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Research Article

Deep dive - Creating Stories in SAP Analytics Cloud

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A B S T R A C T

SAP Analytics cloud (SAC) is a cloud-based business intelligence (BI), planning, and predictive analytics platform developed by SAP. It is positioned by SAP as a strategic tool for reporting, Analytics, and Planning and widely used by customers. SAC Stories are most widely used as they provide various options for visual representations using tables, charts, geo maps, text widgets etc. We will discuss the details of these story design elements along with the performance considerations for creating visually impactful yet performance efficient SAC Stories.

Keywords: SAP Analytics Cloud (SAC), Story, Chart, Cloud, SAP Reporting.

1. Introduction

SAP Analytics Cloud (SAC) Story is a key feature within SAP Analytics Cloud that allows users to create interactive and visually compelling reports and dashboards. It serves as a unified workspace where you can explore, analyze, and share insights using a combination of data visualizations, narratives, and analytics. It is a presentation-style document that uses charts, visualizations, text, images, and pictograms to describe data. Stories can have multiple pages. Many customers refer to stories as reports or dashboards.

1.1. Modes

SAC offers two modes of story design, Classic Design and Optimized Design. SAP encourages you to use Optimized Design Experience mode. It has many usability and performance improvements and is the prerequisite for future story enhancements like the integration of analytics design capabilities and digital boardroom features into the story. Stories created in CLassic mode can be converted to Optimized Design mode.

1.2. Connections

SAC offers two main types of connections to integrate with various data sources: Live Data Connections and Import Data Connections. In Live connection, the data remains in the source system and is queried in real time. This is helpful for real-time data access for up-to-date analysis. There is no need for data replication or periodic updates. However, it can have performance issues for large data volumes in the stories. On the other hand Import connection imports the data from the source system to SAC, hence there is a copy of the data created and storage is required in SAC. In this case data replication or periodic updates are required to be set up.
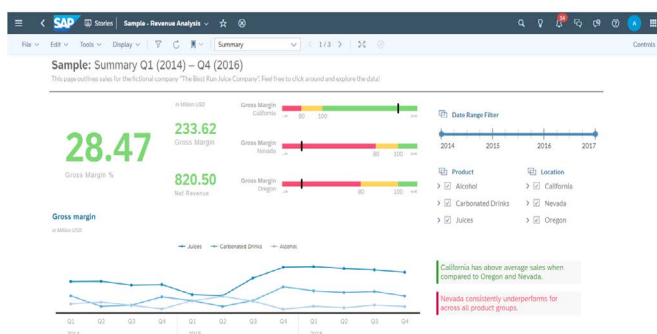
1.3. Data Sources

Data for a story can come from a file, an SAP Analytics Cloud model, data set, or an outside data source. If you import data from a file or an outside data source, you create a data set within the story. SAP Analytics Cloud has two types of data sets, Embedded or private, and Standalone or public.
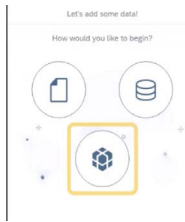

2. Creating Stories

To create a story, use the Navigation bar and select the 'Stories' button as highlighted in the picture. Then, choose either a Responsive or Canvas page, or you can select a template from the available options.
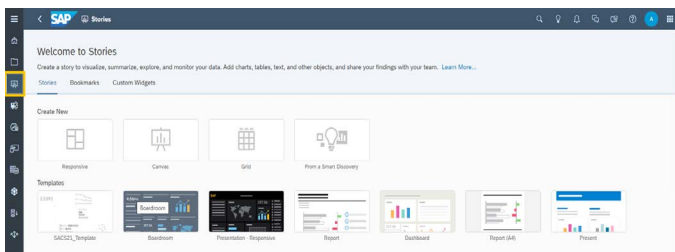
Now we will take a look at different story elements and what options they provide to enhance the visualization in the story.

2.1. Tables: Table is a very basic type of story element to view the data in a tabular format. When you add a table to a story, a data grid is created with the basic dimensions and categories of the model aligned along the axes of the grid. It is very similar to a pivot table in excel sheet. You can change this basic layout using the following designer tools:

Builder panel to select the measures and dimensions to include in the rows and columns of your table.
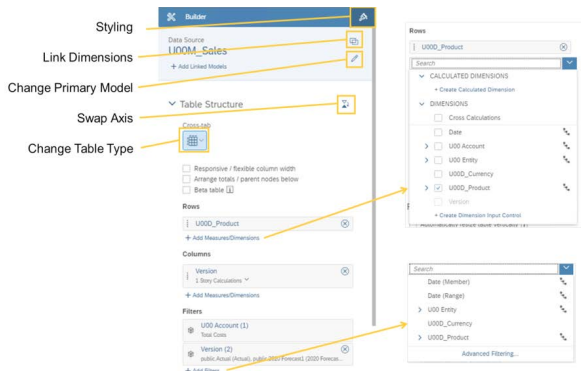
Styling tools to format the presentation.

