

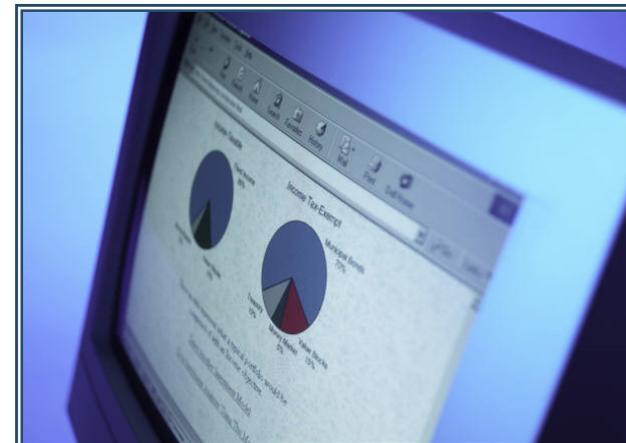
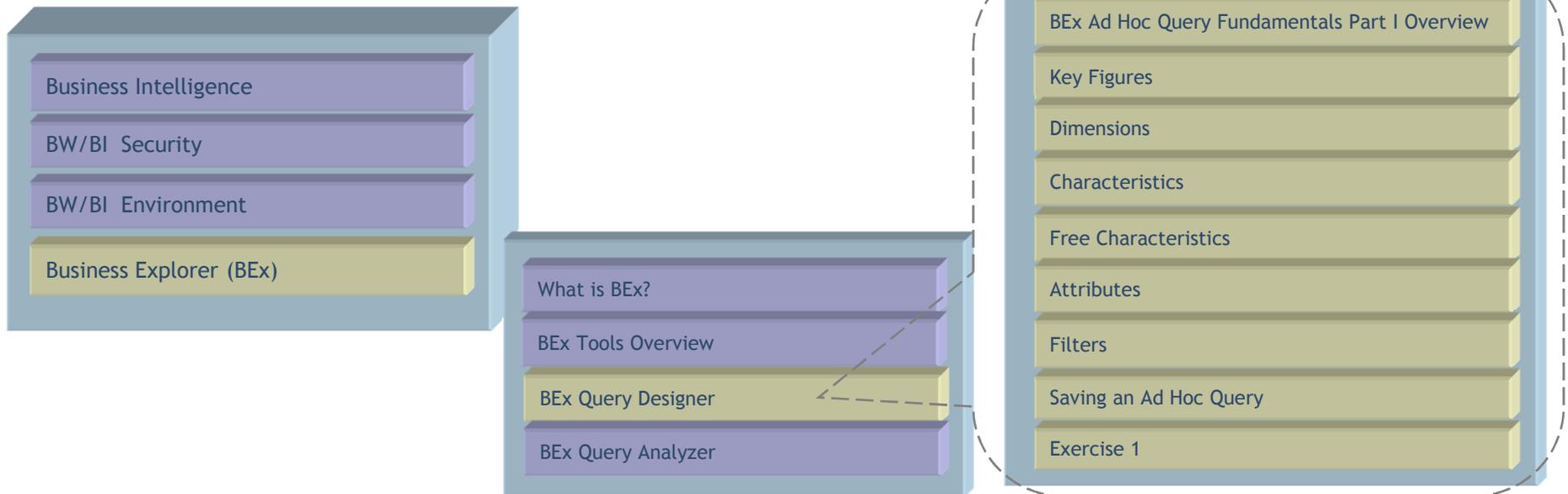
SAP Business Warehouse/Business Intelligence Reporting

BEx Ad Hoc Query Fundamentals - Part I

Washington State HRMS Business
Warehouse/Business Intelligence (BW/BI)
BW/BI Power User Workshop Materials
General Topics - BW/BI Power Users

BEx Ad Hoc Query Fundamentals – Part I

The BEx Ad Hoc Query Fundamentals - Part I section provides an overview of BEx Ad Hoc Query Fundamentals for creating a basic ad hoc query in BEx Query Designer.



BEx Ad Hoc Query Fundamentals - Part I Overview

BEx Ad Hoc Query Fundamentals - Part I contains the following key terms and concepts:

- Key Figures
- Dimensions
- Characteristics
- Free Characteristics
- Attributes
- Filters

The screenshot shows the BEx Query Designer interface with the following components and annotations:

- InfoProvider:** Headcount And Personnel Actions [ZPA_M03]
- Key Figures:** A list of key figures including Age in Months, Annual Salary, Headcount, etc.
- Dimensions:** A list of dimensions including Employee, Action, Personnel Area, etc.
- Filter:** Personnel Area [OPERS_AREA]
- Default Values:** Ethnic Origin [OETHN_ORIG], Position [OHRPOSITION], Position Percentage [OHRPOSITION_ZPSPCT]
- Free Characteristics:** Ethnic Origin [OETHN_ORIG]
- Columns:** Key Figures, Number of Employees [OHCNT_LAST]
- Rows:** Position [OHRPOSITION], Position Percentage [OHRPOSITION_ZPSPCT]
- Preview:** A table showing data for a-Position and b-Position.

Annotations on the left side of the interface:

- InfoProvider Identifier
- Key Figure
- InfoObjects: Key Figures, Dimensions, Characteristics, Attributes
- Dimension
- Characteristic
- Attribute

Annotations within the interface:

- Area for Filter Values
- Area for Default Values
- Area for Dimensions
- Area for Dimensions
- Characteristic
- Attribute
- Ad Hoc Query Design Area

Key Figures

Key Figures are numeric InfoObjects that are the object of analysis in BW/BI reports, such as number of employees, number of positions, annual salary, etc. Key Figures quantify *Characteristics.

