

WebFOCUS

Describing Data With Graphical Tools

Version 7 Release 6

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Preface

This documentation describes how to create the metadata for the data sources that your WebFOCUS projects will access. It is intended for database administrators, application developers, or other information technology professionals who will create the metadata used by WebFOCUS to access corporate data.

How This Manual Is Organized

This manual includes the following chapters:

	Chapter/Appendix	Contents
1	Describing and Accessing Data: Overview	Introduces data source descriptions and explains how to use them.
2	Accessing Data and Creating Synonyms	Describes how to create a synonym for your data source description.
3	Using the Synonym Editor	Describes the Synonym Editor and how you may use it to view and edit synonyms in Developer Studio.
4	Analyzing Metadata and Procedures	Describes how to analyze procedures using Impact Analysis, and how to view Data Profiling for the columns in a synonym.
5	Adding Data and Rebuilding FOCUS Data Sources	Describes utilities to create new FOCUS data sources and to refresh existing data sources after the structure has changed.

Documentation Conventions

The following table lists and describes the conventions that apply in this manual.

Convention	Description
THIS TYPEFACE or this typeface	Denotes syntax that you must enter exactly as shown.
<i>this typeface</i>	Represents a placeholder (or variable) in syntax for a value that you or the system must supply.
<u>underscore</u>	Indicates a default setting.
<i>this typeface</i>	Represents a placeholder (or variable), a cross-reference, or an important term. It may also indicate a button, menu item, or dialog box option you can click or select.
this typeface	Highlights a file name or command.
Key + Key	Indicates keys that you must press simultaneously.
{ }	Indicates two or three choices; type one of them, not the braces.
[]	Indicates a group of optional parameters. None are required, but you may select one of them. Type only the parameter in the brackets, not the brackets.
	Separates mutually exclusive choices in syntax. Type one of them, not the symbol.
...	Indicates that you can enter a parameter multiple times. Type only the parameter, not the ellipsis points (...).
. . .	Indicates that there are (or could be) intervening or additional commands.

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Do you have questions about this product?

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To learn about the full range of available support services, ask your Information Builders representative about InfoResponse Online, or call (800) 969-INFO.

Information You Should Have

To help our consultants answer your questions effectively, be prepared to provide the following information when you call:

- ❑ Your six-digit site code (xxxx.xx).
- ❑ Your WebFOCUS configuration:
 - ❑ The front-end you are using, including vendor and release.
 - ❑ The communications protocol (for example, TCP/IP or HLLAPI), including vendor and release.
 - ❑ The software release.
 - ❑ Your server version and release. You can find this information using the Version option in the Web Console.

- The stored procedure (preferably with line numbers) or SQL statements being used in server access.
- The Master File and Access File.
- The exact nature of the problem:
 - Are the results or the format incorrect? Are the text or calculations missing or misplaced?
 - The error message and return code, if applicable.
 - Is this related to any other problem?
- Has the procedure or query ever worked in its present form? Has it been changed recently? How often does the problem occur?
- What release of the operating system are you using? Has it, your security system, communications protocol, or front-end software changed?
- Is this problem reproducible? If so, how?
- Have you tried to reproduce your problem in the simplest form possible? For example, if you are having problems joining two data sources, have you tried executing a query containing just the code to access the data source?
- Do you have a trace file?
- How is the problem affecting your business? Is it halting development or production? Do you just have questions about functionality or documentation?

User Feedback

In an effort to produce effective documentation, the Documentation Services staff welcomes your opinions regarding this manual. Please use the Reader Comments form at the end of this manual to communicate suggestions for improving this publication or to alert us to corrections. You can also use the Documentation Feedback form on our Web site, <http://documentation.informationbuilders.com/feedback.asp>.

Thank you, in advance, for your comments.

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1 Describing and Accessing Data: Overview

Developer Studio provides a set of graphical tools that you can use to describe and access many types of data sources, including:

- ❑ Relational, such as DB2, Oracle, Sybase, Informix, and JDBC.
- ❑ Multi-dimensional, such as SAP BW and Essbase.
- ❑ Procedures, such as Web Services and CICS Transactions.
- ❑ XML, such as XML and Tamino.
- ❑ Hierarchical, such as IMS and FOCUS.
- ❑ Sequential, both fixed-format and free-format.
- ❑ Indexed, such as ISAM and VSAM.
- ❑ Network, such as CA-IDMS.
- ❑ Other popular data sources, such as Lotus Notes and LDAP.

These graphical tools are designed to:

- ❑ Translate the schema of the data source into metadata that WebFOCUS can read and report against.
- ❑ Optionally, enable you to customize and enhance the generated metadata, without having to know the subtleties of the underlying WebFOCUS data description language.

Topics:

- ❑ A Note About Data Source Terminology
- ❑ How Applications Interpret Data
- ❑ How to Obtain a Synonym
- ❑ What You Can Do With a Synonym
- ❑ Ways to Enhance a Synonym
- ❑ How an Application Uses a Synonym
- ❑ Alternative Tools on the Reporting Server Console

A Note About Data Source Terminology

Different types of data sources make use of similar concepts, but refer to them differently. For example, the smallest meaningful element of data is called a *field* by many hierarchical database management systems and indexed data access methods, but called a *column* by relational database management systems.

There are other cases in which a common concept is identified by a number of different terms. For simplicity, we have standardized on a single set of terms. For example, we usually refer to the smallest meaningful element of data as a *field*, regardless of the type of data source. However, when required for clarity, we use the term specific to a given data source. Each time we introduce a new standard term, we define it and compare it to equivalent terms used with different types of data sources.

How Applications Interpret Data

When your application accesses a data source, it needs to know how to interpret the data that it finds. To accomplish this it reads a synonym, which is an Information Builders' term for the generated *metadata* associated with the particular data source.

Your application needs to know about:

- ❑ The overall structure of the data. For example, is the data relational, hierarchical, multi-dimensional, sequential? Depending upon the structure, how is it arranged or indexed?
- ❑ The specific data elements. For example, what fields are stored in the data source, and what is the data type of each field—character, date, integer, or some other type?

The synonym provides an alias for the data source that tells the server how tables are described and where to find them.

The primary component of a synonym is a Master File. The Master File describes the structure of a data source and its fields. For example, it includes information such as field names and data types.

For some types of data sources, an Access File supplements the Master File. An Access File includes additional information that completes the description of the data source. For example, it includes the full data source name and location. The nature of the information in the Access File is specific to each data source. You need one Master File—and, for some types of data sources, one Access File—to describe a data source.

How to Obtain a Synonym

Reference:

How an Adapter Works

You can generate synonyms using Developer Studio's **Create Synonym tool**, which enables you to explore DBMS catalogs and select the objects for which you wish to create synonyms. The tool prompts for all the information it needs to create a synonym for a particular data source and stores the generated synonym on the server.

The Create Synonym tool is fully described in [Accessing Data and Creating Synonyms](#) on page 15.

There are some prerequisites: you must be authorized to use the data against which you plan to report and you must have configured an adapter to access that type of data. In fact, when you begin to create a synonym, Developer Studio opens the adapter configuration window. The option to create the synonym becomes available only after the adapter is successfully configured.

Adapters are available for many data sources. Every adapter is specifically designed for the data source that it accesses, and, as a result, is able to translate between SQL or WebFOCUS and the data management language (DML) of the data source. Adapters provide solutions to product variations, including product differences in syntax, functionality, schema, data types, catalogs, data representations, message processing, and answer set retrieval. It is the adapter that manages the synonym creation process. For related information, see [How an Adapter Works](#) on page 11.

The parameters required to configure over 60 supported adapters and to create synonyms for the corresponding data sources are described in detail in the *Adapter Administration for UNIX, Windows, OpenVMS, i5/OS, and z/OS* manual.

Reference: How an Adapter Works

The adapter manages the communication between the data interface and the data source, passing data management requests to the data source and returning either answer sets or messages to the requestor. To perform these functions, the adapter:

- ❑ Translates the request to the applicable DML.
- ❑ Attaches to the targeted data source, using standard attachment calls. The adapter then passes the request to the data source.
- ❑ The data source processes the request.
- ❑ The results or error conditions are returned to the client application for further processing.

What You Can Do With a Synonym

Once you have generated a synonym, you can report against it using all of Developer Studio's reporting tools. In many instances, the configured adapter and the generated synonym are all you need to access your data and create reports and graphs.

However, you may wish to enhance the synonym in order to implement particular capabilities that are supported in the WebFOCUS data description language. To do this, you can use a second data description tool, the **Synonym Editor**.

When you use the Synonym Editor, there is no need to know the data description language since the graphical tool displays all viewable and editable attributes of the synonym components. If you make changes to the generated synonym, the Synonym Editor validates your entries and displays messages if they violate the underlying syntax of the data description language.

Note: If you are comfortable working directly with code, you can open the synonym components in a text editor. While the text editor does some error checking, we cannot guarantee that code which is altered manually will be syntactically correct, so we urge you to use the text editor as a viewing tool, and to make your enhancements through the graphical Synonym Editor interface. For detailed information about the underlying syntax, see the *Describing Data With WebFOCUS Language* manual.

Ways to Enhance a Synonym

Here are just a few of the attributes you might want to add to the synonym to enhance your data access and reporting capabilities. You can:

- ❑ Create a cluster Join view by linking available synonyms to create a multi-segment (multi-table) file for reporting.
- ❑ Apply security rules for fields and values to ensure that user access is based on Information Builders data source security (DBA) specifications.
- ❑ Add dimensions for OLAP analysis.
- ❑ Add virtual columns (DEFINES) and columns for aggregated values (COMPUTEs).
- ❑ Add filters to specify data selection criteria.
- ❑ Add group definitions for data sources that support groups.
- ❑ Add meaningful titles and descriptions, including Multilanguage variations.
- ❑ Change the format of fields (for example, the size of an alpha field or the format of a date field).

- ❑ Create business views of the metadata in order to limit the fields available to any retrieval request that references the business view and to group fields together based on their roles in an application.
- ❑ Define parent/child hierarchies for cube data sources such as SAP BW and Essbase.

The Synonym Editor is fully described in [Using the Synonym Editor](#) on page 51.

How an Application Uses a Synonym

Synonyms are stored separately, apart from the associated data source. Your application uses a synonym to interpret the data source in the following way:

1. It identifies, locates, and reads the Master File for the data source named in a request.
2. It locates and reads the Access File for the data source named in the request, if that type of data source requires an Access File.
3. It locates and reads the data source(s).

The data source contents are interpreted based on the information in the synonym.

Alternative Tools on the Reporting Server Console

If you prefer to work in a thin-client Web environment, you can access alternative tools on the Reporting Server Console (also called the Web Console) from Developer Studio. The Reporting Server Console enables you to configure adapters, create and enhance synonyms, and perform a wide range of other server-related tasks.

Although the look and feel of the Reporting Server Console is different from the Developer Studio interface, the options on the corresponding tools are largely identical. However, a few options that are currently supported in Developer Studio are not supported on the Web Console at the present time. These include:

- ❑ Defining hierarchies for cube-based data sources, such as SAP BW and Essbase.
- ❑ Adding dimensions for OLAP Analysis.
- ❑ Creating business views of your data.

Procedures for accessing the Reporting Server Console, configuring adapters and remote servers, and creating synonyms are described briefly in [Accessing Data and Creating Synonyms](#) on page 15 and extensively in the *Adapter Administration for UNIX, Windows, OpenVMS, i5/OS, and z/OS* manual.

2 | Accessing Data and Creating Synonyms

Before you can create a procedure that reports against a data source, your application must be able to access the data and understand how the data is organized. To obtain this information, your application reads a synonym, which generally consists of two files:

- ❑ A **Master File** that describes the data so WebFOCUS can report on it. This file contains field names and formats for the columns in the data source. The synonym also contains an alias for the data source.
- ❑ An **Access File** that contains additional information needed by WebFOCUS to access data. This information, which is required by many data sources, includes the data source's real name and location.

Often, a synonym already exists on the server, and reporting can begin at once. However, if the synonym you need does not exist on the server, an authorized server or application administrator can create it directly from Developer Studio using the Create Synonym tool.

Topics:

- ❑ Configuring Adapters and Remote Servers in Developer Studio
- ❑ Creating Synonyms in Developer Studio
- ❑ Defining a Remote Server in the WebFOCUS Client Communication File

Configuring Adapters and Remote Servers in Developer Studio

In this section:

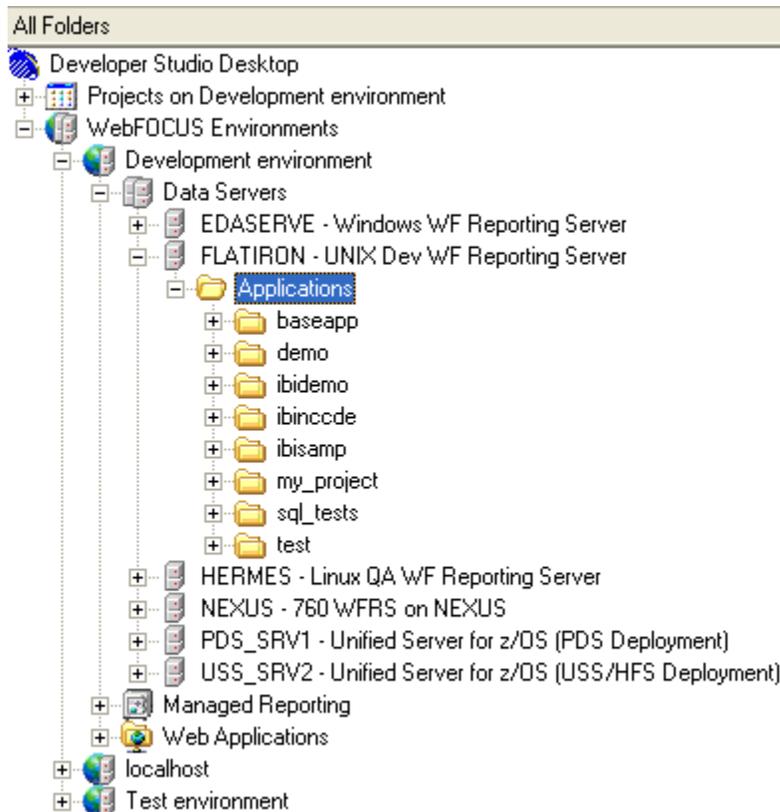
Data Access Configuration Variations

Configuring Adapters in Developer Studio

This chapter focuses primarily on the *WebFOCUS Environments, Data Servers* area of the Developer Studio Explorer, where you can access data and develop applications directly on a remote WebFOCUS Reporting Server using Developer Studio tools. The chapter describes the graphical tools that enable you to access data and create metadata, as well as several configuration variations that affect your selection and use of these tools.

Project-area options for data access and development are described in the *Developer Studio Application Development Getting Started* manual and all aspects of Managed Reporting administration are described in the *Managed Reporting Administrator's Manual* . Note, however, that the procedures for accessing data and creating synonym for use in the Projects and Managed Reporting environments are similar to those described in this chapter for WebFOCUS Environments.

Let's begin by examining the WebFOCUS Environments, Data Servers area of Developer Studio Object Explorer.



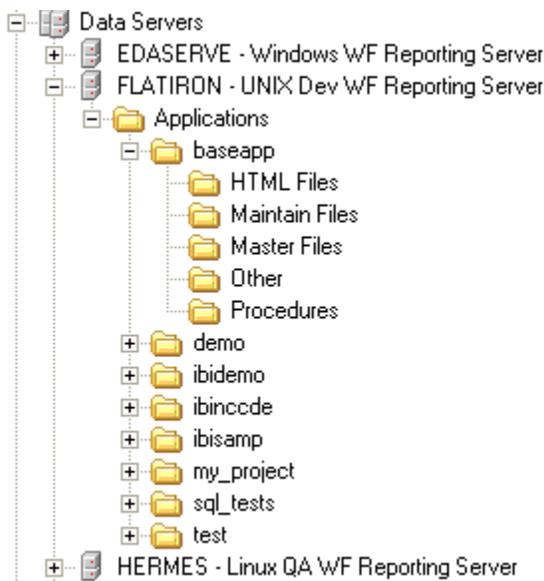
The Data Servers area displays each WebFOCUS Reporting Server that the WebFOCUS Client can access and permits development against multiple Reporting Servers, which may be configured on any supported platform (as illustrated in the previous image).

The Data Servers folder is always accessible from the Developer Studio Object Explorer. It lists the applications you have access to and the resources (files) stored in these applications.

The default WebFOCUS Reporting Server (named EDASERVE by default) is created during installation and is displayed in the Data Servers area.

In the previous image, notice that several remote servers have been added. An Applications folder beneath each WebFOCUS Reporting Server displays the directories based on the Application Root directory (APPROOT) for that WebFOCUS Reporting Server (on Windows, *drive:\ibi\apps* by default). For this example, a server called FLATIRON (UNIX Dev. WF Reporting Server) is shown with its Applications folder expanded. Any directory located under APPROOT appears under the Data Servers Applications folder. In addition, you can map an application that is not under APPROOT (but resides elsewhere in the file system) to be accessible as a virtual application. The mapped application is displayed for use, along with the applications that are physically under *approot*.

The Data Servers area gives you access to the file resources on all WebFOCUS Reporting servers in your environment. You can create and manage metadata, procedures, html files, and WebFOCUS StyleSheets. You can also perform operations on GIF images and other files, such as FOCUS data sources. For organizational purposes, these application files are displayed in virtual folders labeled HTML Files, Master Files, Procedures, etc.



The virtual folders appear this way by default. However, if you wish, you can hide the virtual folders from the Object Explorer tool bar.

If you are developing applications using a remote WebFOCUS Environment, you must first set up your environment to be able to create synonyms (Master and Access Files) and access the associated data on a remote WebFOCUS Reporting Server. For details about how, when, and where to create this metadata, see [Data Access Configuration Variations](#) on page 19.

Data Access Configuration Variations

How to:

Access the Create Synonym Tool

If you are working on the platforms served by Developer Studio (UNIX, Windows, OpenVMS, i5/OS, and z/OS), you can use Developer Studio's Create Synonym tool to set up access to your data. This process involves configuring adapters, adding remote servers if necessary, and then creating the required synonyms.

Tip: Authorized administrators who prefer to work in a thin client environment can complete these tasks from the Reporting Server Web Console, which is accessible from the Developer Studio's Object Explorer toolbar. Both approaches edit the same underlying server files, so it does not matter which you use. For more information, see [Using the Reporting Server Web Console for Data Access and Synonym Preparation](#) on page 41.

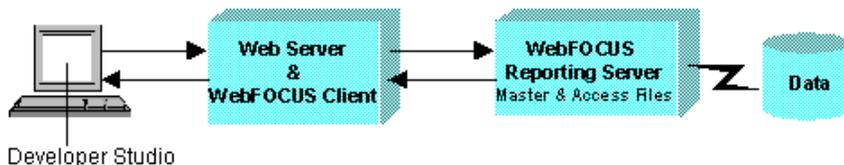
- ❑ **Configuring adapters.** An adapter enables an application to access a data source. Each type of data source requires its own adapter to properly convert data or application requests into native statements and return optimized answer sets to the requesting program.

For example, if you wish to report against data in an Oracle database, you need to configure the Adapter for Oracle, which enables you to create the synonyms you need to access and read your Oracle data. To access Microsoft SQL Server data, you need to configure the Adapter for Microsoft SQL Server, and so on. An adapter must be configured on each Reporting Server that accesses the corresponding type of data.

For details, see [Configuring Adapters and Remote Servers in Developer Studio](#) on page 16.

- ❑ **Adding remote servers to your server configuration (If needed).**

In order to understand when this step is required, it is useful to start by understanding when it is not required. If you have configured adapters and your data is directly accessible from your default WebFOCUS Reporting Server, as represented in the following diagram, a remote server has no role in your configuration.

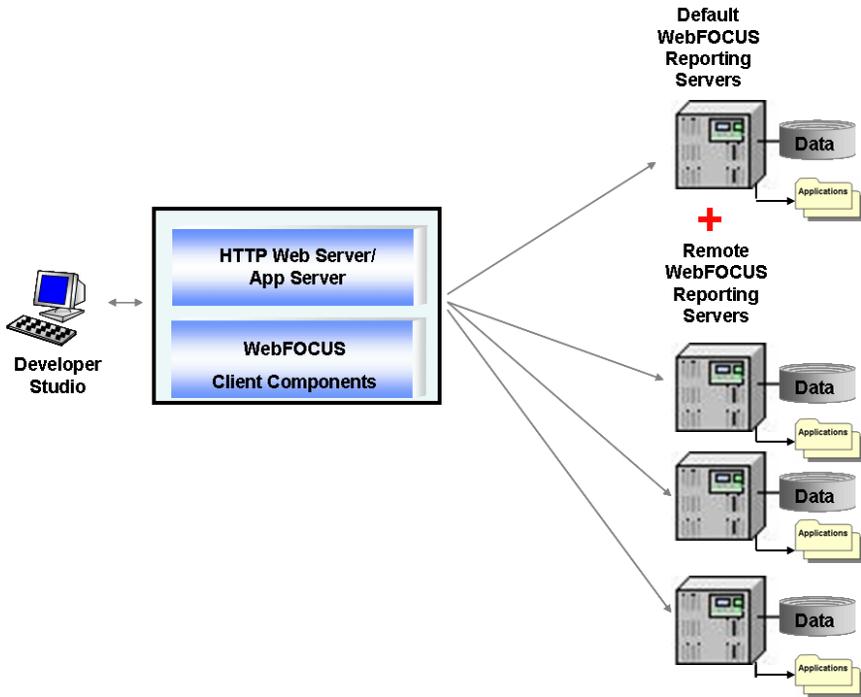


With this setup, once adapters are available on the default WebFOCUS Reporting Server, you can create the required synonyms. (The same is true if you are working in the Projects area from a standalone Developer Studio installation, where a default Reporting Server is automatically available on your local machine.)

Remote servers are required in the following situations:

At many sites, some of the data that applications need to access resides on another server or servers, often referred to as remote servers. The following are typical configurations.

- For the most frequently used remote server setup, sites require that each remote server be available as a distinct, named server (for example, FLATIRON and HERMES and previously shown Object Explorer illustrations), which is visible in and accessible from the Data Servers area. This permits application development and/or administration and metadata management directly against the individual remote Reporting Servers.



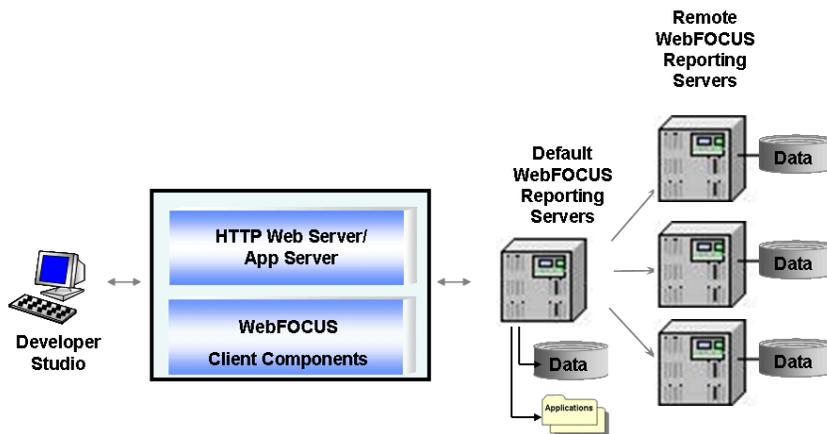
This modular server configuration provides great flexibility for in-place development on various types of application resources using Developer Studio tools. For example, if a self-service application resides on the FLATIRON UNIX server, you may want to edit some of its components (maybe a procedure or an html file) directly on that server, or you may want to take advantage of Developer Studio's graphical tools to work with application files on a Mainframe server, such as PDS_SRV1 or USS_SRV2.

In this situation, you *must* add the server(s) to your default Reporting Server's configuration, but you must *also* specify the same server(s) in your WebFOCUS Client configuration because that is what adds the distinct server names to the *Data Servers* folder. Only then can you perform operations directly on those servers. This includes creating synonyms and using Developer Studio tools to work with application files (synonyms, procedures, html files, etc.) organized by application under each remote server.

To expedite the client-side remote server configuration, you can access the WebFOCUS Administration Console directly from Developer Studio. For details about adding servers to the *WebFOCUS Client* configuration, see [How to Add a Remote Server to the WebFOCUS Environment](#) on page 43.

Keep in mind, however, that in order to use the data on each of these remote servers, the appropriate adapters and synonyms must exist on those servers. Sometimes they are already available there, but if not, you must configure the adapters and generate the synonyms, as described later in this chapter.

- In another common remote server implementation, some of the data that applications need to access resides on another server or servers, which are accessible *through* the default WebFOCUS Reporting Server.



In this case, you *must* add each remote server to your default Reporting Server's configuration before you can create synonyms that point to tables on the remote server(s) and report against the combined data (which can be of different types and even on different platforms).

This assumes, however, that the required synonyms already exist on the remote servers. If that is not the case, you must first create synonyms for the data accessed by the remote servers, which may, in turn, require configuring the adapter needed to create those synonyms.

Once your default Reporting Server (e.g., EDASERVE) can communicate with the remote servers and access the data stored there, you can use Developer Studio tools to work with various types of application resources (Master Files, procedures, html files, etc.), organized for your convenience in virtual folders under each application.

It is important to note that in this setup the remote servers do *not* appear in the Data Servers folder. Since they can only be accessed *through* the default Reporting Server, they are not exposed as separate servers in Developer Studio.

- ❑ **Creating synonyms** for use by your applications in any supported environment. (The synonyms you create are stored in your Reporting Server repository, as defined by APPROOT.)

For each data source the server will access, you must create a synonym that describes the structure of the data source and the server mapping of its data types. The synonyms define unique names (or aliases) for each table, view, or other type of object that is accessible from the server.

Synonyms are useful because they hide the underlying data source's location and identity from client applications. They also provide support for extended metadata features of the server, such as virtual fields and additional security mechanisms. Using synonyms allows an object to be moved or renamed while allowing client applications to continue functioning without modification. The only modification required is a redefinition of the synonym on the server. The result of creating a synonym is a Master File and, usually, a corresponding Access File, which represent the server's metadata.

Appropriate synonyms must be available on the server where the data resides.

For details, see [Creating Synonyms in Developer Studio](#) on page 33.

Procedure: How to Access the Create Synonym Tool

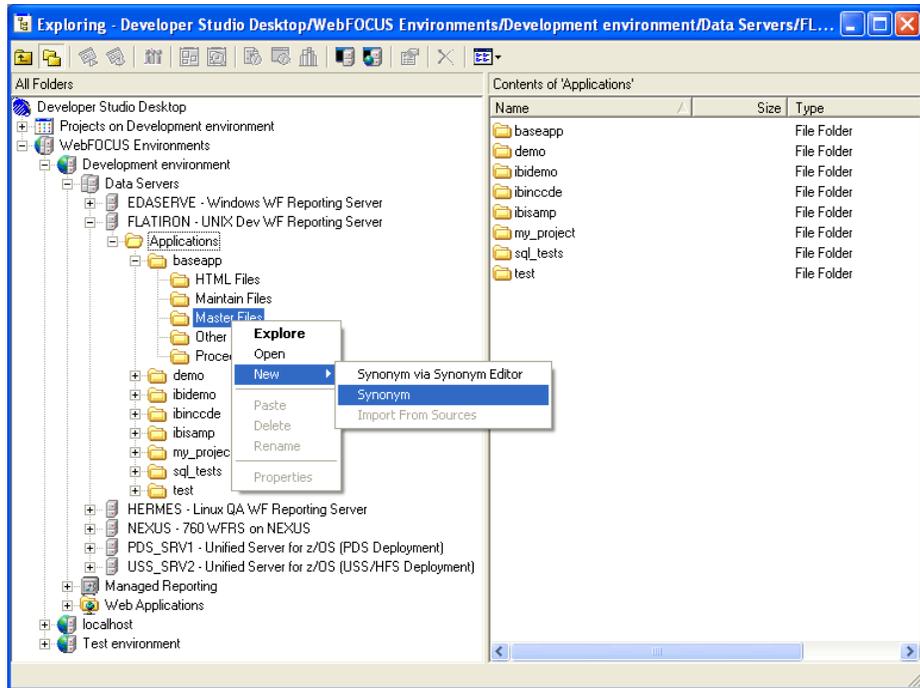
To launch the Create Synonym tool from the WebFOCUS Environments area of the Explorer:

- 1.** Expand your WebFOCUS environment (for example, FLATIRON–UNIX Dev. WF Reporting Server), expand *Data Servers*, expand the server, expand the *Applications* folder, expand an application, and right-click the *Master Files* folder for the application in which you wish to access the data source.

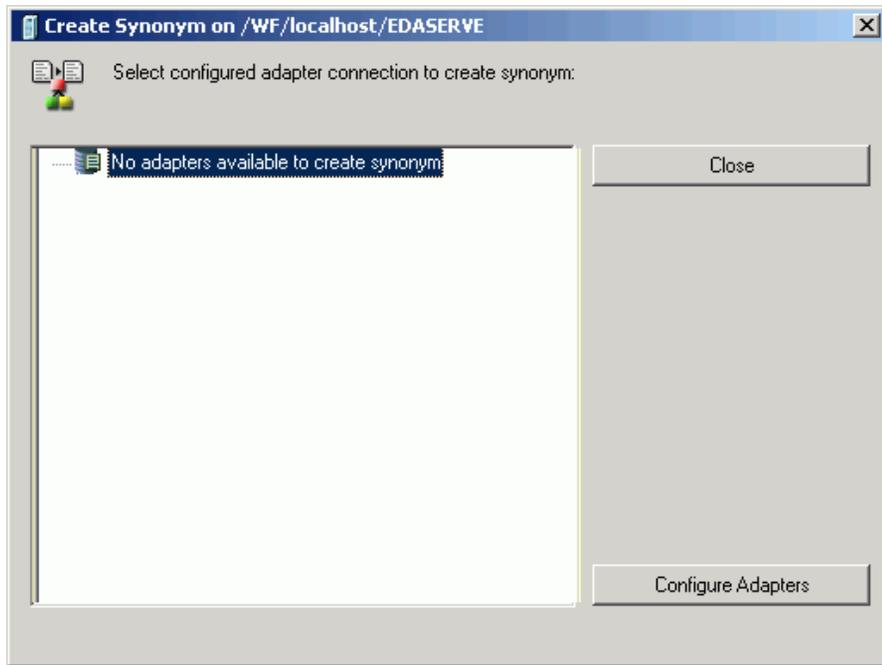
If you wish to use the data source in multiple applications, or have not yet created your application, you can use the baseapp application, where resources can be stored for sharing and access by other applications.

Tip: If you are developing from the Projects area of the Explorer, expand the project, and right-click the *Master Files* folder, then proceed as described.

2. Select New and then *Synonym*.



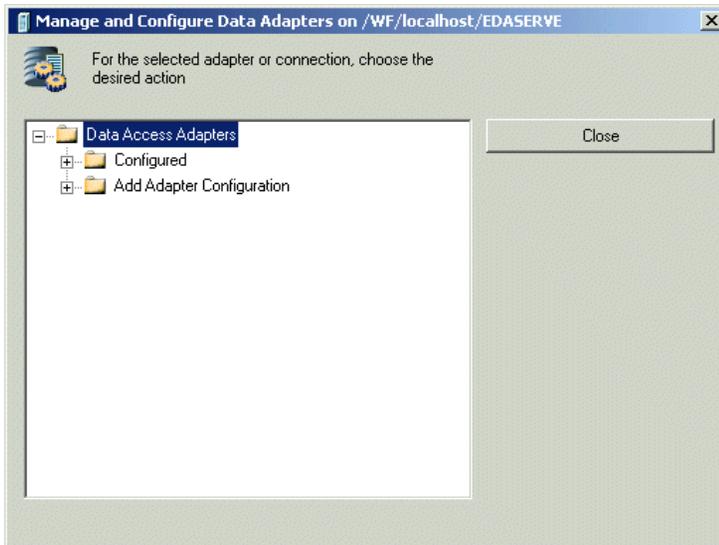
The Create Synonym tool opens. By default, no adapters are available. Your first task is to configure an adapter in order to be able to access a relational, multidimensional, or other type of data source.



Note: If any adapters have already been configured for the server you will not see this message. Instead, you will see the available adapters, from which you can immediately begin to create synonyms.

3. In this instance, we are assuming that no adapters are available. Click the *Configure Adapters* button at the bottom right to start the configuration process.

The Manage and Configure Data Adapters window opens.



Depending upon your needs, you can use this Window to start configuring an adapter, adding a remote server, or both.

- **Configured.** This folder contains any data adapters or remote servers that are already configured. By default, when Developer Studio is installed on its own, the Configured folder displays a *Remote Servers* folder that contains *EDASERVE*, the default WebFOCUS Reporting Server.

You can use the Configured folder to add new connections for existing data adapters or servers, edit existing data adapters or servers, or create synonyms.

Note that this folder will not initially be visible for a WebFOCUS installation; it becomes visible only after an adapter or a remote server has been explicitly configured.

- **Add Adapter Configuration.** This folder lists the data adapters that you can configure on the WebFOCUS Reporting Server platform.

Configuring Adapters in Developer Studio

How to:

Configure an Adapter in Developer Studio

Add a Remote Server in Developer Studio

If your machine has access to your data sources, you can configure adapters to access data directly. However, some adapters may require you to configure your environment before adding them. To determine if this is required for an adapter you wish to configure, refer to the *Adapter Administration for UNIX, Windows, OpenVMS, i5/OS, and z/OS* manual.

When you configure an adapter, information is added to the server's `edasprof.prf` and `edaserve.cfg` files.

Procedure: How to Configure an Adapter in Developer Studio

This procedure assumes that you have opened the Create Synonym tool and clicked the *Configure Adapter* button to access the Manage and Configure Data Adapters window. You are now ready to proceed as described below:

1. Expand the *Add Adapter Configuration* folder in the Manage and Configure Data Adapters window.
2. Expand folders to select from the list of available adapters and select an adapter to configure.
3. Click the *Configure* button to add the selected adapter.

Fields for defining the adapter appear.

4. Complete the form for your adapter.

Tip: If you need information about these fields, refer to the Server Console help, which you can access by choosing *WebFOCUS Reporting Server Console* from the Command menu. The Server Console opens. Click *Help* on the menu bar, select *Contents and Search*, expand the *Adapters* topic in the Table of Contents pane, and look for the adapter you are configuring. (This is the same information contained in the *Adapter Administration for UNIX, Windows, OpenVMS, i5/OS, and z/OS* manual.)

5. Click *Configure*.

A message from the Reporting Server confirms that the adapter has been added to your configuration.

