

Working With Data Release 8.2 Version 03

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Chapter 1

Working With Data

Upload your own data sources and connect, join, and blend data, or learn about the sample data sources that are packaged with the Business User Edition software.

In this chapter: Working With Data Overview Preparing Data for Upload Uploading, Appending, and Merging Spreadsheets Uploading Files Connecting to Data and Editing Data Using Data Preparation Options Joining and Blending Data Creating Virtual Fields

Working With Data Overview

There are two ways that you can connect to data in Business User Edition. You can upload a Microsoft Excel spreadsheet or CSV file using the Upload wizard, or you can connect to an existing table in a data source of your choice, using the Connect to Data wizard. Both processes begin with identifying and preparing the data that you want to use. After your file or table selection is complete, the wizard shows you the default breakdown of your data as measures, dimensions, and hierarchies.

At similar points during the upload and connect processes, you can access options to transform your data beyond the default settings. This includes joining multiple tables into a cluster to create more fields and expand the scope of a synonym, editing geo roles and geo encoding to prepare the synonym for use in mapping and location analysis, data profiling and statistical analysis, changing columns or groups of columns into rows, and creating new or editing existing field roles.

Once a synonym is complete, you can upload it to a target environment or append it or merge it with an existing synonym. You can also save it as a template to allow repeated transformations if the same file is uploaded again in the future.

Understanding Your Data Structures

When you upload or connect to data in Business User Edition, you create a synonym that can be used to build analytical content. Synonyms define unique names (or aliases) for each object that is accessible from the Reporting Server. Synonyms are useful because they hide the underlying data source location and identity from client applications. They also provide support for extended metadata features of the Reporting Server, such as virtual fields and additional security mechanisms.

Depending on the structure of the synonym that you are creating, the data inside a synonym is typically broken down into categorized roles, such as measures (facts), dimensions, hierarchy levels, and attributes.

A measure or fact is a numeric value, such as Gross Profit or Cost of Goods Sold, that you can aggregate. Numeric fields that cannot be summed, such as product number or order ID, are not categorized as measures. Instead, they may be used in the same way as dimension fields to analyze measures.

A dimension is a way to categorize data or sort output. You can use a dimension to analyze and compare measures. Usually, dimension fields are alphanumeric fields such as Product. Certain dimension fields can be organized into hierarchies to define the relationship between the fields. For example, a Geography hierarchy can contain the Region, Country, State, and City fields.

An attribute is a field or collection of fields that provide additional information about a dimension.

Using the Business View Plus (BV+), you can create a view of your data that represents its business use by creating virtual segments called folders and adding fields to these folders. You have the flexibility to create folders anywhere in the structure, as well as reusing fields in multiple folders. You can then categorize those folders and fields as measures, dimensions, hierarchy levels, or attributes.

Preparing Data for Upload

Uploading data to Business User Edition can be made easier if you familiarize yourself with the data file first and ensure that it is properly formatted for upload, so geographic data, dimensional hierarchies, and other important aspects of your data are recognized. This is important so that the synonym created for your uploaded data provides the basis for quality analytical content.

You can use the following techniques to prepare your data for the uploading process.

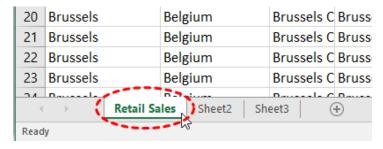
Naming Conventions and Excel Sheet Names

For Excel spreadsheets, the name of the file is not important but the name of the worksheet that contains your data is used to generate the synonym name. For the best results, follow the guidelines below:

- Ensure that the worksheet name is meaningful. For example, Store Sales is better than Sheet1.
- Remove special characters from the worksheet name. Spaces will be converted to underscores but all non-alphanumeric characters should be removed from the name, such as:

☐ Remove or replace NLS characters with standard alphanumeric characters.

The image below shows a worksheet with a meaningful name, Retail Sales.



While you have an opportunity to edit the worksheet name within the Upload wizard, doing it in Excel may be preferable. Note that your spreadsheet data and column titles may contain National Language Support data and special characters.

For CSV files, there is no worksheet name, so the CSV file name is used to generate the synonym name. For this reason, all of the limitations identified for Excel worksheet names apply to the CSV file name. Be sure to check and adjust the file name prior to the upload.

Removing Introductory Information

Sometimes, an Excel spreadsheet contains formatted headings in the first few rows. This information cannot be imported into Business User Edition and should be removed. Delete the introductory rows and save the file before uploading. Alternatively, you can define a data range within your worksheet and leave the introductory information in place. The following image shows an example spreadsheet with a heading and subheadings highlighted.

/_	A	LВ	c_	D
1	U.S. Energy	Information Admin	istration	``\
2	May 2014 M	Ionthly Energy Revie	₽W	-
3				
4	Release Date: May	y 28, 2014		
5	Next Update: June	25, 2014		!
6				
0				/
0 (Total Energy Consumed	
0		Primary Energy Consumed		Primary Energy Consumed
7	Annual Total	Primary Energy Consumed by the Residential Sector		Primary Energy Consumed by the Commercial Sector
7 8	Annual Total		by the Residential	
7	Annual Total	by the Residential Sector	by the Residential Sector	by the Commercial Sector (Trillion Btu)
7 8		by the Residential Sector (Trillion Btu)	by the Residential Sector (Trillion Btu)	by the Commercial Sector (Trillion Btu) 2668.869
7 8 9	1949	by the Residential Sector (Trillion Btu) 4460.434	by the Residential Sector (Trillion Btu) 5599.25 5988.553	by the Commercial Sector (Trillion Btu) 2668.869 2834.094

Placing Column Titles in the First Row

For data to be useful in Business User Edition, your data columns must be identified and properly described in the synonym that is generated during the upload process. You can make this easier by ensuring that the first few rows of your Excel spreadsheet contain column titles that are meaningful to you and to other users who will be using it. An example of meaningful column titles is shown in the following image.

4	A	В	С	D	E	F	G	Н
1	Store Name	Country	State	City	Sale Date	Revenue	Cost of Goods	Gross Profit
2	Des Moines	United States	lowa	Des Moines	9/5/2013	3487.45	2288	1199.45
3	Dayton	United States	Ohio	Dayton	9/1/2013	13371.56	9459	3912.56
4	South Salt Lake	United States	Utah	South Salt Lake	9/2/2013	5642.79	4049	1593.79
5	Oslo	Norway	Oslo	Oslo	10/2/2013	13094.04	9206	3888.04
6	Des Moines	United States	Iowa	Des Moines	10/5/2013	4821.17	2962	1859.17
7	Dayton	United States	Ohio	Dayton	10/2/2013	13094.04	9206	3888.04
8	South Salt Lake	United States	Utah	South Salt Lake	10/5/2013	5564.52	3853	1711.52
9	Oslo	Norway	Oslo	Oslo	11/13/2013	18957.63	13293	5664.63
10	Des Moines	United States	lowa	Des Moines	11/6/2013	6092.9	4513	1579.9

If your spreadsheet has more than one row of column titles, Business User Edition can merge the information when creating the synonym. You will be given an option to specify how many first rows of the Excel file contain title information in the Upload wizard.

