Adaptable Blotter.JS User Guide

Adaptable Tools Support Team (support@adaptabletools.com)

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Adaptable Blotter is a powerful HTML5 grid that provides you with a wide range of tools for working with financial data, including:

• Powerful search options
• Advanced Column filtering and sorting
• Editing functions enabling you to input your data quickly and safely
• Conditional styles and themes
• Unparalleled validation and audit functionality

ID	Notional	Counterparty	Currency	Country	Trade Date	Settlement Date	Fitch Rating	Moodys Rating	Price	Bid Offer Spread	Bid	Ask	Bloomberg Bid	Bloomberg Ask	Is Live	Change On Year	Percent Change	Last Update	Last Updated By
5	$10,000,000	RBS	ZAR	India	25 Nov 2017	28 Nov 2017	A-	A3	111.4319	0.25	111.3069	111.5569	111.2969	111.5669	true	-79.3648	11.93 %	14 Apr 2017	Louella Spiker
6	$2,000,000	RBS	GBP	Luxembourg	06 Jan 2015	09 Jan 2015	A	A2	132.0291	0.35	131.8541	132.2041	131.8441	132.2141	false	-41.9294	-86.58 %	15 Apr 2017	Season Landreth
10	$1,000,000	Deutsche Bank	EUR	Thailand	20 Aug 2016	23 Aug 2016	AAA	Aaa	147.2799	0.10	147.2299	147.3299	147.2199	147.3399	true	46.8752		15 Apr 2017	Stacee Dreiling
11	$2,000,000	RBS	ZAR	Spain	23 Feb 2017	26 Feb 2017	AA-	Aa3	23.2963	0.35	23.1213	23.4713	23.1113	23.4813	true	-91.7709		11 Apr 2017	Hester Bluhm
13	$1,000,000	MUFJ	EUR	Canada	23 Aug 2019	26 Aug 2019	AA+	Aa1	112.9471	0.50	112.6971	113.1971	112.6871	113.2071	true	-71.9973	38.35 %	11 Apr 2017	Sanjuana Kimsey
16	$2,000,000	Lloyds TSB	USD	Brazil	24 Jan 2019	27 Jan 2019	AA+	Aa1	89.9446	0.50	89.6946	90.2046	89.6846	90.2046	true	70.1842	50.01 %	12 Apr 2017	Cecil Staab
20	$10,000,000	Barcap	EUR	Egypt	24 Oct 2016	27 Oct 2016	A+	A1	25.1769	0.25	25.0519	25.3019	25.0419	25.3119	false	-89.2572	36.57 %	14 Apr 2017	Annemarie Rybicki
21	$1,000,000	Goldman Sachs	AUD	Russia	25 Sep 2019	28 Sep 2019	A+	A1	59.4685	0.20	59.3685	59.5685	59.3585	59.5785	true	90.5988		15 Apr 2017	Kelley Babb
23	$2,000,000	Deutsche Bank	CHF	Hungary	16 Nov 2014	19 Nov 2014	A+	A1	54.0148	0.25	53.8898	54.1398	53.8798	54.1498	false	36.1786	78.86 %	15 Apr 2017	Bradley Chumley
25	$7,500,000	Rabobank	AUD	Japan	17 Feb 2017	20 Feb 2017	A-	A3	91.1584	0.10	91.0084	91.3084	90.9984	91.3184	true	28.3052	-45.72 %	13 Apr 2017	Annemarie Rybicki
28	$2,000,000	Deutsche Bank	GBP	Denmark	28 Mar 2017	31 Mar 2017	A-	A3	98.7487	0.10	98.6987	98.7987	98.6887	98.8087	false	102.0648	50.82 %	11 Apr 2017	Annemarie Rybicki
32	$2,000,000	BNP	AUD	Egypt	07 Sep 2018	10 Sep 2018	AAA	Aaa	36.7364	0.10	36.6864	36.7864	36.6764	36.7964	false	-28.0913		16 Apr 2017	Yael Rich
38	$2,000,000	Rabobank	USD	Qatar	27 Aug 2018	30 Aug 2018	A-	A3	104.6442	0.35	104.4692	104.8192	104.4592	104.8292	true	-71.7700		17 Apr 2017	Season Landreth
39	$1,000,000	Nomura	EUR	Luxembourg	11 Mar 2018	14 Mar 2018	A+	A1	47.9594	0.30	47.8094	48.1094	47.7994	48.1194	false	-23.7880	-67.09 %	13 Apr 2017	Hester Bluhm
48	$10,000,000	BNP	EUR	Germany	19 Dec 2017	22 Dec 2017	AAA	Aaa	101.0602	0.15	100.9852	101.1352	100.9752	101.1452	true	-104.5667		11 Apr 2017	Stacee Dreiling
50	$10,000,000	BNP	ZAR	India	21 Feb 2015	24 Feb 2015	A-	A3	104.9629	0.40	104.7629	105.1629	104.7529	105.1729	false	-47.9986	-93.97 %	14 Apr 2017	Wei Frith
51	$7,500,000	Nomura	USD	India	13 Aug 2017	16 Aug 2017	AA+	Aa1	70.5762	0.25	70.4512	70.7012	70.4412	70.7112	true	-50.9640	99.71 %	17 Apr 2017	Wei Frith
52	$2,000,000	Morgan Stanley	GBP	Holland	14 Nov 2014	17 Nov 2014	A+	A1	31.7034	0.15	31.6284	31.7784	31.6184	31.7884	true	78.9693	-36.80 %	12 Apr 2017	Hester Bluhm
57	$5,000,000	Bank of America	EUR	Denmark	18 Nov 2016	21 Nov 2016	AAA	Aaa	36.3990	0.50	36.1490	36.6490	36.1390	36.6590	false	6.0445	-49.94 %	15 Apr 2017	Shante Hey
59	$5,000,000	Goldman Sachs	CHF	Luxembourg	29 Nov 2016	02 Dec 2016	AA+	Aa1	79.5712	0.35	79.3962	79.7462	79.3862	79.7562	false	150.1486	-60.98 %	15 Apr 2017	Britany Saffell
62	$7,500,000	Bank of America	USD	Argentina	02 Jul 2015	05 Jul 2015	AA+	Aa1	112.2067	0.30	112.0567	112.3567	112.0467	112.3667	true	-19.0683	47.57 %	13 Apr 2017	Loralee Stalker
64	$7,500,000	MUFJ	CHF	Belgium	01 Nov 2016	04 Nov 2016	A	A2	111.8333	0.35	111.6583	112.0083	111.6483	112.0183	true	83.4054		16 Apr 2017	Wei Frith
68	$7,500,000	MUFJ	CHF	France	26 Nov 2014	29 Nov 2014	AAA	Aaa	129.5202	0.15	129.4452	129.5952	129.4352	129.6052	false	14.4953	59.63 %	11 Apr 2017	Wei Frith
70	$10,000,000	Credit Suisse	EUR	Thailand	22 Jan 2017	25 Jan 2017	AA-	Aa3	96.1734	0.10	96.1234	96.2234	96.1134	96.2334	false	21.6113	-94.53 %	16 Apr 2017	Sarai Pilgrim
71	$5,000,000	JP Morgan	AUD	Australia	08 May 2017	11 May 2017	A-	A3	99.9817	0.20	99.8817	100.0817	99.8717	100.0917	false	-5.4728	39.97 %	15 Apr 2017	Louella Spiker
72	$1,000,000	Credit Suisse	USD	France	02 Jun 2017	05 Jun 2017	AA	Aa2	40.6129	0.20	40.5129	40.7129	40.5029	40.7229	false	51.5491	54.40 %	17 Apr 2017	Louella Spiker
75	$7,500,000	Societe Generale	GBP	France	04 Apr 2018	07 Apr 2018	AAA	Aaa	139.1346	0.30	138.9846	139.2846	138.9746	139.2946	true	6.8555	90.33 %	14 Apr 2017	Loralee Stalker
82	$10,000,000	RBS	GBP	Belgium	26 Nov 2017	29 Nov 2017	AA+	Aa1	150.7186	0.50	150.4686	150.9686	150.4586	150.9786	true	45.0989		13 Apr 2017	Loralee Stalker
83	$10,000,000	Nomura	AUD	Thailand	14 Feb 2017	17 Feb 2017	A	A2	142.5763	0.30	142.4263	142.7263	142.4163	142.7363	true	-51.4223	93.91 %	14 Apr 2017	Sanjuana Kimsey
86	$1,000,000	MUFJ	GBP	Italy	05 Sep 2019	08 Sep 2019	A+	A1	144.9873	0.20	144.8873	145.0873	144.8773	145.0973	true	-143.5282		12 Apr 2017	Wei Frith
90	$1,000,000	MUFJ	USD	Australia	04 Feb 2016	07 Feb 2016	AA+	Aa1	24.3888	0.30	24.2388	24.5388	24.2288	24.5488	false	61.5066		11 Apr 2017	Britany Saffell
91	$2,000,000	Societe Generale	CHF	Luxembourg	23 Oct 2018	26 Oct 2018	A+	A1	20.5212	0.25	20.3962	20.6462	20.3862	20.6562	false	-112.3289		13 Apr 2017	Magen Willison

How it Works

Adaptable Blotter sits on top of an underlying grid component and adds all the additional searching, editing, sorting, exporting and auditing functionality that financial users have come to expect, and which is normally added by the in-house development team.

There is one single API and one set of screens irrespective of which underlying gird is used.

The extra features that Adaptable Blotter provides will help you to work faster and more efficiently and productively.

NOTE
Adaptable Blotter runs in a browser but does not require internet access.

Supported Grids

Adaptable Blotter ships with its own grid which has been purpose-built to take advantage of the Blotter's power and rich functionality.

Additionally it supports grids from the leading vendors - both commercial and open-source - including Telerik Kendo, DevExpress DevExtreme, OpenFin Hypergrid and the ag-Grid. More grids are be-

ing supported all the time. Each development team will decide which underlying grid to use for each deployment. Adaptable Blotter works exactly the same irrespective of the underlying grid selected.

Blotter Functions

Adaptable Blotter has a wealth of Functions that are designed to help you to work more quickly and efficiently. The following table provides a brief description of each Function; click the relevant link to learn more about a particular Function.
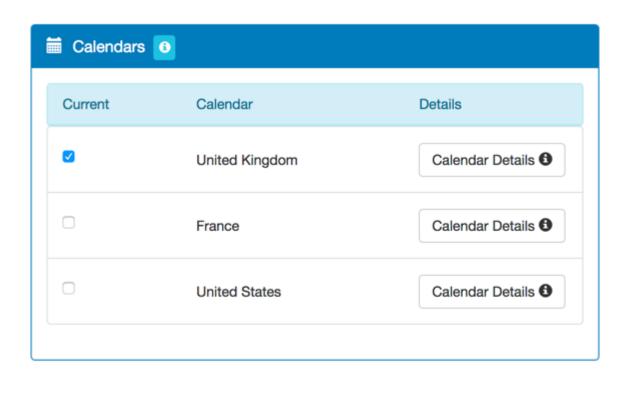
Function	Purpose
Advanced Search	Find one or more values across multiple columns
Cell Validation	Control editing of cells by applying custom validation rules
Column Chooser	Show / hide columns and change column order
Conditional Styles	Change the appearance of cells (or rows) when custom conditions are met
Custom Sort	Apply a custom sort order to a column
Dashboard	Choose which controls and shortcut buttons are available in the Dashboard
Export Data	Export data for use in other applications
User Filters	Create custom filters to use in column filtering and elsewhere
Flashing Cells	Make cells flash a different colour as their values change
Layouts	Create multiple customised column layouts
Plus/Minus	Control the nudge values that are applied when you use the + and - keys
Quick Search	Find all instances of a value across the whole Blotter
Shortcuts	Manage and create keyboard shortcuts
Smart Edit	Make changes to multiple values (Bulk Edit)
Theme Picker	Change the colour scheme of the Blotter - use a predefined or custom theme

Calendars

Adaptable Blotter has a variety of date settings that are based on a **Calendar**. For example, you can filter a date column so that it only shows the Last Working Day, and Adaptable Blotter uses the current calendar to figure out when the last working day was. There are different Calendars available to use - each pre-set with the appropriate national holidays - or you can upload your own.

To set Adaptable Blotter to use one of the available calendars:

1. Click on the **Functions** dropdown .
2. Click **Calendars**.
3. Select the **Current** checkbox for the Calendar you want Adaptable Blotter to use.
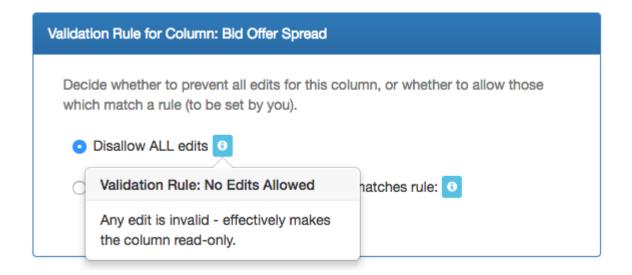
4. If you want to see the dates that are set on a Calendar, click its **Calendar Details** option.

5. Click **Close** to confirm.

Help

Many of Adaptable Blotter's displays have context-sensitive help, where appropriate, displaying a blue information icon ⓘ. If you hover the cursor over the icon, the help information appears in a pop-up dialog.

> **IMPORTANT**
> If you have internet access, you can find lots of useful information in our customer support centre.
>
> Please visit Adaptable Blotter Help.

Blotter Interface

Adaptable Blotter provides you with a range of Functions that are designed to help you to work more productively and and efficiently than ever before.

You can access these Functions from a number of places including the Blotter Dashboard (the banner at the top), the Functions dropdown button, and the column header menu.

To make the most of Adaptable Blotter its worth spending a few moments understanding how the interface works, how to build queries (cross-column searches and filters used widely across the Blotter), how to use the wizards and how to share with team colleagues.

Blotter Dashboard

At the top of the interface is a header area, called the Dashboard. It is used to display controls for various functions. You can choose which controls are available in the dashboard area through the Dashboard Configuration Screen.

It contains 2 types of elements:

- **Function Controls** - small controls contains buttons and dropdown relevant to a single Function, often avoiding the need to access the Function screen directly.
- **Quick Access Buttons** - shortcuts to a Function.

Each Function Control has a main button, which shows the name of the control, for example, Advanced Search. The button acts as a toggle, so when you click it, it shows or hides additional options and buttons.
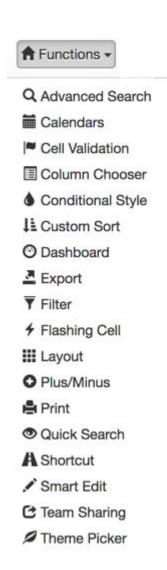
> **NOTE**
>
> To change which Function Controls and Quick Access Buttons are displayed in the Dashboard, click the Configure Dashboard button which will open the Dashboard Configuration screen allowing you to hide, show and sort elements according to your precise requirements. For more information see Dashboard.

Accessing Blotter Functions

In the top-left of the interface, you will see the **Functions** button. Click on it to access the Functions menu.

☰ Functions ▾

Q Advanced Search

🗓 Calendars

🚩 Cell Validation

▤ Column Chooser

◆ Conditional Style

↓≡ Custom Sort

◷ Dashboard

⬈ Export

▽ Filter

⚡ Flashing Cell

⦚ Layout

⊕ Plus/Minus

🖨 Print

👁 Quick Search

Ⓐ Shortcut

✎ Smart Edit

↪ Team Sharing

🍃 Theme Picker

When you choose an option, a display for that option appears. You can use the display to edit, de-lete, and share the settings for the type of item you have chosen.

Some functions allow you to create new items, such as new cell validation rules. When you create a new item, you are presented with a wizard. This is a series of displays that guide you through the creation process in a series of steps. You will also use wizards when you edit certain features.

Function Wizards

In Adaptable Blotter, even the more complicated features are easy to use, thanks to the intuitive wizards. These are special displays that guide you through each part of the set up process, one step at a time.

For example, the following images show each stage of the User Filter Wizard.

