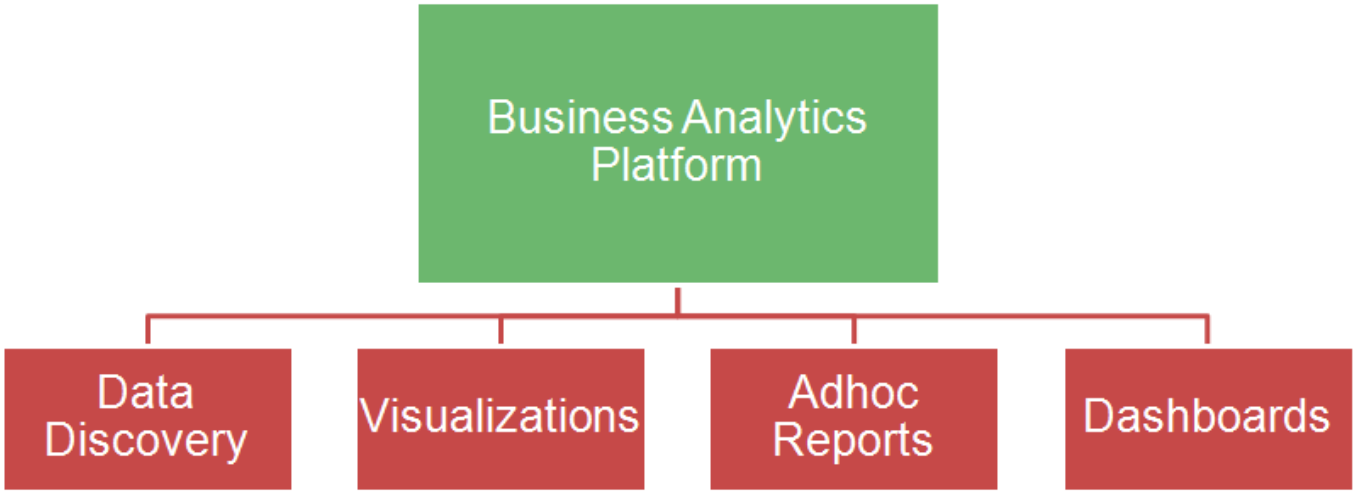
How to connect to Cloudera Hadoop Data Sources

Enterprise Business Analytics and Dashboards



InfoCaptor works with both ODBC and JDBC protocol. Depending on the availability of suitable drivers for the appropriate platform you can leverage either protocols for your visualization purpose.

In addition, InfoCaptor implements certain native functions of Impala and Hive within the visualizer. InfoCaptor processes the data within Hadoop. It leverages the processing engines within Hadoop to get high level aggregated data.

Contents

Connect InfoCaptor to Cloudera Impala using ODBC

1. Download Cloudera ODBC driver

Download Cloudera ODBC driver from Cloudera website
http://www.cloudera.com/content/cloudera/en/downloads/connectors/impala/odbc/impala-odbc-v2-5-26.html

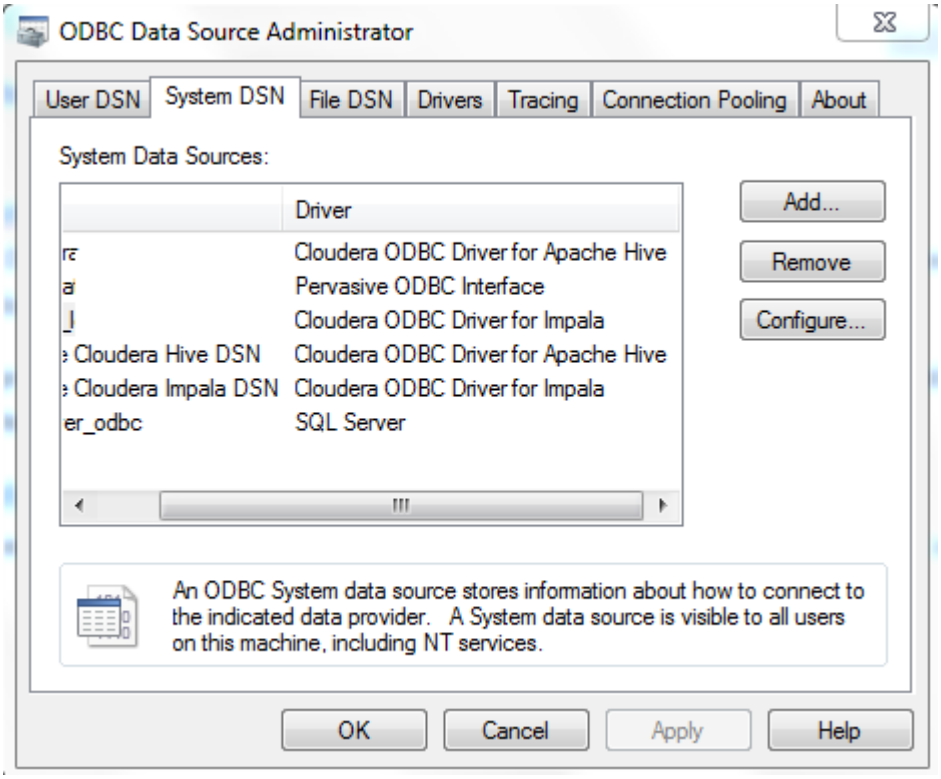
[all other downloads http://www.cloudera.com/content/cloudera/en/downloads.html]

[Note the vendor may change the availability and location of the downloads]

Make sure to get appropriate drivers for your operating system where InfoCaptor is installed. The following tests were documented on a 64bit Windows machine.

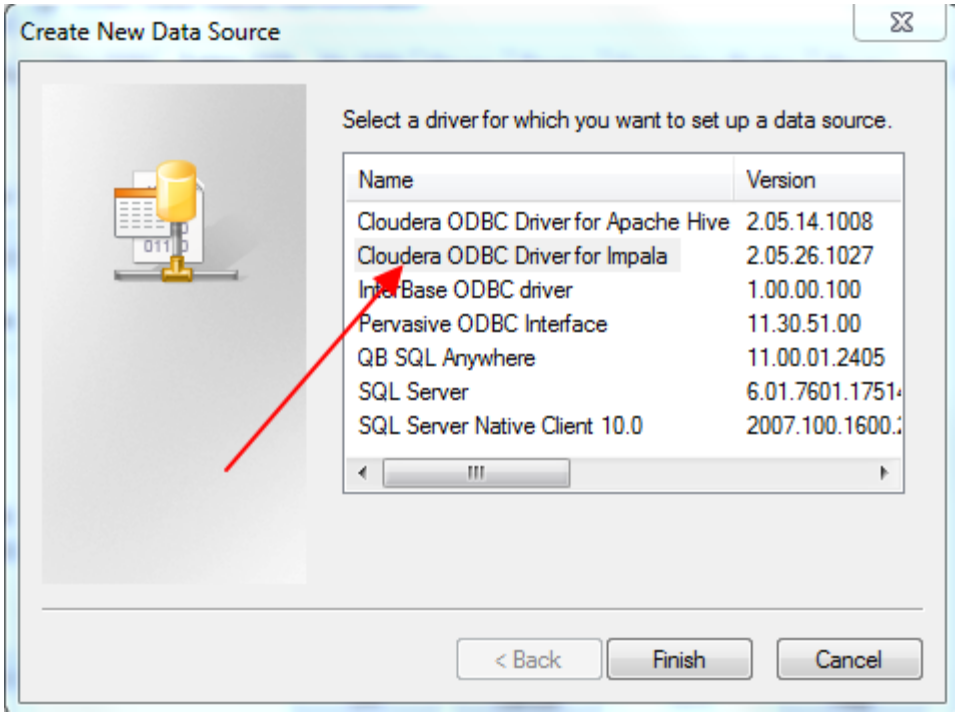
2. Install and configure

Install the ODBC driver and depending on 32bit or 64bit version of the OS, launch the ODBC configuration as illustrated below.



