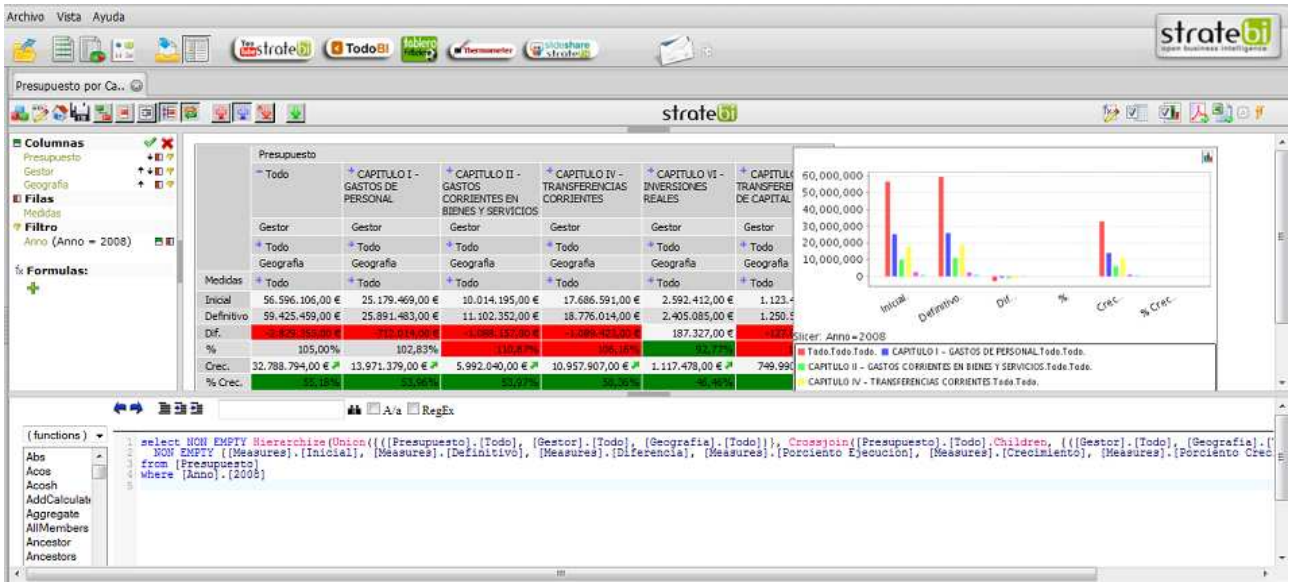
STPivot Tutorial, first steps



January 2012

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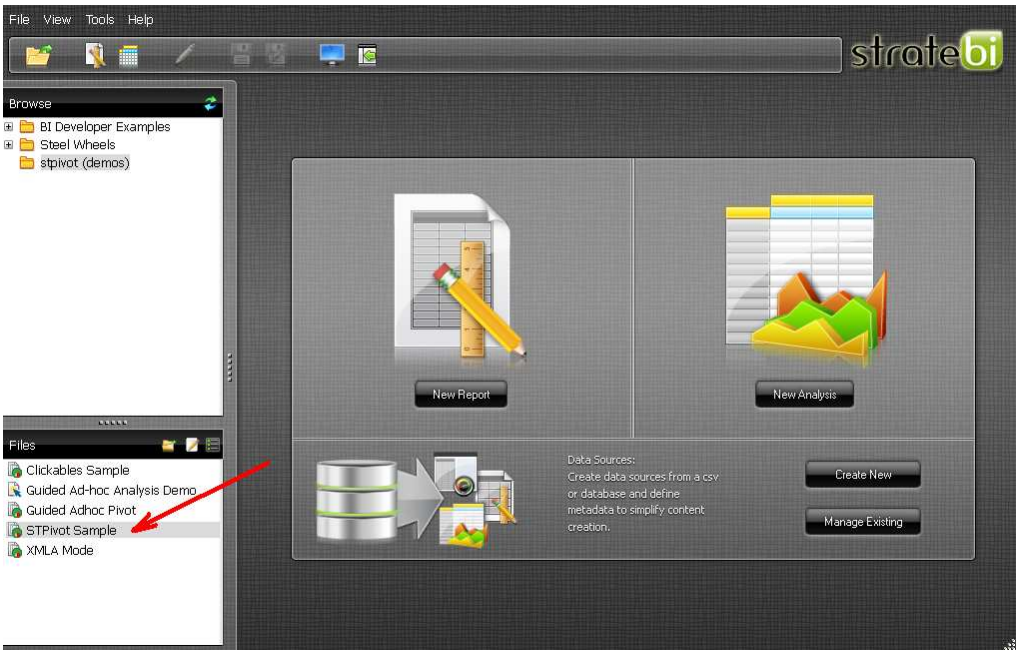
1. Introduction

This document is intended to guide your first steps when using STPivot instead of default Pivot viewer packed with Pentaho BI Server (Community Edition). We assume that you have already reviewed the “Introducing STPivot” and “STPivot Installation Guide” documents, successfully deploying STPivot in your Pentaho BI Server of choice, and feel yourself ready to start using it.

We'll be using the action sequence “STPivot Sample” as shown in the following picture.



