



Senturus Analytics Connector

Version 3.0

Installation and Configuration Guide

SENTURUS

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1. Install Senturus Analytics Connector

Senturus provides two different connectors: Analytics Connector and Analytics Connector Server. The first one is a standalone ODBC driver, and the second one can run as a Windows service that serves ODBC requests from Senturus Analytics Connector Client.

Senturus also provides Analytics Connector Client installer to work together with Analytics Connector Server. For information of installing client, please refer to Senturus Analytics Connector User Guide.

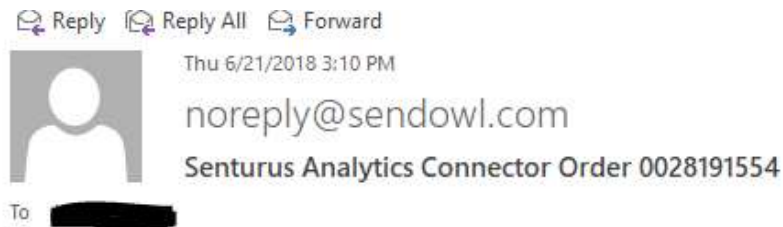
Although you can install both on the same computer, we do not recommend you do so, since they may interfere with each other.

You can use Analytics Connector Server as a standalone ODBC driver, but doing that may interfere with the Windows service process.

We will use Analytics Connector Server as an example to walk you through the installation processes because the processes of installing standalone Analytics Connector is the same, except you do not need to define Windows service parameters.

1.1. Installation Wizard

Senturus will send you an email with download link, either from Senturus.com or from sendowl.com email address. Click on the link to open a browser.



Hi,

Thanks for purchasing the Senturus Analytics Connector. This email confirms your order of the following items:

AnalyticsConnector_3.0_x64.exe x 1

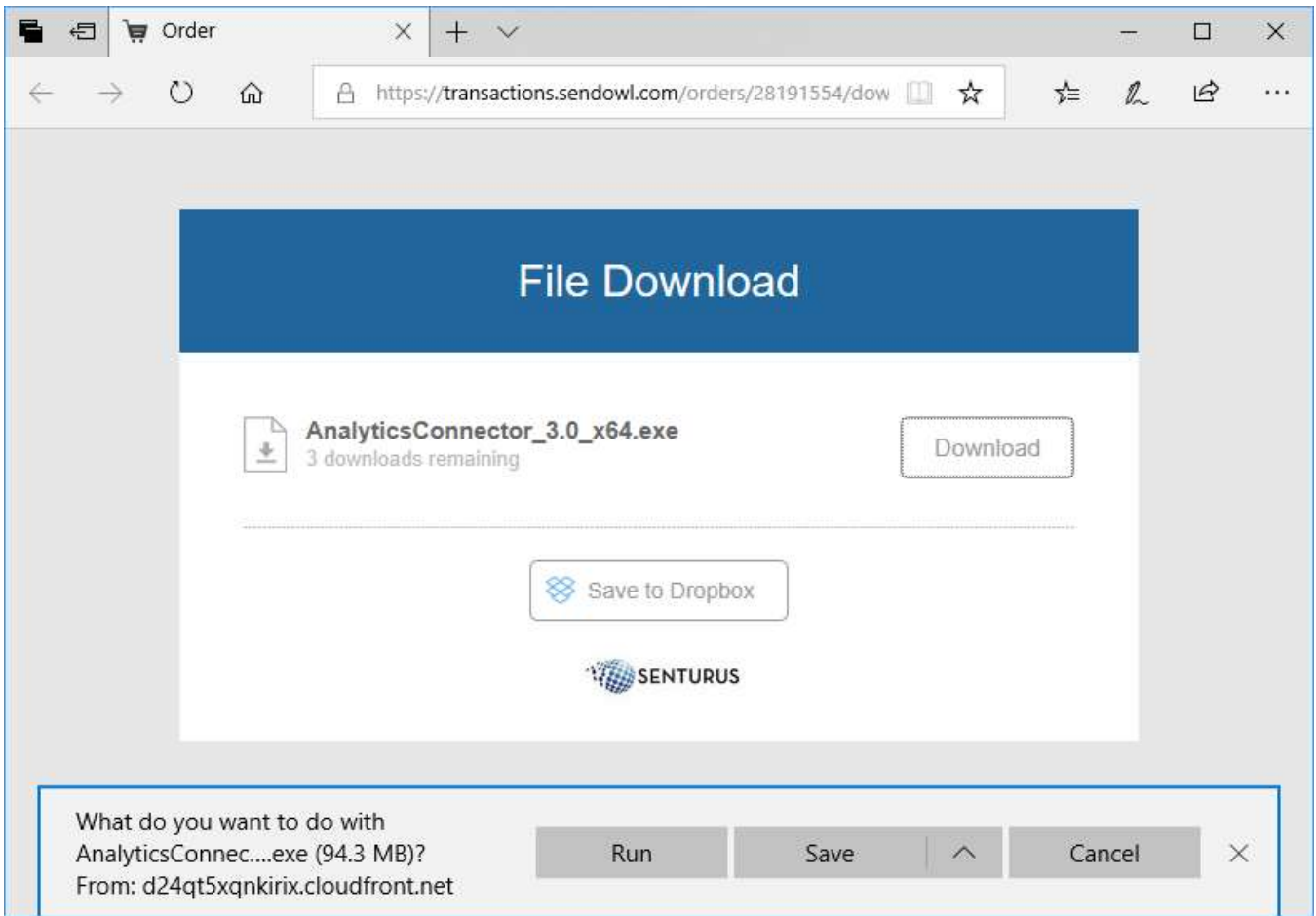
Your Order ID is 0028191554

You can download the Connector software from <https://transactions.sendowl.com/orders/28191554/download/b77090cc55f0b0fffd6e5a928ce70f53> This link may be used up to 3 times before it expires.

Thanks,

The Team at Senturus

Click on download button and save it select save it to your local drive.

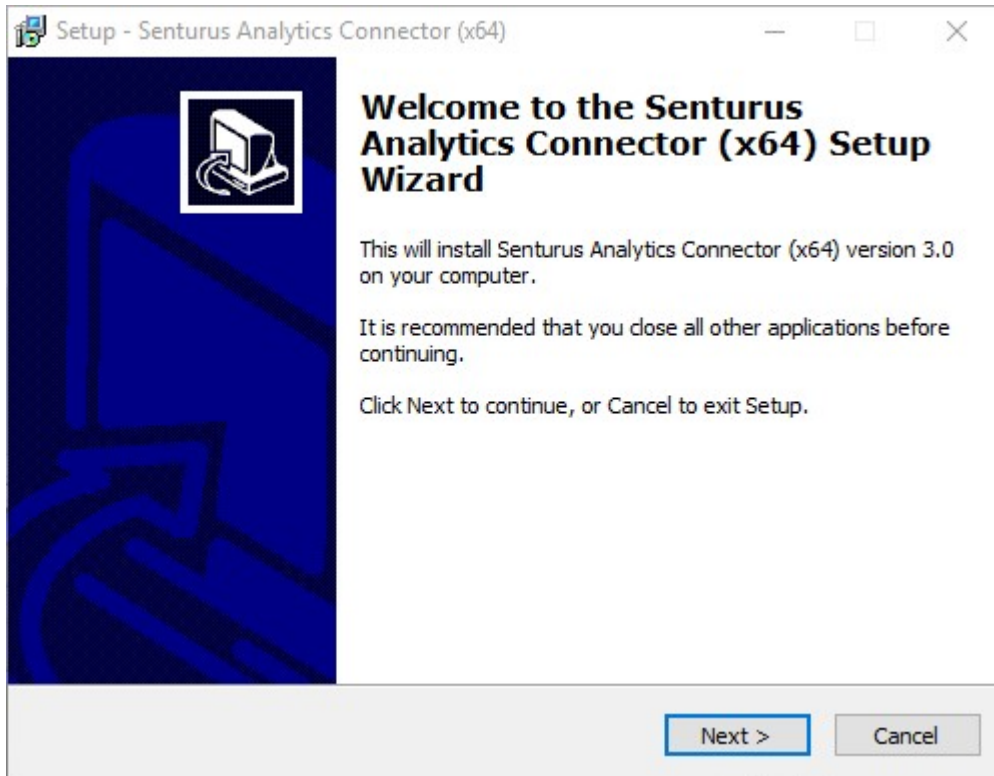


Once downloaded, go to the folder and run "AnalyticsConnectorServer_3.0_x64.exe" with administrator privilege. You may get a warning from Windows Defender SmartScreen. Click on More info and then Run anyway button.

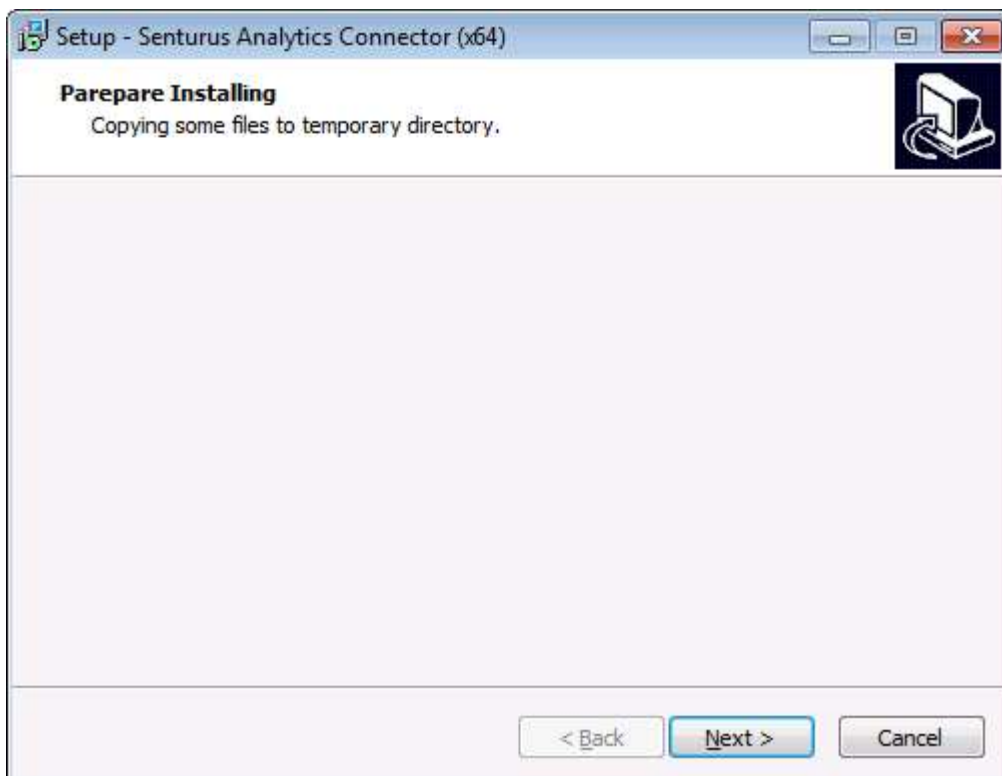




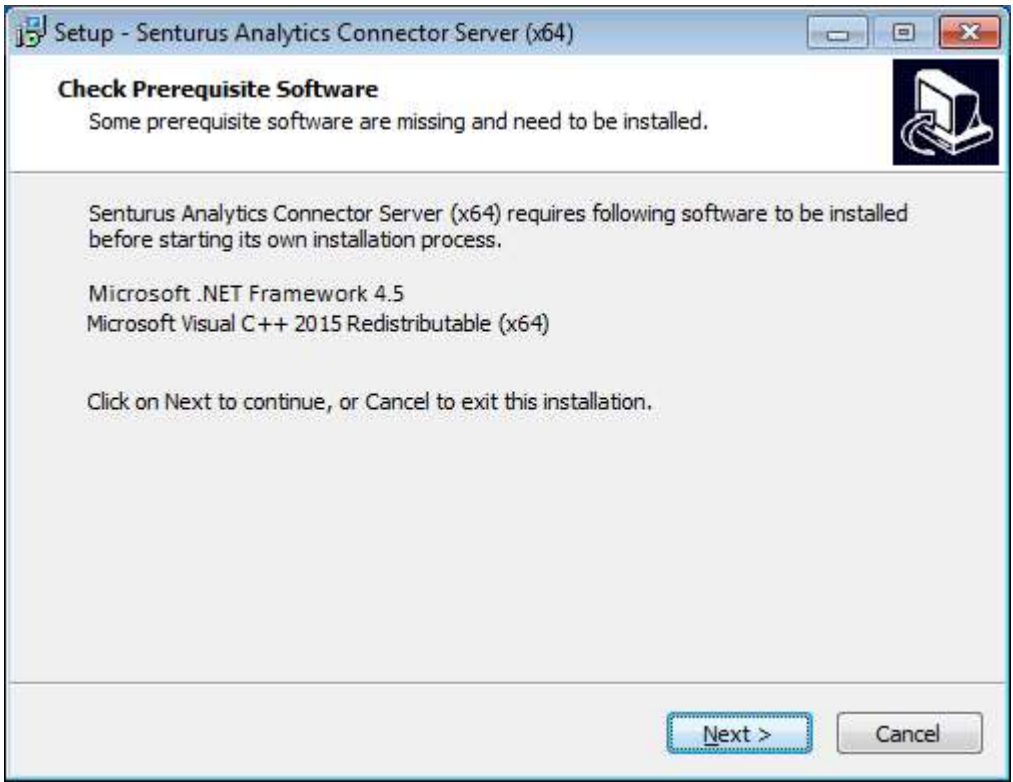
Click Next on the welcome page.