Removing Aggregated Information

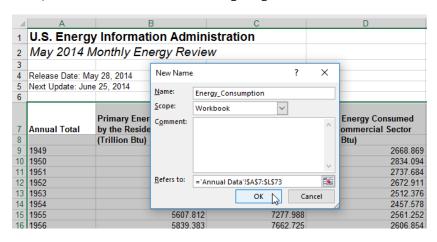
Excel spreadsheets may contain subtotals, grand totals, and other non-data row information. Data aggregation is performed by Business User Edition, so you should remove these kinds of rows from your spreadsheet and save the file before uploading it.

Using Excel Named Ranges

Data ranges defined within your Excel worksheet can be helpful for the following reasons:

- Your worksheet may have introductory information, such as formatted headings or non-data information, in the first few columns.
- ☐ You may not want to import all of the data columns found on your worksheet.

You can define a data range in your worksheet to remove the data that you want Business User Edition to process during upload, and leave your spreadsheet in its original format. An example of this is shown in the following image.



Preparing Hierarchical Data Columns

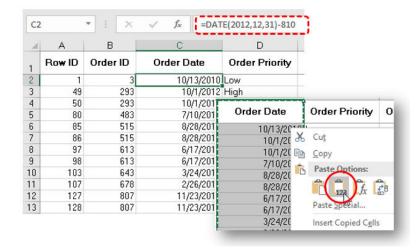
Business User Edition recognizes columns of data that have hierarchical relationships. This is useful because the field names are arranged more logically in InfoAssist and because it facilitates Auto Drill capabilities in the content. Auto Drill lets you drill up and down a field hierarchy automatically, making the content engaging and useful.

To help Business User Edition recognize hierarchical columns correctly, ensure that the column titles begin with a common word or words and are arranged left-to-right in the correct top-to-bottom direction, as shown in the image below. In the Upload wizard, you can define and edit dimension hierarchies prior to creating the synonym. You can also do this prior to the upload in Excel.

	Α .	В	C	D	E	F	G
1	Store Name	Product Category	Product Subcategory	Sale Date	Revenue	Cost of Goods	Gross Profit
2	Des Moines	Video Production	Video Editing	9/5/2013	3487.45	2288	1199.45
3	Dayton	Video Production	Video Editing	9/1/2013	13371.56	9459	3912.56
4	Dayton	Video Production	Video Editing	12/1/2013	19097.49	13386	5711.49
5	South Salt Lake	Video Production	Video Editing	12/1/2013	10763.83	8138	2625.83
6	Brussels	Accessories	Universal Remote Controls	3/2/2010	10060.72	7822	2238.72
7	Brussels	Accessories	Universal Remote Controls	4/1/2010	12839.15	9456	3383.15
8	Brussels	Accessories	Universal Remote Controls	5/1/2010	9848.13	6992	2856.13
9	Brussels	Accessories	Universal Remote Controls	6/1/2010	10357.7	7584	2773.7
10	Brussels	Accessories	Universal Remote Controls	7/1/2010	10979.11	8283	2696.11

Removing Date Formulas

Spreadsheets may contain a date column where the values are computed by Excel using a formula. You need to convert these computed values into simple values before uploading a spreadsheet. To remove date formulas, select a column, right-click, and then click *Copy*. Then right-click the selected column again, and click *Values*. This can be found under the Paste Options menu, which is highlighted in the following image. Menu options may vary by Excel release. Now you can see that each cell contains a date value, and Business User Edition can decompose your dates into useful components for use in InfoAssist.



Uploading, Appending, and Merging Spreadsheets

You can upload, append, or merge Excel spreadsheets or CSV files using the Upload wizard. Before uploading a new file, you should review *Preparing Data for Upload* on page 6, to ensure that your upload runs successfully.

After you upload a new file, you can append a file by adding new data to an existing synonym, without changing the structure. This option is useful when you are working with a complex or heavily edited synonym, by allowing you to retain all previous edits and data transformations. You can also merge a file with your data and enhance the existing structure.

The procedures in this section provide step-by-step instructions for uploading, appending, and merging files using the default settings in the Upload wizard.

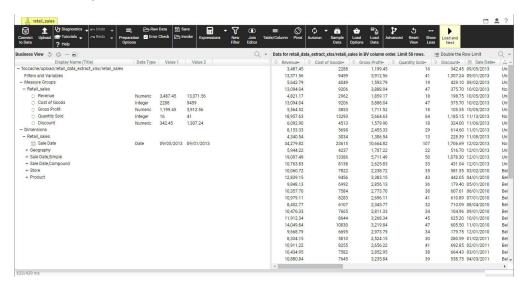
Procedure: How to Upload Excel Spreadsheets

1. Launch the Upload wizard in one of the following ways:



- On the Home Page, on the actions bar, click Upload Data
- lacksquare In the Open dialog box, in InfoAssist, click *Upload Data*.
- 2. Drag the file that you want to upload into the Upload pane or click Select File, and navigate to the location of the file on your machine.

The next screen of the Upload wizard opens, as shown in the image below. You can use the options on this screen to preview and change spreadsheets and delimited data files before you upload them to the target environment. This screen shows you the default breakdown of your data as measures, dimensions, and hierarchies.



3. On the ribbon, click Load and Next.

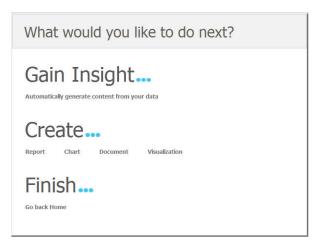
The Target Load Options dialog box opens.

A dialog box opens.

Note: By default, the Bulk Load check box is selected. Clear this check box if you do not have a bulk load program that supports your target environment. For example, if you are using Microsoft SQL Server, you may use a Bulk Copy Program (BCP). If you are unsure about whether you have a bulk load program installed, contact your system Administrator.

Click Proceed to Load.

If the load is successful, a window opens, and provides options to automatically generate content from your data, create content using the new Master File, or close the Upload wizard, as shown in the following image.



Note: If there are informational messages or if your upload is unsuccessful, the Status screen opens.

5. Select what you want to do next.

Related Information:

- Pivoting Repeating Columns Into Rows
- Creating Hierarchies
- Creating Clusters
- Creating Folders and Assigning DV Roles

Procedure: How to Append New Data to an Existing Synonym

- 1. Launch the Upload wizard.
- 2. Drag the file containing the data that you want to append into the Upload pane or click Select File, and navigate to the location of the file on your machine.

The next screen in the Upload wizard opens.

