 [Chart.js](http://docs.google.com/docs/3.9.1/)

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[API](http://docs.google.com/docs/3.9.1/api/)

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Ecosystem Ecosystem

* [Awesome (opens new window)](https://github.com/chartjs/awesome)
* [Slack (opens new window)](https://chartjs-slack.herokuapp.com/)
* [Stack Overflow (opens new window)](https://stackoverflow.com/questions/tagged/chart.js)

[GitHub (opens new window)](https://github.com/chartjs/Chart.js)

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[**#**](#gjdgxs) Linear Axis

The linear scale is used to chart numerical data. It can be placed on either the x or y-axis. The scatter chart type automatically configures a line chart to use one of these scales for the x-axis. As the name suggests, linear interpolation is used to determine where a value lies on the axis.

## [**#**](#30j0zll) Configuration Options

### [**#**](#1fob9te) Linear Axis specific options

Namespace: options.scales[scaleId]

| Name | Type | Description |
| --- | --- | --- |
| beginAtZero | boolean | if true, scale will include 0 if it is not already included. |
| grace | number|string | Percentage (string ending with %) or amount (number) for added room in the scale range above and below data. [more...](#3znysh7) |

### [**#**](#2et92p0) Common options to all cartesian axes

Namespace: options.scales[scaleId]

| Name | Type | Default | Description |
| --- | --- | --- | --- |
| bounds | string | 'ticks' | Determines the scale bounds. [more...](http://docs.google.com/docs/3.9.1/axes/cartesian/#scale-bounds) |
| position | string | object |  | Position of the axis. [more...](http://docs.google.com/docs/3.9.1/axes/cartesian/#axis-position) |
| stack | string |  | Stack group. Axes at the same position with same stack are stacked. |
| stackWeight | number | 1 | Weight of the scale in stack group. Used to determine the amount of allocated space for the scale within the group. |
| axis | string |  | Which type of axis this is. Possible values are: 'x', 'y'. If not set, this is inferred from the first character of the ID which should be 'x' or 'y'. |
| offset | boolean | false | If true, extra space is added to the both edges and the axis is scaled to fit into the chart area. This is set to true for a bar chart by default. |
| title | object |  | Scale title configuration. [more...](http://docs.google.com/docs/3.9.1/axes/labelling.html#scale-title-configuration) |

### [**#**](#tyjcwt) Common options to all axes

Namespace: options.scales[scaleId]

| Name | Type | Default | Description |
| --- | --- | --- | --- |
| type | string |  | Type of scale being employed. Custom scales can be created and registered with a string key. This allows changing the type of an axis for a chart. |
| alignToPixels | boolean | false | Align pixel values to device pixels. |
| backgroundColor | [Color](http://docs.google.com/docs/3.9.1/general/colors.html) |  | Background color of the scale area. |
| display | boolean|string | true | Controls the axis global visibility (visible when true, hidden when false). When display: 'auto', the axis is visible only if at least one associated dataset is visible. |
| grid | object |  | Grid line configuration. [more...](http://docs.google.com/docs/3.9.1/axes/styling.html#grid-line-configuration) |
| min | number |  | User defined minimum number for the scale, overrides minimum value from data. [more...](http://docs.google.com/docs/3.9.1/axes/#axis-range-settings) |
| max | number |  | User defined maximum number for the scale, overrides maximum value from data. [more...](http://docs.google.com/docs/3.9.1/axes/#axis-range-settings) |
| reverse | boolean | false | Reverse the scale. |
| stacked | boolean|string | false | Should the data be stacked. [more...](http://docs.google.com/docs/3.9.1/axes/#stacking) |
| suggestedMax | number |  | Adjustment used when calculating the maximum data value. [more...](http://docs.google.com/docs/3.9.1/axes/#axis-range-settings) |
| suggestedMin | number |  | Adjustment used when calculating the minimum data value. [more...](http://docs.google.com/docs/3.9.1/axes/#axis-range-settings) |
| ticks | object |  | Tick configuration. [more...](http://docs.google.com/docs/3.9.1/axes/#tick-configuration) |
| weight | number | 0 | The weight used to sort the axis. Higher weights are further away from the chart area. |

## [**#**](#3dy6vkm) Tick Configuration

### [**#**](#1t3h5sf) Linear Axis specific tick options

Namespace: options.scales[scaleId].ticks

| Name | Type | Scriptable | Default | Description |
| --- | --- | --- | --- | --- |
| count | number | Yes | undefined | The number of ticks to generate. If specified, this overrides the automatic generation. |
| format | object | Yes |  | The [Intl.NumberFormat (opens new window)](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Intl/NumberFormat) options used by the default label formatter |
| precision | number | Yes |  | if defined and stepSize is not specified, the step size will be rounded to this many decimal places. |
| stepSize | number | Yes |  | User-defined fixed step size for the scale. [more...](#4d34og8) |

