

Nexus Studio
Quick Start Manual
for use with **PowerExcel Client**

PowerExcel

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NEXUS Studio Manual

for use with PowerExcel Client

T o p i c s

- Creating a Nexus Database
- Creating Dimensions and Defining Dimension Attributes
 - Creating a Cube
 - Saving the Nexus Database
- Advanced Features: Cube Formulas, Security, Bookmarks
- Additional Topics (excerpted from the PowerExcel User Manual):
 - Creating a PowerExcel Slice
 - Entering Data in a PowerExcel Model

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Introduction to Nexus Studio

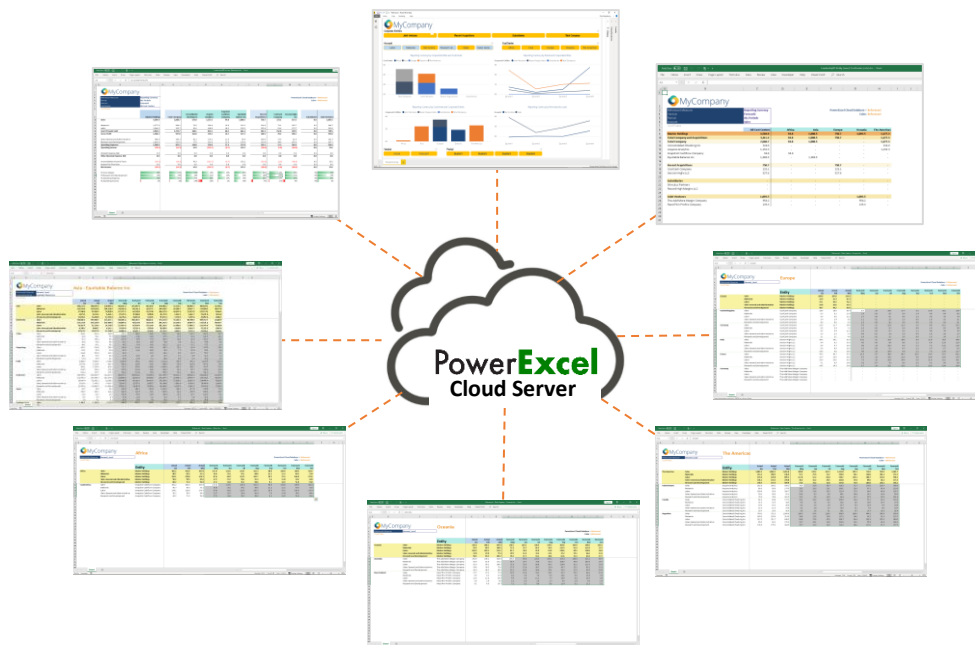
PowerExcel enables organizations to significantly streamline and speed up their Planning/Budgeting, Forecasting, and Reporting processes via a vastly empowered use of Excel—any number of users can reach cloud-based Nexus (or other Olation) financial models that serve as the central repository for data, business rules, and KPIs (calculated measures).

PowerExcel ensures accuracy of reports, plans, and forecasts; provides consistency of business rule/KPI definitions across all business units, and; guarantees the immediacy of all relevant business data.

Working from Excel to reach a shared, cloud-based Nexus model fosters real-time user collaboration, eliminating the need to email spreadsheets back and forth and avoiding the limitations of co-authoring a single (typically ever-expanding) spreadsheet model.

Note: this manual covers the basics of building a PowerExcel model using the Nexus* Studio. This requires an installation of Nexus Studio in a cloud environment—both the product and the cloud environment are provided by [PARIS Technologies, Inc.](#) [*Note: **Nexus** is the name of the database that PowerExcel reaches in the Cloud.]

The following image shows the PowerExcel model created by Nexus Studio in a cloud server configuration.



Any number of PowerExcel users may connect to the cloud server with a Nexus database for collaborative planning, analysis and reporting

The following page shows how a user connects to the cloud server, via the PowerExcel Excel Add-in



A simple PowerExcel Add-in connects any spreadsheet user to the cloud-based model, where data, Key Performance Indicators and business rules are stored.

1. Manual Overview

This manual details a step-by-step procedure to create a Nexus database using the Nexus Studio, from [PARIS Technologies](#); PowerExcel is the Client to the Nexus database.

Essentially this is a “multidimensional approach” to model building (for example, a financial business model), whereby we begin by creating the Dimensions and their corresponding Members and attributes, then build a Cube.

For this example, the objective is to build a *Sales* cube, which consists of 4 Dimensions, namely: *Version*, *Account*, *Region* and *Month*. The *Version* dimension is included to demonstrate how this model can be used for collaborative “planning”—for example, a budgeting or sales forecasting exercise.

Specifically, the steps involved in creating this model are:

- Create a Nexus Database
- Create the Dimensions
 - Create the Members
 - Create the Dimension Attributes
 - Define Hierarchies
 - Create Dimension Weights
 - Create Aliases
 - Create Properties
 - Create Subsets
- Create a Cube
- Utilize Advanced Features: Cube Formula, Security, Bookmarks
- Quick view of the data from a user’s standpoint, i.e., from a PowerExcel Slice.
- Quick example of populating the Cube with figures via data entry in a PowerExcel Slice

Important: The last two topics—concerning **Creating a PowerExcel Slice** and **Entering Data in a PowerExcel Model**—are covered fully in the **PowerExcel User Manual**.

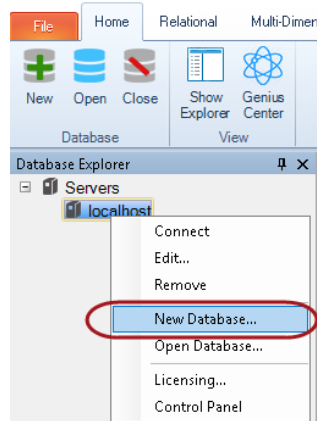
2. Creating a Nexus Database Model

2.1 Create a Nexus Database

1. To create a PowerExcel model, launch **Nexus Studio**.

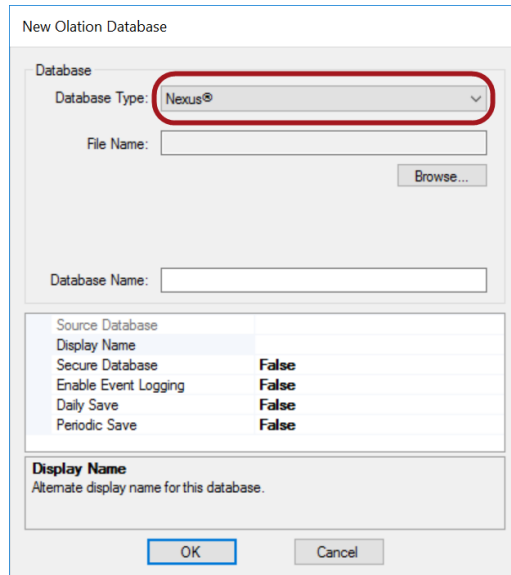


2. In the Database Explorer, expand on Servers, right-click on **localhost** (or the name of your Server) and select the **New Database** option.

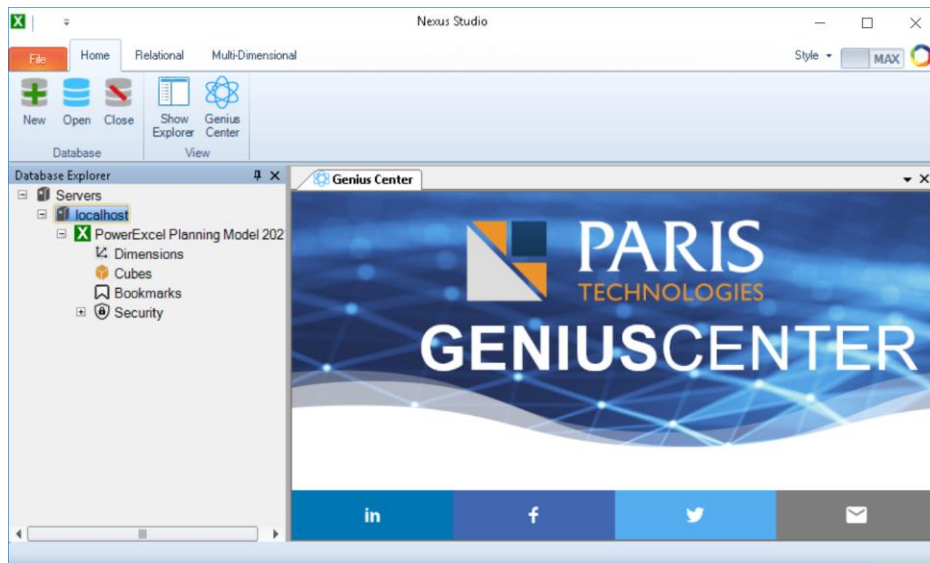


The New Olation Database dialog appears (see following image).

Note: Nexus is a specific type of database that is created by the product Olation, from [PARIS Technologies](https://www.paristechnologies.com/). Other databases types can be created through use of a separate license; these other databases are more typically created from relational database sources, e.g., SQL Server or SAP HANA. The Nexus database type is a multidimensional database that can be saved as a local file, but is also available via a Server (as in this case) to multiple users for collaborative planning, analytics and reporting.



3. In the **Database Type** drop-down, the **Nexus** database type is the only one you will be able to Open, per the Note, previous page, and the image above.
4. Click on **Browse** to locate a directory for the Nexus database and provide a <file name> for your database, e.g., **PowerExcel Planning Model 2021**.
5. You may change the Display Name seen by front-end applications (e.g., PowerExcel) by typing a different <display name> in the **Display Name** field. [NOTE: Source Database textbox not operable in current version.]
Additional options are discussed further below, in the *Nexus Database Properties Options* section.
6. Click **OK**. For this exercise, the Display name is the same as the File Name, as below.



Note: You will see the newly created Nexus database appear as an item in the Database Explorer. Additionally, a Nexus database file will be created in the target destination directory and will have a **“.Nexus”** file extension.

Nexus Database Properties Option

In the course of creating a Nexus database model, or after it is saved, you can configure the database properties. The below Database Properties dialog will appear upon right-click of the database once it has been saved. Example configuration/selections have been made, which are described below the image.

Source Database	Not Available in current version
Display Name	Name seen by front-end applications (e.g., PowerExcel)
Secure Database	Set to True, the database will—after it has been saved, closed and re-opened—have a default username/password = Administrator/Administrator required for access. Further Security can be configured for different users connecting to the database. See the section <i>Defining Nexus Security</i>
Integrated Windows Authentication	This option authenticates using the current windows user or single sign-on
Limit Member Selection	Not Available in current version
Enable Event Logging	Provides information on operations to query, load, etc. data, as well as Error Descriptions
Daily Save	Set to True, enables daily database save at indicated time (per below).
Daily Save Time	Hourly selections for daily Save (if above is set to True)
Daily Backup	Set to True, the database will be backed up daily at that time
Number of Backups	If Daily Backup is set to True (per above), number of backup files to keep before purging the oldest
Periodic Save	Set to True, enables daily database save at indicated intervals (per below)
Periodic Save Time	Interval selections for Periodic Save (if above is set to True)

[NOTE: Source Database textbox not operable in current version.]

2.2 Dimensions for the PowerExcel Model

The next step is to create the Dimensions, component Members and other Dimension attributes, including Hierarchies, Aggregate Weights, Aliases, Properties, and Subsets.

For this example, we will be creating the following Dimensions:

Dimension Name: Account
Sales
Cost of Sales
Gross Profit
Operating Expenses
Net Income

Dimension Name: Version
Actual
Budget
Variance

Dimension Name: Region
United States
Canada
Mexico
Colombia
Venezuela
North America
South America

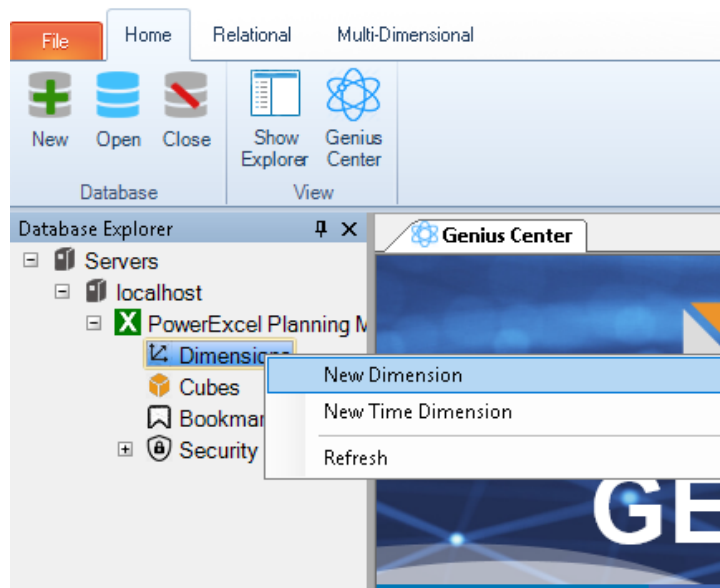
Dimension Name: Month
January
February
March
April
May
June
July
August
September
October
November
December
1 st Quarter
2 nd Quarter
3 rd Quarter
4 th Quarter

2.3 Create the First Dimension and Define Attributes – Account Dimension

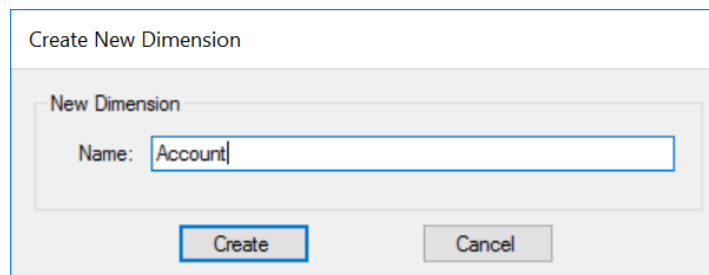
Note: Dimensions can be created in any order, and then can be arranged according to preference. The ultimate sequence of Dimensions will determine how they are arranged in a PowerExcel Slice.

1. Right click on **Dimensions** and select **New Dimension**.

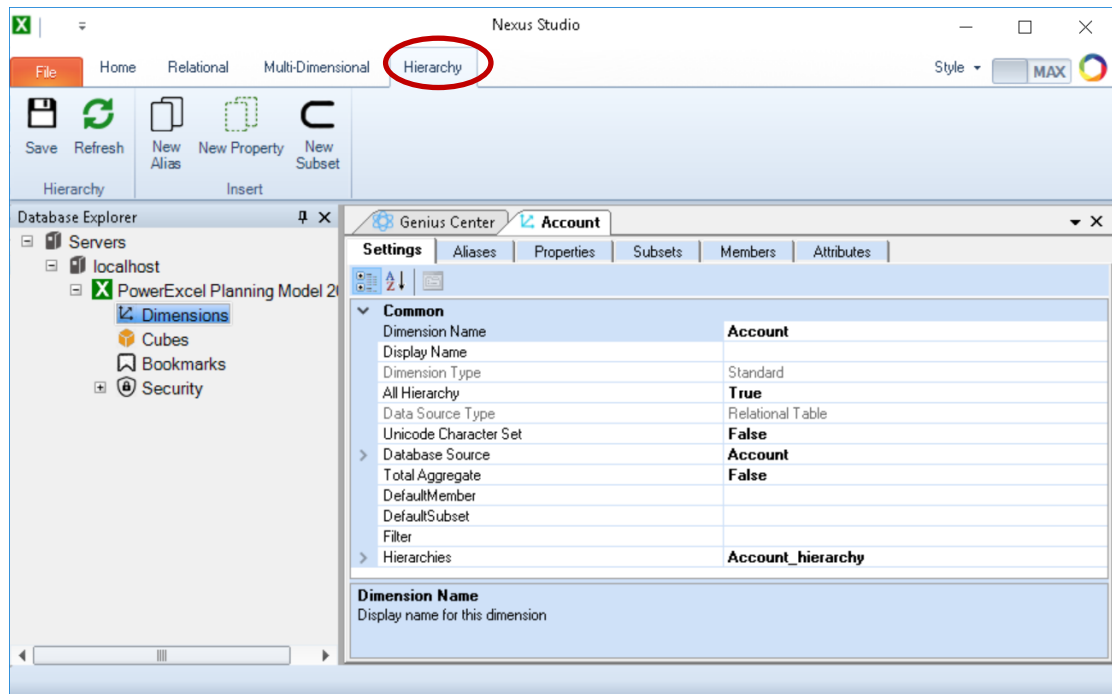
The Create New Dimension dialog appears:



- In the Create New Dimension dialog, enter the <name of the Dimension>, i.e., **Account**.



- Click **Create**. The Dimension Editing Window for the **Account** Dimension appears. This window is where you will define all the Members and other Attributes.



Important: Notice that a new tab appears on the Nexus Studio Ribbon, i.e., **Hierarchy Tab** (circled in the preceding image). This tab consists of commands for creating Dimensions and their corresponding Attributes, which will be discussed in subsequent steps.

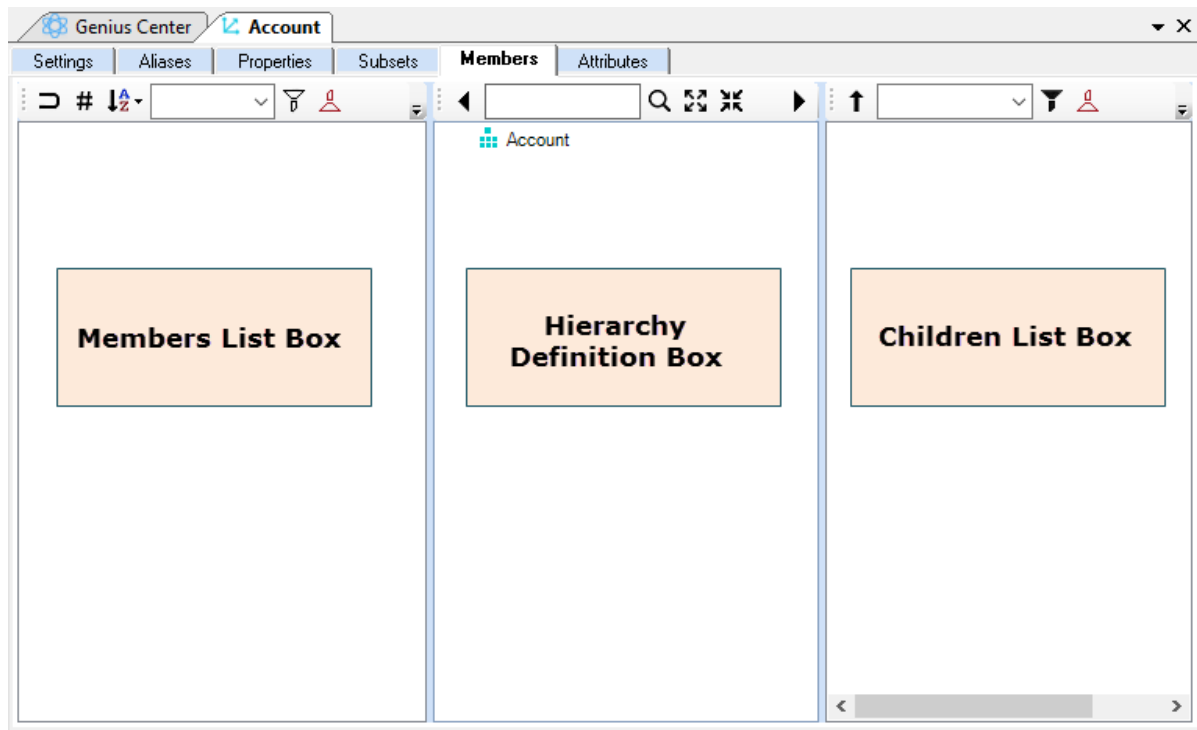
The Dimension Editing Window consists of 6 tabs: Settings, Aliases, Properties, Subsets, Members and Attributes. In the next few pages, we will be using most of them to give the Dimension the desired definition and attributes for this exercise.