Here multiple measures and multiple dimensions can be added to the table. When measures or dimensions are part of a hierarchy, you can expand them and select their level. If a dimension has properties associated with it, you can display those in the table. You can also apply filters to your measures and dimensions. The table data is updated as per the choices made in the builder. You can display a bar chart in your table cells so that you have both a visual and a numeric view of your data. In the table, right-click a column or row header containing a measure or member of an account dimension, and then select In-Cell Chart.
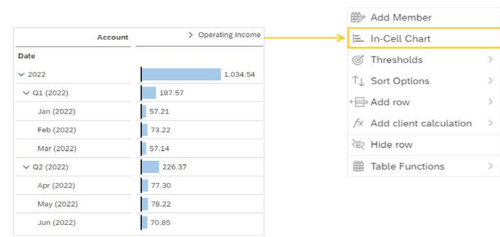

2.2. Charts

Charts help display your data graphically. You can pick the type of the chart from the builder. Then add the measures and dimensions to show in the chart. Once you have defined the structure of your chart, you can add other chart elements and/or filters. You can also customize color palettes. Charts can be formatted to desired appearance like changing background, adding border, adjusting number format and decimal places, data label and background color etc.

Chart scaling can also be done so that you have a meaningful display of values across multiple charts. By default, charts are not scaled. However, this behavior can lead to incorrect data analysis, if users are not paying attention to the values. You can use chart scaling to ensure that you have a consistent display of values across multiple charts when they display the same measure values.

Multiple Chart features can be utilized to enhance the visualization of the charts.

- **Thresholds** can be used to highlight critical ranges or limits in a dataset. Use color coding to differentiate between values within or outside the threshold.

- **Reference Lines** add context to charts by showing additional data points or key performance indicators. Add static or dynamic reference lines (e.g., average, median, or specific target values).

- **Variance** can be used to Display variances as absolute values or percentages. It is useful for comparing actual vs. planned data or year-over-year changes.

- **Tooltips** provide additional details when hovering over chart elements. Display dynamic or static text, including descriptions and underlying data points.

- **Linked Analysis** Enable interaction between multiple charts within the same story. Apply filters from one chart to another dynamically.
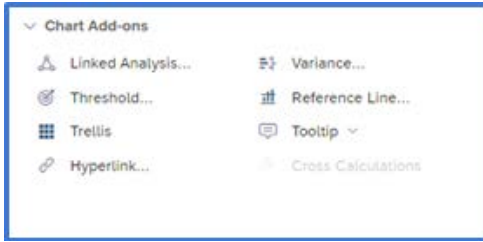
2.3. Geo Maps

In SAP Analytics Cloud, geo maps offer the visualization of data on a world map. You can choose from a variety of geographical mapping options to display your regional data, trends, flow, and much more. When you view the geo map in a story, you can use Zoom in, zoom out, Reset, Zoom to data, Map tool, Polygon filter etc. You can use map layers and various layer types to define geo maps in your stories. The following layer types are available:
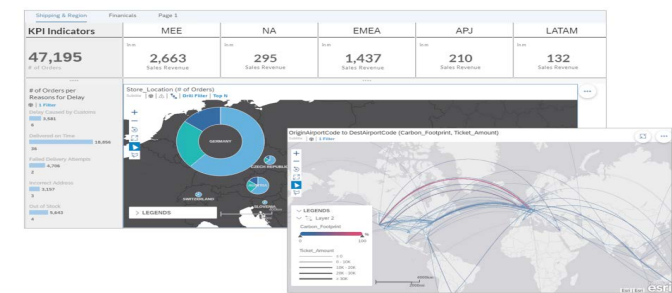
- **Bubble layer:** Shows data as points on the map where you can control the color, opacity, and size of the bubbles.
- **Heat map layer:** Uses color to visualize the data density of the selected measure.
- **Choropleth/drill layer:** Applies blocks of shading to different geographical locations.
- **Points of interest layer:** Points of interest are sets of geographical data that can be added to a geo map and analyzed with reference to business data from a model.
- **Feature layer:** Uses external data from valid service URLs. This data is layered on top of your existing geo map to provide additional context.
- **Flow layer:** Shows the connection between two locations, such as shipping routes or flight paths.

2.4 Text Widgets: Text widget allows you to add texts to your story which can be static or dynamic. They can be used for a variety of purposes like header data of the story with user details along with the login time and filters information etc.
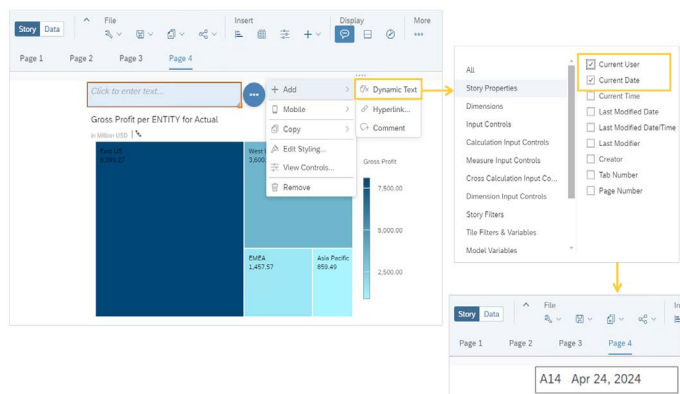
The hyperlink option for the widget can be used to navigate between pages in the story, to a new story, or to any website. In the text widget, manually type the text you want for the hyperlink, such as Go to Page [X].