3. On the ribbon, click Load Options.

The Target Load Options dialog box opens.

Note: By default, the Bulk Load check box is selected. Clear this check box if you do not have a bulk load program that supports your target environment. For example, if you are using Microsoft SQL Server, you may use a Bulk Copy Program (BCP). If you are unsure about whether you have a bulk load program installed, contact your system Administrator.

4. From the Load Option drop-down list, click Append to Existing.

In the Select Target Synonym dialog box, select the synonym to which you want to append data.

5. Click OK.

The Target Load Options dialog box opens.

6. Click OK.

The Merge Editor dialog box opens.

- 7. Click OK.
- 8. On the ribbon, click Load and Next.

If the load is successful, a window opens, and provides options to automatically generate content from your data, create content using the new Master File, or close the Upload wizard.

Note: If there are informational messages or if your upload is unsuccessful, the Status screen opens.

9. Select what you want to do next.

Procedure: How to Merge New Data With an Existing Synonym

- 1. Launch the Upload wizard.
- 2. Drag the file containing the data that you want to merge into the Upload pane or click Select File, and navigate to the location of the file on your machine.

The next screen in the Upload wizard opens.

3. On the ribbon, click Load Options.

The Target Load Options dialog box opens.

4. From the Load Option drop-down list, click Merge into Existing.

In the Select Target Synonym dialog box, select the synonym to which you want to merge your data.

- 5. From the If the record exists drop-down list, click the action you want to occur when a record in the new spreadsheet matches a record in the existing data. You can choose to reject the matching record, update the existing record, or delete the existing record. By default, Update the existing record is selected.
- 6. From the If the record does not exist drop-down list, click the action you want to occur when a record in the new spreadsheet does not match the record in the existing data. You can choose to include or reject the record that does not match the existing record.

Note: By default, the Use Bulk Load to populate and Stage Table + Merge into Target check box is selected. Clear this check box if you do not have a bulk load program that supports your target environment. For example, if you are using Microsoft SQL Server, you may use a Bulk Copy Program (BCP). If you are unsure about whether you have a bulk load program installed, contact your system Administrator.

- 7. Click OK.
- 8. In the Merge Editor dialog box, you can make additional changes to how your data is merged, for each column in the spreadsheet.

You must create at least one matching expression before you load your data.

- 9. Click OK.
- 10. On the ribbon, click Load and Next.

If the load is successful, a window opens, and provides options to automatically generate content from your data, create content using the new Master File, or close the Upload wizard.

Note: If there are informational messages or if your upload is unsuccessful, the Status screen opens.

11. Select what you want to do next.

Uploading Files

In addition to creating content using WebFOCUS, you can upload other files, such as images and documents. These files can be used to enhance visualizations and shared with other users and groups.

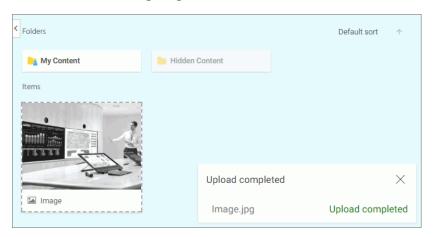
Procedure: How to Upload Files From The Actions Bar

- 1. Select the domain or folder where you want your uploaded file or files to reside.
- 2. On the actions bar, click *Upload File* 1.

The Open dialog box opens.

3. Select one or multiples files from your machine and click Open.

The file uploads to your selected directory, and the *Upload completed* message appears, as shown in the following image.



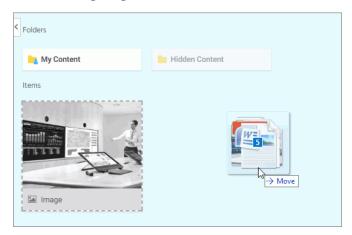
4. Close the *Upload completed* message and proceed with using the uploaded file.

Note: When you upload an image, such as a .bmp, .jpg, .jpeg, .gif, or .png file, to the repository, an embedded thumbnail of the image automatically generates in the WebFOCUS Explorer. To change the thumbnail that appears in the WebFOCUS Explorer, right-click the thumbnail, and open the Properties panel. Click the *Advanced tab*, and modify the thumbnail.

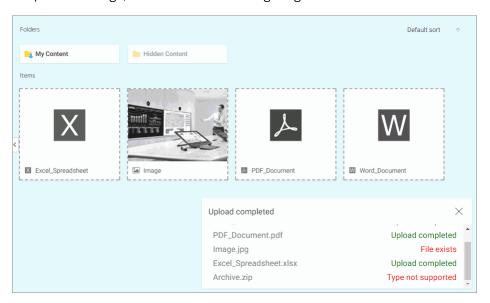
Procedure: How to Upload Files by Dragging to the Explorer

1. Select the domain or folder where you want your uploaded file or files to reside.

2. Drag one or multiple files from your machine directly to the WebFOCUS Explorer, as shown in the following image.



The file uploads to your selected directory and the *Upload completed* message shows the status of each uploaded file. If an upload fails, the error appears in red in the *Upload completed* message, as shown in the following image.



3. Close the Upload completed message and proceed with using the uploaded files.

Note: When you upload an image, such as a .bmp, .jpg, .jpeg, .gif, or .png file, to the repository, an embedded thumbnail of the image automatically generates in the WebFOCUS Explorer. To change the thumbnail that appears in the WebFOCUS Explorer, right-click the thumbnail, and open the Properties panel. Click the *Advanced tab*, and modify the thumbnail.

Connecting to Data and Editing Data

Aside from uploading data, you can create synonyms by connecting to various data sources. The Connect to Data wizard leads you through this process and allows you to establish a connection to many native data sources. The data source being used determines the type of metadata that is required. For example:

When the server accesses a relational data source, it needs to know how to interpret the
data stored there. You must create a synonym that describes the structure of the data
source and the server mapping of the data types.

☐ When the server invokes a transaction or procedure, it needs to know how to build the request, what parameters to pass, and how to format an answer set from the response. You must create a synonym that describes the layout of the request or response area.

Whatever your data source, the adapter you are using manages the synonym creation process for you, creating a synonym that meets your specific requirements.

Note: Although all synonym creation panes have the same look and feel, the parameters are specific to each adapter. To obtain detailed information for an adapter, click the question mark (?) next to a parameter.

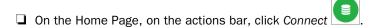
Creating a Synonym With the Connect to Data Wizard

The Connect to Data wizard lets you configure adapters that connect to data sources that you can use to build reports, charts, and visualizations. InfoAssist

Using the Connect to Data wizard, you can perform the following in a single environment:

- Configure Adapters. Configure an adapter, create a new connection, or change connection parameters.
- 2. Create Base Synonyms. Create a synonym for one or more data objects.
- Create Cluster Synonyms with BV. Create a cluster synonym for select objects assigned as facts or dimensions.