2. Adding Members (*Account* Dimension):

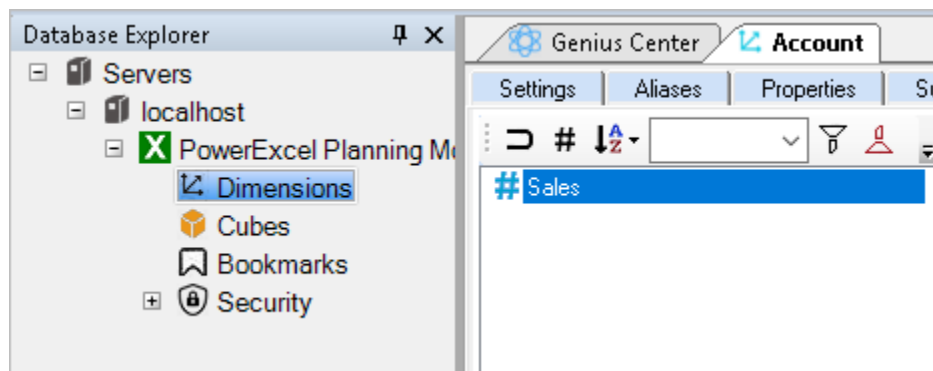
- Go to the **Members Tab** of the Dimension Editing Window.

Note: The Members Tab has three panes (as shown in the following image):

- **Members List box** – This is the left-hand pane, where a user can add, delete, and rename a Member; a user can also arrange the order of Members.
- **Hierarchy Definition Box** – This is the middle pane, where the user defines the hierarchy structure for the Dimension. This is also where users can define Aggregate Weights or Member Weights.
- **Children List Box** – This is the right-hand pane. When you click on any Member in the Hierarchy Definition box, this list box will display child members, if any exist, for the selected Member.

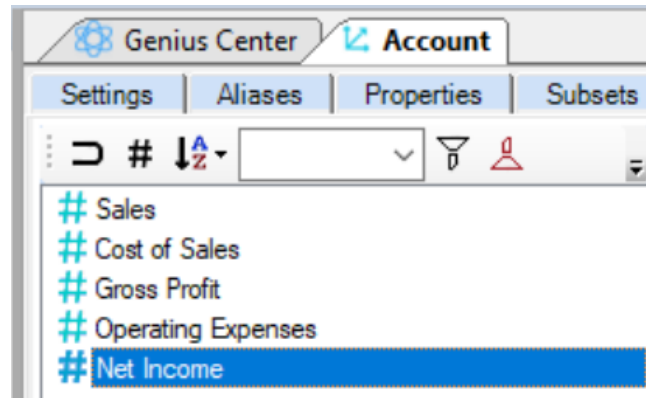


- In the left-hand pane (Members list box), click the **Add Member icon** (Hash symbol #). Alternatively, right-click and select **New Member**. (Note the other selections when you right-click: Rename Member, Delete Member, etc.)
- In the textbox that appears, type the <member name>--e.g., type **Sales** then press the **Enter** key.



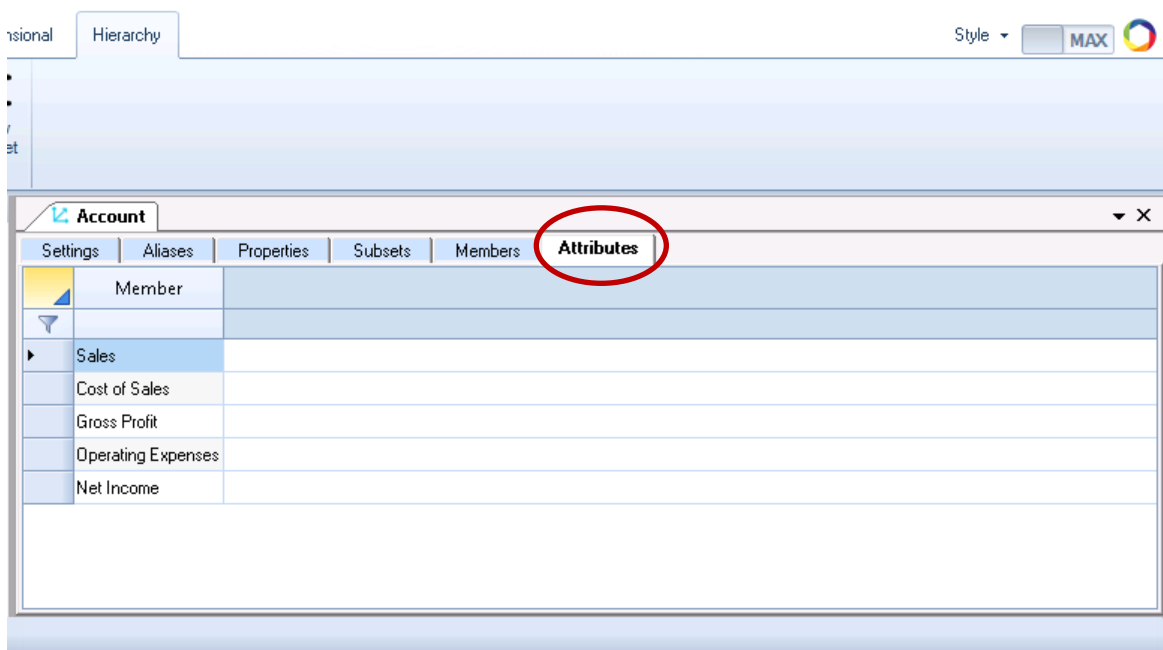
- Continue adding Members by clicking the **Add Member icon** and typing the <member names> in the text box. Add the Members: **Cost of Sales, Gross Profit, Operating Expenses** and **Net Income**—the Members List box will eventually look like the following screen image.

Tip: Alternatively, while the text field is active, you can press the **Ctrl + Enter** keys to create additional Members.



Note: You can re-arrange the order of your Members by dragging and dropping a Member above or below another.

When you go to the **Attributes Tab** (circled in the following image), you will see all the Members that have been added for the **Account** dimension.



3. Define Hierarchy (*Account* Dimension)

You can define a Hierarchy for a Dimension to manage aggregations, including the calculation of values, i.e., Child Member(s) rolling up to a Parent Member.

For the *Account* dimension, we will create Hierarchies whereby:

- *Sales* and *Cost of Sales* values roll up to the Parent Member *Gross Profit*.
- *Gross Profit* and *Operating Expenses* roll up to the Parent Member called *Net Income*.

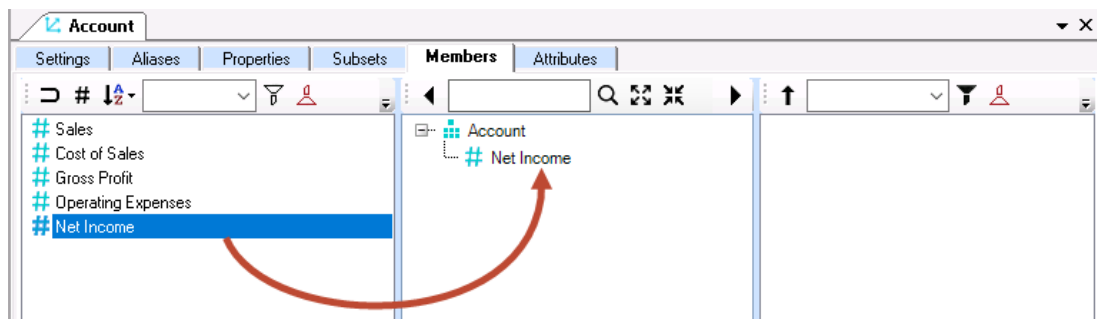
Hierarchy structures for the *Account* dimension:

Parent: Net Income
Children: Gross Profit Operating Expenses

Parent: Gross Profit
Children: Sales Cost of Sales

To define the Hierarchy Structure:

- In the **Members Tab** of the Dimension Editing Window, select a Member from the left-hand pane (Members List box) and drag and drop under the target parent Member in the middle pane (Hierarchy Definition Box).
First, we need to identify the 'root member' or the highest-level parent. For this example, *Net Income* is that member. Therefore, select **Net Income** from the left-hand pane and drag and drop under **Account** in the middle pane.

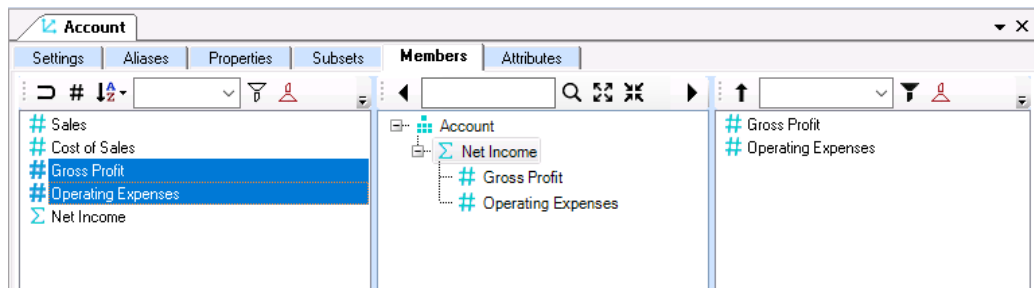


- Next, drag and drop the children Members (children of *Net Income*) *Gross Profit* and *Operating Expenses* from the left-hand pane to the middle pane under *Net Income*.

Tip: To add several Members as children of the same parent Member go to the Member List Box, click the first Member to add as child, then press and hold **Ctrl** key; click on the rest of the Members to be added as children (all of the selected Members will be highlighted); then drag and drop these child Members under the correct parent Member in the Hierarchy Definition box.

IMPORTANT: Another way to add Members is to copy a list, e.g., from Excel, and paste them into the Member List box.

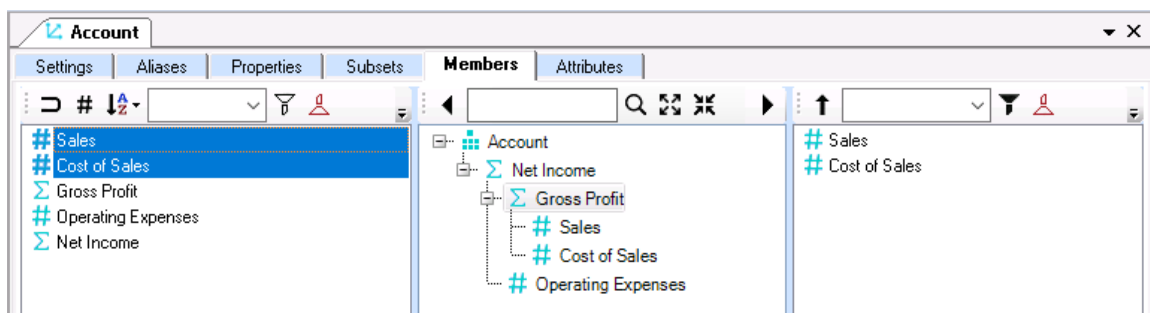
The Hierarchy will look as follows:



Important: Notice how the icon preceding *Net Income* changes from a Hash symbol (#) to a Sigma symbol (Σ). The symbols indicate the type of Member: Hash for Detail (aka 'Leaf level' Member) and Sigma for 'Aggregate'.

- Next, drag and drop the *Sales* and *Cost of Sales* from the left-hand pane to the middle pane under *Gross Profit* to create that hierarchy.

The *Account* hierarchy will now look as follows:



Gross Profit will be the sum or aggregation of *Sales* and *Cost of Sales*, while the **Net Income** will be the aggregation of *Gross Profit* and *Operating Expenses*.

HOWEVER, as we know, the logic behind this should be:

$$\text{NET INCOME} = \text{GROSS PROFIT} - \text{OPERATING EXPENSES}$$

And;

$$\text{GROSS PROFIT} = \text{SALES} - \text{COST OF SALES}$$

As the calculations in the hierarchies for *Net Income* and *Gross Profit* are incorrect as is, we need to apply **Aggregate Weights** (in this case, '-1') for the Members in question.

4. Define Aggregate Weights (*Account* Dimension)

'Aggregate Weights' (also called 'Hierarchy Weights' or 'Member Weights') are used when a Member must be assigned a 'multiplied' value in an aggregation so that the data will be properly calculated. Aggregate weights can carry a **positive** or **negative** value.

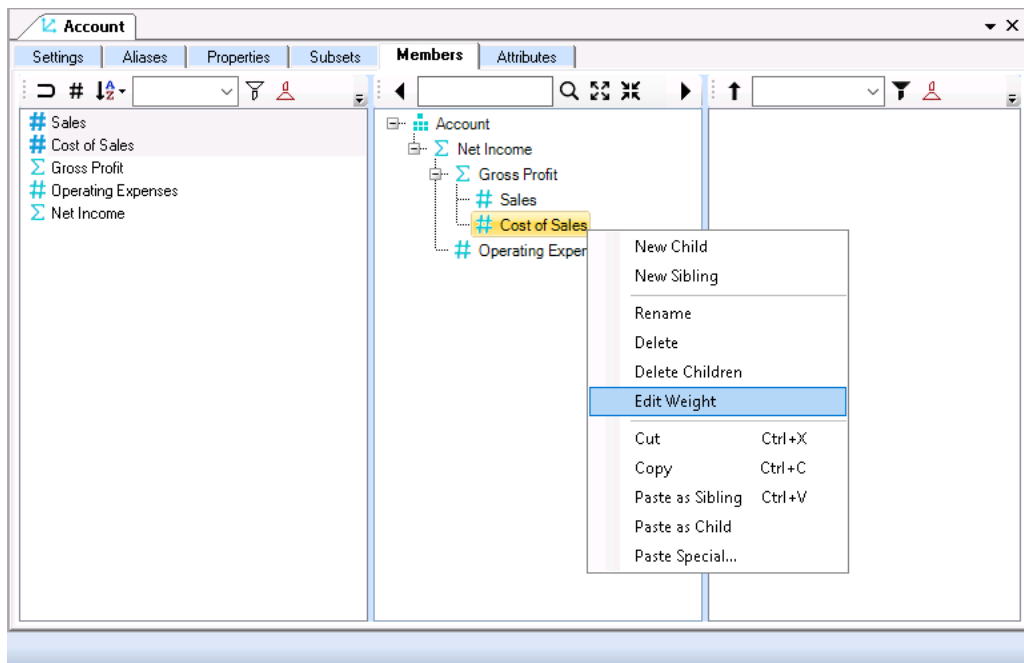
Simply stated, **the Member value will be multiplied by the defined 'Aggregate Weight' and the result will be 'rolled up' to calculate the Parent member value.**

Important: Multiplying the member value by the aggregate weight does not change the sign of the number. In other words, multiplying a negative ‘aggregate value’ to a Child Member will not make the Child Member a negative value in a report. It will only affect how the value for that Child Member will be ‘treated when rolled up to the aggregate’. Hence, all negative values will be subtracted, and all positive values will be added as they roll up to the Parent member.

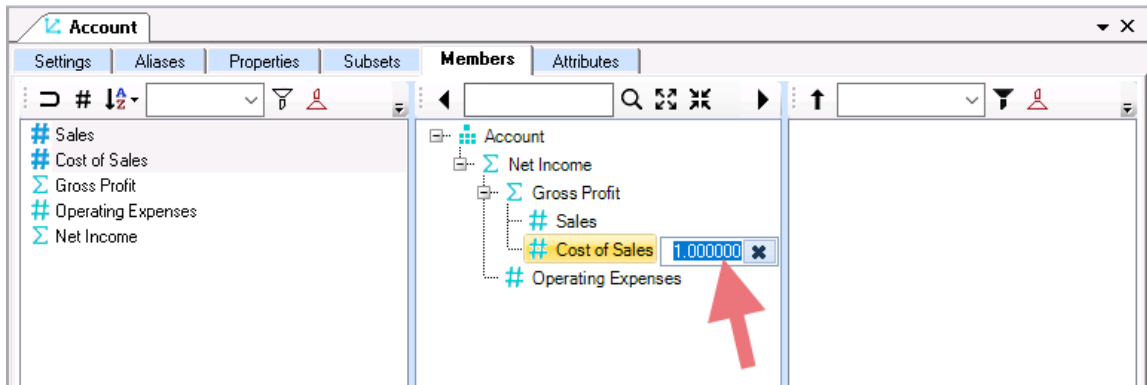
For this example, we know that the calculation for Gross Profit is ‘Sales minus Cost of Sales’. To apply this logic, we need to assign a negative aggregate weight (-1) to Cost of Sales, so that Cost of Sales values will be subtracted as it rolls up to Gross Profit values.

To define Aggregate Weight for Cost of Sales:

- In Hierarchy Definition Box, right-click on the **Cost of Sales** member.
- In the right-click context menu that appears, select **Edit Weight** (as shown below).



- In the aggregate weights textbox that appears (as shown in the next image, before any change is applied), change the value to -1; press the **Enter** key or click away from the text box.

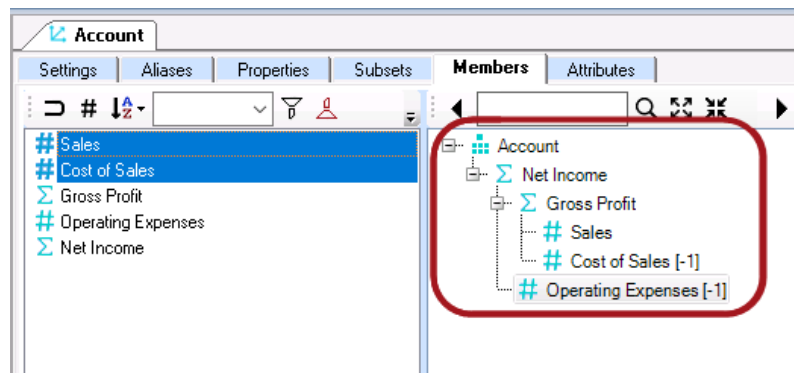


The Hierarchy will now look as follows:



- Next, to apply the correct logic for computing Net Income: in the Hierarchy Definition Box, right-click on the **Operating Expenses** member and select **Edit Weight**.
- Change the member weight of **Operating Expenses** to **-1**.

