Overview

To meet the business reporting needs and promote a consistent use of the institutional organizational hierarchy managed in SAP, a standard extract of the Duke Organizational Hierarchy structure has been created for Tableau developers/publishers to include in their Tableau workbooks. Use of the SAP Duke Organizational hierarchy extract will allow Tableau report developers to use the official organizational hierarchy of Duke University and always be sure to use the most recently updated version of the hierarchy which will be updated in Tableau on a daily basis.   A Tableau data source is created from the csv file, specifying all fields as string data type, and published to the Tableau server where publishers are able to download.

Scope

- University Company Codes (0010, 0014, 0015, 91, 92, 93)
- Reflects any reorganizations of the Org Unit to Org unit relationship in SAP
- Historical hierarchies – **the most recent daily hierarchy is available in Tableau** but there are plans to make quarter copies of the hierarchy (March 31, June 30, September 30, December 31) in the future in order to support historical hierarchy reporting.

Data Definition

There are four dimensions of data represented in the hierarchy defined as string data types. The groups are as follows:

BFR - a series of ten digit codes within the General Ledger that provides a five level organizational hierarchy structure.

BFR Description - The description of the BFR code.

BFR Long Description – Concatenation of the BFR and BFR Description

Org Unit - The org associated with the fund code in SAP ECC and is represented by a number that contains eight digits and begins with a 5 (e.g., 50000021 represents Duke University, company code 0010)

Field Names and Levels

There is no standard definition at Duke as to what any level in the SAP organizational hierarchy represents (school, department, division, unit, etc.).   In Tableau, the field naming convention for each of the dimensions uses 'Lvl' to specify at what level the organization resides in the hierarchy (i.e., BFR_Lvl0 refers to BFR at Level 0 in the hierarchy).

As an example, BFR_Lvl 6 represents department for BFR, 6064100700. But BFR_Lvl7 may represent department for 6860505000. Publishers using the hierarchy are advised to review the entire structure

for their organization in Tableau to confirm the data meets the business needs. Publishers should be knowledgeable of the org unit structure before including in their Tableau workbooks.

The SAP hierarchy is a ragged hierarchy meaning that it has an uneven number of levels. There are ten levels (BFR_Lvl0…BFR_Lvl10) in the field definition to allow for the maximum number of levels for the longest node in the org unit structure. For an org unit structure that does not expand to ten levels, the value for the last level is copied down to the remaining levels. For example, if a node for an org unit structure ends at Lvl8, then the values for Lvl8 are then copied to the fields for Lvl9 and Lvl10.
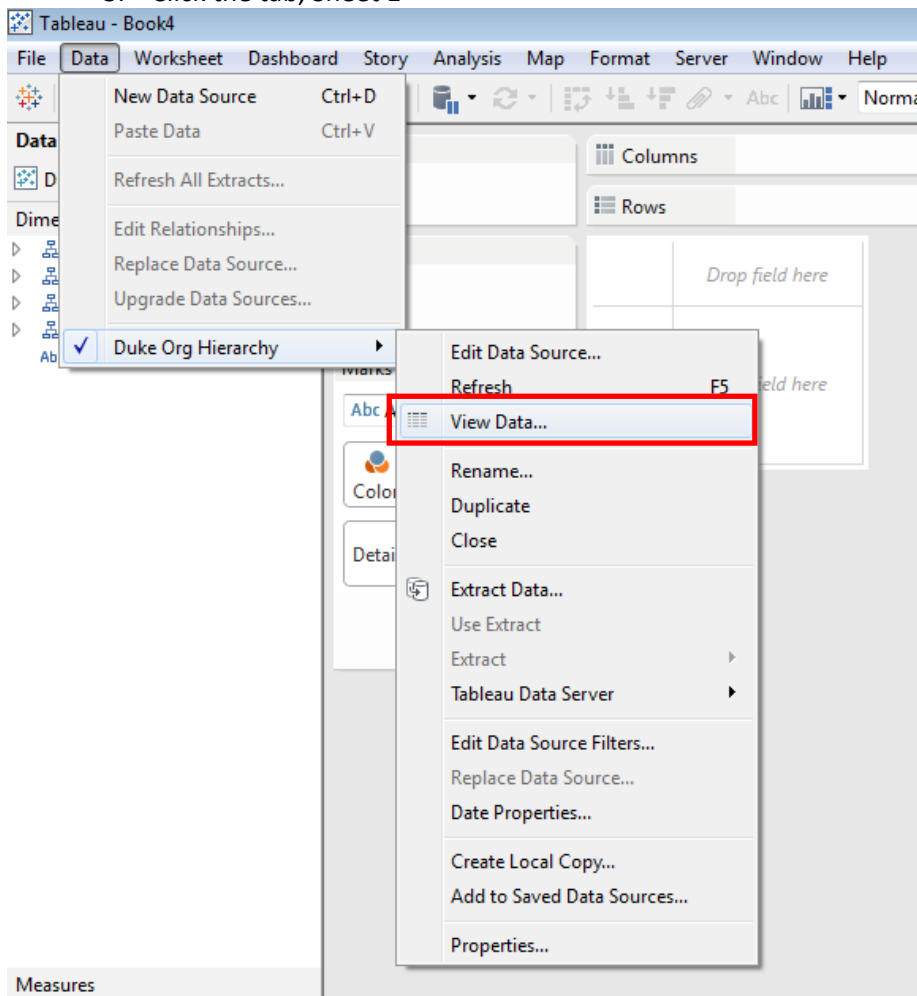
Instructions to copy Duke Org Hierarchy into data source