Figure 1. Start: User Filter Wizard
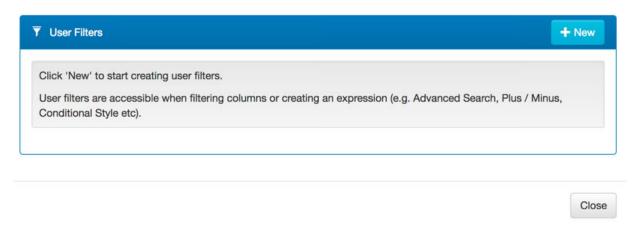
Figure 2. Step 1: User Filter Wizard
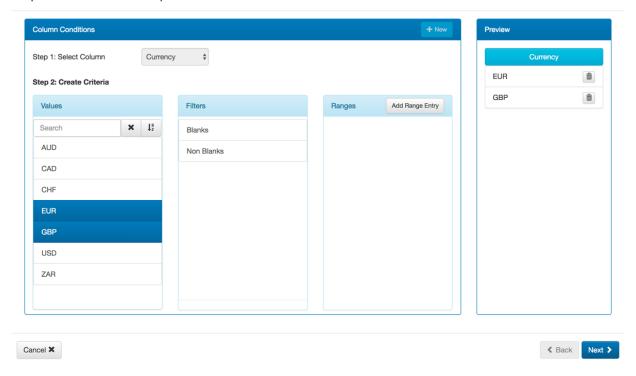
Figure 3. Step 2: User Filter Wizard
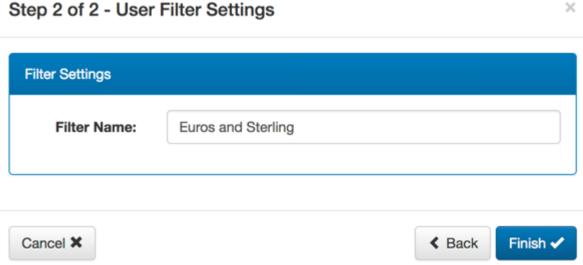
Figure 4. Finish: User Filter Wizard

Although each wizard has different options, they all work in the same way. The first 'step' of the wizard allows you to start the process, and then you progress through the steps in turn. On each step, there are a variety of options, and you will need to make one or more selections before you can move to the next step.

You can use the **Back** and **Next** buttons to move between each step of the process. The **Next** button is only enabled when you have performed the minimum action required for that step. You can go back to make changes to earlier steps, and there are usually **Bin** icons for removing selections you have made.

When you reach the final display of a wizard, it shows you the choices you have made and gives you the option to make further changes (**Edit**), delete your choices (**Bin**), or share your completed configuration with other members of your team* (**Share with Team**).

*Share with Team is only available if your user account has been allocated the appropriate Entitlements.

Column Filter Dropdown

Each column in the grid has a filter dropdown, which you can access by clicking the filter icon ▼. This dropdown is used to apply the built-in column filters or any user-defined custom filters that have been created.

Example 1. Column Filters

Let's say you want to filter a Currency column so that it only shows Euros. To do that, you select the filter icon on the Currency column and then select EUR. The grid updates itself so that it only shows those rows that have a currency of EUR. For this example, we'll assume that you have four results that match EUR for currency.

For this example, we will assume that each row also has a Country value. One row has Portugal as its country and the other rows have France.
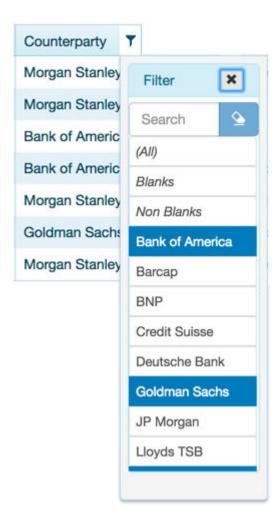
With the grid still only showing the rows with EUR currency, you add a filter to the Country column. You set it to only show rows that have Portugal as the country. The grid updates, and this time there is only one row. That's because you now have two column filters in place, so the grid only shows rows that have EUR for currency *and* Portugal for the country. Both column filters are applied to the grid at the same time.

When you select the filter icon, you are presented with a list of the unique values in the column, some default filters, and also any User Filters that you have created for that column. From the list, you choose which values you want the column to display.

The full list of potential filters is in the table below:

Search Filter	Rows Returned	Columns
(All)	[empty]	All
Blanks	Where the cell value is empty.	Text, Number
Non Blanks	Where the cell value is not empty.	Text, Number
Positive	Where the cell value is positive.	Number
Negative	Where the cell value is negative.	Number
Zero	Where the cell value is zero.	Number
True	Where the cell value is true.	True/False
False	Where the cell value is false.	True/False
Today	Where the cell value is current date.	Date
In Past	Where the cell value is before current date.	Date
In Future	Where the cell value is after current date.	Date
Yesterday	Where the cell value is yesterday's date.	Date
Tomorrow	Where the cell value is tomorrow's date.	Date
Next Working Day	Where the cell value is the next working day. (uses the currently selected Holiday Calendar)	Date
Previous Working Day	Where the cell value is the previous working day. (uses the currently selected Holiday Calendar)	Date
<distinct value>	Where cell value matches the <distinct value>	All
<user filter>	Where cell value matches the <user filter>	All

You can select as many filter items as you want. When you have made your choice, the grid updates so that it only shows rows that match the filters you have set for the column.

To remove all the filters for a column select the '(All)' option.
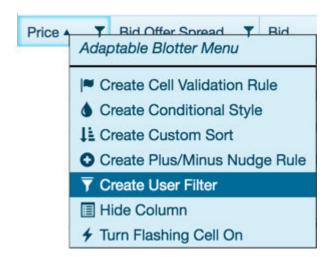
TIP

If you can't find the information you are looking for in your grid, use the Filter Function Control in the Dashboard to check if any filters are applied. Click the 'Clear' button in the control to remove all filters for all columns.

You should also check to see if any columns have been hidden, as it is possible that a hidden column has a filter applied (the filter will affect your grid, even though the column is not shown).

Column Menus

If you right-click on a column header, a column menu appears. It provides quick access to some of the more commonly used functions.

> **NOTE**
> The options in the column menu will vary depending on the type of column and the current state of that column. For example, only numeric columns have a Flashing Cell menu item, and if the column is already set to display flashing cells, the Turn Flashing Cell On option is replaced by Turn Flashing Cell Off.

Option	Columns	Description
Create Cell Validation Rule	All	Launches Cell Validation function.
Create Conditional Style	All	Launches Conditional Styles function.
Create User Filter	All	Launches User Filters function.
Create [or Edit] Custom Sort	All	Launches Custom Sort function.
Create Plus/Minus Nudge Rule	Number	Launches Cell Validation function.
Hide Column	All	Hides the column from the grid.
Turn Flashing Cells On / Off	Number	Turns Plus/Minus On or Off.

Settings

User Permissions

When you log in to Adaptable Blotter, you can only access the features that you have permission to use. These permissions are allocated by administrators (see Managing Permissions for further details).

User permissions are designed to protect your system from inappropriate use. If administered correctly, you should have access to all of the features you need to fulfil your role. If you cannot access a function or perform an action, it is most likely because your user account does not have the sufficient permission; if this is the case, please contact your system administrator for assistance.
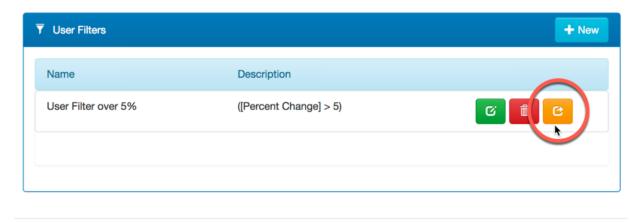
> **NOTE**
> Some instances of Adaptable Blotter do not have user permissions enabled, and so user permissions do not apply and everything is automatically available to every user.

Team Sharing

When your Adaptable Blotter is set up in a collegiate environment, your team is allocated a shared storage location. You can use this location for sharing items with your colleagues that you have created , including searches, layouts, and cell validation rules. This saves time, removes the need for duplicated work, and gives your team consistent views of the data. For example, if a trader is shadowing another trader, they will both need to have the same view of the grid; instead of both traders setting up their grids individually, one trader can set up a search and then share it with the other trader.

Sharing with other team members is a one-click process. Simply click on an item's **Share** button 🟧 and it becomes immediately available to everyone else who shares your team storage location.

Storage

Adaptable Blotter saves all settings and items automatically. Whenever the Blotter is reloaded, it will run with the saved settings already in place, ready for you to continue your work. You do not need to do anything to save your settings.

Additionally users in teams will have their team storage location set up to enable them to use team-sharing.

Administrators can specify the location (local or remote) which will store each user's personal and team storage locations. See Configuration for more details.

> **NOTE**
> An additional feature - Audit Log - enables Adaptable Blotter to keep a record of all activity, including value changes, edits, etc. Again, this is set up by administrators in the server component. See Audit Log for more details.

Export Data

> **NOTE**
> Not all underlying grids support Export so this Function might not be available to you.
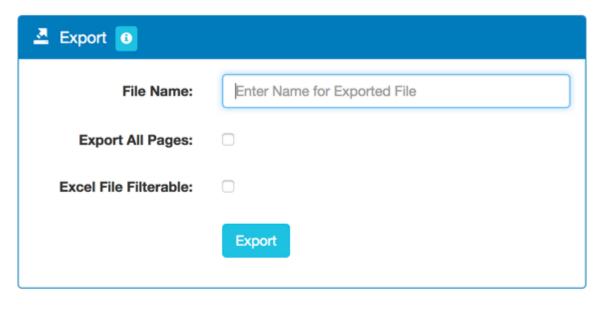
You can use Adaptable Blotter to export data from your grid into other formats. For example, in Adaptable Blotter, you can filter your grid so that it only shows rows that have a CounterParty of Goldman Sachs or Morgan Stanley and a Fitch Rating of A-, A, A+, AA-, AA, AA+, or AAA. You can then export this filtered view of your data to Microsoft Excel, so that you can use the data in reports and other applications.

ID	Notional	Counterparty	Currency	Country	Trade Date	Settlement Date	Fitch Rating
42	2000000	Goldman Sachs	EUR	Thailand	3/29/18	4/1/18	AA+
155	1000000	Goldman Sachs	EUR	Russia	6/22/19	6/25/19	A-
215	10000000	Morgan Stanley	EUR	Russia	7/13/17	7/16/17	A+

To export the data shown on your grid:

1. First, make sure the grid shows the data you need in your export file. Use Filters, Custom Sort, etc., to control what data is shown.
2. Click on the **Functions** dropdown [Functions ▾].
3. Click **Export**.

   The Export display appears.

4. Enter a **File Name** for your export file.
5. Use the **Export All Pages** checkbox to define whether your export file will contain only the first page of rows or will contain all of the rows in your *current view* of the grid (1-*n*). The amount of rows per page is set in external applications, and cannot be controlled in Adaptable Blotter.

> ⚠️ **WARNING**
> The **Export All Pages** setting only affects the export if the grid has paging enabled.

6. If you want your exported Excel file to have column headers that can be filtered, check the **Excel File Filterable** checkbox. Clear it if you do not want the export to have filterable column headings (they can be added in Excel, if needed).
7. Click the **Export** button. Adaptable Blotter generates the Excel file. Depending on your browser's settings, the file is either downloaded automatically or you are prompted to choose a location for the download file.

> 📝 **NOTE**
> If you decide you do not want to export, click **Close** to exit.

Using Queries

Many of the features in Adaptable Blotter use a query, which is an instruction that tells Adaptable Blotter to find data that matches a specific search criteria. For example, the Advanced Search feature uses a query to tell Adaptable Blotter to find and return rows that have specific values, such as Country is USA or Currency is EUR.

It is likely that you will need to use queries, so you should make sure that you are familiar with how they work and the terminology used.
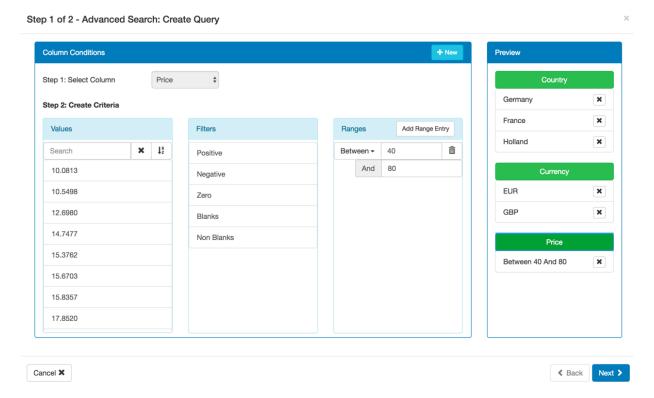
Terminology

A **Query** contains one or more **Conditions**. Each Condition contains one or more **Criteria**:
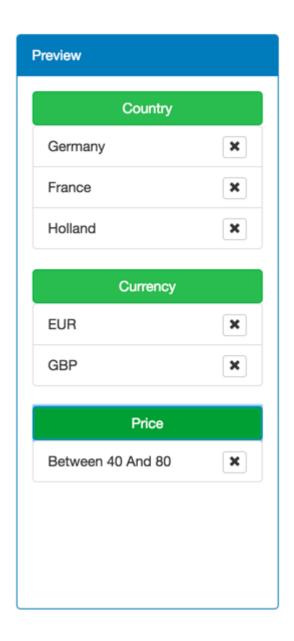
Term	Description
Query	An instruction to find and return data. It contains one or more *Conditions*.
Condition	A set of rules that apply to a column. The rules are called *Criteria*.
Criteria	The values that must be matched for the row / cell to be returned by the Query.

Example Query

The following image, which shows the Advanced Search wizard, is a typical example of the settings you can use to build a query.
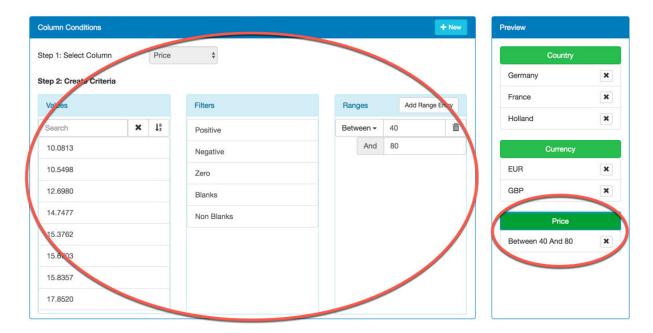
In the **Preview** panel on the right-hand side, you can see the **Conditions** and **Criteria** that are currently in place. Each Condition has its own table, and it contains the criteria that apply to one column in your grid. So in this image, there are three conditions: Country, Currency, and Price.

The Country condition has three criteria: Germany, France, and Holland. To match this condition, a row has to have a Country value of Germany, France, or Holland. But to be a match for the *entire query*, a row has to match *all* of the conditions (it has to match the Country condition, Currency condition, and Price condition).

If you click on the header of a Condition table in the Preview panel, the criteria settings are loaded into the wizard.
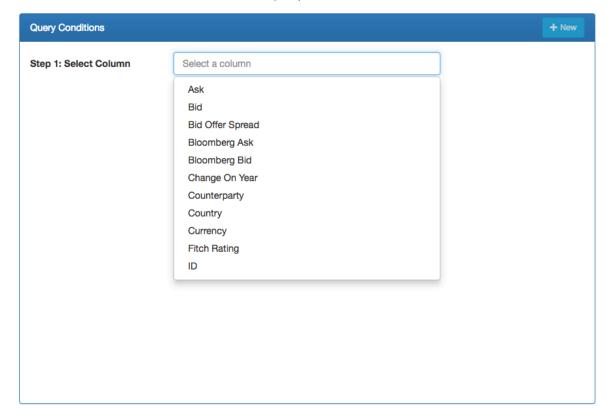
You can use the settings to define or change the rules that apply. The settings vary, depending on the type of column. So if you select a condition for a numeric column, the options will be different to those for a text column. (The options are explained in the various Create and Edit sections). You can also add extra columns to your query or remove the existing columns.

When you have created the criteria and conditions, they are stored collectively as a query.

Creating a Query

There are a number of steps and options involved in creating a query.

1. Use the Select Column combo-box to choose the column that you want to include in your query. This column will the first Condition of the Query.

2. Once a column is selected the Values, Filters and Ranges Criteria boxes will appear. Their contents will differ depending on the column and its data type. You will use these to create the criteria for the Condition.

3. If you want your Condition criteria to include one or more distinct column values, use the **Values** listbox.

Values
Search   ✗   ↓^A_Z
10.3700
10.3702
11.0174
11.2393
11.4093
11.5305
11.5434
11.6703

You can use the **Search** box to find a specific value or you can select values from the list. You may find it easier to find the values you are looking for if you use the **Sort** button ↓ to change the order of the list (ascending to descending order, or descending to ascending order). You can use the remove button ✗ to clear a value from the search box.

