



Beeper

# DYNAMIC LINE CHART

v1.05

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## 2 Overview

Beepee Dynamic Line Chart (DLC) is a plugin for Adobe After Effects that instantly creates charts from data. All the parameters of the chart and the data itself can be animated.

Data for your chart can be imported via a CSV file from spreadsheet applications such as Microsoft Excel or Google Drive. Or you can resample data from an image of a chart.

By animating display parameters, you can zoom into and out of the chart, along axes, highlight regions and add decorations to help explain your data to your audience.

Dynamic Line Chart can help you save hours or even days working on both simple and complicated charts.

DLC has hundreds of parameters and many functions to produce charts. It is therefore quite a complex plugin. This guide is intended to accompany the video tutorials available at [aescrpts.com](https://aescrpts.com), and on the Beepee Youtube channel. Further help can be found at the [aescrpts.com](https://aescrpts.com) support forum.

## 3 Installation

DLC can be installed automatically using the [aescrpts + aeplugins manager app](#).

Manual installation is also possible.

- Download the zip file from [aescrpts.com](https://aescrpts.com) and open it.
- Close any instance of After effects.

### Windows.

- Place the downloaded **DynamicLineChart.exe** file in **C:\Program Files\Adobe\Common\Plug-ins\7.0\MediaCore** (or equivalent path).

### Mac

- Place the downloaded **DynamicLineChart.plugin** file in **/Applications/Adobe After Effects 2020/Plug-ins/Effects** (or equivalent path).

DLC can then be found in **Effect** → **Beepee** → **Dynamic Line Chart**.

## 4 Limitations & known issues

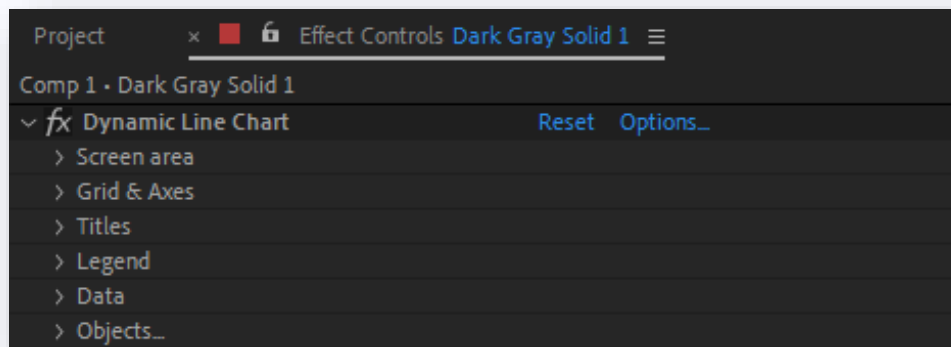
Currently, only one instance of DLC can be applied to a layer object (usually a Solid) at a time. DLC will draw only the lowest active (displayed) instance of DLC on the effect stack. However, many DLC instances can be applied each to different layer objects in the same composition at the same time, allowing complex, layered animations.

Each instance of DLC can draw up to 32 objects. If you require more than 32 objects in a composition, objects can be split between two instances of DLC, with chart features such as grid lines and axis labels disabled on the topmost layer. This limitation is somewhat arbitrary, intended to optimise performance. If you really need more than 32 objects and this solution does not work for you, please get in touch through [aescrpts.com](https://aescrpts.com).

DLCs capacity for imported data through CSV files has not been tested to destruction and no cap has been put on the size. However, if you are importing many MB of data, you should take care to back up your work beforehand.

Currently DLC is not able to draw text labels on the vertical axes. It is also not yet able to draw non-linear or log axes.

## 5 The interface



DLC has hundreds of parameters. They are organised into topics to make it easier to use. Each topic contains the parameters particular to one aspect of your chart.

**Screen area** – the height and width of the main drawing area of your chart, not including axis labels and titles.

**Grid & axes** – these parameters control the dimensions and display of axis, gridlines and axis labels.

**Titles** – you can add a main chart title, and titles for the horizontal and primary and secondary axes.

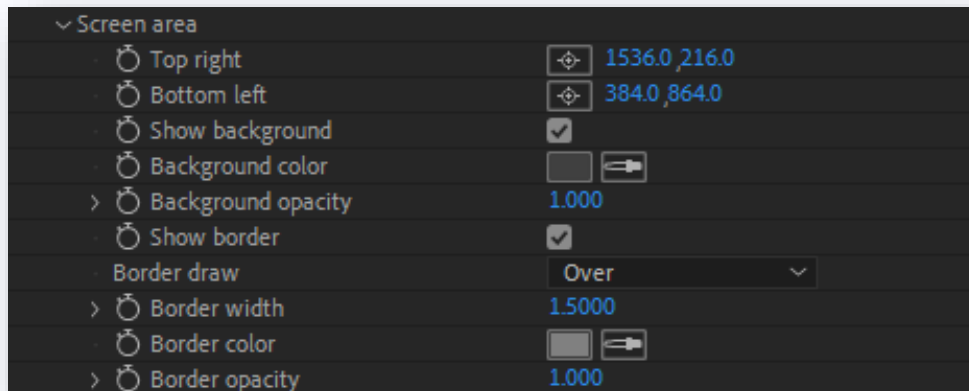
**Legend** – these parameters let you set up a legend to explain the content of your chart.

**Data** – import or copy data here.

**Objects** – An ‘object’ refers to a drawing that shows your data, a bit like AE’s Shape layer. For example the line on a line chart, or the markers at each data point in a series of data are ‘objects’ in DLC. DLC has a number of different drawing types. Each new instance of an object creates a new object topic.

Each of these topics and their sub-topics are explained below.

## 5.1 Screen area

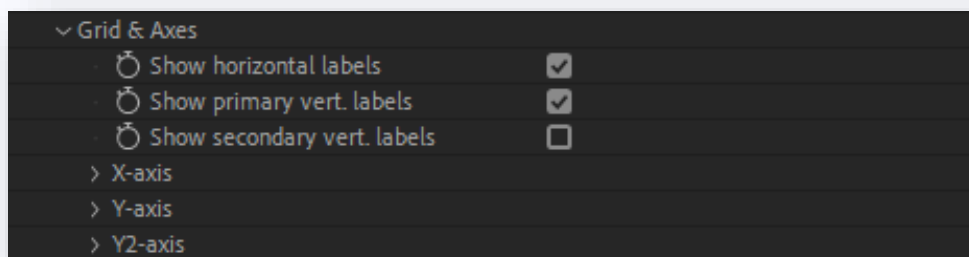


Screen area parameters let you define the chart area's dimensions and style. The dimensions – Top right and Bottom left – describe the drawing area of the chart. Other chart elements such as axis labels and titles are drawn outside of this area.

The background is a single colour, drawn behind the chart area. You can also add a border, which can be drawn beneath or on top of other chart features.

## 5.2 Grid & axes

DLC gives you a great deal of control over the grid and axes, their dimensions and properties.



At the top of the Grid & axes topic, you can choose whether to show each axis's labels.

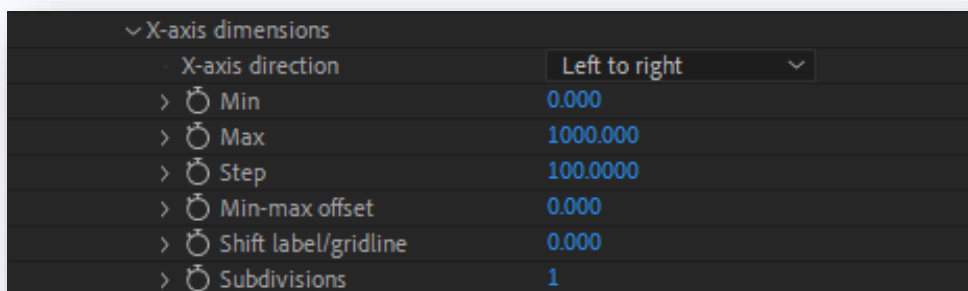
The parameters are then divided into topics for each axis.

### 5.2.1 X-axis, Y-axis & Y2-axis

Most of the parameters and topics for each axis are similar. But some of the parameters available for the X-axis are not available for the primary and secondary vertical axes. And the secondary vertical axis has fewer parameters. For example, DLC will not draw grid lines for the secondary vertical axis, but it can draw ticks on the secondary axis.



#### 5.2.1.1 X-axis / Y-axis / Y2-axis dimensions



You can set the ranges of each axis using the Min and Max parameters. In this way, you can move the chart along an axis, or scale it to produce a ‘zoom’ in or out.

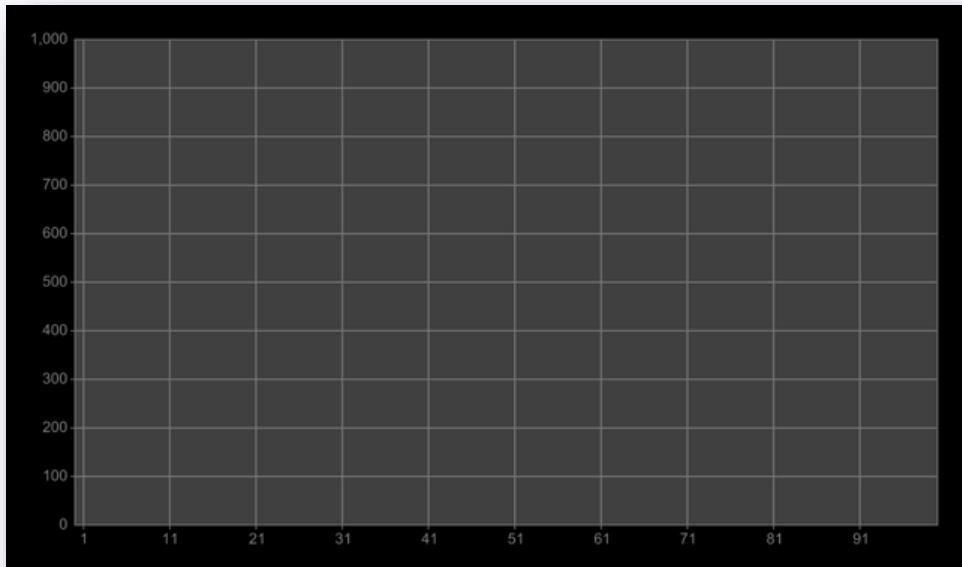
The Step parameter allows you to tell DLC how far apart you want the main gridlines to be. You can then specify how many subdivisions between the main grid lines using the Subdivisions parameter.

The functioning of the Step and Subdivisions parameters changes if you change the ‘Axis depth’ parameter in the Axis display settings, explained in the next section.

The Min-max offset parameter allows you to offset the range between Min and Max. This is useful if you want to move along an axis, while keeping the Min and Max parameters free for scaling the axis.

The Shift label/gridline parameter lets you change the points on the axis at which axis labels and grid lines appear. For example, suppose your horizontal axis had Min and max values of 0 and 100, and a step size of 10. This would show grid lines every ten units, from 0 to 100. If you now set the Shift label/gridline parameter to 1, the axis will still show the range 0 to 100, but the first gridline and label will appear at 1 rather than 0, the second will appear at 11 rather than 10, and so on.





These parameters are the same for all three axes.

#### 5.2.1.2 X-axis / Y-axis / Y2-axis display

The axis display topic contains main parameters that control the display of the axis.

For the x-axis, **placement** allows you to place the x axis labels at the top of the chart, bottom or both.

For all axes, the **location** dropdown allows you to place the axis labels on the inside or outside of the chart.

X-axis display	
X-axis location	Outside
X-axis placement	Bottom
X-axis control	Numerical
Axis depth	Static
X-axis labels	None
<input checked="" type="checkbox"/> Draw gridlines	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Draw main ticks	<input checked="" type="checkbox"/>
<input type="checkbox"/> Draw sub ticks	<input type="checkbox"/>
<input type="checkbox"/> Dashes	<input type="checkbox"/>
> <input type="checkbox"/> Dash on	10.0
> <input type="checkbox"/> Dash off	10.0
> <input type="checkbox"/> Dash offset	10.0

There are also options to draw gridlines, ticks and sub ticks. These have more parameters in their own topics below.

Dashes can be enabled with the Dashes checkbox. The Dash on, Dash off and offset parameters are all in pixel space.

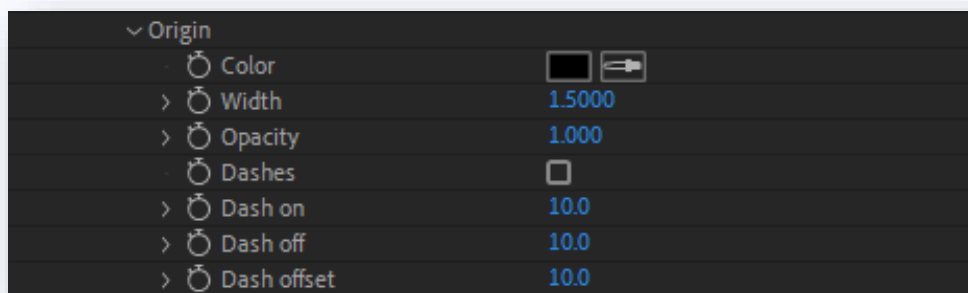
Axis depth allows you to change the way the axis labels and grid lines are calculated. The choices are 'static' and 'dynamic'.

In static mode (default), the grid lines and grid labels are set exactly according to the parameters set in the axis dimensions topic. For instance if you have Min and Max set to 0 and 1000, with a step of 100, and Subdivisions set to 10, DLC will draw 10 grid lines, with ten subdivision gridlines between each two major grid lines.

Please see the How to... section, [10.7 Add dynamic grid depth](#) for more detailed information on how to use a dynamic axis depth.

#### 5.2.1.3 *Origin (X/Y)*

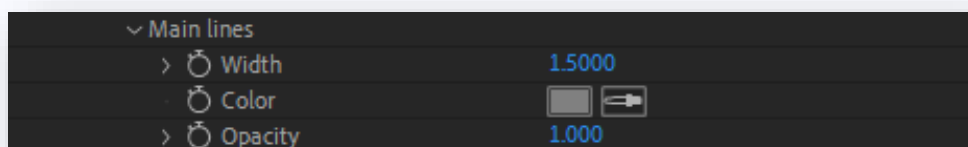
The origin topic lets you set a unique colour for the grid line that crosses zero on the axis.



The parameters are self-explanatory. The Dash parameters values are in pixel space.

#### 5.2.1.4 *Main lines (X/Y)*

These parameters let you set the properties of the main grid lines.



### 5.2.1.5 Subdivisions (X/Y)

The subdivision topic parameters set the drawing properties and behaviour of grid lines.

Sub width, Sub color and Sub opacity are self-explanatory.

Subdivisions	
> Maj distance	100
> Sub distance	20
> Sub Width	1.5000
> Sub Color	<input type="color"/>
> Sub Opacity	1.000
> Sub fade in	0.500
> Sub-maj mix in	0.500

The other parameters only have an effect in Dynamic grid depth mode.

**Maj distance** determines the minimum pixel distance between major grid lines.

**Sub distance** determines the minimum distance between two subdivision grid lines that there needs to be before they are drawn.

**Sub fade in** sets the distance over which a subdivision transitions from invisible to visible in response to changing axis parameters (such as zooming).

**Sub-maj fade mix in** sets the distance over a which a subdivision grid line transitions into a main gridline, for instance as the axis is being zoomed into.

For more information about how to use these parameters, see the section [10.7 Add dynamic grid depth](#).

### 5.2.1.6 Main ticks (X/Y/Y2)

The Main ticks appear at the same points on the axis as the main grid lines.

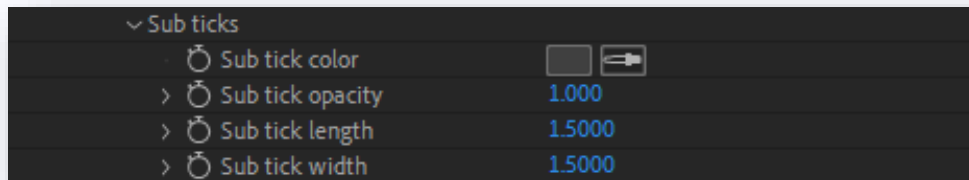
The parameters are self-explanatory.