For example:

In the Headcount InfoProvider, Key Figures include:

- Number of employees
- Annual salary

In the Quota Data InfoProvider, Key Figures include:

- Compensated hours
- Donated hours
- Forfeited hours
- Accrued hours
- Taken hours



Indicates a Key Figure

BEx Query Designer - Query: New Query

InfoProvider: Headcount and Personnel Actions

- Key Figures
 - Calculated Key Figure
 - Age in Months [ZAGEMON]
 - Age in Years [0AGE_KYF]
 - Annual Salary [0ANSALARY]
 - Cap.Utilization Lvl [0PAYPCT]
 - Employment Percent [0EMPLPC]
 - Headcount FTE [0HDCNT_FTE]
 - Length of Service [0SRVCLENK]
 - Monthly Salary [ZMONSAL]
 - New Annual Salary [ZNEWSAL]
 - Number of Actions [0ACTION_C]
 - Number of Employees [0HDCNT]
 - Present Pos Months [ZINPOSM]
 - Prior Annual Salary [ZPRIORSAL]
 - Salary Unit Amt [ZSAL_AMT]
 - Service Months 44 [ZSVAFT44]
 - State Srvc in Months [ZSVLENNM]
- Dimensions
 - Employee [ZPA_C011]
 - Action [ZPA_C012]
 - Personnel Area [ZPA_C013]
 - Personal Data [ZPA_C014]
 - Cost Center [ZPA_C015]
 - Organizational Assignment [ZPA_C016]
 - Employment [ZPA_C017]
 - Payment [ZPA_C018]
 - Employment Dates [ZPA_C019]
 - Employment Service [ZPA_C01A]
 - Data Provider [ZPA_C01B]

Filter: Characteristic Restrictions

Default Values: Personnel Area [0PERS_AREA], Person [0PERSON]

Rows/Columns: Free Characteristics

- Columns
 - Key Figures
 - Annual Salary [0ANSALARY]
- Rows
 - Personnel Area [0PERS_AREA]
 - Person [0PERSON]

Key Figures are usually added to the Columns section of an ad hoc query. Key Figures can also be added to the Rows.



*Characteristics are InfoObjects that describe the Key Figures and are usually added to the Rows section of the ad hoc query.

Key Figures

Key Figures are usually added to the Columns section of the query and Characteristics are usually added to the Rows. Key Figures can also be added to the Rows section and the Characteristics in the Columns.

The example below shows the difference between adding Key Figures in Columns and adding Key Figures to the Rows in the ad hoc query results:

Key Figures in Columns

Key Figures in Columns

Characteristics in Rows

	Total All Employees	Total All Employees Average Salary
Female	71	58,620.34
American Indian/Alaskan	27	43,284.00
Asian or Pacific Islander	30	14,895.20
Black/Not Hispanic origin	32	45,929.13
Hispanic	1	34,356.00
White/Not Hispanic origin	392	43,702.58
Result	553	44,146.59
Male	45	6,496.53
American Indian/Alaskan	3	37,137.00
Asian or Pacific Islander	3	31,352.00
Black/Not Hispanic origin	33	40,726.91
Hispanic	1	38,106.00

Key Figures in Rows

Characteristics in Columns

Key Figures in Rows

	Gender	Female	American Indian/Alaskan	Asian or Pacific Islander	Black/Not Hispanic origin	Hispanic	White/Not Hispanic origin	Result
Total All Employees		71	27	30	32	1	392	553
Total All Employees Average Salary	\$	58,620.34	43,284.00	14,895.20	45,929.13	34,356.00	43,702.58	44,146.59

Key Figures

Adding a Key Figure

The example below shows how to add the Annual Salary Key Figure to the Columns section of the ad hoc query.

To add a Key Figure to the Columns section:

1. *Drag&Drop the Annual Salary Key Figure from the Key Figure section of the InfoObjects list to the Columns section of the query.

The screenshot shows the BEx Query Designer interface with the following components:

- InfoProvider:** A tree view on the left showing 'Key Figures' and 'Dimensions'. The 'Annual Salary [0ANSALARY]' key figure is highlighted with a red box.
- Filter:** A section on the right containing 'Characteristic Restrictions' and 'Default Values'.
- Rows/Columns:** A central section with 'Free Characteristics' and 'Columns'. The 'Annual Salary [0ANSALARY]' key figure is being dragged into the 'Columns' section, which is also highlighted with a red box.
- Preview:** A table at the bottom right showing a preview of the data with columns for 'Personnel Area' and 'Annual Sal'.

Annotations on the screenshot include:

- A red box around the 'Annual Salary [0ANSALARY]' key figure in the InfoProvider.
- A red box around the 'Annual Salary [0ANSALARY]' key figure in the Columns section.
- A red box around the 'Personnel Area [0PERS_AREA]' and 'Person [0PERSON]' characteristics in the Rows section.
- A callout box labeled 'Key Figure InfoObjects' pointing to the 'Annual Salary [0ANSALARY]' key figure in the InfoProvider.
- A callout box labeled 'Characteristic/Attribute InfoObjects' pointing to the 'Personnel Area [0PERS_AREA]' and 'Person [0PERSON]' characteristics in the Rows section.
- A callout box labeled 'Key Figures quantify the Characteristics' pointing to the 'Annual Salary [0ANSALARY]' key figure in the Columns section.
- A callout box labeled 'Characteristics' pointing to the 'Personnel Area [0PERS_AREA]' and 'Person [0PERSON]' characteristics in the Rows section.

i *To Drag&Drop, left mouse-click and hold the Key Figure. Move the Key Figure to the Columns section and release the mouse.