You can launch the Connect to Data wizard in one of the following ways:

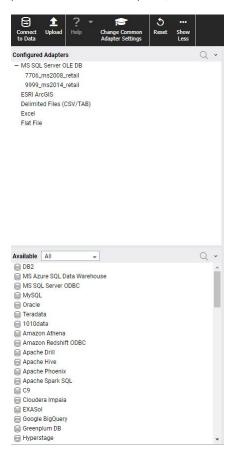


- ☐ In the portal on the Menu bar, click Resources, right-click a folder or domain on the Resources panel, point to *Metadata* and then click *Edit*.
- In the Open dialog box, in InfoAssist, click Connect to Data.

Configuring Adapters

The Connect to Data wizard creates a connection to your data, which will allow you to modify your data You can configure a new adapter or connection, add a connection to an existing adapter, or change adapter connections.

When the Connect to Data wizard opens, it displays a panel for configured adapters and a panel for available adapters, as shown in the following image.



☐ Configured Adapters

Displays all adapters and connections that have been configured. You can create synonyms and cluster business views from this panel, add new or duplicate connections, remove connections, and view and edit properties.

☐ Available

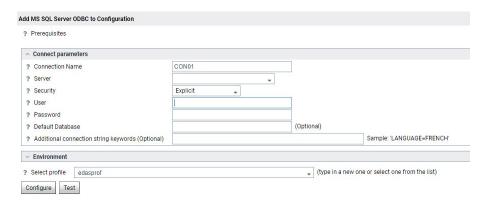
Displays all available adapters. If a connection has already been configured for an adapter, a check mark is displayed next to the adapter name. If the adapter has multiple versions, you can select which version to configure when you right-click the adapter name or click its drop-down arrow. You can select a category of adapter to display from a categorical drop-down list. A search option is also available.

Procedure: How to Configure a New Adapter/Connection

 From the Available panel, right-click an adapter name or click the arrow, and click Configure.

Note: If the adapter has multiple versions, right-click the adapter name or click the arrow, and select which version to configure.

The Configure Adapter screen opens, as shown in the following image.

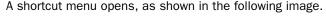


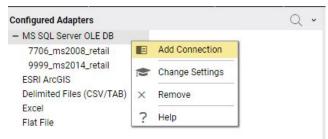
- 2. Enter the parameters for the specific adapter.
- 3. Click Test to test your configuration.
- 4. Click Configure.

Note: Once configured, the adapter displays in the Configured Adapters panel.

Procedure: How to Add a Connection

1. From the Configured Adapters panel, right-click an adapter name or click the arrow on an adapter line.





Note: These menu options are for a SQL adapter. Options may differ for different categories of adapters.

- 2. Click Add Connection.
- 3. Enter the parameters for the specific adapter.
- 4. Click Test to test your configuration.
- 5. Click Configure.

Procedure: How to Change a Connection

- 1. From the Configured Adapters panel, right-click an adapter name or click the arrow on an adapter line.
- 2. Click Change Settings.
- 3. Change the parameters for the specific connection and click *Configure*.

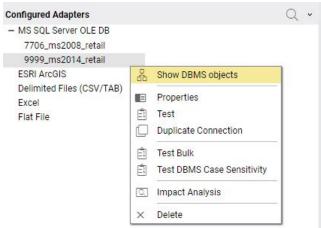
Creating Synonyms

You can enter all the parameters needed to create base synonyms or create a cluster synonym on a single page.

Procedure: How to Create a Synonym

1. From the Configured Adapters panel, right-click a connection name or click the arrow on a connection line.

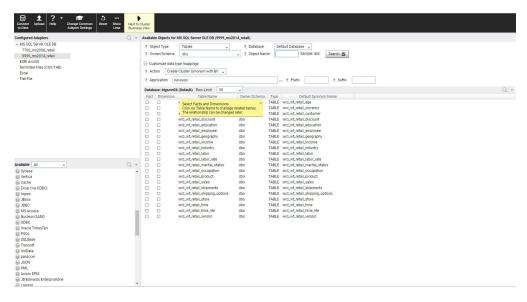
A shortcut menu opens, as shown in the following image.



Note: These menu options are for a SQL adapter. Options may differ for different categories of adapters.

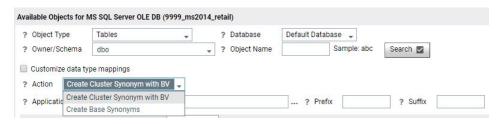
2. Click Show DBMS objects from the shortcut menu.

The Available Objects page opens, as shown in the following image.



3. Select from the Available Objects parameters.

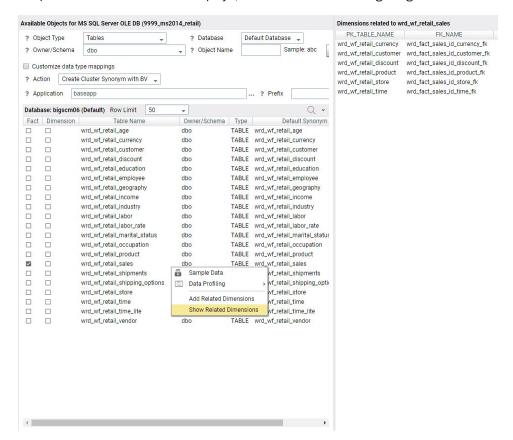
4. From the Action dropdown, select *Create Cluster Synonym with BV* (default) or *Create Base Synonyms* as shown in the following image.



Procedure: How to Create a Cluster Synonym with BV

- 1. Click Create Cluster Synonym with BV from the Action dropdown.
- Manually select objects as Facts and Dimensions for which you want to create a cluster synonym. To automatically select Facts and Dimensions, proceed to step 3. Otherwise proceed to step 5.
- 3. Right-click a fact or dimension table name or click the arrow next to a fact or dimension table name and select *Show Related Dimensions*

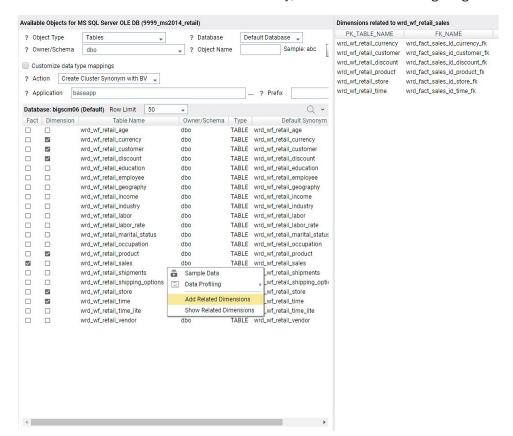
Note: Option only for Relational data sources if Foreign Key to Primary key information is available in the RDBMS.



A report of related dimensions displays, as shown in the following image.