6. Click *Continue* to return to the Manage and Configure Data Adapters window.

A folder for your adapter should appear under *Configured*.

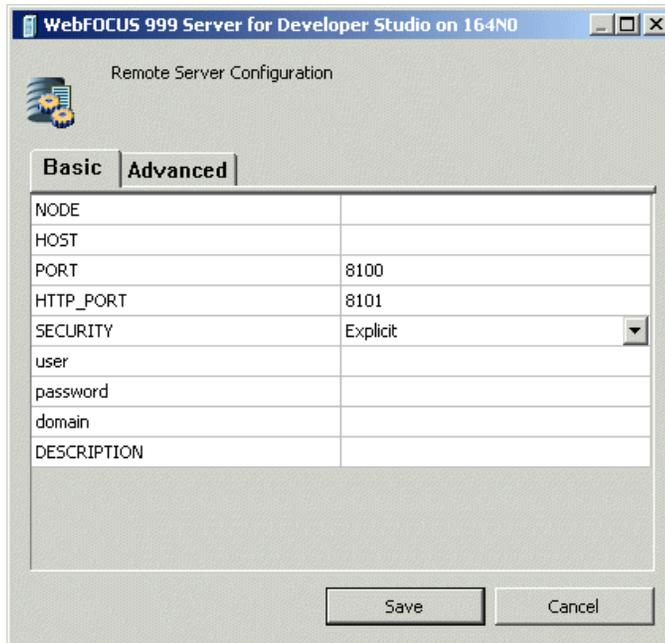
7. Expand your adapter's folder and click the connection you defined.
The Create Synonym, Test, Delete, and Properties buttons appear.
8. Click *Test* to test the connection.
If you typed the correct connection parameters, sample data should appear.
If the test fails, click the connection, choose *Properties*, and adjust your information accordingly.
9. When sample data appears, click *Close*.

Procedure: How to Add a Remote Server in Developer Studio

This procedure assumes that you have opened the Create Synonym tool and clicked the *Configure Adapter* button to access the Manage and Configure Data Adapters window. You are now ready to proceed as described below:

1. Expand the *Configured* folder in the Manage and Configure Data Adapters window of the Create Synonym tool.
Note: If you do not see the *Configured* folder, expand *Add Adapter Configuration* instead.
2. Instead of choosing an adapter from the list, select *Remote Servers* and choose *Add connection* or *Configure*.

A window appears containing fields to define the connection.



3. Complete the fields as follows:

Basic Parameters	Description
NODE	Type a name by which you will refer to the server. The name is your choice, but cannot be the same as any other server. It must begin with a letter and cannot be more than eight characters.
HOST	Specify the hostname or IP Address for the server.
PORT	Specify the base TCP port for the server. The default is normally 8120, not 8100.
HTTP_PORT	Specify the HTTP port for the server. This is normally one more than the base TCP port. The default is normally 8121, not 8101.
CLASS	If this is a z/OS server, you must include a qualifier. (Pertains only to z/OS servers.)

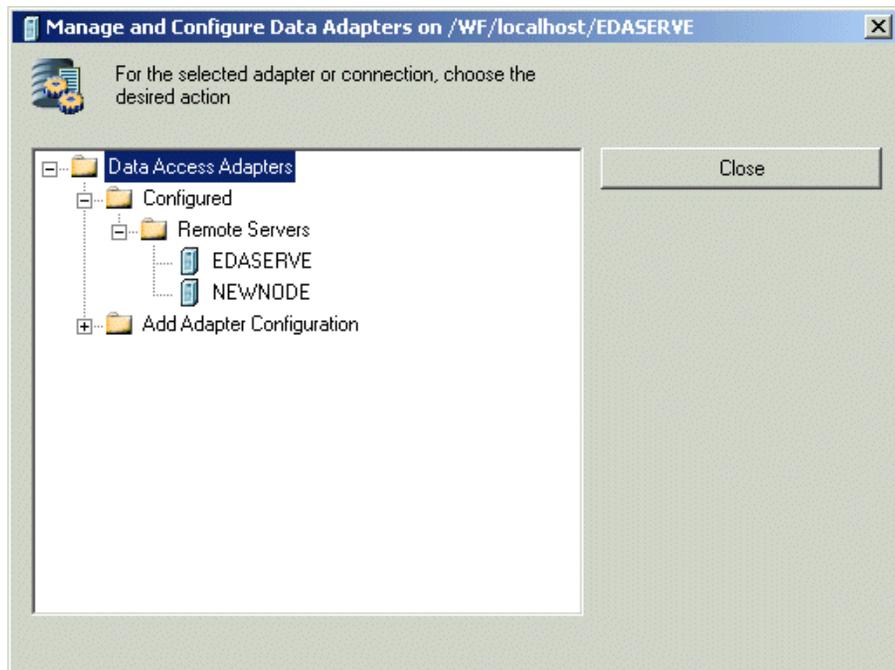
Basic Parameters	Description
SECURITY	<p>Specify how a user should log on to the remote server:</p> <ul style="list-style-type: none"> <input type="checkbox"/> IWA(Integrated Windows Authentication; Windows only) Passes your Windows user ID and password to the server when a connection is made. <input type="checkbox"/> Explicit: Passes the user ID and password you provide. <input type="checkbox"/> Password Passthru. The user ID and password received from the client application are passed to your data source at connection time. This option requires that the server be started with security off. <input type="checkbox"/> Trusted: For a trusted connection, where the current logged on user ID is passed to the server. <p>If the server is not on Windows and runs with security ON, providing an explicit user ID and password is required to create synonyms.</p>
user	If security is set to Explicit, enter a specific user ID.
password	If you entered a user, provide a password.
domain	For a server on Windows, you can specify the domain where the user ID is defined.
DESCRIPTION	Optionally, type a description for the node. This description displays in the WebFOCUS front-end tools.

4. When connecting to a Unified Server, click the *Advanced* tab and specify the SERVICE NAME, and other parameters, as required.

Advanced Parameters	Description
SERVICE NAME	<p>CLIENT (servicename)</p> <p>Defines how to send outbound communications to a remote server.</p> <p>servicename is optional. If servicename is provided, it must match the value of SERVICE in the service block of the server.</p>
HTTP_SSL	<p>Defines whether the Secure Sockets Layer protocol is used in the Web Console listener of the remote server. Enter:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 0 if no SSL is used in the connection to the WebConsole. <input type="checkbox"/> 1 if SSL is used in the connection to the Web Console.
COMPRES-SION	<p>Activates data compression in a data transfer between client and server. Enter:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 0 for no compression. <input type="checkbox"/> 1 for compression on.
ENCRYPTION	<p>Defines the encr. Enter:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 0 for no encryption. <input type="checkbox"/> DES for 56-bit fixed-key Data Encryption Standard. <input type="checkbox"/> <i>Advanced</i>, enables you to more easily select and combine ciphers, modes, and RSA key lengths. This option provides the following ciphers: 3DES, AES 128, AES192, AES 256; and the following modes: ECB and CBC. <input type="checkbox"/> IBCRYPT for user-defined algorithm. Key is 512-bit RSA-encrypted. <p>Note: Encryption is not supported for PIPE protocol. Only 0 and DES are supported for HTTP protocol.</p>

Advanced Parameters	Description
CONNECT_LIMIT	Defines the maximum time, in seconds, that the client will wait for a TCP connection response from the server. Enter: <ul style="list-style-type: none"> <input type="checkbox"/> -1 for indefinite wait. <input type="checkbox"/> 0 for no wait.
MAXWAIT	Defines the time, in seconds, that the client will wait for a response from the server: -1 indicates indefinite timeout.

5. Click *Save* when you have provided your parameters values.
A message indicates that a new server was added.
6. Click *Continue*.
7. Expand *Configured* and *Remote Servers* to see the new server.



8. Select the new server.

The Create Synonym, Test, Delete, and Properties buttons appear.

9. Click *Test* to test the connection.

If the remote server is started and you typed the correct connection parameters, sample data should appear.

10. Click *Close*.

If the test fails, click the server, choose *Properties*, and provide an explicit user ID and password. Then click *Save* and try the test again.

11. Click *Close*.

Your next step depends on your objectives and your server configuration:

- ❑ If you wish to make the new remote server visible in and accessible from the Data Servers folder as a distinct named entity, your next step is adding the remote server to your WebFOCUS Client configuration. The listing of servers in this location is controlled by the WebFOCUS client and implemented through the WebFOCUS Administration Console. Proceed to [Defining a Remote Server in the WebFOCUS Client Communication File](#) on page 43.
- ❑ If your objective is to access data on the remote server through your default server, you must determine if the appropriate adapter and required synonyms already exist on the remote server. If not, you must configure and create them. Proceed to [Configuring Adapters in Developer Studio](#) on page 26 and then [Creating Synonyms in Developer Studio](#) on page 33.

Creating Synonyms in Developer Studio

In this section:

Using the Reporting Server Web Console for Data Access and Synonym Preparation

How to:

Create a Synonym in Developer Studio

Refresh Synonyms

Delete Synonyms

Example:

Synonym Creation Parameters for Microsoft SQL Server

The point at which you begin to create synonyms will depend on your Adapter, Reporting Server, and, possibly, also your WebFOCUS Client configuration (as described in [Data Access Configuration Variations](#) on page 19). Whenever you are ready, you can use the Create Synonym tool to create synonyms for the data sources you need to access.

Procedure: How to Create a Synonym in Developer Studio

If it is not already open, to launch the Create Synonym tool from the WebFOCUS Environments area of the Explorer:

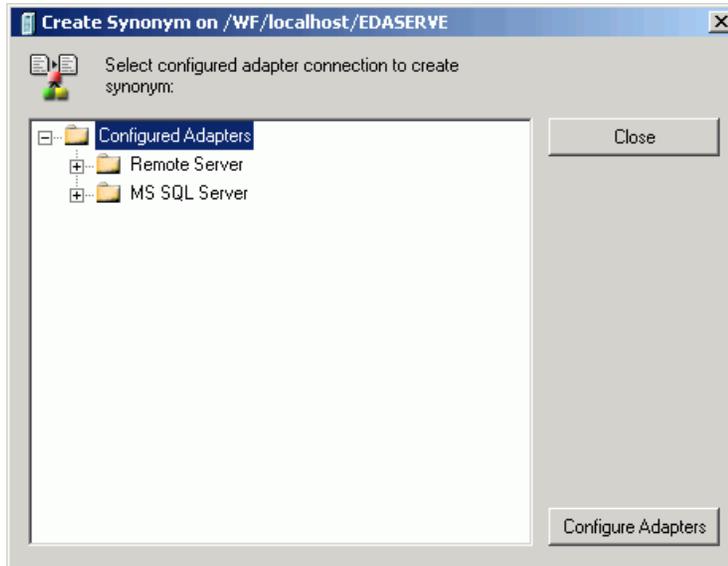
1. Expand your WebFOCUS environment (for example, FLATIRON (UNIX Dev. WF Reporting Server), expand *Data Servers*, expand the server, expand the *Applications* folder, expand an application, and right-click the *Master Files* folder for the application in which you wish to access the data source.

If you wish to use the data source in multiple applications, or have not yet created your application, you can use the baseapp application, where resources can be stored for sharing and access by other applications.

Tip: If you are developing from the Projects area of the Explorer, expand the project, and right-click the *Master Files* folder, then proceed as described.

2. Select *New* and then *Synonym*. The Create Synonym tool opens.

3. In the first window, you can choose any configured Data Adapter or any Remote Server that has been added to the default Reporting Server. (Note that when you are creating a synonym through a Remote Server, the remote server should already contain the required synonyms and the corresponding adapters.)



The server configuration, indicated by the server profile, determines which adapters and servers appear. In this example, the Adapter for Microsoft SQL Server is configured. If you have configure remote servers, they will appear in expanded the Remote Server folder.

4. Expand the folder for your adapter or the Remote Server folder.
5. Select the server or adapter that you configured and click *OK*.

A window opens in which you can enter additional information about the data source you wish to access.

Important: The options in this window vary depending on the type of adapter or server you are using. To access the pertinent information for your adapter directly from Developer Studio, choose *WebFOCUS Reporting Server Console* from the Command menu. The Server Console opens. Click *Help* on the menu bar, select *Contents and Search*, expand the *Adapters* topic in the Table of Contents pane, and look for the adapter for which you wish to create the synonym. The relevant synonym creation parameters are fully defined.

The following example is for accessing an adapter for Microsoft SQL Server. For an explanation of each synonym creation parameter or this adapter, see [Synonym Creation Parameters for Microsoft SQL Server](#) on page 38.

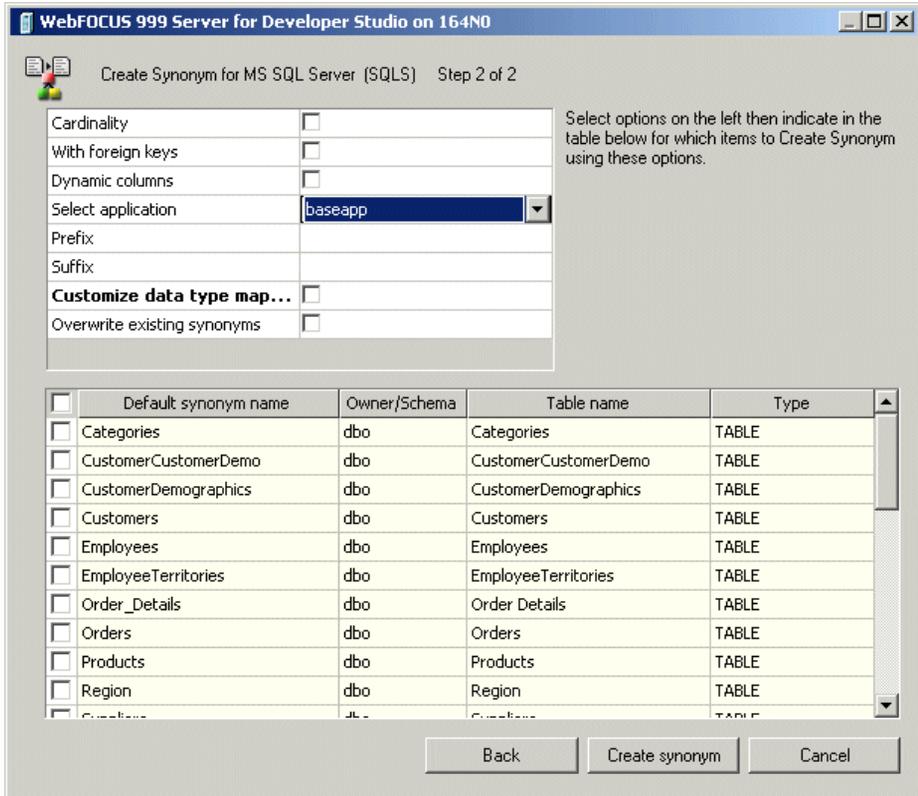
Database selection	
Use current database	<input type="checkbox"/>
Select database	bookstore
Restrict object type to	
Stored Procedures	<input type="checkbox"/>
Tables	<input checked="" type="checkbox"/>
Views	<input checked="" type="checkbox"/>
Filter by name and owner	
Filter by name and owner	<input type="checkbox"/>

After you complete this window, the data source or server is queried to determine the metadata you can use to create synonyms. For a relational database, this is normally a list of tables or views. This window lets you filter the results so there are fewer tables from which to choose.

For some data sources, you have the option to choose a database or other parameter.

6. In this Microsoft SQL Server example, select the appropriate database or choose *Use current database*. You will be able to choose from the database tables when this window is complete.
7. Optionally, choose whether both Tables and Views should be returned. By default, both are checked.
8. Optionally, check *Filter by name and owner* to filter the results based on owners or table prefixes. This limits the list of tables returned from the remote data source and makes it easier to choose the data for which you want to create synonyms. If you do not include selection criteria, the entire list of tables is displayed.
9. Click *Next*.

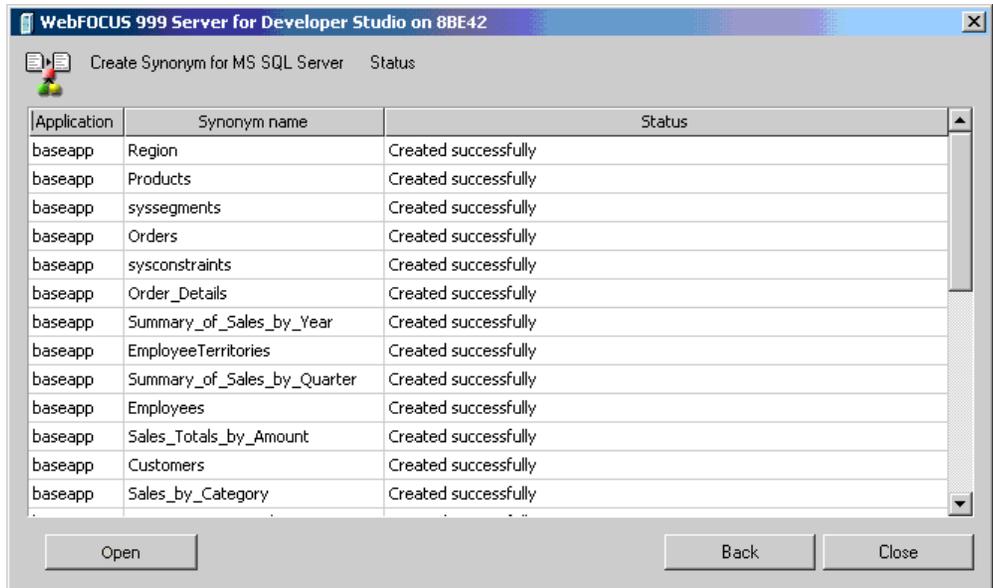
The top of the Create Synonym window now displays additional fields you can use to refine your synonym. Remember that the parameters vary depending on the type of adapter or server you are using.



The bottom provides a list of tables for which you can create synonyms. To choose all, select the check box to the left of Default synonym name.

10. Click *Create synonym*.

The synonym is created and a confirmation window appears. Once again, note that the window may vary depending on the type of adapter or server you are using.



The synonyms are created in the selected application directory. (In this example, the default application, baseapp, is used.)

11. Click *Close*.

Example: Synonym Creation Parameters for Microsoft SQL Server

The following table describes the synonym creations parameters for Microsoft SQL Server.

Parameter/Task	Description
Collection (OS/400 only)	<p>An OS/400, collection is a special form of library that contains Tables, Views, and Stored Procedures, as well as DB2 journals and collectors that run automatically. Journals and collectors enable the SQL commit/rollback work.</p> <p>DB2 allows libraries without journals and collectors, however this usage causes system log errors that report failed journalizing, depending on ISOLATION level. For non-update applications, use of a library that is not journalized is not a problem since there is nothing to roll back.</p> <p>When using the collection parameter, the Filter by Name and Owner option behaves differently. For details, see Filtering by Name and Owner (OS/400).</p>
Database selection	<p>To specify a database from which you can select a table or other object, do one of the following:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Check <i>Use current database</i> to use the database that has been set as the default database. <input type="checkbox"/> Select a database from the <i>Select database</i> drop-down list, which lists all databases in the current DBMS instance. <p>Before selecting a database, if <i>Use current database</i> is checked, uncheck it. (This does not apply to Informix SE, for which <i>Use current database</i> must be checked.)</p>
Restrict Object Type to	<p>Restrict candidates for synonym creation based on the selected object type(s): Tables, Views, and any other supported objects, such as Aliases, MQTs, Cubes, Nicknames, Stored Procedures, Synonyms, and Materialized Views.</p> <p>Nicknames is available as a filtering option on platforms where DB2 supports the Nickname object type (Windows and UNIX). A basic synonym is created for this type of DB2 object; no Titles, Remarks, or Keys are recorded in the synonym. The user ID who creates the synonym must have SELECT authority for this object type.</p>

Parameter/Task	Description
Filter by Name and Owner	<p>Selecting this option adds the Owner and Table Name (or Object name) parameters to the screen:</p> <ul style="list-style-type: none"> ❑ Owner. Type a string for filtering the owner IDs, inserting the wildcard character (%) as needed at the beginning and/or end of the string. For example, enter: ABC% to select tables or views whose owner IDs begin with the letters ABC; %ABC to select tables or views whose owner IDs end with the letters ABC; %ABC% to select tables or views whose owner IDs contain the letters ABC at the beginning, middle, or end. ❑ Table Name (or Object name). Type a string for filtering the table, view, or object names, inserting the wildcard character (%) as needed at the beginning and/or end of the string. For example, enter: ABC% to select all tables, views, or objects whose names begin with the letters ABC; %ABC to select all whose names end with the letters ABC; %ABC% to select all whose names contain the letters ABC at the beginning, middle, or end.
Cardinality	<p>Select the <i>Cardinality</i> check box to reflect the current cardinality (number of rows or tuples) in the table during metadata creation. Cardinality is used for equi-joins. The order of retrieval is based on the size (cardinality) of the table. Smaller tables are read first.</p> <p>If the cardinality of the tables to be used in the application are dynamic, it may not be beneficial to choose this setting.</p>
With foreign key	<p>Select the <i>With foreign key</i> check box to include within this synonym every table related to the current table by a foreign key. The resulting multi-table synonym describes all of this table's foreign key relationships.</p>
Dynamic columns	<p>To specify that the Master File created for the synonym should not contain column information, select the <i>Dynamic columns</i> check box.</p> <p>If this option is selected, column data is retrieved dynamically from the data source at the time of the request.</p>
Select Application	<p>Select an application directory. baseapp is the default value.</p>

Parameter/Task	Description
Prefix/Suffix	<p>If you have tables with identical table names, assign a prefix or a suffix to distinguish them. For example, if you have identically named human resources and payroll tables, assign the prefix HR to distinguish the synonyms for the human resources tables. Note that the resulting synonym name cannot exceed 64 characters.</p> <p>If all tables and views have unique names, leave prefix and suffix fields blank.</p>
Customize data type mappings	To change the data type mappings from their default settings, select this check box. The customizable mappings are displayed.
Overwrite Existing Synonyms	To specify that this synonym should overwrite any earlier synonym with the same fully qualified name, select the <i>Overwrite existing synonyms</i> check box.
Default Synonym Name	This column displays the name that will be assigned to each synonym. To assign a different name, replace the displayed value.
Select tables	<p>Select tables for which you wish to create synonyms:</p> <ul style="list-style-type: none"> <input type="checkbox"/> To select all tables in the list, select the check box to the left of the <i>Default Synonym Name</i> column heading. <input type="checkbox"/> To select specific tables, select the corresponding check boxes.

Procedure: How to Refresh Synonyms

Refreshing a synonym enables you to update field information while preserving the original synonym title, description, usage, virtual field, and DBA information. The action also synchronizes the Master File with the table on which the synonym is based.

You can refresh synonyms from either the Data Servers area under the WebFOCUS Environments folder or from the Projects area.

1. Right-click a synonym (Master File).
 - ❑ In the WebFOCUS Environments folder, Master Files are listed within an application in the Data Servers, Applications area.
 - ❑ In the Projects area, Master Files are listed in a Master Files folder under a project name.
2. Choose *Refresh Synonym* to recreate the Master File.

Note: Refresh is not applicable to cubes at the current time, and not supported for FOCUS files.

Procedure: How to Delete Synonyms

Master Files and Access Files are removed from the server when you delete a synonym.

1. Right-click the synonym you want to delete and select *Delete*.
You are asked to confirm the deletion.
2. Click Yes to delete or No to cancel.

Using the Reporting Server Web Console for Data Access and Synonym Preparation

How to:

Access the Reporting Server Web Console

A server administrator, or an application administrator who has been granted these privileges, can configure and manage WebFOCUS Reporting Servers through the Reporting Server Web Console. You can use the Server Console as an alternative to the Developer Studio tools to configure adapters, add remote servers, and create synonyms. In addition, many other configuration options are available through the Server Console. For a full understanding of configuration options and server capabilities, see the Server Console help system or the following manuals: *Server Administration for UNIX, Windows, OpenVMS, i5/OS, and z/OS* and *Adapter Administration for UNIX, Windows, OpenVMS, i5/OS, and z/OS*.

Note:

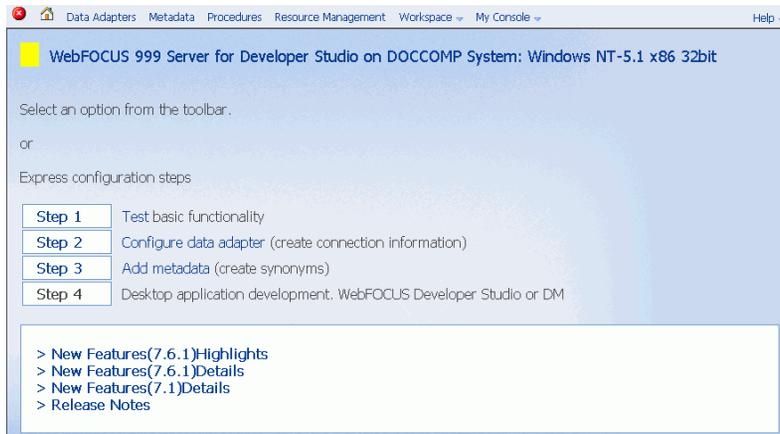
- ❑ This console is sometimes referred to as the Web Console or the Reporting Server Console.
- ❑ For Developer Studio installations that allow standalone development, the local, default WebFOCUS Reporting Server normally runs with security OFF, and the user who installed Developer Studio is the default administrator.

Procedure: How to Access the Reporting Server Web Console

1. Open the Reporting Server Web Console from Developer Studio by selecting its icon from the Object Explorer toolbar or by going to the following page in a Web browser:

`http://hostname:port#/webconsole`

The Server Console opens in your Web browser.



2. To add an adapter through the Server Console, click *Data Adapters* on the menu bar. On the expanded menu bar, click *New Adapter*, expand folders on the right, and click your adapter type to bring up a form for adding the data adapter.
3. To create a synonym through the Server Console, click *Metadata* on the menu bar. On the expanded menu bar, click *New Synonym*, select the remote server or adapter on the right, and complete the forms that follow.
4. To access the *Server Console* help, click *Help* on the menu bar and choose *Contents and Search*. Expand the *Adapters* folder in the Table of Content, and review the information for your adapter.

Note: You may need to use Internet Explorer to properly view the help.

Defining a Remote Server in the WebFOCUS Client Communication File

How to:

Open the WebFOCUS Administrative Console From Developer Studio

Add a Remote Server to the WebFOCUS Environment

Change a Remote Server Node

If you have configured a WebFOCUS Reporting Server elsewhere in your enterprise to access your data, and you wish to make that remote server visible in and accessible from the WebFOCUS Environments, Data Servers folder as a *distinct, named entity*, you must add the remote server to your WebFOCUS Client configuration. Except for the default server (e.g., EDASERVE), which is visible under Data Servers, the listing of servers in this location is controlled by the WebFOCUS Client and implemented through the WebFOCUS Administration Console, which updates the WebFOCUS Client's communication file (odin.cfg).

Once you add the Remote Server to your WebFOCUS Environment, you can access data and perform development directly against the named remote server. That is, you can use a variety of Developer Studio tools to access your application files, in their respective virtual folders, for development purposes. For example, you can open synonyms in the Synonym Editor, procedures in the Report Painter, and html files in the Report Layout Painter, and edit those files as if you were working on your local machine. These Reporting Servers can also be used by Managing Reporting if that environment is deployed in your organization.

Procedure: How to Open the WebFOCUS Administrative Console From Developer Studio

1. Select the *WebFOCUS Environment* you are working with.
2. Click the *WebFOCUS Administration Console*  icon on the Object Explorer toolbar.
3. When the Administration Console opens, log in to WebFOCUS.

Proceed as described in [How to Add a Remote Server to the WebFOCUS Environment](#) on page 43.

Procedure: How to Add a Remote Server to the WebFOCUS Environment

1. Click *Reporting Servers* and then *Remote Services*.
2. Click *New*.

- 3.** In the NODE field, specify the name by which you will refer to the server. The name is your choice, but cannot be the same as any other node name. In addition, the name must begin with a letter and cannot be more than eight characters. When the WebFOCUS Client accesses this server, it will use this name.
- 4.** Specify the Node class (Client or Cluster).

If you specify Client, this node will function as a stand alone server. It can also be used as an alternate server within a cluster configuration.

If you specify Cluster, this is the primary node that will be used to distribute workload to alternate servers.
- 5.** Click Next.
 - If you selected Client in step 4, proceed to step 6.
 - If you selected Cluster in step 4, proceed to step 7.
- 6.** The New Node window opens. Enter the following required parameters:
 - a. HOST.** Host name or IP address of the server.
 - b. PORT.** Port number for the TCP listener. The default port is 8120.
 - c. HTTP_PORT.** Port number for the HTTP listener. This is normally the second consecutive port that the server uses. Type the same port number that was specified during installation. The default HTTP port is 8121.
 - d. CLASS.** If this is a z/OS server, you must include a qualifier.

- e. **SECURITY.** Determines how WebFOCUS connects to the WebFOCUS Reporting Server. Possible values are as follows:

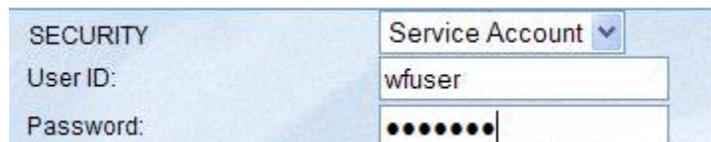
Default. Is the initial value for new nodes and represents the traditional behavior, where the `odin.cfg` file does not contain a SECURITY keyword. In this case, WebFOCUS makes an explicit connection to the Reporting Server with whatever user ID and password it has available for the request. A user ID may come from `IBI_REPORT_USER` on the console's Client Settings, Reporting Server pane, from a WebFOCUS Client Node Profile, or from the user's `WF_COOKIE` if a Reporting Server sign-on has taken place. How the server processes explicit connections depends on its security setting (OFF, PTH, OPSYS, LDAP, DBMS).

HTTP Basic. Configures WebFOCUS to extract the user's ID and password from the Authorization header. These credentials are then used to make an explicit connection to the WebFOCUS Reporting Server. You should only select this option when your Web-tier is performing Basic Authentication so that the user's Base64 encoded ID and password will be available in the request header. For example:
 Authorization Basic amxOXHdmdXNlcjp3ZnVzZXIx
 To verify that the Authorization header is available to WebFOCUS, click the WebFOCUS Administrative Console's Diagnostics menu and select *HTTP Request Info*.

Kerberos. Configures WebFOCUS to pass the user's Kerberos ticket to the WebFOCUS Reporting Server. This option enables an end-to-end single sign-on solution from the desktop to WebFOCUS to the Reporting Server, to supported relational DBMS systems. When using this option, the WebFOCUS Reporting Server must run in security OPSYS mode. There are additional setup requirements for WebFOCUS and for Microsoft Active Directory, which are described in Technical Memo TM4647.

SAP Ticket. Enables customers using WebFOCUS Open Portal Services in SAP Enterprise Portal to achieve single sign-on through WebFOCUS to a Reporting Server configured with the SAP Data Adapter. WebFOCUS passes along the user's MYSAPSSO cookie, created on SAP Enterprise Portal, to the Reporting Server which validates it using the SAP security API.

Service Account. Enables you to specify a user ID and password to be used for all connections to the Reporting Server. The credentials are encrypted and stored in the `odin.cfg` file's SECURITY keyword. When defined, the service account overrides any other credentials that might be presented to WebFOCUS for this Reporting Server node.

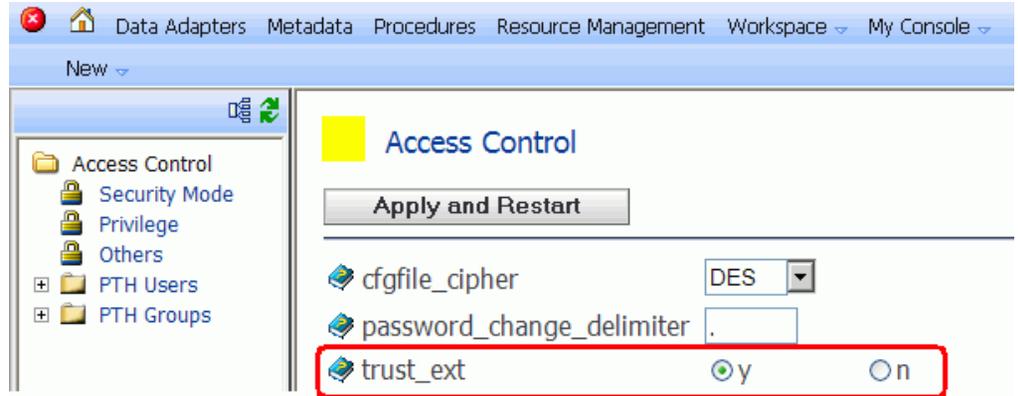


SECURITY	Service Account ▼
User ID:	wfuser
Password:	●●●●●●

Trusted. Enables you to connect to the Reporting Server with only a user Id. This option is useful when no password is available for the user, and controls can be placed on the server to ensure that connections from unauthorized clients are rejected (for example, employing the server's RESTRICT_TO_IP setting so that only a particular WebFOCUS client can connect to the server).

If the server runs in security OPSYS mode, the connecting user ID must be valid on the server's operating system and the Reporting Server cannot run on Windows. In this scenario, the connecting user appears in the server's edaprint.log and is returned by the server's GETUSER and CNCTUSR subroutines. The report agent runs in the security context of the connecting user, which makes it possible to use operating system permissions and the trusted option for DBMS adapters in order to restrict file and data access.

Trusted connections are also supported by servers running in security OFF, PTH, and LDAP modes provided that the server's trust_ext setting is enabled.



In this configuration the connecting user appears in the server's edaprint.log and is returned by the server's CNCTUSR subroutine. The server's GETUSER subroutine will always return the user ID that started the server. When the server runs in LDAP mode the connecting user must be found in the LDAP directory before the connection is accepted.

If the server runs in the PTH or OFF security modes, then trusted connections will be accepted without authentication by Reporting Servers on any platform, including Windows. The server's edaprint.log and CNCTUSR subroutine will reflect the connecting user ID, and the server's GETUSER subroutine shows the user ID that started the server.

The following lines in a report request are useful to determine connection behavior:

```
-SET &CONNECT_USER = CNCTUSR('A30');
-SET &AGENT_USER = GETUSER('A30');
-TYPE Connect User is: &CONNECT_USER
-TYPE Report Agent runs as: &AGENT_USER
```

When you select *Trusted*, the following additional settings are displayed:

Select which option will be used to retrieve the connected user.

Note: Trusted connections are not supported by servers running in security DBMS mode.