The finished **Account** hierarchy will look as follows:

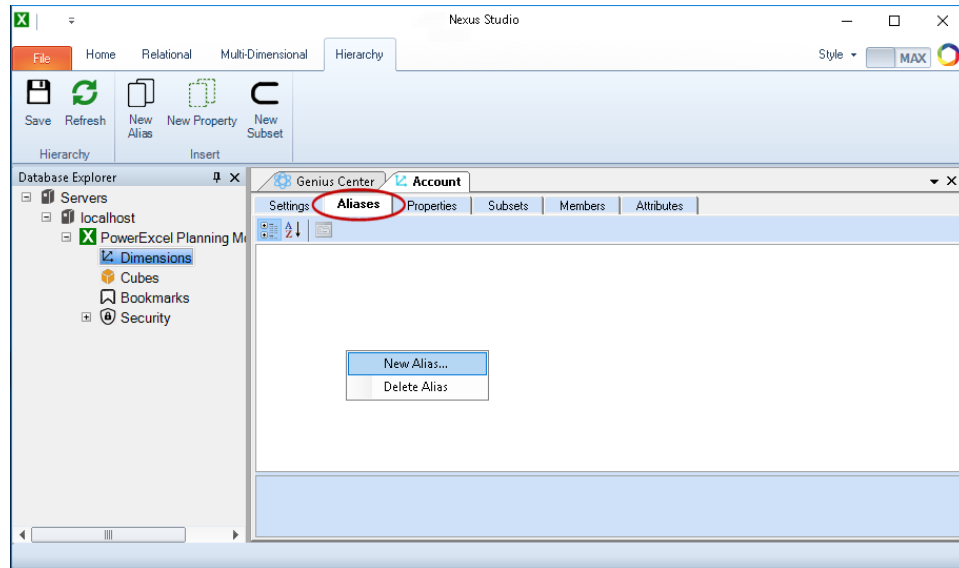


5. **Define Aliases and Alias Group** (*Account* Dimension)

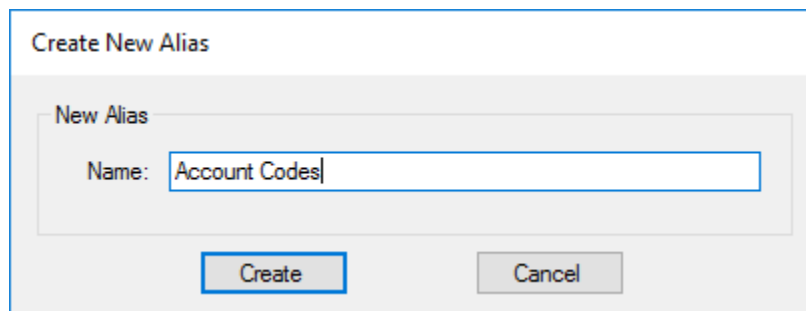
You can also define alternative names for Members within a Dimension, aka *Aliases*, other than their default or original Member names. There are many uses for Aliases—for example, to use a common name, a shortened name, or the Member name in a foreign language. Any of these, and other uses, can enhance reporting capabilities.

Important: Aliases exist within an Alias Group; therefore, an Alias Group must be created before assigning Members with Alias names. Note that all Members do not need to be assigned an Alias.

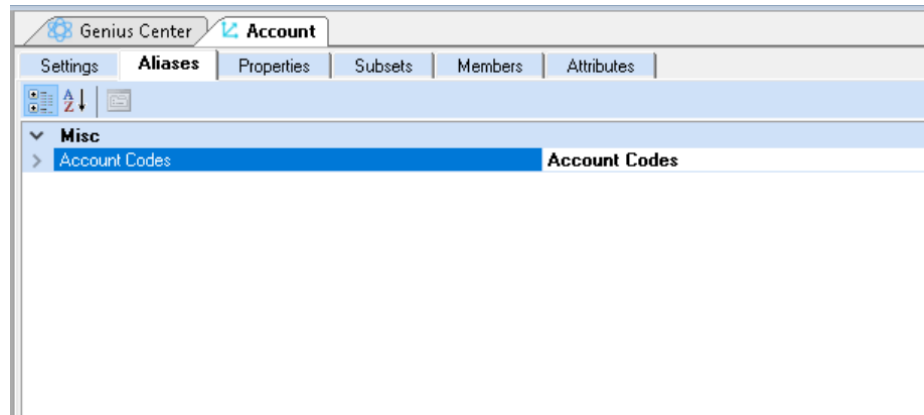
- To create Aliases, begin by creating the Alias Group. Go to the **Aliases Tab** of the Dimension Editing Window (circled in the image below).
- Right-click on the content page and select **New Alias**.



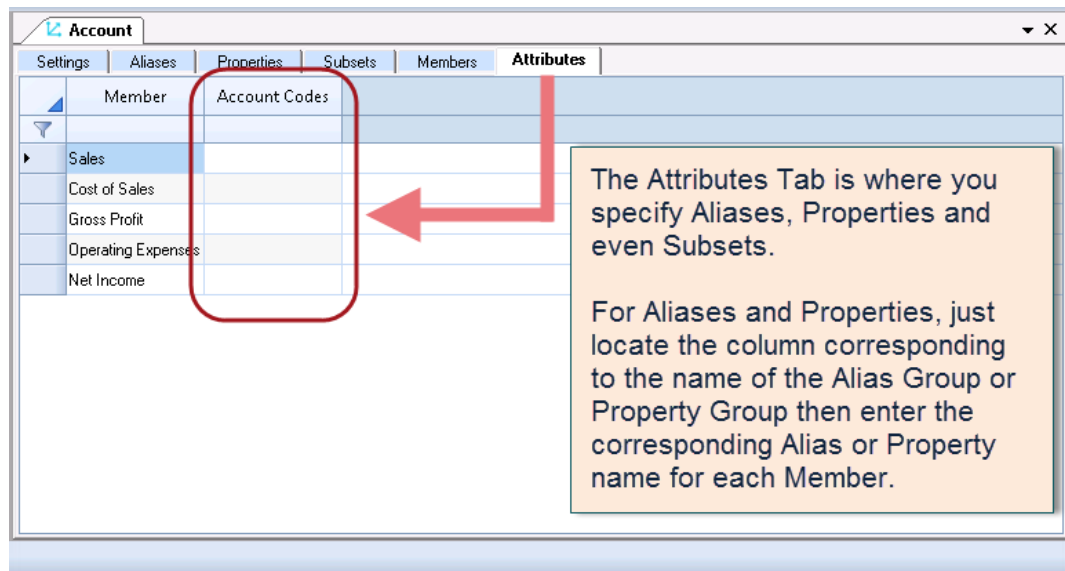
- In the Create New Alias dialog, type the **<Alias Group name>**. For this example, type “Account Codes”.



- Click **Create**. The new Alias Group will appear as follows:



- Next, go to the **Attributes Tab** to define the corresponding Alias for each Member:



- In the column **Account Codes**, type the Alias for each Member in the **Account** dimension so that it looks as follows:

Account					
Settings	Aliases	Properties	Subsets	Members	Attributes
Member	Account Codes				
Sales	R0001				
Cost of Sales	E0001				
Gross Profit	GP				
Operating Expenses	OE001				
Net Income	R0002				

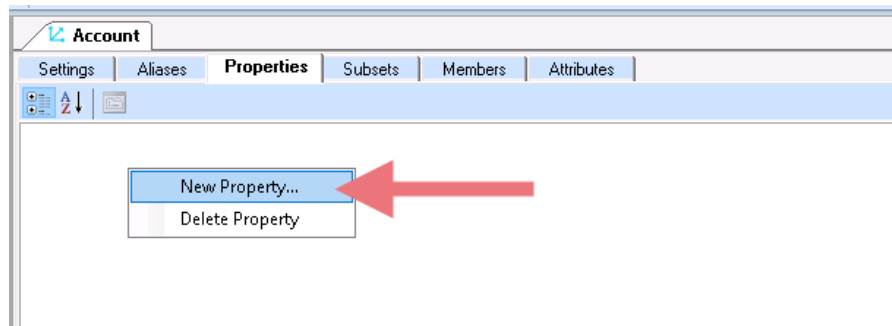
6. Define Properties and Property Groups (*Account* Dimension)

There are instances when you may want to apply tagged information to specific Members for purposes of annotation or to indicate Members that exist as a kind of group, but which do not belong in a hierarchy or an Alias group. In Nexus, we call this information a 'Property'.

Important: Member Properties exist within a Property Group; therefore, a Property Group must be created before assigning Property names to existing Members. Note that all Members do not need to be assigned a Property within a Property Group.

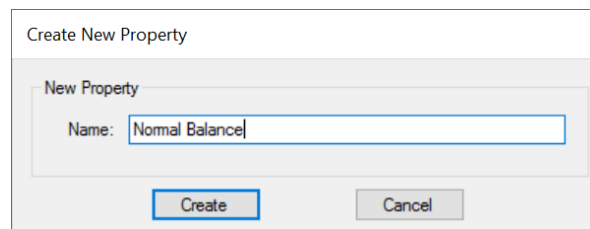
To create a Property Group and define Properties:

- Go to the **Properties Tab** of the Dimension Editing Window.
- Right-click on the content page and select **New Property**.

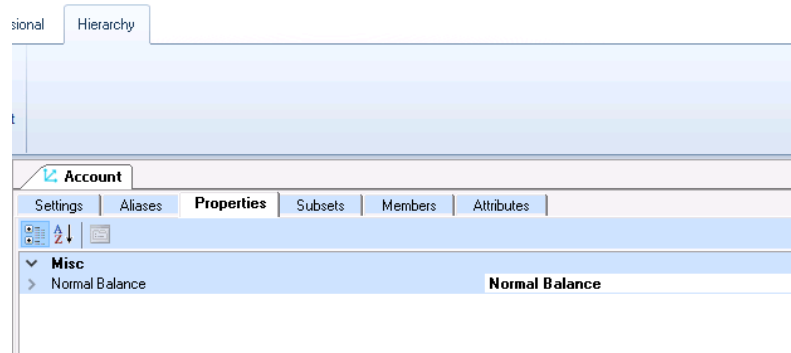


- In the Create New Property dialog that appears, type the <Property Group name>. For this example, type **Normal Balance**.

Note: For this exercise, let us assume that we want to tag each to indicate whether their normal balance is *debit* or *credit*.



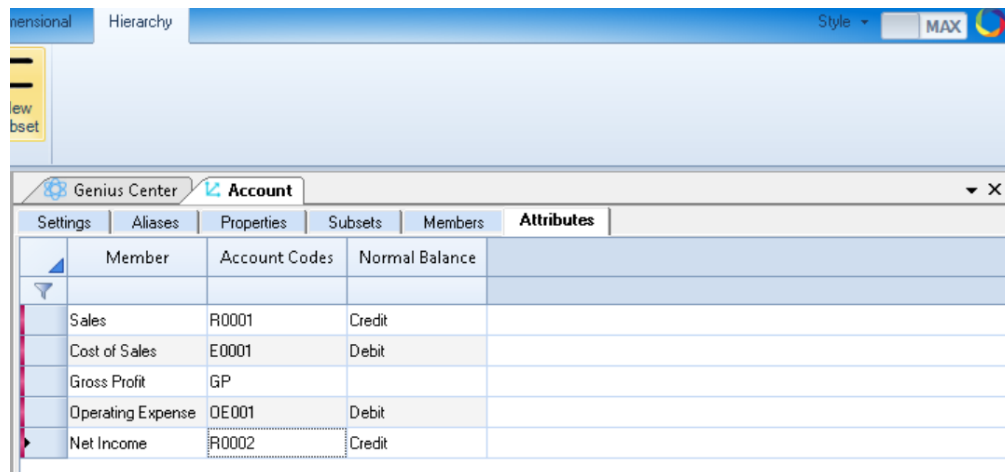
- Click **Create**. The new Property Group will appear as follows:



- Next, define a Property for Members: click the **Attributes Tab** and look for the column *Normal Balance*; in the textboxes, type the Property for each Member, as in the following:

Account Dimension Members	Property (<i>Normal Balance Grp</i>)
Sales	Credit
Cost of Sales	Debit
Gross Profit	[leave blank]
Operating Expenses	Debit
Net Income	Credit

When finished, the Attributes Tab for the *Account* dimension will look as follows:



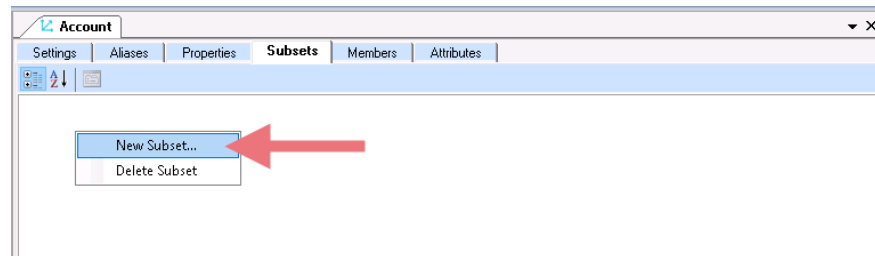
7. Create Subsets (Account Dimension)

Subsets are customized lists of Members, created so that you can easily “group select” that set of Members. This is especially useful when you frequently work with those Members (e.g., to create reports), and when a Dimension has a large Member list.

IMPORTANT: Subsets exist within a Subset Group; therefore, a Subset Group must be created before assigning Members to the Subset Group.

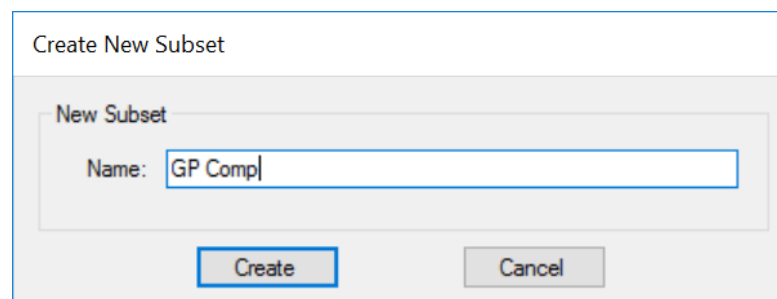
Begin by creating the Subset Group:

- Go to the **Subsets Tab** of the Dimension Editing Window.
- Right-click on the content page and select **New Subset**.

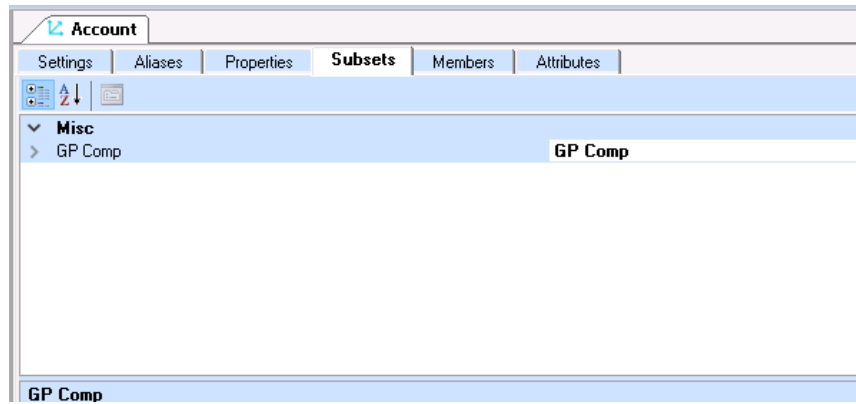


- In the Create New Subset dialog, type the <**Subset Group name**>. For this example, type **GP Comp** (short for Gross Profit Computation), as shown in the image below.
Note: For exercise purposes only, let us assume that we want to create a subset group where we limit the Members to those that we use for calculating the Gross Profit value—thus, the accounts *Sales*, *Cost of Sales* and *Gross Profit*.

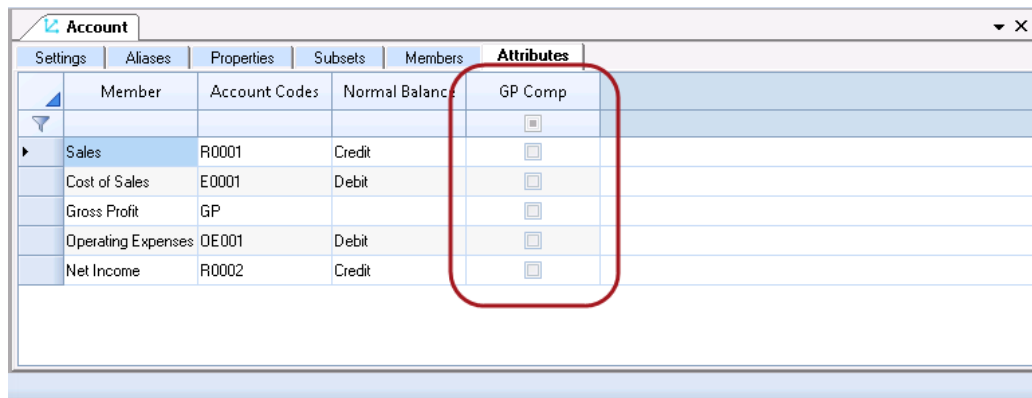
(In the given example, the Gross Profit Calculation is basic. However, in a real-life scenario, computing for Gross Profit may require more account items as components. For instance, there may be several Revenue or Cost of Sales sub-accounts. And the Account dimension may consist of hundreds of Account items. In such cases, it may be wiser to create a smaller group of Subsets for specific analysis and reporting requirements.)



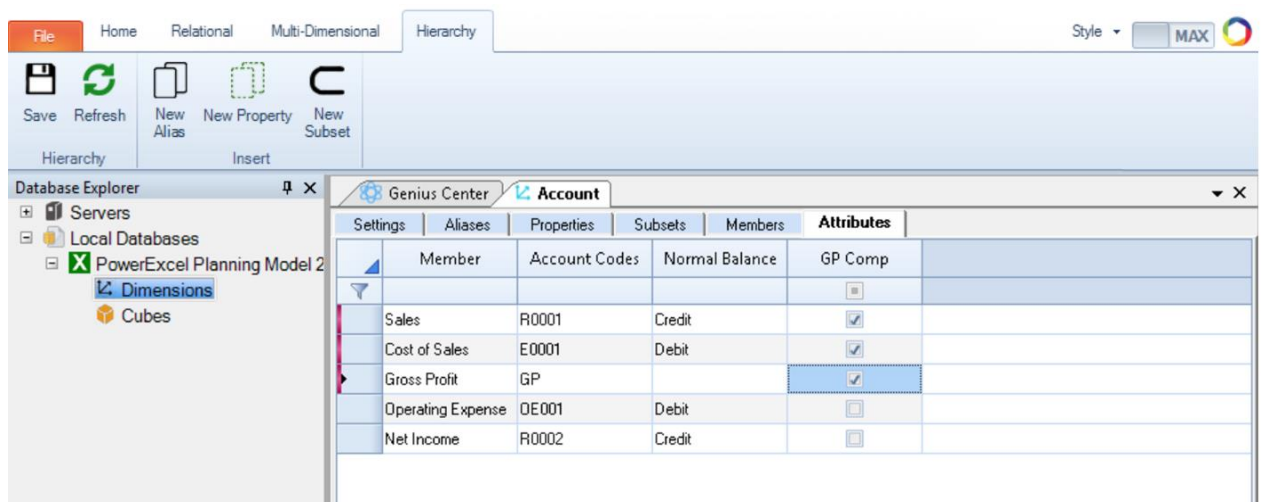
- Click **Create**. The new Subset group will appear as follows:



- Next, go to the Attributes Tab to define the Members you wish to include in the newly created Subset Group, i.e., **GP Comp**. Click the **Attributes Tab** and look for the column *GP Comp* (circled in the following image).



