# Senturus Analytics Connector User Guide Cognos to Tableau

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## Overview

This guide describes how the Senturus Analytics Connector is used from Tableau after it has been installed and configured.

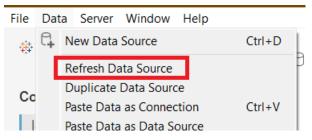
Please refer to the *Installation and Configuration Guide* for instructions on installing and configuring the Analytics Connector.

The Analytics Connector has been tested against different versions of Tableau, including both Tableau Desktop and Tableau Server on Windows from version 9.3.

## Model Caching

The Analytics Connector caches model information (FM packages, data modules, cubes) to offer the best performance.

As of version 5.4, when a model is updated, the Analytics Connector will pick up those changes. Model updating happens in two phases. The first phase detects the model change and marks it for update. The second phase propagates the model changes to Tableau. A data refresh via the command menu will kick off both phases.



It is possible for the Tableau version of the model to get out of sync with the Cognos version of the model. If this happens, an error will be thrown expressing what part of the model is causing issues. Simply perform a data refresh again to get them back in sync.

# Connecting to Cognos from Tableau

You can use either the "Microsoft SQL Server" or "Other Database (ODBC)" (via Senturus Analytics Connector ODBC client) connector to connect Tableau to the Analytics Connector server.

Senturus **highly** recommends adopting the "Microsoft SQL Server" connector. See the Legacy Documentation section for information on using the Senturus Analytics Connector ODBC client.

🕸 Tableau - Book1				
File Data Server Help				
*	♀ Search			
Connect	Installed Connectors (77)	Google Analytics	Oracle Eloqua	Add
Search for Data	Actian Matrix	Google BigQuery	Oracle Essbase	Actia
Tableau Server	Actian Vector	Google Cloud SQL	Pivotal Greenplum Database	Altin
	Alibaba AnalyticDB for MySQL	Google Drive	PostgreSQL	Altin
To a File	Alibaba Data Lake Analytics	Google Sheets	Presto	Deno Tech
	Alibaba MaxCompute	Hortonworks Hadoop Hive	Progress OpenEdge	Inco
Microsoft Excel	Amazon Athena	IBM BigInsights	Qubole Presto	Jeth
Text file	Amazon Aurora for MySQL	IBM DB2	Salesforce	Kylig
JSON file	Amazon EMR Hadoop Hive	IBM PDA (Netezza)	Salesforce CDP	Mark
Microsoft Access	Amazon Redshift	Impala	SAP HANA	Ocie
PDF file	Anaplan	Intuit QuickBooks Online	SAP NetWeaver Business Warehouse	Orac
Spatial file	Apache Drill	Kognitio	SAP Sybase ASE	Pala
Statistical file	Aster Database	Kyvos	SAP Sybase IQ	Qubo
More	Azure Data Lake Storage Gen2	LinkedIn Sales Navigator	ServiceNow ITSM	SAP
	Azure SQL Database	MapR Hadoop Hive	SharePoint Lists	SQre
To a Server	Azure Synapse Analytics	MariaDB	SingleStore	Starl
Other Databases (ODBC)	Box	Marketo	Snowflake	Strat
Azure SOL Database	Cloudera Hadoop	MarkLogic	Spark SQL	Yello
Microsoft Analysis Services	Databricks	Microsoft Analysis Services	Splunk	
Microsoft SQL Server	Datorama	Microsoft PowerPivot	Teradata	
More	Denodo	Microsoft SQL Server	Teradata OLAP Connector	
	Dremio	MonetDB	TIBCO Data Virtualization	
Saved Data Sources	Dropbox	MongoDB BI Connector	Vertica	
	Esri ArcGIS Server	MySQL	Web Data Connector	
Sample - Superstore	Exasol	OData		
World Indicators	Firebird 3	OneDrive	Other Databases (JDBC)	
	Google Ads	Oracle	Other Databases (ODBC)	

#### SQL Server Connection vs ODBC

Starting from version 5.0.8, you can connect from Tableau Desktop, Tableau Server and Tableau Bridge to Analytics Connector server via SQL Server connection.