Main ticks	
Tick placement	Outside
> Main tick color	<input type="color"/>
> Main tick opacity	1.000
> Main tick length	6.0000
> Main tick width	1.5000

### 5.2.1.7 Sub ticks (X/Y/Y2)

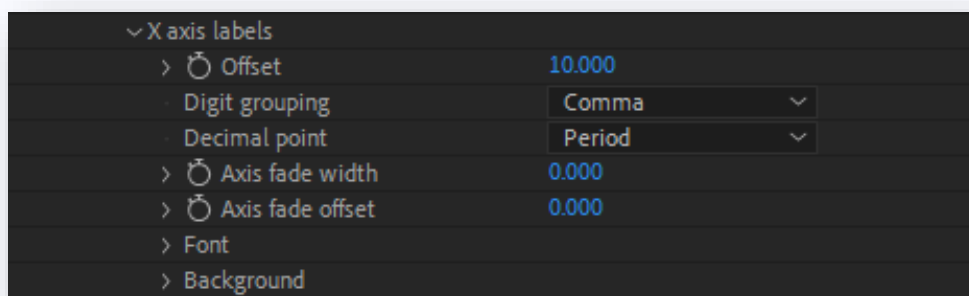
Sub ticks appear at the same points on the axis as the main grid lines.

The parameters are self-explanatory.



#### 5.2.1.7.1 X-axis / Y-axis / Y2-axis labels

Axis labels are the numbers (or text) that appear on the axis.



**Offset** sets the distance from the axis to the labels.

You can choose which character you want for **Digit grouping** and the **decimal point**.

Axis fade width sets the distance over which axis labels fade out as they exceed the limits of the axis in pixels. This allows a smoother animation, for instance if you are moving your chart along the axis.

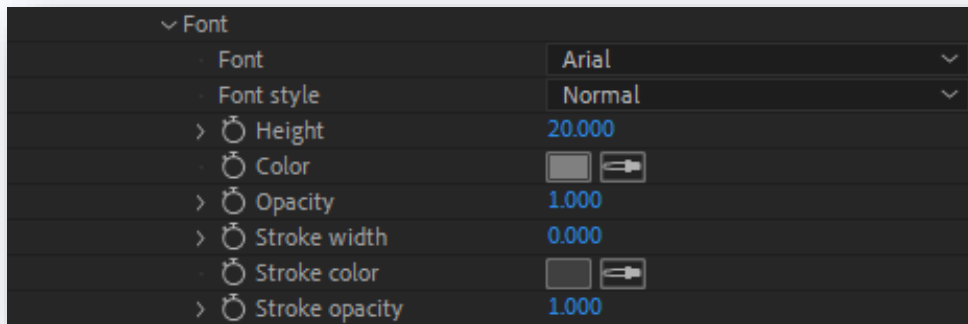
The Axis fade offset moves the region over which the label is faded towards the centre of the axis, negative numbers move it away from the centre.

The Axis Label's Font and Background topics are explained below.

See the How-to sections for more information on how to use labels in dynamic and static modes.

##### 5.2.1.7.1.1 Font

The Axis label font parameters are self-explanatory.

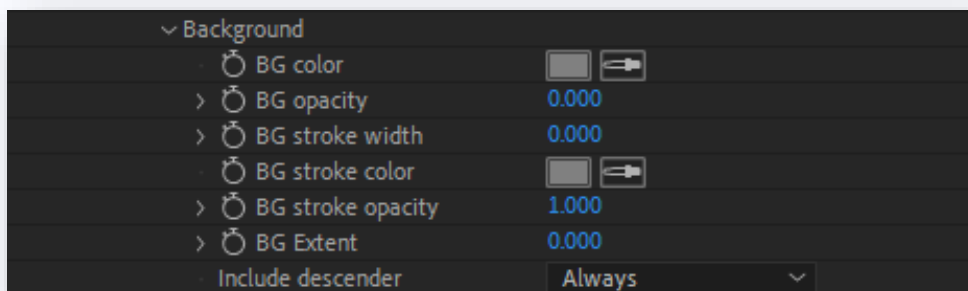


#### 5.2.1.7.1.2 Background

The parameters in this topic let you draw a box behind the text. You can also draw a border around the box.

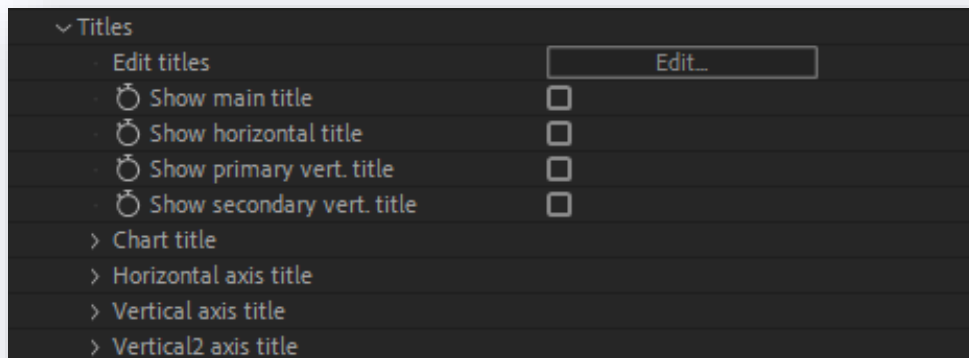
Most of the parameters are self-explanatory.

The **Include descender** parameter refers to the parts of the letters j,p,q,y ( ‘descenders’) which typically appear below the rest of a typeface. You might want to set this to ‘Never’ if you are working only with number or capital letters. Not all fonts contain information about the descender, so sometimes this parameter may not work as intended.



## 6 Titles

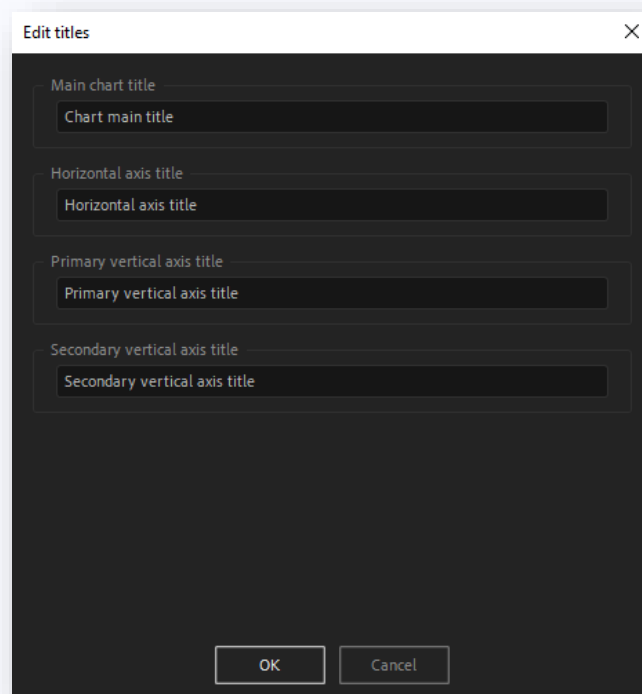
If you require a title for your chart or any of the axes, you can set these up in this group of parameter topics.



DLC's titles offer a lot less functionality than After Effects text layers, but they are a quick way of adding text.

The topic gives you the option of showing each of the titles.

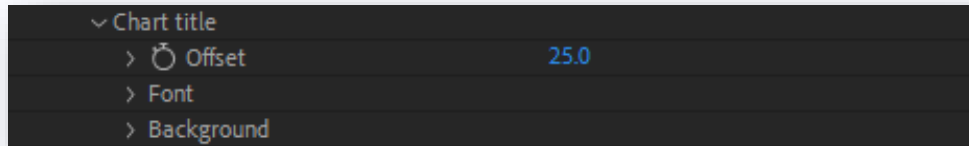
There is also a button to edit the titles, which opens a dialog. Just enter the title text, and click 'ok'.



**NB: It is not possible to undo changes to the titles.**

## 6.1 Chart / Horizontal axis / Vertical axis / Vertical2 axis title

The offset parameter in this topic moves the title away from its axis.

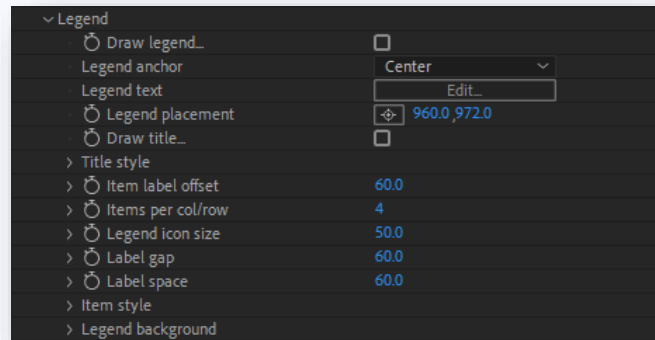


The Font parameters are the same as in section **Font 5.2.1.7.1.1.**

The Background parameters are the same as in section **Background 5.2.1.7.1.2.**

## 7 Legend

Legends help you add clarity to a chart. If you enable the **Draw legend** check box, DLC will draw a legend if objects are assigned to legend 'slots'.



The **Legend anchor** and **Legend placement** parameters let you decide where to draw the legend. The legend will place the part of the legend (eg: top left, centre, bottom right) selected in the **Legend anchor** dropdown at the point specified by **Legend placement**.

There are three main elements of a legend:

- The legend title
- The legend icon
- The legend item text
- The legend background

**Items per row** lets you arrange the legend entries.

**Legend icon size** sets the size in pixels of a box that your icon will be drawn into. DLC will copy the properties of your object into the icon square.



**Item label offset** is the pixel distance between the icon and the item text (#).



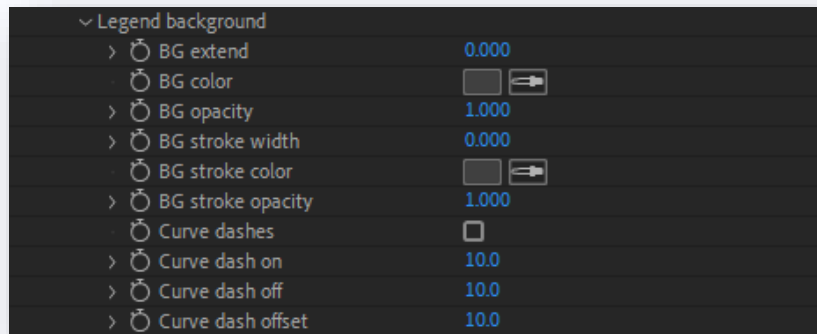
**Label gap** is the pixel distance between each item (icon and text) in a row (##).

**Label space** is the additional vertical gap between each row of items (###).

The **Draw title** checkbox enables the legend's title.

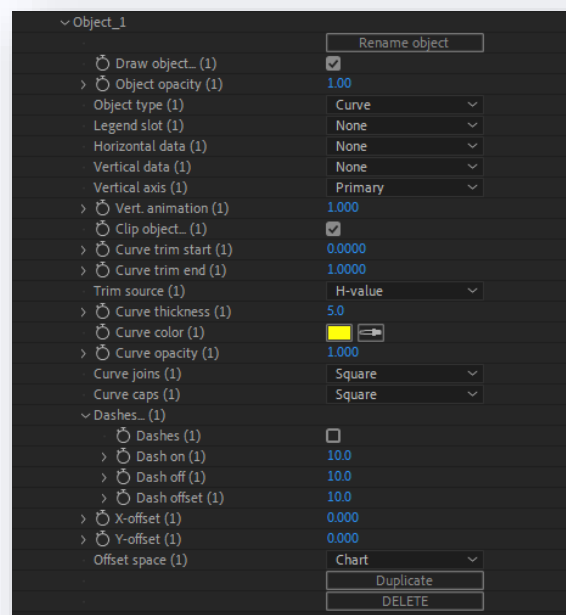
The **Title style** and **Item style** topics contain parameters adjust the title font, and are the same as in section **Font 5.2.1.7.1.1**.

The **Legend background** parameters are the same as in section **Background 5.2.1.7.1.2**. It draws a background behind the entire legend.



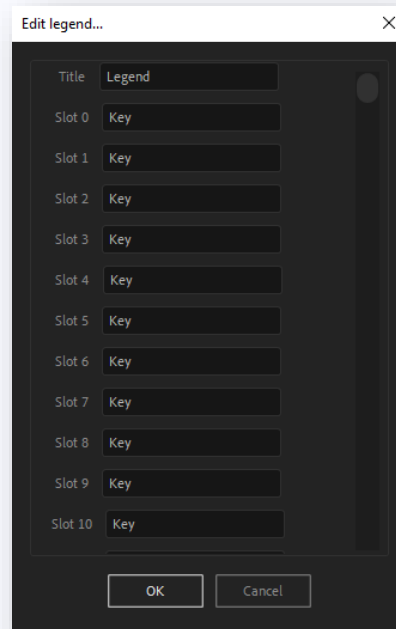
To enable the legend, make sure the **DLC → Legend → Draw legend** checkbox is enabled.

Each item in the legend is assigned to a 'slot'. Each object in your chart can be assigned to a slot in the legend slot dropdown. Slots are drawn in their numerical order, and are arranged in rows, according to the **Items per row** parameter. If you have objects assigned 6 slots, and you have set 3 **Items per row**, then your legend will contain two rows of three items.



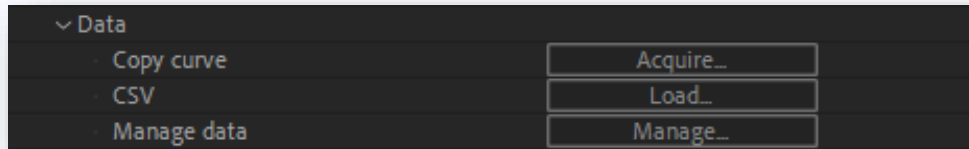
Multiple objects can be assigned to the same slot, and are drawn in the same order as objects, as determined by the draw order list. In this way, for example, a red curve with green circle markers can be shown as one entry in the legend.

To edit the title of the legend and the text of the items, use the Legend text edit button.

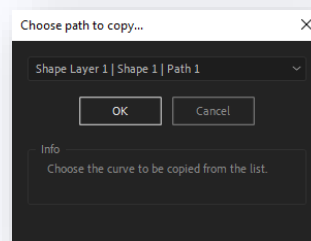


## 8 Data

The Data topic contains the functions that let you import and manage data in DLC.

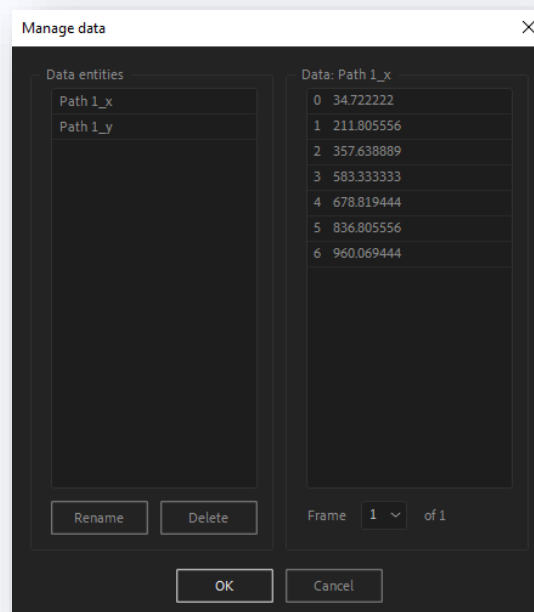


**Copy curve** lets you resample data on a chart. To find out more about how to use it, see the section [10.4 Resample a chart from an image.](#)



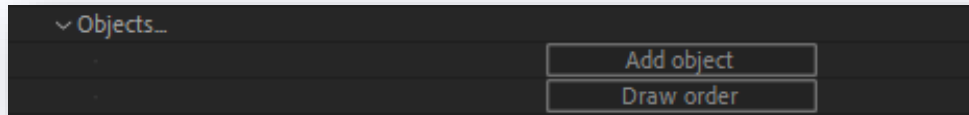
The CSV Load button opens a file browser. To find out how to import data into DLC from a CSV file, see the section [10.3 Import data from a .CSV file.](#)

The **Manage data** function lets you view and edit data that you have already imported into CSV. If you have very large amounts of data, this view can take a long time load.

