CHANGE LOG.

- All notable changes to this project will be documented in this file.
- The format is based on Keep a Changelog, and this project adheres to Semantic Versioning.

[3.0.0] - 2020-05-05

Added:

- *PolarChart*
- *PolarAxisAmplitude*
- *PolarAxisRadial*
- *PolarPoint*
- *PolarPointSeries*
- *PolarLineSeries*
- *PolarPointLineSeries*
- *PolarAreaSeries*
- *PolarPolygonSeries*
- *PolarSector*
- *Logarithmic axis support for XY charts*
- *BoxSeries3D now supports PalettedFill by x, y or z*
- *LineSeries.setDataCleaningThreshold, getDataCleaningThreshold*
- *LineSeries.setCursorSolveBasis, getCursorSolveBasis*
- *PointLineSeries.setCursorSolveBasis, getCursorSolveBasis*
- *SplineSeries.setCursorSolveBasis, getCursorSolveBasis*
- *StepSeries.setCursorSolveBasis, getCursorSolveBasis*
- *UILUTCheckBox*
- *API for Axis mouse and touch events*
- *UITick*
- *UITickBuilder*
- *UIElementBuilders.AxisTick*
- *Configuration options for changing mouse interactions to different mouse buttons*
- *UILegendBoxPanel.setLegendBoxes*
- *NumericTickStrategy.setExtremeFormattingFunction*
- *NumericTickStrategy.setMajorFormattingFunction*
- *NumericTickStrategy.setMinorFormattingFunction*
- *API for subscribing to mouse and touch events on chart background*
- *Dependency to earcut (https://github.com/mapbox/earcut).
  Used for Polygon triangulation.*

[3.0.0] - 2020-05-05

Changed:

- *Attaching a series with color lookup table (LUT) now automatically visualizes the color steps with a LUTUICheckBox component.*
- *LegendBox title is no longer automatically set to match chart title. Title can be set with new method LegendBox.setTitle.*
- *Tweaked LegendBox default style to look a bit nicer.*
- *LegendBox.add API has changed. Refer to migration guide for details.*
- *LegendBoxEntry is now styled accordingly with series PalettedFill.*
- *Nib mouse wheel behavior is now more intuitive*
- *Default style of XY Markers was changed to same as AutoCursor*
- *Renamed CustomTick.setTopPadding -> setTickLabelPadding*
- *Renamed PointableTextBox -> UIPointableTextBox*
- *Major improvements to text rendering performance*
- *Changed default CheckBox button picture to UIButtonPictures.Circle*
- *Renamed ResultTable.setFont to setTextFont*
- *Renamed UITextBox.setFont to setTextFont*
- *Renamed UICheckBox.setFont to setTextFont*
- *Renamed LegendBoxEntry.setFont to setTextFont*
- *Theme.chartBackgroundFillStyle renamed to seriesBackgroundFillStyle*
- *Theme.chartBackgroundStrokeStyle renamed to seriesBackgroundStrokeStyle*
- *on/offChartBackground... event methods were renamed to on/offSeriesBackground...*
- *setChartBackgroundFillStyle methods renamed to setSeriesBackgroundFillStyle*
- *getChartBackgroundFillStyle methods renamed to getSeriesBackgroundFillStyle*
- *setChartBackgroundStrokeStyle methods renamed to setSeriesBackgroundStrokeStyle*
- *getChartBackgroundStrokeStyle methods renamed to getSeriesBackgroundStrokeStyle*
- *Changed default CheckBox button picture to UIButtonPictures.Circle*
- *UILegendBoxPanel.add no longer accepts series, or other attachables. Only chart or dashboard can be supplied.*
- *Default LegendBox alignment changed from horizontal to vertical.*
- *Improved default LegendBox positioning.*
- *Changed default cursor solve basis of all line series' to 'nearest-x'. This can be changed with new method: setCursorSolveBasis*
- *Improved Line Series rendering algorithms for progressive and real-time rendering, to perform much faster and look better.*
- *Heavily optimized progressive Line Series with user zooming in/out and automatic scrolling*
- *Significantly improved Line Series memory usage in scrolling applications with data cleaning enabled*
- *AreaSeries and AreaRangeSeries cursor now behaves as expected, by picking closest data point along X dimension. Cursor now also performs better.*
- *All dataPattern options have been changed. Instead of selecting an option from DataPatterns export, use object format instead, for example { pattern: 'ProgressiveX' }. See documentation/migration guide for details.*
- *onPanelBackground... -methods were renamed to onBackground...*
- *Renamed setResultTableFormatter, and getResultTableFormatter methods to setCursorResultTableFormatter, and getCursorResultTableFormatter respectively.*
- *Improved API documentation*