Installer needs to extract some files to temporary directory. These files are required by other pages later. Once all temporary files are copied over, click Next.

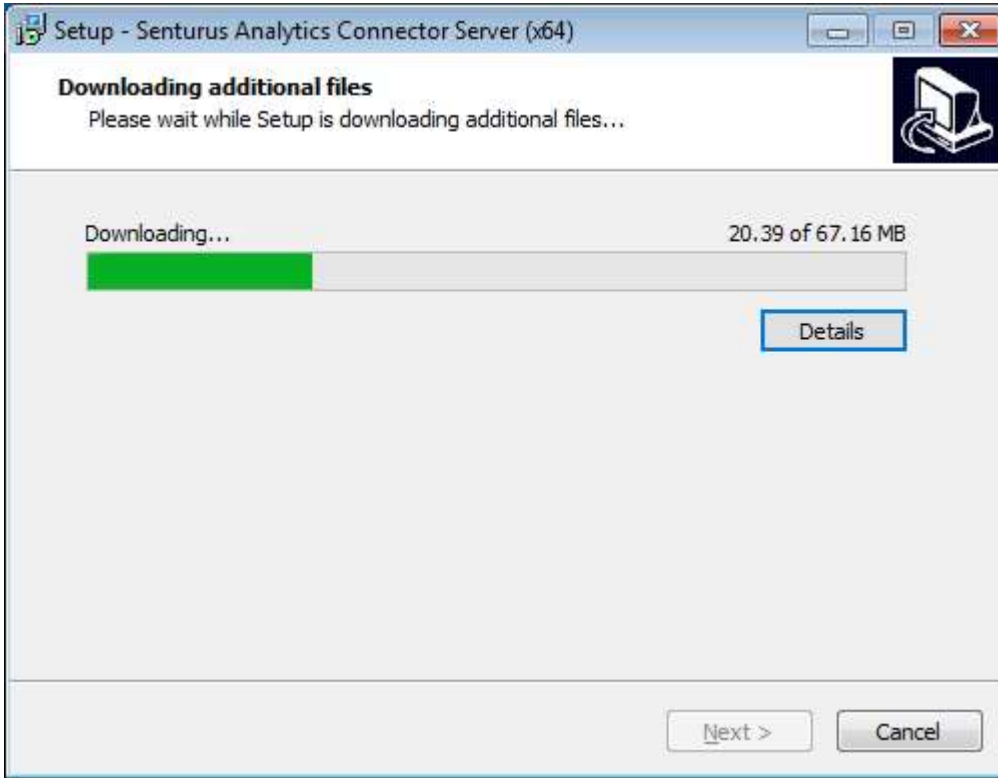


If any prerequisite software is missing, you will be prompted to download and install prerequisite software first¹. Otherwise installer jumps to Select Destination Location page directly.

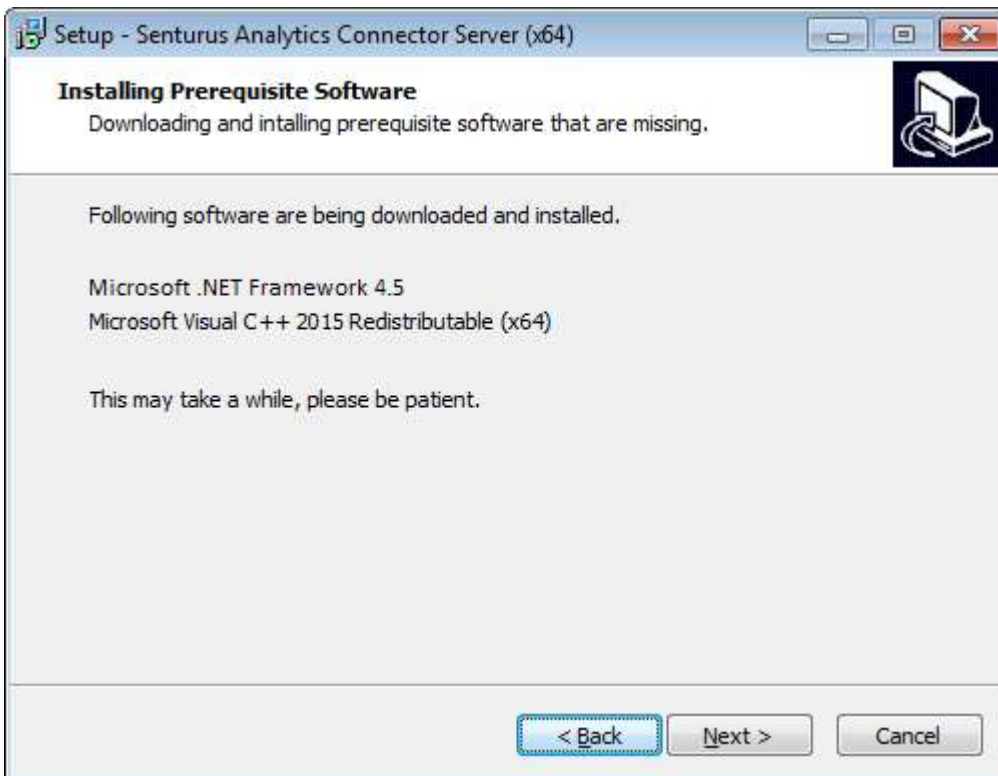


¹ If you don't have internet access, download and install prerequisites manually. See 1.3 for detail.

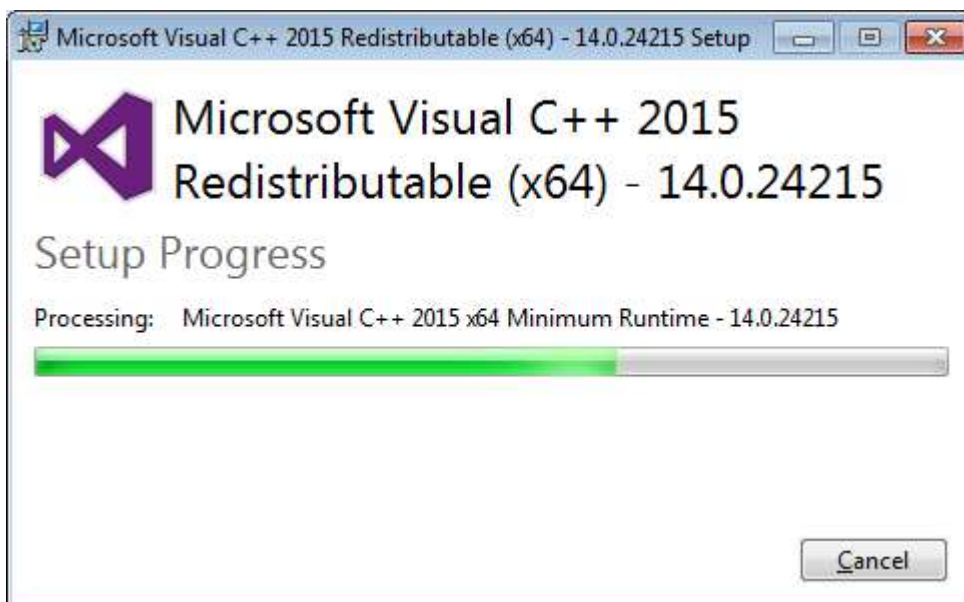
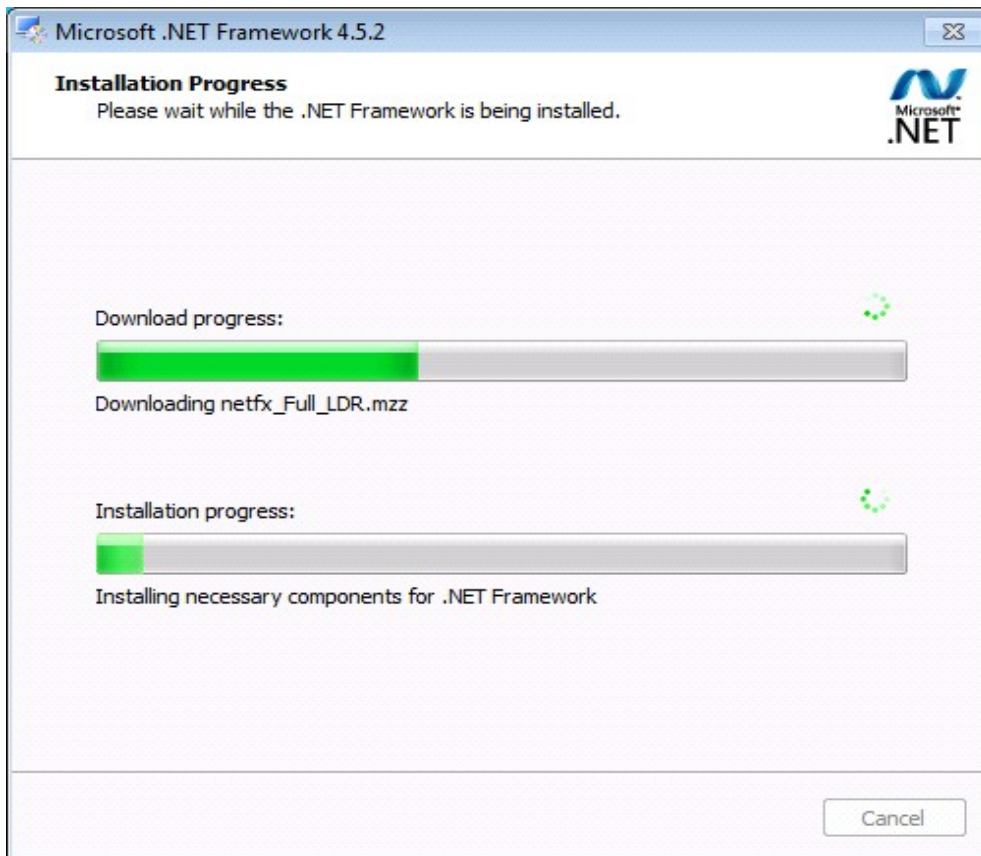
Click Next to start downloading prerequisite software installers from the internet.



