

IBM® DB2® OLAP Server™ and DB2 OLAP Starter Kit



Version 7

*OLAP Integration Server Metaoutline User's
Guide*



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Preface

Purpose

This guide provides the information you need to build OLAP metaoutlines. It explains all Essbase® Integration Services OLAP metaoutline features and options, and it contains the concepts, processes, procedures, formats, tasks, and examples that you need to use the Essbase Integration Services Console software.

Audience

This guide is for Essbase Integration Services database administrators who are responsible for installing, implementing, and deploying the system.

To use all the information in this book, you need the following skills:

- Knowledge of where the data for your business resides; for example, in a relational database.
- Knowledge of how to create and maintain Open Database Connectivity (ODBC) data sources.
- Knowledge of the data requirements for your business so you can apply the Essbase Integration Services product family to your specific application.
- A fundamental understanding of Microsoft Windows and basic Microsoft Windows terminology, such as dialog box, list box, and button. See Microsoft Windows documentation for more information on these terms.
- Experience with the setup and operation of Hyperion® Essbase® OLAP Server.
- A basic understanding of multidimensional concepts.

Document Structure

This document contains the following information:

Chapter 1, “About Essbase Integration Services,” introduces basic OLAP and multidimensional concepts and describes how to use the desktop to create metaoutlines.

Chapter 2, “Creating and Working with Metaoutlines,” describes how to open a metaoutline, connect to OLAP Metadata Catalog and to a relational data source, and create, save, delete, and print a metaoutline.

Chapter 3, “Adding Dimensions, Member Levels, and Measures to a Metaoutline,” describes how to use the dimensions, member levels, and measures defined in the OLAP model to create a metaoutline.

Chapter 4, “Setting Load Properties,” describes how to set the actions that Essbase Integration Server performs on dimensions, member levels, and measures as it builds an Essbase outline or loads data into an Essbase outline.

Chapter 5, “Working with Filters,” demonstrates how to set filters on member levels and measures that determine what member levels or data Essbase Integration Server loads into the Essbase database.

Chapter 6, “Setting Essbase Properties,” describes how to set the properties that dimensions and member levels will have after you build the Essbase outline.

Chapter 7, “Loading Dimensions and Members,” steps you through using a metaoutline to add dimensions and member levels to an Essbase outline.

Chapter 8, “Loading Data,” steps you through loading data into an Essbase database.

Chapter 9, “Creating Drill-Through Reports,” describes how to create Drill-Through reports that users can access using Essbase Spreadsheet Add-in.

Chapter 10, “Troubleshooting,” provides tips on dealing with common problems you may encounter while building an Essbase database and loading data into it.

Appendix A, “Creating a Sample Metaoutline Containing Attribute Dimensions,” provides procedures for using the sample TBC application to create a metaoutline that contains attribute dimensions.

Glossary, lists and defines key Essbase Integration Services terms and their definitions.

Index, lists Essbase Integration Services terms and their page numbers. In the PDF version of this guide, select an index entry to view the relevant page.

Sample Applications

The examples used in this book are based on two sample databases provided with Essbase Integration Services. The databases are called TBC (external data source) and TBC_MD (OLAP Metadata Catalog). The TBC_MD OLAP Metadata Catalog contains a sample OLAP model and a sample metaoutline. The OLAP model is called TBC Model, and the metaoutline is called TBC Metaoutline.

Note: The capitalization of column and table names in the sample applications depends on the relational database management system (RDBMS) that you use.

The person who installs Essbase Integration Services is responsible for making the sample databases, the OLAP model, and the metaoutline available to end users. If any of the following problems occur when you launch Essbase Integration Services Console, contact the Essbase Integration Services administrator:

- You cannot find the sample databases, the OLAP model, or the metaoutline.
- You do not have adequate access to the sample databases, the OLAP model, or the metaoutline.
- You do not see any data in the sample databases.

Related Documentation

Hyperion provides the following documentation for this product:

- *Essbase Integration Services OLAP Model User's Guide*, for information about basic modeling concepts and descriptions of how to design, create, and maintain one or more OLAP models on top of the relational database.
- *Essbase Integration Services System Administrator's Guide*, for information about how to use Essbase Integration Server, OLAP Metadata Catalog, and Essbase Integration Services Shell, and about how to create and manage ODBC connections.

- *Essbase Integration Services Installation Guide*, for information about installing the software, about Essbase Integration Services directories and files, and about connecting relational data sources to an OLAP Metadata Catalog.

Essbase OLAP Server documents:

- *Essbase Database Administrator's Guide*, for information about basic multidimensional concepts and descriptions of how to design, create, and maintain an Essbase database.
- *Essbase SQL Interface Guide*, for information about the data sources supported through Essbase SQL Interface.
- *Essbase Spreadsheet Add-in User's Guide*, for information about how to use Essbase Spreadsheet Add-in with Microsoft Excel and Lotus 1-2-3 for Windows.
- The *Technical Reference* in the `docs` directory for information about Essbase calculation and report commands and functions.

Online Help

- To access online help:
 1. In a dialog box, click **Help**.
 2. In the **Help** dialog box, to display information about an item, click the item.
- To print an online help topic, display the topic and select File > Print.

Online Guides

The online guides are electronic versions of the printed documentation.

- To display an online guide, select Help > Help Topics.

Conventions

The following table shows the conventions used in this document:

Table xi: Conventions Used in This Document


Item	Meaning
	Arrows indicate the beginning of a procedure consisting of sequential steps.
Brackets []	In examples, brackets indicate that the enclosed elements are optional.
Bold	Bold text indicates words or characters that you type exactly as they appear on the page. Bold in procedural steps highlights major user interface elements.
CAPITAL LETTERS	Capital letters denote commands and various IDs. (Example: CLEARBLOCK command)
Example text	Courier font indicates that the material shown is a code or syntax example.
Ctrl + 0	Keystroke combinations shown with the plus symbol (+) indicate that you should press the first key and hold it while you press the next key. Do not type the + symbol.
<i>Courier italics</i>	Courier italic text indicates a variable field in command syntax. Substitute a value in place of the variable shown in Courier italics.
<i>Italics</i>	Italics in a product-related term indicates that the term is also included in the glossary of the book.
Ellipses (...)	Ellipsis points indicate that text has been omitted from an example.
Mouse orientation	This document provides examples and procedures using a right-handed mouse. If you use a left-handed mouse, adjust the procedures accordingly.

Table xi: Conventions Used in This Document (Continued)

Item	Meaning
Menu options	Options in menus are shown in the following format: <i>Menu name > Menu command > Extended menu command</i> For example: Connections > OLAP Metadata Catalog > Connect
<i>n, x</i>	The variable <i>n</i> indicates that you must supply a generic number; the variable <i>x</i> indicates that you must supply a generic letter.

Note: The term right-click, used throughout this guide, means to click the secondary mouse button to open a pop-up menu.

About Essbase Integration Services

Essbase Integration Services Console provides a suite of graphical tools that you use to create OLAP models and metaoutlines. You use the tables of a relational data source to define a logical model that represents the relational data in an online analytical processing (OLAP) context. You then use the OLAP model to create a metaoutline that serves as a template for an Essbase database outline.

This chapter explains basic OLAP concepts, describes a metaoutline, provides a workflow for using the Essbase Integration Services Console user interface, and provides an overview of Essbase Integration Services.

This chapter contains the following topics:

- “About OLAP” on page 1-2
- “About Multidimensional Databases” on page 1-3
- “About Essbase Integration Services” on page 1-5
- “Components of Essbase Integration Services” on page 1-7
- “Workflow for Using Essbase Integration Services” on page 1-9
- “About Metaoutlines” on page 1-9
- “Components of a Metaoutline” on page 1-10
- “Workflow for Creating a Metaoutline” on page 1-11

Note: You must create an OLAP model before you create a metaoutline. For more information on creating OLAP models, see the *Essbase Integration Services OLAP Model User’s Guide*.

About OLAP

OLAP is a decision-support computing environment for business managers who need to analyze consolidated enterprise data in real time. OLAP enables users to answer complex “what if” questions and to create sales and marketing scenarios to test budgeting, sales promotion, and sales planning strategies. Essbase Integration Server supports a multidimensional, multi-user database that enterprise users can access with standard retrieval tools, such as spreadsheets.

Essbase OLAP Server supports multiple views of data sets for users who need to analyze the relationships between data categories. For example, a decision-support user might want answers to the following questions:

- How did Product A sell last month? How does this figure compare to sales in the same month in each of the last five years? How did Product A sell by branch, region, and territory? How will Product A sell next month, next quarter, and next year?
- Did Product A sell better in particular regions? Do regional trends exist?
- Did customers return Product A last year? Were returns due to product defects? Were defective products manufactured in a specific plant?
- Did commissions and pricing affect how salespeople sold Product A? Did particular salespeople do a better job of selling the product?

You can use Essbase Integration Services to create Essbase databases and thus answer these types of questions quickly and easily.

The first step in advancing from a relational database to an Essbase database is the creation of a logical data model that represents the relational database. You use Essbase Integration Services Console to create the data model. Then you use OLAP Metaoutline to create one or more metaoutlines and use a metaoutline to build an Essbase database and load members and data into the database.

About Multidimensional Databases

A multidimensional database stores consolidated data at the intersections of its members and dimensions. For example, if a company sells a total of 20 units of all products in the East region in the first quarter, Essbase stores 20 at the intersection of Product, East, Quarter1, and Unit Sales.

Dimensions represent core components of a business plan and often relate to business functions. Product, Region, and Year are examples of typical dimensions. Dimensions are static in most databases and rarely change over the life of an application.

A *member* is an individual component of a dimension. For example, Product A, Product B, and Product C might be members of the Product dimension. Each member has a unique name. A dimension can contain an unlimited number of members. Members in some dimensions change frequently over the life of an application.

Members can, simultaneously, be parents of members and children of members. The Essbase outline indents members below one another to indicate a consolidation relationship. For example, sales totals for the Product dimension might be totalled by product description, broken down by product code, and further broken down by product ID.

User Interactions with Data

Essbase Integration Server consolidates and calculates data to provide different views of the data. With a multidimensional database, users can perform all of the following functions:

Consolidate (aggregate or roll up) data

The consolidation process computes the data relationships for all parent-child combinations within a dimension. For example, the consolidation for the Year dimension is as follows:

$$\text{Year} = \text{Quarter1} + \text{Quarter2} + \text{Quarter3} + \text{Quarter4}$$

A consolidation is typically additive, but it can be any type of calculation.

Create sophisticated “what if” scenarios

For example, assume that you set a sales goal of ten percent growth for the upcoming year on all product lines that your company manufactures. With Essbase, you can compare the sales forecasts, as estimated by planners, with the actual data retrieved from the online transaction processing (OLTP) database to see whether you are achieving your sales goals. If actual sales are running lower than projected sales for a given period, salespeople can access the forecasted data, input new product sales scenarios (for example, What if I sell 2000 widgets to our biggest corporate customer?), update the forecasted data, and provide revised forecasted data to headquarters.

Input strategic planning assumptions

Assume that your company is planning for 50 percent growth over the next three years. You have a fairly good grasp of how many new products are required to meet your goal, but how do you know how many new engineers, salespeople, and support personnel you can afford to add while still optimizing profits and gross margin? With Essbase, you can input projected sales and projected expenses for each product and calculate downward to determine the cost of goods sold. Thus, you obtain a realistic picture of the bottom line. If the picture does not look practical, you can create different scenarios with different mixes of products, people, and expenses until you produce the profit picture that you require.

Conduct spreadsheet operations

Drilling down or drilling up on data in Essbase Spreadsheet Add-in retrieves progressively more detailed or progressively less detailed data relative to a selected dimension. Drilling down on a database dimension provides you with greater detail on the dimension. Drilling up provides you a higher level perspective of the dimension—a view of a higher consolidation level. For example, you drill down on the Year dimension to view the values for each quarter. Then you drill down on Quarter1 to see the values for each month of Quarter1. Conversely, you view Quarter1 sales for the Chicago office and drill up to view sales totals for the entire East region.

Pivoting data alters the user's view of retrieved data. When Essbase retrieves a dimension, it displays a configuration of rows and columns. A user can pivot (rearrange) the data to obtain a different view.

For more information about spreadsheet operations, such as drill up, drill down, and pivot, see the *Essbase Spreadsheet Add-in User's Guide*.

Sources for Data

The data in a multidimensional database can originate from a variety of sources, such as OLTP databases, text files, and spreadsheet files. OLTP databases contain a wealth of operational data, such as the answers to the following questions:

- How many units of Product A are on hand?
- What is the current customer's name, address, and billing status?
- What is an employee's salary, job title, and address?

Data in an OLTP database must be up to date and easy to change and must use as little space as possible. The data is stored in rows and columns in relational database tables.

Essbase Integration Services enables you to access data for a metaoutline from a data source that is configured for Open Database Connectivity (ODBC) and that supports SQL 92 or later.

About Essbase Integration Services

Essbase Integration Services transfers data from relational tables to an Essbase database quickly. To enable the transfer, you must determine which data to transfer and consolidate the selected data into a form that is useful for decision-support users. Then you must identify the tables, rows, or columns that contain the required data and determine how the tables, rows, or columns map to the structure of the multidimensional database.

As illustrated in Figure 1-1, Essbase Integration Services provides graphical tools to help you accomplish the following tasks:

- Use the tables, views, and columns in a relational database to create an OLAP model. An OLAP model is a logical star schema that consists of a fact table surrounded by related dimension tables.
- Use the OLAP model to create a metaoutline—an outline template that contains the structure and the rules required to generate an Essbase outline.
- Use the metaoutline to create and populate an Essbase database.

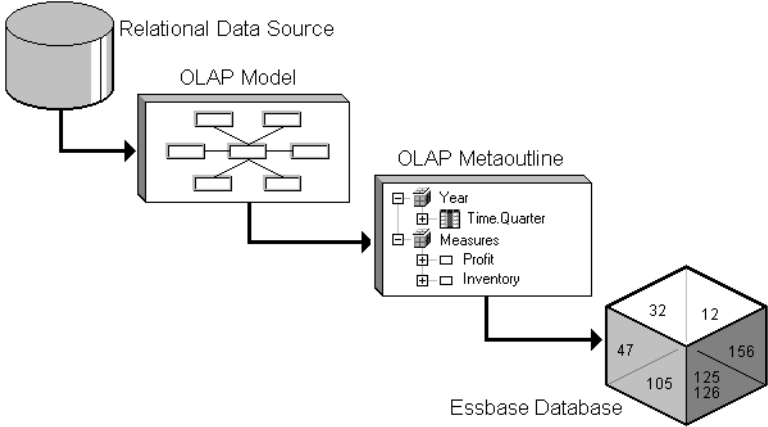


Figure 1-1: Workflow for Creating an Essbase Database from a Relational Data Source

Components of Essbase Integration Services

Essbase Integration Services, pictured in Figure 1-2, consists of two major components: Essbase Integration Services Console and Essbase Integration Server.

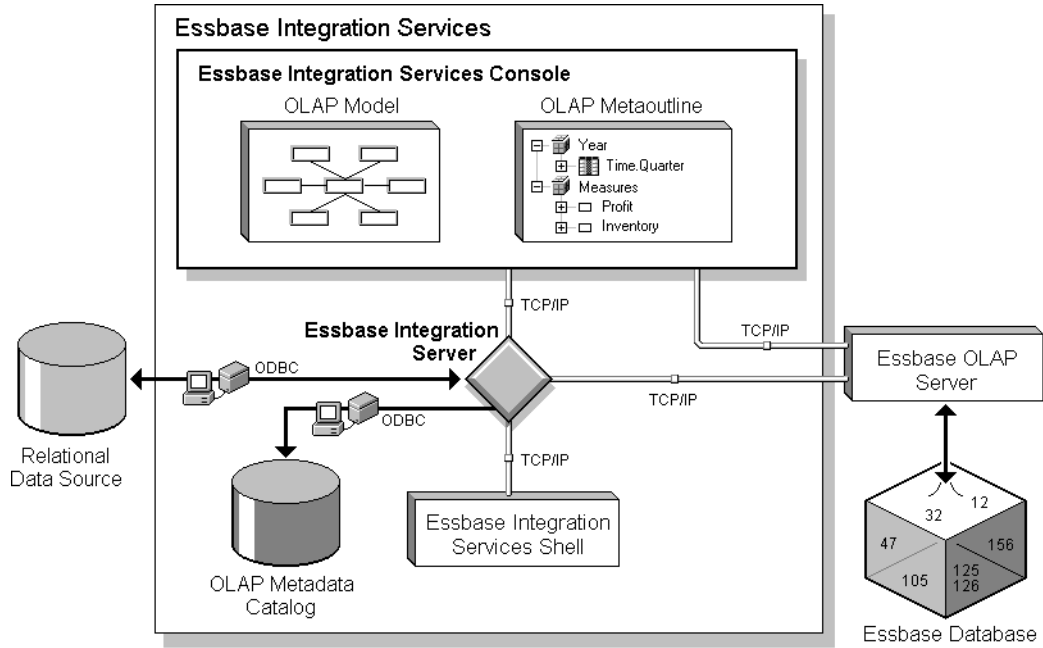


Figure 1-2: Essbase Integration Services

Essbase Integration Services Console

Essbase Integration Services Console, a graphical user interface, is used for creating OLAP models and metaoutlines. After you create a metaoutline, you can build an Essbase database and load data from the relational data source directly into the Essbase database.

Essbase Integration Server

Essbase Integration Server is the primary component of Essbase Integration Services. Essbase Integration Server is software that uses the information stored in OLAP Metadata Catalog to extract from the relational data source the dimension and member names needed to build an associated Essbase outline. When the Essbase outline is complete, Essbase Integration Server extracts data from the relational data source, performs the operations specified in the associated metaoutline, and loads the data into the Essbase database. For more information about Essbase Integration Server, see the *Essbase Integration Services System Administrator's Guide*.

Essbase Integration Server includes the following subcomponents, as previously illustrated in Figure 1-2:

- **OLAP Metadata Catalog:** An SQL relational database that contains the following information:

- Metadata describing the nature, source, location, and type of data to retrieve from the relational data source
- Metadata describing the information required to generate an Essbase outline
- OLAP models and metaoutlines

You can create more than one OLAP Metadata Catalog to store OLAP models and metaoutlines. However, you cannot move OLAP models and metaoutlines to a different OLAP Metadata Catalog after you have created and saved them to a specific catalog.

OLAP Metadata Catalog is a data source that is configured for Open Database Connectivity (ODBC). If you do not know how to create an ODBC data source, see the *Essbase Integration Services Installation Guide* or the ODBC user documentation.

- **Essbase Integration Services Shell:** A command-line tool used to access Essbase Integration Server to perform operations on the Essbase outline and the data in the Essbase database. For more information, see the *Essbase Integration Services System Administrator's Guide*.

Workflow for Using Essbase Integration Services

Figure 1-2 provides an overview of Essbase Integration Services components that you use to prepare relational data for OLAP reporting through Essbase Integration Server.

- To create an Essbase database from a relational data source:
 1. Build an OLAP model that is based on the tables of a relational data source. Essbase Integration Server stores the OLAP model and the information necessary to retrieve the relevant tables and views in OLAP Metadata Catalog.
 2. Create a metaoutline from the OLAP model. Essbase Integration Server stores the metaoutline in OLAP Metadata Catalog.
 3. Load members and data into an associated Essbase database.
 4. Update the Essbase outline with new members and data.

About Metaoutlines

OLAP metaoutlines have the following features:

- They are reusable. You can use a metaoutline as the basis for more than one Essbase outline.
- They are centralized. You can define a metaoutline at a central location and use it to create multiple Essbase outlines in multiple locations.
- They enable you to create an Essbase outline that is based on criteria that you specify.
- They enable you to create Essbase databases on demand. You can create or update an Essbase database whenever you want, either on the spot or by scheduling periodic updates.
- They enable you to view sample Essbase outlines before you build them.
- They automatically generate the SQL necessary to retrieve data from an external data source.

- They enable you to filter the data from the relational data source before you build the associated Essbase outline.
- They enable you to transform data as you create an Essbase outline. You can transform member names as you create an Essbase outline or transform data as you load it into an Essbase database.

Components of a Metaoutline

A metaoutline contains all of the following components:

- One or more measures. The Essbase database calculates data values, or *measures*, for each dimension intersection of the associated metaoutline. Measures include items such as SALES or COGS (cost of goods sold). Every metaoutline that you use to build an Essbase outline must include at least one measure. For more information, see “About Measures” on page 3-6.
- Two or more dimensions. A *dimension* in a metaoutline creates a dimension in the associated Essbase outline. For example, if you have a Product dimension in a metaoutline, the Essbase outline that you generate from that metaoutline also has a Product dimension. You can drag dimensions from the OLAP model or create your own dimensions. For more information, see “About Dimensions” on page 3-4.
- One or more member levels. A *member level* in a metaoutline creates one or more members at the same level in the associated Essbase outline. For example, if the Product dimension of a metaoutline contains a PRODUCT_DESC member level, the Product dimension in the Essbase outline contains members, such as Birch Beer and Caffeine Free Cola, that correspond to the values in the PRODUCT_DESC member in the relational database.

You can define a set of filters and transformation rules that determine which members of a member level Essbase Integration Services adds to the associated Essbase outline and what transformations, if any, Essbase Integration Services performs on the members of a member level as it builds the associated Essbase outline. For more information, see “About Member Levels and Members” on page 3-5.

You can arrange member levels into a hierarchy. A *hierarchy* defines the organizational structure of a group of member levels. For example, a standard time hierarchy in a metaoutline might contain the Year, Quarter, and Month member levels. This hierarchy creates an Essbase outline with members such as 1999, Quarter1, and January.

You can also create hierarchies for the metaoutline as you create an OLAP model. See the *Essbase Integration Services OLAP Model User's Guide*.

Figure 1-3 shows a sample metaoutline. You can see the dimensions named Year, Product, Market, Scenario, and Supplier. The metaoutline also contains a dimension named Measures that contains OPENINGINVENTORY and ADDITIONS measures. The Year dimension contains a hierarchy—Quarter and Month.

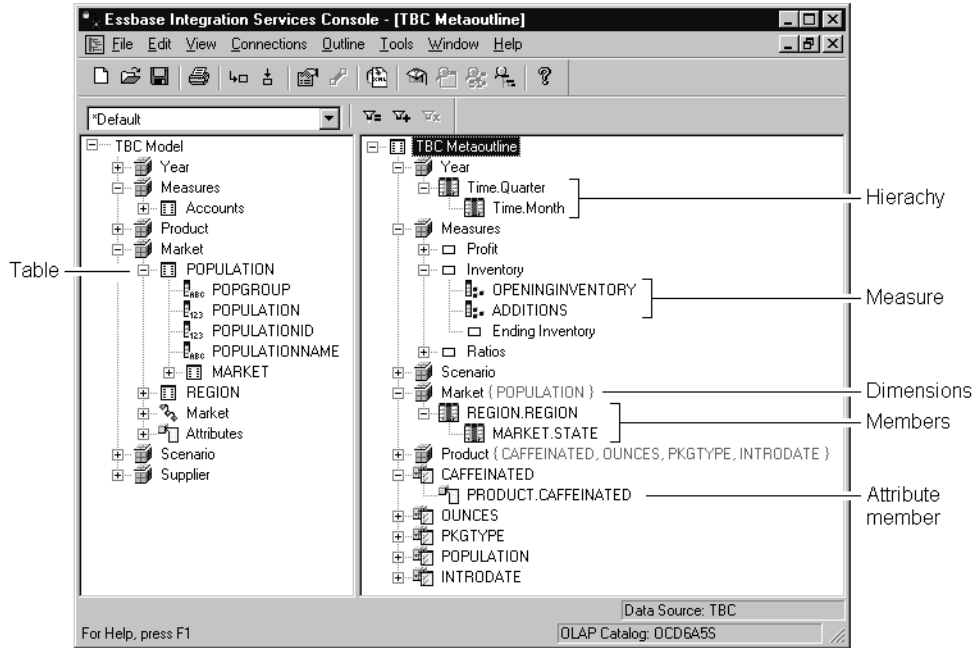


Figure 1-3: Sample Metaoutline

Workflow for Creating a Metaoutline

Before you can create a metaoutline, you must have the following pieces in place:

- An OLAP model.
See the *Essbase Integration Services OLAP Model User's Guide*.
- A running and properly prepared external data source.
- A server running Essbase Integration Server.

See the *Essbase Integration Services System Administrator's Guide*.

For more information, see “Working with Metaoutlines” on page 2-3.

- A running Essbase OLAP server if you plan to load members or data into an Essbase database.

After you make the necessary connections, use the following workflow to create a metaoutline, as illustrated in Figure 1-4:

1. Start Essbase Integration Services Console and create a metaoutline.
See “Starting Essbase Integration Services Console” on page 2-3 and “Creating or Editing Metaoutlines” on page 2-4.
2. Add dimensions, member levels, and measures to the metaoutline.
See Chapter 3, “Adding Dimensions, Member Levels, and Measures to a Metaoutline.”
3. Set load properties, filters, and Essbase properties on the dimensions, member levels, and measures of the metaoutline.
See Chapter 4, “Setting Load Properties,” Chapter 5, “Working with Filters,” and Chapter 6, “Setting Essbase Properties.”

As needed, view sample dimensions or outlines to check them before building the Essbase outline. See “Viewing Sample Dimensions, Members, and Essbase Outlines” on page 3-50.

As needed, create Drill-Through reports. See Chapter 9, “Creating Drill-Through Reports.”
4. Load member levels into the Essbase outline.
See Chapter 7, “Loading Dimensions and Members.”
5. Load data into the Essbase outline.
See Chapter 8, “Loading Data.”

As needed, view the data by using Essbase Spreadsheet Add-in. See the *Essbase Spreadsheet Add-in User's Guide*.

6. Update the Essbase database with new members and data.

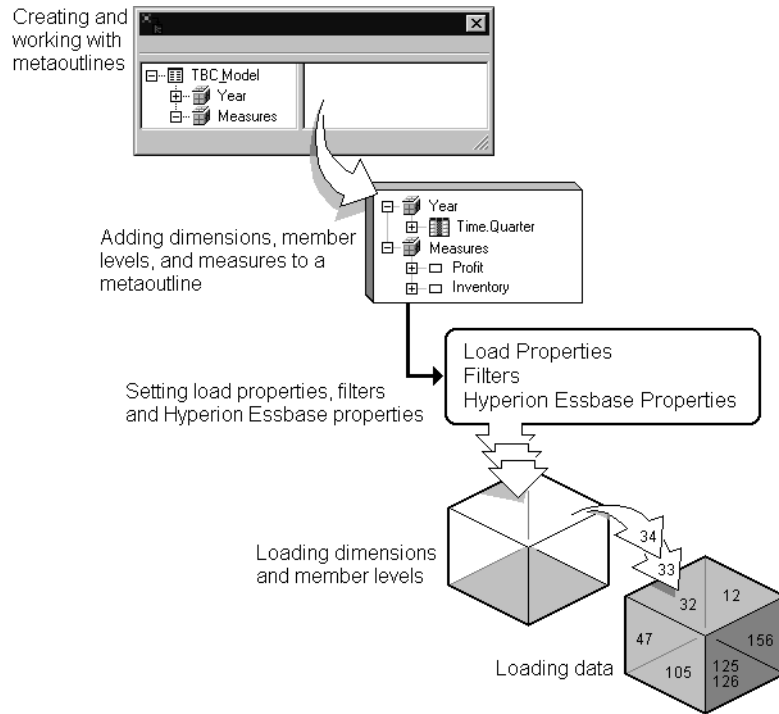


Figure 1-4: Metaoutline Workflow

When you finish, the following structures are functional:

- A metaoutline that determines the structure of the associated Essbase outline
- An Essbase database that contains both members and data

Creating and Working with Metaoutlines

This chapter describes how to create and work with metaoutlines—from opening or creating a metaoutline through validating and saving a metaoutline. Before you read this chapter, read Chapter 1, “About Essbase Integration Services” to familiarize yourself with the definition for and components of a metaoutline.

This chapter contains the following topics:

- “Understanding the Metaoutline Workflow” on page 2-2
- “Working with Metaoutlines” on page 2-3
- “Working in the OLAP Metaoutline Main Window” on page 2-6
- “Validating Metaoutlines Manually” on page 2-14
- “Saving Metaoutlines” on page 2-16
- “Printing Metaoutlines” on page 2-22
- “Deleting Metaoutlines” on page 2-23

For information on adding dimensions, member levels, and measures to a metaoutline, see Chapter 3, “Adding Dimensions, Member Levels, and Measures to a Metaoutline.”

Understanding the Metaoutline Workflow

Figure 2-1 illustrates the workflow for creating a metaoutline. This workflow includes creating a metaoutline and using the metaoutline to create and load members and data into an Essbase database. This workflow includes the following procedures:

- Creating and working with a metaoutline
- Adding dimensions, member levels, and measures to a metaoutline
- Setting load properties, filters, and Essbase properties on dimensions, member levels, and measures in a metaoutline
- Loading dimensions and member levels from a metaoutline into the Essbase outline
- Loading data that is specified in a metaoutline into an Essbase database

This chapter focuses on creating a metaoutline and on working with an existing metaoutline.

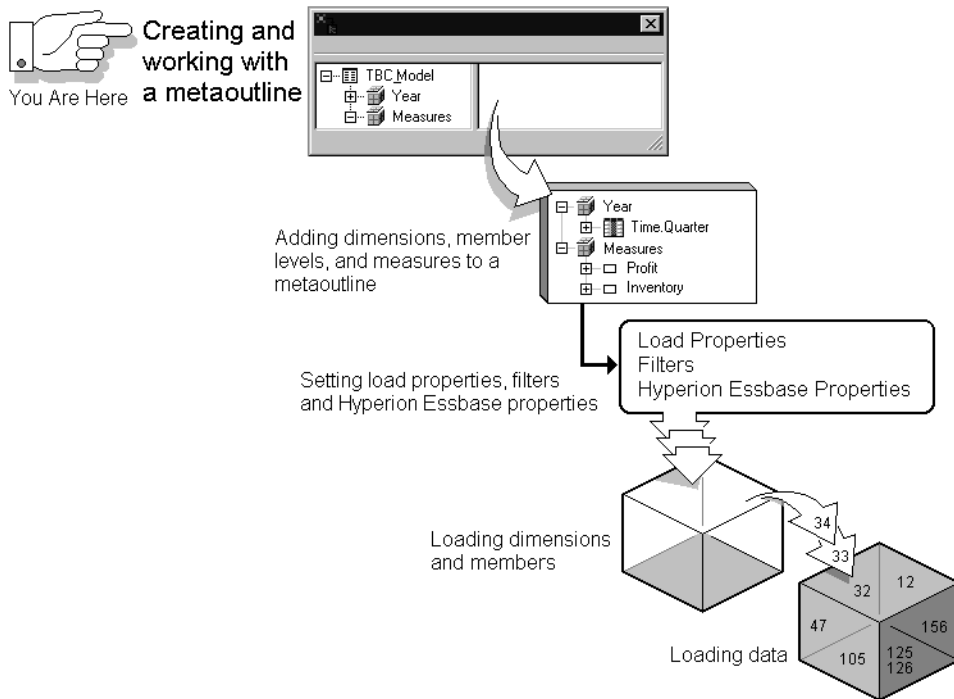


Figure 2-1: Metaoutline Workflow


Working with Metaoutlines

Before you start working with a metaoutline, make sure that the OLAP Metadata Catalog where the associated OLAP model is stored, the server on which Essbase Integration Server is running, and the data source are accessible. These items can be on servers on a network and do not need to be on your local computer to be available to Essbase Integration Services Console. For more information, see the *Essbase Integration Services System Administrator's Guide*.

The Essbase OLAP server must be running if you need to create, change, or load data into an Essbase database.

To work with a metaoutline, start Essbase Integration Services Console and then create or edit a metaoutline. For more information, see “Starting Essbase Integration Services Console” on page 2-3 and “Creating or Editing Metaoutlines” on page 2-4.

Starting Essbase Integration Services Console

- To start Essbase Integration Services Console, use any of the following methods:
 - From the Windows Start menu, select Essbase Integration Services Console.
 - Double-click the Essbase Integration Services Console icon, .
 - On the command line, type the executable name **olapbldr**.

For example, if Essbase Integration Services Console is installed in the `\hyperion\EssIntegration\bin` directory, type the following path:

```
\hyperion\EssIntegration\bin\olapbldr
```

Note: The default client directory, which is specified during installation, is `\hyperion\EssIntegration`. Your application may have a different installation directory. Consult the person who installed Essbase Integration Services at your site if you are not sure of the directory specification.

Now you can start working on a metaoutline. See “Creating or Editing Metaoutlines” on page 2-4.

Creating or Editing Metaoutlines

To create or edit metaoutlines, start Essbase Integration Services Console, connect to Essbase Integration Server, OLAP Metadata Catalog, and open a metaoutline. You are then prompted to connect to a data source.

For more information about connecting to Essbase Integration Server, OLAP Metadata Catalog or a data source, see the *Essbase Integration Services Installation Guide*. If you have problems connecting, see “Correcting Connection Problems” on page 2-5.

If you started Essbase Integration Services Console, the Welcome dialog box that you use to choose whether to create or edit a metaoutline opens automatically.

If you are already running Essbase Integration Services Console and are connected to OLAP Metadata Catalog, select File > New or File > Open to open the Welcome dialog box.

➤ To create a metaoutline:



OLAP
Metaoutline.

1. Select the **OLAP Metaoutline** icon, OLAP Metaoutline.
2. From the drop-down list box, select an existing model on which to base the metaoutline, as shown in Figure 2-2.

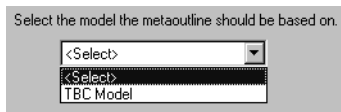


Figure 2-2: Selecting an OLAP Model on Which to Base a Metaoutline

3. If you want to place write-lock privileges on the metaoutline, select **Exclusive Access**.

Exclusive Access enables you to modify and save the metaoutline. If **Exclusive Access** is not selectable, another user has write-lock privileges and you have read-only privileges.

4. Click **Open**.

- To edit a metaoutline:
1. In the **Welcome** dialog box, click the **Existing** or **Recent** tab.
 2. Select the name of the metaoutline name that you want to edit.
For more information about the metaoutline, look in the **Details** list box.
 3. If you want to place write-lock privileges on the metaoutline, select **Exclusive Access**.
Exclusive Access enables you to modify and save the metaoutline. If **Exclusive Access** is not selectable, another user has write-lock privileges and you have read-only privileges.
 4. Click **Open**.
 5. If necessary, log on to the appropriate data source.

Correcting Connection Problems

If you have problems connecting from Essbase Integration Services Console to Essbase Integration Server, OLAP Metadata Catalog, the Essbase OLAP server, or the data source, use the following checklist to help diagnose any problems:

- Was the server temporarily down or not available? Try to connect again.
- Did you enter the correct server name? Depending on the network configuration, you may need to enter a fully-qualified internet host name; for example, **myserver.mycompany.com**.
- Did you enter the correct username and password? Passwords are usually case-sensitive. Make sure that the Caps Lock key is not activated.
- Do you have a network connection to the server? Check the network connection by using the ping command. See Microsoft Windows online help for more information about using ping.

If the above steps do not resolve the problem, contact your database administrator or system administrator. For more information about troubleshooting server connections, see the *Essbase Integration Services System Administrator's Guide*.

Working in the OLAP Metaoutline Main Window

To create a metaoutline, you must connect to OLAP Metadata Catalog and to the relational data source. For more information on connecting, see “Working with Metaoutlines” on page 2-3. After you select the OLAP Metaoutline icon, Essbase Integration Services Console displays the OLAP Metaoutline main window, as shown in Figure 2-3. The window displays the OLAP model in the left frame and a blank metaoutline creation area in the right frame.

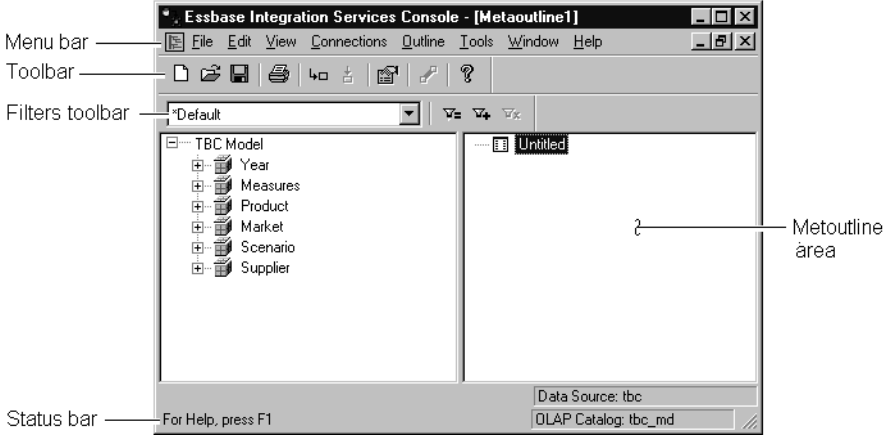






Figure 2-3: OLAP Metaoutline Main Window

Left Frame

The left frame lists the dimensions defined in the OLAP model. You can use OLAP model dimensions in the metaoutline.

Each OLAP model object or metaoutline object is displayed after a plus symbol, , or a minus symbol, .

- The plus symbol, , indicates that you can expand the branch. For example, clicking Market expands the branch to show REGION.
- The minus symbol, , indicates that you can collapse the branch. For example, when Market is expanded, clicking on Market collapses the dimension to show the dimension name but not the children of the dimension.

For information on selecting multiple dimensions, hierarchies, columns, and measures in the left frame, see “Selecting Multiple Objects in the Left Frame” on page 2-10.

Right Frame

The right frame is where you build a metaoutline. Drag a dimension, member, hierarchy, or measure from the left frame into the right frame to create a dimension, member level, hierarchy, or measure in the metaoutline.

For information on OLAP model objects that you can drag into the right frame, see “For the most up-to-the-minute naming guidelines, refer to the Essbase Integration Services Console online help.” on page 3-10.

For information on selecting multiple dimensions, hierarchies, columns, and measures in the right frame, see “Selecting Multiple Objects in the Right Frame” on page 2-11.

Tools and Toolbars

You use the toolbar to perform commonly used functions. For more information on individual toolbar buttons, click Help. To hide the toolbar, deselect View > Toolbar. The check mark next to Toolbar in the menu is removed, and the toolbar disappears. To redisplay the toolbar, select View > Toolbar.

The toolbar is not attached to the edge of the program window. You can move it by selecting it and dragging it to a new location. You can also change the shape and size of the toolbar.

You use the Filters toolbar to perform actions on metaoutline filters. You can move the toolbar by selecting it and dragging it to a new location. You can also change the shape and size of the Filters toolbar.

Menus

You use the menu bar to perform commonly used commands.

You use the pop-up menu that opens when you right-click an object to perform operations on the selected object.

Status Bar

The status bar displays the data source and the OLAP Metadata Catalog to which you are connected and displays other status information. To hide the status bar, deselect View > Status Bar. The check mark next to Status Bar in the menu is removed, and the status bar disappears. To redisplay the status bar, select View > Status Bar.



Viewing the OLAP Metaoutline Main Window

You can customize the view of the OLAP Metaoutline main window to display Essbase properties in either columnar or condensed format. Columnar format displays Essbase properties under column headings as shown in Figure 2-3. Condensed format displays Essbase properties in parentheses to the right of the dimension or member as they appear in a Essbase outline. Default Essbase settings are not displayed.

To customize the view of the OLAP Metaoutline main window, select View > Display Essbase Properties. For more information on the specific menu items listed on the Display Essbase Properties submenu, see “Viewing Essbase Properties” on page 6-28.

OLAP Metaoutline Filter and Transformation Graphics

You can view the following filter and transformation icons in the OLAP Metaoutline main window by selecting View > Metaoutline Icons:

- The filter icon, , indicates that a filter has been set on a member level or on a measure.
- The transformation icon, , indicates that a member level or a measure has been transformed.

To hide these icons, deselect View > Metaoutline Icons.

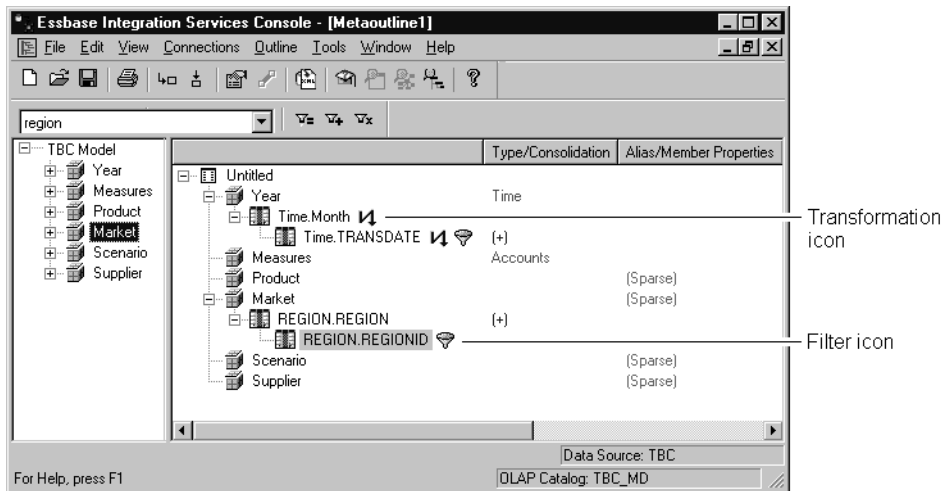


Figure 2-4: Viewing Essbase Properties in Columnar Format

For further information on the icons displayed in the OLAP Metaoutline main window, as shown in Figure 2-4, see “Creating Dimensions Associated with an OLAP Model” on page 3-12.

Selecting Multiple Objects in the Left Frame

To select multiple, non-contiguous objects in the left frame of the OLAP Metaoutline main window, select the name of the first object, press and hold Ctrl, and select the names of the other objects.

To select multiple, contiguous objects, use one of the following methods:

- Select a first object, press and hold Ctrl, and select additional objects.
- Select a first object, press Shift, and select a final object. All objects between the two selected objects are selected.

You can perform any of the following actions to create dimensions and member levels in the right frame of the OLAP Metaoutline main window:

- Select multiple dimensions in the left frame and drag the dimensions into the right frame to create dimensions without member levels. You can then select multiple members of one or more dimensions in the left frame and drag the members into the right frame. Each member is placed under the correct dimension automatically.

Note: You may need to organize the dimension members into a hierarchy.

- Select multiple members in the left frame and drag the members into the right frame to create dimensions and member levels automatically.
- Select multiple dimensions and members in the left frame and drag the dimensions and members into the right frame to create dimensions and member levels automatically.

As shown in Figure 2-5, if you drag the ADDITIONS, COGS, FAMILY, and FAMILYID members into the right frame, the Measures and Product dimensions are created automatically.

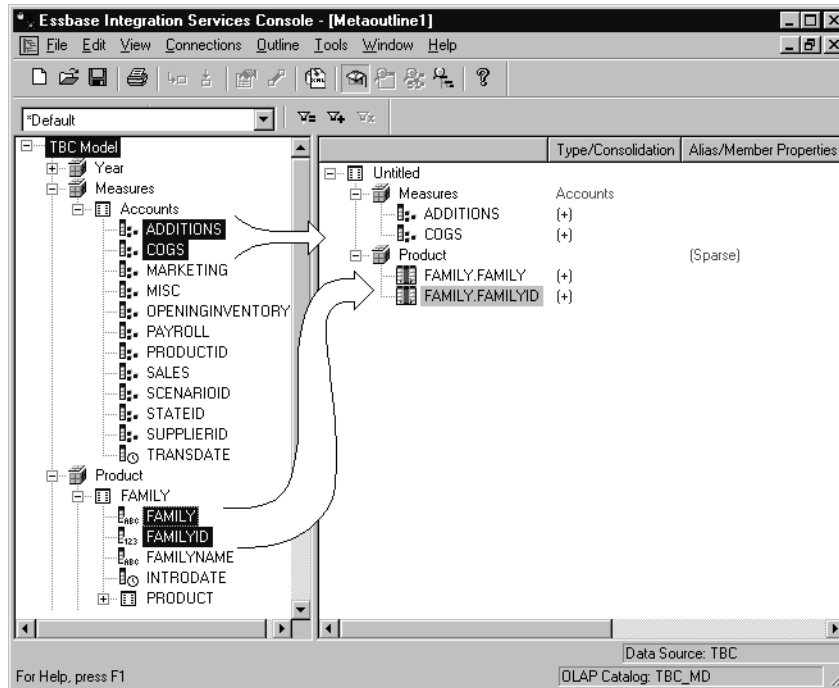


Figure 2-5: Selecting and Dragging Multiple Members into the Right Frame

Selecting Multiple Objects in the Right Frame

You can select multiple dimensions, member levels, and measures to perform the following actions:

- Set or change Essbase properties
- Delete objects
- Create Drill-Through reports

To select multiple, non-contiguous objects in the right frame of the OLAP Metaoutline main window, select the name of the first object, press and hold Ctrl, and click the names of the additional objects.

To select multiple, contiguous objects, use one of the following methods:

- Select a first object, press Ctrl, and select the additional objects.
- Select a first object, press Shift, and select a final object. All objects between the two selected objects are selected.

When you select multiple dimensions, member levels, measures, and UDAs, the Edit and pop-up menu options vary, depending on your selection. The commands available for each type of multiple selection are shown in Table 2-1.

Table 2-1: Multiple Selection and Menu Command Availability

Selection	Menu Command Availability
Two or more dimensions	Delete command Properties command Drill-Through command
Two or more member levels	Delete command Properties command Drill-Through command
Some combination of dimensions, member levels, and measures	Delete command Drill-Through command
Two or more measures within the accounts dimension, including the accounts dimension	Delete command Drill-Through command
Two or more UDAs	Delete command Properties command Drill-Through command

Note: Selecting the metaoutline name along with a dimension, member level, or measure activates the Drill-Through command on the Edit menu. The pop-up menu is not selectable.

When you select a combination of dimensions, member levels, or UDAs, only specific tabs and commands are selectable on the Dimension Properties and Member Properties dialog boxes, as indicated in Table 2-2.

If you select two or more objects with different Essbase properties, the default option in the dialog box is not displayed. For example, if you select two dimensions, one dimension tagged as sparse and one dimension tagged as dense, the Dimension Storage option on the Dimension Properties dialog box is selectable. In this situation, you must choose what the new Dimension Storage option should be for the selected dimensions.

Table 2-2: Multiple Selection: Tab and Command Availability

Selection	Tab Availability	Commands that Are Not Selectable
Two or more dimensions	Dimension Properties dialog box: <ul style="list-style-type: none"> • Member Info tab • UDAs tab 	<ul style="list-style-type: none"> • Alias command • Two-pass calculation is not selectable if a selected dimension is tagged as two-pass calculation and another selected dimension is not tagged as two-pass calculation
Two or more member levels	Member Properties dialog box: <ul style="list-style-type: none"> • Member Info tab • UDAs tab 	<ul style="list-style-type: none"> • Alias command • Two-pass calculation is not selectable if a selected member level is tagged as two-pass calculation and another selected member level is not tagged as two-pass calculation • Dynamic time is not selectable if two or more member levels belong to the time dimension, and a time member level is tagged as dynamic time and another time member level is not tagged as dynamic time

Table 2-2: Multiple Selection: Tab and Command Availability (Continued)

Selection	Tab Availability	Commands that Are Not Selectable
Two or more measures	Member Properties dialog box: <ul style="list-style-type: none"> • Member Info tab • Account Info tab • UDAs tab 	Alias command
Two or more UDAs	Member Properties dialog box: <ul style="list-style-type: none"> • Member Info tab • UDAs tab 	<ul style="list-style-type: none"> • Alias command • Two-pass calculation is not selectable when a selected member level is tagged as two-pass calculation and another selected member level is not tagged as two-pass calculation

Note: Changing specific properties for dimensions or for member levels does not change the properties of other options. For example, selecting multiple dimensions and tagging them with two-pass calculation does not change the storage properties of the two-pass dimensions.

Validating Metaoutlines Manually

When you save a metaoutline, Essbase Integration Server automatically validates it and writes it to OLAP Metadata Catalog. If you prefer, you can validate a metaoutline manually before saving it. You can save a metaoutline that does not pass validation, but you cannot use it to load member levels or data into a Essbase database.

To validate a metaoutline manually, select File > Validate. If the metaoutline is valid, a dialog box informs you that the metaoutline contains no errors.

If the metaoutline is invalid, Essbase Integration Services displays a dialog box, similar to the one in Figure 2-6, that details the errors in the metaoutline.

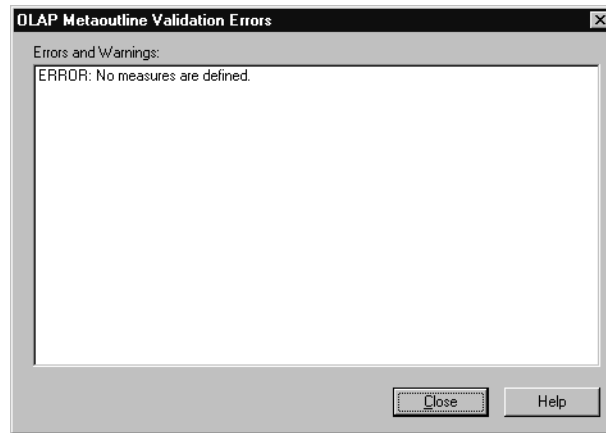


Figure 2-6: Invalid OLAP Metaoutline Validation Error Message Listing

If the metaoutline is invalid, check to make sure that the following conditions are met:

- The metaoutline contains at least one dimension.
- The metaoutline contains at least one measure. See “About Measures” on page 3-6.
- The metaoutline contains only one dimension or no dimension tagged as measure. See “Creating a Measure Dimension” on page 3-23.
- The metaoutline does not contain more measures than are allowed.
 - If you do not have a dimension tagged as measure in the metaoutline, the metaoutline can contain only one measure.
 - If you have a dimension tagged as measure in the metaoutline, the metaoutline can contain a measure for each level 0 (leaf level) member of the measure dimension.

For more information on measures, see “About Measures” on page 3-6.

- Each dimension or user-defined dimension contains one or more member levels.
- Each user-defined dimension has a default load member. For more information, see “Defining the Load Member for a User-Defined Dimension” on page 3-21.

To save a model that does not pass validation, see “Saving a Metaoutline Manually” on page 2-18.

Saving Metaoutlines

When you save a metaoutline, Essbase Integration Services automatically validates it and writes it to OLAP Metadata Catalog. You must store the metaoutline in the OLAP Metadata Catalog that stores the OLAP model on which the metaoutline is based.

You can save a metaoutline even if it does not pass validation, but you cannot use an invalid metaoutline to load member levels or data into an Essbase database.

You can save a metaoutline, even if multiple users are reading it, by selecting Exclusive Access in the Welcome dialog box. Opening an existing metaoutline with Exclusive Access guarantees that no other user can modify the metaoutline.

This topic describes how to save a metaoutline and contains the following subtopics:

- “Understanding Exclusive Access” on page 2-17
- “Saving a Metaoutline Manually” on page 2-18
- “Saving While Closing” on page 2-21
- “Saving a Metaoutline to a Different Name” on page 2-22

Understanding Exclusive Access

You can save a metaoutline even if multiple users are reading it by selecting Exclusive Access in the Welcome dialog box, as shown in Figure 2-7. Opening an existing metaoutline with Exclusive Access guarantees that no other user can modify the metaoutline.



Figure 2-7: Selecting the Exclusive Access Option

When opening an existing metaoutline, select Exclusive Access to place write-lock privileges on the metaoutline. This option allows you to perform both of the following tasks:

- Save an existing metaoutline.
- Modify and save an existing metaoutline. If you open a read-only metaoutline and no other user has Exclusive Access, you can save the metaoutline to the same name.

If Exclusive Access is not selectable, another user has write-lock privileges, and you have read-only privileges.

If you want to modify and save a metaoutline but have read-only privileges, select File > Save As to save the metaoutline to a different name. See “Saving a Metaoutline to a Different Name” on page 2-22. Also see the *Essbase Integration Services System Administrator’s Guide* for information on unlocking metaoutlines.