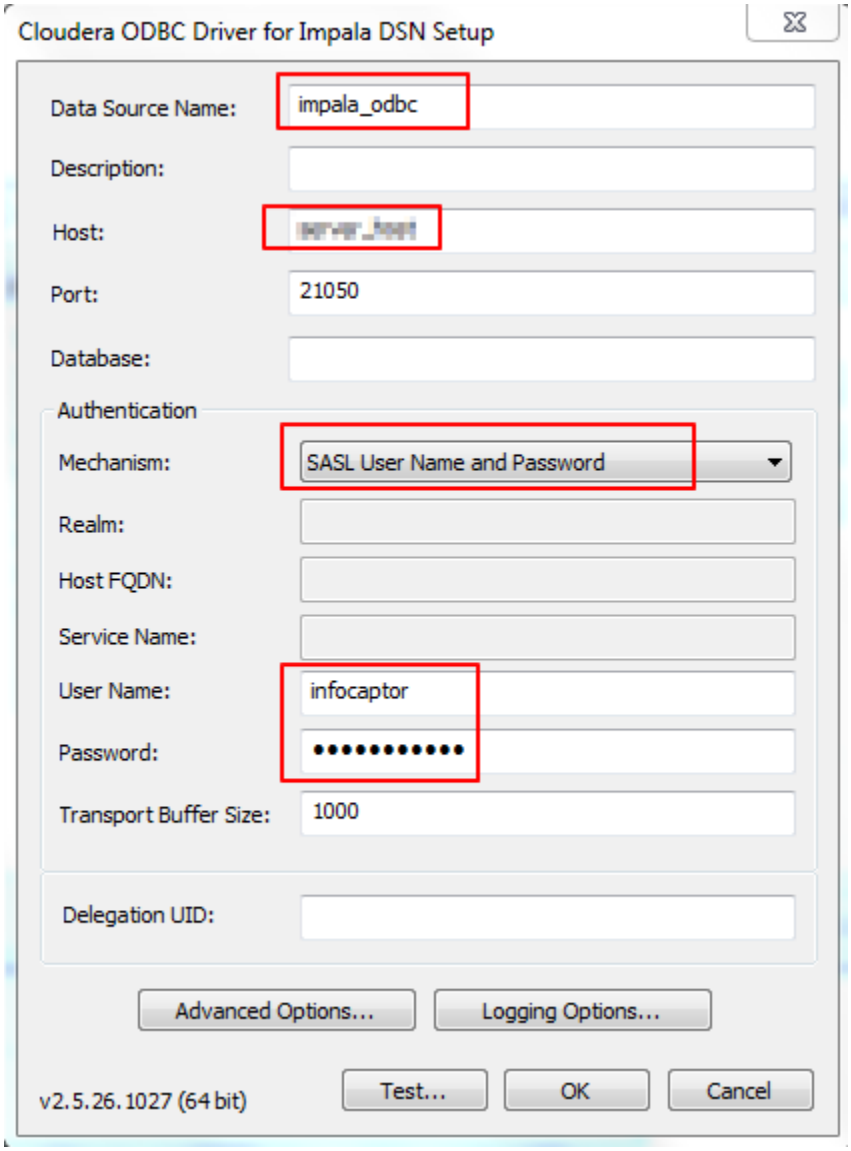
Click on "Add"

Select the Impala driver



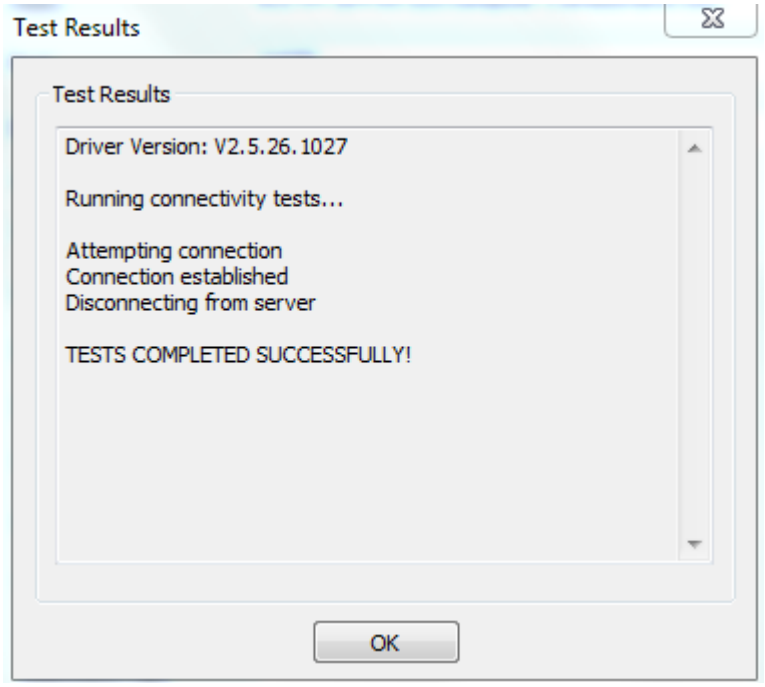
Click on "Finish"

It should pop with the following form



Provide the data source name, host address, authentication mechanism and finally user credentials.

Click on the "Test" button



Click "OK"

Click "OK" again to add the Data Source Name "impala_odbc"

NOTE: Use the System DSN tab to add the DSN.

3. Download and Install InfoCaptor

Skip this section if you already installed.

Download link: http://infocaptor.s3.amazonaws.com/infocaptor_enterprise_setup.exe

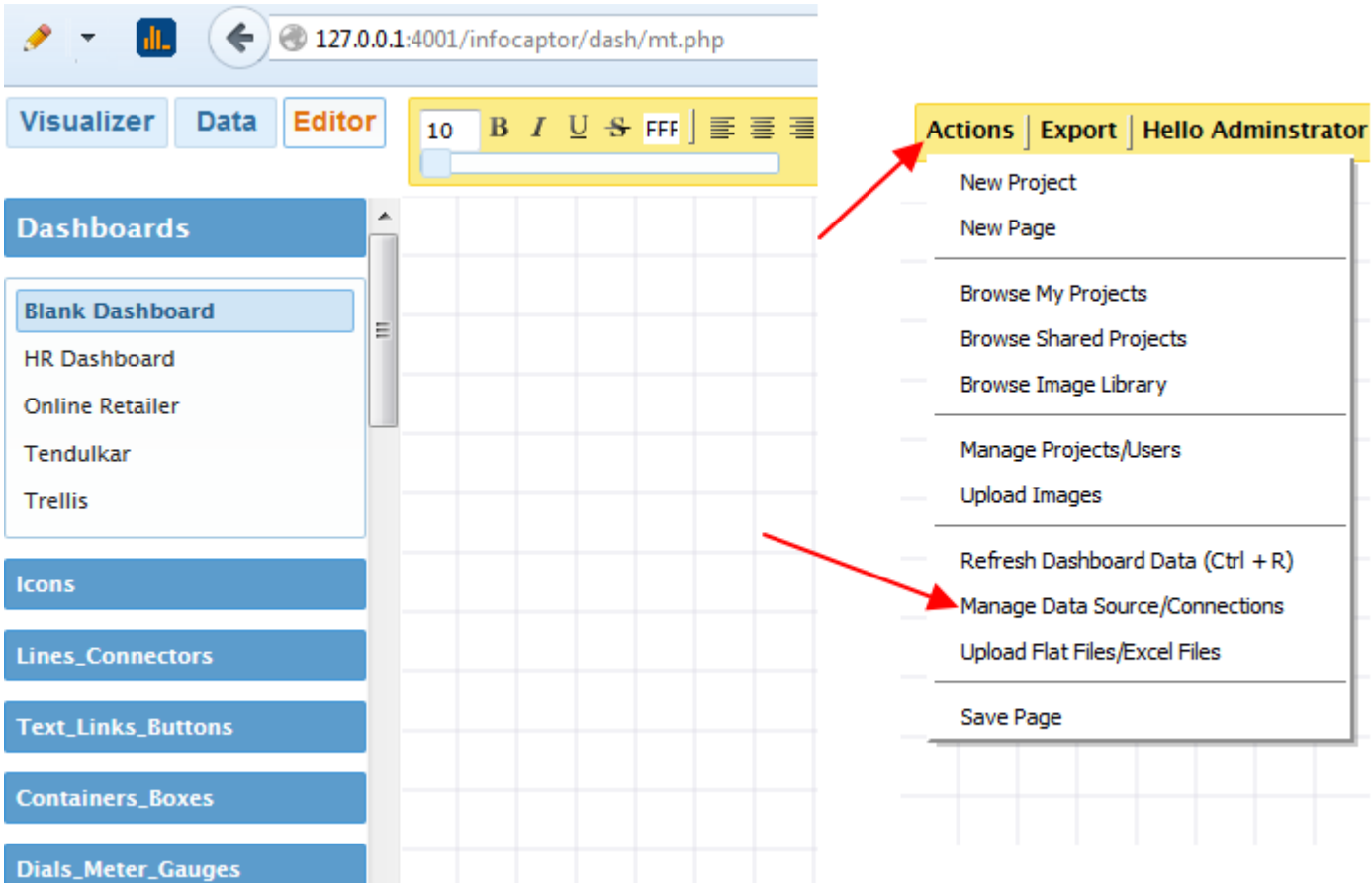
Download and run the setup for InfoCaptor.