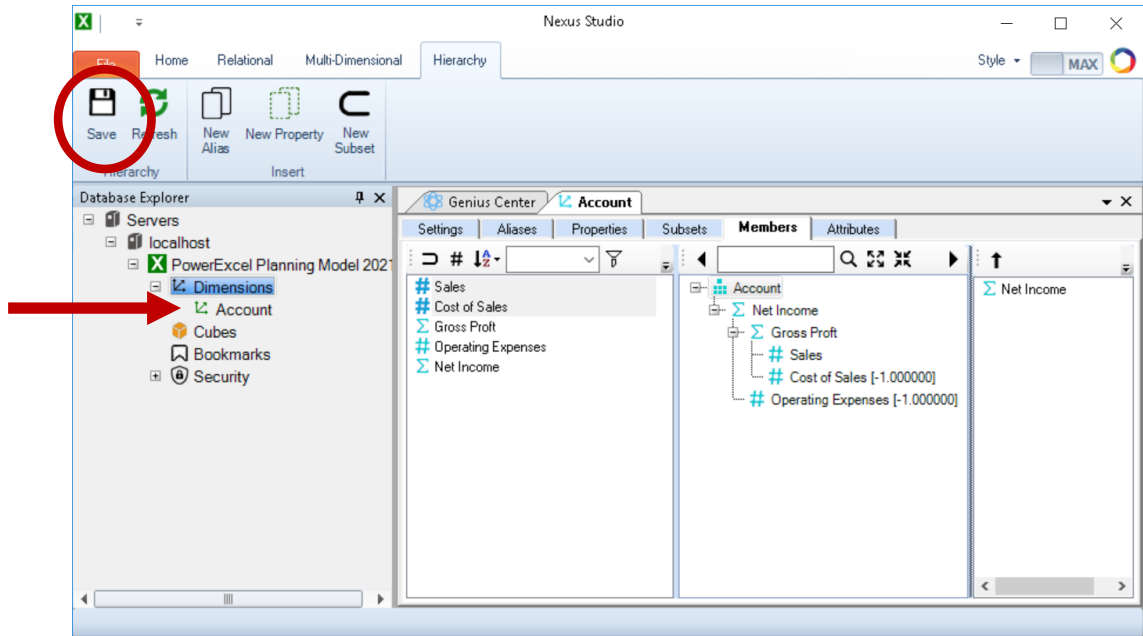
- To include Members to the Subset, tick their corresponding checkboxes, as shown below.



8. **Save** the Dimension.

When you have finished creating the Members, defining Dimension attributes and configuring the settings, you will need to save the Dimension for the changes to take effect.

- Go to the **Hierarchy Tab** of the Nexus ribbon and click the **Save** command icon (circled in the following image).



Note that the newly built/created Dimension, *Account*, now appears in the Database Explorer pane as an item under Dimension (see arrow in the preceding image).

This completes the creation of the *Account* dimension.

2.4 Create Additional Dimensions

With an understanding of the procedures involved in creating a Dimension, its Members and its Attributes, you can then proceed to build additional Dimensions.

1. Create the **Version** Dimension:

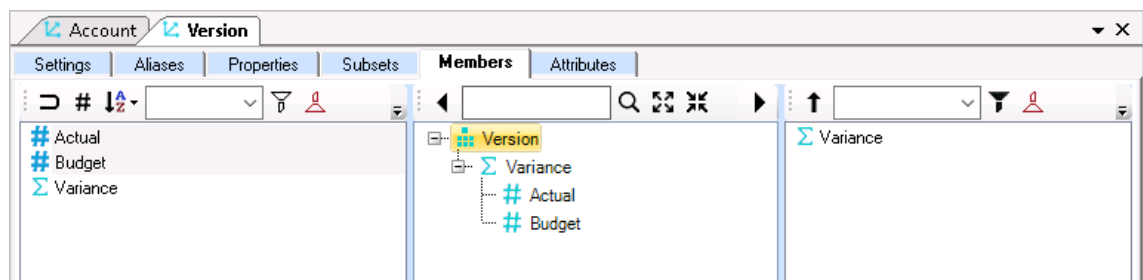
Dimension Name: VERSION
Actual
Budget
Variance

- Go to the Database Explorer and expand the correct Nexus database (i.e., **PowerExcel Planning Model 2021**).
- Still in the Database Explorer, right-click on **Dimensions** and select **New Dimension**.

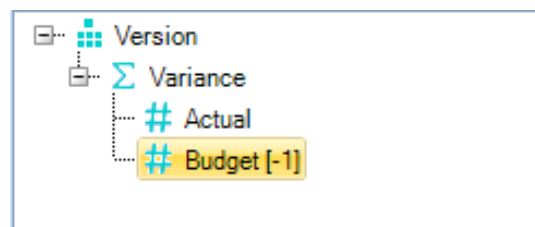
- In the Create New Dimension dialog that appears, enter the <name of the dimension>, i.e., **Version**.
- Click **Save**. The Dimension Editing Window corresponding to *Version* Dimension appears.
- Go to the **Members Tab** and add the Members:
 - In the Members List box (left-hand pane), click on the **Add Member icon** (Hash symbol).
 - Type the <member name> in the textbox that appears and;
 - Press the **Enter** key.

Add the Members: **Actual**, **Budget** and **Variance**.

- To define the hierarchy for *Version* dimension, where *Variance* is the parent member while *Actual* and *Budget* are children of Variance:
 - Still in the **Members Tab**, drag and drop **Variance** from the left-hand pane (Member list box) to the middle pane (Hierarchy Definition Box) under Version. In this case, *Variance* becomes the 'root member'.
 - Next, drag and drop **Actual** from the left-hand pane to the middle pane under the member *Variance*. Notice how the icon in front of *Variance* changes from Hash Symbol (#) to Sigma symbol (Σ).
 - Drag and drop **Budget** from the left-hand pane to the middle pane under the member *Actual*, ensuring that *Budget* is on the same hierarchy level as *Actual*.



- Define the Member/Aggregate Weight to apply the formula logic whereby: $Variance = Actual - Budget$.
To do this:
 - Still in the **Members Tab**, go to the middle pane (Hierarchy Definition Box).
 - Right-click on the **Budget** member and select **Edit Weight**.
 - In the Aggregate Weights textbox that appears, change the value to **-1**.
 - Press the **Enter** key or click away from the text box.



- Complete the *Version* dimension by saving the dimension: on **Hierarchy Tab** of the Nexus ribbon click the **Save** command icon.

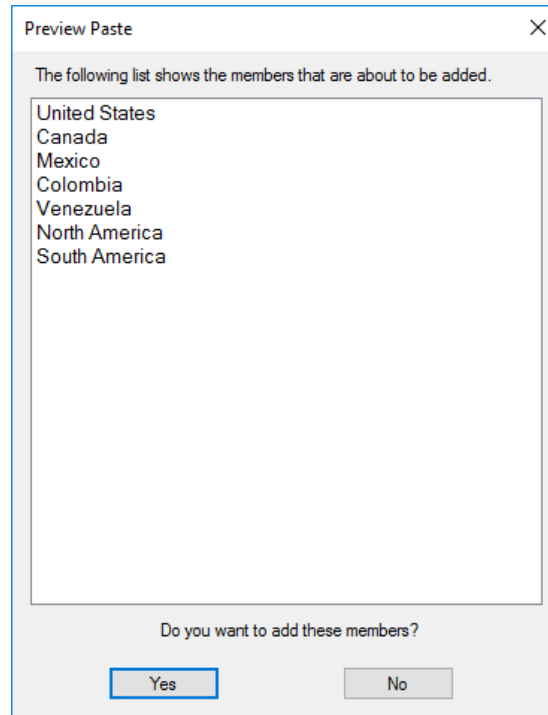
2. Create the **Region** Dimension:

Dimension Name: REGION
United States
Canada
Mexico
Colombia
Venezuela
North America
South America

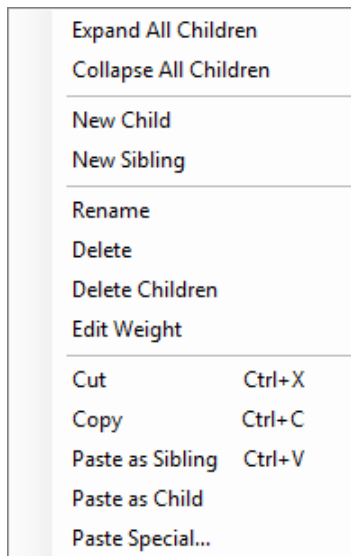
- Go to the Database Explorer and expand the correct database (i.e., **PowerExcel Planning Model 2021**).
- Still in the Database Explorer, right-click on **Dimensions** and select **New Dimension**.
- In the Create New Dimension dialog that appears, enter the <name of the dimension>, i.e., **Region**.
- Click **Create**. The Dimension editing window for the *Region* Dimension appears.
- In the Dimension editing window, go to the **Members Tab** and add the Members.
To do this:
 - Go to the Members List box (left-hand pane).
 - Click on **the Add Member icon** (Hash symbol).
 - Type the <member name> on the textbox that appears and;
 - Press the **Enter** key.

Add the Members: **United States, Canada, Mexico, Colombia, Venezuela, North America** and **South America**.

IMPORTANT: You can copy (for example, from MS Word or Excel) and paste a group of Members into the Members list box: when you right-click to paste, select **Paste Special**—a window will appear like the one in the following image. Or you can use a tab/other delimited file to do the following: right-click on the database and select **Import Metadata**.



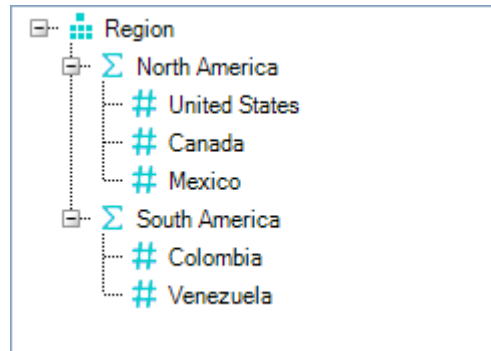
Note, too: There are other options to choose from when you right-click in the Hierarchy Definition box—see the image below.



- Define the hierarchy for *Region* dimension, whereby:
 - *North America* is the parent member with child members *United States*, *Canada* and *Mexico*.
 - *South America* is the parent member with child members *Colombia* and *Venezuela*
 - *North America* and *South America* are both on the same hierarchy level.

To do the above:

- Press then hold the **Ctrl key** then go to the left-hand pane of the **Members Tab** and click on the members **North America** and **South America** (These Members should be highlighted). Drag and drop these members to the middle pane under Region.
- Next, add the children of *North America*. Press then hold the **Ctrl key**, then go to the left-hand pane of the **Members Tab** and click on the members **United States**, **Canada**, and **Mexico** (These members will be highlighted). Drag and drop these members to the middle pane under *North America*.
- Next, add the children of *South America*. Press then hold the **Ctrl key**, then go to the left-hand pane of the **Members Tab** and click on the members **Colombia** and **Venezuela** (These members should be highlighted). Drag and drop these members to the middle pane under *South America*.



- Create an Alias Group and define aliases. To do this:
 - Go to the **Aliases Tab**.
 - Right-click on the content page and select **New Alias**.
 - In the Create New Alias dialog that appears, enter the **<alias group name>**, i.e., **Code**.
 - Click **Create**.
 - Go to the **Attributes Tab** to define the Aliases. Locate the column called **Code** and specify the following alias to their corresponding Members.

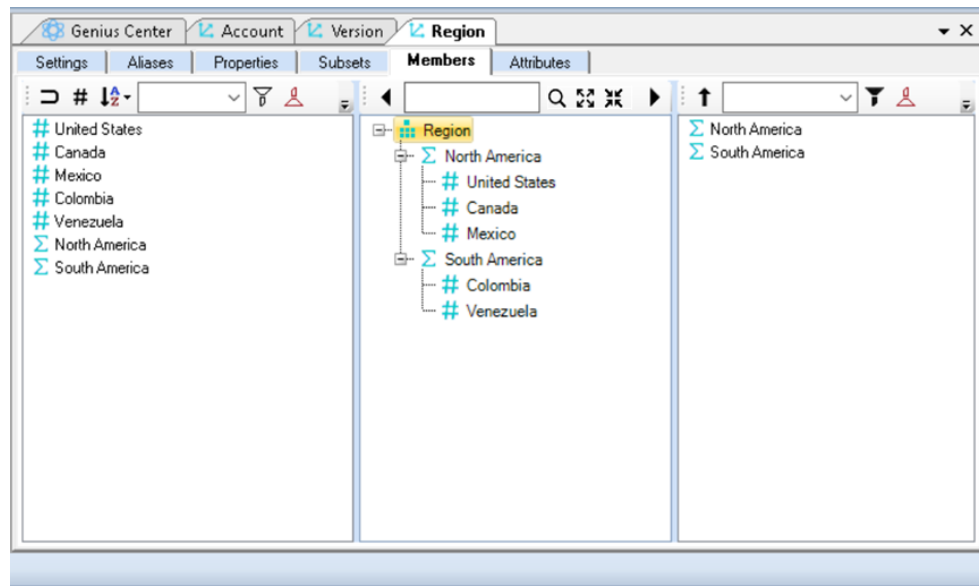
Region Dimension Members	Alias (Code Grp)
United States	US
Canada	CA
Mexico	MX
Colombia	CO
Venezuela	VE
North America	NA
South America	SA

Member	Code
United States	US
Canada	CA
Mexico	MX
Colombia	CO
Venezuela	VE
North America	NA
South America	SA

- Go to the **Settings Tab**, to explore the options related to hierarchies (see next image).
 - Note the **All Hierarchy** option (top arrow), here set to **True**: this will create a Member that aggregates all Detail Members in the dimension (thus, an addition of *United States, Canada, Mexico, Colombia and Venezuela*). Setting this option to False will, logically, keep this Member from being added to the Dimension.
 - Locate the **Total Aggregate option** (last setting), which by default is **False**. Keep this option as **False**, as it has no direct use in the creation of Dimensions in Nexus database.

Property	Value
Dimension Name	Region
Display Name	
Dimension Type	Standard
All Hierarchy	True
Data Source Type	Relational Table
Unicode Character Set	False
Database Source	Region
Total Aggregate	False
Default Member	
Default Subset	
Filter	
Hierarchies	Region_hierarchy

- **Save** the Dimension.
The **Region** dimension looks as follows when you click on the Members tab:



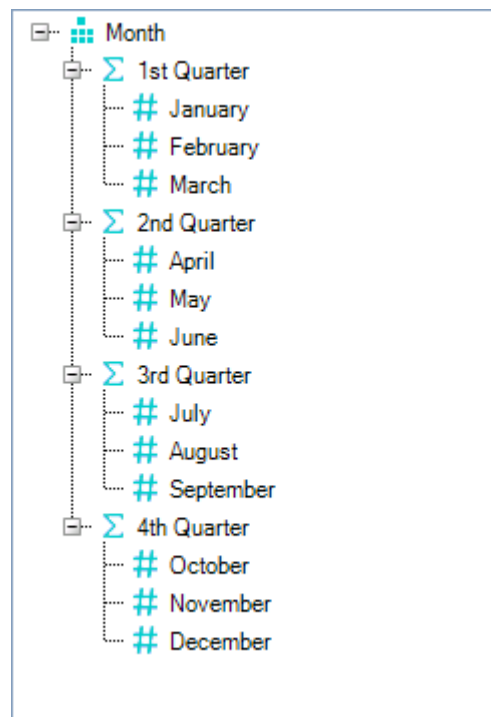
3. Create the **Month** Dimension:

Dimension Name: MONTH
January
February
March
April
May
June
July
August
September
October
November
December
1 st Quarter
2 nd Quarter
3 rd Quarter
4 th Quarter

- Go to the Database Explorer and expand the correct database (i.e., **PowerExcel Planning Model 2021**).
- Right-click on **Dimensions** and select **New Dimension**.
- In the Create New Dimension dialog that appears, enter the **<name of the dimension>**, i.e., **Month**.
- Click **Create**. The Dimension editing window for the *Month* Dimension appears.
- In the Dimension editing window, go to the **Members Tab** and add the Members. To do this:

- Click on the **Add Member icon** (Hash symbol) in the Members List box (left-hand pane).
- Type or copy-paste the <member names> on the textbox that appears and;
- Add the Members: *January to December* and *1st to 4th Quarter*.
- Define the hierarchy for *Month* dimension, whereby:
 - *1st Quarter* is the parent member of *January, February* and *March*.
 - *2nd Quarter* is the parent member of *April, May* and *June*.
 - *3rd Quarter* is the parent member of *July, August* and *September*.
 - *4th Quarter* is the parent member of *October, November* and *December*.