To include the data from SAP BW in Tableau workbooks, one of two options can be used: copy the Duke Org Hierarchy into the data source or use data blending in Tableau.

If Excel is being used as the data source, it is recommended that the Duke Org Hierarchy data be copied from Tableau into the source Excel file on a separate worksheet and then joined by the appropriate key field in Tableau. Due to field formatting changes when copying data from Tableau to Excel, follow the steps below to retain data types.
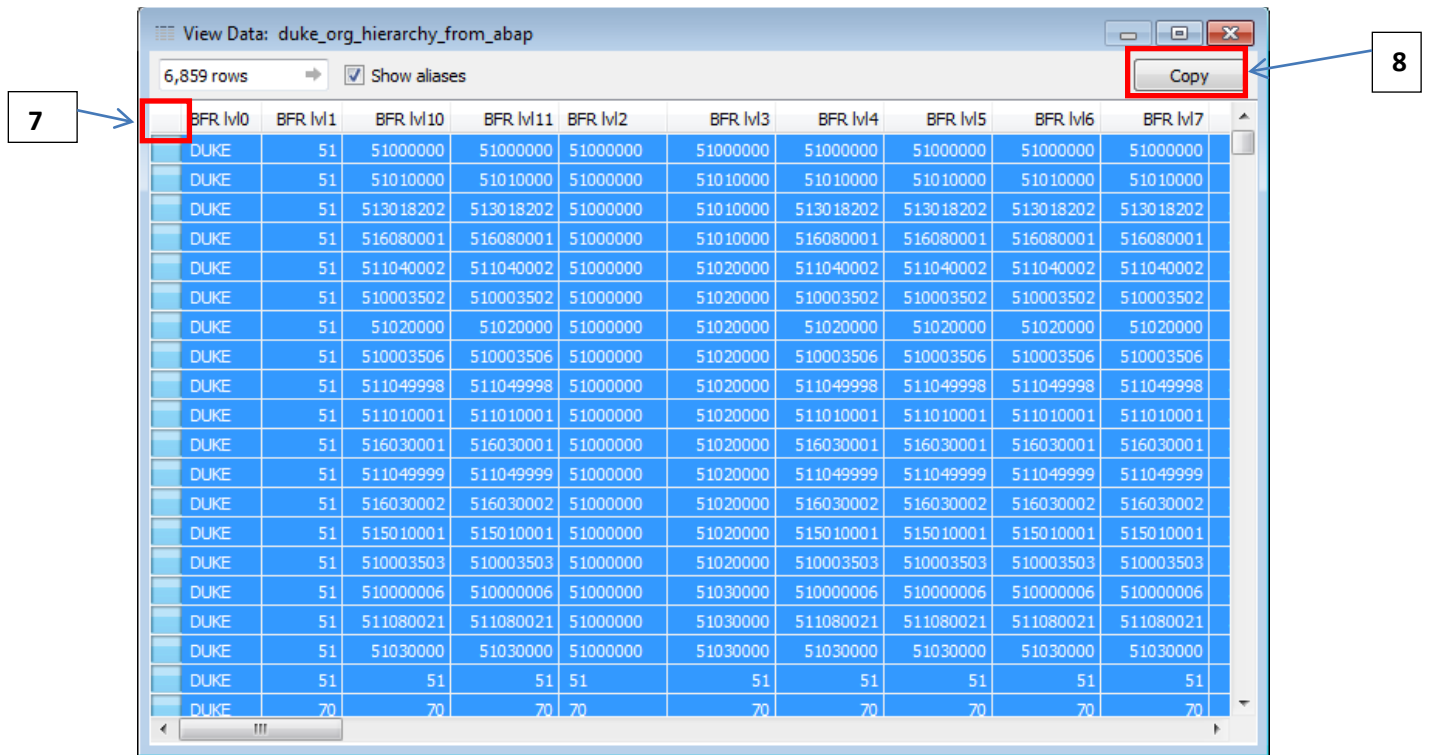
Option 1: Copy hierarchy data from Tableau into data source i.e., Excel