4. Create Database connection

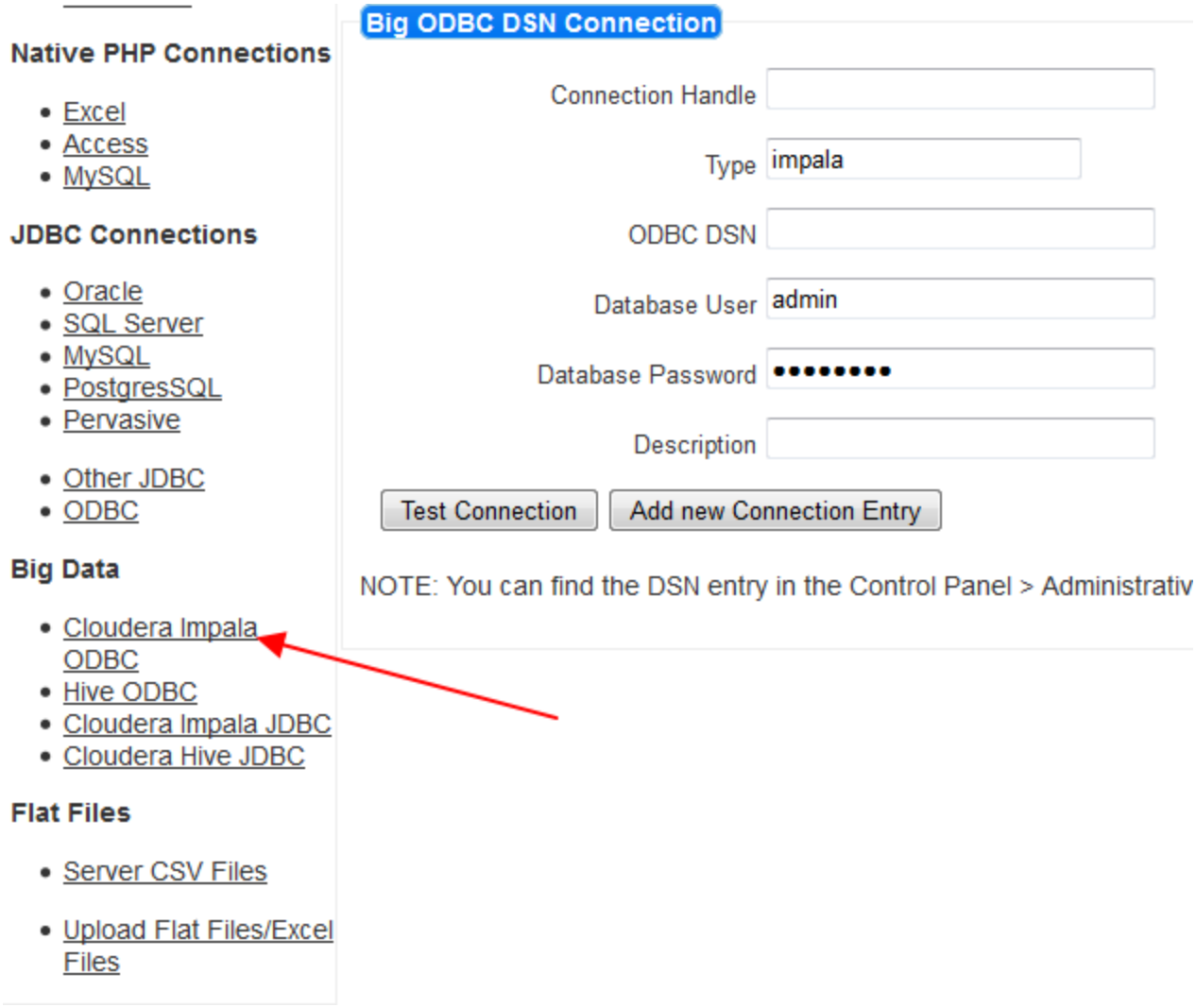
Launch the database connection screen within infocaptor.

This can be done from two locations within Infocaptor

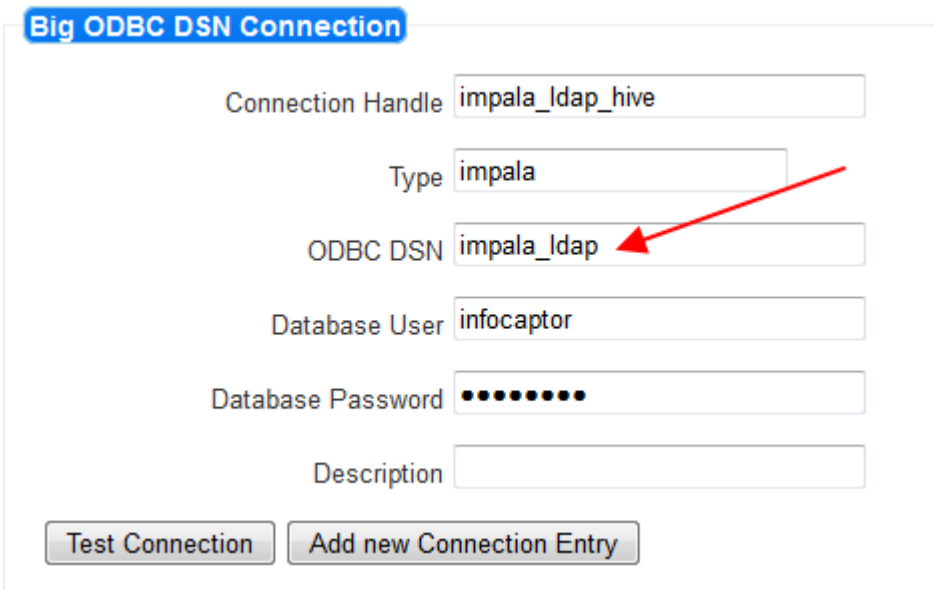
1. Editor Tab > Actions Menu > Manage Data Sources/Connections