You can only choose filter options that are appropriate for the type of column you have selected. For example, if you have a column that contains text values, the only filter options you can access are Blank and Not Blank (as the other options are incompatible with text values).
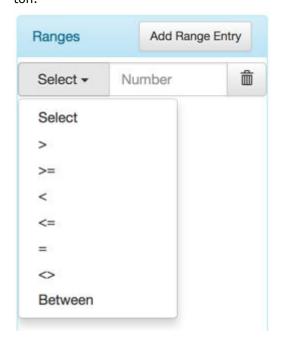
4. If you want your query to include a certain category of value, use the **Filters** listbox.

Filters
Positive
Negative
Zero
Blanks
Non Blanks

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The filter options are:

Search Filter	Evaluation Rule	Columns
Blanks	Where no value for the selected column (hides any non-empty rows).	Text, Number
Non Blanks	Where is a value for the selected column (hides any empty rows).	Text, Number
Positive	If Column contains Positive number.	Number
Negative	If Column contains Negative number.	Number
Zero	If Column contains Positive number.	Number
True	If Column is 'True'	True/False
False	If Column is 'False'	True/False
Today	If Column contains today's date.	Date
In Past	If Column value is earlier than today's date.	Date
In Future	If Column value is later than today's date.	Date
Yesterday	If Column value is yesterday's date.	Date
Tomorrow	If Column value is tomorrow's date.	Date
Next Working Day	If Column value is the next working day (based on the current Calendar).	Date
Previous Working Day	If Column value is the previous working day (based on the current Calendar).	Date

5. If you want your query to include a range of values, click on the **Add Range Entry** button in the **Ranges** section. You then have a range setting, that has **'Select' 'Number'** and a **Delete** button.
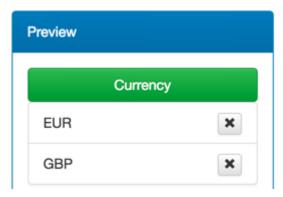
If you click on the **Select** combo-box, you can choose from a range of **Operators**. There are different operators available, depending on the type of column.

Operator	Description	Columns
>	Greater than.	Number, Date
>=	Greater than or equal to.	Number, Date
<	Less than.	Number, Date
<=	Less than or equal to.	Number, Date

Operator	Description	Columns
=	Equal to.	Number, Date
< >	Not equal to.	Number, Date
Between	In the range between two specified values.	Number, Date
Contains	The query value appears anywhere in the cell.	Text, Number
Starts With	The query value appears at the beginning of the cell.	Text, Number
Ends With	The query value appears at the end of the cell.	Text, Number
Regex	Allows you to define the query as a Regular Expression.	Text, Number

You can use multiple ranges in your query. When you have defined one range, click the **Add Range Entry** button to add another range setting. Define the settings for the second range, and click **Add Range Entry** again if you need another range.

6. You can see any conditions that are in place for the query in the **Preview** panel.
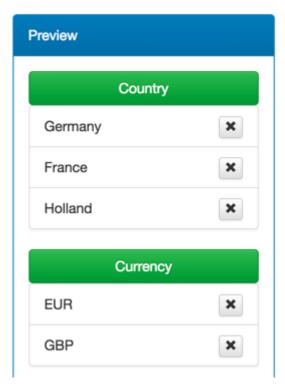
If you click on the green header, the settings for that query are shown on the wizard.

You can delete a value from a query by clicking on the value's **Remove** button ✖. If you remove all values from a column, the column is also removed from the query.

7. If you want to add more columns to your query, click on the **New** button. The wizard presents you with a new **Select Column** combo-box. Use it to choose the type of column you want to add to your query, and then use the **Values**, **Filters**, and **Ranges** settings to define the criteria. Repeat this step until you have added all of the columns you need.

Editing a Query

1. In the **Preview** section, you can see the conditions that are set for your query.

2. You can delete a criteria from a query condition by clicking on the value's **Remove** button ⊠. If you remove all criteria from a condition, the condition is also removed from the query.
3. If you want to change the values (criteria) used in a column condition, click on the header for the column name in the **Preview** panel. The **Criteria** settings for the selected column are displayed (**Values**, **Filters**, and **Ranges**).

   If you want to add a condition to your query, choose a column from the **Select a Column** combo-box. Note that if you display the settings for an existing condition first, you will need to select the **New** button to create a new condition.

How Queries Work

What happens when Adaptable Blotter applies the rules of the query, and finds matching rows? The outcome varies, depending on which feature you are using.

Feature	Result
Advanced Search	The grid displays only those rows that match the Advanced Search's query. Rows that do not match the query are hidden.
Cell Validation	The Cell Validation rule only applies if the row which contains the cell being edited matches the query.
Conditional Styles	The Conditional Style is only applied in rows that match the query; if there are no rows in the grid that match the query, the style is not used.
Plus/Minus	The Plus/Minus settings for a column are only used if the row that contains the cell being 'nudged' matches the query. If it doesn't, then the default nudge value for the column is used. If there is no default nudge value for the column, the default nudge value for the blotter is used instead.

Customising the Blotter

Adaptable Blotter has many Functions for changing the appearance of your blotter and grid.

You will find them useful if you want to make your columns appear in the order you want, have your data sorted in ways which make sense to you and create multiple views of your data for easy access.

This is your data and we assume that you know better than us - or anyone else - how you wish to see it so you can most productive.

Among the customisations you can perform are:

- Creating multiple Layouts (customised views) so you can quickly access a set of columns.
- Turn on Flashing Cells so you can easily see when a value changes
- Set the interface to use a different colour scheme from those available in the Theme Picker to more closely match your corporate colour scheme
- Create a Column Chooser for a column so the data sorts in a way that fits how you work
- Use the Column Chooser to show or hide columns and change the column order
- Customise the Dashboard so frequently used Functions are easily available.

Dashboard

The Dashboard is the area at the top of the Adaptable Blotter interface designed to give you quick access to commonly used Functions.

It contains 2 types of elements:
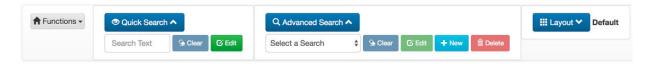
- **Function Controls**: These are small controls contains buttons and dropdown relevant to a single Function, often avoiding the need to access the Function screen directly.
- **Quick Access Buttons**: These are essentially shortcuts to a particular Function (e.g. Smart Edit)

By default the Dashboard contains the Quick Search, Advanced Search, Layout and Filter Function Controls and the Dashboard, Smart Edit, Plus / Minus and Conditional Styles Quick Access Buttons. This means that there are many Quick Access Buttons hidden by default.

NOTE
Administrators are able to choose which Quick Access Buttons and Function Controls are available in the Dashboard, so your set-up might look different to this.

But you can customise your dashboard so that it shows the controls of your choice. For example, you may decide that you want to hide the Layout Function Control as you do not use it and add the .

To customise your dashboard:

1. Click on the **Functions** dropdown .
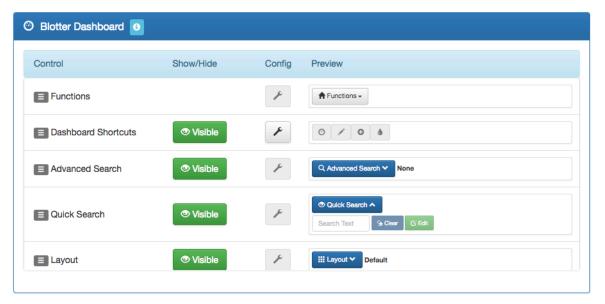
   Click on **Dashboard**.
   or
   Click on the **Dashboard** Quick Access Button.
2. The Blotter Dashboard display appears.

3. Make the changes that you require.
4. Click **Close** to confirm.

Layouts

Layouts allow you easily to switch between different 'views' of your data. Each layout contains it own customised collection of orders columns which are named and saved for easy access
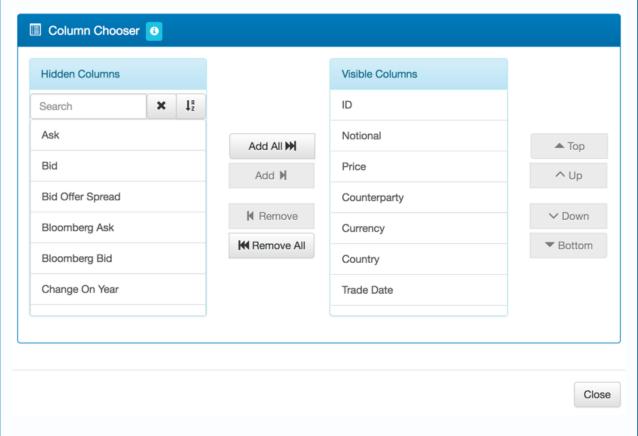
> **NOTE**
>
> You should use the Column Chooser to quickly control which columns are shown on your grid. This will create a customised view that you can then save as a **Layout**.

When you have created a customised grid view and saved it as a Layout, you can access that Layout at any time from the Layouts list or from the **Functions** >**Layout** menu.

Example 2. Layout

Imagine you want to set up your grid so that it only shows trading related columns (e.g. Id, Notional, Price, Counterparty, Currency, Country, Trade Date, Settlement Date, Fitch Rating, Moodys Rating, Last Update, Last Updated By). To do this, you use the Column Chooser to hide all of the other columns.

You then have a customised view of your grid.

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Next, you click on New in the Layout Dashboard Control. You create a Layout named 'Trading' to save the customised view you have created. This Layout will now be available for you to select in future from the dropdown in the Layout Dashboard Control.

If you did not have the Layout, you would need to set up your customised view from scratch.
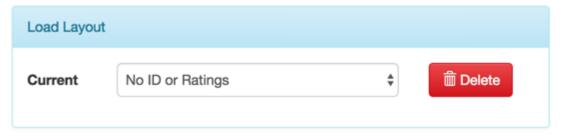
Apply a Layout

To apply an existing Layout to your grid:

1. Click on the **Layout** button to reveal the Layout controls.
2. In the Layout controls, select the Layout from the list.

Alternatively, you can apply a Layout from the **Functions** menu:

1. Click on the **Functions** dropdown   .
2. Click on **Layout**.
3. In the **Load Layout** section, choose the Layout you want to apply.

4. Click **Close** to confirm.

Create a Layout

Layouts allow you easily to switch between different 'views' of your data. Each layout contains it own customised collection of orders columns which are named and saved for easy access

1. Use the **Column Chooser** to choose what columns are shown on your grid (see Column Chooser).
2. Click on the **Layout** button to reveal the Layout controls.
3. In the Layout controls, click on the **New** button.

4. In the Create New Layout display, enter a name for your new Layout and click **OK** to save.
    Your Layout is now available as an option in the Layout controls.

You can also create a Layout from the **Functions** menu:

1. Display the grid view that you want to save.
2. Click on the **Functions** dropdown ⬆ Functions ▾ .
3. Click on **Layout**.
4. Enter a name for your Layout in the **Save as New Layout** section.

5. Click **Save**.

Edit a Layout

If you have made changes to an existing Layout and want to save them:

> **TIP**
> You can see if your layout has changed because it will have the word 'modified' in brackets next to the Layout name.

*   Either:
    Click the **Save** button in the Layout Dashboard Control to save your changes so that they over-write the existing view that is stored for your Layout.
    Or:
    Click **New** and then enter a name for a new Layout and click **OK**. The changes you made will be stored as the new Layout. The Layout you edited will still be available, and will still have the set-tings that were in place before you made changes.

> **NOTE**
> You can also save the Layout from the Layout display. To access the Layout display, select the **Functions** button and choose the **Layout** option.
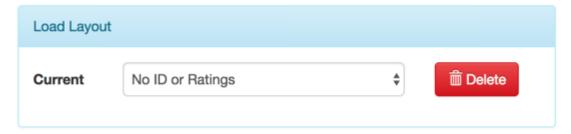
Delete a Layout

To remove a Layout so that it is no longer available from the Layouts control:

1. In the Layouts control, select the Layout that you want to remove.
2. Click on the **Delete** button.
3. At the prompt, either click **Delete** to confirm or click **Cancel** to abort.

You can also delete a Layout from the **Functions** menu:

1. Click on the **Functions** dropdown ⬜ Functions ▾ .
2. Click on **Layout**.
3. In the Load Layout section, select the Layout that you want to remove.

4. Click on the **Delete** button.
5. At the prompt, either click **Delete** to confirm or click **Cancel** to abort.

Column Chooser

You can use the **Column Chooser** to select which columns are shown on your grid. Typically, you will want to set your grid so that it shows the columns that are relevant to your work and hides the other columns.
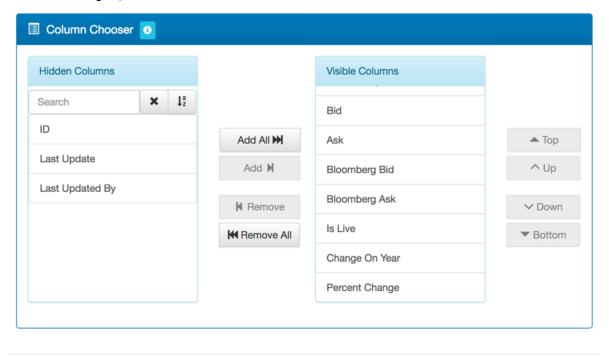
> **TIP**
> The Column Chooser is for showing/hiding the columns on your grid. If you need to control which rows appear, use the Searching and Filtering features.

To add and remove columns to suit your own requirements:

1. Click on the **Functions** dropdown ⌂ Functions ▾ .
2. Click on **Column Chooser**.
   The Column Chooser appears. The **Visible Columns** list shows the columns that are currently shown on the grid, and the **Hidden Columns** list contains the columns that are not shown.

3. If you want to move all columns from the Visible Columns list to the Hidden Columns list, click on **Remove All**. If you only want to move some columns from the Visible Columns list, click on the columns you want to move, and then click on the **Remove** button.
4. If you want to move all columns from the Hidden Columns list to the Visible Columns list, click on **Add All**. If you only want to move some columns from the Hidden Columns list, click on the columns you want to move, and then click on the **Add** button.
5. To change the order of the columns in the Visible Columns list, click on the column you want to move. Then click on **Top** to move it to the highest position in the list, **Bottom** to move it to the lowest position in the list, **Up** to move it up one position, or **Down** to move it down one position.
6. Click **Close** to confirm.

The grid will update so that it shows/hides its columns to match your selection.

Conditional Styles

One of the best ways to make your data stand out on a grid is to use Conditional Styles. They allow you to set the look and feel of your rows and columns based on a set of rules. You create the rules by using a query.

Example 3. Example: Conditional Style

Let's say you wanted Notional cells with a value of over 1000000 to have their value shown in red. To set this up, you create a Conditional Style and apply these settings:

Column Scope: **Single column**, **Notional**.

Set Fore Colour: **Red**.

(Query) **Column**: **Notional**

(Query) **Criteria: Range: >= 1000000**.

This results in any **Notional** value of **1000000** or above being shown in red.

