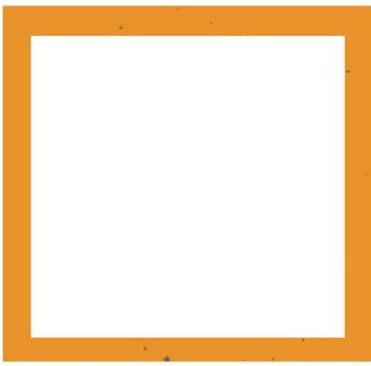QUICK START GUIDE

PowerOLAP
V22

PowerOLAP®

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Windows is a trademark of the Microsoft Corporation.

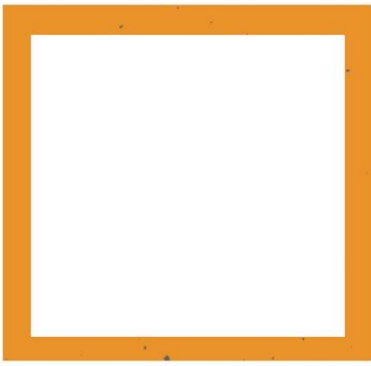*Microsoft Excel is a trademark of the Microsoft Development Corporation.*

PowerOLAP®
(Quick Start Guide)

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PowerOLAP®
(Quick Start Guide)

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1. PowerOLAP® Quick Start Introduction

✏ Notes

Some of the features such as OLAP Exchange®, and HTTP web connectivity are activated for use only when appropriate License is used. After activating the software, check Edit/Options/Licensing to view the functionality on your system.

The *PowerOLAP Quick Start Manual* is designed to introduce you to the fundamentals of PowerOLAP® application by using step-by-step procedures to create a PowerOLAP model. We recommend that new OLAP users become familiar with the *Introduction to PowerOLAP* section of the user manual as a prerequisite to this manual. The *Introduction* section also contains information about the enhancements in PowerOLAP® software such as new features and their benefits.

By working through this *Quick Start Manual* you will learn about the elemental functions of the PowerOLAP® application: how to create databases, Dimensions, Cubes and Slices; how to import data from a text file into a Cube; and how to create an Excel worksheet from a Slice view. This manual shows how to construct a model by working entirely with the product's "modeler." Note that—especially if you are an Administrator or power user—you will not build Cubes (business models) only by the steps described here. Instead, many PowerOLAP Cube features (Meta Data) will be built using the OLAP Exchange® component; and, the actual figures you work with (Fact Data) will likely come from another source. However, you will undoubtedly need to understand the concepts and follow the steps covered in these pages because they convey how to use, customize and advance your own models. These skills, in turn, will enable you to vastly increase the potential business uses and benefits of the product at your firm.

The *PowerOLAP® User Manual*, in contrast to this manual, introduces PowerOLAP® application fundamentals by first allowing you to view and manipulate data within a pre-built model, then goes on to demonstrate how to perform and apply higher-level functions. That manual explains more comprehensively the end-user features and functions of the PowerOLAP® application. Therefore, please refer to the *PowerOLAP® User Manual* for more detailed information on features discussed in this manual. Also, see the additional User Manuals such as the *OLAP Exchange®, Synchronization Server*, or *PowerOLAP MDB Server* for their respective features and functions, and how they are applied to create superior business solutions.

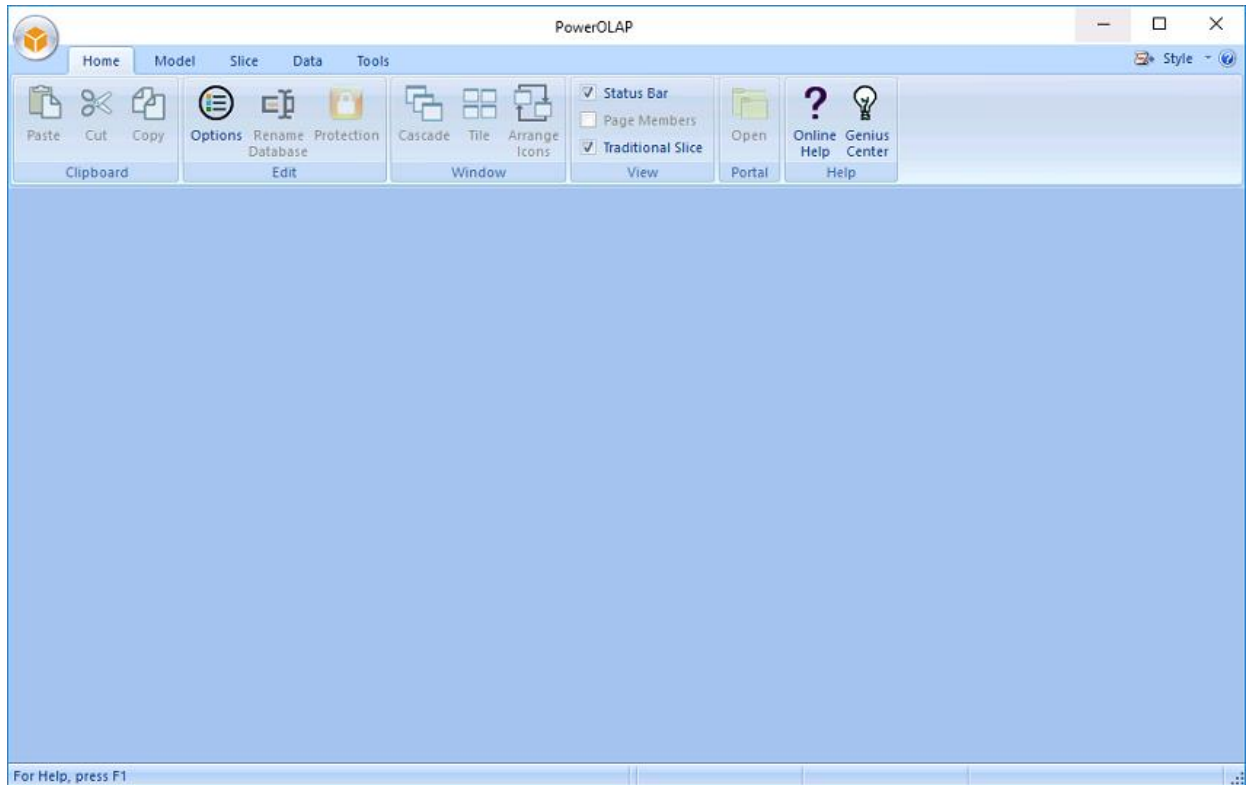# 2. Creating a PowerOLAP® Database

Create a New Database

Creating a PowerOLAP database is the first step in developing an application to store and model your data. The PowerOLAP database file, which has an ".*olp*" file extension, will contain all the components of your model. As you will see, these components include Dimensions and their Members; Cubes; Cube Formulas; and Slices, which display your data.

Let's start by creating a new database, which you will name "*QS Database*" (short for Quick Start):
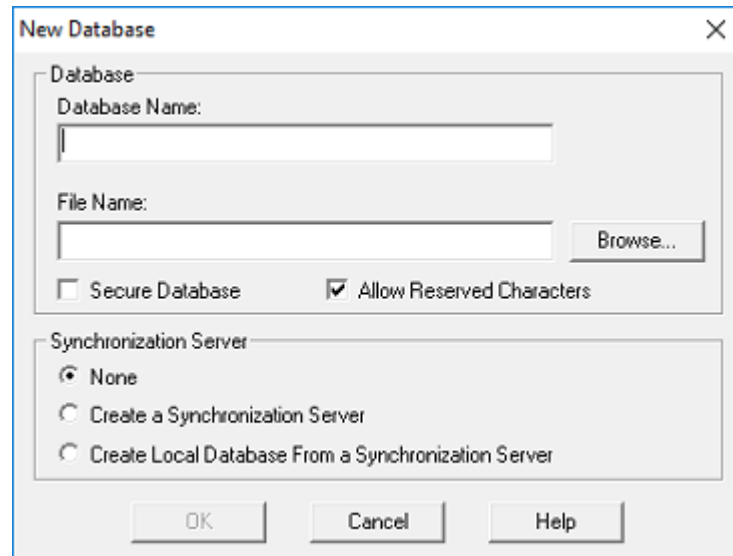
1. Launch PowerOLAP application by going to the **Start** Menu then selecting **Programs**, **PowerOLAP** and then **PowerOLAP**.
   The PowerOLAP main application window appears:

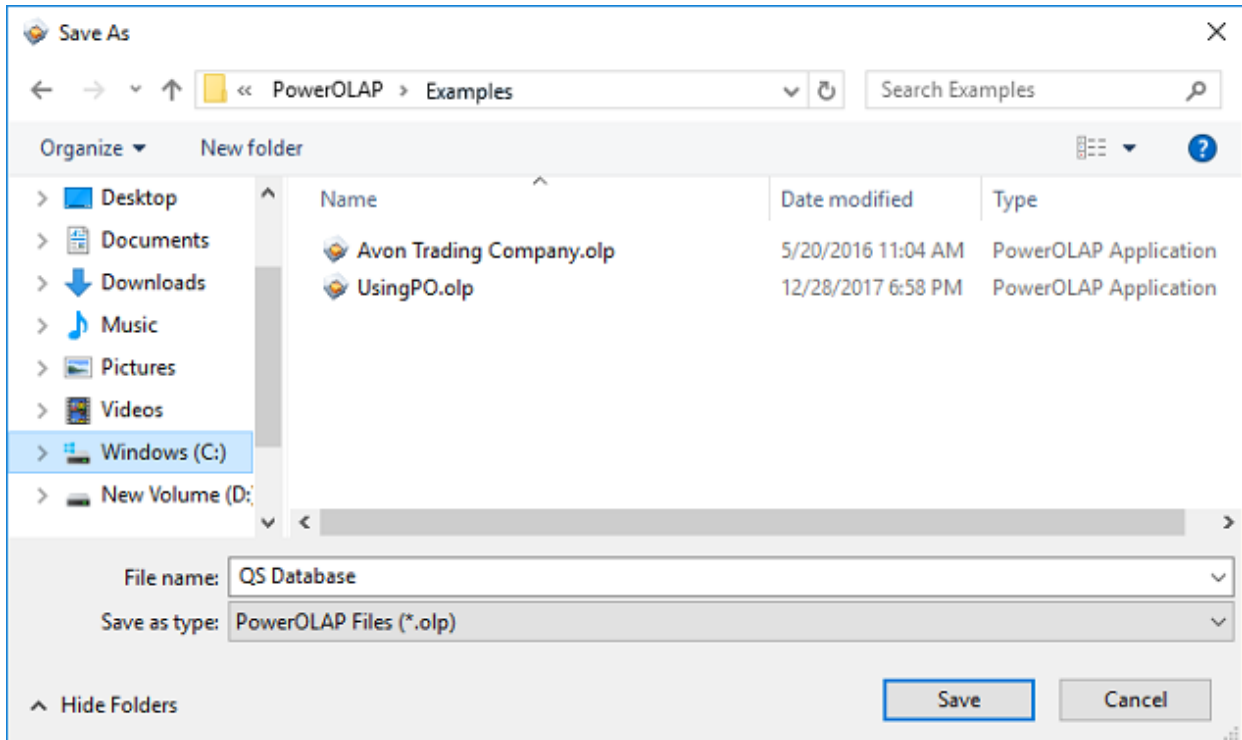2. Select **File** icon, **New Database** command.
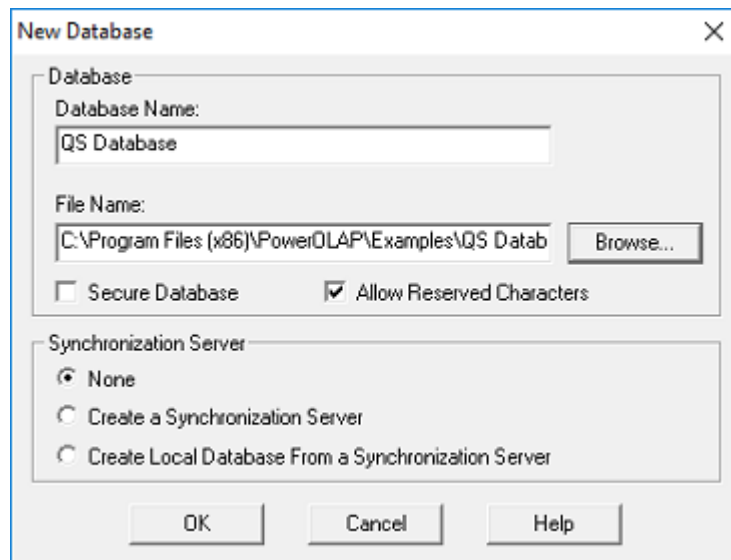   The **New Database** dialog box is displayed.