Note: Unless you selected Exclusive Access when you opened the metaoutline, you cannot save the metaoutline if other users are reading it. Save it later or use File > Save As to save the metaoutline to a different name. See “Saving a Metaoutline to a Different Name” on page 2-22.

Saving a Metaoutline Manually

If the metaoutline that you want to save has been previously saved and you do not want to give the metaoutline a different name, select File > Save.

Essbase Integration Server writes the changes to the OLAP Metadata Catalog to which you are connected.

If you have not previously saved the metaoutline or if you want to save the metaoutline to a different name, you must use the Save New Metaoutline dialog box.

- To use the **Save New Metaoutline** dialog box to save an outline manually:
1. Perform one of the following tasks:
 - If you are saving a metaoutline for the first time, select File > Save.
 - If you are saving a previously saved metaoutline to a new name, select File > Save As.

The **Save New Metaoutline** dialog box, as shown in Figure 2-8, is displayed.

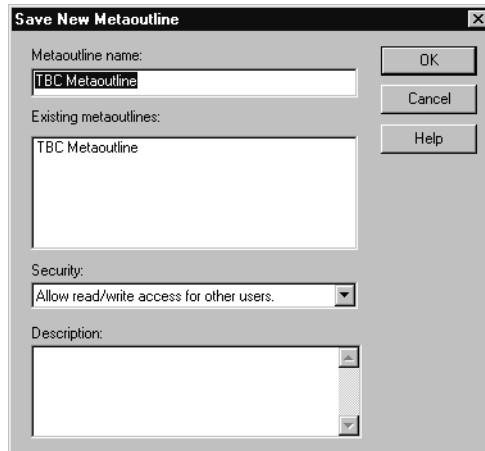


Figure 2-8: Saving a Metaoutline

2. In the **Metaoutline name** text box, enter the name of the metaoutline.
See “About Naming” on page 3-8.

3. From the **Security** drop-down list box, select one of the following options:

Table 2-3: Read/Write Settings

Option	Permitted Activity
Allow read/write access for other users	Other users can read and write to the metaoutline. This setting is the default.
Allow read access for other users	Other users can read the metaoutline but not write to the metaoutline; that is, another user cannot save changes to the metaoutline.
Disallow all access for other users	Other users can neither read nor write to the metaoutline. Only you can read or write to the metaoutline.

Note: To change the permissions on a metaoutline after you create it, you must use the tools provided with the relational database that contains the OLAP Metadata Catalog or select **File > Save As** to save the metaoutline to a different name. See the *Essbase Integration Services System Administrator's Guide*.

4. If you want to describe the metaoutline, in the **Description** text box, enter a brief description.

The description can include up to 255 characters. Essbase Integration Services displays the description in the following places:

- The **Save New Metaoutline** dialog box, when you select **File > Save As** (see “Saving a Metaoutline to a Different Name” on page 2-22)
- The **OLAP Metaoutline Properties** dialog box (You can view or change the metaoutline description in this dialog box at any time.)
- The **Existing** tab of the **Welcome** dialog box (see “Working with Metaoutlines” on page 2-3)
- The **Recent** tab of the **Welcome** dialog box (see “Working with Metaoutlines” on page 2-3)

5. Click **OK**.

If the metaoutline is invalid, Essbase Integration Services displays an error message. You can save the metaoutline without correcting the error, but you cannot use an invalid metaoutline to load member levels or data into an Essbase database.

Note: If you attempt to save a metaoutline that another user currently has open, a dialog box informs you that the metaoutline is currently locked or open. You must wait to save until all other users close the metaoutline.

Changing Read/Write Access

At any time after you save a metaoutline, you can change the access rights that you originally assigned by selecting File > Save As.

➤ To change read/write access to a metaoutline:

1. Select **File > Save As**.

The **Save New Metaoutline** dialog box is displayed.

2. In the **Security** drop-down list box, change the user access defined for the model.

3. Click **OK**.

Saving While Closing

If you try to close a metaoutline without saving it, a dialog box prompts you to save your changes.

Click Yes to save the metaoutline with changes or No to close the metaoutline without saving changes. See “Saving a Metaoutline Manually” on page 2-18.

CAUTION: If the metaoutline you are closing is a new metaoutline that has never been saved, you will lose it if you click No.

Saving a Metaoutline to a Different Name

Save a metaoutline to a different name if you want to accomplish any of the following tasks:

- Change the name of a metaoutline. (The original metaoutline retains the original name.)
- Change the access permissions of the metaoutline.
- Make a copy of the metaoutline. You cannot copy a metaoutline by using the Copy function that the operating system provides because the metaoutline resides in OLAP Metadata Catalog. Instead, you need to save the metaoutline to a different name.


To save a metaoutline to a different name, select **File > Save As**. Essbase Integration Services displays the **Save New Metaoutline** dialog box. For more information, see “Saving a Metaoutline Manually” on page 2-18.

For information about naming metaoutlines, see “About Naming” on page 3-8.

Printing Metaoutlines

You can print the metaoutline contained in the right frame of the OLAP Metaoutline main window to use as a hard-copy reference or to retain on file. The OLAP model information in the left frame of the window does not print when you print the metaoutline. To print the OLAP model, see the *Essbase Integration Services OLAP Model User's Guide*.

➤ To print a metaoutline:

1. Select **File > Print** or click the **Print** toolbar button, , to open the **Standard Print** dialog box.
2. Select the settings that you want.
3. Click **OK**.

Deleting Metaoutlines

When you delete a metaoutline, Essbase Integration Services removes the metaoutline from OLAP Metadata Catalog.

- To delete one or more metaoutlines:
 1. Make sure that you are connected to the OLAP Metadata Catalog where the metaoutline is stored.

If you are connected, the lower-right corner of the OLAP Metaoutline main window contains the appropriate OLAP Metadata Catalog name (for example, TBC_MD in the sample TBC database).

If you are not connected, select **Connections > OLAP Metadata Catalog > Connect** and log on to the correct OLAP Metadata Catalog.
 2. Select **File > Delete** to display the **Delete an OLAP Model/Metaoutline** dialog box, shown in Figure 2-9.

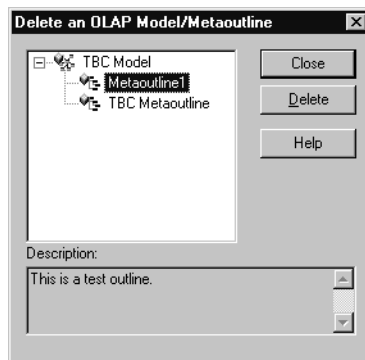


Figure 2-9: Deleting a Metaoutline

3. Select the metaoutline to delete, and click **Delete**.

Note: To select multiple metaoutlines to delete, select one metaoutline, hold the **Ctrl** key, and select each additional metaoutline.

Essbase Integration Services displays a dialog box that prompts you to confirm that you want to delete the metaoutline.

Note: If you delete a metaoutline that you used to build an Essbase outline, you can no longer drill through on the Essbase outline. See Chapter 9, “Creating Drill-Through Reports.”

4. Click **Yes**.

CAUTION: Use caution when deleting. You cannot undo the deletion of a metaoutline.

Essbase Integration Server deletes the selected metaoutline from OLAP Metadata Catalog.

Note: If you attempt to delete a metaoutline that you or another user currently has open, a dialog box informs you that the metaoutline is currently locked or open. If you have it open, close the metaoutline and select **Connections > OLAP Metadata Catalog > Delete Locks**. If other users have the metaoutline open, you must wait until they close it.

Adding Dimensions, Member Levels, and Measures to a Metaoutline

This chapter begins by defining what the terms *dimension*, *member level*, and *measure* mean in the context of a metaoutline and by explaining how dimensions, member levels, and measures map to an Essbase outline. Next, the chapter steps you through the process of creating, renaming, and deleting dimensions, member levels, and measures. Finally, the chapter discusses how you can preview the structures of dimensions, member levels, and measures before you create an Essbase outline.

Note: For a tutorial on creating a metaoutline that contains attribute dimensions, see Appendix A, “Creating a Sample Metaoutline Containing Attribute Dimensions.” The relational data source, OLAP Metadata Catalog, OLAP model, metaoutline, and data on the example screens in this appendix are based on the sample TBC application provided with Essbase Integration Services Console Integration Server.

This chapter contains the following topics:

- “Understanding the Metaoutline Workflow” on page 3-2
- “About Dimensions, Member Levels, and Measures” on page 3-3
- “For the most up-to-the-minute naming guidelines, refer to the Essbase Integration Services Console online help.” on page 3-10
- “Creating Attribute Dimensions and Member Levels” on page 3-24
- “Renaming Dimensions, Member Levels, and Measures” on page 3-45
- “Deleting Dimensions, Member Levels, and Measures” on page 3-49

- “Viewing Sample Dimensions, Members, and Essbase Outlines” on page 3-50
- “Viewing Defined Measures” on page 3-52

Note: For information on setting properties for dimensions, member levels, and measures, see Chapter 4, “Setting Load Properties,” Chapter 5, “Working with Filters,” and Chapter 6, “Setting Essbase Properties.” For more information on attribute dimensions, see Appendix A, “Creating a Sample Metaoutline Containing Attribute Dimensions.”

Understanding the Metaoutline Workflow

Figure 3-1 illustrates the workflow for creating a metaoutline and using the metaoutline to create and load members and data into an Essbase database. This workflow includes the following procedures:

- Creating and working with a metaoutline
- Adding dimensions, member levels, and measures to a metaoutline
- Setting load properties, filters, and Essbase properties on dimensions, member levels, and measures in a metaoutline
- Loading dimensions and member levels from a metaoutline into an Essbase outline
- Loading data that is specified in a metaoutline into an Essbase database

Chapter 3 focuses on adding dimensions, member levels, and measures to a metaoutline.

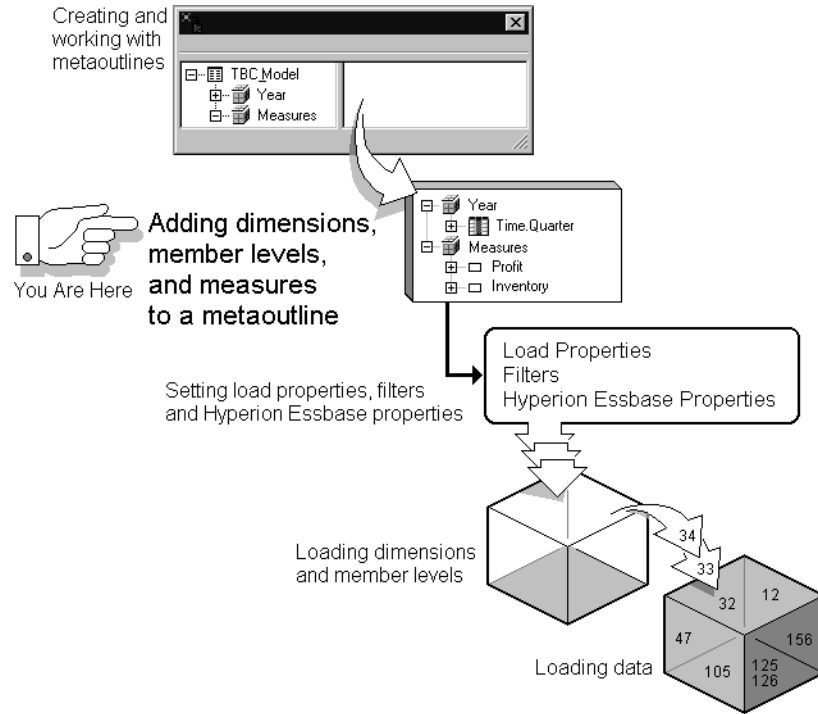


Figure 3-1: Metaoutline Workflow

About Dimensions, Member Levels, and Measures

This topic describes how dimensions, member levels, and measures of a metaoutline map to dimensions, members, and data values of a related Essbase outline. The topic contains the following subtopics:

- “About Dimensions” on page 3-4
- “About Member Levels and Members” on page 3-5
- “About Measures” on page 3-6

- “About User-Defined Dimensions and Members” on page 3-7
- “About Attribute Dimensions and Members” on page 3-8
- “About Naming” on page 3-8

About Dimensions

In a metaoutline, the categories that represent the highest level of organization are called *dimensions*. A metaoutline dimension can have one or more member levels. Each dimension in a metaoutline corresponds to a dimension in a related Essbase outline. For example, if a metaoutline has a Product dimension, the Essbase outline has a Product dimension. Every dimension that you create in a metaoutline becomes a dimension in the related Essbase outline.

TBC Metaoutline, a sample metaoutline provided with Essbase Integration Services, contains the following dimensions: Year, Measures, Scenario, Market, and Product. It also contains the following attribute dimensions: CAFFEINATED, OUNCES, PKGTYPE, POPULATION, and INTRODATE.

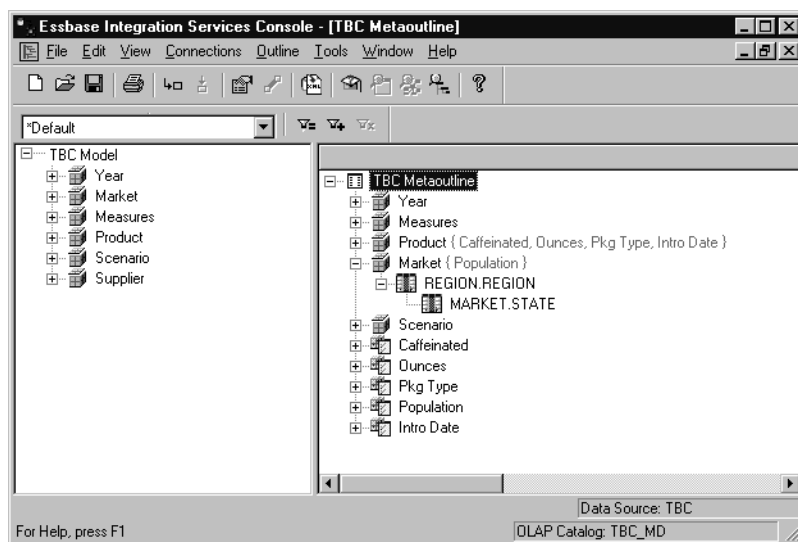


Figure 3-2: Dimensions in TBC Metaoutline

About Member Levels and Members

A *member level* in a metaoutline is based upon a column of the related OLAP model and is representative of the levels that are contained within a hierarchy of the related Essbase outline. A *member* is a relational value within an OLAP model column, a value within a metaoutline member level, and a value within an Essbase dimension. For example, in reference to the Market dimension, the REGION and STATE columns of the OLAP model become the REGION and STATE member levels of the metaoutline. The members of the member levels REGION and STATE then become members of the Essbase outline (Central, East, South, West, Colorado, Illinois, and so on).

For example, in the following hierarchy created in an OLAP model, the Market dimension contains columns that become the metaoutline member levels REGION.REGION and MARKET.STATE.

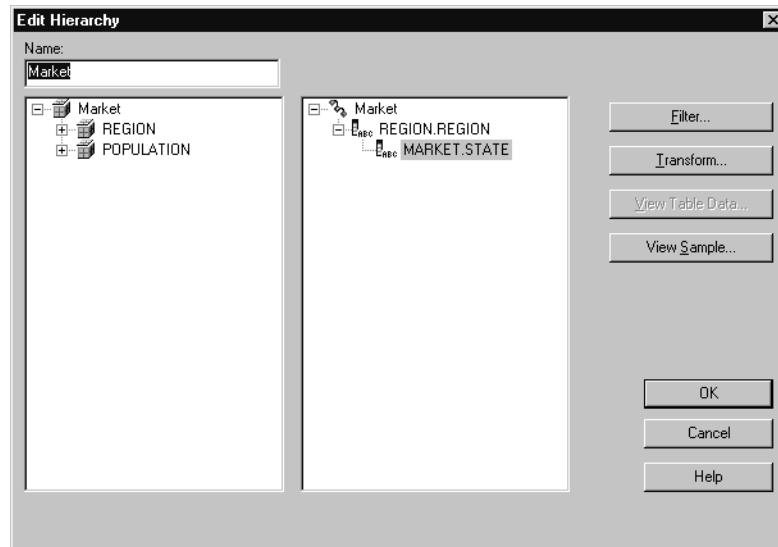


Figure 3-3: Example Hierarchy in an OLAP Model

In the following sample Essbase outline, the Central, East, South, and West members of the Market dimension are based on values from the REGION column of the OLAP model and thus on values from the relational data source:

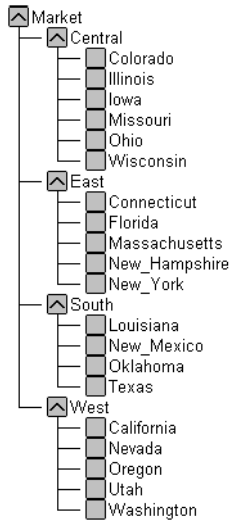


Figure 3-4: Example Essbase Outline

Note: A measure dimension contains actual members, even though it may contain levels of the various members.

About Measures

The Essbase database contains data values (measures) for each dimension intersection. Measures include items such as SALES and COGS (cost of goods sold). If you do not define at least one measure in a metaoutline, Essbase Integration Server cannot validate the metaoutline or use the metaoutline to build an Essbase outline.

The Measures dimension in TBC Metaoutline contains the measures SALES and COGS.

About User-Defined Dimensions and Members

You can create user-defined dimensions and members in a metaoutline. User-defined dimensions and members correspond to dimensions and members in a related Essbase outline. For example, if you have a user-defined TestColas member in a metaoutline, you have a TestColas member in the Essbase outline.

User-defined dimensions and members, however, are *not* associated with an OLAP model. Create a user-defined dimension or member when you want to add a dimension or member that is not provided in the relevant OLAP model.

For example, an Essbase database enables you to create a TestColas dimension. The TestColas dimension contains data for two types of colas: ExtraCaffeineCola and VerySweetCola. The relational data source contains the data for ExtraCaffeineCola. A worksheet created by the budget department contains the projected data for VerySweetCola.

So how do you combine the data for the TestColas in one dimension in the Essbase database? There are no TestColas, ExtraCaffeineCola, or VerySweetCola dimensions or members in the OLAP model. Therefore, you must create the TestCola user-defined dimension and create ExtraCaffeineCola and VerySweetCola as user-defined members.

- To create ExtraCaffeineCola and VerySweetCola as user-defined members:
 1. In the metaoutline, create a TestColas dimension.
See “Creating Dimensions Associated with an OLAP Model” on page 3-12.
 2. To the TestColas dimension, add the ExtraCaffeineCola and VerySweetCola user-defined members.
See “Creating User-Defined Dimensions and Members” on page 3-19.
 3. Because ExtraCaffeineCola receives its data from the data source, tag ExtraCaffeineCola as the default load member.
See “Defining the Load Member for a User-Defined Dimension” on page 3-21.
 4. Load members and data from the budget worksheet into the Budget member of the Essbase outline.
See the *Essbase Database Administrator’s Guide* for more information about loading members and data, including loading data from worksheets.

About Attribute Dimensions and Members

Attribute dimensions created in the metaoutline are based upon attribute-enabled columns of the OLAP model. Attribute dimensions allow you to retrieve and analyze data not only from the perspective of dimensions and members, but also in terms of characteristics, or attributes, of those dimensions.

For example, the Product dimension contains various products, such as Cola and Decaffeinated Cola. Using attribute dimensions, you can filter your analysis by a Boolean attribute of the products: caffeinated true and false. Similarly, the Market dimension contains information on sales in various states. An attribute dimension of a state could be the population of the state; some soft drinks might sell better in more populated areas. The attribute dimension allows you to view results by specific attribute criteria.

There are five predesigned calculations available for each attribute member. These calculations are sums, counts, averages, minimum, and maximum values.

For more information on creating and using attributes, see “Creating Attribute Dimensions and Member Levels” on page 3-24, and Appendix A, “Creating a Sample Metaoutline Containing Attribute Dimensions.”.

Refer to the *Essbase Integration Services OLAP Model User’s Guide* for information about enabling OLAP model columns to become attributes. Refer to the *Essbase Database Administrator’s Guide* for more information on calculations in attribute dimensions.

About Naming

When naming metaoutlines, dimensions, member levels, aliases, user-defined members, attributes, and metaoutline filters in the metaoutline, follow these rules:

- Do not use more than 80 characters.
- Use mixed uppercase and lowercase characters. Names are not case-sensitive in Essbase unless there is a check mark next to the Settings > Case Sensitive Members menu item in Essbase.

When naming dimensions, member levels, aliases, user-defined members, attributes, and metaoutline filters, observe the following rules:

- Do not use quotation marks (") or tabs anywhere in a name.

- Do not use any of the following characters in a name:

@	(at sign)	()	(parentheses)
\	(backslash)	.	(period)
{ }	(braces)	+	(plus sign)
,	(comma)	'	(single quotation mark)
-	(dash, hyphen, or minus sign)	_	(underscore)
=	(equal sign)		(vertical bar)
<	(less than sign)	/	(slash)
*	(asterisk)	"	(double quotation mark)
	tabs		

- Do not place spaces at the beginning or end of a name. (Essbase ignores spaces at the beginning or end of a name.)
- Do not use any of the following words as a dimension or member level name:

- \$\$\$UNIVERSE\$\$\$

- #MISSING or #MI

- Calculation script commands, operators, and keywords

For a list of commands, see the online *Technical Reference* in your Hyperion\Essbase\DOCS directory.

- Report script commands

For a list of commands, see the online *Technical Reference* in your Hyperion\Essbase\DOCS directory.

- Function names and function arguments

For a list of functions, see the online *Technical Reference* in your Hyperion\Essbase\DOCS directory.

- The name of an existing dimension, a member level (unless the member is shared), an alias, a combination alias, or a generation level. User-defined dimensions and members cannot use existing member names.

Note: If you tag members as Dynamic Time Series, do not use the associated generation names: History, Year, Season, Period, Quarter, Month, Week, or Day. See the *Essbase Database Administrator's Guide* for more information.

When you use a member level name in a calculation script, report script, or formula, you must enclose the member level name in quotation marks (") in the following situations:

- The name contains one or more numerals at the beginning of the name (for example, 100-Blue).
- The name contains spaces anywhere in the name.
- The name contains any of the following characters:

* (asterisk)	! (exclamation point)
@ (at sign)	> (greater than sign)
{ } (braces)	< (less than sign)
[] (brackets)	() (parentheses)
: (colon)	% (percent sign)
, (comma)	+ (plus sign)
- (dash, hyphen, or minus sign)	; (semicolon)
= (equal sign)	/ (slash)
\ (backslash)	

- The name starts with an ampersand (&).

In calculation scripts and formulas, if the following words are used as member level names, you must enclose these words in quotation marks (""):

AND	ELSEIF	IF	OR
BEGIN	END	MACRO	RANGE
DOUBLE	ENDIF	MEMBER	STRING
ELSE	FUNCTION	NOT	THEN

Note: For the most up-to-the-minute naming guidelines, refer to the Essbase Integration Services Console online help.

Creating Dimensions, Member Levels, and Measures

As shown in Figure 3-5, the OLAP model in the left frame of the OLAP Metaoutline main window can contain dimensions, hierarchies, columns, and measures. These are the OLAP model objects that you can drag to the right frame of the OLAP Metaoutline main window to create dimensions, member levels, and measures in the metaoutline.

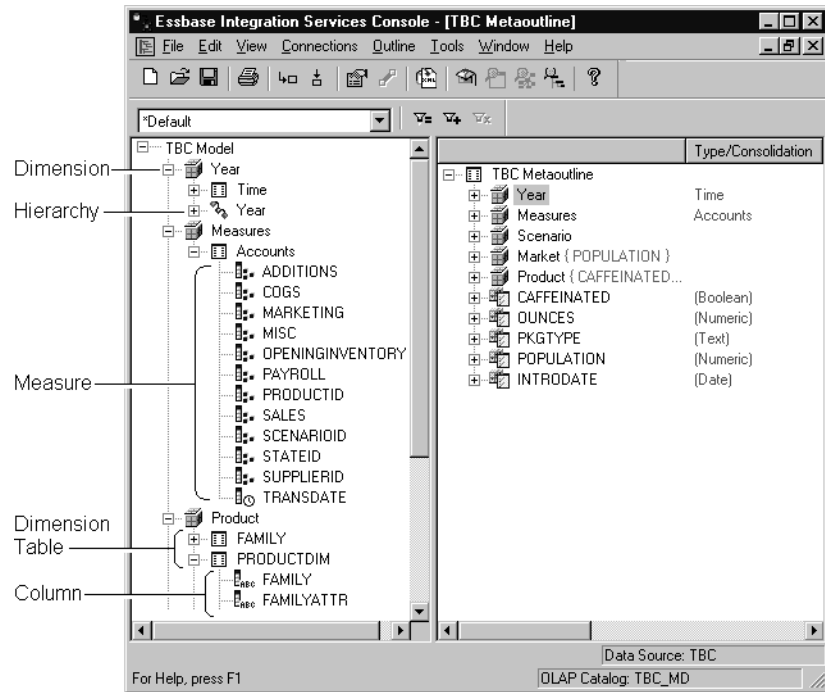


Figure 3-5: Objects in the OLAP Model

This topic contains the following subtopics:

- “Creating Dimensions Associated with an OLAP Model” on page 3-12
- “Creating Member Levels Associated with an OLAP Model” on page 3-15
- “Creating Recursive Dimensions” on page 3-17
- “Creating User-Defined Dimensions and Members” on page 3-19
- “Defining the Load Member for a User-Defined Dimension” on page 3-21
- “Creating a Measure Dimension” on page 3-23
- “Creating Attribute Dimensions and Member Levels” on page 3-24
- “Comparison of UDAs and Attributes” on page 3-25

Creating Dimensions Associated with an OLAP Model

To use an OLAP model object to create a dimension in a metaoutline, drag a dimension, hierarchy, column, or measure from the left frame of the OLAP Metaoutline main window to the right frame of the OLAP Metaoutline main window.

When you drag an object to the right frame, the object creates a new dimension at the bottom of the metaoutline. The new dimension uses the OLAP model name of the dimension in which the OLAP model object is located.

For example, if you drag the SALES measure to the right frame, the SALES measure creates the Measures dimension with the SALES measure inserted under it.

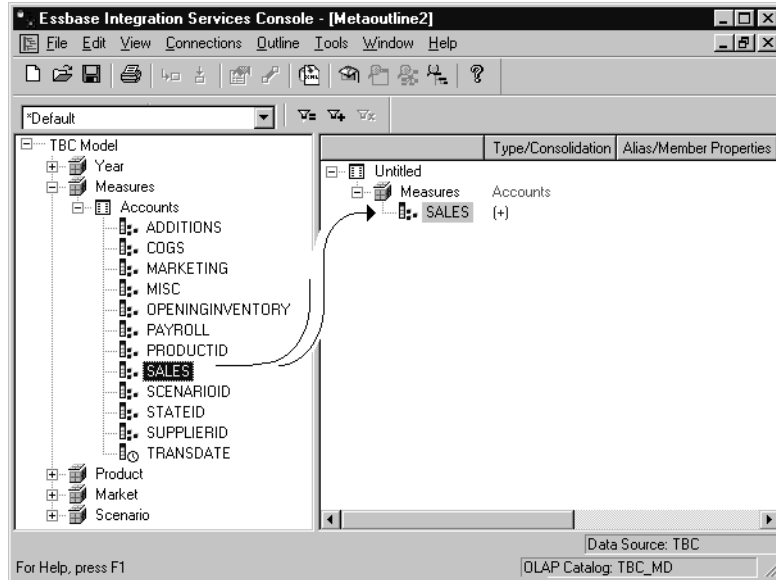


Figure 3-6: Using a Measure to Create a Dimension

Table 3-1 describes creating members and dimensions by dragging various OLAP model objects.

Table 3-1: Creating Dimensions by Dragging OLAP Model Objects








OLAP Model Object that You Drag	Metaoutline Dimension that You Create	Example
Dimension, 	New dimension.	The Product dimension of the left frame creates the Product dimension in the right frame.
Hierarchy, 	New dimension that contains the hierarchy.	The Quarter, Month hierarchy of the left frame creates in the right frame the Year dimension with the Quarter and Month member levels arranged hierarchically.

Table 3-1: Creating Dimensions by Dragging OLAP Model Objects (Continued)

OLAP Model Object that You Drag	Metaoutline Dimension that You Create	Example
Text column, 	New dimension that contains a member level that is based on the Text column.	The FAMILY column of the left frame creates in the right frame the Product dimension with the FAMILY member level.
Numeric column, 	New dimension that contains a member level that is based on the Numeric column.	The REGIONID column of the left frame creates in the right frame the Market dimension with the REGIONID member level.
Measure, 	New dimension that is tagged as Accounts and that contains a measure based on the accounts value.	The ADDITIONS column of the left frame creates in the right frame the Accounts dimension with the ADDITIONS member level.
Attribute, 	New attribute dimension containing new attribute member, new base dimension if necessary, and association of base and attribute dimension	The POPULATION.POPGROUP attribute-enabled column creates the new attribute dimension POPGROUP with the member POPULATION.POPGROUP. It creates the Market dimension and associates POPULATION.POPGROUP to Market.
Time column, 	New dimension that is tagged as Time and that contains a member level based on the Time column.	The Month column in the left frame creates in the right frame the Year dimension with the Month member level.

For information on selecting multiple dimensions, hierarchies, columns, and measures in the left frame, see “Selecting Multiple Objects in the Left Frame” on page 2-10.

After a dimension is created in the right frame, you can drag the dimension to another location within the metaoutline and rename the dimension.

See “Renaming Dimensions, Member Levels, and Measures” on page 3-45.

CAUTION: You must define at least one measure in each metaoutline. If the metaoutline does not contain a measure, you cannot use the metaoutline to build an Essbase outline. See “Creating a Measure Dimension” on page 3-23.

Creating Member Levels Associated with an OLAP Model

To create a member level from an OLAP model object, drag a column, hierarchy, or measure from the left frame of the OLAP Metaoutline main window to the right frame of the OLAP Metaoutline main window.

For example, if you drag the predefined Year, Quarter, Month hierarchy into the right frame, the hierarchy creates a Year dimension with the hierarchy inserted under it, as illustrated in Figure 3-7.

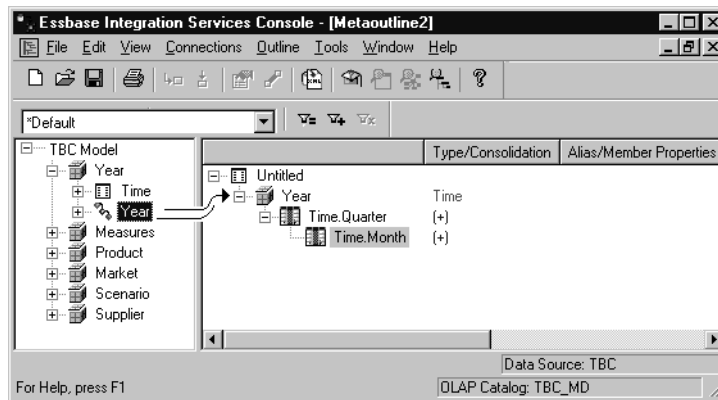


Figure 3-7: Using a Hierarchy to Create a Dimension

Table 3-2 describes dragging columns, hierarchies and measures to create metaoutline structures.

Table 3-2: Creating Metaoutline Structures

Location in Metaoutline to Which You Drag a Column, Hierarchy, or Measure	Metaoutline Structure that You Create	Example
Blank space	<p>New dimension with the member level, the hierarchy of member levels, or the measure inserted directly under the new dimension.</p> <p>This action creates the new dimension at the bottom of the metaoutline and gives the new dimension the name of the dimension in which the OLAP model object is located.</p>	<p>Dragging the ADDITIONS column onto a blank space creates a Measures dimension with an ADDITIONS member level. You can rename the Measures dimension as Accounts.</p>
Dimension	<p>New member level, hierarchy of new member levels, or measure directly under the selected dimension.</p> <p>This action creates the new member level, hierarchy of new member levels, or new measure at the bottom of the selected dimension and gives the new object or measure the name that the object had in the OLAP model.</p>	<p>Dragging the FAMILYID column onto the Product dimension creates a FAMILY.FAMILYID member level under the Product dimension.</p>
Member level	<p>New member level, hierarchy of new member levels, or new measure directly under the selected member level.</p> <p>This action creates the new member level, hierarchy of new member levels, or new measure at the bottom of the selected member level and gives the new object the name that the object had in the OLAP model.</p>	<p>Dragging the PRODUCTDIM.SKU column onto the PRODUCTDIM.FAMILY member level creates a PRODUCTDIM.SKU member level under the PRODUCTDIM.FAMILY member level.</p>

For information on selecting multiple dimensions, hierarchies, columns, and measures in the left frame, see “Selecting Multiple Objects in the Left Frame” on page 2-10.

After a new object is created in the right frame, you can, as necessary, perform any of the following tasks:

- Drag the newly-created member level or measure to the appropriate location in the dimension.
- Rename the newly-created member level or measure.
See “Renaming Dimensions, Member Levels, and Measures” on page 3-45.
- Delete unwanted member levels of a hierarchy, from the leaf level up, by selecting an unwanted member level and pressing Delete.

Creating Recursive Dimensions

You can create dimensions that contain member levels that are based on the contents of the two columns of a parent-child relationship. These dimensions are called *recursive dimensions*. For example, consider the following parent-child data source:

CHILD	PARENT
Murphy Ave.	Sunnyvale
Crossman Ave.	Sunnyvale
Fremont Drive	Mountain View
Java Drive	Sunnyvale

You can use the data source to create the Essbase outline shown in Figure 3-8:

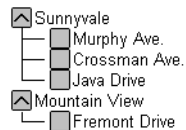


Figure 3-8: Sample Recursive Dimensions

When creating a recursive dimension, follow these rules:

- Do not set transformations on member levels in recursive dimensions.
- If you want to assign aliases or UDAs to recursive member levels, you drag from the left frame to the right frame the column to which the alias or UDA column applies. For example, if the alias column applies to the child column, use the child column in the metaoutline. If you are not sure to which column (parent or child) the alias or UDA column applies, see the information on creating aliases in the *Essbase Integration Services OLAP Model User's Guide*.
- If you create a filter on the parent member level of a recursive dimension, Essbase Integration Server applies the filter only to values of the parent member level column. Essbase Integration Server returns both the parent member level that satisfies the requirements of the filter and the immediate child of that parent.

For example, if you apply a filter to retrieve only East on the MARKET.PARENT column of TBC Metaoutline, Essbase Integration Server retrieves only the rows that have East in the parent column, such as the rows that contain East, Florida and East, New York.

- If you create a filter on the child member level of a recursive dimension, Essbase Integration Services applies the filter only to values in the child column. Essbase Integration Server returns both the child value that satisfies the filter condition and the immediate parent of that child. If a child member level is shared by multiple parents, Essbase Integration Server returns all immediate parents of the child.

For example, if you apply a filter to retrieve only East on the MARKET_CHILD column of TBC Metaoutline, Essbase Integration Server retrieves only the rows that have East in the child column, such as the row that contains USA, East. If East is shared by multiple parents, Essbase Integration Server also returns all parents; for example, England, East or Canada, East.

- To create a recursive dimension:
 1. Set up the parent-child data source for recursive dimensions.
See the *Essbase Integration Services OLAP Model User's Guide*.
 2. Drag either the parent column or the child column (but not both) to the right frame of the OLAP Metaoutline main window.
Essbase Integration Server creates the recursive hierarchy during the member load.



Creating User-Defined Dimensions and Members

User-defined dimensions and members are not associated with an OLAP model. You can create a user-defined dimension as a child of the metaoutline or as a sibling of an existing dimension. Likewise, you can create a user-defined member as a child of a dimension (either a user-defined dimension or a dimension associated with an OLAP model) or as a sibling of an existing user-defined member. You *cannot* create a user-defined member as a child of a database-defined member level. See “About User-Defined Dimensions and Members” on page 3-7.


This topic contains the following subtopics:

- “Creating as Children” on page 3-19
- “Creating as Siblings” on page 3-20

Creating as Children

- To create a user-defined dimension as a child of a metaoutline or a user-defined member as a child of a dimension:
 1. In the right frame of the OLAP Metaoutline main window, select one of the following objects:
 - To create a dimension, select the metaoutline name; for example, TBC Metaoutline,  TBC Metaoutline .
 - To create a member, select a dimension name; for example, TESTCOLAS,  TestColas .

Note: You *cannot* create a user-defined member as a child of a database-defined member level.

To name the new dimension or member, select **Edit > Add Member as Child**, or click the **Add Child** button, . The **Enter the New dimension's Name** dialog box is displayed.

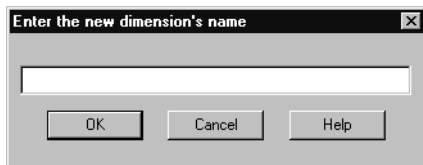





Figure 3-9: Naming a New Dimension

2. Enter the new dimension or member name; for example, ExtraCaffeineCola. See “About Naming” on page 3-8.
3. Click **OK**.
If you create a dimension, it is displayed as the first dimension in the metaoutline. If you create a member, it is displayed as the first member in the dimension.
4. If necessary, drag the newly-created dimension or member to the appropriate location in the metaoutline.

Creating as Siblings

- To create a user-defined dimension as a sibling of an existing dimension or a user-defined member as a sibling of a user-defined member:
 1. In the right frame of the OLAP Metaoutline main window, perform one of the following tasks:
 - Select the dimension after which you want to add the new dimension; for example, Year,  Year .
 - Select the user-defined member after which you want to add the new member; for example, ExtraCaffeineCola,  ExtraCaffeineCola .
- Note:** You *cannot* create a user-defined member as a child of a database-defined member level.

2. Select Edit > Add Member as Sibling, or click the **Add Sibling** button, . The **Enter the New Dimension's Name** dialog box is displayed.

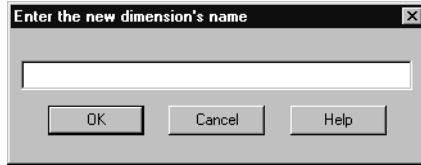


Figure 3-10: Naming a New Dimension

3. Enter the new dimension or member name; for example, **Scenario**.
See “About Naming” on page 3-8.
4. Click **OK**.
If you create a dimension, the new dimension is placed after the selected dimension. If you create a member, the new member is placed after the selected member.
5. If necessary, drag the newly-created dimension or member to the appropriate location.

Defining the Load Member for a User-Defined Dimension

A user-defined dimension is not connected to the related OLAP model. Because the dimension is not connected to the OLAP model, Essbase Integration Server does not know into which member to load data. Therefore, you must select a member in the user-defined dimension into which Essbase Integration Server loads data. The selected member is called the *load member*. You must select one load member for each user-defined dimension.

- To set the load member in a user-defined dimension:
 1. In the right frame of the OLAP Metaoutline main window, select the metaoutline name; for example, TBC Metaoutline.
 2. Right-click the metaoutline name, and, from the pop-up menu, select **Properties**.

3. Select the **User Defined Dimensions** tab.

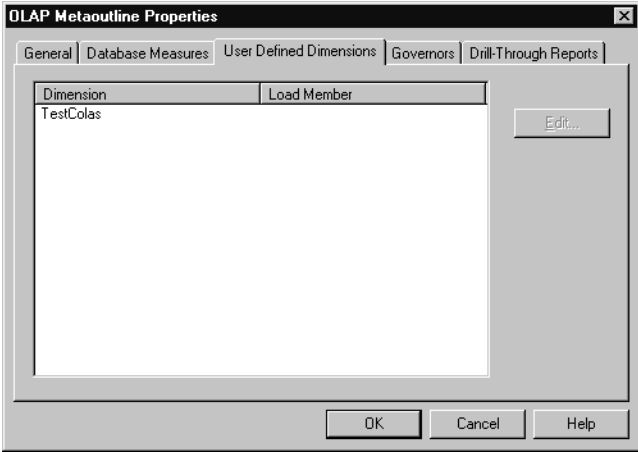


Figure 3-11: Viewing User-Defined Dimensions

- 4. Select the user-defined dimension for which you want to define the default load member; for example, TestColas.
- 5. Click **Edit**.

The **Select Default Load Member** dialog box, which lists all user-defined members of the selected dimension, is displayed.

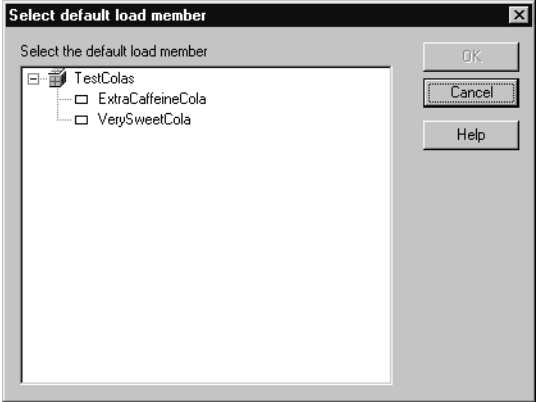


Figure 3-12: Setting the Default Load Member

6. Select the member to use as the default load member; for example, ExtraCaffeineCola.

Note: You can also set the default load member by right-clicking a member of a user-defined dimension and selecting Default Load Member from the pop-up menu. When you select Default Load Member, a check mark is displayed next to Default Load Member in the pop-up menu.

7. Click **OK**.

Essbase Integration Server loads data from the relational data source into the default load member the next time you perform a data load.

Creating a Measure Dimension

If a metaoutline contains more than one measure (data value), you must define a measure dimension and add all measures to that dimension. All measures that you can use in the metaoutline are defined in the OLAP model.

You can create a measure dimension by using the OLAP model dimension that is tagged as accounts or by creating a new dimension and tagging it as measure. See “About Measures” on page 3-6.

All measures must be defined at level 0 (the leaf level) of the metaoutline. If you want to group measures under a parent, create the parent as a user-defined member. See “Creating User-Defined Dimensions and Members” on page 3-19.

- To create a measure dimension from the OLAP model dimension tagged as accounts:

1. Drag the dimension tagged as accounts from the OLAP model to the metaoutline.



The selected dimension creates in the metaoutline a measure dimension tagged as accounts.

2. Drag the appropriate measures, such as COGS, from the OLAP model to the metaoutline dimension tagged as accounts.

- To create a measure dimension without using the OLAP model dimension tagged as accounts:

1. Create the dimension that you want to use as the measure dimension.
2. Select the dimension.
3. Right-click the dimension, and, from the pop-up menu, select **Database Measure Dimension**.
4. Drag the appropriate measures, such as COGS, from the OLAP model to the measure dimension.

Note: If the dimension is not tagged as accounts in the OLAP model, the measures that you add do not use the standard measure

icon, . Instead, they use the column icon, . Regardless of the button, however, Essbase Integration Services treats the members as measures during member and data loads.

Creating Attribute Dimensions and Member Levels

Attribute dimensions in the metaoutline are based on attribute-enabled columns in the OLAP model. After an attribute dimension and member have been created, you can define attribute properties, such as Boolean and numeric ranges, that enable you to view business data in finer detail than would otherwise be easily available.

For a tutorial on creating attribute members and dimensions, see Appendix A, “Creating a Sample Metaoutline Containing Attribute Dimensions.” For a comparison of attributes and user-defined attributes (UDAs), see “Comparison of UDAs and Attributes” on page 3-25.

This topic contains the following subtopics:

- “Comparison of UDAs and Attributes” on page 3-25
- “Creating Attribute Dimensions from OLAP Model Dimensions” on page 3-26
- “Naming Attribute Members” on page 3-27
- “Setting the Member Names Format” on page 3-27
- “Setting the Calculations Name Format” on page 3-28
- “Specifying Attribute Boolean Names and Date Formats” on page 3-31
- “Specifying Numeric Boundaries for Attributes” on page 3-33

- “Renaming and Selecting a Data Type for an Attribute Member” on page 3-35
- “Choosing a Data Type for an Attribute Dimension” on page 3-36
- “Setting Base Dimension Levels for an Attribute” on page 3-37
- “Setting Boolean Parameters for an Attribute” on page 3-39
- “Setting Numeric Ranges for Attribute Members” on page 3-42
- “Seeing Attribute Results in Spreadsheets” on page 3-44

Comparison of UDAs and Attributes

Attributes and UDAs both enable analysis based on characteristics of the data. Attributes provide more capability than UDAs. However, attributes can only be associated with sparse dimensions, whereas UDAs can be used on both sparse and dense dimensions.

Both attributes and UDAs can retrieve consolidated totals. In attributes, the built-in calculation function makes this ability simple to implement. To retrieve totals in UDAs, you must build a calculation script or special-purpose commands. Similarly, it is easy to categorize attributes in a hierarchy and retrieve totals by higher levels in the hierarchy.

You can use Boolean operators, AND and OR, with attribute and UDA values to refine a query. For example, you can select decaffeinated drinks from the 100 product group. Because attributes can have date, text, Boolean, and numeric type, you can use appropriate operators and functions to work with and display attribute data.

You can group numeric attributes into ranges of values (population size, for example) and enable the dimension building process to associate the base member with the appropriate range automatically. For example, you can group sales in various regions based on ranges of their populations: less than 3 million, between 3 and 6 million, and so on.

For more information on User-Defined Attributes (UDAs), see “Specifying UDAs” on page 6-24 and the *Essbase Database Administrator’s Guide*. For more information on using attributes in calculations, see “Using Attribute Calculations” on page A-14 and the *Essbase Database Administrator’s Guide*.

Creating Attribute Dimensions from OLAP Model Dimensions

To create an attribute dimension and member level in the metaoutline, you must have an attribute-enabled column in the OLAP model.

Note: An attribute-enabled column in the left frame must be dragged to an empty space in the right frame; it cannot be placed within another dimension.

- To create an attribute dimension from an OLAP model dimension:
 - Drag an attribute-enabled column (such as PRODUCT.CAFFEINATED) in the left frame to the right frame. In Figure 3-13, PRODUCT.CAFFEINATED was dragged directly under the metaoutline icon.

This action creates a dimension (for example, the Product dimension), an attribute dimension (for example, CAFFEINATED) and an attribute member (for example, PRODUCT.CAFFEINATED). If the Product dimension already exists in the metaoutline, it remains unchanged. In either case, dragging an attribute member to the right frame creates an association between the attribute and the base dimension. The new attribute dimension is positioned under the metaoutline icon, as shown in Figure 3-13.

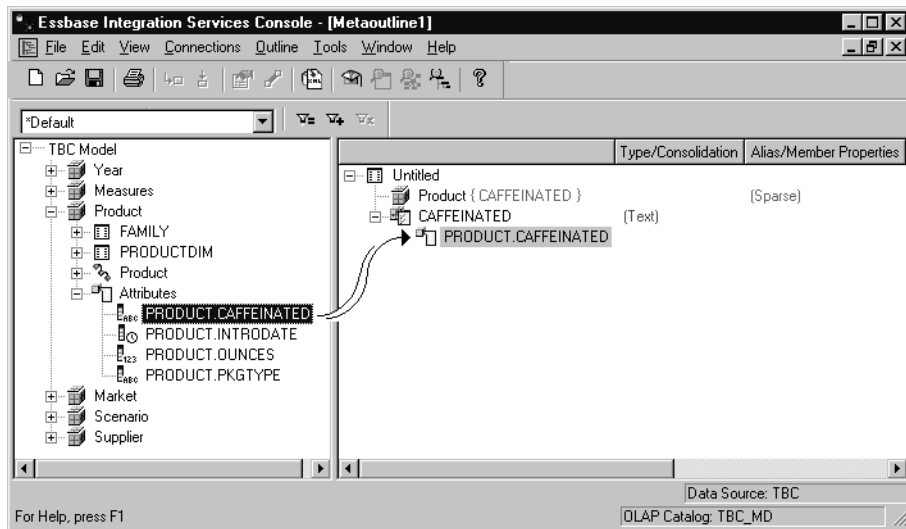


Figure 3-13: Creating an Attribute Dimension and Member

Naming Attribute Members

- To determine the format for attribute member names in a metaoutline by using the Attribute Member Names dialog box:
 1. In the right frame of the OLAP metaoutline main window, select the metaoutline icon at the top of the frame.
 2. Right click on the metaoutline icon, and select Attribute Member Names from the pop-up menu.

The **Attribute Member Names** dialog box is displayed. This dialog box has four tabs: **Member Name Format**, **Calculations**, **Boolean and Date**, and **Numeric Boundaries**, as shown in Figure 3-14.

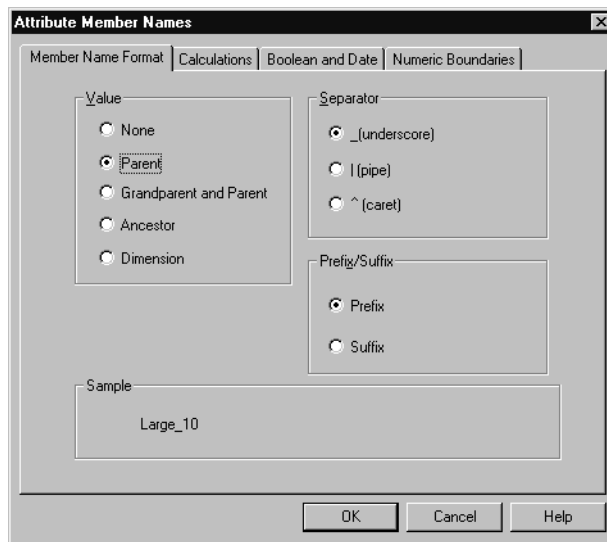


Figure 3-14: Attribute Member Names Dialog Box

Setting the Member Names Format

You can ensure that an attribute name is unique by assigning a prefix or suffix. Note that a metaoutline does not display the full attribute member name after you have assigned a prefix or suffix identifier. You can view the full attribute names when you retrieve information; for example, full attribute names are displayed when you view a spreadsheet.

- To set the format for attribute member names:
1. Right-click the metaoutline icon, and select **Attribute Member Names** from the pop-up menu.
The **Attribute Member Names** dialog box is displayed.
 2. Select the **Member Name Format** tab (Figure 3-14).
 3. Select a **Value** such as **Parent** to be used as a prefix or suffix.
 4. Select a **Separator** to be used with the prefix or suffix.
The default separator is an underscore (_).
 5. Click **Prefix** or **Suffix** to define how the selected value is to be used.
 6. Click **OK**.

The **Sample** area displays an example attribute name based on the selections made in this dialog box.

Setting the Calculations Name Format

An attribute calculations member name cannot be the same as a member name. For example, if another member name in the metaoutline is Sum, then you must enter a new name for the Sum member name in the Calculations tab. You can change the names for the attribute calculations in the Calculations tab of the Attribute Member Names dialog box (Figure 3-15).

Attribute calculations have the following properties:

- **System-defined:** When you create an attribute dimension in a metaoutline, the resulting reports and spreadsheets have five predefined calculations available for all attribute members.
- **Dynamic Calc:** All attribute calculations are calculated when a user requests the calculation, and then the calculation is discarded. You cannot store the calculated data in a database.
- **Displayed in Reports:** Attribute calculation results are not displayed in the metaoutline. The calculation results are available only in spreadsheets and reports.

The following five calculations are system-defined for attribute dimensions:

- **Sum:** Sum calculates a sum, but it does not always calculate a simple sum. Sum totals members based on their consolidation property or formula. For example, you can Sum the Profit% for 12-Ounce drinks, and the Sum will be based on the Profit% formula, which is profit divided by sales, with the resulting ratio multiplied by 100.
- **Count:** Calculates the number of members with the specified attribute or combination of attributes. Count includes only those members that have data blocks in existence.
- **Min:** Calculates the minimum data value for a specified attribute or combination of attributes.
- **Max:** Calculates the maximum data value for a specified attribute or combination of attributes.
- **Average:** Calculates a mechanical mean (average) of the values for a specified attribute or combination of attributes. The average includes only those members that have data blocks in existence (sum divided by count).

➤ To rename any of the system-defined calculations:

1. Right-click the metaoutline icon, and select Attribute Member Names from the pop-up menu.

The **Attribute Member Names** dialog box is displayed.