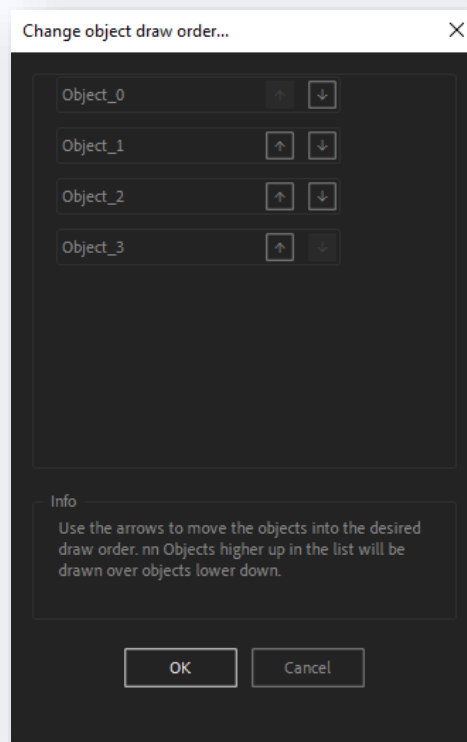


## 9 Objects

The Objects topic contains all your DLC objects – the drawings of your data.



Draw order lets you move the drawing priority of the objects. Objects are drawn in the order they are shown in the list – this means that objects at the bottom of the list will appear to be drawn over those higher up. When you change the draw order, the objects are rearranged in the ECP and timeline, to reflect that change.

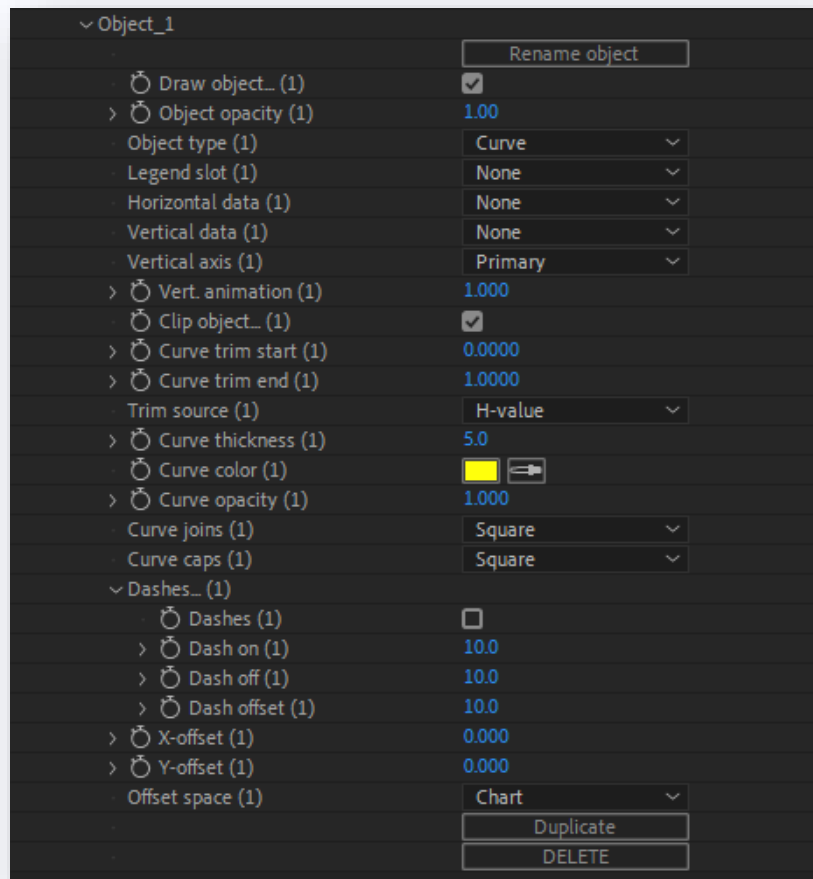


When you click on Add object, a new object is created. You can chose it to be one of a number of different types, each of which is detailed in the following sections.

## 9.1 Common parameters

There are a number of object parameters that are common to all types.

At the top of the topic is the object name. In the following picture, the object name is “Object\_1”. You can rename the object by clicking the **Rename object** button.



The **Draw object** checkbox lets you enable or disable the drawing of the object.

The **Object type** dropdown lets you choose the type of object to draw. Each object type has different parameters.

The Legend slot dropdown lets you assign the object to a legend slot. For more information on the Legend, see the [7 Legend](#) or [Error! Reference source not found. Error! Reference source not found.](#) sections.

Data dropdowns let you choose the data you imported into DLC. For more information on how to import data see the sections [8 Data](#), [10.4 Resample a chart from an image](#) or [10.3 Import data from a .CSV file.](#)

The **Vertical axis** parameter lets you assign the object to either the primary (left) or secondary (right) axis, which can be controlled independently. By default, the secondary axis features are set to not draw.

Data drawing functions also have data selection dropdowns, where you can select the data you have loaded into DLC. For example, the Curve object type has dropdown menus for the horizontal and vertical data of the line it will draw on your chart. Some other object types require more data, for instance, for a second vertical data series, or for point labels.

Some object types let you animate the horizontal and vertical data series. For more information see section **10.8 Animate data**.

Disabling the **Clip object** checkbox allows DLC to draw outside the chart area.

The **Curve trim start** and **Curve trim end** parameters allow you to trim a curve, based on the selection in the **Trim source** dropdown. The options are Distance, H-value and Index.

If Distance is selected, the range of the trim parameters (0-1) refers to the total length of the curve.

If H-value is selected, then the range (0-1) refers only to the horizontal value of the curve. This will produce unexpected effects if the horizontal data is not sequential. For instance, if the data series depicts a circle, there will be two Y points for every X value.

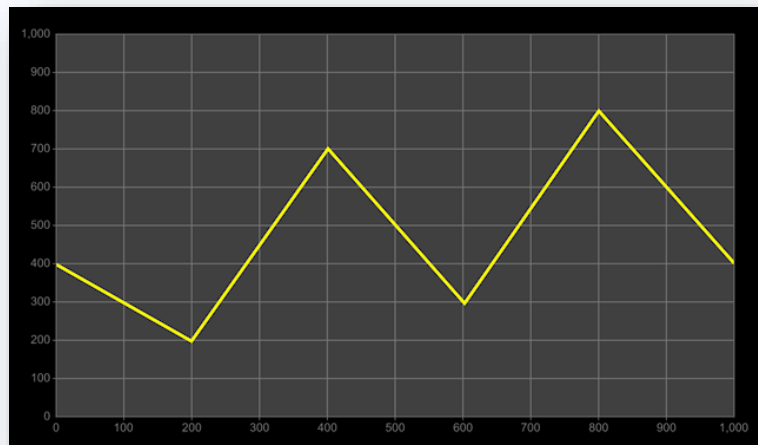
If Index is selected, then the range (0-1) refers to the total distance of the curve in terms of points. For example, in a data series of three points a trim value of 0.25 will appear half way between the first and second point, no matter how long the segment of the curve is. This allows you to precisely time the appearance of curve features, should you need to.

The **X-offset** and **Y-offset** parameters allow you to move the object. The distance an object moves in response to these parameters depends on the setting of the Offset space parameter. There are two options: Screen and Chart. The Screen option means that the offset will be pixels – an X-offset of 1 will move the object 1 pixel to the right. The Chart option means that the offset will be equivalent to the objects' axes – an X-offset of 1 will move the object 1 unit along the horizontal axis, as determined by the axis parameters (in the Grid & axes parameters).

The Duplicate button copies an object. NB: this function also copies the object's name.

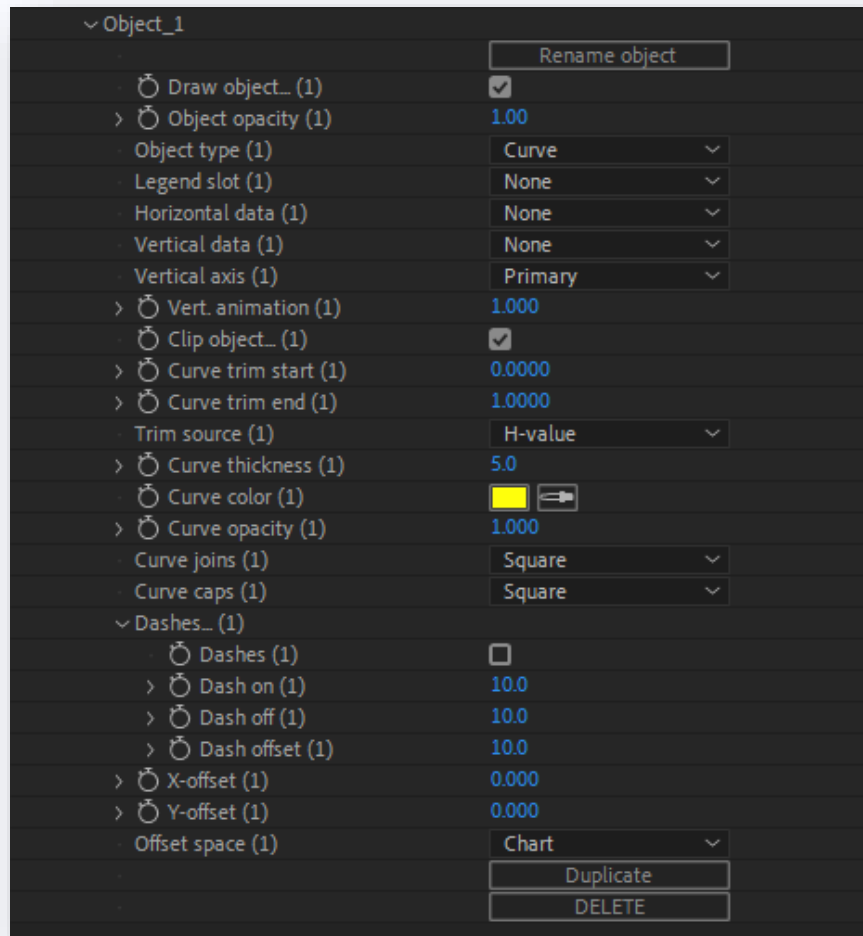
The Delete button removes the object from the scene.

## 9.2 Curve

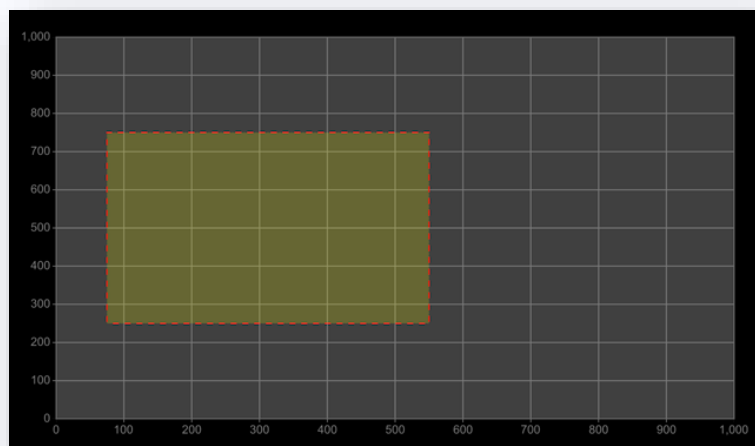


The Curve object type takes two series of data: horizontal (or X) and vertical (or Y). These data series can be chosen from the **Horizontal data** and **Vertical data** dropdowns.

This is the simplest type of object, and most of the parameters' functions are explained in the section **9.1 Common parameters**.



### 9.3 Region



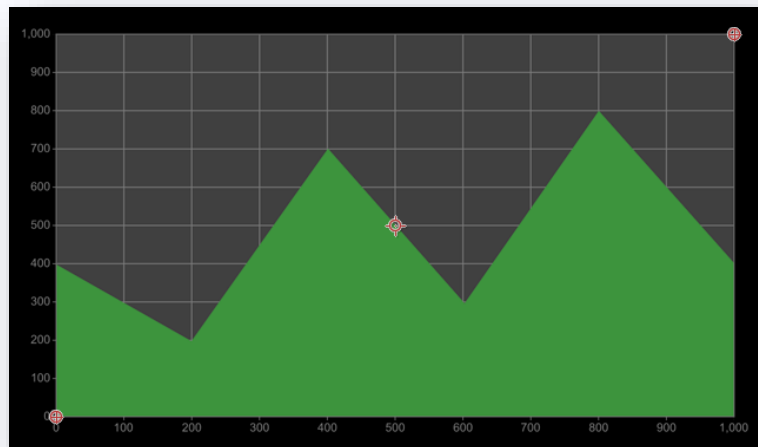
The region object type lets you mark a region in chart space, using min and max X and Y parameters.

This object type does not require source data.



Object_1		Rename object
Draw object_ (1)	<input checked="" type="checkbox"/>	
Object type (1)	Region	▼
Vertical axis (1)	Primary	▼
Region min X (1)	100.000	
Region max X (1)	200.000	
Region min Y (1)	300.000	
Region max Y (1)	400.000	
Dashes_ (1)		
Dashes (1)	<input type="checkbox"/>	
Dash on (1)	10.0	
Dash off (1)	10.0	
Dash offset (1)	10.0	
Stroke color (1)	<div><div></div></div>	
Stroke opacity (1)	1.000	
Stroke thickness (1)	0.00	
Fill color (1)	<div><div></div></div>	
Fill opacity (1)	1.00	
		Duplicate
		DELETE

## 9.4 Fill

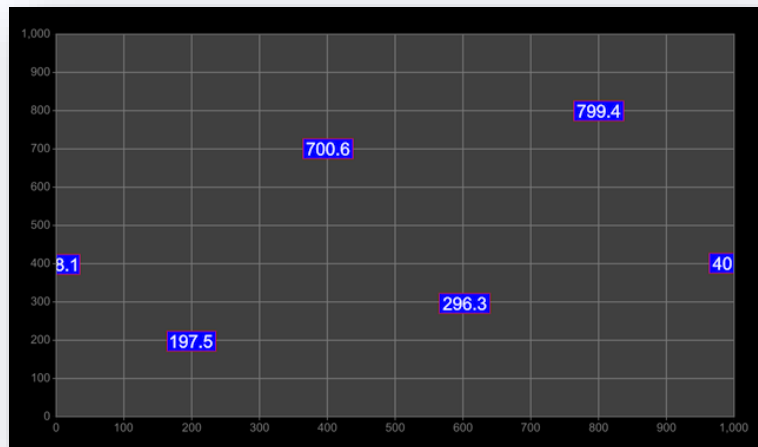


The Fill object type fills the area between a curve ( defined by Horizontal and Vertical data dropdowns) and a value specified by the **Y-intersect** parameter.

