium	128.8681	149.9749
85	\$2,000,000	206	Nomura	AUD	Denmark	-103.305	107.4852
92	\$5,000,000	182	Credit Suisse	EUR	Denmark	-23.9108	104.3562
104	\$5,000,000	143	BNP	CAD	Argentina	92.4416	57.7006
105	\$5,000,000	226	RBS	ZAR	Argentina	-45.3698	63.218
107	\$5,000,000	53	Rabobank	AUD	Belgium	62.3181	92.7428
113	\$1,000,000	109	Lloyds TSB	GBP	Argentina	-25.7613	36.6693
125	\$10,000,000	210	Societe Generale	AUD	Denmark	-22.4296	74.9092
127	\$1,000,000	101	MUFJ	GBP	Belgium	70.0866	50.6978
129	\$10,000,000	244	RBS	EUR	China	-4.4568	62.0579
145	\$5,000,000	184	Bank of America	CHF	Argentina	106.1016	55.6152

Click in any other cell to close the filter dropdown.

## User Filters

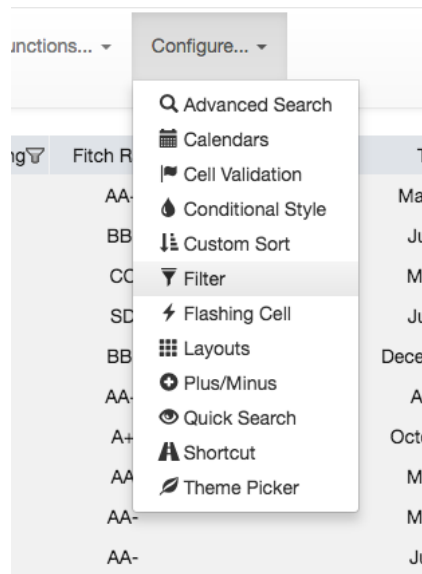
You can define and create your own filters and then use them as if they were a single piece of data.

These user filters are then available from within the filter dropdown and also as inputs to Advanced Search, Plus Minus, Conditional Styles and any other function that uses an Expression.

## Create a User Filter

You can create your own user filter with the following steps:

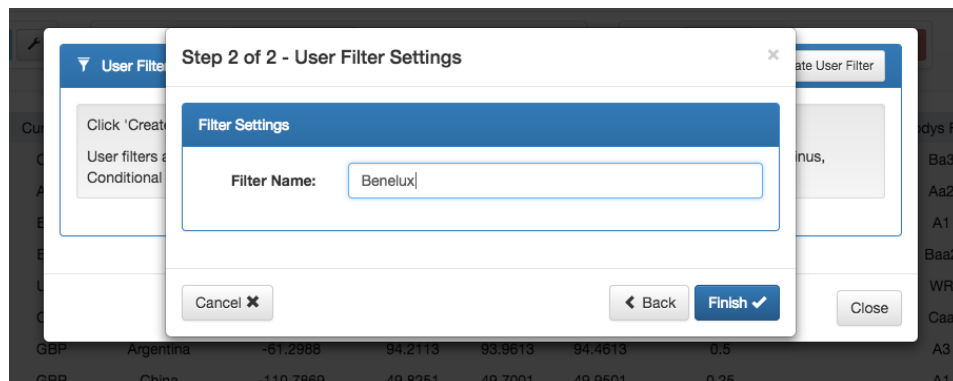
1. Select “Filter” from the Functions dropdown in the toolbar



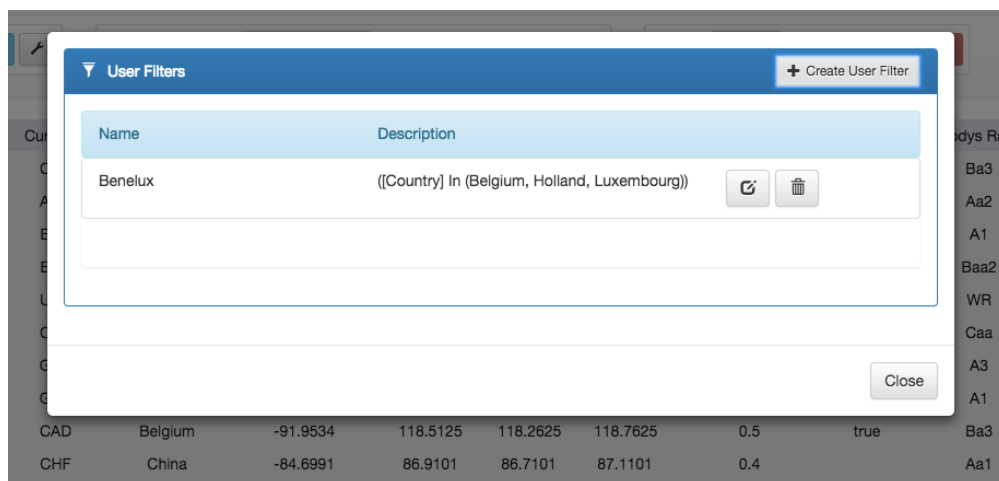
2. Click the “Create User Filter” button – this will take you to the Expression screen, where you can create a single column expression.
3. Create the Expression you want (e.g. the 3 countries that make up Benelux: Belgium, Holland and Luxembourg). The Filter can be of any type you want (e.g. Notional > 5000000) or (Trade Date > ‘01/02/2017’)