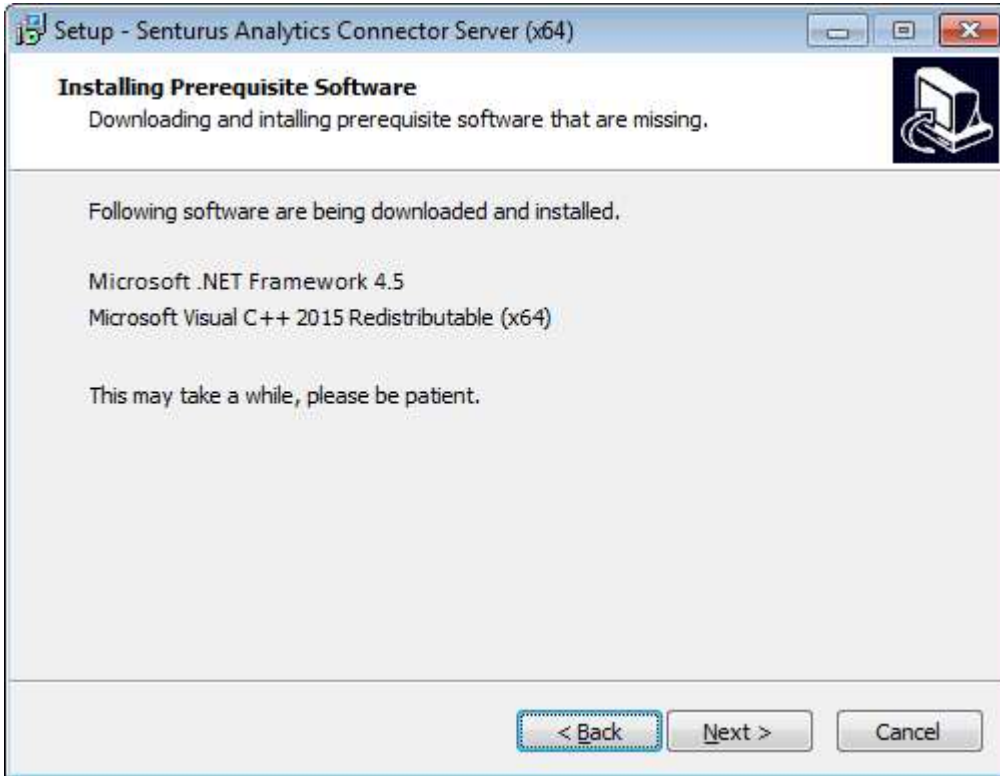
Click Next once all installers are downloaded. You will see "Installing Prerequisite Software" installer window.



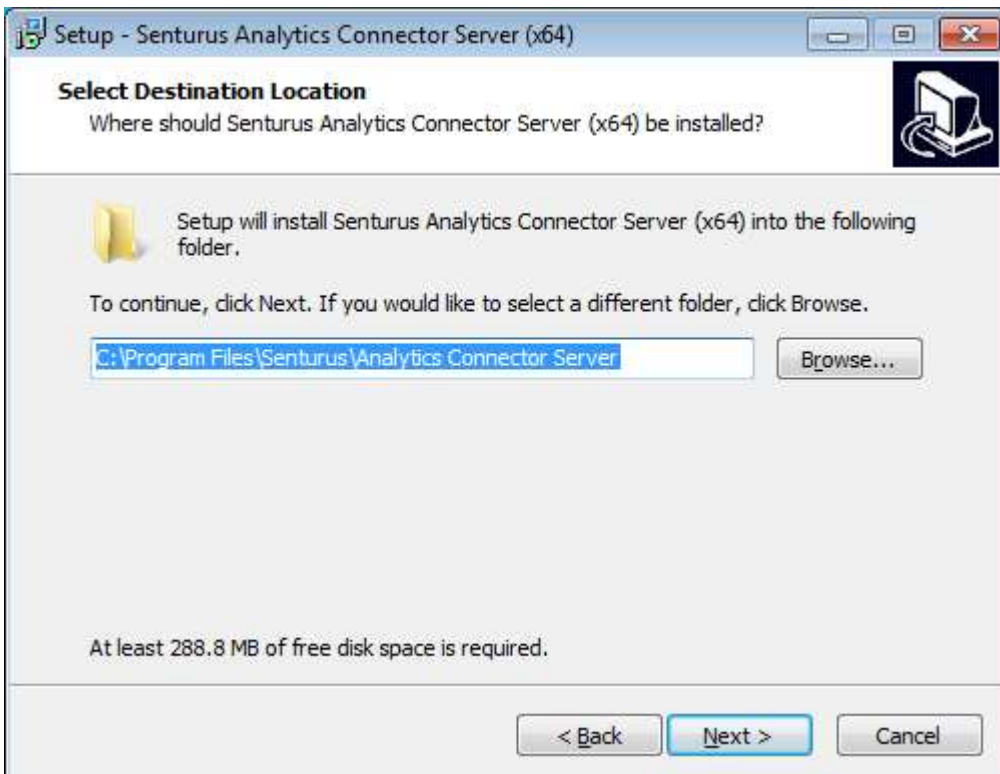
You will see the progress dialog while MS .NET 4.5 and MS Visual C++ 2012 Redistribute (x64) are being installed.



Once all prerequisite software is installed, click Next.

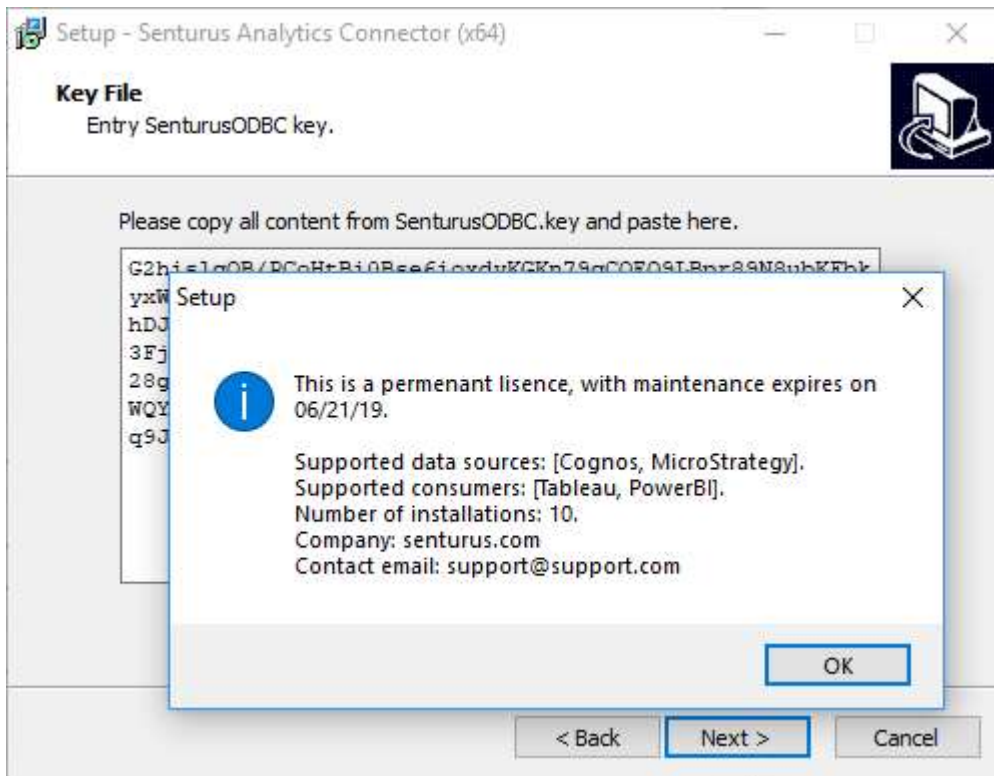


Installer will start Senturus Analytics Connector install after prerequisite software is installed. Select installation location. Default is "C:\Program Files\Senturus\Analytics Connector", click Next.

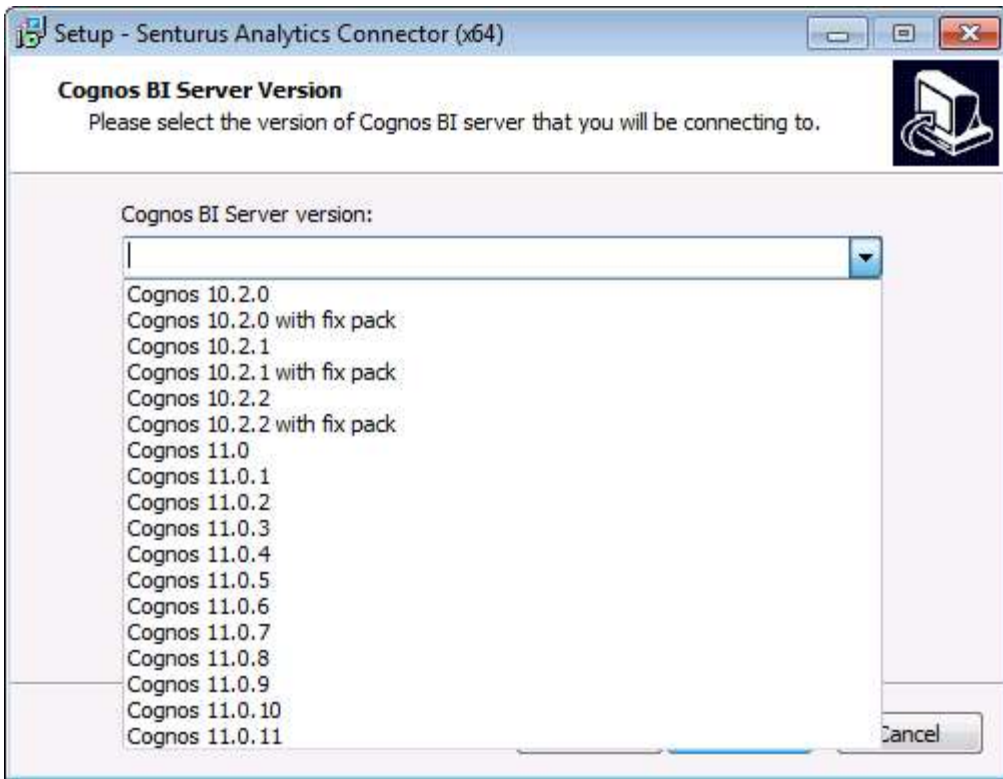


You should get a SenturusODBC.key file from Senturus, open it in a text editor (for example notepad), copy all content and paste in Key File page. If you already have SenturusODBC.key file in the installation

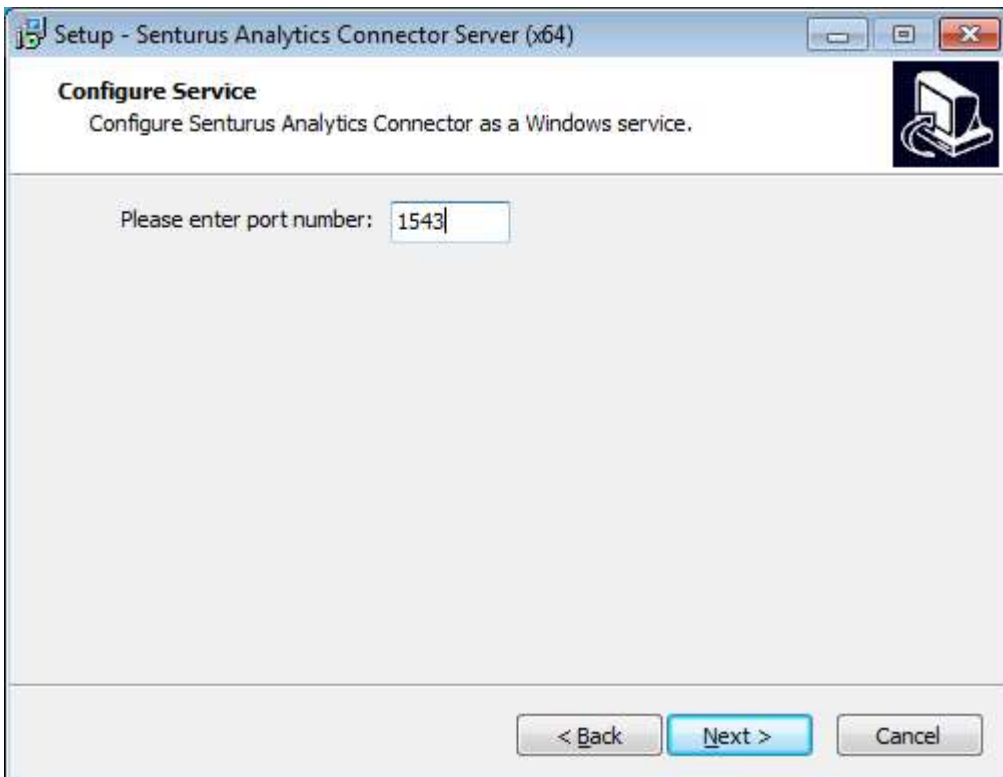
directory, installer will read it and automatically populate the content here. Click Next. Installer will pop up a message window displaying your license key information. Review it and click on OK.