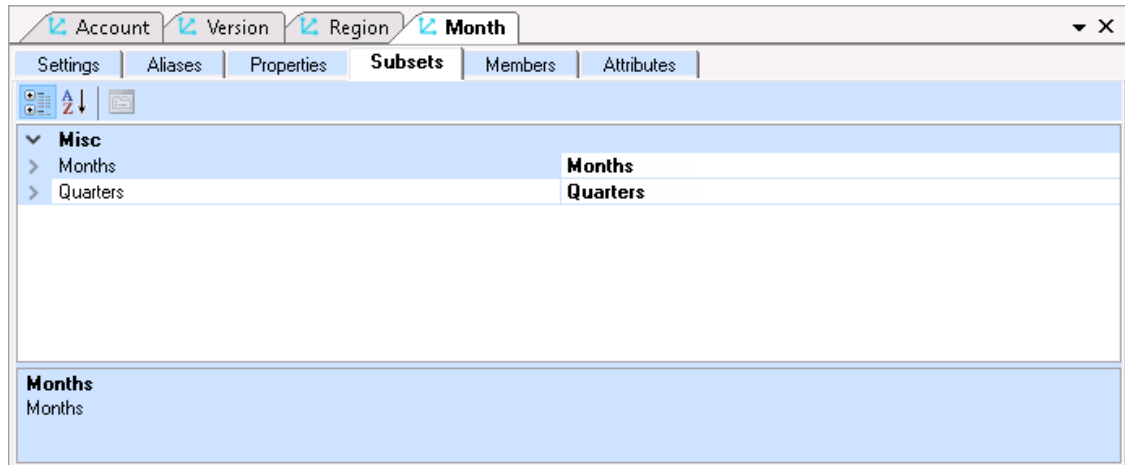
The **Month** dimension will appear as follows:



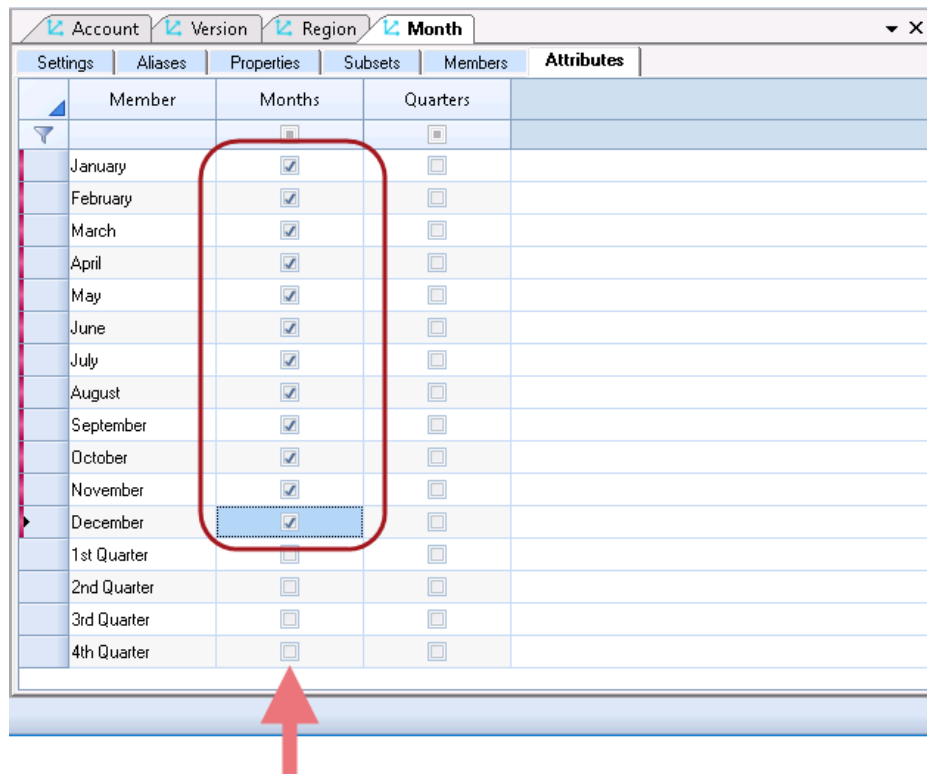
- Create a **Subset Group**. For this exercise, we will create two (2) subsets: the first subset will include individual months; the second subset will be the 4 Quarters.

To do this:

- Go to the **Subset Tab**.
- Right-click on the content page, select **New Subset**, and in the Create New Subset dialog that appears, enter the <Subset Group name>, i.e., **Months**. Click **Save**.
- Once again, right-click on the content page, select **New Subset** and in the Create New Subset dialog that appears, enter the second <Subset group name>, i.e., **Quarters**. Click **Save**. The Subset tab will look as follows:



- Go to the **Attributes Tab** to define the subset members.
 - In the column for **Months**, tick the checkboxes corresponding to the individual months **January** to **December** (as shown below).



- In the column for **Quarters**, tick the checkboxes corresponding to the Quarters (as shown below).

Member	Months	Quarters
January	<input checked="" type="checkbox"/>	<input type="checkbox"/>
February	<input checked="" type="checkbox"/>	<input type="checkbox"/>
March	<input checked="" type="checkbox"/>	<input type="checkbox"/>
April	<input checked="" type="checkbox"/>	<input type="checkbox"/>
May	<input checked="" type="checkbox"/>	<input type="checkbox"/>
June	<input checked="" type="checkbox"/>	<input type="checkbox"/>
July	<input checked="" type="checkbox"/>	<input type="checkbox"/>
August	<input checked="" type="checkbox"/>	<input type="checkbox"/>
September	<input checked="" type="checkbox"/>	<input type="checkbox"/>
October	<input checked="" type="checkbox"/>	<input type="checkbox"/>
November	<input checked="" type="checkbox"/>	<input type="checkbox"/>
December	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1st Quarter	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2nd Quarter	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3rd Quarter	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4th Quarter	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Save the **Month** dimension creation by saving the dimension.
The **Month** dimension looks as follows:

The screenshot shows the Nexus Studio interface with the 'Month' dimension configuration. The 'Database Explorer' on the left shows the following structure:

- Servers
 - localhost
 - PowerExcel Planning Model
 - Dimensions
 - Account
 - Version
 - Region
 - Month**
 - Cubes
 - Bookmarks
 - Security

The main window displays the 'Month' dimension hierarchy:

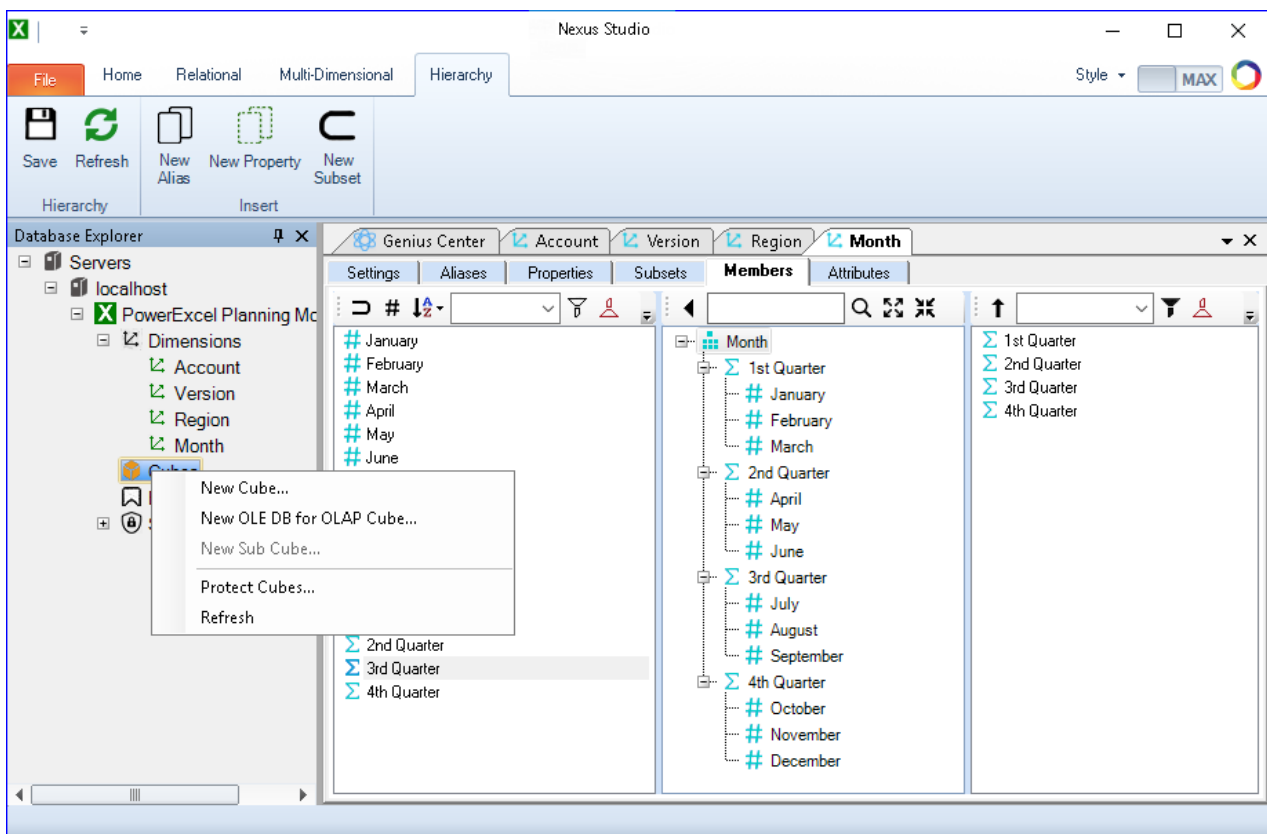
- Month
 - 1st Quarter
 - January
 - February
 - March
 - 2nd Quarter
 - April
 - May
 - June
 - 3rd Quarter
 - July
 - August
 - September
 - 4th Quarter
 - October
 - November
 - December

2.5 Create the Nexus Cube Model

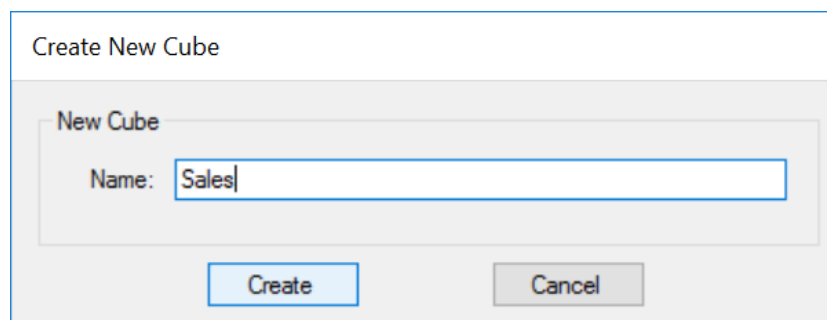
A Cube is a multidimensional model composed of Dimensions—like the ones created in the previous steps. Cubes may be composed of various Dimensions and serve different purposes. This Cube (created from the *Account, Version, Region* and *Month*) is a good example of a financial reporting and planning model.

To create the Cube:

1. In the Database Explorer, expand to the correct database (i.e., **PowerExcel Panning Model 2021**).
2. Right-click on **Cubes** and select **New Cube**. The Create New Cube dialog appears.

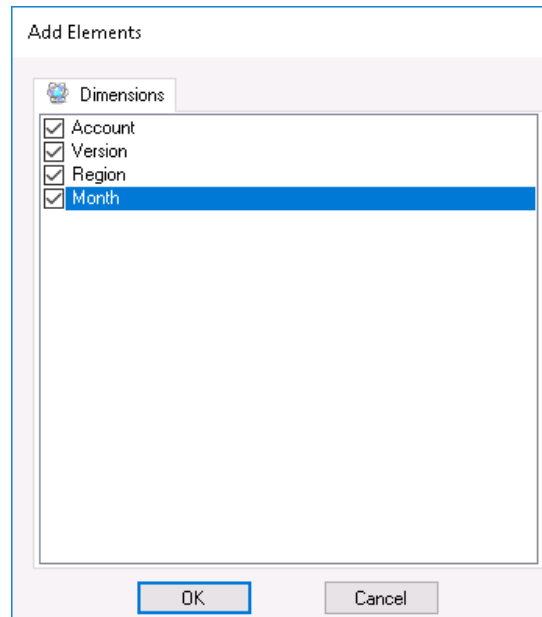


3. In the Create New Cube dialog, enter the <name of the cube>, i.e., **Sales**.

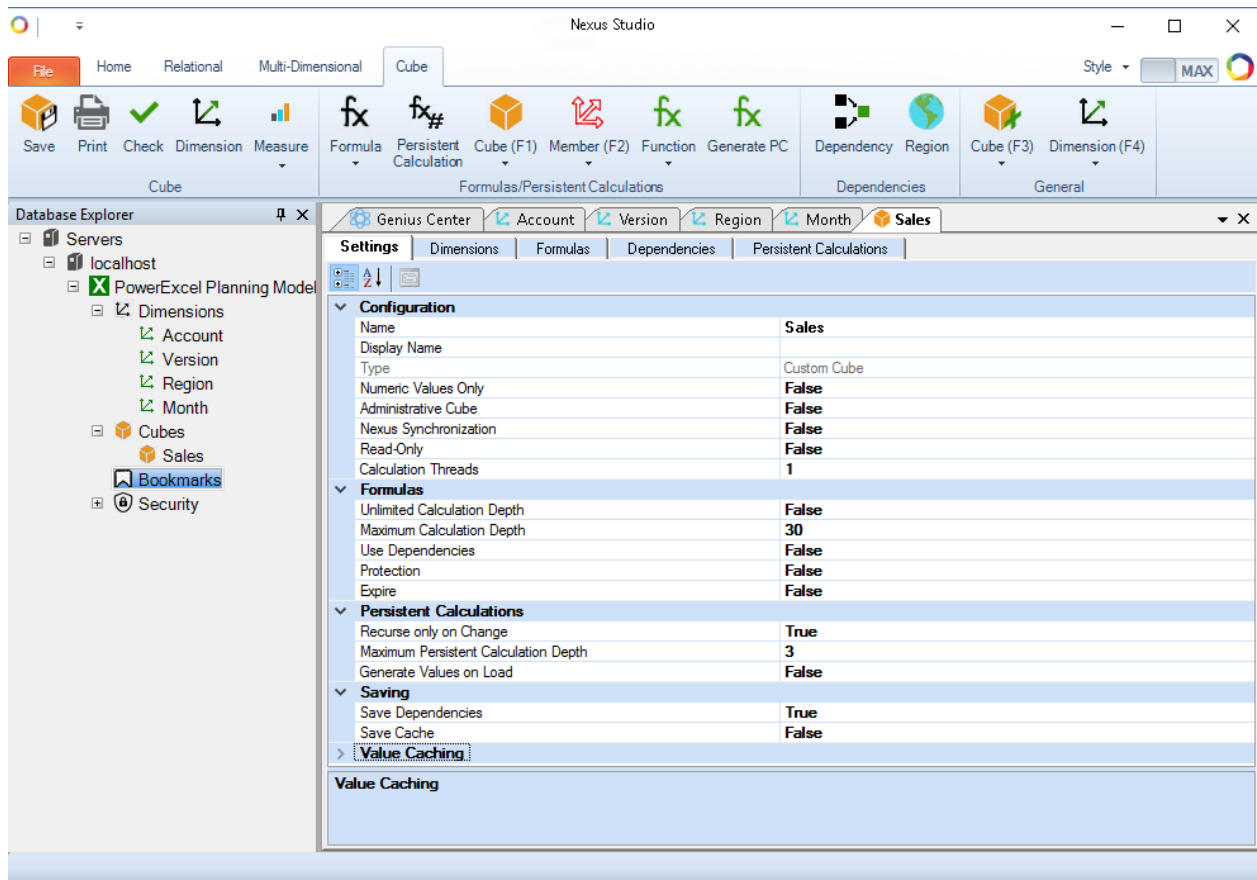


4. Click **Create**. The Add Elements dialog appears; this is where you will define the Dimensions to be included in the Cube.
5. Tick the checkboxes corresponding to the relevant Dimensions. For this example, tick all the checkboxes (i.e., *Account*, *Version*, *Region* and *Month* dimensions).

Note: In more complex models, you may have many more Dimensions from which to create one or more Cubes. Furthermore, Dimensions can be used in more than one Cube.



6. Click **OK**.
7. The Cube Definition Window for the Sales cube appears, where you can further define Cube Settings.



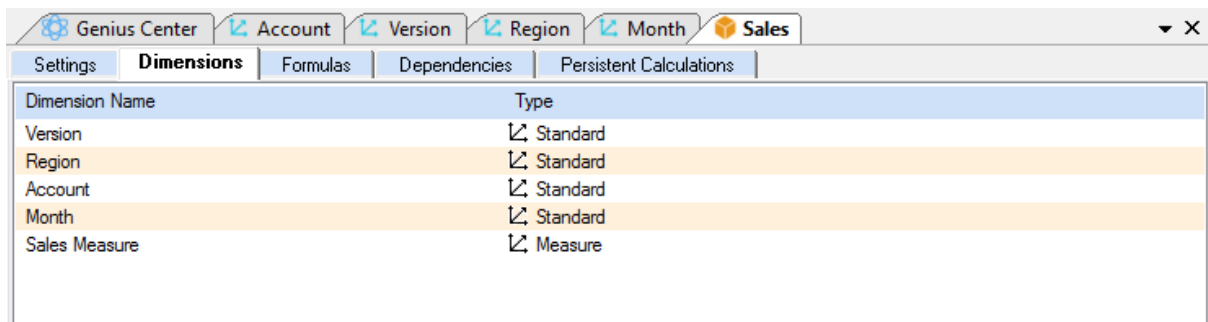
The Cube Definition Window for Nexus Studio consists of three tabs: Settings, Dimensions, and Formulas. The following is a brief explanation of options available:

- **Settings Tab** - Cube information and configurable setting as follows:
 - Name – the Name of the Cube when created
 - Display Name – allows change to the Cube name displayed (after Save and reopen) in a front-end.
 - Numeric Values Only – FALSE, the default setting, allows entry of text characters; TRUE limits values to numeric values.
 - Type – For present, “Local Cube” is the designation, no other option available in current version
 - Administrative Cube – FALSE allows the cube to be seen by all users; TRUE limits Cube viewing to the Administrator.
 - Read-Only – FALSE allows editing by non-Administrators based on Security (if Security is enabled); TRUE allows no editing, even by Administrators.
 - Unlimited Calculation Depth – set to False, allows up to 30 levels of recursion for formula calculation; set to True, the program will continue to calculate.

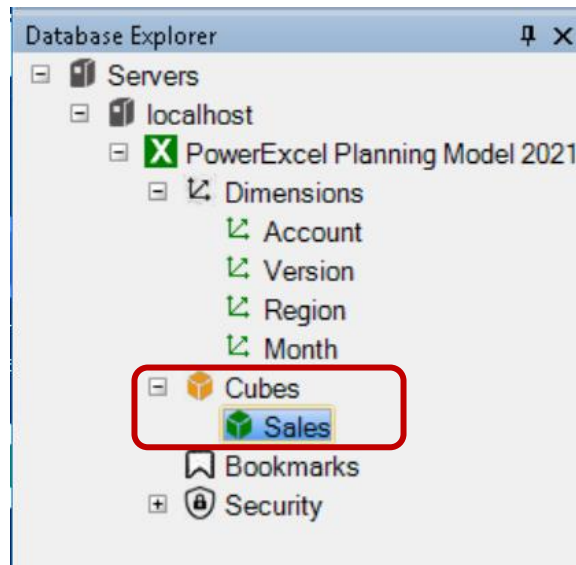
- Maximum Calculation Depth – sets the level of recursions for formula calculations.
- Protection – set to False, a Nexus Studio user may reach the Formula editor (see next section); set to True, a Password textbox will appear to limit access
- Expire – when set to True, you can specify a time past, which formulas will not work

NOTE: A Cube may be protected for the following reasons:
 (1) An Admin or internal developer has locked the Cube, so that it may not be changed by other users, or (2) This application may have been created by a publisher/implementer and, as a means to protect their intellectual property, they do not allow access to change/view the Cube properties. Contact the publisher/implementer to change this protected status. And note that changes to Formulas and other meta data may require support from the publisher for the application to function correctly. FURTHER: if the Password is lost or otherwise unobtainable, contact the publisher of Nexus Studio (PARIS Technologies).

- Query Condition – not applicable in current version
 - OLEDB for OLAP – not applicable in current version.
 - Cache Intermediate Aggregates – TRUE retains cached values for intermediate aggregates; FALSE calculates aggregates upon each view.
 - Cache Level – may be set to High, Medium, Low
- **Dimensions Tab** - allows you to reorder Dimensions as well as add or remove Dimensions in a Cube. This arrangement of Dimensions will dictate how they will appear in a PowerExcel Slice. In this example, we can reorder the Dimensions as follows:



- The third tab, **Formulas**, is the subject of a following section.
8. **Save** the Cube: click on the **Save** button at the top left of the Nexus Studio window. Notice that the newly built/created Cube, i.e., **Sales**, now appear in the Database Explorer as an item under **Cubes**.