   The File Icon is the cube image located at the upper-left most corner of the PowerOLAP interface.

3. Browse for the directory where you want to save your database (e.g., C:\Program Files (x86)\PowerOLAP\Examples).

4. In the **Save As** dialog box, type the <name of the database> (i.e., *QS Database*).

5. Click **Save**.
   The **New Database** dialog box returns, displaying the Database Name as well as the path and file name of the database file.

 Notes

In this case the Database Name will be the same as the File Name (shown in the following figure); you have the option to type in a different Database Name.

6. Notice the **Secure Database** and the **Allow Reserved Characters** checkboxes. Leave the default settings, unchecked and checked, respectively.
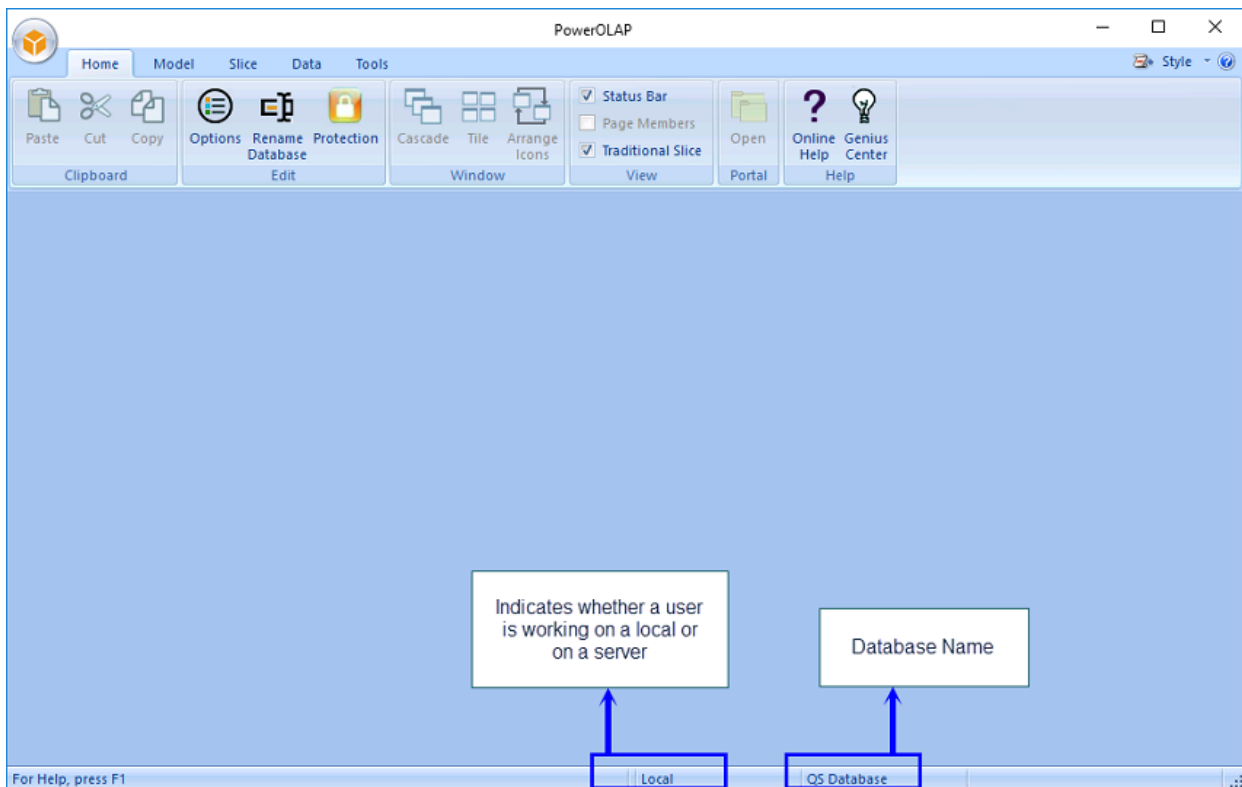
✏️ **Notes**

The **Secure Database** checkbox enables you to require a password to open the database. Thus, if you check the box, then click OK, you will be prompted to give a password (and then verify it). For more information about Security, see the section in the *PowerOLAP User Manual* dedicated to Security features.

The **Allow Reserved Characters** checkbox allows you to use so-called "reserved characters"–e.g., quote, period, comma, etc.–in your database. See General Options further on in this manual for a list of these characters.

The **Synchronization Server** area of the dialog box refers to a PowerOLAP component that allows PowerOLAP databases to be synchronized via a shared file. The Synchronization Server area is activated if your license includes Synchronization Server capabilities (see the *Synchronization Server*) section; otherwise, it is grayed out. Consult your Administrator to determine whether this tool is part of your application.

7. Click **OK**.
   Note that in the PowerOLAP window, more command icons become active.

Notice the status area, at the bottom of the interface. From left to right, the boxes indicate:

- Whether you are working in **Local** or **Server mode** (Server name will be indicated);
- The **Database Name**; and
- Synchronization Server Name, if active.

Important

Only one database file ("*.olp*") may be open at a time. Therefore, a new database can not be created if a database is currently open.
If you are working as a Client to an MDB Server, you cannot create a database on the Server. Typically, a new database shared by multiple clients would be created from the MDB Server Control Program. It is worth noting, though, that a user can create a database in standalone mode that can then be made available to the Server.
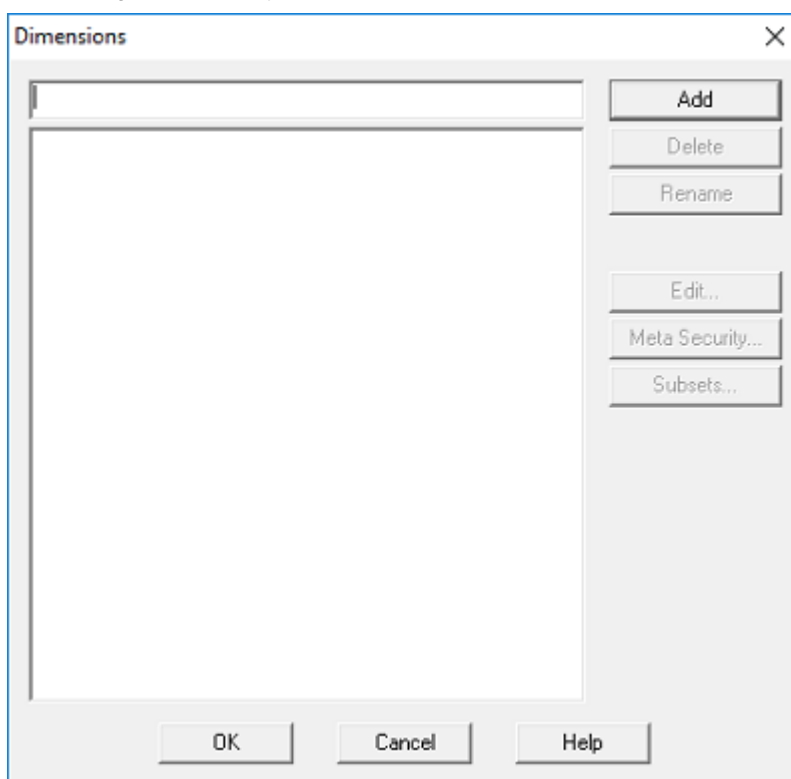
3.   Creating Dimensions

Create a New Dimension

Dimensions are lists of related terms used to organize your data. Thus, a natural Dimension name for the Members *January*, *February* and *March* might be *Months*. Dimensions, in turn, are used to construct Cubes, the multidimensional structures in which you store and model data.
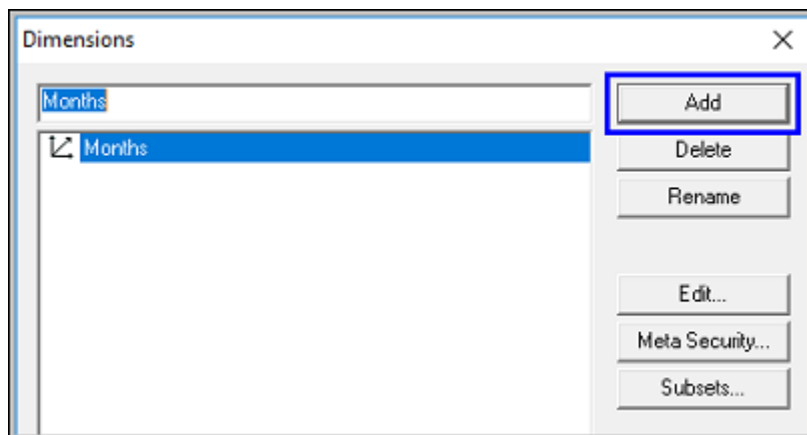
In the model we are about to create, we will define three Dimensions: *Months*, *Accounts*, and *Regions*.

Create the *Months*, *Accounts*, and *Regions* dimensions as follows:

1. From the PowerOLAP ribbon, go to **Model** tab then in the Model control group select the **Dimensions** command.
    The **Dimensions** dialog box is displayed.

2. Type the <name of dimension> in the dimension text box.
    For this exercise, begin by typing **Months**.

3. Click **Add**.
    The dialog box appears as in the following figure:

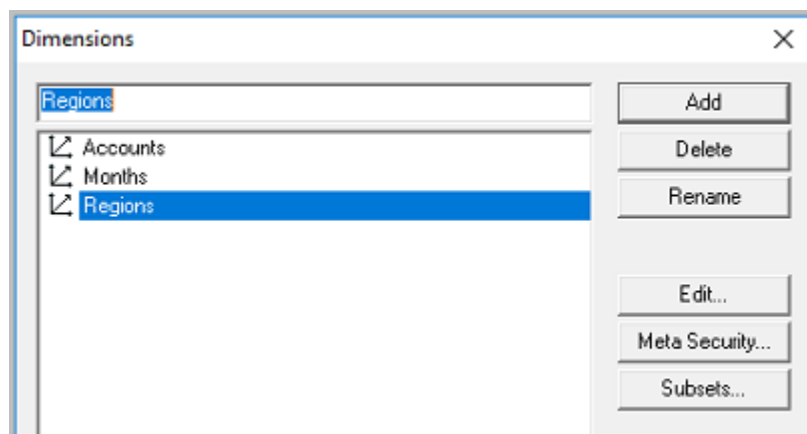Next, Add the rest of the dimensions following the same steps.

4. Type *Accounts* in the text box then click **Add**.

5. Type *Regions* in the text box then click **Add**.

💡 **Tip**

You can also use the **Enter** key in place of clicking the Add button to add Dimensions to the database.

