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# On-Demand Training: Connecting to Cubes Transcript

Welcome to this Cubes video. You can download the data source to follow along in your own copy of Tableau.

## Introduction to Cubes

Tableau has optimized native data connections to both relational databases and multi-dimensional data sources, often referred to as OLAP or “cubes”. This video will discuss some of the functional differences between working with cubes versus relational data sources in Tableau Desktop.

Cube data sources, such as Microsoft Analysis Services and Oracle Essbase, process and transform data from a relational database into pre-aggregated results with defined hierarchical structures for standardization and quick access to results.

## Differences versus Relational Data Sources

The pre-defined nature of cube data sources does affect some functionality relative to a relational database in Tableau. If performance is the only concern and you have access to the underlying relational database, we suggest building Tableau Data Extracts from the relational database to give you both speed and flexibility.

The underlying connection technology for cubes does vary from relational databases, with three results:

- First, you cannot take an extract from an existing cube data source.
- Second, there is no equivalent of the “Other Databases” option for unsupported cube data sources.
- Third, at this time Apple OS X does not support connecting to cubes, so these data sources are unavailable in the Mac Tableau Desktop.
  - Everything in this video is applicable only to Tableau Desktop in Windows.
  - Tableau Server users will still be able to fully interact in any web browser with dashboards based on cube data.

## KPIs

Cube data sources allow for the definition of KPIs as a data type. Tableau does not recognize these KPI data types, but you can recreate them in Tableau just as you would when using a relational data source.

## Grouping

When using a relational data source, you can hold down the shift key and multi-select some items, and in the tooltip you will see a paper clip button that allows you to group fields. This button is not available when working with cube data sources. Grouping can be accomplished with a Calculated Member written in the MDX language, which is covered in the Analysis with Cubes and MDX video.

## Connecting

To connect to a cube data source

- You will enter in the server name and authenticate into that cube, and then select a particular cube on the server.
- Alternatively, connect to a local cube file.

For the following examples, we will be using a local cube version of the Superstore data available for download with this video.

- Select the “Local cube file” option, then press “Browse” and find the .cub file, then press OK.
- Next you will see a screen with two steps.
  - For Step 1: Select a Database, we choose “SuperCube”,
  - And for Step 2: Select a Cube, we also choose SuperCube.
- Now at the bottom we see the metadata view with field names, with the ability to rename, hide, and assign data types.
- Unlike relational databases, we do not have the ability to preview the data.
- Now click Sheet 1 in the bottom tab pane.

Tableau displays the dimensions and measures exactly as they are defined in the cube.

- Drag the Sales measure out to the Rows shelf.
- Tableau creates a bar chart automatically just like normal, but you’ll notice that the sales field doesn’t have an aggregation like SUM or AVG next to it.
- The aggregation type is part of the cube definition and cannot be switched within Tableau. Data structure and aggregation changes will require working with the cube’s architect.

When we right click on the Sales in the Rows shelf, there is no aggregation menu option. However, quick table calculations are still available.

## Hierarchies and Filters

In the Dimensions pane, you will notice that hierarchies, including time fields, are also predefined in the cube and cannot be changed in Tableau.

Drag Region from the Customer Geography hierarchy onto the columns shelf. Notice the plus sign indicating the hierarchy drill down. Now we will right-click on Region and choose “Show Quick Filter”.

Cube hierarchies have a different type of quick filter than those in relational databases –

- they show all of the levels of the hierarchy and allow for “ragged” selections, where totals from different hierarchy levels are visible side by side.
- Tableau shows all of the levels expanded by default, but if we double click on a hierarchy level, it will collapse down.

Now remove the filter and clear Region from the columns shelf. Then bring in a time hierarchy on the columns shelf, in this case “Calendar Date”.

- Expand the hierarchy down to “Quarter Name”.

- This looks similar to “Discrete Time” from a relational data source, but it does not work identically.
- If we drag out “Year” so that only “Quarter Name” remains, you’ll notice that the quarters do not collapse down into only Q1-4. The hierarchy levels are maintained.

Right-click and “Show Quick Filter” on “Year Name” – notice the same hierarchical filter as we saw with Region.

## Continuous Date Filters

What if we want a continuous time filter?

- If we look at the Order Date set of dimensions, there is non-hierarchical date field – it has a different icon from the Calendar Date hierarchy.
- Right-click on this and go to “Change Data Type”.
- It is “String” by default, but there is an option for “Date” – select date.
- The icon changes to a green calendar indicating a continuous date.

Drag the “Tableau Date” field onto the Filters Shelf.

- Now we have all of the options of Tableau’s regular continuous Date filter.
- We can choose “Show Quick Filter” and see the continuous slider available in the view.
- However, we should only use continuous dates for Filters and not as a dimension in the view.
- When using cubes, a continuous date is always at the lowest level of detail and Tableau cannot roll it up to a Yearly or Monthly continuous view.

## Sets for Non-Hierarchical Quick Filters

If you want your Quick Filter to look more like those that Tableau creates in a relational data source, you can use Sets.

- Right-click on Product Category.
- Choose “Create Set”.
- Now select furniture, office supplies and technology, from this menu.
- Name the Set “Product Cat Filter”.
- Notice we now have a Sets menu at the bottom left of our screen.
- Right click on “Product Cat Filter” and choose “Show Quick Filter”.
- This quick filter functions similarly and has all of the display options of a quick filter in a relational data source.

## Conclusion

Thank you for watching this Cubes training video. We invite you to continue with the On-Demand Training videos to

[learn more about using Tableau.](#)