Microsoft Dynamics® AX 2009

Extending Microsoft Dynamics AX 2009 Default Cubes for Analytics across Virtual Company Accounts

White Paper

This document describes the steps to take to configure default cubes to allow aggregation across entities when using Virtual Companies.

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Microsoft Dynamics

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Introduction

In Microsoft Dynamics AX® 2009, you can establish Virtual Companies to share information across different companies set up within one AX installation. This white paper references Contoso demo data. Contoso Entertainment Corporation (CEC) – Europe and Contoso Entertainment Corporation (CEC) – USA both buy products from the same vendor, ABC Corporation. By using the Global Address Book feature, they are able to define the profile for ABC Corporation in one place and share the vendor profile. Both CEC Europe and CEC USA share a virtual company called Contoso Virtual Company (CVC).

However, default cubes do not have a relationship established with the Global Address Book to facilitate aggregation across entities that are common across companies within a Virtual Company. This prevents common analytical scenarios like:

- Sales by country across companies
- Inventory by item group across companies
- Payments to vendors across companies
- Top customers across companies
- Employee utilization across companies

Row Labels	Total Customer Sales
Contoso Entertainment Europe	33020753.22
Contoso Entertainment USA	24106990.2
Grand Total	**57127743.42**

Default cubes do not display data under the real company.

In addition to adding a relationship to the Global Address Book, the default cubes must be configured to replace tables that have been shared by using an AX view. The AX views handle the virtual data and allow the cubes to pull shared data correctly.

Resolution

To display data under the real company using default cubes, the following step must be performed:

- Add a relationship to the Global Address Book

To configure the default cubes to replace tables that have been shared by using an AX view, the following steps must be performed:

- Create a view for each shared table
- Replace the tables in the DSV with the AX View
- Process the affected cubes

Example: Establish a relationship with the Global Address Book

The first example that follows demonstrates how to establish the relationship with the Global Address Book in the Accounts Receivable cube. For this example, the following steps must be performed:

- Create a dimension called Party
- Edit the CustTrans table in the Data Source View (DSV)
- Add the Party dimension to the Accounts Receivable cube
- Deploy and Process the cube

This approach can be taken for other data as well.

Prerequisites

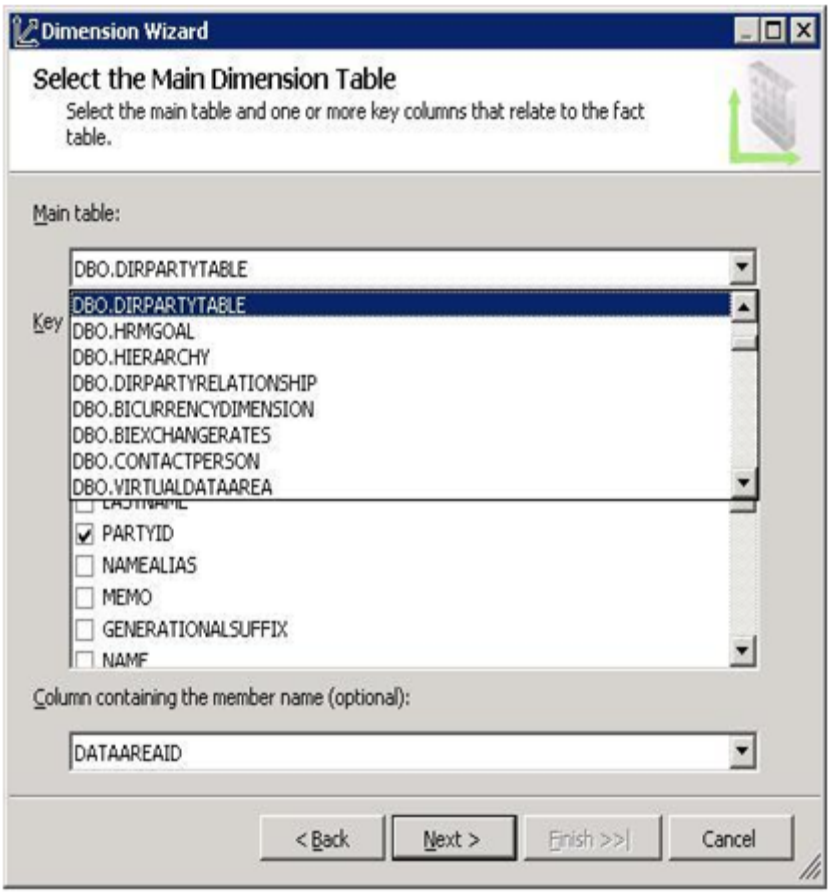
To complete the tasks in this example, you must be familiar with Microsoft Dynamics AX 2009 default cubes and Microsoft SQL Server Business Intelligence Development Studio (BIDS).

