OLAP Manager
Sage Intelligence Reporting
Sage Evolution

DH
14 04 2015
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OLAP Manager

Introduction to OLAP

Sage Intelligence Reporting is a business intelligence reporting tool that incorporates a number of modules including many innovative features. Sage Intelligence Reporting enables you to connect to any supported ODBC compliant database and extract the data into Microsoft Excel where the data can be summarized and analyzed using Microsoft Excel's extensive data analysis tools. The Microsoft Excel workbook and its workings are then linked to Sage Intelligence Reporting to create a permanently linked Microsoft Excel template. This enables you to extract the data to a Microsoft Excel workbook in the way you want it to be presented.

The OLAP Manager (OLAP) works with, and is dependent on, the Connector, Report Manager and Microsoft Excel being licensed to a user’s machine.

On-Line Analytical Processing (OLAP)

OLAP is more than an acronym that means Online Analytical Processing. OLAP is a category of software tools that provides analysis of data stored in a database. With OLAP, analysts, managers, and executives can gain insight into data through fast, consistent, interactive access to a wide variety of possible views. Stated another way, OLAP is a category of applications and technologies for collecting, managing, processing, and presenting multidimensional data for analysis and management purposes. A widely adopted definition for OLAP used today in five key words is: Fast Analysis of Shared Multidimensional Information (FASMI).

- **Fast** refers to the speed that an OLAP system is able to deliver most responses to the end user
- **Analysis** refers to the ability of an OLAP system to manage any business logic and statistical analysis relevant for the application and user. In addition, the system must allow users to define new ad hoc calculations as part of the analysis and report without having to program them
- **Shared** refers to the ability of an OLAP system being able to implement all security requirements necessary for confidentiality and the concurrent update locking at an appropriate level when multiple write access is required
- **Multidimensional** refers to a concept that is the primary requirement to OLAP. An OLAP system must provide a multidimensional view of data. This includes supporting hierarchies and multiple hierarchies
- **Information** refers to all of the data and derived data needed, wherever the data resides and however much of the data is relevant for the application
Types of Reporting

Organizations generally require two types of information. One is fixed format reporting (Sage Intelligence Reporting Standard Report Templates), and the other is analysis (OLAP Manager). The former requires information to be presented neatly, formatted and presentable. This is applicable for financial reporting, board packs, management dashboards, or similar fixed format intelligence. The latter is less presentable, but contains rich information that can be analyzed in various ways to establish trends and statistics which may not become instantly apparent in the fixed format reporting.

As the diagram above illustrates, the best approach for BI for SMME’s lies somewhere between OLAP and Reporting. OLAP should most commonly deal with greater volumes of data than a fixed format report. An OLAP tool should be able to trump its closely related fixed format reporting cousin in its ability to deliver multi-dimensional (as opposed to a single “flat sheet” dimension), analysis graphing, charting and more.
What is OLAP?

OLAP stands for On Line Analytical Processing, and supports multi-dimensional analysis of information. It is the process of extracting information from a data source (this could be a transactional system, or a data warehouse), and compressing it into a format that is optimized for multi-dimensional analysis.

An OLAP database allows business decision makers to analyse data that has been sorted into hierarchical structures. The data is static so all mathematical aggregations can be built into the database query, thereby providing a more efficient and resource friendly means of reporting. This data warehouse can then be pulled into a pivot table within Microsoft Excel, where the user is able to drill down into the report, using the hierarchical dimensions built into the query.

The OLAP Manager allows the user to define the dimensions and measures required and then create the .cub file, which will then become a data source for reporting within the Sage Intelligence Reporting Report Manager. As the data remains static, the .cub file should be rebuilt daily, to ensure that the data remains relevant.

OLAP Cubes

OLAP cubes can be considered an extension to the two-dimensional array of a Microsoft Excel spreadsheet. A company might wish to analyze some financial data by product, by time-period, by city, by type of revenue and cost, and by comparing actual data with a budget. These additional methods of analyzing the data are known as dimensions and an OLAP cube allows for the presence of be more than three dimensions for more powerful information analysis.

Functionality

An OLAP cube consists of numeric facts called Cube Measures (or measures) which are categorized hierarchically by Cube Dimensions (or dimensions).

OLAP Views

A business owner may want to view or "pivot" the data in various ways, such as displaying all the cities down the page and all the products across a page. This could be for a specified period, version and type of expenditure. Having seen the data in this particular way the business owner may then wish to view the data in another way. The view could effectively be re-oriented so that the data displayed now has periods across the page and type of cost down the page. OLAP allows users to pivot data very fast and very efficiently.