ID	Notional	Counterparty	Currency	Country	Trade Date	Settlement Date	Fitch Rating
6	$7,500,000	MUFJ	EUR	Brazil	23 Dec 2016	26 Dec 2016	AA
11	$2,000,000	Morgan Stanley	EUR	Thailand	31 Jul 2017	03 Aug 2017	NR
16	$1,000,000	Societe Generale	EUR	Portugal	02 Jun 2018	05 Jun 2018	AAA
17	$5,000,000	Deutsche Bank	EUR	Qatar	28 Feb 2019	03 Mar 2019	D
18	$2,000,000	Deutsche Bank	EUR	Ireland	12 Oct 2018	15 Oct 2018	B-
25	$1,000,000	Deutsche Bank	EUR	Italy	11 Oct 2018	14 Oct 2018	BB+
31	$2,000,000	RBS	EUR	Holland	26 Mar 2015	29 Mar 2015	AAA
37	$7,500,000	Deutsche Bank	EUR	Spain	02 Mar 2016	05 Mar 2016	A+

You then decide that you only want the Notional values of 1000000+ to be shown in red for rows that also have a **Counterparty** value of **Deutsche Bank**. To set this up, you edit the Conditional Style you have already created so that the query has an additional column:

(Query) **Column**: **Counterparty**

(Query) **Criteria**: **Value: Deutsche Bank**

Any rows that have a **Notional** value of **1000000+** *and* a **Counterparty** of **Deutsche Bank** have the **Notional** value shown in red.

| ID	Notional	Counterparty	Currency	Country	Trade Date	Settlement Date	Fitch Rating
17	$5,000,000	Deutsche Bank	EUR	Qatar	28 Feb 2019	03 Mar 2019	D
18	$2,000,000	Deutsche Bank	EUR	Ireland	12 Oct 2018	15 Oct 2018	B-
25	$1,000,000	Deutsche Bank	EUR	Italy	11 Oct 2018	14 Oct 2018	BB+
37	$7,500,000	Deutsche Bank	EUR	Spain	02 Mar 2016	05 Mar 2016	A+
162	$5,000,000	Deutsche Bank	EUR	Argentina	07 Nov 2015	10 Nov 2015	BB+
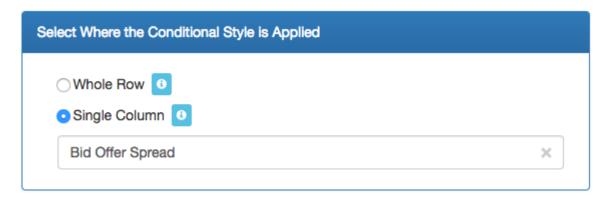
Rows that do not match the Notional and Counterparty conditions, are shown in black. So a row with Notional value of 4000000 and a Counterparty of Lloyds TSB has its Notional value shown in black. Similarly, a row with a Notional value of 1500000 and a Counterparty of Deutsche Bank has its No-

tional value shown in black. In both cases, the rows did not match *both of the conditions* that you set in the query.
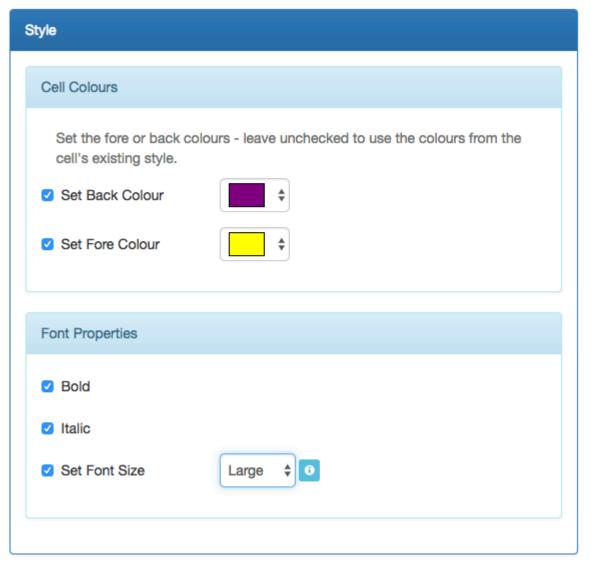
Create a Conditional Style

To create a style that is only used when certain conditions apply:

1. Click on the **Functions** dropdown ⟦🏠 Functions ▾⟧.
2. Click on **Conditional Style** and the Conditional Style wizard appears, showing any Conditional Styles that have been created.
3. Click on the **New** button.
4. On the **Conditional Style Scope** 'page' of the wizard, choose whether you want the style to apply to all cells in a row or just the cells in a particular column. If you choose **Single Column**, choose the column from the list.

5. Click the **Next** button.
6. If you want to change the colour of the *background* in the cell(s), click **Set Back Colour** and choose a colour from the colour palette. If you want to create your own colour, choose the **Other** option and use the browser's custom colour settings to make your colour.

7. If you want to change the colour of the *text* in the cell(s), click **Set Fore Colour** and choose a colour. Again, you can select **Other** and create your own custom colour if you prefer.
8. If you want to change the style of text in the cell(s), use the **Bold** , **Italic** and **Font Size** check-boxes.
9. Click the **Next** button.

    The Conditional Style: Create Query page of the wizard appears. You will use its settings to create the query for your styles - they will only apply when values in the row match the criteria you set in your query.

    For example, you could set all cells in a row to use bold text if the Country value of that row is Germany and the Currency value is EUR.

    For more information on building and editing Queries using multiple Conditions and Criteria see Using Queries.
10. Click on **Finish** to complete the wizard. Alternatively, click on **Back** to return to the previous 'page' or **Cancel** to abort.

The conditional styles you have chosen will be applied to your grid when a row's values match the criteria you have set. If a row's values do not match the criteria, the default styles will be used instead.

Edit a Conditional Style

If you need to make changes to Conditional Styles that are already in place:

1. Click on the **Functions** dropdown .
2. Click on **Conditional Style** and the Conditional Style wizard appears, showing any Conditional Styles that have been created.
3. Find the conditional style that you want to change.
4. Click on the **Edit** button.
5. Repeat Steps 4 - 10 from the Section above.

Delete a Conditional Style

If you want to remove a conditional style so that it is no longer available:

1. Click on the **Functions** dropdown .
2. Click on **Conditional Style** and the Conditional Style wizard appears, showing any Conditional Styles that have been created.
3. Find the conditional style that you want to change.
4. Click on the **Delete** button.
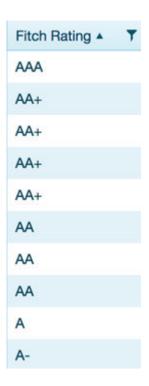5. At the prompt, either click **Delete** to confirm or click **Cancel** to abort.

Share a Conditional Style

You can share your conditional styles with colleagues who are also using Adaptable Blotterusers. This saves time, reduces the amount of duplicated work, and helps to create a consistent experience.

1. Click on the **Functions** dropdown .
2. Click on **Conditional Style** and the Conditional Style wizard appears, showing any Conditional Styles that have been created.
3. Find the conditional style that you want to share.
4. Click the **Share** button.

Custom Sort

The **Custom Sort** feature allows you to create your own sort order for columns. You will find it useful when you need to order a column in an non-standard way (i.e. *not* in **alphabetical**, **numerical**, or **date** order). For example, if the default alphabetical order is in place, Fitch Ratings are listed A, A +, A-. AA, AA+, AA-, AAA, B and so on, which does not reflect the level of the ratings. So you might want to create a custom sort to set the Fitch Ratings to be listed in the level order of AAA, AA+, AA-, A+, A, A-, BBB+, BBB, etc.

Fitch Rating ▲ ▼
AAA
AA+
AA+
AA+
AA+
AA
AA
AA
A
A-

When a custom sort order is used, Adaptable Blotter applies the custom order first. If the column has values that are not included in the custom sort order, they are sorted according to the default order for the column, for example, alphabetical order for text values.

> **NOTE**
> The **default sort order** for text columns is alphabetical order. For numerical columns it is high-low order and for date columns it is latest-oldest order.

> **NOTE**
> You can only create one Custom Sort Order per column.

The technique for applying a sort order to a column varies between grid vendors. Before you create a Custom Sort, you should make sure that you know how to change the sort order of a column.

Create a Custom Sort

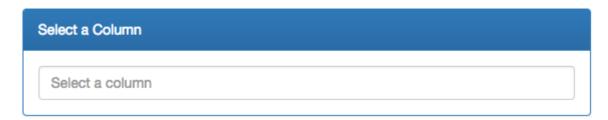To apply your own sort order to a column, you need to create a Custom Sort.

> **NOTE**
> You can only create a Custom Sort on a sortable column - some columns in the Blotter might not be sortable in which case a Custom Sort cannot be applied.

1. Click on the **Functions** dropdown ⌂ Functions ▾ .
2. Click on **Custom Sort** and the Custom Sort window appears, showing any Custom Sorts that have been created.
3. Click on the **New** button.

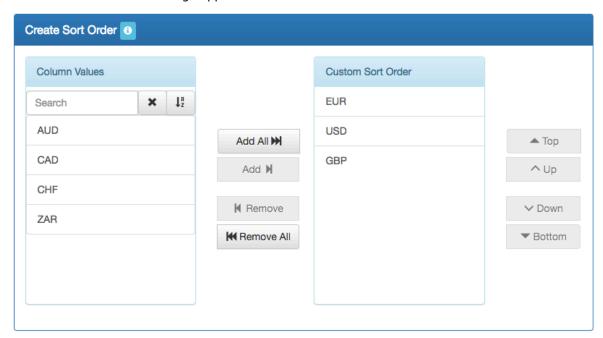   The first 'page' of the Custom Sort wizard appears.

4. Select a column from the list.
   Choose the column that your custom sort order will apply to.
5. Click the **Next** button.
   The Create Sort Order settings appear.

   The **Column Values** section shows all of the values that are currently in the selected column. The **Custom Sort Order** section is where you organise the values into the order you want.

   When sorting the column, Adaptable Blotter will apply your custom sort order first. Any values that are **not** in your **Custom Sort Order** are then sorted alphabetically, numerically, or in date order, depending on the type of column.
6. If you want to move all of the **Column Values** into the **Custom Sort Order** section, click **Add All**.

7. If you only want to move some **Column Values** into the **Custom Sort Order** section, select the values you want to move and then click on **Add**.
8. To change the order, select a value in the **Custom Sort Order** section, and then click **Top**, **Up**, **Down**, or **Bottom** to move it up or down the order.
9. If you need to remove a value from your **Custom Sort Order**, select it and then click **Remove**. If needed, you can clear your Custom Sort Order completely by clicking **Remove All**.
10. Click on **Finish** to complete the wizard. Alternatively, click on **Back** to return to the previous 'page' or **Cancel** to abort.

The Custom Sort order will be applied the next time you sort the column.

Edit a Custom Sort

If you want to make changes to an existing Custom Sort:

1. Click on the **Functions** dropdown ⬛Functions ▾.
2. Click on **Custom Sort** and the Custom Sort window appears, showing any Custom Sorts that have been created.
3. Find the Custom Sort you want to change.
4. Click on the **Edit** button.
5. Repeat steps 5-10 in the section above.

The Custom Sort order will be applied the next time you sort the column.

Delete a Custom Sort

To remove a Custom Sort so that the default sort order is applied to a column:

1. Click on the **Functions** dropdown ⬛Functions ▾.
2. Click on **Custom Sort** and the Custom Sort window appears, showing any Custom Sorts that have been created.
3. Find the Custom Sort you want to remove.
4. Click on the **Delete** button.
5. At the prompt, either click **Delete** to confirm or click **Cancel** to abort.

Share a Custom Sort

You can share your Custom Sort orders with colleagues who are also using Adaptable Blotter . This saves time, reduces the amount of duplicated work, and helps to create a consistent experience.
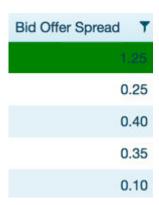
To share a Custom Sort:

1. Click on the **Functions** dropdown ⬛Functions ▾.
2. Click on **Custom Sort** and the Custom Sort window appears, showing any Custom Sorts that have been created.
3. Find the Custom Sort you want to share.
4. Click the **Share** button.

Flashing Cells

You can set numeric cells to briefly change colour when their values change. This flashing effect is a useful visual aid.
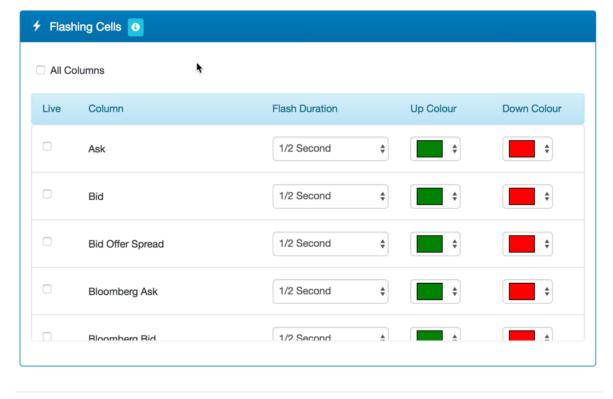
The following image shows a Bid Offer Spread cell as it flashes green.

To set up flashing cells:

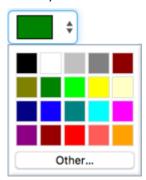1. Click on the **Functions** dropdown .
2. Click **Flashing Cell**.
   The Flashing Cells display appears.

3. By default, flashing cells is disabled. If you want to enable flashing cells on every column, tick the **All Columns** checkbox. If you only want flashing cells to be enabled on some columns, tick the **Live** checkbox for the columns you want to flash.
4. Use the **Flash Duration** combo-box to set the amount of time between each change of colour.

5. If you want to change the colour that flashes when a cell's value increases, click the **Up Colour** setting. You can choose another colour from the built-in palette or click **Other** and create a colour of your own choice.

    The options for creating your own colour are provided by the browser and are not part of Adaptable Blotter.

6. If you want to change the colour that flashes when a cell's value decreases, click the **Down Colour** setting. You can choose another colour from the built-in palette or click **Other** to create your own.

7. Repeat steps 3-6 inclusive for each row that you want to use flashing cells.

8. Click **Close** to confirm.

Theme Picker

The colours and font settings that your Adaptable Blotter uses are set using a **Theme**. The theme acts as a 'skin' and there are many different styles available for you to choose. So if your current theme does not complement your corporate ID or is too dark or too light for your tastes, you can swap it, without restarting. Some examples of themes are:

Superhero

Slate

To change the Theme:

1. Click on the **Functions** dropdown .
2. Click **Theme Picker**.

   The Theme Picker display appears.
3. Choose a **Theme** from the list. When you select a Theme, there is a short pause and then you can see the Theme in place, behind the Theme Picker display.
4. Click **Close** to confirm.

TIP
If you don't like any of the pre-installed Themes you can choose to use your own custom Theme instead.

Editing Data

Make changes to your data more quickly and efficiently with Adaptable Blotter's editing features:

- Smart Edit allows you to change the value of multiple cells in a numerical column. You can increase the values by a specific amount, multiply them by a specific amount, or replace them with a new value.
- Shortcuts gives you control over keyboard shortcuts. You can enable or disable the built-in shortcuts and you can create your own shortcuts too.
- Plus/Minus allows you to control how much a cell value increases or decreases when you use the + and - keys. You can also create rules so that the amount varies, depending on values in other columns.
- Cell Validation gives you control over changes to cell values. You can create rules to define whether cells can be edited at all times or only when certain conditions are in place. You can also control what happens if your rules are broken.

Smart Edit

With **Smart Edit**, you can quickly make changes to multiple values in a numerical column. Rather than change each value individually, you select all of the values you want to change, and then use Smart Edit to either:

- **Add** an amount to the values in the selected cells
- **Multiply** the values in the selected cells by a specific amount
- **Replace** the values in the selected cells with a specific value (this is a **Bulk Edit**).

Example 4. Smart Edit

Let's say you want to increase the **Bid Offer Spread** values of all rows that have **USD** as the **Currency**. You want the amount to increase by 3.

To do this, you filter your grid so that it only shows rows that have **USD** as the **Currency**. You then select all cells in the **Bid Offer Spread** column.

With the cells selected, you access the **Smart Edit** feature, set the combo-box to **Add** and enter **3** as the value. In the Preview panel, you can see that the selected values will increase by 3. To put the changes into effect, you select **Apply to Grid**.

Apply Smart Edit

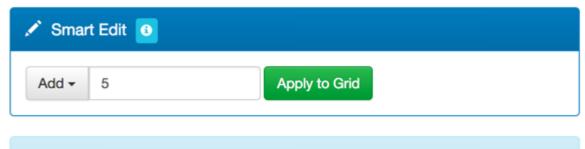To apply a Smart Edit follow these steps:

1. Select all of the cells that you want to change by the same amount. Make sure you only select cells in one column - Smart Edit can only be used on one column at a time.

   > **TIP**
   > You might find it easier to select the values you want to change if you filter the grid first (see Column Filters).
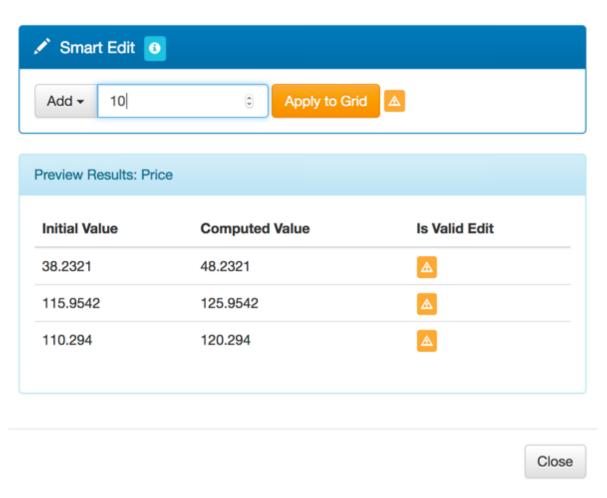
2. Click on the **Functions** dropdown ⌂ Functions ▾ .
3. Choose **Smart Edit**.
4. On the Smart Edit display, use the combo-box to choose the type of change you want to make: **Add**, **Multiply**, or **Replace**.
5. In the field next to the combo-box, enter the value for the change. For example, if you want to multiply the existing cell value by 4, enter 4 in the field.
6. In the Preview panel, you can see what effect the value change will have on the cell values. You can also see if the change will break a Cell Validation rule.
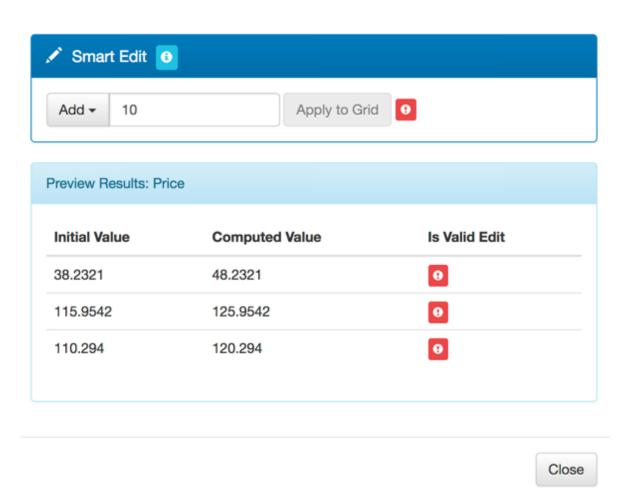
If the change will not break a cell validation rule, the **Apply to Grid** button is green.