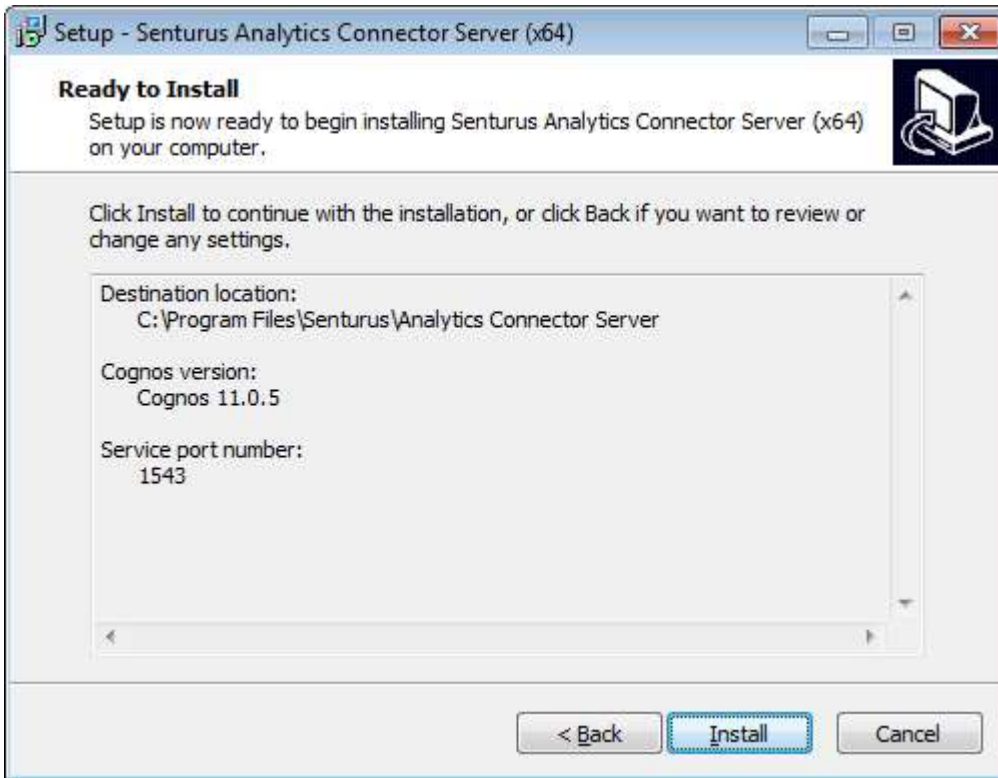
If you your license key entitles you to connect to Cognos as data source, you will get a page below. Select the version and fix packs level of the Cognos server you want to connect to, click Next.



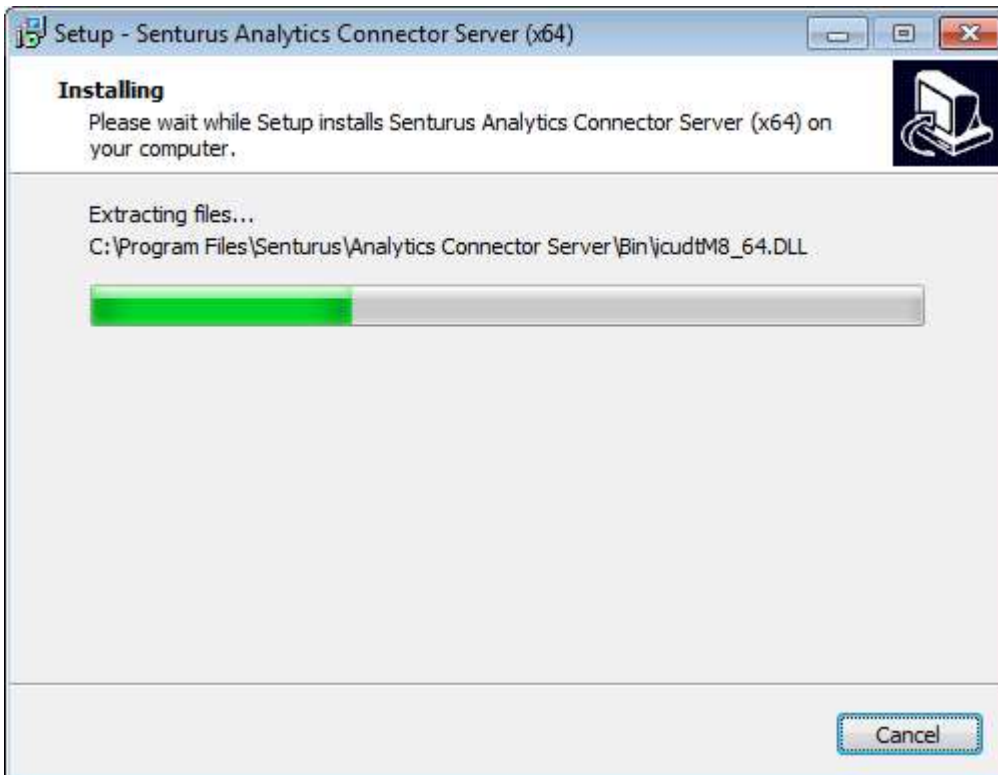
Use the default port number 1543 or type in a different free port number. Take a note of the port number that you will need when connecting to this server using Analytics Connector Client. Click Next.



Review installation options, click Install, and then click OK once it is done.



Installing.



Click Finish.



1.2. Silent Installation

To perform a silent installation, execute the following command:

```
AnalyticsConnectorServer_3.0_x64.exe /SILENT /DIR="C:\Program Files\Senturus\Analytics Connector Server" /CognosVersion="Cognos 11.0.5" /ServicePort="1543" /LicenseKey="SenturusODBC.key"
```

“/SILENT” instructs installer to do a silent installation.

“/DIR=” defines the installation directory. This is an optional parameter, the default value, if not provided via command line, is “C:\Senturus\Analytics Connector.”

“CognosVersion” tells installer the version and fix pack level of the Cognos BI server you want to connect to. This is a mandatory parameter. For a complete list of all target versions, please run installer in interactive mode and check the options.

“ServicePort” defines the port number that Windows service will listen to.

“LicenseKey” provides Senturus ODBC license key to the installer.

The command above will bring installation progress dialog though. So if you want to suppress the progress dialog as well, replace /SILENT with /VERYSILENT.

1.3. Install Prerequisite Manually

If you do not have internet access, or your access to prerequisite installers are blocked, you may need to download and install prerequisites manually before install Senturus Analytics Connector.

On another computer where you can download prerequisite installers, download Microsoft .net Framework 4.5 from https://download.microsoft.com/download/6/A/A/6AA4EDFF-645B-48C5-81CC-ED5963AEAD48/vc_redist.x64.exe (64bit) or https://download.microsoft.com/download/9/3/F/93FCF1E7-E6A4-478B-96E7-D4B285925B00/vc_redist.x86.exe (32bit), and download Microsoft Visual C++ 2015 Redistributable (x64) from https://download.microsoft.com/download/6/A/A/6AA4EDFF-645B-48C5-81CC-ED5963AEAD48/vc_redist.x64.exe, or Microsoft Visual C++ 2015 Redistributable (x86) from https://download.microsoft.com/download/6/A/A/6AA4EDFF-645B-48C5-81CC-ED5963AEAD48/vc_redist.x86.exe. Copy to your target computer and install them by running these executables. Once those prerequisites are installed, you can launch Senturus Analytics Connector installer.

1.4. Update License Key

In case you need to update license key, upgrade from a trail key to licensed key, copy the new SenturusODBC.key to the installation directory (default “C:\Program Files\Senturus\Analytics Connector” and overwrite the old one.

1.5. Uninstall Analytics Connector

You can uninstall Analytics Connector either from Windows “Uninstall a program” control panel, or go to “C:\Program Files\Senturus\Analytics Connector” directory and double click uninst000.exe.

1.6. Upgrade or reinstall Analytics Connector

If you need to upgrade Analytics Connector to another version, or simply need to upgrade Cognos SDK version (when you upgrade your Cognos BI server, Analytics Connector may stop working since it still use the old Cognos SDK jars), we recommend you to do an uninstallation first then run installer again. The process is the same of installation, except that installer will automatically pick your SenturusODBC.key license from installation directory.

Installer will back up your DataSourceConfig.xml as DataSourceConfig.xml.backup during installation if there is one, so you can reuse it if you want. First, delete DataSourceConfig.xml, then rename DataSourceConfig.xml.backup to DataSourceConfig.xml (by removing .backup suffix).

2. DataSourceConfig.xml

To connect to BI servers, you need to tell Senturus Analytics Connector some basic information.

For Cognos, these include:

- Dispatcher URL
- Authentication namespace ID or anonymous
- Login username and password
- Search path of the package you want to connect to
- Report folders from where to pull reports
- Other information, for example format of CSV outputs, data source connections

For MicroStrategy, these include:

- Intelligence Server host name/ip and port
- Login mode
- Login username and password
- Project name

However, some of this information is not obvious to general business users. That is where DataSourceConfig.xml is helpful.

DataSourceConfig.xml lets you map the above information into a cleaner and more user-friendly presentation. After installing Senturus Analytics Connector, you will find the default DataSourceConfig.xml under the root installation directory (default "C:\Program Files\Senturus\Analytics Connector"). Take a look at it, consult your Cognos and/or MicroStrategy administrator for all the information mentioned above and change the values as you need. You can use any text/xml editor or you can use our GUI editor to edit this file. Please refer to section [Create and Update ODBC Data Source](#) for more information.

The screenshot below shows the default DataSourceConfig.xml.

```
<dataSources>
  <server name="cognos" type="Cognos" namespaces="Senturus,LDAP,AD" autoReconnect="false"
    dispatcher="http://192.168.1.224:9300/p2pd/servlet/dispatch, http://192.168.1.
    authenticationClass="com.senturus.cognos.DispatcherAuthentication">
    <database name="GO Sales (query)" package="/content/folder[@name='Samples']/folde
      <dataSourceConnection path="CAMID(&quot;;&quot;)/dataSource[@name='great_outd
      <reportFolder name="Sample Reports" path="/content/folder[@name='Samples']/fo
      <reportFolder name="Connector Reports" path="/content/folder[@name='Connector
    </database>
    <database name="GO Sales (analysis)" package="/content/folder[@name='Samples']/fo
    <setting name="RSVP.CSV.ENCODING" value="utf-16le"/>
    <setting name="RSVP.CSV.DELIMITER" value="TAB"/>
    <setting name="RSVP.CSV.QUALIFIER" value="&quot;"/>
    <setting name="RSVP.CSV.TERMINATOR" value="LF"/>
  </server>
  <server name="mstr" type="MicroStrategy" host="192.168.1.243:34952" loginModes="Stand
    <database name="Tutorial" project="MicroStrategy Tutorial" />
    <database name="tdvt" project="tdvt" />
  </server>
</dataSources>
```

server element: this defines a connection to one Cognos or MicroStrategy BI server.