2. Action Sequence Definition

You'll find two files in the solution folder (stpivot-demos) containing the necessary code for this sample. First of them (demo.analysisview.properties) is used only for internationalization reasons, and don't need an explanation. The entire action sequence definition is in file “demo.analysisview.xaction”, pasted here for further analysis.

```
<?xml version="1.0" encoding="UTF-8"?>
<action-sequence>

  <name>demo.analysisview.xaction</name>
  <title>%title</title>
  <version>1</version>
  <logging-level>ERROR</logging-level>
  <documentation>
    <author></author>
    <help/>
    <result-type>report</result-type>
    <description>%description</description>
    <icon></icon>
  </documentation>

  <inputs>
    <mode type="string">
      <default-value/>
      <sources>
        <request>mode</request>
      </sources>
    </mode>
  </inputs>

  <outputs>
    <model type="string"/>
    <connection type="string"/>
    <mdx type="string"/>
    <options type="list"/><!-- Ignored in STPivot -->
    <title type="string"/>
    <url type="string">
      <destinations>
        <response>redirect</response>
      </destinations>
    </url>
    <charttype type="string"/>
    <chartlocation type="string"/>
    <chartheight type="string"/>
    <chartwidth type="string"/>
    <showgrid type="string"/>
  </outputs>

  <resources/>

  <actions>

    <action-definition>
      <component-name>PivotViewComponent</component-name>
      <action-type>Pivot View</action-type>
      <action-name>Pivot View</action-name>
      <logging-level>ERROR</logging-level>
      <action-inputs>
        <mode type="string"/>
      </action-inputs>
      <action-outputs>
        <model type="string"/>
        <connection type="string"/>
        <mdx type="string"/>
        <options type="list"/><!-- Ignored by STPivot -->
        <title type="string"/>
        <url type="string"/>
        <charttype type="string"/>
```

```
63.                     <chartlocation type="string"/>
64.                     <chartheight type="string"/>
65.                     <chartwidth type="string"/>
66.                     <showgrid type="string"/>
67.                   </action-outputs>
68.                   <component-definition>
69.                     <title>Drill Down to Pivot Table</title>
70.                     <viewer>STPivot</viewer>
71.                     <charttype>8</charttype>
72.                     <chartlocation>right</chartlocation>
73.                     <chartheight>500</chartheight>
74.                     <chartwidth>600</chartwidth>
75.                     <showgrid>true</showgrid>
76.                     <model><![CDATA[stpivot-demos/steelwheels.mondrian.xml]]></model>
77.                     <!--connection>jdbc/SampleData</connection-->
78.                     <!--query>default</query-->
79.                     <options><!-- Ignored by STPivot -->
80.                       <personal/>
81.                       <cube-nav/>
82.                       <mdx-edit/>
83.                       <sort-conf/>
84.                       <spacer/>
85.                       <level-style/>
86.                       <hide-spans/>
87.                       <properties/>
88.                       <non-empty/>
89.                       <swap-axes/>
90.                       <spacer/>
91.                       <drill-member/>
92.                       <drill-position/>
93.                       <drill-replace/>
94.                       <drill-thru/>
95.                       <spacer/>
96.                       <chart/>
97.                       <chart-conf/>
98.                       <spacer/>
99.                       <print-conf/>
100.                      <print-pdf/>
101.                      <spacer/>
102.                      <excel/>
103.                    </options>
104.                    <jndi>SampleData</jndi>
105.                    <query><![CDATA[
106.                      SELECT
107.                        { [Markets].[All Markets].Children } ON COLUMNS,
108.                        { [Time].[Years].Members } ON ROWS
109.                      FROM [SteelWheelsSales]
110.                      WHERE [Measures].[Sales]
111.                    ]]></query>
112.                  </component-definition>
113.                </action-definition>
114.
115.              </actions>
116.
117.            </action-sequence>
```

There are no big differences between this code, and the one you normally use to define a Pivot View. In line 70 we've highlighted the word STPivot, indicating the place where you must set the new viewer to use. If you replaced original Pivot by STPivot, then you'll need no changes at all.

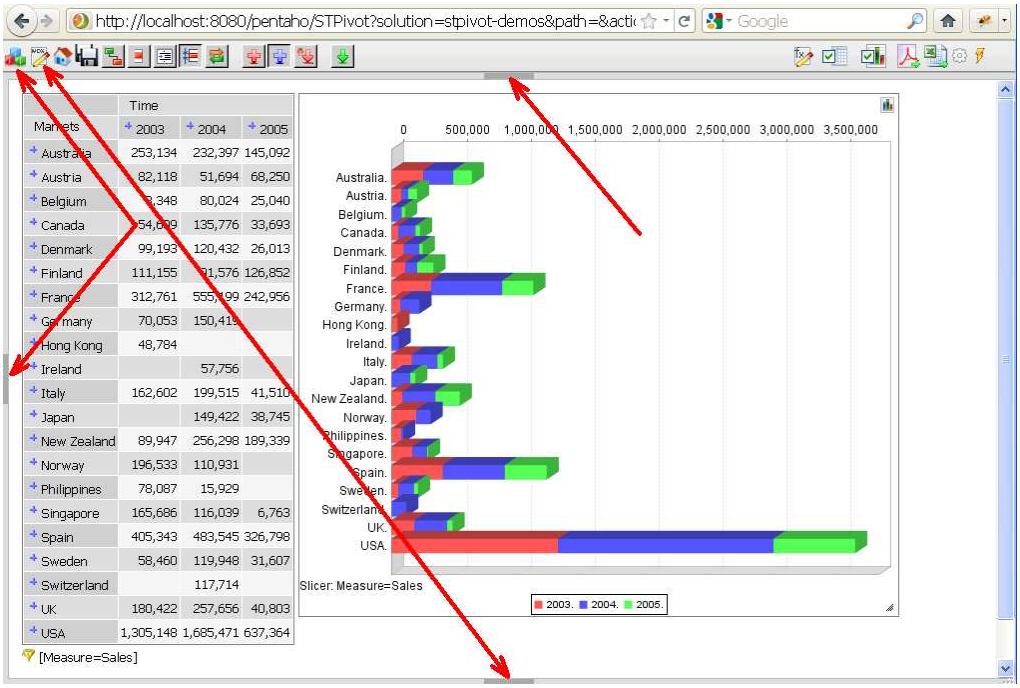
The options section in component-definition is ignored by STPivot, but it is still here so you can compare with default Pivot viewer. This section allowed you to select the buttons that should appear in the toolbar, and the relative position of them. In Stratebi, we think that a statict toolbar (presenting always the same buttons in the same relative position) promotes the usability of STPivot.