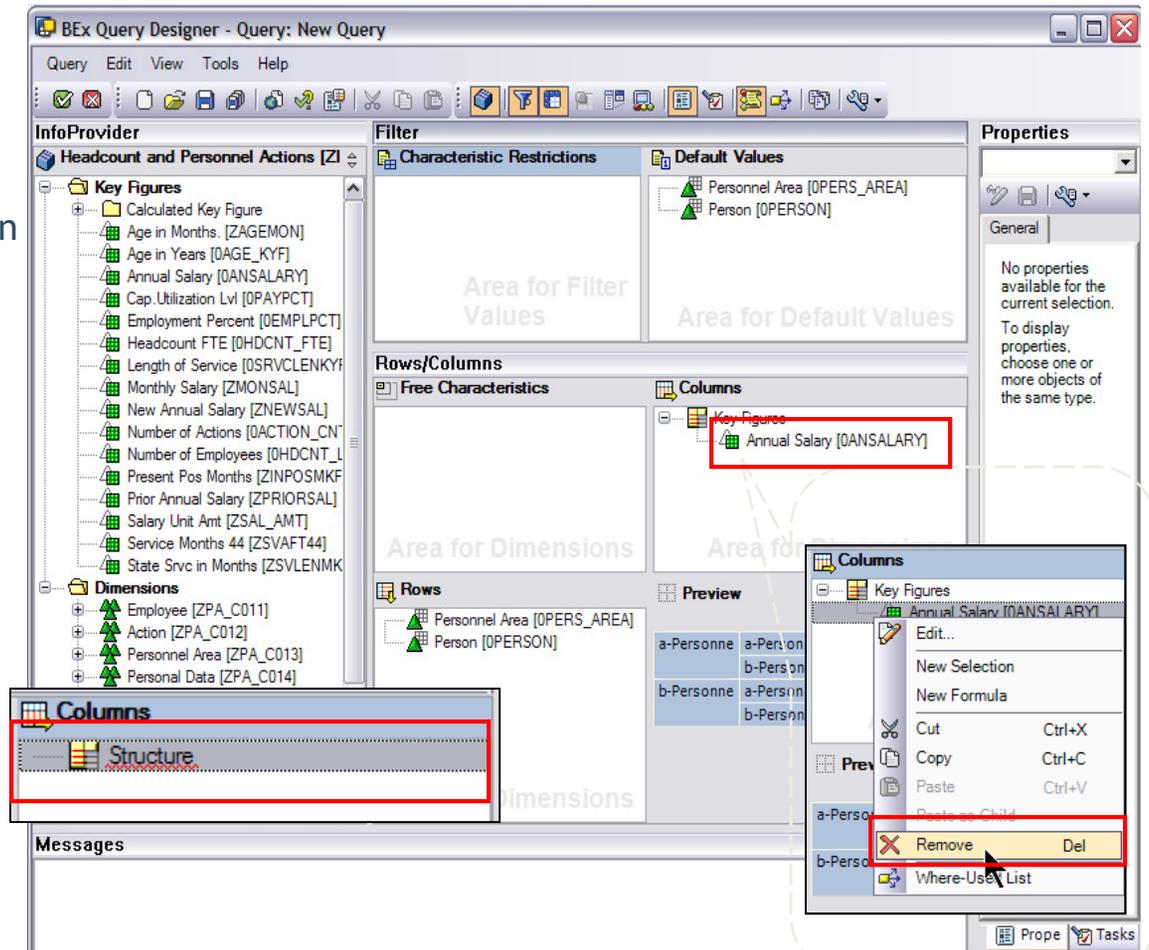
Key Figures

Removing a Key Figure

The example below shows how to remove a Key Figure from an ad hoc query.

To remove a Key Figure from the query:

1. Right mouse-click on the Key Figure in the ad hoc query to open the *Context Menu.
2. Select Remove.
(This action does not remove the Key Figure from the InfoProvider. It is removed from the ad hoc query only)



Result: The Key Figure has been removed from the ad hoc query.



*A Context Menu is a list of commands and properties for a selected object.

Dimensions

Dimensions are logical groupings of Characteristics and Attributes in an InfoProvider. Dimensions can be found in the InfoObject section of BEx Query Designer.

Expand a Dimension to select Characteristics and Attributes within the Dimension (Dimensions cannot be added to the ad hoc query).

The screenshot shows the BEx Query Designer interface with the following annotations:

- A red dashed box highlights a green tree icon with the text "Indicates a Dimension".
- A red box highlights the "Personnel Area" dimension in the "Dimensions" folder, with a callout box pointing to it that says "Personnel Area Dimension".
- A red box highlights the sub-items under "Personnel Area" (Duty Station County, Personnel Area, Personnel Subarea), with a callout box pointing to them that says "Characteristics of the Personnel Area Dimension".
- A callout box points to the expand/collapse icon next to "Personnel Area" with the text "Click here to expand/collapse Dimensions to view Characteristics and Attributes".

Characteristics

Characteristics describe the Key Figures. Characteristics are selected from the Dimensions of the InfoObjects list and added to the query.

The example below shows how a “Personnel Area” Characteristic and “Number of Employees” Key Figure will produce the following ad hoc query results if the Department of Personnel is selected for the Personnel Area:

Characteristic = Personnel Area

Key Figure = Number of Employees

Result: 1790 - Department of Enterprise Services 1072 (example only)

Indicates a Characteristic or Navigation Attribute

The screenshot displays the SAP BW/BI query designer interface. On the left, the 'InfoProvider' pane shows a tree structure under 'Headcount And Personnel Actions'. The 'Position' node is highlighted with a red box, and a red dashed callout box points to it with the text 'Indicates a Characteristic or Navigation Attribute'. The 'Filter' pane on the right shows 'Characteristic Restrictions' and 'Default Values'. 'Personnel Area' is listed under 'Default Values'. The 'Rows/Columns' pane shows 'Free Characteristics' and 'Columns'. 'Number of Employees' is selected under 'Columns'. The 'Rows' pane shows 'Personnel Area' selected. A red arrow points from the 'Number of Employees' key figure to the 'Personnel Area' characteristic in the 'Rows' pane. A text box on the right says 'Characteristics describe where the Key Figures come from' with an arrow pointing to the 'Number of Employees' key figure.

Characteristics

Characteristics are usually added to the Rows section of the query and Key Figures are usually added to the Columns section. Characteristics can also be added to the Columns section and Key Figures in the Rows.

