SAP BusinessObjects

Supplement for PeopleSoft

- SAP BusinessObjects Data Services 4.1 Support Package 1 (14.1.1.0)

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Contents

Introduction

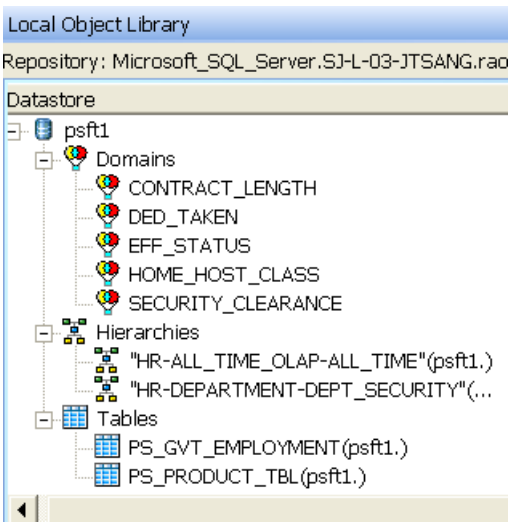
Welcome to the *SAP BusinessObjects Data Services Supplement for PeopleSoft*. This guide contains information about how to use Data Services with PeopleSoft.

1.1 Using Data Services in a PeopleSoft environment

If you install the PeopleSoft interface, you can use PeopleSoft HRMS and ERP application data as a data source in SAP BusinessObjects Data Services.

Through the PeopleSoft datastore you define, you can navigate through PeopleSoft metadata external to SAP BusinessObjects Data Services (using standard PeopleSoft panels and menus) and import metadata for PeopleSoft source tables into the repository.

The following diagram shows PeopleSoft tables, hierarchies, and domains that have been imported into the software.



In addition, capabilities in the software that support PeopleSoft include the following:

- You can view valid domain values for a column from within the query transform.

  This allows you to filter on specific domain values for a column.

- The software can determine whether a given value for a column is valid within the domain of the column.

  The software flags those that are not valid.
- The software allows extraction of data based on effective dates without requiring you to write a secondary query. This functionality is particularly useful in implementing data warehouses containing HR data—it significantly reduces the complexity and increases the performance of extracting effective-dated data.
- The software allows extraction of the hierarchical data in PeopleSoft trees.

PeopleSoft Datastores

With the PeopleSoft interface, you can use a PeopleSoft system as an SAP BusinessObjects Data Services source. To use a PeopleSoft data source, you must:

- Define a datastore that will serve as the logical link to your PeopleSoft system
- Import your PeopleSoft metadata into the datastore

Related Topics

- Designer Guide: Datastores

2.1 Defining PeopleSoft datastore

You must define a PeopleSoft datastore in SAP BusinessObjects Data Services when you are extracting data from or loading data to PeopleSoft.

1. Go to the **Datastores** tab of the object library.
2. Right-click inside the object library window and choose **New**.

   The "Create New Datastore" window appears.
3. Enter a name for the new datastore in the **Datastore name** box.

   You can give the datastore any name you want, and you can change the name later if necessary. The name can contain any alpha or numeric characters or underscores (_). It cannot contain spaces.
4. In the **Datastore type** box, choose **PeopleSoft**.
5. In the **Database type** box, choose the appropriate database.
6. Enter the appropriate information for the database type you selected.
7. Click **OK**.

   The software creates the datastore and it appears in the object library window.

Related Topics

- Reference Guide: Datastore

2.2 Browsing PeopleSoft metadata

After you create the datastore, you can access the PeopleSoft metadata via the SAP BusinessObjects Data Services datastore explorer, which displays information in a tree format.

The information displayed consists of metadata related directly to database data—no information about calculation fields, images, buttons, or other GUI-related items is included.

Browsing PeopleSoft data in the software is a lot like browsing in PeopleTools—icons in the display represent PeopleSoft menu groups, menus, menu bars, menu items, panels, and panel fields. Each panel field displays the caption, table column, and table name.