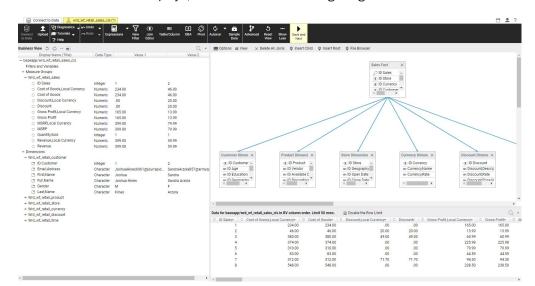
Right-click a fact or dimension table name or click the down arrow next to a fact or dimension table name and select Add Related Dimensions

Note: Option only for Relational data sources if Foreign Key to Primary key information is available in the RDBMS.



All related dimensions are selected automatically, as shown in the following image.

5. Click Next to Cluster Business View on the ribbon.



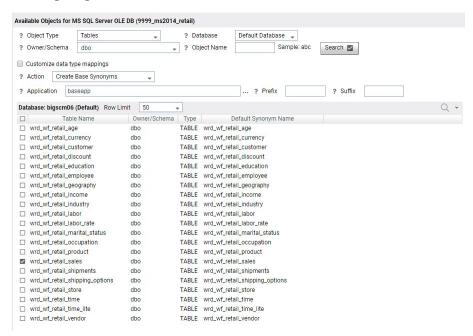
Your cluster selection displays, as shown in the following image.

- 6. Enhance your cluster synonym from the panels or ribbon as needed.
- 7. Click Save and Next on the ribbon.
- 8. Change the cluster name in the File Name field of the Save As dialog box if needed.
- 9. Click OK.

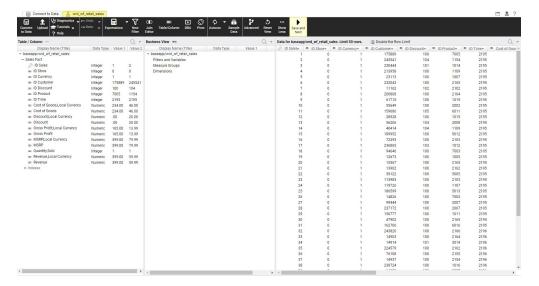
Procedure: How to Create a Base Synonym

1. Select Create Base Synonyms from the Action dropdown.

2. Select check boxes of the objects for which you want to create synonyms, as shown in the following image.



3. Select *Next to Base Synonyms* on the ribbon. Your synonym selection displays, as shown in the following image.



- 4. Enhance your base synonym from the panels or ribbon as needed.
- 5. Click Save and Next on the ribbon.
- 6. Change the base synonym name in the File Name field of the Save As dialog if needed.
- 7. Click OK.

Editing And Deleting Metadata

You can edit or delete previously created synonyms in one of the following ways:

☐ On the Home Page, on the actions bar, click Metadata

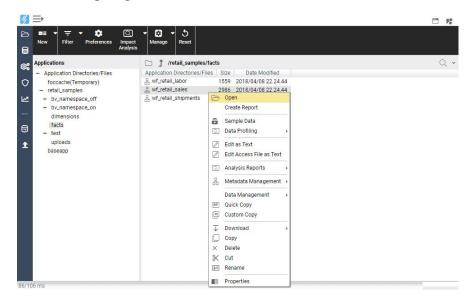


☐ In the portal on the Menu bar, click Resources, right-click a folder or domain on the Resources panel, point to *Metadata* and then click *Edit*.

The Applications page opens, from which you can edit or delete your synonym.

Procedure: How to Edit a Synonym

1. From the Applications page, in the Application Directories tree, left-click a folder to expand it, then right-click a procedure or metadata file in the file panel and select *Open*, as shown in the following image.



The Data Assist opens, where you can modify your synonym.

Note: When you open an existing synonym in this way, the Master File opens in BV_NAMESPACE=OFF or BV_NAMESPACE=ON mode, depending on the existing BV or DV structure.

- 2. Make edits to the synonym, as required.
- 3. To save your synonym, click File, and then click Save.
- 4. Close the Reporting Server window.

Procedure: How to Delete Metadata

1. Right-click the synonym that you want to delete, point to *Data Management*, and then click *Delete All Data*.

A confirmation window opens, alerting you that you are deleting every row of data.

- 2. Click OK to proceed.
- 3. To remove the synonym file from the view, right-click this synonym again and then click *Delete*.
- 4. Close the Reporting server window.

Using Data Preparation Options

The Upload wizard and Connect to Data wizard offer a suite of data preparation options, which are designed to help you prepare your data for future analytics. With these data preparation tools, you can assess your data for validity and consistency, troubleshoot errors, and enhance accuracy and uniformity of your data. The following sections describe these options and explain how to use them.

Creating Clusters

When you need to add more tables to your synonym, you can use the Join feature to create a cluster. This allows you to enhance the structure of your synonym by introducing more data.

Procedure: How to Create a Cluster

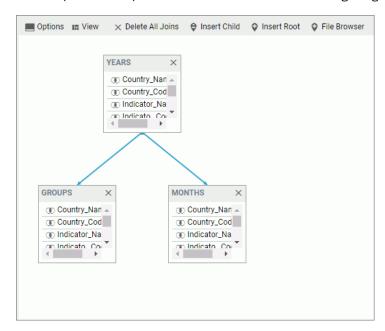
 When uploading data or connecting to data on the main metadata screen, on the ribbon, click Join Editor.

The Join Editor view opens.

2. Click Insert Child.

The Insert Child dialog box opens.

3. Click a Master File from the list, select a synonym, and then click OK. You can select several synonyms at once.



An example of a completed cluster is shown in the following image.

4. Close the Join Editor dialog box.

The new columns are added to the Table/Column pane.

5. Drag columns to the Business View pane to modify the synonym.

Pivoting Repeating Columns Into Rows

Some Excel spreadsheets may contain repeating columns, such as sales figures for a series of years. There may even be repeating column groups, such as both budget and actual figures for a series of years. You can use the pivot option to transform these columns or groups of columns into rows.

Procedure: How to Pivot Columns Into Rows

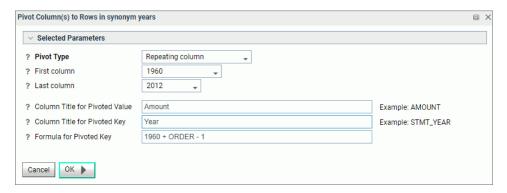
1. When uploading data or connecting to data on the main metadata screen, on the ribbon, click *Pivot*.

The Pivot Columns to Rows dialog box opens.

- 2. Set the Pivot Type option to Repeating column.
- 3. In the First column drop-down box, select the first column in the range of repeating columns.

- 4. In the Last column drop-down box, select the last column in the range of repeating columns.
- 5. In the Column Title for Pivoted Data, type the new column title that reflects the numeric cell that you are describing.
- 6. In the Title for Pivoted Key field, type the new column title that represents the repeating columns that you are pivoting into rows.
- 7. Leave the Formula for Pivoted Key field value unedited. This value is automatically generated by the wizard, it should not be changed.