The example below shows the difference between adding Characteristics in Rows and adding Characteristics to the Columns in the ad hoc query results:

Characteristics in Rows

Demo Key Figure Query **Key Figures in Columns**

Display As: Information Send Print Version Export to Excel Comments

Columns:

- Key Figures

Rows:

- Gender
- Ethnic Origin
- Free characteristics

Gender	Ethnic Origin	Total All Employees	Total All Employees Average Salary
Female	10/Not assigned	71	58,620.34
	American Indian/Alaskan	27	43,284.00
	Asian or Pacific Islander	30	14,895.20
	Black/Not Hispanic origin	32	45,929.13
	Hispanic	1	34,356.00
	White/Not Hispanic origin	392	43,702.58
	Result	553	44,146.59
Male	10/Not assigned	45	6,496.53

Characteristics in Columns

Demo Key Figure Query **Characteristics in Columns**

Display As: Information Send Print Version Export to Excel Comments

Columns:

- Gender
- Ethnic Origin

Rows:

- Key Figures
- Free characteristics

	Gender	Female							Result
	Ethnic Origin	10/Not assigned	American Indian/Alaskan	Asian or Pacific Islander	Black/Not Hispanic origin	Hispanic	White/Not Hispanic origin		
Total All Employees		71	27	30	32	1	392	553	
Total All Employees Average Salary	\$	58,620.34	43,284.00	14,895.20	45,929.13	34,356.00	43,702.58	44,146.59	

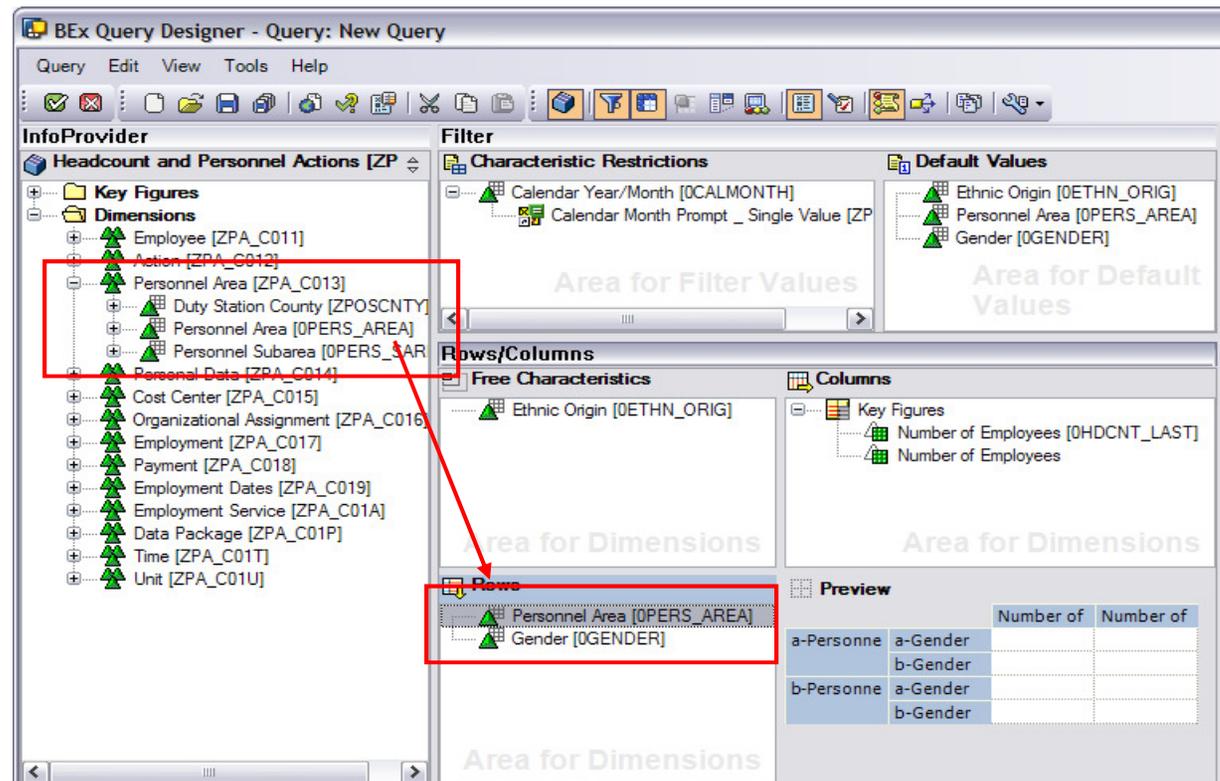
Characteristics

Adding a Characteristic

The example below shows how to add the Personnel Area Characteristic to the Rows section of the ad hoc query.

To add a Characteristic to the Rows section:

1. Expand the Personnel Area Dimension.
2. Drag&Drop the Personnel Area Characteristic from the Personnel Area Dimension to the Rows section of the query.



