



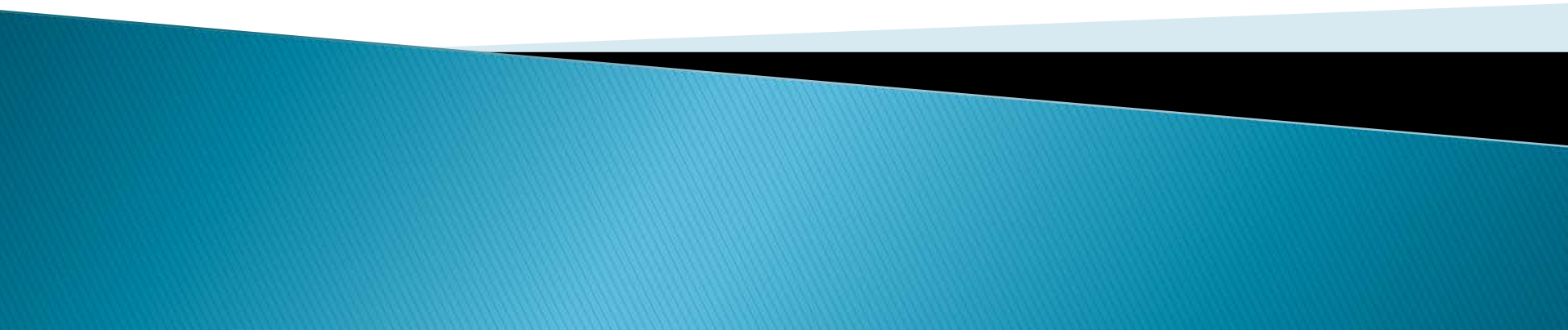
**PUBLISH**

## Data Sources and Tableau Server >>

Creating, Maintaining and Publishing Data Sources  
on Tableau Server

11/14/2017

# Agenda

- Tableau File Extensions
  - Data Sources & Extracts
  - Data Sources & Security
  - Refreshing Data Sources
  - Best Practices
- 

# Tableau File Extensions (1)

## Workbook (.twb)

- ▶ Tableau workbook files have the .twb file extension. Saves all the sheets and their connection information in a workbook file. The data is not included.

## Packaged Workbook (.twbx)

- ▶ Tableau packaged workbooks have the .twbx file extension. Saves all the sheets, their connection information and any local resources (e.g., local file data sources, background images, custom geocoding, etc).

## Data Extract (.tde)

- ▶ Tableau data extract files have the .tde file extension. Extract files are a local copy of a subset or entire data source that you can use to share data, work offline, and improve database performance.

# Tableau File Extensions (2)

## Data Source (.tds)

- ▶ Tableau data source files have the .tds file extension. Data source files are shortcuts for quickly connecting to data sources that you use often. Data source files do not contain the actual data but rather the information necessary to connect to the data source.

## Packaged Data Source (.tdsx)

- ▶ Tableau packaged data source files have the .tdsx file extension. A packaged data source is a zip file that contains the data source file (.tds) described above as well as any local file data sources such as Extract files (.tde), text files, Excel files, Access files, and local cube files.

# Data Sources & Extracts

- »»
  - ▶ How to create data source
  - ▶ Creating a custom SQL Query
  - ▶ Editing a custom SQL query
  - ▶ Storing data sources in a project on the server
  - ▶ How to create a extract
  - ▶ Connecting to a Tableau data extract
  - ▶ Duplicating a Tableau data extract

# Data Sources

## What is a Data source?

- ▶ A connection to a database or other place where data is stored, with information about what data in that database to use.
- ▶ Users can create workbooks that point to a data source.
- ▶ A data source that is shared on Tableau Server might contain an extract, or it might contain configuration information that describes how to access a live connection.

# Creating a Data Source (1)

The image shows a software interface for creating a data source. On the left, a 'Connect' sidebar lists various data sources. A red box highlights 'To a Server' (1) and another red box highlights 'More...' (2). The main area displays a list of connectors, with 'IBM DB2' highlighted by a red box (3). An inset dialog titled 'IBM DB2' is shown on the right, containing fields for 'Server' (dwp2.ucop.edu), 'Port' (50001), 'Database' (uc\_dss), 'Username' (opopoola), and 'Password' (masked with dots). A red box highlights the entire dialog area (4), and another red box highlights the 'Sign In' button (5).

**Connect**

To a File

- Excel
- Text file
- Access
- JSON file
- PDF file
- Spatial file
- Statistical file
- More...

To a Server

- Tableau Server
- Microsoft SQL Server
- MySQL
- Oracle
- Amazon Redshift
- More...

Search

- Tableau Server
- Action Matrix
- Action Vector
- Amazon Athena
- Amazon Aurora
- Amazon EMR
- Amazon Redshift
- Anaplan
- Apache Drill
- Aster Database
- Cisco Information Server
- Cloudera Hadoop
- DataStax Enterprise
- Dropbox
- EXASOL
- Firebird
- Google Analytics
- Google BigQuery

- Hortonworks Hadoop Hive
- HP Vertica
- IBM BigInsights
- IBM DB2
- IBM PDA (Netezza)
- Kognitio
- MapR Hadoop Hive
- Marketo
- MarkLogic
- MemSQL
- Microsoft Analysis Services
- Microsoft PowerPivot
- Microsoft SQL Server
- MonetDB
- MongoDB BI Connector
- MySQL
- OData
- OneDrive

- Oracle Essbase
- Pivotal Greenplum Database
- PostgreSQL
- Progress OpenEdge

Other Databases (ODBC)

### IBM DB2

Server:  Port:

Database:

Enter information to sign in to the database:

Username:

Password:

Initial SQL...

Sign In

# Data Source Connection Types



This refers to a data source that Tableau accesses to provide real-time or near real-time data. With a live data source, Tableau makes queries directly against the database or other source, and returns the results of the query for use in a workbook.

This is a snapshot of data. An extract (.tde file) might be created from a static source of data, like an Excel spreadsheet. Or the extract might contain data from a relational database or from cloud-based data.



# Creating a Data Source (2)

The screenshot displays the IBM Data Studio interface for creating a data source. The main window shows a connection to 'dwp2.ucop.edu' (IBM DB2) with the database 'uc\_dss' selected. A red circle with the number '6' highlights the database name in the main view. On the right, a detailed view shows the 'Database' as 'uc\_dss' (circled with a red '7'), the 'Schema' as 'IRAP\_BI', and a list of tables. The table list includes 'ALUMNI\_DM ...ALUMNI\_DM', 'AWARD\_DM (...AWARD\_DM)', 'DEGREE\_DM ...DEGREE\_DM', 'ENROLLMEN...LMENT\_DM', 'GRADUATE\_...PPORT\_DM', 'IRIS\_ADDRE...ADDRESSES', 'IRIS\_DEGREE...RIS\_DEGREE', 'IRIS\_DEGRE...REE\_TYPES', 'New Custom SQL', and 'New Union'. The 'IRIS\_DEGRE...REE\_TYPES' table is currently selected.

File Data Server Window Help

uc\_dss

Connections Add

dwp2.ucop.edu  
IBM DB2

Database  
uc\_dss

Schema

Select Schema

GLONG\_STG  
HPEJMAN  
IRAP\_BI  
IRAP\_DATA\_EXTRACTS  
ISE\_BASE  
ISE\_STG  
KAORUMA  
NEWTON  
NULLID  
SP\_BASE

Sort fields Data source order

Database uc\_dss

Schema IRAP\_BI

Table All 19 Recommended

Enter table name

- ALUMNI\_DM ...ALUMNI\_DM
- AWARD\_DM (...AWARD\_DM)
- DEGREE\_DM ...DEGREE\_DM
- ENROLLMEN...LMENT\_DM
- GRADUATE\_...PPORT\_DM
- IRIS\_ADDRE...ADDRESSES
- IRIS\_DEGREE...RIS\_DEGREE
- IRIS\_DEGRE...REE\_TYPES
- New Custom SQL
- New Union

# Creating a Data Source (3)

DEGREE\_DM (IRAP\_BI.DEGREE\_DM) (IRAP\_BI)

Connection  
 Live  Extract

8

IRIS\_DEGREE\_TYPES

The screenshot shows the Tableau Server interface. The 'Server' menu is open, and the 'Publish Data Source' option is highlighted. A red circle with the number '9' is drawn around the 'Publish Data Source' option. The background shows a Tableau dashboard with a data source named 'DEGREE\_DM (IRAP\_BI.DEGREE\_DM) (IRAP\_BI)' and a dimension named 'IRIS\_DEGREE\_TYPES'. The dashboard also shows a 'Drop field here' area.

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# Creating a Data Source (4)

Publish Data Source to Tableau Server ×

Project  
Default

Name  
Degree Types DS

Description  
Degree types data source

Tags  
Add

Permissions   
Permissions are locked by the site admini... [View](#)

Authentication  
Prompt user [Edit](#)

More Options

Update workbook to use the published data source

Tableau Server will temporarily access the credentials provided for '[dwp2.ucop.edu]' to confirm it can maintain a live data connection.

