Splunk® Enterprise
Splunk Dashboard Studio 9.1.1

Modify and write dynamic options syntax

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Modify and write dynamic options syntax

The following examples demonstrate how you can use dynamic options syntax (DOS) to dynamically update dashboards.

Add to existing DOS in the source code

You need to write your own DOS in the source code editor for advanced uses, but it is more efficient to start with pre-generated DOS in the source code editor before writing new DOS. By using dynamic options in the visual editor UI, the dynamic options you set populate the source code with DOS.

The following two examples apply dynamic coloring using DOS by starting with pre-generated DOS created from the visual editor UI and editing that DOS with manual adjustments.

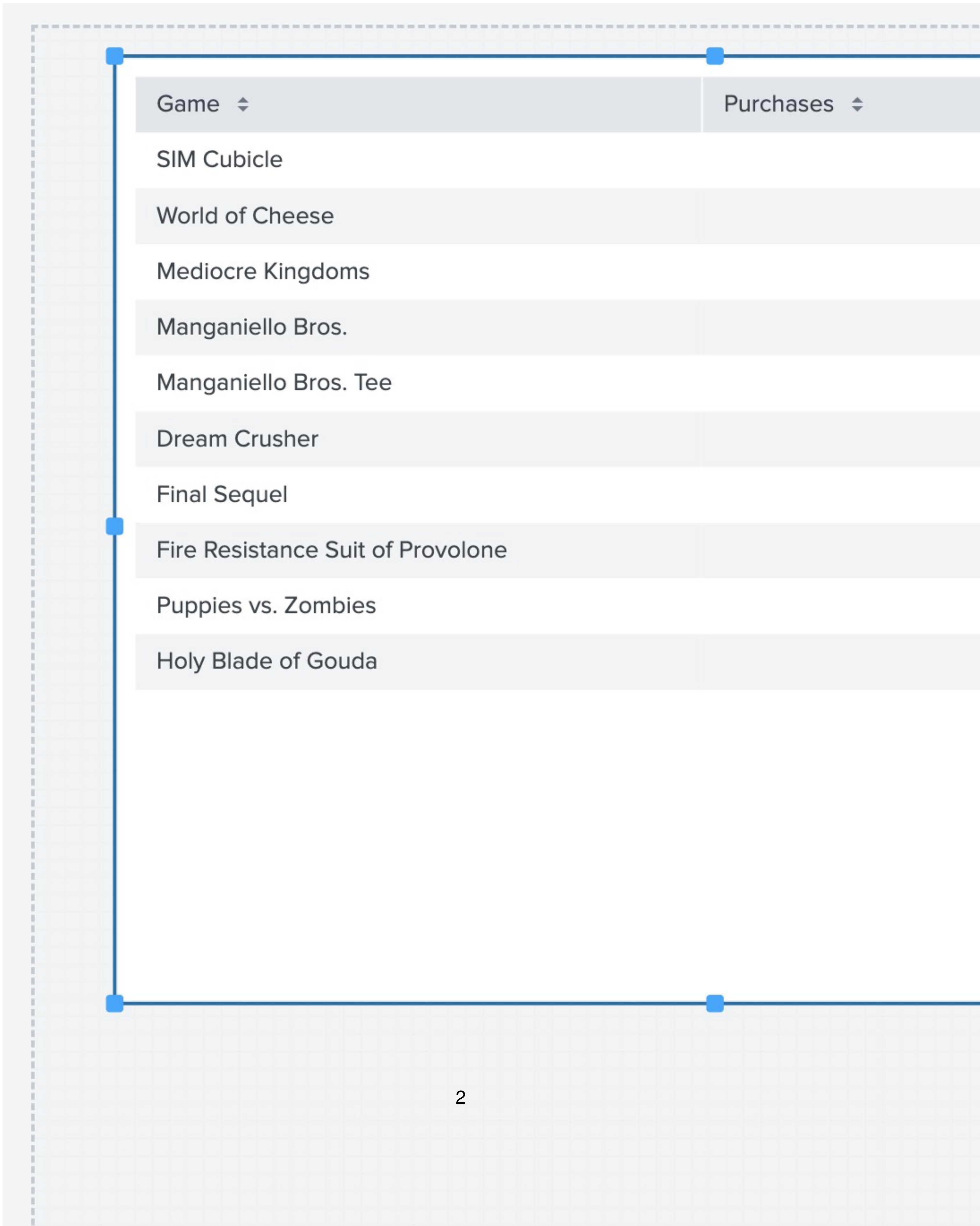
Example of table column coloring

Using DOS, you can dynamically color a cell or column in a table based on values in another column. The following example represents a table with 2 columns: **Game** and **Purchases**. You want to dynamically update the text colors of the **Game** column based on values in the **Purchases** column.