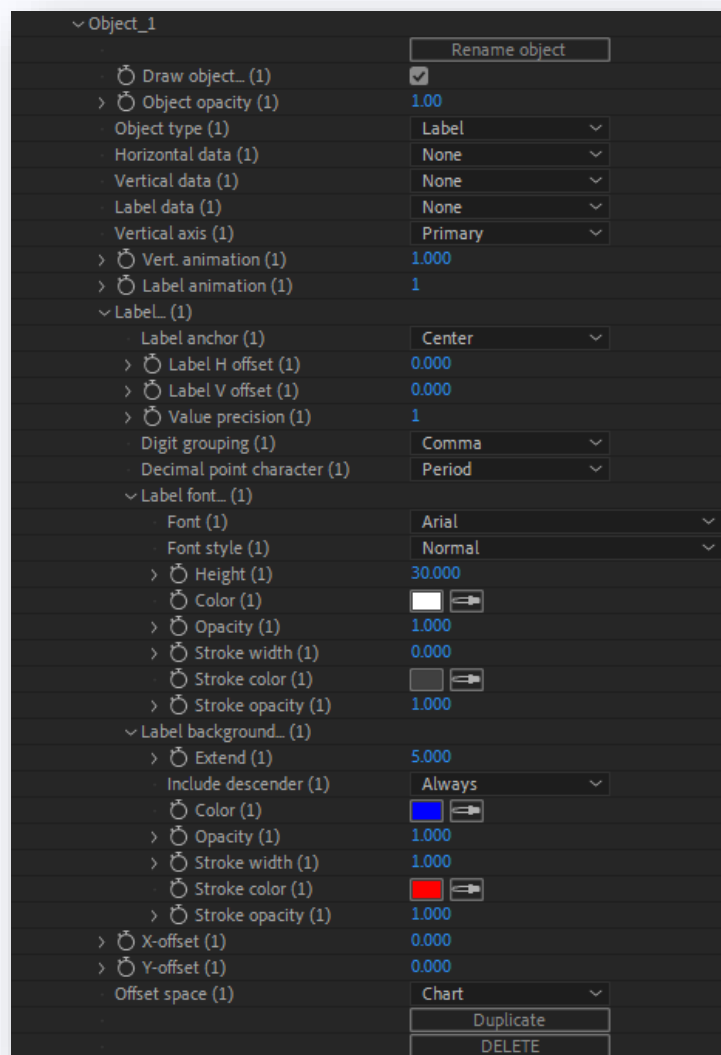
Object_1		Rename object
<input type="checkbox"/> Draw object_ (1)	<input checked="" type="checkbox"/>	
> <input type="checkbox"/> Object opacity (1)	1.00	
<input type="checkbox"/> Object type (1)	Fill	▼
<input type="checkbox"/> Legend slot (1)	None	▼
<input type="checkbox"/> Horizontal data (1)	None	▼
<input type="checkbox"/> Vertical data (1)	None	▼
<input type="checkbox"/> Vertical axis (1)	Primary	▼
> <input type="checkbox"/> Vert. animation (1)	1.000	
<input type="checkbox"/> Clip object_ (1)	<input checked="" type="checkbox"/>	
> <input type="checkbox"/> Curve trim start (1)	0.0000	
> <input type="checkbox"/> Curve trim end (1)	1.0000	
<input type="checkbox"/> Trim source (1)	H-value	▼
> <input type="checkbox"/> Y-intersect (1)	0.000	
<input type="checkbox"/> Above color (1)	<span style="background-color: red; color: black;"> </span>	
> <input type="checkbox"/> Above opacity (1)	1.000	
<input type="checkbox"/> Below color (1)	<span style="background-color: blue; color: black;"> </span>	
> <input type="checkbox"/> Below opacity (1)	1.000	
> <input type="checkbox"/> X-offset (1)	0.000	
> <input type="checkbox"/> Y-offset (1)	0.000	
<input type="checkbox"/> Offset space (1)	Chart	▼
		Duplicate
		DELETE

You can choose different colors to be shown above or below the **Y-intersect**.

## 9.5 Label



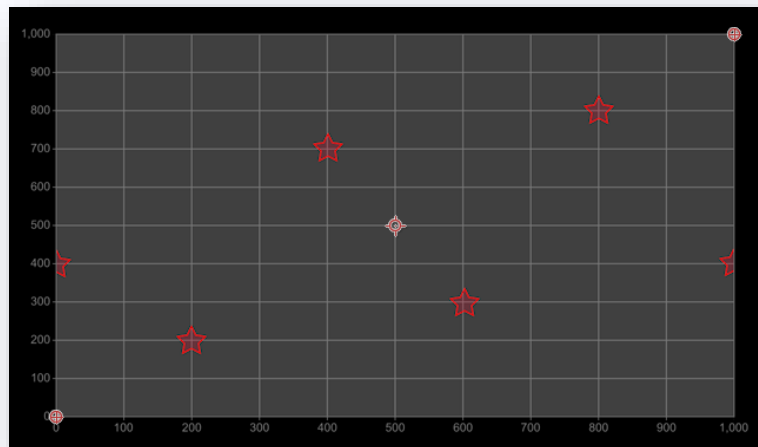
The Label object type lets you draw labels at the coordinates defined by your data.



As with the Curve object type, you can choose horizontal and vertical data using the data dropdowns. There is also a dropdown to choose the source of the label's text or values.

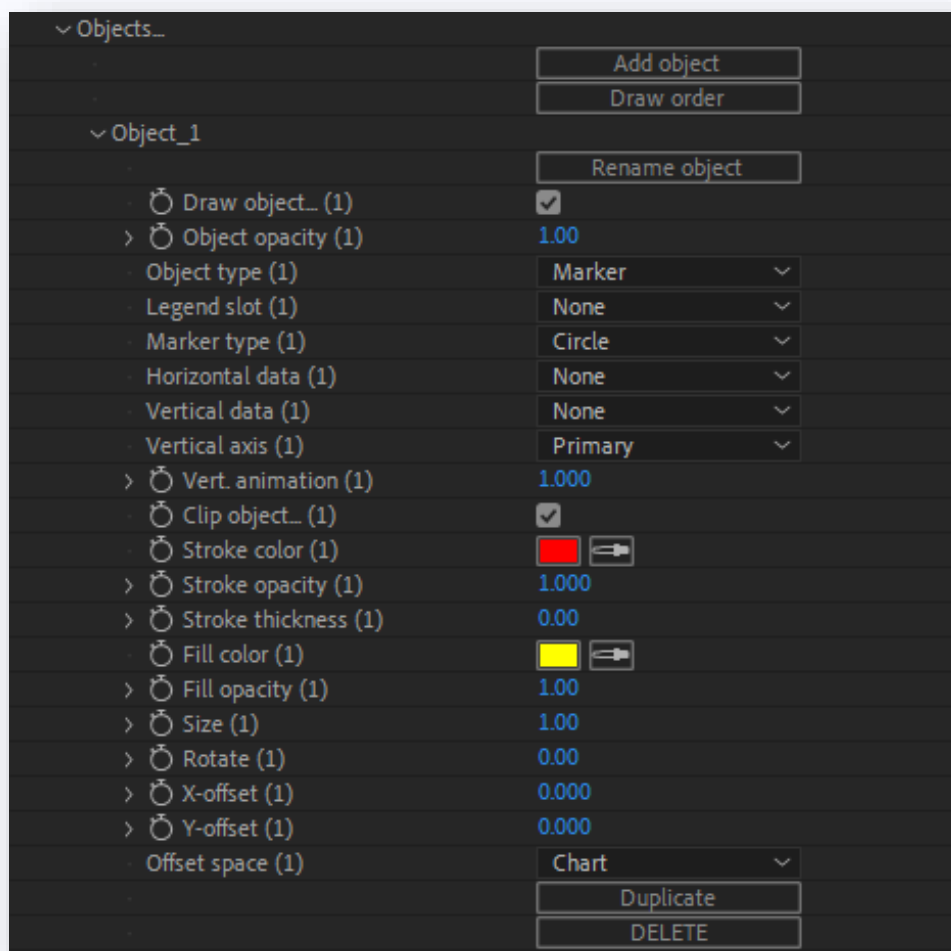
You can then define the display properties of the labels using the **Label font** and **Label background** topics. These properties are described in sections **Font 5.2.1.7.1.1** and **Background 5.2.1.7.1.2**.

## 9.6 Marker

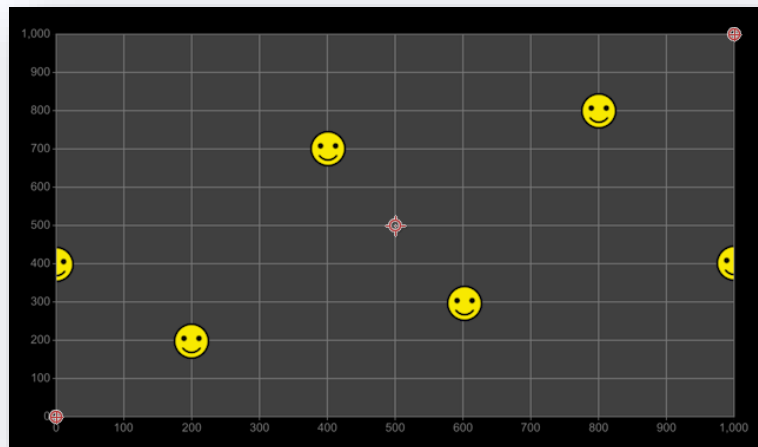


The Marker object type lets you put markers at the coordinates supplied by the Horizontal and Vertical data dropdowns.

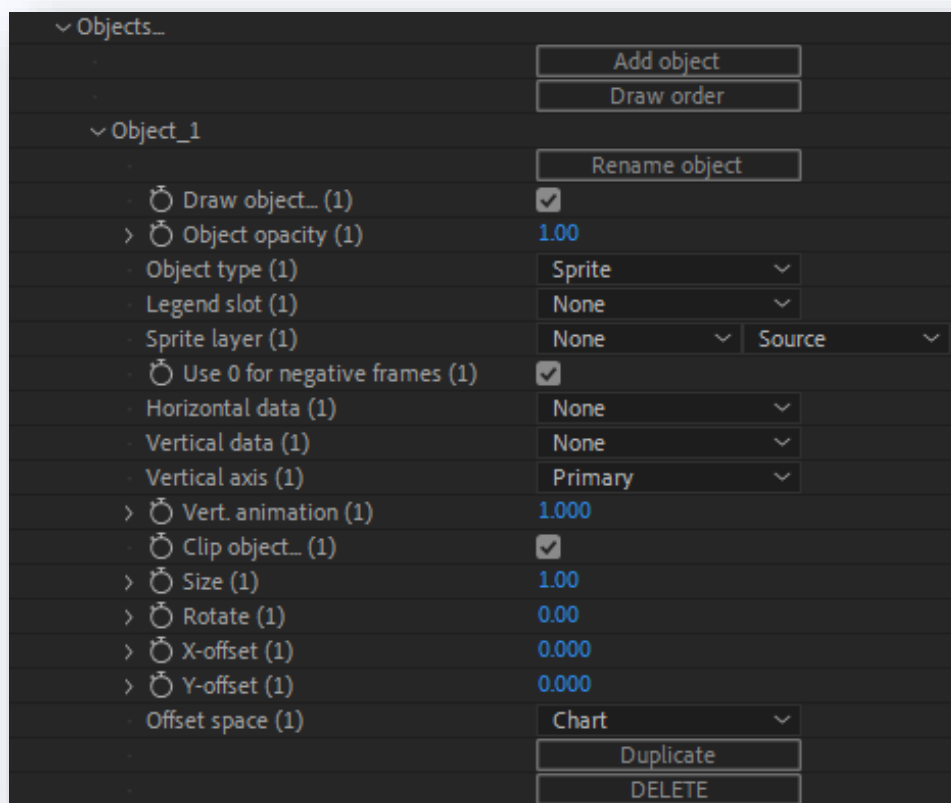
The Marker type parameter lets you choose the shape. You can select outline and fill properties.



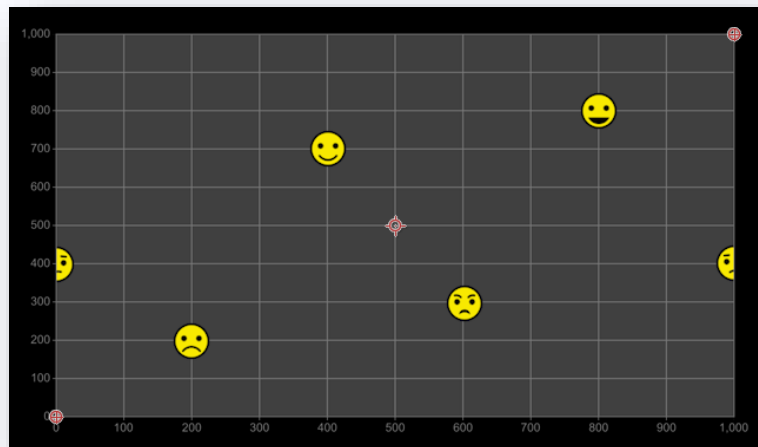
## 9.7 Sprite



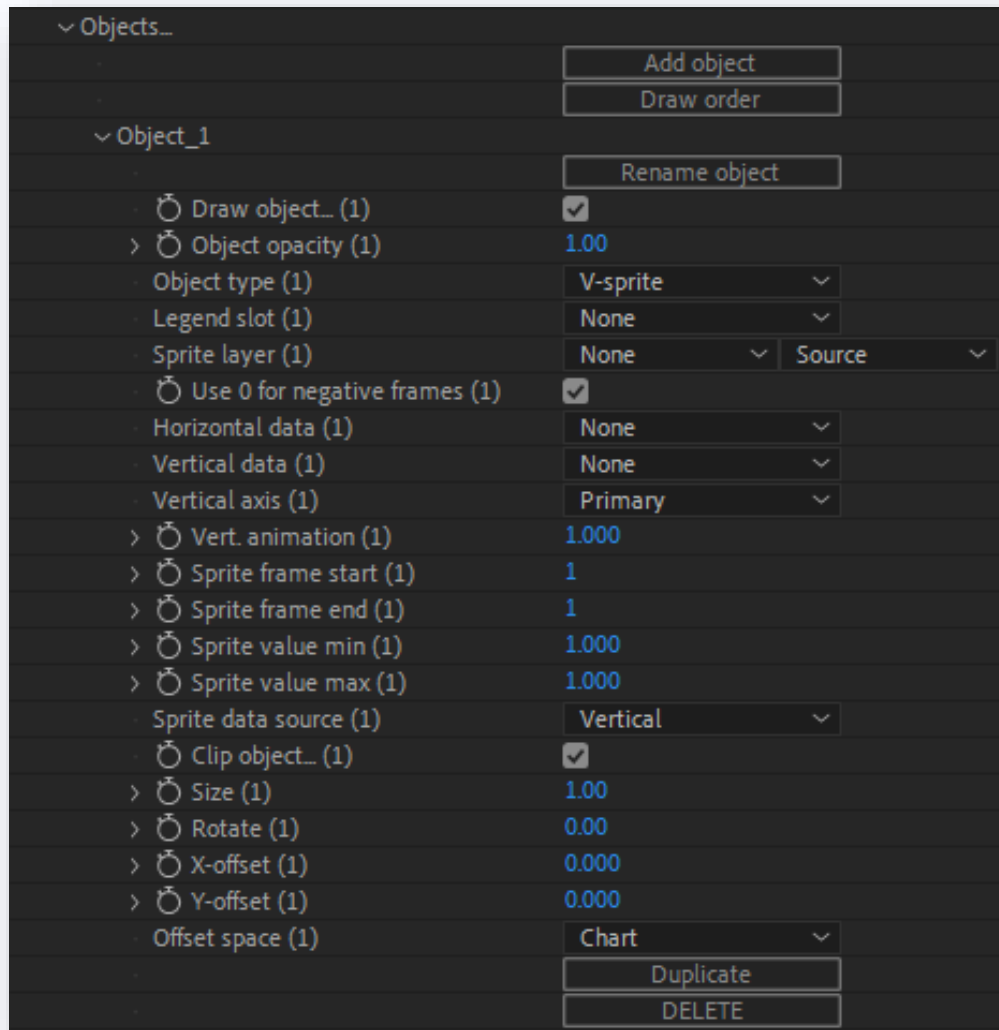
The Sprite object type is similar to the Marker object type, but lets you use another layer as the source of the marker. You can choose animated or still layers or other compositions as the source.



## 9.8 V-sprite



The V-sprite object is similar to the Sprite type. Vsprite let's you chose which frame of an animated source layer to use, based on one of the other data inputs (horizontal or vertical).