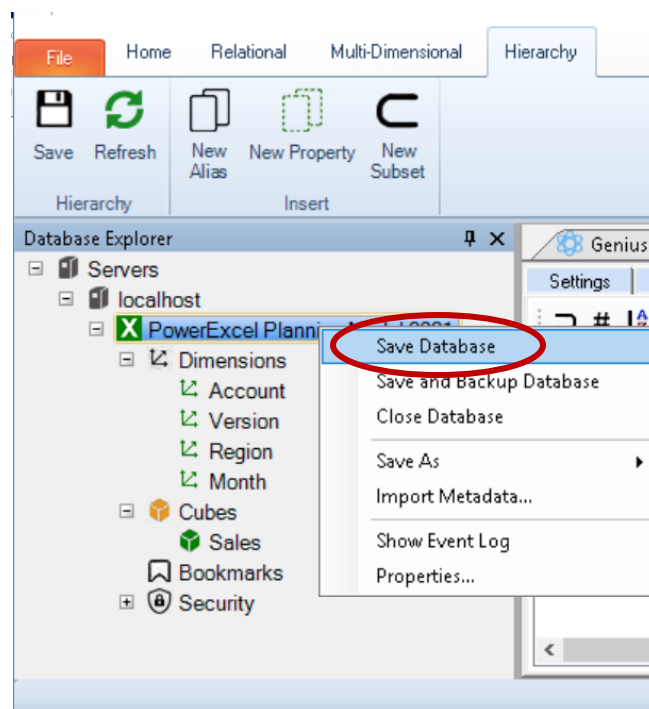
2.6 Save the Database

Important: Save the database at the end of Database creation or whenever you modify anything such as Dimension, Cubes or Attributes to successfully commit addition or changes.

It is a good practice though to perform a **Save Database** every so often, especially after making significant changes to your database or its components to secure any modification.

To save the Database:

1. Go to the Database Explorer and right-click on the database.
2. Click on the **Save Database** option (circled below).



3. Creating a Cube Formula

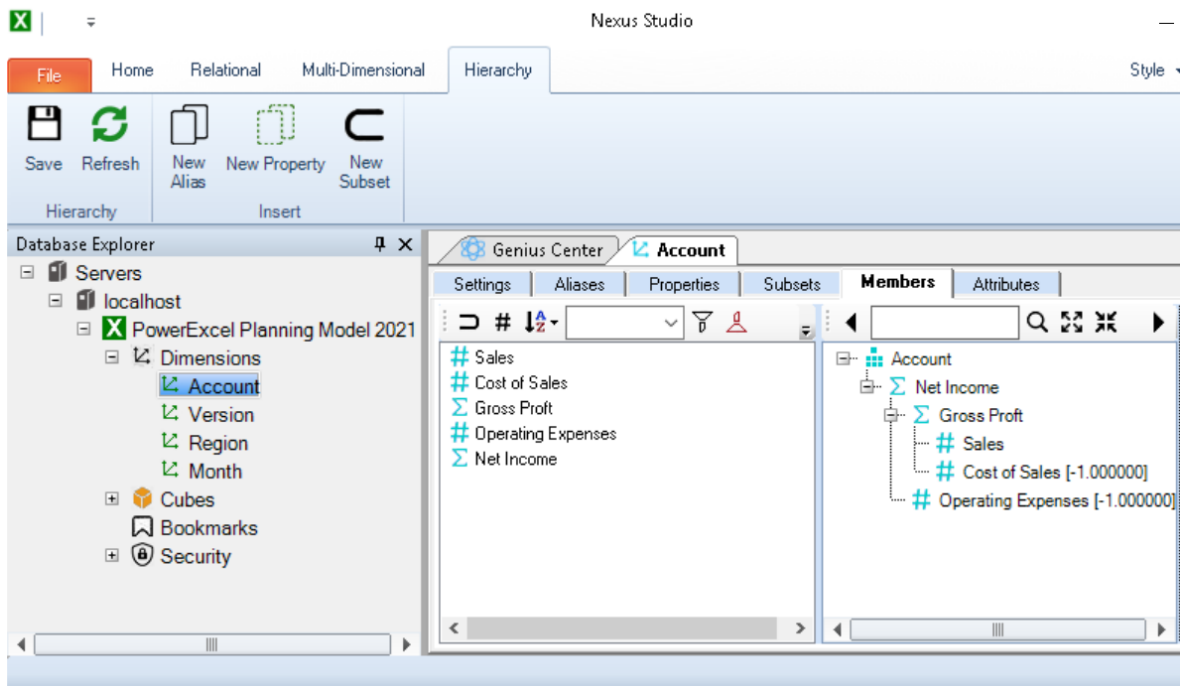
We will now consider more advanced capabilities, Cube Formula functions being the first. Cube formulas represent a powerful extension of the ability to perform mathematical calculations throughout a model. With Cube formulas, you can perform all manner of calculations to populate a cell, ranges of cells, and even entirely different Cube models.

Using the model we have created up to this point, we will add a new Member to the **Account** dimension, *Gross Margin* (expressed as a percentage), and then populate that Member with a Cube formula that returns values according to the following standard calculation:

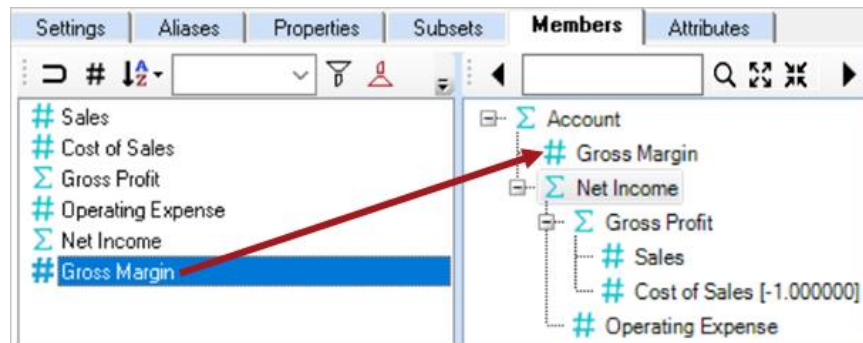
$$(Gross\ Profit/Sales) \times 100 = Gross\ Margin\ (Percent)$$

First, to create the new Member, *Gross Margin*:

1. In the Database Explorer, expand Dimensions; double-click on the **Account** dimension.
2. Click on the **Members tab**. In the middle pane, expand the Dimension hierarchy.



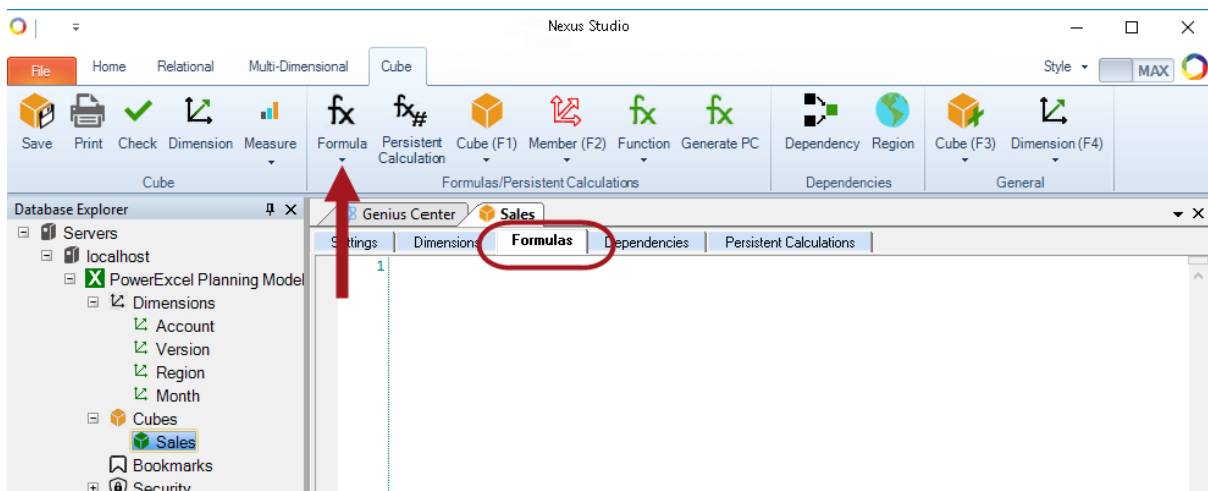
3. Right-click in the left pane, which lists the Members of the Account dimension. Select **New Member**, then name it "Gross Margin"



4. Drag the new Member *Gross Margin* above *Net Income* in the middle pane (red arrow in the above image).

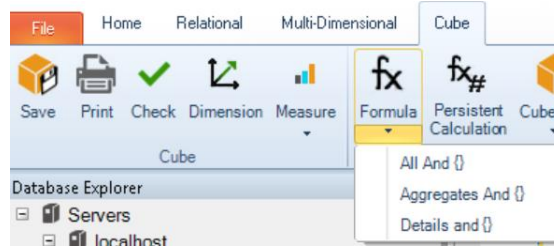
We are now able to create a Cube Formula to populate the new *Gross Margin* Member.

5. In the Database Explorer, double click on the **Cube** in which we will create the formula, i.e., **Sales**.
6. Click on the **Formulas** tab (circled in the following image). Presently, it is empty, as shown in the following image.



NOTE: There is a range of icons that appears in the **Cube Tab**, several that can be used in the creation of Cube Formulas. All icons, including those related to formula expressions (as well as a full explication of Cube Formula capabilities) are explained the Olation Manual and Help file. For the present, we will use the icon indicated by the red arrow in the image above.

7. Click on the drop-down under the Formula function icon (**fx**).
The following selections appear:



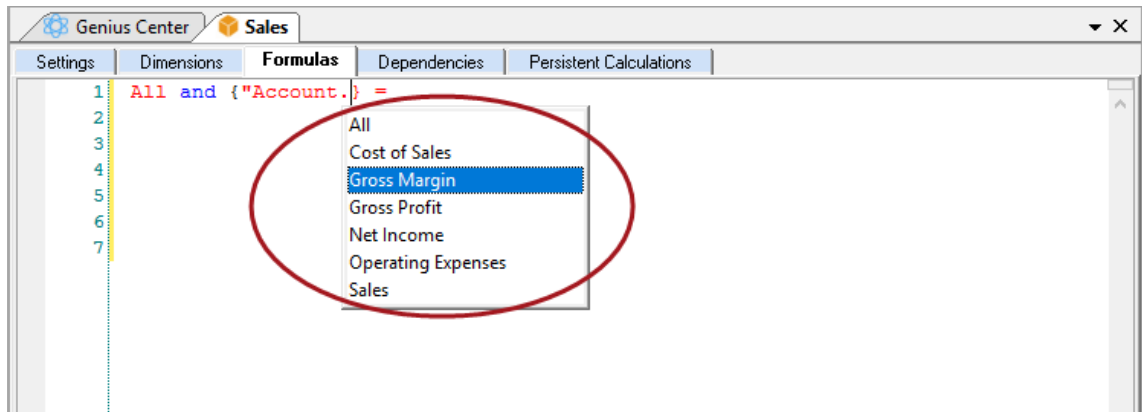
These three selections govern how values will calculate in the Cube. They constitute the “Left-Hand Side” of the calculation, i.e., to the left of the Equals (“=”) sign, which are the defined intersection points to which calculated results are sent in the Cube.

All and {} – calculations will populate all Members specified between the (squiggly) brackets, whether Detail or Aggregates.

Aggregates and {} – calculations will populate only Aggregate Members; calculations for Detail Members will be zero.

Detail and {} – calculations will populate only Detail Members; calculations for Aggregates will be the result(s) of hierarchical additions.

8. Select from the Formula (fx) icon **All and {}**.
9. Your cursor will be between the brackets: double-click on the **Account** dimension. It will appear, in red, in the formula text. Note that now you can select an individual Member in that Dimension, as shown circled in the following image.



10. Select the Member **Gross Margin**. This is where we want the calculation to go, as a result of the logic written into the Right-Hand Side of the equation.
11. Type the following into the Right-Hand Side, i.e., to the right of the Equals (“=”) sign, so that the formula statement looks as follows:

```
All and {"Account.Gross Margin"} =
["Account.Gross Profit"/"Account.Sales"]*100;
```

- Close the formula statement with a semi-colon (“;”), as shown. Then right-click on the database (PowerExcel Planning Model 2021) to **Save Database**.

A discussion about Creating a PowerExcel Slice follows in a few pages. That said, for the present, it is worth showing a simple PowerExcel Slice report from the **Sales** cube, including the *Gross Margin* calculation (highlighted in the following image) just created by the Cube Formula in Nexus Studio. The Members—*Actual* and *Canada*—are dynamic, allowing selections across all **Version** and **Region** within the model. Furthermore, any selection of Members can be made in Rows (*Accounts*) and Columns (*Month*). Indeed, there are virtually limitless Slices that can be made from the model, all showing results dynamically calculated, including those done by the PowerExcel formula, in this case, *Gross Margin*.

	A	B	C	D	E	F	G	H	I	J
1	Database:	PowerExcel Planning Model 2021								
2	Cube:	Sales								
3	Dimensions:	Filter	Version	Members	Actual					
4		Filter	Region	Members	Canada					
5		Column	Month	Range	\$B\$9:\$I\$9					
6		Row	Account	Range	\$A\$10:\$A\$15					
7										
8	OLAPivotTable									
9		January	February	March	1st Quarte	April	May	June	2nd Quarter	
10	Net Income	450.00	250.00	300.00	1,000.00	0	0	0	0	
11	Gross Profit	450.00	250.00	300.00	1,000.00	0	0	0	0	
12	Sales	1,000.00	1,250.00	900.00	3,150.00	0	0	0	0	
13	Cost of Sales	550.00	1,000.00	600.00	2,150.00	0	0	0	0	
14	Operating Expe	-	-	-	-	0	0	0	0	
15	Gross Margin	45.00	20.00	33.33	31.75	0	0	0	0	
16										

An example PowerExcel Slice (with figures already entered), showing the Gross Margin calculation.

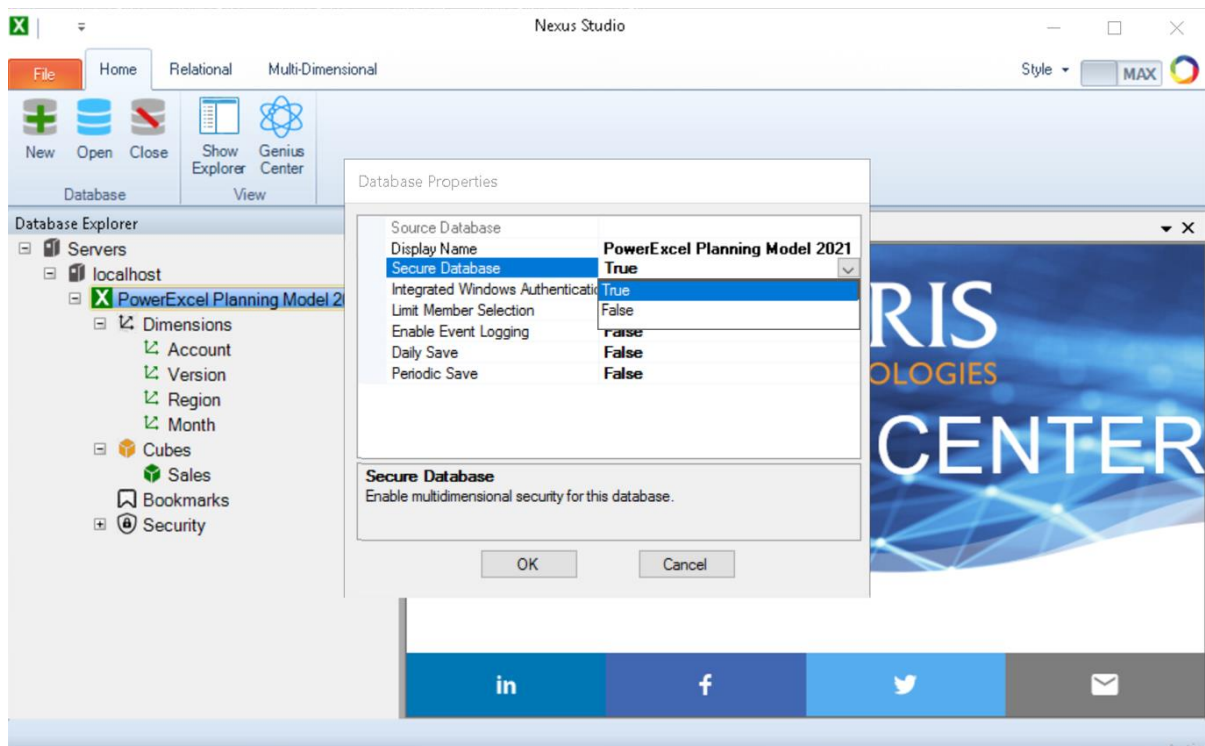
4. Defining Nexus Security – Users and Groups; Data Rules

Another advanced Nexus capability concerns Security—what you can do to create Users and Groups and to define security parameters (via “data rules”); Security determines what users can see or do within a Nexus model.

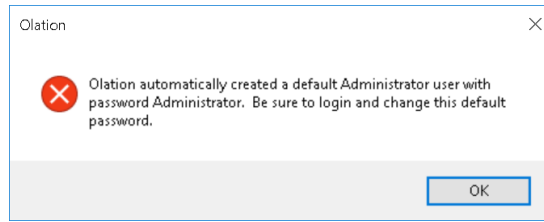
Creating a security schema involves several steps—the following is a simple example, which is intended to limit a User (Jack Villeneuve) to being able to “Write and Read” in the *Region* (Dimension) of *Canada* (a Member of that Dimension) only.

NOTE: A full explication of Nexus Security capabilities is obtainable in the Olation Manual and Help file. As shown there, there are virtually limitless security rules that can be put in place to satisfy the most stringent customer security requirements.

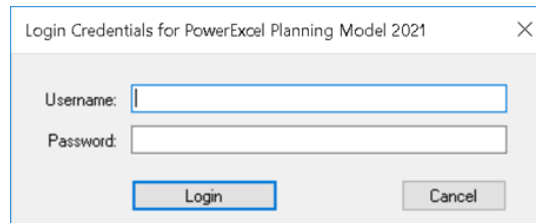
1. The first step in using Security is to make the Nexus database a Secure Database: right-click on the database in question (in this example, *PowerExcel Planning Model 2021*). From the right-click options, select **Properties**. The Database Properties dialog appears, where you can specify such options as Integrated Windows Authentication, Daily Save Time, Periodic Save, etc.; select, first, **Secure Database → True**.
2. Click **OK**.