Icon	Metadata type	Description
	Menu Group	The entire set of commands available in PeopleSoft applications for a specific database.
	Menu	A set of commands for a specific application.
	Menu Bar	The top level of the menu.
	Menu Item	The commands that make up each menu bar.
	Panel	A vehicle for capturing and displaying data. Each panel can have multiple sub-panels, each represented by the same icon.
	Panel Fields	Represents a column on a table or in a specific view.

2.2.1 To browse PeopleSoft metadata

1. In the object library, go to the **Datastores** tab.
2. Right-click the PeopleSoft datastore name and select **Open**.

   The datastore explorer window opens.

2.3 Importing PeopleSoft metadata

To access PeopleSoft metadata from SAP BusinessObjects Data Services, you must import the metadata into the object library.

You can import tables, PeopleSoft trees (called “hierarchies” in SAP BusinessObjects Data Services), and domains.

You can import PeopleSoft metadata in one of three ways:

- By name
- By browsing
- By searching

2.3.1 To import PeopleSoft metadata by name

1. In the object library, go to the **Datastore** tab.
2. Right-click the datastore name and select **Import By Name**.
3. In the Import by Name dialog box, specify the **Type** of the item to import.

   To import a PeopleSoft tree, select Hierarchy.
4. In the **Name** box, enter the name of the item to import.

   The default is to import domain information automatically with any tables you import. You can choose not to import the associated domains by deselecting the **Import associated domains** option.
5. To import a hierarchy, enter the tree name in the **Name** box and enter the Category and Structure associated with the hierarchy.
6. Click **OK**.

   The information appears in the object library.

2.3.2 To import PeopleSoft metadata by searching

You can search for PeopleSoft items as you would any items to be imported into the software. That is, right-click the datastore name in the object library and choose **Search**.

Related Topics

- Designer Guide: Importing metadata through a database datastore

2.3.3 To import PeopleSoft metadata by browsing

1. In the object library, go to the **Datastores** tab.
2. Right-click the datastore name and choose **Open**.

   The datastore explorer opens in the workspace and lists the available tables, domains, and hierarchies.
3. Right-click the names of the items you want to import and choose **Import**.

   To import a table, select a name at the panel field level.

   To import a hierarchy, select a name at the tree level.

Related Topics

- Browsing PeopleSoft metadata

2.4 Metadata for PeopleSoft domains

This section discusses metadata for PeopleSoft domains.

Related Topics

- What is a domain?
- Using PeopleSoft domains in SAP BusinessObjects Data Services

2.4.1 What is a domain?

A domain is a lookup table that pairs a coded value with a textual description of the value. Domain values are typically used to specify column data where the possible range of values is constrained within a particular set.

Using a domain value instead of the text description can save space when the number of records is large. However, when working with the table to create queries, you might prefer to see a text description as opposed to looking for the appropriate code for the source data.

2.4.2 Using PeopleSoft domains in SAP BusinessObjects Data Services

Domain values in PeopleSoft are available to end users only through PeopleSoft panels.

SAP BusinessObjects Data Services has built-in capabilities that make it much easier to deal with domain values in data movement applications.

You browse, search, and import domain metadata in the same way you browse, search, and import any PeopleSoft metadata.

PeopleSoft tables have columns that should be constrained to contain only values from a particular set (that is, a set within a domain). This set of possible domain values is in another table in the PeopleSoft database called XLATTABLE.

When importing table metadata from a PeopleSoft database, the software can automatically import associated domain data to make it easier to work with the values that appear in rows from the imported table. By default, the software imports associated domain data, but you can prevent this by deselecting the **Import associated domains** check box on the Import By Name window.

When importing domain values, the repository only stores the currently effective value. The currently effective value is determined using the date when the import takes place.

Imported domains appear nested under the datastore in the object library.