3. User Interface

Along with documentation, you'll find some videos that demonstrates how to use STPivot. Interface was designed to be intuitive and easy to use, as well as complete and fully functional. Next topics will try to explain most features using screenshoots.

3.1 Panels Layout

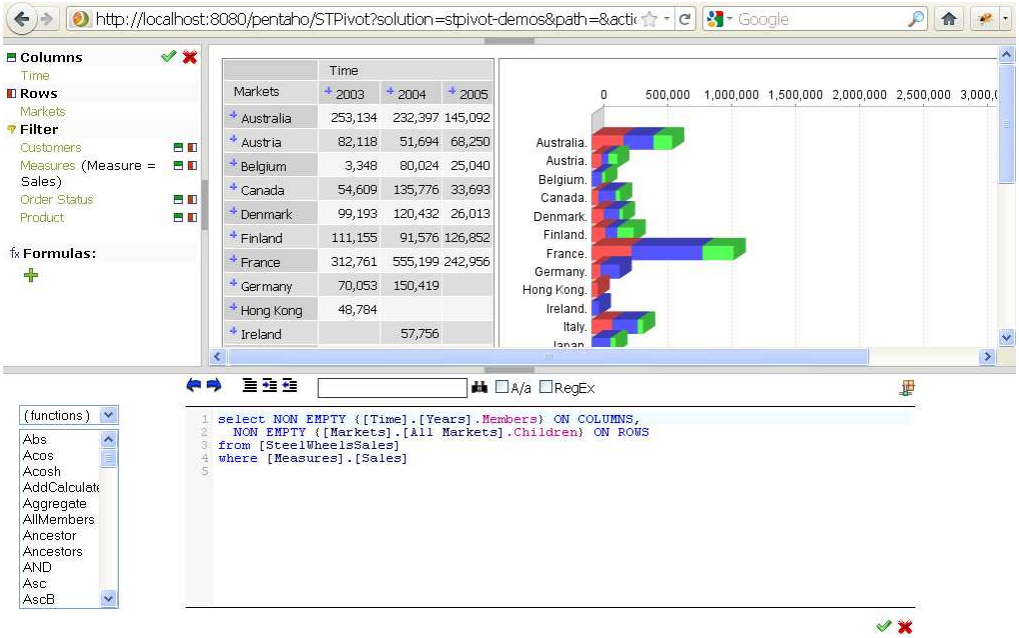
Panels can be opened, closed or resized, giving users the possibility to optimize the available space according to current need. In the picture, red arrows are indicating where you must click with your mouse, to toggle the state of a panel.



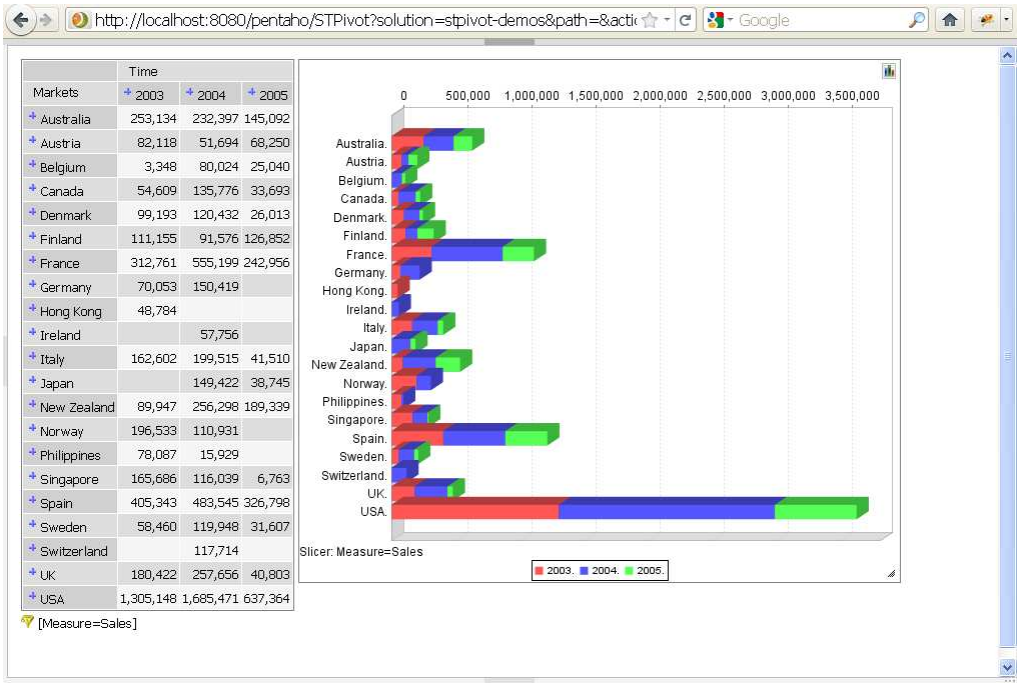
First button in the toolbar ( ) toggles the navigator panel in the left side of the screen. Some users may want this panel situated at right, and it is quite easy to achieve (as simple as changing from “WEST” to “EAST”), but we believe it better this way.

When the panel is closed and you pose the mouse over its border (not over the dark gray area), you can slide open the panel, which means that the panel will stay open as long as the mouse is inside of it; but leaving the panel will automatically close the panel.

Next picture shows the same view when all the panels are toggled; you should try how it works by playing in your own environment.



You can see how space is maximized when all panels are closed.