Note: You can also specify the following optional parameters:

- f. COMPRESSION.** Turns on data compression. Codes are: 0 (off) and 1 (on).
- g. ENCRYPTION.** Sets data encryption ability and cryptography symmetric method used.

Select one of the following options from the drop-down list:

0 = off

DES =168-bit

3DES = 512-bit

3DESx = 1024-bit

IBCRYPT = user defined IBCRYPT DLL is loaded

Note: Triple DES and IBCRYPT are not supported under the HTTP protocol or for communication to and from the MVS server. In addition, if encryption is set manually outside of the console using the `odin.cfg` file, the console displays it as a static value and it cannot be modified using the console.

- h. CONNECT_LIMIT.** Number of seconds the client holds the pending connection. This is useful in a cluster deployment to avoid a lengthy delay of failover response. Other possible values are 0 (no wait) and -1 (infinite wait). -1 is the default value.
- i. MAXWAIT.** <query wait>[,<row wait>]. Time the client waits before timeout. The first number is the return time for any row. The second number (optional) is the return time for rows beyond the first row. Time is in seconds.

- j. DESCRIPTION.** Description for the WebFOCUS Reporting Server node. This description displays in the WebFOCUS front-end tools.

Proceed to Step 8.

- 7.** The New Cluster Node window opens. Enter the following required parameters:

- a. ALTERNATE.** Select the servers to be included in the cluster.

- b. DESCRIPTION.** Description for the cluster.

Tip: More advanced cluster functionality can be configured using the iWay Client Web Console. For details, see *Technical Memo 4641: Distributing Workload Across Clustered WebFOCUS Reporting Servers*. Changed cross-ref, moved info as agreed

- 8.** Click Save.

Procedure: How to Change a Remote Server Node

- 1.** Click *Reporting Servers* and then *Remote Services*.

- 2.** Select the node you want to change.

- 3.** Click one of the following buttons:

- Modify.** Displays the settings for the selected node, enabling you to make changes.

You can select the *Set as Default Server Node* check box to specify that the node is the default WebFOCUS Reporting Server. The node will be written as the IBI_REPORT_SERVER parameter value in the cgivars.wfs file. Note that even if you check *Set as Default Server Node*, this can be overridden if an IBIC_server is set in site.wfs or a node profile.

If the site.wfs file or request URL contains an IBIC_server setting, it will override the IBI_REPORT_SERVER parameter. In this case, the WebFOCUS Administration Console indicates that the IBI_REPORT_SERVER is the default node, even though it is no longer the default.

You can also click *Save As* to save these settings for another specified node that will be added to the ibi\WebFOCUS76\client\wfc\etc\odin.cfg file.

- Remove.** Deletes the selected node. You will receive a message asking for you to confirm the deletion. This button only appears if you have more than one node defined.
- Profile.** Enables you to override WebFOCUS default settings for a specific WebFOCUS Reporting Server node. These settings are written to ibi\WebFOCUS76\client\wfc\etc\node.prf, where node is the node you selected in Step 2.

- ❑ **Server Console.** Displays the WebFOCUS Reporting Server Console, which enables you to remotely manage your server environment. For more information, see the *iWay Server Administration for UNIX, Windows, OpenVMS, i5/OS, and z/OS* manual.

Note: You can select the *Sort alphabetically* check box to sort a list of multiple servers.

3 | Using the Synonym Editor

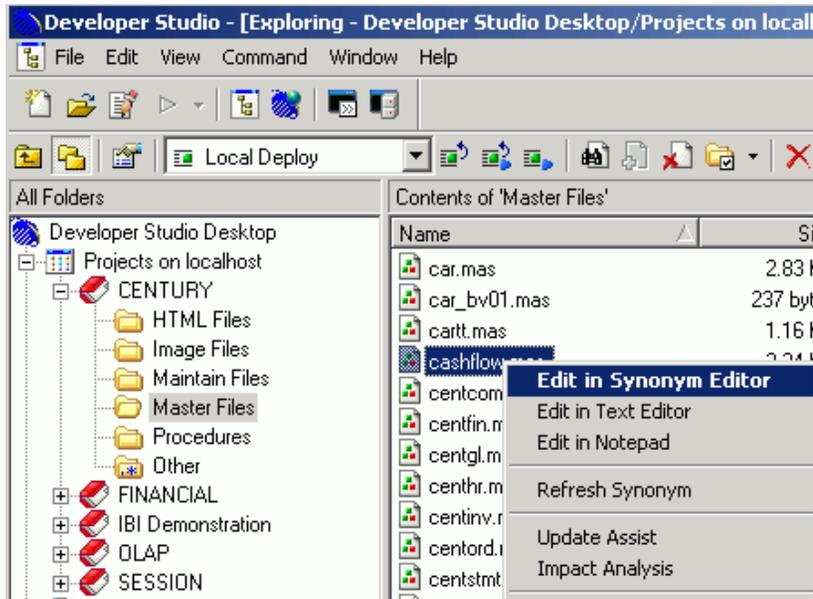
This chapter describes the Synonym Editor and how you may use it to view and edit synonyms in Developer Studio.

Topics:

- ❑ Using the Synonym Editor
- ❑ Synonym Editor Layout
- ❑ Viewing and Editing Synonym Attributes
- ❑ Setting Up Multilingual Titles and Descriptions
- ❑ Enhancing Synonyms Using the Modeling View
- ❑ Creating Cluster Joins
- ❑ Defining Dimensions for OLAP Analysis
- ❑ Using the Synonym Editor for Cube Data Sources
- ❑ Creating Business Views in Developer Studio
- ❑ Adding Virtual Columns (DEFINE) in a Synonym
- ❑ Creating Filters in a Synonym
- ❑ Adding Computed Fields (COMPUTE) in a Synonym
- ❑ Defining Attributes and Creating Expressions for Custom Fields
- ❑ Adding Group Fields in a Synonym
- ❑ Applying Database Administrator Security

Using the Synonym Editor

The following image is an example of how to access the Synonym Editor from Developer Studio.



A synonym consists of a set of attributes that describe the data source. It provides the metadata for a data source, which enables an adapter to access and interpret the corresponding data.

Synonym Editor Layout

Reference:

- Synonym Editor - Tree View Tab
- Synonym Editor - Segment Pop-up Menu
- Synonym Editor - Column/Field Pop-up Menu
- Synonym Editor - Modeling View Tab
- Synonym Editor - Synonym Text View Tab
- Synonym Editor - Access File Text View Tab
- Synonym Editor Toolbar

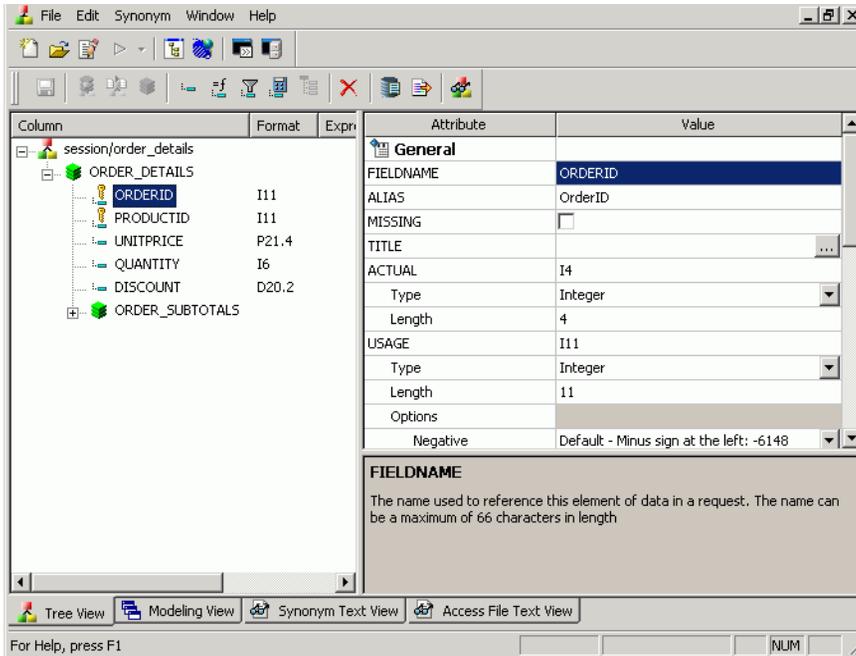
The Synonym Editor occupies the Developer Studio workspace and displays Tree View, Modeling View, Synonym Text View, and Access File Text View tabs.

Reference: Synonym Editor - Tree View Tab

The Tree View tab shows a hierarchy of segments and columns on the left, with the attributes and values of the selected item on the right.

Note: The attributes available depend on the type of synonym.

The image below is an example of a Microsoft SQL Server data source with a key column selected.



Note: Information about the attribute that has focus is displayed at the bottom of the attribute list. In this case, an explanation of the FIELDNAME attribute appears.

The following objects may appear on the Tree View tab.

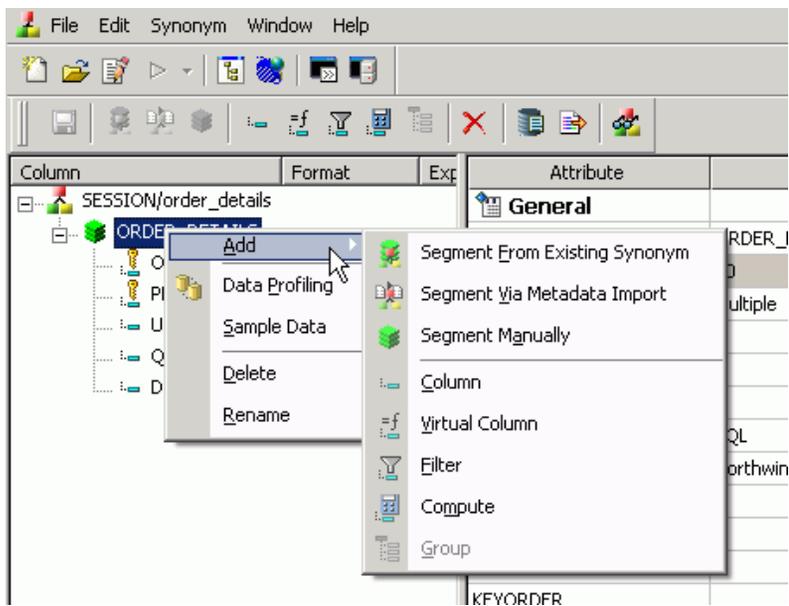
Object	Function
	Synonym. General icon used to indicate synonyms, visible on top of the Tree View tab. It provides information about the file name used and the application it resides in.
	Segment. Indicates a segment in a synonym. The root or parent segment appears first in the tree.
	Unique Segment (FOCUS/FDS and XFOCUS only). Indicates a unique segment in a FOCUS/FDS or XFOCUS synonym.

Object	Function
	Virtual Segment (Cross-Referenced). Indicates a virtual or cross-referenced segment. Note: This type of segment is applicable for FOCUS data sources.
	Key Column. Indicates a key column.
	Column. Indicates a general column.
	Virtual Column (Define). Indicates a virtual or defined column. For more information about virtual columns. See Adding Virtual Columns (DEFINE) in a Synonym on page 120.
	Index Column. Indicates an index column.
	Filter. Indicates a Master File filter.
	Compute field. Indicates a computed field.

Reference: Synonym Editor - Segment Pop-up Menu

When you right-click a segment in the Synonym Editor, the following pop-up menu appears in the Tree View tab.

The image below is an example of a MS SQL Server data source with the root segment selected.



The following options are available:

Add

Enables you to add one of the following:

Segment From Existing Synonym

Adds an existing synonym to the current synonym.

Segment Via Metadata Import

Enables you to create and add a new synonym to the current synonym through the Create Synonym tool.

Segment Manually

Adds a synonym that must be coded manually.

Column

Adds a column to the segment.

Virtual Column

Adds a virtual column to the segment.

Filter

Adds a filter to the segment.

Compute

Adds a calculated value to the file.

Group

Adds a group column to the segment.

Data Profiling

Provides the characteristics of the data for a segment.

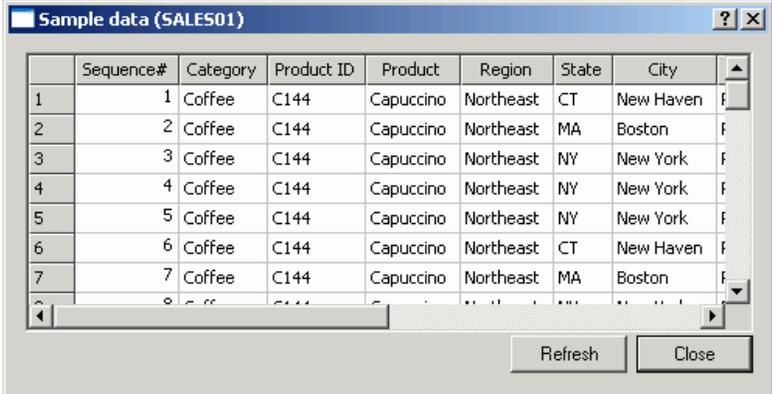
Data Profiling is available from the right-click context menu for all columns in the Master File hierarchy tree.

Sample Data

Displays sample data in the workspace.

Sample data is available from the Synonym Editor toolbar, the right-click context menu for all columns in the Master File hierarchy tree, and from the Modeling View.

The following image is an example of the sample data that appears for a segment:



	Sequence#	Category	Product ID	Product	Region	State	City	
1	1	Coffee	C144	Capuccino	Northeast	CT	New Haven	f
2	2	Coffee	C144	Capuccino	Northeast	MA	Boston	f
3	3	Coffee	C144	Capuccino	Northeast	NY	New York	f
4	4	Coffee	C144	Capuccino	Northeast	NY	New York	f
5	5	Coffee	C144	Capuccino	Northeast	NY	New York	f
6	6	Coffee	C144	Capuccino	Northeast	CT	New Haven	f
7	7	Coffee	C144	Capuccino	Northeast	MA	Boston	f
8	8	Coffee	C144	Capuccino	Northeast	NY	New York	f

Note: Sample Data is a great way to test the synonym for field data and to view the type of records returned. This can assist when performing Joins, testing connectivity to data sources, and so on.

Delete

Deletes the segment.

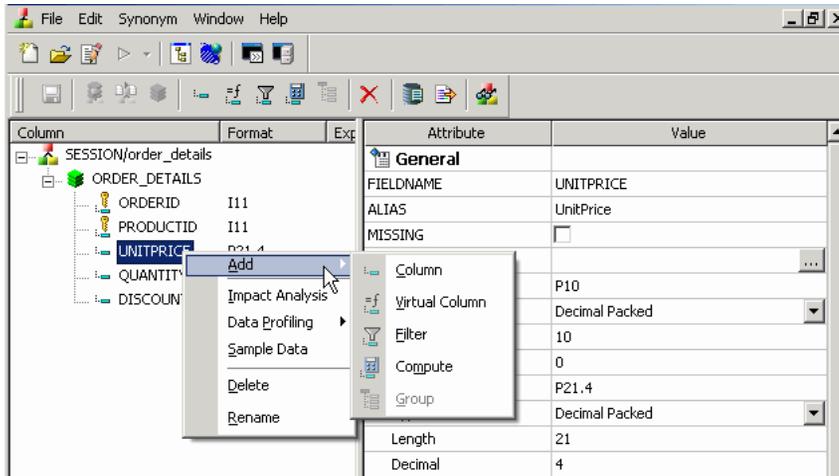
Rename

Enables you to rename the segment.

Reference: Synonym Editor - Column/Field Pop-up Menu

When you right-click a column in the Synonym Editor, the following pop-up menu appears in the Tree View tab.

The image below is an example of a MS SQL Server data source with a column selected.



The following options are available:

Add

Enables you to add one of the following:

Column

Adds a column to the synonym.

Virtual Column

Adds a virtual column to the synonym.

Filter

Adds a filter to the segment.

Compute

Adds a calculated value to the file.

Group

Adds a group column to the synonym.

Impact Analysis

Displays an Impact Analysis report for the particular column in the workspace.

Data Profiling

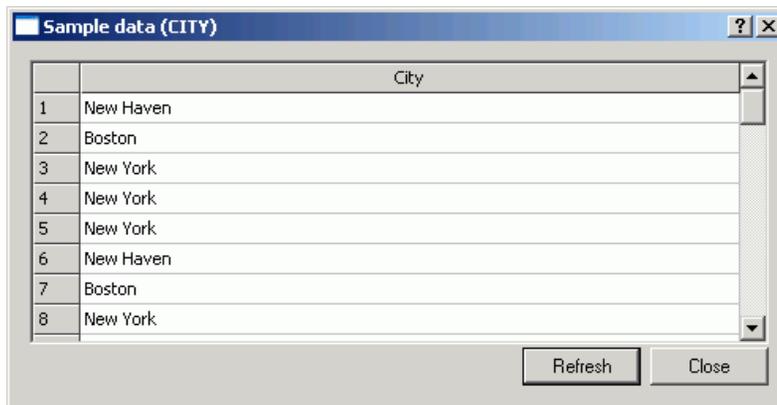
Provides the characteristics of the data for a column. Data Profiling is available from the right-click context menu for all columns in the Master File hierarchy tree.

Sample Data

Displays sample data in the workspace.

Sample data is available from the Synonym Editor toolbar, the right-click context menu for all columns in the Master File hierarchy tree, and from the Modeling View.

The following image is an example of the sample data that appears for a column:



Note: Sample Data is a great way to test the synonym for field data and to view the type of records returned. This can assist when performing Joins, testing connectivity to data sources, and so on.

Decompose Date

Decomposes date fields into virtual columns representing Year, Month, Day, and Quarter fields.

Note: Decompose date is visible for date fields.

Delete

Deletes the column.

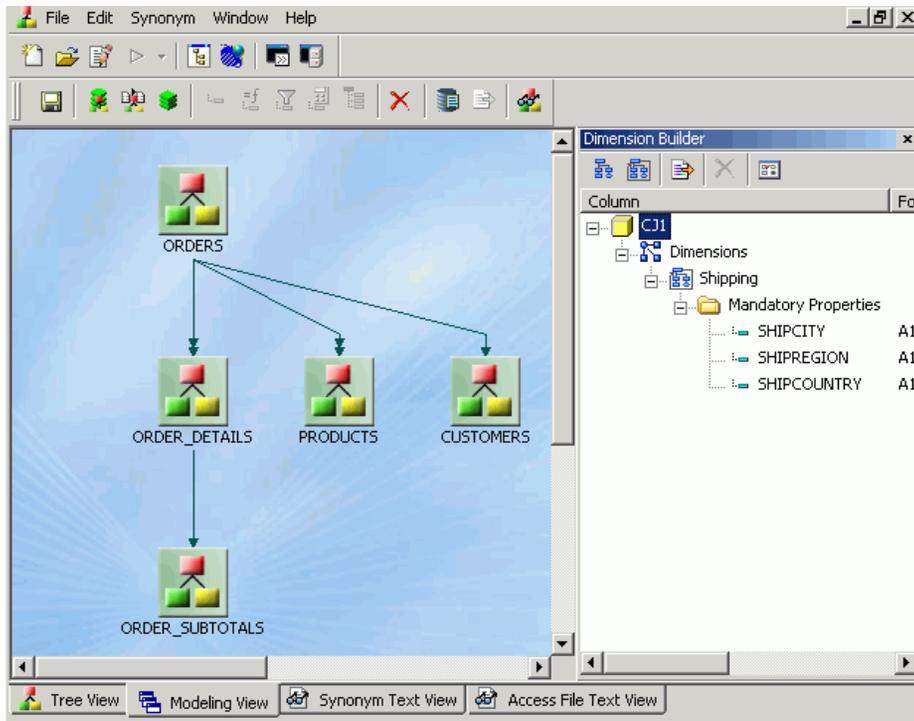
Rename

Allows you to rename the column.

Reference: Synonym Editor - Modeling View Tab

The Modeling View tab shows a graphical representation of the synonym. Use the Modeling View to define dimensions for OLAP analysis, view join properties, create cluster joins, and add or edit segments.

The image below is an example of a MS SQL Server data source in the Modeling View.



For more information about the Modeling View, see [Enhancing Synonyms Using the Modeling View](#) on page 79.

Reference: Synonym Editor - Synonym Text View Tab

The Synonym Text View tab shows the description of the underlying table.

Note: You can print the Master File code by selecting *Print* from the File menu.

The image below is an example of a MS SQL Server data source in the Synonym Text View tab.

```

1 FILENAME=CJ1, SUFFIX=SQLMSS , $
2 SEGMENT=ORDERS, SEGTYPE=SO, $
3 FIELDNAME=ORDERID, ALIAS=OrderID, USAGE=I11, ACTUAL=I4, FIELDTYPE=R, $
4 FIELDNAME=CUSTOMERID, ALIAS=CustomerID, USAGE=A5, ACTUAL=A5,
5 MISSING=ON, $
6 FIELDNAME=EMPLOYEEID, ALIAS=EmployeeID, USAGE=I11, ACTUAL=I4,
7 MISSING=ON, $
8 FIELDNAME=ORDERDATE, ALIAS=OrderDate, USAGE=HYMDS, ACTUAL=HYMDS,
9 MISSING=ON, $
10 FIELDNAME=REQUIREDDATE, ALIAS=RequiredDate, USAGE=HYMDS, ACTUAL=HYMDS,
11 MISSING=ON, $
12 FIELDNAME=SHIPPEDDATE, ALIAS=ShippedDate, USAGE=HYMDS, ACTUAL=HYMDS,
13 MISSING=ON, $
14 FIELDNAME=SHIPVIA, ALIAS=ShipVia, USAGE=I11, ACTUAL=I4,
15 MISSING=ON, $
16 FIELDNAME=FREIGHT, ALIAS=Freight, USAGE=P21.4, ACTUAL=P10,
17 MISSING=ON, $
18 FIELDNAME=SHIPNAME, ALIAS=ShipName, USAGE=A40V, ACTUAL=A40V,
19 MISSING=ON, $
20 FIELDNAME=SHIPADDRESS, ALIAS=ShipAddress, USAGE=A60V, ACTUAL=A60V,
21 MISSING=ON, $
22 FIELDNAME=SHIPCITY, ALIAS=ShipCity, USAGE=A15V, ACTUAL=A15V,
23 MISSING=ON, $

```

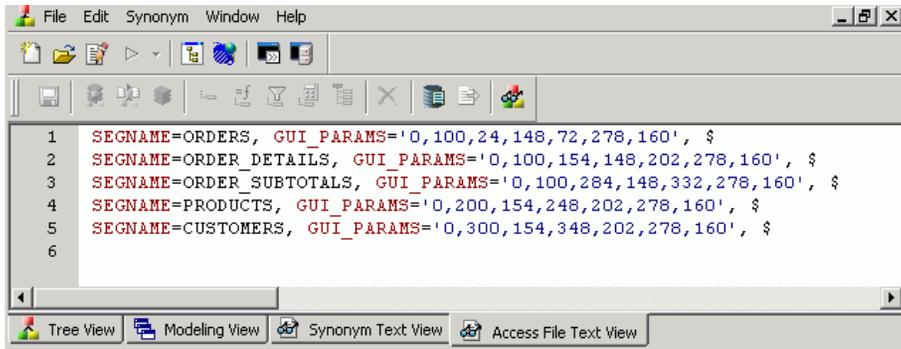
Note: The text views are read-only. You cannot edit the underlying description from these tabs. To edit a synonym using an editor in Developer Studio, you can select *Edit in Text Editor* from the Projects or Data Servers area context menu.

Reference: Synonym Editor - Access File Text View Tab

The Access File Text View tab shows the description of a synonym's Access File, which is used to access the database.

Note: You can print the Master File code by selecting *Print* from the File menu.

The image below is an example of a MS SQL Server data source in the Access File Text View tab.



Note: The text views are read-only. You cannot edit the underlying description from these tabs.

Reference: Synonym Editor Toolbar

The Synonym Editor toolbar contains buttons that provide quick access to commonly performed functions. The behavior of the button is determined by the selected object. Therefore, certain toolbar buttons may be inactive.

Button	Definition
	Saves the edits made to the synonym.
	Enables you to add segments from an existing synonym by using the Select Synonym dialog box.
	Enables you to add segments via metadata import by using the Create Synonym tool. This tool creates a synonym and includes it as a segment in the synonym from which the tool was launched.

Button	Definition
	<p>Enables you to add segments manually, assigning values to segment attribute fields in the Synonym Editor.</p> <p>Note: You would only use this approach if you are coding a Master File from scratch, as you would for a FOCUS data source.</p>
	<p>Adds a column field.</p>
	<p>Adds a virtual column (DEFINE) field.</p> <p>For more information about virtual columns, see Adding Virtual Columns (DEFINE) in a Synonym on page 120.</p>
	<p>Adds a Master File filter.</p> <p>For more information about filters, see Creating Filters in a Synonym on page 124.</p>
	<p>Adds a COMPUTE field.</p> <p>For more information about computed fields, see Adding Computed Fields (COMPUTE) in a Synonym on page 128.</p>
	<p>Adds a group.</p> <p>For more information about groups, see Adding Group Fields in a Synonym on page 140.</p>
	<p>Deletes the selected item.</p>
	<p>Adds field/value security DBA.</p> <p>For more information about DBA security, see Applying Database Administrator Security on page 146.</p>
	<p>Enables you to view and refresh sample data for the object.</p>
	<p>Enables you to create a business view and create a custom Master File that can use selected fields from the original synonym. In addition, you may customize field names, titles, and descriptions.</p> <p>For more information about business views, see Creating Business Views in Developer Studio on page 111.</p>

Viewing and Editing Synonym Attributes

How to:

View and Edit Synonym Attributes

Reference:

File Attributes Summary

Segment Attributes Summary

Column/Field Attribute Summary

The Synonym Editor enables you to view and edit a synonym's attributes.

Procedure: How to View and Edit Synonym Attributes

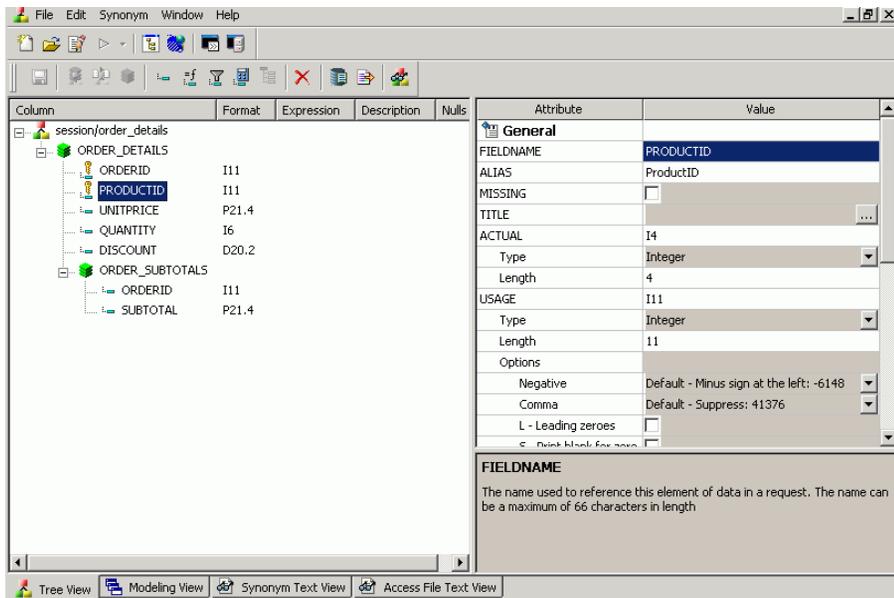
To view and edit synonym attributes:

1. From the Projects or Data Servers area in Developer Studio, open a synonym by double-clicking a Master File from the Master Files folder.

The Synonym Editor opens to the Tree View tab, which shows a hierarchy of segments and columns on the left, with the attributes and values of the selected item on the right.

Note: The attributes available depend on the type of synonym.

The image below is an example of a Microsoft SQL Server data source with a key column selected.



Note: The Format, Expression, Description, and Nulls values are viewable in the hierarchy with the columns. To edit these values, use the corresponding attribute fields on the right-hand side of the Synonym Editor.

2. You can change the attribute values by typing in new values or by using the drop-down menus and check boxes.

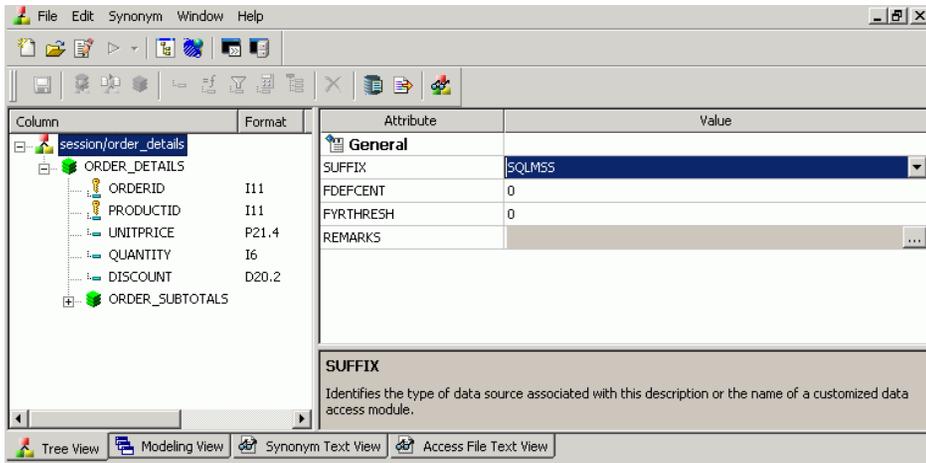
Note: The Synonym Editor does not let you make any changes that would render the Master File unusable. Therefore, you cannot edit any value field that is highlighted gray. In addition, if a change does not have proper syntax/format applied, the field may appear in red text. Messages and warnings appear if trying to save a file with an error.

3. Save changes by clicking Save from the File menu.
4. To close the Synonym Editor, select *Close* from the File menu or click the control button in the upper right corner.

Note: If you close the Synonym Editor without saving your changes, you are prompted to do so.

Reference: File Attributes Summary

The image below is an example of a MS SQL Server data source with the synonym file name selected.



Note: Information about the attribute that has focus is displayed at the bottom of the attribute list. In this case, an explanation of the SUFFUX attribute appears.

Synonyms can have the following file attributes:

General

SUFFIX

Identifies the type of synonym or data source.

FDFCENT

Defines the default century value, specifying a century number for handling cross-century dates.

Note: Use the default setting (0) unless you wish to retrieve data from an earlier century. For example, 19xx.

FYRTHRESH

Defines the base years—to represent the lowest year to which the century value applies (FDFCENT).

Note: Use the default setting (0) unless you wish to retrieve data from an earlier century. For example, 19xx.

REMARKS

Enables you to include descriptive information at the file level and specify multiple language descriptions for the synonym. Remarks are displayed along with the file name during reporting.

For more information about multilingual descriptions, see [Setting Up Multilingual Titles and Descriptions](#) on page 77.

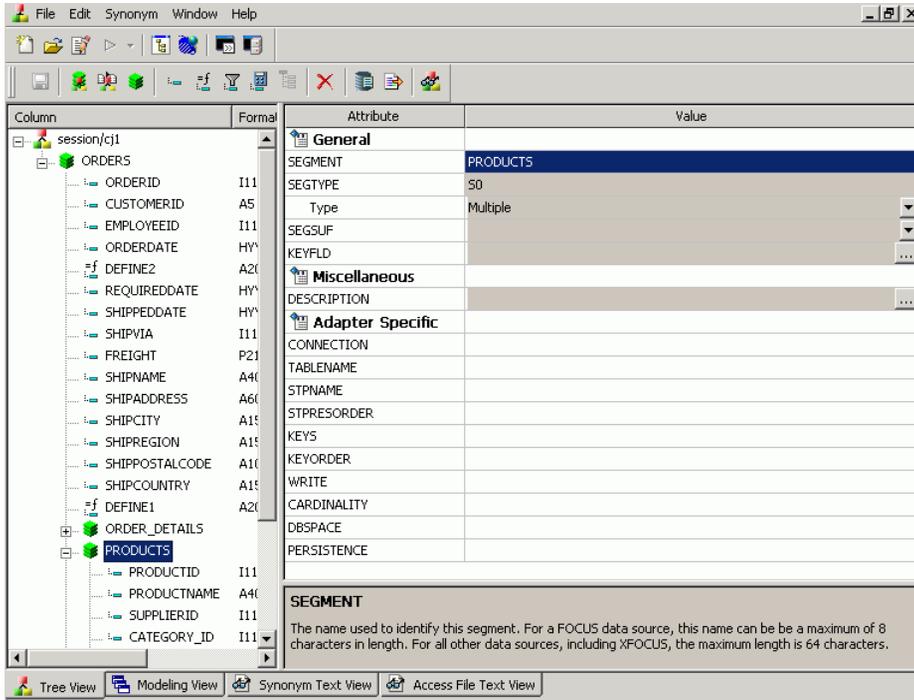
DATASET

Identifies the physical location of the data source to be used in the file name, including the extension and the location of the data file.

Note: The attributes available depend on the type of synonym.

Reference: Segment Attributes Summary

The image below is an example of a MS SQL Server data source with a segment selected.



Note: Information about the attribute that has focus is displayed at the bottom of the attribute list. In this case, an explanation of the SEGMENT attribute appears.

Segments in a synonym can have the following attributes:

General

SEGMENT

Is the name of the segment.

ENCRYPT

Check this box to scramble field values in the current segment in order to protect it from unauthorized examination.

Note: You must assign a DBA password to the file before setting the Encrypt option on. For details, see [Encrypting and Decrypting a Master File](#) on page 151. You must then turn the Encrypt option on before adding any records. If you add a record to a segment before setting the Encrypt option on, that value will not be encrypted.

Once a segment is encrypted, you can remove encryption only if you remove the segment and recreate it without turning on the Encrypt option.

Tip: Because there is a loss of processing efficiency when data is encrypted, encryption should be used selectively.

SEGTYPE

Specifies the type or relationship that a segment has to its parent and indicates which of the segment's fields are key fields, and in what order they are sorted.

Type - Identify the segment type and sorting options from the Type drop-down list.

Keys - Records are sorted in a data source by key fields. Enter the number of key fields that you want to use for sorting. For example, no two employees can have the same employee ID number, so you can use that field as the key. A segment instance can have more than one field that makes up the key; that is, two or more field values may be used to distinguish records.

SEGSUF

SEGSUF is used when part of the data source being described by the Master File is of a different data source type than that declared for the entire structure.

Note: SEGSUF is the data source type of a segment and any descendants it might have, where that type differs from the SUFFIX value.

Miscellaneous

DESCRIPTION

Contains a description or comments about the segment.