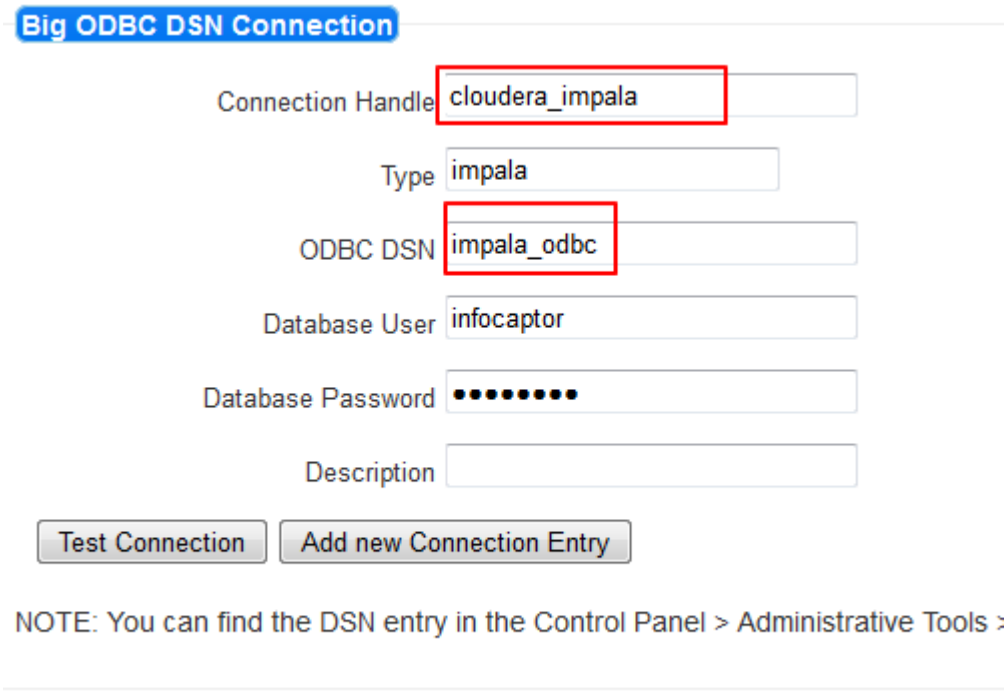
Click on the "Cloudera Impala ODBC" link on the left side



On the right side, you will see a form to fill up the needed details

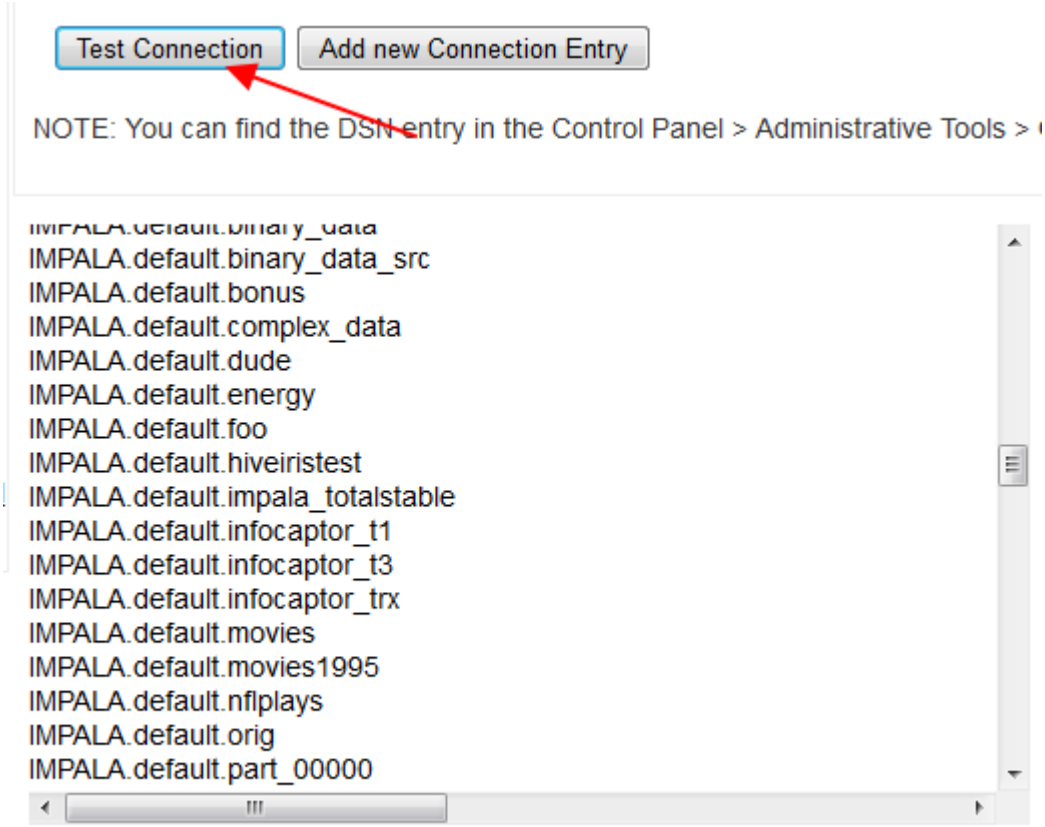


Enter a "connection Handle" that will be used throughout the infocaptor application. The type field is set to impala [do not change]. In the ODBC DSN, enter "impala_odbc" [we defined this above in the ODBC screen]



Connection Handle is any valid string that is user friendly for the analyst to identify the data connection.

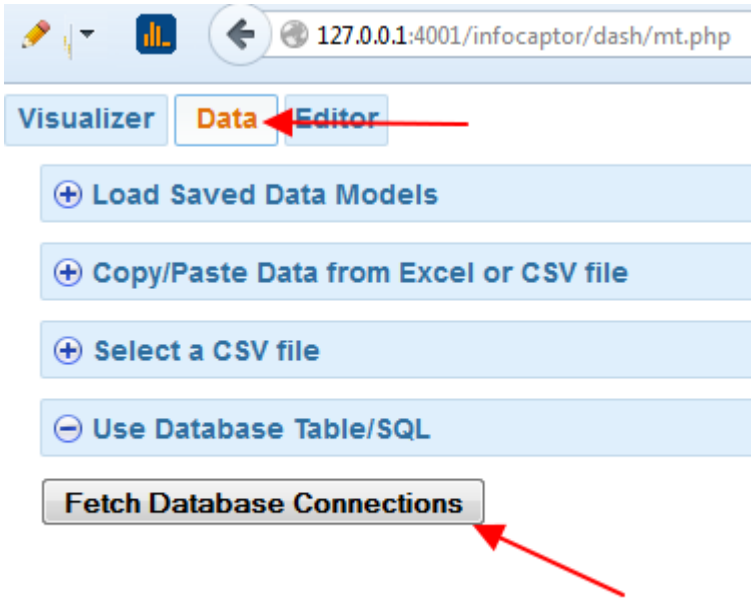
Click on the "Test Connection"



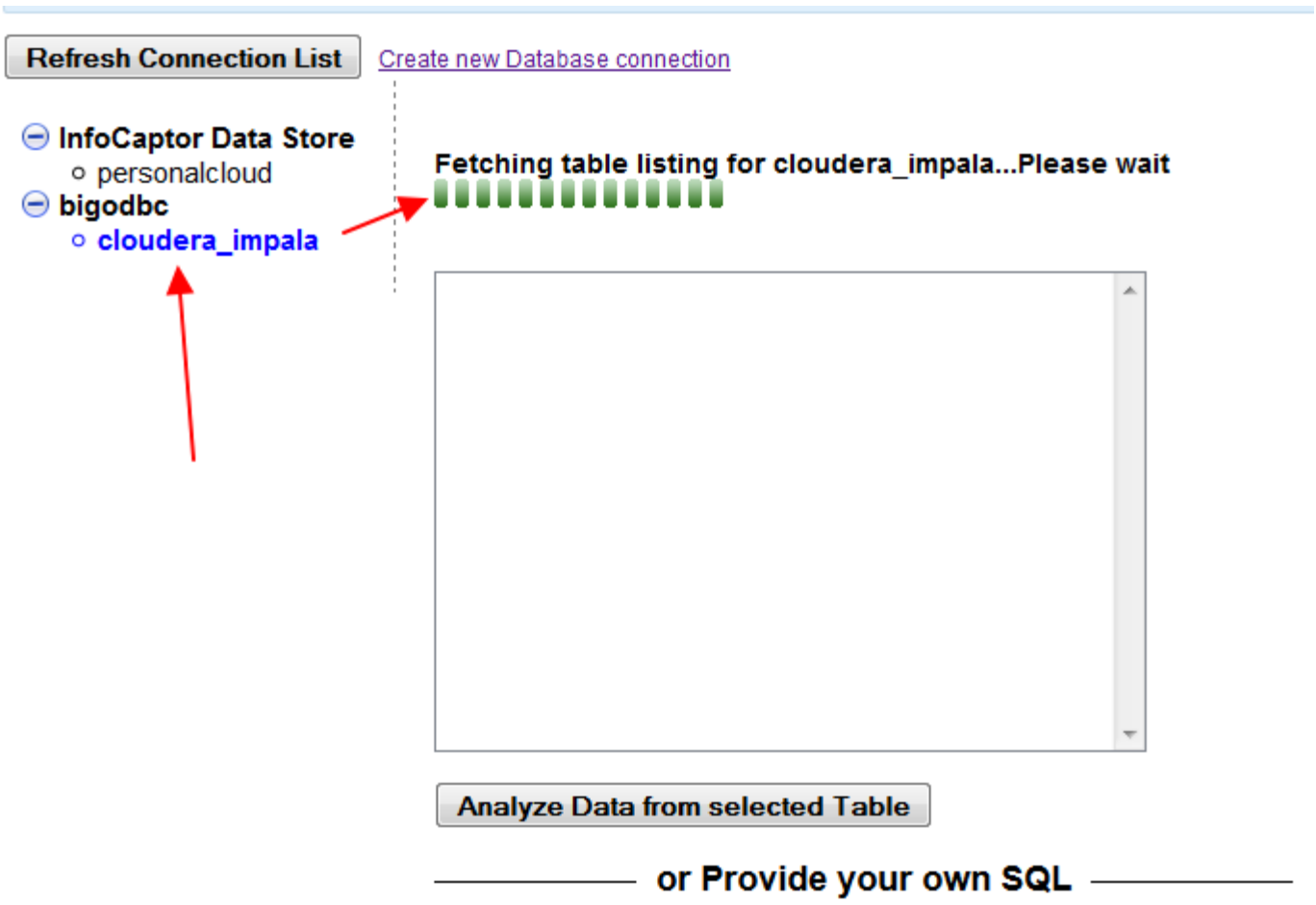
Upon successful connection, it should show a list of tables as above.