OLAP Hierarchy

Each of the elements of a dimension could be summarized using a hierarchy. The hierarchy is a series of parent-child relationships, typically where a parent member represents the consolidation of the members which are its children. Parent members can be further aggregated as the children of another parent. For example May 2005 could be summarized into Second Quarter 2005 which in turn would be summarized in the Year 2005. Similarly, cities could be summarized into regions, countries and then global regions; products could be summarized into larger categories; and cost headings could be grouped into types of expenditure.

OLAP Terminology

The user driven process of creating different views, is sometimes called "slice and dice". Common OLAP functions include slice and dice, drill down, roll up, and pivot.
OLAP Module

- **Slice**: A slice is a subset of a multi-dimensional array corresponding to a single value for one or more members of the dimensions not in the subset.

- **Dice**: The dice operation is a slice on more than two dimensions of a data cube (or more than two consecutive slices).

- **Drill Down/Up**: Drilling down or up is a specific analytical technique whereby the user navigates among levels of data ranging from the most summarized (up) to the most detailed (down).

- **Roll-up**: A roll-up involves computing all of the data relationships for one or more dimensions. To do this, a computational relationship or formula might be defined.

- **Pivot**: This operation is also called rotate operation that rotates the data in order to provide an alternative presentation of data.
When would you use the OLAP Manager?

You would use it:

- If you wanted to analyze transactional data to establish trends over a period of time.
- The data in your database is not stored in a suitable format to achieve the type of analysis that you require.
- You are being challenged by the row limitations presented by Microsoft Excel as a reporting front end.
- You want to be able to view the same information in a variety of ways.
- Analysis is a priority over fixed format reporting.
How Does The OLAP Manager Fit In

How does Sage Intelligence Reporting OLAP Manager fit in with other OLAP solutions?

Microsoft Analysis Services cubes may have already been created. Sage Intelligence Reporting allows you to connect to these cubes so you can use the rest of the Sage Intelligence Reporting interface to create a report off this cube, and browse it using Microsoft Excel. The advantage of this is that you now have one common interface for all your organizations reporting, whether it is fixed format reporting or analysis.

The Advantages of Sage Intelligence Reporting OLAP Manager over other OLAP solutions?

Business Intelligence tools like Sage Intelligence Reporting transform data into knowledge. It is worth considering what local cube technology offers an organization as an extension to Microsoft Analysis Services as an OLAP tool. Sage Intelligence Reporting OLAP Manager offers functionality to build and maintain Local cubes.

So why would an organization want to do this?

- A local cube file can be loaded on a laptop, so that a user can browse multidimensional data while disconnected from the network
- A local cube can be e-mailed to a remote user who does not have access to the Analysis Server
- Local cubes can be downloaded from web sites, so that remote users can be given access to multidimensional data
- Different local cubes can be created and distributed to different users, with each cube containing only the information the person is authorized to see
- Local cubes can be created that have a subset of the Analysis Server cube's data. This can greatly increase convenience and browsing speed for the user
- When a cube only contains the subset of information that the user wants to use, they can browse more quickly and more efficiently
OLAP Browser Options

Microsoft Excel is one of the many cube browsers that exist. Sage Intelligence Reporting supports this strategy because most data users in the world use Microsoft Excel every day to present and share information, so it makes sense to use this as not only a browsing platform for cubes, but also for delivery of fixed format reporting.

Pivot table and chart functionality is the basis for cube browsing using Microsoft Excel. It is a very powerful facility, and many users don't get the opportunity to really understand it. Sage Intelligence Reporting supports better and smarter use of Microsoft Excel to create operational efficiencies within organizations.
How The OLAP Manager Fits in

The OLAP Manager is an additional module that functions between the Connector Module and the Report Manager module. The purpose of the OLAP Manager is to use an existing connection to a database provided by the Connector to access data and create an offline .cub file. This .cub file is then in turn used by the Report Manager module to create reports and finally Microsoft Excel is used to browse this cube data and create an output that can be linked to Sage Intelligence Reporting and refreshed as and when required.

A cube is a data structure that aggregates data by the levels and hierarchies of each of the dimensions that you wish to analyze. Cubes combine several dimensions, such as time, geography, and product lines with summarized data, such as sales or inventory figures.