Characteristics

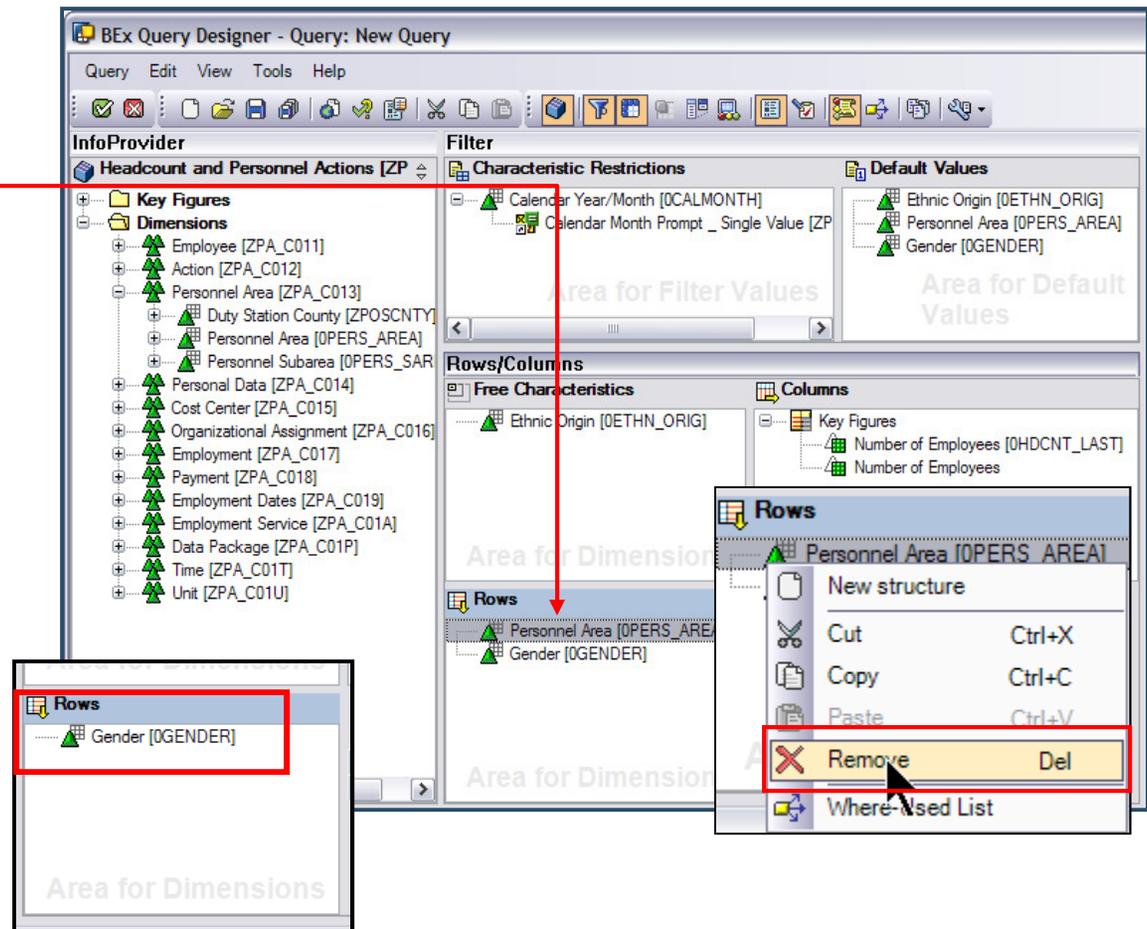
Removing a Characteristic

The example below shows how to remove a Characteristic from an ad hoc query.

To remove a Characteristic from the query:

1. Right mouse-click on the Characteristic in the ad hoc query to open the Context Menu.
2. Select Remove.
(This action does not remove the Characteristic from the InfoProvider. It is removed from the ad hoc query only)

Result: The Characteristic has been removed from the ad hoc query.



Free Characteristics

Free Characteristics are Characteristics or Navigation Attributes in a query that do not display in the initial query results. Free Characteristics can be added to the query results.

In the example below, Organizational Unit has been added to the Free Characteristic section of the ad hoc query. As a Free Characteristic, Organizational Unit will not initially be displayed in the ad hoc query results.

To display the Organizational Unit in the ad hoc query results, drag and drop Organizational Unit to the section that you want it to display in your report.

Organizational Unit has been added to ad hoc query results

Result

Personnel Area	Organizational Unit	Annual Salary
1790	Dept of Enterprise Services	62,539,652.00

1. Add Organizational Unit as a Free Characteristic and run query on the web

2. Drag Organizational Unit from the Free Characteristics section and drop it where you want it to display in your report

3. Organizational Unit has been added to results

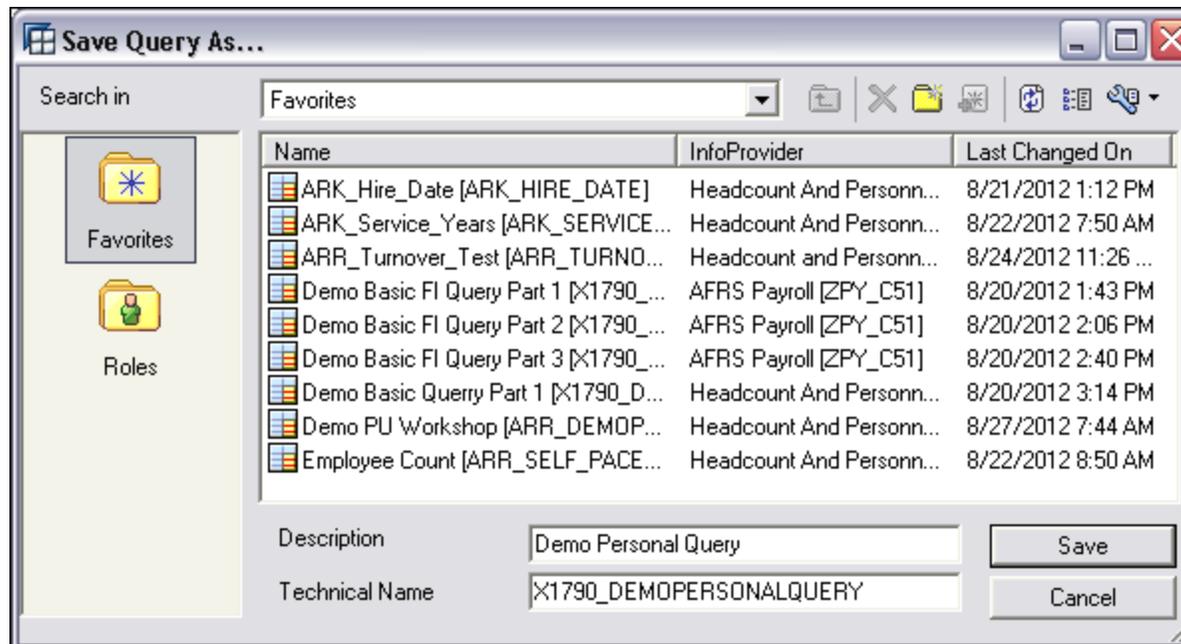
Saving an Ad Hoc Query

BW/BI Power Users have the ability to create an ad hoc query that is visible only to themselves (Personal) or to other BW/BI Power users in their Agency (Agency-specific).

The technical name used when the query is saved determines if it is Personal or Agency-specific.

-  Ad hoc queries saved as Personal or Agency-specific can only be modified or deleted by the BW/BI Power User who created the query.

The following pages show how to save Personal and Agency-specific ad hoc queries.