A screenshot of a dialog box titled 'Step 1 of 2 - User Filter Create Expression'. The dialog is divided into two main sections: 'Build Expression' and 'Preview'.  
**Build Expression:**  
- **Step 1: Select Column:** A dropdown menu showing 'Country'.  
- **Step 2: Create Criteria:**  
 - **Values:** A list of countries: India, Ireland, Italy, Japan, Kenya, Luxembourg (highlighted), Portugal, Qatar.  
 - **Filters:** Two options: 'Blanks' and 'Non Blanks'.  
 - **Ranges:** An empty box with an 'Add Range Entry' button.  
- **Buttons:** 'Add Condition' (top right), 'Cancel' (bottom left), 'Back' (bottom right), and 'Next' (bottom right).  
**Preview:**  
- A section titled 'Country' showing a list of countries: Belgium, Holland, and Luxembourg, each with a trash icon next to it.  
At the bottom of the dialog, there is a data preview showing columns: MUF, GDP, Belgium, 70.0666, 50.5976, 50.5976, 50.5976, 0.2, true, Back, and BBD.

- In the last stage of the wizard, give the filter a name and click Finish



- And the filter is now created



- This filter is now available in the Filter Dropdown and whenever you want to create an expression using that column.

Desk Id	Counterparty	Currency	Country	Change On Year	Price
43	Goldman Sachs	USD	Luxembourg	38.7027	
12	Deutsche Bank	ZAR	Holland	86.66	
74	BNP	CHF	Holland	43.6151	
19	Deutsche Bank	AUD	Holland	144.9174	
178	Bank of America	CAD	Belgium	118.5125	
92	MUFJ	ZAR	Belgium	31.0865	
11	BNP	GBP	Belgium	116.7528	
159	Societe Generale	USD	Belgium	149.9749	
46	JP Morgan	USD	Holland	85.0668	
53	Rabobank	AUD	Belgium	92.7428	
198	Goldman Sachs	AUD	Holland	32.575	
26	Rabobank	CAD	Holland	51.7688	
49	MUFJ	EUR	Luxembourg	17.8441	
180	Bank of America	AUD	Holland	148.9586	
101	MUFJ	GBP	Belgium	50.6978	
214	Bank of America	AUD	Holland	112.0127	
184	Lloyds TSB	AUD	Holland	114.9714	
41	BNP	CHF	Belgium	38.6079	
34	BNP	EUR	Luxembourg	115.6034	
182	Goldman Sachs	ZAR	Holland	143.4255	
166	Lloyds TSB	GBP	Luxembourg	133.1683	
38	Nomura	ZAR	Holland	33.2982	
131	Bank of America	CAD	Belgium	149.4255	



## Editing Functions

The Adaptable Blotter includes a group of functions that help you to edit your data quicker, safer and more efficiently.

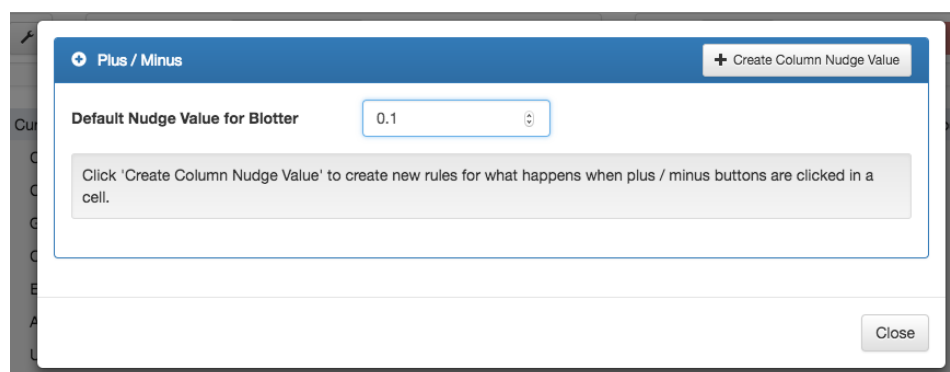
### Plus Minus

Plus / Minus helps you to write your own rules for what should happen when you click the “+” or “-“ keys in a numeric cell.