Click on the "Add new Connection Entry"

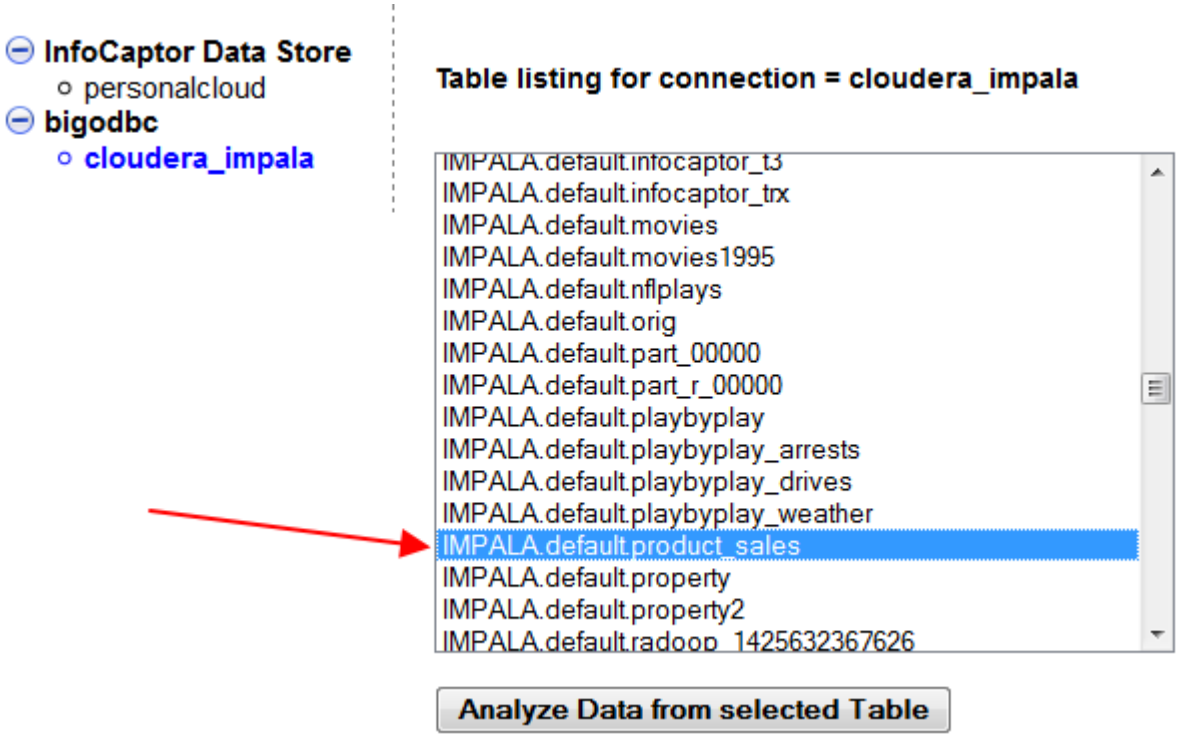
You can reach the same data connection screen from "Data Tab"



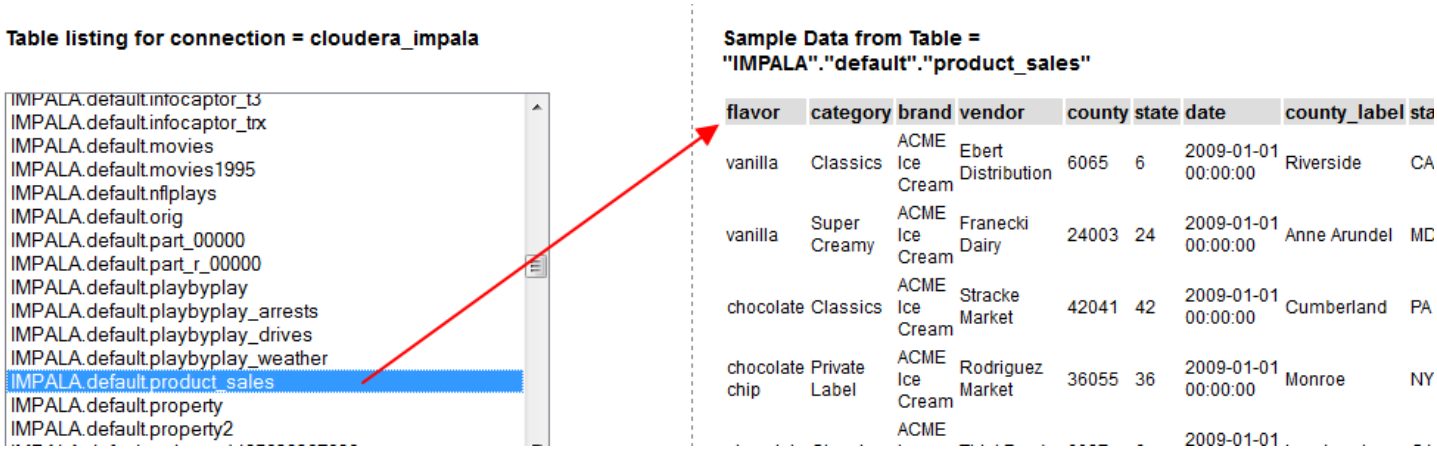
5. Select table for Analysis



Once you select the connection, it will fetch all the tables/views and display it

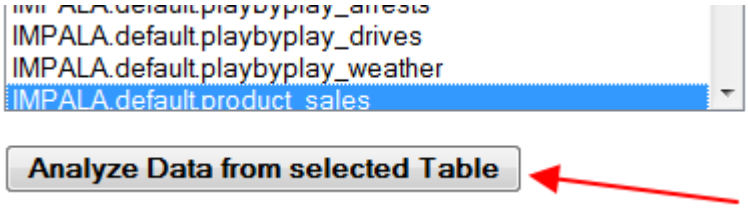


You then select a particular table that you wish to analyze.



