

QAG Charts

User Guide

Advanced Chart Visualizations for Tridium Niagara 4

18 Chart Types | Full Customization | Live & Historical Data

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All QAG Charts share a consistent set of styling properties, making it easy to create cohesive dashboards with a unified look and feel.

| Property | Description |
|-------------------------------|---|
| backgroundColor | Background color of the chart container (gx:Color picker) |
| textColor | Primary text/title color |
| axisTextColor / axisLineColor | Axis tick labels and axis line colors |
| gridLineColor | Chart grid line color |
| legendTextColor | Legend text color |
| tooltipBackgroundColor | Tooltip background, border, and text colors |
| decimalPrecision | Decimal places for displayed values |
| defaultTimePeriod | Default time range for history charts |
| title | Chart title at the top of the widget |
| enabled / visible | Toggle widget activity and visibility |

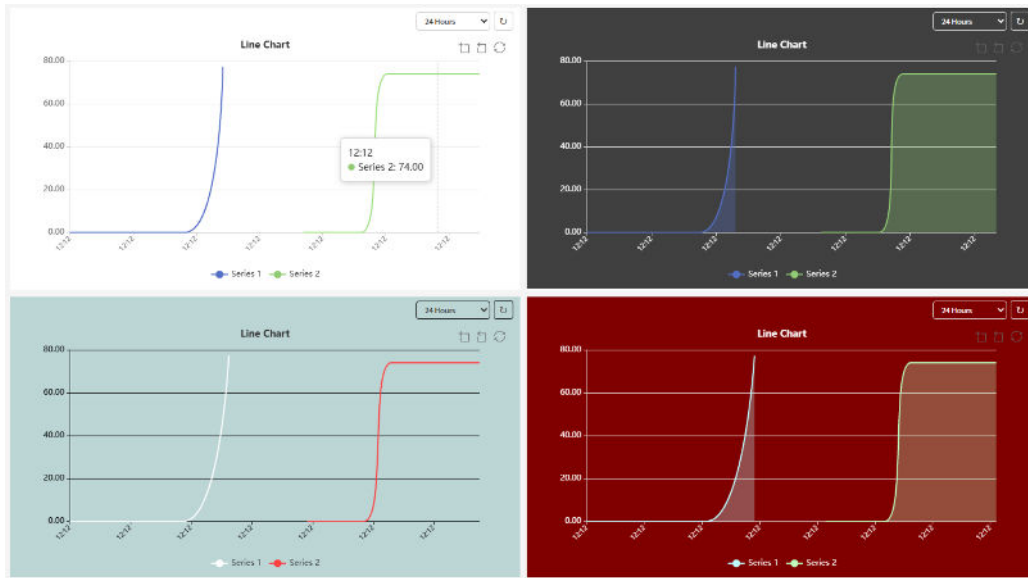
Time Period Options: *last24Hours, today, yesterday, lastWeek, weekToDate, lastMonth, monthToDate, yearToDate, lastYear.*

2. Line Chart

A multi-series trend chart for live and historical data. Supports up to 8 series with independent colors, area fill, smooth curves, symbol markers, and interactive zoom.

Best for: *Equipment runtime trends, utility demand tracking, baseline vs. actual comparison, anomaly detection over time.*

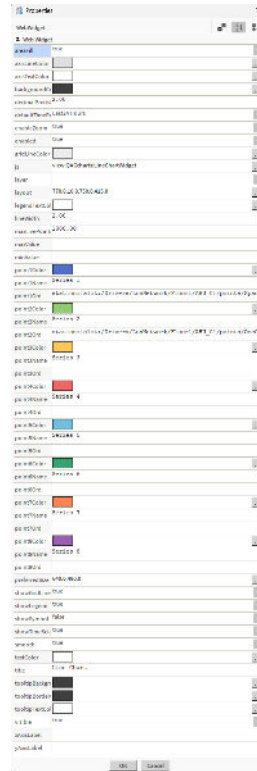
Binding: Up to 8 series via **point1Ord** through **point8Ord**, each with its own **pointXName** and **pointXColor**.



Line Chart — example views with light and dark theme options

| Property | Description |
|-------------------------------|--|
| areaFill | Fill the area under each line |
| smooth | Curved interpolation between data points |
| showSymbol | Show data point markers |
| enableZoom | Allow pinch/scroll zoom |
| lineWidth | Line thickness (default 2.00) |
| showLegend / showTimeSelector | Legend and time range dropdown |
| maxLivePoints | Max live data points (default 1000) |
| minValue / maxValue | Lock Y-axis range |

Properties panel:



Line Chart properties in Niagara Workbench

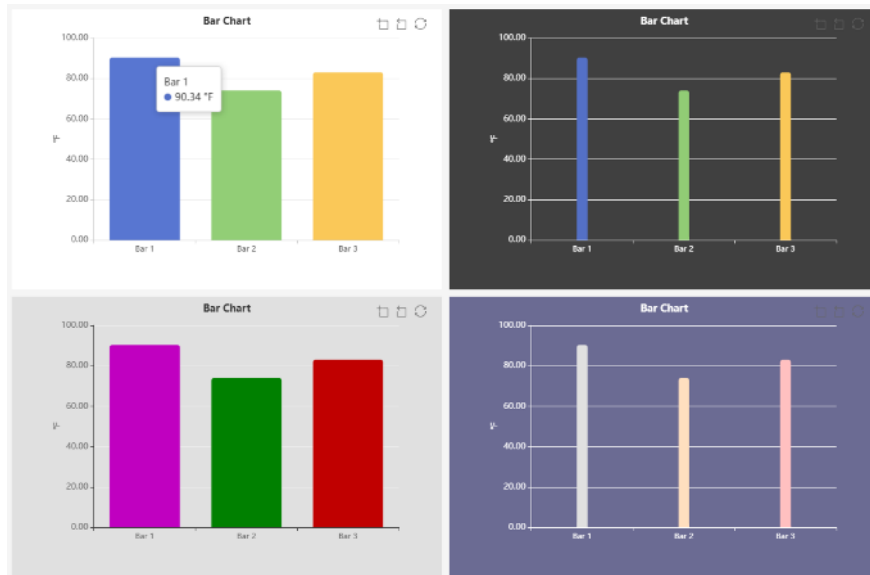
Tip: Enable **areaFill** with **smooth** for polished executive dashboards. Use **enableZoom** when operators need to drill into specific time windows.