[3.0.0] - 2020-05-05

Removed:

- *DefaultLibraryStyle - Use Themes.dark or any other Theme instead.*
- *UILegendBoxPanel title API (setTitle, getTitle, setTitleFillStyle, getTitleFillStyle, setTitleFont, getTitleFont).*
- *UILegendBoxPanel.setEntries, use UILegendBoxPanel.setLegendBoxes for same functionality.*
- *Boolean parameter to ChartXY.addAxisX and addAxisY. Replaced with object syntax*
- *NumericAxisTickStrategy.setFormattingFunction. Replaced with individual setters for each tick level.*
- *CustomTick.setPaddingBottom (can be accessed via TickMarker background)*
- *CustomTick.setSidePaddings (can be accessed via TickMarker background)*
- *CursorBuilderXY.setTickMarkerXBackground*
- *CursorBuilderXY.setTickMarkerYBackground*
- *PointSeriesOptions3D.pointShape, use PointSeries3D.setPointStyle instead.*
- *PointLineSeriesOptions3D.pointShape, use PointLineSeries3D.setPointStyle instead.*
- *Theme.numericTickStrategy3D use Theme.numericTickStrategy instead.*
- *Theme.dateTimeTickStrategy3D use Theme.dateTimeTickStrategy instead.*
- *DataPatterns. Use object format instead, for example { pattern: 'ProgressiveX' }. See documentation/migration guide for details.*

Fixed:

- *Fixed ticks overlapping other ticks in some cases*
- *Fixed LUT unexpected color step behavior when interpolation is disabled*
- *Fixed Axis.fit() when Series points are in a straight line*
- *Fixed progressive Axis scrolling sometimes getting ahead of series*
- *Fixed scenario where chart rendered with 1px x 1px canvas*
- *Fixed Constant line and Band touch events not working inside dashboard.*
- *Fixed mouse leave event not fired correctly in all cases*
- *Fixed missing configuration for 3D chart creation inside dashboard, theme and disableAnimations can now be properly set*
- *Fixed improper dispose behavior of ChartXY*
- *IntensitySeries now supports highlighting when styled with SolidFill*
- *IntensitySeries style is now properly matched in LegendBox*
- *SurfaceSeries3D style is now properly matched in LegendBox*
- *SurfaceSeries3D is now properly highlighted when hovering over respective LegendBoxEntry*
- *Fixed some cases where series boundaries were one frame behind actual boundaries*
- *Resolved some Z-fighting issues with SurfaceSeries3D wireframe and surface.*
- *Fixed SurfaceSeries3D and HeatmapMeshSeries not accounting boundaries of first and last column & row.*
- *Fixed axis nib mouse wheel scroll event wasn't properly stopped when interaction happened.*
- *Fixed IntensitySeries not updating when using addColumn to add only values*
- *Fixed type issues when using strict type checking mode with TypeScript*
- *Fixed linear gradient interpolation being incorrect when devicePixelRatio wasn't exactly 1.*

[2.2.1] - 2020-01-28

Fixed:

- *License verification error when using a valid license*

[2.2.0] - 2020-01-27

Added:

- *Chart3D series background*
    - *Chart3D.setSeriesBackgroundFillStyle*
    - *Chart3D.setSeriesBackgroundStrokeStyle*
- *3D BoundingBox style API*
    - *Chart3D.setBoundingBoxStrokeStyle*
    - *Chart3D.getBoundingBoxStrokeStyle*
- *3D camera behavior control*
    - *Chart3D.setCameraAutomaticFittingEnabled*
    - *Chart3D.getCameraAutomaticFittingEnabled*
- *New color palettes for palettes that match with the themes added in 2.1.0*
    - *auroraBorealis*
    - *blueSciFi*
    - *light*
    - *monochrome*
    - *night*
    - *sunset2*
- *Add get/setResultTableFormatter for IntensitySeries*
- *Intensity series wireframe. This was included in 2.1.0 release but was missing from the changelog. Changelog for 2.1.0 has also been updated to include this change.*

Changed:

- *Major improvements to 3D Point Series and 3D Line Series performance*
- *Improved 3D Box Series performance*
- *Improved Axis3D tick and grid line rendering performance*
- *General performance improvements*
- *Tweaked Axis3D joint style with thick line style*
- *Inconsistent RangeSeries max point count value to be consistent (0) with other series types.*
- *Improved default Chart3D camera behavior to fit data into visible viewport better*
- *Improved default themes paletted color behavior*
- *Improved 3D Line Series visual style*
- *Added 'shape' option to PointStyle3D.Triangulated for changing 3D points shape during runtime.*
- *Tweaked themes*

Fixed:

- 3D theme inconsistencies
- Axis.setScrollStrategy TS type not accepting undefined
- IntensitySeries zooming and panning did unnecessary calculation

Deprecated:

- Theme.numericTickStrategy3D use Theme.numericTickStrategy instead.
- Theme.dateTimeTickStrategy3D use Theme.dateTimeTickStrategy instead.
- ChartXY.setChartBackgroundFillStyle renamed to setSeriesBackgroundFillStyle
- ChartXY.setChartBackgroundStrokeStyle renamed to setSeriesBackgroundStrokeStyle
- PointSeries3D 'pointShape' initialization configuration. Use PointSeries3D.setPointStyle instead.
- PointLineSeries3D 'pointShape' initialization configuration. Use PointLineSeries3D.setPointStyle instead.

[2.1.0] - 2020-11-30

Added:

- 3D Surface Series
- 3D Box Series
- Added 3D Tick gridlines.
- Heatmap cursor support
- Custom Theme API to create your own Themes.
  - customSimpleTheme()
  - customComplexTheme()
  - customTheme()
- New themes
  - AuroraBorealis
  - BlueSciFi
  - Classy
  - DarkGradient
  - Lavender
  - LavenderGradient
  - LightGradient
  - Lipstick
  - Monochrome
  - Night
  - Raspberry
  - Sunset
- Series.onHighlight / Series.offHighlight
- Axis.getInterval() method for retrieving the currently applied axis scale interval.
- Added vec3utils. A collection of 3-dimensional vector math functions.
- Intensity series wireframe

Changed:

- *Highlighting a Series on a Chart also highlights corresponding Series in attached Zoom Band Chart*

Fixed:

- *Fix not being able to style 3D Tick lines.*
- *Fixed error when running the charts in Node JS. (With the lcjs-headless package)*
- *Pie, Funnel and Spider charts animation speed inconsistency with ChartXY animation speed.*
- *Rendering error on first frame.*

Deprecated:

- `DefaultLibraryStyle` - *Use Themes.dark or any other Theme instead.*

[2.0.3] - 2020-10-15

Fixed:

- *Rendering error after chart with PointSeries had been disposed once and recreated with a new PointSeries.*

[2.0.2] - 2020-09-17

Fixed:

- *Fixed issue with PointSeries in Mac systems.*
- *Fixed AutoCursor being out of sync with actual position.*
- *Fixed issues with AngularJS related to typings.*

[2.0.1] - 2020-09-07

Fixed:

- *Fixed new example links in readme file*

[2.0.0] - 2020-09-04

Added:

- *Add public API to get Highlighters for Axis*
- *Added onPositionChange event to ChartMarker and SeriesMarker*
- *Added more mouse and touch events to chart background*
- *layout() method to PublicEngine interface.*
- *Add LinearGradientFill and RadialGradientFill fill styles.*
- *Added Axis setTickStrategy method.*
- *Added AxisTickStrategies.Empty (replaces Axis.setTickStyle(emptyTick))*
- *Added VisibleTicks.setLabelAlignment()*
- *Chart3D*
- *Axis3D*
- *Point3D*
- *PointSeries3D*
- *PointCloudSeries3D*
- *PointStyle3D*
- *LineSeries3D*
- *PointLineSeries3D*

Changed:

- *Refactored thick line rendering.*
    - *Improves the visual style of the line when a semi-transparent fill style is used.*
    - *Improves GL memory usage. Same line now takes 40 to 70% less GL memory depending on the line.*
- *PointSeries now uses faster rendering methods on supported devices.*
    - *Major performance improvement*
    - *Uses less GL memory*
- *columnSpan and rowSpan Dashboard options are now optional and default to 1.*
- *Chart options when creating a chart inside dashboard are simplified.*
    - *Options are no longer behind a separate object but are instead given in same object as the dashboard options.*
- *Reduced zooming animation duration*
- *Made transparent backgrounds possible.*
- *LightningChart JS now requires the following WebGL extensions to work properly*
    - *ANGLE_instanced_arrays*
    - *EXT_blend_minmax*
    - *OES_element_index_uint*
    - *OES_standard_derivatives*
    - *OES_vertex_array_object*
    - *WEBGL_lose_context*
    - *If any of these extensions is missing, then a dismissible warning will be shown to notify users of possibly incorrectly working features.*
- *Changed seriesBackground mouse and touch event naming to chartBackground mouse and touch events.*
    - *e.g. onSeriesBackgroundMouseDown was changed to onChartBackgroundMouseDown*
- `requestAnimationFrame` *and* `cancelAnimationFrame` *are no longer polyfilled automatically.*
    - *The methods should be polyfilled if support for environments where the methods don't exist is needed.*
- *Numeric Axis ticks have been reworked*
- *DateTime Axis ticks have been reworked*
- *Mouse and touch events are properly handled to allow normal browser interactions when chart does no action for the event*
- *Changed ColorHEX factory color syntax to follow CSS color syntax, #RRGGBB[AA]*
- *Changed default highlight behavior of Series.*
    - *Series is no longer highlighted by default when hovering over it. Use* `series.setHighlightOnHover()` *or* `chart.setSeriesHighlightOnHover()` *to highlight on hover.*
- *Improved styles for default themes.*

Removed:

- *AxisTickStrategies.NumericWithUnits*
- *Passing AxisTickStrategy of default Axes upon creating a ChartXY*
- *Passing AxisTickStrategy as parameter of ChartXY.addAxisX() or ChartXY.addAxisY()*
- *Removed APIs that were previously marked deprecated.*
    - `Chart.setDataLabelFormater`
    - `Chart.getDataLabelFormater`
    - `Chart.setChartBackgroundStroke`
    - `Chart.getChartBackgroundStroke`
    - `Series.setMaxPointsCount`
    - `containerId option`

Fixed:

- *Fix legend box item checkbox looking bad when stroke style is other than 1.*
- *Fix touch events triggering outside chart area*

[1.3.1] - 2020-05-29

Fixed:

- Inconsistent cursor style changing when moving from hovering element to hovering one element to hovering over another element.
- Fixed a crash when adding data to OHLCSeries
- Hovering over the Arction logo for long enough caused the chart to freeze itself instead of allowing clicking a link to go to the Arction website.
- Incorrect resolution and interactions when opening a chart in fullscreen mode

[1.3.0] - 2020-04-28

Added:

- Heatmap
- ChartXY.addHeatmapSeries()
- IntensityGridSeries can be used for visualization of magnitude in two dimensions.
- IntensityMeshSeries can be used for visualization of magnitude in two dimensions, where the geometry of the series can be edited.
- Dashboard.createZoomBandChart()
- Added Axis Bands and ConstantLines.
- Application/Intranet Deployment key support
- A way to disable all animations at once.
  - Call `disableAnimations()` on any chart or specify `disableAnimations:` true as a chart creation option.
- Added series.addArrayX(), .addArrayY(), .addArrayXY() to basic Series types in XY Charts for user convenience.
  - These methods cause some overhead when used, so using the series.add() is still recommended for best performance.
- Added .addArrayY() to OHLCSeriesWithAutomaticPacking for user convenience.
  - This method causes some overhead when used, using .add() method is still recommended for best performance.
- getSeries() method to XY Charts and Spider chart.
- Support for rendering in Node JS environment with the help of "@arction/lcjs-headless" package.
- `renderFrame()` method to engine.
- Added getDataLabelFillStyle and setDataLabelFillStyle to SolidGauge.

Changed:

- FitEngineToDiv.container to pass DOM Element to Engine. Users can pass either DOM Element itself, or its ID.
- Mouse and touch interaction handling to add support for pen and PC touch screen interactions.
  - All interactions still work the same way, interactions just has better support for more interaction methods.

Fixed:

- Rendering error on some GPU's where GPU received some vertices as NaN instead of a valid vertex.
- Inconsistent style for SeriesMarker tick X and Y labels
- Fixed a TypeError on pyramid chart
- LightningChart JS logo failing to render correctly when high-dpi mode is used and devicePixelRatio is less than 1
- LightningChart JS logo duplication in LegendBoxPanel
- Incorrect cursor styles when hovering over axis or other element with resize cursor style
- PointSeries.add method requiring added points to be of `ColorPoint` type when `Point` is a valid type for it.