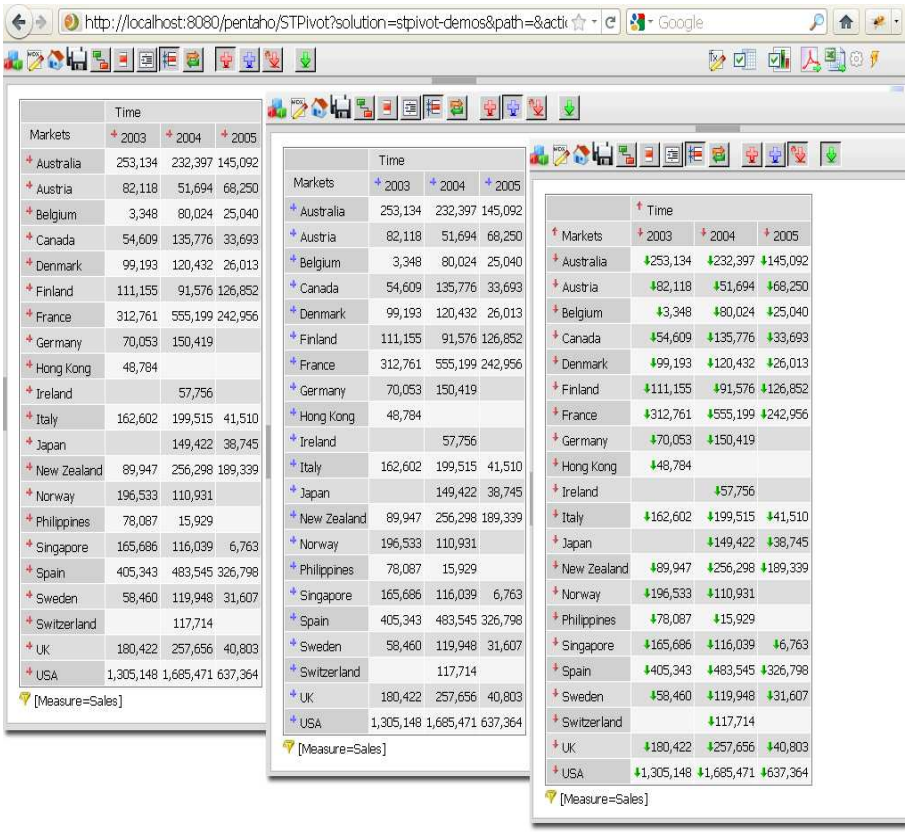
3.2 Toolbar

In order to get the best of STPivot, just like with JPivot, users must learn how to use the options available in toolbar (on top panel). Now will review each of them.

Button	Description
	Toggles (show/hide) the left panel containing Cube Navigator and Formulas list
	Toggles (show/hide) the bottom panel, containing the MDX Query editor.
	Takes the user back to the original location used to open the viewer, so he/she can start over from the beginning.
	Opens a dialog to save current query in the form of an analysis view xaction, allowing users to share this query or reuse it in the future. There is another closely related button that overwrite current xaction, but it is invisible by default because inexperienced users (and even experienced ones) can lost a parameterized and more versatile xaction by mistake. This way, the user is aware that will rewrite an existing xaction if that's the case.
	Indicates whether STPivot most show parent members in the pivot table. It can be pressed or not (default).
	Indicates whether STPivot most expand a row when current member is the same previous member, resulting in a more clear pivot table. It can be pressed or not (default).
	Members can have additional properties that will be included in the pivot table when this button is pressed. By default it is not pressed.
	Suppress empty rows and/or columns. By default it is not pressed, but when the MDX query has the NON EMPTY clause in any of visible axes, it will appears pressed by default.
	Swap visible axes, meaning that dimensions in columns goes to rows, and those in rows goes to columns.
	Indicates STPivot that when clicking in the pivot table, that member most be expanded in every occurrence (position in the pivot table). By default it is not pressed.
	Indicates STPivot that when clicking in the pivot table, that member most be expanded only in its current position. By default it is pressed.
	Indicates STPivot that when clicking in the pivot table, that member should be drilled and replaced by its children. By default it is not pressed.

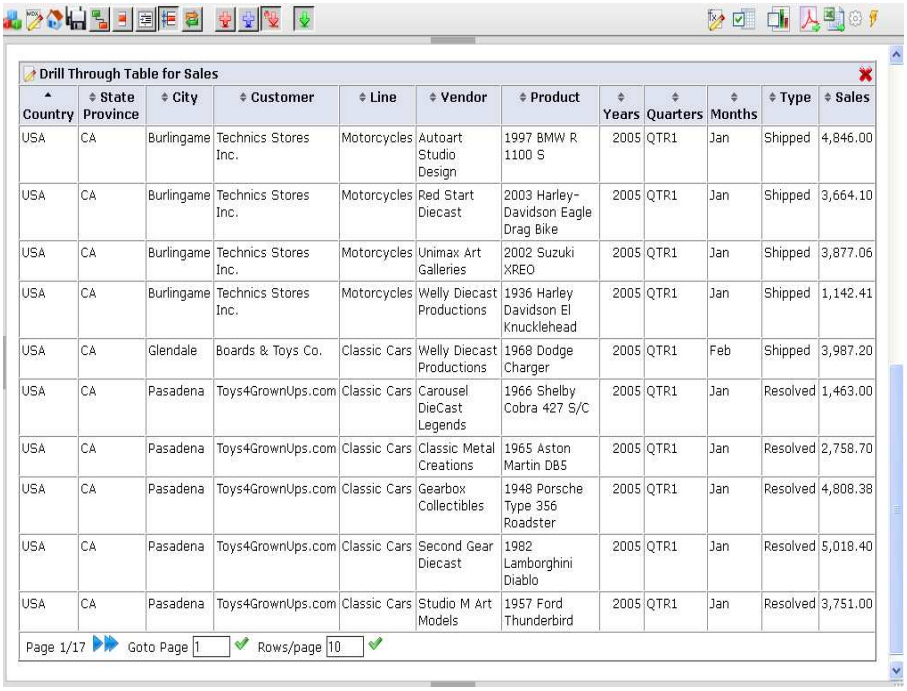
	Give users the possibility to drill through and open a new table with facts that are contributing to result in selected cell. It can't be used with calculated members, and rarely a user needs to go so deep in available data.
	Opens the dialog add a new formula (calculated member o named set).
	By clicking in the checkbox on top of this image, users can toggle the visibility of the grid (pivot table)
	By clicking in the checkbox on top of this image, users can toggle the visibility of the chart dialog.
	Export the content of the view to PDF format.
	Export the content of the view to XLS format (MS Excel Sheet).
	Opens a dialog to configure options available for Chart, Axes, Sort and Print.
	Clears the Mondrian cache, so next update will show latest data loaded into the cube.