3. Bar Chart

A category comparison chart with vertical or horizontal orientation. Supports up to 8 value slots with per-bar naming and coloring.

Best for: Comparing zones, assets, sites, or cost categories. Top/bottom performer dashboards and benchmarking.

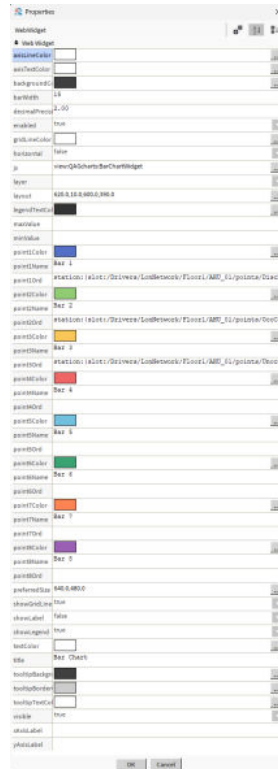
Binding: Up to 8 bars via value slots, each with a **pointXName** and **pointXColor**.



Bar Chart — example views with light and dark theme options

| Property | Description |
|-----------------------------------|--------------------------------------|
| horizontal | Switch to horizontal bar orientation |
| showLabel | Display value labels on each bar |
| barWidth | Width of each bar |
| showGridLines / showLegend | Grid and legend display |
| minValue / maxValue | Lock axis range |

Properties panel:



Bar Chart properties in Niagara Workbench

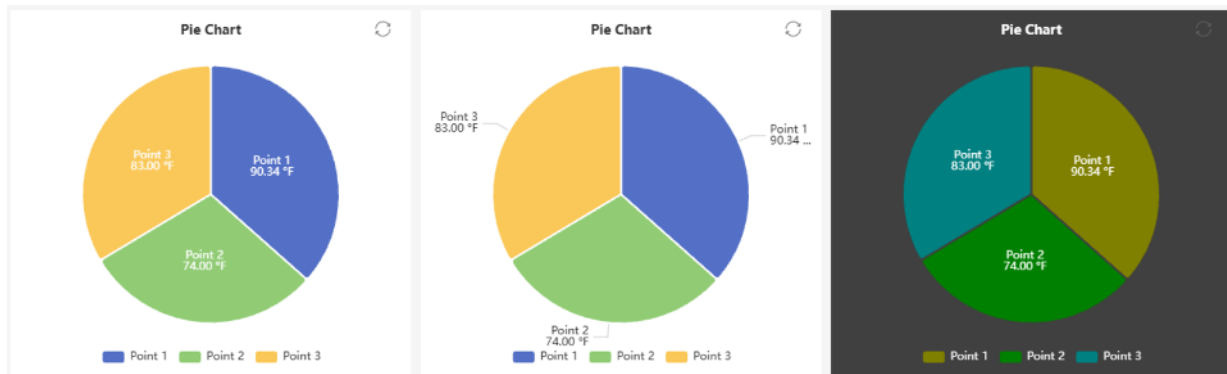
Tip: Use *horizontal* mode when category names are long. Pair with distinct colors per bar for clear comparisons.

4. Pie Chart

A proportional share chart with optional donut style. Up to 8 segments with customizable label positions.

Best for: Portfolio splits, energy source contribution, category share analysis, executive summary views.

Binding: Up to 8 segments, each with *pointXName* and *pointXColor*.



Pie Chart — example views with light and dark theme options

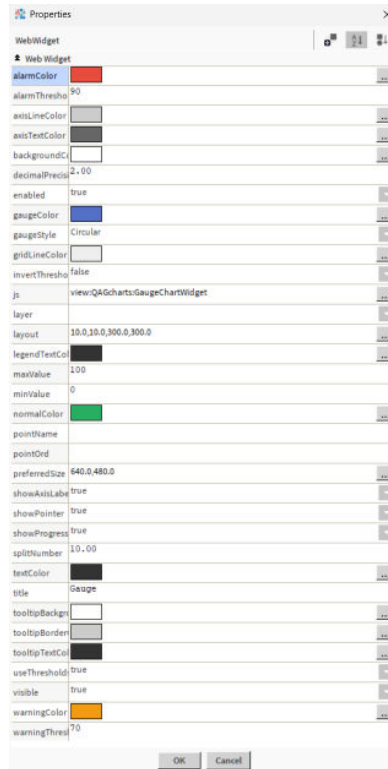
| Property | Description |
|----------|---------------------------|
| donut | Enable donut (ring) style |



Gauge — example views with light and dark theme options

| Property | Description |
|--|---|
| gaugeStyle | Circular, Semicircle, ThreeQuarter, Donut, Linear, Vertical |
| minValue / maxValue | Gauge range (default 0–100) |
| showPointer / showProgress | Needle and filled arc |
| useThresholds | Enable three-zone color bands |
| warningThreshold / alarmThreshold | Color breakpoints |
| normalColor / warningColor / alarmColor | Zone colors |
| invertThresholds | Reverse direction (high = normal) |

Properties panel:



Gauge properties in Niagara Workbench

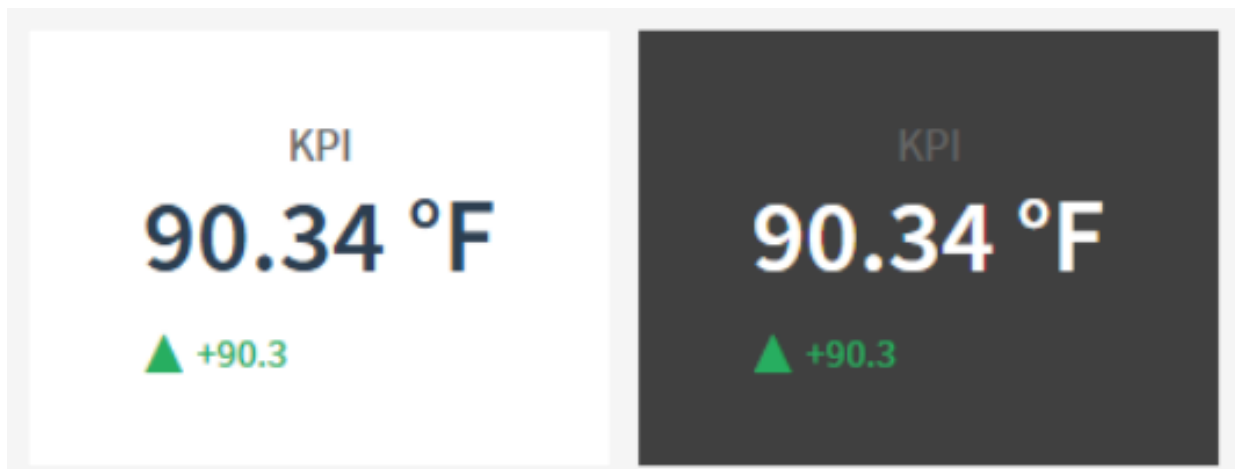
Tip: Set **useThresholds** to true for instant visual status. The gauge automatically changes color as values cross warning and alarm thresholds.