Related Topics

- Browsing PeopleSoft metadata
- Importing PeopleSoft metadata
- Using PeopleSoft domains in data flows

2.5 Metadata for PeopleSoft trees

You can perform the same kind of business model navigation and data browsing on PeopleSoft trees (called hierarchies in Data Services) that you can on other objects.

You browse, search, and import hierarchy metadata similarly to the way you browse, search, and import any PeopleSoft metadata.

Imported hierarchies appear nested under the datastore in the object library.

Related Topics

- Browsing PeopleSoft metadata
- Importing PeopleSoft metadata
- Extracting PeopleSoft tree data

Data Flows with PeopleSoft Data

Data flows extract, transform, and load data. This section describes information unique to data flows that extract, transform, and load PeopleSoft data.

Related Topics

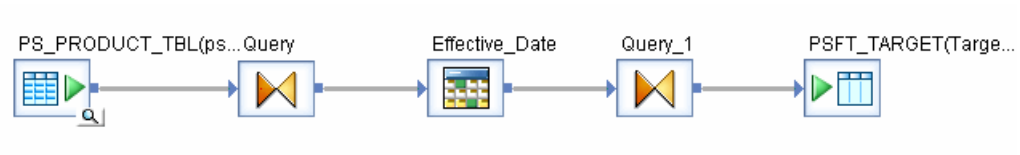
- Designer Guide: Data Flows

3.1 Using effective dates from PeopleSoft data

This section provides an example that shows how you can use effective dates when populating a dimension table in the product group. This example includes several operations:

- Extracts data from table `PS_PRODUCT_TBL`
- Selects a subset of columns for the target
- Filters the data based on status
- Creates effective date ranges using the Effective Date transform
- Retrieves only the rows effective on a particular date
- Loads the data into the target

One data flow completes these operations.



3.1.1 Selecting a subset of source columns

The first query selects a subset of the columns:

```
PS_PRODUCT_TBL.EFF_STATUS = 'A'
```

3.1.2 Filtering based on status

The first query includes a WHERE clause that limits the products selected to those with a status of Active. The status information comes from the domain values in the EFF_STATUS column in the input.

Related Topics

- Using PeopleSoft domains in data flows

3.1.2.1 To display the relevant domain values for the EFF_STATUS column

1. Click **Domains** in the WHERE tab of the query editor. The Picker window opens and shows a list of domains and descriptions.
2. Select the EFF_STATUS domain and click the **Show Values** button (second button at the top of the Picker window) to see the available domain values. The domain values appear to the right of the descriptions.
3. To put the domain value in the WHERE clause,
   a. Drag the EFF_STATUS column from the source schema into the WHERE clause.
   b. Enter an equal sign (=) after the column name.
   c. Place the cursor where the value needs to appear in the **WHERE** tab and click the description name **Active** in the Picker window.

3.1.3 Creating effective date ranges

This example retrieves only those product groups that are valid today. There are three steps involved:

1. Retrieve the effective-from date (EFFDT column) from the source.
2. Generate effective-to dates for the source rows using the Effective Date transform.
3. Filter out rows that are not effective on today's date.

Related Topics

- Reference Guide: Transforms

3.1.4 Retrieving records with current effective dates

The second query in the data flow contains a `WHERE` clause that selects:

- Those rows where the effective-from date from the source (`EFFDT`) is less than or equal to the system date

  AND

- Those rows where the effective-to date from the results of the Effective Date transform is greater than the system date

The query editor contains the `WHERE` clause.

```
Effective_Date.EFFDT <= sysdate( ) and
Effective_Date.EFFECTIVE_TO_COLUMN > sysdate ( )
```

3.1.5 Using PeopleSoft domains in data flows

SAP BusinessObjects Data Services helps you:

- Build queries containing domain values
- Substitute domain descriptions for cryptic domain values
- Build queries where you need to know some domain values, for example while filtering
- Validate imported data that contains domain values

The properties for a given column enable you to explicitly associate a given column with a given domain.

You can assign any available domain to any column regardless of data type.

