Calendar Heat Map Calendar Heat Map 1.3.0

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Introduction

Using calendar heat maps

Learn how to visualize data in a calendar heat map.

**What calendar heat maps visualize**

This visualization shows a metric over a configured time span. The time span appears as a grid with cells for each result. Cells color indicates relative metric density.

**Use cases**

Use a calendar heat map to visualize cyclical or other periodic patterns in a data set. For example, track retail purchasing trends or network activity patterns.

**Data for calendar heat maps**

Use any data that includes a metric you are tracking and timestamps for each event.

**Install a calendar heat map**

You can find the Calendar Heat Map visualization app on Splunkbase.

After an admin installs a custom visualization app, users can select the visualization using the **Visualization Picker** in the **Search and Reporting** app.
Custom visualization app permissions

By default, all custom visualizations have the following discovery and installation options for users and admins.

<table>
<thead>
<tr>
<th>Option</th>
<th>User permission</th>
<th>Admin permission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Browse Splunkbase for custom visualization apps.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use the <strong>Visualization Picker</strong> to find custom visualizations.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Steps**

1. In the **Search and Reporting** app, run a query and select the **Visualizations** tab.
2. Open the **Visualization Picker**.
3. Select **Find more visualizations** to browse Splunkbase for custom visualization apps.

Install a custom visualization app from Splunkbase. No
Create a calendar heat map query

To generate a calendar heat map, write a query that returns events in the correct data format.

Query syntax

To generate a calendar heat map, use the following query syntax. Use the time range picker to adjust the time range that the visualization shows.

```
... | timechart span= [1m | 1h | 1d] <stats_function> [by <category_field>] | [...]
```

Query components

A calendar heat map query includes the following components.

```
timechart
  Required
  Use the timechart command to generate a _time field.

span [1m | 1d | 1h]
  Required
  Specify a span of one minute, one hour, or one day. Depending on the time span you specify, select a corresponding time range for best results. See the following table.
```

<table>
<thead>
<tr>
<th>For this timechart span</th>
<th>Use this time range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1m (one minute)</td>
<td>Less than twelve hours of data</td>
</tr>
<tr>
<td>1h (one hour)</td>
<td>Less than two weeks of data</td>
</tr>
<tr>
<td>1d (one day)</td>
<td>Less than one year</td>
</tr>
</tbody>
</table>

If the search returns more data than can be rendered in the visualization, a warning displays.
<stats_function>
  Required
  Use a stats function to aggregate values.
</stats_function>

<category_field>
  Optional
  Specify a category field with values to aggregate.
</category_field>

Search result data formatting

The calendar heat map query syntax returns results in a table with multiple columns. Columns represent the _time field and one or more resources that you are tracking.

Check the Statistics tab after running a query to make sure that the results table includes the following columns.

- _time
- stats result field, such as a count. The stats result fields can be grouped by category if you are using a category field.

Example queries

This query looks for video game purchasing patterns across all product types.

```plaintext
... | timechart span=1h count
```

The query generates the following Statistics table.

![Statistics table]

Example including a category field

This query includes a category field to count results for each product type.
... | `timechart span=1h count by categoryId`

This query generates the following Statistics table.

<table>
<thead>
<tr>
<th>Time</th>
<th>ADOBE/FLASH</th>
<th>ARGUS</th>
<th>BLIZZARD</th>
<th>SHOOTER</th>
<th>SIMULATION</th>
<th>SPORTS</th>
<th>STRATEGY</th>
<th>TIE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015-03-24 00:00</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2015-03-24 01:00</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2015-03-24 02:00</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2015-03-24 03:00</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2015-03-24 04:00</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Interpret

Calendar heat map components

Learn how to interpret a calendar heat map.

Visual elements

Calendar

The query time range determines calendar format. Depending on the time range selected, the calendar groups cells into hours, days, months, or years.

Rows

Each resource in the metric category that you are tracking appears in a separate row.

Cells

Each cell represents data for one increment of the specified time span. For example, if the query uses a one hour span, each cell represents one hour of data.

Cell color indicates relative metric density. The heat map color scale can be applied independently to each row or to all cells uniformly.
**Interactive elements**

*Drilldown*

Click on a calendar cell to open a search for events in the time range that the cell represents.

*Tooltips*

Hover over a cell to display a tooltip with data details for the cell.
Configure

Customize a calendar heat map

Use the Format menu to customize a calendar heat map. The menu has panels for the following settings.

General

- If you are using a one day span and searching over a one year time range, choose whether to split the year into separate months in the calendar.

Color and legend

- Show or hide the visualization legend.
- Apply the heat map color scale to each row independently or to all rows uniformly.
- Select minimum and maximum colors or specify CSS hex values for the heat map.
- Adjust data binning to change how many bins the heat map color scale uses.

Style

- Adjust cell width and padding.
- Specify square or circular cell shapes.

Add a calendar heat map to a dashboard

After you create a query and configure a custom visualization, you can add the visualization to a dashboard. Custom visualizations have the same dashboard panel editing options as standard Splunk platform visualizations.