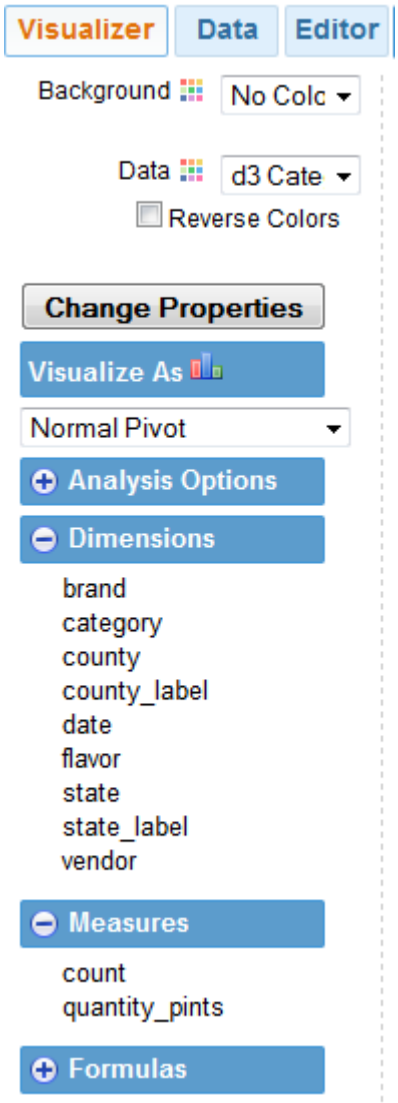
It shows sample data from the selected table.

Next, "Hit" the "Analyze Data from selected Table" button

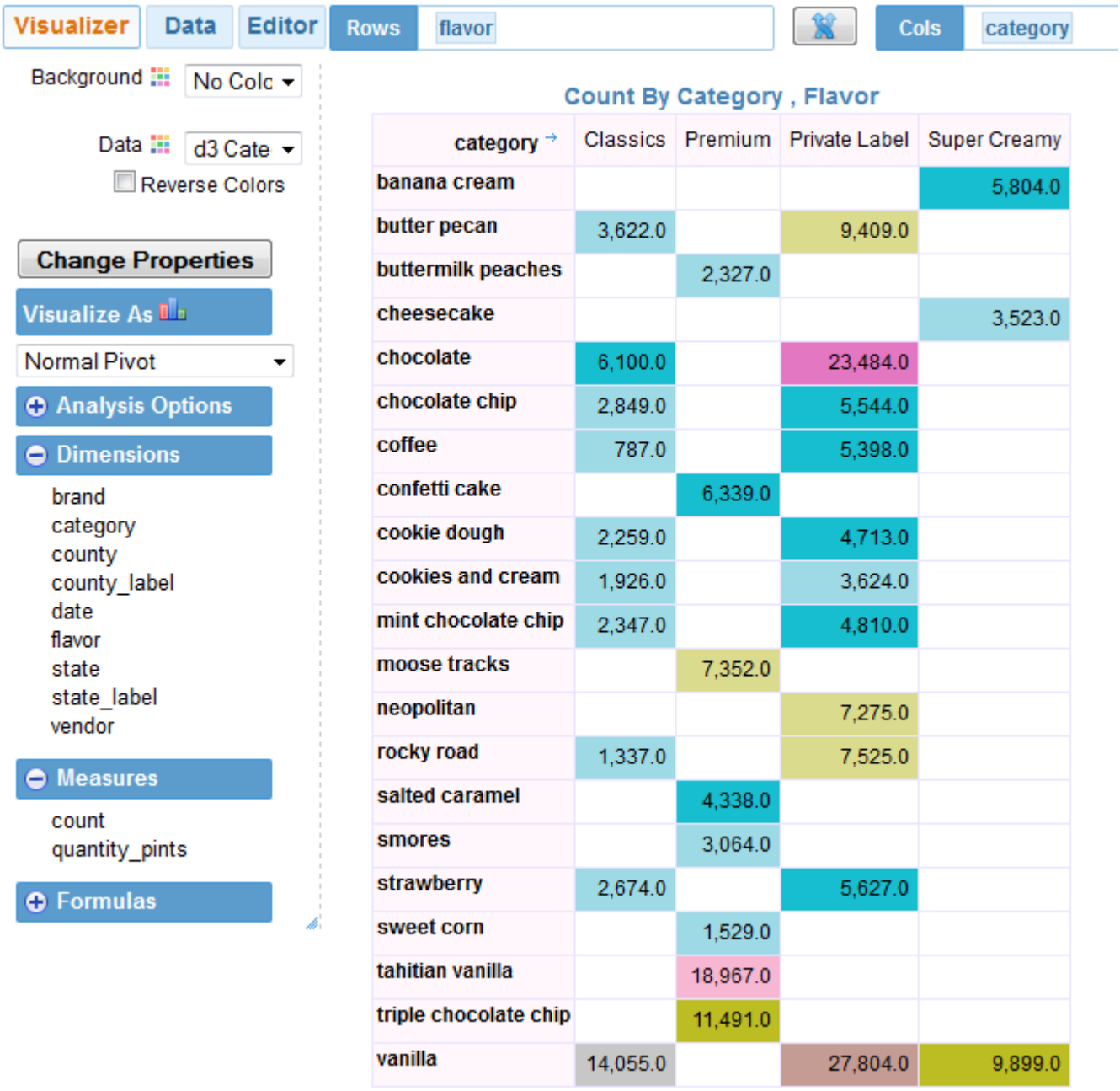


6. Begin Analysis

InfoCaptor will infer the sample data and convert the fields into Dimensions and Measures. It switches to the "Visualizer" tab



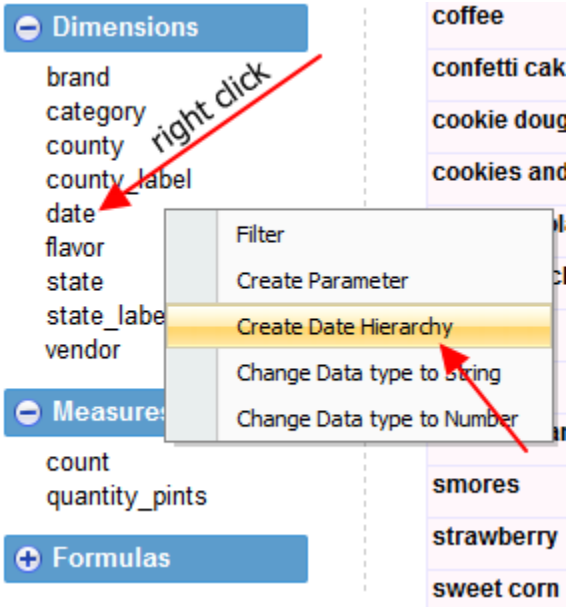
Drag any dimension to the "Row" or "Col" and it instantly gives you an answer.



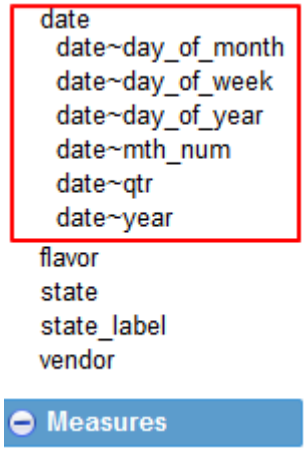
Count By Category , Flavor

category	Classics	Premium	Private Label	Super Creamy
banana cream				5,804.0
butter pecan	3,622.0		9,409.0	
buttermilk peaches		2,327.0		
cheesecake				3,523.0
chocolate	6,100.0		23,484.0	
chocolate chip	2,849.0		5,544.0	
coffee	787.0		5,398.0	
confetti cake		6,339.0		
cookie dough	2,259.0		4,713.0	
cookies and cream	1,926.0		3,624.0	
mint chocolate chip	2,347.0		4,810.0	
moose tracks		7,352.0		
neopolitan			7,275.0	
rocky road	1,337.0		7,525.0	
salted caramel		4,338.0		
smores		3,064.0		
strawberry	2,674.0		5,627.0	
sweet corn		1,529.0		
tahitian vanilla		18,967.0		
triple chocolate chip		11,491.0		
vanilla	14,055.0		27,804.0	9,899.0

InfoCaptor implements Cloudera Impala Date/Time functions to derive the date hierarchy. So right click on the "date" column and select "Date Hierarchy". This gives Impala specific functions within InfoCaptor visualizer for advanced analysis.



As you see the following new dimensions are added



These new dim fields can be used directly in the rows and columns bucket for analysis as shown below.