6. KPI Card

A focused value tile with large display, status coloring, and trend indication arrow showing change from previous value.

Best for: North-star metrics: current kW demand, occupancy %, active alarm count, real-time temperature.

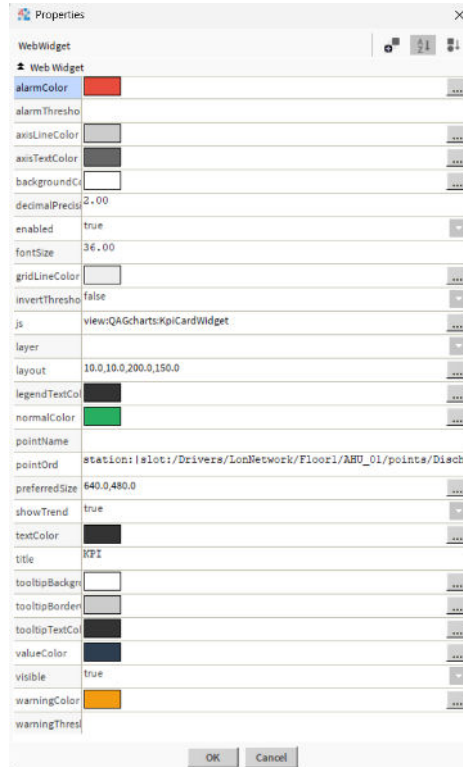
Binding: Single point via **pointOrd**.



KPI Card — example views with light and dark theme options

| Property | Description |
|---|-------------------------------|
| showTrend | Display trend arrow and delta |
| valueColor / fontSize | Value appearance |
| warningThreshold / alarmThreshold | Color breakpoints |
| normalColor / warningColor / alarmColor | Status colors |

Properties panel:



KPI Card properties in Niagara Workbench

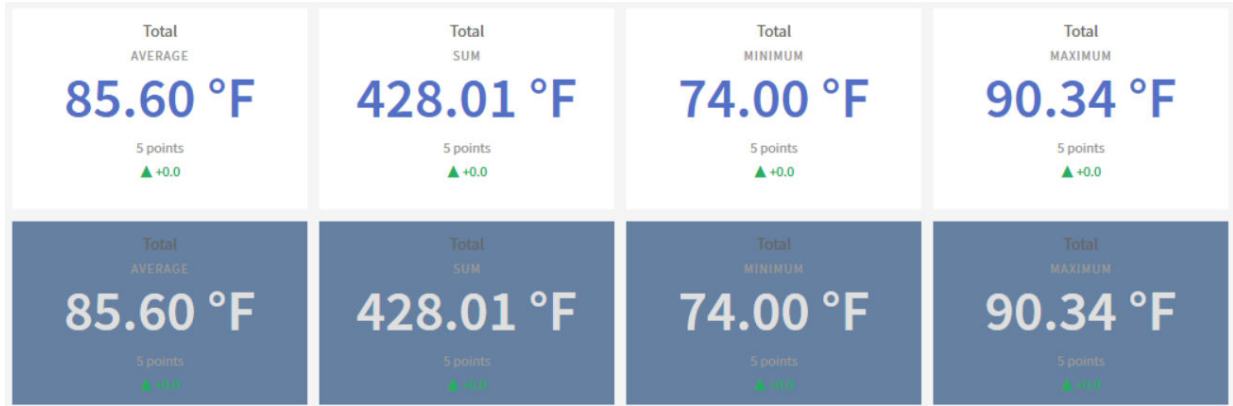
Tip: Place KPI Cards in a horizontal row at the top of a dashboard to create a powerful executive summary strip.

7. Totals

A multi-point aggregate value card supporting up to 16 input points. Computes sum, average, min, max, count, or range.

Best for: Fleet total load, campus average temperature, multi-zone range analysis, aggregate consumption.

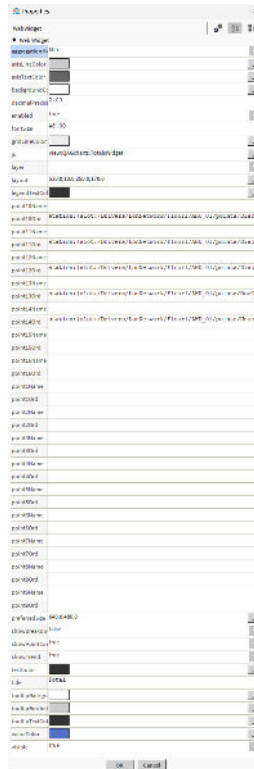
Binding: Up to 16 points via **point1Ord** through **point16Ord**.