The **Sprite frame start** and **Sprite frame end** parameters define the range of animation that you want to map to the values **Sprite value min** and **Sprite value max**. For example, if you have 10 frames in your video, and you want to map the frames in the source to vertical data which ranges between 20 and 80, the parameters might be:

**Sprite frame start: 1**

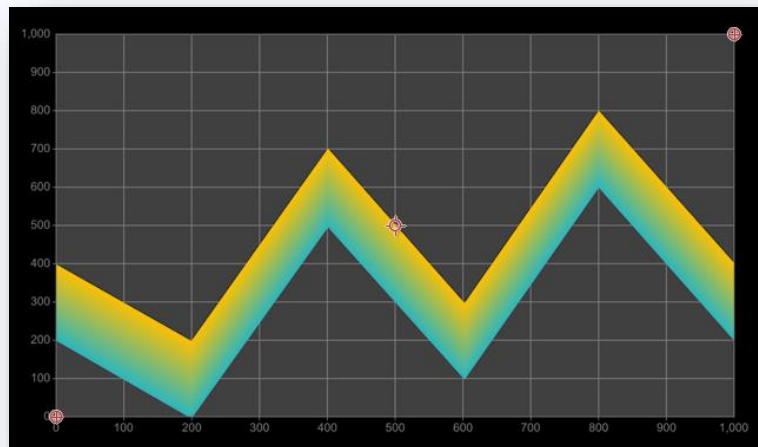
**Sprite frame end: 10**

**Sprite value min: 20**

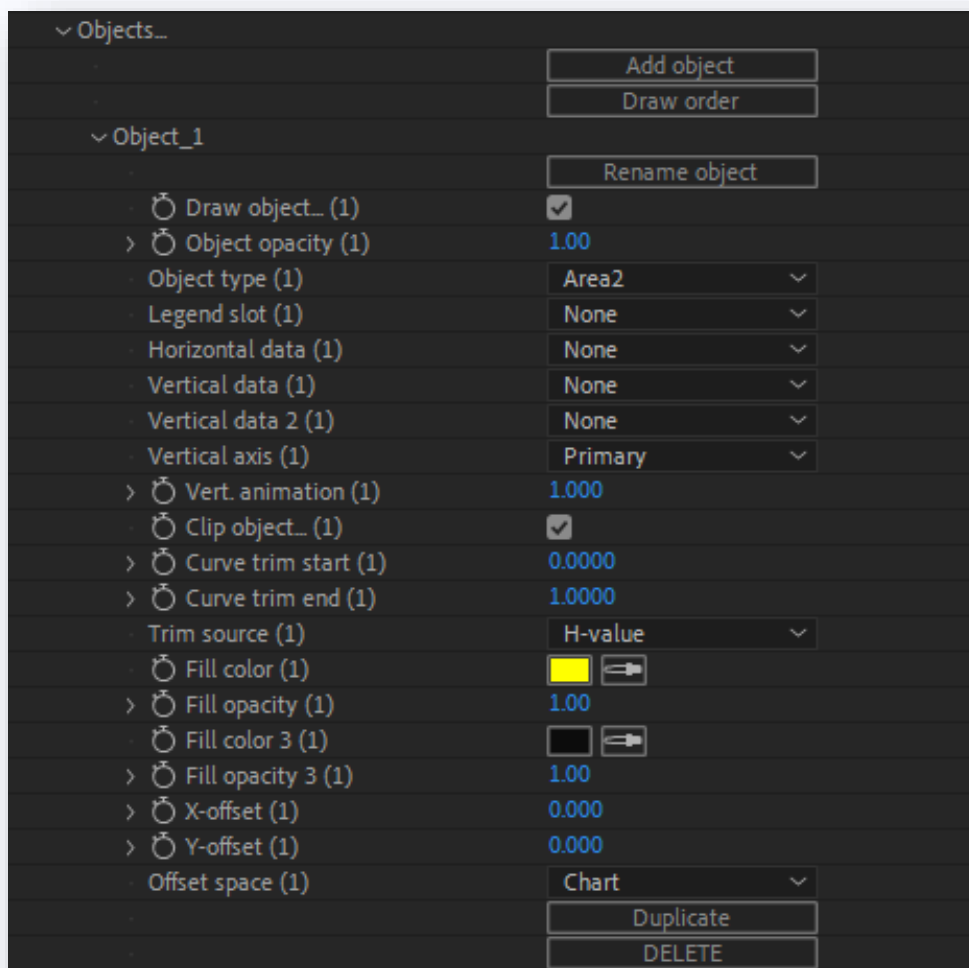
**Sprite value max: 80**



## 9.9 Area2

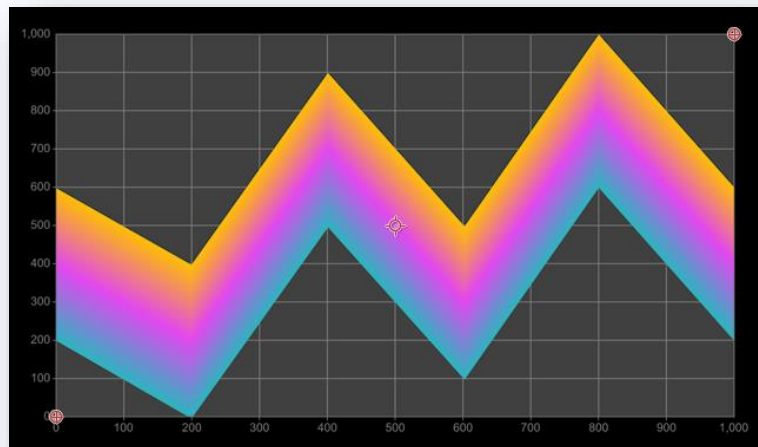


The Area2 object type lets you draw an area defined by two curves – one source of horizontal data and two sources of vertical data. All three data series must be the same length.

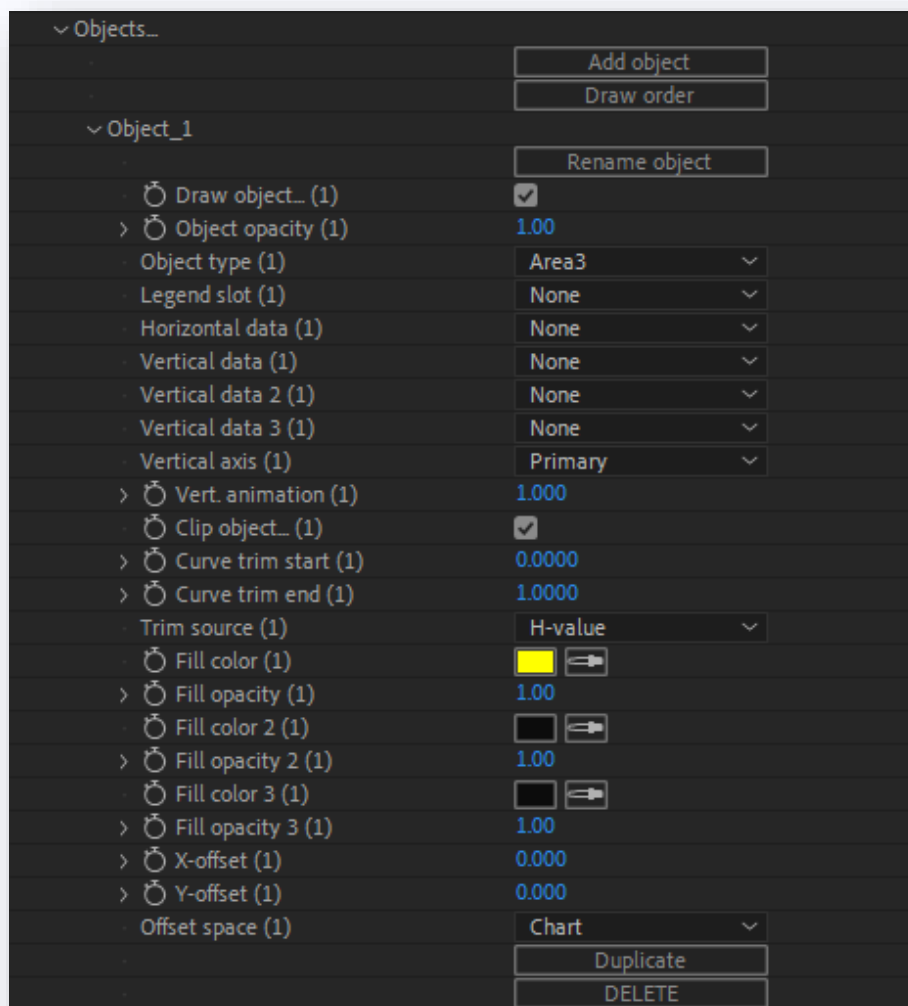


DLC produces a gradient between the two lines' colors.

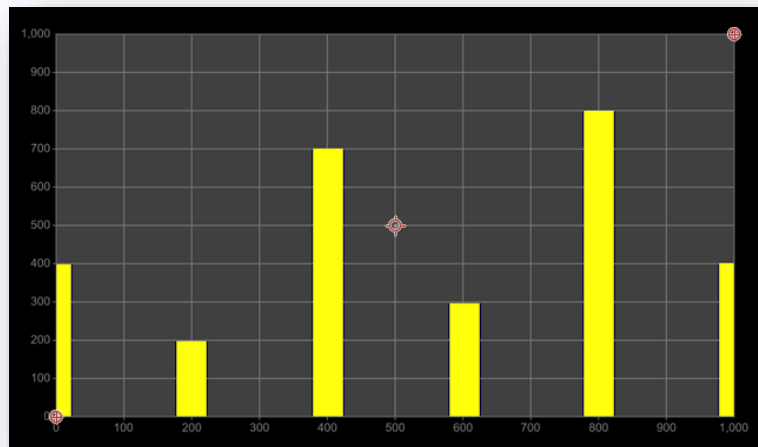
## 9.10 Area3



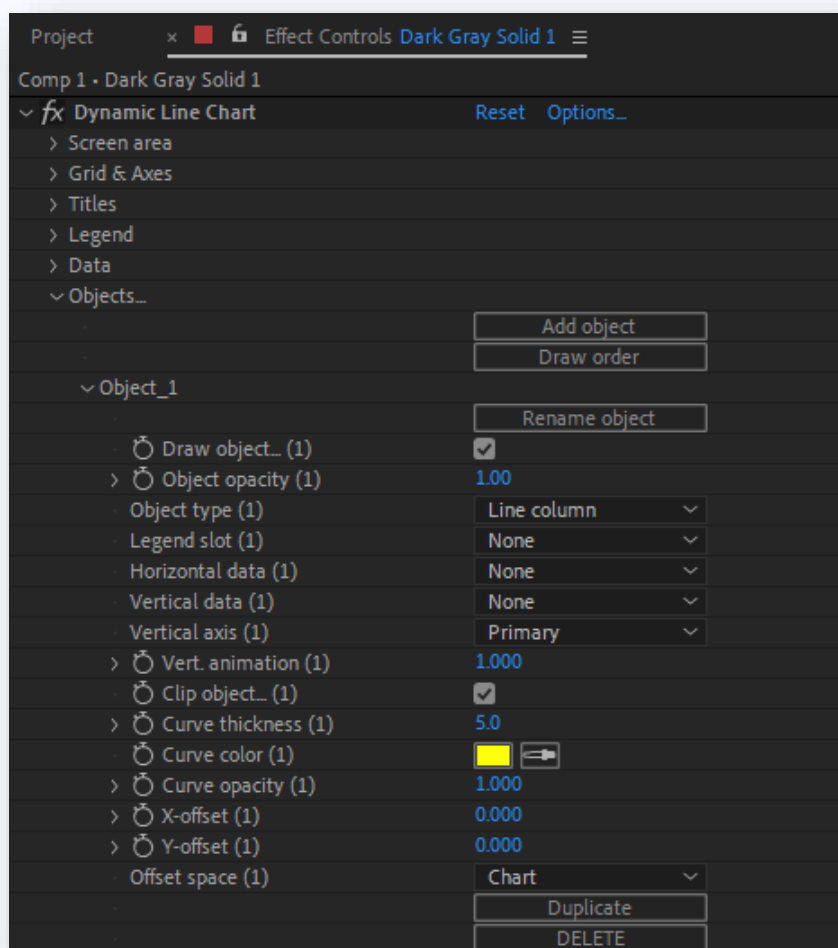
The Area3 object type is similar to the Area2 type, but allows you to use three data sources, and produces a gradient between three colors.



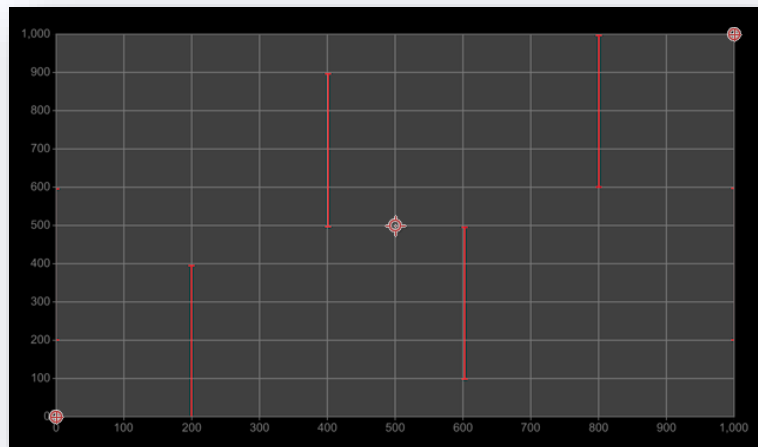
## 9.11 Line column



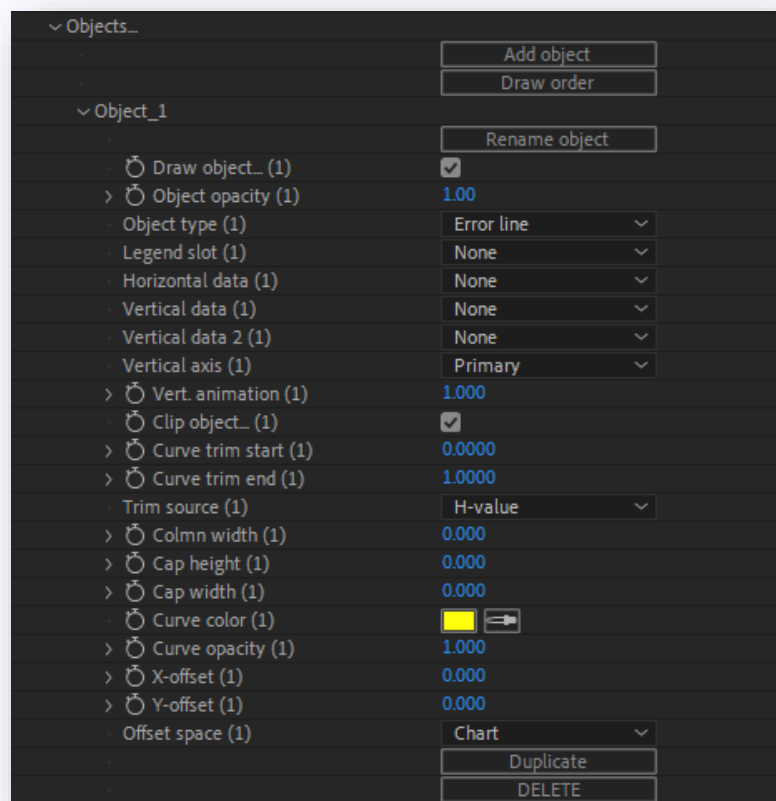
The Line column object type draws thick bars from 0 to the values in **Vertical data**.