2. Select the **Calculations** tab as shown in Figure 3-15.

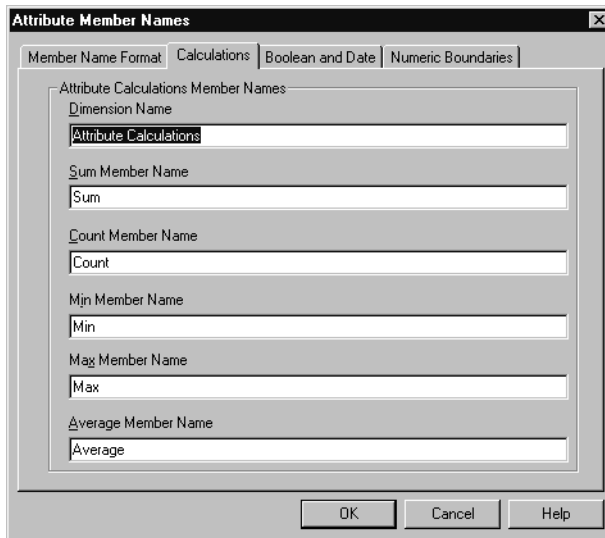


Figure 3-15: Attribute Member Names Dialog Box, Calculations Tab

3. To rename the dimension, type the new name in the **Dimension Name** text box.
4. Type the new name for the calculation into the relevant text box.
Sum can be renamed Total, **Min** can be renamed Minimum, and so forth.
5. Click **OK**.

For further information about using attribute calculations, see the *Essbase Database Administrator's Guide*.

Specifying Attribute Boolean Names and Date Formats

After you have defined a Boolean or date type attribute, you can rename the Boolean value for Boolean attribute members and define formats for attribute date values. Boolean names cannot be the same as the names of other members of the metaoutline. For date type attribute members, a default mm-dd-yyyy format is assigned unless you specify a different value.

- To rename attribute Boolean names:
 1. Right-click the metaoutline icon, and select **Attribute Member Names** from the pop-up menu.

The **Attribute Member Names** dialog box is displayed.

2. Select the **Boolean and Date** tab, as shown in Figure 3-16.



Figure 3-16: Attribute Member Names Dialog Box, Boolean and Date Tab

3. Make one of the following entries, and then click **OK**:

- If the member name True is used elsewhere in the metaoutline, type **Yes, Allowed**, or another appropriate name in the **True Member Name** text box.

The default member name is **True**.

- If the member name False is used elsewhere in the metaoutline, type **No, Not Allowed**, or another appropriate name in the **False Member Name** text box.

The default member name is **False**.

Note: If you have more than one Boolean attribute dimension, you must specify a prefix or suffix member name format to ensure unique member names; for example, Caffeinated_True and Caffeinated_False. See “Setting the Member Names Format” on page 3-27.

Note: Changing the Boolean member name setting does not automatically change the names of members of existing Boolean attribute dimensions. You must change the names of existing Boolean members individually.

For information on setting Boolean properties for an attribute dimension, see “Setting Boolean Parameters for an Attribute” on page 3-39.

For further information about using attribute calculations, see the *Essbase Database Administrator's Guide*.

- To choose a date format for attribute members:
 - In the **Boolean and Date** tab of the **Attribute Member Names** dialog box, select one of the following options, and then click **OK**:
 - **mm-dd-yyyy** displays the month before the day; October 19, 2000 is displayed as 10-19-2000.
 - **dd-mm-yyyy** displays the day before the month; October 19, 2000 is displayed as 19-10-2000.

Note: If you change the date member name format, the names of existing members may be invalid. For example, if the 10-19-2000 member exists, and you change the format to dd-mm-yyyy, outline verification will find this member invalid. If you change the date format, you must rebuild the date attribute dimensions.

Specifying Numeric Boundaries for Attributes

For dimension member attributes that you have defined as numeric, you can set the numeric attribute name as the top (highest number) or bottom (lowest number) in a numeric range. After you have set a boundary for a numeric attribute, you can then set numeric ranges of values for the attribute (see “Setting Numeric Ranges for Attribute Members” on page 3-42).

- To specify the numeric boundary names for attributes:
 1. Right-click on the metaoutline icon, and select **Attribute Member Names** from the pop-up menu.

The **Attribute Member Names** dialog box is displayed.

2. Select the **Numeric Boundaries** tab, as shown in Figure 3-17.

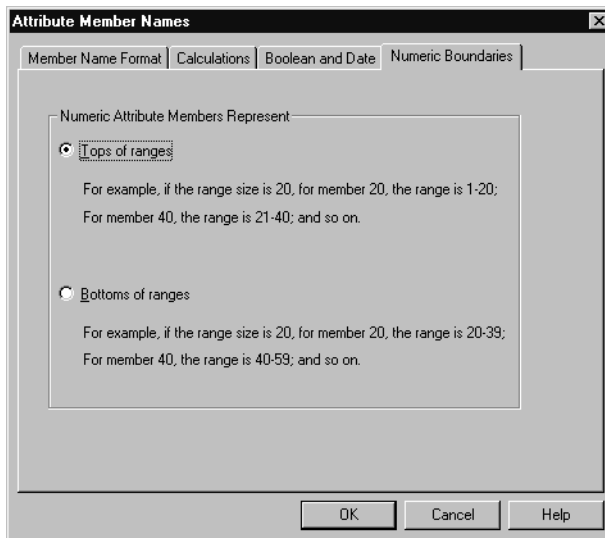


Figure 3-17: Attribute Member Names Dialog Box, Numeric Boundaries Tab

3. Select one of the following options:
 - **Tops of ranges:** Selecting this option sets the names of numeric attributes to the value at the top of the numeric range. If the range is 3,000,001 to 6,000,000, selecting this option sets the name as 6,000,000. **Tops of ranges** is the default setting.
 - **Bottoms of ranges:** Selecting this option sets the name of numeric attributes to the value at the bottom of the numeric range. If the range is 3,000,000 to 5,999,999, selecting this option sets the name as 3,000,000.
4. Click **OK**.

Renaming and Selecting a Data Type for an Attribute Member

After you create a dimension member attribute, you can rename the attribute, assign a different allowable dimension type (such as string or Boolean), and define an alias to make the attribute name easier to read in spreadsheet reports.

- To rename an attribute or to assign an alias and description to an attribute:
 1. Right-click the attribute dimension level, for example, CAFFEINATED, and select **Properties** from the pop-up menu.

The **Attribute Dimension Property** dialog box is displayed, as shown in Figure 3-18.

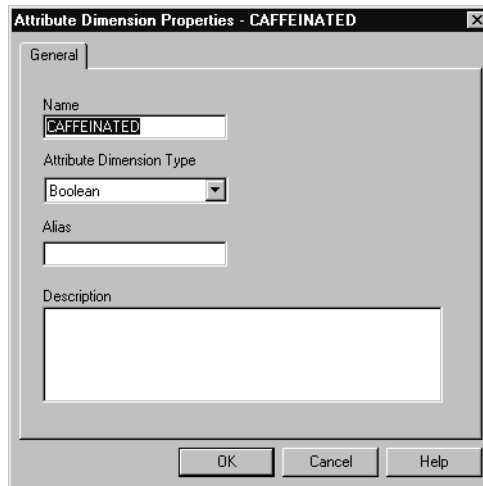


Figure 3-18: Attribute Dimension Properties Dialog Box

2. If you want to rename the dimension, type the new name into the **Name** text box.

3. Select a data type from the drop-down list in the **Attribute Dimension Type** list box in Figure 3-19.

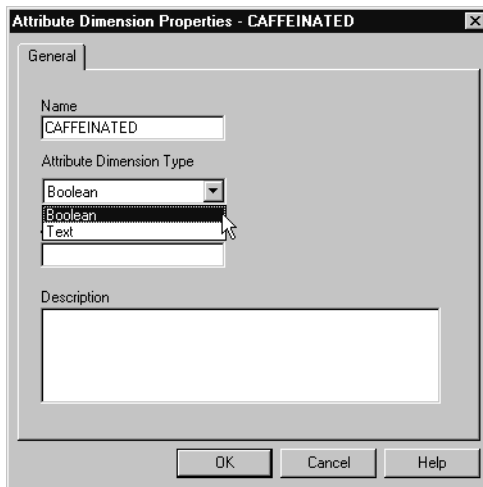


Figure 3-19: Selecting a Data Type in the Attribute Dimension Properties Dialog Box

For further information on choosing a data type for an attribute dimension, see “Choosing a Data Type for an Attribute Dimension” on page 3-36.

4. To give the dimension an alias, type an alias name in the **Alias** text box.
For example, for the PKGTTYPE dimension, you might choose **Package Type** as the alias.
5. To record a description of the dimension, type it in the **Description** text box.
6. Click **OK**.

Choosing a Data Type for an Attribute Dimension

OLAP model attribute data types are based on the data type of the relational data source columns. Available attribute data types in the associated metaoutline are based on the Level 0 attribute member type.

For example, the CAFFEINATED column has a data type of string in the relational data source (identified by the ABC icon on the left side of the metaoutline window). Therefore, the available data types displayed in the Attribute Dimension Type drop-down list are Text and Boolean, with Text displayed as the default data

type selection. In Figure 3-19, the two possible data types for CAFFEINATED are shown in the drop-down list of the Attribute Dimension Properties dialog box. In Figure 3-19, the data type for CAFFEINATED is chosen to be Boolean, rather than the default data type, Text.

For each column data type in the OLAP model, only certain data types are available in the metaoutline. In the Attribute Dimension Properties dialog box, the available data types are shown in the Attribute Dimension Type list box (Figure 3-19). Data types can be chosen in the metaoutline based on the guidelines shown in Table 3-3.

Table 3-3: Allowable Data Type Changes for Attribute-enabled Columns

Column Data Type/ Essbase Attribute Type	Text	Numeric	Boolean	Date
String	X		X	
Numeric	X	X	X	
Datetime	X			X

If you assign an attribute dimension to a numeric or Boolean data type, you can set further criteria for viewing the attribute. For information on setting ranges for numeric data types, see “Setting Numeric Ranges for Attribute Members” on page 3-42. For information on setting attribute Boolean properties, see “Setting Boolean Parameters for an Attribute” on page 3-39.

Setting Base Dimension Levels for an Attribute

Attribute-enabled columns in the OLAP model must be associated with base dimensions in the metaoutline. This association is automatically created when you drag an attribute-enabled column to the right frame in the OLAP metaoutline main window to form an attribute dimension (See “Creating Attribute Dimensions and Member Levels” on page 3-24).

You can also associate attribute members with base dimensions manually in either of two ways:

- By member level
- By metaoutline member

- To associate Level 0 attribute members with base dimension members:
 1. Right-click the attribute member name (for example, POPULATION.POPULATION) and select **Properties** from the pop-up menu to display the **General** tab of the **Attribute Member Properties** dialog box shown in Figure 3-20:

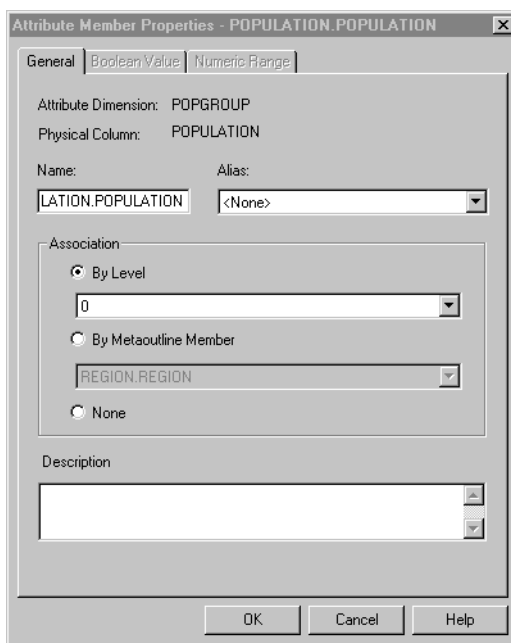


Figure 3-20: Attribute Member Properties Dialog Box, General Tab

2. Under **Alias**, optionally select the database column from the drop-down list that you want to associate as the alias.
3. Under **Association**, select one of the following options to associate an attribute member with a base dimension member:
 - Select the **By Level** option to associate the attribute with a base dimension level, and then select a level from the drop-down list.
 - Select the **By Metaoutline Member** option to associate the attribute with a base dimension name, and then select a name from the drop-down list.

- If an attribute cannot be associated with a base dimension, accept the default setting, **None**. Attribute members higher than the leaf member cannot be associated with a base dimension.

Note: Only the lowest level (leaf member) attribute can be associated with a base dimension. If an attribute member level is added below a leaf member of an attribute dimension, any association with the previous leaf member is removed. In that case, you must set up the new association with the new leaf member in this dialog box.

4. Enter optional information describing the attribute level association in the **Description** text box.
5. Click **OK**.

Setting Boolean Parameters for an Attribute

You can set flexible parameters for dimension member attributes to ensure that the data you need for critical analysis is available in spreadsheet reports. For example, you might want to see a report on how bottled soft drinks were selling in a certain state. However, you may have incomplete data, with some sales listed without information on whether the soft drink was sold in a bottle or a can. In a case such as this, you can make an assumption that soft drinks sold without information on their package type were sold in bottles and define an attribute that contains this assumption. The results of this assumption are easily visible on spreadsheet reports.

For information on setting the data type for an attribute, see “Renaming and Selecting a Data Type for an Attribute Member” on page 3-35 and “Choosing a Data Type for an Attribute Dimension” on page 3-36.

- To set Boolean values for an attribute member:
 1. Right-click the attribute member name (for example, **PRODUCT.PKGTYPE**) and select **Properties** from the pop-up menu to display the **Attribute Member Properties** dialog box.

2. Select the **Boolean Value** tab, as shown in Figure 3-21.

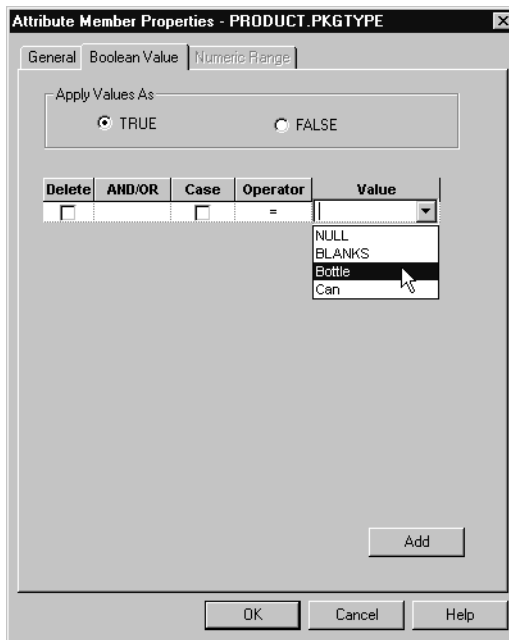


Figure 3-21: Attribute Member Properties Dialog Box, Boolean Value Tab

Note: In this example, the attribute dimension PKGTYPE, which has a text data type in the sample application, has been changed to a Boolean data type. For information on selecting a new data type, see “Renaming and Selecting a Data Type for an Attribute Member” on page 3-35.

- To set criteria for Boolean values:
 1. Select either the **True** or **False** option for **Apply Values As**.
Selecting **True** means that further selections in the **Boolean Value** tab will show as **True** on spreadsheets and reports. **True** is the default.
 2. In the **Operator** drop down list, select the appropriate operator; for example, you can select = (equal to).
 3. In the **Value** drop-down list, select the appropriate choice; for example, Bottle.
 4. Click the **Case** box to set case-sensitive criteria.

5. To add another line for another criterion, click **Add**.
6. Select **And** or **Or** in the **And/Or** drop-down list to determine how the new line will be used with existing lines.
7. Select an operator in the **Operator** drop-down list and a value in the **Value** drop-down list.
8. Click the **Case** box to set case-sensitive criteria.
9. Click the **Delete** box to delete any line you do not want.
10. Click **OK**.

Figure 3-22, for example, shows the Boolean Value tab selections after two criteria have been chosen. In Figure 3-22, if the package type is Bottle or Null (not reported), the results will show in reports as True for the PKGTYPE attribute member.

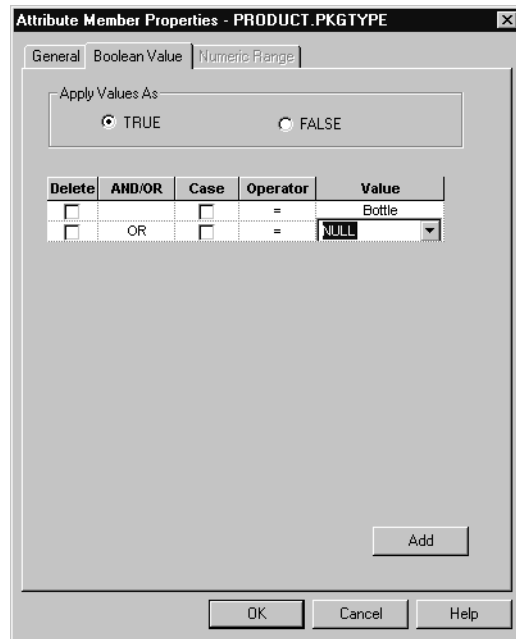


Figure 3-22: Two Criteria in the Boolean Value Tab of the Attribute Member Properties Dialog Box.

Setting Numeric Ranges for Attribute Members

After you have created a numeric data type dimension member attribute and have set numeric boundaries for the attribute, you can specify a starting point and size for numeric ranges for the data that you want reported. Numeric ranges can be either integers or float variables.

- To set numeric range values for an attribute member:
 1. Right-click the attribute member name and select **Properties** from the pop-up menu to display the **Attribute Member Properties** dialog box.
 2. Select the **Numeric Range** tab, as shown in Figure 3-23.

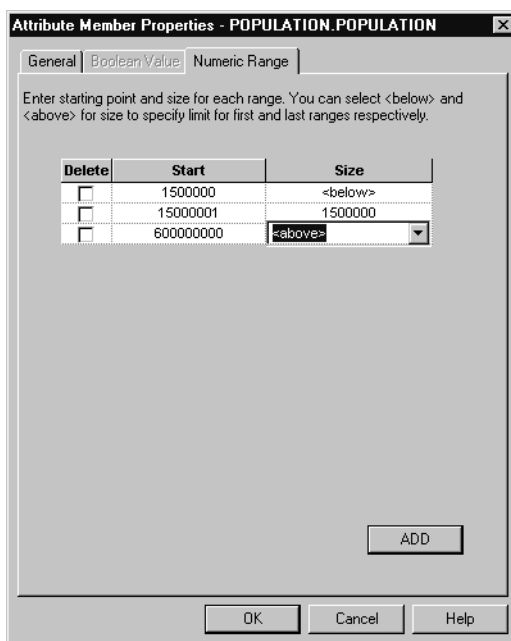


Figure 3-23: Attribute Member Properties Dialog Box, Numeric Range Tab

Note: Before setting the ranges in the **Numeric Range** tab of the **Attribute Member Properties** dialog box, you must set the numeric boundaries (**Top of ranges** or **Bottom of ranges**). For further information, see “Specifying Numeric Boundaries for Attributes” on page 3-33.

3. In the **Start** text box, enter the number to be the top value of the bottom range; for example, if you enter 2000 in the **Start** box, that will be the top number of the range “numbers below 2000.”

4. In the **Size** box, choose <below> from the drop-down list.

Setting the first **Size** as <below> sets a range for “numbers up to 2000.” It is not necessary, however, to have a <below> range. You can set **Start** to a number and **Size** to a number. In that case, numbers below the **Start** number will be not be in a defined range but will be listed individually.

Note: The **Size** box acts as a drop-down list or as a text box, depending on your choices for the range.

5. Click **Add** for a new line to be displayed.
6. In the new line, enter a number in the **Start** text box and a number in the **Size** text box, and click **Add**.

The number in the **Start** text box is the lowest number in the next range, and the number in the **Size** text box is the size of the range. However, this action defines more than one range. The ranges that are defined in this action have the same size, which is the number in the **Size** text box. The lowest number in the next range will be the number in the **Size** text box added to the number in the **Start** text box. The lowest number in the range after that will be two times the number in the **Size** text box, plus the number in the **Start** text box. Ranges of this size will continue to be generated up to the next number defined in the **Start** text box, or until the highest value is included in a range.

7. To define another set of ranges in the new line, enter a number in the **Start** text box for the bottom of the range, and enter a number in the **Size** text box for the size of the ranges.
8. To define a range for numbers above a certain value, enter the number in the **Start** text box, and choose <above> from the drop-down list in the **Size** text box.
9. Click the **Delete** box to delete any line.
10. Click **OK**.

Figure 3-23 shows an example of setting numeric ranges. In this figure, there is a numeric range for numbers below 1,500,000, followed by a set of numeric ranges beginning at 15,000,001 of size 1,500,000, and ending with a numeric range for numbers above 600,000,000.

Seeing Attribute Results in Spreadsheets

Attributes are not included in Drill-Through reports, but they do appear in spreadsheets. An example from the sample Essbase Spreadsheet Add-in (Figure 3-24) shows results in which the Boolean data type for CAFFEINATED equals TRUE. As shown in this example, attribute dimensions have high visibility in spreadsheet reports.

	A	B	C	D	E
1					Measures
2	Actual	Year	True	100-10	22777
3	Actual	Year	True	100-20	5708
4	Actual	Year	True	100	28485
5	Actual	Year	True	200-10	7201
6	Actual	Year	True	200-20	12025
7	Actual	Year	True	200	19226
8	Actual	Year	True	300-10	12195
9	Actual	Year	True	300-20	2511
10	Actual	Year	True	300-30	11093
11	Actual	Year	True	300	25799
12	Actual	Year	True	400	0
13	Actual	Year	True	100-20	5708
14	Actual	Year	True	200-10	7201
15	Actual	Year	True	200-20	12025
16	Actual	Year	True	300-10	12195
17	Actual	Year	True	300-20	2511
18	Actual	Year	True	300-30	11093
19	Actual	Year	True	Diet	28826
20	Actual	Year	True	100-10	22777
21	Actual	Year	True	100-20	5708
22	Actual	Year	True	200-10	7201
23	Actual	Year	True	200-20	12025

Figure 3-24: Spreadsheet Results for Caffeinated True

Renaming Dimensions, Member Levels, and Measures

You can change the names of metaoutline dimensions, member levels, or measures in the right frame of the OLAP Metaoutline main window or in the Properties dialog box. This topic contains the following subtopics that describe how to change names:

- “Renaming in the Right Frame” on page 3-45
- “Renaming in the Dimension Properties or Member Properties Dialog Box” on page 3-46
- “Renaming a Single Measure” on page 3-47

Renaming in the Right Frame

► To rename a dimension, member level, or measure in the right frame of the OLAP Metaoutline main window:

1. Select the dimension, member level, or measure name; for example, Quarter.
2. Double click the dimension, member level, or measure; for example,



3. Enter the new name.
See “About Naming” on page 3-8.
4. Perform one of the following tasks:

- To save the new name, press **Enter**.
- To rename another dimension, member level, or measure in the metaoutline, repeat steps 1 through 4.

Renaming in the Dimension Properties or Member Properties Dialog Box

- To rename a dimension, member level, or measure by using the **Dimension Properties** or **Member Properties** dialog box:
 1. In the right frame of the OLAP Metaoutline main window, select the dimension, member level, or measure name.
 2. Right-click the dimension, member level, or measure, and, from the pop-up menu, select **Properties**.

The **Dimension Properties** or the **Member Properties** dialog box is displayed (Figure 3-25).

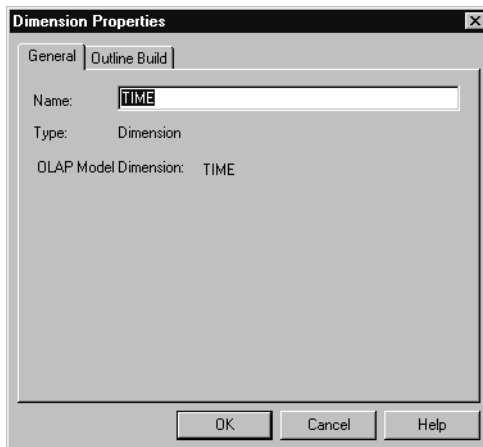


Figure 3-25: Renaming a Dimension or Member Level

3. In the **Name** text box, enter the new name.
See “About Naming” on page 3-8.
4. Click **OK**.

Renaming a Single Measure

► To rename a single measure by using the **OLAP Metaoutline Properties** dialog box:

1. In the right frame of the OLAP Metaoutline main window, select the metaoutline name; for example, TBC Metaoutline.
2. Right-click the metaoutline name, and, from the pop-up menu, select Properties.

The **OLAP Metaoutline Properties** dialog box is displayed.

3. Select the **Database Measures** tab (Figure 3-26).

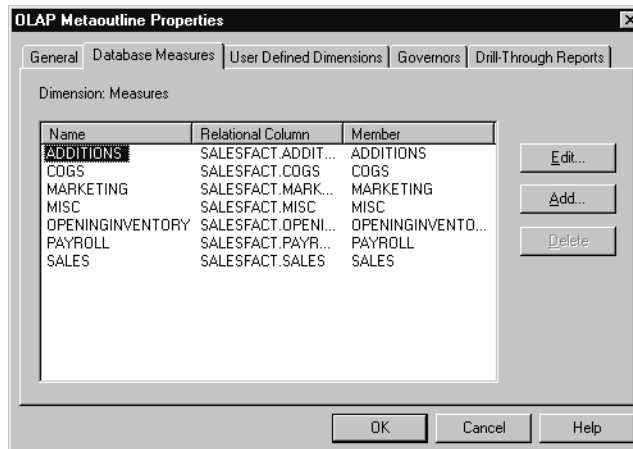


Figure 3-26: Renaming a Single Measure

4. Select a measure and click **Edit**.

The **Measure Properties** dialog box is displayed (Figure 3-27).

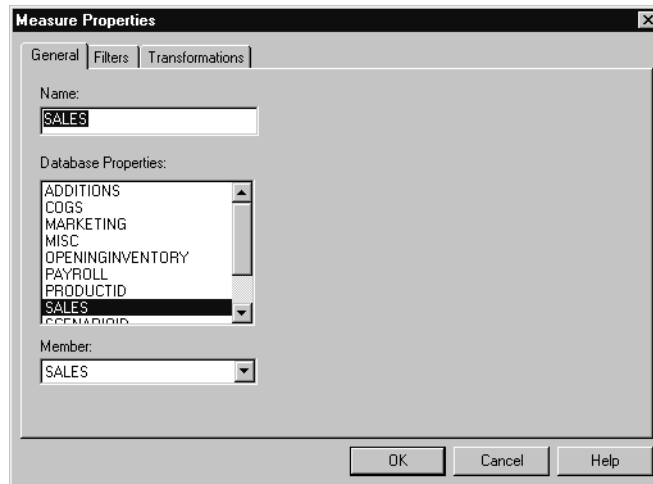


Figure 3-27: Using the Measure Properties Dialog Box

5. In the **Name** text box, enter the new name.
See “About Naming” on page 3-8.
6. Click **OK**.

Deleting Dimensions, Member Levels, and Measures

When you delete a dimension, member level, or measure from a metaoutline, you delete all build and load operations associated with the dimension, member level, or measure. You also delete all member levels located below the dimension, member level, or measure. For example, if you delete the Year dimension from TBC Metaoutline, you delete all members of the Year dimension; that is, you delete Time.Quarter and Time.Month.

CAUTION: You cannot undo a delete operation.

- To delete a dimension, member level, or measure from a metaoutline, choose any one of the following options:
 1. Select the dimension, member level, or measure and press the **Delete** key.
 2. Right-click the dimension, member level, or measure and select **Delete** from the pop-up menu.
 3. Select the dimension, member level, or measure and, from the **Edit** menu, select **Delete**.

Viewing Sample Dimensions, Members, and Essbase Outlines

After you create a metaoutline, you may want to see what the dimensions and members will look like in the Essbase outline before you build the entire Essbase outline. Before you build the Essbase outline, you can view the metaoutline in Essbase outline format to ensure that you have defined the dimensions and the member levels correctly, set filters and transformations correctly, and optimized the SQL generated by Essbase Integration Server.

CAUTION: Essbase Integration Server truncates sample outlines if they contain more than 32,767 members.

- To view a dimension, member, or metaoutline in Essbase outline format:
1. Be sure there is enough RAM on the computer on which Essbase Integration Services Console is installed to view the entire sample.

If you are not sure of the available RAM, set a query governor to control the duration and the size of the query that Essbase Integration Server makes to the relational data source.
 2. Within the right frame of the OLAP Metaoutline main window, use one of the following methods to preview a sample outline:
 - For a sample *outline*, select the metaoutline name—for example, TBC Metaoutline—and select View > Sample.
 - For a sample *dimension* or *member*, right-click the dimension or member level—for example, Product—and, from the pop-up menu, select Sample.
 - For results of filtering or transformation operations on either the **Edit OLAP Metaoutline Transformations** dialog box or the **Member Load Filtering** dialog box, select **Preview Results**.

Essbase Integration Services Console opens the appropriate dialog box: either the **Sample Outline** dialog box (Figure 3-28), **Preview Filter Results** dialog box, or the **Preview Transformation Results** dialog box.

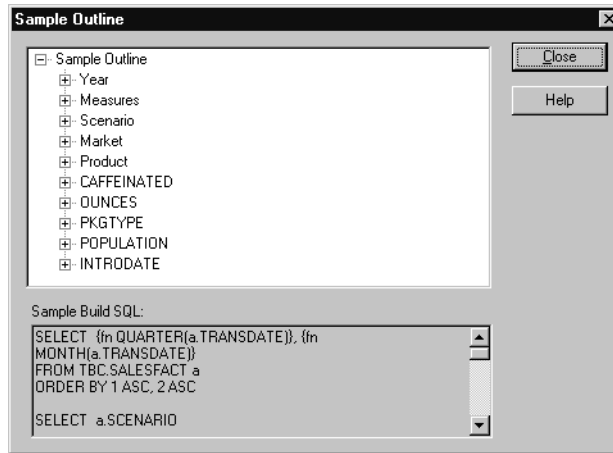


Figure 3-28: Viewing a Sample Essbase Outline

The sample outline contains the sample dimensions. You can click dimension and member names to expand dimensions and members and examine the structure of the Essbase outline; for example, you can examine the Product dimension.

The **Sample Build SQL** box displays the SQL statements that Essbase Integration Server generates to create the sample Essbase outline. Use the sample SQL to perform any of the following functions:

- Make sure that the metaoutline refers to the intended data in the external data source.
 - Tune the external data source to speed the process of building and loading data into the Essbase outline.
 - Cut and paste the SQL statement to an external file to view or print.
3. When you finish viewing the sample dimensions and the sample SQL, click **Close**.

Viewing Defined Measures

After you complete a metaoutline, you can review the measures it contains.

- ▶ To view all measures defined in a metaoutline:
 1. In the right frame of the OLAP Metaoutline main window, select the metaoutline name; for example, TBC Metaoutline.
 2. Right-click the metaoutline name and, from the pop-up menu, select **Properties**.

The **OLAP Metaoutline Properties** dialog box is displayed.

3. Select the **Database Measures** tab, as shown in Figure 3-29.

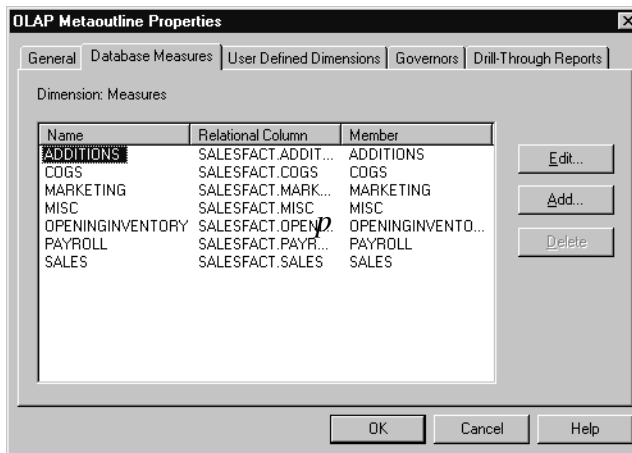


Figure 3-29: List of Measures in the Metaoutline

A list of the measures defined in the metaoutline is displayed in the list box.

4. When you finish viewing the measures, click **OK**.

You can also use the **Database Measures** tab of the **OLAP Metaoutline Properties** dialog box to edit or delete a measure. In the **Database Measures** tab, select the measure—for example, COGS—and click **Edit** or **Delete**.

If you edit a measure, you can change any of the following features:

- The name of the measure. See “Renaming a Single Measure” on page 3-47.
- The column on which the measure is based. Use the same steps as for creating a single measure. See “Changing the Column Associated with a Measure” on page 4-30.
- Transformations to perform on the measure. See “Scaling Measures” on page 4-28 and “Reversing Measure Signs” on page 4-29.
- Filters defined on the measure. See “Creating a Measure Filter Interactively” on page 5-23.

Setting Load Properties

This chapter describes how to set load properties for dimensions, member levels, and measures. *Load properties* determine what actions Essbase Integration Server performs on dimensions, member levels, and measures as it builds an Essbase outline or loads data into an Essbase outline. For example, Essbase Integration Server can transform member level names as it loads them from the relational data source to the related Essbase outline.

Note: Before setting load properties, you should perform the following transformations in the OLAP model: splitting one column into two or more columns; creating new columns that are based on existing columns; and fixing data inconsistencies, such as making sure that California is used as either a region or a state, but not as both. See the *Essbase Integration Services OLAP Model User's Guide*.

This chapter contains the following topics:

- “Understanding the Metaoutline Workflow” on page 4-2
- “Setting Load Properties for Dimensions” on page 4-3
- “Setting Load Properties for Member Names” on page 4-11
- “Setting Load Properties for Members” on page 4-24
- “Setting Load Properties for Measures” on page 4-27

For information about setting other properties, see Chapter 5, “Working with Filters” and Chapter 6, “Setting Essbase Properties.”

Understanding the Metaoutline Workflow

Figure 4-1 illustrates the workflow for creating a metaoutline and using the metaoutline to create and load members and data into an Essbase database. This workflow includes the following processes:

- Creating and working with a metaoutline
- Adding dimensions, member levels, and measures to a metaoutline
- Setting load properties, filters, and Essbase properties on dimensions, member levels, and measures in a metaoutline
- Loading dimensions and members from a metaoutline into an Essbase outline
- Loading the data specified in a metaoutline into an Essbase database

This chapter focuses on setting load properties. You can set load properties before or after setting filters and Essbase properties.

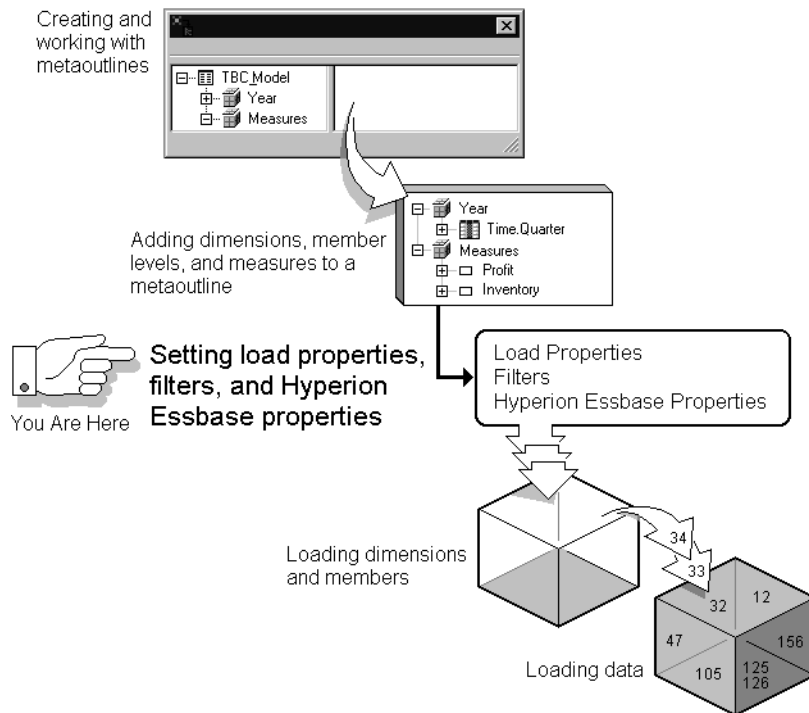


Figure 4-1: Metaoutline Workflow

Setting Load Properties for Dimensions

The following topics describe the load properties that you can set for dimensions, such as determining what to do with duplicate member names and with new member levels.

- “About Duplicate Member Names” on page 4-3
- “Understanding Rules for Shared Members” on page 4-6
- “Handling Duplicate Member Names” on page 4-6
- “Handling New Members During Data Load” on page 4-8

About Duplicate Member Names

A data source and a metaoutline can contain duplicate member names. For example, TBC Metaoutline uses the 100_20 column twice, once under 100 and once under Diet.

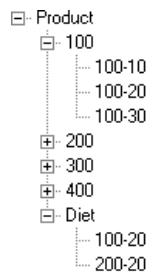


Figure 4-2: 100_20 Column

When Essbase Integration Server performs a member load, it performs one of the following actions when it encounters the members under Diet:

- It ignores the duplicate members. Essbase Integration Server does not load the members into the Essbase outline.

- It creates the members under Diet as *shared members*, as shown in Figure 4-3. The data associated with a shared member is stored in the real member. For example, the data for the second 300_30 member (under Diet) is stored in the first 300_30 member (under Cream Soda).

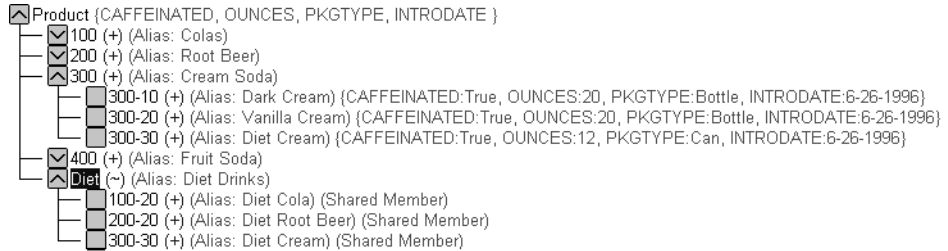


Figure 4-3: Shared Members

- In a recursive hierarchy, it moves duplicate members within the recursive hierarchy.
- In a recursive hierarchy, it moves generation 2 members that have no existing parent within the recursive hierarchy.

For example, suppose that you have the following manager-employee organizational chart under the People dimension:

Manager	Employee
Dotty	Donna
Nancy	Dotty
Dotty	Linda
Nancy	Jack
ABC Project	Dotty
ABC Project	Donna
XYZ Project	Jack

The hierarchy created by loading the first record is shown in Figure 4-4:

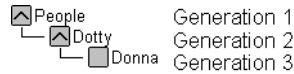


Figure 4-4: A Generation Member Without a Parent

Because the first hierarchy contains a generation 2 member without a parent, the first hierarchy is moved down a level when the second record is loaded, as shown in Figure 4-5:

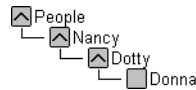


Figure 4-5: Member Load Handling of a Recursive Hierarchy

The Essbase outline shown in Figure 4-6 is generated from the previously described recursive hierarchy:

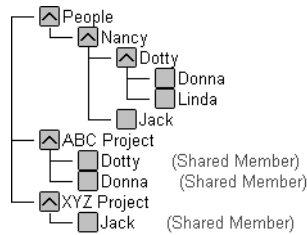


Figure 4-6: Essbase Outline Generated from a Recursive Hierarchy

For more information on recursive hierarchies, see “Creating Recursive Dimensions” on page 3-17.

You can prevent the creation of duplicate member names by transforming data when you create an OLAP model. For more information, see the *Essbase Integration Services OLAP Model User’s Guide*.

Understanding Rules for Shared Members

Essbase follows these rules for shared members:

- Shared members must be in the same dimension. For example, both 100-20 members are in the Product dimension.
- A dimension can contain both shared and non-shared members.
- Shared members cannot have children.
- An unlimited number of shared members can have the same name.
- User-defined attributes (UDAs), formulas, consolidation properties, and account properties cannot be assigned to shared members.
- Shared members can be assigned aliases.
- In an Essbase outline, a shared member should not be located before its real member. For example, the 100-20 shared member (under Diet) must be located *after* the 100-20 real member (under Colas) in the Essbase outline.
- Any transformation performed on a member name must also be performed on the duplicate member name. For example, if you change the original member level name from New York to NY, you must perform the same change on the duplicate member name.

Handling Duplicate Member Names

- To handle duplicate names in a metaoutline:
1. In the metaoutline, select a dimension that you expect to contain duplicate names; for example, Product.
 2. Right-click the dimension and, from the pop-up menu, select Properties to open the **Dimension Properties** dialog box.

You can also open the dialog box by clicking the **View Properties** button,



, from the toolbar or by selecting Properties from the Edit menu.

3. Select the **Outline Build** tab.

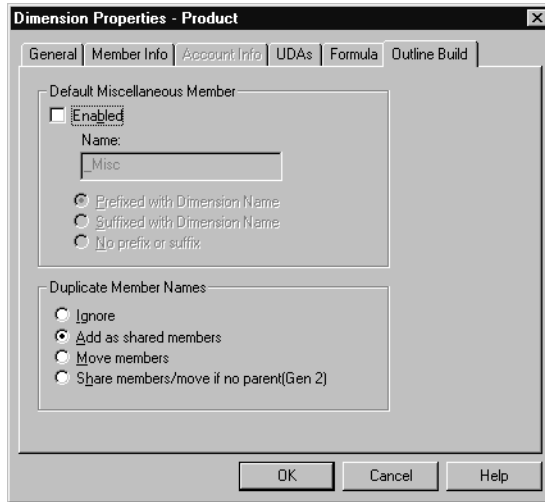


Figure 4-7: Handling Duplicate Member Names

4. From the **Duplicate Member Names** group, select one of the following options:
- **Ignore** to ignore duplicate member names during the build of the Essbase outline.
Essbase Integration Server does not load the members into the Essbase outline.
 - **Add as shared members** to create the duplicate member names as shared members in the Essbase outline.
 - **Move members** to move duplicate members of recursive hierarchies.

- Select **Share members/move if no parent(Gen2)** to move, within recursive hierarchies, generation 2 members that have no existing parent, even if share is specified.

For more information on this option, see “About Duplicate Member Names” on page 4-3.

Any transformation performed on a member name must also be performed on the duplicate member name. For example, if you change the original member level name from New York to NY, you must perform the same change on the duplicate member name.

If you are not sure which option to select, see “About Duplicate Member Names” on page 4-3.

5. Click **OK**.

Tip: You can also create shared members by setting the Shared Member Essbase property. See “Specifying Data Storage Properties for Dimensions and Members” on page 6-8.

Handling New Members During Data Load

During the time lapse between the build and the data load of an Essbase outline, the information on which the outline structure is based can change. For example, someone may add a new member to the fact table or to a reference table.

Assume that the Essbase outline build produces an outline that looks like the one in Figure 4-8:



Figure 4-8: Essbase Outline

What if someone adds Root_Beer to the fact table and to a reference table of the data source? When you perform the data load, the new member is available.

If the Essbase outline includes miscellaneous members, Essbase Integration Server adds the new member to the miscellaneous member of the appropriate dimension. With the addition of the `Root_Beer` member, for example, the Essbase outline looks like the one in Figure 4-9:

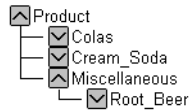


Figure 4-9: Miscellaneous Member Example

After the data load is complete, you can view the members of `Miscellaneous`.

During data load, Essbase Integration Server ignores any new member whose Essbase dimension does not include a miscellaneous member. However, Essbase Integration Server records that the new member exists and that it was ignored during the load. For more information on viewing the log file in which this information is recorded, see the *Essbase Integration Services System Administrator's Guide*.

- To add new members to a miscellaneous member level in a metaoutline:
 1. In the metaoutline, select the dimension that you expect to contain new member levels; for example, `Product`.
 2. Right-click the dimension and, from the pop-up menu, select **Properties** to open the **Dimension Properties** dialog box.

You can also open the dialog box by clicking the **View Properties** button,



, from the toolbar or by selecting **Properties** from the **Edit** menu.

3. Select the **Outline Build** tab.

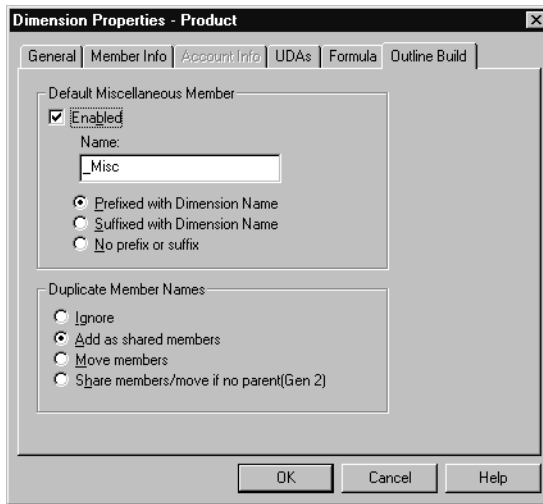


Figure 4-10: Setting the Miscellaneous Member

4. From the **Default Miscellaneous Member** group, select **Enabled**.
5. In the **Name** box, enter the name of the miscellaneous member; for example, **Misc**.

See “About Naming” on page 3-8.

You may ignore the dimension name. However, it is recommended that you include the dimension name as a prefix or suffix of the miscellaneous member name. Prefixing or suffixing a member name with the name of the related dimension helps you to identify the dimension with which the member is associated.

For example, if the new member, **Root_Beer**, is in the **Product** dimension, and you prefix the miscellaneous member name with the dimension name, the Miscellaneous member looks as it does in Figure 4-11:

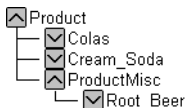


Figure 4-11: Miscellaneous Dimension

6. If you want to set a miscellaneous member on more than one dimension, return to step 1.

Note: If you set a miscellaneous member on more than one dimension, you must prefix or suffix the dimension name to the name of each additional miscellaneous member so that each miscellaneous member name is unique. If you do not prefix or suffix the names of subsequent miscellaneous members, you will have multiple members named Miscellaneous; for example, one under Product and one under Market.

7. Click **OK**.

Setting Load Properties for Member Names

This topic describes how to set load properties for member names, including how to replace parts of member names, drop spaces around member names, convert spaces to underscores within member names, attach text strings to member names, and change the case of member names.

When setting load properties, follow these general guidelines:

- If you define load properties on a real member that you expect to be shared, you must define the same load properties on each shared member.
- You cannot perform transformations on aliases.
- Do not set transformations on members of recursive dimensions. See “Creating Recursive Dimensions” on page 3-17.

This topic contains the following subtopics:

- “Transforming Member Names” on page 4-12
- “Replacing Parts of Member Names” on page 4-14
- “Dropping Spaces From Around Member Names” on page 4-17
- “Converting Spaces Within Member Names to Underscores” on page 4-17
- “Attaching Prefixes and Suffixes to Member Names” on page 4-18
- “Changing the Case of Member Names” on page 4-22

Transforming Member Names

You can transform a member name so that the member name loaded into the Essbase outline differs from the member name in the relational data source. For example, suppose that the data source stores product stock unit numbers, like the ones shown in Figure 4-12.

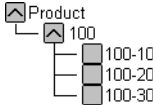


Figure 4-12: Product Dimension

You can prefix each number with a more descriptive name, such as the name shown in Figure 4-13, so that the product codes are more easily recognizable.

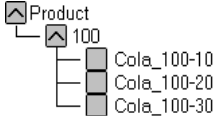


Figure 4-13: Product Members with Prefixes

Note: If you sort members, they are sorted before Essbase Integration Server applies transformations to member names. See “Sorting Members” on page 4-24.

Essbase Integration Server performs the specified transformations on member names in the following order:

1. It drops spaces from around a member name.
See “Dropping Spaces From Around Member Names” on page 4-17.
2. It converts spaces to underscores.
See “Converting Spaces Within Member Names to Underscores” on page 4-17.
3. It changes case.
See “Changing the Case of Member Names” on page 4-22.
4. It performs all replace operations in the order that you created the operations. If you are not sure of the order of the replace operations, right-click the member level and, from the pop-up menu, select Transformation to open the Edit Transformations dialog box.
See “Replacing Parts of Member Names” on page 4-14.
5. It applies prefix operations.
See “Attaching Prefixes and Suffixes to Member Names” on page 4-18.
6. It applies prefix separator operations.
7. It applies suffix operations.
8. It applies suffix separator operations.

Replacing Parts of Member Names

As a member is loaded into an Essbase outline, its name can be changed. For example, assume that the data source abbreviates New York as NY. You can direct Essbase Integration Server to replace each NY with New York during the build of the Essbase outline.

► To change a member name during loading:

1. In the metaoutline, select the member level to change; for example, REGION.REGION.
2. Right-click the member level and, from the pop-up menu, select **Transformation** to open the **Edit Transformations** dialog box.

You can also open the dialog box by selecting **Edit > Transformation**.

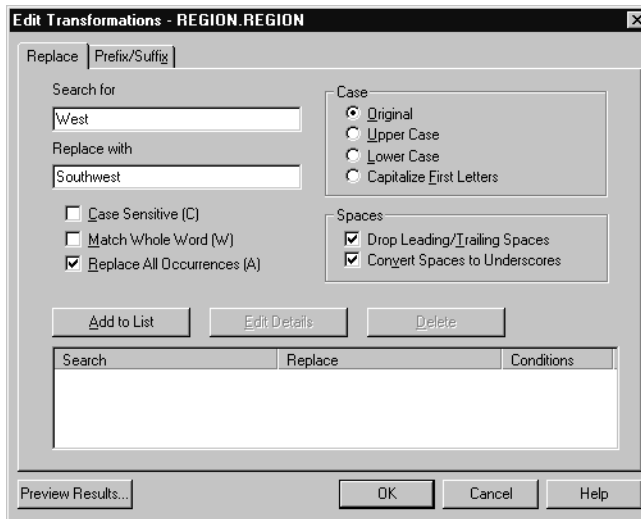


Figure 4-14: Replacing Text Strings

3. In the **Search for** text box, enter the text string that you want to replace; for example, **West**.

4. In the **Replace with** text box, enter the text with which to replace the text string; for example, **Southwest**.

Note: Do not use double quotation marks (") in the **Replace with** text box.

If you want to replace a text string with an empty string, leave the **Replace with** text box empty.

Note: When replacing a member name, make sure that you do not use any of the following characters at the beginning of the name:

@	(at sign)	()	(parentheses)
\	(backslash)	.	(period)
{ }	(braces)	+	(plus sign)
,	(comma)	'	(single quotation mark)
-	(dash, hyphen, or minus sign)	_	(underscore)
=	(equal sign)		(vertical bar)
<	(less than sign)	"	(double quotation mark)

5. Specify which of the following options the replacement operation should observe:
- Be case-sensitive; that is, replace only text strings that match the capitalization of the string in the **Search for** text box.
 - Replace the text string only when it occurs as a whole word. For example, to replace the 10 in the string 100 10 1 with an A, select the **Match Whole Word** option. If you do not select the **Match Whole Word** option, the string is changed to A0 10 1. By default, Essbase changes only the first occurrence.
 - Replace all occurrences of the string. For example, if you replace every occurrence of 10 in the string 100 10 1 with A, the string changes to A0 A 1.
6. Click **Add to List** to add the replacement operation to the list.

7. If you want to change or delete an existing operation, complete the appropriate action:
 - To change an existing operation, select the operation and click **Edit Details**.
 - To delete an operation, select the operation and click **Delete**.
8. Click **Preview Results** to open the **Preview Transformation Results** dialog box to view your changes in a sample Essbase outline.

See “Viewing Sample Dimensions, Members, and Essbase Outlines” on page 3-50.
9. Click **OK**.

You can use the search and replace operation of the **Edit Transformations** dialog box to sort months chronologically.

➤ To sort months chronologically:

1. In the metaoutline, select the appropriate member level, right-click the member level, and, from the pop-up menu, select Transformation.

The **Edit Transformations** dialog box is displayed.
2. Replace each month name with a number (January=1, February=2, and so on).

See the *Essbase Integration Services OLAP Model User's Guide*.
3. Sort the month field in ascending order.

See “Sorting Members” on page 4-24.
4. Select the **Match Whole Word** option.
5. Replace the month number with the month name (1=January, 2=February, and so on).

Dropping Spaces From Around Member Names

Some relational data sources pad a field by adding spaces at the beginning or end of the field. You must direct Essbase Integration Server to remove these spaces during the build of the Essbase outline.