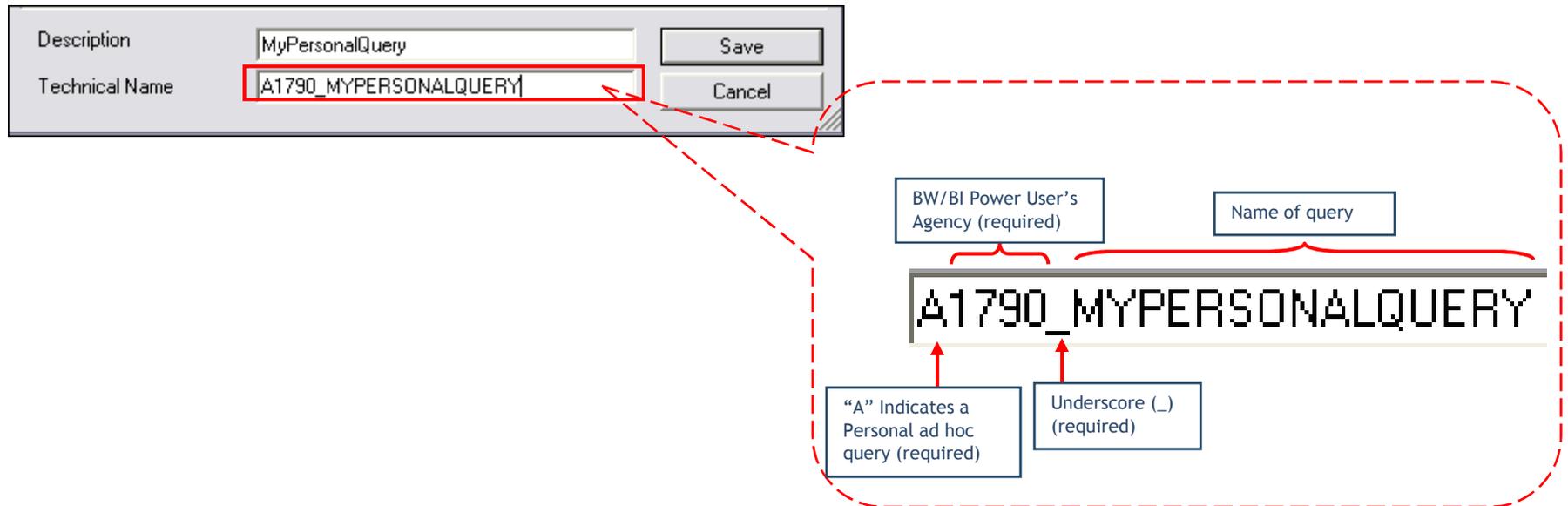


Saving an Ad Hoc Query

Saving a Personal Ad Hoc Query

To save a Personal ad hoc query, BW/BI Power Users are required to prefix the ad hoc query Technical Name with “A” (indicates a Personal query), followed by the user’s agency number with an underscore (_). Any alpha numeric characters can be entered after the required prefix.

The example below shows a sample Personal query for a user who belongs to Agency 1790:



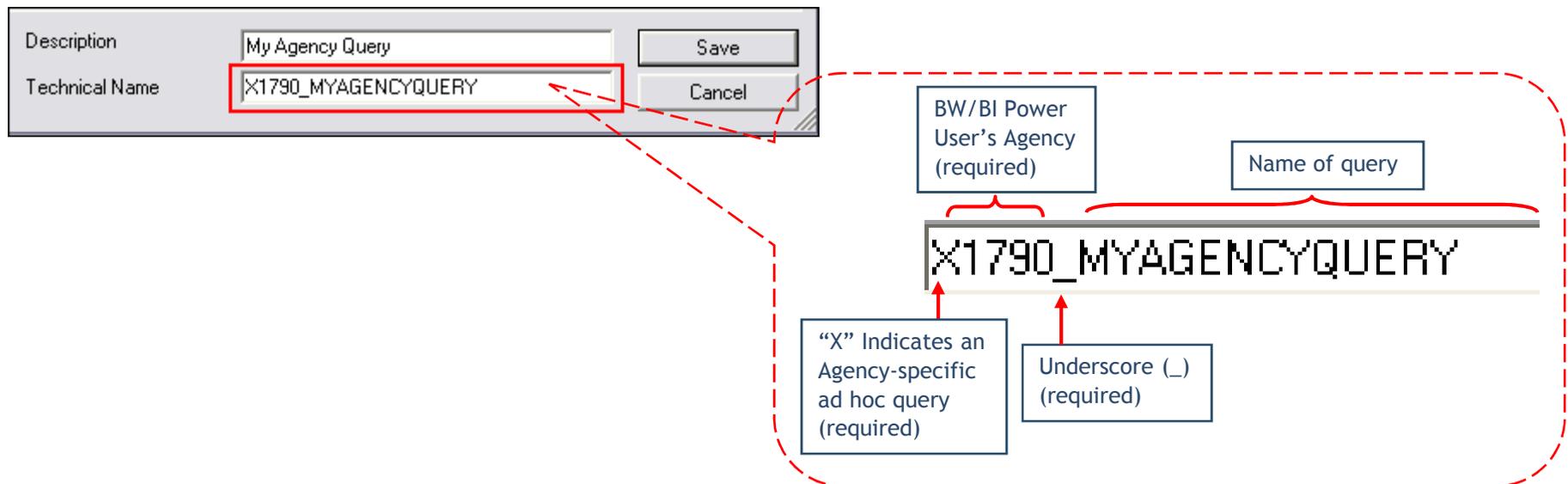
BW/BI Power Users will not be able to save ad hoc queries if the Technical Name prefix requirements have not been followed.

Saving an Ad Hoc Query

Saving an Agency-specific Ad Hoc Query

To save an Agency-specific ad hoc query, BW/BI Power Users are required to prefix the ad hoc query Technical Name with “X” (indicates an Agency-specific query), followed by the user’s agency number with an underscore (_). Any alpha numeric characters can be entered after the required prefix.

The example below shows a sample Agency-specific query for a user who belongs to Agency 1790:



BW/BI Power Users will not be able to save ad hoc queries if the Technical Name prefix requirements have not been followed.

Saving an Ad Hoc Query

The example below uses a sample query, “My Personal Query”, to show how to save a Personal ad hoc query developed in the Headcount InfoProvider for a BW/BI Power User in Agency 1790.