1. Launch Tableau Desktop.
2. Create a new workbook and select Connect to Tableau Server
3. Open the **SAP** Project and select data source **Duke Org Hierarchy**.
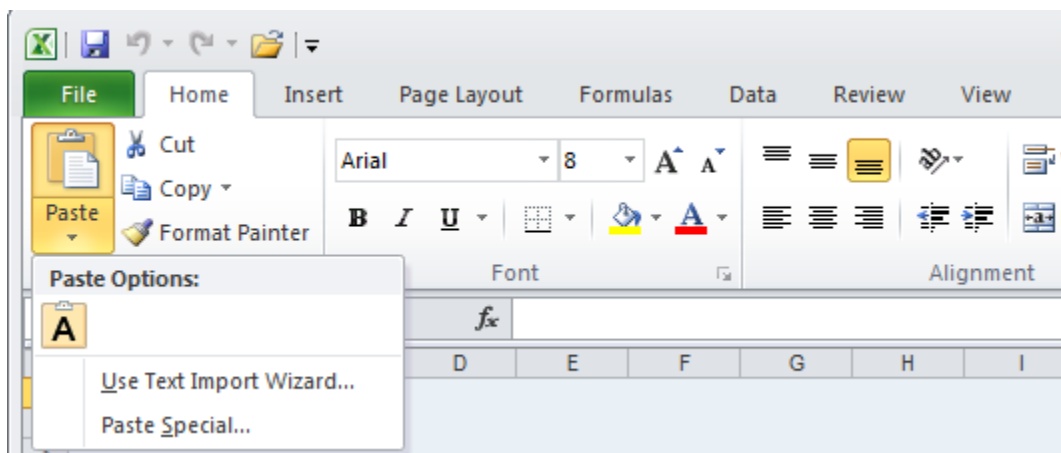4. If prompted with Net ID Login, enter credentials
5. Click the tab, Sheet 1

6. To view the underlying data, click the menu option
   Data -> (data source name i.e., Duke Org Hierarchy) -> View Data….

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| BFR lvl0	BFR lvl1	BFR lvl10	BFR lvl11	BFR lvl2	BFR lvl3	BFR lvl4	BFR lvl5	BFR lvl6	BFR lvl7
DUKE	51	51000000	51000000	51000000	51000000	51000000	51000000	51000000	51000000
DUKE	51	51010000	51010000	51000000	51010000	51010000	51010000	51010000	51010000
DUKE	51	513018202	513018202	51000000	51010000	513018202	513018202	513018202	513018202
DUKE	51	516080001	516080001	51000000	51010000	516080001	516080001	516080001	516080001
DUKE	51	511040002	511040002	51000000	51020000	511040002	511040002	511040002	511040002
DUKE	51	510003502	510003502	51000000	51020000	510003502	510003502	510003502	510003502
DUKE	51	51020000	51020000	51000000	51020000	51020000	51020000	51020000	51020000
DUKE	51	510003506	510003506	51000000	51020000	510003506	510003506	510003506	510003506
DUKE	51	511049998	511049998	51000000	51020000	511049998	511049998	511049998	511049998
DUKE	51	511010001	511010001	51000000	51020000	511010001	511010001	511010001	511010001
DUKE	51	516030001	516030001	51000000	51020000	516030001	516030001	516030001	516030001
DUKE	51	511049999	511049999	51000000	51020000	511049999	511049999	511049999	511049999
DUKE	51	516030002	516030002	51000000	51020000	516030002	516030002	516030002	516030002
DUKE	51	515010001	515010001	51000000	51020000	515010001	515010001	515010001	515010001
DUKE	51	510003503	510003503	51000000	51020000	510003503	510003503	510003503	510003503
DUKE	51	510000006	510000006	51000000	51030000	510000006	510000006	510000006	510000006
DUKE	51	511080021	511080021	51000000	51030000	511080021	511080021	511080021	511080021
DUKE	51	51030000	51030000	51000000	51030000	51030000	51030000	51030000	51030000
DUKE	51	51	51	51	51	51	51	51	51
DUKE	70	70	70	70	70	70	70	70	70