- To remove spaces from around a member name:
 1. In the metaoutline, select the member level that is surrounded by spaces; for example, Month.
 2. Right-click the member level and, from the pop-up menu, select **Transformation** to open the **Edit Transformations** dialog box, shown in Figure 4-14.
 3. If the **Drop Leading/Trailing** option, **Drop Leading/Trailing Spaces**, is not selected, select it.
By default, the **Drop Leading/Trailing Spaces** box is selected.
 4. Click **OK**.

Converting Spaces Within Member Names to Underscores

In some relational data sources, the names of information categories contain spaces. You may want to direct Essbase Integration Server to change these spaces to underscores during the build of the Essbase outline.

- To convert spaces within member names to underscores:
 1. In the metaoutline, select the member level that contains names that include spaces; for example, PRODUCT_GROUP_DESC contains names with spaces, such as Root Beer.
 2. Right-click the member level and, from the pop-up menu, select **Transformation** to open the **Edit Transformations** dialog box, shown in Figure 4-14.
 3. If the **Convert Spaces to Underscores** box, **Convert Spaces to Underscores**, is not selected, select it.
By default, the **Convert Spaces to Underscores** box is selected.
 4. Click **OK**.

Attaching Prefixes and Suffixes to Member Names

You can direct Essbase Integration Server to attach a prefix or a suffix to a member name. For example, you can attach the prefix SKU_ to all member names in the Product dimension.

Note: When attaching a prefix to a member name, make sure that you do not use a space or any of the following characters at the beginning of the name:

@	(at sign)	()	(parentheses)
\	(backslash)	.	(period)
{ }	(braces)	+	(plus sign)
,	(comma)	'	(single quotation mark)
-	(dash, hyphen, or minus sign)	_	(underscore)
=	(equal sign)		(vertical bar)
<	(less than sign)	"	(double quotation mark)

- To attach a prefix or suffix to a member name:
 1. Select the member level to attach the prefix or suffix to; for example, STATE.
 2. Right-click the member level and, from the pop-up menu, select **Transformation** to open the **Edit Transformations** dialog box.
You can also open the dialog box by selecting **Edit > Transformation**.

3. Select the **Prefix/Suffix** tab.

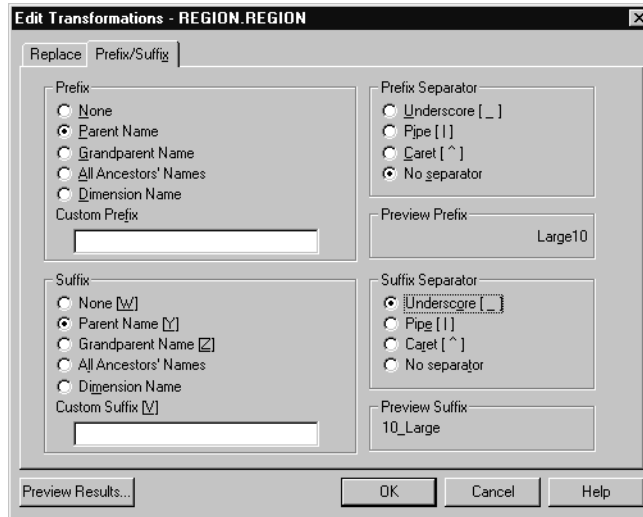


Figure 4-15: Adding Prefixes or Suffixes

4. Decide whether to use the **Prefix** option group or the **Suffix** option group.
 - **Prefix** attaches the selected value in front of the member name; for example, SKU_100-10.
 - **Suffix** attaches the selected value after the member name; for example, 100-10_SKU.
5. In the **Prefix** option group or the **Suffix** option group, as appropriate, select the source of the value that Essbase attaches to the member name in the Essbase outline.

Some of the following examples are based on transforming the member STATE of the Market dimension, as shown in the Figure 4-16 sample TBC Metaoutline:

```

Sample Outline
├─ Market
│   └─ Central
│       └─ Central_Illinois
  
```

Figure 4-16: TBC Market Dimension, STATE Member Transformation

- **None** uses the metaoutline name as the Essbase outline name. Nothing is attached.
- **Parent Name** attaches the name of the immediate parent; for example, selecting **Parent Name** in the **Prefix** option group and **Pipe** in the **Prefix Separator** option group changes Colas to Product|Colas.

Essbase requires every member name to be unique. To satisfy this requirement, you can prefix the name of every member with the name of the parent value of the member. For example, if you store information for two years, you have two members named Quarter1. By prefixing the name of every member with the name of the parent of the member, you produce unique member names such as 1997Quarter1 and 1998Quarter1.

- **Grandparent Name** attaches the name of the grandparent; that is, the name of the parent of the parent. Using PRODUCT_ID as an example, selecting **Grandparent Name** in the **Suffix** option group and **Caret** in the **Suffix Separator** option group changes Colas to 100-10^Colas.
- **All Ancestors' Names** attaches the names of all higher level generations. For example, selecting **All Ancestors' Names** in the **Prefix** option group and **Underscore** in the **Prefix Separator** option group changes 100-10 to Product_Colas_100_10-10.
- **Dimension Name** attaches the dimension name. For example, selecting **Dimension Name** in the **Suffix** option group and **Caret** in the **Suffix Separator** option group changes Colas to Colas^Product.
- **Custom Prefix** and **Custom Suffix** attach, respectively, the prefix or suffix that you enter in the appropriate text box. For example, typing SKU in the **Custom Prefix** text box and selecting **Underscore** in the **Prefix Separator** option group changes Colas to SKU_Colas.

Note: Do not use double quotation marks (") in the **Custom Prefix** and **Custom Suffix** text box.

- **Custom Prefix** and **Custom Suffix** combined with a **Prefix** option or a **Suffix** option attach, respectively, the prefix or suffix that you enter in the appropriate text box and the selected prefix or suffix. For example, typing SKU in the **Custom Prefix** text box, selecting **Parent** in the **Prefix Separator** option group, and selecting **Underscore** in the **Prefix Separator** option group changes Colas to Product_SKU_Colas.

Note: Do not use double quotation marks (") in the **Custom Prefix** and **Custom Suffix** text box.

6. In the **Prefix Separator** or **Suffix Separator** option group, select the separator character to insert between the member name and the attached value.
 - **Underscore [_]** inserts an underscore between the affix and the member name; for example, SKU_100-10.
 - **Pipe [|]** inserts a pipe between the affix and the member name; for example, Product|100-10.
 - **Caret [^]** inserts a caret between the affix and the member name; for example, Product^100-10.
 - **No separator** does not insert a character separator.
7. Click **Preview Results** to open the **Preview Transformation Results** dialog box to preview your changes in a sample Essbase outline.
See “Viewing Sample Dimensions, Members, and Essbase Outlines” on page 3-50.
8. Click **OK**.

Changing the Case of Member Names

You can direct Essbase Integration Server to change the case of member names. For example, you can change the member name JANUARY to January.

➤ To change the case of a member name:

1. In the metaoutline, select the member level for which you want to change the case; for example, State.

Essbase Integration Server changes the case of *all* member names that the selected member level maps to in the Essbase outline; for example, Illinois, Ohio, and so on.

2. Right-click the member level and, from the pop-up menu, select **Transformation** to open the **Edit Transformations** dialog box.

You can also open the dialog box by selecting **Edit > Transformation**.



Figure 4-17: Capitalizing Member Names

3. From the **Case** group, select the case to which the member name will change:
 - **Original** does not change the case.
 - **Upper Case** makes all letters of the member name uppercase; for example, Illinois to ILLINOIS or illinois to ILLINOIS.
 - **Lower Case** makes all letters of the member name lowercase; for example, ILLINOIS to illinois or Illinois to illinois.
 - **Capitalize First Letters** makes the first letter of the member name and the first letter following a space or an underscore uppercase and makes all subsequent letters lowercase; for example, central_illinois or CENTRAL_ILLINOIS to Central_Illinois
4. Click **Preview Results** to open the **Preview Transformation Results** dialog box to view your changes in a sample Essbase outline.

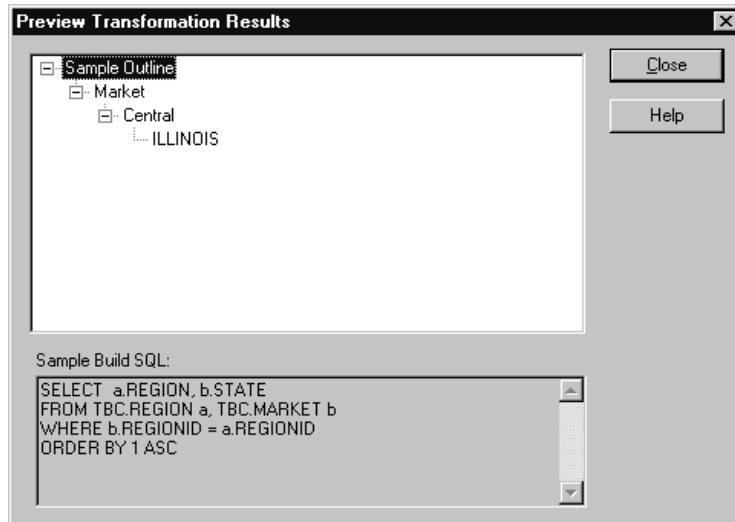


Figure 4-18: Previewing Transformation Results

Also see “Viewing Sample Dimensions, Members, and Essbase Outlines” on page 3-50.

5. Click **Close** in the **Preview Transformation Results** dialog box to return to the **Edit Transformations** dialog box.
6. Click **OK**.

Setting Load Properties for Members

This topic describes how to set load properties that determine the order in which members are displayed in the Essbase outline and the level to which Essbase Integration Server builds the outline. This topic contains the following subtopics:

- “Sorting Members” on page 4-24
- “Setting the Member and Data Load Build Level” on page 4-25

Sorting Members

You can set Essbase Integration Server to sort member names alphanumerically within a dimension. For example, you can sort all states in the Market dimension from A to Z so that a United States Market dimension starts with Alabama and ends with Wyoming.

Note: The relational database performs the sort. Some sorts may not work the way you intend. For example, if you sort alphabetically by month, you get April, August, December, and so on. To sort months chronologically, see “Replacing Parts of Member Names” on page 4-14.

Note: If you sort members, they are sorted before Essbase Integration Server applies any transformations to the member names.

- To sort the members in a dimension:
1. In the metaoutline, select the member level that you want to sort; for example, MARKET.STATE.
 2. Right-click the member level and, from the pop-up menu, select **Filter** to open the **Edit Filter** dialog box.

You can also open the dialog box by selecting **Edit > Filter**.

3. Select the **Ordering** tab.

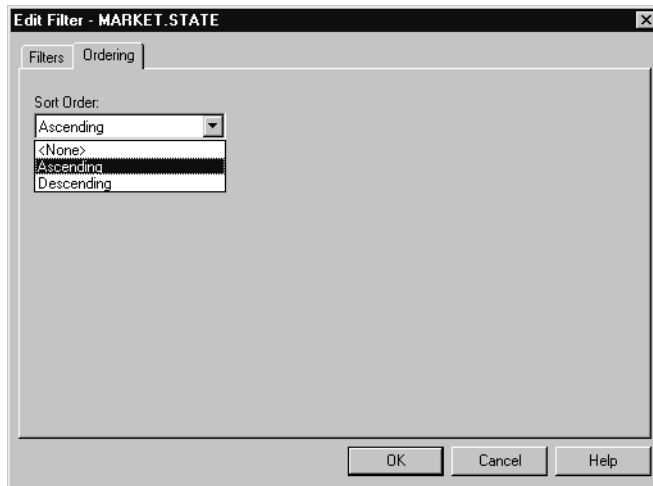


Figure 4-19: Setting Member Ordering

4. From the **Sort Order** drop-down list, select a sort order.
 You can select **Ascending** (A to Z, 0 to 9), **Descending** (Z to A, 9 to 0), or **None**. **None** is the default value. Selecting **Ascending** or **Descending**, instead of **None**, improves member load performance.
5. Click **OK**.

Setting the Member and Data Load Build Level

By default, when Essbase Integration Server creates an Essbase outline, it loads all member levels specified in the metaoutline. You can, however, set Essbase Integration Server to build only to a specified level. Building down to a specified level produces a smaller Essbase outline that contains less data. Smaller outlines can be useful for users with limited disk space who do not need to see the lowest level of detail.

For example, if the Market dimension in the metaoutline contains three levels—REGION, STATE, and CITY—the Market dimension of the default Essbase outline contains three levels, as shown in Figure 4-20.

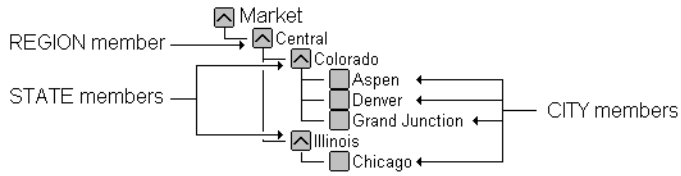


Figure 4-20: Members of the Market Dimension

If you set Essbase Integration Server to build only to the STATE member level, none of the CITY members are displayed in the Essbase outline, as shown in Figure 4-21.

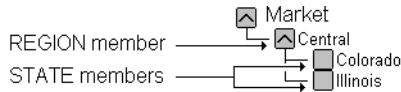


Figure 4-21: Reduced Number of Levels

Likewise, when you load data into the Essbase outline, Essbase Integration Server loads the measures only down to the specified build level.

- To specify a build level:
 1. In the metaoutline, select the member level that you want to use as the lowest level member (leaf member); for example, PRODUCTDIM.FAMILY.
 2. Right-click the member level and, from the pop-up menu, select Build down to here.

In the pop-up menu, next to Build down to here, a check is displayed. In the metaoutline, for all member levels that lie below the specified level, a red X is displayed. During member and data loads, Essbase Integration Server sets the specified member level (the member level with a check) as the level 0 member (that is, as the leaf member). For example, Figure 4-22 displays the original level 0 member (PRODUCTDIM.SKU) with a red X, and PRODUCTDIM.FAMILY becomes the lowest member for the build.



Figure 4-22: Build Down to Here

Note: Setting the Build down to here function on a level 0 member has no effect. Essbase Integration Server builds down to level 0 by default.

Setting Load Properties for Measures

This topic describes how to set load properties for measures, including how to change a measure, how to reverse the sign of a measure, and how to change the column with which a measure is associated. This topic contains the following subtopics:

- “Scaling Measures” on page 4-28
- “Reversing Measure Signs” on page 4-29
- “Changing the Column Associated with a Measure” on page 4-30

Scaling Measures

You can direct Essbase Integration Server to scale measures (data values) as it loads them into the Essbase database. For example, you may want to scale a measure if the values in the data source and the values in the database use different types of measurement, such as when the data source tracks sales in hundreds but the Essbase database tracks sales in units. In this case, you want to multiply incoming values by 100.

➤ To scale an incoming measure:

1. In the metaoutline, select a measure; for example, SALES.
2. From the pop-up menu, select **Transformation** to open the **Measure Properties** dialog box.

You can also open the dialog box by selecting **Edit > Transformation**.

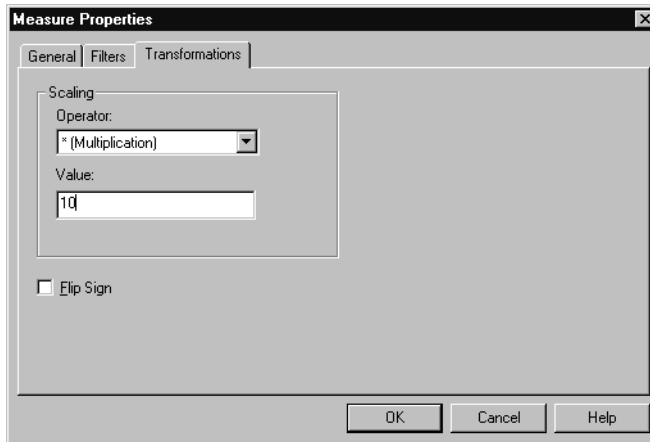


Figure 4-23: Scaling Measures

3. From the **Operator** drop-down list, select the operator to use for scaling the incoming measure; for example, * (Multiplication).
4. In the **Value** text box, enter the value to use; for example, type **10** to multiply the incoming value by 10.
5. Click **OK**.

Essbase Integration Server scales the measures and loads the scaled values into the Essbase database.

Reversing Measure Signs

You can direct Essbase Integration Server to reverse the sign of a measure (from positive to negative or vice versa). For example, the data source can track expenses as negative numbers, but you can track them as positive numbers in the Essbase database.

- To flip (reverse) the sign of an incoming measure:
 1. In the metaoutline, right-click the measure to flip; for example, Expenses.
 2. From the pop-up menu, select **Transformation** to open the **Transformation** tab of the **Measure Properties** dialog box.

You can also open the tab by selecting **Edit > Transformation**.

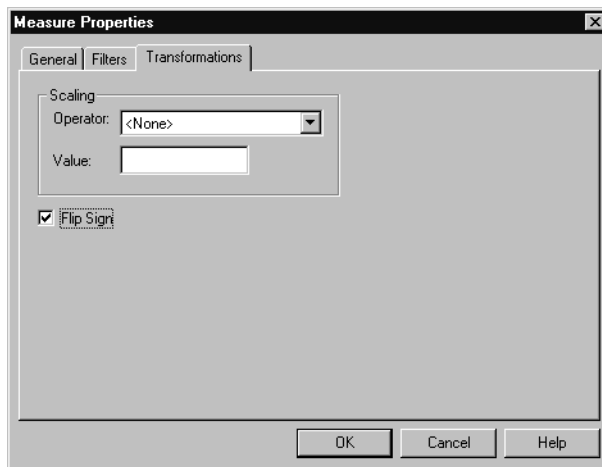


Figure 4-24: Reversing Signs for Measures

3. Select the **Flip Sign** box.
4. Click **OK**.

If you later decide to load values into the measure without reversing the sign, deselect the **Flip Sign** box.

Changing the Column Associated with a Measure

When data is loaded into an Essbase database, every measure in the related metaoutline retrieves its data values from the relational data column with which it is associated. For example, assume that you have a SALESINVACT.PRICE column in the relational data source. The column contains all prices for all products. The related OLAP model contains the SALESINVACT.PRICE column in its fact table. When you create a PRICE measure in the metaoutline, the PRICE measure is based on the SALESINVACT.PRICE column of the relational data source.

When you load data into the Essbase database, Essbase Integration Server retrieves the data values for price from the SALESINVACT.PRICE column of the relational data source and loads the retrieved values into the Price measure of the Essbase outline.

If the default column that is associated with a measure is not correct, you can change the column.

- To change the column with which a measure is associated:
 1. In the metaoutline, select a measure; for example, SALES.
 2. Right-click the measure and, from the pop-up menu, select **Filter** or **Transformation** to open the **Measure Properties** dialog box.

3. Select the **General** tab.

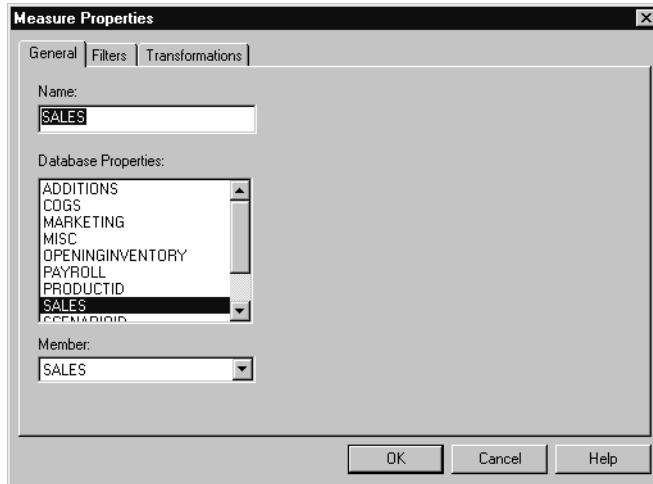


Figure 4-25: Changing the Column Associated with a Measure

4. From the **Database Properties** list, select the column with which you want to associate the member.
5. Click **OK**.

This chapter describes how you set a filter on a member level and on a measure. A *filter* determines what members or what data values Essbase Integration Server loads from the external data source into the Essbase database.

Note: A change that you make to a filter for a member level or a measure does not affect the Essbase database until you perform a member or data load.

This chapter contains the following topics:

- “Understanding the Metaoutline Workflow” on page 5-2
- “About Filters” on page 5-3
- “Filtering in an OLAP Model or in a Metaoutline” on page 5-8
- “Working with Metaoutline Filters” on page 5-8
- “Creating a Member Filter Interactively” on page 5-14
- “Typing a Member Filter” on page 5-21
- “Creating a Measure Filter Interactively” on page 5-23
- “Typing a Measure Filter” on page 5-26
- “Creating an Attribute Filter Interactively” on page 5-28

For information about setting other properties, see Chapter 4, “Setting Load Properties” and Chapter 6, “Setting Essbase Properties.”

Understanding the Metaoutline Workflow

Figure 5-1 illustrates the workflow for creating a metaoutline and for using the metaoutline to create and load members and data into an Essbase database. This workflow includes the following processes:

- Creating and working with a metaoutline
- Adding dimensions, member levels, and measures to a metaoutline
- Setting load properties, filters, and Essbase properties on dimensions, member levels, and measures in a metaoutline
- Loading dimensions and members from the metaoutline into an Essbase outline
- Loading the data specified in the metaoutline into an Essbase database

This chapter focuses on setting filters. You can set filters before or after setting load properties and Essbase properties.

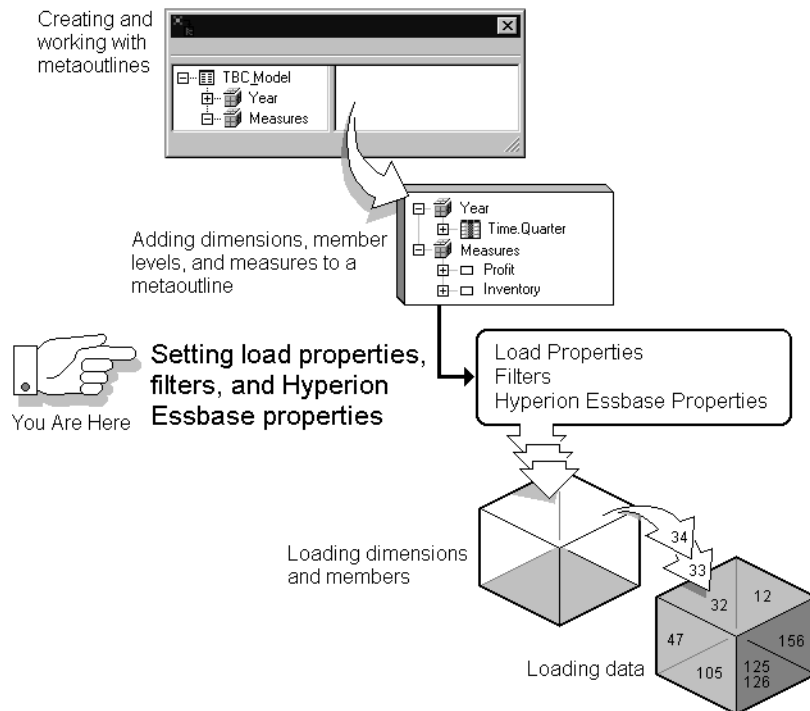


Figure 5-1: Metaoutline Workflow

About Filters

You can filter members and data values when you load members and data values into an Essbase outline. For example, assume that a relational data source contains data for 1999 and 2000.

If you want to create an Essbase outline that tracks the 1999 data, you create a filter that loads only the members related to 1999.

Any filter that you create becomes part of an automatically-generated SQL WHERE clause. For example, a typical filter might have the following WHERE clause:

```
SELECT a.FAMILY, a.FAMILYNAME
FROM TBC.PRODUCTDIM a
WHERE (a.FAMILY IN ('200'))
ORDER BY 1 ASC, 2 ASC
```

Note: You can also filter data in an OLAP model. See the *Essbase Integration Services OLAP Model User's Guide*.

You can create filters on one or more member levels or measures of a metaoutline. All filters defined on member levels and measures in a metaoutline are stored in one or more *metaoutline filters*.

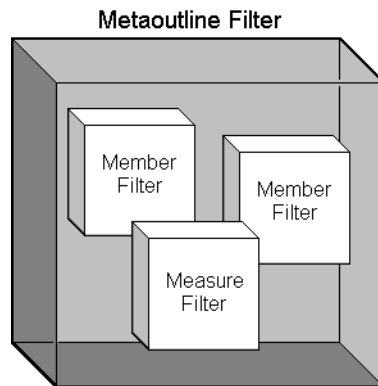


Figure 5-2: Contents of a Metaoutline Filter

About Metaoutline Filters

Essbase Integration Server automatically stores all member level and all measure filters in a metaoutline filter named *Default. Therefore, when you make a new member or measure filter, it will be added to the default filter. You can, however, create one or more additional metaoutline filters and define a specific set of member level and measure filters for each filter. Then you can select a particular metaoutline filter to determine what Essbase Integration Server loads into the Essbase database.

Defining multiple metaoutline filters enables you to create multiple Essbase databases from a single metaoutline—just select a different metaoutline filter before performing the member and data load. See “Selecting a Metaoutline Filter” on page 5-8.

Essbase Integration Server loads into the Essbase database only the members and data values that are specified by the metaoutline filter. For example, you can create a metaoutline filter for each year—a 99 DATALOAD filter and a 00 DATALOAD filter. Similarly, you can create a large_market filter, and build an Essbase database that tracks only information for large markets, as illustrated in Figure 5-3.

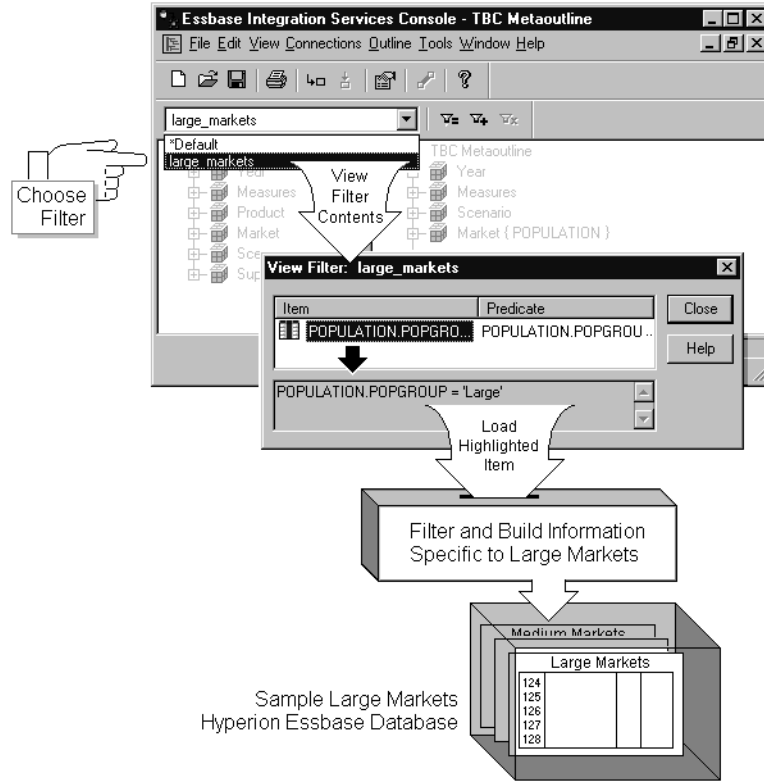


Figure 5-3: Metaoutline Filter Example

About Member Filters

A member filter is applied to member names as the member names are loaded from the external data source into the Essbase database.

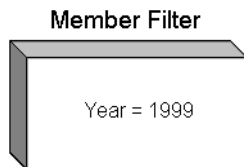


Figure 5-4: Member Filter Example

You can create a *row filter* on a member name.

Essbase Integration Server applies the *row filter* to each row. The filter is based on a member name. For example, if you filter out all years that are not 1999, Essbase Integration Server loads the 1999 values but not the values from other years, such as 2000.

Note: If you are creating a filter on a shared member, see “Handling Duplicate Member Names” on page 4-6.

When creating a member filter, keep the following guidelines in mind:

- You cannot use substitution variables in a filter.
- When you type the filter syntax, you can use the pattern-matching characters that are supported by the relational database management system (RDBMS) that you are using.
- If you define a filter on a member that you expect to be shared, you must define the same filter on each shared member.
- If you define a filter on a recursive dimension, see “Creating Recursive Dimensions” on page 3-17.

About Measure Filters

A measure filter is applied to data values as the data values are loaded from the external data source to the Essbase database. For example, if you specify a filter to load only SALES measures that have an aggregate value greater than 1000, Essbase Integration Server does not load into the Sales member of the Essbase database any data values that have an aggregate value equal to or less than 1000. If no data value meets the filtering condition, Essbase Integration Server loads a value of #MISSING into the Essbase database.

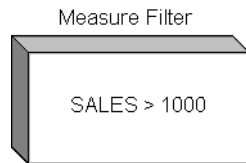


Figure 5-5: Measure Filter Example

Note: If you are creating a filter on a shared member, see “Handling Duplicate Member Names” on page 4-6.

When creating a measure filter, keep the following guidelines in mind:

- You cannot use substitution variables in a filter.
- When you type the filter syntax, you can use the pattern-matching characters supported by the RDBMS.

Filtering in an OLAP Model or in a Metaoutline

You can filter out unwanted data in an OLAP model or in a metaoutline. In general, you should create high-level filters in an OLAP model and more specific filters in a metaoutline.

Create a filter in an OLAP model to prevent data from appearing in either the OLAP model or the metaoutline; for example, you might want to create an OLAP model that includes only the last two years of data even though the related warehouse contains five years of history. See the *Essbase Integration Services OLAP Model User's Guide*.

Create filters in a metaoutline to create specific Essbase databases (for example, apply a member filter to view the data for 1998) or to customize an Essbase database for a certain set of users (for example, filter out everything but sales and inventory).

Working with Metaoutline Filters

This topic describes how to use metaoutline filters. It contains the following subtopics:

- “Selecting a Metaoutline Filter” on page 5-8
- “Creating a Metaoutline Filter” on page 5-10
- “Viewing the Contents of a Metaoutline Filter” on page 5-12
- “Viewing the SQL Statement for a Filter” on page 5-19
- “Deleting a Metaoutline Filter” on page 5-13

Selecting a Metaoutline Filter

The currently selected metaoutline filter is the metaoutline filter to which Essbase Integration Server adds new member and measure filters and the one that is used for member and data loads.

The name of the currently selected metaoutline filter is displayed at the top of the metaoutline filter drop-down list. The metaoutline filter drop-down list contains the *Default filter, plus any metaoutline filters that you have created. If you have not created any metaoutline filters, the only filter that you can select is *Default.

- To select a metaoutline filter:
 1. Open the metaoutline.
See “Creating or Editing Metaoutlines” on page 2-4.
 2. In the OLAP Metaoutline main window, from the drop-down list, select a filter, as shown in Figure 5-6.

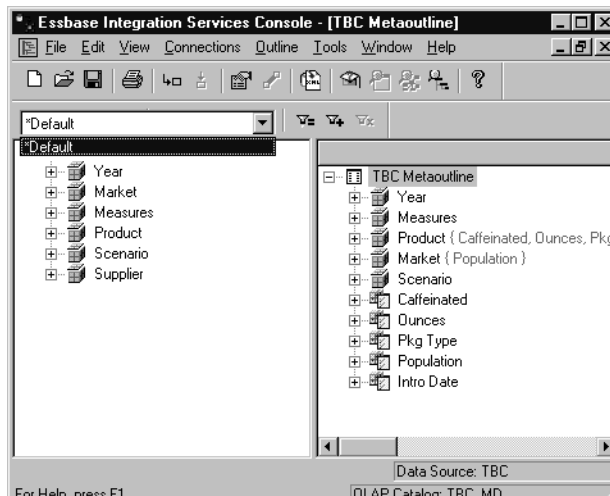


Figure 5-6: Setting a Metaoutline Filter

If no filter other than *Default is listed, you may want to define a filter. See “Creating a Metaoutline Filter” on page 5-10.

Creating a Metaoutline Filter

A metaoutline filter contains all member level and measure filters that are defined while it is selected. See “About Metaoutline Filters” on page 5-4.

➤ To create a new metaoutline filter:

1. Open the metaoutline.

See “Creating or Editing Metaoutlines” on page 2-4.

2. Click the **Add Filter** button, .

The **Enter the new filter’s name** dialog box, in which you can name the new filter, is displayed.

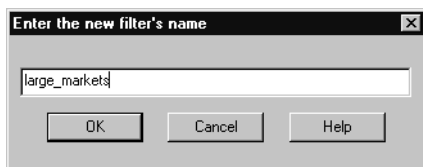


Figure 5-7: Creating a New Metaoutline Filter

3. Type the name of the new filter, for example, large_markets.

See “About Naming” on page 3-8.

4. Click **OK**.

Essbase Integration Server creates a new metaoutline filter and sets it as the current filter.

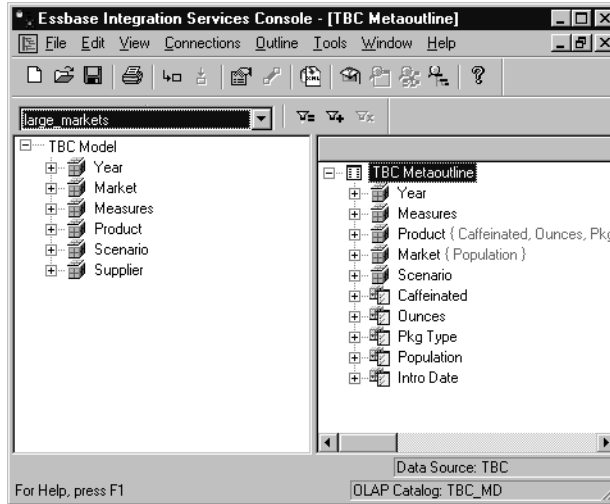


Figure 5-8: Viewing the Current Filter Name

5. In the metaoutline, create member and measure filters. These filters will be added to the metaoutline filter that is currently selected in the metaoutline filter drop-down list.

See “Creating a Member Filter Interactively” on page 5-14 and “Creating a Measure Filter Interactively” on page 5-23.

Viewing the Contents of a Metaoutline Filter

You can view all member and measure filters that are defined in the current metaoutline filter.

► To view the contents of the default metaoutline filter:

1. Open the metaoutline.
See “Creating or Editing Metaoutlines” on page 2-4.
2. In the drop-down list at the upper-left side of the screen, where `large_markets` is displayed in Figure 5-8, select `*Default`.

3. Click the **View Filter** button, .

The **View Filter** dialog box is displayed. The dialog box lists all member and measure filters that are defined in the current metaoutline filter.

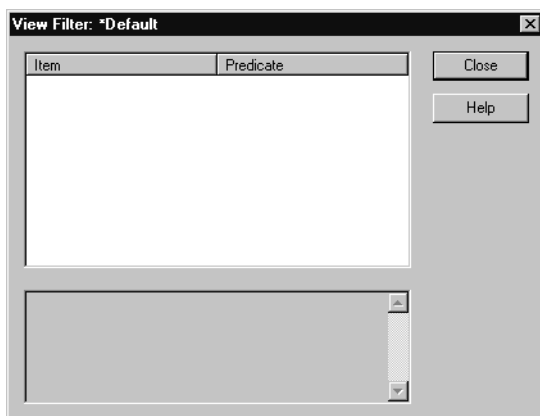


Figure 5-9: Viewing the Contents of the Current Metaoutline Filter

4. To view the conditions defined for a specific filter, select the filter.

In this case, there is no filter to select. After you have built a filter, you will be able to view it in the **View Filter** dialog box, as shown in Figure 5-10.

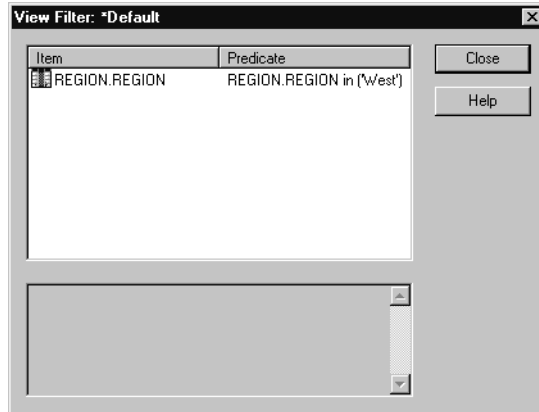



Figure 5-10: Viewing a Filter in the View Filter Dialog Box

5. When you finish viewing the filters, click **Close**.

Deleting a Metaoutline Filter

- To delete a metaoutline filter:
 1. Open the metaoutline.
See “Creating or Editing Metaoutlines” on page 2-4.
 2. From the **Filter** drop-down list, select the filter to delete.
See “Selecting a Metaoutline Filter” on page 5-8.
 3. Click the **Delete Filter** button, .
 - A dialog box prompts you to confirm deleting the filter.
 4. Click **Yes**.

Creating a Member Filter Interactively

You can select the parts of a member filter interactively from list boxes and dialog boxes, or you can type a member filter. This topic describes how to create a member filter interactively. To type a member filter, see “Typing a Member Filter” on page 5-21.

- To create a member filter interactively:
 1. In the metaoutline, select a filter, for example, *Default, in the filter drop down list.
Figure 5-6 displays the metaoutline with *Default selected.
 2. In the metaoutline, select the member level to attach to the filter; for example, REGION.REGION.
 3. To create a row filter, right-click the member level and, from the pop-up menu, select **Filter** to display the **Edit Filter** dialog box.
 4. Select the **Filters** tab.

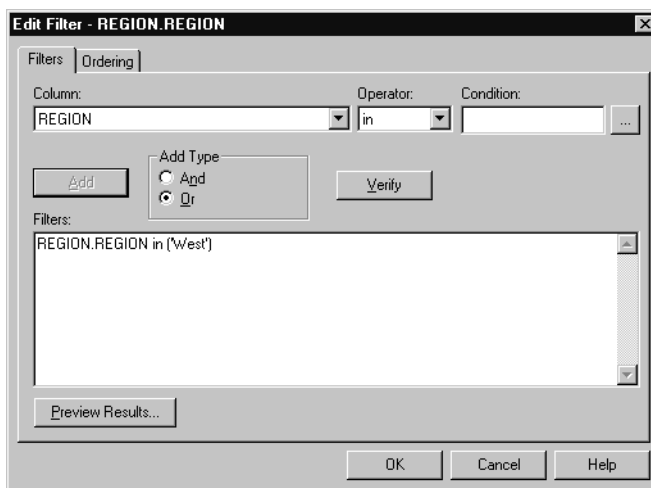


Figure 5-11: Setting a Member Load Filter Interactively

5. From the **Column** drop-down list, select the column to which the condition applies; for example, REGION.
6. From the **Operator** drop-down list, select the operator to use.

Table 5-1: Filter Operators

Operator	Description
in	Sets one or more conditions. For example, REGION in UNITED STATES or EUROPE selects both the UNITED STATES and EUROPE regions.
not in	Opposite of in. For example, REGION not in UNITED STATES selects all regions except for the regions that are part of the United States.
like	Looks for similar characters. For example, if you want to select all products that begin with P and do not want to specify other characters of the product name, you can set the condition, like "P" (Different RDBMSs may use different wildcards).
not like	Opposite of <i>like</i> . Selects conditions that exclude similar characters.
=	Equal to.
<>	Not equal to.
>	Greater than.
>=	Greater than or equal to.
<	Less than.
<=	Less than or equal to.

7. To enter a condition in the **Condition** text box, type the condition; for example, **West**, or complete the following three steps:

- a. To open the **Select Values From** dialog box, click the  button.

The **Select Values From** dialog box lists all possible values for the selected column. Essbase Integration Server retrieves the listed values from the external data source. If the external data source contains many values, a dialog box is displayed. The dialog box asks if you want to view all values.

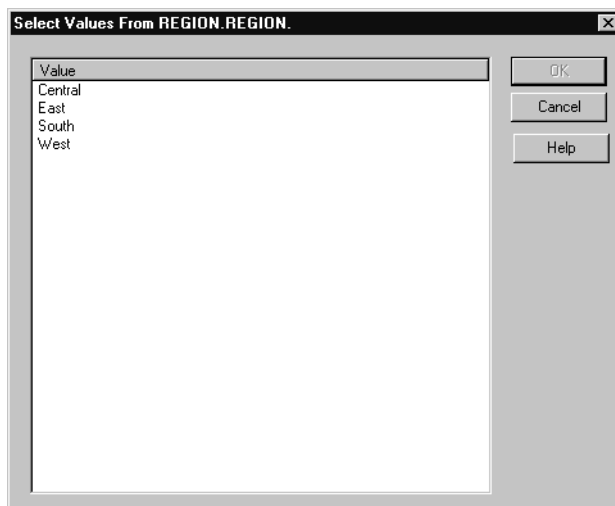


Figure 5-12: Setting Values for Conditions

- b. Select the value you want to use (such as **West**).

To select multiple values, hold down the **Ctrl** key and select each value.

You can select more than one value only if you have selected **in** or **not in** as the operator. For a description of all operators, see Table 5-1.

- c. Click **OK**.

8. In the **Edit Filter** dialog box, click **Add** to add the condition to the **Filters** list.
9. If you want to define an additional condition, perform the following steps:
 - a. Repeat steps 5 through 7.
 - b. Perform one of the following tasks:
 - If you want the filter to apply when any one of the listed conditions is met, in the **Add Type** box, select **Or**. **Or** is the default.
 - If you want the filter to apply only if all the listed conditions are met, in the **Add Type** box, select **And**.
 - If you want to define the order in which the relational data source executes the multiple conditions, in the **Filters** box, enclose the conditions in parentheses.

How you define ordering depends on the relational data source. Consult the documentation for the relational data source.

➤ To edit and view your filter:

1. If you want to edit a filter, complete these tasks:
 - a. Use the SQL syntax required by the relational data source.
 - b. In the **Edit Filter** dialog box, click **Verify** to check the SQL syntax.
2. Click **Preview Results** to open the **Preview Filter Results** dialog box.
 In the **Preview Filter Results** dialog box, you can view your changes in a sample Essbase outline. See “Viewing Sample Dimensions, Members, and Essbase Outlines” on page 3-50.
3. Click **OK**.

4. If you want to view your filter in the metaoutline filter, complete the following tasks:
 - a. Select the filter name, for example, *Default, from the drop-down list in the filter toolbar (see Figure 5-6).
 - b. Follow the procedures in “Viewing the Contents of a Metaoutline Filter” on page 5-12.

For example, the *Default metaoutline filter now contains a member filter, as shown in Figure 5-13.

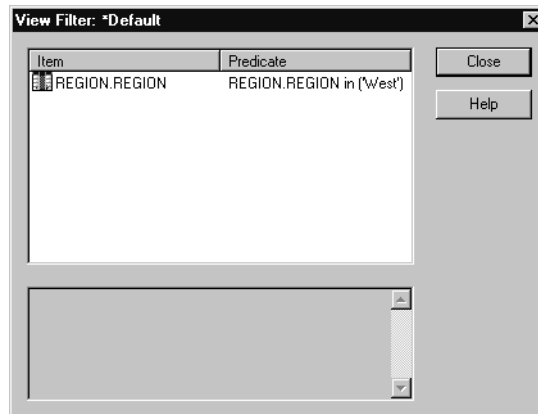


Figure 5-13: Viewing the New Default Filter

Viewing the SQL Statement for a Filter

- To view the SQL statement for the current *Default filter:
 1. In the metaoutline, select a member in the right frame; for example, REGION.REGION, as shown in Figure 5-14.

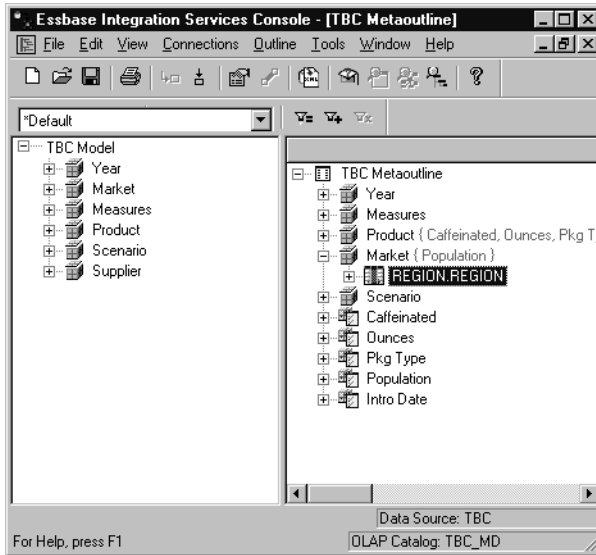


Figure 5-14: Selecting the Metaoutline Member to View Filter

2. Right-click and select **Filter** from the drop-down list.
The **Edit Filter** dialog box is displayed.

3. In the **Edit Filter** dialog box shown in Figure 5-15, click **Preview Results**.

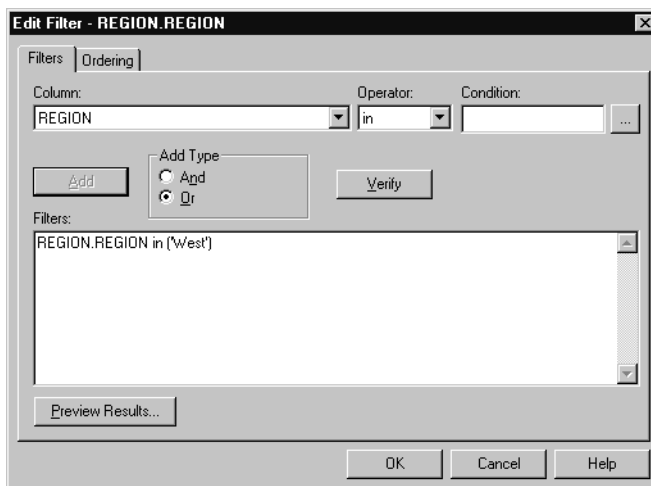


Figure 5-15: Viewing a Filter in the Edit Filter Dialog Box

The **Preview Filter Results** dialog box is displayed, as shown in Figure 5-16. The SQL statement for the filter is displayed in the lower portion of the dialog box.

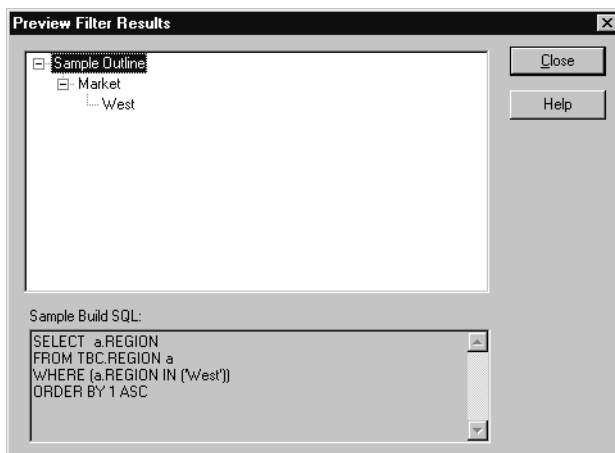


Figure 5-16: Viewing the SQL Statement in the Preview Filter Results Dialog Box

4. When you finish viewing the **Preview Filter Results** dialog box, click **Close**.
The **Edit Filter** dialog box is displayed.
5. When you finish viewing the **Edit Filter** dialog box, click **OK**.

Typing a Member Filter

You can type a member filter or select the parts of a member filter interactively from list boxes and dialog boxes. This topic describes how to type a member filter. To create a member filter interactively, see “Creating a Member Filter Interactively” on page 5-14. To add this filter to the default filter, be sure the default filter is selected in the filter selection drop-down list at the upper left of the metaoutline (see Figure 5-6).

- To type a member filter:
 1. In the metaoutline, select the member level to attach to the filter; for example, REGION.REGION.
 2. To create a row filter, right-click the member level and, from the pop-up menu, select **Filter**.
The **Edit Filter** dialog box is displayed.

3. Select the **Filters** tab.

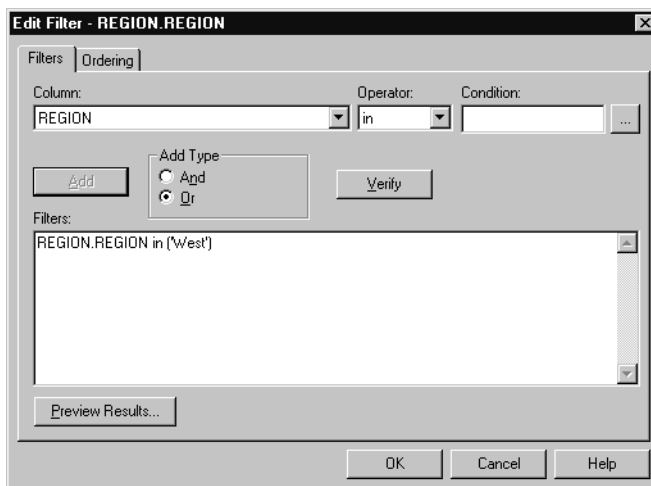


Figure 5-17: Typing a Member Load Filter

To enter a filter, in the **Filters** box, type the filter information according to the following syntax:

TableName.ColumnName Operator Condition

For example, you might type a row filter as follows:

REGION.REGION in ('West')

For a list of valid operators, see the documentation for the data source.

4. Click **Verify** to check the SQL syntax.
5. If you want to define an additional condition on the filter, complete the following steps:
 - a. Repeat steps 4 and 5.
 - b. Review step 8b of the previous procedure, “Creating a Member Filter Interactively” on page 5-14, and complete the steps appropriate to your situation.

6. Click **Preview Results** to open the **Preview Filter Results** dialog box.

In the **Preview Filter Results** dialog box, you can view your changes in a sample Essbase outline. See “Viewing Sample Dimensions, Members, and Essbase Outlines” on page 3-50.

7. Click **OK**.

Creating a Measure Filter Interactively

You can select the parts of a measure filter interactively from list boxes and dialog boxes, or you can type a measure filter. This topic describes how to create a measure filter interactively. To type a measure filter, see “Typing a Measure Filter” on page 5-26.

- To create a measure filter interactively:
 1. In the metaoutline, select the measure to apply to the filter; for example, OPENINGINVENTORY.
 2. Right-click the measure and, from the pop-up menu, select **Filter**.
The **Measure Properties** dialog box is displayed.
 3. Select the **Filters** tab.

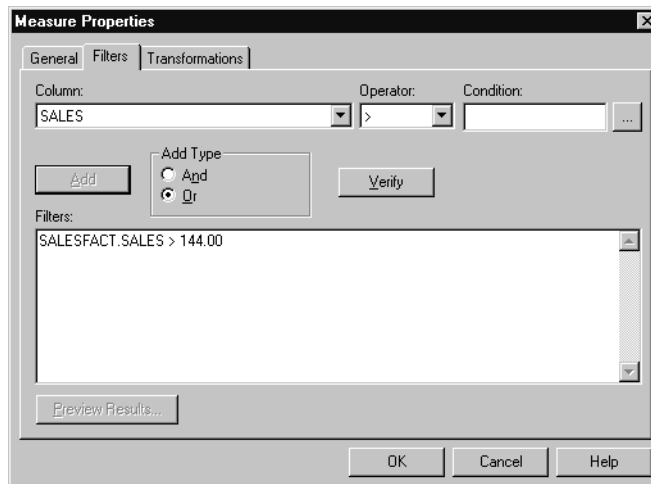



Figure 5-18: Creating a Measure Filter Interactively

4. From the **Column** drop-down list, select the column to which the condition applies; for example, SALES.
5. From the **Operator** drop-down list, select the operator to use.

For a description of all operators, see Table 5-1.

6. To enter a condition, in the **Condition** text box, type the condition; for example, **114**, or complete the following steps:

- a. Click the  button to open the **Select Values From** dialog box.

The **Select Values From** dialog box lists all possible values for the selected column. Essbase Integration Server retrieves the values from the external data source. If the external data source contains many values, a dialog is displayed. The dialog box asks if you want to view them all.

Note: When the database contains hundreds of thousands of records, viewing the values for these records in the **Select Values from** dialog box is impractical. In this case, type the value of interest directly into the **Condition** text box.