#### Changing Default Nudge Value for the Blotter

By default any numeric cell will increment by 1 but you can choose your own nudge value.

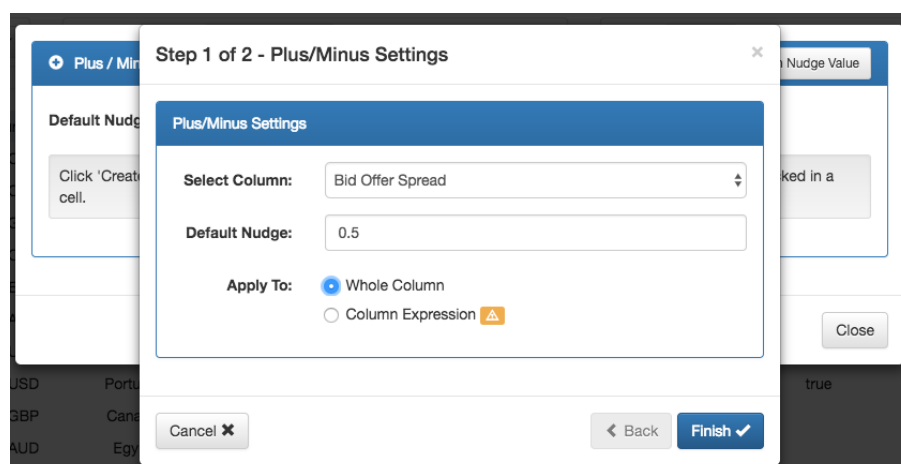
Select “Plus/Minus” from the Functions dropdown in the toolbar and in the popup change ‘Default Nudge Value for Blotter’ to a value more appropriate.



#### Changing Default Nudge Value for a Column

You can specify a different Nudge value for a particular column to the one you set for a Blotter. You do this by creating a Column Nudge Value Rule.

1. Click the ‘Create Column Nudge Value’ button in the Plus/Minus popup
2. Choose a column from the dropdown
3. Select a nudge value that is appropriate as the default for that column
4. Select whole column



5. Click Finish and the new Nudge Value for the Column is created.

Column	Nudge	Row Condition
Bid Offer Spread	0.5	Any

### Adding a Column Plus/Minus Rule

Sometimes you might want to change the Nudge Value for a cell depending on other values in the row (e.g. depending on the Underlying or the Currency etc.).

To do this you create a Plus/Minus Rule as follows.

1. Click the 'Create Column Nudge Value' button in the Plus/Minus popup
2. Choose a column from the dropdown
3. Select a nudge value you want to use for the rule
4. Select Column Expression
5. In the Expression Builder create the rule you want for the Plus/Minus Rule (e.g. Currency is 'EUR' or 'USD')