Prerequisites
Steps

1. After running a search and configuring the visualization, select **Save as > Dashboard panel** to add the visualization to a new or existing dashboard.
2. (Optional) Edit the dashboard panel as needed.

Simple XML for calendar heat maps

Custom visualizations use a namespaced syntax for Simple XML. Specific visualization properties are appended to the app and visualization context.

Add a calendar heat map to a dashboard panel

You can add a calendar heat map to a dashboard panel using Simple XML. Use this syntax to specify the app and visualization context.

```
<viz type="calendar_heatmap_app.calendar_heatmap">
</viz>
```

Configure calendar heat map properties

To configure a calendar heat map property, append any of the following property names to this context.

```
<option name="calendar_heatmap_app.calendar_heatmap.[property_name]">[property_value]
</option>
```

<table>
<thead>
<tr>
<th>Option name</th>
<th>Accepted values</th>
<th>Default</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Setting</td>
<td>Description</td>
<td>Default Value</td>
<td>Example XML</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------------------------------------------</td>
<td>---------------</td>
<td>-------------</td>
</tr>
<tr>
<td>cellPadding</td>
<td>Any number between 0-10</td>
<td>2</td>
<td><code>&lt;option name=&quot;calendar_heatmap_app.calendar_heatmap.cellPadding&quot;&gt;5&lt;/option&gt;</code></td>
</tr>
<tr>
<td>cellSize</td>
<td>Any number between 2-30.</td>
<td>10</td>
<td><code>&lt;option name=&quot;calendar_heatmap_app.calendar_heatmap.cellSize&quot;&gt;20&lt;/option&gt;</code></td>
</tr>
<tr>
<td>cellStyle</td>
<td>[ square</td>
<td>circle ]</td>
<td>square</td>
</tr>
<tr>
<td>legendType</td>
<td>[ independent</td>
<td>uniform ]</td>
<td>independent</td>
</tr>
<tr>
<td>maxColor</td>
<td>Any valid CSS color string.</td>
<td>#269489</td>
<td><code>&lt;option name=&quot;calendar_heatmap_app.calendar_heatmap.maxColor&quot;&gt;#dae667&lt;/option&gt;</code></td>
</tr>
<tr>
<td>minColor</td>
<td>Any valid CSS color string.</td>
<td>#dae667</td>
<td><code>&lt;option name=&quot;calendar_heatmap_app.calendar_heatmap.minColor&quot;&gt;#269489&lt;/option&gt;</code></td>
</tr>
<tr>
<td>numOfBins</td>
<td>Any number from 3-9</td>
<td>6</td>
<td><code>&lt;option name=&quot;calendar_heatmap_app.calendar_heatmap.numOfBins&quot;&gt;3&lt;/option&gt;</code></td>
</tr>
<tr>
<td>showLegend</td>
<td>[ true</td>
<td>false ]</td>
<td>true</td>
</tr>
<tr>
<td>splitMonths</td>
<td>[ true</td>
<td>false ]</td>
<td>true</td>
</tr>
</tbody>
</table>

**Example Simple XML source**

Here is an example calendar heat map dashboard panel

```xml
[...]
  <panel>
```
<title>My example panel</title>
<viz type="calendar_heatmap_app.calendar_heatmap">
  <search>
    <query>
      | inputlookup host_mins.csv | eval
      _time=strptime(time,"%m/%d/%Y %H:%M") | timechart span=1m
      sum(value)
    </query>
    <earliest>1451635200</earliest>
    <latest>1451660400</latest>
  </search>
  <option name="height">260</option>
  <option name="calendar_heatmap_app.calendar_heatmap.cellPadding">2</option>
  <option name="calendar_heatmap_app.calendar_heatmap.cellSize">10</option>
  <option name="calendar_heatmap_app.calendar_heatmap.cellStyle">square</option>
  <option name="calendar_heatmap_app.calendar_heatmap.legendType">independent</option>
  <option name="calendar_heatmap_app.calendar_heatmap.maxColor">#269489</option>
  <option name="calendar_heatmap_app.calendar_heatmap.minColor">#dae667</option>
  <option name="calendar_heatmap_app.calendar_heatmap.numOfBins">5</option>
  <option name="calendar_heatmap_app.calendar_heatmap.showLegend">true</option>
  <option name="calendar_heatmap_app.calendar_heatmap.splitMonths">false</option>
</viz>
</panel>

[...]
Release notes

Release notes

Known issues

There are no known issues in the current software version.

Software credits

Some of the components included in this visualization app are licensed under free or open source licenses. We wish to thank the contributors to those projects.

bootstrap

Version 3.3.5
http://getbootstrap.com/

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cal-heatmap

Version 3.5.4
https://github.com/wa0x6e/cal-heatmap

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d3

Version 3.5.16
https://github.com/mbostock/d3

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**moment**

Version 2.13.0
http://momentjs.com/

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underscore

Version 1.8.3
http://underscorejs.org/

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