If the change will break a cell validation rule, but the rule can be overridden, the **Apply to Grid** button is orange and has a warning icon.

If the change will break a cell validation rule and the rule cannot be overridden, the **Apply to Grid** button is unavailable. You will need to change by a different amount or select **Close** to exit.

7. Click **Apply to Grid**.

    If your changes were valid, the selected cell values will update.

    If your changes were invalid, but can be overridden, you are given a choice. Click **OK** to apply the changes and ignore the cell validation rules or click **Cancel** to abort.

Shortcuts

You can use keyboard shortcuts to quickly apply calculations and dates. For example, you can create a shortcut where by clicking 'M' in a numeric cell, it will multiply the value of the cell by a million.

To apply a shortcut you simply click on the Shortcut Key. For Date Shortcuts a new data always replaces the current value. For Number columns a calculation is applied to the new cell based on the cell's current contents and the Shortcut Key (e.g. if you create a 'M' Multiply by a Million shortcut and the cell contains 5 and you then click 'M', the new cell value will become 5,000,000.
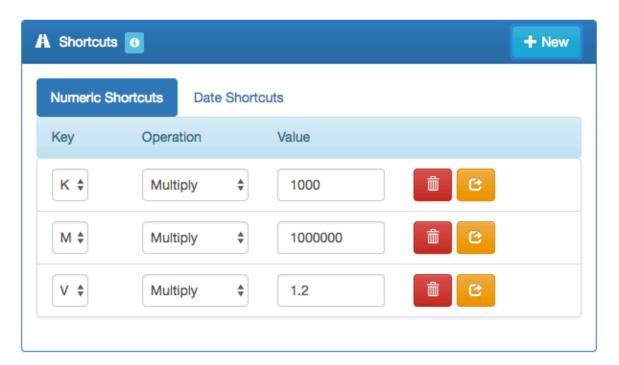
Create a Numeric Shortcut

You can create your own shortcuts for numeric cells, so that with a single press of a key, a new value is calculated for a cell. The calculation is performed on the cell's existing value and you can set your shortcuts to perform calculations that are relevant to your work.

To create a numeric shortcut:
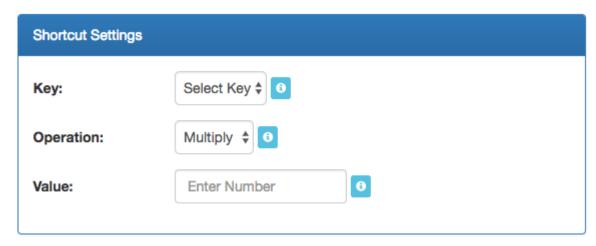
1. Click on the **Functions** dropdown ⌂ Functions ▾ .
2. Click on **Shortcut**.

    The Shortcuts display appears.

    The Shortcuts display has two tabs: **Numeric Shortcuts** and **Date Shortcuts**. The Numeric Shortcuts tab is shown by default.
3. Click on the **New** button.

The Shortcuts wizard appears. Choose to create a Numeric shortcut.

4. Use the **Key** combo-box to choose the key for the shortcut. You can choose any available letter.
5. Use the **Operation** combo-box to choose the type of calculation that will occur when you use the shortcut. You can choose from **Add**, **Subtract**, **Multiply**, or **Divide**.
6. in the **Value** field, enter the value that will be used for the calculation. For example, if you enter 5 and you set the Operation to Subtract, using the shortcut key will reduce a cell's value by 5.
7. Click on **Finish** to complete the wizard. Alternatively, click on **Back** to return to the previous 'page' or **Cancel** to abort.

Create a Date Shortcut
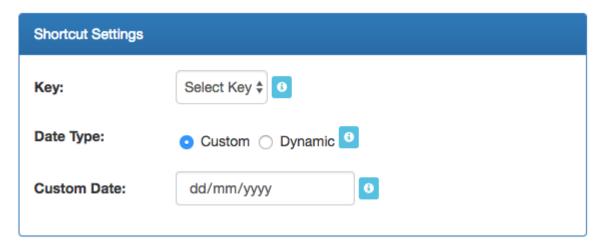
You can create your own shortcuts for date cells, so that with a single press of a key, a new date is applied to the cell. The new date replaces the existing date in the cell.

To create a date shortcut:

1. Click on the **Functions** dropdown ⬛ Functions ▾ .
2. Click on **Shortcut**.

The Shortcuts display appears.
3. Click on the **New** button.

The Shortcuts wizard appears. Choose to create a Date shortcut.

4. Use the **Key** combo-box to choose the key for the shortcut. You can choose any available letter.
5. Use the **Output** setting to set the date value. When you use the shortcut, the cell's date will be replaced with the **Output** date.
6. Click on **Finish** to complete the wizard. Alternatively, click on **Back** to return to the previous 'page' or **Cancel** to abort.

Edit a Shortcut

You can change the settings your shortcuts so that they are more appropriate for your work.

1. Click on the **Functions** dropdown .
2. Click on **Shortcut**.

   Locate the shortcut you want to edit.
3. Click the **Edit** Button and make the desired changes. (See create sections above for more details).

Delete a Shortcut

To delete a shortcut:

1. Click on the **Functions** dropdown .
2. Click on **Shortcut**.

   The Shortcuts display appears.
3. Locate the shortcut you want to delete.
4. Click on the **Delete** button.
5. At the prompt, either click **Delete** to confirm or click **Cancel** to abort.

Share a Shortcut

You can share your custom shortcuts with colleagues who are also using Adaptable Blotter. This saves time, reduces the amount of duplicated work, and helps to create a consistent experience.

To share a shortcut:

1. Click on the **Functions** dropdown .
2. Click on **Shortcut**.
3. The Shortcuts display appears.
4. Locate the shortcut you want to share.
5. Click the **Share** button.

Plus/Minus

It is common practice to use the + and - keys to change the value of a numerical cell. When you press either of these keys, the cell value increments or decrements by the default pplus/minus amount (called a **Nudge Value**) for the Blotter (which is usually set to 1).

But with the **Plus/Minus** Function, you can:

- Set your own **Nudge Value** for the entire blotter.
- Set a different default **Nudge Value** for each numerical column.
- Create bespoke rules so that the **Nudge Value** amount for a cell is different, depending on the values in other columns in the row.

Which Nudge Value is Used?

Your blotter can have many Nudge Values. There is a default Nudge Value for the entire grid, and you can also set up default Nudge Values for each column, as well as Nudge Values with rules for each column. So when you press the + key or - key on a numerical cell, Adaptable Blotter has to figure out which Nudge Value is the right one to use.

This is how Adaptable Blotter finds the Nudge Value:

1. If the column has **custom Plus/Minus rules**, the Nudge Value is the amount set in the rules. This is only used if the values in the row match *all of conditions* set in the query. If the values in the row do not match, Adaptable Blotter will apply a different Nudge Value - it continues to step 2.
2. If the column does not have custom Plus/Minus rules, Adaptable Blotter will use the **Default Nudge** value for the column. This is set in a column rule.
3. if the column does not have a Default Nudge value, Adaptable Blotter will use the **Default Nudge Value for Blotter** amount as the **Nudge Value**. By default, this is 1, but you can change it.

Change the Default Nudge Value for the Blotter

All numeric columns use the Blotter's default Nudge Value to determine how cell values will change when you press + or - keys on the keyboard.

> **NOTE**
> If you have set up your own default Nudge Value for that column - or created a Nudge Value query that applies - than they will take precedence over the Blotter's default Nudge Value

If the blotter's default Nudge Value (usually set to 1) is inappropriate for your grid, you can change it to another amount:

1. Click on the **Plus/Minus**button in the Blotter Dashboard.

   The Plus/Minus wizard appears and shows any Plus / Minus Nudge rules that have previously been created.
2. In the **Default Nudge Value for Blotter** field, enter the increment / decrement amount to be applied when + or - is used in columns that have no rules.

3. Click **Close** to confirm.

Set the Default Nudge Value for a Column

By default, every column inherits the Nudge Value that has been set for the blotter. If you want a column to use a different Nudge Value, you need to create a Column Rule. This is a simple rule that tells Adaptable Blotter to use a Nudge Value that you define.
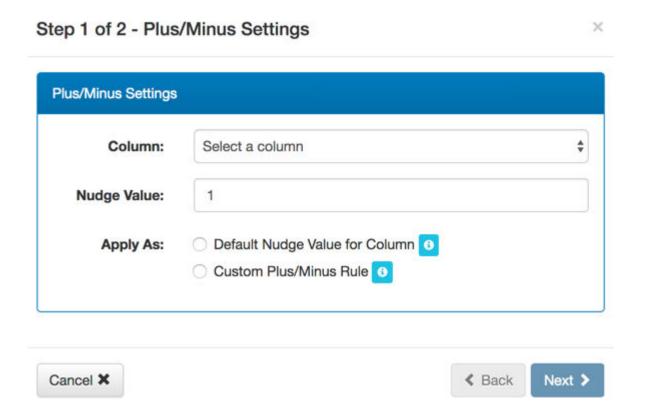
To change the default Nudge Value for a Column:

1. Click on the **Plus/Minus**button in the Blotter Dashboard.

    The Plus/Minus wizard appears and shows any Plus / Minus Nudge rules that have previously been created.
2. Click on the **New** button.

    The first 'page' of the Plus/Minus settings wizard appears.

3. Use the **Column** combo-box to choose the column that the rule(s) will apply to. For example, if you choose Bid Offer Spread, any rules that you set up will only apply when using the plus and minus keys on cells in the Bid Offer Spread column.
4. In the **Nudge Value** field, enter the increment/decrement amount that will be applied when the + or - key is pressed.
5. In the **Apply As** section, select **Default Nudge Value for Column**.
6. Click on **Finish** to complete the wizard. Alternatively, click on **Back** to return to the previous 'page' or **Cancel** to abort.

The default Nudge Value for the column will be used if the column has no custom rules.

Set a Nudge Value with Custom Plus/Minus Rules

Sometimes you might want to change the **Nudge Value** for a column depending on the values in other columns. For example, you may want the nudge value for the Bid Offer Spread column to be 4 when the Currency is EUR or GBP, but 3 when the Currency is USD. To set up these relationships, you need to create a **Nudge Value with Custom Rules**.

When you create a Nudge Value with custom rules, you set a custom Nudge Value and then define the rules by building a query. Adaptable Blotter only uses the custom Nudge Value if a row's values *match all of the conditions* set in your query.

If a row's values do not match the query conditions, the custom Nudge Value is not used. Instead, Adaptable Blotter uses the default Nudge Value for the row or the default Nudge Value for the grid.

Example 5. Custom Plus/Minus Rule

Let's say you want the **Nudge Value** for the **Bid Offer Spread** column to change, depending on the value in the **Currency** column. If the **Currency** is **EUR** or **GBP**, you want the **Nudge Value** amount to be **4**, but if the **Currency** is **USD**, you want the amount to be **3**.

To set this relationship up, you create two custom Nudge Values:

For the first custom Nudge Value, you choose **Bid Offer Spread** as the **Column**, set the **Nudge Value** to **4**, and choose to **Apply As** a **Custom Plus/Minus Rule**. For its query, you choose **Currency** as the **Column** and you choose **Values** of **EUR** and **GBP**.

Column	Nudge	Row Condition
Bid Offer Spread	4	([Currency] In (EUR, GBP))

For the second custom Nudge Value, you choose **Bid Offer Spread** as the column, set the **Nudge Value** to **3**, and choose **Apply As** a **Custom Plus/Minus Rule**. For its query, you choose **Currency** as the **Column** and choose **USD** in the **Values** section.

Column	Nudge	Row Condition
Bid Offer Spread	4	([Currency] In (EUR, GBP))
Bid Offer Spread	3	([Currency] In (USD))

When you use the plus or minus key on a cell in the **Bid Offer Spread** column, Adaptable Blotter has to determine what Nudge Value amount to use. It reads the row that contains the cell you selected and checks the value in the **Currency** column. If the **Currency** is **EUR** or **GBP**, the **Nudge Value** is **4**. If the **Currency** is **USD**, the **Nudge Value** is **3**.

If the **Currency** is *not* **EUR**, **GBP**, or **USD**, Adaptable Blotter applies the default Nudge Value amount for the column. If there is no default Nudge Value for the column, it applies the Nudge Value amount for the blotter instead (1 by default).

Create a Custom Plus/Minus Rule

To create a custom **Plus/Minus** rule:

1. Click on the **Plus/Minus**button in the Blotter Dashboard.

   The Plus/Minus wizard appears and shows any Plus / Minus Nudge rules that have previously been created.
2. Click on the **New** button.

   The first 'page' of the Plus/Minus settings wizard appears.

3. Use the **Column** combo-box to choose the column that the rule(s) will apply to. For example, if you choose Bid Offer Spread, any rules that you set up will only apply when using the plus and minus keys on cells in the Bid Offer Spread column.
4. In the **Nudge Value** field, enter the increment/decrement amount that will be applied when the + or - key is pressed.
5. In the **Apply As** section, choose **Custom Plus/Minus Rule**.
6. Click the **Next** button.
   The second step of the Plus/Minus settings wizard appears. You will use this page to build the query for the Plus/Minus Rule.

7. Create a Query for the Plus Minus Rule. For more information on building and editing Queries using multiple Conditions and Criteria see Using Queries

> **TIP**
> Typically, you will choose a different column to the column that the plus/minus rule applies to. For example, if you want the Bid Offer Spread to increase by 4 when the Currency is EUR, you would select Bid Offer Spread on the first page of the wizard (see step 4) and Currency as the column in the plus/minus query (step 8). When you choose a column, the **Values**, **Filters**, and **Ranges** settings appear.

8. Click on **Finish** to complete the wizard. Alternatively, click on **Back** to return to the previous 'page' or **Cancel** to abort.

Edit a Custom Plus/Minus Rule

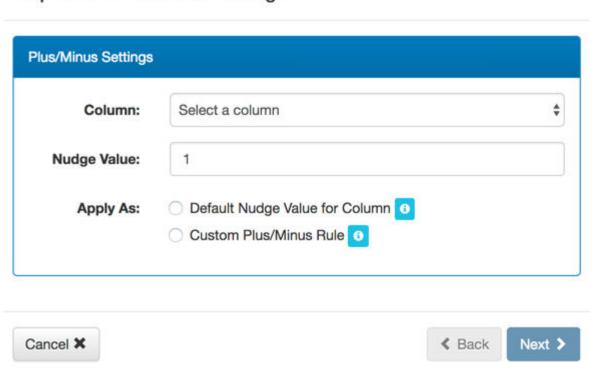To make changes to a custom Plus/Minus rule that already exists:

1. Click on the **Plus/Minus**button in the Blotter Dashboard.

   The Plus/Minus wizard appears and shows any Plus / Minus Nudge rules that have previously been created.
2. Select a Plus/Minus rule from the list and click the **Edit** button.
3. Make any changes to the Plus/Minus Rule that are required.
4. Click on **Finish** to complete the wizard. Alternatively, click on **Back** to return to the previous 'page' or **Cancel** to abort.

Delete a Custom Plus/Minus Rule

Delete a Custom Plus/Minus Rule

1. Click on the **Plus/Minus**button in the Blotter Dashboard.

   The Plus/Minus wizard appears and shows any Plus / Minus Nudge rules that have previously been created.
2. On the Plus/Minus settings wizard, find the row for the plus/minus rule you want to remove and click on its **Delete** button.
3. At the prompt, either click **Delete** to confirm or click **Cancel** to abort.

Share a Custom Plus/Minus Rule

You can share your custom plus/minus rules with colleagues who are also using Adaptable Blotter . This saves time, reduces the amount of duplicated work, and helps to create a consistent experience.