Related Topics

- Metadata for PeopleSoft domains

3.1.5.1 To assign a domain to a column

1. Right-click a table name in the object library and select **Open**.
2. To open the column properties, right-click a column name in the table metadata and select **Properties**.

3. The drop-down list in the **Associated domain** text box displays the available domains.

Any available domain can be assigned to any column regardless of data type.

3.1.6 Using the Picker window

To open the domain Picker window, click the **Domains** button in a query editor that has a table as a source.

The four buttons at the top of the Picker window control the content of the window and initiate actions.

	Click to toggle between displaying "all" and "relevant" domains. All domains (default) are listed in alphabetical order; relevant domains are shown in the order in which they are used in the table or tables you have selected.
	Click to display the domain values in the window. Click again to hide the domain values.
	Click to toggle between pasting only the domain value (default) and both the value and a commented description in the `WHERE` clause when you select the value.
	Pastes all selected values in the `WHERE` clause. Descriptions are not included. To enable this button, use Ctrl-clicks to select more than one domain description.

3.1.6.1 To include a column and a related domain value in a WHERE clause

1. Drag the column from the source schema into the `WHERE` clause.
2. Enter an equal sign (=) after the column name.
3. Enter a value or paste the value from the Picker window.

   Click Domains to open the Picker window.

3.1.7 Validating domains

Capabilities built into SAP BusinessObjects Data Services allow you to validate data that contains domain values:

- value IN domain clause (part of a `WHERE` clause)

  This clause enables you to ensure that all rows in a table have a valid value for a domain column.

  Syntax:

  value IN datastore_name.owner.domain_name

  This clause returns TRUE if the value is a member of the domain specified.

  If the clause is part of a job being executed, the software searches the domain values in the XLATTABLE.

- `get_domain_description` function

  This function returns the description for a domain name. The description is returned as a quoted string.

  Syntax:

```
get_domain_description
('datastore_name..domain_name',
 table_name.domain_name)
```

3.1.8 Restrictions using domains

Some restrictions involving domains include:

Prompt tables are not supported. (A prompt table is a user-defined table similar to the XLATTABLE in a database.)

Prior to validation at execution time, there is no type checking when a domain is associated with a column.

3.2 Extracting PeopleSoft tree data

In this example, SAP BusinessObjects Data Services extracts data from a hierarchy (tree) and loads it into an Oracle table.

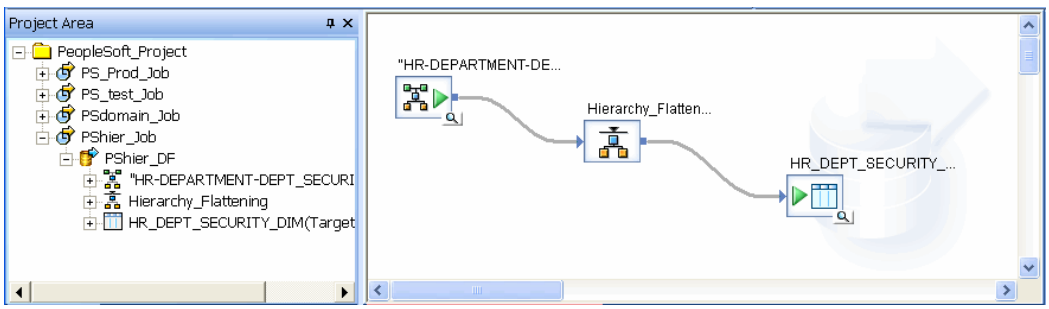
You can browse hierarchy information when you open a datastore. Opening hierarchy groups in the workspace shows the tree levels.

1. Category
2. Structure
3. Tree
4. Set

To import the tree into SAP BusinessObjects Data Services, select the tree, right-click, and choose **Import**.

After you import the tree, it appears as a hierarchy in the object library.

The job consists of a single data flow that extracts the data and loads it into the Oracle table.



Double-clicking the hierarchy object opens the editor to show the options available for the object.