### [**#**](#2s8eyo1) Common tick options to all cartesian axes

Namespace: options.scales[scaleId].ticks

| Name | Type | Default | Description |
| --- | --- | --- | --- |
| align | string | 'center' | The tick alignment along the axis. Can be 'start', 'center', 'end', or 'inner'. inner alignment means align start for first tick and end for the last tick of horizontal axis |
| crossAlign | string | 'near' | The tick alignment perpendicular to the axis. Can be 'near', 'center', or 'far'. See [Tick Alignment](http://docs.google.com/docs/3.9.1/axes/cartesian/#tick-alignment) |
| sampleSize | number | ticks.length | The number of ticks to examine when deciding how many labels will fit. Setting a smaller value will be faster, but may be less accurate when there is large variability in label length. |
| autoSkip | boolean | true | If true, automatically calculates how many labels can be shown and hides labels accordingly. Labels will be rotated up to maxRotation before skipping any. Turn autoSkip off to show all labels no matter what. |
| autoSkipPadding | number | 3 | Padding between the ticks on the horizontal axis when autoSkip is enabled. |
| includeBounds | boolean | true | Should the defined min and max values be presented as ticks even if they are not "nice". |
| labelOffset | number | 0 | Distance in pixels to offset the label from the centre point of the tick (in the x-direction for the x-axis, and the y-direction for the y-axis). *Note: this can cause labels at the edges to be cropped by the edge of the canvas* |
| maxRotation | number | 50 | Maximum rotation for tick labels when rotating to condense labels. Note: Rotation doesn't occur until necessary. *Note: Only applicable to horizontal scales.* |
| minRotation | number | 0 | Minimum rotation for tick labels. *Note: Only applicable to horizontal scales.* |
| mirror | boolean | false | Flips tick labels around axis, displaying the labels inside the chart instead of outside. *Note: Only applicable to vertical scales.* |
| padding | number | 0 | Padding between the tick label and the axis. When set on a vertical axis, this applies in the horizontal (X) direction. When set on a horizontal axis, this applies in the vertical (Y) direction. |
| maxTicksLimit | number | 11 | Maximum number of ticks and gridlines to show. |

### [**#**](#17dp8vu) Common tick options to all axes

Namespace: options.scales[scaleId].ticks

| Name | Type | Scriptable | Default | Description |
| --- | --- | --- | --- | --- |
| backdropColor | [Color](http://docs.google.com/docs/3.9.1/general/colors.html) | Yes | 'rgba(255, 255, 255, 0.75)' | Color of label backdrops. |
| backdropPadding | [Padding](http://docs.google.com/docs/3.9.1/general/padding.html) |  | 2 | Padding of label backdrop. |
| callback | function |  |  | Returns the string representation of the tick value as it should be displayed on the chart. See [callback](http://docs.google.com/docs/3.9.1/axes/labelling.html#creating-custom-tick-formats). |
| display | boolean |  | true | If true, show tick labels. |
| color | [Color](http://docs.google.com/docs/3.9.1/general/colors.html) | Yes | Chart.defaults.color | Color of ticks. |
| font | Font | Yes | Chart.defaults.font | See [Fonts](http://docs.google.com/docs/3.9.1/general/fonts.html) |
| major | object |  | {} | [Major ticks configuration](http://docs.google.com/docs/3.9.1/axes/styling.html#major-tick-configuration). |
| padding | number |  | 3 | Sets the offset of the tick labels from the axis |
| showLabelBackdrop | boolean | Yes | true for radial scale, false otherwise | If true, draw a background behind the tick labels. |
| textStrokeColor | [Color](http://docs.google.com/docs/3.9.1/general/colors.html) | Yes | `` | The color of the stroke around the text. |
| textStrokeWidth | number | Yes | 0 | Stroke width around the text. |
| z | number |  | 0 | z-index of tick layer. Useful when ticks are drawn on chart area. Values <= 0 are drawn under datasets, > 0 on top. |

## [**#**](#4d34og8) Step Size

If set, the scale ticks will be enumerated by multiple of stepSize, having one tick per increment. If not set, the ticks are labeled automatically using the nice numbers algorithm.

This example sets up a chart with a y axis that creates ticks at 0, 0.5, 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5.

let options = {  
 scales: {  
 y: {  
 max: 5,  
 min: 0,  
 ticks: {  
 stepSize: 0.5  
 }  
 }  
 }  
};

## [**#**](#3znysh7) Grace

If the value is string ending with %, its treat as percentage. If number, its treat as value. The value is added to the maximum data value and subtracted from the minimum data. This extends the scale range as if the data values were that much greater.

config setup

const config = { type: 'bar', data, options: { scales: { y: { type: 'linear', grace: '5%' } }, plugins: { legend: false } } };

const config = {  
 type: 'bar',  
 data,  
 options: {  
 scales: {  
 y: {  
 type: 'linear',  
 grace: '5%'  
 }  
 },  
 plugins: {  
 legend: false  
 }  
 }  
};

const labels = Utils.months({count: 7}); const data = { labels: ['Positive', 'Negative'], datasets: [{ data: [100, -50], backgroundColor: 'rgb(255, 99, 132)' }], };

const labels = Utils.months({count: 7});  
const data = {  
 labels: ['Positive', 'Negative'],  
 datasets: [{  
 data: [100, -50],  
 backgroundColor: 'rgb(255, 99, 132)'  
 }],  
};

## [**#**](#3rdcrjn) Internal data format

Internally, the linear scale uses numeric data

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←  [Category Axis](http://docs.google.com/docs/3.9.1/axes/cartesian/category.html)   [Logarithmic Axis](http://docs.google.com/docs/3.9.1/axes/cartesian/logarithmic.html)  →