@type: either Cognos or MicroStrategy.

@name: the user-friendly name that shows in Login dialog.

@dispatcher: (for Cognos only) the URL string points to Cognos dispatcher. To support fail over, you can specify multiple dispatchers separated by commas. Note: always put the more reliable dispatchers in front because this connector will try each dispatchers in the order they are specified here.

@namespaces: (for Cognos only) comma separated list of Cognos namespace IDs. Leave this blank if you want to log into Cognos anonymously.

@autoReconnect: Cognos and MicroStrategy server may disconnect clients after a period of inactive time. Set autoReconnect to true if you want this connector to automatically reconnect to BI server. Default value is false.

@authenticationClass: (for Cognos only) the default value is

`com.senturus.cognos.DispatcherAuthentication`, which works in most cases where you can log into Cognos dispatcher directly with namespace/uid/password combination. However, in cases where users cannot login dispatcher directly, for example namespace is a LDAP using external identity from Windows/IIS authentication, then you can use another class

`com.senturus.cognos.NTLMAuthentication`, instead. For other authentication scenario, contact Senturus for help.

@linkColumnName: Tableau does not allow you to drop tables into data source without a join to other existing tables. But when using Cognos package or MicroStrategy project metadata, there is no need (or impossible) to define joins. Analytics Connector creates an extra column in each table so you can join these link columns to satisfy Tableau. Before version 2.4, the column is named as `_LINK_COLUMN_`. But since Tableau automatically picks join column by their alphabetic orders, so `_LINK_COLUMN_` column pairs may not be its first choice. Since version 2.4, you can choose from `AAA_LINK` and `_LINK_COLUMN_` as link column names.

@host: (for MicroStrategy only) the host name or IP and port number of MicroStrategy Intelligence server.

@loginModes: (for MicroStrategy only) comma separated list of the login modes of MicroStrategy Intelligence server. Only standard and LDAP are support.

database element: this defines a published package in Cognos Connection or a project in MicroStrategy.

@name: the user-friendly name that shows in Login dialog.

@package: (for Cognos only) the search path of this Cognos package.

@project: (for MicroStrategy only) the name of MicroStrategy project.

dataSourceConnection element: (for Cognos only) Cognos packages reference data sources and one data source may have multiple data source connections. If users have access to more than one connection, you need to specify which connection to use when running reports. Omit this element if users have access to only one connection.

@Path: the search path of data source connection.

reportFolder element: You can define from which folder you want to pull Cognos reports, report views and queries, and present them as tables within an ODBC schema. For MicroStrategy, grid report and intelligence cube will be pulled from defined folder.

@name: the name of schema that will show in ODBC.

@Path: the search path of Cognos folder.

@includeSubFolders: set this to true to include reports in sub folders recursively.

setting element: (for Cognos only) Cognos administrators can customize CSV output formatⁱⁱ instead of using Cognos defaults. Setting elements pass these customizations to Senturus Analytics Connector so it can consume Cognos output correctly.

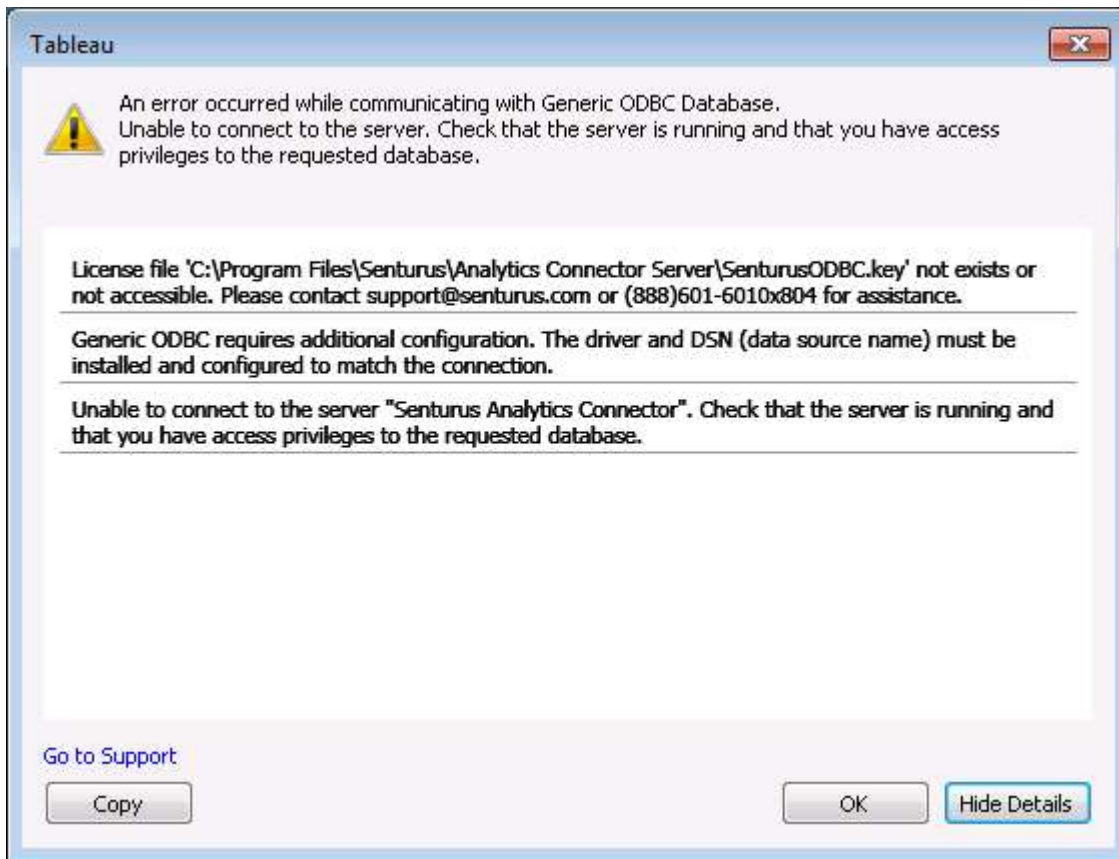
You can also customize which levels/attributes to retrieve from cube data sources, using setting elements.

The default DataSourceConfig.xml lists the default Cognos settings, so you can leave them as is or remove one or all of them if your Cognos server uses default.

3. Configure Senturus Analytics Connector

3.1. SenturusODBC license

This connector needs a license file to function. If you do not have a license key, or the license is expired, you will get an error in Tableau as shown below:



To resolve this problem, contact Senturus for a new license file (SenturusODBC.key) and place it under “C:\Program Files\Senturus\Analytics Connector” directory.

3.2. Configure DataSourceConfig.xml

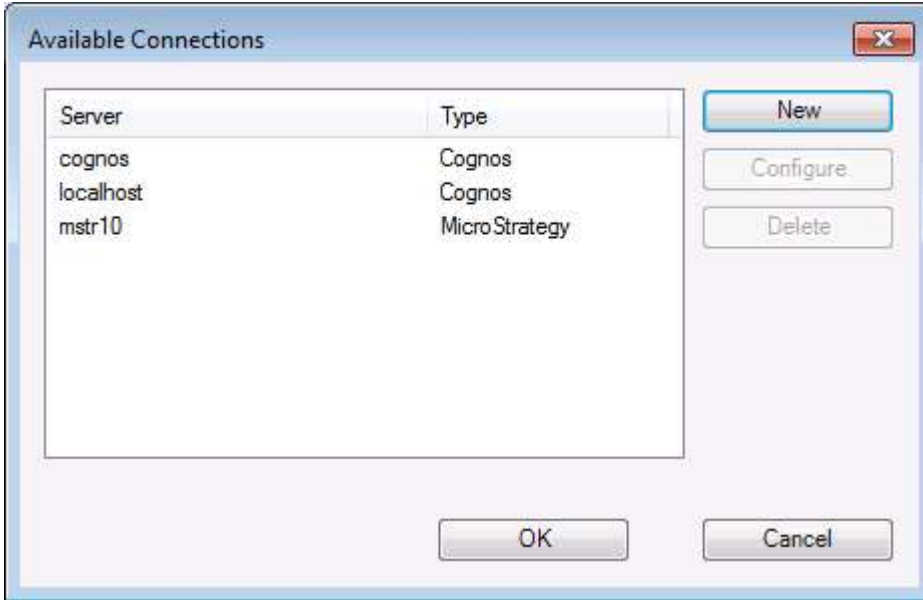
After installation, a sample DataSourceConfig.xml is created in “C:\Program Files\Senturus\Analytics Connector” (Analytics Connector Server if you installed server version). You need to configure this based on your environment so that you can connect to your Cognos/MicroStrategy servers.

You can use any text editor to edit DataSourceConfig.xml if you are confident with XML editing. Or you can use our GUI tool to configure it.

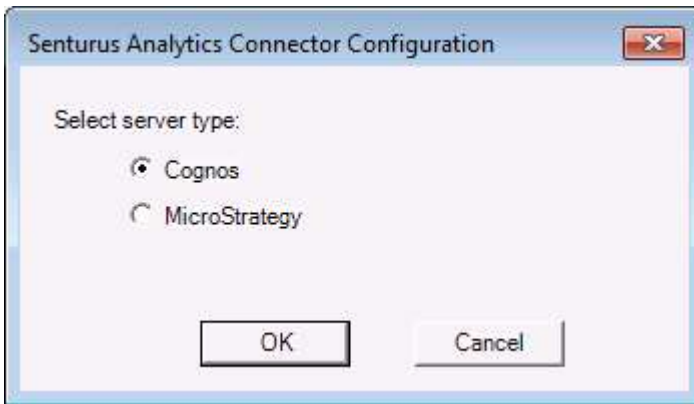
The first option is to execute “SenturusDataSourceConfig.exe.” Open a File Explorer, go to “C:\Program Files\Senturus\Analytics Connector\Bin” directory, right click on “SenturusDataSourceConfig.exe” and select “Run as administrator.” You will see a “Available Connections” window pop up and from there you can configure your DataSourceConfig.xml.

The other way to load this window is via Windows ODBC DSN administrator control, which we will discuss later.

In “Available Connections” dialog, you can create new, configure existing or delete a connection. The connection list represents server elements in DataSourceConfig.xml.



If you click New, you will be prompted to select server type before Edit Cognos/MicroStrategy Connection dialog.



Based on the server type, either Edit Cognos Connection dialog or Edit MicroStrategy Connection dialog will pop up.

Following is the Edit Cognos Connection dialog. It has three tabs: Server, Advanced and Database.

Server tab. You can define server name, dispatcher URLs, namespace IDs and other options. This tab represents server element (without child nodes).