Totals — example views with light and dark theme options

| Property | Description |
|---------------------------|--|
| aggregationMode | sum, average, min, max, count, range |
| showPointCount | Number of contributing points |
| showTrend / showBreakdown | Trend arrow and individual contributions |
| valueColor / fontSize | Value appearance |

Properties panel:



Totals properties in Niagara Workbench

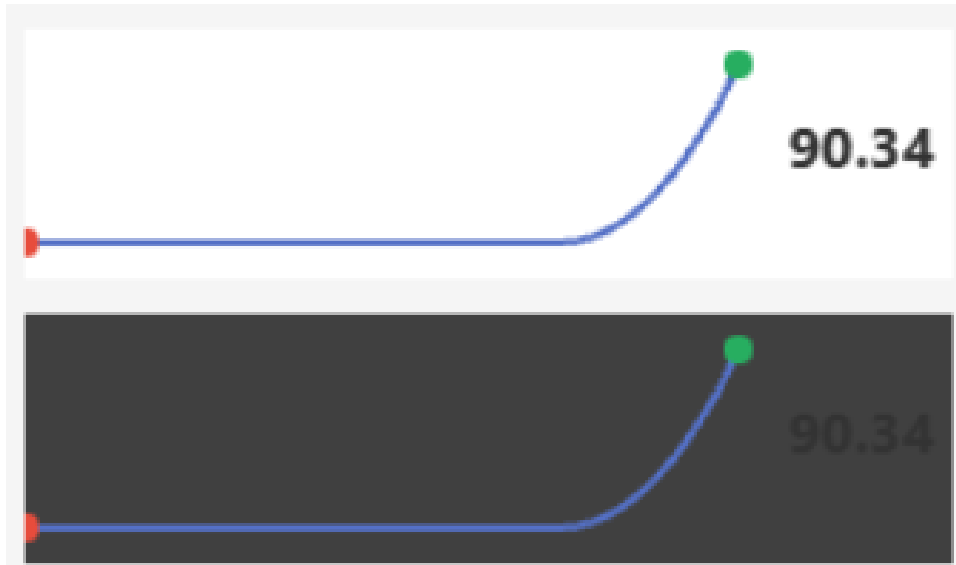
Tip: Use multiple Totals cards side by side with different **aggregationMode** settings for a comprehensive statistical summary.

8. Sparkline

A compact inline trend chart in line, bar, or area style. Designed for dense layouts with optional min/max markers.

Best for: Summary pages, equipment list rows, compact dashboard tiles where space is limited.

Binding: Single point via `pointOrd`.



Sparkline — example views with light and dark theme options

| Property | Description |
|------------------------------------|------------------------------|
| <code>sparklineStyle</code> | line, bar, or area |
| <code>showMinMax</code> | Highlight min and max points |
| <code>showCurrentValue</code> | Latest numeric value |
| <code>color / maxDataPoints</code> | Appearance and data limit |

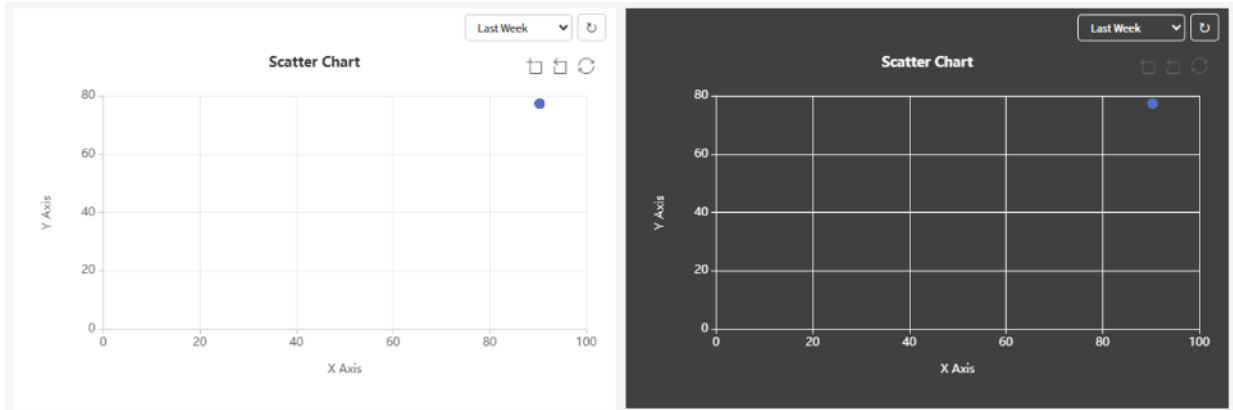
Tip: Sparklines work perfectly embedded alongside KPI Cards or in table rows to add trend context without consuming dashboard space.

9. Scatter Chart

A correlation plot (X vs. Y) with optional bubble mode and regression line. Uses history data to reveal variable relationships.

Best for: Efficiency analysis, cause/effect validation, sensor relationship checks, commissioning verification.

Binding: Two points: `xPointOrd` and `yPointOrd`, both history-capable.



Scatter Chart — example views with light and dark theme options

| Property | Description |
|-------------------------|---------------------------------|
| showRegression | Overlay regression trend line |
| bubbleMode | Size points by a third variable |
| symbolSize | Marker size |
| xAxisLabel / yAxisLabel | Custom axis labels |

Properties panel:



Scatter Chart properties in Niagara Workbench

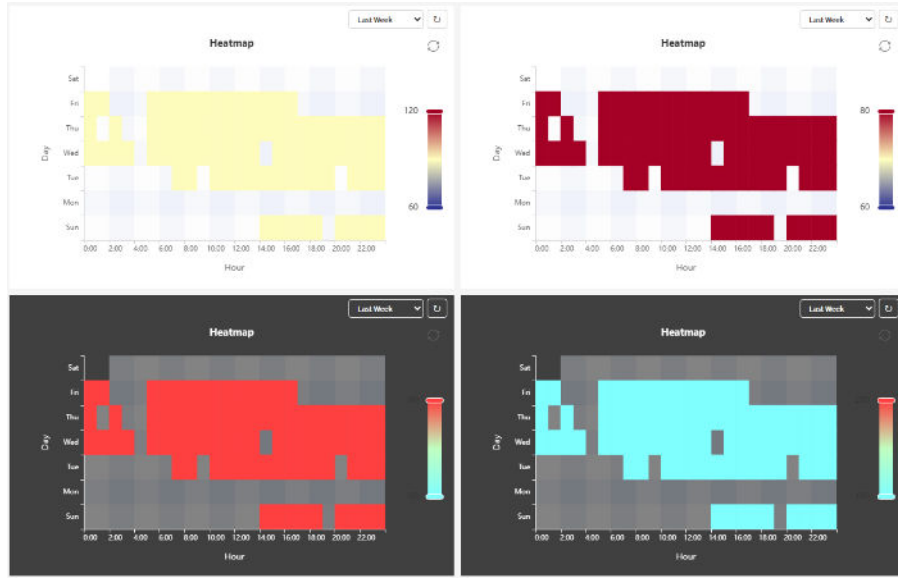
Tip: Enable **showRegression** to instantly see whether two variables have a linear relationship—great for commissioning verification.