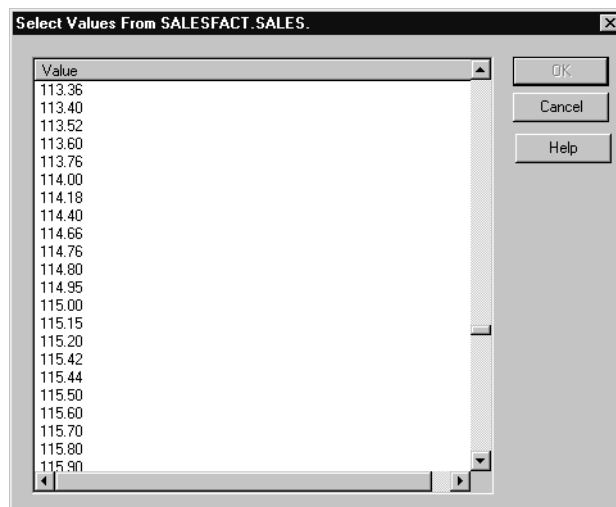


Figure 5-19: Setting Values for Conditions

- b. Select the desired value (such as 114).

To select multiple values, hold down the **Ctrl** key as you select each value.

You can select more than one value only if you have selected **in** or **not in** as the operator. For a description of all operators, see Table 5-1.

- c. Click **OK**.

7. In the **Measure Properties** dialog box, click **Add** to add the condition to the **Filters** list.

8. To define an additional condition on the filter, complete the following steps:

- a. Repeat steps 5 through 7.

- b. Perform one of the following tasks:

- If you want the filter to apply when any one of the listed conditions is met, in the **Add Type** box, select **Or**. **Or** is the default.
- If you want the filter to apply only if all the listed conditions are met, in the **Add Type** box, select **And**.
- If you want to define the order in which the relational data source executes the multiple conditions, in the **Filters** box, enclose the conditions in parentheses.

How you define ordering depends on the relational data source. Consult the documentation for the relational data source.

9. If you want to edit a filter, complete these tasks:

- a. Use the SQL syntax required by the relational data source.

- b. Click **Verify** to check the SQL syntax.

10. Click **Preview Results** to open the **Preview Filter Results** dialog box.

In the **Preview Filter Results** dialog box, you can view your changes in a sample Essbase outline. See “Viewing Sample Dimensions, Members, and Essbase Outlines” on page 3-50.

11. Click **OK**.

Note: If the ***Default** metaoutline filter is still selected, this filter is automatically added to the ***Default** metaoutline filter. For more information, see step 1 of “Creating a Member Filter Interactively” on page 5-14.

Typing a Measure Filter

You can type a measure filter or select the parts of a measure filter interactively from list boxes and dialog boxes. This topic describes how to type a measure filter. To create a measure filter interactively, see “Creating a Measure Filter Interactively” on page 5-23.

- To type a measure filter:
1. Select the measure to apply to the filter; for example, SALES.
 2. Right-click the measure and, from the pop-up menu, select **Filter**.
The **Measure Properties** dialog box is displayed.
 3. Select the **Filters** tab.

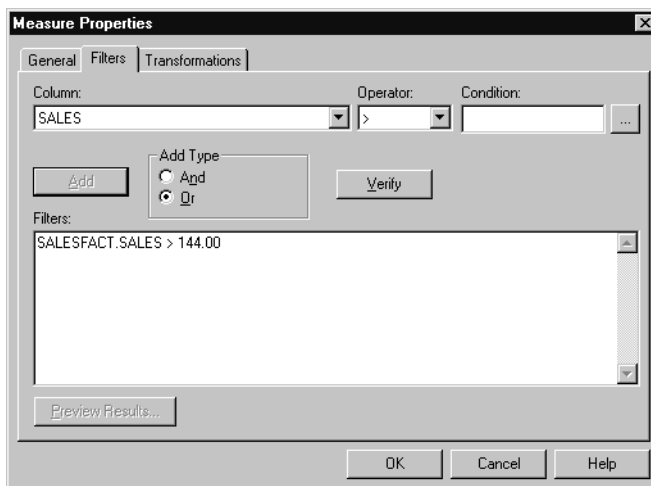


Figure 5-20: Typing a Measure Filter

4. In the **Filters** box, type the filter information according to the following syntax:

TableName.ColumnName Operator Condition

For example, type the following syntax:

SALESFACT.SALES > 114

For a list of valid operators, see the documentation for the data source.

5. Click **Verify** to check the SQL syntax.
6. To define an additional condition on the filter, complete the following steps:
 - a. Repeat steps 4 and 5.
 - b. Perform one of the following tasks:
 - If you want the filter to apply when any one of the listed conditions is met, in the **Add Type** box, select **Or**. **Or** is the default.
 - If you want the filter to apply only if all the listed conditions are met, in the **Add Type** box, select **And**.
 - If you want to define the order in which the relational data source executes the multiple conditions, in the **Filters** box, enclose the conditions in parentheses.

How you define ordering depends on the relational data source. Consult the documentation for the relational data source.

7. Click **Preview Results** to open the **Preview Filter Results** dialog box.

In the **Preview Filter Results** dialog box, you can view your changes in a sample Essbase outline. See “Viewing Sample Dimensions, Members, and Essbase Outlines” on page 3-50.

8. Click **OK**

Note: If the *Default metaoutline filter is still selected, the new filter is automatically added to the *Default metaoutline filter. For more information, see step 1 of “Creating a Member Filter Interactively” on page 5-14.

Creating an Attribute Filter Interactively

Creating an attribute filter follows the same pattern as creating a member filter. To create a member filter interactively, see “Creating a Member Filter Interactively” on page 5-14. To type a member filter, see “Typing a Member Filter” on page 5-21. This topic describes how to create an attribute filter interactively.

➤ To create an attribute filter:

1. Select the metaoutline filter you want to use from the filters drop-down list in the upper left corner of Essbase Integration Services Console.

For example, in Figure 5-21, the filter `large_markets` is selected. (For information on selecting a metaoutline filter, see “Selecting a Metaoutline Filter” on page 5-8).

Select the member you want to use in the attribute dimension. For example, in Figure 5-21, `POPULATION.POPGROUP` under the `POPULATION` attribute dimension is selected.

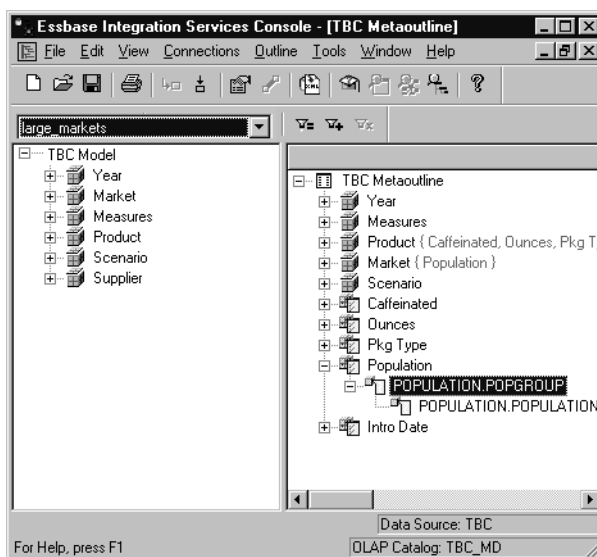


Figure 5-21: Choosing the Attribute Member for a Filter

2. Right-click the selected member, and select Filter from the pop-up menu.
The **Edit Filter** dialog box is displayed.
3. Select the **Filters** tab, shown in Figure 5-22.
4. Select an operator from the operator drop-down menu; for example, =.

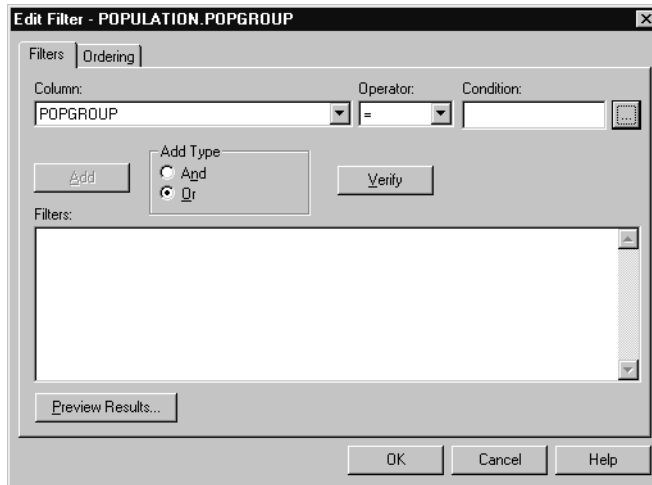



Figure 5-22: Attribute Filter in the Edit Filter Dialog Box

5. Click the conditions button, , to select the condition.
The **Select Values From** dialog box is displayed (see Figure 5-23).

6. In the **Select Values From** dialog box, select the condition you want and click **OK**.

For example, Figure 5-23 shows the **Select Values From** dialog box with the condition **Large** selected.

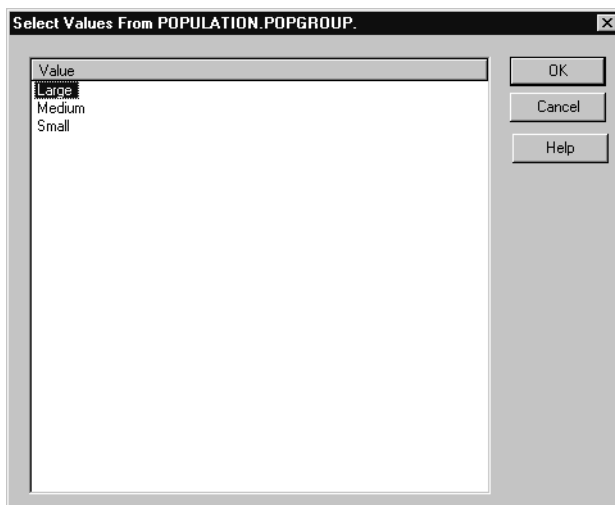



Figure 5-23: Selecting Value for Attribute Conditions

7. Click **Add** in the **Edit Filter** dialog box.
8. Click **OK**.

Note: You can create a filter on any member of the attribute dimension. For example, you can create a filter on POPULATION.POPULATION that appears below POPULATION.POPGROUP in the sample metaoutline.

- To view the new filter:
1. Select the metaoutline filter you want to view from the metaoutline filter drop-down list (see “Viewing the Contents of a Metaoutline Filter” on page 5-12).
 2. Click the **View Filter** button, , on the metaoutline tool bar.
 3. Select the filter, for example, **POPULATION.POPGROUP**, and the filter criteria appear in the lower box of the **View Filter** dialog box.

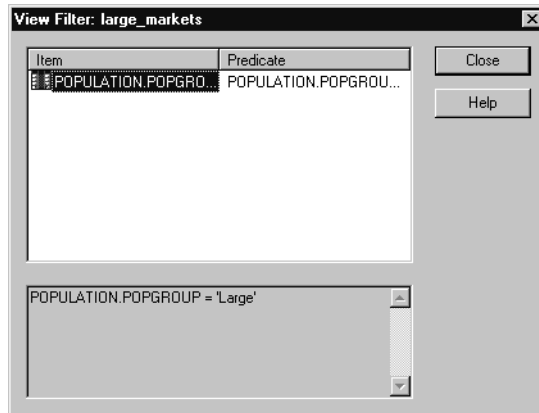


Figure 5-24: New Metaoutline Filter Containing Attribute Member Filter

4. When you finish viewing the **View Filter** dialog box, click **Close**.

Setting Essbase Properties

Essbase Integration Services enables you to set the properties of the dimensions and members of an Essbase outline; for example, you can determine how members consolidate into a dimension. Changes that you make to the properties of dimensions, members, and measures do not affect the Essbase database until you perform a member or data load.

This chapter describes the Essbase properties that you can set and outlines the methods that you use to set them. For more detailed descriptions and examples of Essbase properties, see the *Essbase Database Administrator's Guide*.

This chapter contains the following topics:

- “Understanding the Metaoutline Workflow” on page 6-2
- “Specifying Dimension and Member Properties” on page 6-3
- “Specifying Account Properties” on page 6-18
- “Specifying UDAs” on page 6-24
- “Specifying Formulas” on page 6-26
- “Viewing Essbase Properties” on page 6-28

Note: For information about setting load properties, see Chapter 4, “Setting Load Properties.” For information about setting filters, see Chapter 5, “Working with Filters.”

Understanding the Metaoutline Workflow

Figure 6-1 illustrates the workflow for creating a metaoutline and using the metaoutline to create and load members and data into an Essbase database. This workflow includes the following processes:

- Creating and working with a metaoutline
- Adding dimensions, member levels, and measures to a metaoutline
- Setting load properties, filters, and Essbase properties on dimensions, member levels, and measures in a metaoutline
- Loading dimensions and members from the metaoutline into an Essbase outline
- Loading the data specified in the metaoutline into an Essbase database

This chapter focuses on setting Essbase properties. You can set Essbase properties before or after setting load properties and filters.

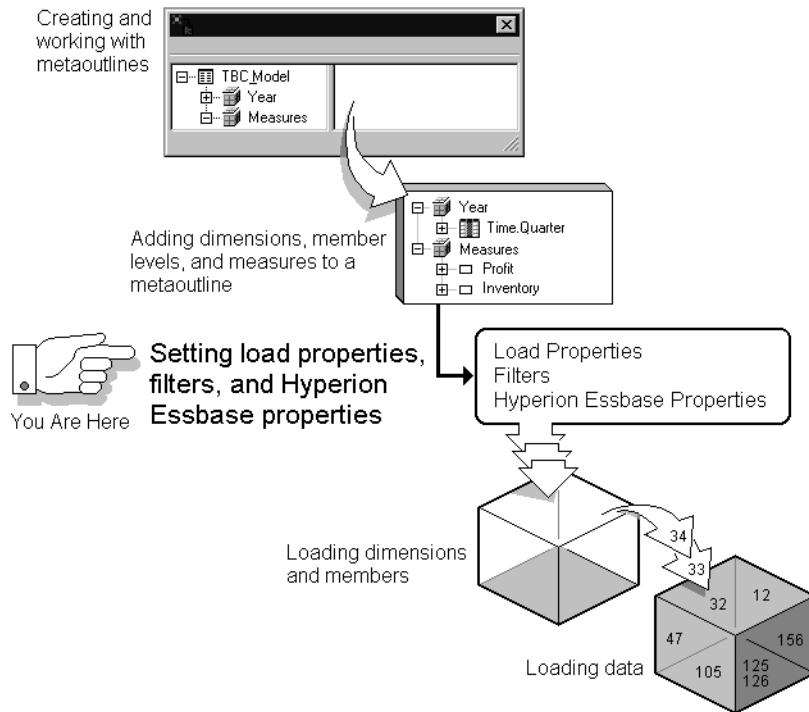


Figure 6-1: Metaoutline Workflow

Specifying Dimension and Member Properties

This topic describes how to set Essbase properties for dimensions and for member levels. It contains the following subtopics:

- “About Dimension Types” on page 6-3
- “Setting a Dimension Type” on page 6-6
- “Specifying Dimension Storage Properties” on page 6-7
- “Specifying Data Storage Properties for Dimensions and Members” on page 6-8
- “Setting Aliases for Dimensions and Members” on page 6-10
- “Specifying Two-Pass Calculation on Dimensions and Members” on page 6-13
- “Specifying Member Consolidation Properties” on page 6-15
- “Setting Members as Dynamic Time Series” on page 6-17

Note: You cannot use the member levels of a metaoutline to create partitions.

About Dimension Types

When you tag a dimension as a specific Essbase type, the dimension can access the built-in functionality that is designed for that type. For example, if you define a dimension type as Accounts, you can specify accounting operations for the member levels of the dimension. By default, Essbase Integration Server tags dimensions tagged as Time or Accounts in the OLAP model as Time or Accounts in the metaoutline. Attribute-enabled columns in the OLAP model are tagged as attribute dimension in the metaoutline. Essbase Integration Server tags all other dimensions as standard.

Note: Naming a dimension Time or Accounts does not automatically tag the dimension as type time or type accounts.

Measures values map to the accounts dimension in the OLAP model, which maps to the measure dimension in the metaoutline, which in turn maps to the accounts dimension in the Essbase outline.

Table 6-1 describes each dimension type.

Table 6-1: Dimension Types

Type	Description
standard	The dimension has no special type.
accounts	<p>Contains items that you want to measure, such as profit or inventory. The dimension tagged as Measures in a metaoutline corresponds to the dimension tagged as Accounts in the related Essbase database.</p> <p>Follow these rules when tagging a Measures (Accounts) dimension in a metaoutline:</p> <ul style="list-style-type: none"> • You can tag only one dimension in a metaoutline as Measures (Accounts). • When you tag a dimension as Measures (Accounts), all members in the dimension inherit the Accounts property. • You can create a metaoutline that does not have a dimension tagged as Measures (Accounts). • Essbase calculates the dimension tagged as Time and the dimension tagged as Accounts before it calculates other dimensions in the database. For more information on calculation, see the <i>Essbase Database Administrator's Guide</i>. • To calculate members of the dimension tagged as Accounts on the second pass through the Essbase outline, see “Specifying Two-Pass Calculation on Dimensions and Members” on page 6-13.

Table 6-1: Dimension Types (Continued)

Type	Description
time	<p>Describes how often you collect and update data. The dimension tagged as Time enables several accounts dimension functions, such as first time balance and last time balance.</p> <p>Follow these rules when tagging a dimension as Time in a metaoutline:</p> <ul style="list-style-type: none"> • You can tag only one dimension in a metaoutline as Time. • When you tag a dimension as Time, all members in the dimension inherit the time property. • You can create multiple hierarchies inside the dimension tagged as Time; for example, you can specify a Year, Quarter, Month hierarchy and a Year, Season hierarchy in the same time dimension. • You can create a metaoutline that does not have a dimension tagged as Time. • You can add time members to a dimension that is not tagged as Time. • Essbase calculates the dimension tagged as Time and the dimension tagged as Accounts before it calculates other dimensions in the database. For more information on calculation, see the <i>Essbase Database Administrator's Guide</i>. • To calculate members of the dimension tagged as Time on the second pass through the Essbase outline, see “Specifying Two-Pass Calculation on Dimensions and Members” on page 6-13.
attribute	<p>Describes characteristics, or attributes, of dimensions and members.</p> <p>Follow these rules when using an attribute dimension in a metaoutline:</p> <ul style="list-style-type: none"> • You can build attribute dimensions in the metaoutline based on attribute-enabled columns in the OLAP model. • Each attribute dimension is associated with a base dimension. This is done automatically when the dimension is created. • You can create a metaoutline that has no attribute dimensions. • To add attribute dimensions and members, see Chapter 3, “Adding Dimensions, Member Levels, and Measures to a Metaoutline,” and Appendix A, “Creating a Sample Metaoutline Containing Attribute Dimensions.”

Setting a Dimension Type

You can determine whether a dimension is tagged as standard, accounts, or time by setting its dimension type.

► To set a dimension type:

1. In the metaoutline, select the dimension for which you want to set the dimension type.
2. Right-click the dimension and, from the pop-up menu, select **Properties** to open the **Dimension Properties** dialog box.

You can also open the dialog box by clicking the **View Properties** button,



, from the toolbar or by selecting **Properties** from the **Edit** menu.

3. Select the **Member Info** tab.

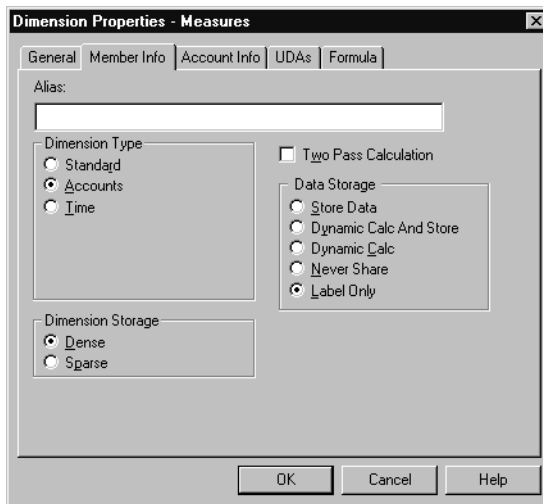


Figure 6-2: Setting a Dimension Type

4. From the **Dimension Type** group, select the type of dimension.

For more information about dimension types, see Table 6-1 and the *Essbase Database Administrator's Guide*.

5. Click **OK**.

Specifying Dimension Storage Properties

You can determine whether a dimension is stored as sparse or dense.

- Use *sparse storage* for a dimension in which a low percentage of available data positions is filled. For example, the sample application TBC Metaoutline includes the Product and Market dimensions. Product represents product units and Market represents geographical regions in which products are sold. Because not every product is sold in every market, Product and Market are sparse dimensions.
- Use *dense storage* for a dimension in which a high percentage of available data positions are filled. For example, in the sample application TBC Metaoutline, time data exists for almost all products in all markets, so Year is a dense dimension.

For more information about dimension storage properties, see the *Essbase Database Administrator's Guide*.

Note: In a metaoutline, you must tag at least one dimension as Dense and one dimension as Sparse.

➤ To set a dimension storage property:

1. In the metaoutline, select a dimension; for example, Measures.
2. Right-click the dimension and, from the pop-up menu, select **Properties** to open the **Dimension Properties** dialog box.

You can also open the dialog box by clicking the **View Properties** button,



, from the toolbar or by selecting **Properties** from the **Edit** menu.

3. Select the **Member Info** tab.

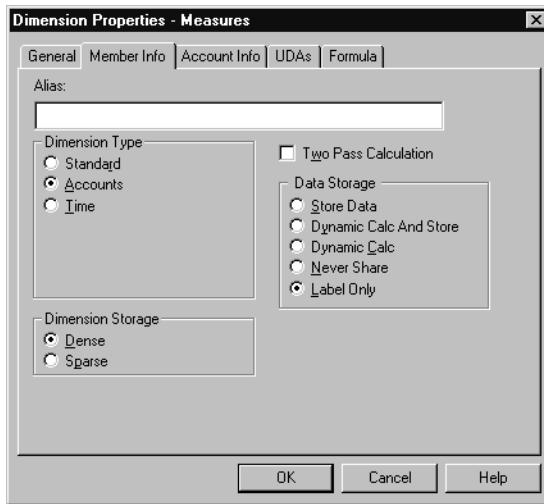


Figure 6-3: Setting Dense or Sparse Dimensions

4. From the **Dimension Storage** group, select **Dense** or **Sparse**.
5. Click **OK**.

Specifying Data Storage Properties for Dimensions and Members

You can determine how and when Essbase stores data values for a dimension and for a member. For example, you can tell Essbase to calculate the value for a member only when a user requests it and then to discard the value. Table 6-2 identifies and describes each storage property.

Table 6-2: Data Storage Properties

Property	Description
Store data	Stores the data value with the member. This property is the default.
Dynamic Calc And Store	Calculates the data value when a user requests it and then stores the data value.

Table 6-2: Data Storage Properties (Continued)

Property	Description
Dynamic Calc	Calculates the data value when a user requests it and then discards the data value.
Never share	Does not allow members to be shared implicitly.
Label only	Creates a member that is used only for navigation. A label only member contains no data value.

➤ To set a data storage property:

1. In the metaoutline, select a dimension or a member level; for example, Measures.
2. Right-click the dimension or the member level and, from the pop-up menu, select **Properties** to open the **Dimension Properties** or **Measure Properties** dialog box.

You can also open the dialog box by clicking the **View Properties** button,



, from the toolbar or by selecting **Properties** from the **Edit** menu.

3. Select the **Member Info** tab.

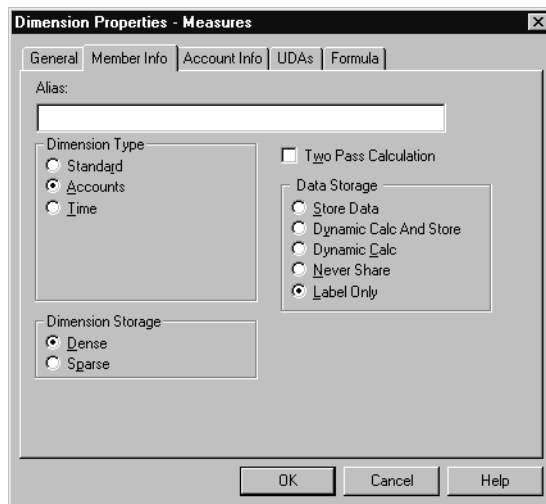


Figure 6-4: Setting Storage Properties

4. From the **Data Storage** group, select the kind of storage to use.

Note: Do not set a dimension or member as shared in the **Dimension Properties** or **Member Properties** dialog box, unless you are certain that *all* members of the relevant dimension are shared members.

For more information about data storage properties, see Table 6-2 and the *Essbase Database Administrator's Guide*.

5. Click **OK**.

Setting Aliases for Dimensions and Members

You can assign an *alias* (alternate name) to a dimension and to a member. The use of aliases improves the readability of Essbase outlines and reports. For example, members in the Essbase outline created by the Product dimension of TBC Metaoutline are identified both by product codes, such as 100-20, and by descriptive aliases, such as Kool Cola.

Because a member level in a metaoutline corresponds to a column of member names in the related OLAP model, an alias in a metaoutline must correspond to a column of alias names in the related OLAP model. TBC Metaoutline, for example, tells Essbase Integration Server to retrieve member names from the FAMILYID column and member aliases from the SKUNAME column.

Table 6-3 shows sample names and aliases in the TBC Metaoutline.

Table 6-3: Sample Member Names and Aliases

FAMILYID	SKUNAME
100-10	Cola
100-20	Diet Cola
100-30	Caffeine Free Cola

You must observe the following rules when creating an alias:

- You cannot perform transformations on members to which you assign aliases. Use OLAP Model to perform needed transformations. See the *Essbase Integration Services OLAP Model User's Guide*.
- If the column in the relational data source that contains the alias names has any value with more than 80 characters (the maximum allowed in Essbase naming rules), you can use the SUBSTRING function in OLAP Model to extract the 80 or fewer characters that you want to use in the alias name. See the *Essbase Integration Services OLAP Model User's Guide*.
- You must create the alias column in the external data source in advance. See the *Essbase Integration Services OLAP Model User's Guide* and the documentation for the external data source.
- If you want to assign aliases to recursive members, the alias column must be in the same physical table as the recursive members. For more information on recursive members, see “Creating Recursive Dimensions” on page 3-17.

➤ To assign an alias to a dimension or member:

1. In the metaoutline, select the dimension or member level.
2. Right-click the dimension or member level and, from the pop-up menu, select Properties to open the **Dimension Properties** or **Member Properties** dialog box.

You can also open the dialog box by clicking the **View Properties** button,



, from the toolbar or by selecting Properties from the Edit menu.

3. Select the **Member Info** tab.

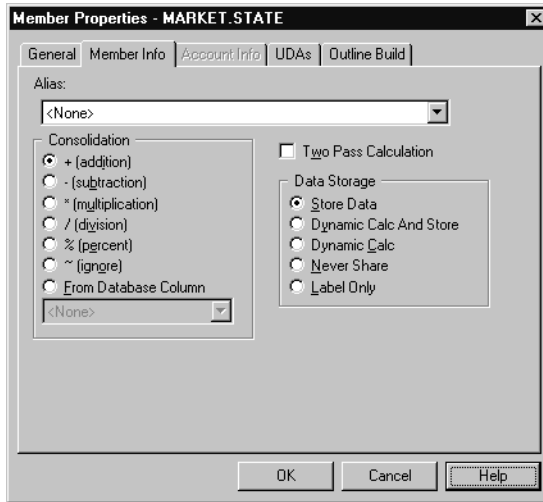


Figure 6-5: Assigning Aliases

4. Perform one of the following tasks:

- If you are assigning an alias to a metaoutline member level, from the **Alias** drop-down list, select the column that contains the aliases.
- If you are assigning an alias to a dimension or a user-defined member, in the **Alias** text box, enter the alias name.

When you assign an alias to a dimension or a user-defined member, the **Alias** drop-down list box changes to a text box.

See “About Naming” on page 3-8.

Note: Do not set a dimension or member as shared in the **Dimension Properties** or **Member Properties** dialog box unless you are certain that *all* members of the relevant dimension are shared members.

5. Click **OK**.

Specifying Two-Pass Calculation on Dimensions and Members

By default, Essbase calculates outlines from the bottom up—calculating first the values for the children and second the value for the parent. Sometimes, however, the value of a child depends upon the value of the parent or the value of another member in the Essbase outline. To obtain the correct values for dependent dimensions and members, Essbase must calculate the outline and then recalculate the dimensions and members that are dependent on the calculated values of other dimensions and members. Dimensions and members that are calculated on the second pass through the Essbase outline are called *two-pass calculations*.

For example, to calculate the ratio between Sales and Margin, Essbase needs to calculate Margin (a parent member based on its children, including Sales). To ensure that the ratio calculation is based on a newly calculated Margin figure, tag the Margin% ratio member as a two-pass calculation. Essbase calculates the database and then recalculates the Margin% member. The second calculation produces the correct result.

Note: Although two-pass calculation is a property that you can give to any member, it works only on members of Accounts dimensions, Dynamic Calc members, and Dynamic Calc and Store members. If you assign two-pass calculation to other members, Essbase ignores it.

- To tag a dimension or member to use two-pass calculation:
 1. In the metaoutline, select the dimension or member level.
 2. Right-click the dimension or member level and, from the pop-up menu, select **Properties** to open the **Dimension Properties** or **Member Properties** dialog box.

You can also open the dialog box by clicking the **View Properties** button,



, from the toolbar or by selecting **Properties** from the **Edit** menu.

3. Select the **Member Info** tab.

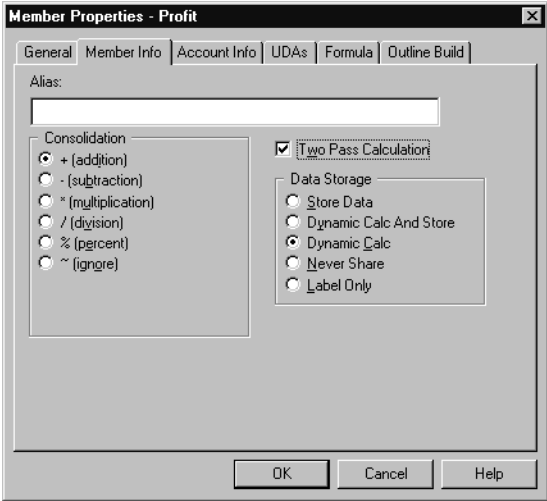


Figure 6-6: Specifying Two-Pass Calculation

4. Select **Two Pass Calculation**.

For more information about two-pass calculation, see the *Essbase Database Administrator's Guide*.

5. Click **OK**.

Specifying Member Consolidation Properties

Member consolidation properties determine how children roll up into their parents. By default, new members are given the addition (+) operator, meaning that Essbase adds the members. For example, Essbase adds January, February, and March figures and stores the result in their parent, Qtr1. Table 6-4 describes each consolidation operator.

Table 6-4: Member Consolidation Properties

Operator	Description
+	Adds the member to the result of calculations performed on other members. This operator is the default operator.
-	Multiplies the member by -1 and then adds the result to the result of calculations performed on other members.
*	Multiplies the member by the result of calculations performed on other members.
/	Divides the member into the result of calculations performed on other members.
%	Divides the member into the result of previous calculations performed on other members and multiplies the result by 100 to yield a percentage value.
~	Does not use the member in the consolidation to its parent.
From Database Column	Uses the consolidation value (+, -, *, /, %, ~) of the selected column of the data source. This option is not selectable for measure columns in the metaoutline.

- To set the consolidation operator of a member:
 1. In the metaoutline, select a member level; for example, `PRODUCT_DESC`.
 2. Right-click the member level and, from the pop-up menu, select **Properties** to open the **Member Properties** dialog box.

You can also open the dialog box by clicking the **View Properties** button,



, from the toolbar or by selecting **Properties** from the **Edit** menu.

3. Select the **Member Info** tab.

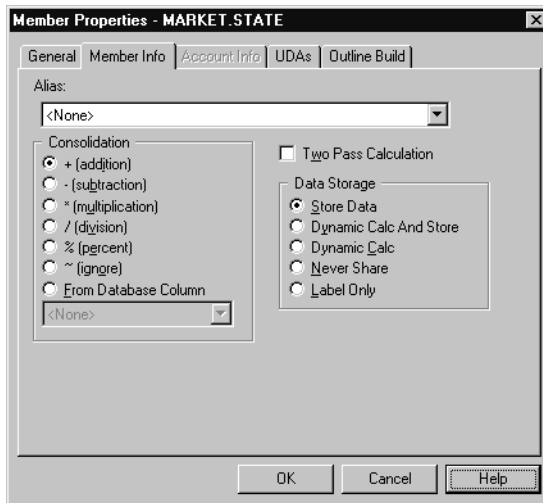


Figure 6-7: Choosing Member Consolidation

4. From the **Consolidation** group, select the appropriate consolidation operator.
For more information about member consolidation, see Table 6-4 and the *Essbase Database Administrator's Guide*.
5. Click **OK**.

Setting Members as Dynamic Time Series

You can calculate period-to-date values dynamically in an Essbase database by tagging specific members as Dynamic Time Series. For example, you can enable dynamic calculation of Essbase quarter-to-date values by setting the Quarter member of the Year dimension of the related metaoutline as Dynamic Time Series. For more information about Dynamic Time Series members, see the *Essbase Database Administrator's Guide*.

Note: To tag values in a metaoutline as Dynamic Time Series, you must set the date-part of the column that contains the time data of the related OLAP Model. See the *Essbase Integration Services OLAP Model User's Guide*.

Note: Dynamic Time Series members can not be at level 0 (leaf level) of the metaoutline.

- To tag a member as Dynamic Time Series:
 1. In the metaoutline, select the member level; for example, Month.
 2. Right-click the member level and, from the pop-up menu, select **Properties** to open the **Member Properties** dialog box.

You can also open the dialog box by clicking the **View Properties** button,



, from the toolbar or by selecting **Properties** from the **Edit** menu.

3. Select the **Member Info** tab.

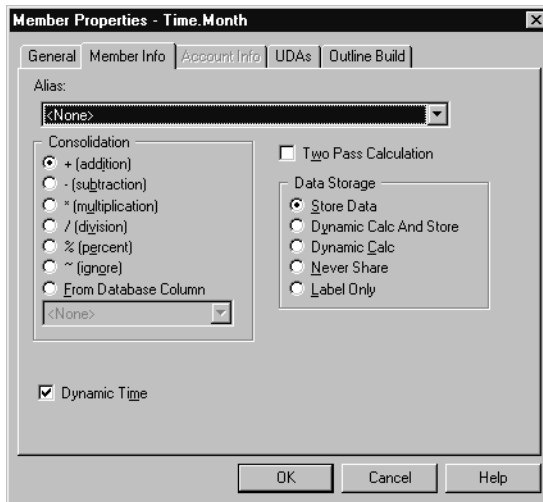


Figure 6-8: Setting a Member as Dynamic Time Series

4. Select **Dynamic Time**.

5. Click **OK**.

Specifying Account Properties

Only the dimension tagged as accounts and the members of the dimension tagged as accounts can access the built-in accounting functionality provided by Essbase. This topic contains the following subtopics that describe accounts dimension properties:

- “Specifying Time Balance Properties” on page 6-19
- “Specifying Variance Reporting Properties” on page 6-22

Specifying Time Balance Properties

By default, Essbase bases the calculation of a parent of the Year dimension on the consolidation properties and formulas of the children of the parent. For example, the Qtr1 member is, by default, the sum of the children January, February, and March.

If, instead of a sum, you need a beginning, ending, or average value for a time period, you can select the appropriate time balance property for the appropriate member of the Accounts dimension. When you set a time balance property on a member of the Accounts dimension, the property affects how Essbase calculates the accounts member across the Year dimension.

For example, if you want Opening Inventory for Qtr1 to reflect the beginning inventory value for Qtr1, set a time balance property of first on the accounts member Opening Inventory. When Opening Inventory is calculated across the Year dimension, Qtr1 becomes equal to Jan (the first child in the Qtr1 hierarchy).

Table 6-5 summarizes time balance properties.

Table 6-5: Time Balance Properties

Property	Description
None	This property is the default value. When you set the time balance property as None, Essbase rolls up parents in the time dimension in the usual way—the value of a parent is based on the formulas and consolidation properties of children of the parent.
First	Set the time balance as First when you want the parent value to represent the value of the first member in the branch (often at the beginning of a time period).
Last	Set the time balance as Last when you want the parent value to represent the value of the last member in the branch (often at the end of a time period).
Average	Set the time balance as Average when you want the parent value to represent the average of the children values.

If you set the time balance as First, Last, or Average, you must set the skip property to tell Essbase what to do when it encounters missing values or values of 0. Table 6-6 describes each skip property.

Table 6-6: Skip Properties

Property	Description
None	Does not skip data when calculating the parent value. This property is the default value. However, if Essbase encounters #MISSING data when calculating an average, it does not divide by the total number of members. It divides by the number of members with data values. Therefore, setting the skip property to None or #MISSING does not affect average (but does affect first and last).
Missing	Skips #MISSING data when calculating the parent value.
Zeros	Skips data that equals zero when calculating the parent value.
Missing and zeros	Skips both #MISSING data and data that equals zero when calculating the parent value.

► To set a time balance property for a member:

1. In the metaoutline, select the member level; for example, OPENINGINVENTORY.
2. Right-click the member level and, from the pop-up menu, select **Properties** to open the **Member Properties** dialog box.

You can also open the dialog box by clicking the **View Properties** button,



, from the toolbar or by selecting **Properties** from the **Edit** menu.

3. Select the **Account Info** tab.

If the options in the **Account Info** tab are not selectable, the dimension that the member belongs to is not tagged as Accounts. To tag a dimension as Accounts, see “Setting a Dimension Type” on page 6-6.

The **Account Info** tab is not selectable for non-account type dimensions and members.



Figure 6-9: Setting Time Balance Properties

4. From the **Time Balance** group, select the property that you want to use; for example, **First**.
5. If you set the time balance as First, Last, or Average, set the appropriate **Skip** property.
6. Click **OK**.

Specifying Variance Reporting Properties

Variance reporting properties determine how Essbase calculates the difference between actual and budget data for a member whose formula includes an @VAR or an @VARPER function. Any member that represents an expense to the company requires an expense property. For more information about functions in formulas, see “Specifying Formulas” on page 6-26.

Table 6-7 describes the two variance reporting properties: expense and non-expense.

Table 6-7: Variance Reporting Properties

Property	Description
Expense	For expense items, actual expenses should be lower than budgeted expenses. When actual expenses are greater than budgeted expenses, variance is negative. The @VAR function calculates $BUDGET - ACTUAL$. For example, if budgeted expenses are \$100 and actual expenses are \$110, the variance is -10.
Non-expense	For non-expense items, such as sales, actual should be higher than budget. When actual is less than budget, variance is negative. The @VAR function calculates $ACTUAL - BUDGET$. For example, if budgeted sales are \$100 and actual sales are \$110, the variance is 10. By default, members are non-expense.

- To set the variance reporting property of a member:
 1. In the metaoutline, select the member level; for example, **MARKETING**.
 2. Right-click the member level and, from the pop-up menu, select **Properties** to open the **Member Properties** dialog box.

You can also open the dialog box by clicking the **View Properties** button,



, from the toolbar or by selecting **Properties** from the **Edit** menu.

3. Select the **Account Info** tab.

If the options in the **Account Info** tab are not selectable, the dimension that the member belongs to is not tagged as Accounts. To tag a dimension as Accounts, see “Setting a Dimension Type” on page 6-6.

The **Account Info** tab is not selectable for non-account type dimensions and members.

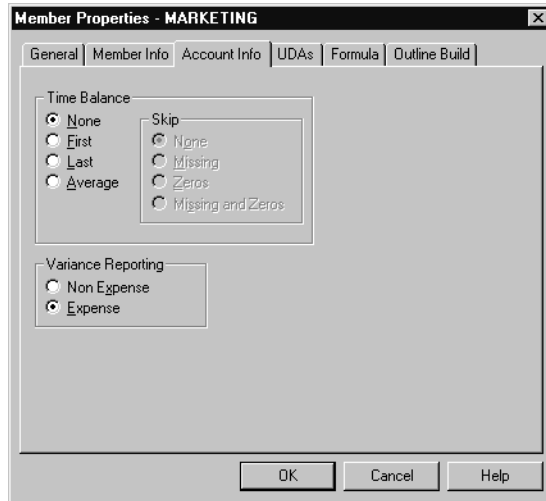


Figure 6-10: Tagging Members as Expense or Non-Expense

4. From the **Variance Reporting** group, select **Non Expense** or **Expense**.

For more information about variance reporting, see Table 6-7 and the *Essbase Database Administrator's Guide*.

5. Click **OK**.

Specifying UDAs

You can create your own UDAs (user-defined attributes) for members. A *UDA* is a word or phrase about a member. For example, you might create a UDA called Big Market to identify any market that sells more than a certain amount. Use UDAs in calculation scripts and report scripts. For a comparison of UDAs and attributes, see “Comparison of UDAs and Attributes” on page 3-25. For more information, see the *Essbase Database Administrator’s Guide*.

Understanding Rules for UDAs

When creating UDAs, keep the following guidelines in mind:

- You can define multiple UDAs on a single member.
- You cannot define the same UDA twice on the same member.
- You can define the same UDA on different members.
- A UDA can use the same name as a member, alias, level, or generation. When you name UDAs, follow the same naming rules as for members. See “About Naming” on page 3-8.
- If you are using DB2 OLAP server, you can specify an anchor dimension by setting a UDA of RELANCHOR on the appropriate dimension.
- You cannot create a UDA on Essbase shared members.
- A UDA applies to only a specified member. Descendants and ancestors of the member do not automatically receive the UDA.

Defining a UDA

► To define a UDA:

1. In the metaoutline, select the member level for which to define the UDA; for example, REGION.
2. Right-click the member level and, from the pop-up menu, select **Properties** to open the **Member Properties** dialog box.

You can also open the dialog box by clicking the **View Properties** button,



, from the toolbar or by selecting **Properties** from the **Edit** menu.

3. Select the **UDAs** tab.




Figure 6-11: Defining UDAs

4. If you want to define the UDA, select **Value** and in the **Value** text box, enter the UDA.

5. If you want Essbase Integration Server to retrieve the UDA from a column in the relational data source, select **From Database Column** and, from the drop-down list, select the desired column.

If the UDA in the relational data source has more than 80 characters, you can use the SUBSTRING function in OLAP Model to extract the characters (a maximum of 80) that you want to use in the UDA. See the *Essbase Integration Services OLAP Model User's Guide*.

6. Click **Add to List** to add the UDA to the **Existing UDAs** list.
The **Existing UDAs** box displays all UDAs for the selected member.
7. If you want to delete a UDA, in the **Existing UDAs** list, select the UDA, and click the **Delete** button, .
8. If you want to add another UDA to the member, repeat steps 4 through 6.
9. Click **OK**.

Specifying Formulas

You can associate formulas with dimensions, user-defined members, and measures. A *formula* determines how Essbase calculates data in an Essbase database. For more information about formulas, see the *Essbase Database Administrator's Guide* and the functions section of the *Essbase Quick Technical Reference*.

- To add a formula to a dimension or member:
 1. In the metaoutline, select the dimension or member level to which to add the formula; for example, PROFIT%.
 2. Right-click the member level and, from the pop-up menu, select **Properties** to open the **Dimension Properties** or **Member Properties** dialog box.

You can also open the dialog box by clicking the **View Properties** button,



, from the toolbar or by selecting **Properties** from the **Edit** menu.

3. Select the **Formula** tab.

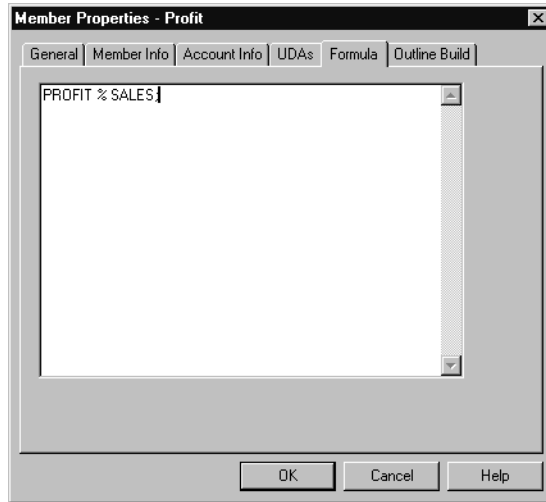


Figure 6-12: Typing Formulas

4. In the edit field, enter the formula. Be sure to end the formula with a semicolon (;); for example, **PROFIT % SALES;**

Note: The % sign in Essbase formulas performs percentage operations.

5. Click **OK**.

Essbase Integration Server does not validate the formula. Errors in the formula are not displayed in the log file until Essbase Integration Server calculates the Essbase database. See the *Essbase Integration Services System Administrator's Guide* for more information on the Essbase Integration Server log file. For more information about formula options and built-in functions, see the *Essbase Database Administrator's Guide*.

Viewing Essbase Properties

You can customize the view of the OLAP Metaoutline main window to display Essbase properties in either columnar or condensed format. Columnar format places Essbase properties under column headings, and condensed format places properties in parentheses and to the right of the dimension or member name. Default Essbase settings are not displayed.

- To display Essbase properties in columnar format:
1. In the metaoutline, select a dimension, member level, or outline; for example TBC Metaoutline.
 2. Select **View > Display Essbase Properties**.
 3. If **Display as Columns** is not selected, select it.
The columnar format view is the default.
 4. To determine which properties to display, from the submenu, select any of the following items:
 - **Consolidation Objects:** Displays consolidation properties, such as +, -, and %.
 - **Formula Objects:** Displays the assigned formula.
 - **Dimension Type:** Displays the dimension type: time or accounts.
 - **Alias:** Displays aliases.
 - **Member Properties:** Displays member properties, such as storage type, two-pass calculation, dynamic time, time balance and variance reporting properties, and UDAs.

The metaoutline is displayed in columnar format and the properties that you selected are displayed.

5. If you want to display all Essbase properties, select **All**.

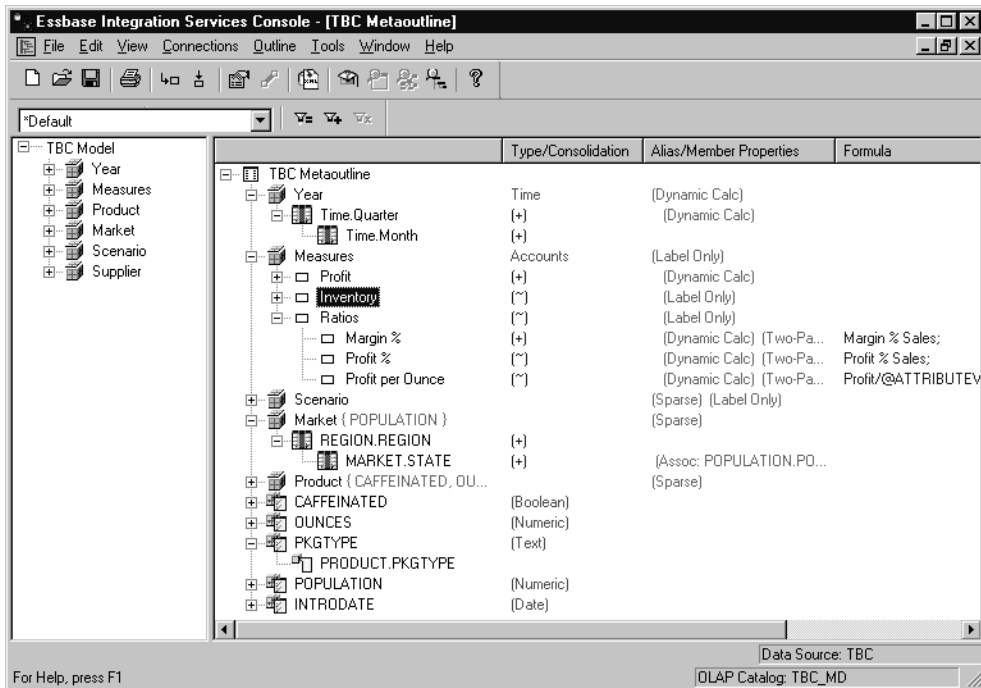


Figure 6-13: Viewing Essbase Properties in Column Format

When the Display as Columns command is deselected, the columnar format view is replaced by the condensed format view, as shown in Figure 6-13. To return to the columnar format view, select **Display as Columns**.

- To display Essbase properties in condensed format:
 1. Select a dimension, member level, or outline; for example TBC Metaoutline.
 2. Select **View > Display Essbase Properties**.
 3. If **Display as Columns** is selected, deselect it.

4. To determine which properties to display, from the submenu, select any of the following items:

- **Consolidation Objects:** Displays consolidation properties, such as +, -, and %.
- **Formula Objects:** Displays the assigned formula.
- **Dimension Type:** Displays the dimension type: Time or Accounts.
- **Alias:** Displays aliases.
- **Member Properties:** Displays member properties, such as storage type, two-pass calculation, dynamic time, time balance and variance reporting properties, or UDAs.

The metaoutline is displayed in condensed format and the properties that you selected are displayed.

5. If you want to display all Essbase properties, select **All**.

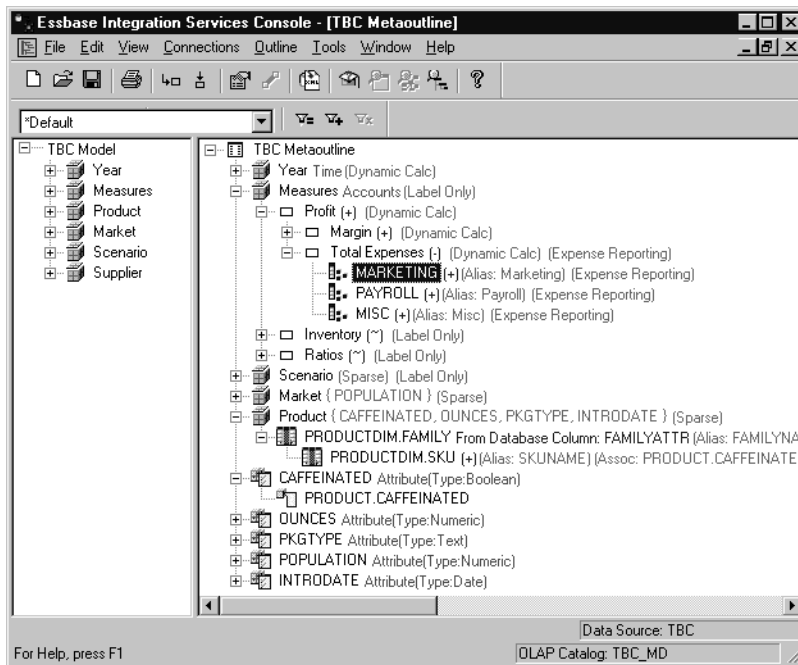


Figure 6-14: Viewing Essbase Properties in Condensed Format

To return to the columnar format view, select **Display as Columns**.

Loading Dimensions and Members

This chapter describes how to use a metaoutline to add dimensions and members to a related Essbase outline, a process also referred to as *member load*. First, the chapter describes everything that you need to do before starting a member load, such as connecting to the appropriate servers and setting query governors. Then, the chapter steps you through the member load process that you must follow to create or update the Essbase outline.

This chapter contains the following topics:

- “Understanding the Metaoutline Workflow” on page 7-2
- “About Loading” on page 7-3
- “About Naming Applications and Databases” on page 7-4
- “Procedure 1: Preparing to Load Members” on page 7-4
- “Procedure 2: Starting a Member Load” on page 7-8
- “Procedure 3: Loading Members Immediately” on page 7-13
- “Procedure 4: Scheduling a Member Load” on page 7-17
- “Viewing Scheduled Member and Data Loads” on page 7-19
- “Deleting Scheduled Member and Data Loads” on page 7-22

If you are not sure how to view an Essbase outline, see the *Essbase Database Administrator's Guide*.

To load data into an Essbase outline, see Chapter 8, “Loading Data.”

Understanding the Metaoutline Workflow

Figure 7-1 illustrates the workflow for creating a metaoutline and using the metaoutline to create and load members and data into an Essbase database. This workflow includes the following processes:

- Creating and working with a metaoutline
- Adding dimensions, member levels, and measures to a metaoutline
- Setting load properties, filters, and Essbase properties on dimensions, member levels, and measures in a metaoutline
- Loading dimensions and members from the metaoutline into an Essbase outline
- Loading the data specified in the metaoutline into an Essbase database

This chapter focuses on loading dimensions and members from a metaoutline into an Essbase outline.