## 9.12 Error line

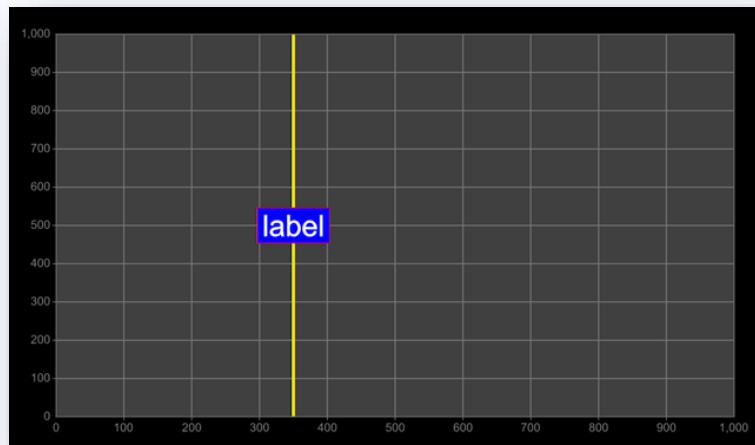


The Error line object draws vertical lines between the points described by the Vertical data parameters. These lines are often used in charts to depict ranges such as confidence intervals.

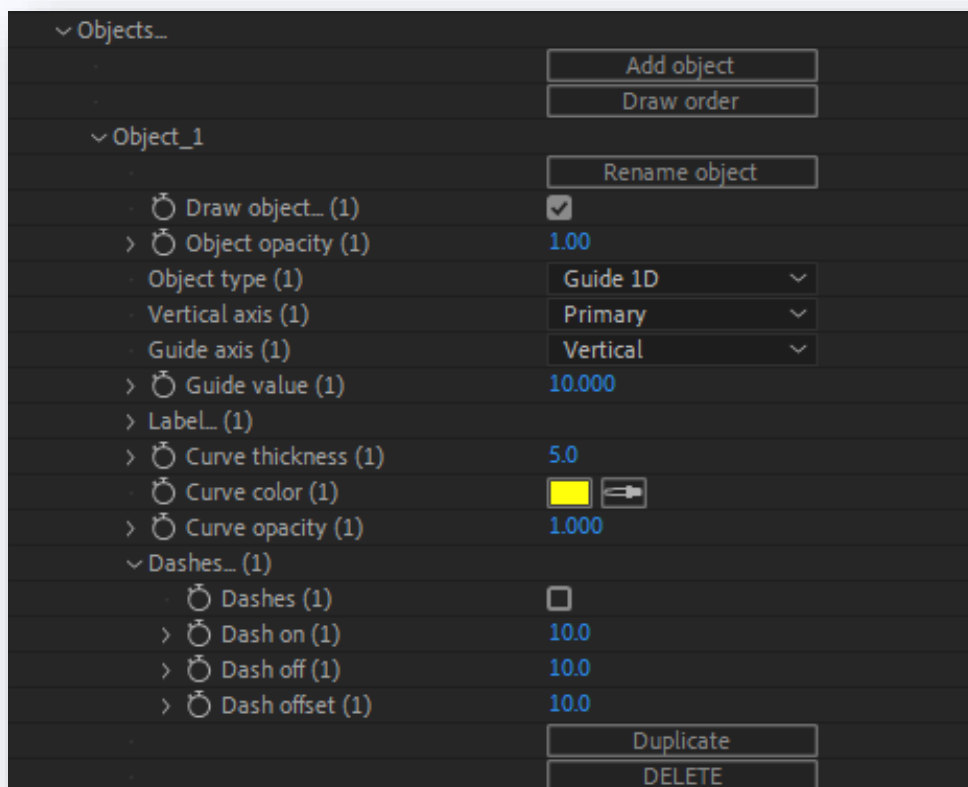


You can add a cap, using the **Cap height** and **Cap width** parameters.

### 9.13 Guide 1D

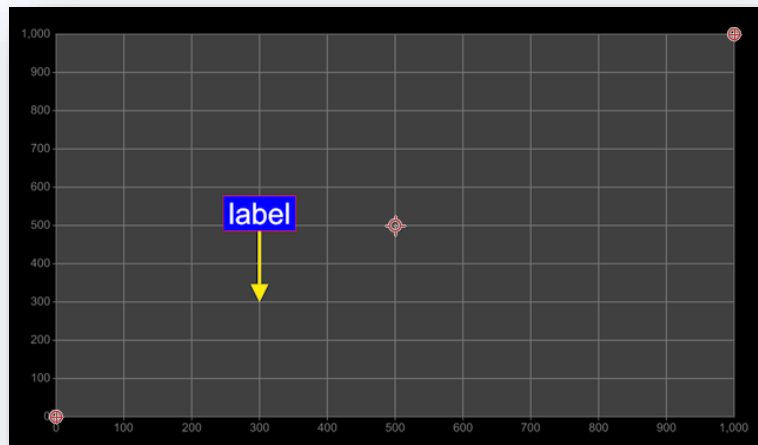


The Guide1D object does not require data input. It lets you draw a horizontal or vertical line through a value set in the **Guide value** parameter, on the chosen axis. You can also add a label.

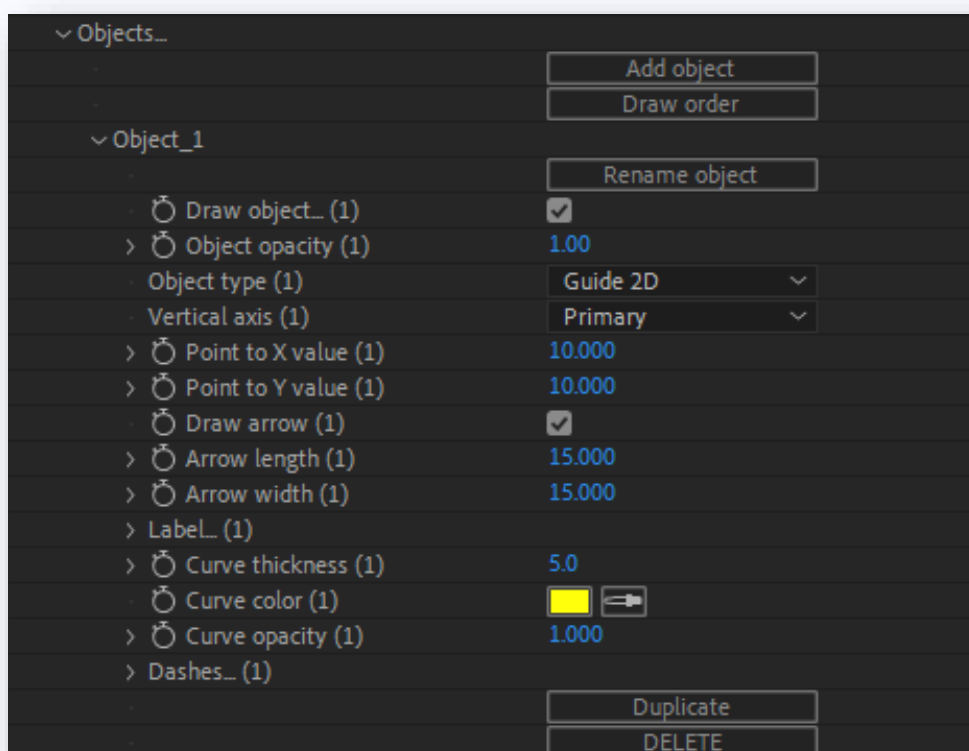


The Label topic contains further **Label font** and **Label background** topics. These parameters are described in sections [Font 5.2.1.7.1.1](#) and [Background 5.2.1.7.1.2](#).

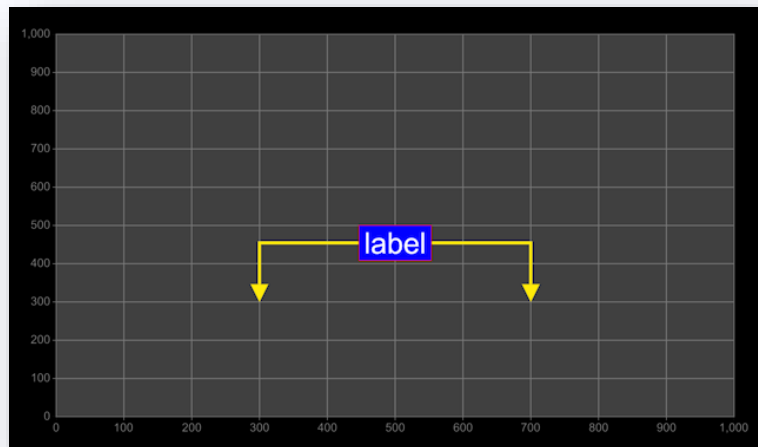
## 9.14 Guide 2D



The Guide 2D object type draws a point defined by the Point to X value and Point to Y value parameters. You can turn the point into an arrow and add a label. The arrow parameters are self-explanatory.



## 9.15 Measure

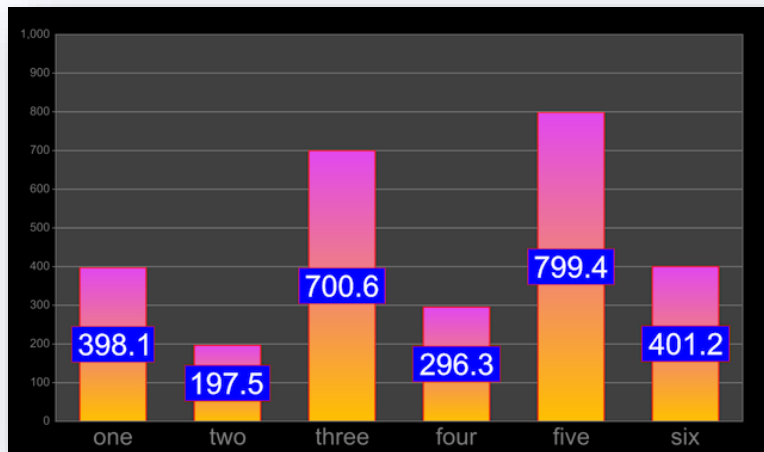


The Measure object type lets you show the distance in chart space between two points, A & B.

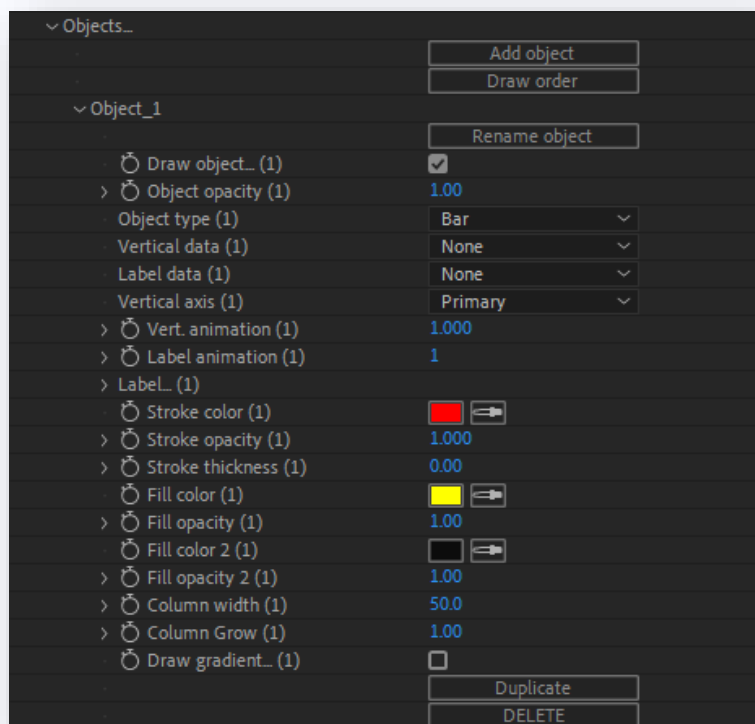
Objects...		Add object
		Draw order
Object_1		Rename object
<input type="checkbox"/> Draw object_ (1)	<input checked="" type="checkbox"/>	
> <input type="checkbox"/> Object opacity (1)	1.00	
Object type (1)	Measure	
Vertical axis (1)	Primary	
Measure points_ (1)		
> <input type="checkbox"/> A X value (1)	10.000	
> <input type="checkbox"/> A Y value (1)	10.000	
> <input type="checkbox"/> B X value (1)	10.000	
> <input type="checkbox"/> B Y value (1)	10.000	
> <input type="checkbox"/> Offset X value (1)	0.000	
> <input type="checkbox"/> Offset Y value (1)	0.000	
> <input type="checkbox"/> Bar offset X (1)	0.000	
> <input type="checkbox"/> Bar offset Y (1)	0.000	
<input type="checkbox"/> Draw arrow (1)	<input checked="" type="checkbox"/>	
> <input type="checkbox"/> Arrow length (1)	15.000	
> <input type="checkbox"/> Arrow width (1)	15.000	
> Label_ (1)		
> <input type="checkbox"/> Curve thickness (1)	5.0	
> <input type="checkbox"/> Curve color (1)	<span style="background-color: yellow; border: 1px solid black; display: inline-block; width: 15px; height: 15px;"></span>	
> <input type="checkbox"/> Curve opacity (1)	1.000	
> Dashes_ (1)		
		Duplicate
		DELETE

You can move the bar away from the line between the two points using **Bar offset X & Y** parameters. You can also add arrows.

## 9.16 Bar



A Bar object type does not take any horizontal data, and draws bars from 0 to the value of each point in the series selected in the **Vertical data** dropdown.



To use a bar chart, you may want to use a text-based horizontal axis. See section [10.5 Change the horizontal axis labels to text rather than numbers](#) for more information.



## 10 How to...

### 10.1 Find Dynamic Line Chart in the menu & create a new chart

- If you do not already have a composition, click **Composition** → **New Composition**.
- With your composition active, click **Layer** → **New** → **Solid**.
- With the new solid selected, click **Effect** → **Beepee** → **Dynamic Line Chart**.

### 10.2 Set up a spreadsheet for exporting to Dynamic Line Chart

In your spreadsheet application, such as Excel, make sure your data is arranged in columns. DLC cannot accept data arranged in rows.

DLC reads the cells in each row with a hashtag to discover what information is in the cells beneath. These are marked with hashtags: #ignored, #type and #data.

	A	B	C	D	E
1	#ignored	Write your own comments here			
2	#type	line	line	label	
3	#data	Year	Value	Text	
4		1980	20	One	
5		1985	40	Two	
6		1990	30	Three	
7		1995	60	Four	
8		2000	20	Five	
9		2005	40	Six	
10		2010	30	Seven	
11		2015	10	Eight	
12		2020	30	Nine	
13					

**#ignored** – (e.g. row 1 above) you can write your own notes or comments on a line tagged with #ignored. DLC will ignore it.

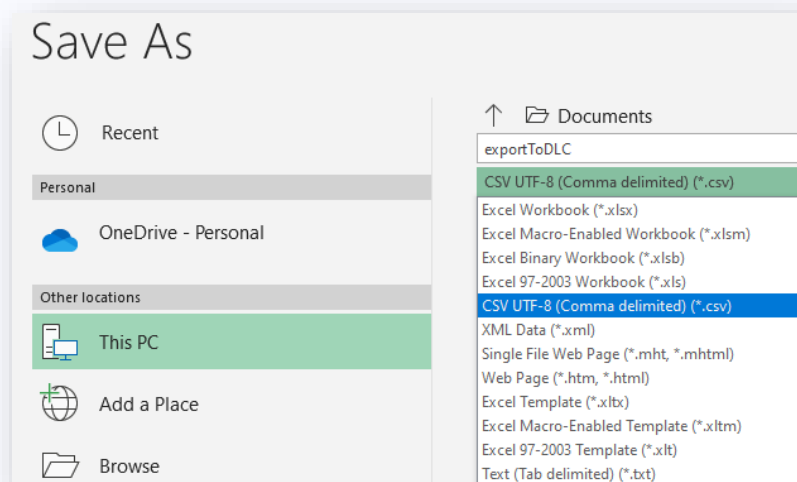
**#type** – in this row (row 2 in the example), you will tell DLC what kind of data is in the column below the cell. There are two types: 'line' and 'label'. A 'line' type means that the column contains numerical data. A 'label' type means that the data in the column is text.