Create the Party dimension

To create a new dimension called Party, do as follows:

1. Open the project that contains the Accounts Receivable cube in BIDS.
2. In Solution Explorer, right-click **Dimensions** and then click **New Dimension**. Dimension Wizard displays.
3. Click **Next** until the **Select the Main Dimension Table** form displays. Set the following values:

Property	Value
Main table	DBO.DIRPARTYTABLE
Key columns	PARTYID, DATAAREAID
Column containing the member name (optional)	DATAAREAID



4. Click **Next** until the **Select Dimension Attributes** form displays. Select all attributes except MEMO.

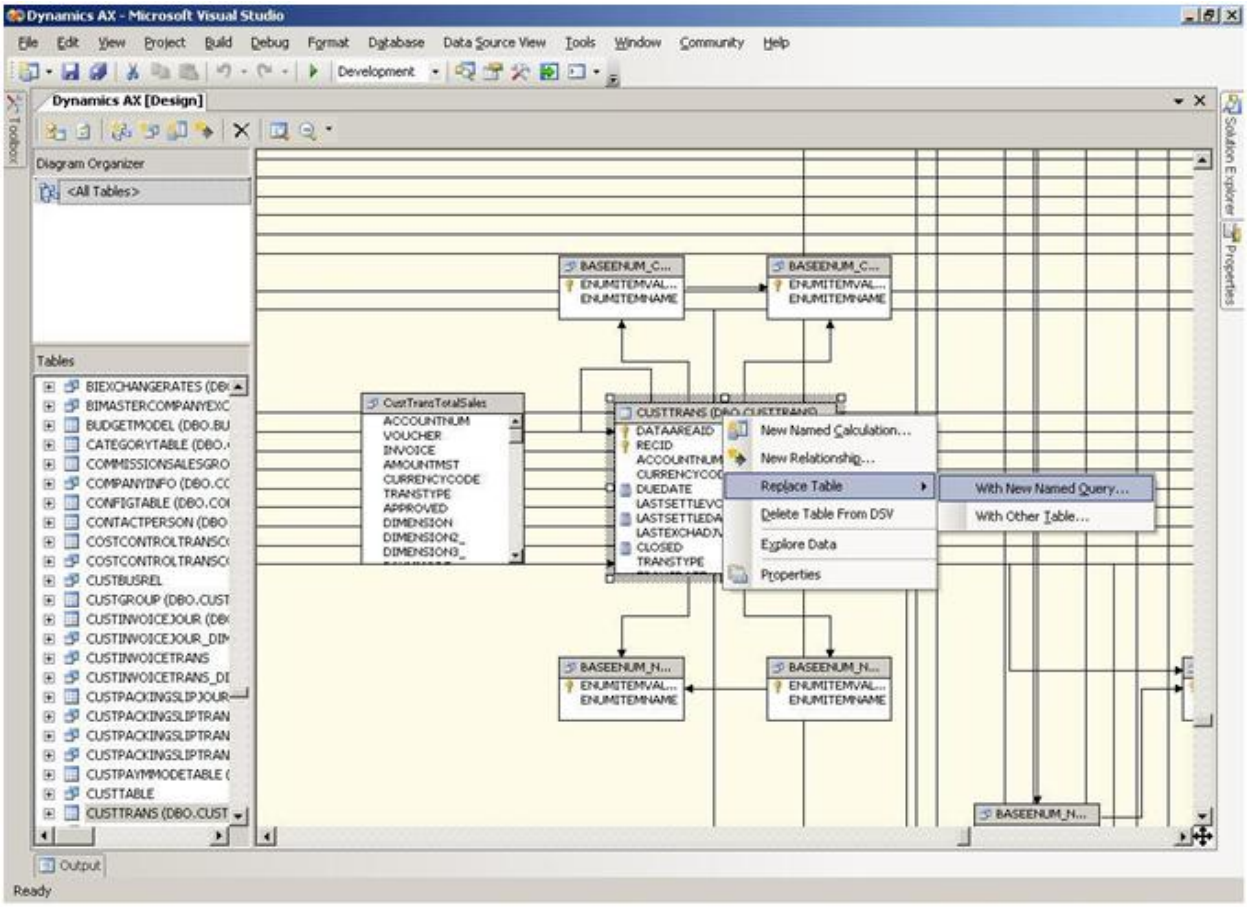
   Note: The MEMO field is type ntext in SQL. To include the MEMO dimension attribute, you must cast the MEMO field as type VARCHAR in the DirPartyTable in Data Source View. Otherwise, an error will occur when you process the cube. Similar errors in other cubes can be resolved in the same way, or by removing the dimension attribute.