You use the visual editor UI to apply dynamic coloring based on **Purchases**, then you manually modify the DOS to apply the coloring to the **Game** column. First, set 5 color thresholds by selecting **Column formatting** and then selecting **Purchases - number** in the visual editor:

- Green: More than 2,400 purchases
- Light green: 2,200 to 2,400 purchases
- Yellow: 2,000 to 2,200 purchases
- Orange: 1,700 to 2,000 purchases
- Red: Less than 1,700 purchases

The following image shows the table you create after applying dynamic coloring based on the **Purchases** column.



Game	Purchases
SIM Cubicle	
World of Cheese	
Mediocre Kingdoms	
Manganiello Bros.	
Manganiello Bros. Tee	
Dream Crusher	
Final Sequel	
Fire Resistance Suit of Provolone	
Puppies vs. Zombies	
Holy Blade of Gouda	

Now, select **Source code** in the configuration panel to see the source code for the table visualization. The following code is within the `options` section of the source code:

```
"options": {
  "columnFormat": {
    "Purchases": {
       "data": "> table | seriesByName(\"Purchases\") | formatByType(PurchasesColumnFormatEditorConfig)",
        "rowColors": "> table | seriesByName(\"Purchases\") | rangeValue(PurchasesRowColorsEditorConfig)"
            },
     "Game": {
         "data": "> table | seriesByName(\"Game\") | formatByType(GameColumnFormatEditorConfig)| "
            }
        }
    },
```

In this example, the following line of DOS defines the `rowColors` value of the column `Purchases`:

```
"rowColors": "> table | seriesByName(\"Purchases\") | rangeValue(PurchasesRowColorsEditorConfig)"
```

The selector function in this line selects the `Purchases` column, and the formatting function is `rangeValue`. The `rangeValue` function uses the input `PurchasesRowColorsEditorConfig` to format the values in the column `Purchases`.

The definition of `PurchasesRowColorsEditorConfig` is in the context section of the source code:

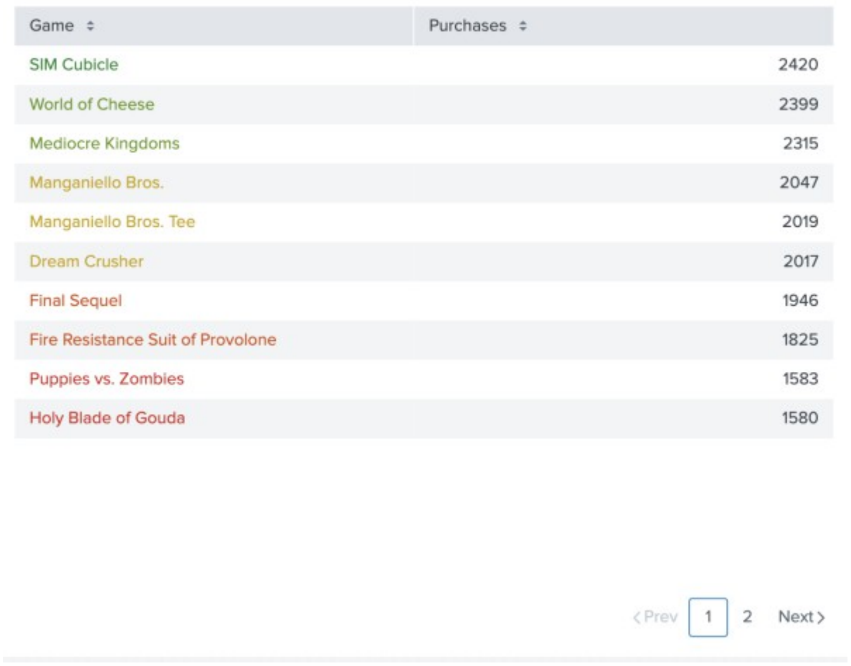
```
"context": {
        "PurchasesColumnFormatEditorConfig": {
            "number": {
                "thousandSeparated": false,
                "unitPosition": "after"
            }
        },
        "GameColumnFormatEditorConfig": {
            "string": {
                "unitPosition": "after"
            }
        },
        "PurchasesRowColorsEditorConfig": [
            {
                "value": "#D41F1F",
                "to": 1700
            },
            {
                "value": "#D94E17",
                "from": 1700,
                "to": 2000
            },
            {
                "value": "#CBA700",
                "from": 2000,
                "to": 2200
            },
            {
                "value": "#669922",
                "from": 2200,
                "to": 2400
            },
            {
                "value": "#118832",
                "from": 2400
            }
        ]
    }
```
From the previous source code, the inputs into the visual editor UI populate the `PurchasesRowColorsEditorConfig` values in the source code.