To save a Personal ad hoc query once a query has been created:

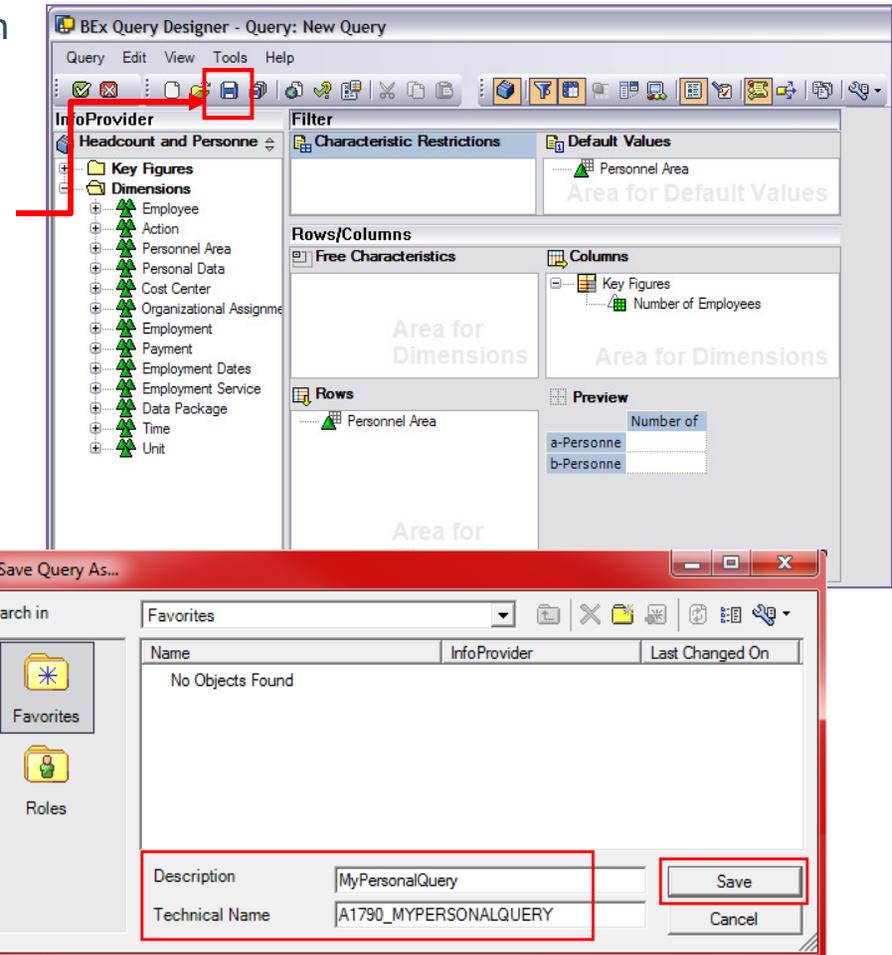
1. Click the Save Query icon  from the BEx Query Designer toolbar of the ad hoc query to save.

Result: The Save Query screen will be displayed.

2. Enter the query Description in the Description text box:
“My Personal Query”
3. Enter the query technical name in the Technical Name text box (using **YOUR** Personnel Area number):
“A1790_MYPersonalQuery”
4. Click Save.

Result: The ad hoc query is saved.

 (A Personal query can be displayed/run/edited/deleted by the BW/BI Power User who created the ad hoc query only. To save the query as agency specific, use an X instead of an A)





SAP Business Warehouse/Business Intelligence Reporting

Exercise 1 - Creating a Basic Ad Hoc Query

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Attributes

An **Attribute** is a field that describes a Characteristic. For example, Master Cost Center and WMS Review Date are attributes of the Employee Characteristic. All Attributes are “point in time” reporting only.

There are two types of Attributes in the InfoObject List:

1. Navigation Attributes - Function in the same manner as Characteristics. Fields are “navigational” (can be drilled down on, sorted or filtered in the query results).
2. Display-Only Attributes - Must accompany the Characteristic it is an attribute of. Fields are not navigational and are for display purposes only.

Indicates a Characteristic or Navigation Attribute

Indicates a Display-Only Attribute

Click Technical Names icon to toggle Technical Names of InfoObjects On/Off

Employee Characteristic

Navigation Attribute of Employee

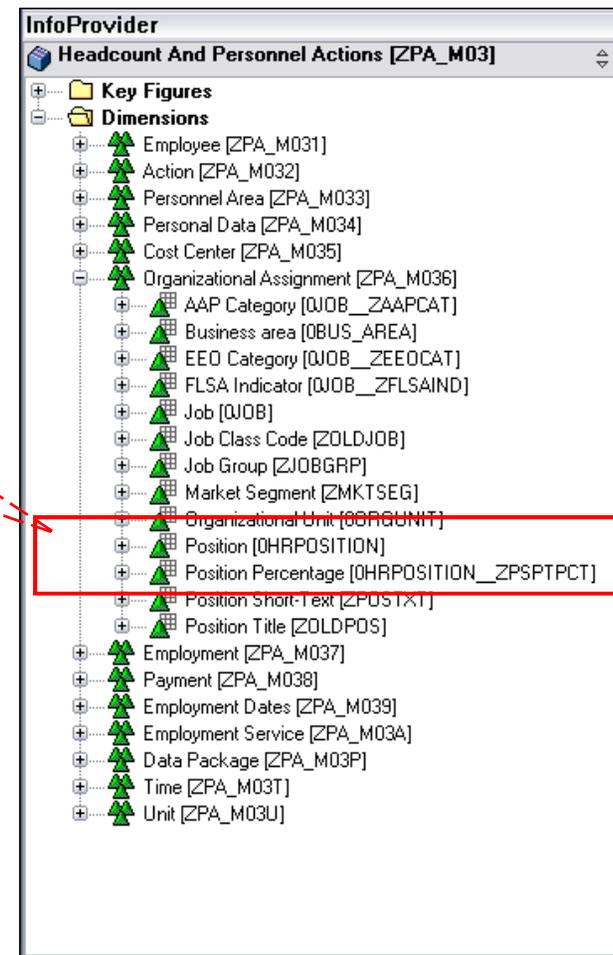
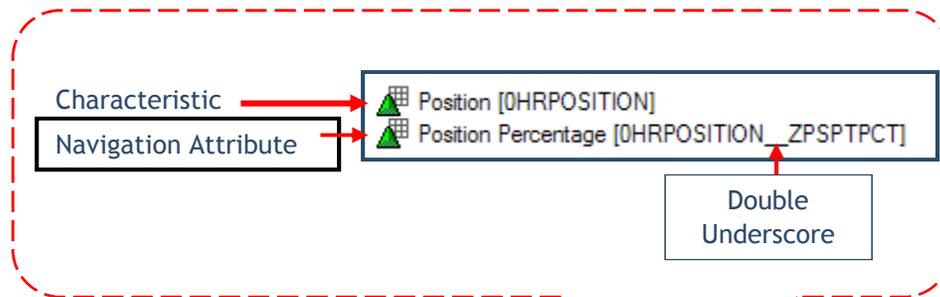
Person Characteristic