**#data** – this hashtag (row 3) tells DLC that your data begins on this line. The first cell (cells B3, C3 & D3) on the row with the #data hashtag is the name of your data series. A name is required to help you identify your data in DLC. The cells underneath the name are the data.

You can create an animated series of data by giving multiple columns the same name. DLC then reads these columns as sequential 'frames' of animated data. Each column in an animated series must be the same length.

	A	B	C	D	E	F	G
1	#ignored	Write your own comments here					
2	#type	line	line	line	line	line	label
3	#data	Year	Value	Value	Value	Value	Text
4		1980	20	30	10	30	One
5		1985	40	20	30	10	Two
6		1990	30	40	20	30	Three
7		1995	60	30	40	20	Four
8		2000	20	60	30	40	Five
9		2005	40	20	60	30	Six
10		2010	30	40	20	60	Seven
11		2015	10	30	40	20	Eight
12		2020	30	10	30	40	Nine
13							

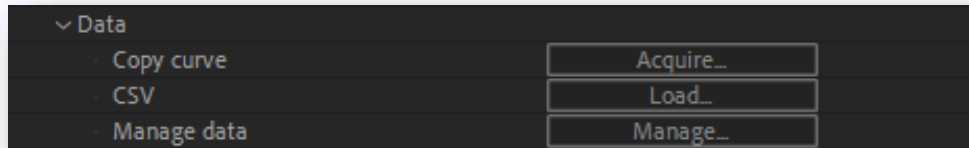
To export your data from Excel, save your sheet as a UTF-8 encoded CSV file. This lets you keep a full character set, such as symbols and non-western type.



Saving from other spreadsheets as a CSV format file is usually already encoded correctly for CSV. If you have problems importing from your spreadsheet application, please raise a support ticket.

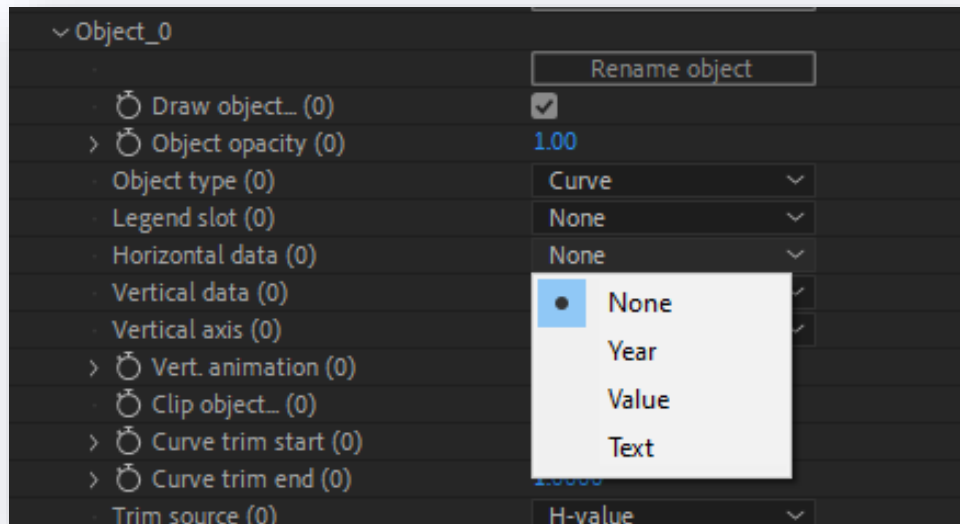
### 10.3 Import data from a .CSV file

Look for the data menu item in the DLC Effect Control Panel.



Click on the 'Load' button next to 'CSV' and navigate to your file.

When your data is loaded, you will be able to select it from data-selection drop-down menu items.



**NB: DLC cannot undo a data import.**

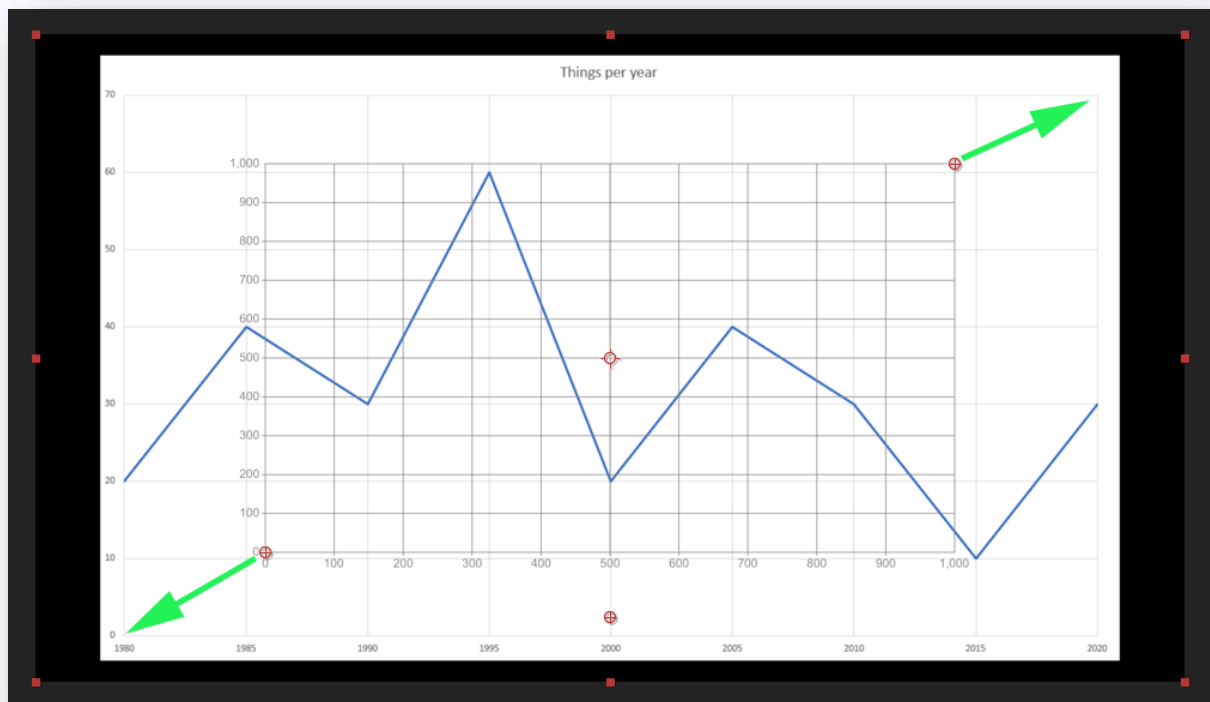
### 10.4 Resample a chart from an image

The other way to bring data into DLC is to resample a chart by tracing its lines.

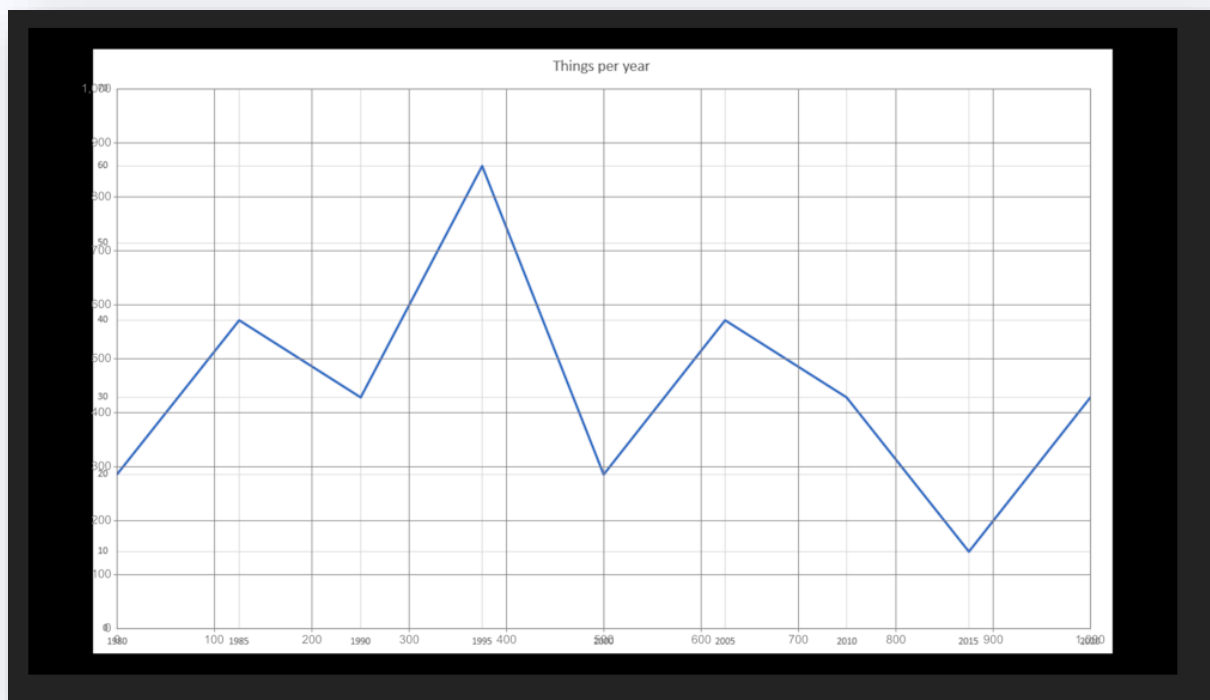
Start by importing the image of the chart you want to copy the data from into After Effects and placing it on your timeline. Make the image large enough that you can accurately copy lines.

Make sure that the chart image is behind the DLC layer. If the chart background is obscuring your chart image, you can turn off DLC's background in **DLC → Screen area → Show background**. Uncheck the checkbox.

Next, use the bottom left and top right handles to match the axes of the DLC chart to the axes of the image. You can zoom in to help you match the axes more accurately.



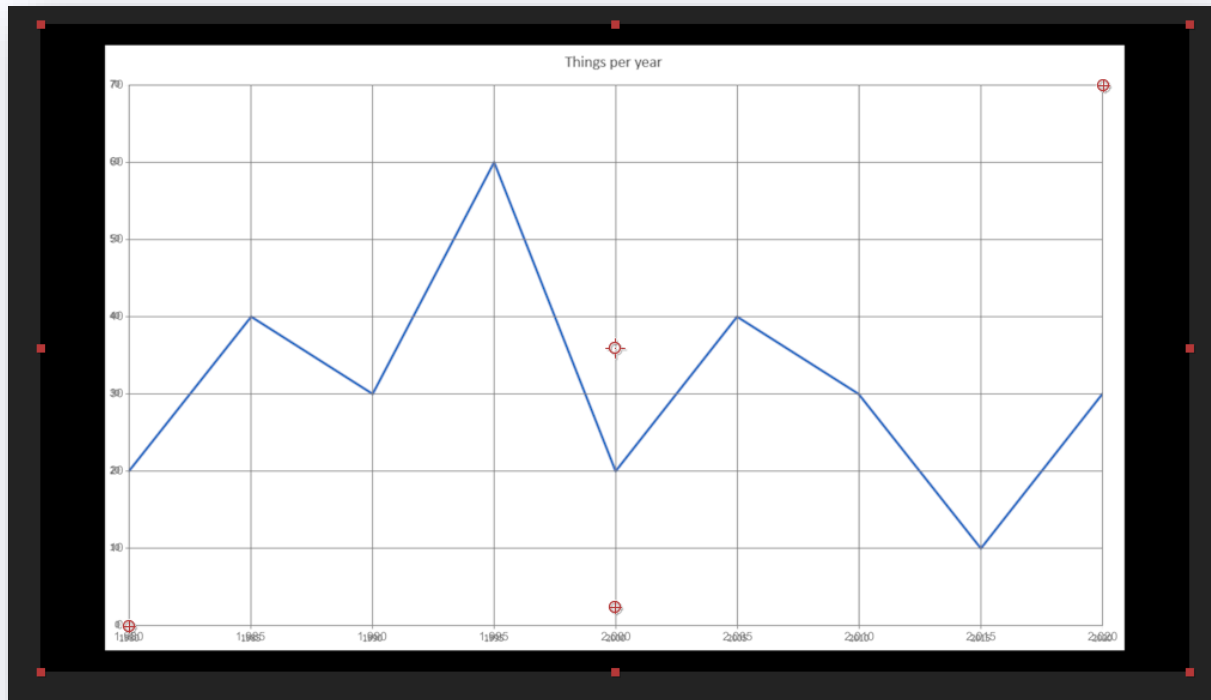
Now you have matched your axis, you can now match the numbers on each chart's axis.



For the X-axis, navigate to **DLC** → **Grid & axes** → **X-axis** → **X-axis dimensions** and set the min and max X axis dimensions.

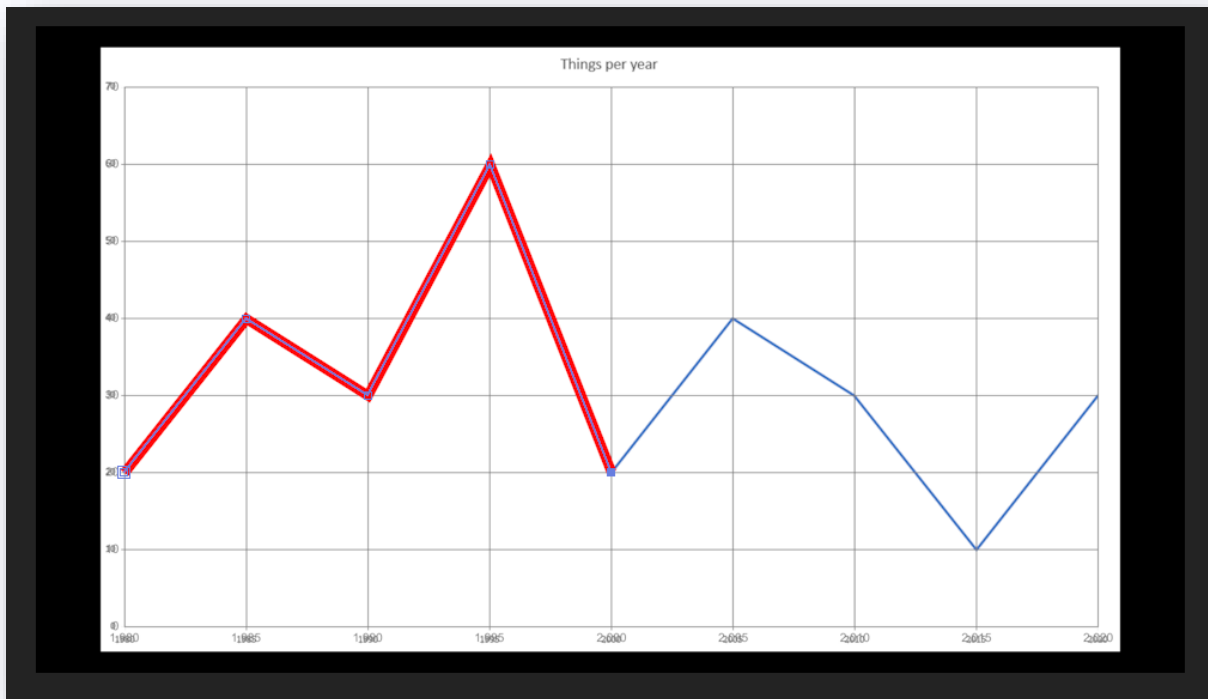
For the Y-axis, navigate to **DLC** → **Grid & axes** → **Y-axis** → **Y-axis dimensions** and set the min and max Y axis dimensions.

You may also want to match the 'Step' parameter to adjust the grid lines.



To match the curve on the chart, create a new shape layer and make sure it is above the DLC layer.

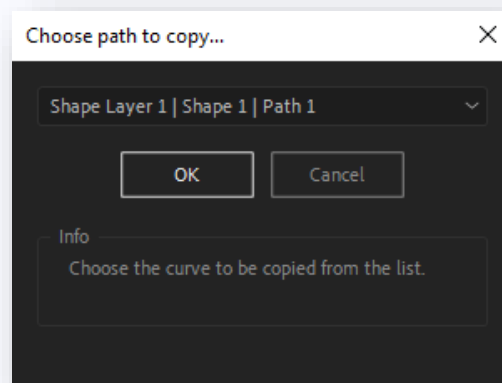
Select the Pen Tool (press G) and begin tracing the curve.