However, the `PurchasesRowColorsEditorConfig` values dynamically color the `Games` column instead of the `Purchases` column. To update this coloring, you need to remove the line of DOS that defines `rowColors` from the `Purchases` section and paste it in the `Game` section.

These edits result in the following new code in the `options` section:

```
"options": {
  "columnFormat": {
    "Purchases": {
        "data": "> table | seriesByName(\"Purchases\") | formatByType(PurchasesColumnFormatEditorConfig)"
                            },
    "Game": {
        "data": "> table | seriesByName(\"Game\") | formatByType(GameColumnFormatEditorConfig)",
        "rowColors": "> table | seriesByName(\"Purchases\") | rangeValue(PurchasesRowColorsEditorConfig)"
                            }
                         }
                 },
```
In this new code, the rowColors of the Game column is defined by the following line of DOS:

```
"> table | seriesByName(\"Purchases\") | rangeValue(PurchasesRowColorsEditorConfig)"
```
This line of DOS results in the correct dynamic coloring in the chart. Now, each individual game title in the `Game` column is colored by its corresponding value within the same row in the `Purchases` column. See the following screenshot for the table created as a result of editing the DOS for the table visualization.

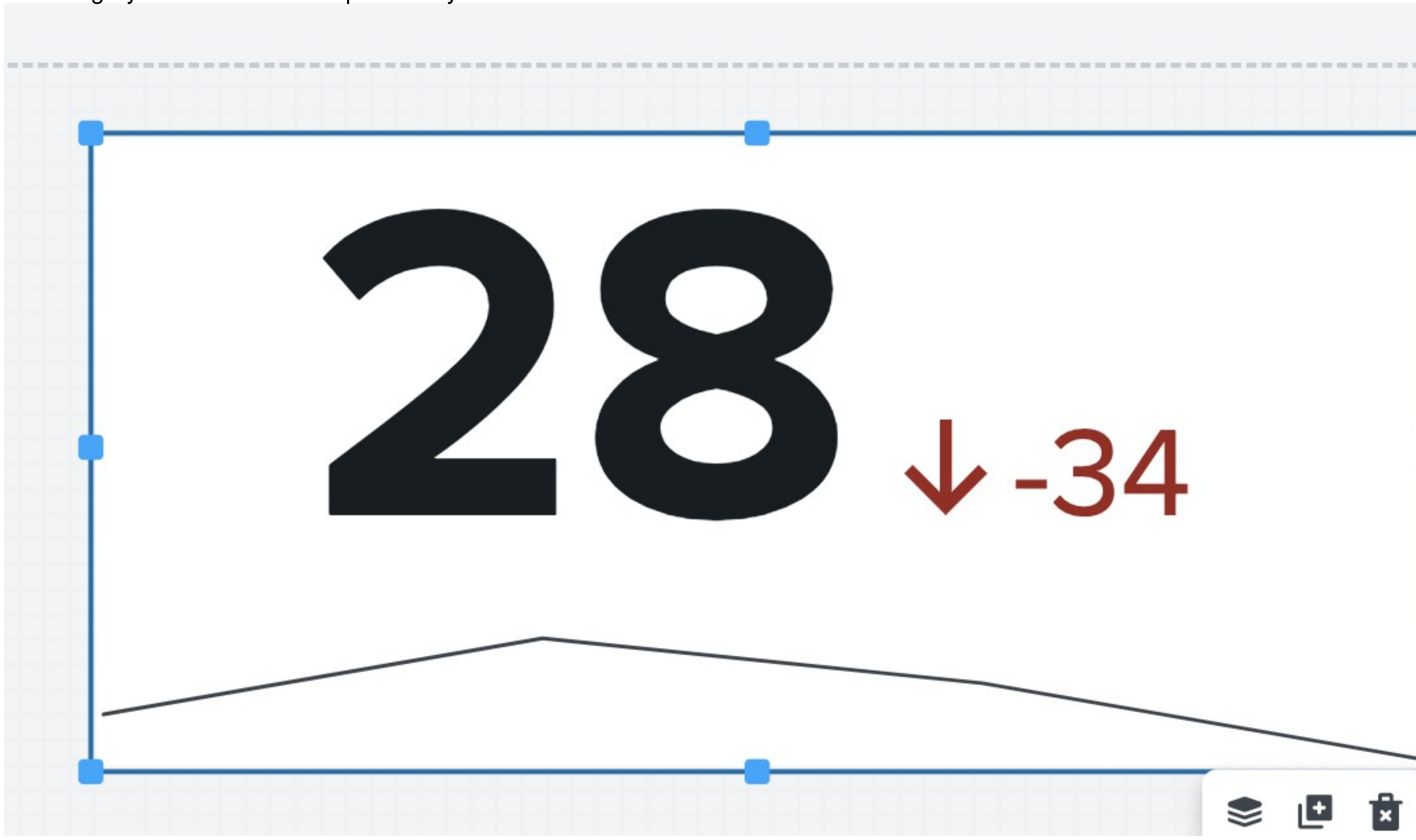


Game	Purchases
SIM Cubicle	2420
World of Cheese	2399
Mediocre Kingdoms	2315
Manganiello Bros.	2047
Manganiello Bros. Tee	2019
Dream Crusher	2017
Final Sequel	1946
Fire Resistance Suit of Provolone	1825
Puppies vs. Zombies	1583
Holy Blade of Gouda	1580