[Publish](#)

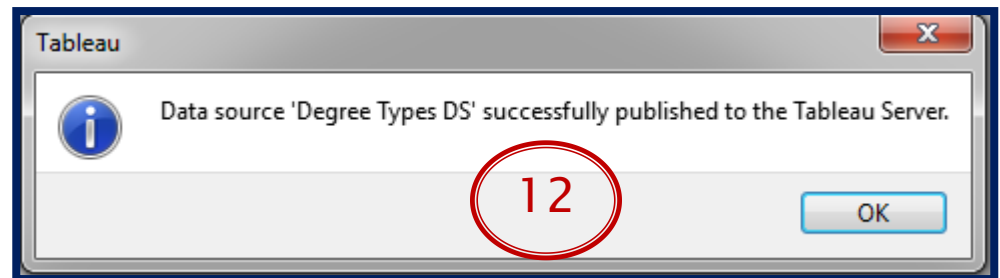
10

Authentication  
Prompt user [Edit](#)

Data Source	Connection	Authentication	Extract	Username
DEGREE_DM (IRAP_BI.DEGREE_DM) (IRAP_BI)	dwp2.ucop.edu	<div style="border: 1px solid red; padding: 2px;">Prompt user Prompt user Embedded password</div>	No	opopoola

maintain a live data connection.

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# Creating a Data Source (5)

The image shows three overlapping screenshots from Tableau Desktop illustrating the steps to edit a data connection.

**13**: A screenshot of the 'Data Sources' pane. The 'Degree Types DS' data source is selected. A context menu is open, and the 'Edit Connection...' option is highlighted with a red box.

Name	Views: All	Workbooks	Connects to
✓ Degree Types DS	0	0	dwp2.uocp.edu
□ EAP Aggregated for Dashboard (local copy)		0	dwp2.uocp.edu
□ EAP Dashboard Data Aggregated by Term (local copy)		0	dwp2.uocp.edu
□ eap_wage (BMOORETR)		0	dwp3.uocp.edu

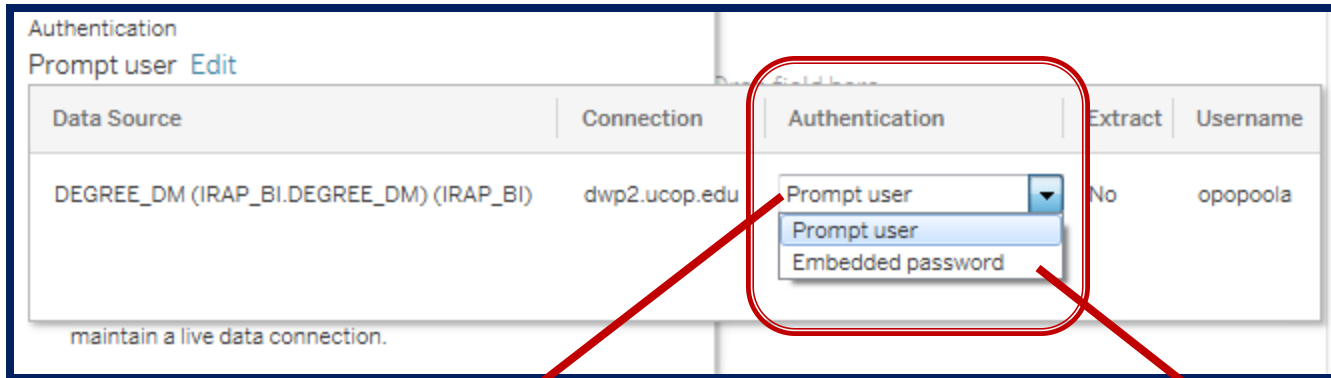
**14**: A screenshot of the 'Edit Connection' dialog box. The 'Embedded password in connection' radio button is selected and highlighted with a red box.

Server name: dwp2.uocp.edu  
Server port: 50001  
Username: dss  
Password:  Prompt user for password if needed  
 Embedded password in connection

**15**: A screenshot of the 'Degree Types DS' data source details page. A table shows the connection configuration.

Connects to	Connection type	Authentication	Username
□ dwp2.uocp.edu	IBM DB2	Embedded in connection	dss

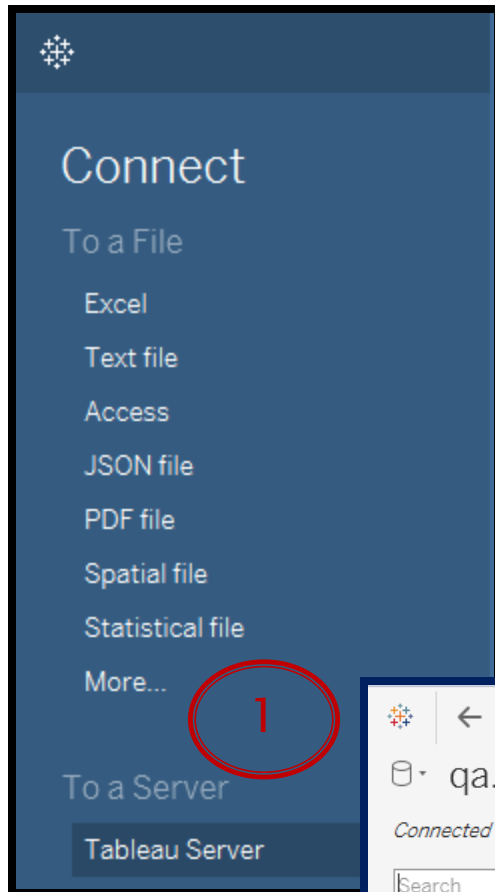
# Prompt or Embed Credentials?



**Prompt User:** To maintain data security, especially if data source contains sensitive information, it is advisable to ask user to supply their own credentials every time the data source is to be used.

**Embed Credentials:** If data in data source is not sensitive and seamless automated refresh is required, embedding your personal credentials may be appropriate. There is an option to use the system generic ID but this can only be done by the System Administrator

# Connecting to a Data Source (1)



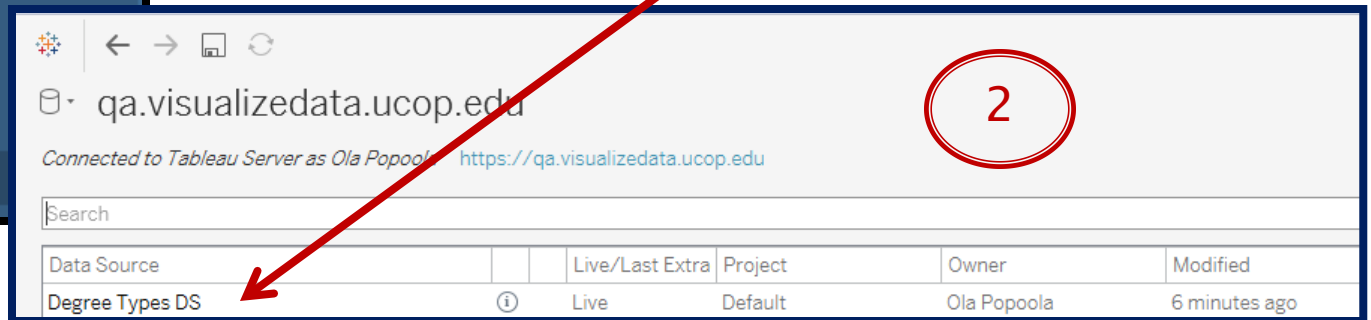
Connect

To a File

- Excel
- Text file
- Access
- JSON file
- PDF file
- Spatial file
- Statistical file
- More...

To a Server

- Tableau Server



qa.visualizedata.ucop.edu

Connected to Tableau Server as Ola Popoola <https://qa.visualizedata.ucop.edu>

Search

Data Source	Live/Last Extra	Project	Owner	Modified
Degree Types DS	Live	Default	Ola Popoola	6 minutes ago

# Connecting a Data Source (2)

The screenshot shows the Tableau Desktop interface. At the top, the title bar reads "Degree Types DS" and "Connected to Tableau Server as Ola Popoola". The connection URL is "http://qa.visualizedata.ucop.edu". The connection type is set to "Live".

A red circle with the number "3" highlights the search bar above the data source list.

Data Source	Live/Last Extra	Project	Owner	Modified
Degree Types DS	Live	Default	Ola Popoola	6 minutes ago
EAP Aggregated for Dashboard (local copy)	Sep 25, 2:22 ...	Default	Krishna Malipatel	Sep 25, 2:22 PM
EAP Dashboard Data Aggregated by Term (loca...	Sep 25, 2:23 ...	Default	Krishna Malipatel	Sep 25, 2:23 PM
eap_wage (BMOORETR)	Sep 25, 2:23 ...	Default	Krishna Malipatel	Sep 25, 2:23 PM

Below the data source list, there are options for "Sort fields" (set to "Data source order") and checkboxes for "Show aliases" and "Show hidden fields". A red circle with the number "4" highlights the field list area.

Abc	Abc	Abc
IRIS_DEGREE_TYP...	IRIS_DEGREE_TYPES	IRIS_DEGREE_TYP...
Dgr Ty	Dgr Nam	Dgr Lvl
AU. D.	DOCTORATE IN AUDIO...	2
B.ARCH.	BACHELOR OF ARCHI...	1
B.L.A.	BACHELOR OF LANDS...	1
B.S.	BACHELOR OF SCIENCE	1
D.D.S.	DOCTOR OF DENTAL S...	2

# Creating a Custom SQL (1)

The image shows a software interface for connecting to various databases. On the left, there are two main sections: "Connect" and "To a Server". The "Connect" section lists various file formats like Excel, Text file, JSON file, etc. The "To a Server" section lists various database types like Tableau Server, Microsoft SQL Server, MySQL, etc. In the center, there is a search bar and a list of database options. "IBM DB2" is highlighted, and a red circle with the number "1" is drawn around it. On the right, there are other database options like Oracle Essbase, PostgreSQL, etc. In the foreground, a dialog box titled "IBM DB2" is open. It contains fields for "Server:" (dwp2.ucop.edu), "Port:" (50001), and "Database:" (uc\_dss). Below these fields, there is a section titled "Enter information to sign in to the database:" which contains fields for "Username:" (opopoola) and "Password:" (masked with dots). A red circle with the number "2" is drawn around the "IBM DB2" title bar. At the bottom of the dialog, there is a "Sign In" button and an "Initial SQL..." field.