On the hierarchy editor, you must specify:

- All set IDs, a specific set ID, or multiple set IDs

  Select the All set IDs check box to obtain all the set IDs associated with this hierarchy. Each set ID identifies a subset of a tree that groups data that have similar values or rules. In this example, the tree contains a set of data for Austria (AUS01), a set for Belgium (BEL01), a set for Canada (BNCAN), and so forth.

  Clear the All set IDs check box to open the Set ID box where you can:

  - Enter the name of the specific set ID for which you want to extract data.
  - Enter multiple set IDs, separated by commas. For example,

    ```
    AUS01, BEL01, BNCAN
    ```

- Date options
  - Current date

    Select Current date to extract data that is effective as of the date returned by the sysdate function.
  - All dates

    Select All dates to extract data with all effective dates for the set IDs that you specified.
  - Snapshot date

    Select Snapshot date to extract data that was effective on a specific date. Specify a date in the past or future in one of the following ways:
    - Date

      Select Date in the drop-down list to specify the date as a four-digit year, a period, a two digit month, a period, and a two-digit day (YYYY.MM.DD). You can select each part of the date and use the arrows to increment or decrement each value.
    - Variable

      Select Variable in the drop-down list to specify a varchar variable name that contains a valid date in the yyyy.mm.dd format.

      You can select one of the variable names in the drop-down list. Alternatively, you can type in the name of a new variable, but you must define it in the Variables and Parameters window (**Tools > Variables**).

      If you do not enter a variable name, the Snapshot date defaults to the current date.

  Note:
  You can use a local or global variable for the date. Because the variable can be a global variable, validating the data flow or work flow does not check for invalid data types for this variable. Be sure to validate the Job to check for invalid data types for this date variable.

Before you load the tree data into the table, you can flatten it with the Hierarchy_Flattening transform. On the transform editor, you:

- Choose to flatten the tree horizontally or vertically.
- Must specify the **Parent column** and **Child column** to identify the columns in the source data that contain the parent identifier and child identifier in each parent-child relationship.
- Must select **View > Refresh** or press F5 to refresh the target schema after you identify the source columns.

Related Topics

- PeopleSoft Datastores
- Hierarchy

Reference Information

This section contains reference information specific to the PeopleSoft interface for SAP BusinessObjects Data Services.

Specifically, this section describes SAP BusinessObjects Data Services objects specific to PeopleSoft and SAP BusinessObjects Data Services objects with supplemental information for the PeopleSoft interface.

This section contains information about the following objects:

Object	Class	Description
Datastore	Single-use	Specifies the connection information Data Services needs to access a database or other data source. Cannot be dropped.
Domain	Reusable	A lookup table that pairs a coded value with a textual description of the value. Domain values are typically used to specify column data where the possible range of values is constrained within a particular set.
Hierarchy	Reusable	Browse, search, and import hierarchy metadata.
Query	Single-use	Retrieves a data set that satisfies conditions that you specify.

4.1 Datastore

Class

Reusable

Access

In the object library, click the **Datastores** tab.

Description

A datastore provides a connection to a data source such as a database. Through the datastore connection, SAP BusinessObjects Data Services is able to import descriptions of the data source such as its metadata. When you specify tables as sources or targets in a data flow, the software uses the datastore to determine how to read data from or load data to those tables. In addition, some transforms and functions require a datastore name to qualify the tables they access.

If you delete a datastore from the object library, you must remove references to the datastore from the following locations:

- Source or target tables using this datastore in your diagrams
- The `lookup` and `key_generation` functions and Key_Generation, History_Preserving, Table_Comparison, and SQL transform references

Datastores have the following properties:

Attribute	Description
Name	The name of the object. This name appears on the object in the object library and in the calls to the object.
Description	Text that you enter to describe and document the datastore.

After you create a datastore, you can import metadata about the objects, such as tables and functions, in that datastore.