Color a single value visualization sparkline

In Dashboard Studio, you can add a sparkline to a single value visualization using the `timechart` command in your search. See Single value visualizations to learn more about the `timechart` command and how to add sparklines to your visualizations.

Using DOS, you can dynamically color a sparkline based on the trend value in the single value visualization to which you attached the sparkline. The following example represents a single value visualization of all Buttercup Games purchases in the category **Arcade** within the past 2 days.



You can start dynamically coloring a sparkline by setting dynamic options in the visual editor.

1. Set color thresholds for the dynamic trend value in the single value visualization by selecting **Coloring**.
2. Under **Dynamic Elements**, select **Trend**.

The visual editor automatically populates with the following color thresholds:

- Green: 0 and greater
- Red: less than 0

Now that the DOS in the visual editor is set, select **Source code** in the configuration panel to see the source code for the table visualization. The following code is within the options section of the source code:

```
"options": {
        "majorValue": "> sparklineValues | lastPoint()",
        "trendValue": "> sparklineValues | delta(-2)",
        "sparklineValues": "> primary | seriesByName('ARCADE')",
        "trendColor": "> trendValue | rangeValue(trendColorEditorConfig)"
    }
```

To color the sparkline, you need to set an option that defines the color of a sparkline. The option that defines the color of a sparkline is called `sparklineStrokeColor`. Since the `trendColor` option already contains all the formatting necessary for the sparkline's color, you can reference `trendColor` when defining the `sparklineStrokeColor` option. See Single value visualizations for a full list of source options for single value visualizations.

In the `options` section, the formatting function defining the `trendColor` value is `rangeValue`, and the input for that function is `trendColorEditorConfig`. The following code within the `context` section of the source code defines `trendColorEditorConfig`:

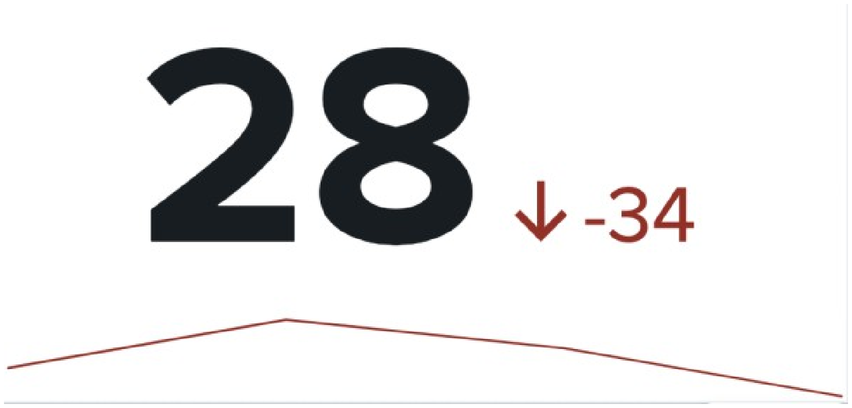
```
"context": {
        "trendColorEditorConfig": [
            {
                "to": 0,
                "value": "#9E2520"
            },
            {
                "from": 0,
                "value": "#1C6B2D"
            }
        ]
    }
```

To define the `sparklineStrokeColor` value, you only need to provide a data source, because `trendColor` already contains a selector function. Based on the definition of `trendColor`, add the line of code `"sparklineStrokeColor": "> trendColor"` to the start of the `options` section. This results in the following edited code under the `options` section:

```
"options": {
        "sparklineStrokeColor": "> trendColor",
        "majorValue": "> sparklineValues | lastPoint()",
        "trendValue": "> sparklineValues | delta(-2)",
        "sparklineValues": "> primary | seriesByName('ARCADE')",
        "trendColor": "> trendValue | rangeValue(trendColorEditorConfig)"
    }
```

The line of DOS you added results in the correct dynamic coloring result. Now, the sparkline under the single value visualization is colored by its corresponding trend value. The following screenshot shows the sparkline after editing the

DOS for the single value visualization.



Now that you can use the capabilities of DOS by writing your own DOS, see Escapes, quotation marks, and deltas in dynamic options syntax to learn more about formatting rules in DOS.

For a comprehensive table of DOS formators and selectors, see Selector and formatting functions.