Connect

To a File

- Excel
- Text file
- Access
- JSON file
- PDF file
- Spatial file
- Statistical file
- More...

To a Server

- Tableau Server
- Microsoft SQL Server
- MySQL
- Oracle
- Amazon Redshift
- More...

Search

- Tableau Server
- Actian Matrix
- Actian Vector
- Amazon Athena
- Amazon Aurora
- Amazon EMR
- Amazon Redshift
- Anaplan
- Apache Drill
- Aster Database
- Cisco Information Server
- Cloudera Hadoop
- DataStax Enterprise
- Dropbox
- EXASOL
- Firebird
- Google Analytics
- Google BigQuery
- Hortonworks Hadoop Hive
- HP Vertica
- IBM BigInsights
- IBM DB2**
- IBM PDA (Netezza)
- Kognitio
- MapR Hadoop Hive
- Marketo
- MarkLogic
- MemSQL
- Microsoft Analysis Se
- Microsoft PowerPivot
- Microsoft SQL Server
- MonetDB
- MongoDB BI Connect
- MySQL
- OData
- OneDrive
- Oracle Essbase
- Pivotal Greenplum Database
- PostgreSQL
- Presto
- Progress OpenEdge
- Other Databases (ODBC)

IBM DB2

Server: dwp2.ucop.edu Port: 50001

Database: uc\_dss

Enter information to sign in to the database:

Username: opopoola

Password: ●●●●●●●●●●

Initial SQL...

Sign In



# Creating a Custom SQL (2)

The screenshot displays the IBM Data Studio interface for a database connection. The main window shows the connection details for 'dwp2.ucop.edu' (IBM DB2) and the selected database 'uc\_dss'. The 'Database' section is circled with a red circle containing the number 3. The 'Schema' section is circled with a red circle containing the number 4, and the 'IRAP\_BI' schema is selected. The 'Table' section is circled with a red circle containing the number 5, and the 'New Custom SQL' option is highlighted. The table list includes: ALUMNI\_DM (...ALUMNI\_DM), AWARD\_DM (...AWARD\_DM), DEGREE\_DM (...DEGREE\_DM), ENROLLMEN...LMENT\_DM), GRADUATE\_...PPORT\_DM), IRIS\_ADDRE...ADDRESSES), IRIS\_DEGREE...RIS\_DEGREE), IRIS\_DEGRE...REE\_TYPES), New Custom SQL, and New Union.

File Data Server Window Help

uc\_dss

Connections Add

dwp2.ucop.edu  
IBM DB2

Database uc\_dss

Schema

Select Schema

Sort fields Data source order

Database uc\_dss

Schema IRAP\_BI

Table All 19 Recommended

Enter table name

- ALUMNI\_DM (...ALUMNI\_DM)
- AWARD\_DM (...AWARD\_DM)
- DEGREE\_DM (...DEGREE\_DM)
- ENROLLMEN...LMENT\_DM)
- GRADUATE\_...PPORT\_DM)
- IRIS\_ADDRE...ADDRESSES)
- IRIS\_DEGREE...RIS\_DEGREE)
- IRIS\_DEGRE...REE\_TYPES)
- New Custom SQL
- New Union

# Creating a Custom SQL (3)

Edit Custom SQL

```
SELECT COUNT (DISTINCT STUD_ID) AS STUDENT_COUNT,  
ACADEMIC_YR,  
TERM_NAME,  
DEG_AWARD_CAT_DESC,  
CAMPUS_LOCATION  
FROM IRAP_BI.DEGREE_DM  
GROUP BY ACADEMIC_YR,  
TERM_NAME,  
DEG_AWARD_CAT_DESC,  
CAMPUS_LOCATION  
ORDER BY ACADEMIC_YR,  
CAMPUS_LOCATION,  
TERM_NAME,  
DEG_AWARD_CAT_DESC
```

6

7

Preview Results... Insert Parameter ▾

View Data: IRAP\_BI

2,948 rows

CAMPUS_LOCATION	DEG_AWARD_CAT_DESC	TERM_NAME	ACADEMIC_YR	STUDENT_COUNT
Berkeley	Bachelor	Fall	1,999	1,567
Berkeley	Candidate In Philosophy	Fall	1,999	33
Berkeley	Credentials and Certificates	Fall	1,999	64
Berkeley	Doctorate	Fall	1,999	368
Berkeley	Juris Doctor	Fall	1,999	2
Berkeley	Master	Fall	1,999	420
Berkeley	Bachelor	Spring	1,999	3,833
Berkeley	Candidate In Philosophy	Spring	1,999	18
Berkeley	Credentials and Certificates	Spring	1,999	52
Berkeley	Doctor of Optometry	Spring	1,999	55
Berkeley	Doctorate	Spring	1,999	388
Berkeley	Juris Doctor	Spring	1,999	281
Berkeley	Master	Spring	1,999	1,192
Berkeley	Bachelor	Summer	1,999	702
Berkeley	Doctor of Optometry	Summer	1,999	2
Davis	Bachelor	Fall	1,999	744
Davis	Doctor of Medicine	Fall	1,999	1
Davis	Doctor of Veterinary Medicine	Fall	1,999	1

8

# Creating a Custom SQL (4)

Custom SQL Query (IRAP\_BI) Connection  Live  Extract Filters 0 | [Add](#)

9

Custom SQL Query

Sort fields   Show aliases  Show hidden fields

#	#	Abc	Abc	Abc	
Custom SQL Query	Custom SQL Query	Custom SQL Query	Custom SQL Query	Custom SQL Query	
STUDENT_COUNT	ACADEMIC_YR	TERM_NAME	DEG_AWARD_CA...	CAMPUS_LOCATI...	
1,567	1,999	Fall	Bachelor	Berkeley	
33	1,999	Fall	Candidate In Philosop...	Berkeley	
64	1,999	Fall	Credentials and Certi...	Berkeley	
368	1,999	Fall	Doctorate	Berkeley	
2	1,999	Fall	Juris Doctor	Berkeley	

# Editing a Custom SQL (1)

Connections: dwp2.ucop.edu (IBM DB2)

Database: uc\_dss

Schema: IRAP\_BI

Table: All 19 (Recommended)

Custom SQL Query (IRAP\_BI)

Connection:  Live  Extract

Custom SQL Query

1

Sort fields: Data source order

Show aliases  Show h

#	#	Abc	Abc	Abc
Custom SQL Query	Custom SQL Query	Custom SQL Query	Custom SQL Query	Custom SQL Query
STUDENT_COUNT	ACADEMIC_YR	TERM_NAME	DEG_AWARD_CA...	CAMPUS_LOCATI...
1,567	1,999	Fall	Bachelor	Berkeley
33	1,999	Fall	Candidate In Philosop...	Berkeley
64	1,999	Fall	Credentials and Certi...	Berkeley
368	1,999	Fall	Doctorate	Berkeley
2	1,999	Fall	Juris Doctor	Berkeley

# Editing a Custom SQL (2)

Custom SQL Query (IRAP\_BI) Connection  Live  Extract

Custom SQL

Sort filter

# Custom SQL Query

STUDENT\_COU

Show aliases  Show H

```
SELECT COUNT (DISTINCT STUD_ID) AS STUDENT_COUNT,  
ACADEMIC_YR,  
TERM_NAME,  
DEG_AWARD_CAT_DESC,  
CAMPUS_LOCATION  
FROM IRAP_BI.DEGREE_DM  
GROUP BY ACADEMIC_YR,  
TERM_NAME,  
DEG_AWARD_CAT_DESC,  
CAMPUS_LOCATION  
ORDER BY ACADEMIC_YR,  
CAMPUS_LOCATION,  
TERM_NAME,  
DEG_AWARD_CAT_DESC
```

Preview Results... Insert Parameter

OK Cancel

# Publishing a Custom SQL

The screenshot shows the Tableau Desktop interface. The 'Server' menu is open, and the 'Publish Data Source' option is highlighted and circled in red with the number 1. The main view shows a 'Query (IRAP\_BI)' with a table of data.

#	#	Abc
Custom SQL Query	Custom SQL Query	Custom SQL Query
STUDENT_COUNT	ACADEMIC_YR	TERM_NAME
1,567	1,999	Fall
33	1,999	Fall

The 'Publish Data Source to Tableau Server' dialog box is shown. The 'Project' dropdown is set to 'Default' and circled in red with the number 2. The 'Name' dropdown is set to 'Degree Count by Degree Category and Location'. The 'Description' field contains the text: 'This is a custom SQL that provides a count of degrees by campus, academic year, term and campus location.' The 'Update workbook to use the published data source' checkbox is checked. The 'Publish' button is circled in red.

The notification dialog box states: 'Data source 'Degree Count by Degree Category and Location' successfully published to the Tableau Server.' The dialog box has an 'OK' button and the number 3 is circled in red.

# Creating an Extract (1)

The image shows a two-step process for creating an extract in Tableau. Step 1 is selecting a data source from the 'Connect' dialog. Step 2 is configuring the selected source, IBM DB2.

**Step 1: Connect Dialog**

The 'Connect' dialog is divided into 'To a File' and 'To a Server' sections. A red circle with the number '1' highlights the 'More...' button in the 'To a Server' section.