If you have old workbooks and/or server-side data sources, you may still use the ODBC connector. All your old workbooks and data sources will continue working. Comparing to ODBC connection, using SQL Server connection gives you following advantages:

- 1. No need to install Analytics Connector ODBC client<sup>1</sup>.
- 2. Use Windows authentication from Tableau Desktop/Server to Analytics Connector server to Cognos.<sup>2</sup>

<sup>&</sup>lt;sup>1</sup> You still need to install SQL Server Native Client 11 or above on your client computer.

<sup>&</sup>lt;sup>2</sup> Both Tableau Desktop/Server and Cognos server must be secured by the same Active Directory service and additional configuration is needed to enable Windows authentication. Please refer to Senturus Analytics Connector Server Installation and Configuration guide for more information.

## Use Microsoft SQL Server Connection<sup>3</sup>

To begin, select the More... option under To a Server, then select Microsoft SQL Server.

Microsoft SQL Ser	ver	×
General Initial	SQL	
Server win03.example.com		
Database		
GO (query)		
Authentication		
Use a specific usernam	e and password	Ŧ
Username		
cognos		
Password		
Optional		
Require SSL		
Read uncommitted da	ita	
		Sign In

Above is a Microsoft SQL Server connection dialog. You need to provide following information:

- 1. The Analytics Connector server (not Cognos server) name or IP.
- 2. Optionally, type in the user-friendly database name that maps a Cognos package or data module.
- 3. Select either windows or user/password authentication and provide username (Cognos username) and password as needed.
- 4. If your Analytics Connector Server is SSL secured, you can optionally check "Require SSL" box.

<sup>&</sup>lt;sup>3</sup> Make sure you have installed SQL Server Native Client 11 or above in order to use SQL database connection. The download can be found here: <u>https://www.microsoft.com/en-us/download/details.aspx?id=50402</u>

After clicking on the "Sign in" button, Tableau will connect to the Analytics Connector server and bring back Cognos objects and represent them as tables. See screenshot for example.

Connections	Add
win03.example.com Microsoft SQL Server	
Database	
GO (query)	-
Table	Q
Image: Assigned staff (GO.Assigned staff)	
I Branch (GO.Branch)	
E CALCULATIONS (GO.CALCULATIONS)	
Inventory (GO.Inventory)	
🖽 Order (GO.Order)	
Order method (GO.Order method)	
Product brand (GO.Product brand)	
Product forecast (GO.Product forecast)	
Products (GO.Products)	
Retailer type (GO.Retailer type)	
■ Retailers (GO.Retailers)	
🖩 Return reason (GO.Return reason)	
Returned items (GO.Returned items)	
I Sales (GO.Sales)	
■ Sales staff (GO.Sales staff)	
■ Sales target (GO.Sales target)	
Ⅲ Time (close date) (GO.Time (close date))	
Time (GO.Time)	
Ⅲ Time (ship date) (GO.Time (ship date))	
I User (GO.User)	
😨 New Custom SQL	
导 New Union	

# Create Data Source

After connecting successfully, the database, schema and tables will show in the **Data Source** tab.

The full list of schemas and tables appears in the **Table** section. To filter the list, type letters of your desired schemas/tables into the search field.

Schema	
Sales (query)	•
Table	
Enter table name	+ م
$\odot$ Exact $\bigcirc$ Contains	🔘 Starts with

If you are using version 2020.2 or newer, Tableau Desktop will create a logical table when you add a database table to the canvas and will let you define relationships between logical tables. But in most cases, you want to define dummy joins in Tableau so that you can use Cognos built-in relationships. Click on the drop down array and select "Open..."

⊖- Sales (Sales (query).Sales) (G

Sales	<b>.</b>
	Open
	Rename
	Remove

Then drag or double click the more tables into the canvas.

$*  \leftarrow \rightarrow \square \bigcirc$	⊡• Sa	iles (Sales (qu	uery ್	onnection ) Live 🛛 🔿	Extract	Filters 0   Add	đ
Connections Add							
Cognos_Senturus Other Databases (ODBC)	Sales			Branch			
Database							
Select Database 💌				Products			
·		Join				>	<
Schema							
Sales (query) 🔻		Inner	Left		Right	Full Outer	
Table		Data Sou	rce		Proc	ducts	-
Enter table name	🖽 📰 Sor	ri Aaa Link		=	AAA LINK (Products)		/S
Exact      Contains      Starts with	#	Add new join clause					
AAA_CALCULCULATIONS)	Branch						
Branch (Salesuery).Branch)	AAA LINK (E	31					
Order (Sales (query).Order)							.::
Order methodrder method)							
Parameterizeed Products)							
Products (Salry).Products)							
III Retailer type (Retailer type)					_		
Retailers (Salry).Retailers)			Upda	ate Now			
Sales (Sales (query).Sales)							
■ Sales staff (Say).Sales staff)			Automati	cally Update			
III Time (close da (close date))							
III Time (Sales (query).Time)							

## Mapping from Cognos to Database Schema

Each FM namespace is mapped to a database schema. For data module or cube data sources without namespace, a single schema with same name as database will be used.

