

In my Dundas Dashboard and MS PerformancePoint Comparison [article](#), I introduced you to Dundas Dashboard and explained how you can use it to rapidly assemble compelling performance dashboards. With Dundas Dashboard, you can also build analytical dashboards to let users create interactive, web-based reports from OLAP databases, such as Microsoft Analysis Services.

## Introducing Microsoft OLAP

Before discussing the capabilities of Dundas analytical dashboards, let's start with a brief introduction to OLAP. Unlike On-Line Transaction Processing (OLTP) systems, which are designed for fast transactional *input* to support business processes, On-Line Analytical Processing (OLAP) systems are optimized for fast data *output* to support data analytics and reporting. To provide a multidimensional view of data and fast query performance, OLAP systems aggregate and organize data from a data source such as a data warehouse, into a multidimensional structure called a *cube*.

Microsoft's OLAP offering is [Analysis Services](#). Analysis Services is a server-based platform that provides two core services: OLAP and Data Mining. Now in its fourth major release, Analysis Services is the leading OLAP server application according to The [BI Verdict's latest OLAP Market Share Analysis](#) report. Organizations typically use Analysis Services to address the following business intelligence needs:

- Multidimensional data analysis to let end users analyze data from different angles called *dimensions*.
- Fast data retrieval where most queries are executed within five seconds even with large data volumes.
- Centralized business logic in the form of calculations and Key Performance Indicators (KPIs).
- Data mining to discover data patterns that are not easily discernable, such as what products customers tend to buy together.

## Microsoft OLAP Front End Challenges

Analysis Services is a database and doesn't provide a front end to visualize data. Coupled with an effective presentation layer, Analysis Services and OLAP can be a dream come true for any data analyst and decision maker. Microsoft's premium Business Intelligence tool is Microsoft Excel. Excel provides comprehensive support for Analysis Services. However, while Excel will be the logical choice for an OLAP browser in a controlled intranet environment, it may not be an option if you are looking for a web-based presentation layer for Analysis Services. With the exception of PerformancePoint Services which requires SharePoint Server 2010 Enterprise Edition, Microsoft does not provide a web-based OLAP browser, nor are they planning to release the Dundas Chart for OLAP component, which Microsoft acquired from Dundas Data Visualization, anytime soon.

If you have used Dundas Dashboard to implement performance dashboards, you will be pleasantly surprised to find that you can also use Dundas Dashboard to quickly assemble great-looking analytical dashboards to present data from an Analysis Services cube. Moreover, a Dundas analytical dashboard doesn't have to be static. End users can use it as a starting point to create ad-hoc interactive reports.

## Dundas Analytical Dashboards

Dundas provides three controls for implementing an analytical dashboard:

- Analytical Chart – a control for building interactive charts using any of the supported chart types, such as bar, line, pie, etc.
- Analytical Grid – a control for implementing crosstab (pivot) reports.
- Analytical Combo – a tabbed control that lets the user switch between chart and grid views.

### Designing an analytical dashboard

Designing Dundas dashboards doesn't require installing additional software on the desktop. Instead, you use the same Dundas Dashboard web-based portal that the end users would use to view the dashboards. The first step is to connect to your SQL Server Analysis Services (SSAS) database and create a virtual cube that abstracts the SSAS metadata. After that, implementing a basic analytical dashboard requires only a few mouse clicks:

1. Right-click the Analytical Dashboards section in the Design Explorer and choose New Analytical Dashboard.
2. Drag the virtual cube from the Toolbox pane and drop it onto the design canvas. This action adds the Analytical Combo control to the canvas and binds it to the cube.
3. If you defined any reports when you set up the virtual cubes, the Analytical Combo control will automatically pick up the first report. You can click the dropdown selector in the top right corner of the dashboard to choose a different report, as shown in [Figure 1](#).
4. Save your changes and check in. At this point, the analytical dashboard is available for reporting.