For more information about multilingual descriptions, see [Setting Up Multilingual Titles and Descriptions](#) on page 77.

CRFILENAME

Is the name of the cross-referenced data source.

CRSEGNAME

Is the name of the cross-referenced segment.

CRKEY

Identifies the common join field for the cross-referenced segment.

Note: These cross-referenced values (CRFilename, CRSegname, CRKey) are available for FOCUS data sources.

Adapter Specific

Note: Adapter Specific fields are shown if an Access File component has been generated with the synonym.

CONNECTION

Indicates the host server or data source for synonyms.

TABLENAME

Identifies the table or view. It may contain the owner ID, as well as the table name. For some synonyms, it must also contain the data source name.

KEYS

Identifies how many columns constitute the primary key.

KEYORDER

Identifies the logical sort sequence of data by the primary key.

WRITE

Specifies whether write operations are allowed against the table.

CARDINALITY

Defines the number of records that are found in the original data source when the synonym was created.

DBSPACE

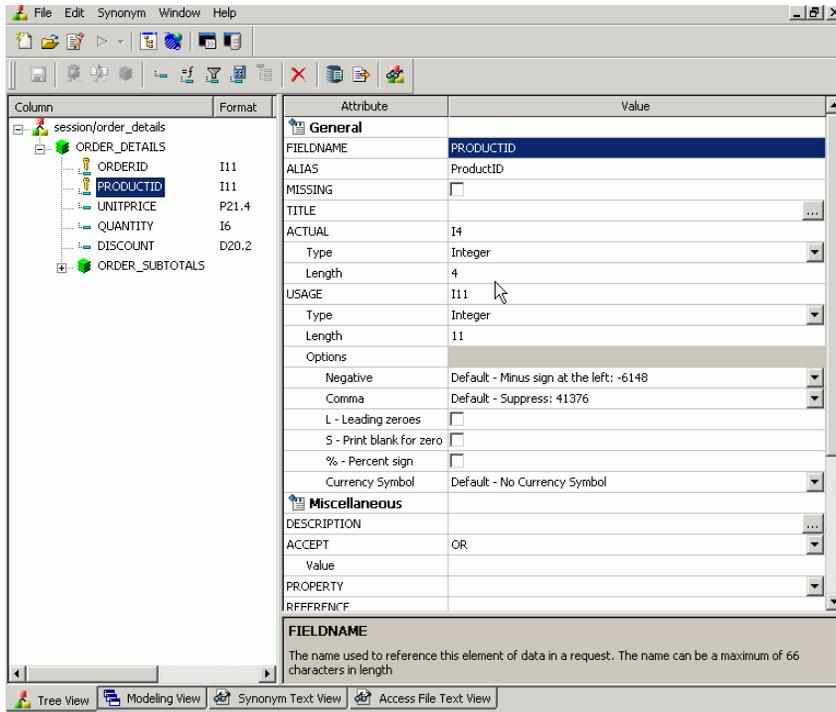
Identifies the storage area in which the table resides.

Note: The attributes available depend on the type of synonym.

Reference: Column/Field Attribute Summary

The image below is an example of a MS SQL Server data source with a key column selected.

Note: The attributes available depend on the type of synonym.



Note: Information about the attribute that has focus is displayed at the bottom of the attribute list. In this case, an explanation of the FIELDNAME attribute appears.

Columns in a synonym can have the following attributes:

General

FIELDNAME

Is the name of the column.

ALIAS

Assigns an alternative name for a column, or the real column name for a DBMS synonym.

MISSING

Controls how null data is handled, that is, if no transaction value is supplied.

TITLE

Supplies a title to replace the column name that is normally used in reports and enables you to specify multiple language titles for the column or field.

For more information about multilingual titles, see [Setting Up Multilingual Titles and Descriptions](#) on page 77.

USAGE

Describes the data type and format for the column for usage or display.

Note: Additional attributes, DEFCENT and YRTHRESH, are available if the Usage field is set to Date, Time, or DateTime (Timestamp) format. Use these attributes to enter the century and year threshold values for the column/field.

Miscellaneous**DESCRIPTION**

Contains a description or comments about the column or field.

For more information about multilingual descriptions, see [Setting Up Multilingual Titles and Descriptions](#) on page 77.

ACCEPT

Specifies criteria for validating data.

OR enables you to specify an acceptable value.

FROM-TO enables you to specify a range of acceptable value fields.

FIND enables you to supply file and field names to instruct WebFOCUS where to search for a data source and for a list of acceptable values. You supply the field name of the data field for which the validation criteria are being assigned, the file name of the target FOCUS data source where the field can be found, and the field name of the target data field that contains the validation criteria.

Note: Find is only available for FOCUS data sources and does not apply to OLAP-enabled Master Files. Note also that, in the Maintain environment, Find is not supported when developing a Master File.

WITHIN

Contains the name of a field to be included in a dimension.

These WITHIN statements are added to the synonym through the Dimension Builder to OLAP enable FOCUS files and relational tables. This enables you to perform OLAP analysis using the Developer Studio OLAP Control Panel, or to use it with the FML Painter.

FIELDTYPE

Identifies an indexed column.

Note: FIELDTYPE=R indicates a read-only column, which will not be updated by DM flows. This setting is useful for columns that are automatically assigned a value by the RDBMS, such as a Sybase or MS SQL Server Identity or Timestamp column.

ACCESS_PROPERTY

Specifies access options for the column's data.

INTERNAL defines a column that does not appear in sample data or in the list of available columns. Restricts the field from showing in any of the Field Lists in the reporting tools.

NEED_VALUE defines a column that requires a value to access the data.

Select By defines a column by value, range, or multivalued.

AUTHRESP defines a column that describes the result of an authentication operation. Correct response values must be provided in the ACCEPT attribute (using the OR predicate if more than one value is acceptable).

AUTHTOKEN defines a column that contains a response token to be passed as an input value to the operation to be executed.

HELPMESSAGE

Appends a help message to a column.

Note: The attributes available depend on the type of synonym.

Setting Up Multilingual Titles and Descriptions

How to:

Set Up Multilingual Titles and Descriptions

You can open a synonym in the Synonym Editor and provide text for the title, caption, and description in multiple languages. These descriptions appear in the specified language in reports generated against the synonym.

The Multilingual Titles dialog box is available from the Remarks, Title, and Description attribute value fields in the Synonym Editor.

Note: The attributes available depend on the type of synonym.

Procedure: How to Set Up Multilingual Titles and Descriptions

1. From the Projects or Data Servers area in Developer Studio, double-click the Master File or select *Edit in Synonym Editor* from the File menu.

The Master File opens to the Tree View tab in the Synonym Editor.

2. To add multilingual text:

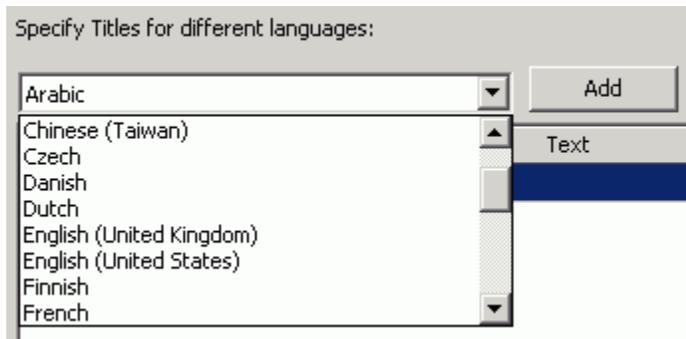
- ❑ For **Title**, click a column from the Master File hierarchy of columns on the left.
- ❑ For **Remarks**, click the root level of the Master File (application/filename) on the left.
- ❑ For **Descriptions**, click a column, segment, or custom field from the Master File hierarchy of fields on the left.

The corresponding attributes and values appear on the right.

3. Click the ellipsis (...) at the end of the value field for either Remarks, Title, or Description.

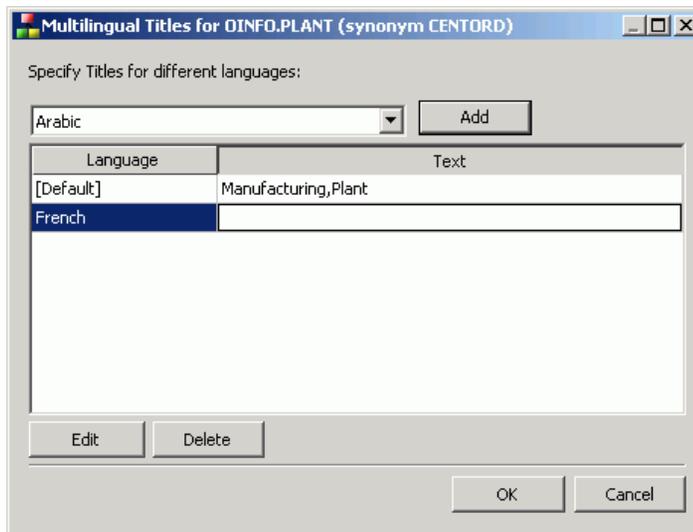
The Multilingual dialog box opens.

4. From the Specify Titles/Descriptions for different languages drop down list, choose the language in which you want the remarks (descriptions) and/or titles to be displayed.



5. Click *Add*.

The selected language is added below the default language (which is determined by your code page selection).



6. Type in a description/title in the Text field.

7. You may add, edit or delete additional titles/descriptions:
 - To add an additional language:**
 - a. Select another language from the drop-down list.
 - b. Click *Add*.
 - c. Type in a title/description for the field.
 - To edit an existing specified title/description:**
 - a. Select the title/description and click *Edit*.
You may also double-click the title.
 - b. Manually type a title/description name.
 - To delete a specified title:**
 - a. Select the title/description and language to be deleted.
 - b. Click *Delete*.
8. Click *OK* to close the Multilingual Titles dialog box.
9. Click *Save* from the File menu to save the synonym.
10. To close the synonym, select *Close* from the File menu or click the control button in the upper right corner.

Enhancing Synonyms Using the Modeling View

How to:

Enhance Synonyms Using the Modeling View

Edit Synonyms Using the Modeling View

Reference:

Modeling View Pop-up Menu

Join Properties Dialog Box

The Synonym Editor Modeling View tab provides a visual presentation for the synonym for which positioning is preserved and stored in the Access file. Use the Modeling View to define dimensions for OLAP analysis, view join properties, create cluster joins, and add or edit segments. For more information about using the Dimension Builder in the Modeling View, see [Defining Dimensions for OLAP Analysis](#) on page 96.

Note: The Modeling View is not available for Cube data sources.

Procedure: How to Enhance Synonyms Using the Modeling View

Use the Modeling View to enhance a synonym by adding a segment.

1. From the Projects or Data Servers area in Developer Studio, open a synonym by double-clicking a Master File from the Master Files folder.

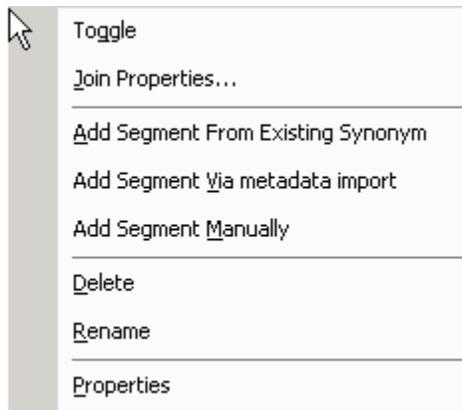
The Synonym Editor opens.

2. Click the *Modeling View* tab.

The Synonym Editor Modeling View tab opens in the workspace.

3. Right-click a segment in the workspace.

The following pop-up menu appears.



4. Add segment through one of the methods listed:

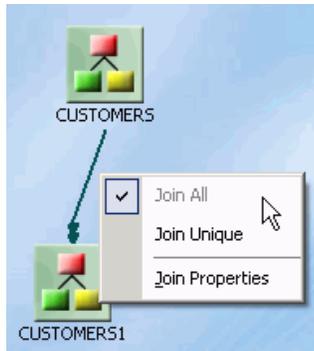
- Add Segment From existing synonym adds an existing synonym as a segment to the current synonym.
- Adding Segment Via metadata import enables you to add segments by using the Create Synonym tool. This tool creates a synonym and includes it as a segment in the synonym from which the tool was launched.
- Add Segment Manually enables you to add segments manually to the current synonym.

Note: You would only use this approach if you are coding a Master File from scratch, as you would for a FOCUS data source.

- Optionally, you can double-click the arrowed lines between tables to open the Join Properties dialog box and determine how the tables are linked.

Tip: You may also right-click a file icon and select *Join Properties* from the context menu.

In addition, when creating a Cluster Join, there are two additional options for linking tables: Join All (default) is shown by a double arrow and Join Unique is shown as a single arrow.



Note: Join options are not available for FOCUS files.

Procedure: How to Edit Synonyms Using the Modeling View

To edit synonyms using Modeling View:

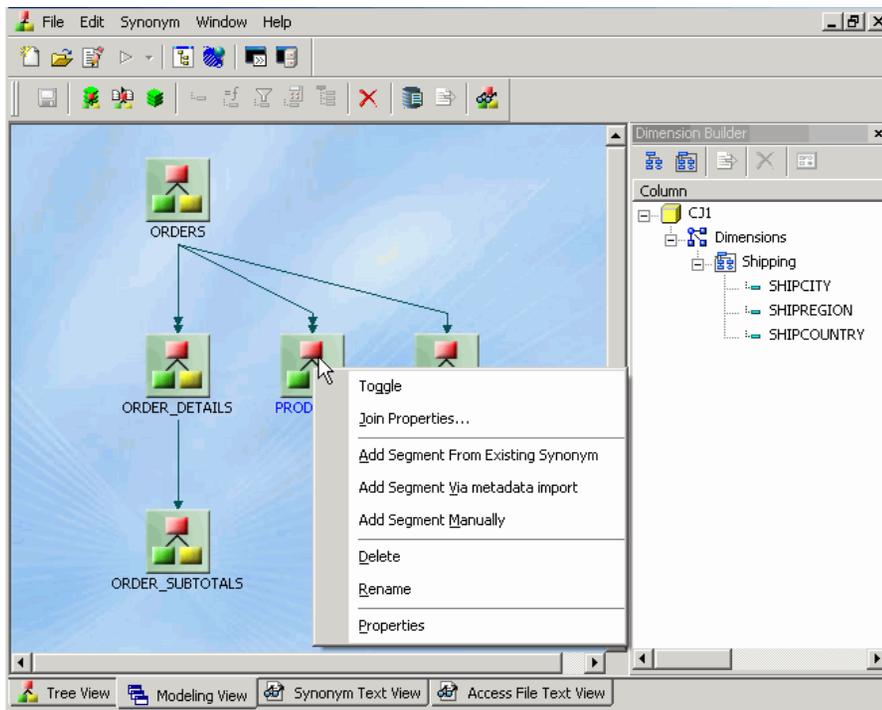
- From the Projects or Data Servers area in Developer Studio, open a synonym by double-clicking a Master File from the Master Files folder.

The Synonym Editor opens.

- Click the *Modeling View* tab.
- Right-click a segment icon.

A pop-up menu appears, providing options for adding segments.

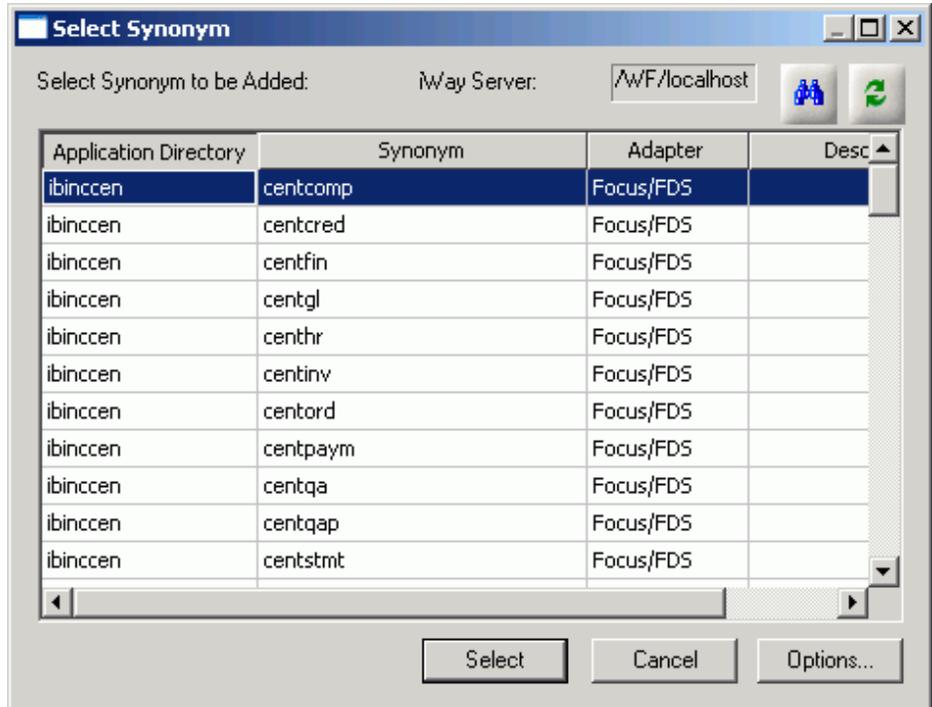
Note: Options for adding segments are also available from the icons above the workspace.



To Add a Segment From an Existing Synonym:

- a. Select *Add Segment From Existing Synonym* from the pop-up menu.

The Select Synonym dialog box opens.



- b. Click a synonym and click *Select*.

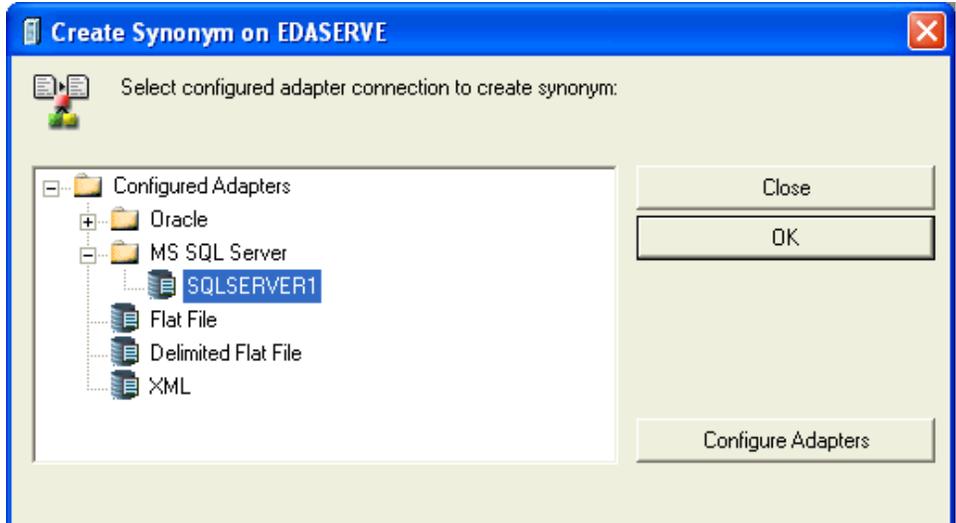
The segment is added to the synonym.

To Add a Segment Via Metadata import:

- a. Select *Add Segment Via metadata import* from the pop-up menu.

This method enables you to launch the Create Synonym tool, create a synonym, and incorporate it as a new segment in the synonym from which you initiate the import.

The Create Synonym dialog box opens.



- b. Create a synonym.

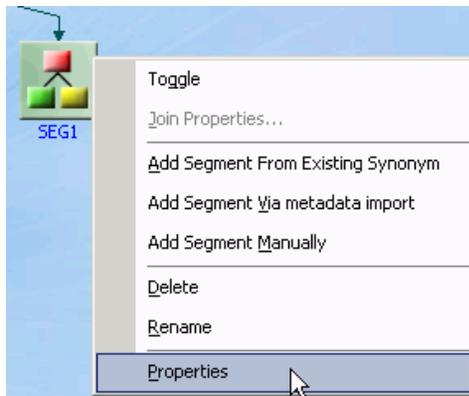
The segment is added to the synonym.

To Add a Segment Manually:

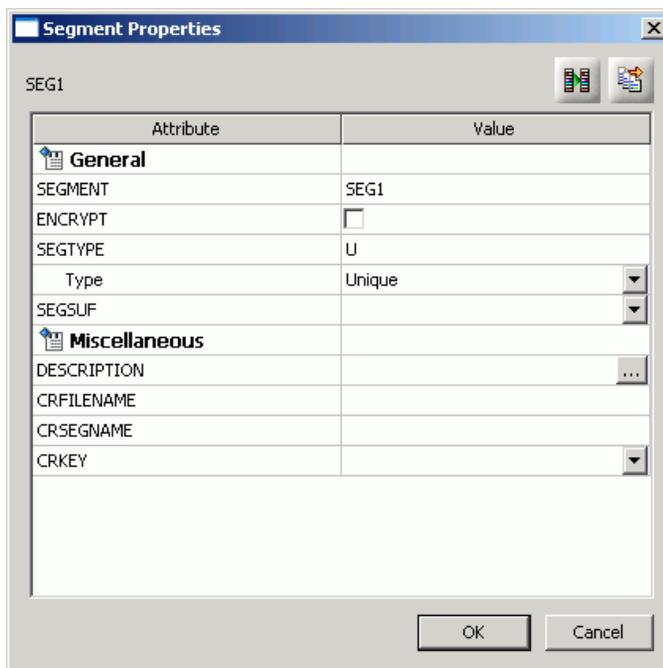
- a. Select *Add Segment Manually*.

The segment is added to the Modeling View and a default field is created, using a default name SEG name.

- b. Right-click the segment and select *Properties*.



The Segment Properties dialog box opens.

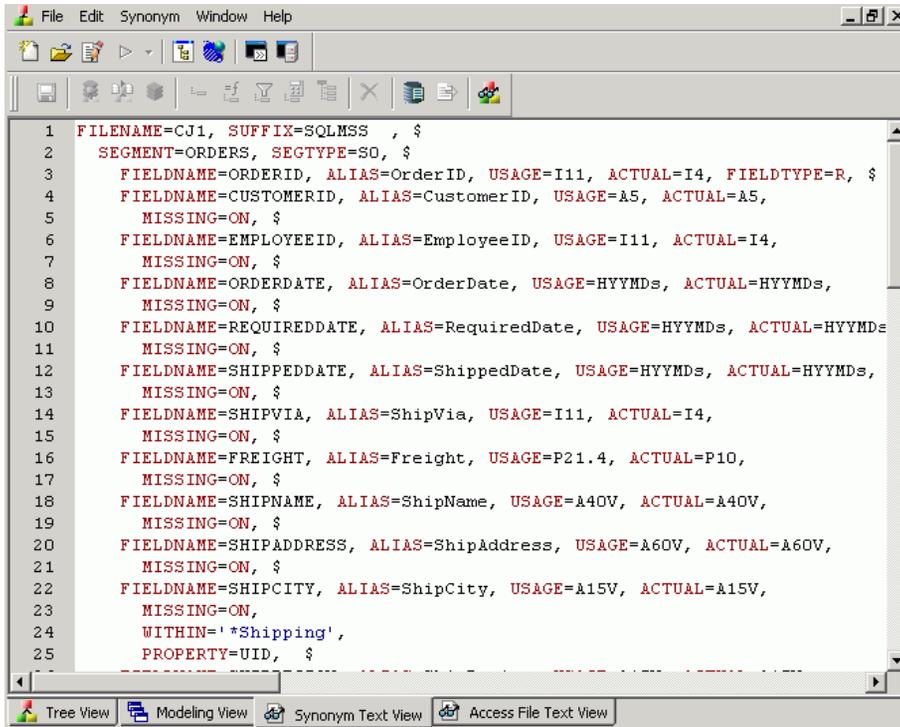


- c. Edit the segment's properties, if needed, and click *OK*.
- d. Switch to the tree view to add or change attributes for the new segment(s).

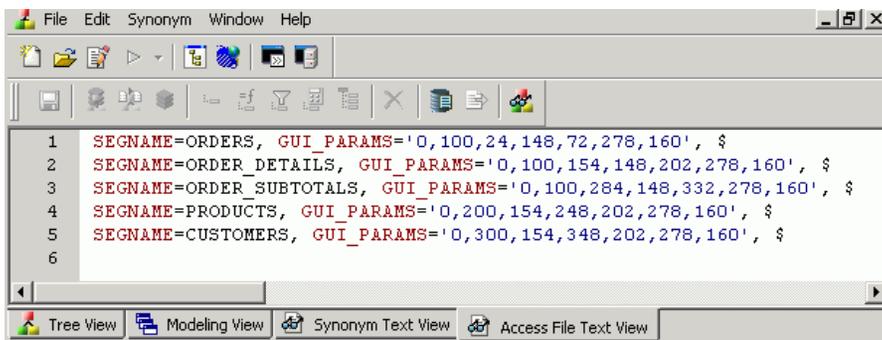
The following image shows a synonym which has had several segments added in the Modeling View tab.



The following image shows the resulting Text View.



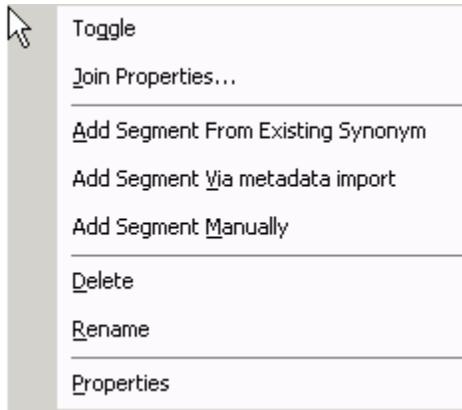
The following image shows the resulting Access File Text View.



Reference: Modeling View Pop-up Menu

When you right-click a synonym or segment in the Synonym Editor Modeling View tab, the following pop-up menu appears.

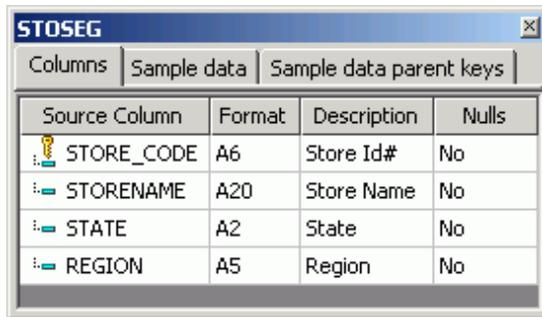
The following pop-up menu appears.



The pop-up menu has the following options:

Toggle

Changes the view from a file icon to a table view, which enables you to see columns, sample data, and sample data parent keys.



Source Column	Format	Description	Nulls
STORE_CODE	A6	Store Id#	No
STORENAME	A20	Store Name	No
STATE	A2	State	No
REGION	A5	Region	No

Tip: You may also double-click a file icon to open the table view. Double-click the table to close the table view, or click the X button from the toggle toolbar to close.

Join Properties

Provides access to the Join Properties window.

Note: Join options are not available for FOCUS files.

Add Segment From Existing Synonym

Enables you to add an existing synonym as a segment to the current synonym.

Add Segment Via metadata import

Enables you to create a new synonym through the Create Synonym tool and add it to the current synonym.

Add Segment Manually

Adds a segment to the current synonym, that must be coded manually.

Delete

Deletes the segment.

Rename

Enables you to rename the segment.

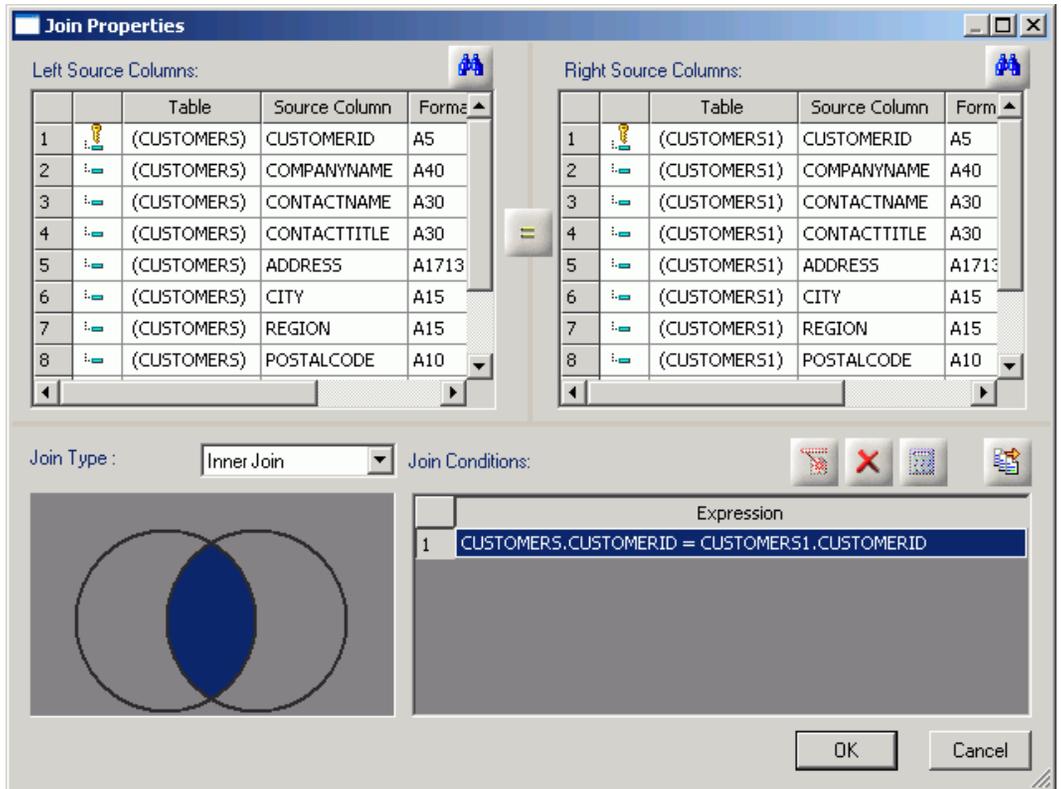
Properties

Launches the Segment Properties dialog box where you can edit the segment.

Reference: Join Properties Dialog Box

When you select Join Properties from a segment in the Synonym Editor Modeling View tab, the Join Properties dialog box appears.

The Join Properties dialog box contains Left and Right Source Columns, Join Type, and Join Condition options. Use the left and right source columns to create join maps and view sample data.



Note: Join options are not available for FOCUS files.

Creating Cluster Joins

How to:

Create a Cluster Join by Enhancing Existing Synonyms

Create a Cluster Join Using a New Synonym

Cluster Joins enable you to create a new file structure by linking existing synonyms of two or more relational tables using the same or mixed data sources. For example, you may join a MS SQL Server table with a MS Access table, or a DB2 table and an Oracle table, and so on. Use Cluster Joins to create new views in the metadata by linking together physical tables and easily report against the new view/structure. You can create cluster joins by using the Modeling View of the Synonym Editor.

The Master File description that is created combines the fields of the joined tables within a single file. The Access File from the combined file contains information about the actual location of the data sources, the Join information, and shows how the tables are linked.

The total number of tables that you can add to the tool is 64 (using 63 joins) that results in a new Master File that has a maximum of 64 segments.

Procedure: How to Create a Cluster Join by Enhancing Existing Synonyms

Use the Modeling View to enhance an existing synonym by adding a segment.

1. From the Projects or Data Servers area in Developer Studio, open a synonym by double-clicking a Master File from the Master Files folder.

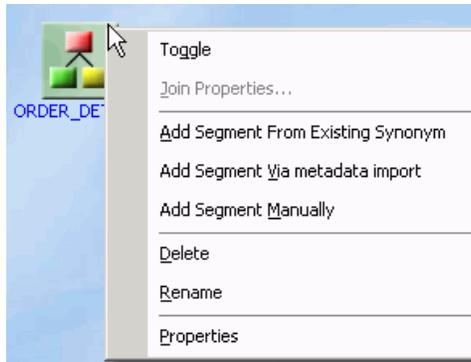
The Synonym Editor opens.

2. Click the *Modeling View* tab.

The Synonym Editor Modeling View tab opens in the workspace.

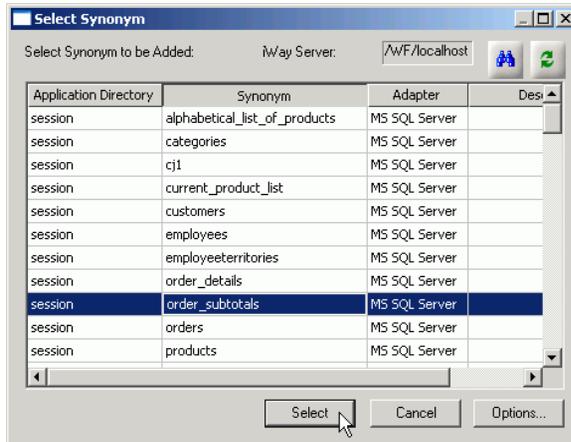
3. Right-click a segment in the workspace.

The following pop-up menu appears.



4. Add tables (segments) through one of the methods listed:
 - a. Add Segment From Existing synonym.

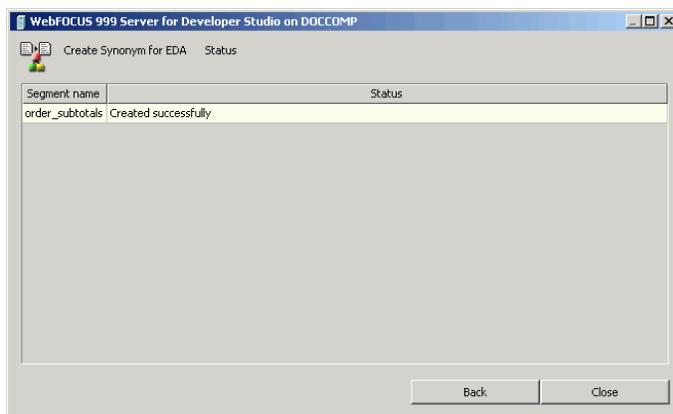
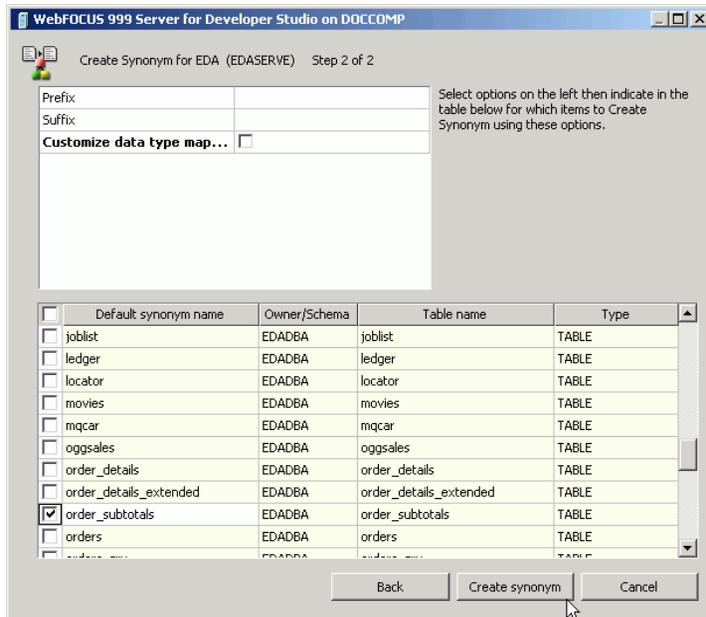
Select a synonym to be added and click *Select*.