Step 2 of 2 - Plus/Minus Create Expression

Build Expression

Step 1: Select Column: Currency

Step 2: Create Criteria

Values: Search, AUD, CAD, CHF, EUR, GBP, USD, ZAR

Filters: Blanks, Non Blanks

Ranges: Add Range Entry

Preview: Currency, EUR, USD

Cancel, Back, Finish

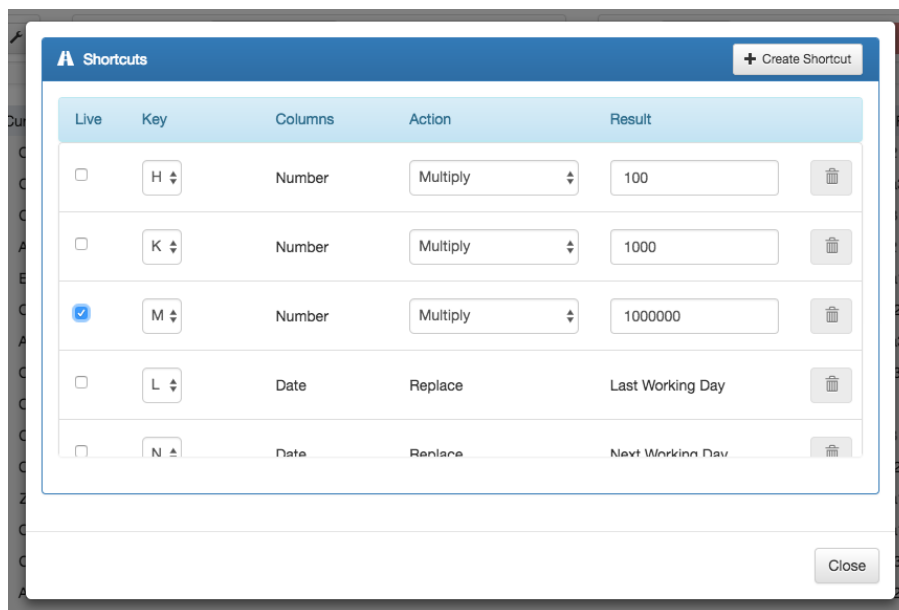
6. Click Finish and the nudge value you defined will now be applied whenever the Expression rule is present

## Shortcuts

Use Shortcuts to input regularly used numbers, calculations and dates more quickly and efficiently while avoiding the “fat finger” problem.

### Using a Predefined Shortcut

The Adaptable Blotter ships with some common Numeric and Date shortcuts. To use these simply click the “Live” checkbox and the Shortcut will now work: type in the shortcut key in a relevant column and watch the value change. For example if you select the “M” for Million shortcut typing 5 and then M in a numeric cell will result in the value 5,000,000.



Note: The “Last Working Day” and “Next Working Day” shortcuts will use your selected Holiday Calendar. This default to “United States”; if you want to use a different Holiday Calendar, you can change it in the Calendars Configuration popup (via the Functions dropdown).

### Creating a Shortcut

You can create a shortcut by clicking the ‘Create Shortcut’ button in the Shortcuts window.

There are 4 properties you need to set in the Wizard:

1. Whether it will be applied on Numeric or Date columns
2. What the shortcut keystroke is – these are unique for each shortcut column type
3. Action. This is only required for Numeric shortcuts because Date shortcuts always replace the current cell contents with a new value. For numeric shortcuts the options are:

- a. Add: to add the Result value to the cell contents
  - b. Subtract: to subtract the Result value from the cell contents
  - c. Multiply: to multiply the cell contents by the Result value
  - d. Divide: to divide the cell contents by the Result value
  - e. Replace: to replace the entire contents of the cell with the Result value
4. Result: This is what the new shortcut value will be. If the Action is result then the Result becomes the new cell value; otherwise its used in conjunction with the contents of the cell to compute the new cell value.

So if we create a shortcut to replace any date cell with the Date, 20 March 2017, our shortcut will look like this...

Step 1 of 1 - Create Shortcut

Shortcut Settings

Shortcut Column Type

☐ Number ☒ Date

Shortcut Key

R

Shortcut Date Result

20/03/2017

Cancel ✕ Back Finish ✓

... and typing R on any date cell will change the contents to our Shortcut result value.

#### Deleting a Shortcut

You can delete any shortcut you have created (but not predefined shortcuts) by clicking the delete button for that shortcut in the Shortcut Configuration.

#### Editing a Shortcut

You can change the Key, Action (if its numeric shortcut) and the Result of any shortcut in Shortcuts Configuration screen.

Shortcuts

+ Create Shortcut

Live	Key	Columns	Action	Result	
<input checked="" type="checkbox"/>	M	Number	multiply	1000000	
<input type="checkbox"/>	L	Date	Replace	Last Working Day	
<input type="checkbox"/>	N	Date	Replace	Next Working Day	
<input checked="" type="checkbox"/>	R	Date	Replace	20/03/2017	
<input type="checkbox"/>	T	Date	Replace		

March 2017

Mon	Tue	Wed	Thu	Fri	Sat	Sun
27	28	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	1	2

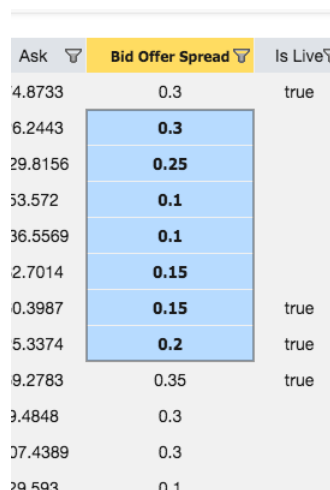
Close

## Smart Edit

With Smart Edit you can update multiple cells in the same numeric column with a single action.