3.3 MDX Table



MDX Table, also named pivot table or simply grid, is almost always the same, except for some minor changes depending on options selected in the toolbar. In the picture you can see three captures with Drill Member pressed in the first one, Drill Position pressed in the second one, and Drill Replace with Drill Through pressed in the third one. You can see a different picture when pressing other buttons.

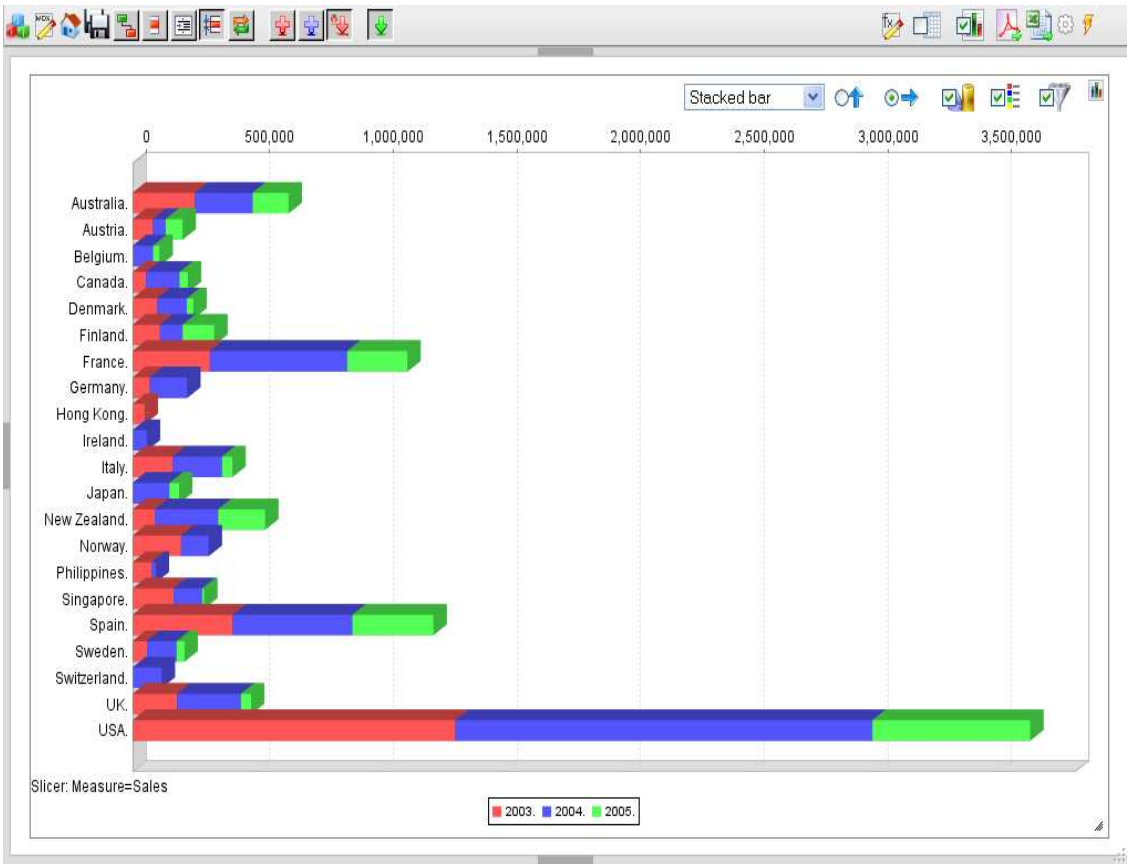
3.4 Drill Through Table



We've clicked in the drill through button for USA in 2005, an got the table shown in the picture. As you can see it is paginated, having 17 pages with 10 rows per page. You can change the number of rows/page, and move between pages using the blue arrow buttons. By clicking in the edit icon on top left corner, you'll be presented with a form to indicate the visible columns and other configuration options for this table.

3.5 Chart Dialog

Perhaps the chart dialog is the most intuitive found in STPivot. It can be dragged&dropped around the content space of the viewer, and also be resized by dragging its borders conveniently. Some times the resulting image is dirty and difficult to understand, but the principle behind this chart is very simple: “draw in a chart every data in the grid”. That's why conforming a clear table (where visible members belongs to the same level of hierarchies) will result in better charts. But users can also change the type and orientation of the chart, as well as whether it will be 3D or not. In the picture you'll see the chart expanded to fill the visible space.