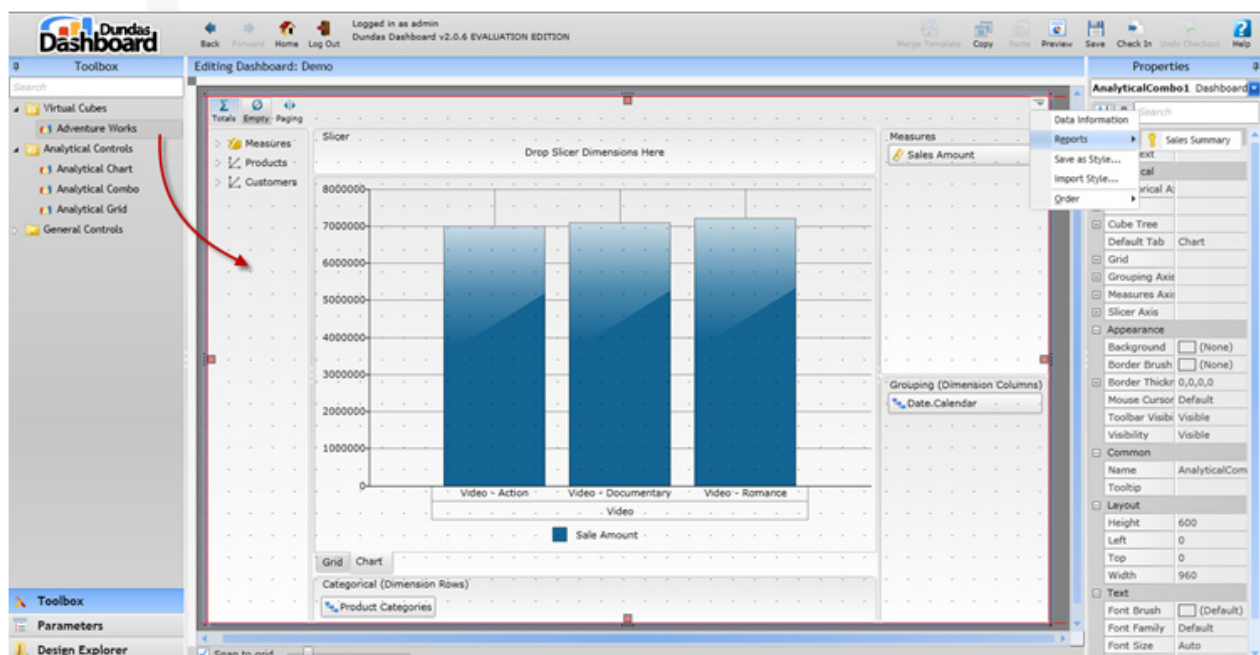


Figure 1. The Analytical Combo control supports Grid and Chart views.

The Analytical Combo control consists of several panes: the Cube Tree pane that shows the cube metadata and lets the user drag and drop objects to build interactive reports, the Measures Pane that shows the measures used on the report, the Grouping pane that lists the dimensions used to slice data on columns, and the Categorical pane that shows the dimensions used to slice data on rows.

Dundas Dashboard provides an extensive set of options to let you customize the look and feel of the dashboard to achieve stunning visualization effects. For example, to change the chart type, you click the Series properties found under the Chart section in the Properties grid and change the Chart Type property to any of the supported chart types. To save space, you can also collapse any of the panes by setting its Visibility property in the Properties window.

### Building interactive reports

A Dundas analytical dashboard is more than just a static dashboard page; it's an OLAP browser that lets end users build their own interactive reports. Although this process is similar to using Microsoft Excel, one very useful feature of Dundas analytical dashboards that isn't supported by Excel is the ability to show the object description in a tooltip. This can help you implement self-documenting cubes.

Let's look at using an analytical dashboard now. Suppose that the end user wants to add a report slicer to see Sales data for North America only.

1. From the Cube Tree pane, drag the Sales Territory dimension to the Slicer pane. This configures the Slicer pane to use the first user-defined hierarchy.
2. Point the mouse cursor to the Sales Territory hierarchy in the Slicer pane, click the dropdown selector, and then click Edit to open the Edit Dimension dialog box (see Figure 2).