Each FM query subject/measure dimension/regular dimension hierarchy, data module table/navigation path is mapped to a database table.

Query items, columns under those Cognos objects are mapped to columns under corresponding tables.

If there is any stand-alone FM calculation under a namespace, a special table named CALCULATIONS<sup>4</sup> will appear under the corresponding database schema and all calculations will be columns for this special table.

Each report is mapped to a table.

<sup>&</sup>lt;sup>4</sup> Configurable via Data Source Configuration tool.

Analytics Connector does not support FM filters.

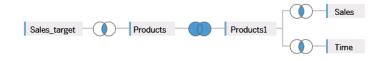
### Link Columns and Dummy Joins

Tableau requires joins between the tables in a data source, but link columns are usually not available in the schemas converted from Cognos packages. To resolve this limitation, the Analytics Connector creates a link column on each table named **AAA\_LINK**<sup>5</sup>. The link column name can be changed using the Configuration Utility.

Tableau will automatically join the tables using the link columns, but the ODBC driver will ignore them when passing the queries to Cognos.

#### **Custom Joins**

As mentioned previously, Tableau will automatically join on the link columns the Analytics Connector creates. Usually, you will not want to change these joins because you want to leverage the underlying Cognos relationships. However, you can create custom joins to build Tableau models that your Cognos implementation does not include.



Using the example shown above, you can change the automatic join between *Products* and *Products1* to a full outer join on the "Product Number" column. This type of custom join will be honored by the Analytics Connector.

- Product	ts 👻		Product	ts1	
	Join				×m
	Inner	Left		Right	Full Outer
	Data Sour	ce		P	roducts 1
	Product number		=	Product number (P	roducts1)

<sup>&</sup>lt;sup>5</sup> AAA\_LINK is the default dummy column name, but your Senturus Analytics Connector server administrators can change it via the Data Source Configuration tool.

Additionally, the Analytics Connector will split the five tables into two sub queries. The first sub query contains *Sales\_target* and *Products* and the second sub query has *Products1, Sales* and *Time*. The results of the two sub queries will be joined together by the Product Number column.

#### Relationships

One of the benefits of using Tableau relationships is that you can avoid writing Level of Detail (LOD) expressions to handle multi-fact, multi-grain data.

Taking the "Sales vs. Sales Target" data for example, you can define two logical tables first, then set up a relationship between them as below.

Sales			Sales target	
Edit Relationship				
How do relationships diffe	er from joins? Le	arn more		
Sales			Sales target	
# Product line code		=	# Product line code (Products1)	
# Product type code		=	# Product type code (Products1)	
# Year		=	# Year (Time1)	
# Month (numeric)		=	# Month (numeric) (Time1)	
<ul> <li>Honth (numeric)</li> <li>Add more fields</li> </ul>		=	# Month (numeric) (Time1)	
<ul> <li>Add more fields</li> <li>Performance Options</li> </ul>		ries during	analysis. The default settings are	
Add more fields     Performance Options These settings help Table recommended, if you are		ries during	analysis. The default settings are	
<ul> <li>Add more fields</li> <li>Performance Options</li> <li>These settings help Table recommended, if you are</li> <li>Cardinality</li> </ul>		ries during	analysis. The default settings are arn more	

⊖- Sales vs. Sales Target

## **Custom SQL**

In addition to tables, you can drag a "New Custom SQL" to Tableau data source. Within this Custom SQL, you can write a single select query using standard SQL syntax. The Analytics Connector supports most SQL features and functions, e.g. where clause, group clause, order by

clause, union operation, aggregate, sub queries, etc. However, it does not support with clause and other (e.g. update, select ... into statements).

As mentioned in section Link Columns and Dummy Joins, you should join tables using dummy/link columns.