PeopleSoft datastores

Set the following options to define a PeopleSoft datastore:

Option	Description
Name	Specify the datastore name. The software uses this name to reference the datastore from other object definitions.
Datastore type	Choose PeopleSoft to display the options for PeopleSoft datastores. You cannot edit this option after creating the datastore.
Database type	Select either **Microsoft_SQL_Server** or **Oracle** to indicate the database type used as the database layer of your PeopleSoft application server. The remaining options in the datastore definition are specific to the database type.

Related Topics

- Designer Guide: Datastores
- Reference Guide: Database datastores

4.2 Domain

Class

Reusable

Access

- To view the list of imported domains and domain values from the object library, click the **Datastores** tab.
- Use domain values from inside query transforms with inputs from tables associated with domains. Click **Domains** on the **Where** tab to open a window that helps you pick domain values.

Description

A domain is a lookup table that pairs a coded value with a text description of the value. You will typically use domain values to specify column data where the possible range of values is constrained to a particular set.

Domains have two built-in attributes.

Attribute	Description
Name	The name of the object. This name appears on the object in the object library and in the calls to the object.
Description	The description of the domain imported from the application or database.

View domain values, descriptions of the values, and the effective dates for each value by opening the domain from the object library.

4.3 Hierarchy

Class

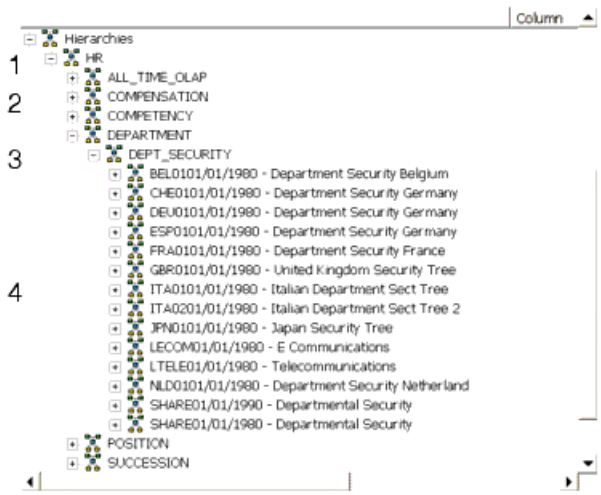
Reusable

Access

In the object library, click the **Datastores** tab and expand a datastore listing (click the plus sign next to the datastore name).

Description

A hierarchy is a PeopleSoft tree. The SAP BusinessObjects Data Services datastore explorer lists the hierarchy types for a PeopleSoft datastore.



A hierarchy contains the following levels:

1. Category: A category represents a major business organization. The above datastore explorer displays two categories: `DEFAULT` and `HR`.
2. Tree structure: A tree structure represents a department or group within a category. The above datastore explorer displays three tree structures: `COMPENSATION`, `COMPETENCY`, and `DEPARTMENT`.
3. Tree: A tree represents a specific type of data within a tree structure. The above datastore explorer shows one tree, `DEPT_SECURITY`. You import hierarchical data at the tree level.
4. Set: A set is a subset of the tree that contains data that have similar values or rules. Each set is identified by a set ID. The above datastore explorer shows set IDs `APR`, `BEL`, `CAN`, and so forth, and each set contains data specific to an organization.

To extract hierarchical information, select a hierarchy type or tree, import its metadata into your repository, then drag the hierarchy icon from the object library into a data flow.

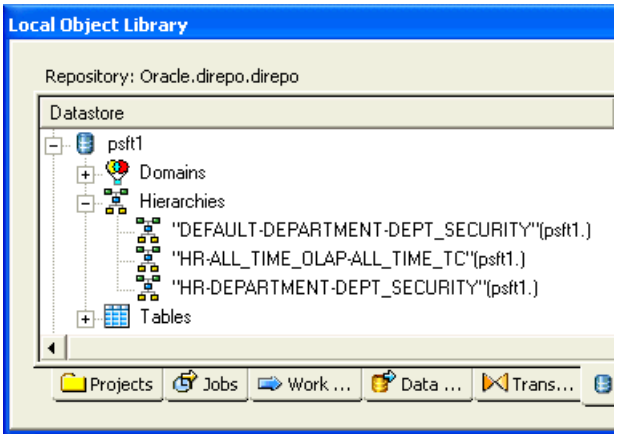
From the datastore explorer, you can choose the hierarchy to import.