10. Heatmap

A color-intensity matrix with three modes: Time of Day, Day of Week, and Multi-Point. Reveals patterns invisible in raw trends.

Best for: *Occupancy patterns, energy usage by hour/day, temperature distribution, maintenance scheduling.*

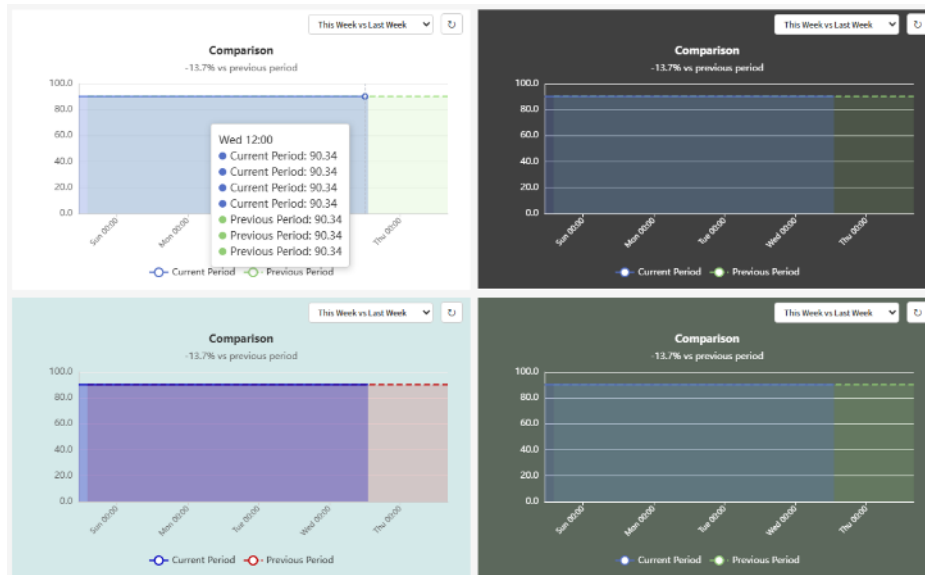
Binding: *Up to 8 points depending on mode, with history ORDs.*



Heatmap — example views with light and dark theme options

| Property | Description |
|--------------------------------|--|
| heatmapMode | Time Of Day, Day Of Week, or Multi-Point |
| minColor / midColor / maxColor | Three-stop color gradient |
| showVisualMap / showLabel | Color legend and cell values |
| showTimeSelector | Time range dropdown |

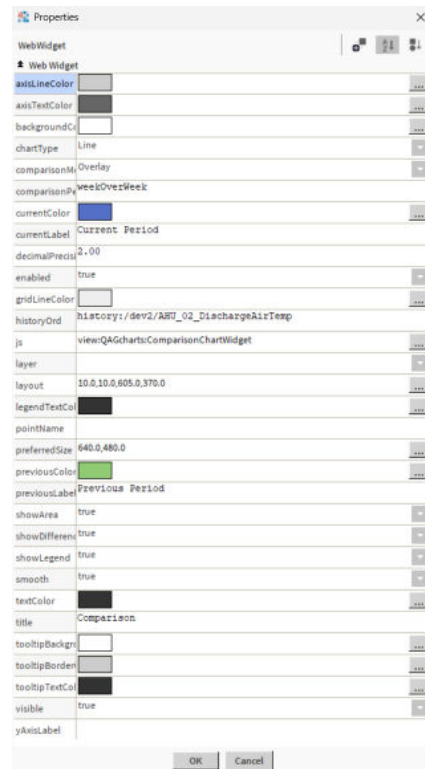
Properties panel:



Comparison — example views with light and dark theme options

| Property | Description |
|-------------------------------------|---------------------------------|
| comparisonMode | overlay, sideBySide, or stacked |
| chartType | Line, bar, or area rendering |
| showDifference | Auto percentage change display |
| currentLabel / previousLabel | Legend labels |
| currentColor / previousColor | Series colors |

Properties panel:



Comparison properties in Niagara Workbench

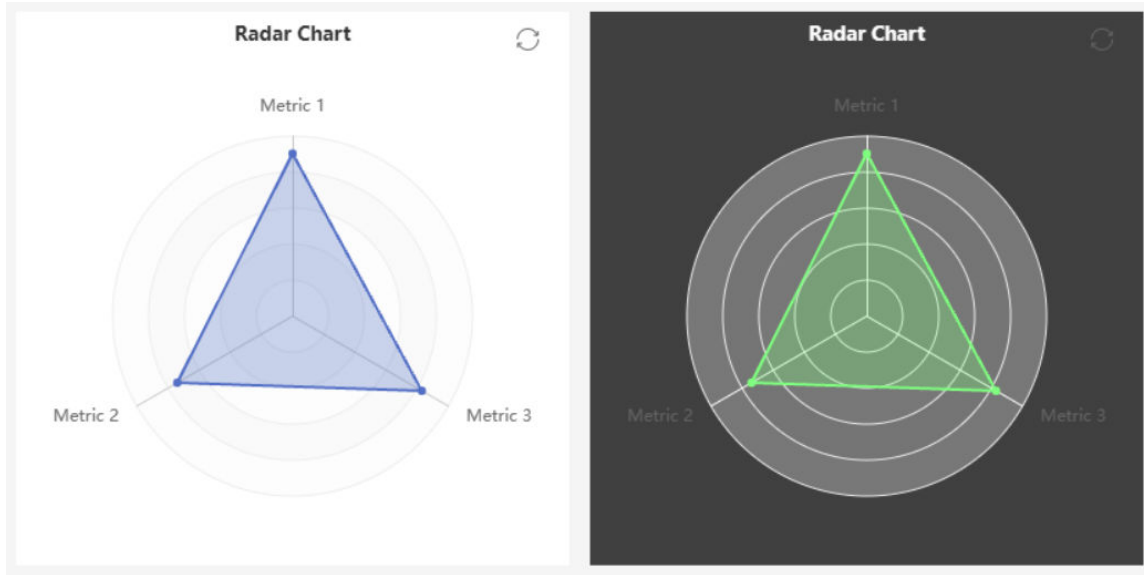
Tip: The **showDifference** feature automatically calculates percentage change—perfect for energy savings reports.