To execute a Cognos report or invoke parameterized tables, Custom SQL is used too. Please refer to section Parameterized Tables and Reports for more information.

#### Live vs. Extract

The Senturus Analytics Connector supports both Live and Extract queries. The bottom line is, the Senturus Analytics Connector sever has no clue if a query is sent for a Live or a Extract purpose.

- When choosing live vs. extract, you need to consider if you need to preseve Cognos securities. When connecting to the Analytics Connector server via live queries, the Analytics Connector server keeps a live connection to the Cognos user on behalf of the Tableau user, so all object security and data security (row/column levels) are preserved. For extract, the Cognos login is only used when creating/refreshing the extract. Afterwards, data is stored witin Tableau and open to all users who have access to this Tableau workbook/data source.
- Queries and dataset size are very different too. For live queries, they are highly aggreated, and in most cases they are filtered, so the dataset is usually very small – a handful columns by dozens rows. Extract queries are plain selects without groups/aggregates. They may have filters, but the dataset is usually very big – dozens of columns by hundreds of thousands rows or more.
- Performance wise, extract usually provides better performance, but it's not always true. If your extract is huge while your live queries are small, live queries may outperform an extract.

**Note**: Make sure you checked "**Logical Tables**" (default) for "**Data Storage**" when creating the extract. Otherwise Tableau will store tables separately and join them using **AAA\_LINK** columns when doing an extract – thus generating an incorrect result.

Extract Data	>	<
Specify how to store data in	he extract:	
Data Storage		
Logical Tables	O Physical Tables	
	or each logical table. <u>Learn more</u> o use extract filters, aggregation, or other extract settings.	
Specify how much data to e	ract:	
Filters (optional)		
Filter	Details	

## **Data Source Best Practices**

- Unless absolutely needed, always use joins (joined by dummy link columns) in a single logical table. If your Cognos model missed a relationship, you may define a join using columns other than link columns. Or if you have a multi-fact, multi-grain dataset, you may add two logical tables and create a relationship using columns other than link columns.
- Always add fact table(s) first in logical tables.
- Choose Live or Extract wisely based on your own use cases. Please refer to section Live vs. Extract for more information.
- You can add Filters using the **Filters Add** feature in the top right corner of the widow. Appropriate filters can improve query performance when designing the visualizations.



• If you want to define filters in Extract, make sure you use the **Edit** button right next to the **Extract** checkbox, then click **Add...** button to add filters. Filters defined in other places won't be sent via the extract queries to data sources.

	Connection C Live Extract will	<ul> <li>Extract</li> <li>include subse</li> </ul>	Edit Refresh t of data.	Filters 0   Add
Extract Data				×
Specify how to sto	re data in the e	xtract:		
Data Storage Logical Table Store data using Use this option if	one table for ea	ch logical table.	Physical Tables Learn more aggregation, or other e:	xtract settings.
Specify how much Filters (optional)		:		
Filter	1	Details		
Country		eeps United Sta	tes	
Add	Edit	Remove		
Add	Luita	Renove		

- Limit the number of rows and columns in extracts. You can remove tables you don't need and hide columns you don't need, to limit the number of rows in Tableau extracts. To filter our unwanted rows, add filters using the Edit button right to the Extract radio checkbox.
- Write a custom SQL to further reduce the size of your extract. Tableau extract queries won't aggregate your data. If all your measures are additive, you can write custom SQL to aggregate your data, in addition to filtering columns/rows.
- If you something goes wrong, the first place you want to check is "C:\Program Files\Senturus\Analytics Connector\Log\java.log".

## Warning When Switching from Data Source Tab

When you switch from the **Data Source** tab to the **Sheet** tab, the below warning may appear:



Tableau uses several special features to optimize queries, but the Analytics Connector and Cognos do not support all of them. This dialog box is only a warning, and your workbook will function correctly.

To prevent this pop up from appearing again, check *Do not show again for this data source*, then click **OK**.

You are now able to design your visualization using the Cognos Dimensions and Measures in Tableau.

# Parameterized Tables and Reports

Regular database tables do not have or support parameters. But when working with a Cognos parameterized query subject or a report, users will be prompted to enter parameter values before it can be executed.

The Analytics Connector supports parameterized tables and reports by utilizing the Tableau "Custom SQL" feature and two special functions.