Deprecated:

- Deprecated use of FitEngineToDiv.containerId in EngineOptions. Use FitEngineToDiv.container instead.
- Deprecated use of setChartBackgroundStroke in SpiderChart, ChartXY. Use setChartBackgroundStrokeStyle instead.
- Deprecated use of getChartBackgroundStroke in SpiderChart, ChartXY. Use getChartBackgroundStrokeStyle instead.

[1.2.2] - 2020-01-07

Changed:

- Error message when trying to create a chart in container that doesn't exist

Fixed:

- Mouse interactions permanently disabled when interactions disabled while interaction is in-progress
- Multiple Slice Explosion restriction not always working

[1.2.1] - 2019-12-18

Fixed:

- TypeScript typings duplicate identifier

[1.2.0] - 2019-12-10

Added:

- Added Axis Bands and ConstantLines.
- ColorHEX supports format with '0x' prefix.
- Dashboard.setSplitterStyle()
- Dashboard.setSplitterStyleHighlight()
- Dashboard.setBackgroundFillStyle()
- Dashboard.setBackgroundStrokeStyle()
- High DPI rendering support with 'devicePixelRatio' engine option
- Themes, with 'dark' and 'light' preset themes available.
- LUT (ValueRangePalette)
- series.getPointAmount() in XY Charts
- ChartXY.setMouseInteractionsWhileScrolling()
- ChartXY.setMouseInteractionsWhileZooming()
- New option when creating lines: highlightThicknessMultiplier can be used to specify thickness of highlighted lines
- Progressive DataPatterns precision

Changed:

- Chart examples linked in the readme
- Mouse interactions are disabled by default when scrolling / zooming. This behavior can be changed with methods in XY Charts.

Fixed:

- GL errors with Pyramid Chart
- AutoCursor working incorrectly with touch displays

[1.1.1] - 2019-10-11

Changed:

- *Chart examples linked in the readme*

Fixed:

- *Typo in the readme*
- *Missing typings*
- *Performance issue found in the trading showcase*

[1.1.0] - 2019-10-03

Added:

- *Dispose API for Charts, Dashboard*
- *Add OHLCSeries.set/getFigureAutofitting()*

Changed:

- *Removed dependency to crc package.*
- *Removed dependency to collections package.*

Deprecated:

- *SolidGauge.setDataLabelFormater in favor of SolidGauge.setDataLabelFormatter*
- *SolidGauge.getDataLabelFormater in favor of SolidGauge.getDataLabelFormatter*
- *OHLCSeries.setMaxPointsCount in favor of OHLCSeries.setMaxPointCount*

Fixed:

- *Fixed crash when adding points to step series.*
- *PointableTextBox incompatibility with axis custom tick.*
- *Empty StrokeStyle not working with Axis Nibs*

[1.0.3] - 2019-08-26

Added:

- *More keywords for npm*

Changed:

- *Readme file contents present the package better*

[1.0.1] - 2019-08-14

Added:

- *CHANGELOG.md included in the npm package*
- *More keywords for npm*

Fixed:

- *Pyramid Chart*
    - *Added missing API documentation for get/setAnimationsEnabled*
- *Funnel Chart*
    - *Added missing API documentation for get/setAnimationsEnabled*

[1.0.0] - 2019-08-05

Added:

- *2-Dimensional Charts*
    - *o ChartXY (Cartesian Chart)*
        - *Line Series*
        - *Point Series*
        - *Point Line Series*
        - *Spline Series*
        - *Step Series*
        - *Rectangle Series*
        - *Ellipse Series*
        - *Box Series*
        - *OHLC Series*
        - *Area Series (BiPolar, Monopolar, AreaRange)*
        - *Axes*
    - *o Spider Chart*
    - *o Pie Chart*
    - *o Gauge Chart*
    - *o Funnel Chart*
    - *o Pyramid Chart*
- *Markers (for Series / Chart)*
- *Cursor*
- *Mouse Interactions*
- *Touch Support*
- *Animations*
- *Dashboard*
- *LegendBox*
- *UI Elements (Buttons, CheckBoxes, Labels, TextBoxes)*