**Step 2: IBM DB2 Configuration Window**

The 'IBM DB2' configuration window is shown with a red circle and the number '2' around the title bar. It contains the following fields:

- Server:** dwp2.ucop.edu
- Port:** 50001
- Database:** uc\_dss
- Enter information to sign in to the database:**
  - Username:** opopoola
  - Password:** [masked]
- Initial SQL...** (text input field)
- Sign In** (button)

# Creating an Extract (2)

The screenshot displays the IBM Data Studio interface for creating an extract. The main window shows a connection to 'dwp2.ucop.edu' (IBM DB2) and the selected database 'uc\_dss'. The 'Database' section is circled with a red '3'. The 'Schema' dropdown is open, showing a list of schemas including 'IRAP\_BI'. The 'Database' section in the right-hand pane is circled with a red '4'. The 'Table' section in the right-hand pane is circled with a red '5', and the 'New Custom SQL' option is highlighted with a red box.

**Database**  
uc\_dss

**Schema**  
IRAP\_BI

**Table**  
All 19 Recommended

Enter table name

- ALUMNI\_DM (...ALUMNI\_DM)
- AWARD\_DM (...AWARD\_DM)
- DEGREE\_DM (...DEGREE\_DM)
- ENROLLMEN...LMENT\_DM)
- GRADUATE\_...PPORT\_DM)
- IRIS\_ADDRE...ADDRESSES)
- IRIS\_DEGREE...RIS\_DEGREE)
- IRIS\_DEGRE...REE\_TYPES)
- New Custom SQL**
- New Union



# Creating an Extract (3)

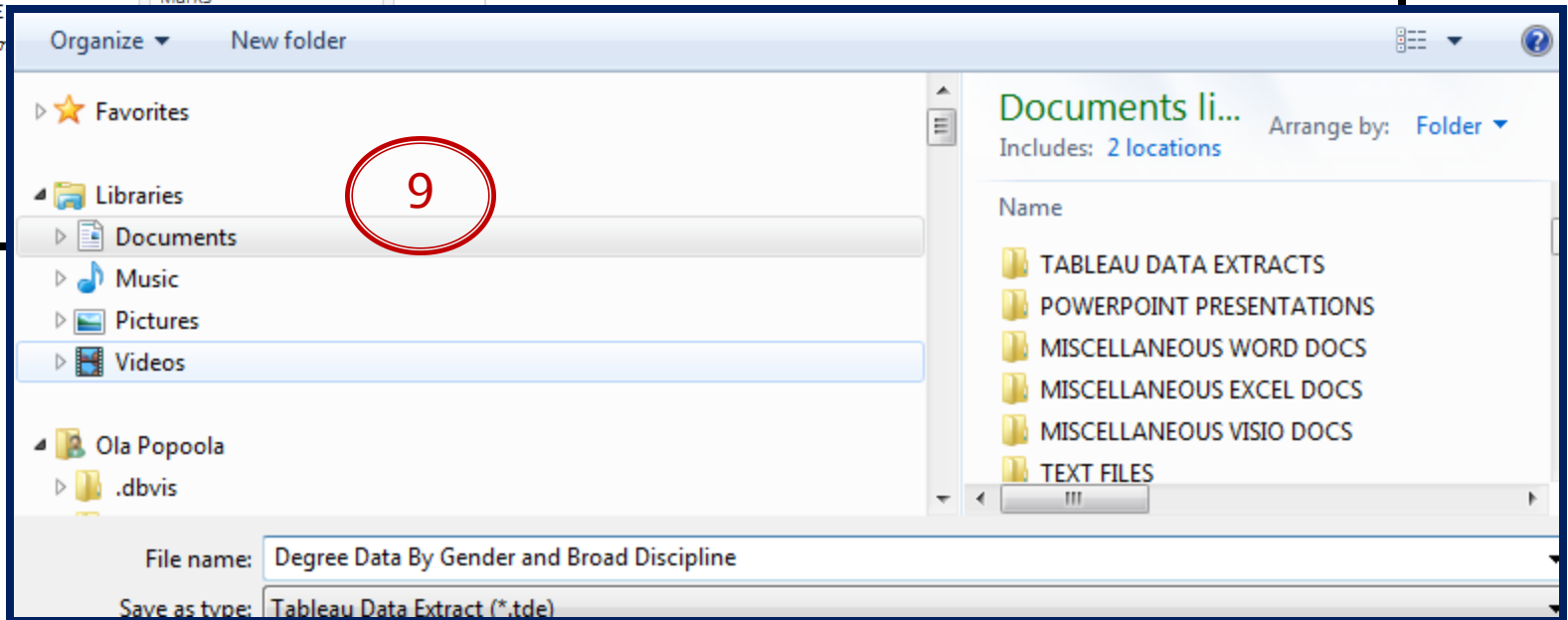
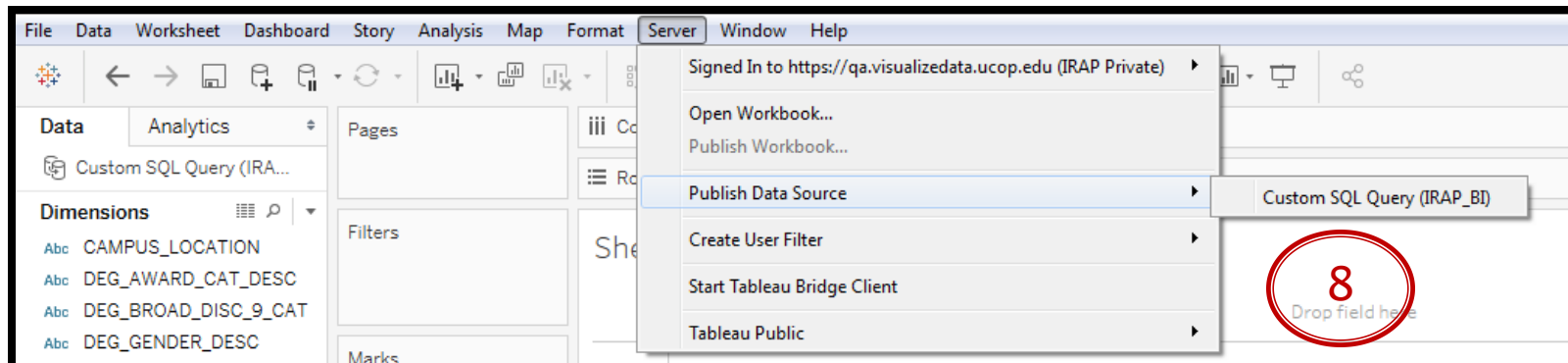
The screenshot shows a software interface for creating an extract. The main window is titled "Edit Custom SQL" and contains a text area with the following SQL query:

```
SELECT COUNT (DISTINCT STUD_ID) AS STUDENT_COUNT,  
ACADEMIC_YR,  
TERM_NAME,  
DEG_AWARD_CAT_DESC,  
DEG_BROAD_DISC_9_CAT  
DEG_GENDER_DESC,  
CAMPUS_LOCATION  
FROM IRAP_BI.DEGREE_DM  
GROUP BY ACADEMIC_YR,  
TERM_NAME,  
DEG_AWARD_CAT_DESC,  
DEG_BROAD_DISC_9_CAT,  
DEG_GENDER_DESC,  
CAMPUS_LOCATION  
ORDER BY ACADEMIC_YR,  
CAMPUS_LOCATION,  
TERM_NAME,  
DEG_AWARD_CAT_DESC
```

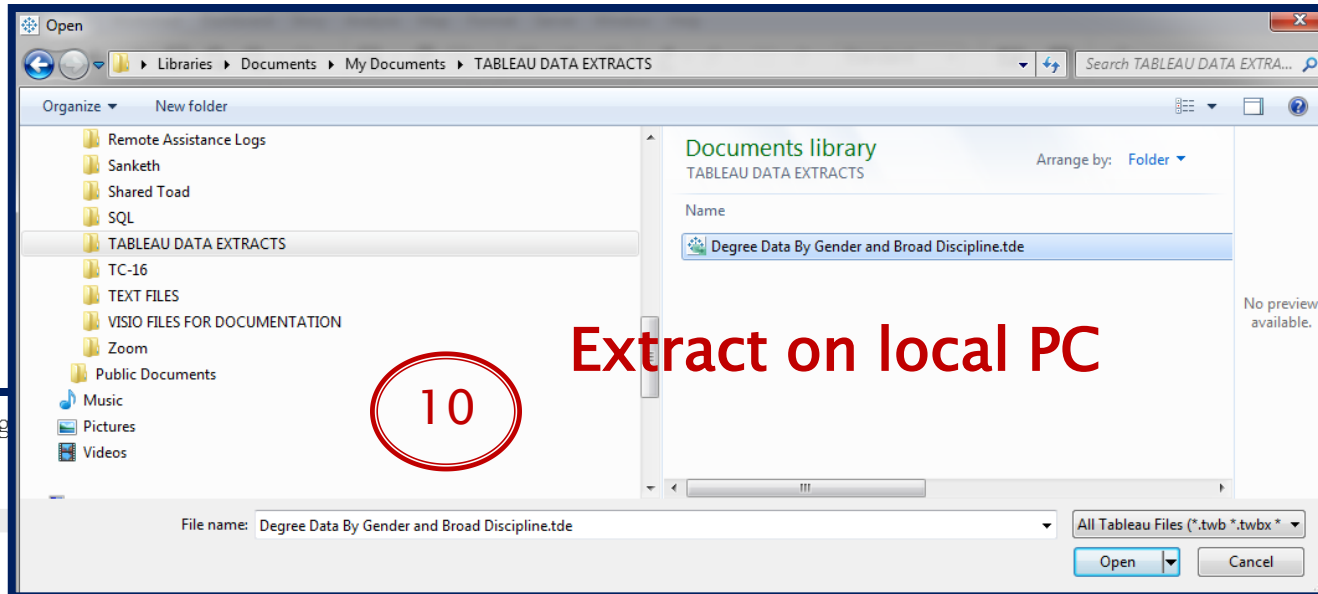
At the bottom of the window are buttons for "Preview Results...", "Insert Parameter", "OK", and "Cancel".