#### Working with Parameterized Tables

To use a parameterized table in a Tableau workbook and pass parameter values, use the Tableau **New Custom SQL** feature.

To begin, select a Database then double click **New Custom SQL** to launch the **Edit Custom SQL** window. Enter the SQL to execute.

Connections			Add		
Cognos_Senturus Other Databases (ODBC)					
Database	En el la				~
Select Database	Edit Custor	n SQL			×
Schema					
Select Schema					
Table					
Enter table name					
Exact     Conta	5				
AAA_CALCULATIONS (Filter					
AAA_CALCULATIONS (Sales					
🏢 Assigned staff (Returned item					
📰 Branch (Inventory (query).Bra	a				
🏢 Branch (Product forecast (qu					
📰 Branch (Sales (query).Branch					
🔢 Briefing Book (Sample Report	ŧ				
🔢 Horizontal Pagination (Sampl					
📰 Inventory (Inventory (query).I	Preview Re	sults Insert Par	ameter 🔻	ОК	Cancel
🔢 No Data (Sample Reports.No	Data)				
🔢 Order (Returned items (query	/).Order)				
🔢 Order (Sales (query).Order)					
Order Invoices - Donald Chow	Donald C	now, Sales Person)			
Rev Custom SQL					
Data Source Sheet 1	. 8. 0.				

Using the OpenTable function, you can pass parameters to a parameterized Cognos table.

Example passing static valued parameters:

```
OpenTable(

"Sales (query)"."Parameterized Products",

"p_product line code"="[991, 992, 993, 994, 995]",

"p_Product Line"=" 'Golf Equipment'",

"p_Date"="{d '2010-01-01'}",

"p_Datetime"="'2010-01-01 19:00:00'"

)
```

Click **Preview Results...** to run the query. The results will display in a new window.

Edit Custom SQL				×
"p_product "p_Product "p_Date"="		'}",		ere
	III View Data: GO S	ales (query)		
	15 rows 👄			
	Discontinued date	Introduction date	Product	Product bran
	Null	1/10/2010 12:00:00 AM	Course Pro Golf and Tee Set	Course Pro
	Null	1/15/2010 12:00:00 AM	Course Pro Umbrella	Course Pro
	Null	12/15/2009 12:00:00 AM	Course Pro Golf Bag	Course Pro
	Null	12/15/2009 12:00:00 AM	Hailstorm Steel Irons	Hailstorm
			o	Course Pro
	Null	12/27/2009 12:00:00 AM	Course Pro Gloves	Course Pro
	Null	12/27/2009 12:00:00 AM 12/10/2009 12:00:00 AM		Course Pro
		12/10/2009 12:00:00 AM		
	Null	12/10/2009 12:00:00 AM 12/10/2009 12:00:00 AM	Course Pro Putter	Course Pro
Preview Results	Null	12/10/2009 12:00:00 AM 12/10/2009 12:00:00 AM	Course Pro Putter Lady Hailstorm Steel Irons Hailstorm Titanium Woods Set	Course Pro Hailstorm

The first parameter is *"[schema name]"*. *"[table name]"* of the Cognos parameterized table. This is followed by zero or more Cognos parameter name-value pairs separated by commas.

Optionally, you can replace the static values with Tableau parameters to create dynamic values.

For example:

- Highlight the date static value.
- Select the Insert Parameter button, then Create a New Parameter.
- Define the Tableau date parameter and click OK.

It is important that you select the correct Data type for the parameter or the SQL may error.

Edit Custom SQL				×
"p_product "p_Product "p_Date"="	line code"=' Line"=" 'Gol {d '2010-01-0	aterized Products", "[991, 992, 993, 994, 995]", If Equipment'", 01'}", -01 19:00:00'"		ere
	Create Parameter			×
	Name: My Date			Comment >>
	Properties Data type:	Date 👻		
	Current value:	1/1/2010		
	Display format:	2010-01-01 ~		
	Allowable values:	● All ○ List ○ Range		
Preview Results			ОК	Cancel

The Tableau parameter can then be shown on the visualization or dashboard for user interaction.