Count By Date~qtr , Date~year

date~qtr →	1	2	3	4
2009	11,328.0	11,766.0	12,108.0	11,584.0
2010	11,401.0	11,829.0	11,848.0	11,698.0
2011	11,313.0	11,544.0	11,607.0	11,766.0
2012	11,781.0	11,390.0	11,663.0	11,751.0
2013	11,696.0	11,607.0	8,122.0	

Connect InfoCaptor to Cloudera Hive using ODBC

1. Download Cloudera Hive ODBC drivers

http://www.cloudera.com/content/cloudera/en/downloads/connectors/hive.html

2. Follow similar steps as above for Impala to configure Hive via ODBC Administrator.

Connect InfoCaptor to Cloudera Impala using JDBC

In the above sections, we saw how to configure InfoCaptor connections with Cloudera Hive and Impala via ODBC. In this section we will configure using JDBC.

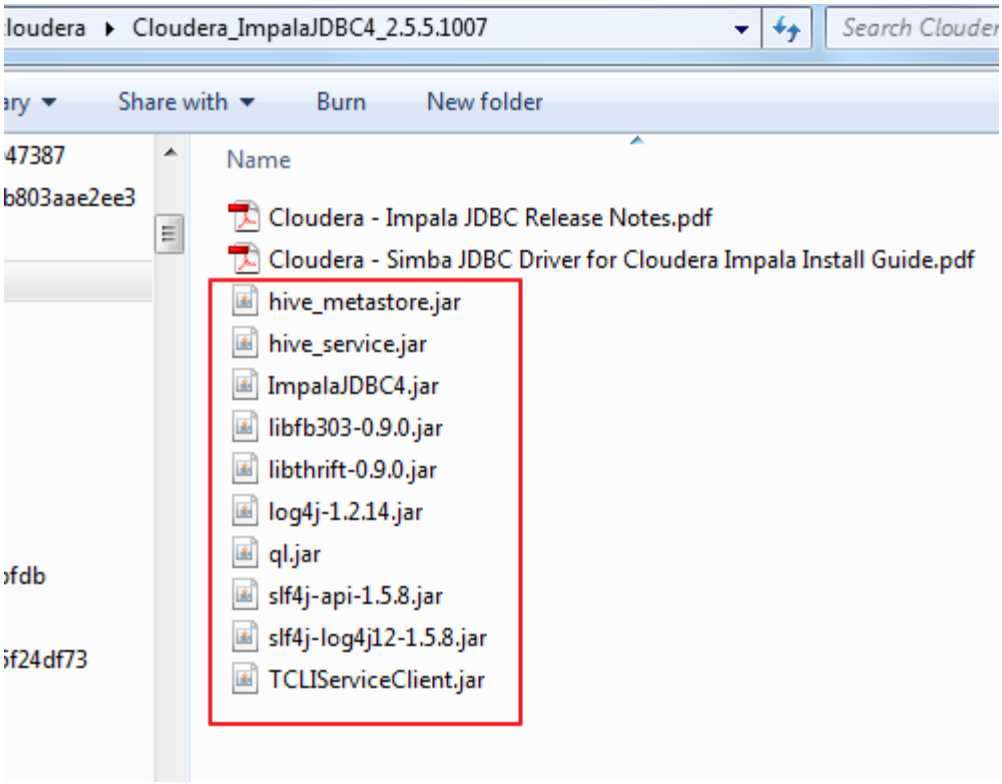
1. Download JDBC drivers for impala from Cloudera

http://www.cloudera.com/content/cloudera/en/downloads/connectors/impala/jdbc/impala-jdbc-v2-5-5.html

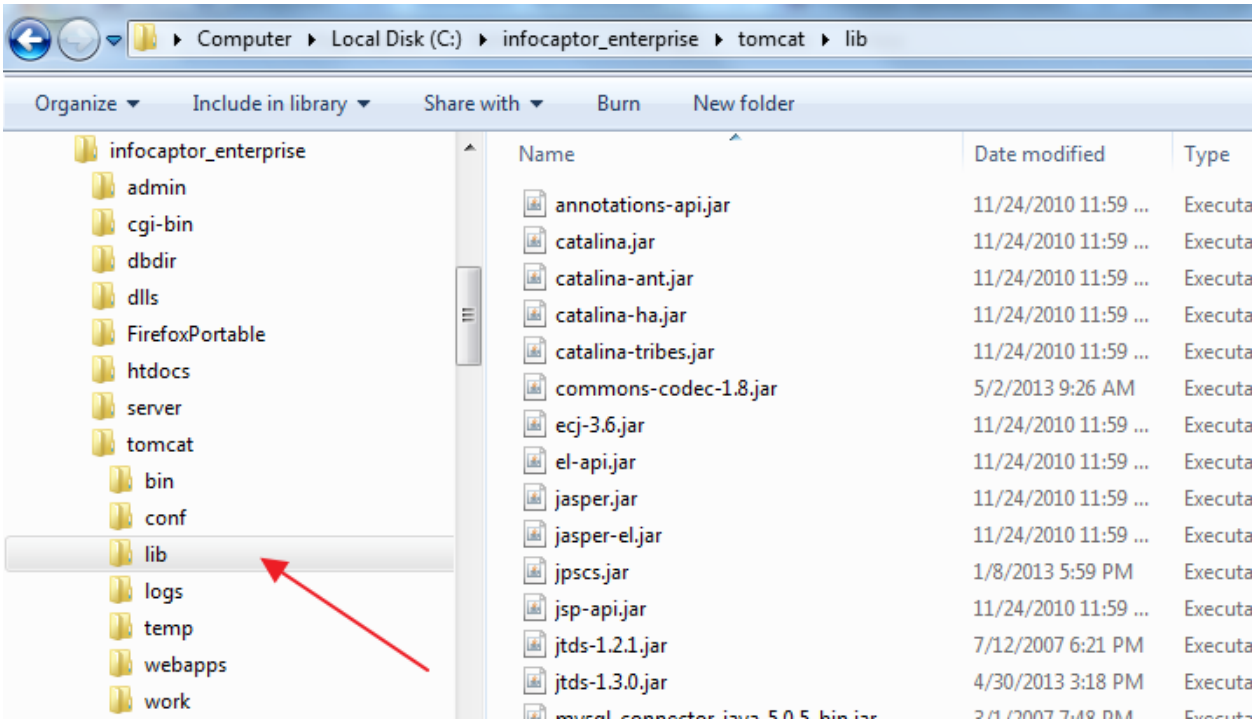
For this setup, we used the Cloudera_ImpalaJDBC_2.5.5.1007.zip

2. Unzip the driver

Unzip the driver files and copy all .jar files



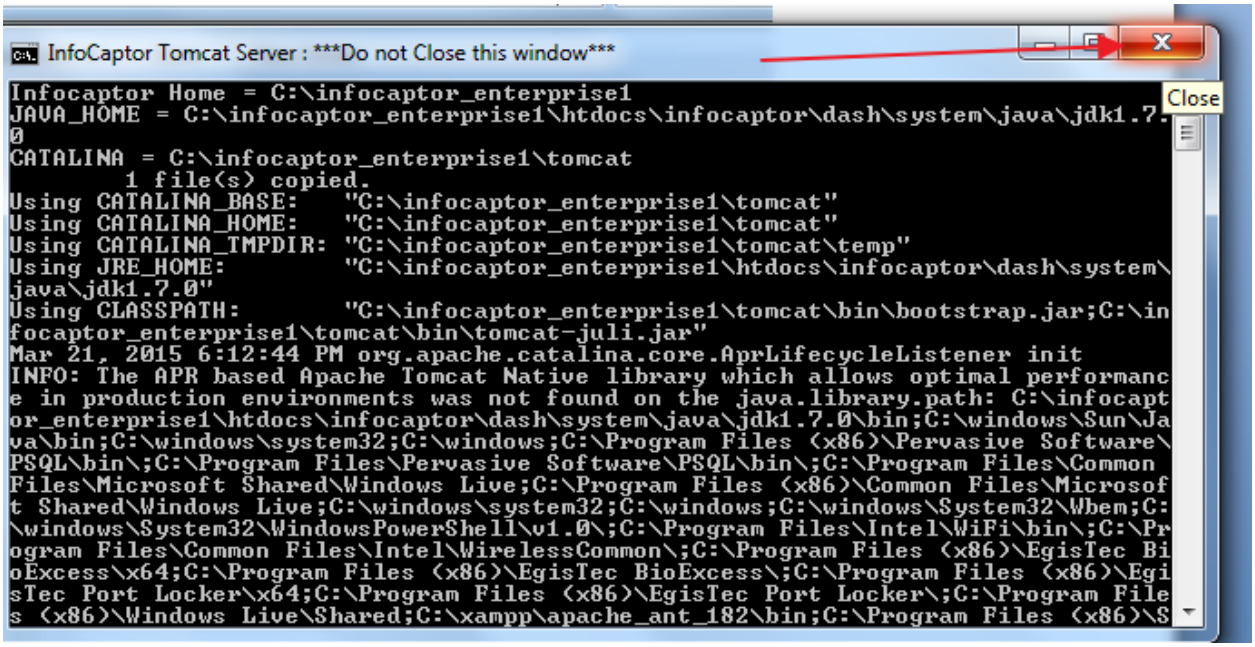
copy all the .jar files and put them in the infocaptor tomcat lib directory as shown below