2.5. Calculations

Calculation is always a requirement in any reporting tool. SAC offers various types of calculations that can be done on the existing measure fields and achieve the desired key figure values as per the business requirement.

- **Calculated Measure:** Perform a mathematical calculation on one or more members of the measure.
- **Restricted Measure:** Restrict the data from a measure so that it includes certain members of one or more dimensions. For the date dimension, you can pick dynamic values, such as year-to-date or previous quarter.
- **Difference From:** Find the difference in a value between a specific date and time relative to that date.
- **Aggregation:** Create calculations from aggregations such as sum, count, average, etc. You can also choose what conditions are required for the aggregation to be applied, and when the conditions are required.
- **Date Difference:** Create a calculation that shows the time interval between two dates, either days, months, or years.
- **Dimension to Measure:** Convert a string data format to a numeric format.
- **Running Total:** Create a running calculation in a table or chart based on the dimensions in the widget.
- **Currency Conversion:** For models with currency conversion enabled, calculate a value based on a currency exchange rate.

2.6. Mobile App

The SAP Analytics Cloud Mobile application is available for iOS and Android mobile devices like smartphones or tablets. With the SAP Analytics Cloud iOS app, you can log in with a Touch ID or Face ID. Stories can be shared with a link and when a user opens a link to stories on a mobile, it automatically launches the SAP Analytics Cloud mobile app and goes directly to that content. The appearance of the stories can be defined for different types of mobile devices. Select a device and size from the Device Preview Bar at the bottom of the story page, then with a lane in the story selected, open the Builder panel. You can now define how widgets in the lane will display on a specific mobile device, or even hide them.
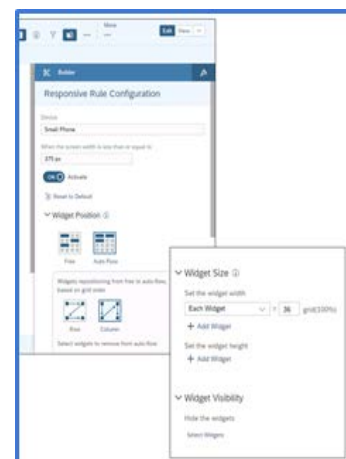
3. Performance Considerations

To create visually appealing and high-performing SAP Analytics Cloud stories, adhere to best practices that balance functionality and simplicity. Here are the key guidelines:

- **Story design principles**

  ° Limit pages; create distinct stories for each use case or audience.

  ° Use hyperlinks for related stories instead of adding pages.

  ° Structure pages by category or type of information, prioritizing the most-viewed content on the first page.

- **Widget and chart guidelines**

  ° Limit widgets per page to six or fewer to avoid performance issues.

  ° Avoid charts with more than 500 data points; use filters to manage data.

  ° Apply "Top N" features to limit initial data display.

  ° Enable background loading for invisible widgets to improve refresh times. Use the Edit area of the toolbar, Refresh → Loading Optimization Settings then choose Background Loading from the drop-down.

- **Table best practices**

  ° Limit tables to 500 rows and 60 columns for readability and performance.

  ° Use drill limitations for larger tables and disable "Planning Enabled" if used for analysis only.

- **Image optimization**

  ° Use web-sized images under 1MB. Prefer SVG or PNG formats over JPG for better performance.

- **Data management**

  ° Minimize linked dimensions in blended data.

  ° Reduce the number of data-rich widgets (e.g., maps, dense charts) to improve load times.

- **Hierarchies and input controls**

  ° Collapse large hierarchies or use drill capabilities to manage dimensions with ALL nodes effectively.

- **Performance enhancements**

  ° Use progressive chart rendering for faster widget display upon reopening.

  ° Avoid styling rules in large tables to maintain speed.

  ° Enable a "High Performance" power plan on your computer if scrolling in tables is slow.

These practices aim to enhance readability, usability, and system performance while ensuring efficient data visualization and storytelling.

4. Conclusion

SAP Analytics Cloud (SAC) provides organizations with tools to analyze data, gain insights, and make data-driven decisions within a single, integrated environment. Stories are used for creating visual presentation of data and provides a wide variety of options to format, filter, calculate and present data to cater to different business needs. Along with the story design options, the performance consideration aspects and best practices help a developer to create efficient story designs.

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