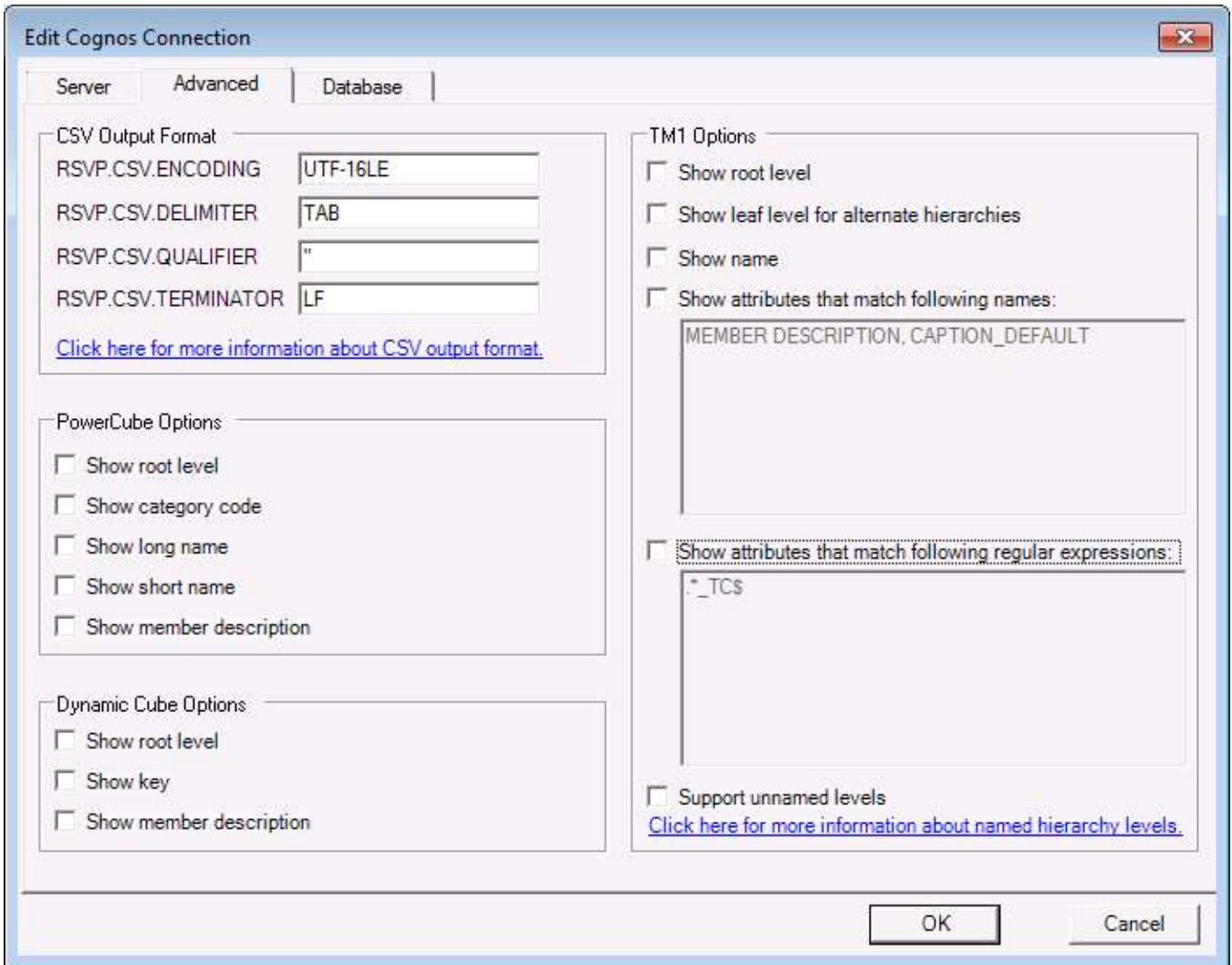
The default authentication class is `com.senturus.cognos.DispatcherAuthentication`. If Cognos users can authentication themselves via dispatcher by providing user name and password, then you do not need to change it. Otherwise, contact Senturus for help.

The screenshot shows a dialog box titled "Edit Cognos Connection" with three tabs: "Server", "Advanced", and "Database". The "Server" tab is selected. The dialog contains the following fields and options:

- Server Name:** A text box containing the value "cognos".
- Dispatcher URL:** A list box containing two entries: "http://192.168.1.222:9300/p2pd/servlet/dispatch" and "http://192.168.1.224:9300/p2pd/servlet/dispatch", with a "<new>" option at the bottom.
- Namespace ID:** A list box containing two entries: "LDAP" and "AD", with a "<new>" option at the bottom.
- Authentication Class Name:** A text box containing the value "com.senturus.cognos.DispatcherAuthentication".
- Link Column Name:** A radio button group with two options: "_LINK_COLUMN_" (unselected) and "AAA_LINK" (selected).
- Automatically reconnect to Cognos server when it is disconnected by Cognos:** An unchecked checkbox.

At the bottom right of the dialog are "OK" and "Cancel" buttons.

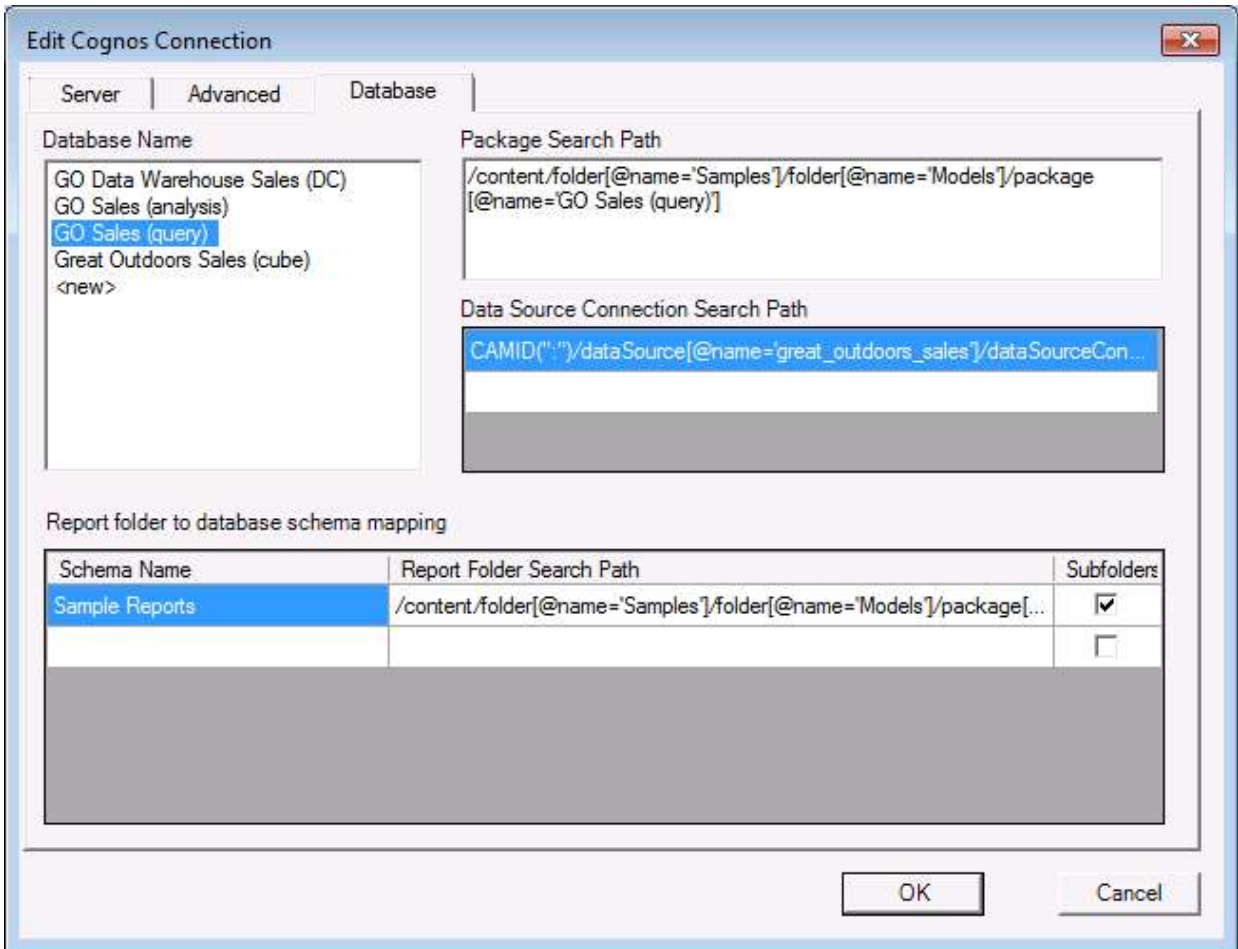
Advanced tab lets you define CSV output format, which attributes to show for PowerCube, TM1 and Dynamic Cube data sources, and other settings. It represents setting child nodes under server elements of server element in DataSourceConfig.xml.



Only levels will be mapped to ODBC columns by default. To show them, check corresponding options here. To TM1 level attributes, you can specify the list of names (separated by comma) or list of regex expressions. For example, to show all names in simplified Chinese, specify `.*_TC$` in “show attributes that match following regular expressions.”

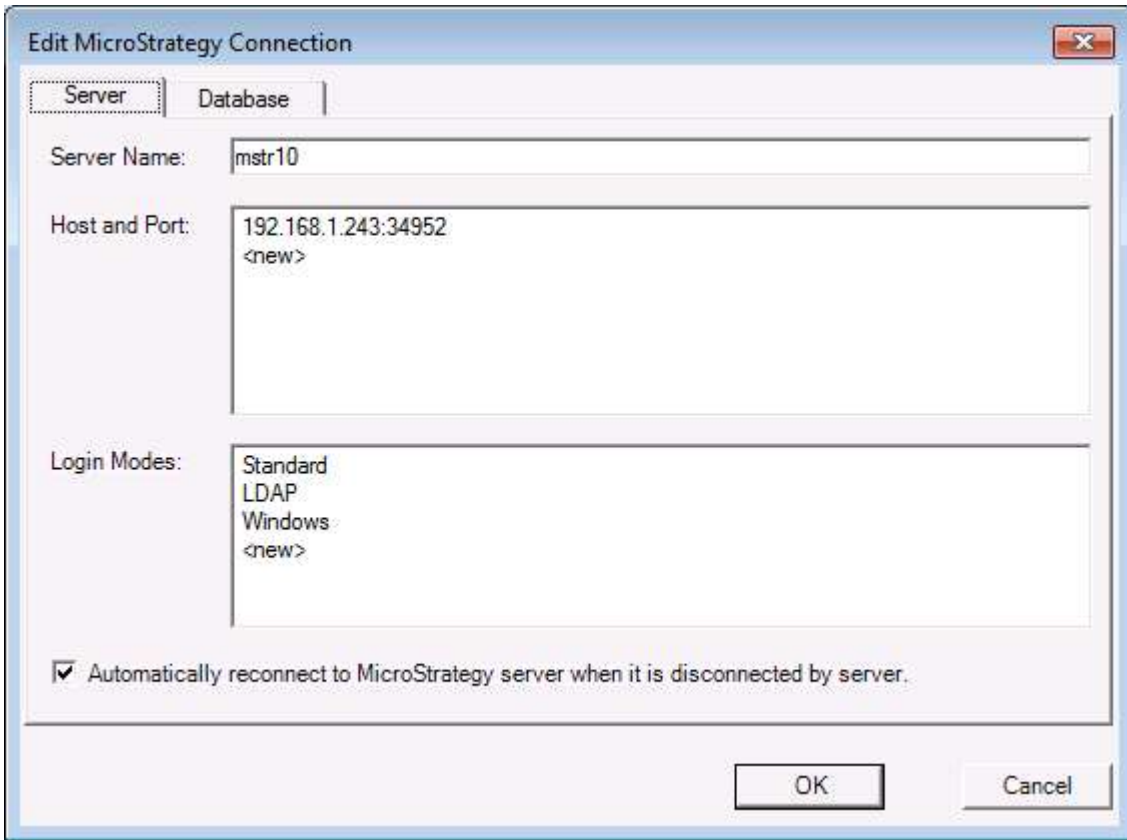
Senturus Analytics Connection supports both named and unnamed TM1 hierarchy levels. However, if levels are not named in a TM1 hierarchy, connector needs to send a query to Cognos to detect the names of all levels within this hierarchy. This may significantly increase the connecting time if this hierarchy has a lot of elements. As a best practice, we recommended you name all levels in TM1 first. For more information regarding TM1 named hierarchy levels, refer to https://www.ibm.com/support/knowledgecenter/en/SS9RXT_10.2.2/com.ibm.swg.ba.cognos.tm1_dg_dv/pr.10.2.2.doc/c_tm1_namedlevels_n0274.html.

Database tab. This tab lets you define packages you want to connect to. It represents database and its child elements.