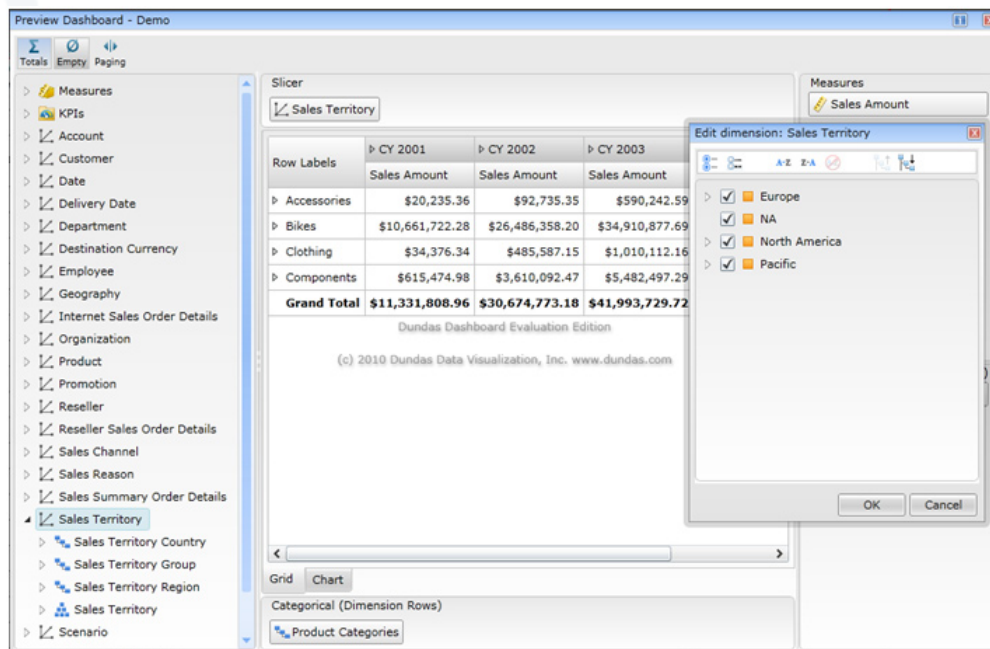


Figure 2. End users can build interactive reports by dragging and dropping objects.

The Edit Dimension dialog box lets the user select and unselect all members, sort members, and drill down the member hierarchy.

3. Click the Deselect All Members toolbar button, check only North America and click OK. Dundas Dashboard filters both the grid and chart to show data for North America only.

Once the report is finalized, the user can bookmark it to save its view state and run it at a later time. Version 2.5 of Dundas Dashboard adds even more end-user features. Similar to Excel, to avoid querying the cube each time the report layout is changed, the user can freeze the layout. With a click of a button, the user can also transpose the grid layout by interchanging rows and columns.

## Scripting Support

Dundas Dashboard v2.5 adds scripting support to let developers extend analytical dashboards using code.

For example, a developer may need to enable users to filter a chart on an analytical combo control by clicking on a cell in the grid area:

1. Add a Click event handler to the AnalyticalCombo control.
2. Write code to obtain the context of the active cell and create a parameter collection.
3. Pass the parameters to another analytical visualization control on the dashboard.

For the sample code and more details on how to do this, [click here](#) or visit the Dundas Support [website](#) to see more script samples.

## Personalization

Some users may prefer personalized views instead of pre-defined dashboard pages. As a designer, you can make your dashboard solution more flexible by implementing Dashblocks. A Dashblock is a dashboard fragment that can be combined with other Dashblocks to assemble personalized views. A Dashblock is similar to a dashboard in design and implementation, but a Dashblock is smaller and typically contains a single visualization to reduce its space requirements. End users can create mashups by adding pre-designed Dashblocks to a mashup page containing the Dashblock Viewer control. The mashup page can combine both performance and analytical Dashblocks. To see examples of Dashblocks, please read the Dundas Dashboard and MS PerformancePoint Comparison [article](#).

## Conclusion

By filling the void left by Microsoft, Dundas analytical dashboards let you bring the power of Microsoft OLAP to the web. Its rapid development features allow designers to assemble OLAP views in minutes. End users will undoubtedly appreciate its stunning data visualization features and the ability to slice and dice data interactively.

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