An example of the completed configuration for pivoting columns is shown in the following image.



8. Click OK.

The repeating columns now display as rows. The Pivot button turned into the Remove Pivot button, allowing you to quickly revert your pivoting changes.

Procedure: How to Pivot Column Groups into Rows

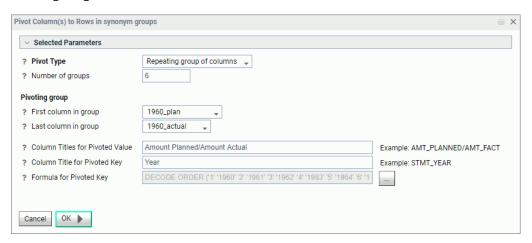
 When uploading data or connecting to data on the main metadata screen, on the ribbon, click Pivot.

The Pivot Columns to Rows dialog box opens.

- 2. Set the Pivot Type option to Repeating group of columns.
- 3. In the Number of groups field, specify the number of groups of columns that you are pivoting.
- 4. In the Column Title for Pivoted Data, type the new column title that will be used for all the columns across the repeating groups.
- 5. In the Title for Pivoted Key field, type the new column title that represents the repeating columns that you are pivoting into rows.

 Edit the automatically generated formula in the Formula for Pivoted Key field by clicking the ellipsis button. Make sure there are no repetitive alphanumeric values in the Pivoted Column field.

An example of the completed configuration for pivoting groups of columns is shown in the following image.



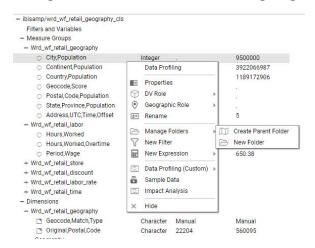
7. Click OK.

The repeating groups of columns now display as rows. The Pivot button turned into the Remove Pivot button, allowing you to quickly revert your pivoting changes.

Creating Folders and Assigning DV Roles

When using BV+, specifically when you are working in a Business View, you can create folders to organize your data. Folders function as segments to provide a view of the synonym and define the accessible fields and their relationships. Folder relationships are the same as segment relationships, with parent folders, child folders, and sibling folders. Once you create a new folder, you can add data fields and assign roles.

You can create a new folder by right-clicking a folder or field, clicking *Manage Folders*, and then clicking *New Folder*, as shown in the following image.

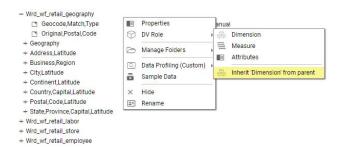


Assigning DV Roles

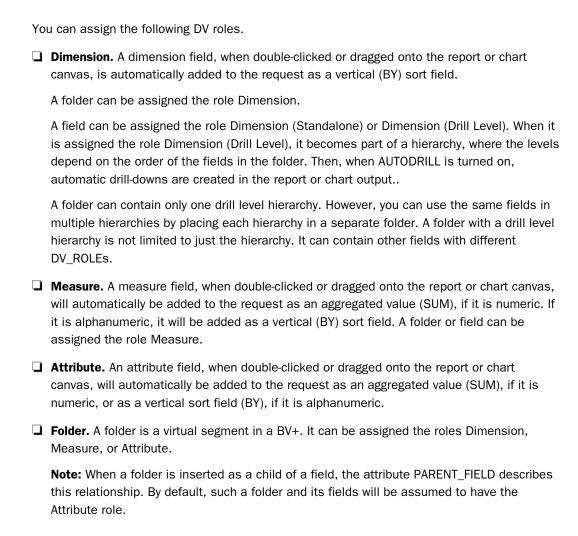
While you have total flexibility defining a structure using any fields from your data source, when you issue a report request against the synonym, the retrieval path for the data must conform to any constraints imposed by your DBMS entity diagrams and by the rules of retrieval.

By default, a Dimension View structure is defined within folders in the Business View pane. You can add either additional Dimension View nodes or folders to this structure.

You can assign a DV role to a folder or field by right-clicking the folder or field and assigning a DV role. The following image shows the context menu and options for a folder.



You can explicitly assign a DV role to a folder or field, or have it automatically inherit its role from its parent. If you explicitly assign a DV role, that role moves with the object if you drag it to another location within the BV+ structure. If you do not explicitly assign a DV role, the role changes as you move the object under a new parent, except if you drop it onto a field with the Drill Level role. If dropped onto a Drill Level field, the moved field inherits the Drill Level role.



Joining and Blending Data

You can join two or more related data sources to create a larger integrated data structure from which you can report in a single request. The joined structure is virtual. It is a way of accessing multiple data sources as if they were a single data source. This can greatly increase the number of fields available for use in your content, giving you an expanded selection for your reporting and charting purposes.

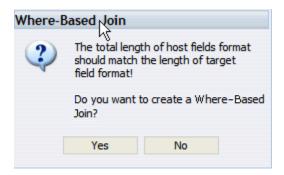
Joins

Using conditional joins, you can establish joins based on conditions other than equality between fields. In addition, the host and cross-referenced join fields do not have to contain matching formats, and the cross-referenced field does not have to be indexed.

Note: You can edit the description of a join by clicking *Edit* in the Join dialog box and typing in the Description section. You can only use letters, numbers, and underscores in your description. No special characters are allowed.

The conditional join is supported for FOCUS and all relational data adapters. Because each data source differs in its ability to handle complex conditional criteria, the optimization of the WHERE syntax differs depending on the specific data sources involved in the join and the complexity of the conditional criteria.

For FOCUS data sources, if the host and cross-referenced join fields do not have common matching formats, the following message appears.



 $\textbf{Note:} \ \textbf{If you click Yes, the Filter dialog box opens, where you can create a Where-Based Join.}$

If the cross-referenced join field does not have an index, the following message appears.



Note: If you click Yes, the Filter dialog box opens, where you can create a where-based join.

Blending Data

The blend option allows you to explicitly select the data fields that you want to include. More specifically, you can join multi-fact data structures and combine pertinent external data into your current data source, creating a blended data resource. This can be from local or other system resources.

Blending is used to create customized data sources. For example, you may have some of the basic fields available in the current data source, but you can use the blend option to add relevant data fields from a different data source to the current data source in order to create a unique data set.

The blend option allows a new fact table to be added to a cluster master as a parent segment to an existing child segment. This option is available from the Join dialog box. You may want to blend data if you are reporting from two different fact tables that share a common dimension, such as a product dimension. For an example of this, you can view the sample retail database, wf_retail_lite. The wf_retail_lite Master File contains the WF_RETAIL_STORE_SALES segment and the WF_RETAIL_SALES segment. The WF_RETAIL_SALES segment is defined as the parent of the WF_RETAIL_STORE_SALES segment. You may want to add a second fact table to the report. The second fact table in this example will be an Excel spreadsheet that you upload to InfoAssist for use with a report or chart. The data in the spreadsheet file that you upload will be joined to the WF_RETAIL_LITE database using a common field.