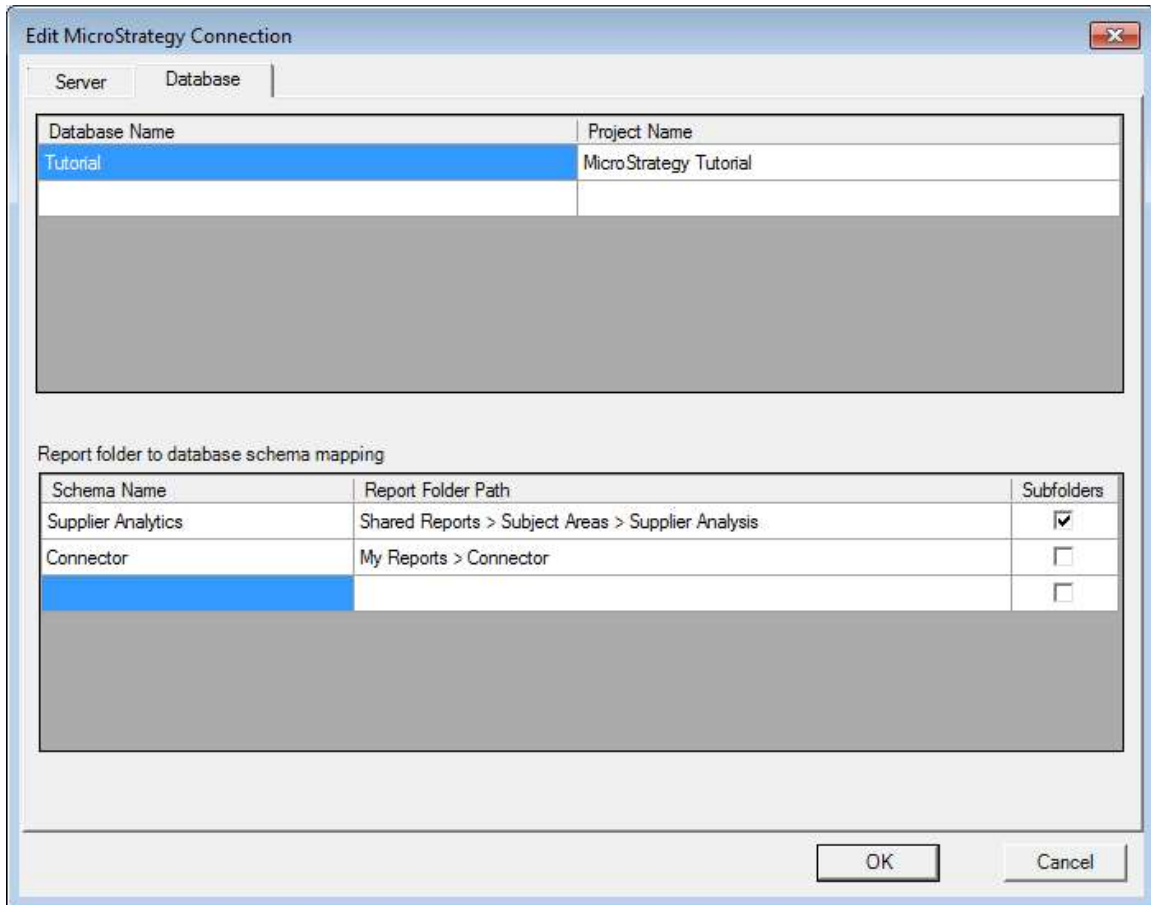
Following is the Edit MicroStrategy Connection dialog. It has two tabs: Server and Database.

Server tab. You can define server name, MicroStrategy Intelligence server host and port, login modes and autoReconnect.



Database tab lets you define MicroStrategy project name and mapping database name, as well as report

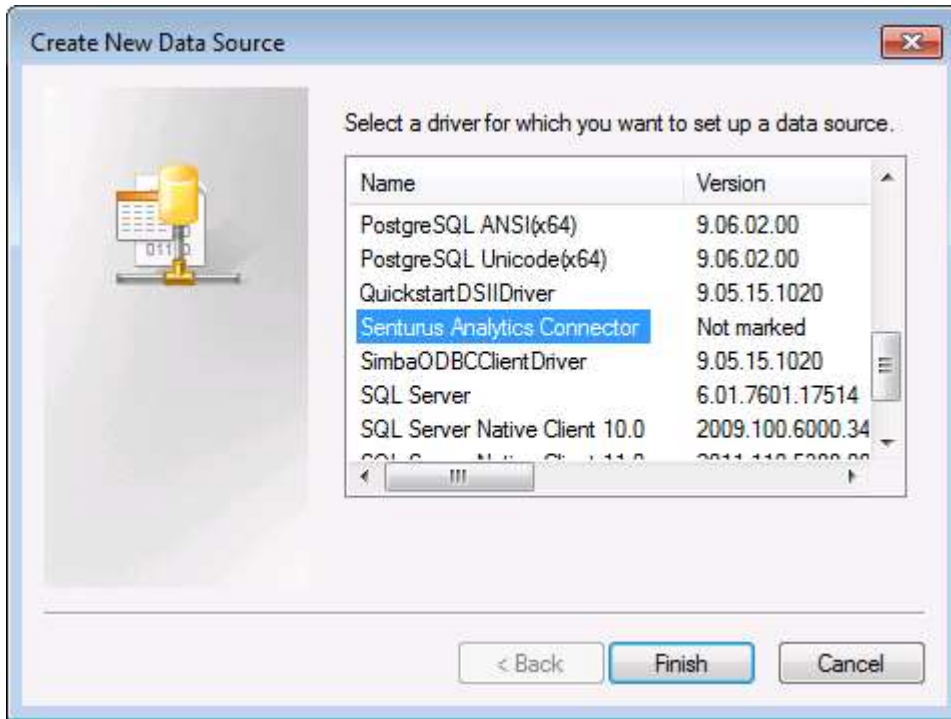
folders to include in each database.



3.3. ODBC DSN configuration dialog

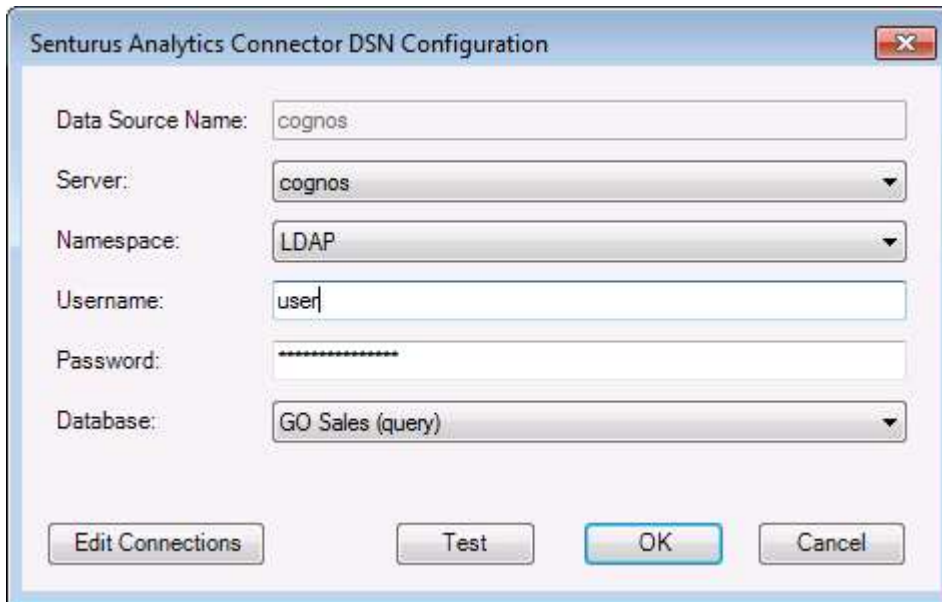
Like any other ODBC driver, you can define a Data Source Name (DSN) using ODBC administrator and use this DSN in Tableau or other applications.

To create a new DSN, open ODBC administrator GUI (depends on the bitness of connector you installed, choose the correct administrator, 64 bit vs. 32 bit), add a system or user DSN. Select “Senturus Analytics Connector”² when being prompt for selecting a driver and click Finish.



² You may also see “Cognos ODBC Driver” in the list. That is the old name used in “Cognos ODBC Driver ver 1.x”. It remains for backward compatibility and you should use the new name “Senturus Analytics Connector” in new applications.

If your DataSourceConfig.xml is already configured with some entries, the drop lists in this dialog will be populated based on DataSourceConfig.xml. You can edit and test DSN here.



If you want to add/update/delete something defined in DataSourceConfig.xml, click on “Edit Connections” button on the bottom left corner. This is the second way to edit your DataSourceConfig.xml.

3.4. Deploy Custom DataSourceConfig.xml

As mentioned before, you need to customize DataSourceConfig.xml and you need to save it under “C:\Program Files\Senturus\Analytics Connector” directory to let the driver pick up your settings.

This is a one time work through. If you want other users to access the same Cognos servers and packages, copy your customized DataSourceConfig.xml to the same location on their computer after installation.

3.5. Windows Service

If you installed server version, a Windows service, called “Analytics Connector Server” will be set after installation and its “Startup Type” is set to Automatic. You can edit it based on your requirement after installation.

You can also start this server by running “C:\Program Files\Senturus\Analytics Connector Server\Bin\SenturusODBCServer_64.exe.”

3.6. SSL

If you are using SSL over Cognos dispatcher, or using SSL over Cognos gateway and have set authentication class to NTLMAuthentication/SiteMinderBasicAuthentication, then you need to configure trusted store so the Analytics Connector can communicate with your server over SSL.

To generate truststore:

1. Obtain certificate which is issued to your Cognos server, or any intermediate or root certificate. And save it into your local drive, for example C:\Temp\root.cer.
2. Create "C:\Senturus\Analytics Connector\SSL" directory if it does not exist.
3. Open a prompt window.
4. Go to "C:\Senturus\Analytics Connector" directory.
5. Execute following command:

```
JRE\x64\bin\keytool -import -alias root -file C:\Temp\localhost.cer -  
keystore SSL\truststore -storepass changeit
```
6. Review the information, type "yes" and enter if it looks correct. truststore should be created under "C:\Senturus\Analytics Connector\SSL".
7. (optional) To verify newly created truststore, execute following command:

```
JRE\x64\bin\keytool -list -v -alias root -keystore SSL\truststore -  
storepass changeit
```

We use "changeit" as the password for truststore, which also matches the password stored in Windows registry table.

If you want to use a different password, you need not only the password above, but also Windows registry table. This password is stored under key "HKEY_LOCAL_MACHINE\SOFTWARE\Senturus\ODBC\Driver", within JNIConfig value.

4. Upgrade from previous versions

4.1. Upgrade from Cognos ODBC Driver 1.x to 2.x

There are several changes compared to version 1, in addition to the name. To upgrade from Cognos ODBC Driver 1.x to Senturus Analytics Driver 2.0, follow the steps below:

- Backup dataSources.xml and SenturusODBC.key under C:\Senturus\ODBC\Cognos directory.
- Uninstall Cognos ODBC Driver 1.x by executing C:\Senturus\ODBC\Cognos\unins000.exe or from Windows Control Panel / Programs / Uninstall a program.
- Install Senturus Analytics Connector 2.0.0.
- Copy SenturusODBC.key to "C:\Senturus\Analytics Connector."
- Delete "C:\Senturus\Analytics Connector\DataSourceConfig.xml," copy dataSources.xml to "C:\Senturus\Analytics Connector" directory and rename it to "DataSourceConfig.xml."
- Open DataSourceConfig.xml in a text editor, add type="Cognos" to all server elements. For example:

```
<server name="cognos" type="Cognos" dispatcher=...>
```

Here is the list of changes compared to version 1.x.