12. Radar Chart

A multi-axis profile chart displaying up to 8 metrics on radial axes, creating a visual performance shape.

Best for: *Balanced scorecards, equipment health profiles, multi-criteria site scoring, comfort index visualization.*

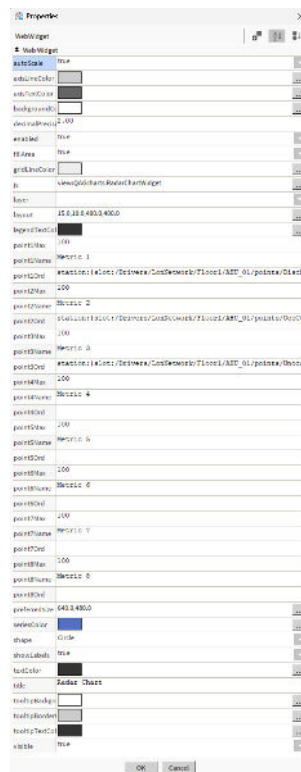
Binding: *Up to 8 metrics with optional per-metric max (pointXMax).*



Radar Chart — example views with light and dark theme options

| Property | Description |
|--------------------------|-------------------------------|
| shape | polygon or circle grid |
| fillArea | Fill the radar profile area |
| showLabels / seriesColor | Labels and color |
| autoScale | Auto-scale axes to data range |

Properties panel:



Radar Chart properties in Niagara Workbench

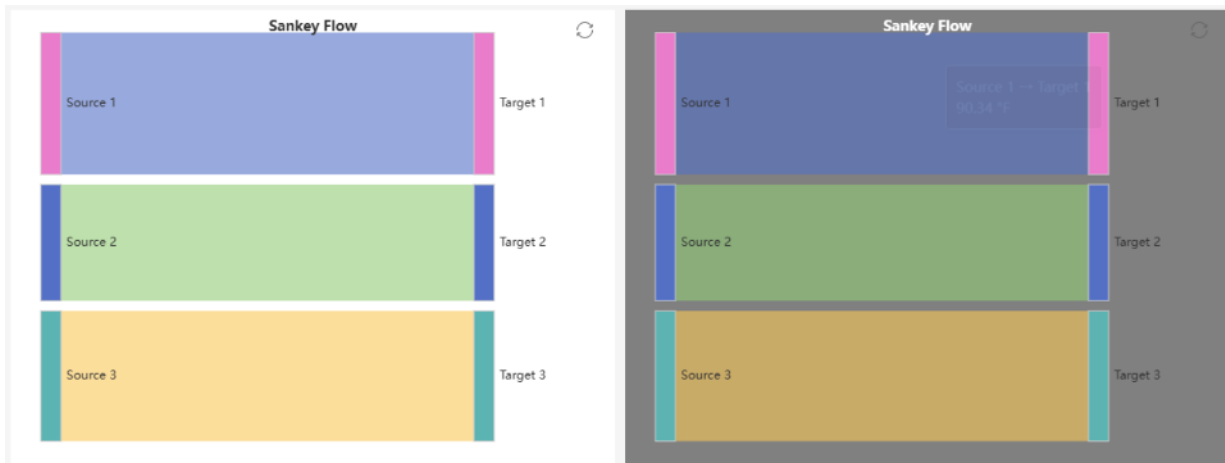
Tip: Bind energy, comfort, maintenance, air quality, and uptime for a holistic building health shape.

13. Sankey Flow

A directed flow diagram mapping sources to targets with proportional flow widths. Shows how values move through a system.

Best for: Energy distribution, HVAC airflow routing, water treatment flows, loss analysis.

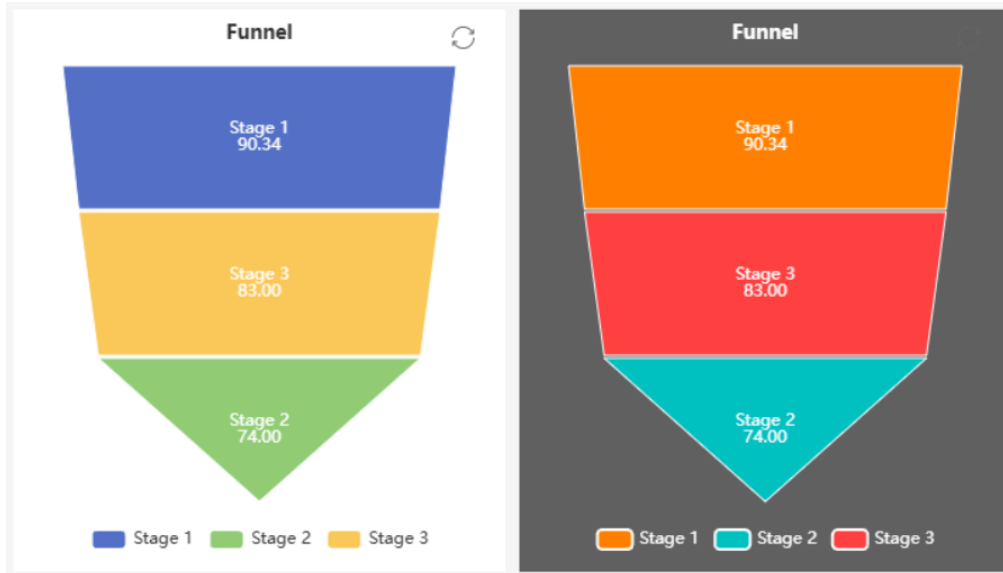
Binding: Up to 8 flows with `flowXOrd`, `flowXSource`, `flowXTarget`, `flowXColor`.