Cubes are not "cubes" in the strictly mathematical sense because they do not necessarily have equal sides.

In short, the use of the Sage Intelligence Reporting modules for data analysis purposes is summarized in sequential order as follows:

<table>
<thead>
<tr>
<th>Connector Module</th>
<th>Connects to the underlying database and publishes metadata from source data</th>
</tr>
</thead>
<tbody>
<tr>
<td>OLAP Manager</td>
<td>Creates a .cub file off the metadata made available by the Sage Evolution Connector Module</td>
</tr>
<tr>
<td>Report Manager Module</td>
<td>Creates a report of the .cub file established by the OLAP Manager</td>
</tr>
<tr>
<td>Microsoft Excel</td>
<td>Used as the browser interface to analyse the data in the report created by the OLAP Manager</td>
</tr>
<tr>
<td>Save Excel Template</td>
<td>When a final layout is concluded the Save Excel Template function within the Report Manager is used to create a template of the final analysis output in Microsoft Excel.</td>
</tr>
</tbody>
</table>
OLAP Module

The OLAP Manager
An OLAP (On Line Analytical Processing) database allows business decision makers to analyze data that has been sorted into hierarchical structures. The data is static so all mathematical aggregations can be built into the database query, thereby providing a more efficient and resource friendly means of reporting. This data can then be pulled into a pivot table within Microsoft Excel, where the user is able to drill down into the report, using the hierarchical dimensions built into the query.

Main Functionalities
The OLAP Manager allows the user to define the dimensions and measures required and then create the .cub file, which will then become a data source within the Report Manager. As the data remains static, the .cub file should be rebuilt daily, to ensure that the data remains relevant.

- Define date Dimension Table
- Define dimensions and measures

Key Components
- Creates a .cub file
- Data remains static
About the Connector

The Connector maintains the connectivity between Sage Intelligence Reporting and Sage Evolution. It also allows you to make connections to any other ODBC-compliant data sources allowing you to deliver Excel reports from any ODBC compliant data source.

The Connector adds additional tools for skilled users and/or consultants. The following key functionality is supported.

- Reporting from multiple data sources by enabling connection paths to all ODBC-compliant data sources; a few examples:
  - Microsoft SQL
  - Microsoft Access
  - Microsoft Excel
  - Sage CRM
  - Other CRM sources

- Easy creation of advanced, professional dashboards that display data from multiple sources in visual graphs, charts and sparklines.

- Re-use existing data containers or create your own containers incorporating user defined fields.

- Targeted reports built by using advanced filtering, sorting, lookups and joins to determine specific data output.

- Extreme flexibility in building data source combinations down to the field level.

- Take advantage of advanced query language syntax to do complex data interrogation or enable advanced data source combinations without SQL skills.

- Take advantage of stored procedures or views that have been created in the source database.

- Security-based control of connections and data.

The connector contains connections to the ERP accounting database/s. Inside the connection are containers which are the tables, joins or stored procedures in the database/s, and inside the containers are the expressions which are the fields in the tables, joins or stored procedures.
You are able to select objects using your mouse from the object window in order to either view the objects' properties or perform a task with the object. For example, you are able to select an object in the object window and rename the object just as you’d rename a file in Windows Explorer.

The properties window on the right displays the properties of whichever object is selected on the left in the object window. To maintain or view the fields, first select the relevant object (Enterprise, Connection, Container or Expression) on the object window. All properties windows have editable and read-only fields to setup and display various configurations, except the Enterprise object (has only read-only display fields and is not able to be edited). All selected objects also have a Show Advanced option to display more options, with the exception of Enterprise and the expressions.

To save any changes you make to the properties of your selected object, click the Apply button.

The Connector also includes a ribbon to simplify the use of the Sage Intelligence Reporting software functionality.

The following diagram explains the hierarchy of how the various object levels fit together. Each level below is opened by either double-clicking on the level above it or, with the focus on the upper level, right-click and select Open to open the level below it. To collapse a level, double-click on the level above it.
To protect structural relationships, the principle of Referential Integrity is applied to prevent the deletion of the following:

- **Connection** - if there are any containers linked to it that are used in reports as could be seen in the Report Manager module.

- **Container** - if there are any reports linked to it in the Report Manager module. Right-click on any container and select Show Dependencies to see if there are any Report Manager module reports currently associated to this container.

- **Expression** - if there are any reports in the Report Manager that use it.
OLAP Module

About the Report Manager
The Report Manager allows you to create new reports or edit existing reports, as well as filter and aggregate data.