An inset panel titled "Custom SQL Query (IRAP\_BI)" is overlaid on the right side of the main window. It contains a text input field labeled "Custom SQL Query" with a red circle containing the number "7" next to it. To the right of this panel, there are controls for the connection type: "Connection" with radio buttons for "Live" and "Extract" (which is selected), and buttons for "Edit", "Refresh", and "Filters". Below these controls, it says "Extract will include all data." and "0 | Add". A red circle containing the number "6" is positioned in the lower-left area of the main window, overlapping the SQL text.

# Creating an Extract (4)



# Connecting to an Extract (1)



#	Academic Year	Campus Location	Degree Award	Broad Discipline	Gender	Student Count	Term Name
1,999	Berkeley	Bachelor	Arts	Female	28	Fall	
2,000	Berkeley	Bachelor	Arts	Female	26	Fall	
2,001	Berkeley	Bachelor	Arts	Female	34	Fall	
2,002	Berkeley	Bachelor	Arts	Female	40	Fall	
2,003	Berkeley	Bachelor	Arts	Female	33	Fall	

# Publishing Extract to Server (1)

Connections

- Degree Data B...ad Discipline  
Tableau Data Extract
- Extract (Extract.Extract)**

Degree Data By Gender and Broad Discipline Extract

Connection:  Live  Extract  
Extract will include all data

Sort fields: Data source order

Custom SQL Query	Academic_Yr	Campus_Location	Degree_Award	Broad_Discipline	Gender	Student_Count	Term_Name
1,999	Berkeley	Bachelor	Arts	Female	28	Fall	
2,000	Berkeley	Bachelor	Arts	Female	26	Fall	
2,001	Berkeley	Bachelor	Arts	Female	34	Fall	
2,002	Berkeley	Bachelor	Arts	Female	40	Fall	
2,003	Berkeley	Bachelor	Arts	Female	33	Fall	

File Data **Server** Window Help

- Signed In to <https://qa.visualizedata.ucop.edu> (IRAP Private)
- Open Workbook...
- Publish Data Source**
- Start Tableau Bridge Client
- Tableau Public

By Gender and Broad Discipline Extract

Degree Data By Gender and Broad Discipline Extract

# Publishing Extract to Server (2)

The image shows three overlapping screenshots from the Tableau interface, illustrating the steps to publish a data source to the server. Red circles and boxes highlight key elements.

**Step 3:** The 'Publish Data Source to Tableau Server' dialog box. The 'Project' field is set to 'Default' and is circled in red with the number 3. The 'Name' field contains 'Degree Data By Gender and Broad Discipline Extract'. The 'Description' field contains 'Extract of Degree Data by Gender and Broad Discipline'. The 'Permissions' section is locked, and the 'More Options' section has 'Include external files' and 'Update workbook to use the published data source' checked. A green 'Publish' button is at the bottom.

**Step 4:** A 'Tableau' information dialog box with the message: 'Data source 'Degree Data By Gender and Broad Discipline Extract' successfully published to the Tableau Server.' The 'OK' button is circled in red with the number 4.

**Step 5:** The 'Data Sources' list in Tableau Server. The row for 'Degree Data By Gender and Broad Discipline Extract' is highlighted with a red box and circled with the number 5. The table below shows the details of the data sources.

Name	Views	Workbooks	Connects to	Project	Owner	Live / Last extract
Degree Count by Degree Category and Location	0	0	dwp2.ucoop.edu	Default	Ola Popoola	LIVE
Degree Data By Gender and Broad Discipline Extract	0	0	Degree Data By Gender and Broad Discipline.tde	Default	Ola Popoola	LIVE
Degree Types DS	0	0	dwp2.ucoop.edu	Default	Ola Popoola	LIVE
EAP Aggregated for Dashboard (local copy)	0	0	dwp2.ucoop.edu	Default	Krishna Malipatel	EXTRACT Sep 25, 2017, 2:22 PM
EAP Dashboard Data Aggregated by Term (local copy)	0	0	dwp2.ucoop.edu	Default	Krishna Malipatel	EXTRACT Sep 25, 2017, 2:23 PM
esp_wage (BMOORETR)	0	0	dwp3.ucoop.edu	Default	Krishna Malipatel	EXTRACT Sep 25, 2017, 2:23 PM

# Connecting to Published Extract

File Data Server Window Help

Degree Data By Gender and Broad Discipline Extract

Connected to Tableau Server as Ola Popoola <https://qa.visualizedata.ucop.edu>

Search

Connection:  Live  Extract Filters: 0 | Add

Data Source	Live/Last Extra	Project	Owner	Modified
Degree Count by Degree Category and Location	Live	Default	Ola Popoola	Today, 11:45 AM
Degree Data By Gender and Broad Discipline Extract	Live	Default	Ola Popoola	7 minutes ago
Degree Types DS	Live	Default	Ola Popoola	29 minutes ago
EAP Aggregated for Dashboard (local copy)	Sep 25, 2:22 ...	Default	Krishna Malipatel	Sep 25, 2:22 PM

Sort fields: Data source order

**Extract on Tableau Server**

#	Academic_Yr	Campus_Location	Degree_Award_Category	Degree_Broad_Discipline	Degree_Gender	Student_Count	Term_Name
	1,999	Berkeley	Bachelor	Arts	Female	28	Fall
	2,000	Berkeley	Bachelor	Arts	Female	26	Fall
	2,001	Berkeley	Bachelor	Arts	Female	34	Fall
	2,002	Berkeley	Bachelor	Arts	Female	40	Fall

It may be beneficial to create an extract based on an extract...

# Create Local Copy of an Extract (1)

1

Name	Size
Degree Data By Gender and Broad Discipline.tde	131 KB
Degree Data By Gender and Broad Discipline Extract.tdsx	54 KB

**.tdsx – Path and connection details to .tde**

**Useful for working offline!**

File name: Degree Data By Gender and Broad Discipline Extract.tdsx  
Save as type: All Tableau Data Sources (\*.tds \*.tdsx)

Save Cancel

# Create Local Copy of an Extract (2)

The screenshot displays the Tableau Desktop interface. The 'Data' menu is open, showing options such as 'New Data Source', 'Paste', 'Refresh All Extracts...', 'Edit Relationships...', 'Replace Data Source...', 'Tableau Data Server', and 'Degree Data By Gender and Broad Discipline Extract (local copy)'. The 'Extract Data...' option is highlighted in blue. A red circle with the number '2' is overlaid on the interface, indicating the step number. The background shows a worksheet with columns for 'TERM\_NAME' and 'Measure Names', and a 'Marks' card set to 'Automatic'. The 'Measures' shelf contains 'ACADEMIC\_YR', 'STUDENT\_COUNT', 'Number of Records', and 'Measure Values'. The interface also includes a 'Drop field here' area and a 'Standard' view selector.



# Create Local Copy of an Extract (3)

The image shows two overlapping dialog boxes from Tableau. The background dialog is 'Extract Data', and the foreground dialog is 'Save Extract As'. Both have red circles with numbers 3, 4, and 5 highlighting specific elements.

**Extract Data Dialog:**

- Specify how much data to extract:**
- Filters (optional):** A table with columns 'Filter' and 'Details'. A red circle with the number **3** is around the 'Filter' column header.
- Buttons:** Add..., Edit..., Remove.
- Aggregation:**
  - Aggregate data for visible dimensions
  - Roll up dates to [dropdown]
- Number of Rows:**
  - All rows
  - Incremental refresh
  - Top: [input] rows
- Buttons:** History..., Hide All Unused Fields, Extract, Cancel.

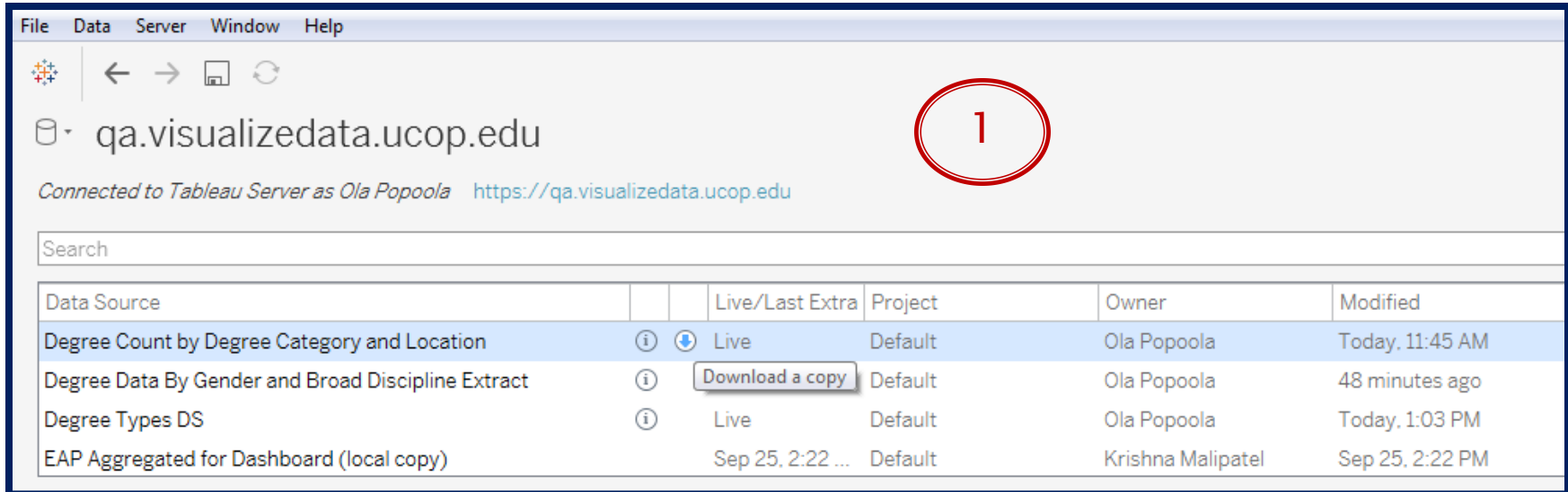
**Save Extract As Dialog:**

- Path:** Libraries > Documents > My Documents > TABLEAU DATA EXTRACTS. A red circle with the number **4** is around the 'TABLEAU DATA EXTRACTS' folder in the file list.
- File name:** Degree Data By Gender and Broad Discipline Extract (local copy).tde
- Save as type:** Tableau Data Extract (\*.tde)
- Buttons:** Save, Cancel.