Note: Use this method if you are creating a cluster join with an existing table/synonym.

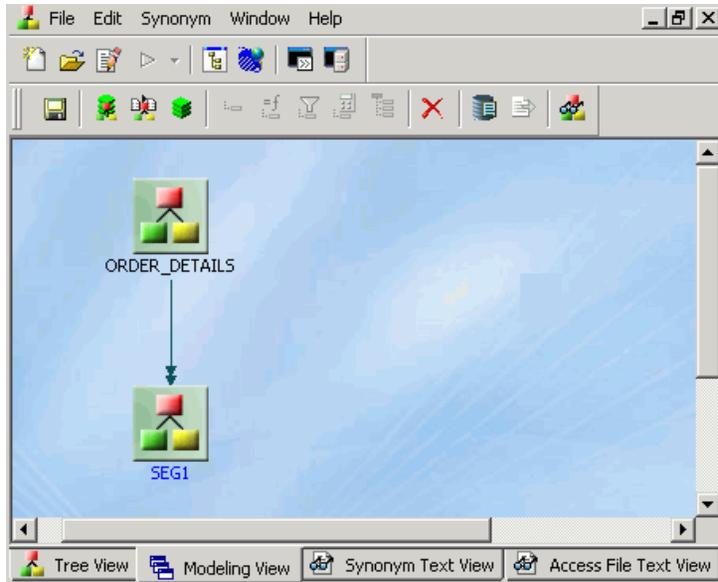
Tip: Click *Save As* from the Modeling View File menu if you do want to modify the original synonym.

- b. Adding Segment Via metadata import enables you to add segments by using the Create Synonym tool. This tool creates a synonym and includes it as a segment in the synonym from which the tool was launched.



Note: Use this method if you are creating a cluster join and need to use a synonym that does not exist. This option enables you to create the synonym and continue to create the cluster join.

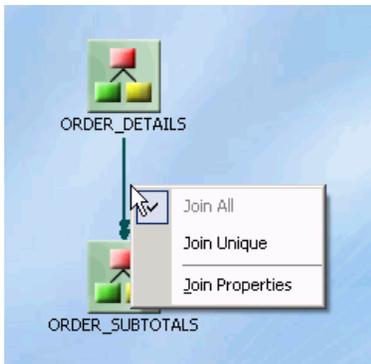
- c. Add Segment Manually enables you to add segments manually, assigning values to segment attribute fields in the Synonym Editor.



Note: Use this method if you are coding a Master File from scratch, as you would for a FOCUS data source.

The segment is added in the Modeling View.

- 5. Right-click the arrowed lines between tables to view the join options.

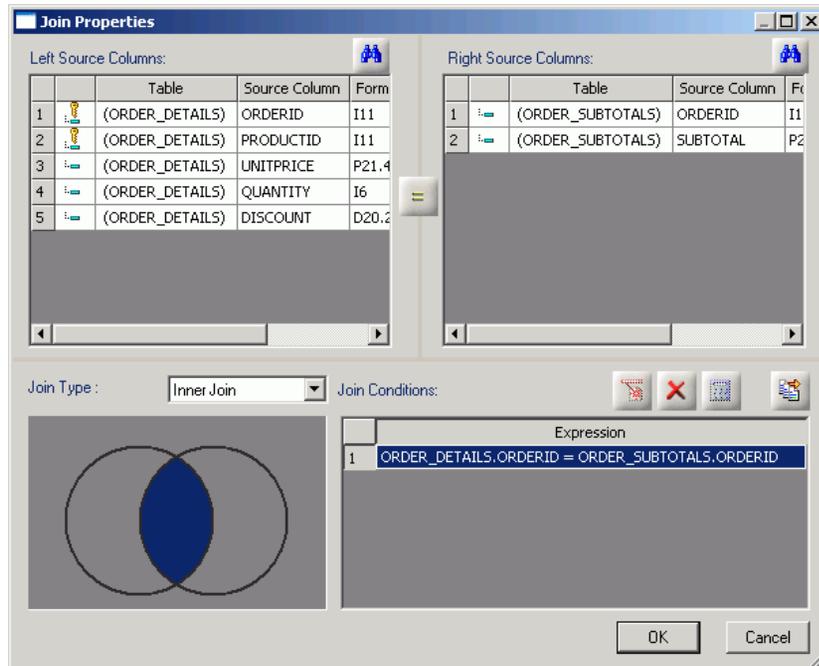


Note: These join options are not available, and do not appear, for FOCUS tables. The only way to view these options are by using Relational tables.

- ❑ Join All indicates a multiple instance (one-to-many) type of join. At run time, each host record can have many matching records in the cross-referenced file.

Note: Join all is the default option.
- ❑ Join Unique indicates a single instance (one-to-one) type of join. At run time, each host record has, at most, one matching record in the cross-referenced file.
- ❑ Join Properties opens the Join Properties dialog box, from which you can determine how the tables are linked. You may:
 - ❑ Create Inner, Outer, or Cross Joins.

Note: Outer joins are subdivided into Left Outer Joins, Right Outer Joins, or Full Outer Joins.
 - ❑ Combine records from the selected tables by mapping source columns.



Use the Tree and Text View tabs of the Synonym Editor to view or edit the details of these tables (segments).

Tip: Click Save As from the Modeling View File menu if you do want to modify the original synonym.

Procedure: How to Create a Cluster Join Using a New Synonym

Another way to create a cluster join is to start with an empty synonym:

1. Right-click a Master Files folder, select *New*, then *Synonym via Synonym Editor*.

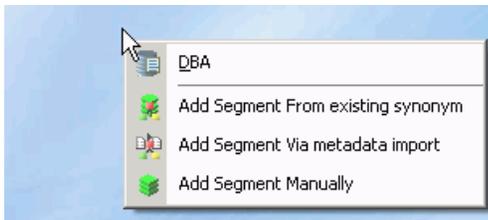
The Add Master File dialog box opens.

2. Enter a unique file name in the File name field.

3. Click *Open*.

The Synonym Editor opens to the Modeling View tab.

4. Right-click in the workspace and select from one of the available options to start building the new view.



Defining Dimensions for OLAP Analysis

In this section:

Using the Dimension Builder in the Synonym Editor Modeling View

Synonyms can be modified to support Online Analytical Processing (OLAP). The Synonym Editor provides tools to create OLAP hierarchies and dimensions. OLAP enables you to drill down or roll up on hierarchical data, pivot fields from columns to rows (or vice versa), and slice-and-dice information by filtering or querying data sources based on specified criteria thresholds.

You OLAP-enable the Master File by using the Synonym Editor to create dimension(s) at the field level and associate fields with each dimension.

Note: OLAP is a reporting facility; it is not relevant to data maintenance projects.

Using the Dimension Builder in the Synonym Editor Modeling View

How to:

Add a Parent/Child Hierarchy

Delete a Dimension

Add Levels to the Hierarchy

Reference:

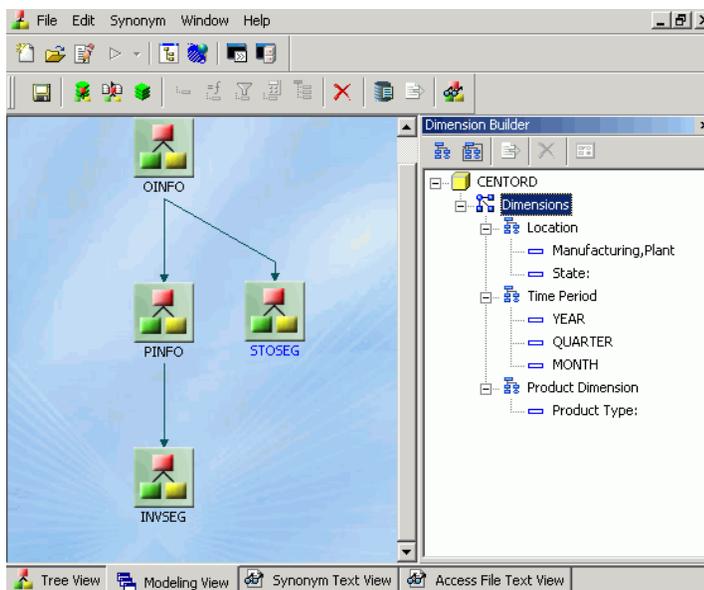
Dimension Builder Toolbar

The Dimension Builder enables you to create logical views based on enterprise data (relational or legacy data sources) for multi-dimensional analysis without manually editing metadata. The Dimension Builder works with relational and FOCUS data sources.

Procedure: How to Add a Parent/Child Hierarchy

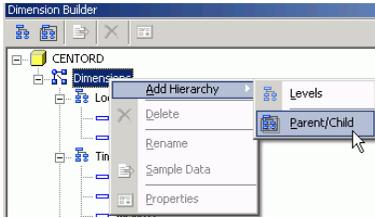
1. From the Synonym Editor, click the *Modeling View* tab.

The Dimension Builder appears on the right side of the window.



Note: If the Dimension Builder is not visible, ensure that *Dimension Builder* is selected from the Synonym menu.

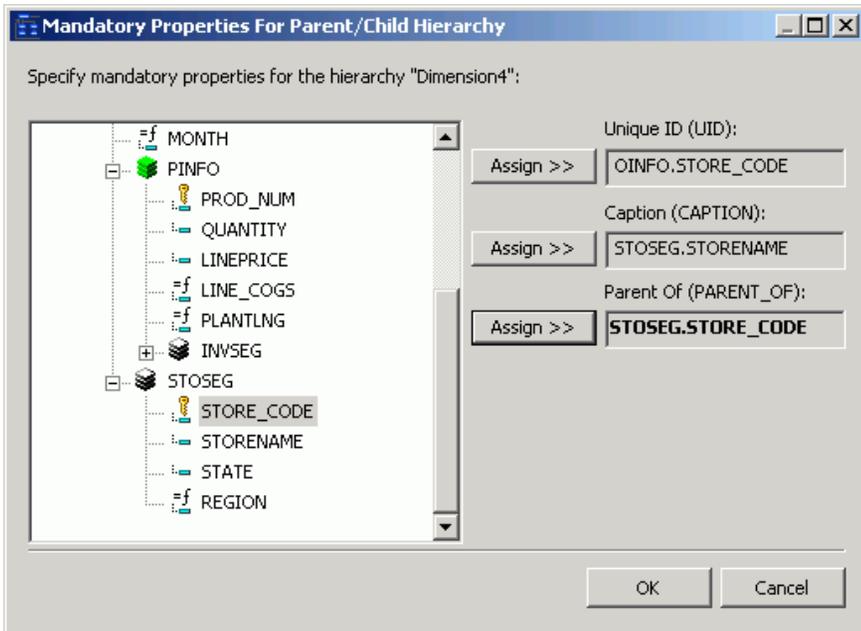
2. Right-click the dimension and select *Parent/Child* from the Add Hierarchy submenu.



Note: You may also select this option by clicking the *Add Parent/Child Hierarchy* button from the Dimension Builder toolbar.

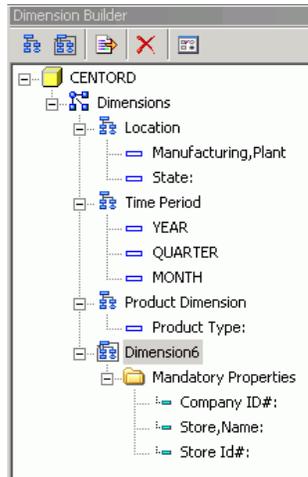
The Mandatory Properties for Parent/Child Hierarchy dialog box appears.

3. Select a field from the Field Tree and click *Assign* to assign a Unique ID for the hierarchy.



4. Repeat Step 3 for the Caption and Parent hierarchy properties.

5. Click *OK* to close the Mandatory Properties for Parent/Child Hierarchy dialog box.
The Mandatory Properties are added to the Dimension Builder.



6. Use the right-click menu to rename the dimension, view properties, or view sample data for the dimension.
7. Click *Save* from the File menu to save the dimension.

Procedure: How to Delete a Dimension

To delete a dimension, right-click a dimension and select *Delete*, or click the *Delete* button from the Dimension Builder toolbar.

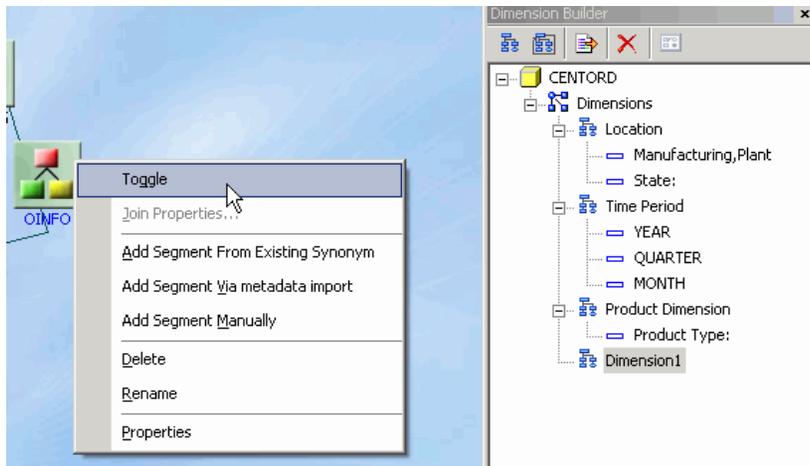
Procedure: How to Add Levels to the Hierarchy

This process enables you to edit an existing Master File, add tables (for non-FOCUS Master Files), and create and modify dimensions.

1. From the Synonym Editor, click the *Modeling View* tab.
2. Select the *Add Levels Hierarchy* button from the Dimension Builder toolbar.

A level is added to the hierarchy. Use the right-click menu to rename the dimension or keep the default name.

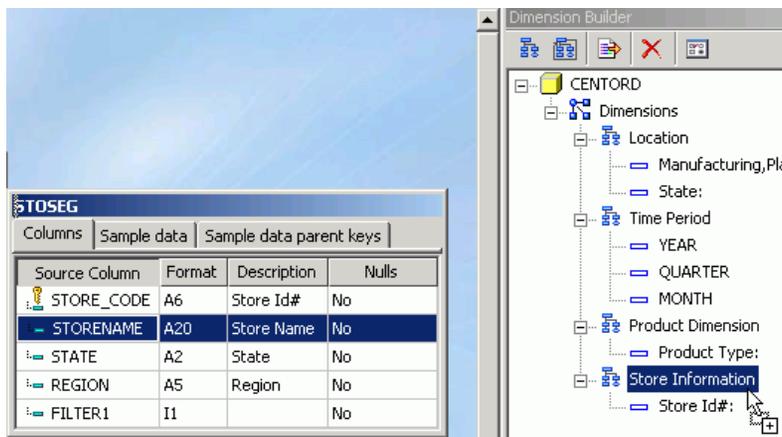
- Right-click the *file* icon in the Modeling View to toggle to the table view, which enables you to see columns, sample data, and sample data parent keys.



The table view appears in the Modeling View.

Tip: You may also double-click a file icon to open the table view.

- Using the Columns tab of the table view, drag and drop selected fields to the Dimension Builder hierarchy folder.



You may also drag and drop fields to and from other hierarchies using the Dimension Builder.

- Click Save from the File menu to save the dimension.

The dimension is saved and store in the Master File.

Reference: Dimension Builder Toolbar

You can access the following commands from the Dimension Builder toolbar:

Button	Definition
	Adds a level hierarchy.
	Enables you to create a parent/child hierarchy and assign mandatory properties for the hierarchy.
	Deletes the selected item.
	Enables you to view and refresh sample data for the selected field.
	Enables you to switch back to properties in the Tree View tab of the Synonym Editor.

Using the Synonym Editor for Cube Data Sources

How to:

Edit Field Names and Titles

Edit Titles for Multiple Languages

Delete Measures, Dimensions, or Parent/Child Hierarchies

Create Virtual Measures With COMPUTES

Reference:

Cube View Tab Objects

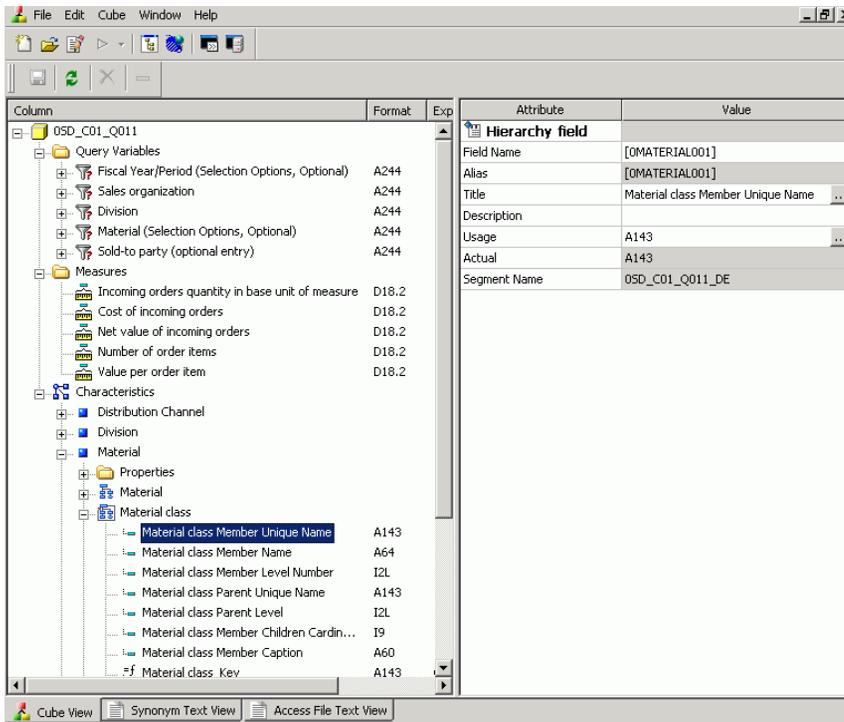
The Synonym Editor enables you to make further modifications to your Cube synonym definitions. The Cube synonym is displayed in the Cube View tab. If you select a component of the synonym, its properties appear in the right pane.

You can use the Synonym Editor to:

- ❑ Edit field names and titles for measures, properties, and variables. You may also edit the field prefix for the defined fields.
- ❑ Edit titles for multiple languages, delete titles, and add titles for additional languages if you are using code page UTF8.

- ❑ Delete measures, dimensions, or parent/child hierarchies.
- ❑ View the usage and actual formats and the ability to change the usage display format for the field.
- ❑ Change an internal attribute value.
- ❑ Change the access property for variables.
- ❑ Change the field prefix used to create the field names, mandatory property names, and DEFINE field names generated for parent/child hierarchies by the Synonym Wizard.
- ❑ Create virtual measures (this is implemented with COMPUTEs in the Master File).

The following image is an example of a Cube data source in the Synonym Editor.



Note: The Synonym Text View tab and the Access File View tab are identical for all types of data sources. For more information about these tabs, see [Synonym Editor - Synonym Text View Tab](#) on page 63 and [Synonym Editor - Access File Text View Tab](#) on page 64.

Reference: Cube View Tab Objects

The following objects appear on the Cube View tab.

Object	Description
	Characteristics; contains the Properties and Hierarchies folders.
	Optional variable.
	Mandatory variable that is not satisfied (selection criteria has not been created).
	Mandatory variable that is satisfied (selection criteria has been created).
	Measure.
	Hierarchy.
	Attribute.
	Represents a leaf node in a parent/child hierarchy. A leaf node is a member of a hierarchy that does not have any children. Represents Level 1 in a level hierarchy.
	Represents Level 2 in a level hierarchy.
	Represents Level 3 in a level hierarchy.
	Represents Level 4 in a level hierarchy.
	Represents Level 5 in a level hierarchy.
	Represents Level 6 in a level hierarchy.
	Represents Level 7 in a level hierarchy.
	Represents Level 8 in a level hierarchy.

Object	Description
	Represents Level 9 in a level hierarchy.
	Represents Level 10 in a level hierarchy.
	Represents Level 11 in a level hierarchy.
	Represents Level 12 in a level hierarchy.
	Represents Level 13 in a level hierarchy.
	Represents Level 14 in a level hierarchy.
	Represents Level 15 in a level hierarchy.
	Represents Level 16 in a level hierarchy.

For more information about other standard objects that may appear in the Synonym Editor, see [Synonym Editor - Tree View Tab](#) on page 53.

Procedure: How to Edit Field Names and Titles

To edit field names and titles:

1. From the Projects or Data Servers area in Developer Studio, open a synonym by double-clicking a Cube Master File from the Master Files folder.

Note: You may also right-click the synonym and select *Edit in Synonym Editor*.

The Synonym Editor opens to the Cube View tab.

2. Select an attribute from the Cube View tab.

Note: The attributes available depend on the type of synonym.

3. Click the *FIELD NAME*, *TITLE*, or *CAPTION* value field on the right-hand side of the workspace.

Note: The Synonym Editor does not let you make any changes that would render the Master File unusable. Therefore, you cannot edit any value field that is highlighted gray.
4. Manually edit the Field Name, Title, or Caption by typing in the value field.

The edits are updated instantaneously in the Cube View tab.
5. Click Save to save the synonym.
6. To close the synonym, select *Close* from the File menu or click the control button in the upper right corner.

Procedure: How to Edit Titles for Multiple Languages

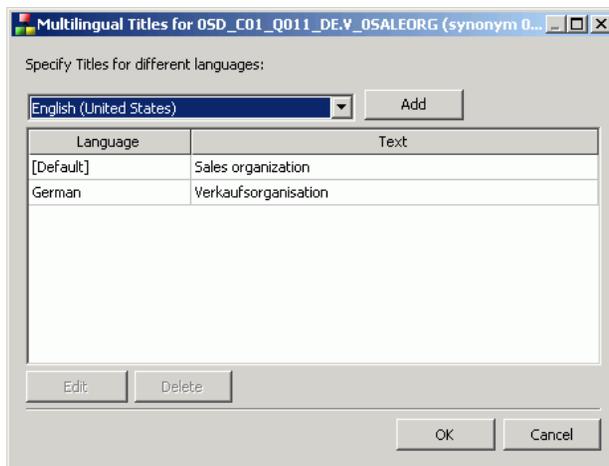
To edit title for multiple languages:

When a report is run using this synonym, the title is shown in all of the languages as specified in this procedure.

1. From the Projects or Data Servers area in Developer Studio, open a synonym by double-clicking a Cube Master File from the Master Files folder.

The Synonym Editor opens to the Cube View tab.
2. Select an attribute from the Cube View tab.
3. Click the *browse*  button, located on the far right of the TITLE or CAPTION value field.

The Multilingual Titles dialog box opens.



4. You may add, edit or delete a title for this field.

To add an additional language for the title:

- a. Select a language from the drop-down list.
- b. Click *Add*.
- c. Type in a description for the title field.

To edit an existing specified title:

- a. Select the title and click *Edit*.
You may also double-click the title.

- b. Manually type a title name.

To delete a specified title:

- a. Select the title and language to be deleted.
- b. Click *Delete*.

5. Click *OK* to close the Multilingual Titles dialog box.
6. Click *Save* from the File menu to save the synonym.
7. To close the synonym, select *Close* from the File menu or click the control button in the upper right corner.

Procedure: How to Delete Measures, Dimensions, or Parent/Child Hierarchies

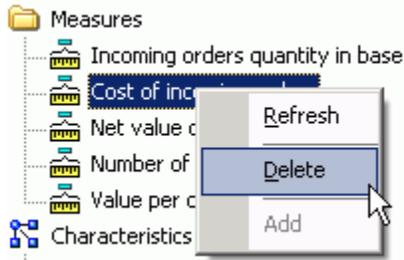
To delete measures, dimensions, or parent/child hierarchies:

1. From the Projects or Data Servers area in Developer Studio, open a synonym by double-clicking a Cube Master File from the Master Files folder.

The Synonym Editor opens to the Cube View tab.

2. Select the attribute name that you want to delete.

3. Right-click and select *Delete* from the context menu.



The attribute is deleted from the Cube View tab.

4. Click *Save* to save the synonym.
5. To close the synonym, select *Close* from the File menu or click the control button in the upper right corner.

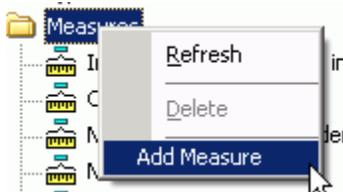
Procedure: How to Create Virtual Measures With COMPUTES

To create virtual measures with COMPUTES:

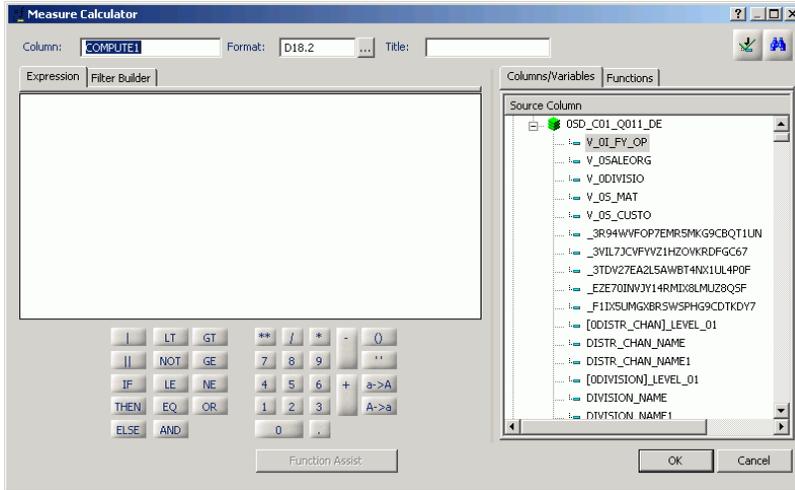
1. From the Projects or Data Servers area in Developer Studio, open a synonym by double-clicking a Cube Master File from the Master Files folder.

The Synonym Editor opens to the Cube View tab.

2. Select the *Measures* folder from the Cube View tab.
3. Right-click and select *Add Measure* from the context menu.



The Measure Calculator opens.



4. From the Measure Calculator, type a name for the column in the Column input field.
 5. You may enter a descriptive title for the measure (COMPUTE) in the Title input field.
- Tip:** From the Synonym Editor, click the browse (...) button at the right of the TITLE and DESCRIPTION value fields to specify multiple language titles.

6. Use the Expression tab and the calculator buttons to build the expression for the Measure (COMPUTE field).

or

Use the Filter Builder tab to build the expression.

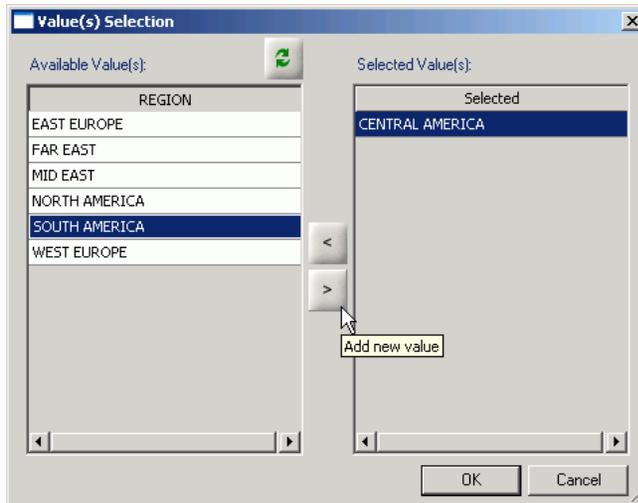
- a. From the Filter Builder tab, use the drop-down lists to select the filter Column, Relation, and Type.

Note: Parameters are not supported.

- b. Click the browse (...) button at the right of the Value input field.



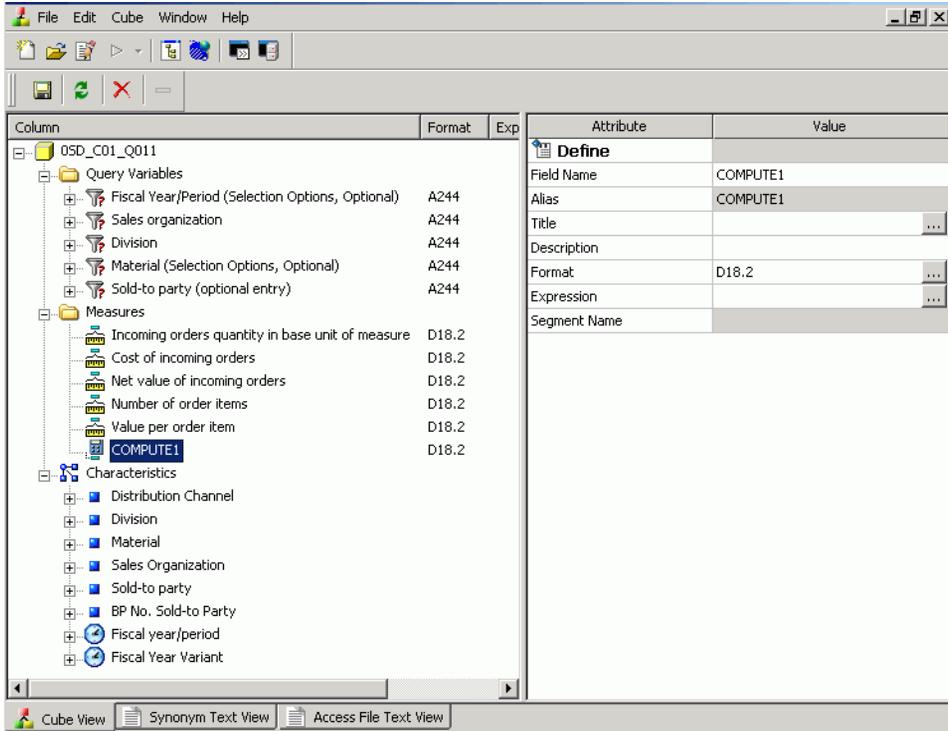
The Value Selection dialog box opens.



- c. Select from the available value(s) and use the arrows to add or remove values.
- d. Click *OK* to close the Value Selection dialog box and return to the Filter Builder tab.
The expression is added to the value field.
- e. To add another filter, double-click a column or variable from the Columns/Variables tab on the right side of the Measure Calculator.
The filter is added to the Filter Builder. Add the expression value.
- f. To delete an expression from the Filter Builder, click the red X in the row of the filter that you are deleting. The filter is removed from the Filter Builder.

7. You may select the Check expression and Sample Data buttons, located on the top right of the Measure Calculator, to verify that the expression is valid and to view sample data for the filter.
8. Click OK to close the Measure Calculator and return to the Synonym Editor.

Note: To edit the Compute Title, or Expression, you may do so directly from the Synonym Editor or you may click the browse (...) button at the right of the EXPRESSION value field to relaunch the Measure Calculator.



Creating Business Views in Developer Studio

How to:

Create a Business View Using the Synonym Editor

Reference:

Business View Menu Options

Usage Notes for Business Views

Using a Business View Master File

By defining a Business View of a Master File, you can limit the fields available or create a subset of fields from the original Master File. Fields can be grouped into meaningful folders and field names, titles, and descriptions can be customized for each Business View. The Business View points to its underlying Master File, and all of the actual field and security information comes from the original Master File when the Business View is used in WebFOCUS tools (such as Joins and Defines) and in reports.

Fields in a Business View are organized into folders. Each folder contains a group of fields. The fields in a folder can come from different segments in the original Master File. The Business View may contain existing fields and can include existing custom fields (DEFINES), COMPUTES, and Filters. Custom fields are associated with a specific segment in the original Master File and are subject to the same rules as real fields. A report can reference fields from multiple folders if they all lie along a single path in the original Master File.

The Business View Master File is stored as if it were a real Master File. However, it has no SUFFIX attribute. Instead, it contains a VIEW_OF attribute that identifies it as a Business View. It can be saved to a different application from the original Master File.

Note: Impact Analysis searches Business Views in addition to FOCUS procedures. This enables you to see if changes in the original Master File will impact fields used in the Business View.

You may create a Business View for an existing Master File by using the Synonym Editor.

Procedure: How to Create a Business View Using the Synonym Editor

1. From the Projects or Data Servers area in Developer Studio, navigate to the Master Files folder where you wish to create the Business View and highlight the Master File to be altered.

Note: You may create a Business View anywhere where you can select a Master File.

2. Double-click the Master File or select *Edit in Synonym Editor* from the File menu.

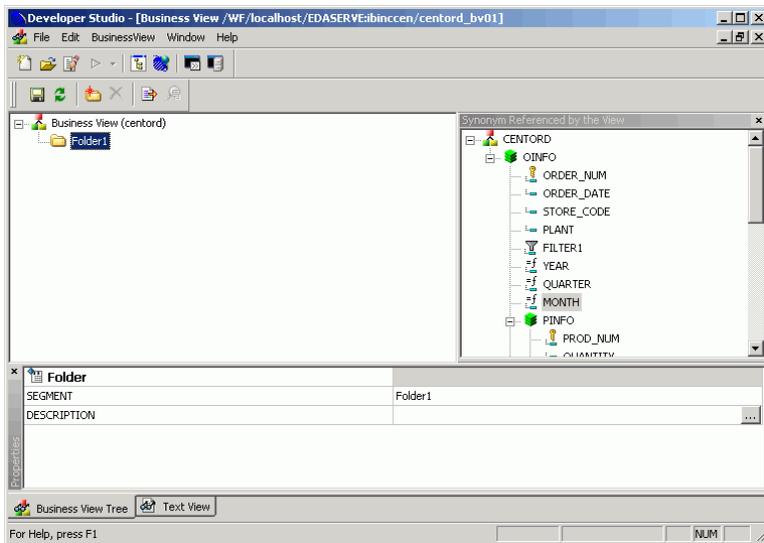
The Master File opens to the Tree View tab in the Synonym Editor.

3. Select *Create Business View* from the Synonym menu.

The Business View window opens to the Business View Tree tab.

A default File name and folder appears. Additional folders may be created for grouping fields.

Note: A Business View Master File may contain only one root folder.



The Properties Bar on the bottom of the Business View window shows information for the selected fields and folders.