7. To select and copy all the data, click the blank box to the left of the field names to select all of the data.
8. Click the Copy button in the upper right hand corner to copy data to clipboard.
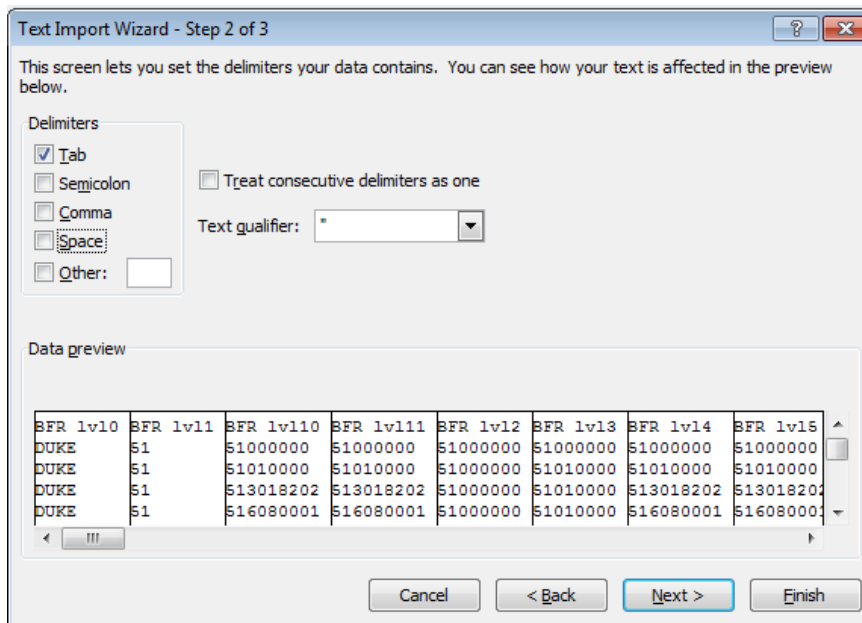

9. Launch Microsoft Excel and open an existing or new workbook that will join with the Duke Org Hierarchy.
10. Select a new sheet.
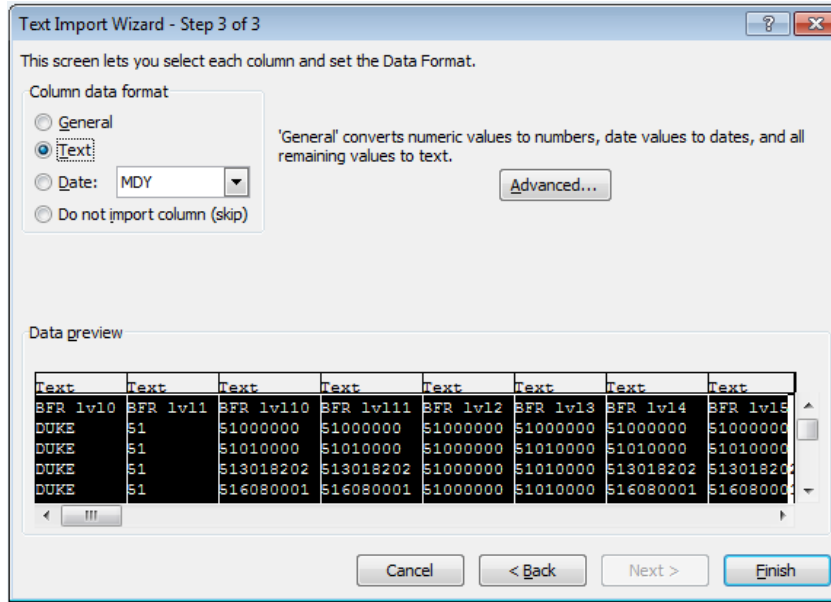11. click the **Paste** button on the toolbar. Select **Use Text Import Wizard…**
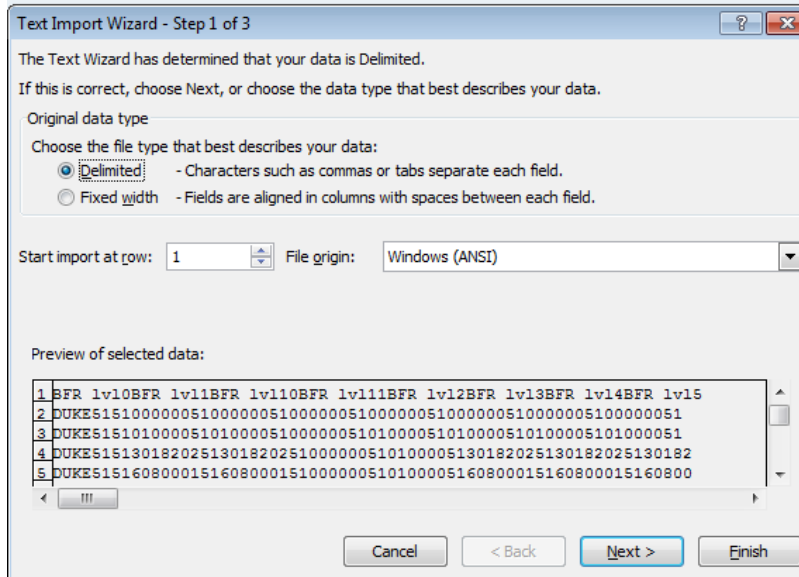
12. Leave default for File Type as **Delimited**. Click the **Next** button.