You can also import a tree by specifying the tree by name. Select the datastore in the object library, right-click, and choose **Import By Name**.

Choose **Hierarchy** from the **Type** drop-down menu.

Imported tree

After you import the tree, it appears as a hierarchy object in the object library nested under the datastore name. The following sample object library shows the datastore **psft1** and three trees under **Hierarchies**.



The hierarchy object has the following properties:

Property	Description
Name	The name of the hierarchy object. The name is constructed as follows: `category-structure-tree(datastore)` The name (except the datastore name) is case sensitive.
Description	The description of the tree as included in the PeopleSoft table.

The hierarchy object has the following attributes, the values of which are included in the metadata imported for the hierarchy.

Attribute	Description
Category	Tree_Node_Description
Structure	Tree_Node_Record_Primary_Key1 -Tree_Node_Record_Primary_Key9
Set_ID	
Snapshot_Date	
Tree_Name	Tree_Leaf_Field_Name
Tree_with_Leaf?	Tree_Leaf_Description

Attribute	Description
Tree_Node_Record_Name	Tree_Leaf_Record_Primary_Key1 - Tree_Leaf_Record_Primary_Key9
Tree_Node_Field_Name	

Selecting the hierarchy in the object library and choosing **Open** displays the object properties and the source schema that results from the hierarchy extraction.

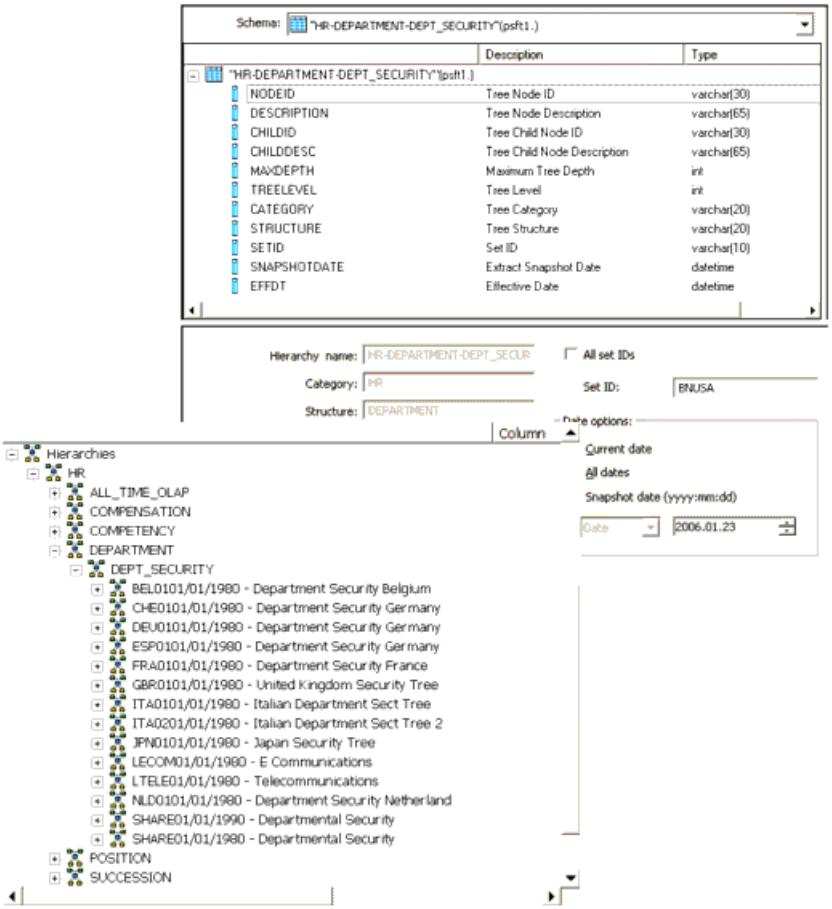
Source column name	Description
NodeID	The parent value in the relationship described by this row.
Description	The parent description.
ChildID	The child value in the relationship described by this row.
ChildDesc	The child description.
MaxDepth	The maximum number of nodes between the root node and the lowest node in the hierarchy.
TreeLevel	The level in the hierarchy that this row describes.
Category	The category in which this hierarchy is included.
Structure	The tree structure in which this hierarchy is included.
SETID	The identification of the subset of the tree. Each set groups together data that have similar values or rules.
SnapshotDate	The date when the hierarchy data was extracted.
EFFDT	The date when the data in a set became or will become effective.