Tip: Use the Properties bar to change the title and descriptions for the field names. Items that cannot be edited are grayed out.

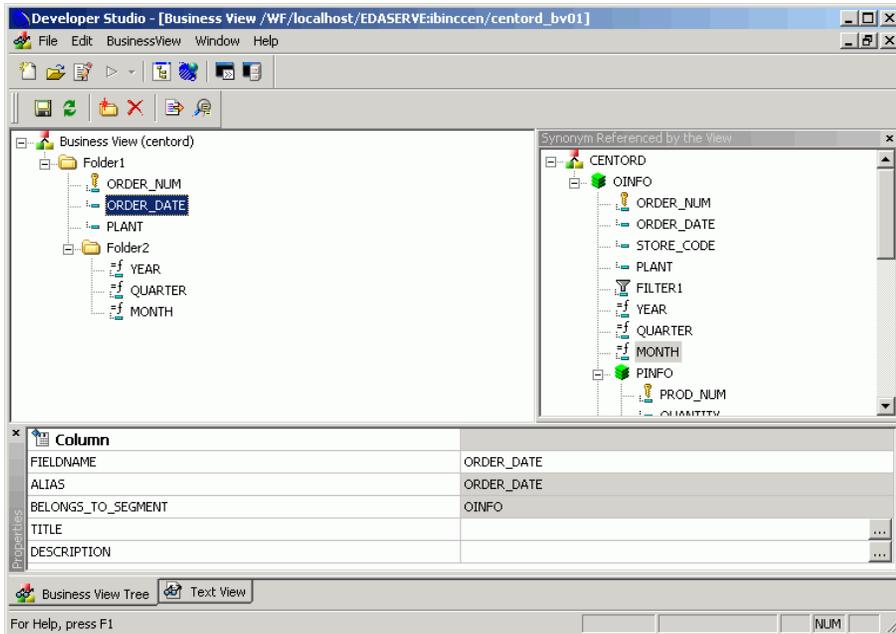
4. To add additional folders for the Business View, select *New Folder* from the BusinessView menu.

Note: Multiple sub-folders can be created and folder may be empty for organizational purposes.

5. Select fields from the Master File listed on the right and drag to the appropriate folder on the left. Use Shift-click and Ctrl-click to select multiple fields.

Note: If needed, fields may be duplicated and placed under multiple folders.

The selected fields appear in the Business View Tree tab.



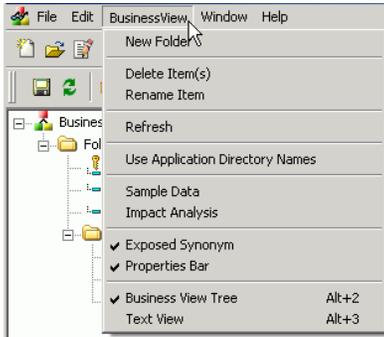
6. Select Save As from the File menu to save the Business View as a Business View Master file.

Note: The Business View Master File may be saved in a different application than the main files.

7. Select Close from the File menu to return to the Synonym Editor.

Reference: Business View Menu Options

The following menu items are available from the Business View window.



New Folder

Adds a new folder to the Business View. You may also access this option from the right-click context menu and from the new folder icon, located on the Business View toolbar.

Delete Items

Deletes the selected item.

Rename Item

Enables you to rename a selected field or folder. You may also rename items from the Properties bar and the from the right-click context menu.

Refresh

Refreshes the Business View. A Refresh icon is also available on the Business View toolbar.

Use Application Directory Names

Specifies the application name where the original file exists. Information is written in the new master file. The following image is an example of the application directory name for the business view.



Note: This option is turned off by default and is only available during the creation of the business view.

Sample Data

Test the business view for field data and view the type of records returned.

Impact Analysis

Opens the Impact Analysis tool which enables you to analyze data, control search criteria, save reports, and interactively open and edit procedures based on search results.

Exposed Synonym

Shows the Synonym referenced by the Business View.

Properties Bar

Shows the Properties Bar where you may edit properties for the selected fields and folders. Items that cannot be edited are grayed out.

Note: The Properties Bar may be moved or docked anywhere on the Business View window.

Business View Tree

Shows the contents of the Business View in the Business View Tree. This is the default option.

Text View

Shows the contents of the Business View in the Text View. You may also select this option by clicking the Text View tab from the bottom of the Business View window.

Note: The text view is read-only. You cannot edit the underlying description from this tab.

Reference: Usage Notes for Business Views

- ❑ The detailed information about fields, such as USAGE and ACTUAL formats or indexes remain in the original Master File.
- ❑ All information about Cluster Master Files remain in the original Master File.
- ❑ DBA attributes are only allowed in the original Master File and are respected by the business view.
- ❑ When a Master File description contains more than one field with the same name, as can occur when files are joined, the BELONGS_TO_SEGMENT attribute identifies which instance of the field name is being referenced in the Business View.
- ❑ Folders can be empty for organizational purposed. For example, Region can have empty folders called North, South, East, and West.
- ❑ You can issue an SQL SELECT command against a Business View. However, a Direct SQL Passthru request is not supported against a Business View.
- ❑ Business Views support alternate file views and fully qualified field names.
- ❑ The SEG. operator against a Business View folder displays all of the fields in that folder, not all of the fields in the real segment.
- ❑ Requests against a Business View cannot reference any fields or segments not in the Business View.
- ❑ All HOLD formats are supported against a Business View.
- ❑ All adapters for non-FOCUS data sources support retrieval requests against a Business View.
- ❑ Business Views are not supported with data source maintenance commands such as Maintain or REBUILD.
- ❑ Business Views are not available for Cube Data Sources.
- ❑ For OLAP enabled Master Files, dimensions are not visible while creating a business view. Only fields from the original Master File will be visible.

- ❑ When using Business Views, the following SET command must be specified: SET FOCTRANSFORM=ON. This SET command can be placed in a procedure or can be set in the global server profile or specified in a user profile and can be set while using the Business View or regular Master Files. For thin client tools (Power Painter, Advanced Graph Assistant, HTML tools, and so on), it needs to be in the profile as end-users do not have access to the SET tool or ability to access an editor and manually enter the required command.

Adding this SET command in the profile is a good practice as it will avoid errors during reporting in case command is missing and users will not need to be concerned about what type of file they are using during reporting (Business View or existing master file).

Reference: Using a Business View Master File

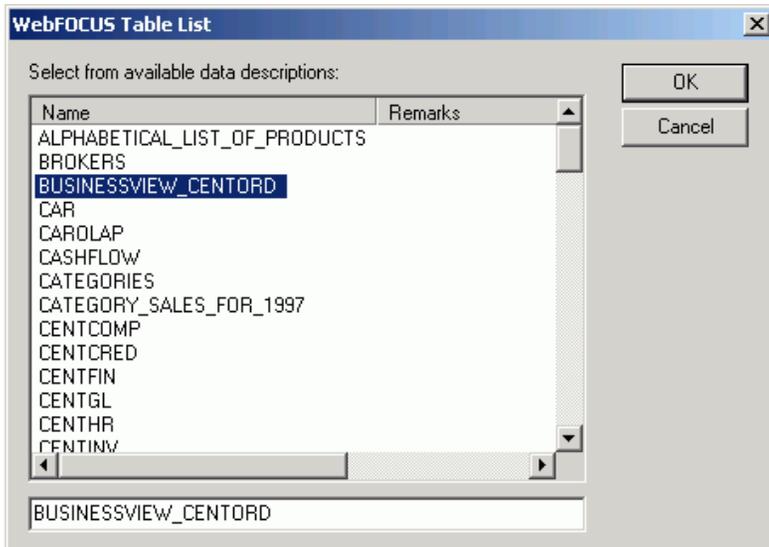
When you use the Business View Master File in the WebFOCUS tools and reports, the Field formats, descriptions and titles will be retrieved from the original Master File, unless they are customized and a title and description is available through the Business View.

You may access the Business View Master Files from all development areas of Developer Studio:

In the Projects, Data Servers or Managed Reporting area:

The Table list shows all available Master Files including the Business Views that are available. The Remarks column shows a description from original Master File unless the Business View file contains its own remarks.

The following image is an example of a Business View Master File in the WebFOCUS Table List, that appears when creating a report in the Data Servers area.

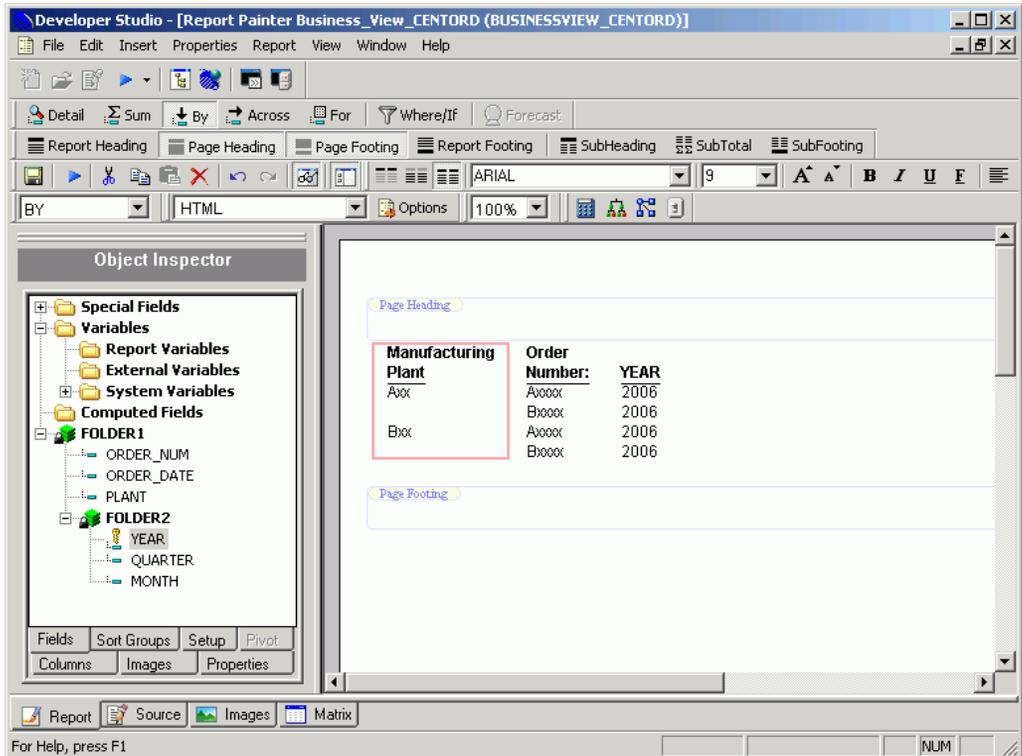


This is also available in the Projects area, however the table list does not show remarks in the Projects area.

In the Report Painter:

When using a Business View Master File in the Report Painter, only fields from the Business View are shown in the Fields list.

The following image is an example of a Business View Master File in the Report Painter.

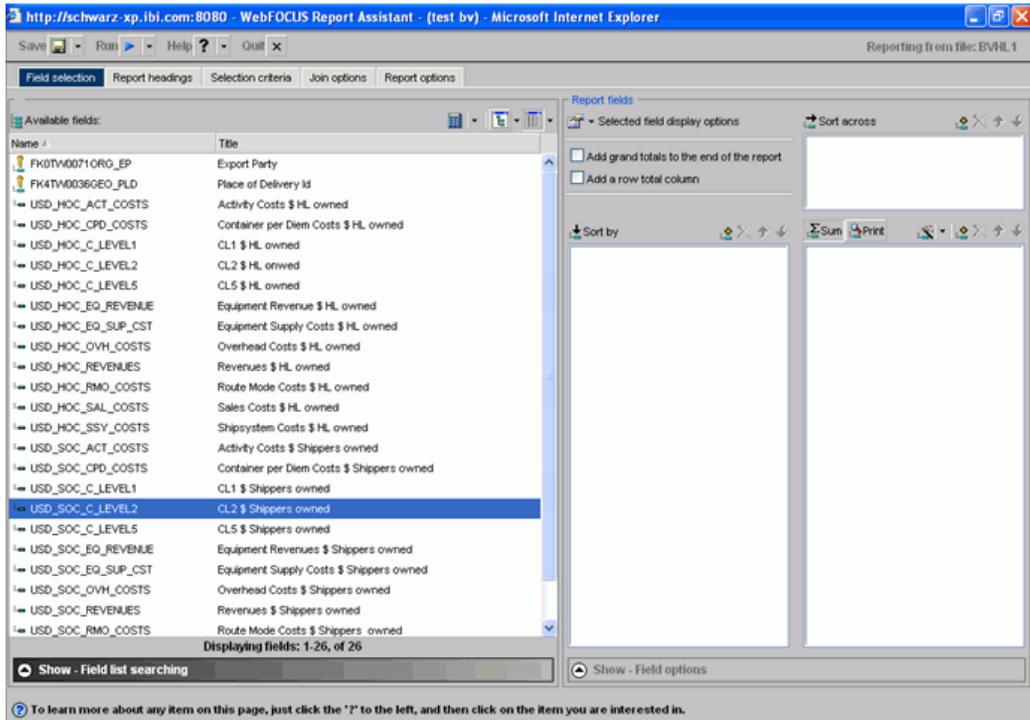


In the Managed Reporting Report Assistant:

When using a Business View Master File with the Report Assistant, only fields from the Business View are shown in the Fields list.

Adding Virtual Columns (DEFINE) in a Synonym

The following image is an example of a Business View Master File in the Managed Reporting Report Assistant.



Adding Virtual Columns (DEFINE) in a Synonym

How to:

Create a Virtual Column in a Synonym

You may create a DEFINE field as a custom field in the Synonym Editor. A custom field can be used in a request as though it is a real data source field. Virtual columns (DEFINES) are available when the data source is used for reporting.

A virtual column can contain an expression, a constant, or a column name.

- ❑ If the virtual column is a complex expression, you can create the expression with the Virtual Column Calculator or just type it into the Expression field.
- ❑ If the virtual column is a simple expression, like a constant value, you can type the value in the Expression field.

Virtual columns are designated by the following icon:



After creating a virtual column, you can test it by right-clicking the synonym and selecting *Sample Data*. Sample Data appears in a separate dialog box.

Procedure: How to Create a Virtual Column in a Synonym

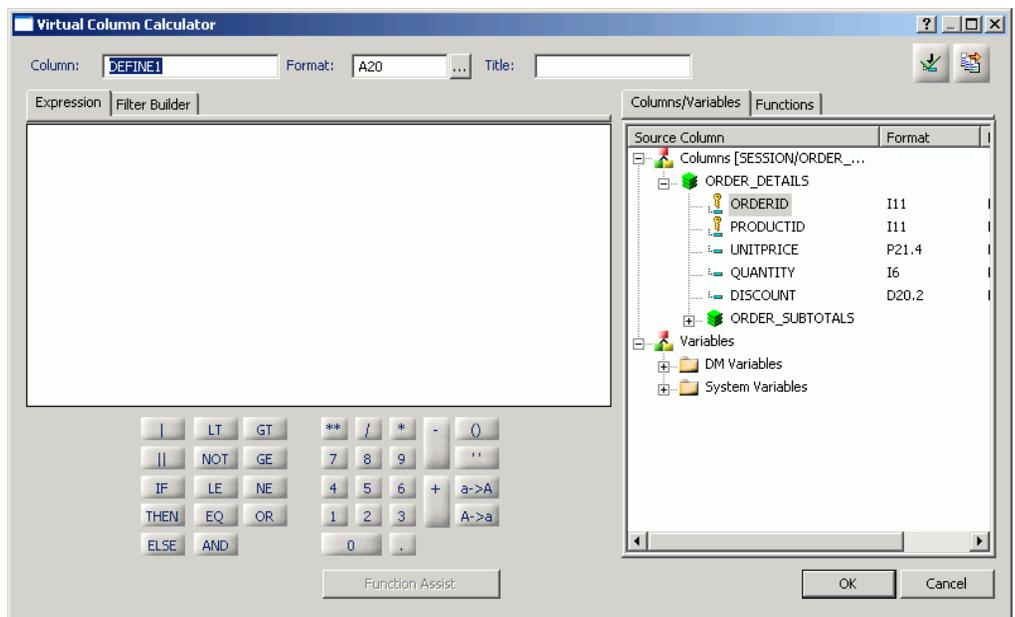
To create a virtual column in a synonym:

1. From the Projects or Data Servers area in Developer Studio, open a synonym by double-clicking a Master File from the Master Files folder.

The Synonym Editor opens.

2. Right-click a segment (or column) and click *Add*.
3. Select *Virtual Column* from the Add submenu.

The Virtual Column Calculator opens.



4. From the Virtual Column Calculator, type a name for the column in the Column input field, or use the default define name.

5. You may enter a descriptive title for the virtual column (DEFINE) in the Title input field.

Tip: From the Synonym Editor, click the browse (...) button at the right of the TITLE and DESCRIPTION value fields to specify multiple language titles.

6. Use the Expression tab and the calculator buttons to build the expression for the virtual column (DEFINE).

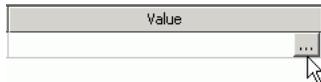
or

Use the Filter Builder tab to build the expression.

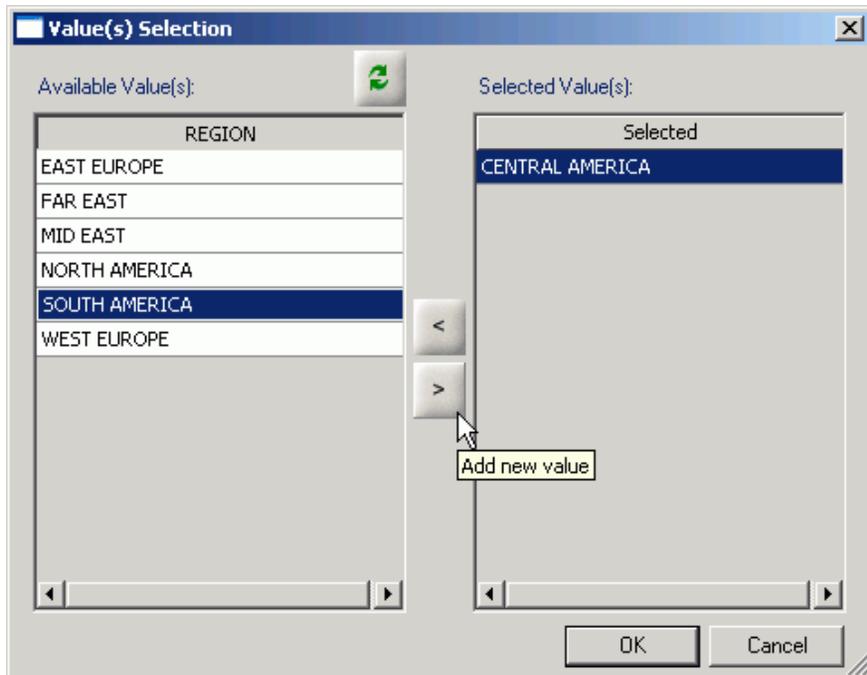
- a. From the Filter Builder tab, use the drop-down lists to select the filter Column, Relation, and Type.

Note: Parameters are not supported.

- b. Click the browse (...) button at the right of the Value input field.

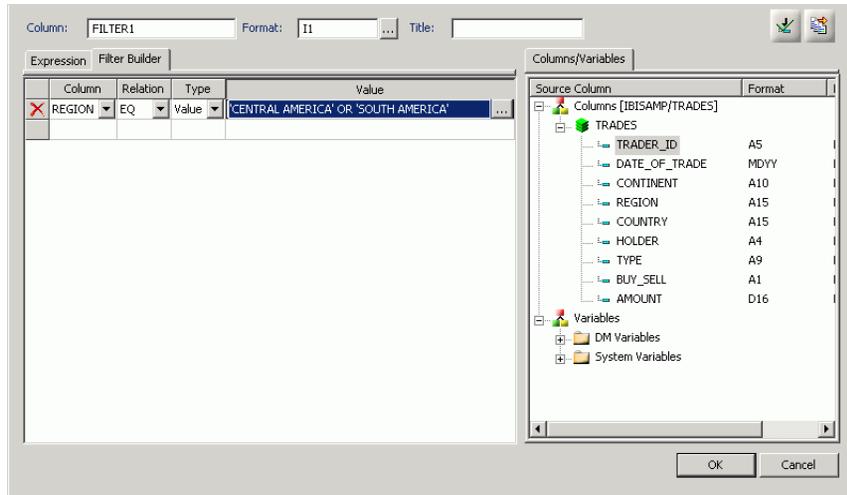


The Value Selection dialog box opens.



- c. Select from the available value(s) and use the arrows to add or remove values.

- d. Click *OK* to close the Value Selection dialog box and return to the Filter Builder tab. The expression is added to the value field.



- e. To add another filter, double-click a column or variable from the Columns/Variables tab on the right side of the Virtual Column Calculator. The filter is added to the Filter Builder. Add the expression value.
- f. To delete an expression from the Filter Builder, click the red X in the row of the filter that you are deleting. The filter is removed from the Filter Builder.
7. You may select the Check expression and Sample Data buttons, located on the top right of the Virtual Column Calculator, to verify that the expression is valid and to view sample data for the filter.
8. Click *OK* to close the Virtual Column Calculator and return to the Synonym Editor.
- Note:** To edit the DEFINE, Title, or Expression, you may do so directly from the Synonym Editor or you may click the browse (...) button at the right of the EXPRESSION value field to relaunch the Virtual Column Calculator.
9. If no columns from the synonym are used in the expression or have been defined, you can use the WITH option to identify the logical home of the defined calculation. You can also use the WITH option to move the logical home for the virtual column to a lower segment than it would otherwise be assigned to (for example, to count instances in a lower segment).

Tip: You can click and drag the DEFINE field and move it to a different segment in the Tree View tab, which also changes the segment association.

- 10.** Specify the Missing Data options for columns that allow null data. You can allow all missing data.
- 11.** Click Save from the File menu to save the synonym.
- 12.** To close the Synonym Editor, select *Close* from the File menu or click the control button in the upper right corner.

For more information about expressions and virtual column (DEFINE) attributes, see [Defining Attributes and Creating Expressions for Custom Fields](#) on page 132.

Creating Filters in a Synonym

How to:

Create Filters in a Synonym

Filters are created in the Master File through the Synonym Editor and can be used in a Business View file or in reporting tools such as Report Painter, Power Painter, HTML Report Assistant, and so on. You can also use filters to perform other data checking and validation, and sort data based on the conditions that you create.

Filters are created under a specific segment and by default they have association with the selected segment. Filters can also be created without segment association.

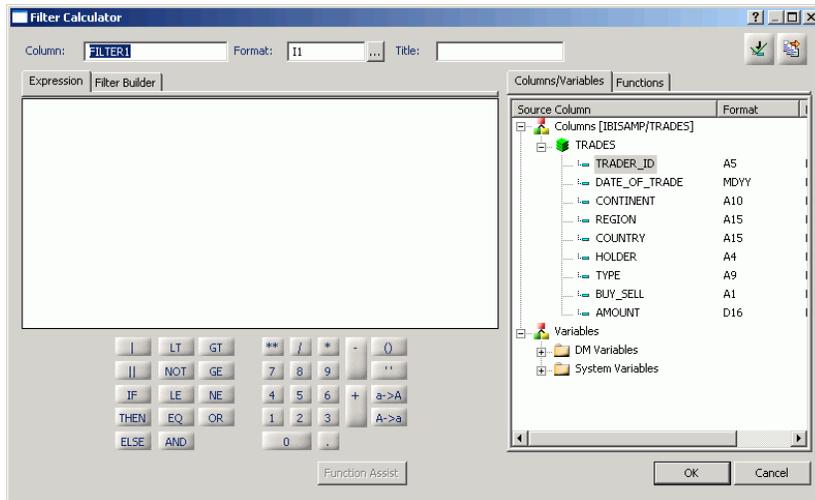
Procedure: How to Create Filters in a Synonym

1. From the Projects or Data Servers area, double-click a synonym from the Master Files folder, or right-click the synonym and select *Edit in Synonym Editor*.

The Synonym Editor opens.

2. Right-click a segment or field and select *Filter* from the Add submenu.

The Filter Calculator opens.



3. From the Filter Calculator, type a name for the filter in the Column input field, or use the default Filter name.

Note: It is recommended that filters have a descriptive name to help identify the filter action during reporting.

4. The Format field shows a default value of I1.

Note: The format field cannot be changed. Values for filters return 0 for false and 1 for true.

5. You may enter a descriptive title for the filter in the Title input field.

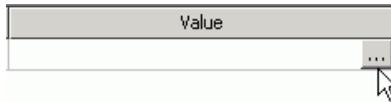
Tip: From the Synonym Editor, click the browse (...) button at the right of the TITLE and DESCRIPTION value fields to specify multiple language titles.

6. Use the Expression tab and the calculator buttons to build the expression for the filter.
or
Use the Filter Builder tab to build the expression.

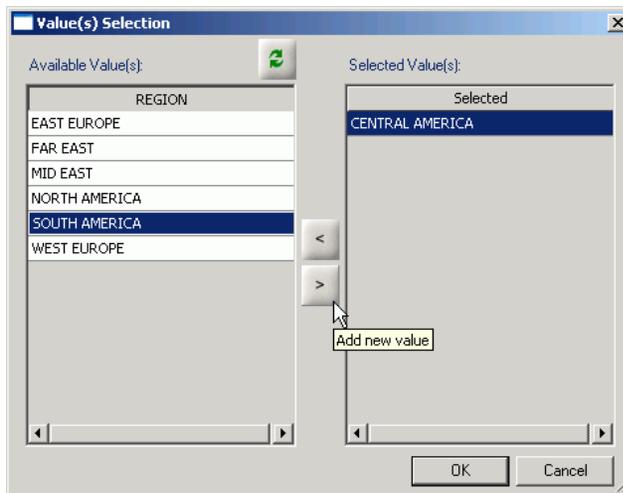
- a. From the Filter Builder tab, use the drop-down lists to select the filter Column, Relation, and Type.

Note: Parameters are not supported with Master File Filters.

- b. Click the browse (...) button at the right of the Value input field.

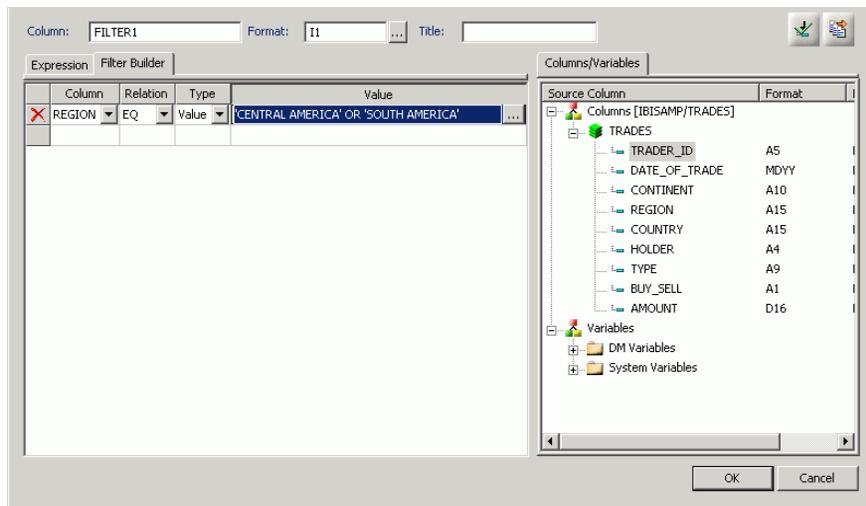


The Value Selection dialog box opens.



- c. Select from the available value(s) and use the arrows to add or remove values.

- d. Click *OK* to close the Value Selection dialog box and return to the Filter Builder tab. The expression is added to the value field.

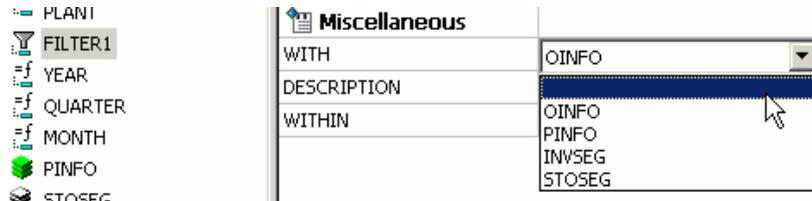


- e. To add another filter, double-click a column or variable from the Columns/Variables tab on the right side of the Filter Calculator. The filter is added to the Filter Builder. Add the expression value.
- f. To delete an expression from the Filter Builder, click the red X in the row of the filter that you are deleting. The filter is removed from the Filter Builder.
7. You may select the Check expression and Sample Data buttons, located on the top right of the Filter Calculator, to verify that the expression is valid and to view sample data for the filter.
8. Click *OK* to close the Filter Calculator dialog box to return to the Synonym Editor.

Note: To edit the Filter, Title, or Expression, you may do so directly from the Synonym Editor or you may click the browse (...) button at the right of the EXPRESSION value field to relaunch the Filter Calculator.

9. To create a Filter without segment association, use the WITH drop-down list to select a blank segment.

Note: Filters are created under a specific segment and by default they have association with the selected segment. Filters can also be created without segment association.



Note: If using a field that appears in multiple segments, the WITH segment associated should be the lowest level segment, or it should be left empty to prevent errors.

In addition, If no fields from the synonym are used in the expression or have not been computed, you can use the WITH option to identify the logical home of the Filter calculation. You can also use the WITH option to move the logical home for the Filter field to a lower segment than it would otherwise be assigned to (for example, to count instances in a lower segment).

10. Click Save from the File menu to save the synonym.
The filter is saved as part of the synonym.
11. To close the Synonym Editor, select Close from the File menu or click the control button in the upper right corner.

Adding Computed Fields (COMPUTE) in a Synonym

How to:

Create a Computed Field in the Synonym Editor

You may create a Computed field as a custom field in the Synonym Editor. The procedure for adding a custom field is similar to the procedure used to add a Defined field. The Computed field is identified as the Master File Computed Field and is differentiated from the Defined fields and the other Computed Fields.

Note: Computed fields from the Master File appear in the Windows versions of the Graph Assistant and in the Report Painter fields list.

Procedure: How to Create a Computed Field in the Synonym Editor

To create a computed column in a synonym:

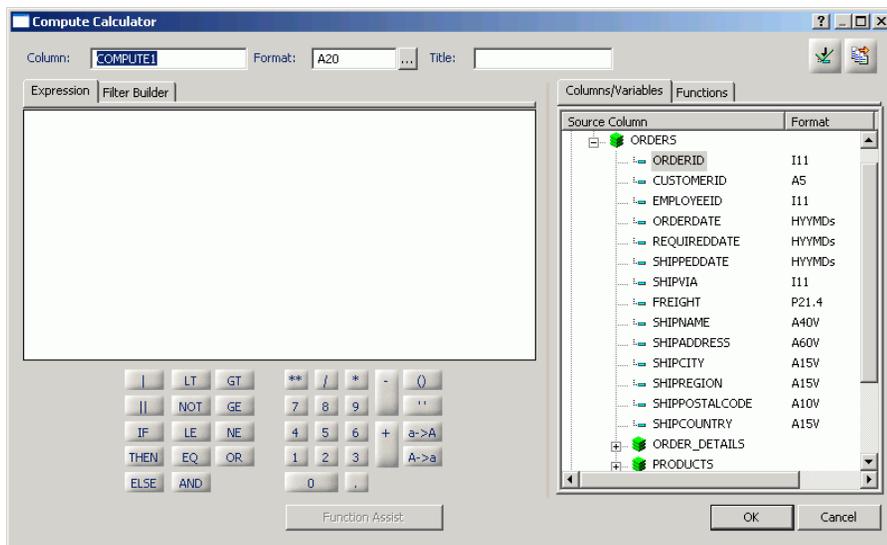
1. From the Projects or Data Servers area in Developer Studio, open a synonym by double-clicking a Master File from the Master Files folder.

The Synonym Editor opens.

2. Right-click a segment (or column) and click *Add*.

3. Select *Compute*  from the Add submenu.

The Compute Calculator opens.



4. From the Compute Calculator, type a name for the column in the Column input field, or use the default compute name.

5. You may enter a descriptive title for the computed field (COMPUTE) in the Title input field.

Tip: From the Synonym Editor, click the browse (...) button at the right of the TITLE and DESCRIPTION value fields to specify multiple language titles.

6. Use the Expression tab and the calculator buttons to build the expression for the computed field (COMPUTE).

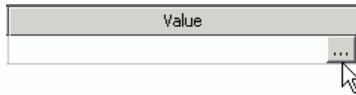
or

Use the Filter Builder tab to build the expression.

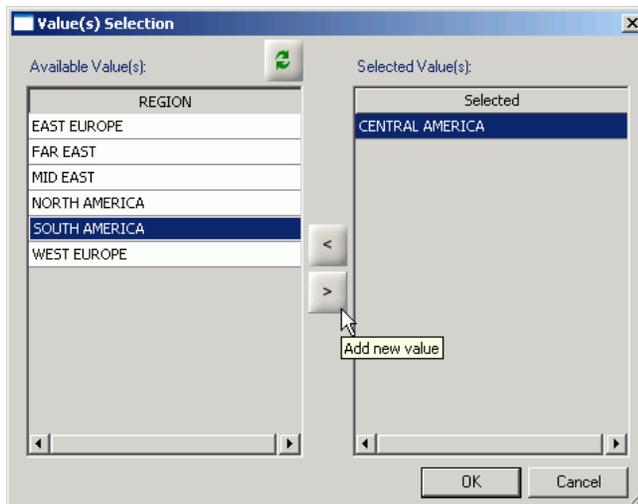
- a. From the Filter Builder tab, use the drop-down lists to select the filter Column, Relation, and Type.

Note: Parameters are not supported.

- b. Click the browse (...) button at the right of the Value input field.

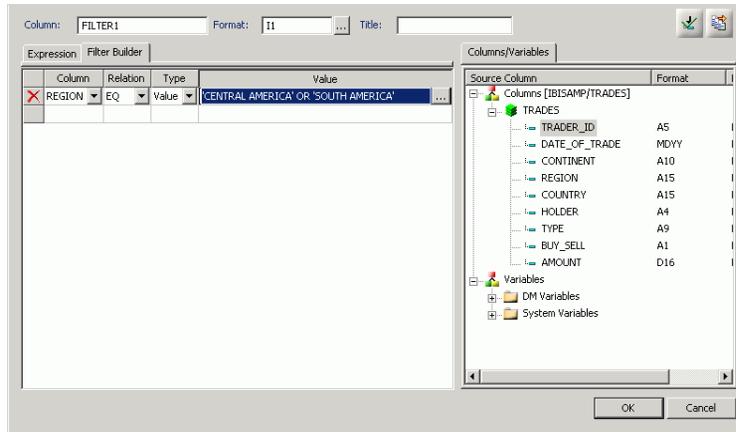


The Value Selection dialog box opens.