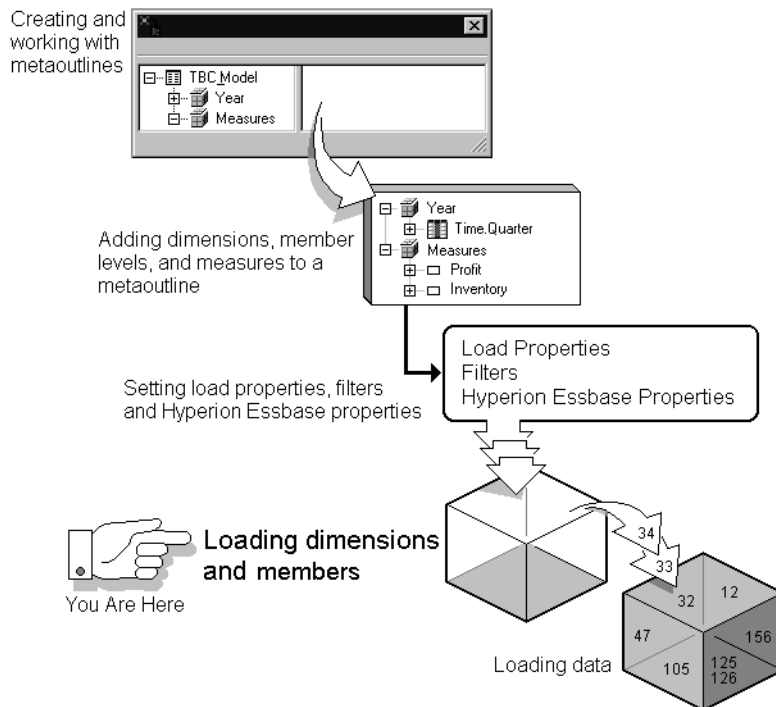


Figure 7-1: Metaoutline Workflow

About Loading

When you perform a load, Essbase Integration Server performs the following tasks:

- It retrieves information from OLAP Metadata Catalog and uses the information to generate SQL statements that specify how and what to retrieve from the external data source.
- It retrieves data from the external data source.
- It performs on the retrieved data the transformations specified in the OLAP model and the metaoutline.
- It loads the transformed data into the specified Essbase application and database. If no Essbase application and database exist for a member load, Essbase Integration Server creates an application and database.

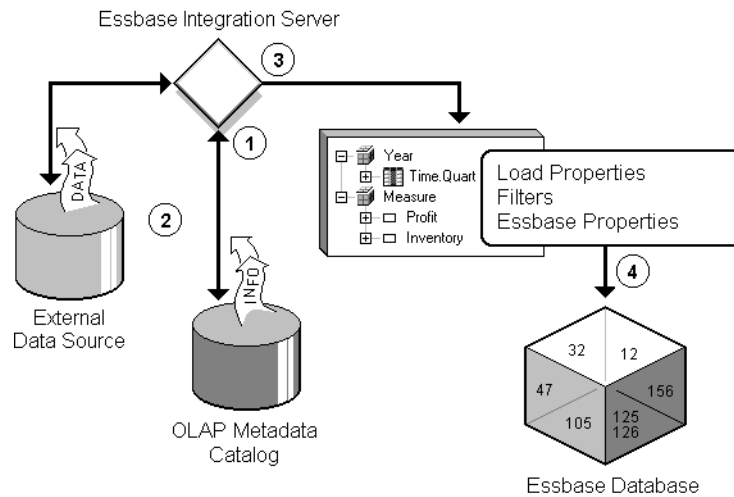


Figure 7-2: Loading Process

About Naming Applications and Databases

When naming applications and databases, follow these rules:

- Use no more than 8 characters.
- Do not use the following special characters anywhere in the name:

*	(asterisk)	<	(less than sign)
\	(backslash)	>	(greater than sign)
[]	(brackets)	.	(period)
:	(colon)	+	(plus sign)
,	(comma)	?	(question mark)
=	(equal sign)	"	(double quotation mark)
;	(semicolon)	'	(single quotation mark)
	(vertical bar)		

- Do not use spaces anywhere in the name.

Procedure 1: Preparing to Load Members

Before you start a member load, you must perform the following procedure:

1. Connect to the Essbase OLAP server computer on which you want to create or change the Essbase outline.

See the *Essbase Integration Services Installation Guide* for information on starting Essbase Integration Services Console.

2. If needed, set query governors to control the duration and the size of the queries that Essbase Integration Services makes to the data source.

See “Using Query Governors” on page 7-5.

3. If needed, select a metaoutline filter to use for performing the load.


See “Viewing the Contents of a Metaoutline Filter” on page 5-12.

Using Query Governors

A *query governor* controls the duration and the size of the queries that Essbase Integration Server makes to the data source. A query governor prevents you from retrieving more data from the external data source than you want or need. If you set a query governor, Essbase Integration Server stops the query when it is taking too long or retrieving too much data.

For example, if you set the maximum retrievable rows to 200, Essbase Integration Server retrieves approximately 200 rows. If the query calls for more than 200 rows, Essbase Integration Server stops the query and displays an error message. Remember that viewing more than 10,000 rows is difficult for spreadsheet users.

CAUTION: Whether Essbase Integration Server loads the retrieved rows before stopping the query depends on the Isolation Level setting in the Essbase database. For more information, see the *Essbase Database Administrator's Guide*.

- To set a query governor:
1. In the metaoutline, select the metaoutline name, and choose one of the following options to display the **OLAP Metaoutline Properties** dialog box:
 - Right-click the metaoutline name, and select **Properties** from the pop-up menu.
 - From the toolbar, click the **View Properties** button,  .

2. Select the **Governors** tab.

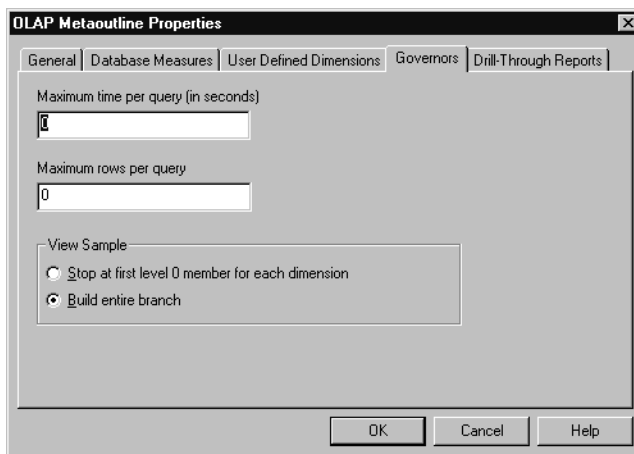


Figure 7-3: Setting a Query Governor

3. In the **Maximum time per query (in seconds)** text box, enter the maximum query time.

For example, to stop a query that takes longer than 100 seconds, type **100**.

4. In the **Maximum rows per query** text box, enter the maximum number of rows to retrieve.

For example, to stop a query that retrieves more than 200 rows, type **200**.

CAUTION: Whether or not Essbase Integration Services loads the retrieved rows before stopping the query depends on the Isolation Level setting in the Essbase database. For more information, see the *Essbase Database Administrator's Guide*.

5. If you are setting a query governor to view a sample outline or dimension, perform one of the following tasks:
 - Select **Stop at first level 0 member for each dimension** to see the structure of an Essbase outline or the structure of a dimension without including all members. A level 0 member is a leaf level member; that is, a member with no hierarchy of members below it.
 - Select **Build entire branch** to view a dimension as it is displayed in the Essbase outline. If the number that you enter for the duration or the size of the query is smaller than the entire branch, Essbase Integration Server stops when it reaches the duration or size limit.

Essbase Integration Server truncates sample outlines if they contain more than 32,767 members.

Note: If there is a shared member in the dimension, set the query governor to **Build entire branch**.

6. Click **OK**.

Procedure 2: Starting a Member Load

When you have performed the appropriate preparation steps, you are ready to start the member load.

➤ To load members:

1. Make sure that you perform the tasks described in “Procedure 1: Preparing to Load Members” on page 7-4. From the menu bar, select **Outline > Member Load**.

The **Essbase Application and Database** dialog box is displayed.

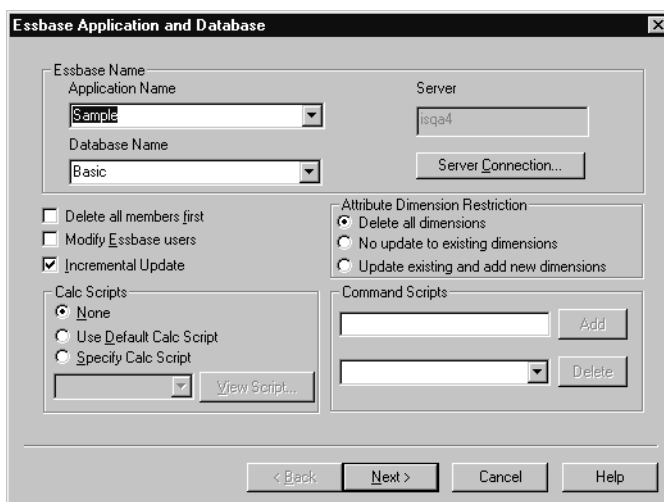


Figure 7-4: Choosing the Essbase Application and Database

2. Complete one of the following actions:

- If you are creating a new Essbase application and database, in the **Application Name** and **Database Name** text boxes, enter the names of the application and database.

See “About Naming Applications and Databases” on page 7-4.

Essbase application and database names must be unique and must consist of no more than eight characters. It is recommended that database and application names start with a capital letter.

- If you are using an existing Essbase application or database, select the names that you want from the appropriate lists.

3. If you want to delete all dimensions and members in an existing Essbase outline, select **Delete all members first**.

When you delete all members, Essbase Integration Server removes all members from the existing Essbase outline and then uses the member levels of the metaoutline to recreate the database. Because deleting all members is slower than creating or updating an Essbase outline without deleting all members, delete all members first only if you have a specific reason to do so. You should delete all members if, for example, you know that some members have been removed from the OLAP model and you want to build a smaller Essbase outline that contains the smaller set of members.

4. If you want to determine which Essbase users can access the Essbase application and database into which you are loading members, complete the following steps:
 - a. Select **Modify Essbase users**.

When you select **Modify Essbase users**, the **Essbase Users** dialog box is displayed. The list boxes show all available and selected Essbase users:

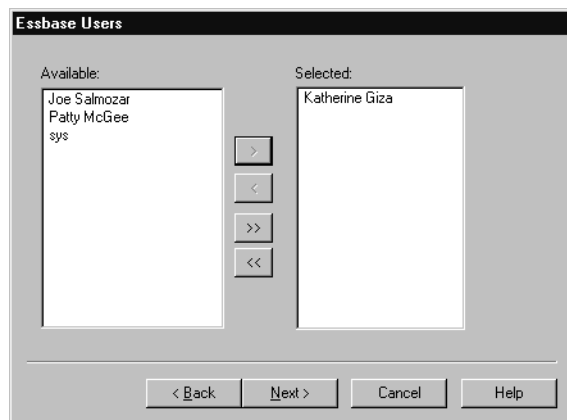




Figure 7-5: Selecting Essbase Users

Essbase Integration Server retrieves the list of available users from the locations described in Table 7-1:

Table 7-1: Retrieval Locations of Specified Essbase Integration Services Users

Type of Application or Database	Retrieval Location
New application	The Essbase OLAP server. All of the users can create new applications and databases on the Essbase OLAP server; for example, <code>sys</code> .
Existing application	The Essbase application.
New database	The Essbase application.
Existing database	The Essbase database.

- b. In the **Available** list box, select a user to whom you want to give access.
- c. Click the  button to move the selected user to the **Selected** list box.
- d. When the names of all users who should access the Essbase application and database are in the **Selected** list box, click **Next**.

Tip: If you want to give access to all available users, you need only to click the  button.

5. If you want to select specific dimensions not to update, select **Incremental Update**.

By default, Essbase Integration Server updates all dimensions and members. Updating an existing Essbase outline incrementally is faster than updating all dimensions and members.

6. If you have selected **Incremental Update**, and the metaoutline contains attribute dimensions, select one of the options under **Attribute Dimension Restriction**:
 - a. **Delete all dimensions** deletes all attribute dimensions after the update.
 - b. **No update to existing dimensions** does not change attribute dimensions while updating other areas.
 - c. **Update existing and add new dimensions** updates all changes to attributes.

7. Click **Next**.

The **Incremental Update** dialog box is displayed:

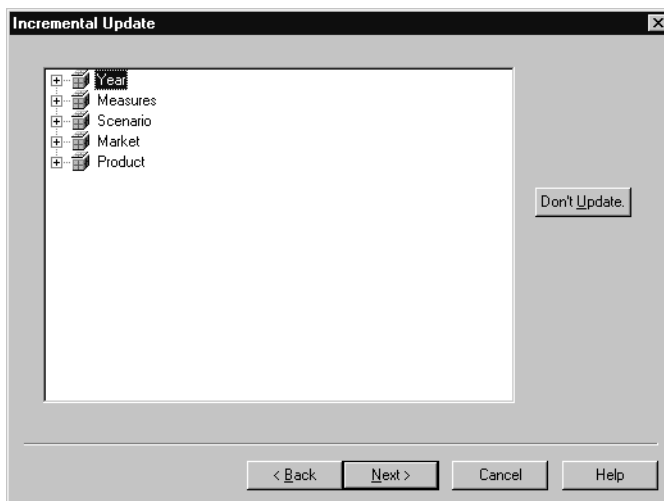


Figure 7-6: Updating Essbase Outlines Incrementally

- a. To prevent Essbase Integration Server from updating a dimension or member, select the dimension or member and click **Don't Update**.
A red **X** appears on the dimension that will not be updated.
 - b. When you have marked all dimensions and members that Essbase Integration Server should not update, click **Next**.
8. Proceed to “Procedure 3: Loading Members Immediately” on page 7-13 or to “Procedure 4: Scheduling a Member Load” on page 7-17.



You can use the **LOADMEMBER** command in Essbase Integration Services Shell to load members. For more information about the **LOADMEMBER** command, see the *Essbase Integration Services System Administrator's Guide*.

9. Select the calculation script to use to calculate the Essbase database from the choices described in Table 7-2.

Table 7-2: Selecting a Calculation Script

Selection	Result
None	Essbase Integration Server does not run a calculation script on the Essbase database.
Default	Essbase Integration Server runs the default calculation script that is specified for the Essbase database. If you have not specified a calculation script to use as the default, Essbase uses standard calculation order to calculate the database.
Any other calculation script	Essbase Integration Server runs the selected calculation script on the Essbase database.

The calculation script that you choose is run after Essbase Integration Server loads data into the Essbase database. The calculation script determines how Essbase calculates the data values in the database.

For more information on calculation and on calculation scripts, see the *Essbase Database Administrator's Guide*.

Procedure 3: Loading Members Immediately

You can schedule a member load to start immediately or to start at a specific date and time. If you choose to start a member load immediately, the Member Load dialog box is displayed. The dialog box provides you with dynamic status information about the member load and specific messages for any errors or warnings that may occur. If you encounter an error during the load, you can stop the member load. Essbase Integration Services executes member loads on the computer that is running Essbase Integration Server.

► To load members immediately:

1. Make sure that you perform the tasks described in “Procedure 2: Starting a Member Load” on page 7-8.

After you complete the appropriate dialog boxes, as directed in “Procedure 2: Starting a Member Load” on page 7-8, and click **Next**, the **Schedule Essbase Load** dialog box is displayed:

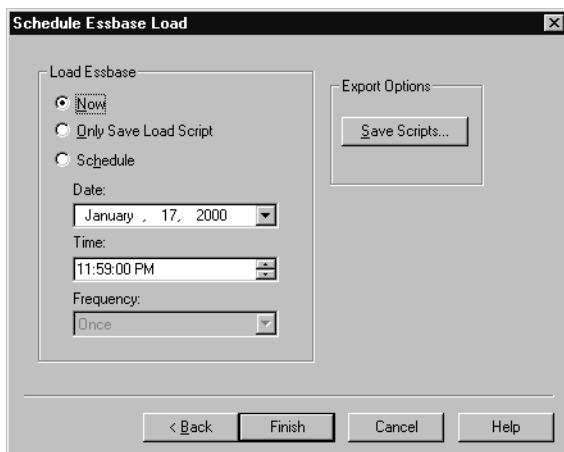


Figure 7-7: Loading Members Immediately

2. If you want to save the script to a different name or change the name of the script, click **Save Scripts**.

The **Save Script As** dialog box is displayed:

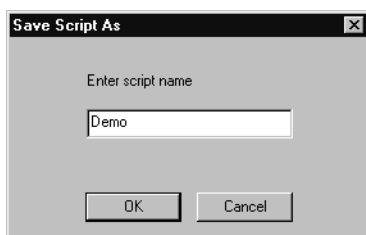


Figure 7-8: Saving a Script

- a. Enter the new script name.
- b. Click **OK** to return to the **Schedule Essbase Load** dialog box.

3. Select **Now**.
4. Click **Finish**.

The **Member Load** dialog box is displayed:

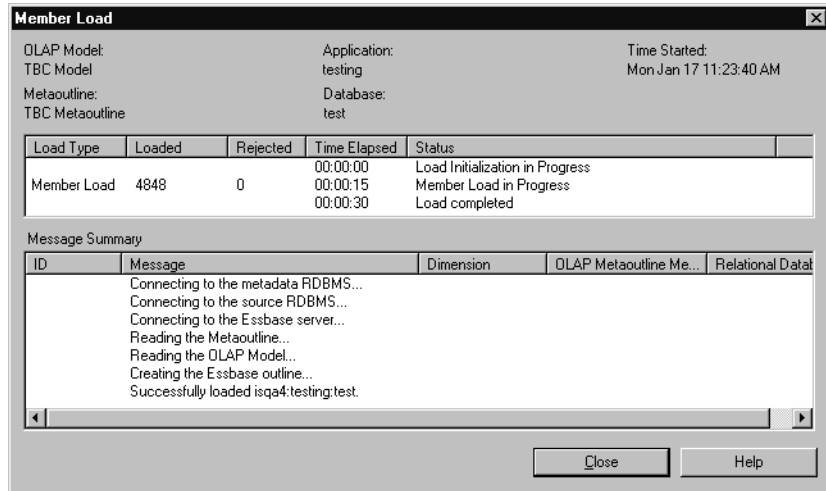


Figure 7-9: Displaying Member Load Information

5. If you encounter an error and want to stop the member load, click **Stop Load**. (The **Stop Load** button is displayed during the load.)

To start the member load again, return to Step 1 of this procedure.

If any dimension or member is not loaded into the Essbase outline, a reject text file for the rejected dimension or member is automatically created. The name of a reject text file consists of the name of the relevant dimension followed by the leaf node number of the dimension or member that did not load.

For example, Figure 7-10 illustrates that if the three member levels of the Product dimension do not load, two .txt files are created: PRODUCTDIM_0.txt (PRODUCTDIM.SKU), and PRODUCTDIM_1.txt (PRODUCTDIM.SKUNAME).

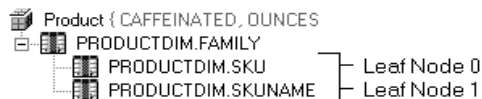


Figure 7-10: Leaf Member Example

For each reject file, a corresponding rules file is created. The rules files created for the rejected member levels of Figure 7-10 are PRODUCTDIM_0.rul (PRODUCTDIM.SKU), and PRODUCTDIM_1.rul (PRODUCTDIM.SKUNAME). Both .txt and .rul files are located in the %ISHOME%\loadinfo default directory. To place the files in a directory other than the default directory, set the ISLOADINFO environment variable to point to a different directory.

For more information on rules files, see the *Essbase Database Administrator's Guide*.

If a member does not load successfully, see “Problems with Loading Members or Data” on page 10-6.

For information on starting an unscheduled data load, see “Procedure 3: Loading Data Immediately” on page 8-8.

Procedure 4: Scheduling a Member Load

You can schedule a member load to start at a specific date and time. You can also schedule a load to be run regularly; for example, once a week. Essbase Integration Services executes member loads on the computer that is running Essbase Integration Server.

➤ To schedule a member load:

1. Make sure that you perform the tasks described in “Procedure 2: Starting a Member Load” on page 7-8.

After you complete the appropriate dialog boxes as directed in “Procedure 2: Starting a Member Load” on page 7-8, the **Schedule Essbase Load** dialog box is displayed:

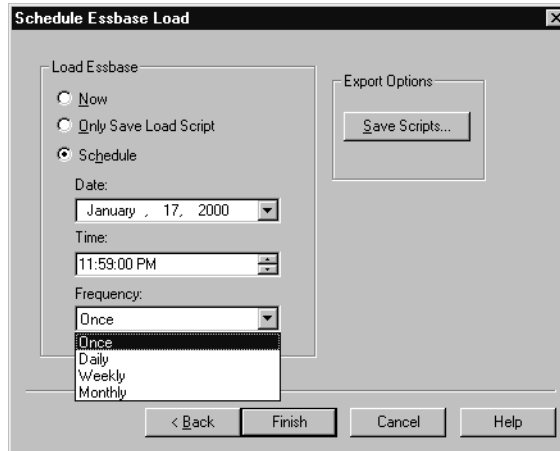


Figure 7-11: Scheduling the Member Load

2. Select **Schedule**.
3. If Essbase Integration Services is on a computer running UNIX, proceed to step 5.
4. If Essbase Integration Services is on a computer running Windows NT, start the Schedule service as described in “Starting the Windows NT Schedule Service Automatically” on page 7-18 and then proceed to step 5.

5. Enter the time to run the member load:
 - a. In the **Date** text box, enter the date. Use the `mm/dd/yyyy` format; for example, `01/17/2000`.
 - b. In the **Time** text box, enter the time. Use the `hh:mm:ss` format; for example, `23:59:00` is 11:59 p.m. To schedule a load to run at midnight, enter `00:00:00`, as midnight is considered the first hour of a day, not the last hour of a day.

Note that Essbase Integration Services uses a 24-hour clock.

- c. From the **Frequency** drop-down list, select how frequently to perform the member load. You can schedule a member load to be performed one time, every day, every week, or every month.

You cannot schedule a member load more than once on a single day. To perform a member load more than once a day, you must implement each load individually. See “Procedure 3: Loading Members Immediately” on page 7-13.

6. Click **Finish**.

Essbase Integration Server loads the members into the Essbase outline as scheduled.

Note: If a member does not load successfully, see “Problems with Loading Members or Data” on page 10-6.


To view a scheduled member load, see “Viewing Scheduled Member and Data Loads” on page 7-19. To delete a scheduled member load, see “Deleting Scheduled Member and Data Loads” on page 7-22.

Starting the Windows NT Schedule Service Automatically

Essbase Integration Server schedules loads by using the Windows NT Schedule service. It is recommended that you set the Schedule service to start automatically. See the Windows NT documentation. For more information, refer to the *Essbase Integration Services Installation Guide*.

Starting the Windows NT Schedule Service Manually

You may, on occasion, need to start the Windows NT Schedule service manually.

- To start the Windows NT Schedule service manually:
 1. From the Windows NT taskbar, select **Settings > Control Panels**.
 2. Double-click the **Services** button,  , to open the **Services** dialog box.

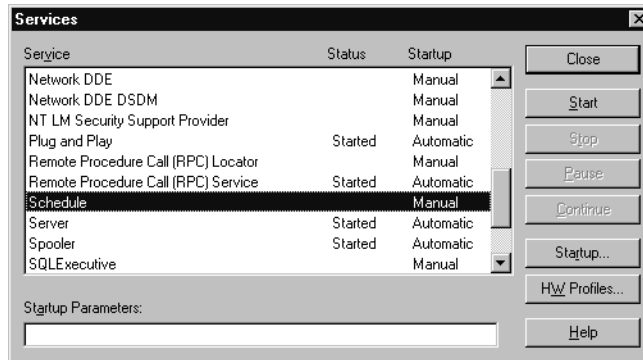


Figure 7-12: Starting the Windows NT Schedule Service

3. Scroll down to the **Schedule** service and select it.
4. Click **Start**.
5. Click **Close**.

Viewing Scheduled Member and Data Loads

You can view member and data loads after scheduling them. For information on performing data loads, see Chapter 8, “Loading Data.”

Before you can view scheduled loads, start Essbase Integration Services Console and Essbase OLAP Server. See the *Essbase Integration Services Installation Guide* for information on starting Essbase Integration Services Console.

If Essbase Integration Services is on a computer running Windows NT, you must start the Schedule service as described in “Starting the Windows NT Schedule Service Automatically” on page 7-18.

- To view all scheduled member and data loads:
1. From the OLAP Metaoutline main window menu bar, select **Tools > Scheduler**.

The **Scheduled Jobs** dialog box is displayed.

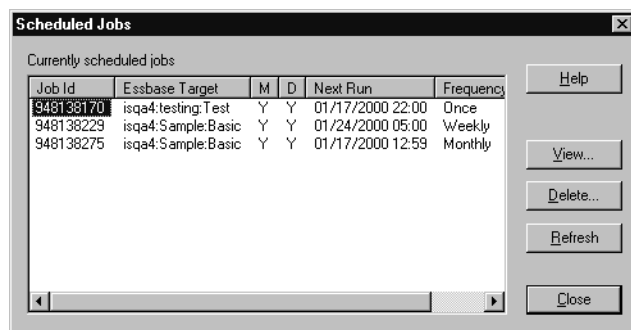


Figure 7-13: Viewing a List of Scheduled Loads

The dialog box lists all member and data loads that are currently scheduled. The dialog box contains the following columns:

- **Job Id** displays the identification number for the load.
- **Essbase Target** displays the name of the Essbase application and database into which Essbase Integration Server loads members or data.
- **M** stands for member load. A Y (yes) in the **M** column identifies a member load. **D** stands for data load. A Y (yes) in the **D** column identifies a data load. A Y (yes) in each column indicates a combined member and data load.
- **Next Run** displays the date of the next scheduled load.
- **Frequency** displays how frequently Essbase Integration Server performs the load.

Note: To update the list of scheduled loads, click **Refresh**.

2. To view more information about a particular load, in the **Job Id** column, select the job number of the load and then click **View**.

Essbase Integration Server opens the **View existing job** window. The window lists all properties for the selected load.

The screenshot shows a dialog box titled "View existing job" with the following sections:

- Schedule Parameters:**
 - Date: 01/17/2000
 - Time: 22:00
 - Frequency: Once (dropdown menu)
- OLAP Catalog:**
 - Connection String: "DSN=tbc_md;UID=tbc;PWD=password;"
 - Metaoutline: TBC Metaoutline
- Essbase:**
 - Server: isqa4
 - User: hyperion
 - Password: *****
 - Application: testing
 - Database: Test
 - Member Load
 - Data Load
 - Parameters: "APP=testing;DBN=Test;OTL=TBC Metaoutline;FLT_ID=1;OTL_C"
- Source Database:**
 - Connection String: "DSN=tbc;UID=tbc;PWD=password;"

Buttons for "OK" and "Help" are located on the right side of the dialog.

Figure 7-14: Viewing a Description of the Selected Load

3. When you finish viewing the load properties, click **OK**.
4. In the **Scheduled Jobs** dialog box, click **Close**.

Deleting Scheduled Member and Data Loads

You can delete member and data loads after you schedule them. For information on performing data loads, see Chapter 8, “Loading Data.”

Before you can delete scheduled loads, you must start Essbase Integration Services Console and Essbase Integration Services. See the *Essbase Integration Services Installation Guide* for information on starting Essbase Integration Services Console.

If Essbase Integration Services is on a computer running Windows NT, you must start the Schedule service as described in “Starting the Windows NT Schedule Service Automatically” on page 7-18.

► To delete a scheduled member or data load:

1. From the OLAP Metaoutline main window menu bar, select **Tools > Scheduler**.

Essbase Integration Server opens the **Scheduled Jobs** dialog box. The dialog box lists all member and data loads that are currently scheduled:

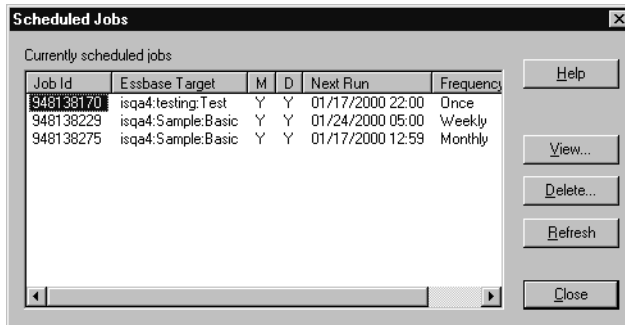


Figure 7-15: Viewing a List of Scheduled Loads

Note: To update the list of scheduled loads, click **Refresh**.

2. In the **Job Id** column, select a job number.
3. Click **Delete**.

Essbase Integration Server prompts you to confirm your direction to delete the scheduled load.

4. Click **Yes**.

Loading data into an Essbase database is a process also referred to as *data load*. This chapter describes how to prepare for a data load, how to select a calculation script to execute after the data load finishes, and how to schedule the data load to start immediately or at a specific time or date.

This chapter contains the following topics:

- “Understanding the Metaoutline Workflow” on page 8-1
- “Procedure 1: Preparing to Load Data” on page 8-3
- “Procedure 2: Starting a Data Load” on page 8-4
- “Procedure 3: Loading Data Immediately” on page 8-8
- “Procedure 4: Scheduling a Data Load” on page 8-12

You can view the new and updated data in Essbase Spreadsheet Add-in to verify that the data load was successful. If you need instruction, see the *Essbase Spreadsheet Add-in User’s Guide*.

Understanding the Metaoutline Workflow

Figure 8-1 illustrates the workflow for creating a metaoutline and using the metaoutline to create and load members and data into an Essbase database. This workflow includes the following processes:

- Creating and managing a metaoutline
- Adding dimensions, member levels, and measures to the metaoutline
- Setting load properties, filters, and Essbase properties on dimensions, members, and measures in the metaoutline

- Loading dimensions and members from the metaoutline into the related Essbase outline
- Loading the data specified in the metaoutline into the related Essbase database

This chapter focuses on loading data into an Essbase database from a metaoutline.

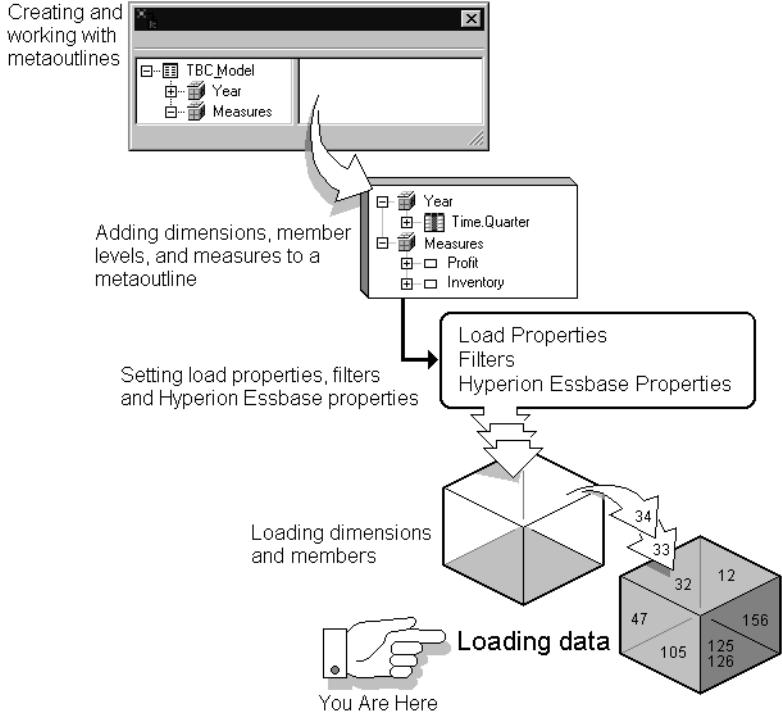


Figure 8-1: Metaoutline Workflow

Procedure 1: Preparing to Load Data

Before you start a data load, you must perform the following tasks:

1. Open the metaoutline.
See the *Essbase Integration Services Installation Guide* for information on starting Essbase Integration Services Console.
2. Connect to the Essbase OLAP server computer on which you want to load the data.
See the *Essbase Integration Services Installation Guide* for information on connecting to Essbase OLAP servers.
3. If you want to control the duration and the size of the queries that Essbase Integration Server makes to the data source, set query governors.
See “Using Query Governors” on page 7-5.
4. If you want to filter data, select a metaoutline filter to use for performing the load.
See “Viewing the Contents of a Metaoutline Filter” on page 5-12.
5. If the Essbase outline does not already exist, perform a member load.
See Chapter 7, “Loading Dimensions and Members.”

Note: If the data in the fact table aggregates in more than one way, such as sales (which are additive) and percentage discount values (which are not additive), you must load the different types of data separately into the Essbase outline. To load the different types of data separately, create two metaoutlines from one OLAP model and load the data of each metaoutline separately into the Essbase outline.

Now you are ready to start the data load. For more information about the steps that Essbase Integration Services follows when performing a load, see “About Loading” on page 7-3.

Procedure 2: Starting a Data Load

► To start a data load:

1. Make sure that you perform the tasks described in “Procedure 1: Preparing to Load Data” on page 8-3.
2. From the menu bar, select **Outline > Data Load**.

The **Essbase Application and Database** dialog box is displayed.

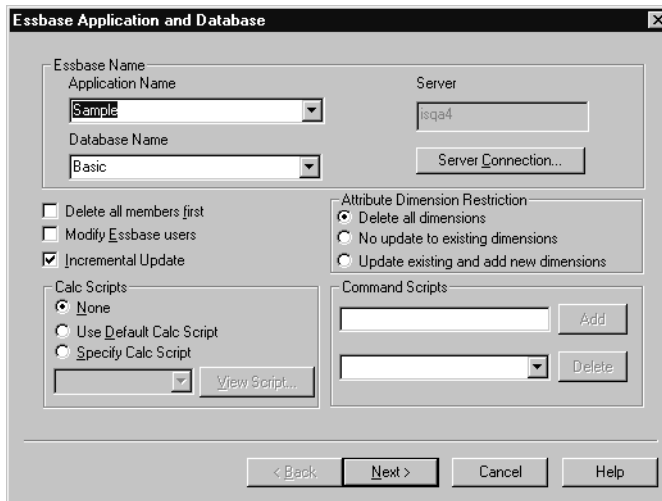


Figure 8-2: Choosing the Essbase Application and Database

3. From the list of applications, select the Essbase application that contains the database into which you want to load data.
4. From the list of Essbase databases, select the Essbase database into which you want to load data.

5. Select **Modify Essbase users** to determine which Essbase users can access the Essbase application and database into which you are loading data.

The **Essbase Users** dialog box is displayed:

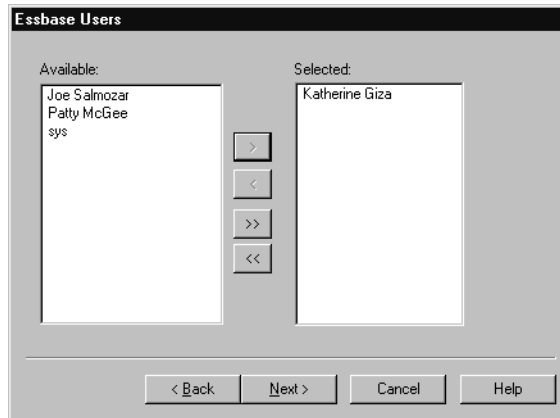




Figure 8-3: Selecting Essbase Users

Essbase Integration Server retrieves the list of available users from the locations described in Table 8-1.

Table 8-1: Retrieval Locations of Specified Essbase Integration Services Users

Type of Application or Database	Retrieval Location
New application	The Essbase OLAP server. All users can create new applications and databases on the Essbase OLAP server; for example, <i>sys</i> .
Existing application	The Essbase application.
New database	The Essbase application.
Existing database	The Essbase database.

6. To allow a user to access the Essbase application and database, complete the following steps:
 - a. In the **Available** list box, select the user.
 - b. Click the  button to move the user to the **Selected** list box. To move all users, click the  button.
 - c. When the names of all users who should access the Essbase application and database are in the **Selected** list box, click **Next**.
7. If you want to select specific members not to update, in the **Essbase Application and Database** dialog box, select **Incremental Update**.

By default, Essbase Integration Server updates all dimensions and members. Updating an existing Essbase outline incrementally is faster than updating all dimensions and members.
8. If you have selected **Incremental Update**, and the metaoutline contains attribute dimensions, select one of the options under **Attribute Dimension Restriction**:
 - a. **Delete all dimensions** deletes all attribute dimensions after the update.
 - b. **No update to existing dimensions** does not change attribute dimensions while updating other areas.
 - c. **Update existing and add new dimensions** updates all changes to attributes.

9. Click **Next**.

The **Incremental Update** dialog box is displayed:

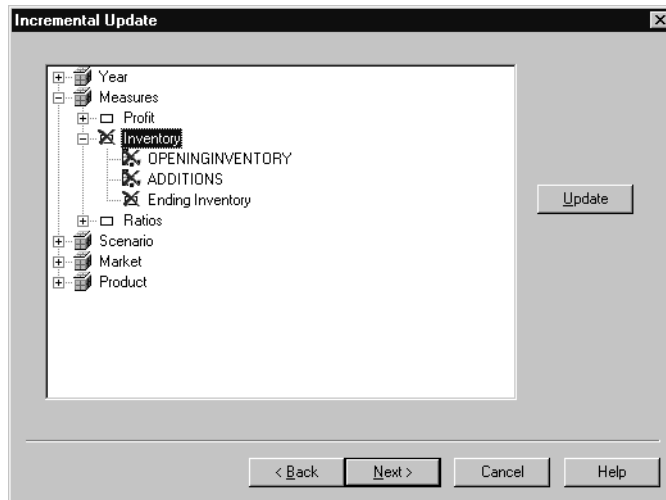


Figure 8-4: Updating an Essbase Outline Incrementally

- a. To prevent Essbase Integration Server from updating a member, select the member and click **Don't Update**.

When a member is selected for **Don't Update**, the **Don't Update** button toggles to an **Update** button, as shown in Figure 8-4. With this configuration of the button, you can change the status of the member back to **Update**, if you choose.

Note: You must update at least one member from each dimension when performing a data load. If you choose a dimension and click **Don't Update**, you will get an error message. If more than one hierarchy exists in the Essbase outline, you can perform an incremental update.

- b. After you mark all members that Essbase Integration Server should not update, click **Next**.



You can use the **LOADDATA** command in OLAP Command Interface to load data. For more information about this command, see the *Essbase Integration Services System Administrator's Guide*.

10. Select the calculation script to use to calculate the Essbase database from the choices described in Table 8-2.

Table 8-2: Selecting a Calculation Script

Selection	Result
None	Essbase Integration Server does not run a calculation script on the Essbase database.
Default	Essbase Integration Server runs the default calculation script that is specified for the Essbase database. If you have not specified a calculation script to use as the default, Essbase uses standard calculation order to calculate the database.
Any other calculation script	Essbase Integration Server runs the selected calculation script on the Essbase database.

The calculation script that you choose is run after Essbase Integration Server loads data into the Essbase database. The calculation script determines how Essbase calculates the data values in the database.

For more information on calculation and on calculation scripts, see the *Essbase Database Administrator's Guide*.

11. Click **Next** and proceed to “Procedure 3: Loading Data Immediately” on page 8-8.

Procedure 3: Loading Data Immediately

You can schedule a data load to start immediately or to start at a specific date and time. If you choose to start a data load immediately, the Data Load dialog box is displayed. The dialog box provides you with dynamic status information about the data load and specific messages for any errors or warnings that may occur. If you encounter an error during the load, you can stop the data load. Essbase Integration Services executes data loads on the computer that is running Essbase Integration Server.

- To load data immediately:
 1. Make sure that you perform the tasks described in “Procedure 2: Starting a Data Load” on page 8-4.

After you complete the appropriate dialog boxes (as directed in “Procedure 2: Starting a Data Load” on page 8-4) and click **Next**, the **Schedule Essbase Load** dialog box is displayed.

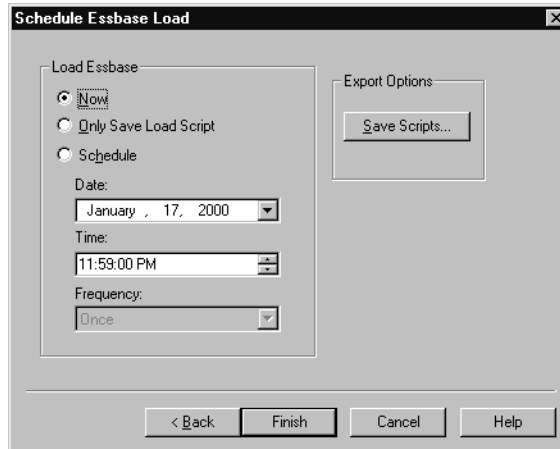


Figure 8-5: Loading Data Immediately

2. If you want to save the script to a different name or change the name of the script, click **Save Scripts**.

The **Save Script As** dialog box is displayed:

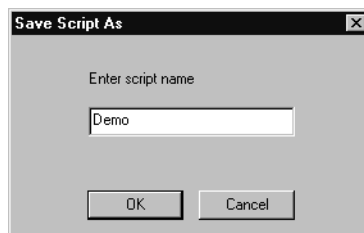


Figure 8-6: Saving a Script

- a. Enter the new script name.
- b. Click **OK** to return to the **Schedule Essbase Load** dialog box.

3. In the **Schedule Essbase Load** dialog box, select **Now**.
4. Click **Finish**.

The **Data Load** dialog box is displayed:

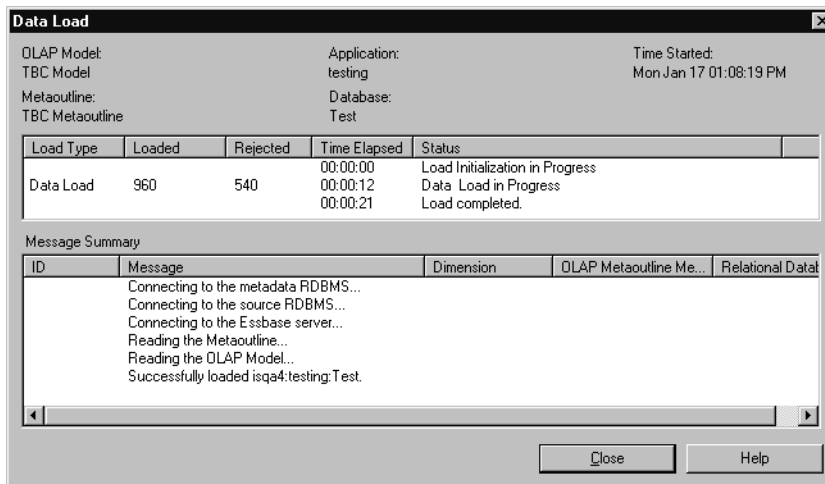


Figure 8-7: Displaying Data Load Information

5. If you encounter an error and want to stop the data load, click **Stop Load**. (The **Stop Load** button is displayed during the load.)

If you want to restart the data load, return to step 1 of this procedure.

If you load only data into the Essbase outline and the load fails, rejected dimensions and members are listed in a `dataLoad.txt` file.

If you load both members and data into the Essbase outline and the load fails, a reject text file for each rejected dimension and member is created. The name of each file consists of the name of the relevant dimension followed by the leaf node number of the dimension or member that did not load.

For example, Figure 8-8 illustrates that if the two member levels of the Product dimension do not load, two .txt files are created: PRODUCTDIM_0.txt (PRODUCTDIM.SKU), and PRODUCTDIM_1.txt (PRODUCTDIM.SKUNAME).

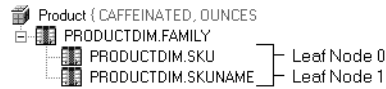


Figure 8-8: Leaf Node Example

For each rejected file, a corresponding rules file is created. The rules files created for the rejected member levels in Figure 8-8 are PRODUCTDIM_0.rul (PRODUCTDIM.SKU), and PRODUCTDIM_1.rul (PRODUCTDIM.SKUNAME).

Both .txt and .rul files are located in the %ISHOME%\loadinfo default directory. To place the files in a directory other than the default directory, set the ISLOADINFO environment variable to point to a different directory.

- If the data does not load successfully, see “Problems with Loading Members or Data” on page 10-6.
- For information on starting an unscheduled member load, see “Procedure 3: Loading Members Immediately” on page 7-13.

Procedure 4: Scheduling a Data Load

You can schedule a data load to start immediately or to start at a specific date and time. Essbase Integration Services executes scheduled data loads on the computer that is running Essbase Integration Server.

- To schedule a data load to run at a specific time and date:
 1. Make sure that you perform the tasks described in “Procedure 2: Starting a Data Load” on page 8-4.

The **Schedule Essbase Load** dialog box is displayed:



Figure 8-9: Scheduling a Data Load

2. Select **Schedule**.
3. If Essbase Integration Services is on a computer running UNIX, proceed to Step 5.
4. If Essbase Integration Services is on a computer running Windows NT, start the Schedule service as described in “Starting the Windows NT Schedule Service Automatically” on page 7-18.

5. Enter the time to run the data load:
 - a. In the **Date** text box, enter the date. Use the mm/dd/yyyy format; for example, 01/17/2000.
 - b. In the **Time** text box, enter the time. Use the hh:mm:ss format; for example, 23:59:00 is 11:59 p.m. To schedule a load to run at midnight, enter 00:00:00, as midnight is considered the first hour of a day, not the last hour of a day. Note that Essbase Integration Services uses a 24-hour clock.
 - c. From the **Frequency** drop-down list box, select how frequently to perform the data load. You can schedule data loads to be performed one time, every day, every week, or every month.

To perform a data load more than once a day, you must implement each load individually.

6. Click **Finish**.

Essbase Integration Server loads the data into the Essbase database as scheduled.

Note: If the data does not load successfully, see “Failure of a Member Load or Data Load” on page 10-4.

To delete a scheduled data load, see “Deleting Scheduled Member and Data Loads” on page 7-22. To view a scheduled data load, see “Viewing Scheduled Member and Data Loads” on page 7-19.

Creating Drill-Through Reports

This chapter describes how to create Drill-Through reports that users can access using Spreadsheet Add-in. This chapter contains the following topics:

- “About Drill-Through” on page 9-1
- “Adding a Report” on page 9-2
- “Specifying the Contents of a Report” on page 9-5
- “Specifying the Format of a Report” on page 9-16
- “Specifying Spreadsheet User Actions” on page 9-21
- “Working with Reports” on page 9-26

About Drill-Through

When you create an Essbase database, you do not use all of the data of the associated relational data source. Instead, you choose the data that spreadsheet users are most likely to want and summarize it in a way that is useful to them. For example, you might summarize the amount of root beer sold in each state. The summaries enable spreadsheet users to compare sales across states and regions. They can answer questions such as “Which state sold the most root beer in January?” and “Which state sold the most root beer in July?”

Some spreadsheet users may need more detailed information to create a strategy to increase root beer sales. They need to answer the following types of questions:

- What are the ten lowest performing stores in California?
- What are the addresses of the stores?
- What are the names of the store managers?

This information is not stored in the Essbase database, but it is stored in the relational data source.

To view the relevant data, spreadsheet users must *drill through* to the relational data source and view the relational data in the context of the data in the Essbase database.

Essbase Integration Services enables you to define Drill-Through reports. A Drill-Through report is based on an *intersection level* (member combination) that spreadsheet users can double-click to start the drill-through process. Then spreadsheet users view or customize pre-defined Drill-Through reports that retrieve the relevant detail columns from the relational data source. Because Essbase Integration Server captures the metadata necessary to create the Essbase outline, it returns the Drill-Through report in the context of the data that spreadsheet users are viewing.

Data for attribute dimensions and members appear in the Essbase Spreadsheet Add-in, but attribute data does not appear in Drill-Through reports.

For more information on the Spreadsheet Add-in and Drill-Through reports, see the *Essbase Spreadsheet Add-in User's Guide* and the Essbase Spreadsheet Add-in Online Help.

Adding a Report

You can create a new Drill-Through report and then add intersection levels and columns, or you can base a Drill-Through report on an existing report and vary specific intersection levels and columns. You can create multiple reports for a single intersection, and spreadsheet users can select which report to view.

This topic contains the following subtopics that describe Drill-Through report creation:

- “Creating a New Report” on page 9-3
- “Copying an Existing Report” on page 9-5

For more information on intersection levels and columns, see “About Intersection Levels” on page 9-6.

Creating a New Report

The Drill-Through report that you create is what spreadsheet users see when they drill from a cell in Spreadsheet Add-in through to the relational data source.

➤ To create a new report:

1. From the menu toolbar, select **Edit > Drill-Through Reports** to display the **Drill-Through Reports** dialog box. For example, the dialog box shown in Figure 9-1 lists the three sample reports included in the sample application.

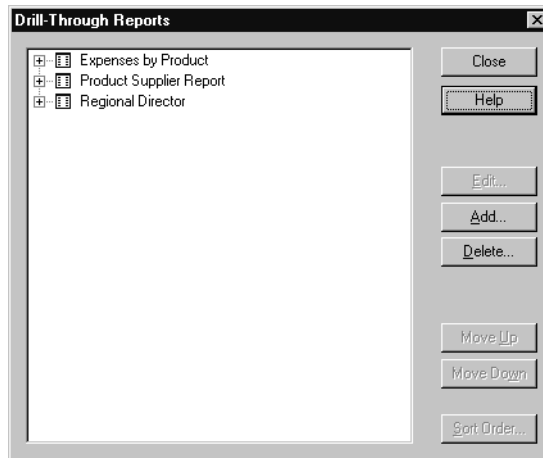


Figure 9-1: Drill-Through Reports Dialog Box

2. Click **Add** to add a new report.

A dialog box opens, prompting you to confirm that you want to add a new report.

3. Click **Yes**.

A new report is displayed in the **Drill-Through Reports** dialog box. By default, the new report is named Report4.

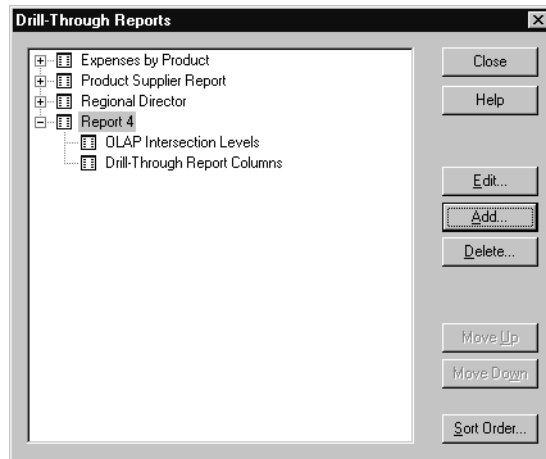


Figure 9-2: New Drill-Through Report

4. If you want to rename the report, see “Renaming a Report in the Drill-Through Reports Dialog Box” on page 9-26.
5. If you want to add intersection levels and columns to the report, see “Adding Intersection Levels” on page 9-11 and “Adding Drill-Through Columns” on page 9-13.

Copying an Existing Report

If you want to base a Drill-Through report on an existing report and vary a few intersection levels and columns, you can save time by copying the existing report.

- To copy an existing report:
 1. From the menu toolbar, select **Edit > Drill-Through Reports**.
 2. In the **Drill-Through Reports** dialog box, select the Drill-Through report that you want to copy.
 3. Click **Add**.
A dialog box opens, prompting you to confirm that you want to copy the report.
 4. Click **Yes**.
 5. If you want to rename the report, see “Renaming a Report in the Drill-Through Reports Dialog Box” on page 9-26.
 6. If you want to add or change intersection levels and columns in the report, see “Adding Intersection Levels” on page 9-11 and “Adding Drill-Through Columns” on page 9-13.