When you have finished, you may wish to rename the path in your shape layer so that it is easier to identify later on.

You can now hide the Shape and image layers, leaving only the DLC layer visible.

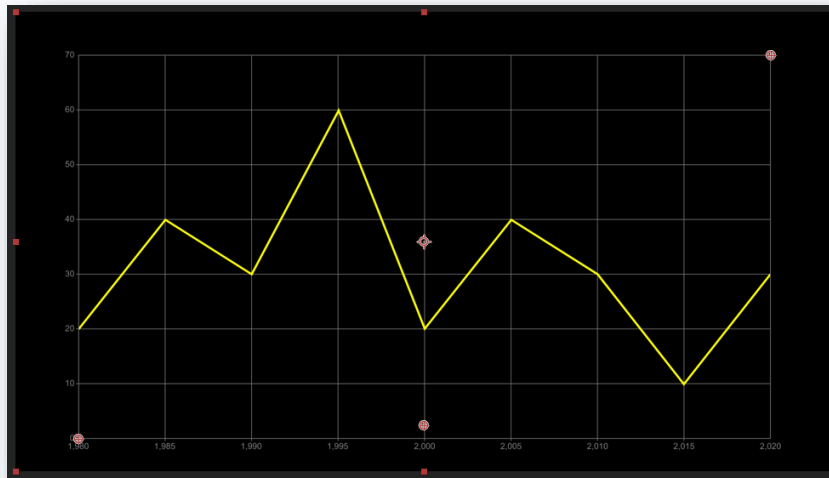
To resample the curve, click **DLC** → **Data** → **Copy** → **curve Acquire**. This will bring up a new dialogue:



The dropdown will show all the paths in the composition. If there is only one path in the composition, there will be only one choice. Choose your path and click ok.

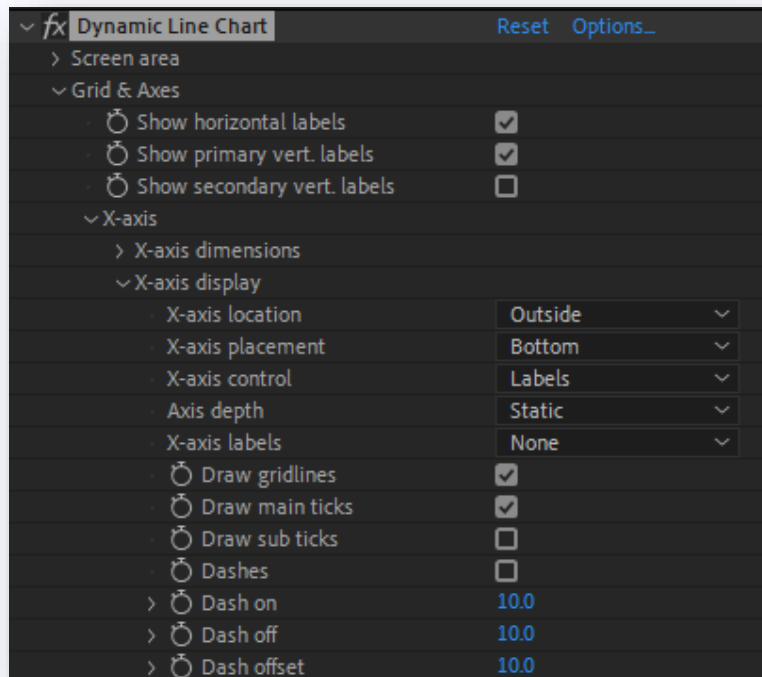
DLC will now resample the line, based on the min and max axis parameters you set.

You can now check your data by adding a new curve object in DLC. The data dropdowns will contain your sampled chart. You can change the dimensions of your chart to your preferences, and the data will remain true relative to the axes.

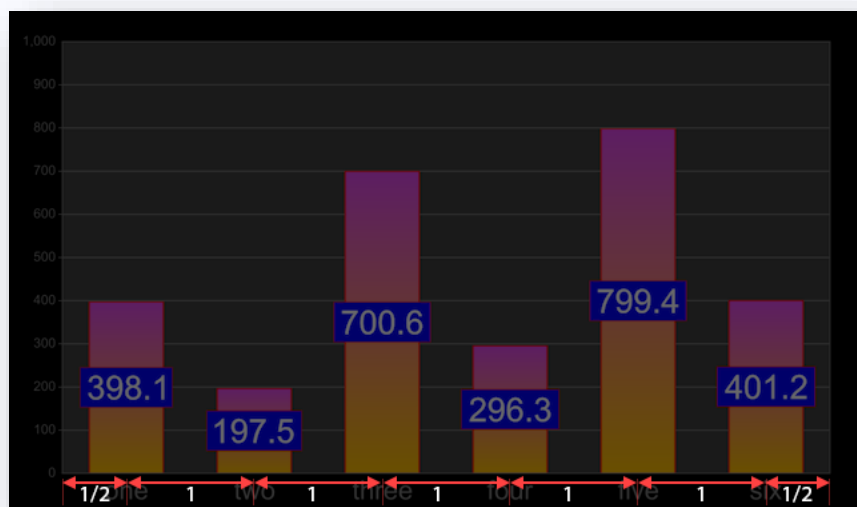


## 10.5 Change the horizontal axis labels to text rather than numbers

**NB: THE FUNCTIONALITY DESCRIBED IN THIS SECTION HAS CHANGED SINCE VERSION 1.04.** You might not want to use numbers for the axis labels. For example, you might prefer to use the months of the year. In this case, you can import a CSV file with your labels. (See the [section 10.3 Import data from a .CSV file](#) for more information).



To make text axis labels, go to **DLC** → **Grid & axes** → **X-axis** → **X-axis display** and change the **X-axis control** dropdown to labels. Then chose the data series with your labels in from the **X-axis labels** dropdown.





If **DLC** → **Grid & axes** → **X-axis** → **X-axis display** → **Axis depth** is set to 'Static', DLC will place the labels on the horizontal axis at equal intervals. The distance between the first label and the chart area's left edge will be half the distance between labels.

Even when the horizontal axis is set to show text, DLC will still use the numerical horizontal axis parameters to decide where to draw objects. So to show an object, your object should use a horizontal data source that matches the horizontal axis Min and Max parameters, just as you would if you were using an axis with numerical labels. You can easily switch between numerical and text labels in **DLC** → **Grid & axes** → **X-axis** → **X-axis display** using the **X-axis labels** dropdown parameter.

The exception to this is the Bar type, which doesn't take a horizontal data. Instead, DLC generates horizontal coordinates for the bars based on the number of items in the vertical data, and places them on the axis in the same way as it generates text-based axis labels. So if you want a bar chart with labels on the horizontal axis that correspond to the bars, the text labels data series should have the same number of entries as the vertical data series.

**NEW FUNCTION.** If **DLC** → **Grid & axes** → **X-axis** → **X-axis display** → **Axis depth** can now be set to 'Dynamic' for text-labels. It doesn't work in the same way as numerical axis-labels (i.e. 'zooming' into new depth), but does allow the labels to be constrained to positions on the X-axis.

In this mode, X-axis labels will begin with an X-value of 1 and increase by one for each element in the data. So if you have 10 points in your data, 1-10, and set the min & max of the axis to 1 & 5, the points 6-10 will be off-screen (depending on axis label fade settings).

## 10.6 Make a full screen chart

By default, DLC creates a chart that occupies 60% of the screen on each axis, with axis labels on the outside of the chart area.

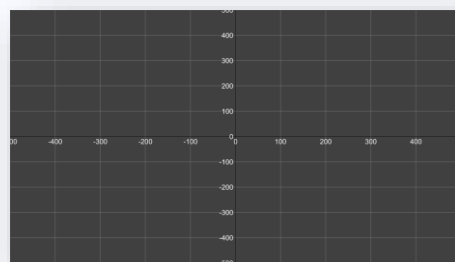
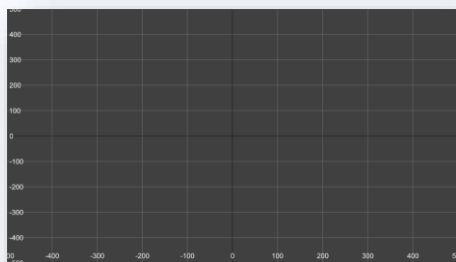
To make a full screen chart, the top right and bottom left corners of the chart drawing area can be dragged to the corners of the composition. Alternatively, the screen dimensions can be altered in **DLC → screen area → Top right** and **Bottom left**.

**NB:** in After Effects' screen space, vertical coordinates increase from top to bottom – so zero is at the top of the screen.

So to make the chart full screen for a 1920 x 1080 composition, set

- **DLC → screen area → Top right** to 1920, 0
- **DLC → screen area → Bottom left** to 0, 1080

The axes' labels are now outside the chart and screen area. They can be moved inside the chart area, and placed next to the edges, or they can be placed next to the axes' origins.



To move the axes' labels to the inside the chart area:

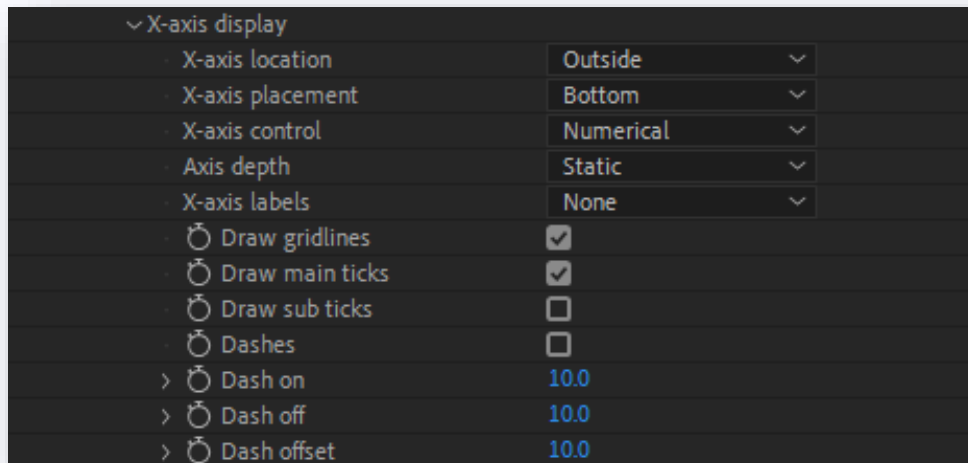
- Set **DLC → Grid & axes → X-axis → X-axis display → X-axis location** to 'inside'.
- Adjust **DLC → Grid & axes → X-axis → X-axis labels → Offset** to move the horizontal labels.
- Set **DLC → Grid & axes → Y-axis → Y-axis display → Y-axis location** to 'inside'.
- Adjust **DLC → Grid & axes → Y-axis → Y-axis labels → Offset** to move the horizontal labels.

To move the axes' labels to the origins:

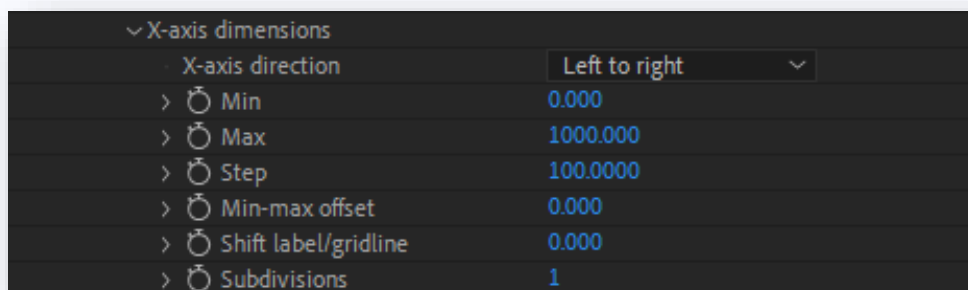
- Set **DLC → Grid & axes → X-axis → X-axis display → X-axis location** to 'On axis'.
- Adjust **DLC → Grid & axes → X-axis → X-axis labels → Offset** to move the horizontal labels.
- Set **DLC → Grid & axes → Y-axis → Y-axis display → Y-axis location** to 'left' or 'right', depending on which side of the origin you want the labels to be.
- Adjust **DLC → Grid & axes → Y-axis → Y-axis labels → Offset** to move the horizontal labels.

## 10.7 Add dynamic grid depth

In Dynamic axis mode, axis features – grid lines, subdivisions, ticks and labels – are not fixed to locations as they are in static mode. As an axis's dimensions change, a subdivision gridline can fade up from transparent, and then fade into a major gridline. This allows a 'zoom' into a chart, for instance through many orders of magnitude while still showing grid lines at significant intervals.




The axis depth can be chosen in the **DLC → Grid & axes → X-axis → X-axis display → Axis depth**. To make an axis dynamic, change the Axis depth to 'dynamic'.



The main axis parameters are in **DLC → Grid & axes → X-axis → X-axis dimensions**. In dynamic Axis depth mode, the main grid lines and subdivision grid lines are determined by the ratio of the **Step** parameter to the **Subdivisions** parameter. For example, if the Step parameter is 100, and the Subdivisions parameter is set to 10, the ratio is 10, and DLC will try to draw intervals at multiples of ten (and tenths...). 100... 10... 1... 0.1... 0.01...

In order to do this, DLC needs a minimum value (in pixel space) between potential intervals. This is set in the **DLC → Grid & axes → X-axis → X-axis dimensions → Sub distance** parameter. DLC will not try to draw any axis features when the intervals between them are less than this distance.

Subdivisions		
>	Maj distance	100
>	Sub distance	20
>	Sub Width	1.5000
	Sub Color	<input type="color"/> 
>	Sub Opacity	1.000
>	Sub fade in	0.500
>	Sub-maj mix in	0.500

The distance (in pixel space) at which subdivision gridlines become major gridlines is set with the **Maj distance** parameter.

The **Sub fade in** parameter sets how smoothly subdivision gridlines ramp up from fully transparent to maximum opacity as the distance between them increases. At 0, subdivisions will not ramp up, but will be at maximum opacity if the pixel-distance between them equals or exceeds the distance set by the **Sub distance** parameter. If the **Sub fade in** parameter is set to 1, then subdivisions will ramp from fully transparent at **Sub distance** to maximum opacity as the distance between subdivisions reaches half of the pixel distance between the **Maj distance** and **Sub distance** parameters. Put as simply as possible: if you need the subdivisions to ramp in more slowly, increase the **Sub fade in** parameter closer to 1.

Similarly, the **Sub-maj mix in** parameter sets how smoothly subdivisions become major features as the pixel distance between them changes from the **Sub distance** parameter to the Maj distance parameter. **Sub-maj mix in** value of 0 means that there is no ramping between the subdivision properties and the main gridline properties (and axis labels ramp up from transparent to opaque). A **Sub-maj mix in** value of 1 means that the subdivisions begin transitioning from the subdivision's properties to the main gridline's properties when the distance between subdivisions is half the distance between **Maj distance** and **Sub distance**.

While these parameters seem complex in writing, they are simple in practice. Experimenting with zooming chart axes and watching the video guides may be more useful.

## 10.8 Animate data

Some object types let you animate the horizontal and vertical data series. For instance, the Curve object has a **Vert. animation** parameter. This lets you control animation – i.e. which frame of data DLC uses.

To see how to set up data so that it can be animated, see the [section 10.2 Set up a spreadsheet for exporting to Dynamic Line Chart](#).

The value of the **Vert. animation** parameter determines which frame of the data to show: the integer part is the frame, and the non-integer part tells DLC how much to ‘tween’ between the frames. If the value of the **Vert.animation** parameter exceeds the number of frames in the data, then DLC uses the remainder of **Vert.animation/number of frames**.