**Documents library Dialog:**

- Path:** Documents library > TABLEAU DATA EXTRACTS. A red circle with the number **5** is around the 'TABLEAU DATA EXTRACTS' folder in the file list.
- File list:** Degree Data By Gender and Broad Discipline Extract (local copy).tde (highlighted), Degree Data By Gender and Broad Discipline Extract.tdsx, Degree Data By Gender and Broad Discipline.tde.

# Create Local Copy of Live Data Source (1)



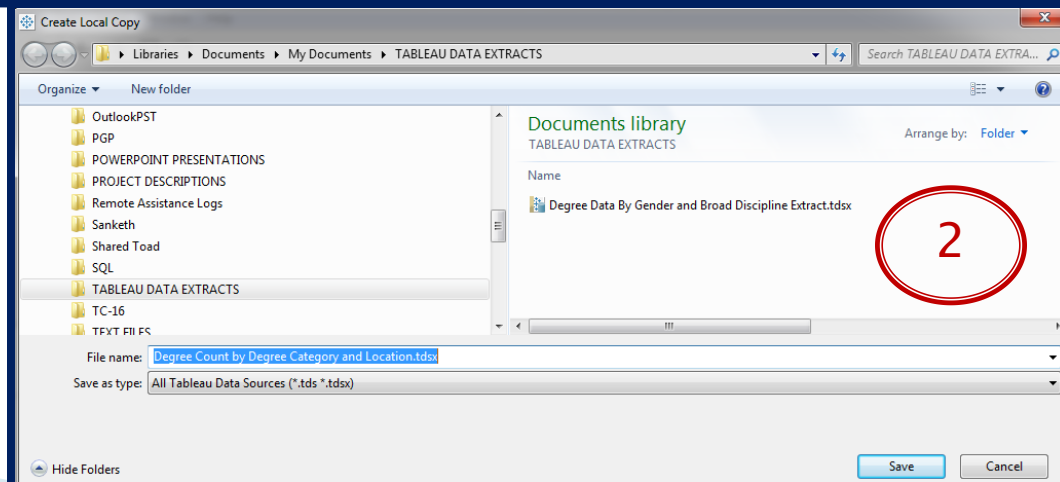
File Data Server Window Help

qa.visualizedata.ucop.edu

Connected to Tableau Server as Ola Popoola <https://qa.visualizedata.ucop.edu>

Search

Data Source		Live/Last Extra	Project	Owner	Modified
Degree Count by Degree Category and Location	i	Live	Default	Ola Popoola	Today, 11:45 AM
Degree Data By Gender and Broad Discipline Extract	i	<b>Download a copy</b>	Default	Ola Popoola	48 minutes ago
Degree Types DS	i	Live	Default	Ola Popoola	Today, 1:03 PM
EAP Aggregated for Dashboard (local copy)		Sep 25, 2:22 ...	Default	Krishna Malipatel	Sep 25, 2:22 PM



Create Local Copy

Libraries > Documents > My Documents > TABLEAU DATA EXTRACTS

Search TABLEAU DATA EXTRA...

Organize New folder

- OutlookPST
- PGP
- POWERPOINT PRESENTATIONS
- PROJECT DESCRIPTIONS
- Remote Assistance Logs
- Sanketh
- Shared Toad
- SQL
- TABLEAU DATA EXTRACTS
- TC-16
- TFXT Fil FC

Documents library  
TABLEAU DATA EXTRACTS

Arrange by: Folder

Name

- Degree Data By Gender and Broad Discipline Extract.tdxx

File name: Degree Count by Degree Category and Location.tdxx

Save as type: All Tableau Data Sources (\*.tds \*.tdsx)

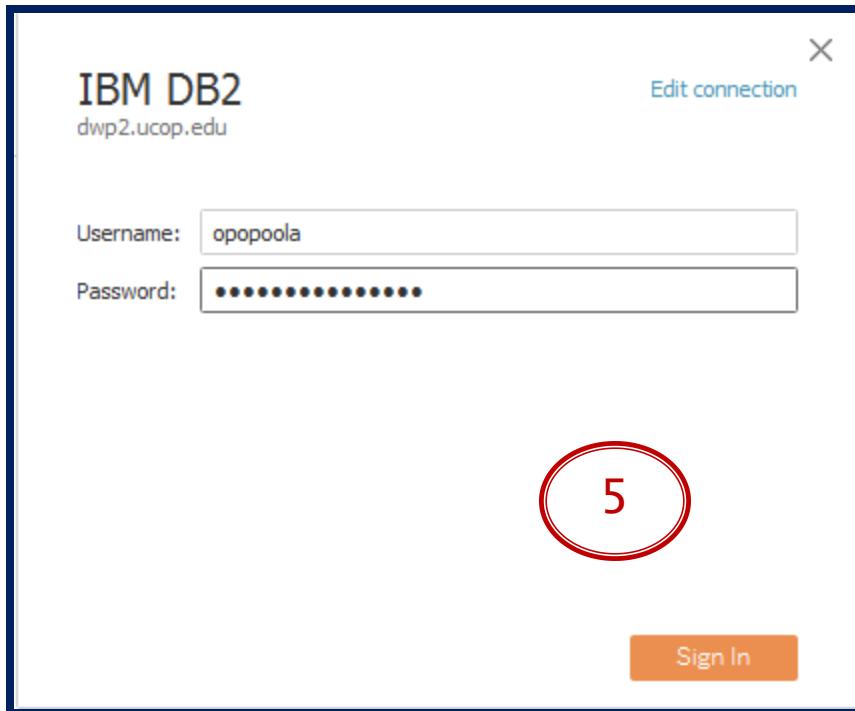
Hide Folders

Save Cancel

# Create Local Copy of Live Data Source (2)

The image shows a Tableau Desktop interface with two overlapping windows. The foreground window is a 'Custom SQL Warning' dialog box with a yellow warning icon and the text: 'This document contains one or more custom SQL functions. Do you want to connect?'. Below this, it lists 'SQL Statements:' and shows a SQL query: `SELECT COUNT (DISTINCT STUD_ID) AS STUDENT_COUNT, ACADEMIC_YR, TERM_NAME, DEG_AWARD_CAT_DESC, CAMPUS_LOCATION FROM IRAP_BI.DEGREE_DM GROUP BY ACADEMIC_YR, TERM_NAME, DEG_AWARD_CAT_DESC, CAMPUS_LOCATION ORDER BY ACADEMIC_YR, CAMPUS_LOCATION, TERM_NAME, DEG_AWARD_CAT_DESC`. A red circle with the number '3' is drawn around the dialog box. The background window is the Tableau Desktop main interface. The 'Data' menu is open, showing options like 'New Data Source', 'Paste', 'Refresh All Extracts...', 'Edit Relationships...', 'Replace Data Source...', 'Tableau Data Server', and 'Degree Count by Degree Category and Location (local copy)'. The 'Extract Data...' option is highlighted, and a red circle with the number '4' is drawn around it. The 'Measures' pane on the left shows a list of fields: '# ACADEMIC\_YR', '# STUDENT\_COUNT', '# Number of Records', and '# Measure Values'. The 'Marks' card is set to 'Automatic'.

# Create Local Copy of Live Data Source (3)



IBM DB2  
dwp2.ucop.edu

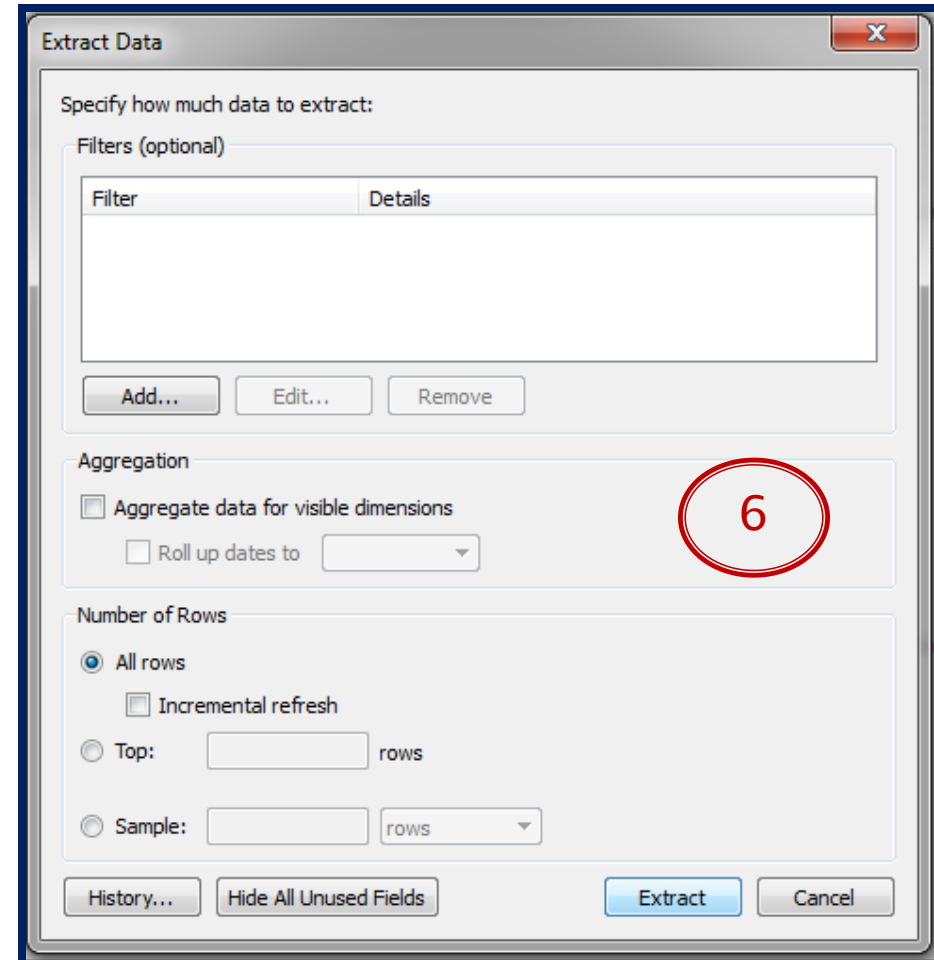
Username:

Password:

**5**

Sign In

Edit connection



Extract Data

Specify how much data to extract:

Filters (optional)

Filter	Details
--------	---------

Add... Edit... Remove

Aggregation

Aggregate data for visible dimensions

Roll up dates to

**6**

Number of Rows

All rows

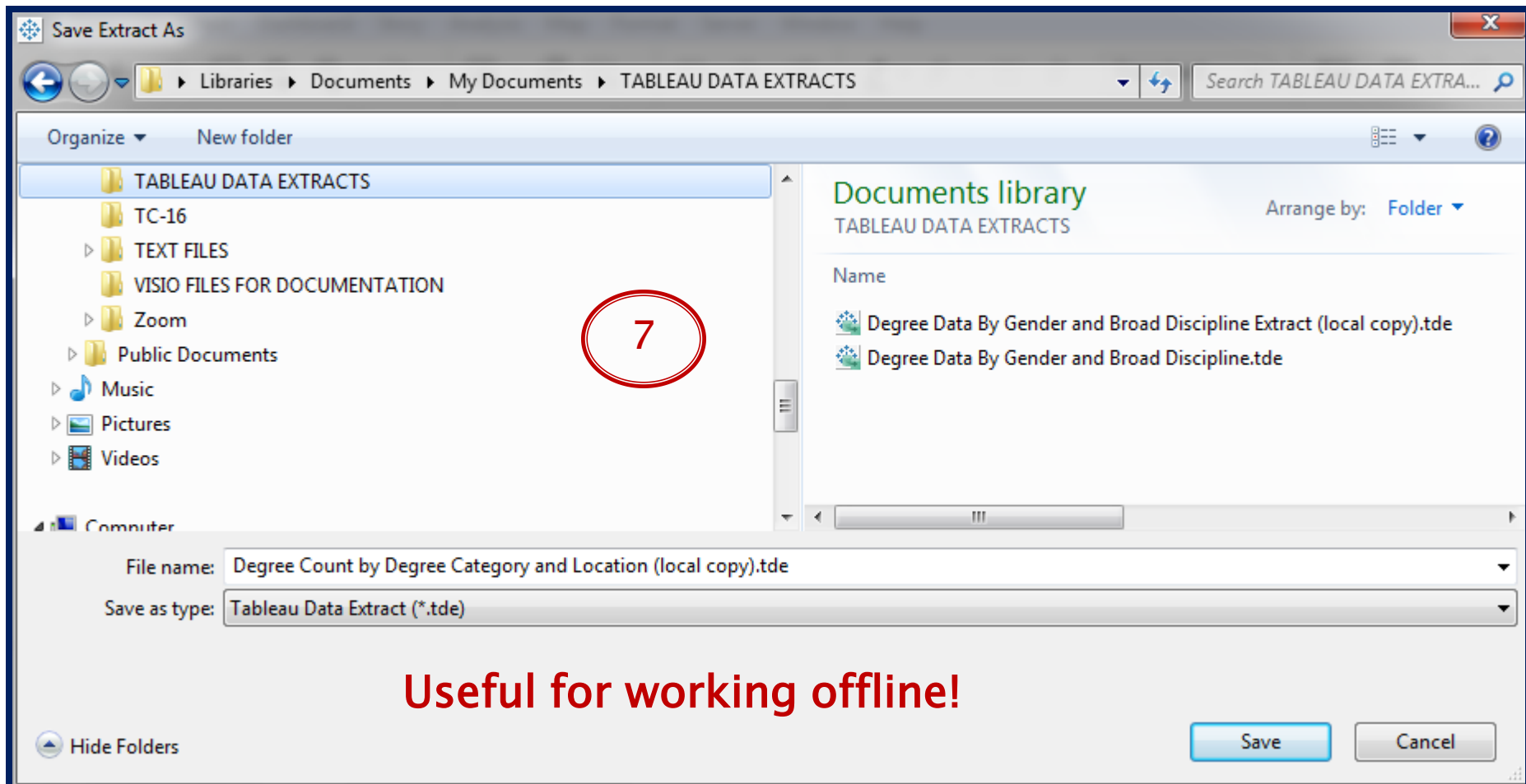
Incremental refresh

Top:  rows

Sample:  rows

History... Hide All Unused Fields Extract Cancel

# Create Local Copy of Live Data Source (4)



# Data Sources & Security

- » Data source security
- » Data source certification

# Data Source Security

- ▶ Data Source Security can be implemented at the project level
- ▶ User who publishes a data source/extract will have complete access to edit or delete the data source
- ▶ Site Administrator and System Administrator will have access to publish, modify all data sources.

# Data Source Certification

Available in 10.4 – Read more at

<https://www.tableau.com/about/blog/2017/7/certification-and-data-source-recommendations-boost-data-discovery-and-governance>

- ▶ Data source certification enables your data stewards to promote specific data sources in your Tableau deployment as trusted and ready for use.
- ▶ Project leaders, site admins, and Tableau Server administrators have permission to certify data sources.
- ▶ After receiving certification, certified data sources receive preferential treatment in search results and stand out in data source lists in Tableau Server and Tableau Desktop



# Refreshing Data Sources

- » Refreshing extracts
- » Full refresh
- » Incremental refresh

# Refreshing Extracts – Desktop

## Refreshing extracts from Tableau Desktop

- ▶ Tableau Desktop users can refresh extracts they publish and own. They can do this the following ways:
- ▶ At publish time: When an author publishes a workbook or data source that uses an extract, that author can add it to server refresh schedule. The refresh can be a full or an incremental refresh.