Specifying the Contents of a Report

You must define the contents of a Drill-Through report. The defining process includes adding intersection levels and columns and setting query governors to control the amount of data retrieved from the relational data source. This topic contains the following subtopics:

- “About Intersection Levels” on page 9-6
- “Following the Rules for Intersection Levels” on page 9-7
- “Determining Where to Set an Intersection Level” on page 9-7
- “Reviewing Sample Drill-Through Reports” on page 9-8
- “Adding Intersection Levels” on page 9-11
- “Adding Drill-Through Columns” on page 9-13
- “Setting the Size of a Query” on page 9-15

About Intersection Levels

A Drill-Through report is made up of intersection levels and columns. An *intersection level* defines the point at which users drill through; that is, the value that they double-click in Spreadsheet Add-in to view the report. For example, in the Product Supplier report in the sample application, Time.Month and PRODUCTDIM.SKU are the intersection levels.

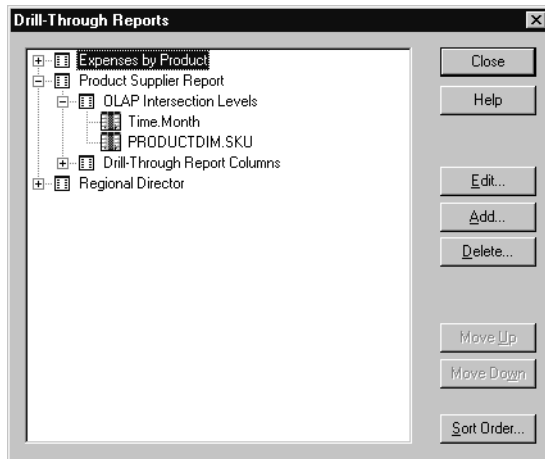


Figure 9-3: Drill-Through Levels in the Product Supplier Report

When a spreadsheet user double-clicks a data cell that corresponds to a Drill-Through intersection level, Essbase Integration Server retrieves from the relational data source the detail data that is specified in the default Drill-Through report. For example, to view a report defined on the intersection levels Time.Month and PRODUCTDIM.SKU, a spreadsheet user can select any of various intersections, such as the intersection of January, Profit, West, 100-20, or the intersection of February, Profit, California, 200-10.

An intersection level affects all members of the specified dimension at the specified level. For example, if you set an intersection level on REGION.REGION in the MARKET dimension, you are setting the intersection level at level 1. (Levels are numbered from the leaf node, level 0, toward the root.) All members of the MARKET dimension at level 1 and lower can access the Drill-Through report. Thus, both the members under REGION.REGION *and* the members under

COLORADO, level 0, can access the report. In a dimension that has more than one level 1 member, all level 1 members can access the report if any level 1 member is specified as the intersection level.



Figure 9-4: Intersection Levels

Following the Rules for Intersection Levels

Use the following rules when setting intersection levels:

- In a single Drill-Through report, you can add only one intersection level for each dimension. For example, in the Market dimension in TBC Metaoutline, you can define an intersection level for REGION or for STATE but not for both.
- You can select only one measure for each report. To create multiple reports, each with a different measure, create the first report, make a copy of the first report, and change the measure of the copied report.

To make a report applicable to all measures, select the dimension tagged as Accounts.

- Intersection levels are inherited. A child of a dimension or member inherits the Drill-Through level defined for its parent. Thus, to define a different intersection level for the child of the dimension or member, you must create a new report.

Determining Where to Set an Intersection Level

When you define an intersection level in a metaoutline, you determine the Essbase cells from which a spreadsheet user can drill through.

- **Dimension:** If you set an intersection level for a metaoutline dimension, spreadsheet users can drill through from any intersection that contains the related Essbase dimension. For example, if you set an intersection level at Product, spreadsheet users can drill through from any level in the Product dimension. Thus, spreadsheet users can double-click any data value that involves a member of the Product dimension, such as Colas or 100-10.

To make a report applicable to all measures, select the dimension tagged as Measures.

- **Member:** If you set an intersection level for a metaoutline member level, spreadsheet users can drill through from any intersection that contains an Essbase member that is based on the designated metaoutline member level. For example, if you set an intersection level at PRODUCTDIM.SKU, spreadsheet users can double-click any data value that involves a member based on PRODUCTDIM.SKU, such as 100-10 or 100-20.
- **Neither a dimension nor a member:** If you do not set an intersection level for a dimension or for any member of the dimension, spreadsheet users can drill through from any member of the dimension (assuming that you have defined at Drill-Through report on at least one intersection level for the Essbase database).

Reviewing Sample Drill-Through Reports

The sample application contains three Drill-Through reports that illustrate how the setting of various intersection levels affects the reports that spreadsheet users see.

The sample metaoutline contains the following Drill-Through reports:

- An Expenses by Product report with intersection levels of MONTH and STATE. To view this report, Spreadsheet Add-in users drill down to any month under any quarter and any state under any region. The worksheet excerpt in Figure 9-5 shows a spreadsheet at the highest level from which spreadsheet users can view the Expenses by Product report.

At this level of the Spreadsheet Add-in, users are prompted to view the Drill-Through report. Users can view the report only from the MONTH level in the Year dimension, and from the STATE level in the Market dimension, because those are the lowest levels in their respective dimensions. In the other dimensions, users can view the report from any level.

		Measures	Scenario	Product
Colorado	Jan	585		
Colorado	Feb	622		
Colorado	Mar	596		

Figure 9-5: Worksheet for Expenses by Product Report

The highest level of the Expenses by Product report is shown in Figure 9-6.

	A	B	C	D	E	F
1	STATE	SKUNAME	TRANSDATE	PAYROLL	MARKETING	MISC
2	Colorado	Caffeine Free Cola	2000-01-04	7.5	15	0
3	Colorado	Caffeine Free Cola	2000-01-09	2.5	5	0
4	Colorado	Caffeine Free Cola	2000-01-24	11	24	1
5	Colorado	Cola	2000-01-03	12	27	0
6	Colorado	Cola	2000-01-06	3.4	6.8	0
7	Colorado	Cola	2000-01-21	1.7	3.4	0
8	Colorado	Cola	2000-01-28	4.9	9.8	0
9	Colorado	Dark Cream	2000-01-01	11.02	21.66	0.38
10	Colorado	Dark Cream	2000-01-02	0.2	0.4	0
11	Colorado	Dark Cream	2000-01-04	1.6	3.2	0
12	Colorado	Dark Cream	2000-01-08	17.6	35.2	0
13	Colorado	Dark Cream	2000-01-18	0.6	1.2	0

Figure 9-6: Expenses by Product Drill-Through Report

- A Product Supplier report on the intersection level of MONTH and PRODUCTDIM.SKU. The highest level of the spreadsheet from which the Product Supplier report can be viewed is shown in Figure 9-7. Users can view the report only from the MONTH level in the Year dimension, and from PRODUCTDIM.SKU in the Product dimension, because those are the lowest levels in their respective dimensions. In the other dimensions, users can view the report from any level.

		Measures	Scenario	Market
100-10	Jan	1710		
100-10	Feb	1666		
100-10	Mar	1720		

Figure 9-7: Worksheet for Product Supplier Report

The highest level of the Product Supplier report is shown in Figure 9-8.

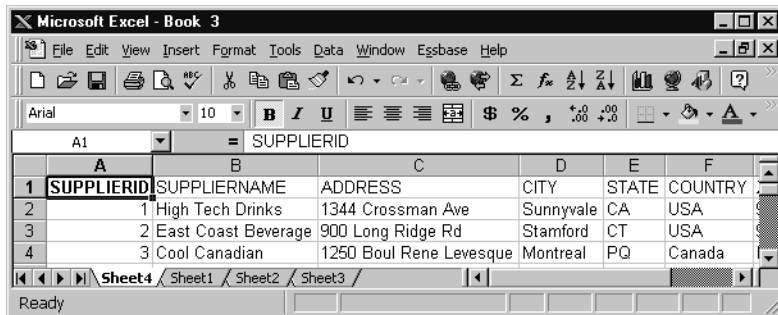


Figure 9-8: Product Supplier Drill-Through Report

- A Regional Director report with only one intersection level, MARKET.STATE. To view this report, spreadsheet users drill down to any state under any region. The worksheet excerpt in Figure 9-9 shows a spreadsheet at the highest level from which spreadsheet users can view the Regional Director report. Users can view the report from any level in the other dimensions, as long as they have drilled down to STATE in the MARKET dimension.

		Measures	Scenario	Product
Colorado	Year	7227		
Illinois	Year	12577		

Figure 9-9: Worksheet for Regional Director Report

The highest level of the Regional Director report is shown in Figure 9-10.

REGION	DIRECTOR
Central	Cindy Traveller

Figure 9-10: Regional Director Drill-Down Report

Adding Intersection Levels

An *intersection level* defines the point at which users drill through; that is, the value that they double-click in Spreadsheet Add-in to view a report. For more information, see “About Intersection Levels” on page 9-6, “Determining Where to Set an Intersection Level” on page 9-7, and “Reviewing Sample Drill-Through Reports” on page 9-8.

➤ To add an intersection level to a Drill-Through report:

1. Create a report.

See “Adding a Report” on page 9-2.

2. In the **Drill-Through Reports** dialog box, select **OLAP Intersection Levels**, and click **Add**.

The **Add New Intersection Levels** dialog box is displayed. The left list box contains all dimensions and member levels defined in the metaoutline. Each member level in the metaoutline represents a set of members at the same level in the Essbase database. The right list box contains all intersection levels defined in the Drill-Through report.

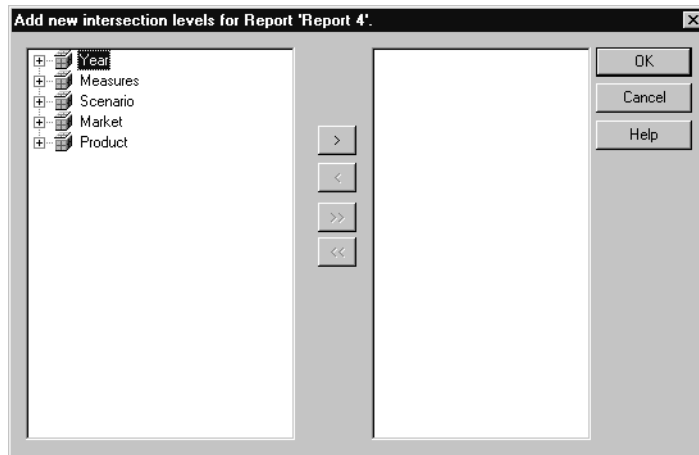






Figure 9-11: Adding Intersection Levels

3. Click all  signs to expand dimensions and see member levels.
4. Select the member level to add, and click  to move the member level to the right list box.

To move all member levels to the right list box, click  .

To remove a member level from the right list box, click  .

To remove all member levels from the right list box, click  .

For example, Figure 9-12 shows a set of intersection levels defined for REPORT 4.

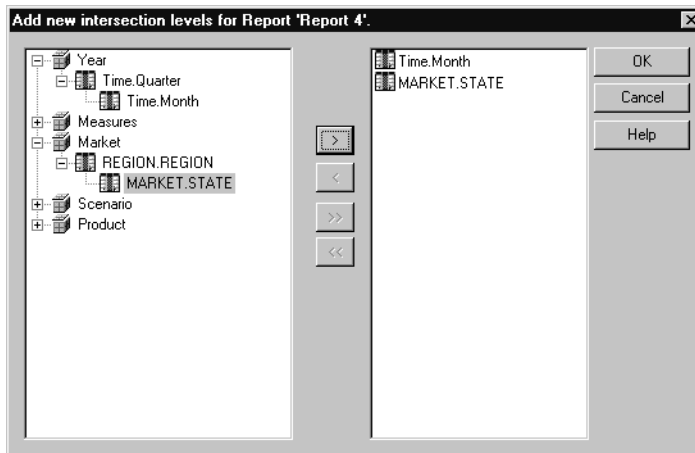


Figure 9-12: Intersection Levels

5. Click **OK** to return to the **Drill-Through Reports** dialog box.

Adding Drill-Through Columns

A *Drill-Through column* is the relational database column that Essbase Integration Server retrieves when a spreadsheet user double-clicks an intersection level. Columns contain detail information that is not available in the Essbase database; for example, a list of store managers.

You can use in the Drill-Through report any column of the OLAP model that is not marked as Hidden, including columns marked as Drill-Through.

► To add columns to a Drill-Through report:

1. Create a report.

See “Adding a Report” on page 9-2.

2. Add the intersection levels.

See “Adding Intersection Levels” on page 9-11.

3. In the **Drill-Through Reports** dialog box, select **Drill-Through Report Columns**, and click **Add**.

The **Add New Report Columns** dialog box is displayed. The left list box contains all tables and columns that are not marked as Hidden in the OLAP model. The right list box contains all columns defined in the Drill-Through report.

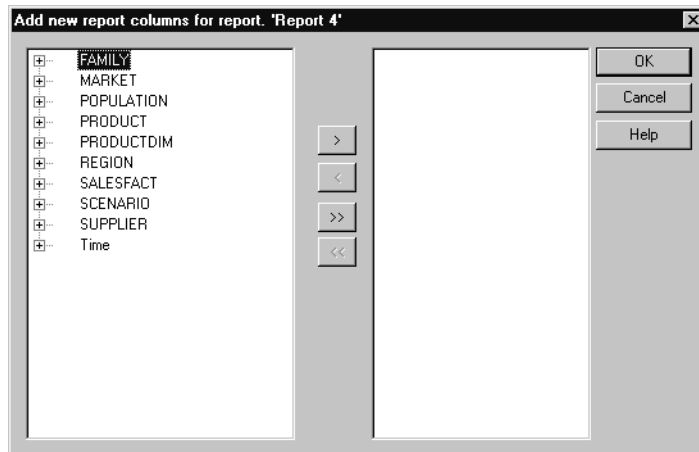







Figure 9-13: Adding Drill-Through Columns

4. Click the  signs to expand the tables.
5. Select the column to add and click  to move the column to the right list box.

To add all columns to the right list box, click .

To remove a column from the right list box, click .

To remove all columns from the right list box, click .

For example, Figure 9-14 contains the set of columns for a TBC Drill-Through report. These columns provide spreadsheet users a view of details on population size, product, and package type.

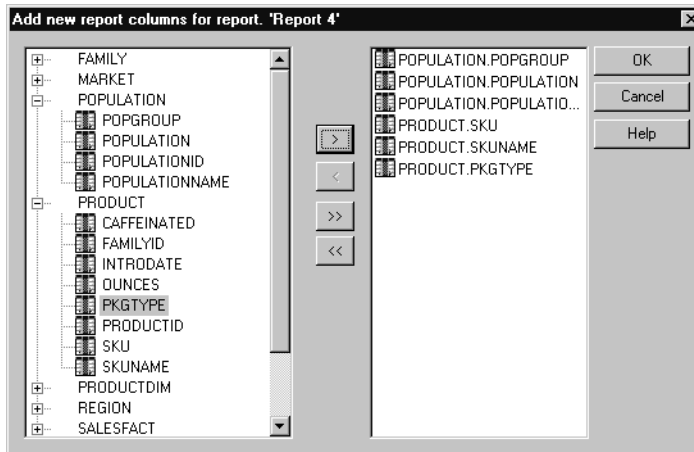


Figure 9-14: Sample Drill-Through Report Columns

6. Click **OK** to return to the **Drill-Through Reports** dialog box.

Setting the Size of a Query

A query governor controls the duration and the size of the queries that Essbase Integration Server makes to the data source to retrieve columns. A query governor prevents you from retrieving more data from the external data source than you want or need. For example, a column in the relational data source may contain 10,000 rows, and you may not want to retrieve all rows. More than 10,000 rows is difficult for spreadsheet users to view.

If you set a query governor, Essbase Integration Server stops the query if it is taking too long or retrieving too much data. For example, if you set 200 as the maximum number of rows to be retrieved, Essbase Integration Server retrieves approximately 200 rows. If the query tries to retrieve more than 200 rows, Essbase Integration Server stops the query and displays an error message.

Note: If a query stops because it reaches the time or row limit specified in the query governor, the spreadsheet user views incomplete data.

➤ To set a query governor:

1. In the **Drill-Through Reports** dialog box, select a report name.
2. Click **Edit** to open the **Report properties** dialog box.
3. In the **Report properties** dialog box, select the **Governors** tab.

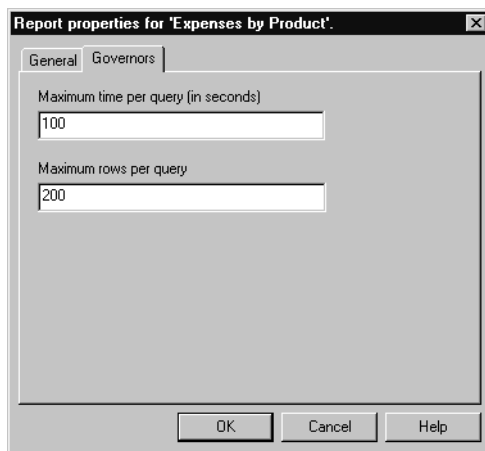


Figure 9-15: Setting a Query Governor

4. In the **Maximum time per query (in seconds)** text box, enter the maximum query time.
For example, to stop a query that takes longer than 100 seconds, type **100**.
5. In the **Maximum rows per query** text box, enter the maximum number of rows to retrieve.
For example, to stop a query that retrieves more than 200 rows, type **200**.
6. Click **OK**.

Specifying the Format of a Report

You can define the format of a report by specifying the order of columns and rows. This topic contains the following subtopics:

- “Specifying Column Ordering” on page 9-17
- “Specifying Row Ordering” on page 9-19

You can enable spreadsheet users to specify the order of columns and rows in a Drill-Through report. See “Customizing a Report” on page 9-22.

Specifying Column Ordering

Columns are displayed in a report from left to right in the order in which they are listed from top to bottom in the list box of the Drill-Through Reports dialog box. Arrange the columns in the list box in the order in which you want them to be displayed in the Drill-Through report; for example, in Figure 9-16, STATE is the first column, SKUNAME is the second, and TRANSDATE is the third.

The screenshot shows a Microsoft Excel window titled "Microsoft Excel - Book3". The menu bar includes File, Edit, View, Insert, Format, Tools, Data, Window, Essbase, and Help. The toolbar contains various icons for file operations and editing. The active cell is A1, containing the text "STATE". The spreadsheet area displays a report with the following data:

	A	B	C	D	E	F
1	STATE	SKUNAME	TRANSDATE	PAYROLL	MARKETING	MISC
2	Colorado	Caffeine Free Cola	2000-01-04	7.5	15	0
3	Colorado	Caffeine Free Cola	2000-01-09	2.5	5	0
4	Colorado	Caffeine Free Cola	2000-01-24	11	24	1
5	Colorado	Cola	2000-01-03	12	27	0
6	Colorado	Cola	2000-01-06	3.4	6.8	0
7	Colorado	Cola	2000-01-21	1.7	3.4	0
8	Colorado	Cola	2000-01-28	4.9	9.8	0
9	Colorado	Dark Cream	2000-01-01	11.02	21.66	0.38
10	Colorado	Dark Cream	2000-01-02	0.2	0.4	0
11	Colorado	Dark Cream	2000-01-04	1.6	3.2	0
12	Colorado	Dark Cream	2000-01-08	17.6	35.2	0
13	Colorado	Dark Cream	2000-01-18	0.6	1.2	0

The status bar at the bottom shows "Ready" and the active sheet is "Sheet4".

Figure 9-16: Column Order in TBC Drill-Through Report

- To move a column:
 1. From the menu bar, select **Edit > Drill-Through Reports** to open the **Drill-Through Reports** dialog box.
 2. In the **Drill-Through Reports** dialog box, click the **+** sign adjacent to the Drill-Through report that you want to work with.
 3. From the list of the columns in the report, select a column; for example, SALESFACT.TRANSDATE.

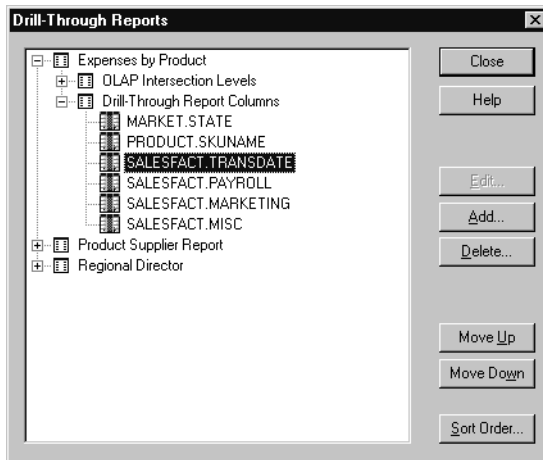


Figure 9-17: Positioning Columns

4. Click **Move Up** or **Move Down** to position the column.
5. When the columns are in the correct order, click **Close**.

Specifying Row Ordering

You can determine the order in which Spreadsheet Add-in displays the rows it retrieves; for example, you can sort the contents of the PRODUCTDIM.SKUNAME column in descending order (from highest to lowest value). This sort presents the products in reverse alphabetical order, from Vanilla Cream to Old Fashioned to Caffeine Free Cola and produces the following report:

The screenshot shows a Microsoft Excel window titled 'Microsoft Excel' with a menu bar (File, Edit, View, Insert, Format, Tools, Data, Window, Eggsbase, Help) and a toolbar. The active sheet is 'Book2'. The data is displayed in a table with columns A through F. The first row (row 1) is the header row with columns labeled STATE, SKUNAME, TRANSDATE, PAYROLL, MARKETING, and MISC. The subsequent rows (rows 2-19) contain data for various products, sorted in descending order of SKUNAME. The status bar at the bottom indicates 'Ready'.

	A	B	C	D	E	F
1	STATE	SKUNAME	TRANSDATE	PAYROLL	MARKETING	MISC
2	Colorado	Vanilla Cream	2000-01-02	26.19	18.43	0.97
3	Colorado	Vanilla Cream	2000-01-09	20	10	0
4	Colorado	Vanilla Cream	2000-01-25	0.81	0.57	0.03
5	Colorado	Strawberry	2000-01-02	0.5	0.5	0
6	Colorado	Strawberry	2000-01-03	1.44	1.68	0
7	Colorado	Strawberry	2000-01-06	3.6	4.2	0
8	Colorado	Strawberry	2000-01-08	5.1	5.1	0
9	Colorado	Strawberry	2000-01-12	4.4	4.4	0
10	Colorado	Strawberry	2000-01-19	5.04	5.88	0
11	Colorado	Strawberry	2000-01-20	1.92	2.24	0
12	Colorado	Orange	2000-01-08	10.6	5.3	0
13	Colorado	Orange	2000-01-10	28.51	21.99	0
14	Colorado	Orange	2000-01-14	1.89	1.71	0
15	Colorado	Old Fashioned	2000-01-03	5.7	5.7	0
16	Colorado	Old Fashioned	2000-01-11	4.07	5.55	0
17	Colorado	Old Fashioned	2000-01-16	5.28	7.2	0
18	Colorado	Old Fashioned	2000-01-17	4.3	4.3	0
19	Colorado	Old Fashioned	2000-01-23	1.65	2.25	0

Figure 9-18: Row Sort Order in TBC Drill-Through Report

If you do not determine the sort order, spreadsheet users view data in the order determined by the relational data source. SQL Server, for example, sorts members in ascending order by default.

- To determine the order of rows:
 1. From the menu bar, select **Edit > Drill-Through Reports** to open the **Drill-Through Reports** dialog box.
 2. In the **Drill-Through Reports** dialog box, select the Drill-Through report to sort.
 3. Click **Sort Order** to open the **Set Sort Order** dialog box.

The **Set Sort Order** dialog box displays in the left list box the columns included in the report. The right list box displays the columns for which you want to set the row sort order.

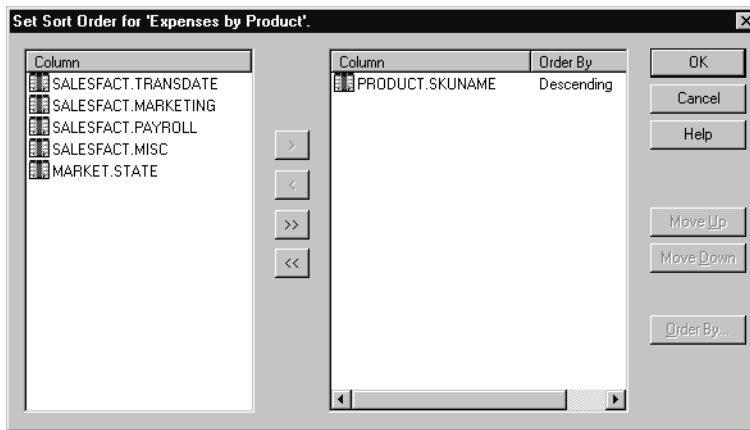


Figure 9-19: Setting Sort Order

4. Select the column for which you want to set the sort order and click to add the column to the right list box.

To sort all columns, click to add all columns to the right list box.

To remove a column from the right list box, click .

To not sort any columns, click to remove all columns from the right list box.

5. Select a column in the right list box, and click **Order By**.
The **Order By** dialog box is displayed.

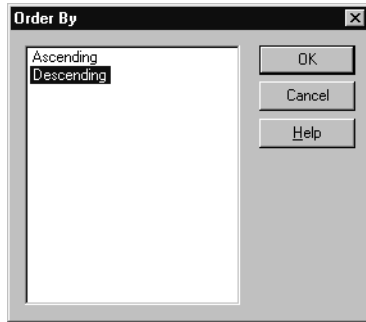


Figure 9-20: Order By Dialog Box

6. Select the sort order: **Ascending** (A to Z, 0 to 9) or **Descending** (Z to A, 9 to 0).
7. Click **OK** to return to the **Set Sort Order** dialog box.
8. If you want to set the sort order for another column, repeat steps 4, 5, 6, and 7.
9. Click **OK** to return to the **Drill-Through Reports** dialog box.

Specifying Spreadsheet User Actions

You can specify the actions that spreadsheet users can perform after they open a Drill-Through report. You can determine whether spreadsheet users can customize the report, whether they must use a specific server running Essbase Integration Server, and whether they must use a database username and password to log on to the relational data source. This topic contains the following subtopics:

- “Customizing a Report” on page 9-22
- “Specifying the Essbase Integration Server Name” on page 9-23
- “Specifying a Database Username and Password” on page 9-24

Customizing a Report

You can enable spreadsheet users to customize a Drill-Through report that they see in their worksheet. For example, they can choose to exclude certain columns or to change row and column ordering. If you do not enable spreadsheet users to customize a report, they see all columns that you specify and use the row and column ordering that you specify.

- To enable spreadsheet users to customize a report:
 1. In the **Drill-Through Reports** dialog box, select the report that you want to enable spreadsheet users to customize.
 2. Click **Edit** to open the **Report properties** dialog box.

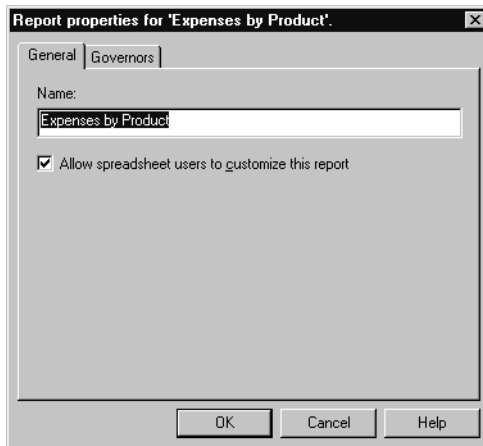


Figure 9-21: Enabling Spreadsheet Users to Customize a Report

3. Select **Allow spreadsheet users to customize this report**.
To prevent spreadsheet users from changing the report, deselect **Allow spreadsheet users to customize this report**.
4. Click **OK**.

Specifying the Essbase Integration Server Name

You can determine whether spreadsheet users must enter the name of the server running Essbase Integration Server to which they want to connect. If spreadsheet users do not enter the Essbase Integration Server name, Spreadsheet Add-in connects to the Essbase Integration Server specified in the Drill-Through report. If you have many users, connecting them to different Essbase Integration Servers enables you to balance the load across multiple Essbase Integration Servers and thereby increase performance.

If you use multiple servers, each server must use the Open Database Connectivity (ODBC) data source name for the external data source and for the OLAP Metadata Catalog that are specified in the OLAP model.

For example, suppose that you create the OLAP model on Integration Server1 and specify the following naming conventions: use OLAP_TBC as the ODBC data source name for the external data source and OLAP_MD as the ODBC data source name for OLAP Metadata Catalog. On Integration Server2, you must also use OLAP_TBC as the ODBC data source name for the external data source and OLAP_MD as the ODBC data source name for OLAP Metadata Catalog.

- To always prompt spreadsheet users for the name of the server running Essbase Integration Server:
 1. In the OLAP Metaoutline main window, select the metaoutline name; for example, TBC Metaoutline.
 2. Right-click the metaoutline name and, from the pop-up menu, select **Properties**.

The **OLAP Metaoutline Properties** dialog box is displayed.

3. Select the **Drill-Through Reports** tab.

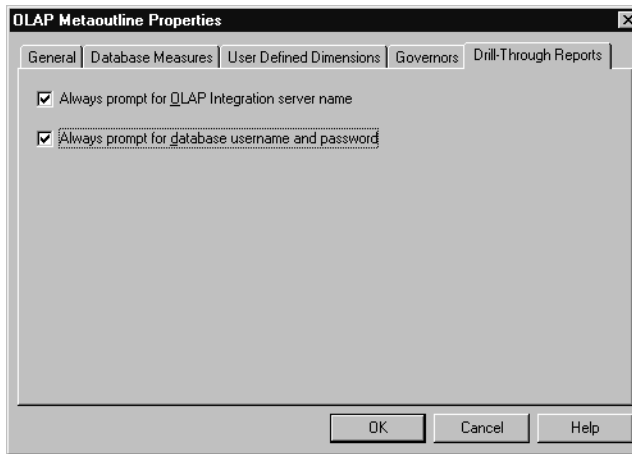


Figure 9-22: Prompting for the Name of the Server Running Essbase Integration Services

4. Select **Always prompt for OLAP Integration server name**.

To have spreadsheet users connect to the default Essbase Integration Server, deselect **Always prompt for OLAP Integration server name**.

5. Click **OK**.

Specifying a Database Username and Password

You can determine whether spreadsheet users must enter a username and password to log on to the data source. This requirement can provide a layer of security by determining who can access the relational data source.

If you do not choose to prompt for the database username and password, spreadsheet users who connect to the relational database use the username and password of the user who created the Drill-Through report. The user who created the report may have higher access privileges than are appropriate for spreadsheet users.

- To require spreadsheet users to specify a username and a password:
 1. In the OLAP Metaoutline main window, select the metaoutline name; for example, TBC Metaoutline.
 2. Right-click the metaoutline name and, from the pop-up menu, select **Properties**.
The **OLAP Metaoutline Properties** dialog box is displayed.
 3. Select the **Drill-Through Reports** tab.

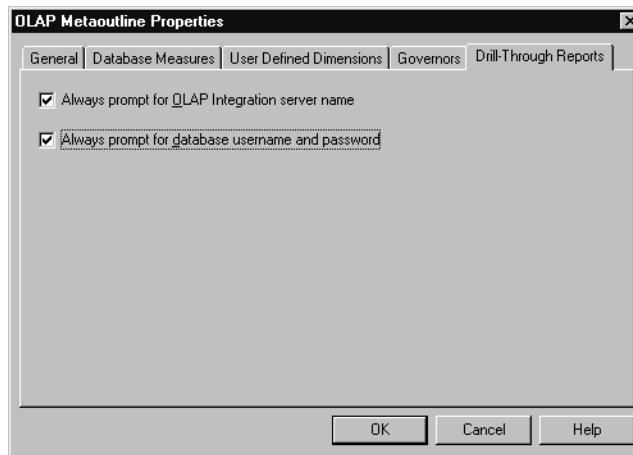


Figure 9-23: Prompting for a Username and Password

4. Select **Always prompt for database username and password**.

To enable spreadsheet users to use the database username and password of the user who created the Drill-Through report, deselect **Always prompt for database username and password**.


5. Click **OK**.

Working with Reports

You can rename reports, delete reports, and delete parts of a report. This topic contains the following subtopics:

- “Renaming a Report in the Drill-Through Reports Dialog Box” on page 9-26
- “Renaming a Report in the Report Properties Dialog Box” on page 9-27
- “Deleting an Individual Report, an Intersection Level, or a Drill-Through Column” on page 9-28
- “Deleting All Intersection Levels or Drill-Through Columns in a Report” on page 9-28

Renaming a Report in the Drill-Through Reports Dialog Box

- To rename a report in the **Drill-Through Reports** dialog box:
1. From the menu bar, select **Edit > Drill-Through Reports** to open the **Drill-Through Reports** dialog box.
 2. In the **Drill-Through Reports** dialog box, click the report name to put the dialog box in edit mode, .
 3. Type the new report name.
See “About Naming” on page 3-8.
 4. Press the **Enter** key, or select another object in the **Drill-Through Reports** dialog box. Repeat steps 2, 3, and 4.

Renaming a Report in the Report Properties Dialog Box

- To rename a report in the **General** tab of the **Report properties** dialog box:
 1. From the menu bar, select **Edit > Drill-Through Reports** to open the **Drill-Through Reports** dialog box.
 2. In the **Drill-Through Reports** dialog box, select the report for which you want to change the name.
 3. Click **Edit** to open the **Report properties** dialog box.

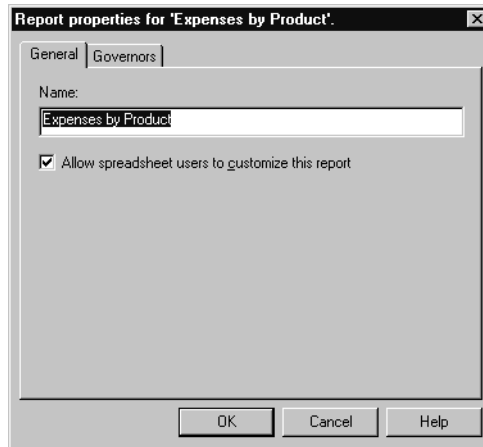


Figure 9-24: Renaming a Report

4. In the **Name** text box, type the new name.
See “About Naming” on page 3-8.
5. Click **OK**.

Deleting an Individual Report, an Intersection Level, or a Drill-Through Column

- To delete a report, an intersection level, or a Drill-Through column:
 1. From the menu bar, select **Edit > Drill-Through Reports** to open the **Drill-Through Reports** dialog box.
 2. In the **Drill-Through Reports** dialog box, select the report, intersection level, or column to delete.
 3. Click **Delete**.

A dialog box opens, prompting you to confirm that you want to delete the report, intersection level, or column.
 4. Click **Yes**.

Deleting All Intersection Levels or Drill-Through Columns in a Report

- To delete all intersection levels or Drill-Through columns:
 1. From the menu bar, select **Edit > Drill-Through Reports** to open the **Drill-Through Reports** dialog box.
 2. In the **Drill-Through Reports** dialog box, select the phrase **OLAP Intersection Levels** or the phrase **Report Drill-Through Columns**.
 3. Click **Delete**.

A dialog box opens, prompting you to confirm that you want to delete all intersection levels or columns.
 4. Click **Yes**.

This chapter suggests solutions for problems that you may discover while working with Essbase Integration Services Console. It contains the following topics:

- “Problems with Creating, Validating, Saving, or Deleting Metaoutlines” on page 10-1
- “Problems with Transformations” on page 10-2
- “Problems with Filters” on page 10-3
- “Failure of a Member Load or Data Load” on page 10-4
- “Problems with Loading Members or Data” on page 10-6

Problems with Creating, Validating, Saving, or Deleting Metaoutlines

If you experience a problem while creating, validating, saving, or deleting a metaoutline, consider the following troubleshooting scenarios:

- If no OLAP model is listed in the Existing tab of the Welcome dialog box, you cannot create a metaoutline. Make sure that you are connected to the correct OLAP Metadata Catalog. See the *Essbase Integration Services Installation Guide* for information on connecting to OLAP Metadata Catalog.
- If you experience a problem with validating a metaoutline, check to be sure that you are following the validation rules. (See “Validating Metaoutlines Manually” on page 2-14.) If you are following the conditions for validating a metaoutline, view each invalid dimension separately. Be sure that the structure of each dimension looks appropriate. (See “Viewing Sample Dimensions, Members, and Essbase Outlines” on page 3-50.)

- You cannot save or delete a metaoutline if other users are reading it; you receive a message that the metaoutline is write locked. You can perform any of the following tasks:
 - Save or delete the metaoutline later.
 - Use File > Save As to save the metaoutline to a different name. See “Saving a Metaoutline to a Different Name” on page 2-22.
 - Delete the locks. See the *Essbase Integration Services System Administrator’s Guide* for information on working with locks.
- Are users unable to drill through? If you delete a metaoutline that was used to build an Essbase outline, you can no longer drill through on the Essbase outline. See Chapter 9, “Creating Drill-Through Reports.”

Problems with Transformations

If member names, dimension names, or data are not being transformed correctly, consider the following troubleshooting scenarios:

- If you set a member to use two-pass calculation and the calculation is not working, remember that, although two-pass calculation is a property that you can give to any member, two-pass calculation works only on members of the Accounts dimension, Dynamic Calc members, and Dynamic Calc and Store members. If you tag any other type of member as Two-pass Calculation, Essbase ignores the tag. See the *Essbase Database Administrator’s Guide*.
- If you cannot tag a member as Dynamic Time Series, check to be sure that you have set the date-part in the OLAP model. For information on defining transformations for columns, see the *Essbase Integration Services OLAP Model User’s Guide*.
- If a formula is working incorrectly, check the syntax carefully. Essbase Integration Server does not validate formula syntax. Errors in a formula do not display until Essbase Integration Server calculates the Essbase database. For more information about formula options and built-in functions, see the *Essbase Database Administrator’s Guide*.

Problems with Filters

If member names, dimension names, or data are not being filtered correctly, consider the following troubleshooting scenarios:

- Are you connected to Essbase Integration Server? See the *Essbase Integration Services Installation Guide* for information on installing Essbase Integration Services Console.
- Is the correct metaoutline filter selected for both the member load and the data load? You must use the same metaoutline filter for the member load and the data load.
- If the filter includes extra conditions, make sure that the filter did not inherit conditions from the *Default filter. If the filter did inherit conditions, delete the inherited conditions. See “Creating a Member Filter Interactively” on page 5-14.
- If you experience a syntax error, use the Verify button in the Member Load Filtering or Measure Properties dialog box to check the syntax. View a sample of the dimension on which you defined the filter and check the generated SQL. See “Viewing Sample Dimensions, Members, and Essbase Outlines” on page 3-50.
- Is the generated SQL correct? Use the Sample command to check the generated SQL to make sure that the filter does what you expect (see “Viewing Sample Dimensions, Members, and Essbase Outlines” on page 3-50) or check the SQL statements in the Essbase Integration Server log file (see the *Essbase Database Administrator’s Guide*).

Many filter errors do not show up until you perform a member load or a data load. See also “Problems with Loading Members or Data” on page 10-6.

Failure of a Member Load or Data Load

If a member load or data load is failing, consider the following troubleshooting scenarios:

- Is the metaoutline valid? See “Validating Metaoutlines Manually” on page 2-14.
- Are the external data source, OLAP Metadata Catalog, Essbase Integration Server, and Essbase all running correctly? See the *Essbase Integration Services Installation Guide*.
- Can you connect to the external data source, OLAP Metadata Catalog, Essbase Integration Server, and the Essbase OLAP server without using Essbase Integration Services Console? See the *Essbase Integration Services Installation Guide*.
- Are you experiencing a problem viewing a sample outline? Check to be sure that you set the query governors appropriately, especially if you have shared members in the sample outline.
- Is the Essbase outline into which you are loading members or data in use? See the *Essbase Database Administrator’s Guide*.
- Did you attempt to perform a transformation on members to which you assigned aliases? You cannot perform transformations on members to which you assign aliases. Use OLAP Model to perform needed transformations. For information on defining transformations, see the *Essbase Integration Services OLAP Model User’s Guide*.
- Did you receive a time-out error? See the *Essbase Integration Services System Administrator’s Guide*.
- Does the load run for a long time and then stop? Set query governors to control the duration and size of the queries that Essbase Integration Server makes to the external data source. See “Using Query Governors” on page 7-5.
- If you perform a member load and the Essbase outline contains no members, check to see if you used an invalid member name, such as #MISSING. See “About Naming” on page 3-8.

- If a load stops after loading some members or some data, check the reject text file that is automatically created. The reject text file lists all dimensions and members that were not loaded into the Essbase outline. See “Procedure 3: Loading Data Immediately” on page 8-8. You can also check the Isolation Level setting in the Essbase database. See the *Essbase Database Administrator’s Guide*.
- Is a scheduled load not displayed in the Scheduled Jobs dialog box? Make sure that you started the Schedule service on Windows NT. See “Starting the Windows NT Schedule Service Automatically” on page 7-18.
- Do you receive an operating system error when you try to schedule a load? Make sure that `at.exe` is correctly identified in the operating system path. (This program schedules programs to run at a certain time.) If `at.exe` is not correctly identified, correct the problem, restart Essbase Integration Server, and reschedule the load.
- Do some error messages contain error code numbers but no text? If so, check the `message.txt` file in the `ISHOME\esslib\bin` directory. The file contains a column of error code numbers and a column containing the text of error messages.
- View the Essbase Integration Server log file for information about why a load failed. See the *Essbase Integration Services System Administrator’s Guide*.
- View the Essbase error log file for information about why a load failed. See the *Essbase Database Administrator’s Guide*.
- View the ODBC log of the data source that is experiencing a problem. If you do not know how to view the ODBC log, see the ODBC documentation.
- Did you try to schedule a member load or data load after someone deleted the `Batch` directory? You must have a `Batch` directory in the `EssIntegration` directory to schedule loads.

See also “Problems with Loading Members or Data” on page 10-6.

If you experience a problem with the external data source, OLAP Metadata Catalog, Essbase Integration Server, or Essbase, contact the appropriate database administrator. After the problem is fixed, restart the load.

Problems with Loading Members or Data

If you have problems loading members or data, check the following troubleshooting scenarios:

- If you perform a member load and the Essbase outline contains no members, check to see if you used an invalid member name, such as #MISSING. See “About Naming” on page 3-8.
- Did you perform the load correctly, but some members or data are missing? Check the following troubleshooting scenarios:
 - Did you set the build level incorrectly? See “Setting the Member and Data Load Build Level” on page 4-25.
 - Is the filter filtering out more than you want it to? View the dimensions that contain the incorrect member levels. See “Viewing Sample Dimensions, Members, and Essbase Outlines” on page 3-50.
 - Did you specify that Essbase Integration Server should create duplicate members as shared? See “Handling Duplicate Member Names” on page 4-6.
 - Did you give an attribute Boolean property or calculation property the same name as a member. See “Setting the Calculations Name Format” on page 3-28 and “Specifying Attribute Boolean Names and Date Formats” on page 3-31.
 - Is any name in the data source longer than 80 characters? Alias names and UDAs must be fewer than 80 characters. You can use the SUBSTRING function in the OLAP model to extract the 80 or fewer characters that you want to use in a member name. For information on defining transformations for string columns as substrings, see the *Essbase Integration Services OLAP Model User’s Guide*.
- Did you get a shared member error during loading and are some shared members not loaded? Make sure that all load properties and filters defined on real members are also defined on shared members. See Chapter 4, “Setting Load Properties,” Chapter 5, “Working with Filters,” and Chapter 6, “Setting Essbase Properties.”
- Did you perform the load correctly, but there is no data in the Essbase database? Check the filters. If a filter filters out all data, a value of #MISSING is displayed in the Essbase database. See “Creating a Member Filter Interactively” on page 5-14.

- Did you remember to calculate the data before viewing it in Essbase Spreadsheet Add-in? See the *Essbase Database Administrator's Guide*.
- Does the load run for a long time and stop? Set query governors to control the duration and the size of the queries that Essbase Integration Server makes to the external data source. See “Using Query Governors” on page 7-5.
- If the load stops after loading some members or data, check the reject text file that is automatically created. The reject text file lists all dimensions and members that were not loaded into the Essbase outline. See “Procedure 3: Loading Data Immediately” on page 8-8. You can also check the Isolation Level setting in the Essbase database. See the *Essbase Database Administrator's Guide*.
- View the Essbase Integration Services log file for information about the load. For information on the log file, see the *Essbase Integration Services System Administrator's Guide*.
- View the Essbase error log file for information about the load. For information on the log file, see the *Essbase Database Administrator's Guide*.

See also “Failure of a Member Load or Data Load” on page 10-4.

Report any problem to the appropriate database administrator (DBA)—the DBA for the external data source, the DBA for OLAP Metadata Catalog, the DBA for Essbase Integration Server, or the DBA for Essbase. After the problem is fixed, restart the load.

Creating a Sample Metaoutline Containing Attribute Dimensions

This appendix provides procedures for creating a metaoutline containing attribute dimensions. The sample login information, sample screens, OLAP Model name, metaoutline name, and relational data source are all based on the Essbase Integration Services sample application.

The Essbase Integration Services sample application is based on a fictitious company named The Beverage Company (TBC) and contains the following components:

- A relational data source (TBC)
- An OLAP Metadata Catalog (TBC_MD)
- A sample OLAP model (TBC Model)
- A sample metaoutline (TBC Metaoutline)

For information about installing the sample application, see the *Essbase Integration Services Installation Guide*. For information on creating an OLAP model containing attribute-enabled columns, see the *Essbase Integration Services OLAP Model User's Guide*.

Refer to the following topics in this appendix for information about creating a sample metaoutline containing attribute dimensions:

- “Starting up and Logging On” on page A-2
- “Opening the OLAP Main Window to Create a New Metaoutline” on page A-3
- “Working in the OLAP Metaoutline Main Window” on page A-5

To create the sample metaoutline described in the following procedures, you must have the sample application installed. If you do not have the sample application installed, you can use these procedures as a guide for creating a metaoutline with your own relational data source, OLAP Metadata Catalog, and completed OLAP model.

Starting up and Logging On

To begin the metaoutline creation process, you must first start Essbase Integration Server, and then start and log on to Essbase Integration Services Console. For details on starting up and logging on, see “Starting Essbase Integration Services Console” on page 2-3. You also must have completed an OLAP model on which to base the metaoutline.

After you have logged on, Essbase Integration Services Console displays the Welcome dialog box, as shown in Figure A-1.

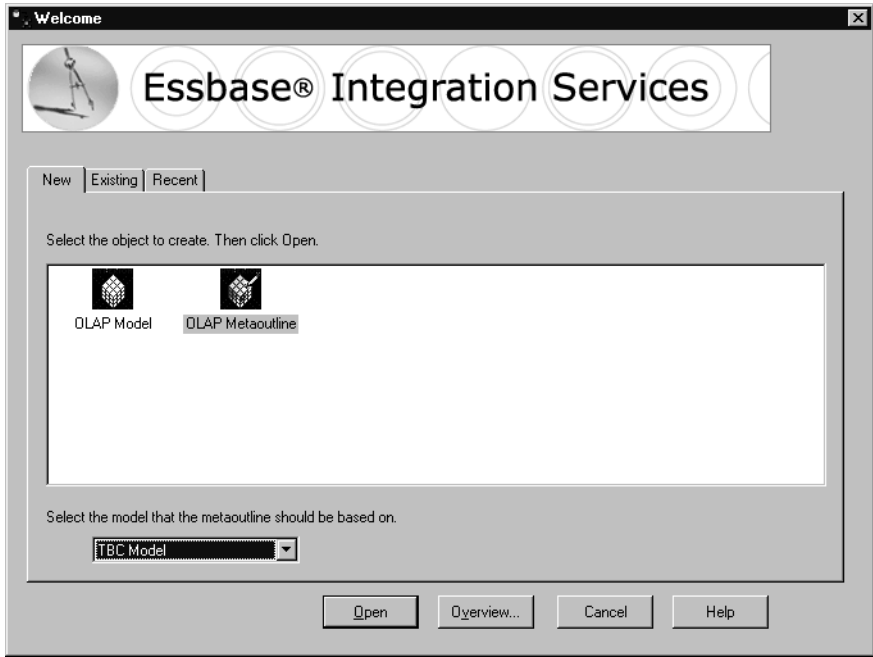


Figure A-1: Essbase Integration Services Console Welcome Dialog Box

Opening the OLAP Main Window to Create a New Metaoutline

To create a new metaoutline containing attribute dimensions, you begin by opening the OLAP Metaoutline main window.

- To open the OLAP Metaoutline main window:
 1. In the **Welcome** dialog box, select **New**.
 2. Select the **OLAP Metaoutline** icon.
 3. From the drop-down list at the bottom of the dialog box, select the OLAP model on which to base the metaoutline (TBC Model in the sample application), and click **Open**.

The **Data Source** dialog box opens, as shown in Figure A-2.

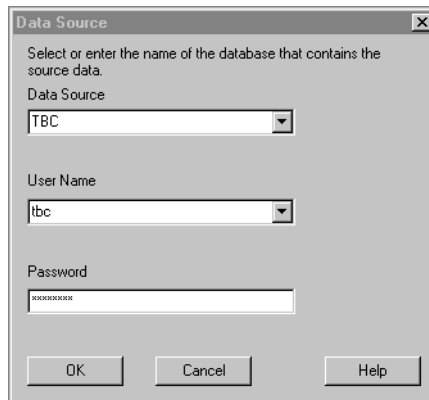


Figure A-2: Data Source Dialog Box

4. From the **Data Source** drop-down list, select the relational data source to use for creating the metaoutline (TBC for the sample application).
5. From the **User Name** drop-down list, select the user name for creating the metaoutline (tbc for the sample application).

6. In the **Password** text box, type the name of your password (**password** for the sample application, all lowercase letters) and click **OK**.

After you have entered the appropriate relational data source information and have connected to the OLAP Metadata Catalog, the OLAP Metaoutline main window opens, as shown in Figure A-3.

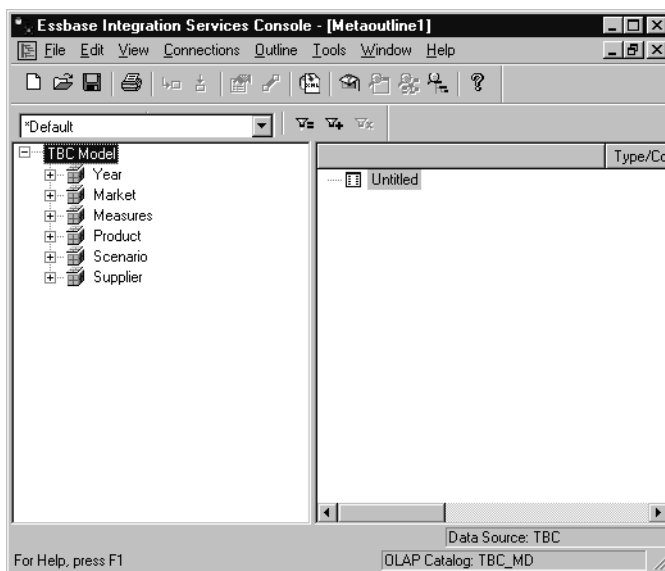


Figure A-3: OLAP Model Dimensions in OLAP Metaoutline Main Window

Working in the OLAP Metaoutline Main Window

This topic contains the following subtopics that describe how to work in the OLAP Metaoutline main window to create a metaoutline containing attribute dimensions:

- “Viewing OLAP Model Dimensions and Attribute-enabled Columns” on page A-5
- “OLAP Model Dimensions with Attribute-Enabled Columns” on page A-6
- “Associating Level 0 Attribute Members with Members of their Base Dimension” on page A-10
- “Setting a Numeric Range for an Attribute Member” on page A-11
- “Using Attribute Calculations” on page A-14
- “Using Attribute Boolean Properties” on page A-16
- “Creating the Measures Dimension” on page A-21
- “Assigning Aliases to Shared Members” on page A-26
- “Saving the Metaoutline” on page A-26

Viewing OLAP Model Dimensions and Attribute-enabled Columns

The left frame of the window displays information about the OLAP model on which you are basing the metaoutline (TBC Model in the sample application). The right frame is blank and is the area where you work to create a metaoutline.

- To view dimensions and attribute-enabled columns:
1. In the OLAP Metaoutline main window, expand the Year, Measures, Product, Market, Scenario, and Supplier dimensions in the left frame by clicking the plus symbol (+) in front of each dimension name.
 2. Expand the Product table under the Product dimension by clicking the plus symbol (+) in front of the name.