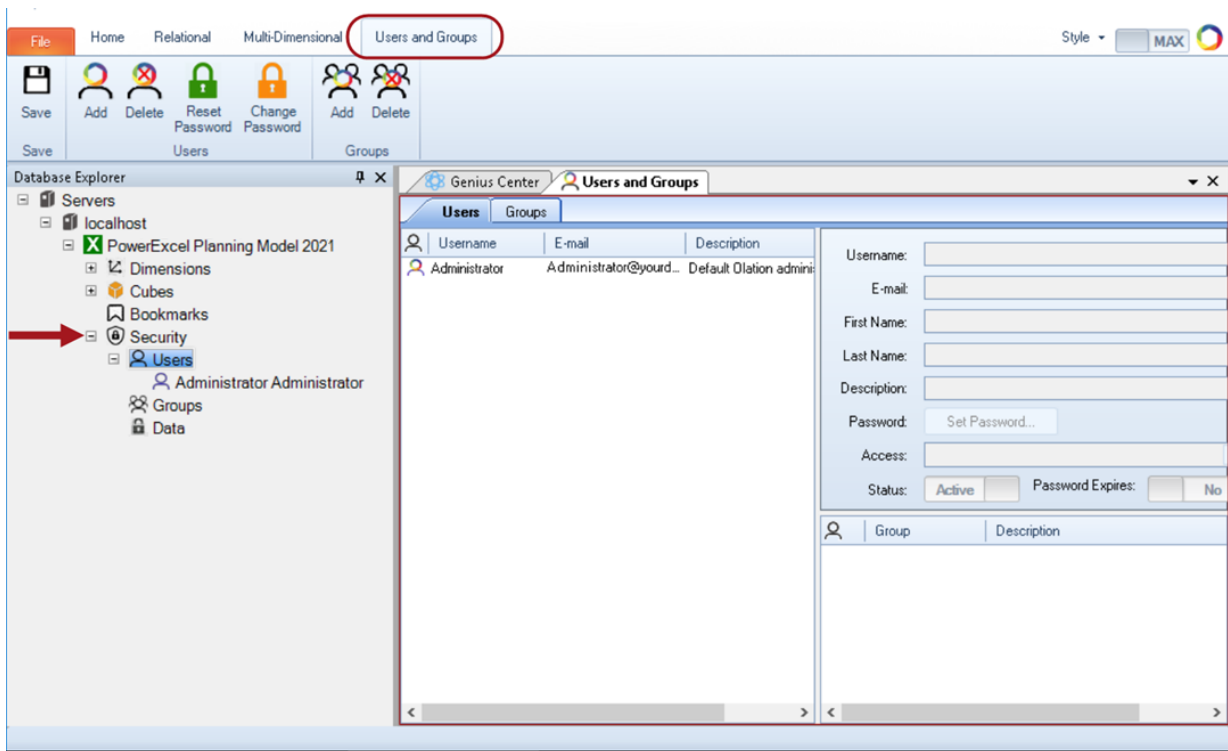
3. A message will appear indicating that the database is secure, and the default Username and Password: Administrator/Administrator.



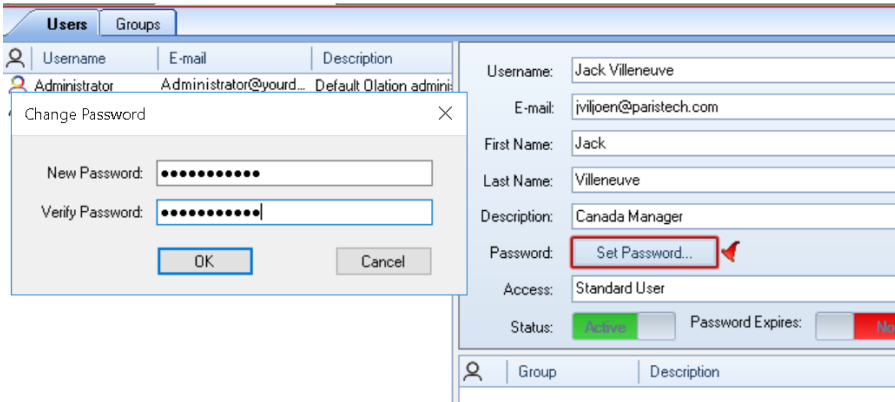
4. The next time you open the database or try to create a Slice, you will be prompted:



5. Having entered the Username and Password, proceed by clicking **Login**.
 Expand on Security in Database Explorer (see arrow).
 Right-click on **Users**; select **Edit Users...** to begin indicating Users and setting up Data Rules for them (note that the Administrator user now appears). Note that a User and Groups tab now appears (circled), with its own set of icons.



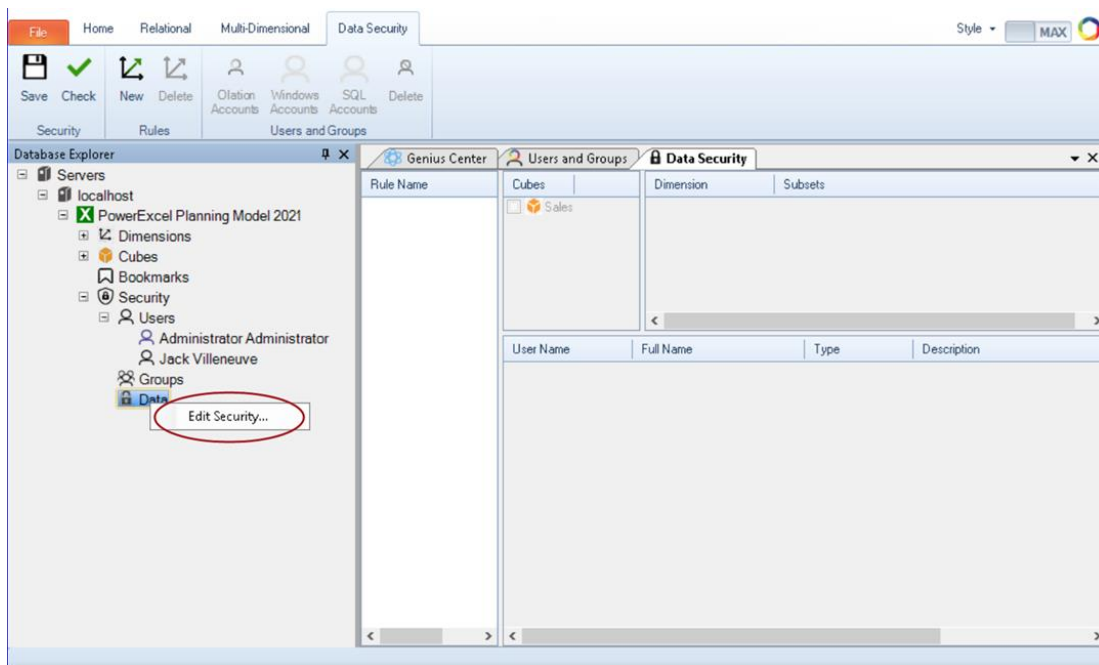
- 6. Right-click on the left-hand pane, under the **Users Tab**, and select **Add**. The fields at right become active, for you to fill in information for added Users—as in the following image, filled in for “**Jack Villeneuve**”.



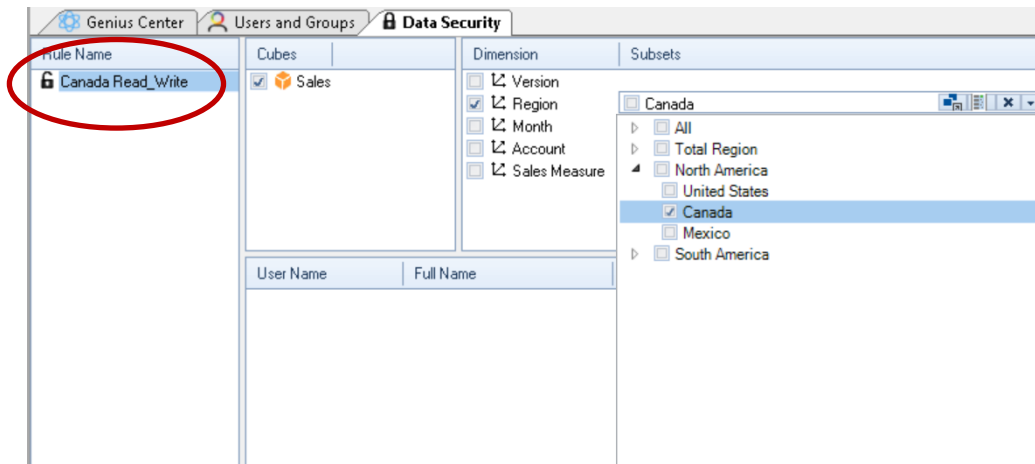
- 7. Click on the **Set Password** button; click **Save** on the Users and Groups tab.



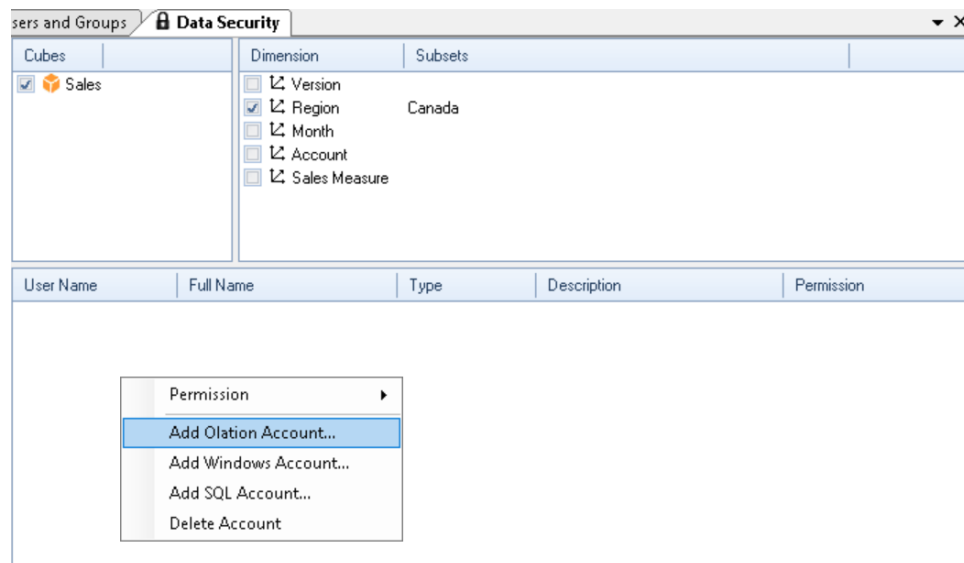
- 8. The next step is to create a Data Rule for the user. In the Database Explorer, under **Security**, right-click on **Data** and select **Edit Security**, shown circled in the following image.



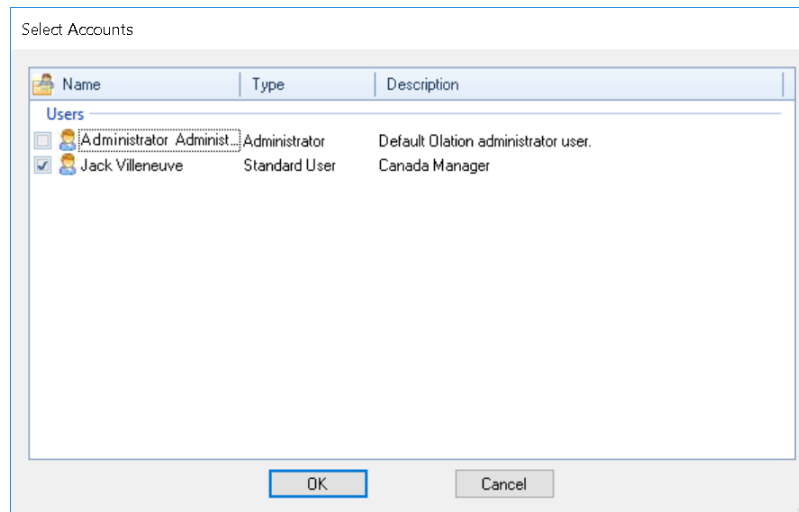
- In the leftmost pane on the right under **Rule Name**, right-click and select **New**. Give the Rule a name (*Canada Read_Write*, as shown circled in the following image). The panes to the right become active—here you can select a Cube(s) and, following that, Dimensions and Members that will comprise parts of the definition for the Rule you have in mind. In this example, the intention is to limit the new user to being able to “Write” to (which includes “Read” privileges) only the Region Canada. These selections are shown in the following image.



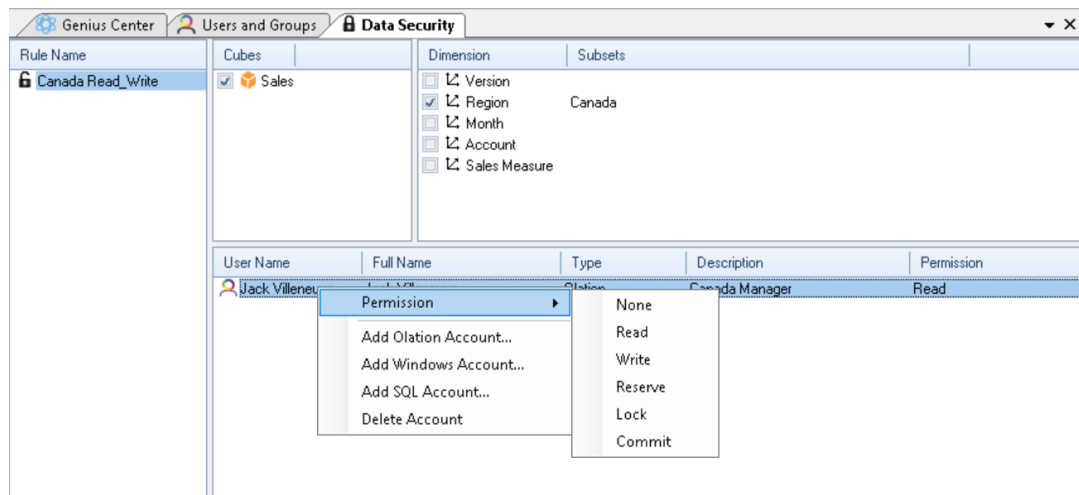
- Next you will specify the User: right-click in the bottom right pane and select **Olation Account**, as shown in the following image (other options are available, to specify other user login accounts).



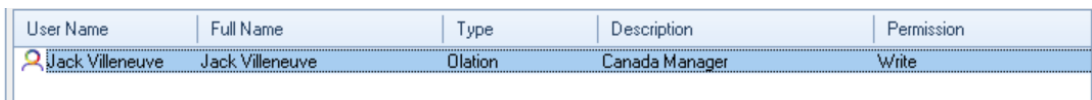
- The Select Accounts window appears with named users:



12. Select the User (in this example, *Jack Villeneuve*) and click **OK**. The User will be listed in the bottom pane. Right-click and select the Data Rule level of privilege (in this example, **Write**).



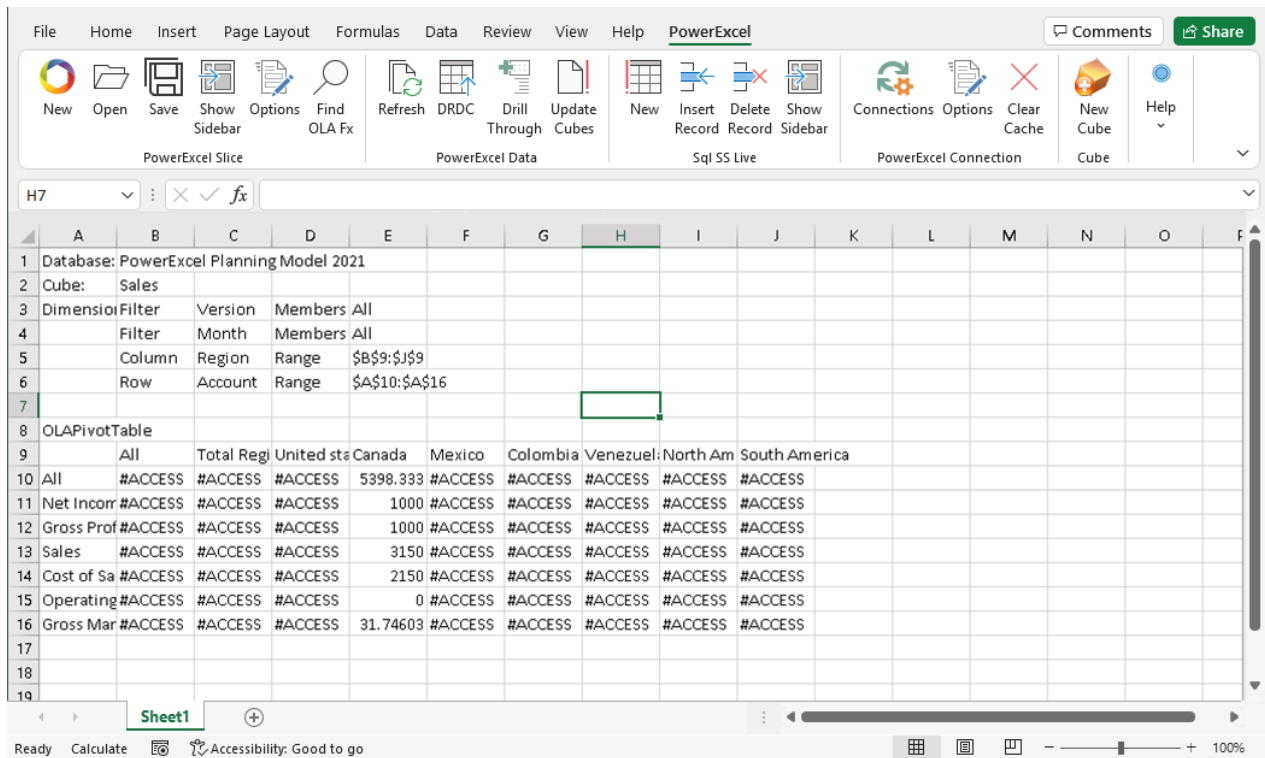
13. The User and his or her privilege will be shown:



14. Click **Save**, the leftmost icon, on Users and Groups tab:



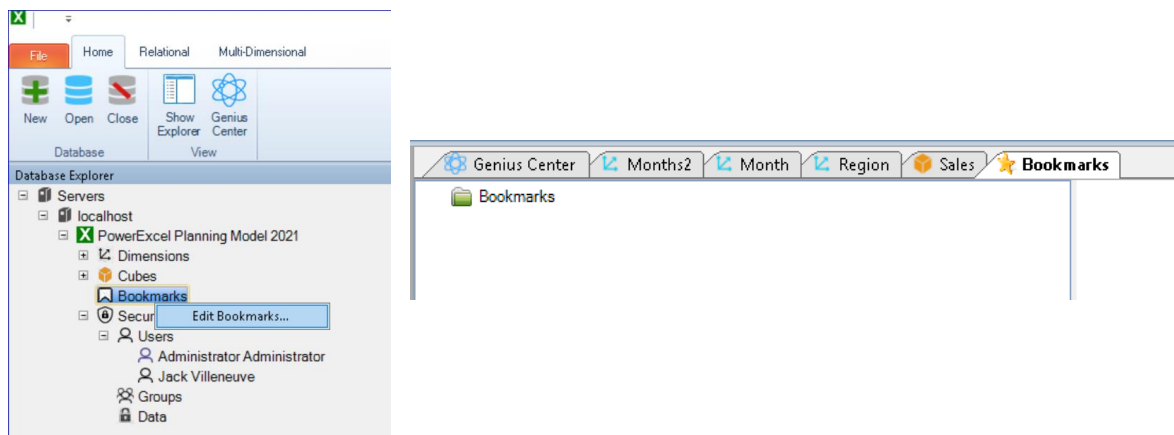
- Now, with the User created and the Data Rule(s) saved for that User, the next time he or she opens a view (e.g., via a PowerExcel Slice, as shown in the next image), only Canada data will be visible (highlighted in the image). In this example, the user, Jack Villeneuve, would also be able to “write” values in Detail intersection cells, assuming that were part of the application (e.g., a budget or forecast planning exercise). Note that all other cells show #ACCESS (as shown in the following image).