### Applying a Smart Edit

1. Highlight a group of cells in any editable numeric column and then choose “Smart Edit” from the Functions dropdown in the toolbar



Ask	Bid Offer Spread	Is Live
4.8733	0.3	true
6.2443	0.3	
29.8156	0.25	
53.572	0.1	
36.5569	0.1	
2.7014	0.15	
0.3987	0.15	true
5.3374	0.2	true
9.2783	0.35	true
3.4848	0.3	
37.4389	0.3	
29.593	0.1	

2. Choose an operation from the drop down in the pop-up. The choices are:
  - a. Sum: This will add the inputted amount to each cell.
  - b. Ratio: This will multiply each cell by the inputted amount.
  - c. Absolute: This will replace each cell's value with the inputted amount (a 'Bulk Update').
3. Enter an amount in the input box – you will see in the preview pane what the new value for each cell will be. If your edit will break a Cell Validation then you will be shown a warning to that effect.

Smart Edit Details

Sum ▾

1.5

⌵

Apply to Grid

Preview Results: Bid Offer Spread

Initial Value	Computed Value	Valid Edit
0.3	1.8	✓
0.25	1.75	✓
0.1	1.6	✓
0.1	1.6	✓
0.15	1.65	✓
0.15	1.65	✓
0.2	1.7	✓

Close

- Click 'Apply to Grid' and the edits will happen.

## Cell Validation Rules

You can create your own run-time rules regarding what edits are permissible with the Cell Validation function.

There are 2 types of Validation:

- Prevent : any edits which break the rule are automatically prevented
- Warning: allows edits that break rules, but only after the User confirms he/she wants to do so in a warning pop-up.

Cell Validation rules can range from the very simple to the more complex, depending on your requirements.

### Creating a Column Read Only Validation Rule

To make an editable column read-only at runtime, the following steps are required:

1. Choose 'Cell Validation' from the Functions menu
2. Click the 'Create Cell Validation Rule' button
3. Select the column you want to make read-only
4. Make sure that the 'Disallow ALL edits' radio button is selected

Step 2 of 3 - Cell Validation Rule

Cell Validation Settings

Action To Take When Validation Fails

☒ Prevent the cell edit in all circumstances

☐ Display a warning - with options to allow or disallow the edit

Validation Rule for Column: Notional

☒ Disallow ALL edits

☐ Only allow edits where the new cell value matches rule:

Select Rule Operator

Expression

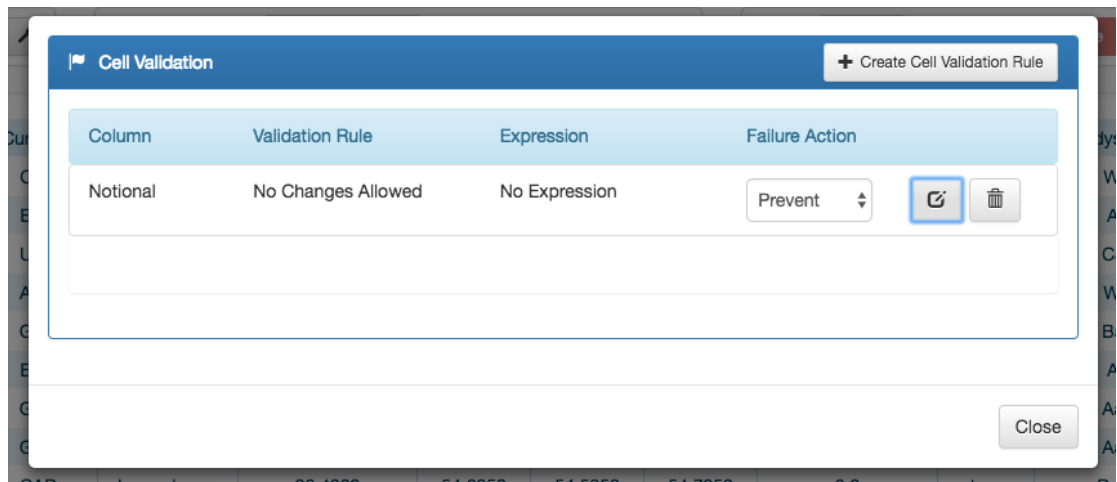
An Expression is used if the rule is dependent on other values in the row. The rule will only be activated and checked if the Expression passes.