Once you have entered all of the Dimensions above, the list box will appear as in the following figure:

6. Click **OK**.
   You are returned to the PowerOLAP main application window.

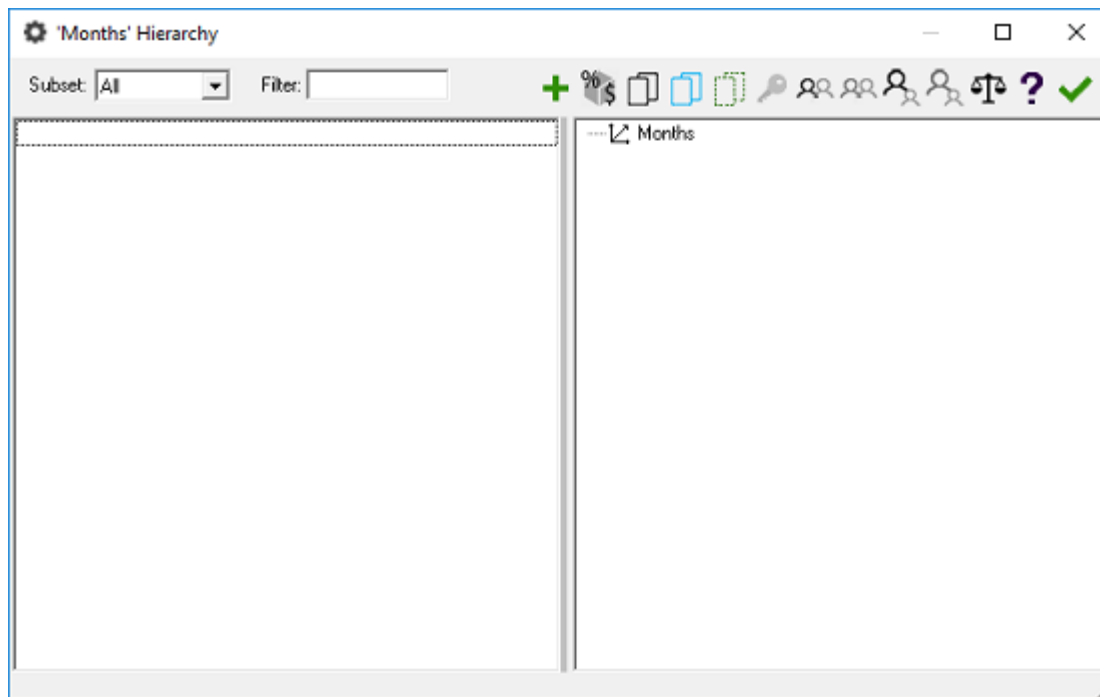## 4. Adding Members to Dimensions

Create New Member

Dimensions are composed of Detail and Aggregate member types. Detail members "add up" to Aggregate members. For example, in the *Months* dimension you would make *January*, *February, March* (all Detail members) add up to *1st Quarter* (Aggregate member).
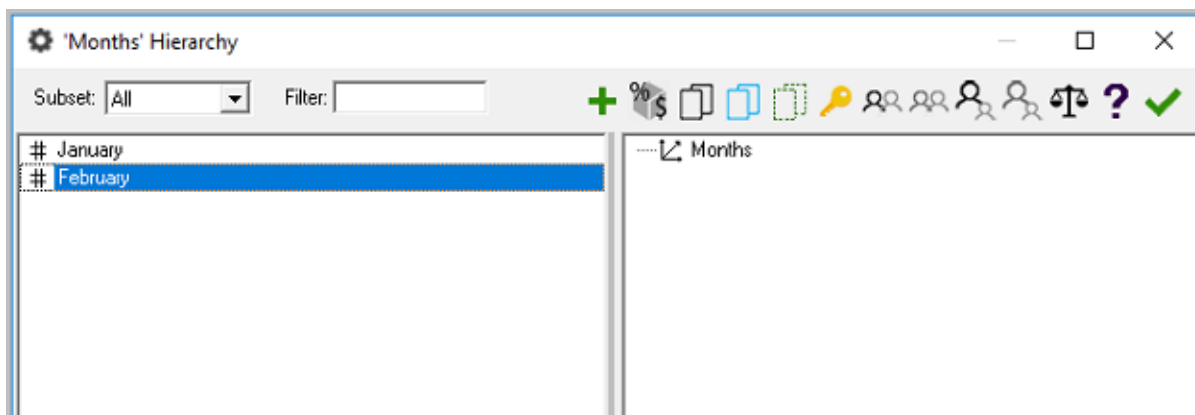
To add Members to a Dimension:

1. From the PowerOLAP ribbon, go to **Model** tab then in the Model control group select the **Dimensions** command.
    You are returned to the **Dimensions** dialog box.

2. Select *Months* then click **Edit** button.
    This brings up the **Dimension Hierarchy** dialog.

    Alternatively, you may simply double-click on *Months* to open the dialog.

The *Months* dimension is currently selected for editing, as indicated in the Dimension Hierarchy dialog box title bar (**'Months' Hierarchy**).

3. Select the **Create New Member** icon,
    or **right-click** within the Member list box (on the left in the dialog box)
    and select **New**.

4. Type the <**member name**> over the currently highlighted text, e.g., type *January* over the highlighted text Untitled3).

5. Press **Ctrl**-**Enter**.

6. Type *February* in the Members text box and then press **Ctrl**-**Enter**.
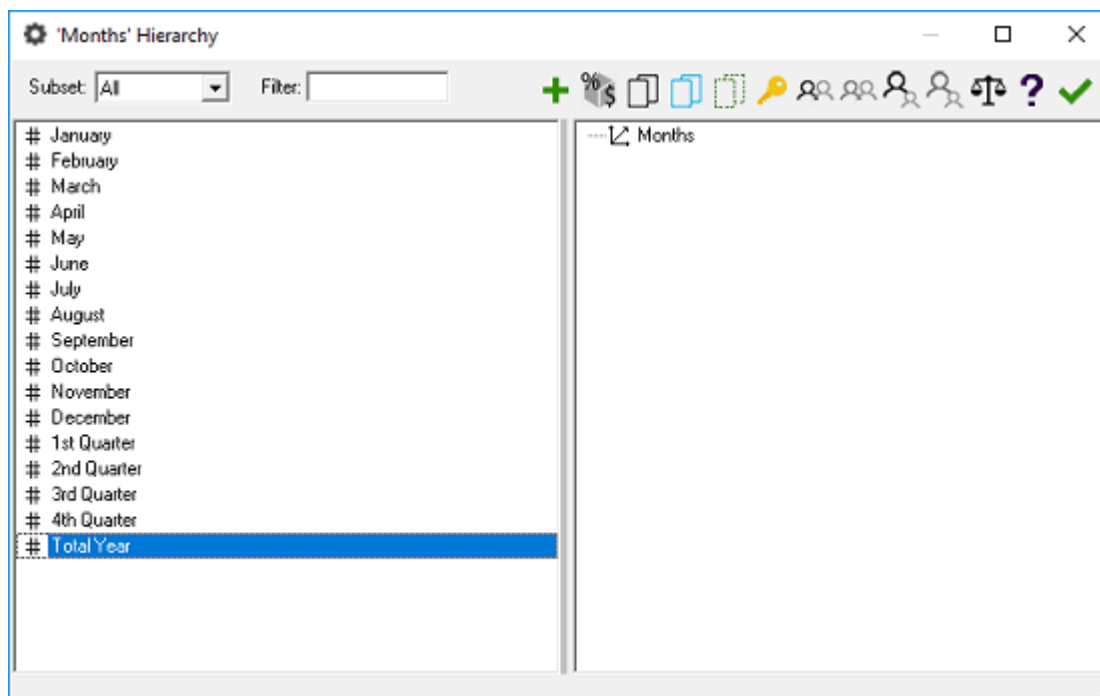   The Member list box will appear as follows

Using this procedure, enter the **remaining months** of the year— these will be the Detail members in the *Months* dimension.

Next, you will create what will eventually be the Aggregate members for the *Months* dimension, which are the quarters and a Total Year, in the same manner (we say "eventually" because before a Hierarchy is created, all Members appear with the Detail icon—the number sign).

7. Press **Ctrl-Enter**.

8. Type *1st Quarter* in the Members text box and press **Ctrl-Enter**.

9. Type *2nd Quarter* in the Members text box and press **Ctrl-Enter**.

10. Complete the *Months* dimension by adding *3rd Quarter*, *4th Quarter* and *Total Year*.

When you are done, the Member list box will appear as follows:

Tip

You can double click on a name, or use the right mouse button, to rename or delete a name in the Member list box.

Tip

If the Member names are not in the order you want, click and drag them to the desired position in the list.

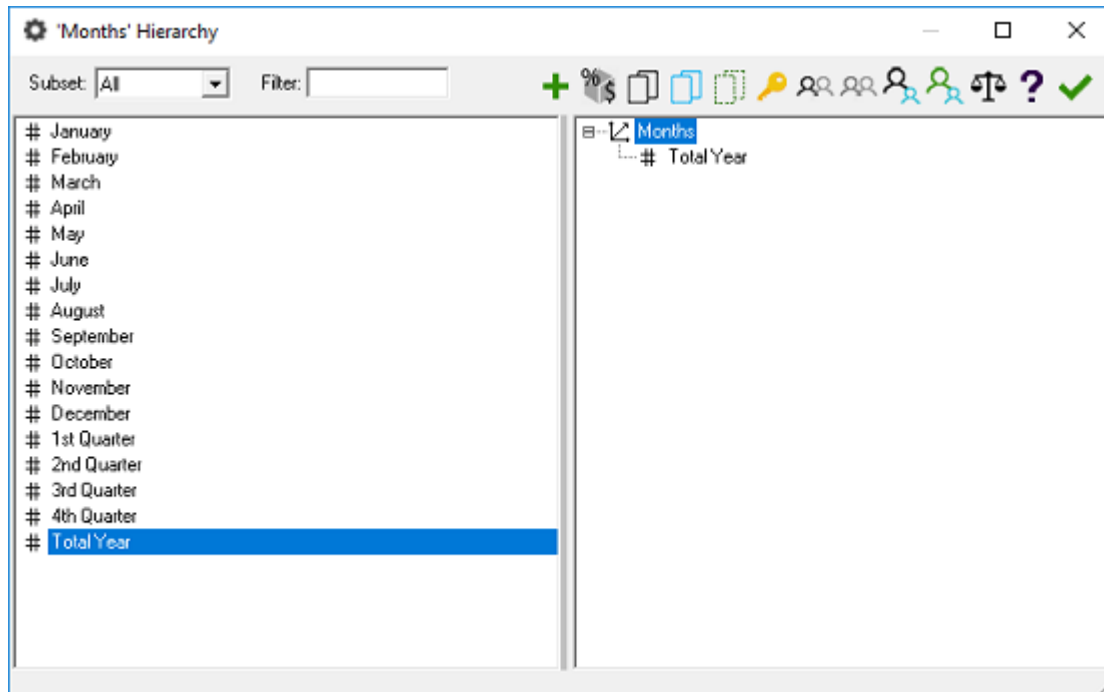Proceed to the next topic for the next step in Dimension design.

5.   Creating a Dimension Hierarchy

Once the Members have been defined for a Dimension, the Hierarchy of these Members must also be defined. The Hierarchy determines the aggregation of Dimension members.

You will now create the Hierarchy by selecting Members and moving them to the **Hierarchy Definition** dialog box on the right side of the **Dimension Hierarchy** dialog box. We will proceed by creating the Hierarchy for the *Months* dimension.

Define the Hierarchy for the *Months* dimension as follows:

1.   Select **Total Year** from the Members list box on the left.

2.   Drag it so that it is placed just below **Months** in the **Hierarchy Definition** box on the right hand pane, so that it appears as below:

3.   Select **1st Quarter**, press the **Ctrl** key, and holding it down, select **2nd Quarter**, **3rd Quarter**, and **4th Quarter**.

4.   Drag and place the selection just below *Total Year* in the **Hierarchy Definition** dialog box, so that a sigma sign (for sum), appears beside *Total Year*. This indicates that *Total Year* is now an Aggregate member, the sum of the Members you placed below it (see following figure).
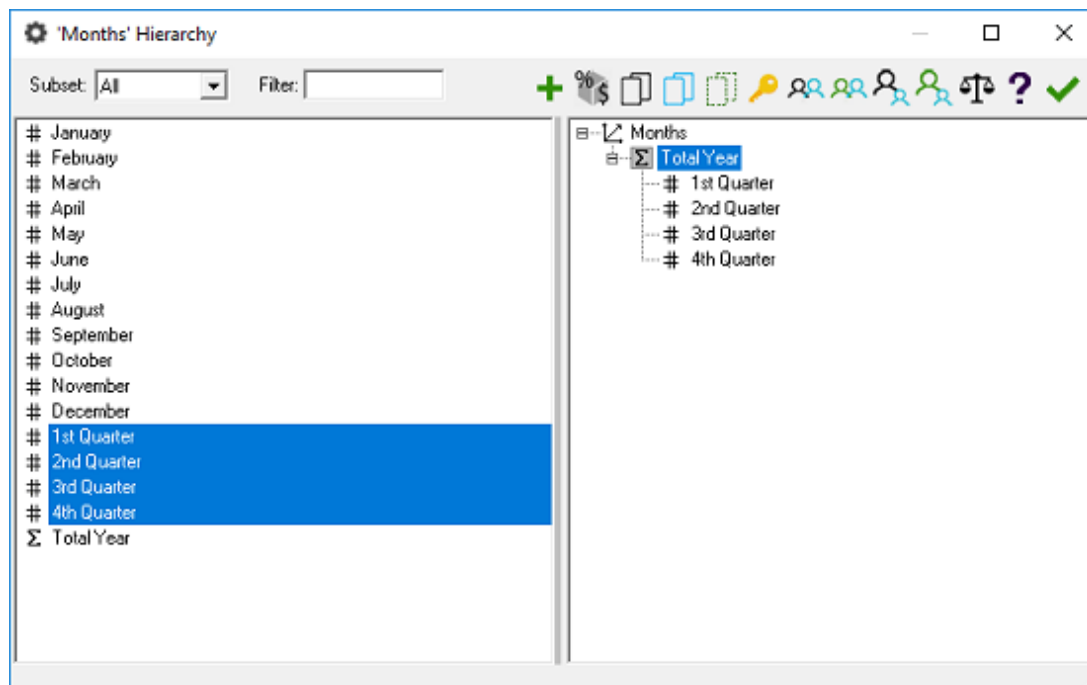
🔆 Tip

Another way to add Detail members as part of an Aggregate member is by using the **Add Selected Members as Child,** 🧑, button located at the toolbar. To do this, simply highlight the Detail members on the left hand pane (in the example above Detail members *1st Quarter, 2nd Quarter, 3rd Quarter* and *4th Quarter*) and then select a member that will be the Aggregate on the right hand pane (*Total Year*) then click on the **Add Selected Members as Child** button.