- c. Select from the available value(s) and use the arrows to add or remove values.

- d. Click *OK* to close the Value Selection dialog box and return to the Filter Builder tab. The expression is added to the value field.



- e. To add another filter, double-click a column or variable from the Columns/Variables tab on the right side of the Compute Calculator. The filter is added to the Filter Builder. Add the expression value.
- f. To delete an expression from the Filter Builder, click the red X in the row of the filter that you are deleting. The filter is removed from the Filter Builder.
7. You may select the Check expression and Sample Data buttons, located on the top right of the Compute Calculator, to verify that the expression is valid and to view sample data for the filter.
8. Click *OK* to close the Compute Calculator and return to the Synonym Editor.
- Note:** To edit the Compute, Title, or Expression, you may do so directly from the Synonym Editor or you may click the browse (...) button at the right of the EXPRESSION value field to relaunch the Compute Calculator.
9. Specify the Missing Data options for columns that allow null data. You can allow all missing data.
10. Click *Save* from the File menu to save the synonym.
11. To close the Synonym Editor, select *Close* from the File menu or click the control button in the upper right corner.

For more information about expressions and COMPUTE attributes, see [Defining Attributes and Creating Expressions for Custom Fields](#) on page 132.

Defining Attributes and Creating Expressions for Custom Fields

Reference:

- Custom Field Attributes
- Calculators for Custom Fields

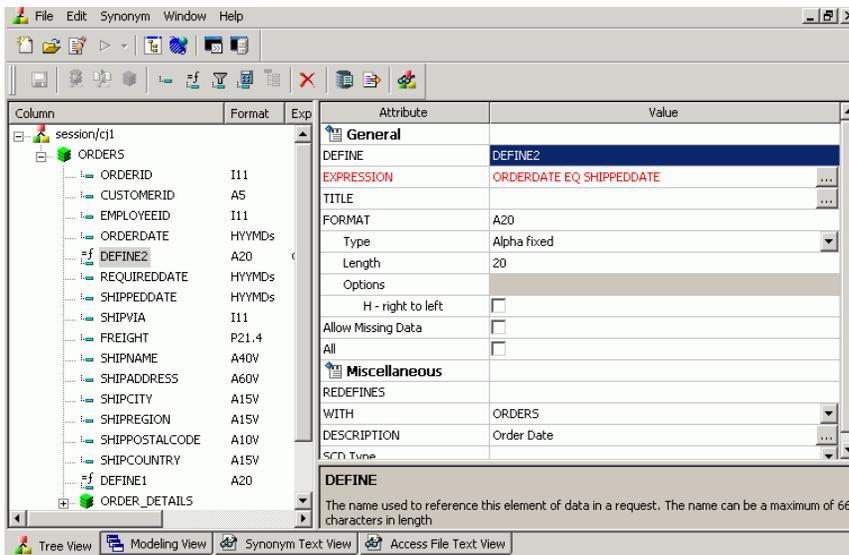
A custom field is a field whose value is not stored in the data source but can be calculated from the data that is there. You can create a custom field in your synonym by adding a virtual column (DEFINE), Master File filter (FILTER) and a Computed Field (COMPUTE). The fields are available whenever you access the corresponding data source in a reporting tool.

You can define attribute values and create expressions for custom fields by using the Synonym Editor.

Reference: Custom Field Attributes

The following attributes may be available for custom fields (DEFINE, FILTERS, and COMPUTE) in the Synonym Editor.

Note: The attributes available depend on the type of synonym and the type of custom field selected. The image below is an example of a Microsoft SQL Server data source with the virtual column (DEFINE) selected.



Custom fields (DEFINE, FILTER, COMPUTE) typically have the following attributes:

General

DEFINE

Is the name of the virtual column.

Note: This attribute only appears when a virtual column (DEFINE) is selected.

FILTER

Is the name of the Master File filter field.

Note: This attribute only appears when a virtual Filter field is selected.

COMPUTE

Is the name of the computed field.

Note: This attribute only appears when a virtual computed field is selected.

EXPRESSION

Is the calculation that creates the virtual column.

TITLE

Supplies a title to replace the column name that is normally used in reports and enables you to specify multiple language titles for the virtual column.

FORMAT

Describes the data type and format for the virtual column.

Note: This attribute only appears for DEFINE and COMPUTE custom fields.

Allow Missing Data

Allows missing data if not, transaction value is supplied.

Note: This attribute only appears for DEFINE and COMPUTE custom fields.

All

Allows all missing data if not transaction value is supplied.

Note: This attribute only appears for DEFINE and COMPUTE custom fields.

Miscellaneous

REDEFINES

A Define expression may not contain qualified field names. REDEFINES enables you to redefine or recompute a column whose name exists in more than one segment.

Note: This attribute only appears for DEFINE custom fields and cannot be used by WebFOCUS or iWay.

WITH

If no columns from the synonym are used in the expression or have been defined, you can use the WITH option to identify the logical home of the defined calculation. You can also use the WITH option to move the logical home for the virtual column to a lower segment than it would otherwise be assigned to (for example, to count instances in a lower segment).

Note: This attribute only appears for DEFINE and FILTER custom fields.

DESCRIPTION

Contains a description or comments about the virtual column.

WITHIN

Contains the name of a field to be included in a dimension.

These WITHIN statements are added to the synonym through the Dimension Builder to OLAP enable FOCUS files and relational tables. This enables you to perform OLAP analysis using the Developer Studio OLAP Control Panel, or to use it with the FML Painter.

Note: This attribute only appears for DEFINE and FILTER custom fields.

SCD Type

Sets slowly changing dimensions. This option is only available for existing relational targets.

A **surrogate key** is the first column in the table and has an SCD type of **blank**. Other columns with a blank SCD type have no SCD processing done to them.

Logical Key Field is the database key.

Activation Flag indicates that the row is current.

Begin Date/End Date indicates date range for the row values. A null end date indicates the row is current.

Type I (overwriting history) designates columns whose database values are overwritten with new values.

Type II (preserving history) designates columns that whose database rows are flagged as inactive or assigned an end date; new rows are inserted with the new values.

blank (non-key columns) indicates that database values are not changed.

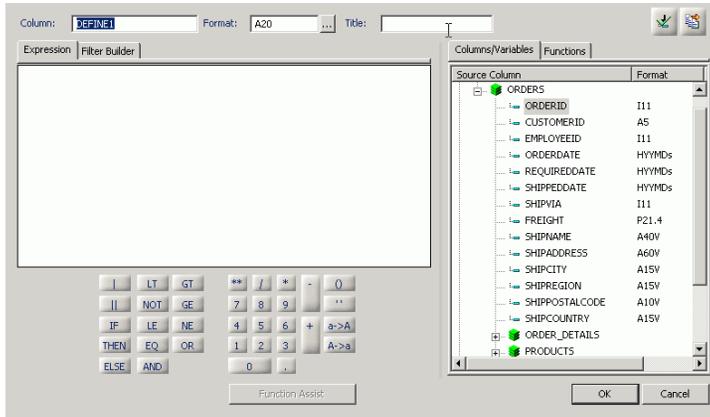
Note: The attributes available depend on the type of synonym.

Reference: Calculators for Custom Fields

To launch the Virtual Column Calculator, Filter Calculator, or Compute Calculator, click the browse (...) button at the right of the EXPRESSION value field in the Synonym Editor.



The selected calculator opens., depending on the type of custom field that you are creating.



The calculator has the following fields/options:

Column

The name of the object being created (virtual field, filter, computed field).

Format

Is the fields format.

Expressions tab

Location for typing an expression. You can add data source fields from the Columns/Variables tab, functions from the Functions tab, and numbers and operators from the calculator as you type.

Filter Builder tab

Displays the filter building window from which you can add and delete columns, choose the relation, type, and select values for your filter.

Columns/Variables tab

Displays a hierarchical list of available source columns, and System Variables folders that you can use in creating an expression.

Functions tab

A function is a program that returns a value. This tab lists the built-in functions that you can use to derive the value of a temporary field.

Function Assist button

Enables you to specify parameters for the function through a dialog box when creating or editing a transformation.

Calculator buttons

Insert numbers and operators.

The following operators are available:

| (single concatenation bar)

Concatenates two values, retaining any trailing blanks after the first one. For example, if FIRST_NAME and LAST_NAME were both in A15 format, the expression

```
FULL_NAME = FIRST_NAME | LAST_NAME
```

would produce a column like the following:

```
MICHAEL      SMITHSONJANE      JONES
.
.
.
```

|| (double concatenation bar)

Concatenates two values, suppressing any trailing blanks in the first. For example, to construct the full name and insert a comma, the syntax

```
FULL_NAME = LAST_NAME || (', ' | FIRST_NAME)
```

would produce a column like the following:

```
SMITHSON, MICHAEL JONES, JANE  
.  
.  
.
```

The concatenation in the parentheses is done first (preserving the blank space after the comma), and the result is then concatenated to LAST_NAME, suppressing the trailing blanks of LAST_NAME.

IF

Establishes a conditional test.

THEN

Specifies the action to perform if the result of a conditional test is TRUE.

ELSE

Specifies the action to perform if the result of a conditional test is FALSE.

LT

Returns the value TRUE if the value on the left is less than the value on the right.

NOT

Returns the value TRUE if the operand is false.

LE

Returns the value TRUE if the value on the left is less than or equal to the value on the right.

EQ

Returns the value TRUE if the value on the left is equal to the value on the right.

AND

Returns the value TRUE if both operands are true.

GT

Returns the value TRUE if the value on the left is greater than the value on the right.

GE

Returns the value TRUE if the value on the left is greater than or equal to the value on the right.

NE

Returns the value TRUE if the value on the left is not equal to the value on the right.

OR

Returns the value TRUE if either operand is true.

Raises a value to the specified power.

()

Adds parentheses.

"

Inserts two single quotation marks. Enter alphanumeric test values between these.

a->A

Converts selected text to uppercase.

A->a

Converts selected text to lowercase.

Check expression button

Verifies the validity of the expression.

Sample data button

Produces sample data for the expression.

Adding Group Fields in a Synonym

How to:

Add a Group Field to a Segment

Add a New Field to a Group Field

Add an Existing Field to a Group Field

Delete a Group Field From a Segment

Delete a Field From a Group Field

Reference:

Group Field Attributes

For data sources that support groups, you can assign a unique name to multiple fields to create a group field. A group field is created by two or more alphanumeric fields, physically next to each other. A group field provides an efficient means for grouping similar or logically connected fields that will be accessed as a single unit, but do not warrant a separate segment.

Note: In the Maintain environment group fields are supported in a Master File as long as they are not group keys, that is groups that are actual fields, as supported by VSAM. If you create a group field in the Maintain environment, the group will not be visible, only the fields that make up the group will be visible.

Procedure: How to Add a Group Field to a Segment

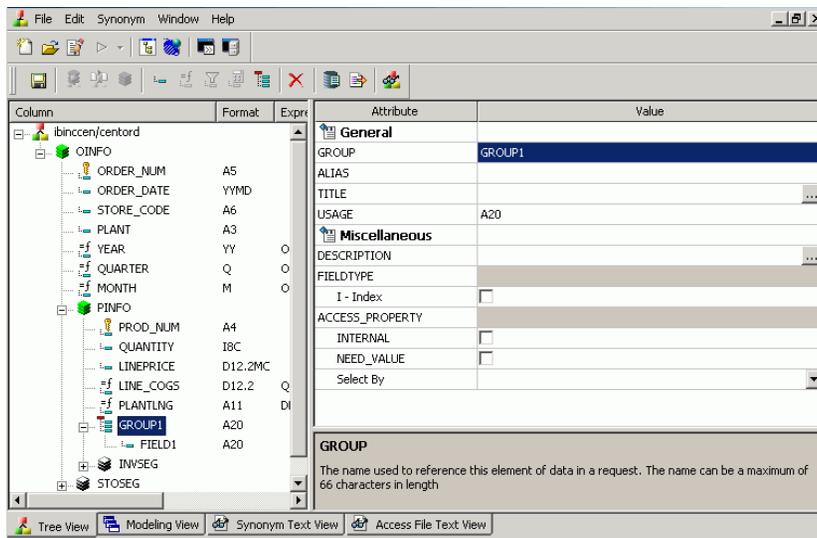
1. From the Projects or Data Servers area in Developer Studio, open a synonym by double-clicking a Master File from the Master Files folder.

The Synonym Editor opens.

2. Right-click a segment (or column) and click *Add*.
3. Select *Group*  from the Add submenu.

Note: The groups option may not be available for some data sources.

A group is added to the synonym and its attributes and values appear on the right.

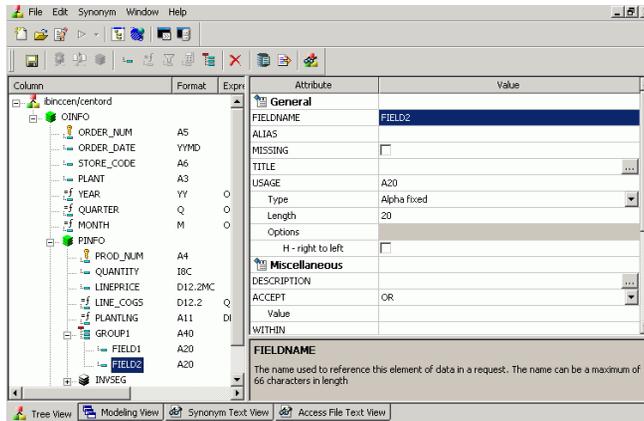


4. Type a name for the group in the *GROUP* field.
5. Select the *USAGE Type* value for the group. Specify the length, the decimal places (if applicable) and any display options for the group.
6. Click the *I - Index* box if you want the group to be indexed.
7. Select the *ACCESS_PROPERTY* values to specify access options for the group's data.
8. Optionally, you can specify the *TITLE* and *DESCRIPTION* display options.
9. Click *Save* from the *File* menu to save the synonym.
10. To close the Synonym Editor, select *Close* from the *File* menu or click the control button in the upper right corner.

Procedure: How to Add a New Field to a Group Field

1. Right-click the group field to which you want to add a new field and select *Add*.
2. Select *Column*  from the Add submenu.

A field is added to the group and its attributes and values appear on the right.



3. Supply the required information for the group field. For more information about field attributes, see [Viewing and Editing Synonym Attributes](#) on page 66.

Procedure: How to Add an Existing Field to a Group Field

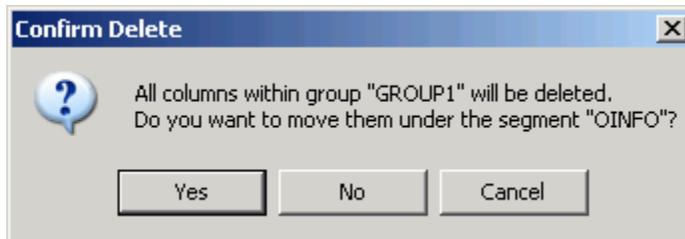
1. Click the field you want to add to the group field.
2. While holding the left mouse button down, drag the field and drop it on the group field name.

The field is added to the group field.

Procedure: How to Delete a Group Field From a Segment

1. Right-click the group and select *Delete*.

A confirmation appears stating that all fields \ columns within the group will be deleted.



2. Click Yes to delete the group and move the fields (within the group) under the root segment of the synonym.

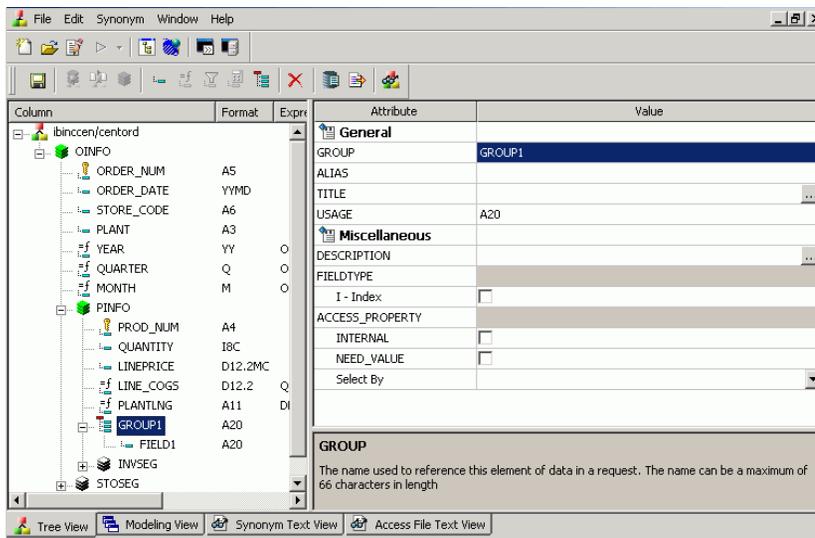
Click *No* to delete the group and all of the fields within the group.

Click *Cancel* to close the Confirmation Delete dialog box and return to the Synonym Editor.

Procedure: How to Delete a Field From a Group Field

Right-click the field, then select *Delete*.

Reference: Group Field Attributes



Group fields in a synonym can have the following attributes:

General

GROUP

Is the name of the group.

ALIAS

Assigns an alternative name for a group.

If you create a report, the group name appears as a column heading unless you have specified an alternate title for the group. Aliases cannot be used as column titles.

TITLE

Supplies a title to replace the group name that is normally used in reports and enables you to specify multiple language titles for the group.

USAGE

Contains the format for the group field. Since the group field is made by concatenating together several other fields, the Synonym Editor determines what this format needs to be. For example, if the group field has two alphanumeric fields in it, each 20 characters long (A20), then the group field must be alphanumeric and 40 characters long (A40). The group field is always alphanumeric, regardless of what the fields that make it up are.

Miscellaneous

DESCRIPTION

Contains a description or comments about the group. The description displays in Field lists and on the status bar.

Field descriptions also appear as bubble help in OLAP-enabled reports. If you do not include a description, bubble help shows the field name (column title). For information on displaying bubble help in OLAP-enabled reports, see the *Creating Reports With Graphical Tools* manual.

FIELDTYPE

Identifies an indexed group. You can index the values of a field to enhance data retrieval performance. To do so, select the Index check box when you add a field and before you add the data. An index is an internally stored and maintained table of data values and locations that enhance the performance of data retrieval. A Master File can have several associated indexes, but the combined total of indices and segments cannot exceed 64.

Note: FIELDTYPE=R indicates a read-only column. This setting is useful for columns that are automatically assigned a value by the RDBMS, such as a Sybase or MS SQL Server Identity or Timestamp column.

Tip: You can turn on the index after adding data to a field, however, you will have to use the Rebuild Index option to create the index.

ACCESS_PROPERTY

Specifies access options for the column's data.

INTERNAL defines a column that does not appear in sample data or in the list of available columns. Restricts the field from showing in any of the Field Lists in the reporting tools.

NEED_VALUE defines a column that requires a value to access the data. Indicates that a selection is needed in the Report Request (WHERE condition).

Select By defines a column by value, range, or multivalues.

- If Value is checked, only one value should be defined for selection in the Report request.
- If Range is checked, a range selection should be defined in the Report request.
- If Multivalues is checked, multiple values are allowed for selection in the Report request.

Note: The attributes available depend on the type of synonym.

Applying Database Administrator Security

In this section:

Encrypting and Decrypting a Master File
Selecting the Type of Access
Restricting Access to Segments, Fields, and Field Values
Applying Security Restrictions for Multiple Users
Deleting a DBA or User's Password

How to:

Set Up Security for the Database Administrator
Set Up Security for the User

Reference:

DBA Guidelines
DBA Properties Dialog Box

You can secure Master Files on a file-by-file basis. For each data source, security can be maintained at two different levels.

- ❑ **Database Administrator Level.** You specify the Database Administrator (DBA) password for the data source. The DBA has unlimited access to the Master File and data source and can set up or change security restrictions for individual users. Only the Database Administrator can encrypt (scramble) or decrypt (unscramble) a data source. For more information, see [Encrypting and Decrypting a Master File](#) on page 151.
- ❑ **User Level.** You specify the DBA and user passwords for the data source. The user password represents a user who has access to that data source. When you specify a user password, you must also set at least the type of file access: read, write, read/write, update. Each user's security can be further limited by restricting access to segments, fields, or field values. For more information, see [Restricting Access to Segments, Fields, and Field Values](#) on page 153. Once a user password has been established, you can apply the same restrictions to multiple users. For more information, see [Applying Security Restrictions for Multiple Users](#) on page 155.

Note: You cannot specify a Database Administrator (DBA) password during the create synonym process. You must use the Synonym Editor.

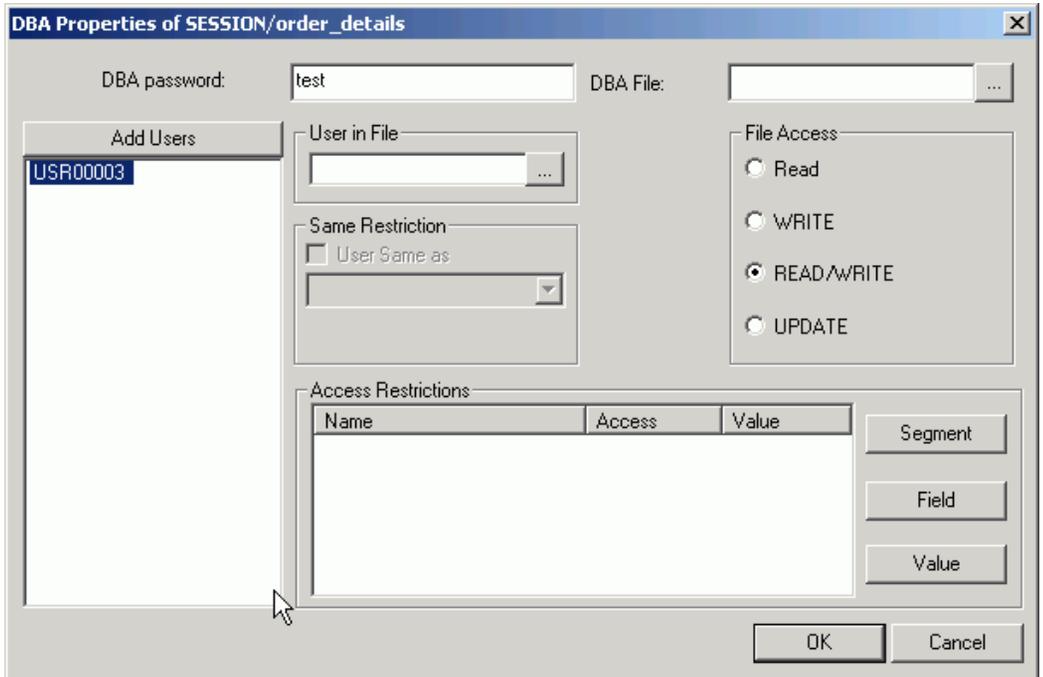
When security is specified, the Database Administrator, or user, must enter a password to get access to the data source. When the DBA or user no longer has access to the data source, you can delete their security.

Before adding any type of security to a data source, the Database Administrator must be aware of certain DBA guidelines. See [DBA Guidelines](#) on page 148.

Procedure: How to Set Up Security for the Database Administrator

1. In the Synonym Editor, click *DBA* from the Synonym menu or click the *DBA*  button from the Synonym toolbar.

The DBA Properties dialog box opens.



The screenshot shows the 'DBA Properties of SESSION/order_details' dialog box. The 'DBA password:' field contains the text 'test'. The 'DBA File:' field is empty with a browse button. The 'Add Users' list contains one entry, 'USR00003', which is selected. The 'User in File' field is empty with a browse button. The 'Same Restriction' section has a checkbox for 'User Same as' which is unchecked, and a dropdown menu below it. The 'File Access' section has four radio buttons: 'Read', 'WRITE', 'READ/WRITE' (which is selected), and 'UPDATE'. The 'Access Restrictions' section contains a table with three columns: 'Name', 'Access', and 'Value'. To the right of the table are three buttons: 'Segment', 'Field', and 'Value'. At the bottom right of the dialog are 'OK' and 'Cancel' buttons.

2. Type the DBA password in the DBA Password box.

Note: When the password is created and the cursor is in that field, you can right-click and use the edit options to undo, select all, cut, copy, paste, or delete the password.

3. Click *OK* to save the Master File with the DBA password.

Procedure: How to Set Up Security for the User

1. In the DBA Properties dialog box, click *Add Users*.
Note: The Add Users button is not active until you enter a DBA password.
The User in File, File Access, and Access Restrictions options are activated.
2. Select the type of file access from the File Access group.
Note: When the password is created and the cursor is in that field, you can right-click and use the edit options to undo, select all, cut, copy, paste, or delete the password.
3. Select the type of restriction—segment, field, and/or field value—from the Access Restrictions group, then select the type of access for each. For details, see [Restricting Access to Segments, Fields, and Field Values](#) on page 153.
4. To apply the same security restrictions as another user, select the Same Restriction check box and select another user from the drop-down list.
Note: The Same Restriction option is activated when there are multiple users.
5. You may select the *User in File* browse button to select a Master File to which the user security will be applied.
Note: The User in File option is activated when a user is selected.
6. Click *OK* to save the Master File with the user password and restrictions.

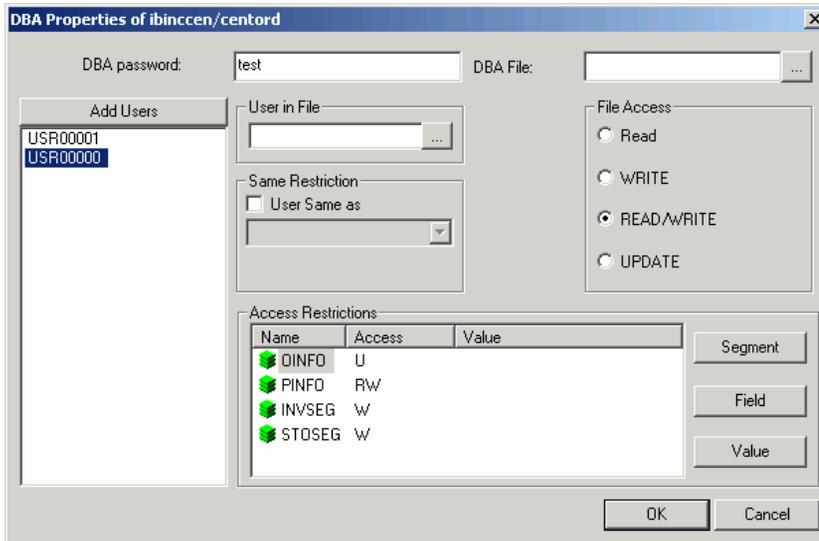
Reference: DBA Guidelines

You can ensure that the security restrictions you place on Master Files are correct by adhering to these guidelines.

- Every file with access limits must have a DBA password.
- No segment, field, or field value restrictions may be specified at the Database Administrator level. The Database Administrator should have unlimited access to the data source and all cross-referenced data sources.
- Once security restrictions have been applied, the Database Administrator should conduct thorough testing of every restriction before the data source is used. It is particularly important to check field values to make sure they do not contain errors. If they are in error, user access to the field data will be unnecessarily restricted.
- All groups of cross-referenced data sources must have the same security restrictions.
- You must have a DBA password to encrypt and decrypt or restrict existing data sources.
- The Database Administrator can change any type of security restriction.

- ❑ Access levels effect what fields users can access. The Database Administrator must consider what commands each user will need. If a user does not have access rights, that user will receive an error message.

Reference: DBA Properties Dialog Box



The following options are available from the DBA Properties dialog box.

DBA Password

Enter your DBA password of up to 8 characters. This is the password of the DBA who will be creating and maintaining the current data source. The DBA has full access to the data source and the corresponding Master File, controls the access rights of other users, and has encryption privileges. See [Encrypting and Decrypting a Master File](#) on page 151.

DBA File

Select the name of the Master File that contains your DBA security restrictions. Other Master Files can use the DBA security restrictions in this Master File.

User in File

Select the name of the Master File to which a user security will be applied. This option is used to add data source-specific restrictions to the current data source. It includes a FILENAME attribute for the selected Master File. The FILENAME attribute in the referenced Master File must be the same as the FILENAME attribute in the DBA section of the current data source.

Users

Enter the names (up to eight characters) of users to whose access rights will be granted for the current data source.

Same Restriction: User Same as

If multiple users require the same access rights, indicate the user whose access profile you wish to apply and the new user to whom you wish to apply it. See [Applying Security Restrictions for Multiple Users](#) on page 155.

File access

Choose *Read* access for full viewing rights.

Choose *Write* access to permit additions/changes to the data source.

Choose *Read/Write* for both of the above.

Choose *Update* access to make changes to field values.

Access Restrictions

Name - Name of the Master File component selected (for example, the segment or field name).

Access - Type of access restriction.

Value - Value to restrict access to.

Segment, Field, Value

Choose *Segment* to grant access to all or individual segments.

Choose *Field* to grant access to all or individual fields.

Choose *Value* to limit access to values that meet a test condition. See [Restricting Access to Segments, Fields, and Field Values](#) on page 153.

Encrypting and Decrypting a Master File

How to:

Encrypt a Master File

Decrypt a Master File

You may use the Encrypt and Decrypt attributes from the Synonym Editor to scramble and unscramble some or all of the contents of a data source. When you encrypt Master Files, they are secure from unauthorized examination.

Encryption at the data source level scrambles the entire contents of that Master File so it is unreadable. When you encrypt a Master File, you can decrypt it. Decrypting unscrambles the contents to its readable state.

Before you can encrypt or decrypt any Master File, you must specify the DBA password. If you do not specify a DBA password, you will not be able to encrypt or decrypt.

Procedure: How to Encrypt a Master File

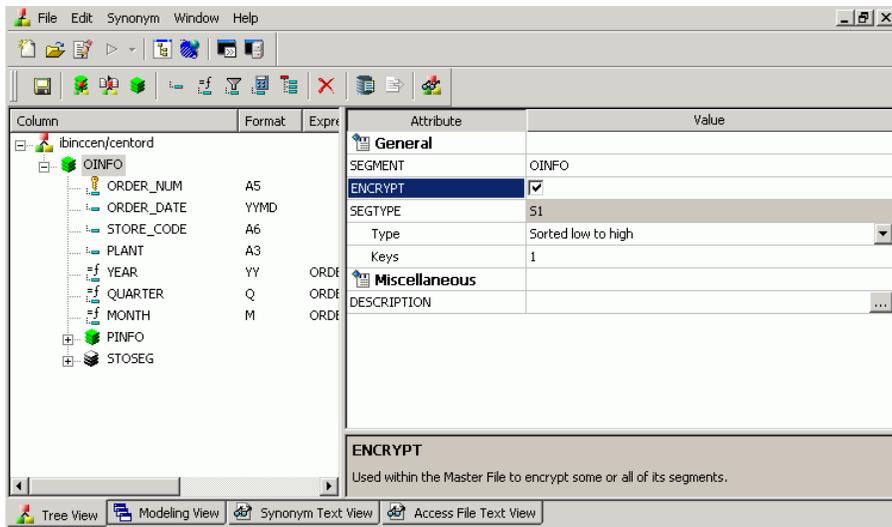
1. In the Synonym Editor, click *DBA* from the Synonym menu or click the *DBA*  button from the Synonym toolbar.

The DBA Properties dialog box opens.

2. Create and save the Master File with the DBA password.
3. From the Synonym Editor Tree View tab, select a segment from the Master File hierarchy (left pane).

The values for the selected segment appear in the right pane.

4. Select the *Encrypt* check box.



5. Click Save from the File menu to encrypt the Master File.

Procedure: How to Decrypt a Master File

1. At the encrypted segment level in the Master File hierarchy (left pane), click the *Encrypt* attribute.
2. De-select the *Encrypted* check box.
3. Click Save from the File menu to decrypt the Master File.

Selecting the Type of Access

When you assign a user password, the *type of file access* and *access restrictions* options are available. You must specify at least the type of access the user is permitted to have for the data source. The type of file access can be specified in the File Access group on the DBA Properties dialog box. In this group, there are four file access options:

- Read.** Allows the user only to read (to view) the data source.
- Write.** Allows the user only to write (to add or to make changes) to the data source.
- Read/Write.** Allows the user to read and write to the data source.
- Update.** Allows the user to update (to make changes to) existing field values.

The type of file access determines what a user can do to the entire data source:

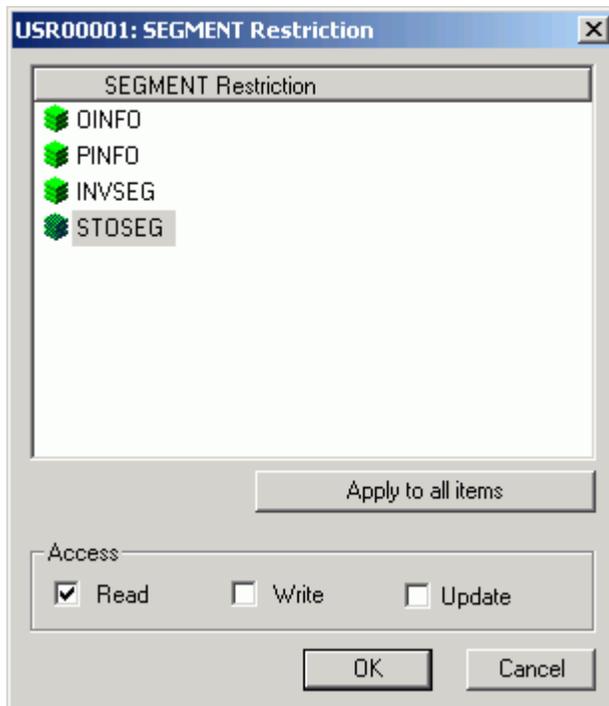
- ❑ If you specify only the type of file access, the user will have the specified access to the entire data source.
- ❑ If you want to impose additional limitations you can restrict access to segments, fields, and/or field values. See [Restricting Access to Segments, Fields, and Field Values](#) on page 153.