☐ Create Expression (created in next step)

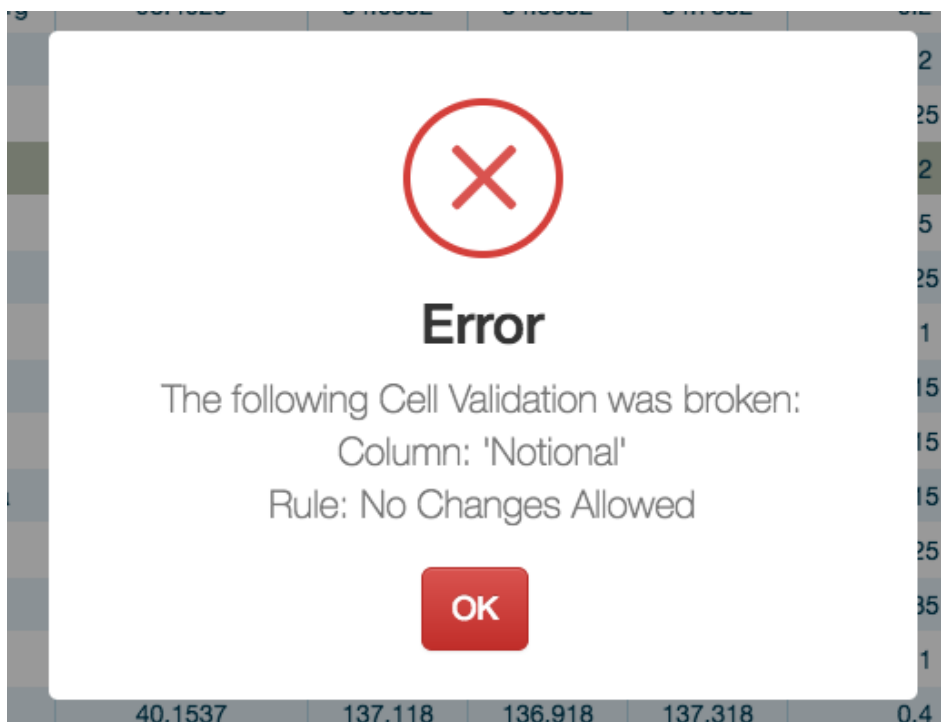
Cancel Back Finish

5. The rule is now live and is listed in the Cell Validation Rules popup.





- Any attempt to edit this column will be forestalled and a message shown to the user.



#### Creating a Value Based Column Validation Rule

To create a rule which specifies that only certain edits are allowed, follow the steps listed above.

But make sure the 'Only allow edits where the new cell value matches rule' option is selected.

Step 2 of 3 - Cell Validation Rule

Cell Validation Settings

Action To Take When Validation Fails

☒ Prevent the cell edit in all circumstances
 ☐ Display a warning - with options to allow or disallow the edit

Validation Rule for Column: Bid Offer Spread

☐ Disallow ALL edits
 ☒ Only allow edits where the new cell value matches rule:

Select Rule Operator

Equals  
 Not Equals  
 Less Than  
 Greater Than  
 Between  
 Not Between  
 Is Positive  
 Is Negative  
 Change In Value Less Than  
 % Change Is Less Than

Expression

☐ Create an Expression  
☐ Create a Rule

Cancel ✕

Back

Finish ✓

This will enable a dropdown that gives you a list of different possible options for the new value. Only edits that MEET the criteria you specify are allowed.

So if you select 'Less Than' and '50' as the value, then only edits where the new value is < 50 will be valid.

Validation Rule for Column: Bid Offer Spread

☐ Disallow ALL edits
 ☒ Only allow edits where the new cell value matches rule:

Less Than

50

34

Most of the rule operators work on the new value only; however 2 operators – ‘Change in Value Less Than’ and ‘% Change is Less Than’ – work on the difference between old and new values. This allows you to create any rule that you can require.

Creating an Expression Based Column Validation Rule

A final option is to create a Cell Validation Rule that works using Expressions. The same Expression Builder is used as throughout the Blotter.

This allows you to create rules where edits are only allowed dependent on other values in the row. For example if you want to say that ‘Bid Offer Spread’ change in value cannot be greater than 5 if Currency is ‘EUR’ then you would create a Change in Value Rule using an Expression to achieve that effect.