Notice that after clicking on the button, the number sign (#) beside *Total Year* changes to a sigma sign (Σ) which denotes that *Total Year* is now an Aggregate member.

Continue creating the hierarchy.

5. Select **January**, hold down the **Shift** key, and then select **March** in the Members list box so that **February** is highlighted also.
Drag and place the selection just below **1st Quarter** in the **Hierarchy Definition** dialog box. Now the sigma sign appears beside *1st Quarter*.

6. Pressing the **Ctrl** key, select **April**, **May** and **June**. Release the **Ctrl** key. Now Select **2nd Quarter** in the **Hierarchy Definition** dialog box.

7. Press the **Add Selected Members as Child** button, , on the toolbar. Notice that the sigma sign appears, next to **2nd Quarter**.

8. Bring over *July* as a Detail member under **3rd Quarter**.

9. Highlight **August** and **September** from the list on the left and highlight **July** on the right.

10. Click on the **Add Selected As Sibling button** ![icon] to add **August** and **September** into the Hierarchy under the **3rd Quarter.**
    Now *August* and *September* are shown under *July*, and the three Members comprise *3rd Quarter*.
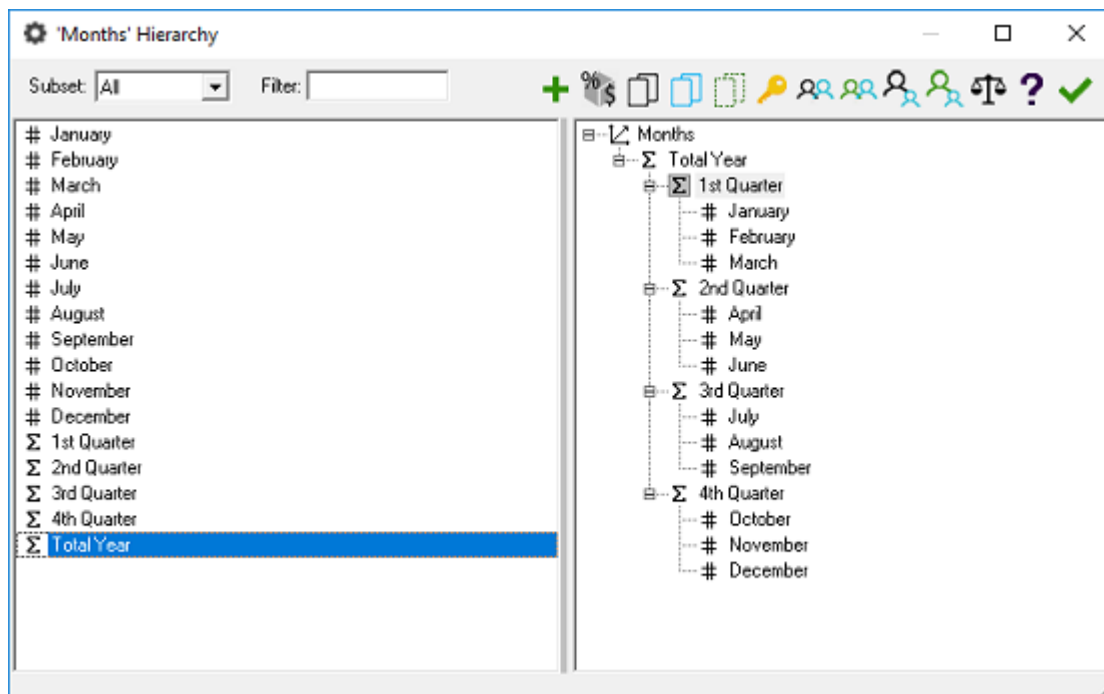
11. Complete the Hierarchy for the **4th Quarter**.

![Tip icon] Tip

We can also create the hierarchy by using the **Add Selected As Sibling button,** ![icon]. In order to use this button, there must be an existing Aggregate member in the **Hierarchy Definition** dialog box. This is useful when user wants to include additional Detail members under a hierarchy.

Say for example, under the Aggregate member *4th Quarter* it only has one Child member which is *October* defined in the **Hierarchy Definition** dialog box. To include *November* and *December* under the *4th Quarter* hierarchy, simply highlight the Detail members to be included (*November* and *December)* in the Members list box, select *October* on the right hand pane and then click on the **Add Selected As Sibling button**.

Notice that the Detail members *November* and *December* now also appear as Child members of the Aggregate member *4th Quarter* and that both exist on the same level within the hierarchy as that of *October*.

Note that other buttons are available for Hierarchy creation: **Add all Members as Child,** ![icon], and **Add All As Sibling** button, ![icon].

The completed Hierarchy looks as follows:

12. Close the **Dimension Hierarchy** dialog box by clicking the OK button, ![check icon],
    the rightmost button on the toolbar.
    You are returned to the **Dimensions** dialog box.

Next, you will create the Hierarchy for the *Accounts* and *Regions* dimensions.

PowerOLAP®

13. Add the **following Members** into the appropriate Dimensions.
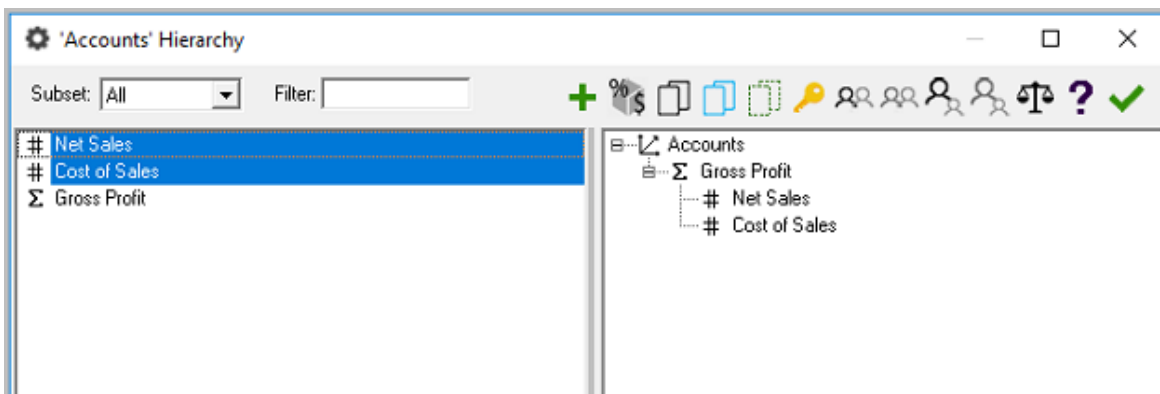   You will define their type, whether Detail or Aggregate,
    according to the Hierarchies you see in the following two figures:

Dimension	Member	Type
Accounts	Net Sales Cost of Sales Gross Profit	Detail Detail Aggregate
Regions	Canada United States Venezuela Colombia North America South America Total Regions	Detail Detail Detail Detail Aggregate Aggregate Aggregate

When complete, the Dimension Hierarchies for *Accounts* and *Regions* should look as follows:

'Accounts' Hierarchy dialog box

'Regions' Hierarchy dialog box

A hierarchical relationships—as you completed in the three Dimensions, *Months*, *Accounts* and *Regions*—defines a parent-child relationship between Members. Just as we have Member siblings that exist on the same level in a

Hierarchy under an Aggregate member, we also speak in terms of Child members, which are defined as all Members that make up parent aggregations. It is important to note that a Child member is not necessarily a Detail member. Child members may themselves be parents of other Members within a Hierarchy. For example, in the *Regions* dimension, *North America* is an Aggregate member; but it is also a child of *Total Regions*.
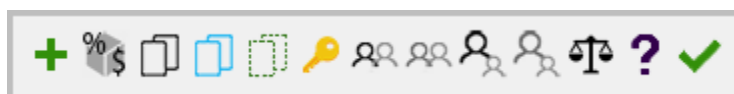
5.1 The Dimension Hierarchy Toolbar

The buttons on the toolbar in the **Dimension Hierarchy** dialog box, and the functions they perform, are as follows:

Dimension Hierarchy Toolbar		
Command	**Icon**	**Description**
Create New Member	➕	Add a new Member to a Dimension (or press Ctrl-Enter to successively add new Members).
Member Type	%$	Select formatting option for the corresponding cells.
Member Aliases		Define and edit Aliases and Alias Groups for the selected Member.
Alias Group		Add or delete Alias Groups, and assign names for each Member.
Properties		Assign Members a property for annotation purposes. A Member's properties can be displayed on an Excel worksheet when needed.
Mark Member as Persistent	🔑	Tag a Member as 'persistent' to prevent its data from being overwritten when updates or Cube re-builds occurs.
Add Selected As Sibling		Insert the current selection in the Member list on the left into the Hierarchy Definition on the right, below the selected Member.
Add All As Sibling		Insert all Members in the Member list after the selected Member in the Hierarchy, making them sibling Members.
Add Selected Members As Child		Insert selected Member(s) in the Member list as children of selected Member in the Hierarchy.
Add All Members As Child		Insert all Members in the Member list as children of selected Member in the Hierarchy.
Specify Member Weights	⚖️	Edit the weight of a Child member (active only when a Child member is selected in the right hand Hierarchy Definition box).
Help	❓	Accesses the help screen for the Dimension Hierarchy.
OK	✔️	Exits the dialog box, with changes made and saved for the Dimension.

The functions listed above are described more fully in the *PowerOLAP® User Manual*, though we will now discuss Aggregate weights in order to complete our *QS Database* Dimension set-up.

5.2 Aggregate Weights
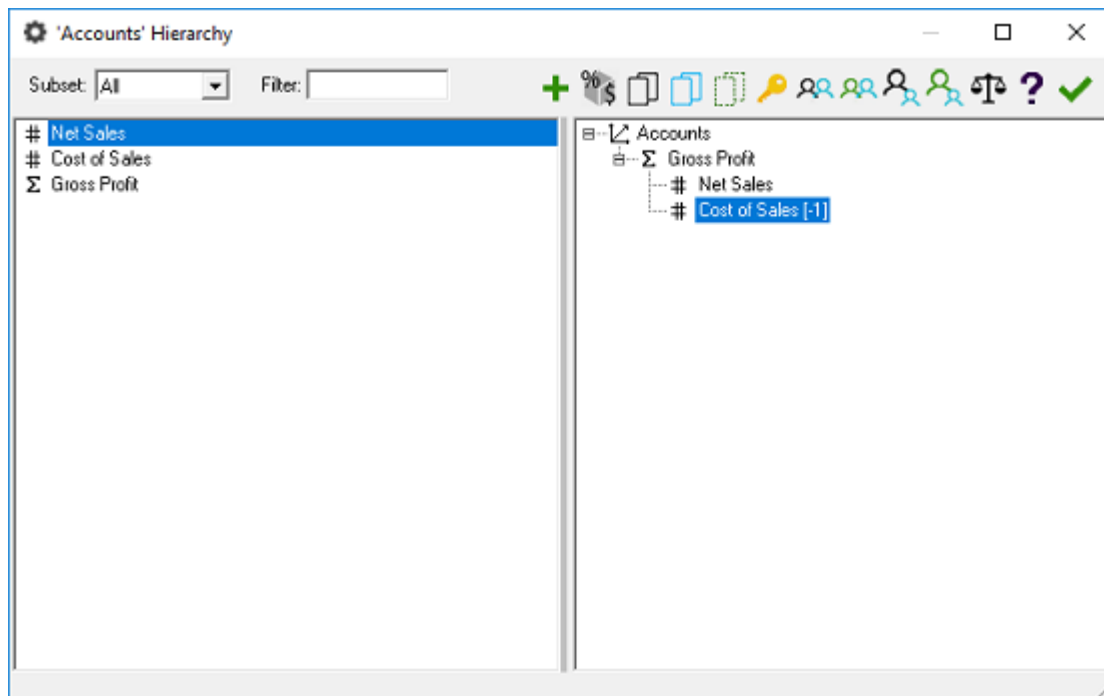
Specify Member Weight

Aggregate weights are used when a Member must be assigned a multiplied value in an aggregation in order for the data to be properly represented. For example, in the *Accounts* hierarchy, *Cost of Sales* should be handled as a negative number in the *Gross Profit* aggregation because it will represent an amount subtracted from *Gross Profit* (i.e., style="font-style: italic;">Gross Profit = Net Sales - Cost of Sales). To designate *Cost of Sales* as a negative number in the *Gross Profit* aggregation, we can assign it a weight of "–1". This means that the data included in *Cost of Sales* will always be multiplied by – 1 when it is rolled up in the Hierarchy.