- Name is changed from Cognos ODBC Driver to Senturus Analytics Connector. The old driver name is not removed from Windows for backward compatibility, so your old DSN and Tableau workbooks and data sources will keep the function. However, the new driver name is recommend for new applications.
- Default installation is changed from C:\Senturus\ODBC\Cognos to C:\Senturus\Analytics Connector.
- dataSources.xml is renamed to DataSourceConfig.xml, with MicroStrategy server support.
- Cognos report specification logging. In version 1.x, when support="true" attribute is set for server element in dataSources.xml, the driver will log all queries from corresponding Cognos report specification under C:\Senturus\ODBC\Cognos\Support directory. In Senturus Analytics Connector 2.0, when a query failed to execute, this query will be logged in "C:\Senturus\Analytics Connector\Log\java.log", and its corresponding Cognos report specification will be written to "C:\Senturus\Analytics Connector\Log" as well. You can correlate them by query's GUID and report spec file name.

To log all queries and Cognos report specifications, even those execute successfully, you need to set the logging level to DEBUG or higher. Open "C:\Senturus\Analytics Connector\Lib\log4j.properties" in text editor, change following line:

```
log4j.logger.com.senturus=DEBUG
```

or

```
log4j.logger.com.senturus.jdbc.cognos.CognosClient=DEBUG
```

4.2. Upgrade from Analytics Connector 2.3 or earlier

There are two changes since version 2.4.

- version attribute for the root dataSources. This is used to track the version and should be transparent to administrators/users.

- `linkColumnName` attribute for the root `server` element. Before version 2.4 (2.3 and earlier), all link column are named as `_LINK_COLUMN_`. Since 2.4, you can choose `AAA_LINK` or `_LINK_COLUMN_`. If you use `SenturusDataSourceConfig.exe`, the old settings (`_LINK_COLUMN_` for existing servers) can be automatically upgraded to version 2.4 and your existing applications/Tableau workbooks will works just fine. But for new servers, `AAA_LINK` will be used.

Be careful not to switch between these two options or your existing applications may stop working because joins are made with two invalid columns. If you really need to switch, for example to make Tableau automatically pick correct link column, you need to update your applications. For Tableau workbooks and data sources, you can open them in text editor and replace old link column names with new ones.

5. Notes

- This ODBC driver supports 15 Cognos data types and 15 MicroStrategy data types. Please refer to the data type mapping in following table.

Table 1 Cognos/MicroStrategy to ODBC Data Type Mapping

Cognos Data Type	MicroStrategy Data Type	ODBC Data Type	Max Length/Precision	Note
int16		smallInt	5	
int32	DssDataTypeInteger DssDataTypeUnsigned	integer	10	
int64		bigInt	19	
float32	DssDataTypeReal DssDataTypeFloat	real	7	
float64	DssDataTypeDouble	double	15	
decimal	DssDataTypeNumeric DssDataTypeDecimal DssDataTypeBigDecimal	decimal	38	
character	DssDataTypeChar	char	8000	
characterLength16	DssDataTypeVarChar	varchar	8000	
nChar	DssDataTypeNChar	nchar	4000	
nVarChar	DssDataTypeNVarChar	nvarchar	4000	
date	DssDataTypeDate	date	10	
time	DssDataTypeTime	time	8	no milliseconds
datetime	DssDataTypeTimeStamp	timestamp	19	no milliseconds
textBlob		varchar	8000	mapped to varchar
unknown		varchar	8000	mapped to varchar

- This driver has been tested against SQL Server, DB2 and Oracle databases (relational and DMR model), it may not support all data types/functions for other databases.
- This driver only supports a) packages with one data source or b) packages with multiple data sources but all database connections are of the same type (e.g. SQL Server native connection). It may work for other packages, but some functions may fail.
- This driver supports the following ODBC features:
numeric, string, date/time, null literals

cast/convert
simple calculation (+, -, *, /, and %)
string concatenate
and, or, not logical operators
comparison (<, >, =, <=, >=, !=, between, not between, in, not in, like, not like)
is null, is not null
case (if else) statement
parenthesis
sub queries

- This driver supports the following functions:

Aggregate function: AVERAGE, AVG, COUNT, MAX, MAXIMUM, MIN, MINIMUM, SUM, TOTAL.

Numeric functions: ABS, ACOS, ASIN, ATAN, CEILING, COS, COT, DEGREES, EXP, FLOOR, LOG, LOG10, MOD, POWER, RADIANS, ROUND, SIGN, SIN, SQRT, TAN, TRUNCATE.

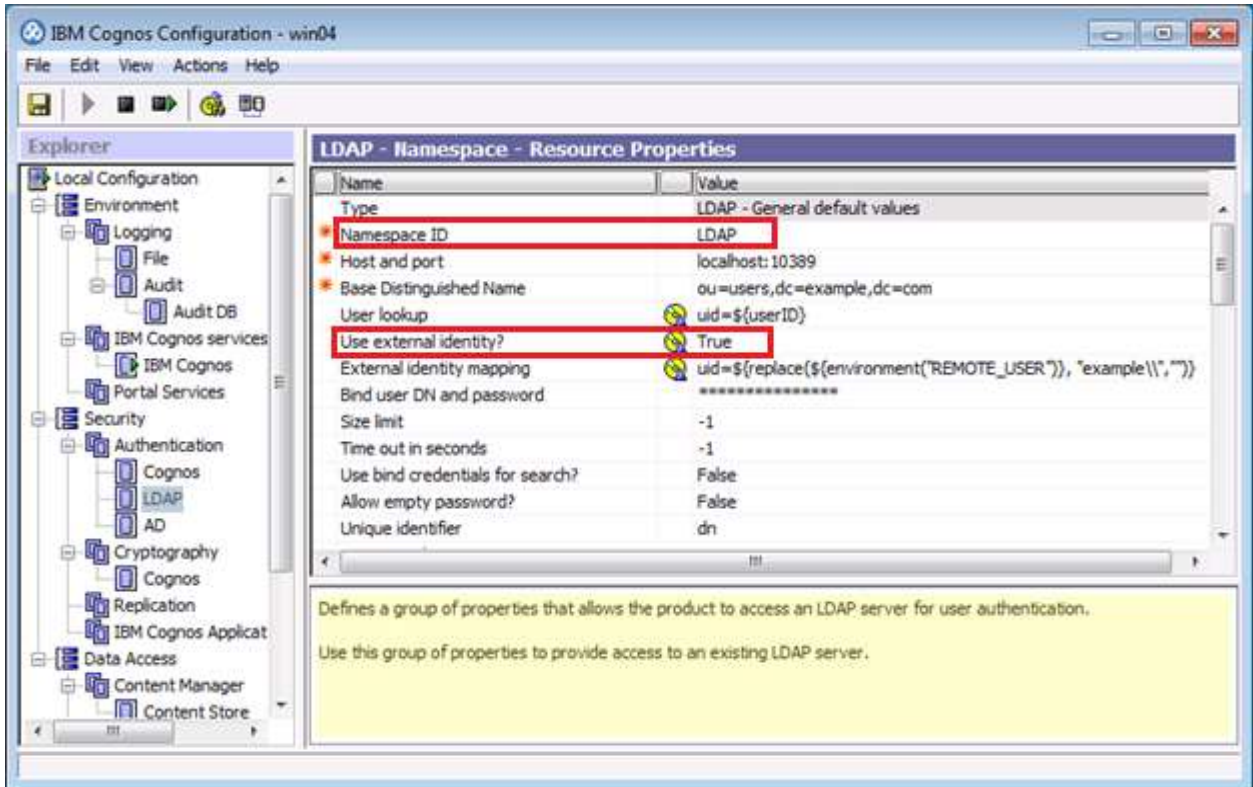
Date and timestamp functions: CURRENT_DATE, CURRENT_TIMESTAMP, DAY, DAYNAME, DAYOFMONTH, DAYOFWEEK, DAYOFYEAR, HOUR, MINUTE, MONTH, MONTHNAME, QUARTER, SECOND, TIMESTAMPADD, TIMESTAMPDIFF, WEEK, YEAR.

Character functions: ASCII, CHAR, CHAR_LENGTH, CHARACTER_LENGTH, CONCAT, LCASE, LCASE, LEFT, LOCATE, LTRIM, LTRIM, REPLACE, RIGHT, RTRIM, RTRIM, SPACE, SUBSTR, SUBSTRING, TRIM, TRIM, UCASE, UCASE.

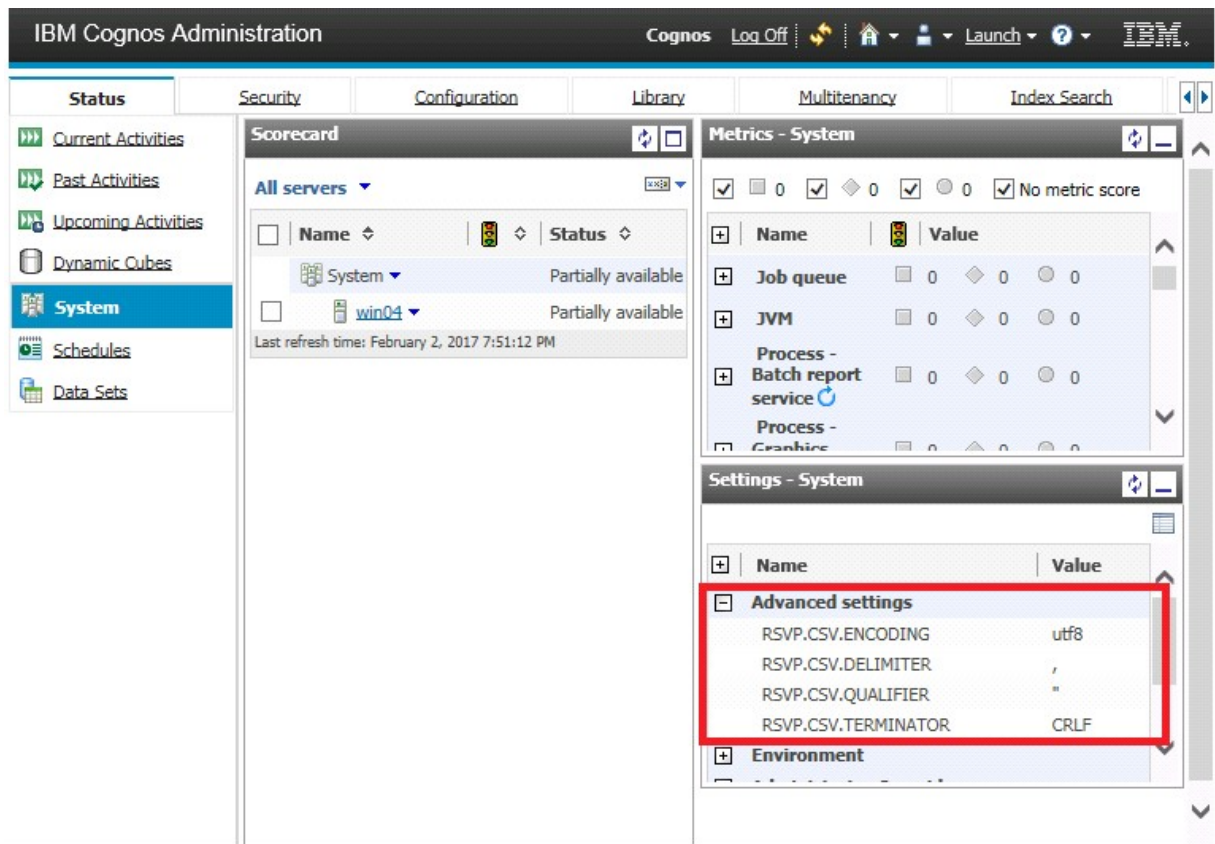
Others: CONVERT, IFNULL

Endnotes

ⁱ Cognos namespace IDs are not necessarily the same as namespace names. Its value can be found in Cognos Configuration, under Security/Authentication/<namespace>. See screenshot below:



ii Your Cognos settings can be found via Cognos Administration page, under Status/System/Setting-System/Advanced settings. See screenshot below:



For more information, please refer to:

http://www.ibm.com/support/knowledgecenter/SSEP7J_10.1.0/com.ibm.swg.im.cognos.ug_cra.10.1.0.doc/ug_cra_id3825_OCSVPropertiesandValues.html