To share a custom plus/minus rule:

1. Click on the **Plus/Minus**button in the Blotter Dashboard.

   The Plus/Minus wizard appears and shows any Plus / Minus Nudge rules that have previously been created.
2. On the Plus/Minus wizard, find the custom plus/minus rule that you want to share, and click on its **Share** button.

Cell Validation

If you need to control which values in your grid can be changed, use the Cell Validation feature. Cell Validation works by allowing you to create rules, at runtime, that define:

- Which columns can be edited
- Whether cells can be edited at all times or only when certain criteria are met.
- What happens if a validation rule is broken

When you create your cell validation rules, they come into effect immediately. For example, if you need to make a column read-only, you just create a cell validation rule that prevents changes being made to that column, and the read-only rule is applied immediately. There is no down-time as you do not need to restart your system.

There are two different types of cell validation rule that you can set up:

- **Independent cell validation** - the rule applies to a selected column at all times, and is not affected by values in other columns.
- **Dependent cell validation** - the rule only applies to the selected column when certain criteria are met. For example, you could set a rule that allows changes to Bid Offer Spread cells, but only if a row also has EUR as its Currency value.

Create an Independent Cell Validation Rule

If you want to create a cell validation rule that only applies when a **row's values match certain criteria**:
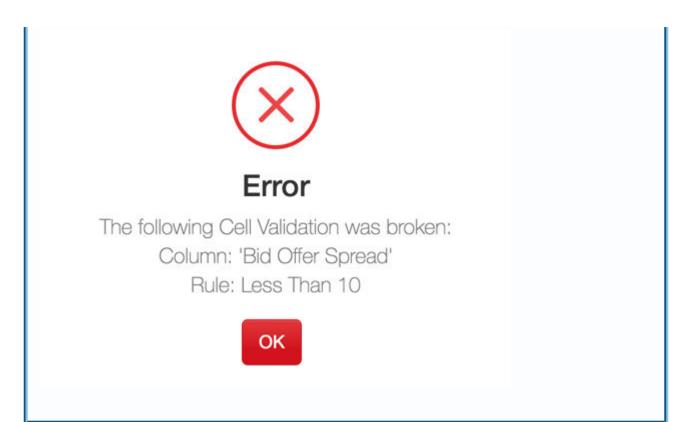
Example 6. Independent Cell Validation

Let's say you wanted to prevent anybody from changing the **Bid Offer Spread** by more than **9**. To do this, you create a cell validation rule that has **Column** set to **Bid Offer Spread**, a validation rule of **Less than** and a value of **10**, and an **action** set to **Prevent**. It is an independent cell validation rule (not affected by values in other columns) and so there is no expression, as the **Use Validation Query** option is not selected.

As soon as you click Finish, the cell validation rule is live.

Another Adaptable Blotter user logs in and attempts to change the value of a Bid Offer Spread cell to 13. They cannot make the change as your cell validation rule prevents changes of more than 9 to values in the Bid Offer Spread column.
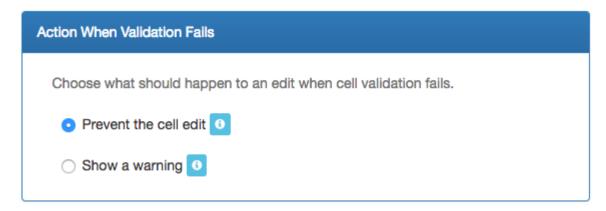
---

1. Click on the **Functions** dropdown .
2. Click on **Cell Validation**.

   The Cell Validation wizard appears.
3. Click on the **New** button.
4. Select the column that will use the cell validation rules you are going to create.

5. Click the **Next** button.
6. Choose what should happen if there is an attempt to change a value in the column, but the cell validation rule has been broken.
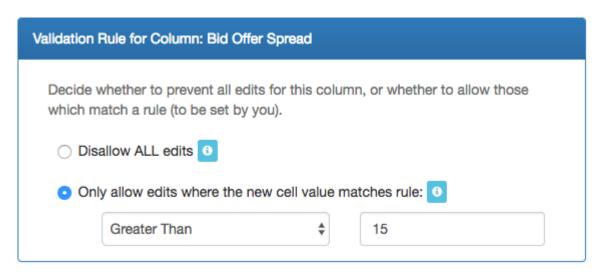
You can choose:

- **Prevent the cell edit** - Adaptable Blotter will not allow the change to happen. The cell will keep its value and the change is ignored.
- **Show a warning** - Adaptable Blotter will warn users that the change will break validation rules. They have the option of cancelling the change or overriding the rule so that the change takes place.

7. Click the **Next** button.
8. Define what sort of changes break the cell validation rule.

    You can choose:

    - **Disallow ALL Edits** - *any* attempt to change the values in the selected column will break the cell validation rule.
    - **Only allow edits where the new cell value matches the rule** - The cell value can be changed without breaking the validation rule, but only if the new value matches the set criteria. If you choose this option, the Operator setting becomes available (see the next step).

9. This step only applies if you chose **Only allow edits where the new cell value matches the rule**.

    Use the **Operator** and **Value** settings to define the criteria for the validation rule (the value field appears when you select an operator). Most of the operators are simple rules that apply to the new value for a cell. For example, if you set the rule **Less than 10**, the cell value can change by less than 10 without breaking the validation rule. But if you try to change a cell value by more than 10, the rule is broken and the change will either not take place or will trigger a warning, depending on the Cell Validation Action setting (see step 6).

Not all of the operators apply to the new value. **Change in Value Less Than** and **% Change is Less Than** both apply to the difference between the previous value and the new value.

10. Click the **Next** button.
11. Make sure the checkbox is unticked (not selected).
12. Click on **Finish** to complete the wizard. Alternatively, click on **Back** to return to the previous 'page' or **Cancel** to abort.

Create a Dependent Cell Validation Rule

Example 7. Dependent Cell Validation

Let's say you wanted to allow changes to the Price column, but only if the change in value is less than 15 *and* the Currency is Australian Dollars *or* Canadian Dollars. If the change is more than 14 or there is a different currency, you want Adaptable Blotter to display a warning. Users will then have the choice to cancel the value change, or accept the rule break and apply the change.

To set this up, you create a dependent cell validation rule (as it is affected by the values in the Currency column).

The cell validation has its **Column** set to **Price** and has a **Warning** action. Its Validation Rule **Operator** and **Value** are **Change in Value is Less than** and **15**. It has **Use Validation Query** checked and the query has a **Currency** condition that only includes **AUD** and **CAD**.

You click Finish and the cell validation rule is applied.

Another user logs in and tries to change the **Price** value of a row from **50** to **58**. That row has a **Currency** of **EUR**, so although the new value does not break the **Change in Value is Less than 15** rule, it does break the **Currency** is **AUD** or **CAD** rule. As the action for your cell validation is a **warning**, a prompt is displayed to the user.

They can then choose whether they want to cancel the value change or override the rule and set the value to 58, even though it breaks the rule.

If you want to create a cell validation rule that only applies when a **row's values match certain criteria**:

1. Fellow steps 1 - 10 in Section 'Create an Independent Cell Validation Rule' above
2. Make sure the **Use Validation Query** checkbox is ticked (selected).

3. Click the **Next** button.
4. Click on the **New** button.

   You are now going to create a query. The cell validation rule will only be applied if a row has values that match the conditions that are defined in the query.

   For more information on building and editing Queries using multiple Conditions and Criteria see Using Queries.
5. Click on **Finish** to complete the wizard. Alternatively, click on **Back** to return to the previous 'page' or **Cancel** to abort.
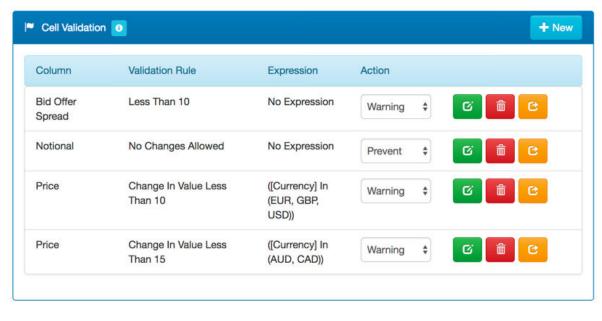
Edit a Cell Validation Rule

To change the settings for an existing Cell Validation:

1. Click on the **Functions** dropdown ⌂ Functions ▾.
2. Click on **Cell Validation**.

   The Cell Validation wizard appears.

3. In the list, find the Cell Validation that you want to change.
4. Click on the **Edit** button.
5. Make the changes required to the Cell Validation Rule (see Create sections above for more details).

6. Click on **Finish** to complete the wizard. Alternatively, click on **Back** to return to the previous 'page' or **Cancel** to abort.

Delete a Cell Validation Rule

To remove a Cell Validation rule so that it is no longer available:

1. Click on the **Functions** dropdown ⬚Functions▾.
2. Click on **Cell Validation**.

   The Cell Validation wizard appears.
3. In the list, find the Cell Validation you want to remove.
4. Click on the **Delete** button.
5. At the prompt, either click **Delete** to confirm or click **Cancel** to abort.

Share a Cell Validation Rule

You can share your Cell Validation rules with colleagues who are also using Adaptable Blotter . This saves time, reduces the amount of duplicated work, and helps to create a consistent experience.

1. Click on the **Functions** dropdown ⬚Functions▾.
2. Click on **Cell Validation**.

   The Cell Validation wizard appears.
3. In the list, find the Cell Validation that you want to share.
4. Click the **Share** button.

Searching and Filtering

With Adaptable Blotter's search and filter features, it's easy to 'drill down' into your data in order to display the values that are relevant to your work. No matter what type of data you need, there is a search or filter that can help you find it.

Searches and filters are both designed to give you control over your grid.

Searches apply to the entire grid, so they are useful for finding values across multiple rows and columns.

Filters are for controlling individual columns, and they hide rows that do not match your search criteria.

Searching and filtering options include:

- To search for a **specific value in all rows and columns**, use a **Quick Search**.
- To search for **multiple values in all rows and columns**, use an **Advanced Search**.
- To **restrict a column so that it can only show one or more specific values that you define**, create **User Filters**

Quick Search

Quick Search makes it easy to find all instances of a specific value or term in a grid. You simply enter the value/term you want to search for, and Adaptable Blotter will find it. Depending on the Quick Search settings you have in place, Adaptable Blotter will highlight the matching values, will filter the grid so that it only shows those rows that have matching values, or do both.

TIP
You should use Quick Search when you know the value or term you are looking for, and you want to search in *all* columns and *all* rows of a grid.
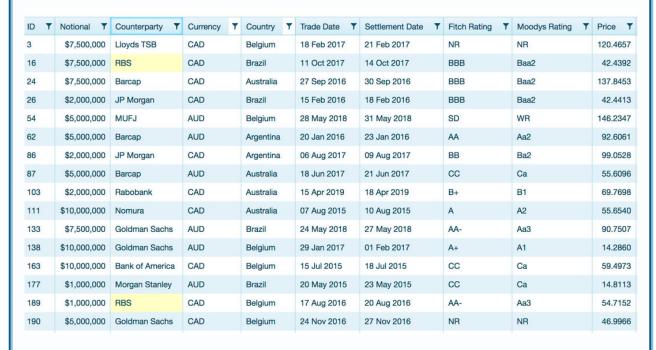
Example 8. Quick Search

Let's say you have a grid that contains a Counterparty column, which contains the names of different banking organisations. You want to be able to see which rows have RBS as the Counterparty value, so you enter RBS in the **Quick Search** field.

👁 Quick Search ⌃

| RBS | 🖑 Clear | 🖉 Edit |

Adaptable Blotter highlights all cells that contain RBS (contain is the default Quick Search). If you wanted to, you could edit the Quick Search so that it searched for values that start with the characters RBS instead. Or you could hide all rows that didn't contain the matching text.

ID	Notional	Counterparty	Currency	Country	Trade Date	Settlement Date	Fitch Rating	Moodys Rating	Price
3	$7,500,000	Lloyds TSB	CAD	Belgium	18 Feb 2017	21 Feb 2017	NR	NR	120.4657
16	$7,500,000	RBS	CAD	Brazil	11 Oct 2017	14 Oct 2017	BBB	Baa2	42.4392
24	$7,500,000	Barcap	CAD	Australia	27 Sep 2016	30 Sep 2016	BBB	Baa2	137.8453
26	$2,000,000	JP Morgan	CAD	Brazil	15 Feb 2016	18 Feb 2016	BBB	Baa2	42.4413
54	$5,000,000	MUFJ	AUD	Belgium	28 May 2018	31 May 2018	SD	WR	146.2347
62	$5,000,000	Barcap	AUD	Argentina	20 Jan 2016	23 Jan 2016	AA	Aa2	92.6061
86	$2,000,000	JP Morgan	CAD	Argentina	06 Aug 2017	09 Aug 2017	BB	Ba2	99.0528
87	$5,000,000	Barcap	AUD	Australia	18 Jun 2017	21 Jun 2017	CC	Ca	55.6096
103	$2,000,000	Rabobank	CAD	Australia	15 Apr 2019	18 Apr 2019	B+	B1	69.7698
111	$10,000,000	Nomura	CAD	Australia	07 Aug 2015	10 Aug 2015	A	A2	55.6540
133	$7,500,000	Goldman Sachs	AUD	Brazil	24 May 2018	27 May 2018	AA-	Aa3	90.7507
138	$10,000,000	Goldman Sachs	AUD	Belgium	29 Jan 2017	01 Feb 2017	A+	A1	14.2860
163	$10,000,000	Bank of America	CAD	Belgium	15 Jul 2015	18 Jul 2015	CC	Ca	59.4973
177	$1,000,000	Morgan Stanley	AUD	Brazil	20 May 2015	23 May 2015	CC	Ca	14.8113
189	$1,000,000	RBS	CAD	Belgium	17 Aug 2016	20 Aug 2016	AA-	Aa3	54.7152
190	$5,000,000	Goldman Sachs	CAD	Belgium	24 Nov 2016	27 Nov 2016	NR	NR	46.9966

This is how the Quick Search works with the default settings in place, but you can edit the settings if you wish (see section: Edit a Quick Search).

Perform a Quick Search

To perform a quick search on your grid:

1. Click on the **Quick Search** button in the dashboard to reveal the Quick Search controls.
2. In the search field, enter the term that you want to search for.

Adaptable Blotter applies the search as you type.

Depending on what Quick Search settings are in place, Adaptable Blotter will **highlight matching entries**, **filter the grid** so that you can only see rows with matching entries, or a **combination of both**.

To learn more about the Quick Search settings, see ???.

Edit a Quick Search

To change the Quick Search controls:

1. Click on the **Quick Search** button in the dashboard to reveal the Quick Search controls.
2. Click on the **Edit** button.
3. You can use the **Operator** setting to define where the search text has to be in a matching cell.

   - Choose **Starts with** to find cells that *begin with* the search text.
   - Choose **Contains** to find cells that have the search text *anywhere within the value*.

   The default setting is Contains.
4. Use the **Behaviour** dropdown to control how matching values are shown in the grid.

   - Choose **Highlight Cells Only** if you want matching values to be highlighted. The grid shows all rows but highlights those cells which have matching values.
   - Choose **Show Matching Rows Only** if you want to filter the grid, so that it only shows rows that contain the search text. Any values that match the search text are not highlighted, and rows that do not contain the search text are not shown.
   - Choose **Highlight Cells & Show Matching Rows** if you want matching values to be highlighted and you want the grid to only show those rows that contain the search text.
5. Use the **Back Colour** setting to choose the highlight colour. This is applied to the background of cells that contain a value that matches the search text (if the **Display** setting is **Colour cells that match search text** or **Display matching rows and colour cells**).

   You can choose from the list of available colours or click **Other** to access the colour palette, where you can specify a colour of your own choice.
6. Click **Close** to save your selections and exit the editor.