To "weight" *Cost of Sales*, complete the following process:

1. Return to **'Accounts' Hierarchy** dialog box (double-click on **Accounts** in the **Dimensions** dialog box), and double-click **Cost of Sales** in the **Hierarchy Definition** box on the right.

   Note that, to the right of *Cost of Sales*, a box appears where "1" is highlighted and where you can enter a weight for the Member.

2. Enter **-1** in the box so that it appears as follows:

3. Click the OK button on the toolbar when complete.
   You are returned to the **Dimensions** dialog box.

4. Click **OK**.
   You are returned to the main application window.

Notes

In PowerOLAP®, the default Aggregate weight is equal to '1'. Thus, a parent Aggregate member is simply the sum of all Child members defined in the Dimension hierarchy. In the example exercise, all Aggregates you defined are standard with the exception of *Gross Profit*, in the *Accounts* dimension. Therefore, you do not need to define Aggregate weights for the remaining Aggregate members.

6.   Creating a Cube

Creating Cubes

Using the Dimensions created in the previous exercises you will now create a PowerOLAP Cube that will store and model your data.

For this exercise, you will be creating a new cube and we will name the cube as *Current Year Budget*.

To create the Cube:

1.   From the PowerOLAP ribbon, go to **Model** tab and in the Model control group select the **Cubes** command. The **Cubes** dialog box is displayed.

2.   Type the <**cube name**>, as in the example, type in *Current Year Budget* in the Cubes text box.

3.   Click **Add**.
The **Define Cube** dialog box appears, in which you select Dimensions to be used by the Cube:

4. Select the dimensions you want to include in the cube. For this exercise select all of the Dimensions in the
    Available Dimensions list box by clicking the ![button] button.

    All three Dimensions are moved to the Selected Dimensions list box on the right. (**Note:** You can rearrange the
    Dimensions in this list box in the order you want them to appear in your Cube simply by dragging and dropping
    the dimensions.)

5. Drag **Months** above *Accounts* so that Dimension members are ordered as follows:

6. Click **OK**. Note that the *Current Year Budget* cube is now listed in the **Cubes** dialog box.

All of the **Cubes** dialog's buttons on the right are activated. These buttons control functionality associated with Formulas and setting Security privileges—they are covered in depth in the *PowerOLAP® User Manual*.

7. Click **OK** to return to the main application window.

The *Current Year Budget* cube is now ready for data input.

7. Creating a Slice View

New Slice

PowerOLAP® provides a method for looking into a Cube to view and input data. This means of viewing and inputting data is known as "creating a Slice." A Slice is a two-dimensional view of a Cube that arranges data in a grid, just as a spreadsheet does. You can create Slices "on the fly" to see any view of a Cube, or you can save and re-open Slices for ongoing data viewing or inputting. Finally, as you will see, you can instantaneously create an Excel spreadsheet from any Slice view.

To create a Slice called *Regions by Accounts*:

1. From the PowerOLAP ribbon, go to **Slice** tab then in the Slice control group select the **New Slice** command. The following **New Slice** dialog box is opened.

The list box displays the names of available Cubes in your database. In our case, we just created the only Cube listed, *Current Year Budget*.

2. With the **Current Year Budget** cube selected, click **OK**.

The **Slice View** dialog box is opened in the Content Area of the main application window, as in the above diagram. The window displays a *Current Year Budget* slice, as yet untitled, and with no data in the grid.

3. In the **Slice** tab of the PowerOLAP ribbon, go to the Worksheet control group and select the **Recalculate** command. Alternatively, you may press **F9**.
(This manually recalculates the grid's data, explained further below.)
Keep in mind that, as yet, no figures have been entered into the Cube, so you will see zeros as data throughout the Slice.

By default, when PowerOLAP creates a new Slice, it places the last Dimension brought into the Cube when it was created in the Rows position, the next-to-last Dimension in the Columns position, and any remaining Dimension(s) in the Page position. (Remember that when we created the cube in the last exercise, the Dimensions were listed as follows: *Months*, *Accounts*, and *Regions* but we rearranged the order so that *Months* should be the topmost Dimension in the list.) In the above example Slice, *Accounts* are displayed as columns, *Regions* as rows and *Months* as the *Page* dimension, currently displaying *January*, which is the first Member entered for the *Months* dimension.

4. From the PowerOLAP ribbon, go to the **Slice** tab and in the Slice control group select **Save Slice As** command to save the slice.

5. Type the <**slice name**> in the Slice Name text box. For this exercise, name the slice as ***Regions by Accounts***.

6. Click **OK**.
    You are returned to the Slice—note that both the Cube name, *Current Year Budget*, followed by the Slice name, *Regions by Accounts*, appear in the title bar, boxed in the succeeding figure.

> **Tips**
>
> You can also use the **Save Slice** Icon whenever you want to save the changes or modifications you made into the Slice.

> **Tip**
>
> PowerOLAP's default calculation mode is set to Manual. Thus, when you make changes to a Slice, you will need to Press F9 (or the calculator button on the menu bar) to see those changes reflected in the Slice.
>
> You can change the calculation mode to Automatic by accessing the Options dialog from the Home tab then enabling the **Automatic** option as the calculation mode.

7. From the PowerOLAP ribbon, go to **Home** tab then in the Edit control group, select the **Options** command. Then in the General tab, go to the Calculation mode section and enable the **Automatic** radio button.

8. Click **OK** to return to the main application window.
Now you will see changes instantly on screen as they are made throughout the remainder of this manual's exercises.

7.1 Arranging Slice Dimensions

To demonstrate how quickly and easily views can be changed, you will now arrange the Dimensions of this Slice to view data with *Accounts* as rows, *Months* as columns and *Regions* displayed as a page. Start by dragging and dropping the Dimension names into the Filter, Row and/or Column Labels section.

Notes

The steps below for rearranging the slice applies when you are using the Traditional slice view. However, you can still easily re-arrange the dimensions using the default slice view by dragging and dropping dimensions to the Rows, Columns and Headers.

1. Select **Months** in the Filter box and drag it down to the Column Labels list box, below *Accounts*. [Note that a "nested" view is created, assuming you are operating in Automatic calculation mode.]

2. Select **Regions** in the Row Labels list box and drag it up to the Filter list box.

3. Select **Accounts** in the Columns Labels list box and drag it down into the Rows Labels list box.

    By placing *Regions* in the Filter box, you display data for a single Member of the *Regions* dimension. The Page member you see when you first arrange a Slice is the Member at the top of that Dimension's member list. In this case, the Slice grid displays the data for all *Accounts* and all *Months* for the *Region*s member *Canada*.

4. From the PowerOLAP ribbon go to **Slice** tab and select **Save Slice As** command then type **Accounts by Months** in the **Slice Name** text box.

5. Click **OK**.
You have created and saved a second Slice, *Accounts by Months*:

7.2 Selecting Page Members

Set Page Member

Currently you are viewing data for *Canada*. To view data for other Members defined in the *Regions* dimension within the *Accounts by Months* slice—e.g., to change the view from *Canada* to *United States*:

1. With a slice opened, go to the Filter section on the left-hand pane then double click on **Regions: Canada**.

The following **Edit Slice** dialog box is displayed (in this example, *Edit 'Regions' for 'Accounts by Months'*):

 Notes

The Detail member icon to the left of *Canada* in the **Slice Content** list box is yellow, indicating that this Member is the currently selected Page member.

You can select any Member in this list box as the Page member to view within the Slice:

2. Double-click **United States** in the Slice Content list (in the right-hand pane of the dialog box).
   The icon beside it is now yellow. You may also select a **Page member** by selecting a Member on the right-hand pane then clicking on the Select Page Member icon, , from the menu bar.

3. Click the OK button, , on the toolbar, to close the dialog box and return to the *Accounts by Months slice*.

   The current Slice now displays data for *United States*, which is indicated in the Filter list box, beside *Regions* (i.e., *Regions: United States*).

7.3   Changing the Grid Layout

You can change the layout of the Slice grid by moving Members of a Dimension within the **Slice Content** list box:

1. Double-click on the **Months** dimension in the Column Labels box in your current Slice. The **Edit Slice** dialog box is displayed.

   Currently, *Total Year* is at the bottom of the Slice Content list box, which corresponds to the rightmost column in

---

the grid (you may need to scroll rightward in the grid to see *Total Year*). By dragging and dropping **Total Year** to the top of the list, you can move it to the leftmost column of the Slice.

2. Select **Total Year** from the Slice Content list box on the right, then drag and drop it above *January*.

3. Click the OK button, , on the toolbar.
    You are returned to the *Accounts by Months* slice, and *Total Year* is now displayed in the first column of the Slice, as shown in the image below.

8. Entering Data in a Slice

So far, you have demonstrated PowerOLAP's remarkable flexibility in organizing and displaying data within a Slice. Next, you will demonstrate another key function of the Slice: using a Slice to enter data directly into the underlying PowerOLAP database.

Currently, the data in the *Current Year Budget* cube is all zeros because it is a new Cube and data has not yet been entered into it.

To enter data into the *Accounts by Months* slice:

1. Click the cursor at the intersection of *January* and *Net Sales*.
   Type **500000**, then press **Enter**.

2. Click the cursor at the intersection of *January* and *Cost of Sales*, Type **300000**, then press **Enter**.
   Notice that PowerOLAP has automatically adjusted the values in data cells that occur at the intersection of Aggregate members, reflecting the values entered above.

3. Try to type **100000** at the intersection of *Total Year* and *Gross Profit*.

   PowerOLAP® does not allow you to change the values in data cells involving one or more Aggregate members. PowerOLAP® will automatically update these cells only when the values in relevant Detail members change.

9. Setting General & Format Preferences

Before continuing to work with data in a Slice, we will take a look at some preferences, among which are those that affect the look of a Slice.

See the following topics:

- General Tab
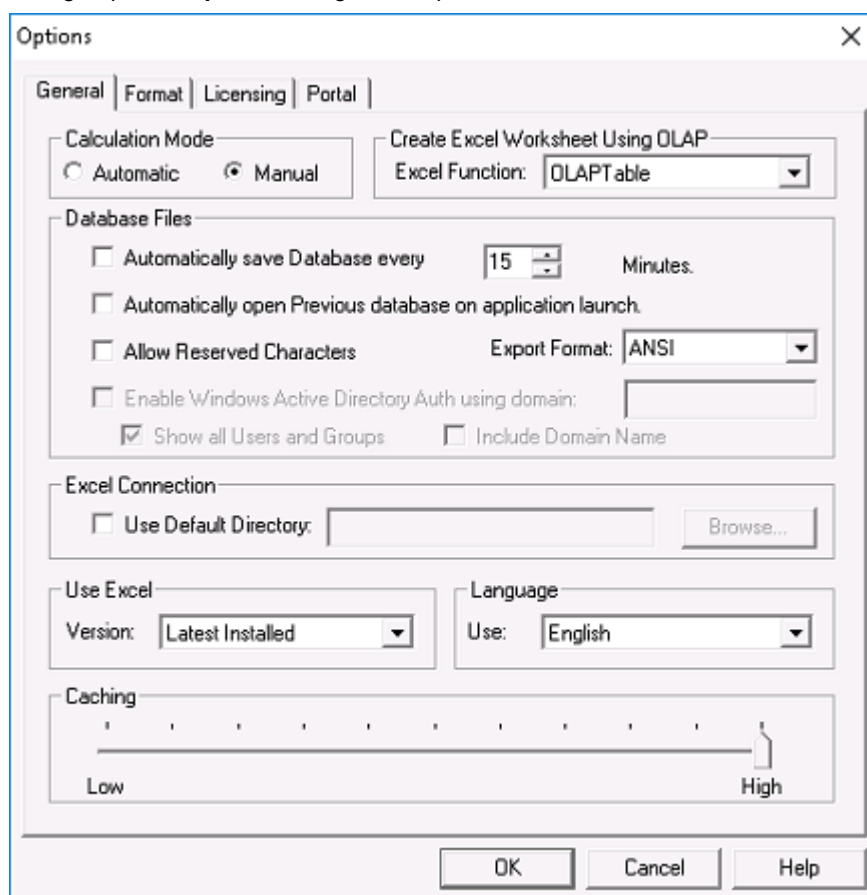- Format Tab
- Licensing Tab
- Portal Tab

9.1 General Tab

Selecting the Options command from the Home tab, enables you to set several general database options.