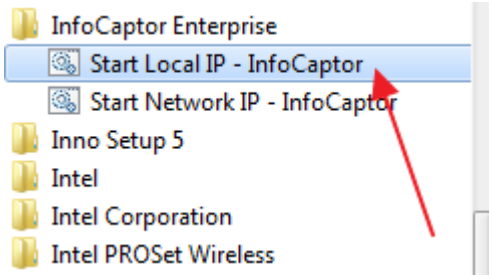
3. Restart InfoCaptor Tomcat

After copying the jar files in the tomcat/lib directory we need to restart tomcat.

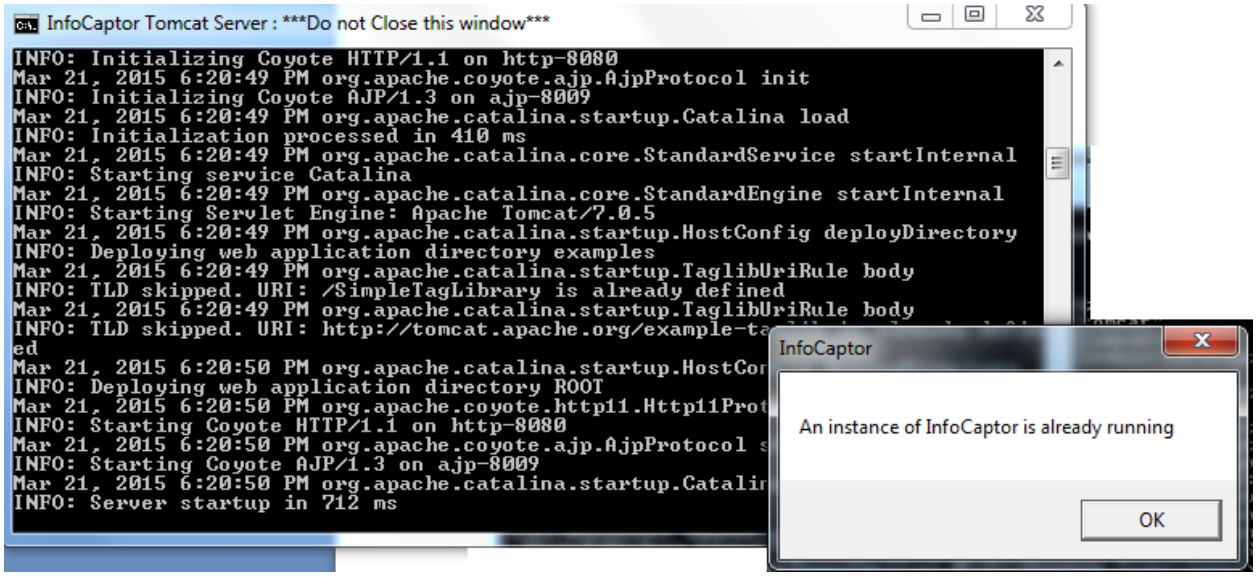
The quickest way is to close the black window representing tomcat



Then restart infocaptor again from the Start menu



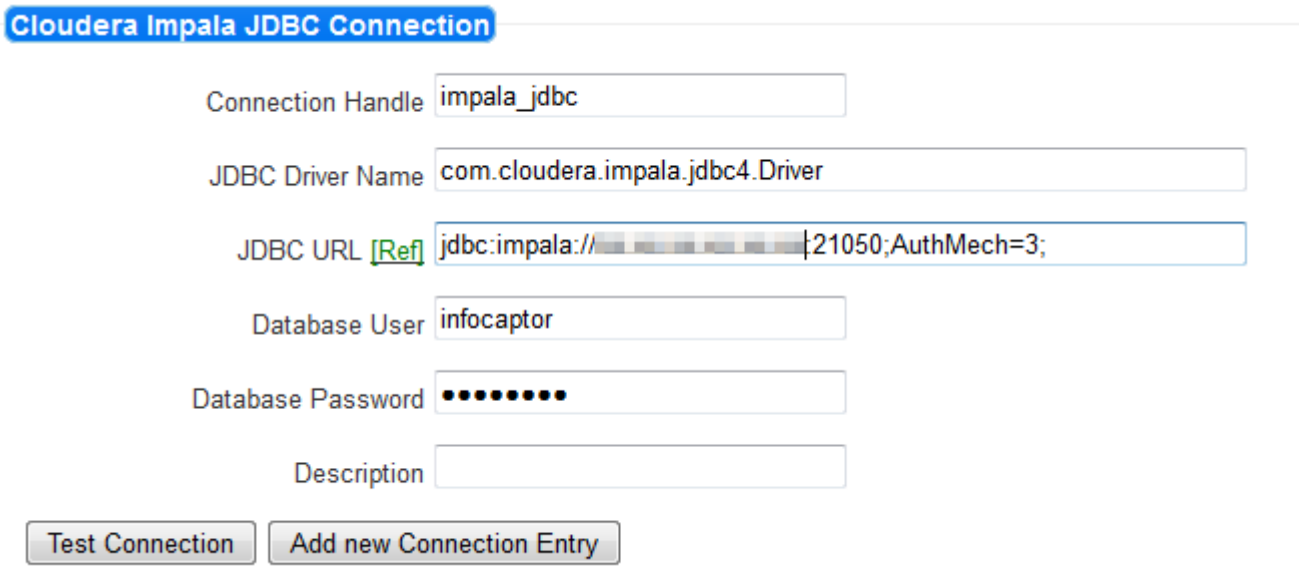
It may notify that the infocaptor apache server is already running



Click OK and continue.

4. Setup JDBC connection

We are ready to connect to impala. [please check the Impala ODBC setup section above for navigation]



Please check the PDF document that comes with the JDBC driver to form the correct JDBC URL

For e.g to connect using Username and password the setting AuthMech=3 needs to be prefixed to the JDBC URL

The different JDBC URLs are as follows

To use No authentication the URL is as follows

jdbc:impala://localhost:21050;AuthMech=0

To use Kerberos

jdbc:impala://localhost:21050;AuthMech=1;KrbRealm=example.com;KrbHostFQDN-impala.example.com;KrbSserviceName=impala

The above are just examples.

Please refer to the Cloudera - Simba JDBC Driver for Impala Install Guide for accurate URL structure

Once you define the connection and Test it successfully you can begin your Analysis journey the same way as illustrated in the Impala ODBC section.

Connect InfoCaptor to Cloudera Hive using JDBC

The steps for connecting Hive via JDBC are exactly similar to the Impala JDBC. The only difference being you need to download the Hive JDBC drivers, copy the jar files into Infocaptor/tomcat/lib directory and setup the JDBC URL connections

http://www.cloudera.com/content/cloudera/en/downloads/connectors/hive/jdbc/hive-jdbc-v2-5-12.html