Hierarchy instance

You can drag a hierarchy from the object library into a data flow definition.

The hierarchy editor displays the datastore information for the hierarchy and provides options for the instance of the hierarchy object:

Option	Description
All set IDs or **Set ID**	**Set ID** selects one or more trees out of the structure imported into SAP BusinessObjects Data Services. Use commas to separate multiple set IDs. The set ID identifies a subset of the tree that groups together data that have similar values or rules. It appears as part of the name of the level below the level of hierarchy structure imported into the software. **All set IDs** selects all versions of a tree.
Current date or **All dates** or **Snapshot date**	**Current date** selects only the data that has an effective date that is equal to the date returned by the `sysdate` function. **All dates** selects data with all effective dates. **Snapshot date** filters the extracted values by the effective date you specify in one of the following ways: • **Date** allows you to specify the date as a four-digit year, a period, a two digit month, a period, and a two-digit day (YYYY.MM.DD). You can select each part of the date and use the arrows to increment or decrement the digits. • **Variable** allows you to specify a varchar variable name that contains a valid date in the yyyy.mm.dd format You can select one of the variable names in the drop-down list. Alternatively, can type in the name of a new variable, but you must define it in the Variables and Parameters window (**Tools > Variables**). If you do not enter a variable name, the Snapshot date defaults to the current date. **Note:** You can use a local or global variable for the date. Because the variable can be a global variable, validating the data flow or work flow does not check for invalid data types for this variable. Be sure to validate the Job to check for invalid data types for this date variable.



In the above hierarchy editor, the **Set ID** option specifies the set, `BNUSA`, from which to extract data.

When you open the PeopleSoft datastore, you can see the Set ID values in the Datastore Explorer. The above Datastore Explorer shows:

- The tree `DEPT_SECURITY`, which is the level of the hierarchy that you import the metadata from a PeopleSoft source.
- The Set IDs `AUS01`, `BEL01`, `BNCAN`, `BNUSA`, and `CAN01` which appear as part of the names in the level below the tree imported into the software. Each Set ID represents a different version of the tree.
- Multiple effective dates (`01/01/1996`, `01/01/1994`, `01/01/1990`, and `01/01/1996`) which follow each Set ID in the names in this level.

Related Topics

- Importing PeopleSoft metadata
- Extracting PeopleSoft tree data
- Importing PeopleSoft metadata

4.4 Query

Class

Single-use

Access

With a data flow diagram in the workspace, click the query icon in the tool palette, then click in the workspace.

Description

A Query transform, like a SQL SELECT statement, retrieves a data set that satisfies the conditions you specify. With a Query transform, you can:

- Map columns from input to output schema
- Add new columns, nested schemas, and functions to the output schema
- Choose the data to extract
- Perform operations on the data
- Join data from multiple sources

Editor

From tab: Use the **From** tab to specify joins and set join conditions.

Where tab: Use the **Where** tab to restrict the result set.

With the PeopleSoft interface, you can use the **Domains** button. Domains constrain retrieved data sets. Click the **Domains** button to open the Picker window, which helps you build an expression using a domain.

Related Topics

- Metadata for PeopleSoft domains

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