You can access this tab by going to the Home tab of the PowerOLAP ribbon, then clicking on the **Options** command under the Edit control group. The **Options** dialog box is opened, with the **General** tab on current settings.

Calculation Mode

As discussed previously, the radio buttons will allow you to show Slice changes and data entry calculations upon entry (Automatic) or upon pressing **F9** (Manual)—similar to your experience with Excel.

Create Excel Worksheet Using OLAP

ReadWrite, **Table**, **Pivot** or **WriteTable**: These options concern the data connection function used to create Excel spreadsheets from PowerOLAP slices. You will create an Excel worksheet momentarily—these functions are discussed in detail in the *PowerOLAP® User Manual*.

Database Files

Provided below are the different options under the Database Files section followed by a brief description of each option.

- When **Automatically save Database every…** is selected, you can save an active database periodically (every *X* minutes) by adjusting the spinner scrollbars or entering a number directly in the text box.

- When **Automatically open Previous database on application launch** is selected, the last-opened database will open when PowerOLAP is opened.

- When **Allow Reserved Characters** is checked, PowerOLAP can accept any of the following characters in Meta Data:

Reserved Character	Symbol
Double Quote	"
Single Quote	'
Period	.
Comma	,
Semi-colon	;
Brackets	[ ]
Braces	{ }
Parenthesis	( )

Note:
If this function is not checked, PowerOLAP® will NOT accept these characters in the Meta Data. This becomes important when working with OLAP Exchange®, as you will not be able to build a Cube if the source data contains any of these characters.

- The **Enable Windows Active Directory Auth using domain** option will be enabled if your client license has the Active Directory Authentication feature enabled.

  - Check this option to enable the Windows Active Directory Authentication feature of PowerOLAP. Then indicate on the text field the appropriate 'network domain name' where the user logs in.

Excel Connection

The **Use Default Directory** option saves you from having to browse for the database when opening each time by defaulting to the folder you designate.

Note: You must have the database closed when setting this option.

To **Use Default Directory**—i.e., set up the PowerOLAP database to default to a certain directory upon opening or saving a file, simply check the corresponding tick box then browse for a particular directory.

Use Excel (Version)

During installation, PowerOLAP will prompt you for a version of Excel to use. You can select a different version of Excel to use at any time in the **Options** dialog: **Excel 97**, **Excel 2000**, **Excel XP, Excel 2003**, or **Latest Installed** version.

Language

Select your language preference here. PowerOLAP® is available in the following languages: Danish, English, French, German, Italian, Japanese, Portuguese, Simplified Chinese, Spanish and Traditional Chinese. After selecting a language, you will be informed that in order for the selection to take effect, you must close and then re-open PowerOLAP®.

Caching

The sliding bar determines the size of the cache threshold.

PowerOLAP® stores aggregation and formula calculations in cache based on the amount of cache available. If the cache threshold is set to high, PowerOLAP® will continue to store calculations in cache, hence decreasing the time to retrieve values. If you have a large amount of RAM on the Server machine, you can move the bar to the right.

If the cache threshold is set to low, PowerOLAP® will store only a minimal amount of information in cache, and recalculations will be retrieved from the data store. Move the bar to the left, therefore, to limit the amount of cache devoted to calculations—if you have less RAM, this may be the better choice. You will continue to see calculations quickly, though not as fast as if they were retrieved from cache.

9.2   Format Tab

If you would like to make format changes to the numbers or the text (decimal places, colors, font size) as they appear in a Slice, choose the **Format** tab.

From here, you can adjust the appearance of the **Display Fonts** and the **Number Format** in PowerOLAP® (To change the appearance of these elements within Excel after creating a worksheet from a Slice—as will be discussed shortly—format the worksheet as you normally would).

9.3   Licensing Tab

The Licensing Tab provides information about your current license, and the functionality available after activation. It also provides for registering and activation of your product.

9.4   Portal Tab

The Portal Tab provides information to enable and set up a Portal.

10.   Saving Changes to a Database

The **Save Database** command accessible through the File command allows you to save an open database to disk or hard drive; Upon saving the database, if there are changes made to existing slices, you will be prompted whether you want to keep those changes or not. Likewise, if there are unsaved new slices, PowerOLAP® will prompt you whether you want to save those slices.

To save the database with the current name:

1. From the PowerOLAP ribbon, click on the **File** icon and **Save Database** command.

2. You will be prompted if there are unsaved slices or changes to the slices, select whether you want to keep the changes or not.

To save the database under a new name:

1. From the PowerOLAP ribbon, go to **Home** tab then in the Edit control group select the **Rename Database** command.

2. In the New Database Name text box, type the **<new database name>** (e.g., *QS DB Renamed*).

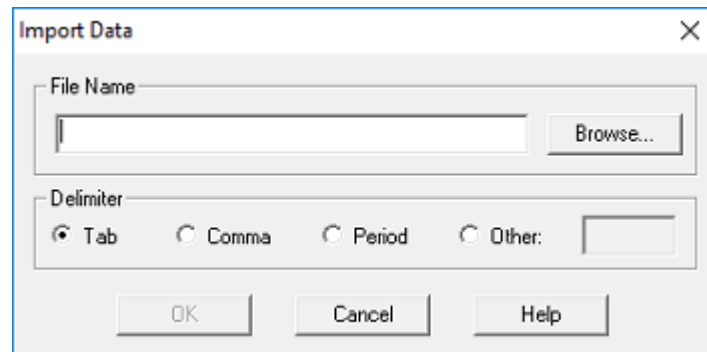3. Click **OK**.

4. Save the database.

11. Importing Data from a File

At this point in the example, you have entered and stored some data in the *Current Year Budget* cube for the *United States*, in *January*. The next exercise will populate the remaining detail *Regions* members by importing *January* data contained within a sample text file included with the PowerOLAP® application. This file, *Qsdata.txt*, is located in the C:\Program Files (x86)\PowerOLAP\Examples subdirectory (assuming that the C drive is where your Program Files directory is located) created during the installation process.

[Note that importing text data, along with entering data via a Slice or an Excel worksheet are two methods to bring data into PowerOLAP®. Another method is to dynamically integrate Meta and Fact Data from a relational database, via OLAP Exchange®.]

1. With the *QS Database* opened, go to **Data** tab, then in the Import control group select the and then **Fact Data** icon or **Import Data** command.
   The **Import Data** dialog box is displayed.

2. Click **Browse** to select the file to import and select the *QSdata.txt* file from the … \PowerOLAP\Examples subdirectory.

3. Click **Open**. You are returned to the **Import Data** dialog box.

4. Select a delimeter. In this case, keep **Tab** as the selected Delimiter.

5. Click **OK**.

   The **Import Fact Data** dialog box is opened. This dialog box shows the Dimensions that appear in the text file as well as in the selected Cube—into which you will import data. The *Current Year Budget* cube is selected.

6. Click on the **Months** Dimension. The message box below appears.

7. Click **Yes** to confirm that you want to continue.

   Note that, in the **Members** list box, only *January* is selected for this Dimension; this is because the import file contains data for *January* only. If you click on the *Accounts* and *Regions* dimensions you will see that the import file contains data for several of their Members—but the data will only be for the month of *January*.

8. Leave **Set** option as the Fact Data import method select.

9. Click **OK** to begin the import process.
   You will receive the following prompt indicating that the import was successful:

10. Click **OK**. You are returned to the *Accounts by Months* slice.
The fact data import is complete. You may want to create a slice to check the data imported.

11. From the PowerOLAP ribbon go to **Slice** tab then in the Slice control group click on the **Open Slice** command to access the **Open Slice** dialog box.

12. Select the appropriate cube from the dropdown (i.e., **Current Year Budget**).

13. Select the **Regions by Accounts** slice and click **OK**.
Alternatively, you may simply double click on the appropriate saved slice.
The *Regions by Accounts* slice now opens and displays the data just imported.

The import file populated *Net Sales* and *Cost of Sales* data for *January* for all Members of the *Regions* dimension. PowerOLAP automatically calculated the cells at the intersection of Aggregate members (for example, *Net Sales* for *Total Regions*, etc.).

14. Click on the **File** icon and select **Save Database** command to save changes you made both to data and to Slice views.

15. Close the **Regions by Accounts** slice, leaving open the **Accounts by Months** slice.

12. Creating Cube Formulas

You have seen how creating Dimension hierarchies, and assigning Aggregate weights, results in the natural "summing up" of values. Cube formulas represent a powerful extension of your ability to perform mathematical calculations throughout a PowerOLAP database. With Cube formulas, you can perform all manner of calculations to populate a cell, ranges of cells, even entirely different Cubes.

Presently your *Current Year Budget* cube contains data for *January* for all *Accounts* and *Regions*. The following Cube formula will populate the month *February*.

1. From the PowerOLAP ribbon, go to **Model** tab then select **Cube** command. The **Cubes** dialog box is opened

2. Click on the **Current Year Budget** cube to select it.

3. Click on the **Formulas** button. The **Formula** dialog box is opened.
   We will now make use of some buttons in the **Formula** dialog box (also known as the 'Formula Editor'). These buttons will enable us to specify the area of the Cube we want to populate with data, and where the data will come from.

4. Click on the "**squiggly brackets**" or the **Build Range Reference** button, [{...}].
   The **Build Range Reference** dialog box appears.

5. For the Qualifier (top left), select the radio button **Details**.
   This indicates that only Detail members are to be calculated by the Cube formula—Aggregate members will be calculated according to the Dimension hierarchy. (Note: it is possible to "overwrite" Hierarchy calculations via a Cube formula, a very important feature if you wish to calculate a "what if" or budgeted Aggregate data point, so that it contrasts to actual figures in Detail data points.)
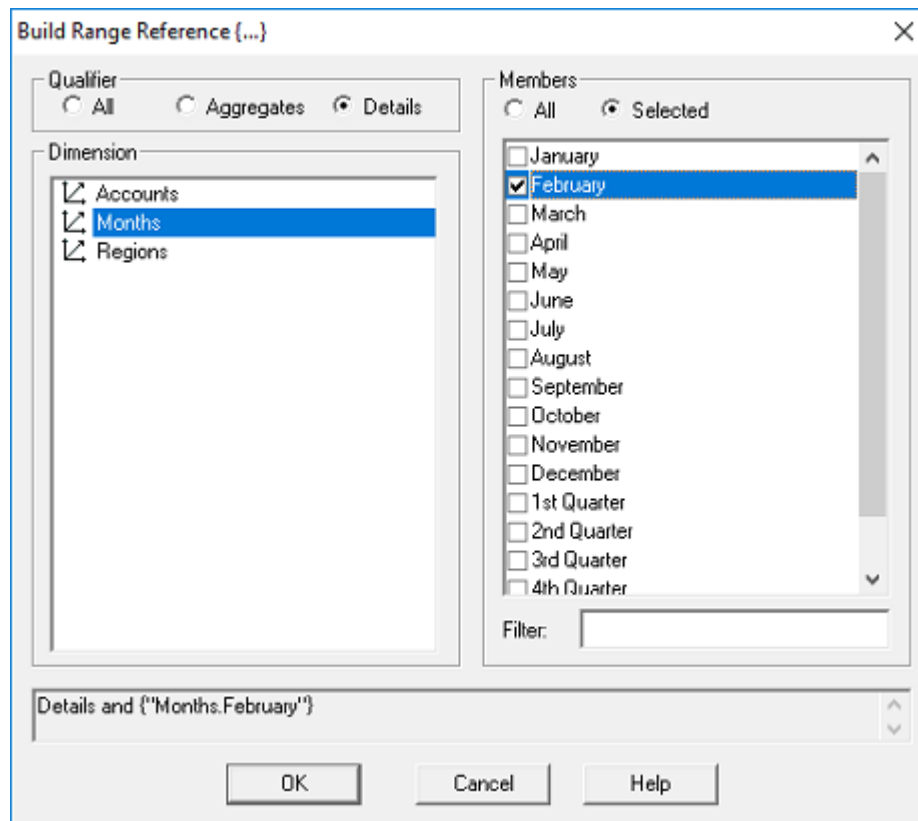
6. Select *Months* from the Dimension list then from the Members list box on the right, select *February*.