Sankey Flow — example views with light and dark theme options

| Property | Description |
|----------------------------------|--------------------------------------|
| <code>orient</code> | Flow direction (horizontal/vertical) |
| <code>nodeWidth / nodeGap</code> | Node bar size and spacing |
| <code>curveness</code> | Flow band curvature |
| <code>showLabels</code> | Source/target labels |

Properties panel:



Funnel — example views with light and dark theme options

| Property | Description |
|------------------|--------------------------------|
| orient | vertical or horizontal |
| sort | descending, ascending, or none |
| funnelAlign | center, left, or right |
| gap / showLabels | Stage spacing and labels |

Properties panel:



Funnel properties in Niagara Workbench

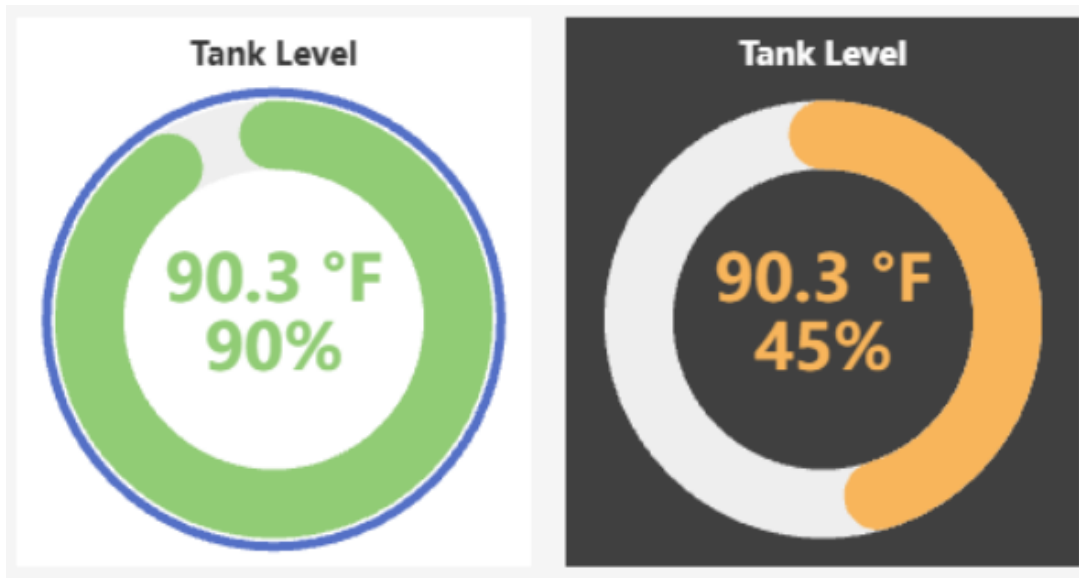
Tip: Show alarm counts at each stage (generated → acknowledged → resolved) to reveal bottlenecks in alarm management.

15. Liquid Fill

A circular or rounded-rectangle capacity gauge with animated fill and three-zone threshold coloring. Shows value and percentage.

Best for: Tank levels, reservoir capacity, occupancy utilization, cooling tower basin level.

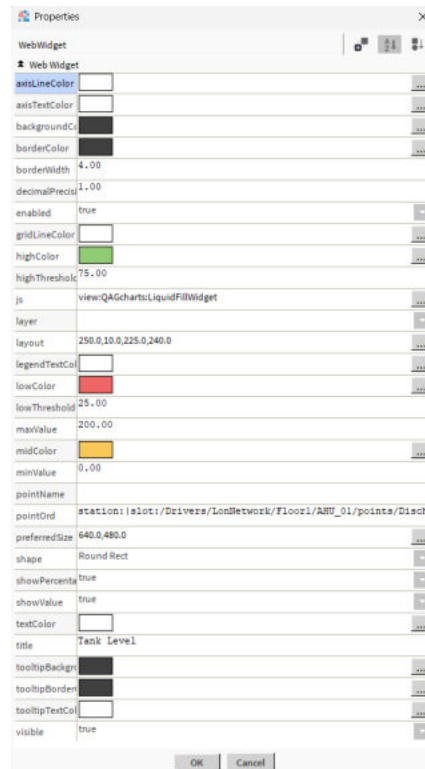
Binding: Single point via `pointOrd`.



Liquid Fill — example views with light and dark theme options

| Property | Description |
|--|---------------------|
| <code>shape</code> | circle or roundRect |
| <code>showPercentage / showValue</code> | Display options |
| <code>borderWidth / borderColor</code> | Container styling |
| <code>lowThreshold / highThreshold</code> | Color breakpoints |
| <code>lowColor / midColor / highColor</code> | Three-zone colors |

Properties panel:



Liquid Fill properties in Niagara Workbench

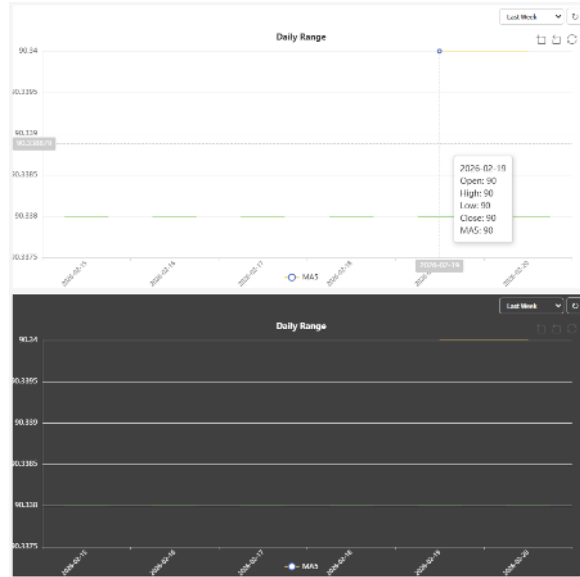
Tip: Immediately intuitive for non-technical users—everyone understands "how full is it?" at a glance.

16. Candlestick

An OHLC-style range chart over time with optional moving averages and volume display.

Best for: Daily temperature ranges, energy price volatility, operational range analysis.

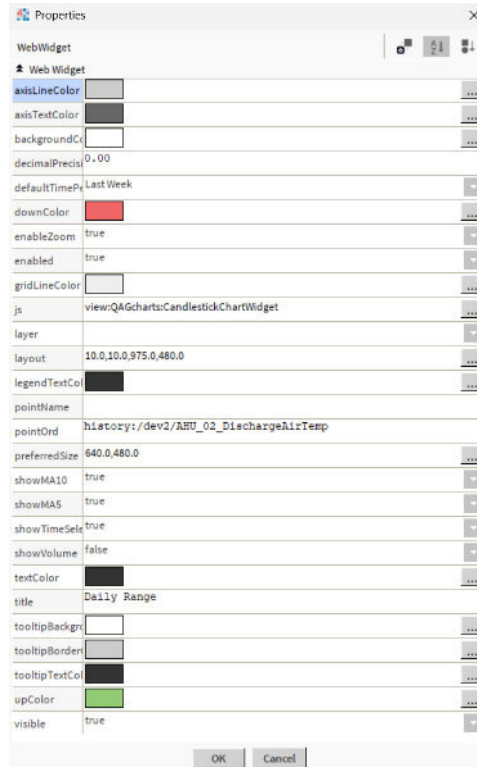
Binding: Single point with history via **pointOrd**.