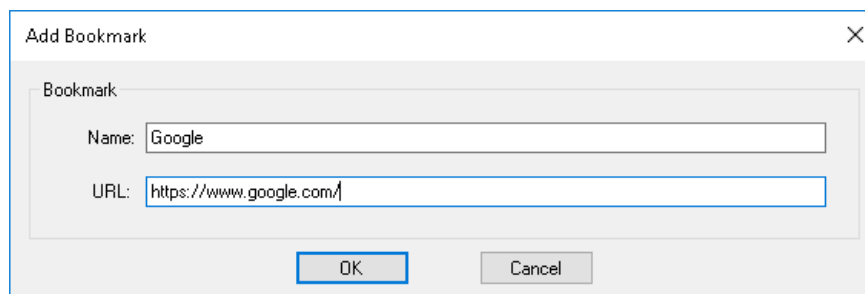
5. Creating Bookmarks

The Bookmarks capability allows users to create folders and save bookmarks of key websites, which typically feature information/data (e.g., an online dashboard) related to a model in a Nexus application; bookmarks can also be used for any other relevant site. Bookmarks are reachable from a front end like PowerExcel Slice.

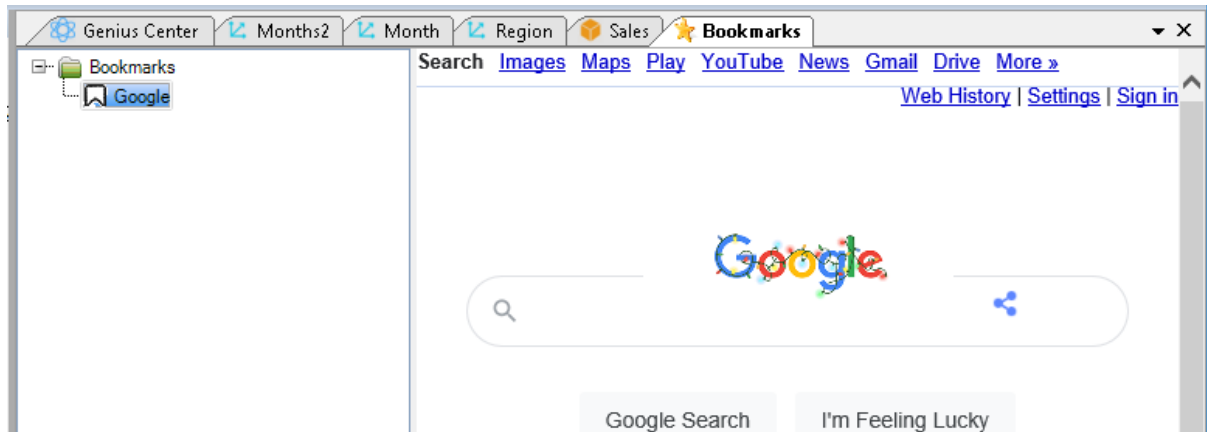
1. To create a Bookmark, right-click on **Bookmarks** in the Database Explorer; then select **Edit Bookmarks**. The Bookmarks tab appears on the right (see images below.)



2. To add a Bookmark: **right-click** on the **Bookmarks folder**—here you can Add Bookmark, create a New Folder, Rename Bookmark, or Delete Bookmark.
3. Select **Add Bookmark**: The Add Bookmark window appears, where you will Name the Bookmark and provide its URL (Google has been used as an example, per the below image):



4. When you click **OK**, the selected Bookmark's website appears on the right pane.



PLEASE NOTE: The following two topics—**Creating a PowerExcel Slice** and **Entering Data in a Cube**—are explained fully in the PowerExcel User Manual. They are included below for conceptual understanding of what happens next, after creation of a PowerExcel Model, as described in the preceding pages. The images that follow are from a different Cube model from the preceding example. Rather, that model is the *Panda_2021* Nexus database. Note that in the screen images, the database connection has been given the name *Panda_2021_Connect*, as circled top right in the image on the next page; the Cube selected—also circled top right in that image—is called *Financial Data*.

6. Creating a PowerExcel Slice

Once a PowerExcel Model (aka Nexus database) has been created, the full use and power of the product becomes evident when a user creates a “Slice” from Excel of the data in the model. To do so, a user will Create a Connection to the model, typically hosted in the Cloud. The Connection to the model, and all that follows, is accomplished via the PowerExcel Excel Add-in, whose ribbon is shown in the image below. Following that, a user will simply select a database and associated Cube(s).



The following screen image is an example of a PowerExcel Slice:

	A	B	C	D	E	F	G	H	I	J	
1	Database:	PandA_2021_Connect									
2	Cube:	Financial Data									
3	Dimensions:	Filter	Version	Members	Budget						
4		Filter	Year	Members	2021						
5		Filter	Entity	Members	All						
6		Filter	Department	Members	All						
7		Column	Month	Range	\$B\$11:\$R\$11						
8		Row	Account	Range	\$A\$12:\$A\$46						
9											
10	OLAPivotTable										
11		Jan	Feb	Mar	Q1	Apr	May	Jun	Q2	Jul	Aug
12	Revenue	66550	66550	66550	199650	66550	66550	66550	199650	66550	66550
13	Cost of Sales	34210	34210	34210	102630	34210	34210	34210	102630	34210	34210
14	Gross Profit	32340	32340	32340	97020	32340	32340	32340	97020	32340	32340
15	Payroll and related expenses	5489	5489	5489	16467	5489	5489	5489	16467	5489	5489
16	Distribution	1958	1958	1958	5874	1958	1958	1958	5874	1958	1958
17	Research and Development	1419	1419	1419	4257	1419	1419	1419	4257	1419	1419
18	Sales and Marketing	1397	1397	1397	4191	1397	1397	1397	4191	1397	1397
19	Depreciation	788.7	788.7	788.7	2366.1	788.7	788.7	788.7	2366.1	788.7	788.7
20	Amortization	62.7	62.7	62.7	188.1	62.7	62.7	62.7	188.1	62.7	62.7
21	Administrative Expenses	522.5	522.5	522.5	1567.5	522.5	522.5	522.5	1567.5	522.5	522.5
22	UTILITIES	0	0	0	0	0	0	0	0	0	0
23	Other operating Expenses (Income)	110	110	110	330	110	110	110	330	110	110
24	Operating Expense	13616.9	13616.9	13616.9	40850.7	13616.9	13616.9	13616.9	40850.7	13616.9	13616.9
25	Operating Profit	18723.1	18723.1	18723.1	56169.3	18723.1	18723.1	18723.1	56169.3	18723.1	18723.1
26	Other Revenue	110	110	110	330	110	110	110	330	110	110
27	Other (Expense)	-27.5	-27.5	-27.5	-82.5	-27.5	-27.5	-27.5	-82.5	-27.5	-27.5
28	Other Income (Expense)	82.5	82.5	82.5	247.5	82.5	82.5	82.5	247.5	82.5	82.5
29	EBIT	18805.6	18805.6	18805.6	56416.8	18805.6	18805.6	18805.6	56416.8	18805.6	18805.6
30	Interest Revenue	22	22	22	66	22	22	22	66	22	22
31	Interest (Expense)	-13.2	-13.2	-13.2	-39.6	-13.2	-13.2	-13.2	-39.6	-13.2	-13.2
32	Interest	8.8	8.8	8.8	26.4	8.8	8.8	8.8	26.4	8.8	8.8
33	Profit Before Tax	18814.4	18814.4	18814.4	56443.2	18814.4	18814.4	18814.4	56443.2	18814.4	18814.4
34	Income Tax Expense	-2687.03	-2415.23	-2460.53	-7562.79	-2505.83	-2687.03	-2777.62	-7970.48	-2868.22	-
35	Profit After Tax	16127.38	16399.17	16353.87	48880.41	16308.57	16127.38	16036.78	48472.72	15946.18	1
36	Metrics:	19660.8	19660.8	19660.8	58982.41	19660.8	19660.8	19660.8	58982.41	19660.8	19660.8
37	Gross Profit %	0.48595	0.48595	0.48595	0.48595	0.48595	0.48595	0.48595	0.48595	0.48595	0.48595

PowerExcel

Database: PandA_2021_Connect | Cube: Financial Data

Filters

- Version: Budget
- Year: 2021
- Entity: All
- Department: All

Columns

Month: Jan, Feb, Mar, Q1, Apr, May, Jun, Q2, Jul, Aug, Sep, Q3, Oct, Nov

Rows

Account: Revenue, Cost of Sales, Gross Profit, Payroll and related expenses, Distribution, Research and Development, Sales and Marketing, Depreciation, Amortization, Administrative Expenses, UTILITIES, Other operating Expenses (Income), Operating Expense, Operating Profit, Other Revenue, Other (Expense), Other Income (Expense), EBIT, Interest Revenue, Interest (Expense), Interest, Profit Before Tax, Income Tax Expense, Profit After Tax, Metrics, Gross Profit %

Step 1 - Location

- Current Sheet: SAS1
- New Worksheet
- New Workbook

Step 2 - Slice Type

- Perspective
- DB Functions
- Power Analyzer

Step 3 - Additional Options

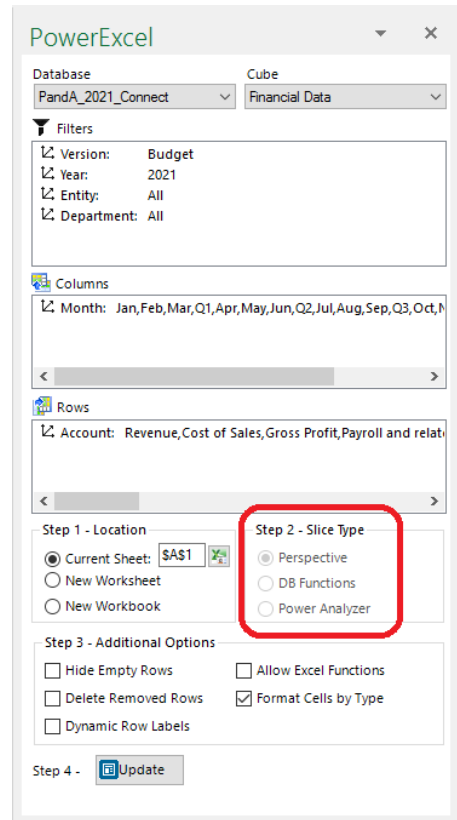
- Hide Empty Rows
- Allow Excel Functions
- Delete Removed Rows
- Format Cells by Type
- Dynamic Row Labels

Step 4 - Update

Note the PowerExcel “Sidebar” in the previous spreadsheet (shown in detail, at right): a user will create the Slice via a Perspective, a DB Functions, or a Power Analyzer (see radio buttons bottom right, circled) and then orient any data view of the model by arranging and making selections among the Dimensions in the Filters, Columns and Rows boxes. The number of views—“Slices”—of the PowerExcel model that can be made are truly limitless.

As one example, note the Slice below: Dimensions have been nested in Columns, with the **Products – Services** Dimension (specifically, the Members *Product 1, Product 2, Product 3*) showing under the **Department** dimension (specifically, the Members *Online Sales and Direct Sales*).

A detail image of another Slice is shown below. This Slices demonstrates an important fact: users can continue to employ standard Excel formatting. In sum, not only can a user create virtually limitless Slices, but these Slices retain all the capabilities inherent in Excel (formatting, graphs, even calculations outside the Slice area).



	A	B	C	D	E	F	G	H	I	J	K	L	M
1		PandA_2021_Connect											
2		Financial Data											
3		Filter	Version	Members	Forecast								
4		Filter	Entity	Members	Entity A								
5		Filter	Department	Members	Administration								
6		Column1	Year	Range	SBS11:SAG\$11								
7		Column2	Month	Range	SBS12:SAG\$12								
8		Row	Account	Subsets	Members\Ver								
10		OLAPivotTable											
11		2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021
12		Method	Amount	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
15	Sales of Goods			15,194	15,194	15,194	15,194	9,240	9,240	9,240	9,240	9,240	9,240
16	Sales of Services			995	995	995	995						
18	Revenue			16,189	16,189	16,189	16,189	9,240	9,240	9,240	9,240	9,240	9,240
20	Cost of Goods			6,474	6,474	6,474	6,474	3,234	3,234	3,234	3,234	3,234	3,234
21	Cost of Services			80	80	80	80	2,079	2,079	2,079	2,079	2,079	2,079
23	Cost of Sales			6,554	6,554	6,554	6,554	5,313	5,313	5,313	5,313	5,313	5,313
25	Gross Profit			9,635	9,635	9,635	9,635	3,927	3,927	3,927	3,927	3,927	3,927
26	<i>Gross Profit %</i>			<i>59.5%</i>	<i>59.5%</i>	<i>59.5%</i>	<i>59.5%</i>	<i>42.5%</i>	<i>42.5%</i>	<i>42.5%</i>	<i>42.5%</i>	<i>42.5%</i>	<i>42.5%</i>
28	Payroll and related expenses			1,134	1,134	1,134	1,134	1,155	1,155	1,155	1,155	1,155	1,155
29	Distribution			342	342	342	342	924	924	924	924	924	924
30	Occupancy Expenses			642	642	642	642	231	231	231	231	231	231
31	Research and Development			123	123	123	123	462	462	462	462	462	462
32	Sales and Marketing	Revenue	0.04	(324)	(324)	(324)	(324)	370	370	370	370	370	370
33	Depreciation			696	696	696	696	12	12	12	12	12	12
34	Amortization			66	66	66	66	6	6	6	6	6	6
35	Administrative Expenses			127	127	127	127	231	231	231	231	231	231
36	UTILITIES												
37	Other operating Expenses (Income)			(68)	(68)	(68)	(68)	173	173	173	173	173	173
39	Operating Expense			2,739	2,739	2,739	2,739	3,563	3,563	3,563	3,563	3,563	3,563
40	<i>Operating Expense %</i>			<i>16.9%</i>	<i>16.9%</i>	<i>16.9%</i>	<i>16.9%</i>	<i>38.6%</i>	<i>38.6%</i>	<i>38.6%</i>	<i>38.6%</i>	<i>38.6%</i>	<i>38.6%</i>
42	Operating Profit			6,897	6,897	6,897	6,897	364	364	364	364	364	364
43	<i>Operating Profit %</i>			<i>42.6%</i>	<i>42.6%</i>	<i>42.6%</i>	<i>42.6%</i>	<i>3.9%</i>	<i>3.9%</i>	<i>3.9%</i>	<i>3.9%</i>	<i>3.9%</i>	<i>3.9%</i>

7. Entering Data in a PowerExcel Slice

This topic (again, explained at full length in the PowerExcel User Manual) concerns how PowerExcel models are populated with data—Actual figures, for example, from an ERP or other application. After all, the main section of this manual (Section 2) was concerned with creating the “meta data” of the model (Dimensions; Members; Member Attributes). The past few pages, showing PowerExcel Slice images, featured views that already have data in them. How does this data find its way into a model?

For present purposes, we will limit our discussion to the two simplest ways to enter figures.

First, it is possible to copy-paste numbers into a PowerExcel model. Consider a group of users at a firm mired in numerous linked, problematic spreadsheets, which are sent to staff by email, for data entry of budget plan numbers... All the ‘Actuals’—used for comparison to the intended budget entries—can be organized for a bulk copy-paste into a PowerExcel Slice (or Slices), so that the resulting online business PowerExcel model will then be fully responsive for collaborative planning exercises. The (pre-PowerExcel) spreadsheet-only system would no longer carry the burden of both storing the numbers and performing all the cell-by-cell, repetitive calculations. This is why spreadsheets grow so large and take ever-longer to update! Rather, the PowerExcel model would become the centralized store of both the data and model’s calculation logic, including business rules and KPIs.

Then—and here we come to our second simple means of entering data in a PowerExcel model—each user could use the centralized model for budget entry: meaning, users would simply type numbers into their own PowerExcel Slice, which would function as a budget template. In sum, PowerExcel supports “write back”.

The following image shows an example Slice in which Dimensions have been oriented to reflect *Actual* and *Budget* figures for *Jan, Feb, Mar* and *Q1* [in Columns], and individual Operating Expense accounts (from *Payroll and related expenses, Distribution...to Other operating Expenses*) [in Rows]. The Filter section (circled at top) indicates that this budget template is for *2021, Entity A* and the *Sales* department.

[see next page]

1	Database:	PandA_2021_Connect							
2	Cube:	Financial Data							
3	Dimensions:	Filter	Year	Members 2021					
4		Filter	Entity	Members Entity A					
5		Filter	Department	Members Sales					
6	Column1	Month	Range	\$B\$11:\$I\$11					
7	Column2	Version	Range	\$B\$12:\$I\$12					
8	Row	Account	Range	\$A\$13:\$A\$23					
9									
10	OLAPivotTable								
11		Jan	Jan	Feb	Feb	Mar	Mar	Q1	Q1
12		Actual	Budget	Actual	Budget	Actual	Budget	Actual	Budget
13	Payroll and related expenses	1060	990	1060	990	1060	0	3180	1980
14	Distribution	320	300	320	198	320	0	960	498
15	Occupancy Expenses	600	575	600	0	600	0	1800	575
16	Research and Development	115	100	115	99	115	0	345	199
17	Sales and Marketing	453.9	500	453.9	297	453.9	0	1361.7	797
18	Depreciation	650	650	650	550	650	0	1950	1200
19	Amortization	62	55	62	55	62	0	186	110
20	Administrative Expenses	119	105	119	110	119	0	357	215
21	UTILITIES	75	75	0	0	0	0	75	75
22	Other operating Expenses (Income)	-64	-50	-64	-55	-64	0	-192	-105
23	Operating Expense	3390.9	3300	3315.9	2244	3315.9	0	10022.7	5544
24									

Example Budget Planning Template—a Slice of a PowerExcel model

Given that there might be 10 Entities and 40 departments—thus 400 Budget contributors, i.e., 400 dynamically connected Budget template spreadsheets, each contributor, from whatever geographic location, would enter numbers for the Operating expense accounts (10 numbers x 400 = 4,000 entries) indicated by the orange shading...and the model **would calculate in an instant**, all the up to the Income Statement budget.

As such, a PowerExcel model becomes far more than a method to “disburden” spreadsheets—it also becomes a way to help decision makers chart choose the best course for a company’s success.

It sounds like a lot to ask of a business modeling application—but, indeed, PowerExcel delivers!

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