Dim	ensions III P 🔻				
to,	Discontinued date	Filters	Sheet 1		My Date
問	Introduction date				1/1/2010
Abc	Product			Drop field here	
Abc	Product brand	Marks			
Abc	Product color	Marks			
Abc	Product description	T Automatic -			
Abc	Product image				
Abc	Product line	Add to Sheet			
Abc	Product size	Show Parameter Control			
Abc	Product type	Cut			
Abc	Measure Names	Сору			
Mea	sures	Edit			
#	AAA_LINK	Duplicate	Drop		
#	Base product number	Rename	field here	Drop field here	
#	Product brand code	Hide	nere		
#	Product color code	Delete			
#	Product line code				
#	Product number	Create •			
#	Product size code	Default Properties			
#	Product type code				
=#	Number of Records	Folders •			
#	Measure Values	Replace References			
Para	ameters	Describe			
Ë)	My Date 🗾 👻				

You can use more than one OpenTable function in a Tableau query, as long as each one is contained in an individual Custom SQL object. Like other tables, they are joined using the generated Link Columns which are then ignored at execution time.

You can also mix parameterized tables with other tables in one Tableau data source. These tables will also join using the generated Link Columns. Example of an advanced query:

```
Select

"Products"."Product line",

"Products"."Product type",

Sum("Sales"."Revenue") as "Revenue"

From

OpenTable(

"Sales (query)"."Parameterized Products",

"p_product line code"="[991, 992, 993, 994, 995]",

"p_Product Line"=" 'Golf Equipment'",

"p_Date"="{d '2010-01-01'}",

"p_Datetime"="'2010-01-01 19:00:00''

) as "Products"

join "Sales (query)"."Sales" as "Sales"

on ("Products"."AAA_LINK" = "Sales"."AAA_LINK")

Group by "Products"."Product line"
```

## Working with Reports

To use a Report in a Tableau workbook and pass parameter values, use the Tableau **New Custom SQL** feature.

#### To begin, select a Database then double click **New Custom SQL**. Enter the SQL to execute.

Connections	Add		
Cognos_Senturus Other Databases (ODBC)			
Database			×
Select Database	Edit Custom SQL		×
Schema			
Select Schema			
Table			
Enter table name			
Exact O Cont.	a		
AAA_CALCULATIONS (Filter			
AAA_CALCULATIONS (Sales			
📰 Assigned staff (Returned iten	n		
📰 Branch (Inventory (query).Br	i i i i i i i i i i i i i i i i i i i		
🔢 Branch (Product forecast (qu			
🔢 Branch (Sales (query).Branc	h		
🔢 Briefing Book (Sample Repor	t		
🔢 Horizontal Pagination (Samp	I		
Inventory (Inventory (query).	I Preview Results Insert Parameter 🔻	ОК	Cancel
🔢 No Data (Sample Reports.No	Data)		
📰 Order (Returned items (quer	y).Order)		
Order (Sales (query).Order)			
Order Invoices - Donald Chov	v Donald Chow, Sales Person)		
E New Custom SQL			
Data Source Sheet 1			

Using the *RunReport* function, you can pass parameters to a Cognos Report.

#### Example passing static valued parameters:

```
RunReport (

"Connector Reports"."Parameter Report",

"p_product line code"="[991,992,993,994,995]",

"p_Product Line"="'Golf Equipment'",

"p_Category"="['Books', 'Electronics', 'Movies']",

"p_Date"="{d '2010-01-01'}",

"p_Datetime"="2010-02-01 19:00:00"

)
```

Clicking the **Preview Results...** button will run the query and display the results in a new window.

"p_produc "p_Produc "p_Date"=	( or Reports".'	'="[991,992 olf Equipme L-01'}",	,993,994,995 nt'",	]",	×	
	III View Data: GO	) Sales (query)				
	4 rows	+				
	Product line	Product type	Product line code	Product type code	Revenue	Year
	Golf Equipment	Irons	995	968	4,654,281.10	2,010
	Golf Equipment	Woods	995	969	5,138,304.03	2,010
	Golf Equipment	Putters	995	970	2,459,044.00	2,010
	Golf Equipment	Golf Accessories	995	971	864,227.83	2,010
Preview Results						

The first parameter is "[schema name]"."[table name]" of the Cognos Report. This is followed by zero or more Cognos parameter name-value pairs separated by commas.

Optionally, you may replace the static values with Tableau parameters to create dynamic values.

Example:

- Highlight the date static value.
- Click the Insert Parameter button, then Create a New Parameter.
- Define the Tableau date parameter and click OK.