Note: You can find supported, common fields in your selected database (for example, WF_RETAIL_LITE) using the search feature in the Data pane. If necessary, you may need to add a field in your spreadsheet to map your data to the structure of the database. For example, ID_CUSTOMER. In addition, the name of the primary sheet in Microsoft Excel becomes the name of your data source, so be sure to name the file accordingly.

The following list provides some general rules that apply to the Blend option:

- 1. The result of blending is that a single dimension is shared between two fact tables. The table must be based on a cluster with at least two segments. One segment is for Fact table 1, the second segment is for the dimension.
- 2. Two uploaded files cannot be blended because they result in single segment Master Files.
- 3. Do not use the fields from the blended table as a sort field, since these fields will not have common field when used with fields from other fact tables.

Procedure: How to Blend Data

This procedure describes how to blend data from an external data source into an existing data source. This example uses a Microsoft Excel spreadsheet file.

1. On the Data tab, in the Join group, click Join.

The Join dialog box displays.

2. Click Add New.

The Open dialog box displays.

Note: The options that display on the Open dialog box depend on your user privileges.

3. At the top of the Open dialog box, click Upload Data.

The Upload wizard opens.

4. Drag your Microsoft Excel spreadsheet file on to the Upload pane, or click Select Upload File to locate the file on your local drive.

The next screen of the Upload wizard opens. You can use the options on this screen to preview and change spreadsheets and delimited data files before you upload them to the target environment. This screen shows you the default breakdown of your data as measures, dimensions, and hierarchies.

5. On the ribbon, click Load and Next.

The Target Load Options dialog box opens.

Note: In Business User Edition, the default target for the Upload Wizard is Hyperstage, which is configured with a bulk load feature. If you change your target environment from the default, and do not have a bulk load program that supports this environment, you may need to clear the Bulk Load check box. For example, if you are using Microsoft SQL Server, you may use a Bulk Copy Program (BCP). If you are unsure about whether you have a bulk load program installed, contact your system administrator.

6. Click Proceed to Load.

The Upload wizard closes, and you return to the Open dialog box.

Note: If there are informational messages or if your upload is unsuccessful, the Status screen opens.

- 7. In the Open dialog box, click the name of your uploaded data source and then click Open.
- 8. In the Join dialog box, create a connection between the common fields by dragging your mouse pointer from the field in the Master File to the common field in the newly uploaded file.
- 9. Click Blend, and then click OK.

The blended data source fields are now available in the Data pane.

Creating Virtual Fields

A temporary field is a field whose value is not stored in the data source, but can be calculated from the data that is there, or assigned an absolute value. A temporary field takes up no storage space in the data source, and is created only when needed. DEFINE fields and COMPUTE fields are two different types of temporary fields.

When you create a temporary field, you determine its value by writing an expression. You can combine fields, constants, and operators in an expression to produce a single value. For example, if your data contains salary and deduction amounts, you can calculate the ratio of deductions to salaries using the following expression: deduction / salary.

You can specify the expression yourself, or you can use one of the many supplied functions that perform specific calculations or manipulations. In addition, you can use expressions and functions as building blocks for more complex expressions, as well as use one temporary field to evaluate another.

Note: When creating a DEFINE or a COMPUTE field, the following characters are suppressed and cannot be entered in the Format text box.

Selecting a Temporary Field

The following information is provided to help you choose the kind of temporary field that you need.

ш	Ch	Choose a virtual field when you want to:	
		Use the temporary field to select data for your report. You cannot use a calculated value, since it is evaluated after data selection takes place.	
		Use the temporary field to sort on data values. A calculated value is evaluated after the data is sorted. With the BY TOTAL phrase, you can sort on this type of field.	
	Choose a calculated value when you want to:		
		Evaluate the temporary field using total values or prefix operators (which operate on total values). You cannot use a virtual field, since it is evaluated before any totaling takes place.	
		Evaluate the temporary field using fields from different paths in the data structure. You cannot use a virtual field, since it is evaluated before the relationship between data in the different paths is established.	

Detail (DEFINE)

A virtual field (DEFINE) is evaluated as each record that meets the selection criteria is retrieved from the data source. The result of the expression is treated as though it were a real field stored in the data source.

The calculation that determines the value of a virtual field is performed on each retrieved record that passes any screening conditions on real fields.

You can define a virtual field in the following ways:

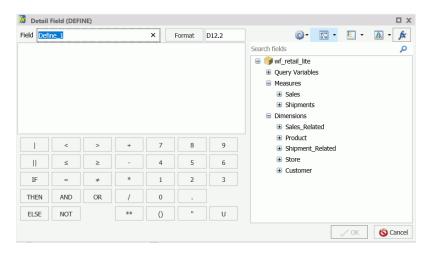
- ☐ In a Master File. These virtual fields are available whenever the data source is used for reporting. These fields cannot be cleared by JOIN or DEFINE FILE commands.
- ☐ In a procedure. A virtual field created in a procedure lasts only for that procedure.

A DEFINE field is an optional attribute used to create a virtual field for reporting. You can derive the virtual field value from information already in the data source (that is, from permanent fields).

You may define fields simultaneously (in addition to fields defined in the Master File) for as many data sources as desired. The total length of all virtual fields and real fields cannot exceed 32,000 characters.

The Detail Field (DEFINE) dialog box allows you to create a defined field, type a name for the field, and enter a format.

The Detail (DEFINE dialog box is shown in the following image.



Note: If the order or dependencies within your DEFINE fields changes, InfoAssist will now automatically reorder these fields to ensure they can be correctly processed. Any revisions in the order of the fields will not change how they are presented in the field tree, but can be verified using the View Code option on the Quick Access toolbar or by editing the procedure on the WebFOCUS Home Page.

Summary (COMPUTE)

A calculated value (COMPUTE) is evaluated after all of the data that meets the selection criteria is retrieved, sorted, and summed. Therefore, the calculation is performed using the aggregated values of the fields. Calculated values are available only for the specified report request. You specify the COMPUTE command in the body of the report request, following the display command and optionally, introduced by AND. You can compute more than one field with a single COMPUTE command.

The Summary Field (COMPUTE) dialog box allows you to create a computed field, type a name for the field, and enter a format.

The Field List provides similar functionality, including options to display data source fields in a Logical, List, or Structured view. You can also view a complete set of functions, instead of data source fields, by clicking the *Functions* button .