The following key functionality is supported in the Report Manager.

- Auto connection to your ERP database.
- Comes with a set of standard reports for Financial Reports, Dashboards, Sales, and GL.
- You can create your own reports on existing containers.
- You can import reports from other sources or that may have been specially developed.
- You can copy standard reports and change them to suite your needs.
- You can use the Dynamic Drill Down functionality in any report.
- You can create run-time versions of your reports and run them as viewers from your desktop.
- You can create your own filters and parameters to control what data is extracted at the time of running a report.
- You can schedule reports to run at set times and choose your report output i.e. email; save to HTML for intranet/internet distribution or automatically save to a file server location.

The Report Manager Interface includes a ribbon to simplify its use.
To use the functions of the Report Manager Interface you will first need to select an object (i.e. a folder or report) in the object window. When you have selected an object in the object window, you can edit the properties by using the property fields provided in the properties window. To save any changes you make to the properties of your chosen object, you must click the Apply button.

You can also double-click on an object to expand or collapse the objects. The Report Manager object hierarchy uses the following method to open and collapse levels.
Setting Up a Report in the OLAP Manager

1. From the Connector, select the Microsoft OLE DB Provider for Local Cubes.

![Microsoft OLE DB Provider for Local Cubes](image)

2. On the Home tab, select Add Connection. (Connects to the data you wish to interrogate).

3. The Connection Info window will appear.

![Connection Info](image)

Add the connection details.

4. Add Data Container/s. (Published through your Data Connection describing what information you are going to have access to, when building your cube).

5. Add Data Expression/s – the fields within your data container.

*Note:* In many instances, particularly where Sage Intelligence Reporting ships solution sets for specific install bases, the first steps would already be in place. If this is the case, then start here at the next step.

6. Generate the Cube report you have created in your OLAP Manager and this will create a new instance (or refresh an existing instance) of your .cub file.
7. Using the Sage Intelligence Reporting Report Manager, create a new Cube Report and use the cube you created in your OLAP Manager as the data source for the report.

8. When prompted for the type of report, select Cube Report.

9. Enter a name for the cube report.

10. Once the report is set up you would run this report which would render the data for your cube into Microsoft Excel just as a standard Sage Intelligence Reporting report would be run.

11. Finally, using Microsoft Excel as your cube browser allows you to use a Pivot Table to drag and drop the fields defined in your cube to view the same data in various ways. If you get to a point where a specific layout that you have created serves a specific need in your business and you want to keep this layout, you can do this by saving the report layout to the cube report you created in the Report Manager. Consequently, each subsequent time you run your cube report after saving the report layout, your most recent Microsoft Excel layout will automatically be displayed.
OLAP Module

To build a report, choose fields from the PivotTable Field List

Choose fields to add to report:
- Values
  - CostPrice
  - Qty
  - TotalCost
  - TotalSale
- Customers
  - Customers
- Date
  - Date
- Products
  - Products

Drag fields between areas below:
- Report Filter

OLAP_Sales_Cube
Cube Components

The OLAP Manager uses already created data connections, containers and expressions from the Connector. When creating the .cub file you are required to specify the following:

- **Database Date Dimension Table (using the Date Dimension Tool)**
  The Date Dimension tool allows you to specify the dates that are applicable to your dataset. You specify your financial year start date as well as the number of years of data that you have in your dataset. The date dimension table should go back as far as is required to analyze prior year’s data. The Date Dimension Tool then generates a “date dimension table” for you to use when creating reports. This table includes the following fields:
  - Date
  - Financial Year
  - Financial Quarter
  - Financial Period

  The Date Dimension tool allows you to set fiscal year parameters, account for specific holidays and non-working days that are applicable to your dataset. You can launch the Date Dimension tool from the Connector or the OLAP Manager.

- **Cube Dimensions**
  A dimension is a set of one or more organized hierarchies of levels in a cube that the user understands and uses for data analysis purposes. These dimensions facilitate the drill down functionality. Dimensions represent the variables by which measurement is performed, such as date, location, product code, etc. Dimensions can be arranged in hierarchies, allowing users to drill down through the data. For example, a “service date” dimension which could contain the hierarchy of YEARS drilling down to QUARTERS, and then to MONTHS. Another example would be a “region” dimension which could contain the hierarchy of COUNTRY, drilling down to STATE, and then to CITY.
  Careful design of the hierarchy in a dimension facilitates drill-down reporting by designing the hierarchies to be intuitive and to follow the thought process of the analyst.