Clear a Quick Search

To clear a Quick Search so that it is no longer applied to the grid:
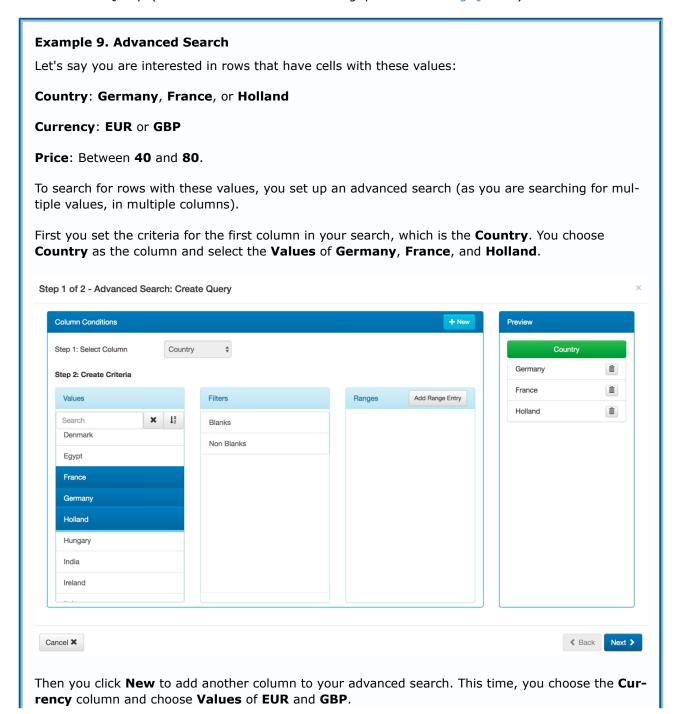
1. Click on the **Quick Search** button in the dashboard to reveal the Quick Search controls.
2. Click the **Clear** button.
   Alternatively, you can delete the search text manually.
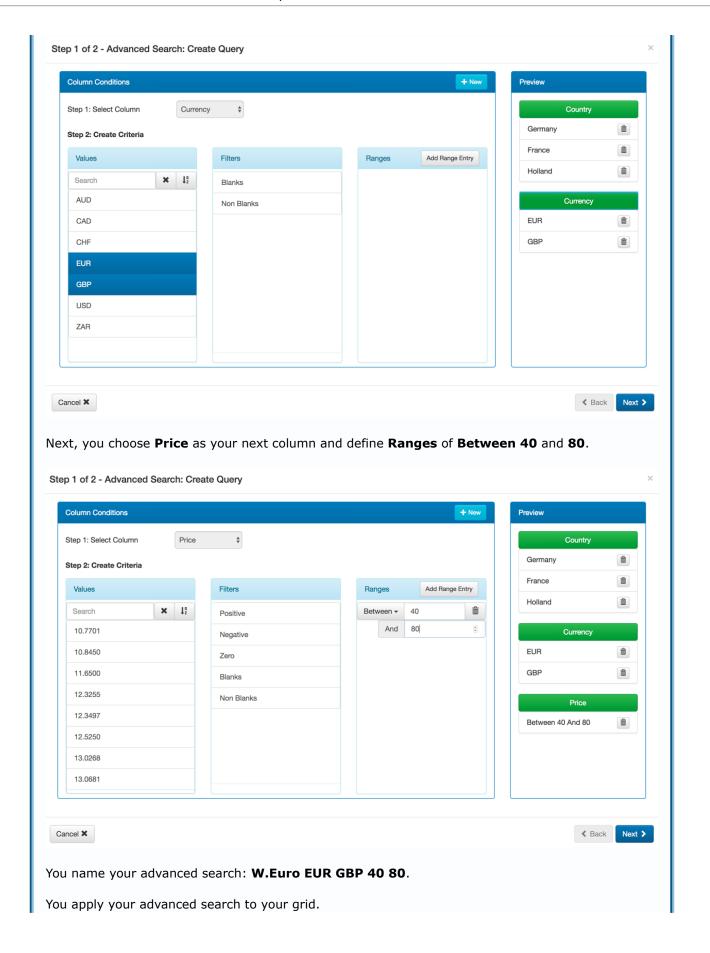
Advanced Search

The **Advanced Search** function allows you to search for one or more values across as many columns as you want. This is useful when you need to create complex searches, with different search criteria applied to several columns at the same time.

To set up an Advanced Search, you need to create a Query and then supply a name. When you apply the Advanced Search, Adaptable Blotter will only display those rows that match *all* of the Conditions in the Query. (For more information on creating queries see Using Queries).

Example 9. Advanced Search

Let's say you are interested in rows that have cells with these values:

Country: **Germany**, **France**, or **Holland**

Currency: **EUR** or **GBP**

Price: Between **40** and **80**.

To search for rows with these values, you set up an advanced search (as you are searching for multiple values, in multiple columns).

First you set the criteria for the first column in your search, which is the **Country**. You choose **Country** as the column and select the **Values** of **Germany**, **France**, and **Holland**.

Then you click **New** to add another column to your advanced search. This time, you choose the **Currency** column and choose **Values** of **EUR** and **GBP**.

Next, you choose **Price** as your next column and define **Ranges** of **Between 40** and **80**.

You name your advanced search: **W.Euro EUR GBP 40 80**.

You apply your advanced search to your grid.

The grid updates so that it only shows those rows with a **Country** value of **Germany**, **France**, or **Holland** *and* a **Currency** value of **EUR** or **GBR** *and* a **Price** value of between **40** and **80**. Any rows that do not match all of these search criteria are hidden.

ID	Notional	Counterparty	Currency	Country	Trade Date	Settlement Date	Fitch Rating	Moodys Rating	Price
5	$1,000,000	JP Morgan	EUR	Germany	11 Nov 2015	14 Nov 2015	AA	Aa2	40.0000
181	$7,500,000	MUFJ	EUR	France	26 Oct 2016	29 Oct 2016	A+	A1	59.2788
184	$10,000,000	JP Morgan	EUR	Germany	25 Jun 2016	28 Jun 2016	B+	B1	72.4127

Apply an Existing Advanced Search

To apply an advanced search that has already been set up:

1. Click on the **Advanced Search** Function Control in the Dashboard.
2. Select an Advanced Search from the drop-down list.
   When you apply an Advanced Search, the grid only shows those rows with values that match the Advanced Search's query.

Clear an Advanced Search

To clear an Advanced Search so that it is no longer applied to the grid:

1. Click on the **Advanced Search** Function Control in the Dashboard.
2. Click the **Clear** button.
   Clearing an Advanced Search means that it is no longer applied to your grid. But it is still available in the Advanced Search combo-box for future use.

Create an Advanced Search

To create a new Advanced Search and define its search criteria (query):

1. Click on the **Advanced Search** Function Control in the Dashboard.
2. Click on the **New** button.
   The first 'page' of the **Advanced Search Wizard** appears.
3. Create a Query for the Search. For more information on building and editing Queries using multiple Conditions and Criteria see Using Queries
4. Click the **Next** button.
5. Enter a name for your advanced search. We recommend that you give it a meaningful name, as the name will appear in the Advanced Search menu.
6. Click on **Finish** to complete the wizard. Alternatively, click on **Back** to return to the previous 'page' or **Cancel** to abort.

Edit an Advanced Search

If there are advanced searches in your Adaptable Blotter, you can use Edit to change their search criteria. The most common reasons for changing an advanced search are:

• To add search criteria for an additional column
• To change the values of a search range.

To edit an advanced search:

1. Click on the **Advanced Search** Function Control in the Dashboard.
2. Select an Advanced Search from the drop-down list.
3. In the Wizard make any changes to the Advanced Search Query that are required (for more information on building and editing Queries using multiple Conditions and Criteria see Using Queries).
4. Click the **Next** button.
5. If you want to change the name of the advanced search, alter the entry in the **Search Name** field.
6. Click on **Finish** to complete the wizard. Alternatively, click on **Back** to return to the previous 'page' or **Cancel** to abort.

Delete an Advanced Search

If you want to remove an advanced search so that it is no longer available:

1. Click on the **Advanced Search** Function Control in the Dashboard.
2. Select an Advanced Search from the drop-down list.
3. Click on the **Delete** button.
4. At the prompt, either click **Delete** to confirm or click **Cancel** to abort.

User Filters

User Filters can allow you to **create** and **save** your own **custom filter**. They are especially useful if you regularly build queries, as you can choose a user filter from the query filter list. They can also save you time if you often use multi-value filters on a column, as you will be able to apply a multi-value filter by selecting one option.
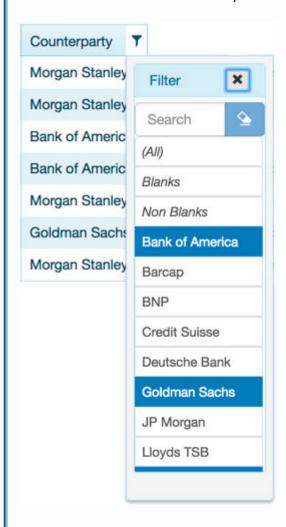
A User Filter is a column filter that **you** create. When you set one up, you define:

• What column the User Filter can be used with
• The criteria for the filter (the criteria is also called the query conditions)
• The name for the User Filter. The name is added to the Filters list as an option, so it appears alongside the built-in filters and values.

Example 10. User Filter

Let's say that, several times a day, you need to filter the **Counterparty** column so that it shows only US banks. On other occasions you need to filter it to show only UK banks.
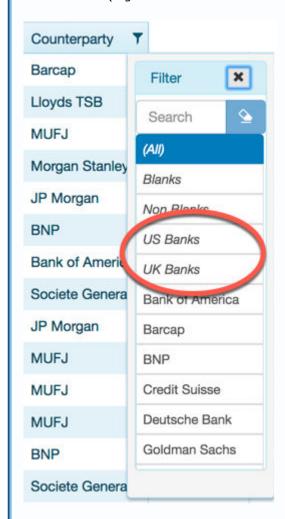
One way to switch the filters is to apply them manually each time. To do that, you select the Filter icon at the top of the Counterparty column, and select the appropriate US banks. Then, when you need to change the filter, you access the Filter list again, deselect the US banks and choose all the UK banks. You have to do this every time that you want to change the filter.

A much quicker way to achieve the same goal is to create two User Filters. You set the first User Filter up so that it applies to the Counterparty column, and you choose all of the US banks as its filter

---

values. You save it as 'US Banks'. For the second filter, you apply it to the Counterparty column, choose all of the UK banks as its filter values, and then save as 'UK Banks'.

Now when you want to switch between the two sets of filters, you just select the 'US Banks' filter option or the 'UK Banks' filter option. You can also use these filters when creating queries elsewhere in the Blotter (e.g. for Advanced Search or Conditional Styles).

This is a very basic example of how effective User Filters can be. Just imagine how much time you will save if your column filters are much more complicated.

Apply an Existing User Filter

To apply a User Filter that has already been created:

1. Click on the filter icon in the column header.
2. Select the option for the User Filter from the Filters list. The names of the User Filter options are shown in italic, and are taken from the **Filter Name** value of the User Filter. The **Filter Name** is set when the User Filter is created.

Create a User Filter

To create a User Filter:

1. Click on the **Functions** dropdown ⌂ Functions ▾ .
2. From the menu, choose **Filter**.

   The User Filter display appears.
3. Click on the **New** button.
4. Here you will create a query for the User Filter. For more information on building and editing Queries using multiple Conditions and Criteria see Using Queries.

> **NOTE: USER FILTERS**
> You can only set one condition in a User Filter.

5. Click the **Next** button.
6. Use the **Filter Name** field to set a name for your User Filter. Try to make the name as descriptive as possible, as it will appear as an option in the Filters list.

7. Click on **Finish** to complete the wizard. Alternatively, click on **Back** to return to the previous 'page' or **Cancel** to abort.

When you create a User Filter, it becomes available for use in the Column Filter combo-box. It is also available when creating queries for the column.

Edit a User Filter

To make changes to an existing User Filter:

1. Click on the **Functions** dropdown .
2. From the menu, choose **Filter**.
3. In the User Filters window, find the User Filter you want to change and select its **Edit** button.

4. Edit the Query for the User Filter. For more information on building and editing Queries using multiple Conditions and Criteria see Using Queries.

>
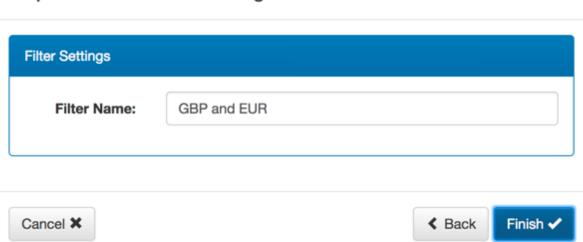> **NOTE: USER FILTERS**
> You can only set one condition in a User Filter.

5. Click the **Next** button.

6. If you want to change the name of the User Filter, alter the entry in the **Filter Name** field.
7. Click on **Finish** to complete the wizard. Alternatively, click on **Back** to return to the previous 'page' or **Cancel** to abort.

Delete a User Filter

To remove a User Filter so that it is no longer available:

1. Click on the **Functions** dropdown Functions ▾ .
2. From the menu, choose **Filter**.
3. In the User Filters window, click on the **Delete** button for the User Filter you want to remove.
4. At the prompt, either click **Delete** to confirm or click **Cancel** to abort.

Share a User Filter

You can share your User Filters with colleagues who are also using Adaptable Blotter . This saves time, reduces the amount of duplicated work, and helps to create a consistent experience.

To share a User Filter:

1. Click on the **Functions** dropdown Functions ▾ .
2. From the menu, choose **Filter**.
3. In the User Filters window, click on the **Share** button for the User Filter you want to share with your colleagues.

Administering the Blotter

Adaptable Blotter provides all the functionality that users need to be more productive and efficient.

And the needs of Administrators, Developers and Support have not been forgotten with tools to help each of these in their day to day tasks.

- Administrators will be able to use simple configuration to manage user permissions, storage locations and other related activities.
- Developers will find that it is trivial to integrate Adaptable Blotter into existing applications, add new entities at design time, access the underlying grid and use their organisation's own themes, calendars, and workflows.
- Support will benefit from how Audit Log will help them quickly to look up a user's activity when dealing with an urgent support call.

Integrating the Blotter

It is very straightforward to integrate Adaptable Blotter into an existing HTML5 application - just a couple of lines of code are required. For a step by step guide to this simple process see Integrating the Blotter.

Configuration

Adaptable Blotter configuration tools allows administrators easily to manage user permissions, storage locations and team sharing.

You can set Configuration Server to be either **Local Storage** or **Remote Storage**. If it is set to Remote Storage then User Configuration and User Data is available from any computer the user logs in at.

Configuration Server is also used to manage Team Sharing - enabling users easily to share things they have created with team members.

For more information please see Configuration.

Audit Log

Adaptable Blotter streams a continuous flow of audit data into Audit Log so that everything that happens in the Blotter is fully audited and available for reporting or alerts. For more information on how to set up (and filter the stream to) Audit Log, and how to run reports on this data, see Audit Log.

Underlying Grids

Adaptable Blotter sits on top of an HTML5 underlying grid component. Although the Blotter provides identical functionality, regardless of which grid component you choose, you will still want to choose the right grid for your needs. More information on the grids supported can be found at Underlying Grids.

User Permissions

Administrators can disable or hide each Function and Function property in Adaptable Blotter for all users, named users, or roles. More information on managing entitlements can be found at Managing Permissions.

Developing with the Blotter

Developers are able easily at design time to create their own Blotter entities (e.g. searches, layouts, editing rules, validation rules etc.) and then ship them with Adaptable Blotter to their users when they initially deploy the host application.

Similarly, they are able to to continue to develop against the underlying grid - which is fully exposed - as well as using the API of Adaptable Blotter.

For more information please see Developing the Blotter

Containers

Adaptable Blotter works exactly the same - with identical functionality - whether it is hosted a container such as Electron or OpenFin, or it is running directly in the browser.

In September 2017 Adaptable Tools will release a version of Adaptable Blotter specifically designed for OpenFin and Electron; this will contain new functionality available only when the Blotter is running in either of these containers.

Integrating the Blotter

To use Adaptable Blotter you need to follow these 3 steps

1. Decide which underlying grid you want to use
2. Create a grid setup using the underlying grid just as you would normally. Define the columns, data types, editors and anything else you want for the underlying grid
3. Create an instance of the Adaptable Blotter and pass into it the underlying grid set up you have created, together with 4 key properties required by the Blotter.

Let's look at each of these stages in turn

1. **Decide which underlying grid to use**

   Adaptable Blotter works the same irrespective of the underlying grid (albeit with a different implementation) so you can choose whichever grid you prefer, or are most comfortable with, or already have licences for. Find further details how this works at Underlying Grids.

   The underlying grids which are currently supported are:
   • Adaptable Grid - created by us specifically to use with the Adaptable Blotter
   • Ag-Grid
   • Hypergrid by OpenFin
   • Kendo grid by Telerik

2. **Create a grid setup using the underlying grid just as you would normally.**

   Once you have chosen your underlying grid define the columns, data types and anything these else you require for your grid according to the requirements and specifications of that grid. Also attach a datasource to the grid as you would do normally.

3. **Create an instance of Adaptable Blotter and pass into it the underlying grid set up you have created**.