   The **Selected** radio button is selected, as a consequence
   The dialog box appears as follows, with the formula as it exists so far, at the bottom:

Build Range Reference {...}		✕
Qualifier		**Members**
○ All ○ Aggregates ● Details		○ All ● Selected
Dimension		☐ January
↗ Accounts		☑ February
↗ Months		☐ March
↗ Regions		☐ April
		☐ May
		☐ June
		☐ July
		☐ August
		☐ September
		☐ October
		☐ November
		☐ December
		☐ 1st Quarter
		☐ 2nd Quarter
		☐ 3rd Quarter
		☐ 4th Quarter
		Filter:
Details and {"Months.February"}		
OK Cancel Help		

7. Click **OK**.

8. Click on the "**Equals**", [=], button in the Formula Editor.
   The left-hand side of the formula is completed, and is shown in the content area.

9. Next click on the "**square**" **brackets** or the **Build Cube Reference** button, [...] .
    The **Build Cube Reference** dialog box appears.

10. Select the *Current Year Budget* from the cube drop down.

11. Again, select *Months* in the Dimension list and then select January from the Member list. The **Selected** radio
    button is selected, as a consequence.

    Note that at the top of the dialog box, there is a Cubes drop-down. This brings up an important feature—the ability
    to create cross-cube formulas, which is explained in the *PowerOLAP User Manual.* There is only one Cube in our
    database, *Current Year Budget*, in the formula we are creating; data will come from this Cube, to populate another
    area of the same Cube.

    The **Build Cube Reference** dialog box appears as follows:

12. Click **OK**.
This return you to the Formula Editor (you can hit **Enter** after the "**=**" to show the formula on two lines)"

13. Use the buttons in the Formula Editor — the asterisk (for multiplication), the numbers and the semi-colon — to complete the formula so that it appears like so:

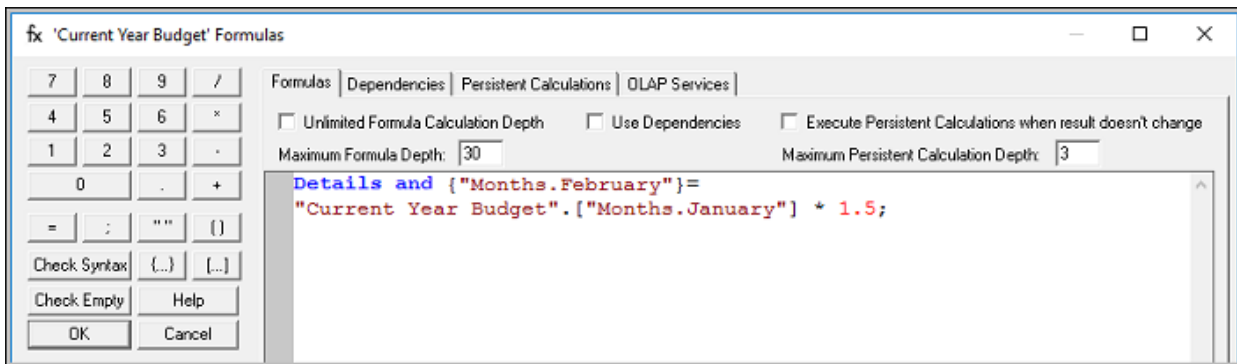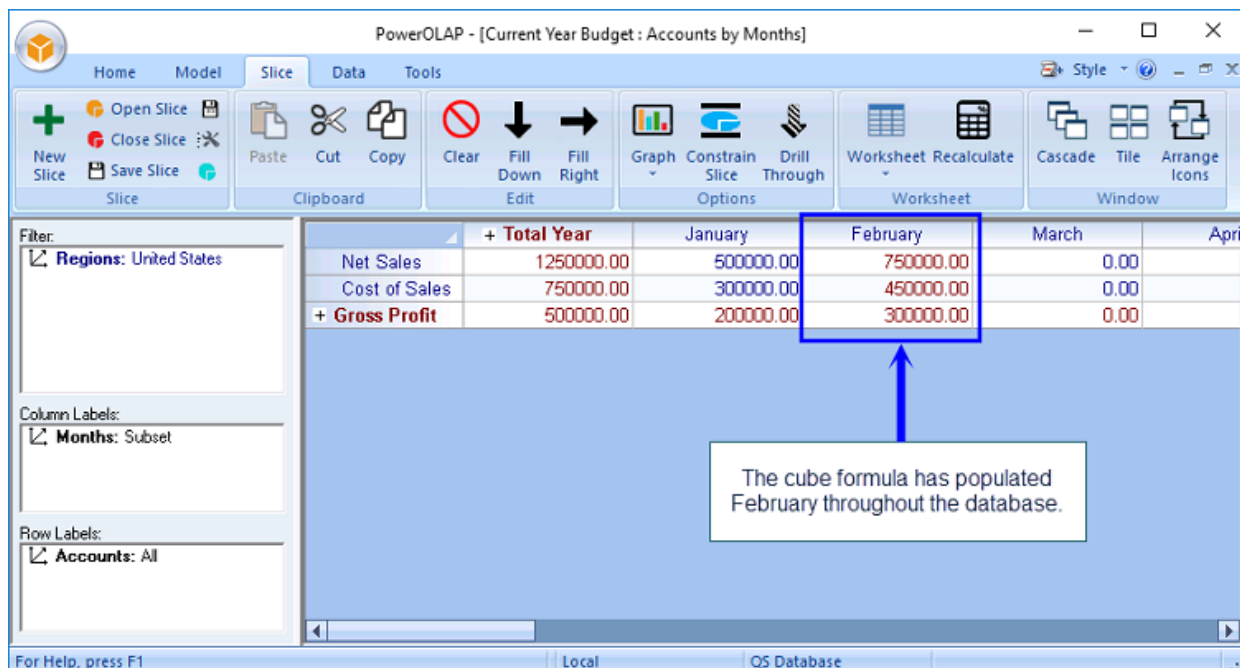Note: do not forget to put semi-colon (;) at the end of each formula statement.

Following is a breakdown of the syntax of the Cube formula:

	DESCRIPTION
Left of Equal '='	Area of Cube to populate
RHS	Formula
{"Months.February"}	Dimension and Member to populate
"Current Year Budget"	Source cube
["Months.January"]	Range within Source cube
1.5	Value (in this case: +50%)
;	Ends formula statement

14. Click **OK** in the Formula Editor to save the formula then **OK** in the Cubes dialog (If you have mistyped the formula, you will receive a message indicating that there is syntax problem).
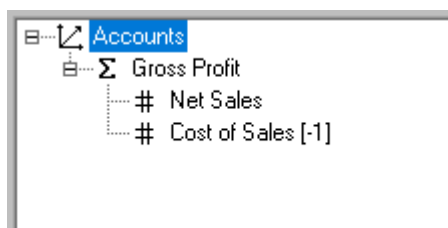
15. Back in the PowerOLAP main application window, go to **Slice** tab and click **Recalculate** command or simply press **F9** in the *Accounts by Months* slice to recalculate values.

Notice that the *February* column has been populated by the Cube formula defined in the previous steps.

The cube formula has populated February throughout the database.

Next, you will create a Cube formula that calculates a ratio of two Members. You will first need to add a new Member—*Margin %*—to the *Accounts* dimension, and then modify the *Accounts* dimension hierarchy. This Cube formula exercise brings up two important strengths of PowerOLAP, in comparison to static modeling tools, OLAP or otherwise: the capability to create new, "on-the-fly" calculations (which can of course be subsequently saved) for precisely specified (even new) components of a business model, which themselves *are created entirely within PowerOLAP* [i.e., not dependent on any static model of business data].

16. From the PowerOLAP ribbon, go to **Model** tab and select **Dimension** command.

17. Double click *Accounts* in the Dimension list box.
    The **'Accounts' Hierarchy** dialog box is displayed.

18. Click on the **Create New Member** button, ✚, on the toolbar and type *Margin %* so that it appears in the Members list box.

    Next step is to modify the *Accounts* dimension hierarchy.

19. Expand *Accounts* in the Hierarchy Definition box, on the right.

20. Select *Margin %* from the **Members** list box and drag it to the Hierarchy list box and release it just under *Accounts*.
    The completed Hierarchy will appear as in the following figure:

21. Click the OK button ✔ to close the **Dimension Hierarchy** dialog box.

22. Click **OK** in the **Dimensions** dialog box.
    Margin % now appears as the top row in the *Accounts by Months* slice.

    Next, you will define a Cube formula that creates values for the new *Margin %*: the values will be based on a formula that divides *Gross Profit* by *Net Sales*:

23. From the PowerOLAP ribbon go to **Model** tab and select the **Cube** command. The **Cubes** dialog box appears.

24. Double-click the **Current Year Budget** cube to launch the Formula Editor.

25. Press **Enter** twice in the Content Area to move the previously written formula down two lines. Begin on the top line of the Formula Content area,
i.e., place this formula above the other.

Important

Priority, which is top-to-bottom in the Formula editor, is very important for determining data calculations–consult the *PowerOLAP® User Manual*.

26. Using the **Formula Editor** dialog box, create the formula:

All and {"Accounts.Margin %"}=

"Current Year Budget".["Accounts.Gross Profit"] /

"Current Year Budget".["Accounts.Net Sales"]*100;

27. Click **OK** in the Formula Editor then **OK** in the **Cubes** dialog.

28. Press **F9** to recalculate values in the *Accounts by Months* slice.

Margin % is now calculated for all *Months* in the *Current Year Budget* cube. The figure above shows the *Margin %* figures for *United States*. You can select other *Regions* members to verify that all Members in the *Regions* dimension have been updated as well.

Note though in the above slice that since we only have *Net Sales* and *Cost of Sales* data for *January* and *February*, hence, the rest of the months have zero *Margin %* values.

29. Click the **File** icon then **Save Database** command to save the data and slice (which now includes *Margin %*).

13. Creating an Excel Worksheet

Create Excel Worksheet

One of PowerOLAP's key features is that it enables you to create an Excel worksheet from a PowerOLAP slice. You can then work with data in Excel, utilizing all that product's features and functions while maintaining a dynamic connection to the PowerOLAP database. This is why PowerOLAP® is credited with having a "spreadsheet front end".

To create an Excel worksheet from the *Accounts by Months* slice:

1. Open the corresponding slice (i.e., **Accounts by Months**).

2. From the PowerOLAP ribbon, go to the **Slice** tab then click the **Worksheet** icon or the **Create Excel Worksheet** command and select an excel output (e.g., **OLAPTable**).
    Alternatively, you may hit F8 or click on Create Excel Worksheet button.

    PowerOLAP launches Excel (assuming it is not running), displaying the newly created worksheet. A new Excel worksheet appears, as follows:

The first few rows of the worksheet display information indicating the PowerOLAP database; the Cube; the Page Dimension member(s) that the Slice data shows (in the figure above, one Page Dimension, *Regions*, and *United States* is shown); and the Dimensions "Along Rows" and "Along Columns".

The worksheet can now be saved as an XLSX file via Excel's **Save** command.