# Refreshing – Desktop

**Credentials will need to be embedded for refresh!**

**Options are set on server**

**1**

**2**

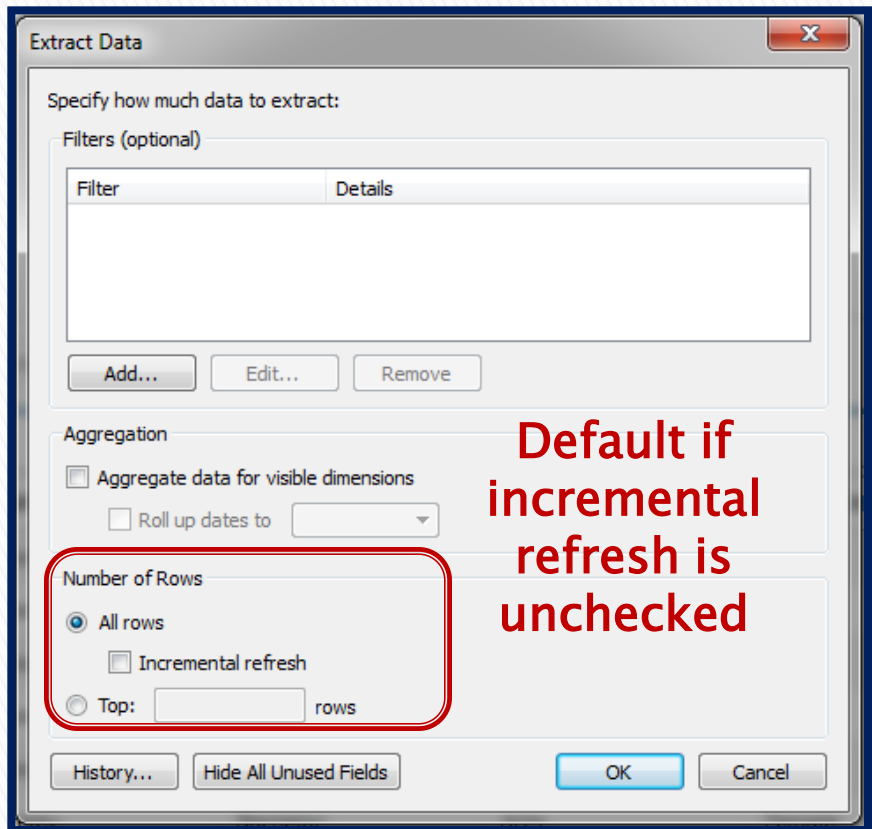
**3**

**3**

**3**

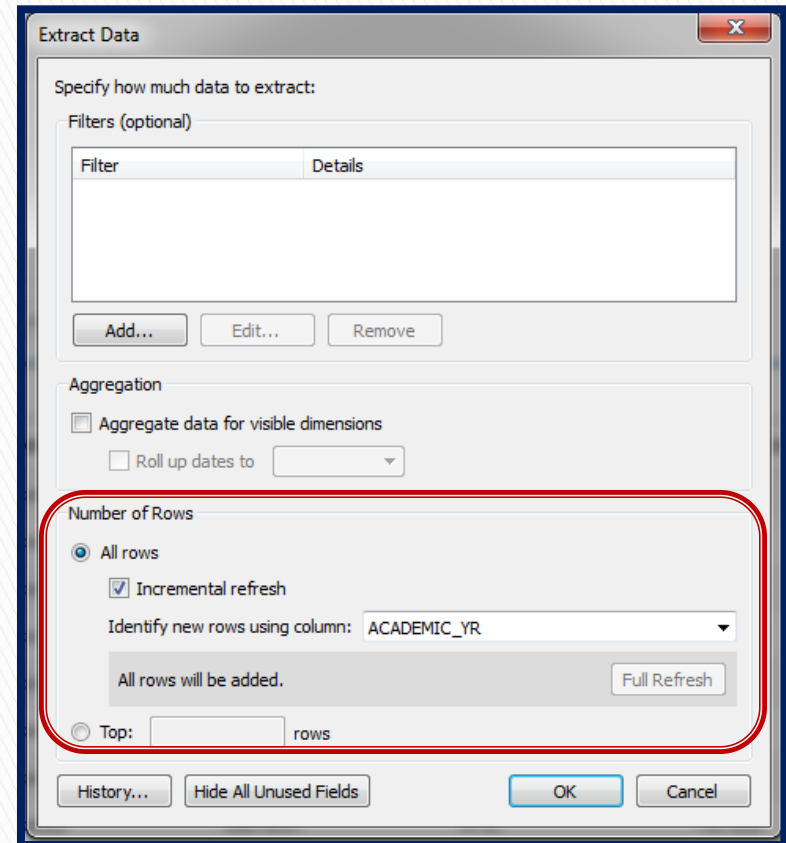
# Full Refresh – Desktop

- ▶ By default, extracts are fully refreshed. That means that every time you refresh the extract, all of the rows are replaced with the data in the underlying data source.
- ▶ If the extract is not set up for incremental extract, selecting to refresh the extract will fully refresh the extract.



# Incremental Refresh – Desktop

- ▶ Rather than refreshing the entire extract, you can set it up to only add the rows that are new since the last time you extracted data.
- ▶ For example, fall student enrollment is updated in the data mart in the fall of every academic year. Rather than rebuild the entire extract frequently, you can just the data for fall of the new year.



# Refreshing Extracts – Server

- ▶ In the Tableau Server web environment, both server and site administrators can run extract refreshes on-demand on the Schedules page.

# Refreshing – Server

The screenshot shows the Tableau Desktop interface with the 'Data Sources' page open. The browser address bar shows the URL: <https://qa.visualizedata.ucop.edu/#/site/IRAP/datasources>. The Tableau navigation bar includes 'IRAP Private', 'Content', 'Users', 'Groups', 'Schedules', 'Tasks', 'Status', and 'Settings'. The main header shows 'Projects 11', 'Workbooks 7', 'Views 41', and 'Data Sources 6'. On the left, there are 'General Filters' and 'Data Source Filters'. The main area displays a table of data sources. A context menu is open over the selected data source 'EAP Aggregated for Dashboard (local copy)', with the 'Refresh Extracts...' option highlighted by a red rectangle.

Name	Views: All	Workbooks	Connects to	Project	Owner	Live / Last extract
<input type="checkbox"/> Degree Count by Degree Category and Location	0	0	dwp2.ucop.edu	Default	Ola Popoola	LIVE
<input type="checkbox"/> Degree Data By Gender and Broad Discipline Extract	0	0	Degree Data By Gender and Broad Discipline.tde	Default	Ola Popoola	LIVE
<input type="checkbox"/> Degree Types DS	0	0	dwp2.ucop.edu	Default	Ola Popoola	LIVE
<input checked="" type="checkbox"/> EAP Aggregated for Dashboard (local copy)	0	0	dwp2.ucop.edu	Default	Krishna Malipatel	EXTRACT Sep 25, 2017, 2:22 PM
<input type="checkbox"/> EAP Dashboard Data Aggregated by Term (local copy)	0	0	dwp2.ucop.edu	Default	Krishna Malipatel	EXTRACT Sep 25, 2017, 2:23 PM
<input type="checkbox"/> eap_wage (BMOORETR)	0	0	dwp3.ucop.edu	Default	Krishna Malipatel	EXTRACT Sep 25, 2017, 2:23 PM

# Refreshing – Server

The screenshot shows the Tableau Desktop interface with a 'Refresh Extracts' dialog box open. The dialog box has a title 'Refresh Extracts' and two main options: 'Refresh Now' and 'Schedule a Refresh'. Below these options, there is a text instruction: 'Execute a full refresh right now on the data source "EAP Aggregated for Dashboard (local copy)".' At the bottom of the dialog, there are two buttons: 'Cancel' and 'Full Refresh'.

The background interface shows a list of data sources. The table below is a representation of the data source list:

Name	Views	Workbooks	Connects to	Project	Owner	Live / Last extract
Degree Count by Degree Category and Location	0	0	dw2.ucop.edu	Default	Ola Popoola	LIVE
Degree Data By Gender and Broad Discipline				default	Ola Popoola	LIVE
Degree Types DS				default	Ola Popoola	LIVE
EAP Aggregated for Dashboard (local copy)				default	Krishna Malipatel	EXTRACT Sep 25, 2017, 2:22 PM
EAP Dashboard Data Aggregated by Term (local copy)				default	Krishna Malipatel	EXTRACT Sep 25, 2017, 2:23 PM
eap_wage (BMOORETR)				default	Krishna Malipatel	EXTRACT Sep 25, 2017, 2:23 PM



# Refreshing Server – Schedule

The screenshot shows the Tableau Desktop interface with the 'Data Sources' tab selected. A modal window titled 'Refresh Extracts' is open, showing options to 'Refresh Now' or 'Schedule a Refresh'. The 'Schedule a Refresh' option is selected, and a list of refresh frequencies is displayed. Red annotations highlight the 'Manual schedule' and 'Frequency' options.

**Manual schedule**

**Frequency**

Frequency
End of the month
Every 5th Day of Month
Every Day at 6 am
Every Hour from 6am to 6pm Everyday
First business day of the month 9am
Last business day of the month 9am
Saturday night
Weekday early mornings
Weekdays 6am PST

**Refresh Now** **Schedule a Refresh**

Choose a refresh schedule for data source "EAP Aggregated for Dashboard (local copy)".

Cancel Schedule Refreshes

Name	Views	Workbooks	Connects to	Project	Owner	Live / Last extract
Degree Count by Degree Category and Location	3	3	IRAP ucop.edu	Default	Ola Popoola	LIVE
Degree Data By Gender and Broad Discipline Extract	3	3	IRAP ucop.edu	Default	Ola Popoola	LIVE
Degree Types DS	3	3	IRAP ucop.edu	Default	Ola Popoola	LIVE
EAP Aggregated for Dashboard (local copy)	3	3	IRAP ucop.edu	Default	Krishna Malipatel	EXTRACT Sep 25, 2017, 2:22 PM
EAP Dashboard Data Aggregated by Term (local copy)	3	3	IRAP ucop.edu	Default	Krishna Malipatel	EXTRACT Sep 25, 2017, 2:23 PM
eap_wage (BMOORETR)	3	3	IRAP ucop.edu	Default	Krishna Malipatel	EXTRACT Sep 25, 2017, 2:23 PM

# Best Practices

- »» ▶ Published data source best practices
- ▶ Helpful links

# Published Data Source Best Practices

- ▶ Remove PII data to reduce risk of exposing sensitive information
- ▶ Remove fields that are unlikely to be used for visualization or analysis
- ▶ Use a consistent naming standards for your data sources
- ▶ Minimize the use of custom SQL in data sources – harder to maintain and not viewable without downloading locally and opening without Tableau desktop

# More Best Practices...

- ▶ Use extracts for data that is refreshed on a daily or longer cycle – performance is much better than with live connections
- ▶ Schedule extract refreshes during non-business hours
- ▶ Consider designating the following roles among Tableau users:
  - A **data steward** (or team) who creates and publishes data sources for the Tableau community
  - A **site administrator** who manages published content, extract refreshes and permissions on the server you publish to

# Helpful Links

**More Details can be found on the link**

<https://www.tableau.com/about/blog/2014/7/understanding-tableau-data-extracts-part1>

**Why Use Tableau Data Extract**

<https://www.tableau.com/about/blog/2014/7/why-use-tableau-data-extracts-32187>

**Tableau Data Extracts – Tips, Tricks and Best Practices**

<https://www.tableau.com/tableau-data-extracts-part3#zvjcKX9oUWxY8SPE.99>

**Tableau Data Extracts – Tips, Tricks and Best Practices**

<https://www.tableau.com/tableau-data-extracts-part3>

**Publish a Data Source**

[http://onlinehelp.tableau.com/current/pro/desktop/en-us/help.htm#publish\\_datasources.html%3FTocPath%3DPublish%2520Data%2520Sources%2520and%2520Workbooks%7C\\_\\_\\_\\_\\_4](http://onlinehelp.tableau.com/current/pro/desktop/en-us/help.htm#publish_datasources.html%3FTocPath%3DPublish%2520Data%2520Sources%2520and%2520Workbooks%7C_____4)

**Best Practices for Published Data Sources**

[https://onlinehelp.tableau.com/current/pro/desktop/en-us/publish\\_datasources\\_about.html](https://onlinehelp.tableau.com/current/pro/desktop/en-us/publish_datasources_about.html)

**Connect to a Custom SQL Query**

<http://onlinehelp.tableau.com/current/pro/desktop/en-us/customsql.html>