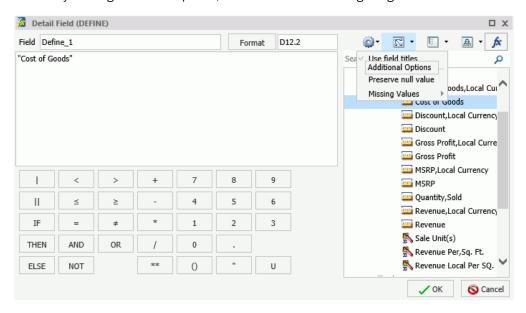
Using Field Titles in a DEFINE or COMPUTE

When working with Defines and Computes, field titles automatically display as you build your criteria in the Define (or Compute) text area.

Field titles are an attribute of a field. They are defined in the metadata and display only when specified for the field that you select. If a field title has not been defined in the metadata, the title that displays will be the physical field name.

The Use field titles feature enables you to see the field title (for example, Cost of Goods) rather than the fully qualified name of the field (for example,

WF_RETAIL_LITE.WF_RETAIL_SALES.COGS_US). This facilitates easy identification of field names while building your Define or Compute. You can switch between the display of field titles and fully qualified field names by unchecking the Use field titles option, which you can access by clicking *Additional Options*, as shown in the following image.

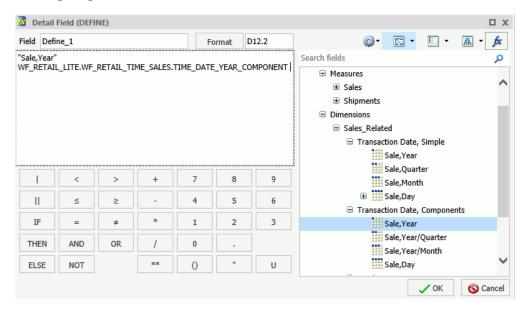


If your Define or Compute uses more than one field with the same title (for example,

Sale, Year), then only the first field will be added using field titles. Any other reference to this identical field will use the fully qualified field name. For example, in a sample InfoAssist data source, Sale, Year displays as the field title for two unique fields:

WF RETAIL LITE.WF RETAIL TIME SALES.TIME YEAR and

WF_RETAIL_LITE.WF_RETAIL_TIME_SALES.TIME_DATE_YEAR_COMPONENT. In this case, only WF_RETAIL_LITE.WF_RETAIL_TIME_SALES.TIME_YEAR would display (using field titles) as Sale, Year. The other field would display using the fully qualified field name, as shown in the following image.



Procedure: How to Use Field Titles in a Define or Compute

- 1. In Report or Chart mode, create a Define or a Compute.
- 2. Add fields by double-clicking them in the metadata tree.

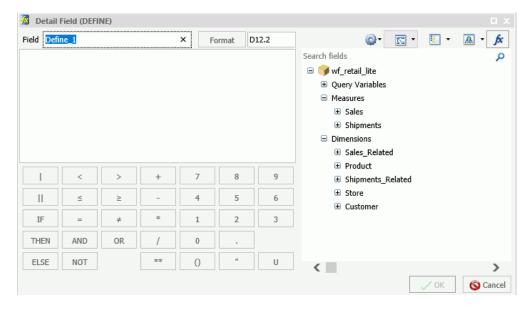
Note: The fields that you select display with field titles, as this is the default option. If you specify a field with a duplicate field title, the fully qualified field name is used for the second (and any subsequent) instance.

3. Click *Additional Options* and then click *Use field titles* to disable the use of field titles, which results in the display of fields using the fully qualified field name.

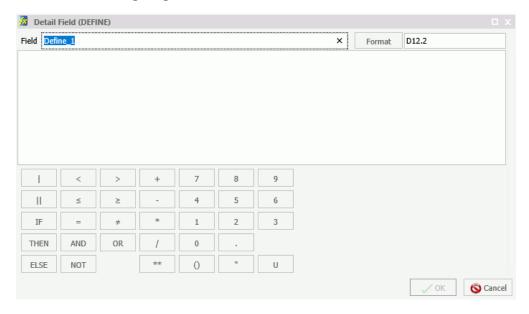
Resizing the Text Area of a Define or Compute

When working with Defines and Computes, you can adjust the width of the text area to accommodate the size of the fields in your query. This is particularly useful if you are using fully qualified names or long formulas, which can span more than the standard width of the text area.

In its original state, the text area is aligned with the calculator, as shown in the following image.



When fully expanded, the text area removes the metadata tree and toolbar from view, as shown in the following image.



Procedure: How to Resize the Text Area of a Define or Compute

- 1. Open InfoAssist in Report or Chart mode.
- 2. Select a Master File.
- 3. On the Data tab, click *Detail (Define)* or *Summary (Compute)*. The Define or Compute dialog box displays, respectively.
- 4. Hover over the right border of the text area until double arrows display.
- 5. Click and drag the field to the right.

The text area is resized.

Note:

- ☐ If you expand the text area in a current session, InfoAssist will retain that expanded state for use in other areas of the application. For example, if you expand the text area when creating a Define, the expanded state will be present when you create a Compute.
- When working with the text area in an expanded state, you can reinstate the metadata tree and toolbar by hovering over the right border of the text area until double arrows displays. Click and drag the arrows to the left and right, as needed.

Creating Temporary Fields Independent of a Master File

The temporary fields that you create with the DEFINE and COMPUTE commands are tied to a specific Master File, and in the case of values calculated with the COMPUTE command, to a specific request. However, you can create temporary fields that are independent of either a Master File or a request using the DEFINE FUNCTION command.

A DEFINE function is a named group of calculations that use any number of input values and produce a return value. When calling a DEFINE function, you must first define the function.

A DEFINE function can be called in most of the same situations that are valid for Information Builders-supplied functions. Data types are defined with each argument. When substituting values for these arguments, the format must match the defined format. Alphanumeric arguments shorter than the specified format are padded with blanks, while longer alphanumeric arguments are truncated.

All calculations within the function are done in double precision. Format conversions occur only across equal signs (=) in the assignments that define temporary fields.

Enabling the Display of Missing Values for a DEFINE or COMPUTE

When working with DEFINEs and COMPUTEs, you can use the Missing Values option to enable or disable the display of missing values for a DEFINE or COMPUTE field. This allows you to accurately display missing values in reports, charts, and visualizations. The Missing Values option, which is accessible through the Additional Options button, is shown in the following image.



The following descriptions explain each option on the Missing values drop-down list:			
	Off. When selected, MISSING syntax is removed from the DEFINE or COMPUTE field definition. This is the default selection. MISSING treats missing values for numeric fields as zeros and missing values for alphanumeric fields as blanks.		
	On. When selected, MISSING ON is added after the format in the DEFINE or COMPUTE field definition. MISSING ON interprets the temporary field as missing.		
	On All. When selected, MISSING ON ALL is added after the format in the DEFINE or COMPUTE field definition. MISSING ON ALL indicates that if all fields in the expression have values, then the temporary field has a value. If at least one field in the expression has a missing value, the temporary field also has a missing value.		

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