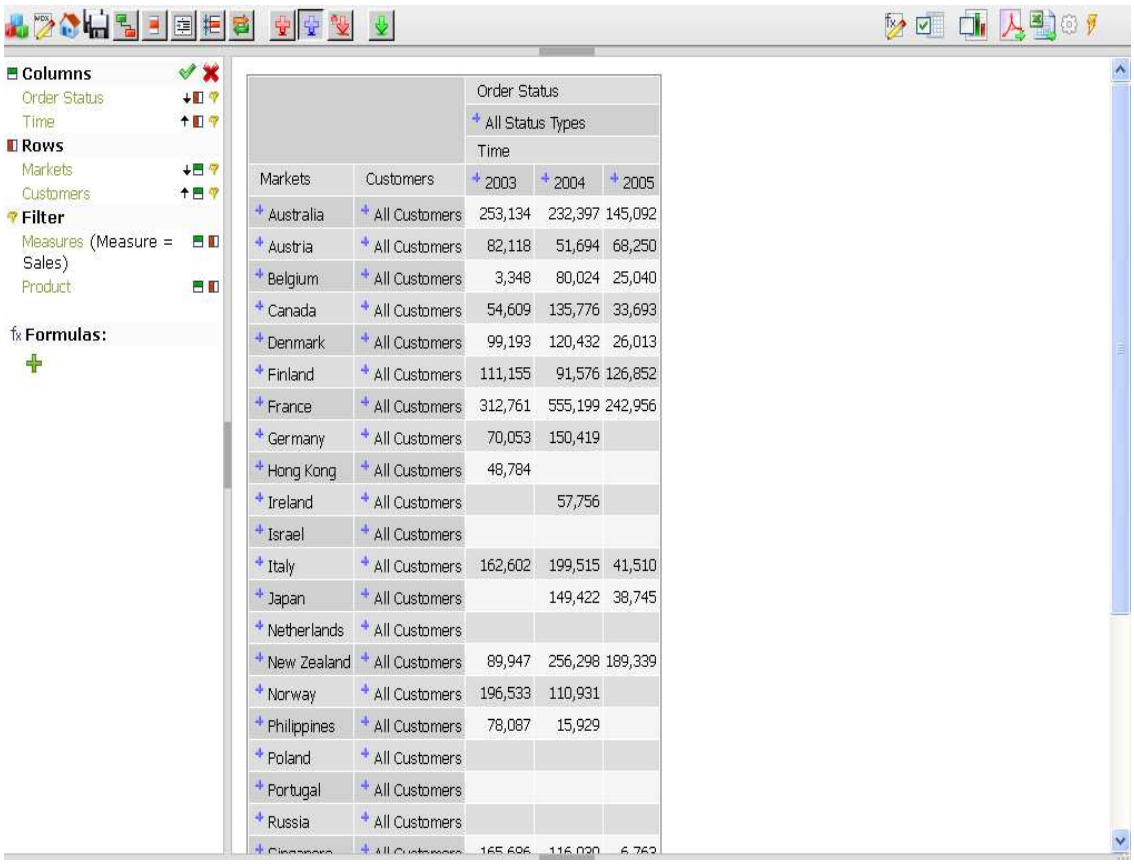
The configuration form on top-right corner gets toggled when clicking in the chart icon. You can try different charts fast and easy by changing this options.

3.6 Navigator

Cube navigator allows to indicate what dimensions, hierarchies and members will be place on each axis (Columns and Rows), or will be used as slicer in the Filter axis.

Every axis has a distinctive icon situated at left, that also appears at right of every dimension located in different axes. Only when there is no more than one dimension, user can't move the remaining dimension to other axis (so icons are not shown).

We've change the original query take the following picture. Note that Order Status was moved to columns and Customers was moved to rows.



By clicking in any dimension, you can specify what members will be selected. We encourage you to try with every dimension.

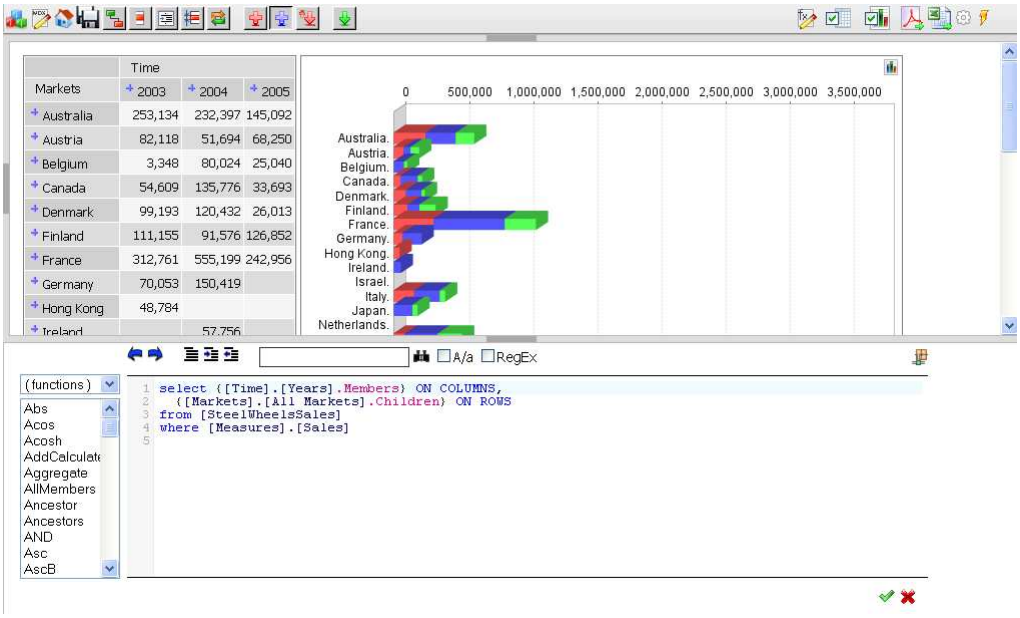
3.7 MDX Query Editor

As mentioned earlier, the MDX Query editor is located in the south (bottom) panel, and allows you to read/write current query (closely related to the pivot table and chart). In its original state, there was only a plain text area; but STPivot improves this editor in many ways:

- MDX syntax highlighting makes the query easier to read. Initially powered by CodePress, and currently using CodeMirror, a number of value added features found in desktop editors are now available to users. Most relevant includes: code completion, indentation buttons, search box with optional case sensitive and regular expressions patterns, and undo/redo buttons.
- Categorized functions list ready to insert in current position (or selected range). Each function has also a tip indicating the type of arguments expected in different use cases.
- Cube explorer that allows users to locate hierarchies, levels and members to select and

insert in current position (or selected range).

Along with documentation you'll find some videos demonstrating how to use the MDX Query editor. Next picture shows a capture of the screen with the MDX Query editor opened.