As shown in Figure A-4, the attribute-enabled columns are shown indented below `Attributes_PRODUCT` because these columns from the `PRODUCT` relational source table were attribute-enabled in the OLAP model.

3. Expand the attribute-enabled columns for the Market dimension by clicking the plus symbol (+) in front of Attributes_POPULATION.

As shown in Figure A-4, the attribute-enabled columns are shown indented below Attributes_POPULATION because these columns from the POPULATION relational source table were attribute-enabled in the OLAP model.

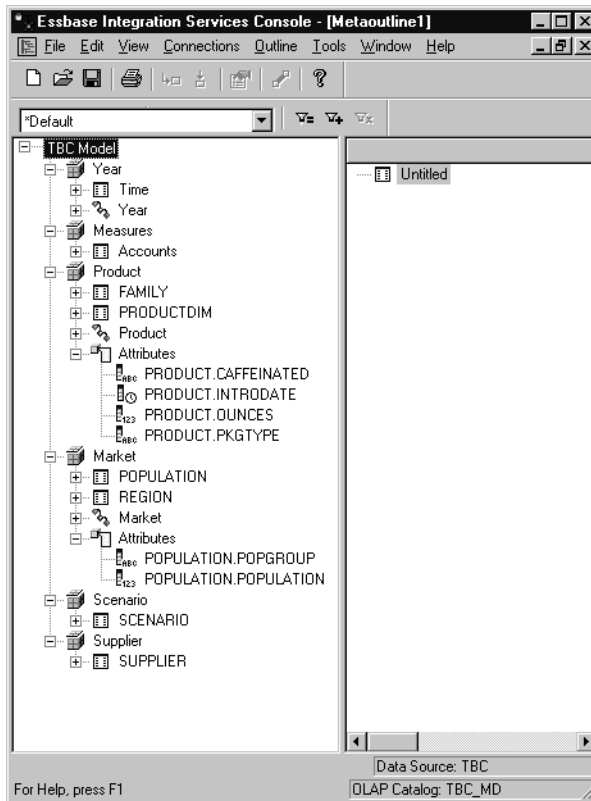


Figure A-4: OLAP Model Dimensions with Attribute-Enabled Columns

Creating Hierarchies, Dimensions, and Attribute Dimensions

➤ To create hierarchies, dimensions and attribute dimensions to build a metaoutline:

1. Drag the Year hierarchy from the left frame to the **Untitled** icon in the right frame and release the mouse button.

Note that dragging an OLAP model hierarchy to the right frame creates a hierarchy in the metaoutline.

2. Drag the Measures dimension from the left frame to the **Untitled** icon in the right frame and release the mouse button.
3. Drag the Product dimension from the left frame to the **Untitled** icon in the right frame and release the mouse button.

The next step is to create the Market dimension in the metaoutline. Creating the Market dimension can be accomplished by using any one of the following methods:

- Drag the Market dimension to the **Untitled** icon in the right frame and release the mouse button.

This action creates a dimension but no hierarchy.

- Drag the Market hierarchy to the **Untitled** icon in the right frame and release the mouse button.

This action creates both a dimension and a hierarchy.

- Drag an attribute-enabled column associated with the Market dimension to the **Untitled** icon in the right frame and release the mouse button.

This action creates both a Market dimension and an attribute dimension and also associates the attribute dimension with its base dimension, Market.

For the sample metaoutline that you are creating, use the third method. Note that the OLAP model has two attribute-enabled columns: POPGROUP and POPULATION.

4. Drag the attribute-enabled POPGROUP column to the **Untitled** icon in the right frame and release the mouse button.

Note that, because the POPGROUP column has a data type of string in the relational data source (identified by the ABC icon), the available data types displayed in the drop-down list are Text and Boolean, with Text displayed as the default data type selection.

OLAP model attribute data types are based on the data type of the relational data source columns. Available attribute data types in the associated metaoutline are based on the Level 0 attribute member type. Data types can be revised in the metaoutline based on the guidelines shown in Table A-1.

Table A-1: Allowable Data Type Changes for Attribute-enabled Columns

Column Data Type/ Essbase Attribute Type	Text	Numeric	Boolean	Date
String	X		X	
Numeric	X	X	X	
Datetime	X			X

5. Drag the attribute-enabled POPULATION column to the POPGROUP column in the right frame and release the mouse button.

Note that because the POPULATION column has a data type of numeric in the relational data source (identified by the 123 icon), the available attribute dimension types in the drop-down list change from Text and Boolean to Text, Numeric, and Boolean, with Numeric displayed as the default selection.

When the available data types displayed in the list box change because an attribute-enabled column with a different Level 0 attribute member data type is added, a warning message is displayed to advise you of the change:



Figure A-5: Attribute Dimension Data Type Change Warning Message

You can accept the change or click **Cancel** to retain the original data type.

Note: When columns of different data types are dragged on top of each other, the common data type (usually the text data type) becomes the default value.

6. Drag the Market hierarchy to the Market dimension in the right frame and release the mouse button.
7. Drag the SCENARIO column under the SCENARIO table to the **Untitled** icon in the right frame and release the mouse button.
8. Drag the attribute-enabled column CAFFEINATED to the **Untitled** icon in the right frame and release the mouse button.

Note that because CAFFEINATED has a data type of string, the default data type assigned in the metaoutline is Text. In the Essbase database, CAFFEINATED is a Boolean attribute dimension. Therefore, the attribute dimension type of the CAFFEINATED dimension needs to be changed from Text to Boolean.

To change the data type of the CAFFEINATED dimension, complete these two steps:

- a. Right-click the CAFFEINATED attribute dimension in the right frame and select **Properties** from the pop-up menu.
 - b. In the **Attribute Dimension Properties** dialog box, select **Boolean** from the attribute dimension type drop-down list and click **OK**.
9. Drag the attribute-enabled column OUNCES to the **Untitled** icon in the right frame and release the mouse button.

Because OUNCES has a data type of numeric, it is assigned the default data type of Numeric in the metaoutline.

10. Drag the attribute-enabled column PKGTYPE to the **Untitled** icon in the right frame and release the mouse button.

Because PKGTYPE has a data type of string, it is assigned the default data type of Text in the metaoutline.

11. Drag the attribute-enabled column INTRODATE to the **Untitled** icon in the right frame and release the mouse button.

Because INTRODATE has a data type of datetime, it is assigned the default data type of Date in the metaoutline.

Associating Level 0 Attribute Members with Members of their Base Dimension

Now that you have created all the necessary Level 0 attribute members for the various attribute dimensions in the sample metaoutline, these attributes must be associated with members of their base dimension. You can make this base-dimension association in either of two ways:

- By member level
- By metaoutline member

- To associate Level 0 attribute members with base dimension members:
1. Right-click the POPULATION member under the POPULATION attribute dimension and select **Properties** from the pop-up menu to display the **General** tab of the **Attribute Member Properties** dialog box:

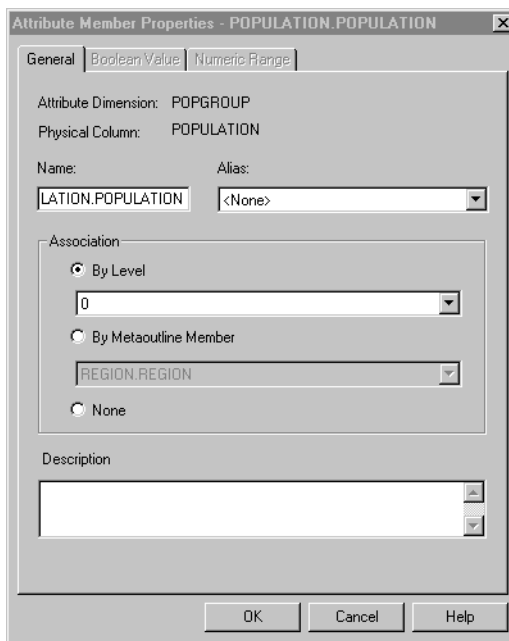


Figure A-6: Attribute Member Properties Dialog Box, General Tab

2. In the **Association** option, select the **By Level** option and select **0** from the drop-down list, and then click **OK**.
3. Right-click the CAFFEINATED member under the CAFFEINATED attribute dimension and select **Properties** from the pop-up menu.
4. In the **Association** option, select the **By Level** option and select **0** from the drop-down list, and then click **OK**.
5. Right-click the OUNCES member under the OUNCES attribute dimension and select **Properties** from the pop-up menu.
6. In the **Association** option, select the **By Level** option and select **0** from the drop-down list, and then click **OK**.
7. Right-click the PKGTYPE member under the PKGTYPE attribute dimension and select **Properties** from the pop-up menu.
8. Select the **Association by Level** option and from the drop-down list under **By Level**, select **0** and click **OK**.
9. Right-click the INTRODATE member under the INTRODATE attribute dimension and select **Properties** from the pop-up menu.
10. In the **Association** option, select the **By Level** option and select **0** from the drop-down list, and then click **OK**.

Setting a Numeric Range for an Attribute Member

In the sample application supplied with the TBC Metaoutline, the POPULATION.POPULATION size range is divided into population groups of SMALL, MEDIUM and LARGE in the Essbase Outline, with population size intervals of 3,000,000.

- To set the numeric range to intervals of 3,000,000.
 1. Right-click the metaoutline name at the top of the right frame. From the pop-up menu, choose **Attribute Member Names**.

2. Select the **Numeric Boundaries** tab of the **Attribute Member Names** dialog box, then select **Tops of ranges** and click **OK**.

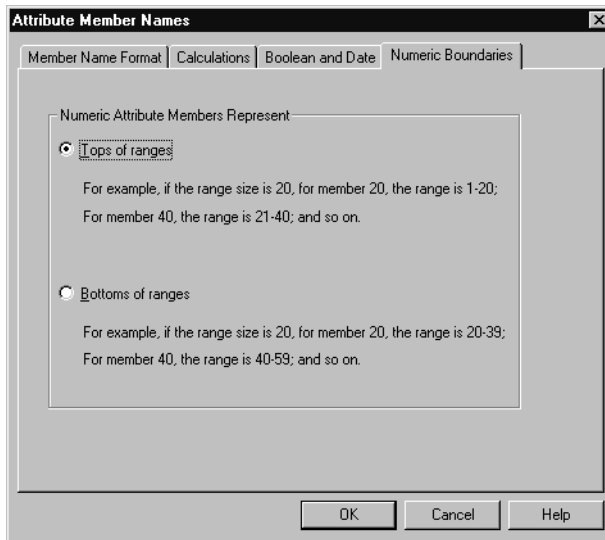


Figure A-7: Attribute Member Names Dialog Box, Numeric Boundaries Tab

3. Right-click the POPULATION.POPULATION attribute member and choose **Properties** from the pop-up menu.
4. Select the **Numeric Range** tab in the **Attribute Properties** dialog box.
5. Enter **3000000** in the **Start** text box.
6. Select **Below** from the drop down list in the **Size** text box.
This sets the lowest range to be populations below 3,000,000.
7. Click the **ADD** button on the lower right side of the dialog box.
A new line for selections becomes available.
8. In the new line, enter **3000001** in the **Start** text box and enter **3000000** in the **Size** text box.
9. Click **ADD**.
A new line for selections becomes available.

- Enter **2000000** in the **Start** text box and select **Above** from the drop down list in the **Size** text box.

This sets all populations above 20,000,000 into a group “above 20,000,000.”

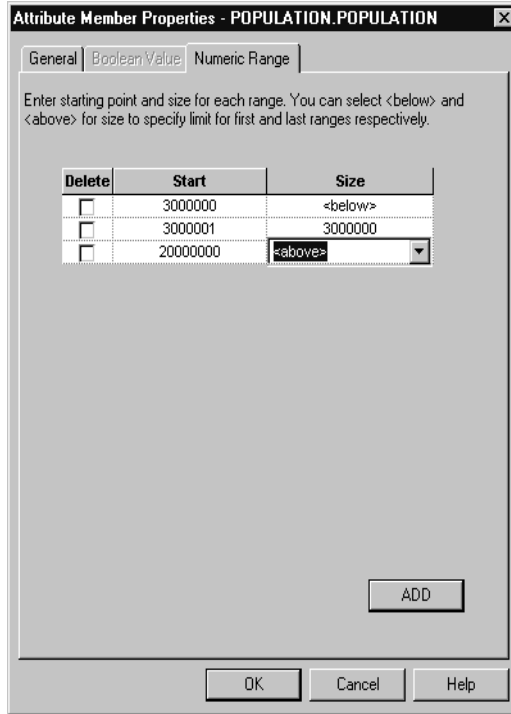


Figure A-8: Attribute Member Properties Dialog Box, Numeric Range Tab

You have set a population grouping of “below 3,000,000.” You also have set a series of groupings of size 3,000,000 between 3,000,001 and 20,000,000. Finally, you have set a single group for all populations above 20,000,000. The results of these settings are visible in the reports and spreadsheets produced with this metaoutline.

Using Attribute Calculations

Attribute members have five predefined calculations; the results of these calculations will appear in spreadsheets and in reports. For example, in the sample application, predefined calculations in the attribute dimension can yield the average yearly sales of 12 ounce bottles of Vanilla Creme Soda. Both Ounces and Package type (bottles) are attribute dimensions, and Average is one of the five types of calculations.

Attribute calculations have the following properties:

- System-defined. When you create an attribute dimension in a metaoutline, the resulting reports and spreadsheets have all five calculations available for all attribute members.
 - Dynamic Calc. All Attribute calculations are calculated when a user requests the calculation, and then the calculation is discarded. You cannot store the calculated data in a database.
 - Displayed in Reports. Attribute calculation results are not displayed in the metaoutline. The calculation results are available only in spreadsheets and reports.
- To define new names for the attribute calculations:
1. Right-click the name of the metaoutline that appears in the right frame of the metaoutline screen.
 2. From the pop-up list, select **Attribute Member Names**.
 3. In the **Attribute Member Names** dialog box, select the **Calculations** tab.

4. Type the new calculation name in the appropriate text box.

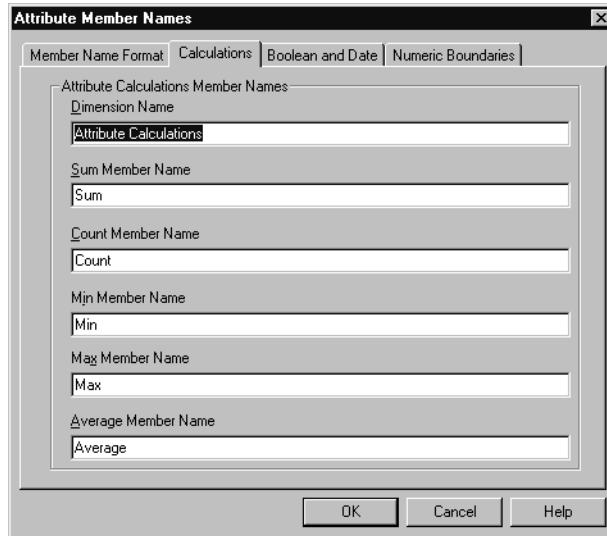


Figure A-9: Attribute Member Names Dialog Box, Calculations Tab

The five attribute calculations are described below:

- **Sum** calculates a sum, or total, of the values for a member with an attribute or combination of attributes. Sum supports multiplication and two-pass calculations which may be defined in the member dimension related to that attribute. In most cases, however, attribute Sum is a simple addition of values. If an attribute dimension is specified, but no calculation is specified, Sum is the default dimension that will appear in the spreadsheet.
- **Count** calculates the number of members with the specified attribute or combination of attributes. Count includes only those members for which a data block exists.
- **Average** calculates a mathematical mean, or average, of the non-missing values for a specified attribute or combination of attributes (Sum divided by Count).

- **Min** calculates the minimum data value for a specified attribute or combination of attributes.
- **Max** calculates the maximum data value for a specified attribute or combination of attributes.

For further information about using attribute calculations, see the *Essbase Database Administrator's Guide*.

Using Attribute Boolean Properties

Attribute Boolean properties allow the user to sort on simple Boolean values, such as Caffeinated True or False.

In the section on “OLAP Model Dimensions with Attribute-Enabled Columns” on page A-6, we changed the data type for Caffeinated from “text” in the model to “Boolean” in the metaoutline. The Caffeinated property is displayed in the metaoutline with a Boolean datatype as shown in Figure A-10.

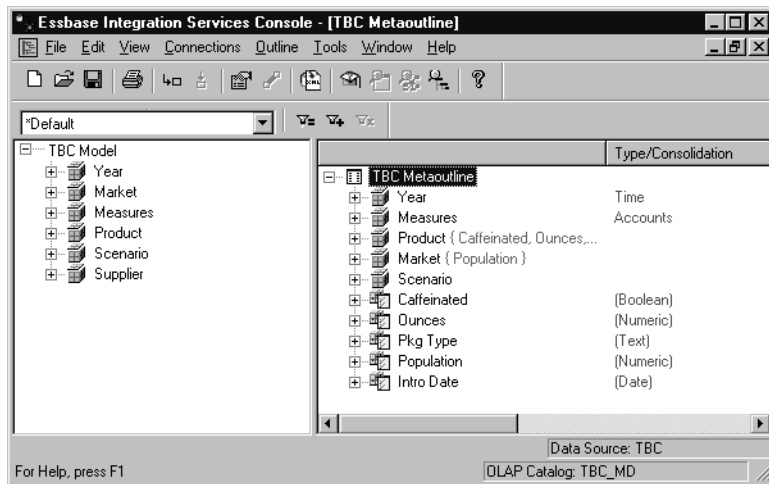


Figure A-10: Metaoutline with Caffeinated as Boolean datatype

The Caffeinated results can be chosen to appear in spreadsheets and reports. Figure A-11 shows Caffeinated True results in the sample Essbase Spreadsheet Add-in.

	A	B	C	D	E
1					Measures
2	Actual	Year	True	100-10	22777
3	Actual	Year	True	100-20	5708
4	Actual	Year	True	100	28485
5	Actual	Year	True	200-10	7201
6	Actual	Year	True	200-20	12025
7	Actual	Year	True	200	19226
8	Actual	Year	True	300-10	12195
9	Actual	Year	True	300-20	2511
10	Actual	Year	True	300-30	11093
11	Actual	Year	True	300	25799
12	Actual	Year	True	400	0
13	Actual	Year	True	100-20	5708
14	Actual	Year	True	200-10	7201
15	Actual	Year	True	200-20	12025
16	Actual	Year	True	300-10	12195
17	Actual	Year	True	300-20	2511
18	Actual	Year	True	300-30	11093
19	Actual	Year	True	Diet	28826
20	Actual	Year	True	100-10	22777
21	Actual	Year	True	100-20	5708
22	Actual	Year	True	200-10	7201
23	Actual	Year	True	200-20	12025

Figure A-11: Spreadsheet Results for Caffeinated True

You can also use the Boolean tab of the Attribute Properties dialog box to express other properties as “True” within a given metaoutline. For example, you can set the PKGTYP so that True equals Bottle. You can also set more elaborate criteria for True, which can be convenient for interpreting complex spreadsheets.

- To change the PKGTYPE datatype to Boolean:
 1. Right-click on the PKGTYPE attribute dimension and select **Properties** from the pop-up menu.
 2. In the **Attribute Dimension Properties** dialog box, select **Boolean** from the **Attribute Dimension Type** drop-down list.

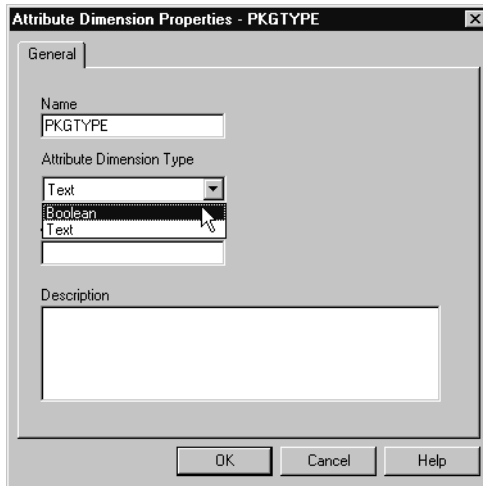


Figure A-12: Attribute Dimension Properties Dialog Box

Now that you have changed the data type to Boolean, you can use the Boolean value tab to set requirements for the reports.

- To set additional Boolean reporting criteria:
 1. Right-click on the PRODUCT.PKGTYPE attribute member and select **Properties** from the pop-up menu.
 2. In the **Attribute Member Properties** dialog box, select the **Boolean Value** tab.
 3. In the **Apply Values As** option, select **TRUE**.

4. In the **Operator** drop down list, select = (equal to).
5. In the **Value** drop-down list, choose Bottle.
6. Click **OK**.

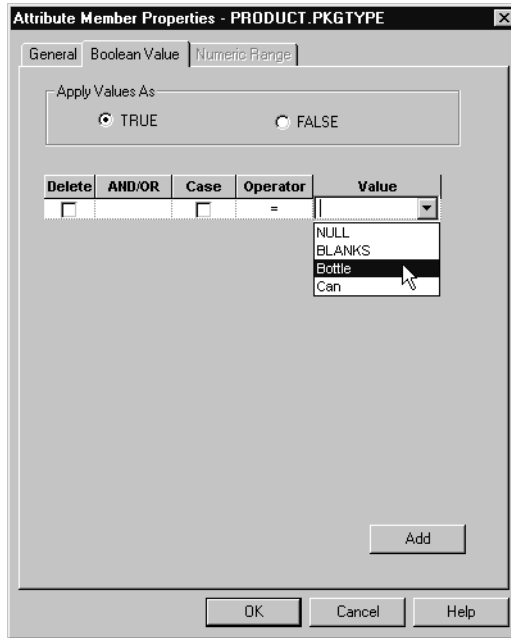


Figure A-13: Attribute Member Properties Dialog Box, Boolean Value Tab

Reports now show Bottle as a Boolean attribute equal to **True**.

More elaborate choices can be shown as **True** by selecting more criteria. For example, you can click **Add**, and then select **Or** in the **And/Or** drop-down list, = in the **Operator** list, and NULL in the **Value** drop-down list.

These choices set the True value to apply to both bottles and null value, as shown in Figure A-14, which illustrates the flexibility available in the **Attribute Member Properties** dialog box.

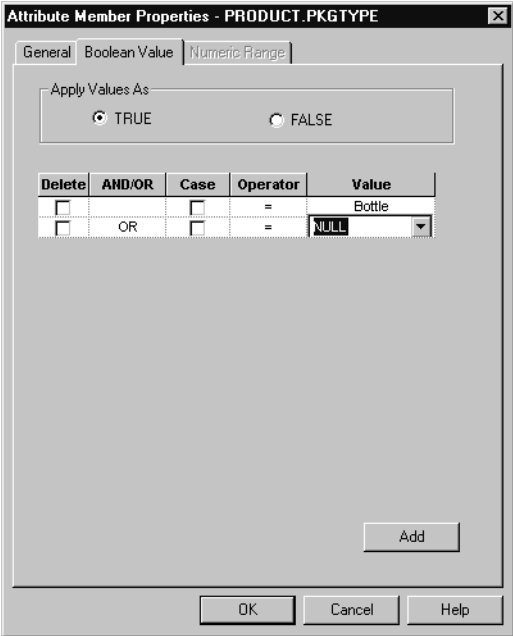




Figure A-14: Attribute Member Properties Dialog Box, Boolean Value Tab with Two Criteria Chosen

Creating the Measures Dimension

The Measures dimension in the sample metaoutline you are creating consists of a combination of columns from the SALESFACT table in the OLAP model, as well as user-defined members.

- To create the Measures dimension in the metaoutline:
1. Select the Measures dimension in the right frame, go to the toolbar and click the **Add member as a child** button, , and type the new member name, **Profit**.
 2. Select the Profit member, go to the toolbar and click the **Add member as a child** button, and type the new member name, **Margin**.
 3. Select the Margin member, go to the toolbar, click the **Add member as a sibling** button, , and type the new member name, **Total Expenses**.
 4. Drag the SALES column under the Accounts table to the Margin member in the right frame and release the mouse button.
 5. Drag the COGS column under the Accounts table to the Margin member in the right frame and release the mouse button.
 6. Drag the MARKETING column under the Accounts table to the Total Expenses member in the right frame and release the mouse button.
 7. Drag the PAYROLL column under the Accounts table to the Total Expenses member in the right frame and release the mouse button.
 8. Drag the MISC column under the Accounts table to the Total Expenses member in the right frame and release the mouse button.

Setting Consolidation and Calculation Methods

Next, you must define the consolidation and calculation methods to be used in determining the following OLAP reporting variances:

- Margin
- Profit

Defining Consolidation and Calculation Methods for Determining the Margin

Margin is equal to SALES - COGS (Cost of Goods Sold). To set the formula for determining the Margin in Essbase reports based on the sample metaoutline, you must define the subtraction consolidation method and specify expense variance reporting.

- To set the consolidation and calculation methods for determining the Margin:
 1. Right-click COGS in the right frame, and select **Properties** from the pop-up menu to display the **Member Properties** dialog box.
 2. Select the **Member Info** tab, as shown in Figure A-15.

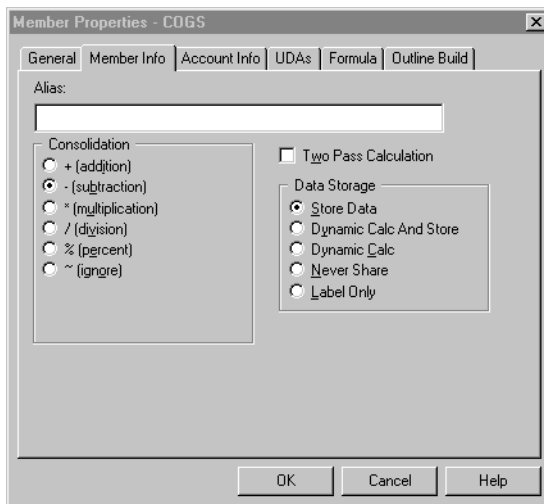


Figure A-15: Member Properties Dialog Box, Member Info Tab

3. Under **Consolidation**, select the - (**subtraction**) option and click **OK**.

4. In the **Member Properties** dialog box, select the **Account Info** tab, as shown in Figure A-15.

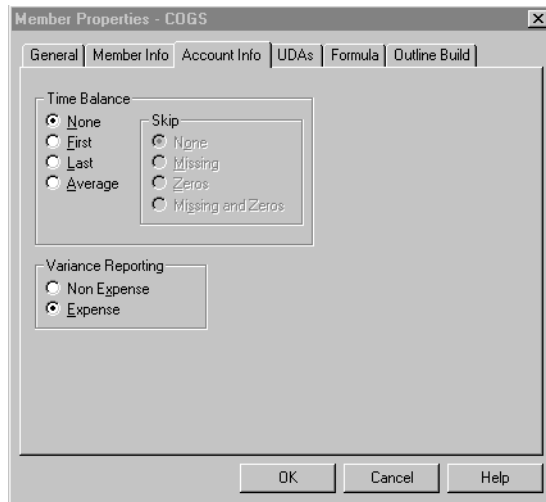


Figure A-16: Member Properties Dialog Box, Account Info Tab

5. Under **Variance Reporting**, select the **Expense** option and click **OK**.

The Expense Variance Reporting feature can be used on any expense item member and tells Essbase to calculate a favorable or unfavorable variance.

Defining Consolidation and Calculation Methods for Determining the Profit

Next, you must set the consolidation and calculation methods for determining Profit (Margin - Total Expenses) in Essbase reports.

- To set the consolidation and calculation methods for determining Profit:
 1. Right-click Total Expenses in the right frame, and select **Properties** from the pop-up menu.
 2. Select the **Member Info** tab.

3. Under **Consolidation**, select the **Subtraction** option, and then, under **Data Storage**, select the **Dynamic Calc** option and click **OK**.
 4. Select the **Account Info** tab and under **Variance Reporting**, select the **Expense** option and click **OK**.
- To complete consolidation and calculation method settings for variance reporting, make the following selections:
1. Right-click **MARKETING** in the right frame, select **Properties** from the pop-up menu, and then select the **Account Info** tab.
 2. Under **Variance Reporting**, select the **Expense** option and click **OK**.
 3. Right-click **PAYROLL** in the right frame, select **Properties** from the pop-up menu, and then select the **Account Info** tab.
 4. Under **Variance Reporting**, select the **Expense** option and click **OK**.
 5. Right-click **MISC** in the right frame, select **Properties** from the pop-up menu, and then select the **Account Info** tab.
 6. Under **Variance Reporting**, select the **Expense** option and click **OK**.
 7. Right-click **Margin** in the right frame, select **Properties** from the pop-up menu, and then select the **Member Info** tab.
 8. Under **Data Storage**, select the **Dynamic Calc** option and click **OK**.
 9. Right-click **Profit** in the right frame, select **Properties** from the pop-up menu, and then select the **Member Info** tab.
 10. Under **Data Storage**, select the **Dynamic Calc** option and click **OK**.
 11. Right-click **Measures** in the right frame, select **Properties** from the pop-up menu, and then select the **Member Info** tab.
 12. Under **Data Storage**, select the **Label Only** option and click **OK**.

Adding Variances to the Scenario Dimension

- To add Variances to the Scenario dimension:
 1. Select the **Scenario** member in the right frame, click the **Add member as a sibling** button, and type **Variance** as the **New member name**.
 2. Select the **Variance** member, click the **Add member as a sibling** button, and type **Variance %** as the **New member name**.
 3. Right-click **Variance** in the right frame, select **Properties** from the pop-up menu, and then select the **Member Info** tab.
 4. Click the **Two Pass Calculation** checkbox, and under **Data Storage**, select the **Dynamic Calc** option, and click **OK**.
 5. Select the **Formula** tab, type **@VAR(Actual,Budget)** as the formula, and click **OK**.
 6. Right-click **Variance %** in the right frame, select **Properties** from the pop-up menu, and then select the **Member Info** tab.
 7. Click the **Two Pass Calculation** checkbox, and under **Data Storage**, select the **Dynamic Calc** option, and click **OK**.
 8. Select the **Formula** tab, type **@VARPER(Actual,Budget)** as the formula, and click **OK**.

Selecting the Build Option

The Product dimension contains shared members (alternate hierarchies). An outline that contains shared members can result in erroneous reporting unless the correct Essbase outline build option is selected.

- To select the correct outline build option:
 1. Right-click the Product dimension in the right frame, select **Properties** from the pop-up menu, and then select the **Outline build** tab.
 2. Under **Duplicate Member Names**, select the **Add as shared members** option and click **OK**.

Assigning Aliases to Shared Members

Both the FAMILY and SKU members of the Product dimension in the sample application have an alias that you assign to them.

- To assign aliases to shared members in the Product dimension:
 1. Right-click **FAMILY** in the right frame, select **Properties** from the pop-up menu, and then select the **Member Info** tab.
 2. Select the **FAMILYNAME** column from the **alias** drop-down list and click **OK**.

The FAMILY member also has a database column that can be associated as a consolidation attribute.
 3. Under **Consolidation**, select **From Database Column**, and then select **FAMILYATTR** from the drop-down list and click **OK**.
 4. Next, right-click **SKU** in the right frame, select **Properties** from the pop-up menu, and select the **Member Info** tab.
 5. Select the **SKUNAME** column from the **alias** drop-down list and click **OK**.

Saving the Metaoutline

You have now created a sample metaoutline containing attribute dimensions.

- To save the metaoutline:
 1. Select **File > Save**.
 2. In the **Save New Metaoutline** dialog box, type a name for the metaoutline and click **OK**.

To load members and data from the sample metaoutline into Essbase, see Chapter 7, “Loading Dimensions and Members” and Chapter 8, “Loading Data.”

accounts dimension. A dimension type that makes accounting intelligence available. You can tag only one dimension as accounts; you do not have to have an accounts dimension.

Add Joins mode. In Essbase Integration Services, a state in which you can draw lines to define joins between objects in the OLAP model.

agent log file. A record of actions performed by the agent (server).

aggregate. *See* consolidate.

aggregation level. *See* consolidation level.

alias. An alternative name for a dimension, member, or description.

alias column. In Essbase Integration Services, a column in the data source that contains the aliases for a member level in the metaoutline.

alternate name. *See* alias.

ancestor. A branch member that has members below it. For example, in a dimension that includes years, quarters, and months, the members Qtr2 and 2001 are ancestors of the member April.

application. In Hyperion Essbase, a container for one or more Hyperion Essbase databases and files, such as calculation scripts and data load rules, that are related to the databases.

Architect. *See* Essbase Integration Services Console.

attribute. A classification of a member in a dimension. You can specify an attribute to select and group members with a specified attribute and to perform calculations and application-specific functions. For example, a Product dimension can have several attributes, such as Size and Flavor. A specific member of the Product dimension can have the Size attribute 8 and the Flavor attribute Cola.

base dimension. A standard dimension that is associated with one or more attribute dimensions. To classify a member of a base dimension, you associate it with a member of one or more attribute dimensions that describes the classification, such as a specific flavor. For example, assuming products have flavors, the Product dimension is the base dimension for the Flavors attribute dimension.

block. The primary storage unit within Hyperion Essbase. A block is a multidimensional array representing the cells of all dense dimensions.

branch. A member of a hierarchy that may or may not contain leaf members.

Builder. *See* Essbase Integration Services Console.

calculation script. A text file containing a set of instructions telling Hyperion Essbase how to calculate a database.

catalog. *See* OLAP Metadata Catalog.

cell. A unit of data representing the intersection of dimensions in a multidimensional database; the intersection of a row and a column in a worksheet.

column. In relational databases, a vertical part of a table. Also known as a field. A column contains all the values for a specific type of information. Every column has a name and a particular data type. For example, a column may contain the name or employee number for each employee.

Command Interface. *See* Essbase Integration Services Shell.

concatenation. An operation that joins two characters or strings in the order specified, forming one string whose length is equal to the sum of the lengths of the two characters or strings. For example, the strings “New York” and “Library”, when concatenated, become “New York Library”.

condition. In relational databases, a data extraction criterion. For example, you can apply a condition to extract only the data that begins with the letter A.

consolidate. The process of gathering data from dependent entities and aggregating the data to parent entities. Once you enter or load data into child entities, you perform a consolidation to aggregate the data through the organization. As data consolidates, intercompany processing, conversion methods, equity adjustments, and minority ownerships perform calculations on the data.

consolidation level. The top of an aggregation hierarchy or any branch or sub-branch below the top, including the input (leaf) portion of the hierarchy.

data block. *See* block.

data cleansing. The process of making inconsistent data consistent. Examples of inconsistent data are data in which some values are incorrect or not of the correct data type.

data file. A file containing data blocks; Hyperion Essbase generates the data file during a data load and stores it on disk.

data load. The process of populating a Hyperion Essbase database with data. Loading data establishes actual values for the cells defined by the structural outline of the database.

data point. *See* cell.

data type. Defines the kind of data that a column can contain. For example, columns with the Numeric data type contain numbers.

data value. *See* cell.

database. A collection of related information. Each unit (record) of the database is typically organized in a fixed format to make it easy to retrieve selected portions of the data on demand. Each record is made up of one or more data fields, and each data field can hold one piece of data (known as a value).

database administrator. An individual who administers database servers, such as Hyperion Essbase, and who may also design, maintain, and create databases.

database outline. *See* outline.

DateTime transformation. A set of instructions that defines how to change or reformat a relational database DateTime data type to your choice of date format.

DBMS. *See* relational database management system (RDBMS, DBMS).

denormalization. The process of adding redundancy to data in a database, typically by joining tables to form more complete sets of data in the individual tables. This process is performed for the purpose of increasing data retrieval performance. *Contrast with* normalization.

dense dimension. A dimension likely to contain data for every combination of dimension members. For example, a time dimension is typically a dense dimension because it contains all combinations of all members. Contrast with sparse dimension.

detail member. *See* leaf member.

dimension. A data category that is used to organize business data for retrieval and preservation of values. Each dimension usually contains a hierarchy of related members grouped within it. For example, a Year dimension often includes members for each time period, such as quarters and months. Other common business dimensions may be measures, natural accounts, products, and markets.

dimension branch. A collection of dimension tables organized in a hierarchical structure, with one of the dimension tables joined directly to the fact table. A dimension branch defines a single, potential Hyperion Essbase dimension in an Essbase Integration Services metaoutline.

dimension build rules. In Hyperion Essbase, a set of operations similar to data load rules. Instead of loading data, the dimension build rules modify the outline based on data in the external data source file.

dimension table. A container in the OLAP model for one or more relational tables that define a potential Hyperion Essbase dimension. When one dimension table joins to another dimension table, forming a dimension branch, the dimension is composed of the columns of all of the dimension tables in the dimension branch.

dimension type. A property in the OLAP model and in the metaoutline that defines which tables form the Hyperion Essbase accounts, time, and standard (default) dimensions.

duplicate member. The second occurrence of a member name in a data source. Users can determine whether Essbase Integration Server ignores duplicate members or adds them as shared members. *See also* shared member.

Essbase database. A repository of data within Hyperion Essbase that contains a multidimensional data storage array. Each database consists of a defined storage structure (a database outline), data, security definitions, and other associated files, such as calculation scripts or data load rules. *See also* application.

Essbase Integration Server. The server component of the Essbase Integration Services product family. Essbase Integration Server uses the information stored in the OLAP Metadata Catalog to extract the dimension names and member names needed to build a Hyperion Essbase outline from the data source. When the Hyperion Essbase outline is complete, Essbase Integration Server extracts data from the data source, performs the operations specified in the metaoutline, and loads the data into the Hyperion Essbase database.

Essbase Integration Services Console. The client component of the Hyperion Integration Services product family. This graphic interface tool is used to create OLAP models and metaoutlines, and to load data into a Hyperion Essbase database.

Essbase Integration Services Shell. In Essbase Integration Services, a command-line tool that you can use to perform common operations on the Hyperion Essbase outline and the data in the Hyperion Essbase database. For example, you can use the LOADDATA command to load data.

Essbase OLAP Server. A Hyperion server that locates and accesses multidimensional data.

Essbase outline. *See* outline.

fact table. In Essbase Integration Services, a container for one or more relational tables that define the data values for each dimension intersection in the OLAP model. For example, if the OLAP model contains Products, Region, and Year dimensions, the fact table might include data values for the number of units of Product A sold in New York in January.

field. (1) In Hyperion Essbase, a value or item in a data source file that is retrieved from a Hyperion Essbase database. (2) In relational databases, a space allocated for a particular item of information. Fields are the smallest units of information you can access. Most fields have certain characteristics associated with them. For example, some fields are numeric, whereas others are textual. Every field has a name.

file delimiter. One or more characters, such as a comma (,), separating fields in a data source.

filter. (1) In Hyperion Essbase, a method for controlling access to database cells. A filter is the most detailed level of security, allowing you to define the varying access levels that users can have to data. (2) In Essbase Integration Services and in relational databases, a method for controlling which data you retrieve from a relational database. For example, you can choose to retrieve products only in the Product A product family. A filter contains one or more conditions.

foreign key. In relational databases, a column whose data values correspond to the values of a key column in another relational table. *See also* key column and primary key.

formula. In Hyperion Essbase, a combination of operators and functions as well as dimension names, member names, and numeric constants. Formulas are used to calculate relationships between members of a Hyperion Essbase database. @VAR(Actual, Budget) is an example of a formula.

generation. A layer in a hierarchical tree structure that defines member relationships in a Hyperion Essbase database. Hyperion Essbase orders generations incrementally from the dimension (generation 1) down to the leaf members.

generation name. A unique name that describes a generation.

hierarchy. A set of multidimensional relationships in an outline, often created in a tree formation. For example, parents, children, and generations represent a hierarchy.

Hyperion Essbase kernel. A layer of the Hyperion Essbase server that provides the foundation for a variety of functionality, including data loading, calculations, spreadsheet lock&send, partitioning, and restructuring. The Hyperion Essbase kernel reads, caches, and writes data; manages transactions; and enforces transaction semantics to ensure data consistency and data integrity.

Hyperion Integration Server Desktop. *See* Essbase Integration Services Console.

index. (1) In Hyperion Essbase, a method of retrieving data based on sparse dimensions. Also refers to the index files, collectively. (2) In relational databases, pointers that are logically arranged by the values of a key. Indexes optimize access to relational data.

index cache. In Hyperion Essbase, a buffer in memory that holds index pages.

index entry. In Hyperion Essbase, a pointer to an intersection of sparse dimensions. Each index entry points to a block on disk and locates a particular cell within the block by means of an offset.

index file. In Hyperion Essbase, a file used to store data retrieval information. It resides on disk and contains index pages.

index page. In Hyperion Essbase, a subdivision of an index file containing entries that point to data blocks.

input block. A type of data block that has at least one loaded data value.

input data. Any data that is loaded from a data source and is not generated by calculation.

Integration Server. *See* Essbase Integration Server.

integrity constraint. In relational databases, a rule stating that each row should have an entry for each required key column.

Intelligent Help. In Essbase Integration Services, procedural help displayed in a dockable window that accompanies the OLAP Model and OLAP Metaoutline main windows. Intelligent Help provides numbered procedures and links to new automatic-detection options and frequently used functions.

intersection level. In Essbase Spreadsheet Add-in, a Hyperion Essbase member combination that defines a specific value. For example, the member combination Actual, Root Beer, Sales, Jan, East represents the actual January sales value for root beer in the Eastern region.

join. In relational databases, a relationship between two tables based on matching key column values.

join columns. In Essbase Integration Services, two relational table columns that are joined from one table to another.

key column. In relational databases, a column or columns that form a unique identifier for each row. For example, EMPLOYEE_ID might be a key column.

leaf member. A member that has no children.

left frame. (1) In the Essbase Integration Services Console OLAP Metaoutline main window, the area on the left that enables you to view a list of dimensions previously defined in the OLAP model. (2) In the OLAP Model main window, the area on the left that displays a list of the tables and views available in a source relational database.

level. (1) In Hyperion Essbase, a layer of a hierarchical tree structure that defines database member relationships. Hyperion Essbase numbers levels incrementally from the leaf member (level 0) up to the dimension member. (2) In Essbase Integration Services, the distance of a dimension table from the fact table in the OLAP model. For example, if a table is level 2, it is separated from the fact table by two links.

level 0 block. A data block that is created for sparse member combinations when all of the members of the sparse combination are level 0 members.

level 0 member. *See* leaf member.

level name. A unique name that describes a level.

load member. In Essbase Integration Services, a member in a user-defined dimension into which data is loaded. Only user-defined dimensions require load members. For all non user-defined dimensions, Essbase Integration Server knows how to load members and data into the Hyperion Essbase database.

load properties. In Essbase Integration Services, a set of rules that determine what actions the product performs on member level names and data as they are loaded.

logical column. In Essbase Integration Services, a column created by manipulating the data in one or more physical columns. *See also* column. *Contrast with* physical column.

logical table. In relational databases, a table created by manipulating columns from one or more physical tables. The logical table is only a view of the data; the columns remain stored in the original tables and are not physically duplicated in the logical table. *See also* view. *Contrast with* physical table.

mathematical operator. A symbol that defines how data is calculated. A mathematical operator can be any of the standard mathematical or Boolean operators, for example, +, -, *, /, and %. Mathematical operators are used in formulas, and outlines.

MDDDB. *See* multidimensional database (MDDDB).

measures. Data values that a user wants to track, such as Unit_Price and Discount. By default, measures values map to the accounts dimension in the OLAP model, which maps to the measure dimension in the OLAP metaoutline, which in turn maps to the accounts dimension in the Hyperion Essbase outline.

measures dimension. In Essbase Integration Services, a dimension that, by default, maps to the accounts dimension in the Hyperion Essbase outline.

member. A discrete component within a dimension. For example, a time dimension might include members such as Jan, Feb, and Qtr1.

member combination. In Hyperion Essbase, a list of member names used to specify a set of data at the intersection of two or more dimensions. A member combination is specified by using the cross-dimensional operator -> (a hyphen followed by a right-angle bracket). For example, the actual sales data for the month of January in Sample Basic is Sales->Jan->Actual.

member level. A hierarchical level of detail within a dimension. For example, in a dimension that defines geographic areas by nation, which are then subdivided into provinces, the nation and province categories each represent a member level. A member level corresponds to a level in a Hyperion Essbase outline. The measures dimension contains actual members that are also member levels.

member load. The process of adding new dimensions or members (without data) to a Hyperion Essbase outline. *Contrast with* data load.

metadata. The components of a database outline that describe and hold data. Examples of metadata are dimension names, member names, properties, time periods, and security.

metaoutline. In Essbase Integration Services, a template containing the structure and rules for creating a Hyperion Essbase outline from an OLAP model.

missing data (#MISSING). A marker indicating that data in the labeled location does not exist, contains no meaningful value, or was never entered or loaded. For example, missing data exists when an account contains data for a previous or a future period but not for the current period.

Move mode. In Essbase Integration Services, a state in which you can pick up, move, and drop objects in the OLAP Model main window.

multidimensional. Describes a method of referencing data through three or more dimensions. An individual data value is the intersection of one member from each dimension.

multidimensional database (MDDB). A method of referencing data through three or more dimensions. An individual record is the intersection of a point for a set of dimensions. *Contrast with* relational database.

normalization. The process of grouping and removing redundancy from data so that each entity is in its appropriate place in the database and only in its appropriate place. *Contrast with* denormalization.

numeric transformation. In Essbase Integration Services, a set of instructions that define how to change or reformat a relational database numeric field type. For example, you may choose to divide numeric data by 100.

ODBC. *See* Open Database Connectivity (ODBC).

ODBC data source. Location of the data that you are accessing and the information necessary to access the data using ODBC. For example, an ODBC data source that connects to an SQL Server might require a server name, a database name, a user name, and a password. *See also* Open Database Connectivity.

OLAP. *See* online analytical processing (OLAP).

OLAP Architect. *See* Essbase Integration Services Console.

OLAP Builder. *See* Essbase Integration Services Console.

OLAP Catalog. *See* OLAP Metadata Catalog.

OLAP Command Interface. *See* Essbase Integration Services Shell.

OLAP Metadata Catalog. In Essbase Integration Services, a relational database containing metadata describing the nature, source, location, and type of data that you pull from the relational data source. Essbase Integration Server accesses the OLAP Metadata Catalog to generate the SQL statements and the information required to generate a Hyperion Essbase database outline.

OLAP model. In Essbase Integration Services, a logical model (star schema) that you create from tables and columns in a relational database. You can then use the OLAP model to generate the structure of a multidimensional database.

OLTP. *See* online transaction processing (OLTP).

online analytical processing (OLAP). A multidimensional, multi-user, client-server computing environment for users who need to analyze consolidated enterprise data in real time. OLAP systems feature drilling down, data pivoting, complex calculations, trend analyses, and modeling.

online transaction processing (OLTP). OLTP applications are commonly referred to as data capture, data entry, or data collection applications. OLTP applications enable an organization to capture the large amounts of data resulting from its daily activities but provide limited capability for reporting on the data.

Open Database Connectivity (ODBC). Standardized application programming interface (API) technology that allows applications to access multiple third-party databases.

outline. The structure that defines all elements of a database within Hyperion Essbase. For example, an outline contains definitions of dimensions, members, and formulas.

parent. A member that has an aggregated branch below it.

pass-through transformations. In Essbase Integration Services, a feature that allows you to use functions specific to your relational database management system (RDBMS) to extract data values for columns. You can provide a statement that Essbase Integration Services passes through to your RDBMS as a part of the SQL SELECT statement. You provide the statement as a property of a column and the pass-through feature returns a value for the column.

permission. A special privilege that must be assigned to users or groups to enable them to access or modify secure data. Permissions include Read, Read/Write and None.

physical column. A column that is stored in a relational database. *See also* column. *Contrast with* logical column.

physical table. A combination of rows and columns stored in a relational database. *Contrast with* logical table.

pointer. In relational databases, a data element that indicates the location of data in storage.

primary dimension table. A dimension table that joins directly to the fact table. Additional dimension tables may join to the primary dimension table to create a dimension branch.

primary key. In relational databases, a column (key) that uniquely identifies a row. For example, Employee_ID.

query governor. An Essbase Integration Services parameter or Hyperion Essbase OLAP Server configuration setting that you set to control the duration and size of the queries made to the data source.

RDBMS. *See* relational database management system (RDBMS, DBMS).

record. A set of information in a data source. Records are composed of fields, each of which contains one item of information. A set of records constitutes a table. A single record constitutes a row in the table. For example, a table containing personnel information might contain records (rows) that have three fields: a NAME field, an ADDRESS field, and a PHONE_NUMBER field.

recursive table. A source relational table that contains information in one row that is a parent or child of information in another row. For example, in a relational source table containing the columns EMPLOYEE_ID, NAME, and MANAGER_ID, the columns EMPLOYEE_ID and MANAGER_ID are recursive because MANAGER_ID refers back to the EMPLOYEE_ID. Using Essbase Integration Services, you can build a Hyperion Essbase outline hierarchy from a recursive source table.

relational database. A type of database that stores data in the form of related tables. A single database can be spread across several tables, and can be viewed in many different ways. *Contrast with* multidimensional database (MDDB).

relational database management system (RDBMS, DBMS). A system for accessing data in a relational database. This term is often used to describe systems for management of multiple relational databases or tables.

restructure. In Hyperion Essbase, an operation to regenerate or rebuild the database index and, in some cases, the data files.

right frame. In the Essbase Integration Services Console OLAP Metaoutline main window, the area on the right, in which you build a metaoutline; in the OLAP Model main window, the area on the right, in which you build an OLAP model.

schema. In relational databases, a logical model that represents the data and the relationships between the data.

server. *See* Essbase OLAP Server and Essbase Integration Server.

shared member. A member that shares storage space with another member of the same name. The shared member has a property that designates it as shared. The use of shared members prevents duplicate calculation of members that appear more than once in a Hyperion Essbase outline.

sibling. A child member within a dimension, having the same parent as another child member. For example, the members East and West are both children of the Markets dimension and siblings of each other.

sparse dimension. A dimension unlikely to contain data for all combinations of dimension members. For example, product and market dimensions are sparse if not all products are sold in all markets. Contrast with dense dimension.

SQL. *See* Structured Query Language (SQL).

SQL Override. In Essbase Integration Services, a function that enables editing of the standard SQL statements generated by Essbase Integration Server. The edited, user-defined SQL can be selected to improve data load performance when loading data into a Hyperion Essbase database.

staging area. A database that you create to meet the needs of a specific application. A staging area is a snapshot or restructured version of one or more RDBMSs.

standard dimension. A dimension that is not an attribute dimension.

star schema. In Essbase Integration Services, a logical model that represents your relational data in a form that mirrors OLAP. A star schema contains a fact table and one or more dimension tables.

storage manager. *See* Hyperion Essbase kernel.

string. A sequence of characters treated as a unit.

Structured Query Language (SQL). A computer language used to access data in relational databases.

system administrator. A person who maintains the hardware, software, disk space distribution, and configurations for running software applications such as Hyperion Essbase.

table. In relational databases, a form of data storage in which data is stored in rows and columns.

transformation rules. In Essbase Integration Services, a set of instructions that define how to change or reformat the member names and data you extract from the source relational database.

UDA. Formerly called user-defined attribute. A UDA is a term associated with members of an outline to describe a particular characteristic of the members. Users can specify UDAs within calculation scripts and reports to return lists of members that have the specified UDA associated with them. UDAs can be applied to dense as well as sparse dimensions.

union. In relational databases, a type of join that combines the results of two SELECT statements. A union is often used to merge lists of values contained in two tables.

user-defined dimension. Dimensions that you explicitly create in Essbase Integration Services, rather than dimensions obtained or built from the relational data source.

user-defined member. Members that you explicitly create in Essbase Integration Services, rather than obtaining and building them from the relational data source.

validation. (1) In Hyperion Essbase, a process of checking a rules file against the outline to make sure the rules file is valid. (2) In Essbase Integration Services, a process of checking the OLAP model and metaoutline.

view. In relational databases, a logical table created by combining columns from one or more tables.

XML Import/Export. In Essbase Integration Services, a function that enables importing data into and exporting data from an OLAP Metadata Catalog in Extended Markup Language (XML) file format. Both OLAP models and metaoutlines can be saved as XML files and imported into other OLAP Metadata Catalogs.

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- ! (exclamation points), in names in scripts and formulas, 3-10
- " (double quotation marks)
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- () (parentheses)
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- ;(semicolons), in names in scripts and formulas, 3-10
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