Restricting Access to Segments, Fields, and Field Values

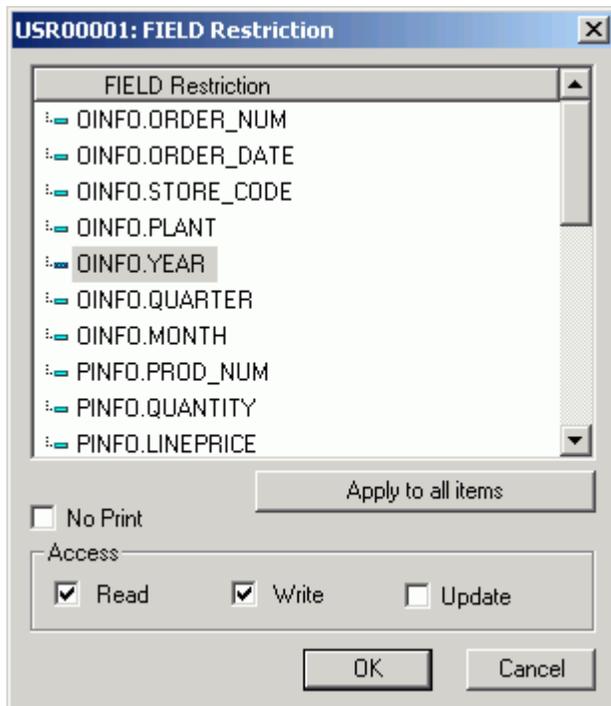
You can restrict access to segments, fields, and field values in a Master File by specifying Access Restrictions for a user. When you specify what is to be restricted—segment, field, and/or value—you can then specify the type of access that will be restricted. For fields, you can also specify whether or not you want the field to be displayed. For field values, you are required to enter a test condition.

Select the Segment/Field/Value button from the Access Restrictions area in the DBA Properties dialog box and specify the restriction.

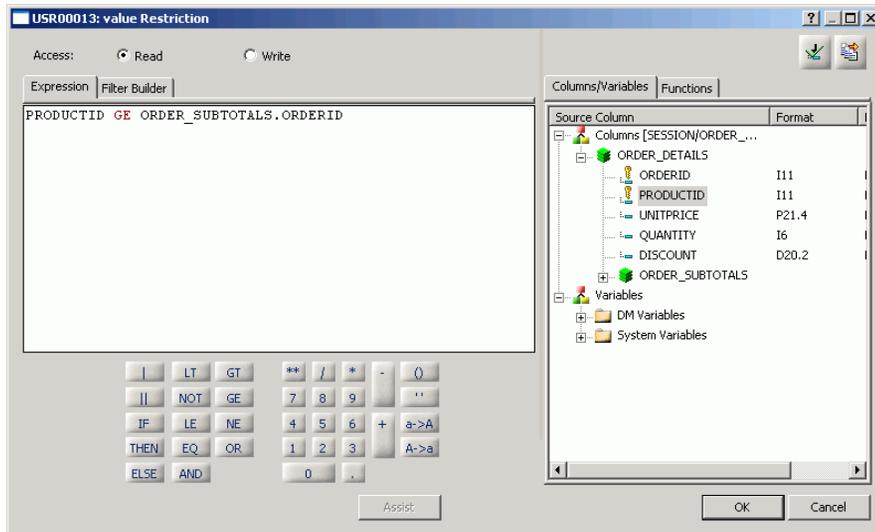
- ❑ **Segments.** You specify the type of access for individual segments or all segments.



- ❑ **Fields.** You specify the type of access for individual fields or all fields. You can also specify not to display the data in that field using NoPrint. If you specify NoPrint for a field, the data will appear as blanks for alphanumeric format or zeros for numeric format whenever the user tries to retrieve it.



- ❑ **Values.** You specify the type of access (read or write) and the test condition. The user is restricted to using only those values that satisfy the test condition.



Applying Security Restrictions for Multiple Users

How to:

Apply Previously Defined Restrictions to Another User

You can specify restrictions for one user and apply the same restrictions to other users. This helps when you want to set the same restrictions for a group of users.

Procedure: How to Apply Previously Defined Restrictions to Another User

1. In the DBA Properties dialog box, click *Add Users*.
 - Note:** The Add Users button is not active until you enter a DBA password.
 - The Same Restrictions group is activated.
 - Note:** The Same Restriction option is activated when there are multiple users.
2. In the Same Restriction group, click the *User Same as* check box.

3. Click the arrow on the drop-down combo box, then select the user with the security restrictions that would apply to the new user. Security restrictions from the user in the User Same as box are applied to the new user. You can apply the security restrictions to other users by repeating steps 1 to 3.

Note: You must have created at least one user security restriction to apply security restrictions to multiple users.

Deleting a DBA or User's Password

How to:

Delete a User's Password

Delete a DBA Password

You can delete a DBA or user's security when it is no longer needed.

Procedure: How to Delete a User's Password

1. On the DBA Properties dialog box, select the user name in the Add Users box.
2. Right-click and select *Delete* or press *Delete* on the keyboard. A confirmation message appears asking if you want to delete the security information for the selected user.
3. Select Yes.

If you delete the user based upon whom you have assigned security restrictions for other users, you must reset security restrictions for all users attached to the user you deleted.

Procedure: How to Delete a DBA Password

Note: Deleting a DBA's security will delete all users' security for that data source.

1. From the DBA Password box, right-click and select *Delete* or press *Delete* on the keyboard. A confirmation message appears stating that no DBA password is defined.
2. Select Yes.
All security information is removed.

4 Analyzing Metadata and Procedures

Describes how to analyze procedures using Impact Analysis, and how to view Data Profiling for the columns in a synonym.

Topics:

- ❑ Analyzing Procedures With the Impact Analysis Tool
- ❑ Viewing Data Profiling Characteristics

Analyzing Procedures With the Impact Analysis Tool

How to:

View Impact Analysis Results from the Synonym Editor

Use the Impact Analysis Tool From the Developer Studio Interface

You can use the Impact Analysis tool to generate a report that identifies the procedures that access a specific Master File or field within a Master File. This tool helps you analyze the potential impact of modifying or deleting Master Files or fields. The Impact Analysis tool enables you to analyze data, control search criteria, save reports, and interactively open and edit procedures based on search results.

Note: Impact Analysis searches Business Views in addition to FOCUS procedures. This enables you to see if changes in the original Master File will impact fields used in the Business View. For more information about Business Views, see [Creating Business Views in Developer Studio](#) on page 111.

The Impact Analysis tool is accessible from the Projects, Data Servers, and Managed Reporting areas of Developer Studio and is supported for Windows, UNIX, and z/OS configurations.

Note: Impact Analysis can be launched from the Developer Studio interface or from within the tools in the Synonym Editor and Business Views. When Impact Analysis is launched from the Synonym Editor or Business Views, it searches files based on the application path of the reporting server. From the Developer Studio interface, it enables you to select applications/domains to be searched.

Procedure: How to View Impact Analysis Results from the Synonym Editor

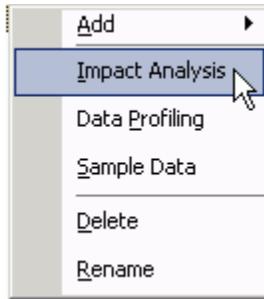
When Impact Analysis is launched from within the Synonym Editor, it searches files based on the application path of the reporting server.

1. From the Projects or Data Servers area in Developer Studio, double-click the Master File or select *Edit in Synonym Editor* from the File menu.

The Master File opens to the Tree View tab in the Synonym Editor.

2. Select the Synonym File name, or a column field, right-click and select *Impact Analysis* from the context menu.

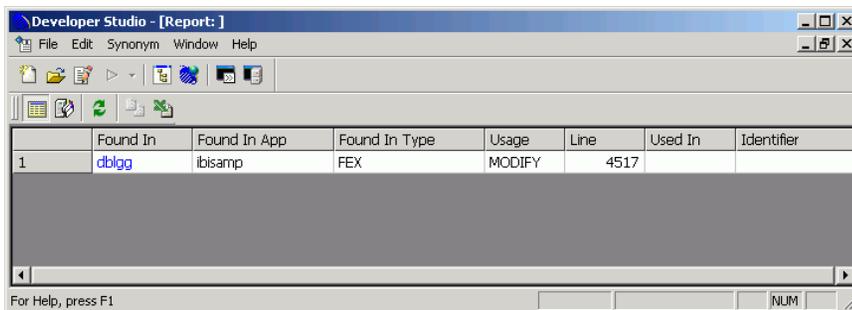
The following image shows the context menu used to launch the Impact Analysis tool.



Note: Impact Analysis is also available from the Business View tab.

The Impact Analysis results are displayed in a report spreadsheet.

3. You may use the results toolbar to view server messages, print the report, copy data as text, and export the report.



4. Click Save from the File menu to save the Impact Analysis results.
5. Click Close from the File menu to close the Impact Analysis results window and return to the Synonym Editor.

Procedure: How to Use the Impact Analysis Tool From the Developer Studio Interface

1. From the Projects or Data Servers area in Developer Studio, highlight a Master File and select *Impact Analysis* from the File menu.

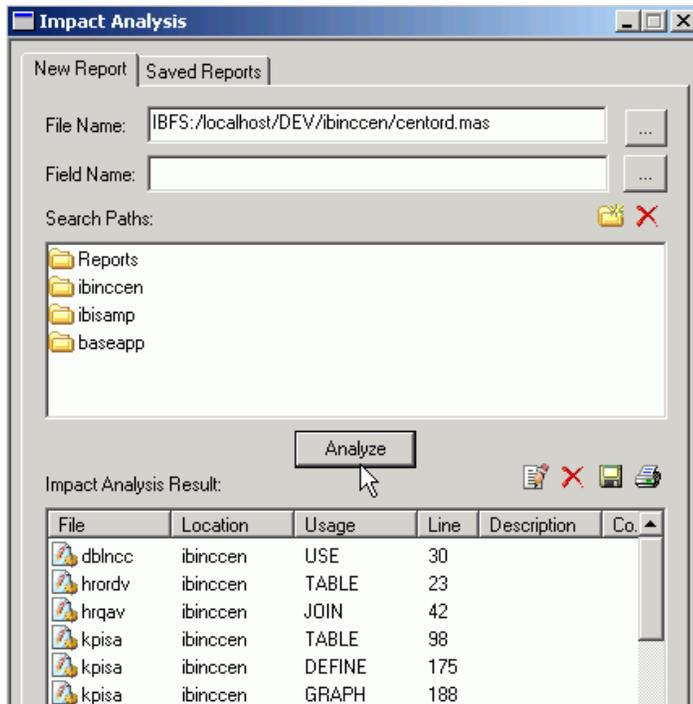
Note: You may also select a *Impact Analysis* from the right-click context menu of a Master File. This interface enables you to select applications or domains to search.

The Impact Analysis tool opens with the New Report tab displaying the selected (Master) File Name and default Search Paths.

2. To search for all procedures that access a specific Master File or field, perform one of the following:
 - ❑ **For the Master File you selected when opening the tool**, it will be searched by default. (Go to the next numbered step.)
 - ❑ **For a different Master File**, click the ellipsis button to the right of the File Name search field and select a different Master File in the Open dialog box that opens.
 - ❑ **For a single field within a Master File**, after you select the desired Master File, click the ellipsis button to the right of the Field Name search field and double-click a field name in the Master File pop-up box.
3. Optionally, to search for procedures in directory paths not listed by default in the Search Paths pane, add more search paths by clicking the folder icon above the Search Paths area and selecting one or more folders in the Browse for Folder dialog box that opens.

Note: You can also delete search paths by highlighting a search path and clicking the *Delete* icon above the Search Paths area.
4. Click *Analyze* to display a report in the Impact Analysis Results pane.

The following image shows the New Report tab of the Impact Analysis dialog box populated with File Name search criteria, multiple Search Paths, and a report displayed in the Impact Analysis Result pane.



You have options to edit procedures, print the report, delete an item in the report, and export a report.

Exported reports are XML formatted, have an .IAR extension, and are saved in the following default directory (unless you specify a different location):

drive:\ibi\DevStudioreleasenumbe\bin

5. Click the *Saved Reports* tab to access all previously created reports.

All Impact Analysis reports are automatically saved in the following XML formatted file (unless you manually delete a report):

drive:\ibi\DevStudioreleasenumbe\bin\IARRepository.xml

Information is appended to this file as new analysis reports are performed. You have options to view reports, import previously exported reports, and delete reports.

Viewing Data Profiling Characteristics

In this section:

Data Profiling a Synonym or Segment

Data Profiling a Single Column

Data Profiling provides data characteristics for the columns in a synonym. You can display the characteristics for all the columns in a synonym or segment, or for an individual column.

Note: Data Profiling is not available if your adapter is not configured correctly. For more information about configuring the adapter, see [Accessing Data and Creating Synonyms](#) on page 15.

For alphanumeric columns, Data Profiling provides the segment, format, count of distinct values, total count, patterns count, maximum, minimum, and average length, and number of nulls. Patterns count shows the number of patterns found in each alphanumeric column.

For numeric columns, Data Profiling provides the segment, format, count of distinct values, total count, maximum, minimum, and average value, and number of nulls.

Data Profiling for an individual column provides access to Statistics, Patterns, Values, and Outliers reports.

Data Profiling a Synonym or Segment

How to:

View Data Profiling for a Synonym or Segment

Data Profiling provides information on all the columns in a synonym or segment. You can also drill down to the Values or Patterns reports for an individual column from a synonym or segment's Data Profiling report.

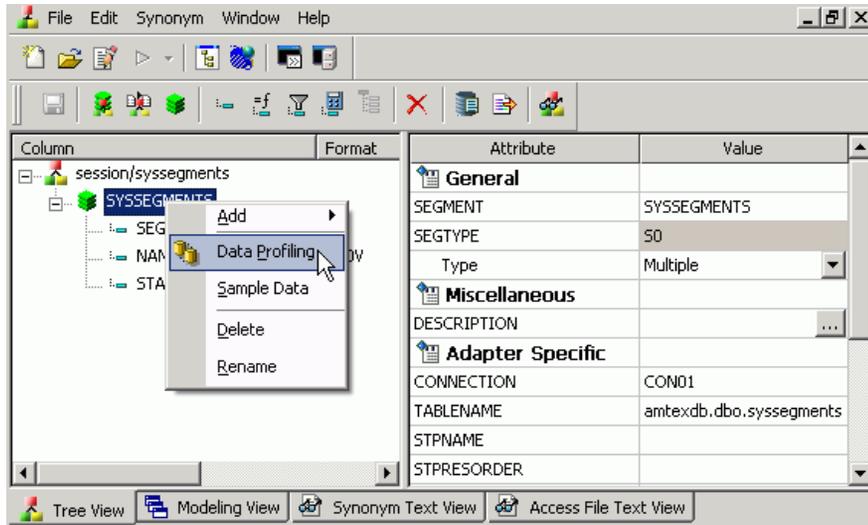
Procedure: How to View Data Profiling for a Synonym or Segment

To view the data profiling information for a synonym or segment's columns:

1. From the Projects or Data Servers area in Developer Studio, open a synonym by double-clicking a Master File from the Master Files folder.

The Synonym Editor opens to the Tree View tab.

2. Right-click the synonym or segment name and, select *Data Profiling*.



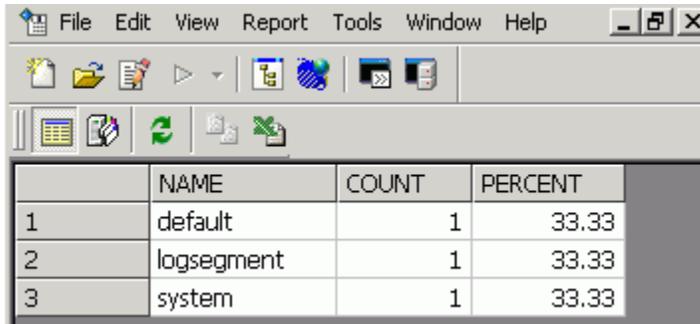
The Data Profiling information displays in the workspace.

Segment	Name	Format	Distinct Count	Count	Patterns Count	Minimum	Maximum	Average
1	SYSSEGMENTS SEGMENT	I11	3	3	0	0	2	1
2	SYSSEGMENTS NAME	A10V	3	3	3	6	10	7
3	SYSSEGMENTS STATUS	I11	2	3	0	0	1	0

You may use the data profiling results toolbar to view server messages, print the report, copy data as text, and export the report.

3. Optionally, you can click a column name or patterns count (for alphanumeric columns) to drill down to the Values or Patterns reports, respectively.

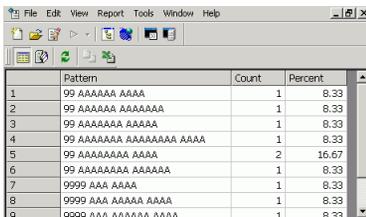
This is a Values report produced by clicking a column name.



	NAME	COUNT	PERCENT
1	default	1	33.33
2	logsegment	1	33.33
3	system	1	33.33

This is a Patterns report produced by clicking a Patterns Count value.

The image below is an example of an address column.



	Pattern	Count	Percent
1	99 AAAAAA AAAA	1	8.33
2	99 AAAAAA AAAAAA	1	8.33
3	99 AAAAAA AAAAA	1	8.33
4	99 AAAAAA AAAAAAAA AAAA	1	8.33
5	99 AAAAAAAA AAAA	2	16.67
6	99 AAAAAAAA AAAAAA	1	8.33
7	9999 AAA AAAA	1	8.33
8	9999 AAA AAAAA AAAA	1	8.33
9	9999 AAA AAAAAA AAAA	1	8.33

For pattern analysis, a "9" represents a digit, an "A" represents any upper case letter, and an "a" represent any lower case letter. All printable special characters are represented by themselves, and unprintable characters are represented by an "X".

Data Profiling a Single Column

How to:

- View Data Profile Statistics
- View Data Profile Patterns
- View Data Profile Values
- View Data Profile Outliers

Data Profiling for an individual column provides access to four reports:

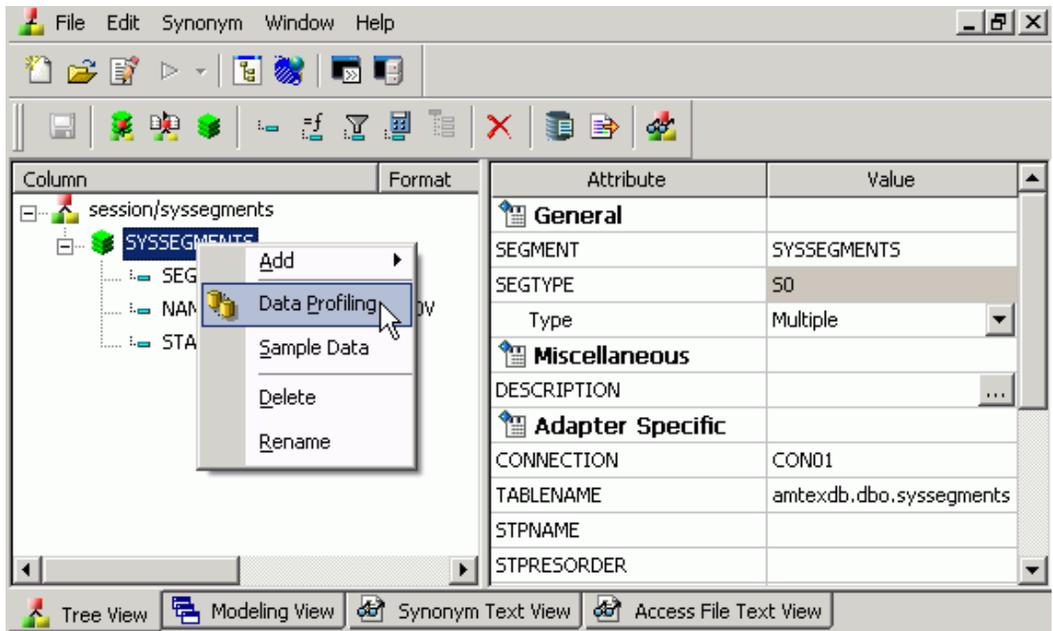
- ❑ **Statistics** shows the same information as a Data Profile report for a synonym or segment.

For alphanumeric columns, the Statistics report provides the segment, format, count of distinct values, total count, patterns count, maximum, minimum, and average length, and number of nulls.

For numeric columns, the Statistics report provides the segment, format, count of distinct values, total count, maximum, minimum, and average value, and number of nulls.

- ❑ **Patterns**, which is only available for alphanumeric columns, shows patterns of letters, digits, and special characters, as well as counts and their percent.
- ❑ **Values** shows unique values and their percents.
- ❑ **Outliers** shows the ten highest and lowest values and their counts.

These reports are available by right-clicking a column in the Synonym Editor and selecting *Data Profiling*.



The Patterns report shows the number of patterns found for each alphanumeric column.

Segment	Name	Format	Distinct Count	Count	Patterns Count	Minimum Length	Maxm
1	STORES01 STORE_CODE	A05	12	12	1		5
2	STORES01 STORE_NAME	A23	12	12	1		19
3	STORES01 ADDRESS01	A19	12	12	10		8
4	STORES01 ADDRESS2	A31	12	12	11		13
5	STORES01 CITY	A22	12	12	7		6
6	STORES01 STATE	A02	11	12	1		2
7	STORES01 ZIP	A06	12	12	1		5

Clicking on a patterns count displays the actual patterns.

The image below is an example of an address column.

	Pattern	Count	Percent
1	99 AAAAAA AAAA	1	8.33
2	99 AAAAAA AAAAAA	1	8.33
3	99 AAAAAA AAAAAA	1	8.33
4	99 AAAAAA AAAAAA AAAA	1	8.33
5	99 AAAAAA AAAA	2	16.67
6	99 AAAAAA AAAAAA	1	8.33
7	9999 AAA AAAA	1	8.33
8	9999 AAA AAAAA AAAA	1	8.33
9	9999 AAA AAAAA AAAA	1	8.33

For pattern analysis, a "9" represents a digit, an "A" represents any upper case letter, and an "a" represent any lower case letter. All printable special characters are represented by themselves, and unprintable characters are represented by an "X".

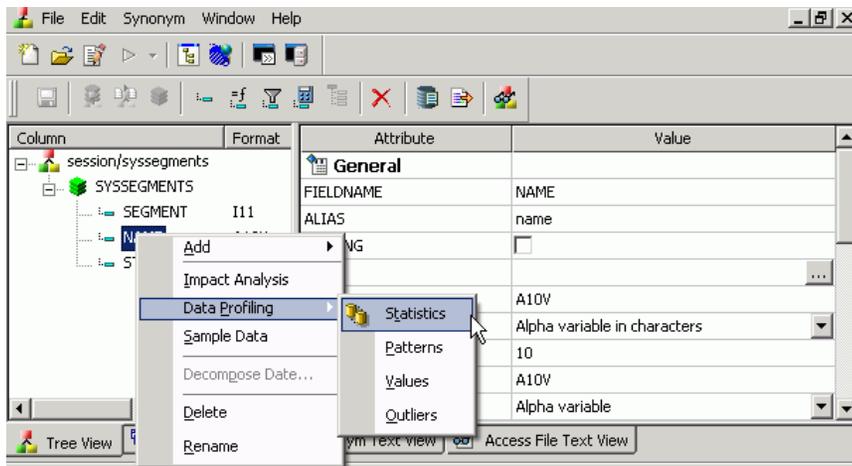
Procedure: How to View Data Profile Statistics

To view the statistical data profiling information for a single column:

1. From the Projects or Data Servers area in Developer Studio, open a synonym by double-clicking a Master File from the Master Files folder.

The Synonym Editor opens to the Tree View tab.

2. Right-click a column and, select *Statistics* from the Data Profiling submenu.



The Statistical Data Profiling information displays in the workspace.

	Segment	Name	Format	Distinct Count	Count
1	SYSSEGMENTS	NAME	A10V	3	

3. Optionally, you can click a column name or patterns count (for alphanumeric columns) to drill down to the Values or Patterns reports, respectively.

	NAME	COUNT	PERCENT
1	default	1	33.33
2	logsegment	1	33.33
3	system	1	33.33

Procedure: How to View Data Profile Patterns

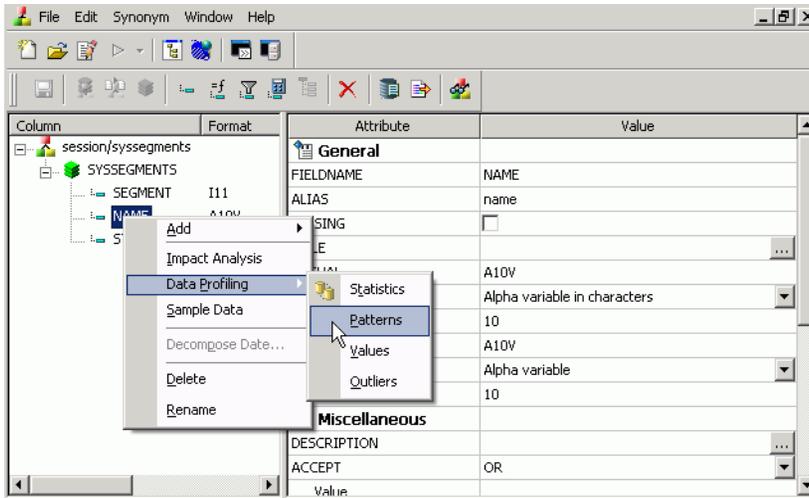
Data Profile Patterns shows patterns of letters, digits, and special characters, as well as counts. This is only available for alphanumeric columns.

To view the patterns data profiling information for a single column:

1. From the Projects or Data Servers area in Developer Studio, open a synonym by double-clicking a Master File from the Master Files folder.

The Synonym Editor opens to the Tree View tab.

2. Right-click a column and, select *Patterns* from the Data Profiling submenu.



The Patterns Data Profiling information displays.

The screenshot shows a software window with a menu bar (File, Edit, View, Report, Tools, Window, Help) and a toolbar. Below the toolbar is a table with the following data:

	PATTERN	COUNT	PERCENT
1	aaaaaa	1	33.33
2	aaaaaaa	1	33.33
3	aaaaaaaaa	1	33.33

For pattern analysis, a "9" represents a digit, an "A" represents any upper case letter, and an "a" represent any lower case letter. All printable special characters are represented by themselves, and unprintable characters are represented by an "X".

Procedure: How to View Data Profile Values

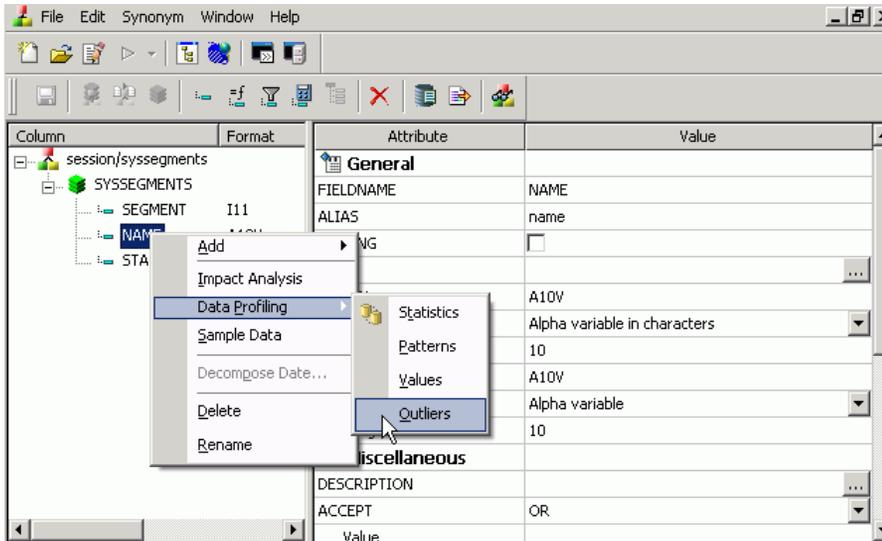
Data Profile Values shows unique values.

To view the values data profiling information for a single column:

1. From the Projects or Data Servers area in Developer Studio, open a synonym by double-clicking a Master File from the Master Files folder.

The Synonym Editor opens to the Tree View tab.

2. Right-click a column and, select *Outliers* from the Data Profiling submenu.



The Outliers Data Profiling information displays.

	High	Count	Low	Count
1	system	1	default	1
2	logsegment	1	logsegment	1
3	default	1	system	1

Note: Outliers produce a maximum of 10 highest and lowest distinct values, if they exist.

5 Adding Data and Rebuilding FOCUS Data Sources

If you choose to create a Master File schema before the corresponding FOCUS data source has been created, you will need to create and populate the FOCUS data source before you can use it in reports or other requests. For details about creating a Master File, see [Using the Synonym Editor](#) on page 51.

Furthermore, if you modify a Master File in the course of your work, you can rebuild the corresponding data source using a graphical Rebuild utility.

Topics:

- ❑ Creating a FOCUS Data Source
- ❑ Rebuilding a Data Source

Creating a FOCUS Data Source

How to:

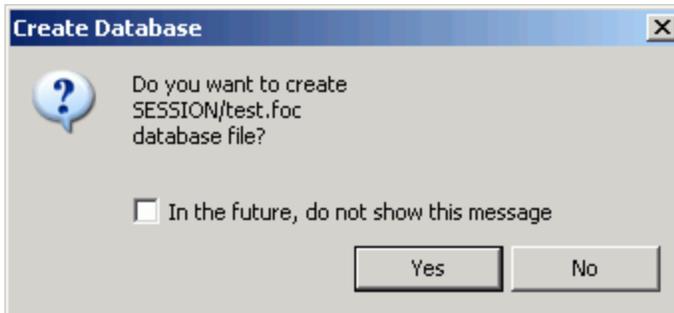
Create a Data Source

When you save a Master File, you must also create a corresponding blank data source that will hold the data for the fields defined in the Master File. This data source is saved in the application directory.

After creating the blank data source, you can load data into it with a MODIFY request, or a Maintain request. After you populate the data source, you can use it in conjunction with the Master File in a report request.

Procedure: How to Create a Data Source

1. From the Projects or Data Servers area in Developer Studio, right-click the Master Files folder, and select *Synonym via Synonym Editor* from the New menu.
2. Type in a File name in the Add Master File dialog box and click *Open*.
The Master File opens to the Modeling View tab in the Synonym Editor.
3. Create and save the synonym.
4. Click *Close* from the File menu.
5. Click *Yes* to create a blank FOCUS (.foc) database file.
FOCUS creates a blank data source (.foc) in the background.



The .foc file is stored in the application directory.

Rebuilding a Data Source

In this section:

Rebuilding a Disorganized File
Rebuilding the Index
Checking the Integrity of a Data Source

How to:

Use the Rebuild Utility

Reference:

Rebuild Dialog Box

The Rebuild tool provides a number of useful project management utilities. Rebuild enables you to restructure data sources, rebuild indexes, and check the integrity of data sources.

Note: You can only use this utility with FOCUS data sources.

Procedure: How to Use the Rebuild Utility

To open the Rebuild dialog box:

1. Choose *Utilities* from the Command menu, then choose *Rebuild* from the cascading menu.

The Rebuild dialog box opens.

2. Select a Rebuild option.

See [Rebuild Dialog Box](#) on page 174 and individual procedures for each of the Rebuild options.

Reference: Rebuild Dialog Box

Choose *Utilities* from the Command menu, and *Rebuild* from the Utilities cascading menu to display the Rebuild dialog box. The Rebuild dialog box has the following fields/options:

- Rebuild a disorganized file

This option can be used to perform the following functions:

- Re-optimize a FOCUS data source after a large amount of data has been added or deleted.
- Select specific segment instances to include in the data source, based on record selection criteria you specify.
- Index a field
Builds or rebuilds the index for the specified field. Use this option to index an additional field that was not originally specified as an index field, or to change the index for a field. See [Rebuilding the Index](#) on page 175.
- Check the integrity of a file
Checks the structural integrity of a data source. If FOCUS encounters an error during the check, it displays a message. See [Checking the Integrity of a Data Source](#) on page 176.
- Filename
Contains the name of the data source to rebuild. Enter a data source name in the box, or click the *Browse* button to open a dialog box and select the data source.
- Selection Criteria
Specifies selection criteria for rebuilding a disorganized data source and reorganizing a data source to fit a new Master File. Only data that meets the selection criteria is included in the rebuilt data source.

Rebuilding a Disorganized File

This option in the Rebuild dialog box enables you to:

- Restructure and optimize a FOCUS data source after data has been added or deleted.
- Select specific segment instances for inclusion in the data source based on selection criteria you supply. For example, if you specify the following selection criterion,

`INVOICE_DATE GT 990101`

FOCUS will omit invoices earlier than 99/01/01 from the rebuilt data source.

Rebuilding the Index

How to:

Index a Field After Data Is Entered
Rebuild the Index

When you first create a Master File in the Synonym Editor, you specify the fields that you want indexed. Sometimes, after data is entered, you may need to index an additional field that was not originally specified as an index field.

The first step is to alter the Master File to indicate that the field should be indexed. Altering the Master File does not actually create the index. To do this you must use the Rebuild utility after you index a field.

Procedure: How to Index a Field After Data Is Entered

From the Synonym Editor, select the field to be indexed, and then click the *I-Index* check box under the FIELDTYPE attribute.

or

Open and edit the Master File as text in the Text Editor. For instructions on indexing a field as text, see the *Describing Data With WebFOCUS Language* manual.

After you index a field you must rebuild the index. See [How to Rebuild the Index](#) on page 175.

Procedure: How to Rebuild the Index

1. Select *Index a field* in the Rebuild dialog box.
2. Enter a data source name in the Filename box or click *Browse* and select a data source from the list.
3. Enter the name of the field you want to index in the Field to Index box.
To index all the fields designated as index fields in that data source, enter an asterisk (*) in the Field to Index box.
4. Click *OK*.

The Rebuild utility rebuilds the data source, creating an index for all specified fields.

For more information on indexing fields, see the *Describing Data With WebFOCUS Language* manual.

Checking the Integrity of a Data Source

How to:

Check the Structural Integrity of a FOCUS Data Source

It is rare for the structural integrity of a FOCUS data source to be damaged. Structural damage will occasionally occur, however, during a disk drive failure or if an incorrect Master File is used. In this situation, you can check the integrity of the Master File. Checking the integrity of a Master File performs the following essential tasks:

- ❑ It checks all pointers in the data source.
- ❑ Should it encounter an error, it displays a message and attempts to branch around the offending segment or instance. In this way, it recovers as much of the data source as possible.

Although checking the integrity reports on a good deal of data that would otherwise be lost, it is important to remember that frequently backing up your FOCUS data sources is the best method of preventing data loss.

Checking the Master File integrity will occasionally fail to uncover structural damage. If you have reason to believe that there is damage to your data source, though results from checking the integrity indicates otherwise, there is a second method of checking file integrity. This method uses the ? FILE and TABLEF commands. For more information, see the *Describing Data With WebFOCUS Language* manual.

Procedure: How to Check the Structural Integrity of a FOCUS Data Source

Select *Check the integrity of a file* in the Rebuild dialog box.

If the Rebuild utility encounters an error during the check, it logs a message for you. You should then attempt to recover as much of the data source as possible or restore it from backup.

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