13. Select **Tab.** Uncheck **Space** and click the **Next** button**.**

14. For Column data format select **Text.** Select all fields in Data Preview by holding the shift key and scrolling to the right. Click the **Advanced…** button
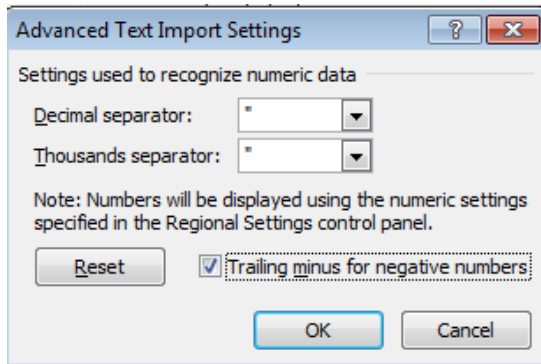
15. To force Excel to not recognize values as numeric, enter an invalid character, i.e., a double quote, for the Decimal separator and Thousands separator.
16. Click **Finish.** Rename worksheets and save Excel workbook.
17. Launch Tableau to create a new workbook.
18. Select Excel as the data source. For this example, an Excel workbook named Sample data.xlsx will be used.
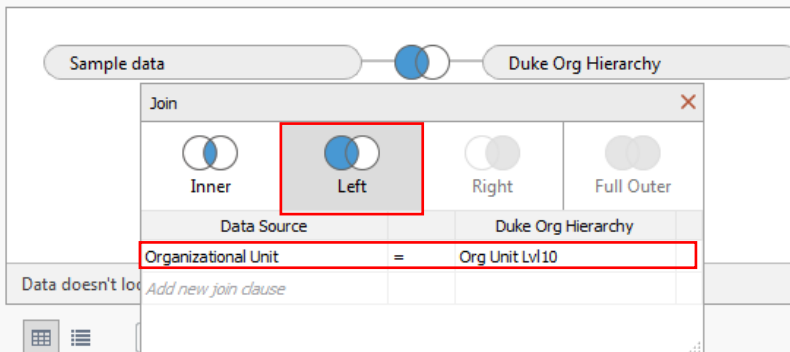
19. **It is extremely important to Left Join** the desired source data to the Duke Org Hierarchy to not lose any data. Join the sources by either Org Unit (highly recommended and best practice) or BFR, (not both) with the **lowest level field** in the hierarchy, **OrgUnit_Lvl10** or **BFR_Lvl10** respectively.

NOTE: **Joining data with other fields in the Duke Org Hierarchy extract, other than OrgUnit_Lvl10, may result in duplication and incorrect information.**

20. Review data for accuracy and any missing Org Unit values.
21. Save Tableau workbook.

Option 2: Data Blending

Data blending can be used to include the Duke Org Hierarchy data but is not recommended unless the developer is familiar with the limitations and nuances related to the functionality. It is outside the scope of this document to instruct developers on how to use data blending with the Duke Org Hierarchy.