- **Cube Measures**
Measures are a set of values in a cube that are based on a column in the cubes dimensions. Measures include a variety of key performance indicators, and may include "simple" measures (amounts paid to suppliers, stock days, etc.) as well as computed measures or ratios, such as cost per member per month. Measures can be presented at various levels of summarization or drilldown, depending on how the dimensions of the analysis are displayed. The numbers in the OLAP spreadsheet are called measures. When setting up OLAP cubes, these values are also often called facts. Typical measures or facts would be:

- Sales Dollars
- Sales Count
- Profit
- Hours of Work

**The location of the .cub file**

When the OLAP cube is generated it is generated to a file with the .cub extension, you need to specify the location of this file. This local cube file (.cub file) is stored in a single, portable file that can be stored on both server and non-server environments. End users can browse local cubes without the need for a connection to a Microsoft Analysis server. Local cubes are the only variety of cube that provides this capability. After a local cube is created, if its source data changes, the local cube can be refreshed to incorporate the new version of the source data.
More on OLAP Cubes

The OLAP cube provides the multidimensional way to look at the data. The cube is comparable to a table in a relational database.

The specific design of an OLAP cube ensures report optimization. The design of many databases is for online transaction processing and efficiency in data storage, whereas OLAP cube design is for efficiency in data retrieval. In other words, the storage of OLAP cube data is in such a way as to make easy and efficient reporting. A traditional relational database treats all the data in a similar manner. However, OLAP cubes have categories of data called dimensions and measures.

In the figure below; time, product and location represent the dimensions of the cube, while 80 represents the measure. Note: A dimension is a category of data and a measure is a fact or value.

**Dimensions**

Dimensions are broad groupings of descriptive data about a major aspect of a business, such as dates, markets and products. Each dimension includes different levels of categories.

For example, you OLAP cube could have a time dimension. This time dimension could be further categorized into year, quarter, and month. These levels of categories, (hierarchies) are what provide the ability to drill-up or drill-down on data in an OLAP cube.
Measures

Measures are actual data values that occupy the cells as defined by the dimensions. Measures are typically stored as numerical fields. For example you are a manufacturer of calculators. The question you want answered is how many of ABC model calculators (product dimension) a particular plant (location dimension) produce did during the month of April 2009 (time dimension). Using the OLAP Manager, you find out that a plant produced 4500 ABC cell phones in April 2009. The measure on this example is the 4500.
The Date Dimension Tool

The Date Dimension tool allows you to specify the dates that are applicable to your dataset. You specify your financial year start date as well as the number of years of data that you have in your dataset. The Date Dimension Tool then generates a “date dimension table” for you to use when creating reports.

This table includes the following fields:

- Date
- Financial Year
- Financial Quarter
- Financial Period

The Date Dimension tool also allows you to specify holidays and non working days that are applicable to your dataset.

Using the Date Dimension Tool

1. Select Date Dimension Creation Tool.

![OLAP Manager](image1)

2. Select the database that you would like to create the dimensions for.

![Select Connection](image2)

3. Enter your financial information on the first screen and select generate to create the date dimension table.
4. If you have already created the Date Dimension table and would like to recreate it, you can select Drop and Recreate Dimension Table to overwrite the previously created dates.

5. Select the Set Holidays tab to enter any applicable holidays or non working days.

6. You can edit your dates on the Edit Date Dimension Table tab.
Layout of the OLAP Manager Interface
OLAP Module

Layout

Show Advanced
By enabling Show Advanced, additional options will become available in the properties window.

- Default Cube File Path: The file location of the saved cube file. The file has the extension .cub
- Cube File Name: The name of the cube file
- Last Refreshed: Shows the time and date that the cube was rebuilt
- Cube Definition Locked: Lock the cube definition so that it cannot be edited
Functionality Navigation

In addition to using the Object and Properties windows you can also use the Menu Bar, Toolbar and Shortcut menu to navigate around the OLAP Manager.

Most functionality is generally shared between the OLAP Manager’s Menu Bar, Toolbar and Shortcut menu. However, this section focuses on the Toolbar and Shortcut menu functionality options as most options on the Menu Bar items are also included in them.

Option availability is dependent on where the current focus is.