It is important that you select the correct Data type for the parameter, or the SQL may error.

Edit Custom SQL RunReport ( "Connector Reports"."P "p_product line code"= "p_Product Line"="'Gol "p_Date"="{d '2010-01- "p_Datetime"="2010-02- )	"[991,992,9 <sup>9</sup> 3,994,995]", f Equipment'", 01'}",	× v hidden fiel	ds 📃 🖷
	Create Parameter		×
	Name: My Date Properties Data type: Date Current value: 1/1/2010		Comment >>
Preview Results Insert Parameter	Display format:     2010-01-01       Allowable values: <ul> <li>All</li> <li>List</li> <li>Range</li> </ul>		
		ОК	Cancel

The Tableau parameter can then be shown on the visualization or dashboard for user interaction.

Custom_SQL_Query (G		⊞ Rows		
Dimensions Ⅲ P ▼ Abc Product line Abc Product type	Filters	Sheet	1	My Date 1/1/2010
Abc Measure Names			Drop field here	
Measures # Product line code # Product type code # Revenue # Year =# Number of Records # Measure Values	Marks	Drop field here	Drop field here	
Parameters				
A	dd to Sheet how Parameter Control			
🛛 Data Source 🛛 She	ut opy			

## Function Syntax

#### Syntax

Both OpenTable and RunReport function adopt the following syntax: OpenTable ( "Schema Name"."Table Name"(, "Parameter"="value", ...) ) The first parameter is a table identifier, using standard SQL syntax. All identifiers are case insensitive and the schema name can be omitted if the table name is unique across schemas.

The second, if any, and following parameters are name-value pairs, separated by commas. Name and values should be surrounded by double quotation marks.

#### Parameters

Use parameter name in place of "Parameter" for the Cognos connector.

#### Values

All values should follow the SQL/ODBC standard.

Only plain string representation is allowed for numeric values. Formatted representations such as **1,200.00** with thousand separators, **(15)** for -15, or **50%** for .5 are not supported.

For string values, single quotation marks are used around the value. For example, 'Golf Equipment' or 'Sam''s Club'.

For date/time/timestamp values, use the ODBC standard format. For example {d '2010-01-01'} or ISO 8601 standard format, 'YYYY-MM-DD' for date, 'hh:mm:ss' for time and 'YYYY-MM-DD hh:mm:ss' for timestamp.

An array of values is passed using brackets. For example:

• "product line code"="[991,992,993,994,995]"

The syntax for a Range parameters is represented by a 2 element array. For example:

- "YearRange"="[,2019]" All years less than or equal to 2019
- "YearRange"="[2015,]" All years greater than or equal to 2015
- "YearRange"="[2015,2019]" Years between 2015 and 2019

#### Character escaping

Certain characters must be escaped.

For single quotes within a string value, use two single quotes to escape a single quote inside the string.

Double quotes in parameter name and values need to be escaped with two double quotes.

#### Passing multiple values to a parameter

A Cognos parameter may accept multiple values, for example [Product line code] in (?p\_Product line code?). To specify multiple values in your function, put multiple values in a pair of square brackets ([]) and separate each value by a comma (,) just like CSV format.

#### Using Tableau parameters

You can use Tableau parameters in place of literal values but take the following notes:

- Tableau will replace the parameter name with a formatted string when executing a string. For example, Tableau will put single quotes around string values, escape single quotes with two single quotes in string values, and format date value using ODBC format. You do not need to "format" them in a function call.
- Tableau will not escape double quotes, so you need to escape them when you provide values to Tableau parameter.
- Tableau does not support multiple value parameters. To pass multiple values to one Cognos parameter, define multiple parameters in Tableau and put them in your function. For example "param"="[<Parameters.p1>, <Parameters.p2>, <Parameters.p3>]".

# FAQs

#### Q: What happens when the underlying Cognos model or metadata changes?

A: If a column or table is removed or renamed in Cognos, Tableau will mark the old measure(s) and dimension(s) as invalid when a saved workbook is opened. The user can then decide how to correct the workbook:

- The user can use Tableau's **Replace References** feature to reassign all occurrences with a new, valid column.
- The user can remove references to the old column from the workbook.

If table(s) or column(s) are added, Tableau will display the new column the next time it connects to the data source. This typically happens when a workbook is opened or when a data source is refreshed.