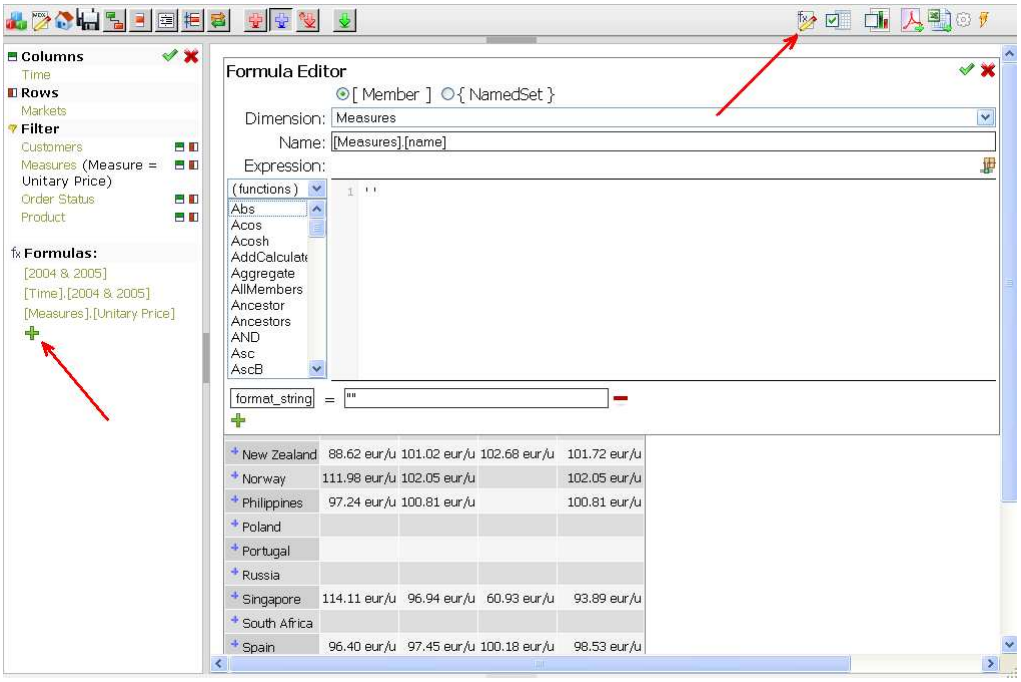
Now lets change current query to add some formulas for the next topic. You should use code completion, function selector and cube explorer (instead of copy&paste), to conform the following query:

```
with
  set [2004 & 2005] as '{[Time].[2004], [Time].[2005]}'
  member [Time].[2004 & 2005] as 'Aggregate([2004 & 2005])'
  member [Measures].[Unitary Price] as '([Measures].[Sales] / [Measures].[Quantity])',
    FORMAT_STRING = "#,##0.00 eur/u"
select
  { [Time].[Years].Members, [Time].[2004 & 2005] } ON COLUMNS,
  { [Markets].[All Markets].Children } ON ROWS
from [SteelWheelsSales]
where [Measures].[Unitary Price]
```

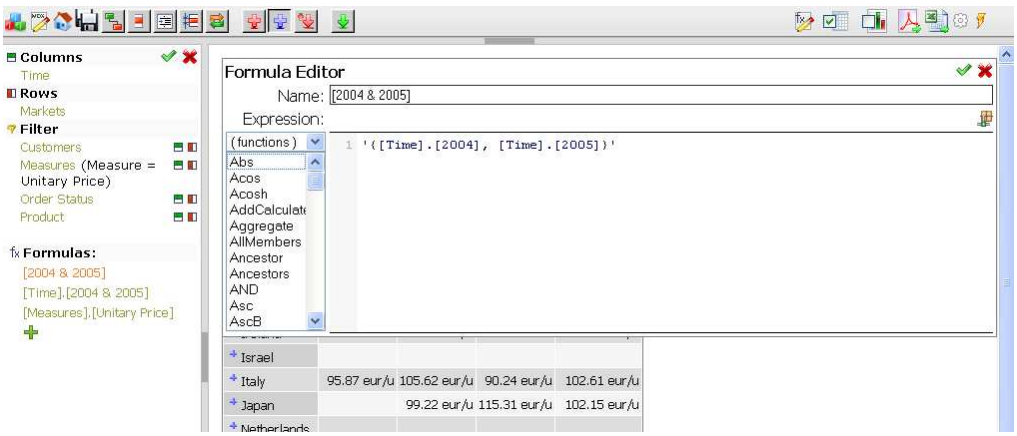
3.8 MDX Formulas

The MDX formulas, defined in the form of “with ... member/set ...”, are listed below the navigator in the lateral panel. This feature allows user to add/edit formulas easier than directly write into the MDX query editor. Along with documentation you'll find some videos demonstrating how to use the Formula editor.

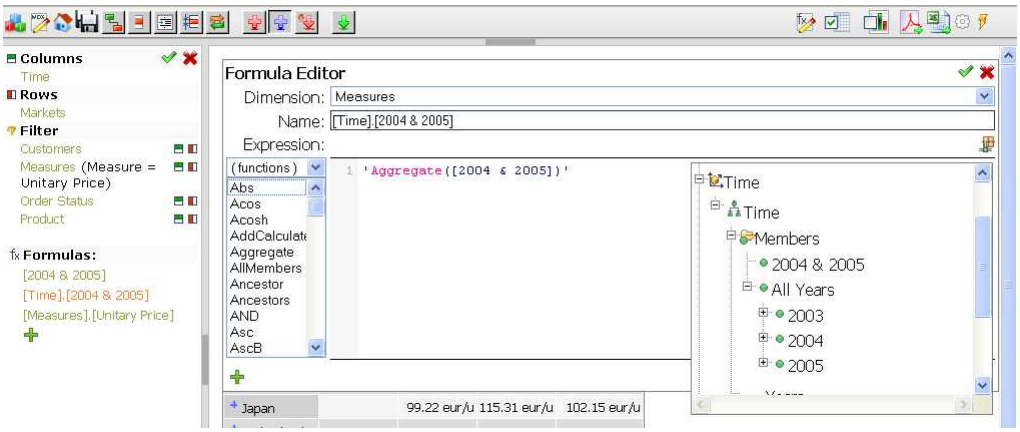
Next picture shows the Formula editor dialog opened (red arrows indicating where you can click to open it), as well as the lateral panel containing the current list of formulas.