Menu Commands

There are three ways to access menu commands within the OLAP Manager interface:

1. Using the Menu bar - Use your mouse or keyboard shortcut to select a task from the menu bar.
2. Using the Toolbar - Use your mouse to select a task from the toolbar.
3. Using the Shortcut menu - Right-click on an object in the Object window and you will be able to select a command from the shortcut menu.

To view an object's associated elements, double-click on the object. This action is called drilling down. To drill down is to show additional information. To hide an object's associated elements, double click an open object again. This action is called drilling up, thereby hiding the additional information.
## OLAP Module

### Toolbar Menu

All of the toolbar icons below have their own tool tip that is displayed when you hold your mouse over:

<table>
<thead>
<tr>
<th>Icon</th>
<th>Tool</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Add" /></td>
<td>Add</td>
<td>Enables the user to add a Data Connection, Data Container or a Data Expression</td>
</tr>
<tr>
<td><img src="image" alt="Delete" /></td>
<td>Delete</td>
<td>Enables the user to delete their selection</td>
</tr>
<tr>
<td><img src="image" alt="Properties" /></td>
<td>Properties</td>
<td>Displays context specific field properties</td>
</tr>
<tr>
<td><img src="image" alt="Refresh" /></td>
<td>Refresh</td>
<td>Refreshes on screen properties of the selected object</td>
</tr>
<tr>
<td><img src="image" alt="Copy" /></td>
<td>Copy</td>
<td>Copies the selected object to the clipboard</td>
</tr>
<tr>
<td><img src="image" alt="Paste" /></td>
<td>Paste</td>
<td>Paste an object from the clipboard into the selected object</td>
</tr>
<tr>
<td><img src="image" alt="Move to" /></td>
<td>Move to</td>
<td>Moves a connection or a container</td>
</tr>
<tr>
<td><img src="image" alt="Check / Test" /></td>
<td>Check / Test</td>
<td>Checks that the object will function correctly</td>
</tr>
<tr>
<td><img src="image" alt="Run" /></td>
<td>Run</td>
<td>This is the play or generate button, it generates the .cub file as well as runs the reports into Microsoft Excel</td>
</tr>
<tr>
<td><img src="image" alt="Create PR0 file" /></td>
<td>Create PR0 file</td>
<td>Creates a report viewer instance to be run off the computer desktop</td>
</tr>
<tr>
<td><img src="image" alt="History" /></td>
<td>History</td>
<td>This keeps track of the run instance history</td>
</tr>
<tr>
<td><img src="image" alt="Help" /></td>
<td>Help</td>
<td>Launches the Sage Intelligence Reporting Help file</td>
</tr>
<tr>
<td><img src="image" alt="Export Cube Definition" /></td>
<td>Export Cube Definition</td>
<td>This allows you to generate cube definition file</td>
</tr>
<tr>
<td><img src="image" alt="Generate Scheduler Command" /></td>
<td>Generate Scheduler Command</td>
<td>This allows the generation of the cube file to be linked to a scheduler command</td>
</tr>
</tbody>
</table>
OLAP Manager Report Creation Structure

The following diagram provides a step-by-step explanation of the OLAP Manager report creation i.e. creating a report that extracts from a local cube (.cub file) as opposed to directly from the source database and renders directly to a pre-configured Microsoft Excel Template. The component steps include:

- Database Connection
- Creation of a Container based on database Tables and Fields
- Create a Date Dimension table
- Creation of Dimensions and Measures
- Creation of the .cub file
- Creation of BI reports
- Saving the report output into Microsoft Excel Templates

![OLAP Report Structure Diagram](image-url)
Using a Pivot Table in Microsoft Excel to Browse an OLAP Manager cube

Use Microsoft Excel to create a link to your OLAP Manager cube report, by using a Microsoft Excel Pivot Table to browse the cube and define the layout as you would like to see it in a Microsoft Excel Pivot Table.

The dimensions and measures that you used to create your .cub file are available on the Pivot Table field list when you have run your report into Microsoft Excel.

Using Microsoft Excel as your cube browser allows you to drag and drop the fields defined in your cube to view the same data in various ways. If you get to a point where a specific layout that you have created serves a specific need in your business and you want to keep this layout, you can do this by saving the report layout to the cube report you created in the Report Manager. Consequently, each subsequent time you run your cube report after saving the report layout, your most recent Microsoft Excel layout will automatically be displayed.