   You will also need to pass in the following 4 key properties:

   1. **primaryKey**: This is the name of a column in the grid that will have unique values. It can be of any datatype so long as each value is distinct. It is used to allow us to identify each cell as a unique combination of primaryKey value and <Column> value.
   2. **userName**: The unique user name of the current user of this grid. This is required in order to manage storage, user permissions and team sharing.
   3. **enableAuditLog**: Set it to **true** if you want to have Audit Log running, allowing you to see full details of all user activity in the Blotter.
   4. **enableRemoteConfigServer** : Set it to **false** if you want everything to be stored locally, or to **true** if you want to set up storage on a remote server using the Configuration Server. This will allow you manage entitlements and team sharing for that user. Further details can be found at Configuration.

Setup Example

The code snipped below shows a Telerik Kendo Grid we used for a Demo. It contains 6 columns of different data types, and some styles and editing constraints have been added. The grid is sortable, editable, and filterable.

> **NOTE**
> You should set up the underlying grid **EXACTLY** as you would do normally. Adaptable Blotter will display this grid exactly as you have created it and then add its own Functions on top to give users a richer experience.

At the end of this code snippet you can see that the kendo grid object is passed in to an instance of Adaptable Blotter, and the 4 properties are set up appropriately (primaryKey is 'tradeId', userName is 'Jonathan' and auditLog and remoteConfigServer have both been enabled.

```
var adaptableblotterfunction
InitBlotter() {
    var dataGen = new harness.DataGenerator();
    var trades = dataGen.getTrades();
    $("#grid")
        .kendoGrid({
            dataSource: {
                data: trades,
                schema: {
                    model: {
                        fields: {
                            tradeId: { type: "number" },
                            notional: { type: "number" },
                            currency: { type: "string" },
                            price: { type: "number" },
                            tradeDate: { type: "date" },
                            isLive: { type: "boolean" },
                            }
                        }
                    }
                },
                columns:
                [
                    { field: "tradeId", title: "ID" },
                    { field: "notional", title: "Notional", format: "{0:c0}", attributes: { style:
                    { field: "currency", title: "Currency", width: 100 },
                    { field: "price", title: "Price", format: "{0:n4}", attributes: { class: "numb
                    { field: "tradeDate", title: "Trade Date", format: "{0:dd MMM yyyy}", width: 2
                    { field: "isLive", title: "Is Live" },
                ],
                selectable: "multiple cell",
                sortable: true,
                reorderable: true,
                navigatable: true,
                resizable: true,
                scrollable: false,
                filterable: true,
                editable: true,
                columnMenu: false,
    });

var grid = $("#grid").data("kendoGrid");
var container = document.getElementById('content');
adaptableblotter = new adaptableblotterkendo.AdaptableBlotter(grid, container,
{
    primaryKey: "tradeId",
    userName: "Jonathan",
    enableAuditLog: true,
    enableRemoteConfigServer: true
});
```

Configuration

Adaptable Blotter makes it easy for you to configure user settings, storage location details, user permissions and other related information, in a location most suitable for your needs, i.e. locally or remotely.

What does Configuration Include

- **User Configuration** - e.g. whether dashboard is collapsed or expanded, which layout is loaded
- **User Data** (user-created Blotter Entities) - e.g. Advanced Searches, Layouts, Shortcuts etc. Anything that a user creates or edits while using Adaptable Blotter is configurable and stored
- **Application Configuration** - e.g. show only some toolbar buttons in Dashboard when first launching the application. Application Configuration also contains all User Permission information (e.g. whether a Function is visible / ReadOnly for a particular User or Role). For more information on managing entitlements for users and roles see Managing Permissions.
- **Application Data** (predefined Blotter Entities) - e.g. a predefined Search called "Today's Trades", Shortcuts where 'M' multiples numeric cells by 1,000,000

Configuration Storage

There are 2 modes of storage available in Adaptable Blotter: Local Storage and Remote Storage.

Local Storage

When using Local Storage the User Configuration is stored in the browser's local storage using the Blotter's unique Id.

When the application is launched for the first time the User Configuration is initialised together with the Application Configuration (if there is one).

At run-time both the User Data and Application Data are fully available - but all Application Data is Read-Only.

All User Configuration changes are persisted but to local cache only.

> ⚠ **WARNING**
> If using Local Storage the User Configuration will need to be rebuilt every time the user switches computers or clears his browser cache.

Remote Storage (using Configuration Server)

When using Remote Storage, the User Configuration is stored (via Configuration Server) on a configured location.

When the application is first launched, the User Configuration is initialised together with the Application Configuration (if there is one).

At run-time both User Data and Application Data are fully available - but all Application Data is Read-Only.

All configuration changes are sent to the Configuration Server and then persisted in the appropriate location.

NOTE
When switching computers all User Configuration is still available when using Remote Storage.

By default settings are stored in local cache. In order to store settings somewhere more useful you will need to use Configuration Server.

IMPORTANT
Configuration server requires that the property **enableRemoteConfigServer** is set to true when the Blotter is integrated with the host application. If this is set to false, then Local Storage will be used.

For details on how to integrate Adaptable Blotter see Integrating the Blotter.

Team Sharing

Team sharing allows users to share part of their own configuration data with other users (e.g. if one user wants to share a "Pricing View" which has been created with another user).

Each time a Blotter Element is created, it can be instantly shared with team members.

WARNING
Team Sharing is only available if the Configuration Storage mode is Remote Storage. If the mode is set to Local Storage, Team Sharing is disabled.

Audit Log

Every single action in Adaptable Blotter is fully audited - every keystroke, menu click, configuration change and data edit. This provides you with complete oversight over everything that ever happens in the Blotter.

For instance you can set up an alert to be informed whenever a value changes in a particular column, or if the new value exceeds set limits; or you can run reports showing a particular user's activity, or how data has changed over any time period.

Configuring Audit

> **❗ IMPORTANT**
> Audit Log requires that the property **enableAuditLog** is set to true when the Blotter is integrated with the host application. See Integrating the Blotter.

Audit Log is a simple stream of JSON objects sent over an HTTP channel. Each object contains full details of what the type of change was, the user, the time and any other related information.

The definition of an Audit Log Entry object is below. As you can see, it contains all the information about the type of change (e.g. edit or function) as well as user, timestamp etc.

```
export interface IAuditLogEntry {
    adaptableblotter_auditlog_trigger: string
    adaptableblotter_client_timestamp: Date
    adaptableblotter_username: string
    adaptableblotter_editcell?: {
        primarykey: string
        column_id: string
        old_value_string: string
        new_value_string: string
        old_value_numeric?: number
        new_value_numeric?: number
        old_value_date?: Date
        new_value_date?: Date
        old_value_boolean?: boolean
        new_value_boolean?: boolean
        }

    adaptableblotter_function?: {
        name: string
        action: string
        info: string
        data: any
        }

    adaptableblotter_state_change?: string
    adaptableblotter_state_change_action? : string
    adaptableblotter_number_of_missed_ping?: number
}
```

You can use any software you like to "listen" to the message stream and then run reports or send alerts or react in any other way to the data coming in.

If Adaptable Blotter determines that nothing is listening to the audit stream then itAudit Log will stop sending messages automatically.

Choosing What to Audit

By default, if Audit Log is turned on, then all changes are streamed automatically - both data and user / config changes. However administrators have the ability to fine tune what gets sent to Audit Log so that you can listen only to certain categories of audit change.

Using Your Own Reporting Software

Many organisations will have their own reporting and auditing software with which they are already familiar.
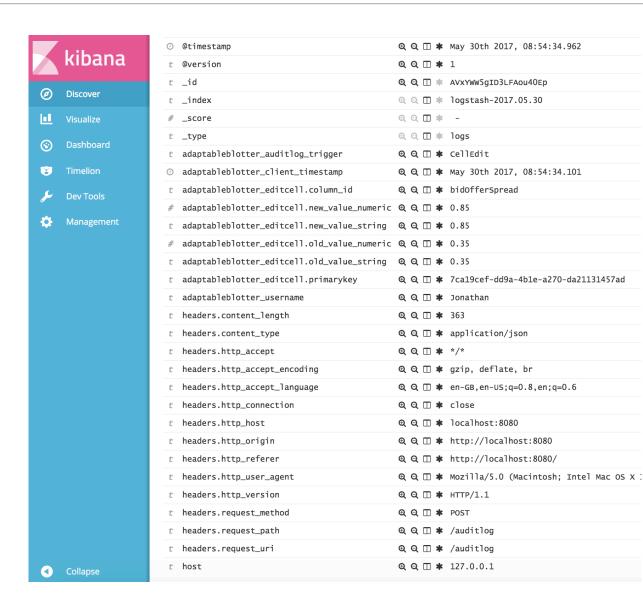
If this is the case then it should be trivial for you to configure your software to listen to the Audit Log stream.

Elastic Stack

If you don't have your own auditing or reporting software in your organisation, then a good choice is the Elastic Stack. Containing 3 associated products from Elastic (ElasticSearch, Kibana and Log-stash), its a very advanced and powerful auditing suite, yet easy to use and set up. You can find more details on the Elastic website about their Elastic Stack.

The Adaptable Blotter team will be able to advise you on how to set up the Elastic Stack so you can take full advantage of power of Audit Log.

The image below shows the raw details of a Cell Edit ('BidOfferSpread' has changed from 0.35 to 0.85) in Kibana. You can see that details of the user, the timestamp and much else is included.

kibana

- Discover
- Visualize
- Dashboard
- Timelion
- Dev Tools
- Management

Collapse

⊙	@timestamp	⊕ ⊖ ▥ ✱	May 30th 2017, 08:54:34.962
t	@version	⊕ ⊖ ▥ ✱	1
t	_id	⊕ ⊖ ▥ ✱	AVxYWW5gID3LFAou4OEp
t	_index	⊕ ⊖ ▥ ✱	logstash-2017.05.30
#	_score	⊕ ⊖ ▥ ✱	-
t	_type	⊕ ⊖ ▥ ✱	logs
t	adaptableblotter_auditlog_trigger	⊕ ⊖ ▥ ✱	CellEdit
⊙	adaptableblotter_client_timestamp	⊕ ⊖ ▥ ✱	May 30th 2017, 08:54:34.101
t	adaptableblotter_editcell.column_id	⊕ ⊖ ▥ ✱	bidOfferSpread
#	adaptableblotter_editcell.new_value_numeric	⊕ ⊖ ▥ ✱	0.85
t	adaptableblotter_editcell.new_value_string	⊕ ⊖ ▥ ✱	0.85
#	adaptableblotter_editcell.old_value_numeric	⊕ ⊖ ▥ ✱	0.35
t	adaptableblotter_editcell.old_value_string	⊕ ⊖ ▥ ✱	0.35
t	adaptableblotter_editcell.primarykey	⊕ ⊖ ▥ ✱	7ca19cef-dd9a-4b1e-a270-da21131457ad
t	adaptableblotter_username	⊕ ⊖ ▥ ✱	Jonathan
t	headers.content_length	⊕ ⊖ ▥ ✱	363
t	headers.content_type	⊕ ⊖ ▥ ✱	application/json
t	headers.http_accept	⊕ ⊖ ▥ ✱	*/*
t	headers.http_accept_encoding	⊕ ⊖ ▥ ✱	gzip, deflate, br
t	headers.http_accept_language	⊕ ⊖ ▥ ✱	en-GB,en-US;q=0.8,en;q=0.6
t	headers.http_connection	⊕ ⊖ ▥ ✱	close
t	headers.http_host	⊕ ⊖ ▥ ✱	localhost:8080
t	headers.http_origin	⊕ ⊖ ▥ ✱	http://localhost:8080
t	headers.http_referer	⊕ ⊖ ▥ ✱	http://localhost:8080/
t	headers.http_user_agent	⊕ ⊖ ▥ ✱	Mozilla/5.0 (Macintosh; Intel Mac OS X
t	headers.http_version	⊕ ⊖ ▥ ✱	HTTP/1.1
t	headers.request_method	⊕ ⊖ ▥ ✱	POST
t	headers.request_path	⊕ ⊖ ▥ ✱	/auditlog
t	headers.request_uri	⊕ ⊖ ▥ ✱	/auditlog
t	host	⊕ ⊖ ▥ ✱	127.0.0.1

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Underlying Grids

Adaptable Blotter works by integrating with an existing HTML grid component.

There are currently 4 underlying grids supported - but more are coming on stream all the time.

Adaptable Grid

The Adaptable Grid is a Javascript grid produced by the same team as the Adaptable Blotter. It contains most of the grid features expected by grid users but lacks some of the more powerful features of the commercial grids.

The Adaptable Grid has a very simple, but powerful, API making it very easy to code against. It was developed with Adaptable Blotter in mind but is also a good choice as a standalone grid. Its entirely free to use.

Kendo Telerik Grid

Part of Telerik's excellent Kendo UI control suite, the Kendo UI Grid is one of the most powerful and mature vendor grids on the market.

Its packed with features and makes heavy use of JQuery (a Kendo Angular grid has just been released but is currently less feature-rich).

The Kendo UI grid requires a developer licence for every developer using it.

ag-Grid

The ag-Grid, by the company of the same name, is designed by experienced financial developers who believed there was a gap in the market for a fast and fully functionality HTML5 grid.

Packed with features, ag-Grid is a great choice for those who want multiple features or to see their data in an aggregated way. Licences are free for the basic version, but you have to pay for the Enterprise version - which includes powerful server-side features.

OpenFin Hypergrid

Hypergrid is a super fast canvas-based grid by OpenFin (who produce an Electron-based HTML5 container). It is an excellent choice when speed is an important factor.

Hypergrid is fully open source. It is less feature rich than other grids on the market but contains a number of hooks, allowing developers to add their own functionality as required (e.g. filters).

Forthcoming Grids

A number of additional underlying grids will be supported by Adaptable Blotter over the next year. These include:

- ng-Grid
- Kendo Angular Grid
- KoolGrid
- DevExpress DevExtreme Grid
- SlickGrid

Developing the Blotter

Adaptable Blotter provides a huge amount of functionality out of the box, while still enabling developers to add their own functionality to the application as required.

Code

The code for Adaptable Blotter is available from the adaptable blotter repository at Github.

> **NOTE**
> Developer licences are free so you can work with Adaptable Blotter in any way you want. But end users in a production require a paid-for end-user licence. For more details see Licences.
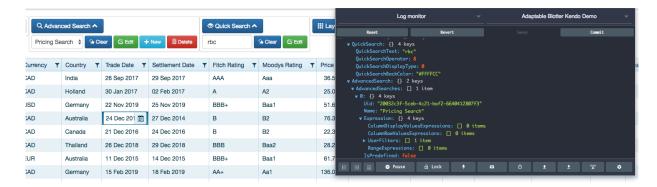
Integrating the Blotter

Its very straightforward to integrate Adaptable Blotter into an existing or new application. For a step-by-step guide please read Integrating the Blotter.

Using the underlying grid

Adaptable Blotter allows you to have full access to whichever underlying grid you have chosen. So you can continue to develop against that grid as you would do normally. Nothing is hidden from you which is normally available to developers.

Blotter objects

Everything that can be created at run-time using the Adaptable Blotter screens can also be created at design time. All our entities are simple JSON objects and it is trivial to write them by hand. This allows developers easily to ship the product to users with many entities (e.g. Searches, Editing Rules, Layouts etc.) already created. Users will then have immediate access to all these entities, while being able to use the Blotter to create more as required.

> **NOTE**
> Users are subject to permissioning rules set by administrators so they can only create entities in Functions to which they have write access.

Custom Themes

Adaptable Blotter ships with a number of common pre-installed bootstrap themes. But if you have a particular colour scheme or theme then its trivial to use that instead.

Managing Permissions

Each Function (and Function Property) can be permissioned separately for each user or role.

You can decide whether to leave it as **Default** (i.e. editable), set it **ReadOnly** (so its visible but not editable) or **Hidden** (when its not used at all).

> **NOTE**
>
> By default Adaptable Blotter sets every Function permission to Default, meaning that every user can see and edit every function and every property. So Administrators or Developers will need to change the permissions for those Functions or Properties to which they don't wish users (either all or just some) or specified roles to have full access.

Using Configuration

Permissions are managed by configuration. The definition of an Entitlement object is very straightforward:

```
export interface IEntitlement {
    FunctionName: string;
    AccessLevel: "ReadOnly" | "Hidden" | "Default";
}
```

Example 11. Setting User Permissions

To set an entitlement in configuration is straightforward. This example makes the Advanced Search Function readonly for all users.

```
"Entitlements": {
        "FunctionEntitlements": [
            {
                "FunctionName": "CustomSort",
                "AccessLevel": "ReadOnly"
            }
        ]
    }
```