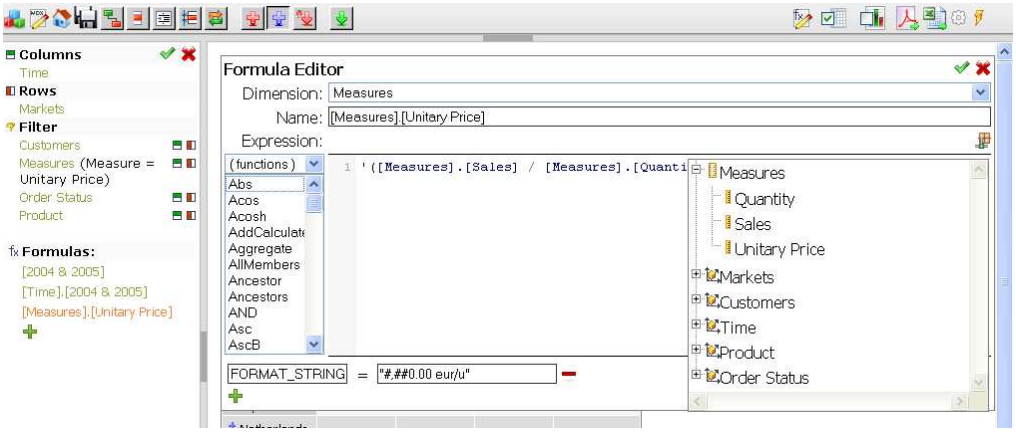


You can create new formulas using this dialog, but first try editing existing formula (by clicking on each of them from the list). Following pictures shows the resulting dialogs.



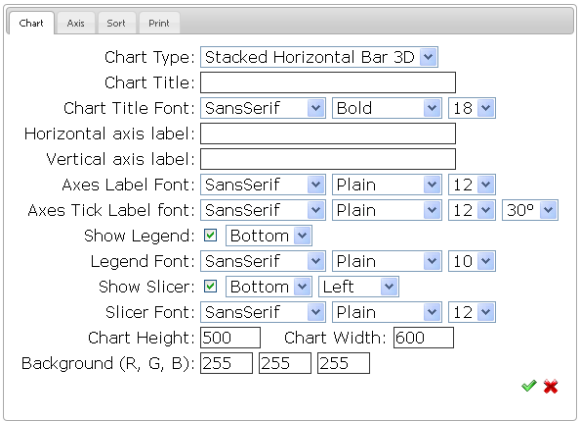
When selecting the named set [2004 & 2005], formula editor dose not show you those options disabled when creating a Set (while adding a new formula). Notice that the cube explorer is also opened in next pictures.





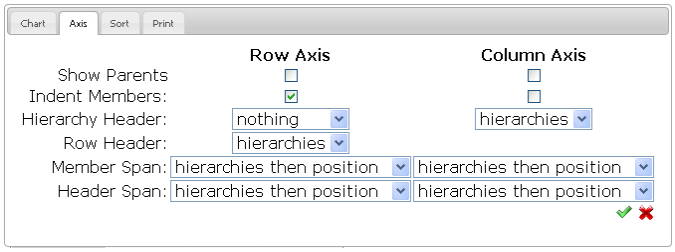
3.9 Options Dialog

All configuration forms are located now in a dialog with different tabs. Lets start with Chart options, where you can set parameters to conform the generated chart.

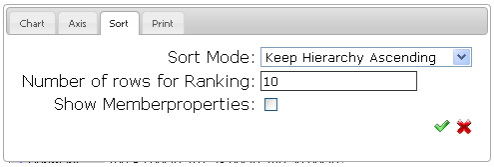


This configuration form is the same found in classic Pivot viewer, but some of this options can also be set easier using the Chart dialog. Since the form is rather intuitive, we'll not stop in each parameter.

The Axis configuration form (next picture) didn't appear in classic Pivot viewer for some reason, but we decided to uncover it since it can be useful for some users and it was available in JPivot. You can explore the effect of changing every parameter.



The sort form controls the way STPivot will order records, just like in JPivot.



At last, the print form controls parameters to export content to PDF or XLS (not different from classic pivot viewer).

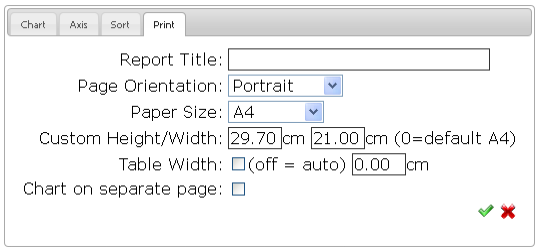


Chart
Axis
Sort
Print
Report Title:
Page Orientation:
Portrait
Paper Size:
A4
Custom Height/Width:
29.70
cm
21.00
cm (0=default A4)
Table Width:
(off = auto)
0.00
cm
Chart on separate page:

4. What's Next?

Having studied how to define your own analysis view, as long as explored the entire user interface, you are ready to use STPivot as normal users do. But there are still some advanced topics that aims to less frequent problem you can face, such as:

- Create one or multiple links over members is possible now with STPivot without defining a new pivot viewer (only by passing some parameters from the action sequence). It uses the “clickable” tag from JPivot.
- Use an XML/A source of OLAP data, instead of only Mondrian, without defining a new pivot viewer (only by passing some parameters from the action sequence).
- Communicating with STPivot to update current query without reloading the entire viewer, used when developing some kind of guided ad hoc analysis.

This advanced situations are developed in separate documents, but you'll find samples for each of them in the stpivot-demos solution directory.