There is nothing specific to the Analytic Connector that changes this behavior of Tableau. For more information on Tableau Data Sources, see this Tableau article:

https://onlinehelp.tableau.com/current/pro/desktop/en-us/refreshing\_data.htm

# Legacy Documentation

This section is for the custom connector. While the custom connector is still supported, Senturus highly recommends using the built in SQL Server Connector.

## Installing the Analytics Connector ODBC Connector

To use the custom connector, you need to install Senturus Analytics Connector ODBC client on the computer where Tableau Desktop and/or Tableau Server will be making a connection from. The latest ODBC client can be found at <u>Senturus Analytics Connector - Customer Resources</u>.<sup>6</sup>

Senturus Analytics Connector ODBC client is a customized PostgreSQL ODBC driver<sup>7</sup>, that provides several new features, for example you can select database name from a drop-down list.

<sup>&</sup>lt;sup>6</sup> ODBC client is automatically installed when you are installing Senturus Analytics Connector server. So, you don't have to install ODBC client separately on the same computer.

<sup>&</sup>lt;sup>7</sup> Tableau installer comes with its own PostgreSQL ODBC driver, but that driver is an older version that is not compatible Senturus Analytics Connector server.

## Use Analytics Connector ODBC Connector

To begin, select the More... option under To a Server, then select Other Databases (ODBC).

Select the radio button next to **Driver**, select *Senturus Analytics Connector* from the list, then click **Connect**.

Connect Usin	9	
	C requires additional configuration for publishing to suc ) for cross-platform portability. A DSN with the same na erver.	
O DSN:		Ť

Enter Analytics Connector server name or IP, Port number, User Name and Password.

Click **Load** to load a list of configured databases the user has access to on the specified server. Select a Database from the loaded list, then click **OK**.

Senturus Analytics Connector	×
Please supply any missing information require	ed to connect.
Server: localhost	Port 5432
SSL Mode: disable 🗸 🗸	Command Timeout:
User Name: cognos	Password:
Database: GO (query)	Load
	OK Cancel

Click **Sign In** to complete the connection. You will then see the Tableau Data Source tab for this connection.

Connection Attribu	tes
Server:	localhost Port: 5432
Database:	GO Sales (query)
Username:	administrator
Password:	•••••
String Extras:	SSLmode=disable;ReadOnly=0;Protocol=7.4;FakeOidIndex=0;Sh owOidColumn=0;RowVersioning=0;ShowSystemTables=0;Fetch= 100;UnknownSizes=0;MaxVarcharSize=255;MaxLongVarcharSize =8190;Debug=0;CommLog=0;UseDedarFetch=0;TextAsLongVa rchar=1;UnknownsAsLongVarchar=0;BoolsAsChar=1;Parse=0;Ex traSysTablePrefixes=;LFConversion=1;UpdatableCursors=1;True IsMinus1=0;BI=0;PyteaAsLongVarBinary=1;UseServerSidePrepar e=1;LowerCaseIdentifier=0;XaOpt=1
	Sign In

Tableau will connect to Analytics Connector Server and bring back Cognos objects and represent them as tables, as below.

$\#  \leftarrow \rightarrow \square \ \bigcirc$	
Connections Add	
localhost Other Databases (ODBC)	
Database	
GO Sales (query) -	
Schema	
Sales (query) -	
Table	
Enter table name	
Exact Ocontains Starts with	
Branch (Sales (query).Branch)	
CALCULATIONS (Sales (query).CALCULATIONS)	
Order (Sales (query).Order)	
Order method (Sales (query).Order method)	
Parameterized Products (Sales (query).Parameterized Products)	
Parameterized Products 2 (Salry).Parameterized Products 2)	
Products (Sales (query).Products)	
Retailer type (Sales (query).Retailer type)	
Retailers (Sales (query).Retailers)	
Sales (Sales (query).Sales)	
Sales staff (Sales (query).Sales staff)	
Time (close date) (Sales (query).Time (close date))	
Time (Sales (query).Time)	
Time (ship date) (Sales (query).Time (ship date))	
User (Sales (query).User)	
Rew Custom SQL	

# **Contact Us**

The latest version of the Analytics Connector along with related documentation and contact information can be found at <u>https://www.senturus.net/connector-download/</u>.

If you have any additional questions, please contact us at CustomerSupport@senturus.com.