You are now able to perform data analysis on the data in the .cub file.
# Terms and Definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>OLAP</td>
<td>OLAP stands for On Line Analytical Processing, and supports multi-dimensional analysis of information. It is the process of extracting information from a data source (this could be a transactional system, or a data warehouse), and compressing it into a format that is optimized for multi-dimensional analysis.</td>
</tr>
<tr>
<td>DSN</td>
<td>File used by various database client programs to connect to a database; describes properties, such as the data source name and directory, the connection driver, the server address, user ID, and a password; used by ODBC drivers to connect to a specified database, such as a SQL Server or Microsoft Access database.</td>
</tr>
<tr>
<td>Connector</td>
<td>The Connector provides the facility to connect to all ODBC compliant data sources for example, SQL Server, Oracle, Access, and Pervasive using a windows explorer look and feel for simple administration of all data connections. All data containers are created in the Connector.</td>
</tr>
<tr>
<td>Report Manager</td>
<td>The Report Manager provides access to the data as defined in the Sage Intelligence Reporting Connector, and empowers the user to customize their reports for Microsoft Excel. Filters, Parameters and Aggregates can be added to your report, new reports can be created and reports can be organised in folders.</td>
</tr>
<tr>
<td>OLAP Manager</td>
<td>The OLAP Manager allows the user to define dimensions and measures required and then create the .cub files, which will then become a data source within the Report Manager. As the data remains static, the .cub file should be rebuilt daily to ensure that the data remains relevant.</td>
</tr>
<tr>
<td>Data Connection</td>
<td>A Data Connection holds the relevant connection information to connect to a supported ODBC or OLEDB compliant Data Source. This Data Connection object is then used for all connections to this Data Source. By Adding a Data Connection the Administrator can make data available from this Data Source.</td>
</tr>
<tr>
<td>Data Container</td>
<td>A Data Container is a set of data which is made available (published) by the Connector and allows users access to the data using the Report Manager. The source of this data can be a Database Table, View or Stored Procedure, or a custom Join based on two or more Tables/Views. Once you have configured data connections you will need to select your data containers which contain your source data.</td>
</tr>
<tr>
<td>Data Expression</td>
<td>A Data Expression allows the administrator to choose the data fields (publish) from the Data Container(s) which are available through the Report Manager.</td>
</tr>
<tr>
<td>OLAP Cube</td>
<td>An OLAP cube is a data structure that allows fast analysis of data providing the capability of manipulating and analyzing data from multiple perspectives.</td>
</tr>
<tr>
<td>Cube Dimensions</td>
<td>The organized hierarchy of categories, known as levels, that is used to define the structure of a cube or data warehouse.</td>
</tr>
<tr>
<td>Cube Measures</td>
<td>The raw data summarized and totaled. For example: On our Sales cube we would like to show the total sales value for our chosen dimension Sales.</td>
</tr>
<tr>
<td>.cub File</td>
<td>Local Cubes (.cub file) A local cube is stored in a single, portable file that can be stored on both server and non-server computers. End users can browse local cubes without a connection to an Analysis server. Local cubes are the only variety of cube that provides this functionality.</td>
</tr>
<tr>
<td>Cube Browser</td>
<td>A Cube Browser is any application that allows users to query an OLAP cube. Sage Intelligence Reporting uses Microsoft Excel as its cube browser.</td>
</tr>
</tbody>
</table>
Creating a New Cube Definition

To create a new cube definition, follow the following example:

1. Open the OLAP Manager.
2. Right-click on Home and select Add Folder.
3. Create a Demonstration folder.
4. Right-click on the Demonstration folder and select Add Cube Definition.
5. Name this Cube Sales Demo Cube.

6. Select the Sales Details 2.0 Container on the RKL Parent Connection.

7. Enter a name for your new Cube Dimension and click OK.
8. You will be prompted to drag and drop your chosen Source expressions (highlighted below on the left) to your Dimension Levels (highlighted below on the right).

What is a Cube Dimension?
- A cube dimension is a set of one or more organized hierarchies of levels in a cube that a user understands and uses as the base for data analysis.
- By using this drag and drop option to create your source expressions as dimension levels you are building a logical drill down data set.
- A dimension can also be understood as the columns and rows of a Pivot Table.
Examples:
A Geography dimension might include hierarchical levels for:
  o Country/Region, State/Province and City.

A Time dimension might include hierarchical levels for:
  o Year, Quarter, Month and Day.

9. On this Customer Dimension, you wish to aggregate sales up to Customer Category Level but still are able to drill down to individual customer’s accounts.