Candlestick — example views with light and dark theme options

| Property | Description |
|-------------------------------|------------------------------|
| upColor / downColor | Rising/falling period colors |
| showMA5 / showMA10 | Moving average lines |
| showVolume | Volume bars below chart |
| enableZoom / showTimeSelector | Zoom and time range |

Properties panel:



Candlestick properties in Niagara Workbench

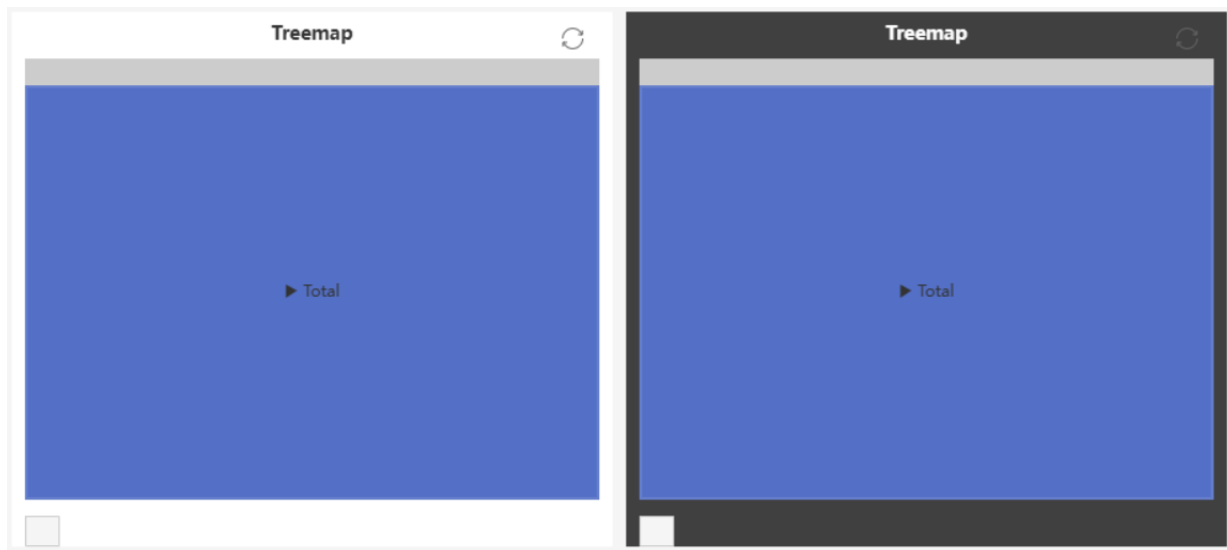
Tip: Apply to daily temperature data to reveal range patterns—wide candles indicate unstable conditions needing attention.

17. Treemap

Hierarchical proportional rectangles where area represents relative value. Supports parent-child grouping with drill-down breadcrumbs.

Best for: *Energy consumption breakdown, cost allocation, asset portfolio sizing, category hierarchies.*

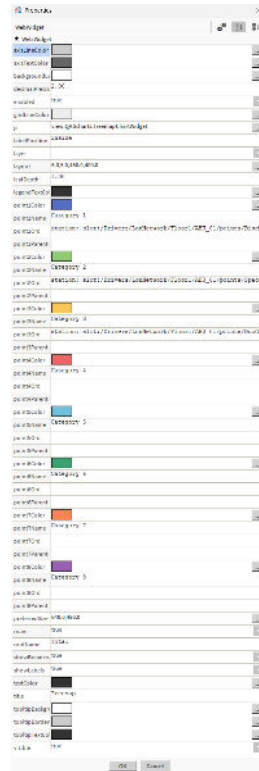
Binding: *Up to 8 categories with optional `pointXParent`.*



Treemap — example views with light and dark theme options

| Property | Description |
|---|----------------------------|
| <code>rootName</code> | Top-level root node label |
| <code>showBreadcrumb</code> | Drill-down navigation path |
| <code>leafDepth / roam</code> | Visible depth and pan/zoom |
| <code>showLabels / labelPosition</code> | Category labels |

Properties panel:



Treemap properties in Niagara Workbench

Tip: Treemaps replace ranked tables—visual size immediately conveys magnitude in a way numbers alone cannot.

18. Appendix: Tips & Best Practices

Dashboard Design Tips

Start every dashboard with KPI Cards or Totals at the top for context. Use Line Charts and Comparison Charts in the main body for trends. Place Gauges and Liquid Fill gauges in sidebars for real-time status. Use consistent background colors across all charts for visual unity.

Color Theming

Every chart exposes the same color properties, so you can create cohesive light or dark themes. For dark dashboards, set `backgroundColor` to a dark gray, `textColor` to white, and use muted `gridLineColors`. As shown in the screenshots throughout this guide, every chart supports both light and dark styling.

Threshold Configuration

Charts with threshold support (Gauge, KPI Card, Totals, Liquid Fill) use a three-zone model: normal (green), warning (orange), alarm (red). Use **`invertThresholds`** when high values are good (e.g., efficiency %) rather than bad.

Chart Selection Guide

| Question | Recommended Chart |
|---|------------------------------|
| How is this value trending over time? | Line Chart, Sparkline |
| How do these categories compare? | Bar Chart |
| What share does each part represent? | Pie Chart, Treemap |
| What is the current single value? | Gauge, KPI Card, Liquid Fill |
| What is the aggregate across many points? | Totals |
| Are these two variables correlated? | Scatter Chart |
| What patterns exist by time/day? | Heatmap |
| How does this period compare to the last? | Comparison |
| What is the overall performance profile? | Radar Chart |
| How does value flow through the system? | Sankey Flow |
| Where are the drop-offs in a process? | Funnel |
| What is the daily range/volatility? | Candlestick |