Display-Only Attributes of Person (must include the Person Characteristic)

Attributes

To distinguish between a Characteristic and a Navigation Attribute, refer to the technical name:

- Characteristics have a single Technical Name.
- Navigation Attributes contain the Characteristic's Technical Name followed by a double underscore (__) and the Attribute's Technical Name.



Filters

Filters are restrictions added to an ad hoc query that limit the results of the query to a value or multiple values of a selected Characteristic when the query is run.

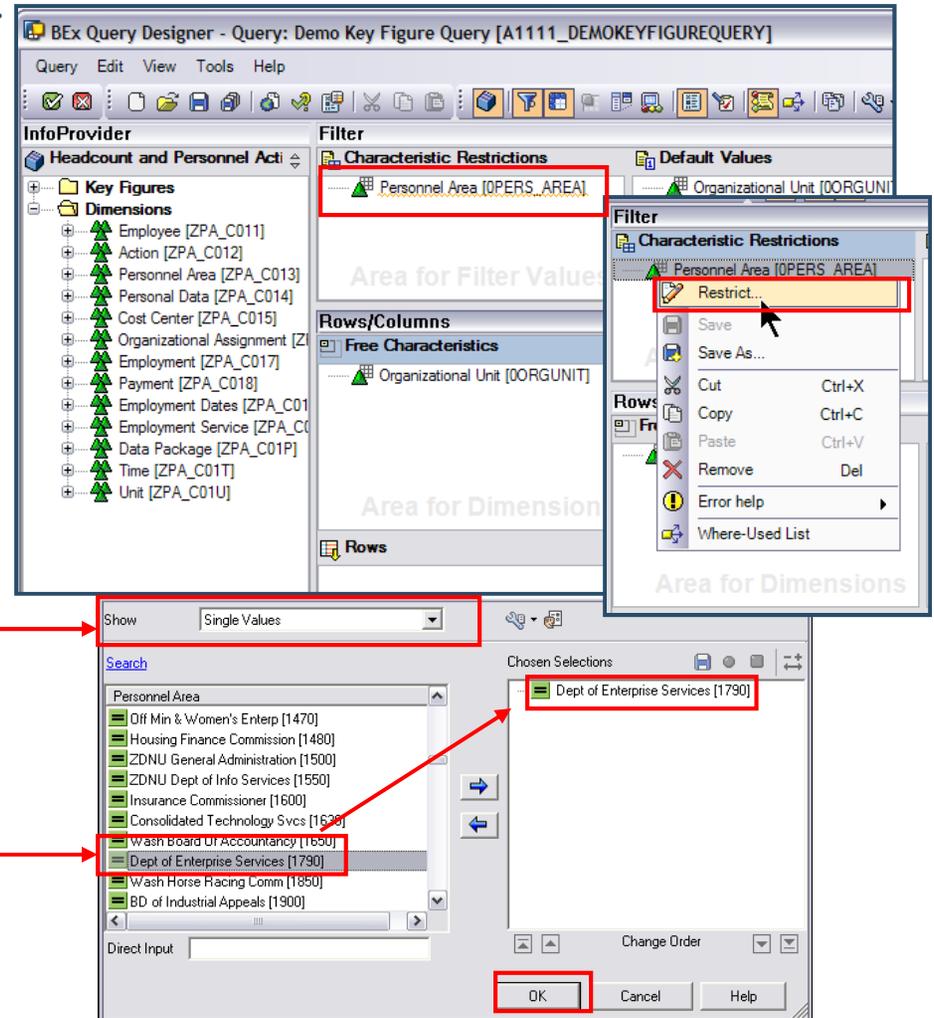
The example below uses the Headcount and Personnel Actions InfoCube to show how to add a filter to display results for the Department of Personnel only.

To apply a filter to the ad hoc query:

1. Drag&Drop the Personnel Area Characteristic to the Filter section of the query.
2. Right mouse-click the Personnel Area filter and select Restrict from the context menu.

Result: The “Select Values for Personnel Area” screen is displayed.

3. Click the drop down arrow, select Single Values and scroll through the list under the Description column.
4. Drag&Drop the “Your Personnel Area” value from the Description column to the Selection column.
5. Click OK.



Filters

Result: A Filter to in the ad hoc query results has been added.

The screenshot displays the SAP BW/BI Query Designer interface. On the left, the 'InfoProvider' pane shows a tree structure for 'Headcount And Personnel Actions [ZPA]'. Under 'Key Figures', there is a 'Filter Indicator' box with a red arrow pointing to the 'Filter' section. The 'Filter' section is highlighted with a red border and contains 'Characteristic Restrictions' with a tree structure: 'Personnel Area [OPERS_AREA]' and 'Dept of Enterprise Services [1790]'. Below this is the 'Default Values' section with 'Organizational Unit [OORGUNIT]'. The 'Rows/Columns' section is divided into 'Free Characteristics' (containing 'Organizational Unit [OORGUNIT]') and 'Columns' (containing 'Key Figures' with sub-items 'Total All Employees [OHCNT_LAST]', 'Annual Salary [QANSALARY]', and 'Avg Salary'). The 'Preview' section shows 'Avg Salary'. The interface is divided into several areas labeled 'Area for Filter Values', 'Area for Default Values', 'Area for Dimensions', and 'Area for Dimensions'.



Restrictions placed in the Filters section are hidden from the user running the ad hoc query. Restrictions can also be placed on Characteristics in the Free Characteristics, Rows or Columns section.