   Drag the following Source Expressions to the Dimension Levels in the following hierarchical order:
   - CustomerCategory
   - CustomerName

10. Click Apply.

11. You will be prompted to select your Cube Measures (or measure fields).

What is a Cube Measure?
  o A Measure is a set of values in a cube based on a column in the Cube’s Dimensions.
  o A Measure allows you to select the data you would like to be available for analysis.
  o A Measure can also be understood as the data area of a pivot table

12. On this Customer Dimension, you wish to use Total Sale as your measure.
13. Select the field TotalSale and click on OK.

14. You will be prompted to select a function to perform on your measure. This allows you to select which aggregate function you would like applied to your data. On this Customer Dimension, you wish to Sum the Total Sales measure. Select the Sum option.

15. Click OK.

Proceed to [Adding a Dimension](#).
Adding a Dimension

1. Add a dimension called Date (not to be confused with the Date Dimension Tool).

   It will add value to a cube report on customer sales to be able to show on which days sales were made. To provide the relevant date information we need to add another dimension to the cube. By creating a date dimension we will be able to summarise YTD figures while still retaining drill down functionality to the lowest level, daily sales.

2. On the Sales Demo Cube in your Demonstration folder, select the Dimensions Tab.

3. Click on the Add button.

4. Enter a name for the Cube Definition and click on OK.

5. Add the Date Source Expression to create a Date Dimension Level.

   Note: Once you have selected the Date field, the OLAP Manager will automatically recognize it as a date field and displays various predefined date levels. Select the date levels you will wish to display in your report.

6. Select date levels as Year, Quarter, Month, Week and Day and then click on Apply.

   Proceed to Generate the New Cube
OLAP Module

Generate the New Cube

You have now created the new Cube Definition including Cube Dimensions and Cube Measures that will populate the Cube (.cub file).

To generate the new cube, do the following:
1. In your OLAP Manager, select the OLAP Sales Cube in the Demonstration folder.
2. Right-click and select Generate Cube.

A connection to your cube will automatically be created in the Sage Intelligence Reporting Connector module once you have loaded your data into a cube (.cub file).

- If a cube already exists you will be prompted with a message to overwrite the old cube.
- If you have used scheduling to refresh your cube, the cube will be generated and will automatically override this message and refresh the cube.
- If you are using a scheduling routine for a cube report in the Report Manager module in conjunction with a separate scheduling routine for the underlying cube in the OLAP Manager, you must ensure there is sufficient time lag in the scheduling of the Report Manager to allow for the cube to be refreshed in the OLAP Manager.

Proceed to Create a New Cube Report
Create a New Cube Report

Using the Report Manager, create a new Cube Report by linking it to your own .cub file which you have just created.

1. Within the Report Manager right-click on the folder chosen to hold your cube reports, select Add Report.
2. You will be prompted to select a type of report, select Cube Report.

3. Click OK.
4. Enter a name of the report and then click OK.

5. You will be prompted to select a data container (Cube) for your report, select the container and click OK.

6. You will notice the report is now created in your folder and you will also see new tabs in the Report Manager referring to the properties of your cube report.

You will notice that Page, Row, Column and Measure tabs replace the original Columns, Filters and Parameter tabs.
OLAP Module

7. Select the Cube Page tab. Click Add on the right hand side of the screen.

8. The Customer dimension defined within the OLAP Manager will now be available for selection.

9. Click OK.

10. Select the Cube Row tab.

11. Click Add on the right hand side of the screen. This will define the information shown horizontally.

12. The Date dimension defined within the OLAP Manager will now be available for selection.

13. Click OK.

14. Select the Cube Column tab. Click Add on the right hand side of the screen. This will define what information will be shown vertically. For this example we have no data as we are totalling the sales values within the report. Click OK.

15. Select the Cube Measure tab. Click Add on the right hand side of the screen. This will define which measures to report on based on the measures set up within the OLAP Manager.

16. The TotalSale measure defined within the OLAP Manager will now be available for selection.

17. Click OK.

18. Click on the report name click on Run, or right click and select Run.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Customer</td>
<td>All</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Year</td>
<td>[TotalSale]</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>0.00</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>1,057,848.23</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>16,133.03</td>
</tr>
<tr>
<td>7</td>
<td>Grand Total</td>
<td>1,073,981.26</td>
</tr>
</tbody>
</table>

19. You are able to drill down to interrogate the data by double clicking the year fields. A specific customer can also be selected by using the drop down menu at the top of the report.