Tip

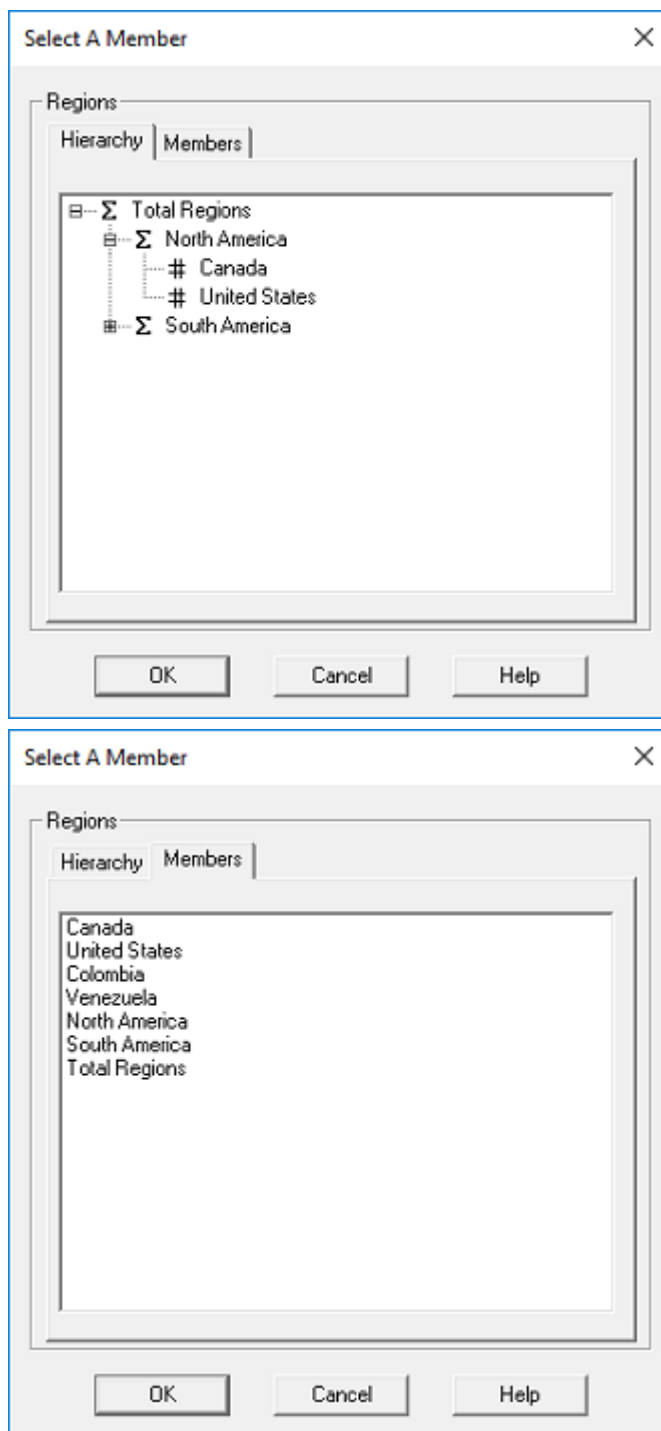You can also create an excel worksheet by simply pressing the **F8** key.

13.1 Selecting a Page Member to View in Excel

Change the Page member in Excel as follows:

1. Double-click **Page member cell**—e.g., cell **C3** (*United States*).

   The **Select A Member** dialog box appears. Note the two tabs, you can find Members based on where they appear in the dimensional Hierarchy or in the Member list.

2. Select *Canada*.

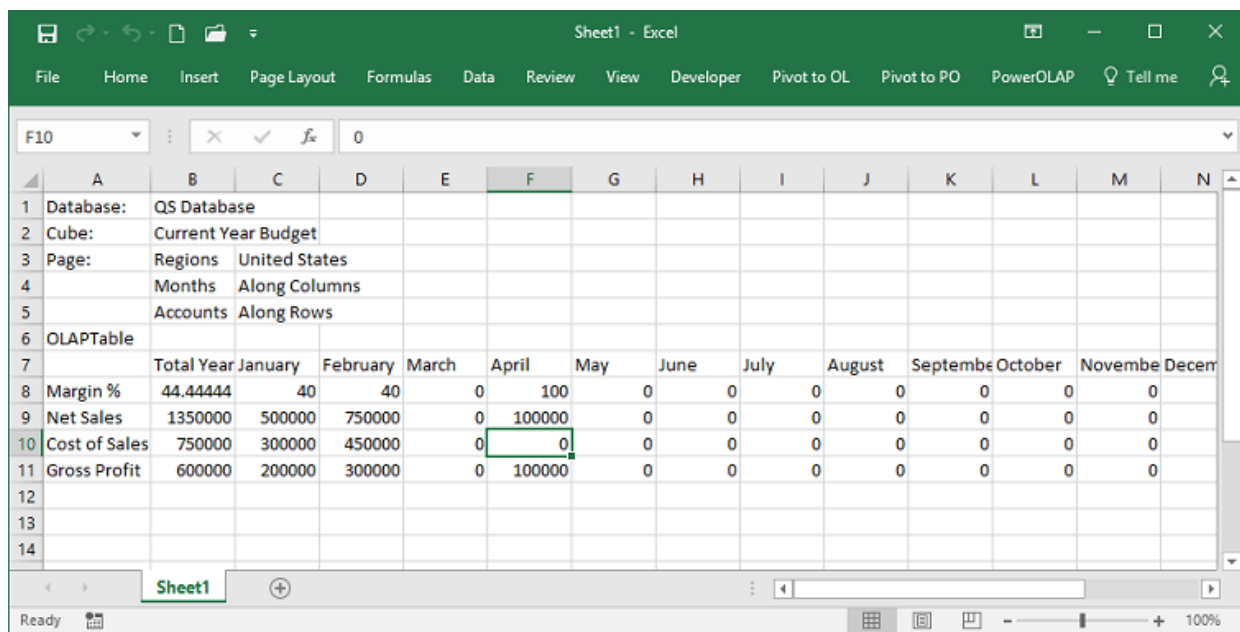3. Click **OK**, and then press **F9** to update the worksheet.

The worksheet now shows data for the new Page Member, *Canada*. You can repeat this means of selection—via the **Select A Member** dialog box, which PowerOLAP has made available in Excel—to pick other countries in the *Regions* dimension. [Were this a four-, five- , etc. dimensional Cube, you could pick any number of Page members to view, multiplying your potential sheaf of reports manyfold!]

14. Entering Data from within Excel

You can enter data into a PowerOLAP database using an Excel worksheet. This has great applicability in forecasting, planning and budgeting systems that use PowerOLAP®. All data entered into a worksheet is automatically updated using one of PowerOLAP's functions (OLAPTable has been shown here), each of which maintains a "bi-directional, dynamic spreadsheet connection" between PowerOLAP® and Excel.

To enter data via an Excel worksheet:

1. Select a **cell** at the intersection of Detail members, such as cell **F9**, which is the cell at the intersection of *April*, *Net Sales*.

2. Type **100000**.

3. Press **Enter**, and then press **F9** key (if Excel is set to Manual calculation) to recalculate the worksheet. The worksheet appears as below:

Now, to see the dynamic connection, you need to return to the PowerOLAP cube.

4. Return to the PowerOLAP **Accounts by Months** slice (showing **Canada** as the Page Member).

5. Press **F9** to update PowerOLAP.
   The Slice appears as follows:

The data you entered in the Excel worksheet is now reflected in the PowerOLAP database. Because PowerOLAP's function connecting to the worksheet (OLAPTable, in this case) is bi-directional, you can enter data in either Excel or PowerOLAP and select **F9** to update. (Note you cannot write into Aggregate member spreadsheet cells or cells governed by a Cube formula, just as in a Slice).

 Important

The strength and power of the spreadsheet connection to PowerOLAP cubes are central to the use of the product: PowerOLAP® "disburdens" Excel of its calculation tasks–hierarchies/ Aggregate weights/formulas are calculated in PowerOLAP's engine, across specifiable multidimensional data ranges; further, PowerOLAP® relieves users/organizations of the difficulties of maintaining hundreds or more linked spreadsheets.

15. Defining Cube References

The bi-directional connection shown so far is OLAPTable function (shown in cell A6). In fact, when you click on cell **A6** in the worksheet, you will see in Excel's formula bar the single formula that references all the worksheet cells that connect to data in the PowerOLAP cube:

=OLAPTable(B1,B2,B7:R7,A8:A11,C3,B8)

The OLAPTable function is one of many functions you can use to dynamically link data between a worksheet and a PowerOLAP database.

(The other PowerOLAP® functions for creating a worksheet from a Slice—OLAPReadWrite, OLAPPivot and OLAPWriteTable—and their differences, are discussed under the Excel Integration section.)

The next exercise will demonstrate how to define a Cube reference that returns a pertinent value into a cell by using the OLAPRead function:

1. Select cell **D13** in Excel in the current worksheet.
    In this cell, you will define a Cube reference formula that shows the *Gross Profit* for *United States* in *February* (in order to make a quick visual comparison to *Gross Profit* for *Canada*, which appears in cell **D11**).

2. From the Excel ribbon, go to **PowerOLAP** tab and click on the **Formula** option.
    The **Edit PowerOLAP Formula** dialog box is displayed.

3. Select **OLAPRead** from the top drop-down menu (to the right of Function).

4. Press the Pick button, Pick (next to Database). The **Select Database** dialog box is displayed, as below:
    Notice that the current database—which contains the value you want—is selected.

5. Click **OK**. You are returned to the **Edit PowerOLAP Formula** dialog box.

6. Press the Pick button, [Pick] (to the right of Cube).
   The **Select Cube** dialog box is displayed. Likewise, this Cube contains the value you want to be referenced into the Excel cell, **D13**. As in the example, select the **Current Year Budget** cube.

7. Click **OK**.
   Again, you are returned to the **Edit PowerOLAP Formula** dialog box. Now you have defined several of the parameters of the Cube reference formula, as shown in this detail of the dialog box:

![Notes]

Note that the Dimensions area now displays text boxes for you to enter choices for the *Months*, *Accounts* and *Regions* dimensions. In fact, *February* has been "pre-selected" for you. If you wanted another *Months* member for your formula, you would press the **Pick** button to make a different selection. Since you do want to select *February* data, continue to the *Accounts* and *Regions* dimensions. Use the Pick button and the corresponding **Select A Member** dialog boxes to choose data for *Gross Profit* and *United States*, respectively.

![PowerOLAP logo]

After you have made these choices, the **Edit PowerOLAP Formula** dialog box will look as follows:

8. Click **OK** to update Excel with the new formula reference.
   Your dynamically connected Excel spreadsheet will appear as in the following figure:

You now have a ready view of the *February, Gross Profit* for *United States* within a dynamically connected spreadsheet that shows figures for *Canada*. Now, whenever *February*, *Gross Profit* for *United States* (or for that matter, *Canada*) changes, it will be reflected in this worksheet.

You can save the current database, with changes you have made, from within Excel.

9. Go back to the PowerOLAP application, and select **File** icon and **Save Database** command.
   The PowerOLAP database is saved but not closed.

16. Closing a Database

Close Database

The Close Database command located on the File command in PowerOLAP® closes an open database. When you have completed work within one database, you may still wish to work with another database. You must first close the currently open database before opening another database.

To close an open database:

1. From the PowerOLAP application, click on the **File** icon and select the **Close Database** command.
    If any Slices are open, PowerOLAP will prompt you to save Slices.

2. Clicking **Yes** will save all database changes to disk and close the database file.
    Clicking **No** will close the database file without saving any changes made to the database.
    In either case, all open Slices will be closed along with the database.

Notes

As noted earlier, you can save and close any dynamically connected worksheet as a normal XLS file. Upon opening such a worksheet, when you press **F9**, PowerOLAP launches, and a spreadsheet system with OLAP cubes behind it, is ready for online, optimized planning / analysis / reporting.

17. Summary of Quick Start Exercises

In the preceding pages you very quickly learned important basic concepts and fundamental functions of PowerOLAP®, including:

- Creating a PowerOLAP database, the first step in building a Cube to model multidimensional data.

- Creating Dimensions, adding Members to those Dimensions, establishing a Hierarchy among Members (whether Detail or Aggregate), and assigning an Aggregate Weight to a Child member.

- Creating a Cube from Dimensions and their respective Members.

- Creating a Slice, arranging Slice dimensions, selecting Page members to view, and changing the layout of the grid within a Slice.

- Setting general and formatting preferences from the Edit, Options Menu.

- Entering data in a Slice, and seeing how PowerOLAP automatically recalculates Aggregate members to reflect changes in value. Then, saving those changes to a database.

- Importing data from a file into a Cube.

- Creating Cube formulas.

- Creating a fully functional Excel worksheet from a Slice, and defining database reference formulas.

- Saving changes made from within Excel into the PowerOLAP modeler, and closing the PowerOLAP database, knowing that you can reopen it from a normal Excel worksheet.

Now that you have grasped the concepts and demonstrated these many functions, you are well prepared to use PowerOLAP® product in a production environment. For more detailed instruction on using PowerOLAP®, and to learn additional features, see the *PowerOLAP® User Manual*.

A brief discussion about one of the important advanced features of PowerOLAP®: OLAP Exchange® component follows.