5. Click **Next** until the **Completing the Wizard** form displays. Type **Party** for the name. Click **Finish**.

Edit the CustTrans table in the Data Source View

To edit the CustTrans table, do as follows:

1. In Solution Explorer, open the Data Source View. Under **Tables**, right-click **CUSTTRANS**, point to **Replace Table**, and then click **With New Named Query**.



2. Type the following query:

```
SELECT T.*, C.PARTYID, (SELECT V.VIRTUALDATAAREA FROM VIRTUALDATAAREALIST V WHERE V.ID =
T.DATAAREAID) as VIRTUALDATAAREA
FROM CUSTTRANS T, CUSTTABLE C
WHERE T.DATAAREAID = C.DATAAREAID AND T.ACCOUNTNUM = C.ACCOUNTNUM;
```

3. Click the **Run** button. VIRTUALDATAAREA and PARTYID are added as columns in the CustTrans table.
4. Click **OK** and save changes.

Add the Party dimension to the Accounts Receivable cube

To add the Party dimension to the Accounts Receivable cube, do as follows:

1. Double-click **Accounts Receivable Cube**.
2. On the **Dimension Usage** tab of the cube, click **Add Cube Dimension**.
3. Select **Party** and then click **OK**.
4. Click the table cell that corresponds to the **Party** dimension and the **Customer transactions** Measure Group. Click the button that appears in the cell.
5. Set the following values:

Property	Value
Select relationship type	Regular
Granularity attribute	DIRPARTYTABLE
PARTYID	PARTYID
DATAAREAID	VIRTUALDATAAREA

6. Click **OK**.

Deploy and process the Accounts Receivable cube

To deploy and process the Accounts Receivable cube, do as follows:

1. From Solution Explorer, right-click the Accounts Receivable cube and then click **Process**. Click **Yes** to build and deploy the project first.
2. Click **Run**.

The PARTYID attribute of the Party dimension can now be used to analyze, for example, the total customer sales across the virtual company (aggregating CEC - Europe and CEC – USA).

Row Labels	Total Customer Sales
cvc	57127743.42
Grand Total	**57127743.42**

Creating the Party dimension is a one-time process. You can add the Party dimension to additional cubes and establish a relationship between the dimension and the cube.

In addition to CustTrans, you can edit other facts in a similar way to include extra columns to allow you to analyze data across a virtual company.

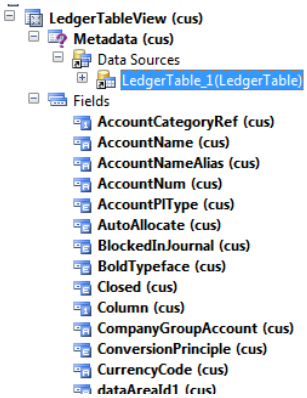
Example: Replace tables that have been shared by using an AX view

Create a view for each shared table

If you share a table that is used by the default cubes, you must create a new AX view for the table. A common example of this scenario is the LedgerTable table. To create a view for this table, do as follows:

1. In the AOT expand the **Data Dictionary** node, right click **Views**, and then click **New View**.
2. Right-click the new view and then click **Properties**.
3. In the **Name** field of the properties pane, type a unique value that describes which table the view is for and save your changes. For this example, type LedgerTableView.
4. Navigate to the **LedgerTableView** > **Metadata** > **Data Sources** node.
5. Open a second AOT and navigate to **Data Dictionary** > **Tables** > **LedgerTable**.
6. Drag the LedgerTable table onto the **Data Sources** node of the **LedgerTableView** view.

7. Expand the LedgerTable_1 data source so that its fields are visible.
8. Drag fields from the data source to the **Fields** node of the view. Because this view will replace the table, add all of the fields to the view.

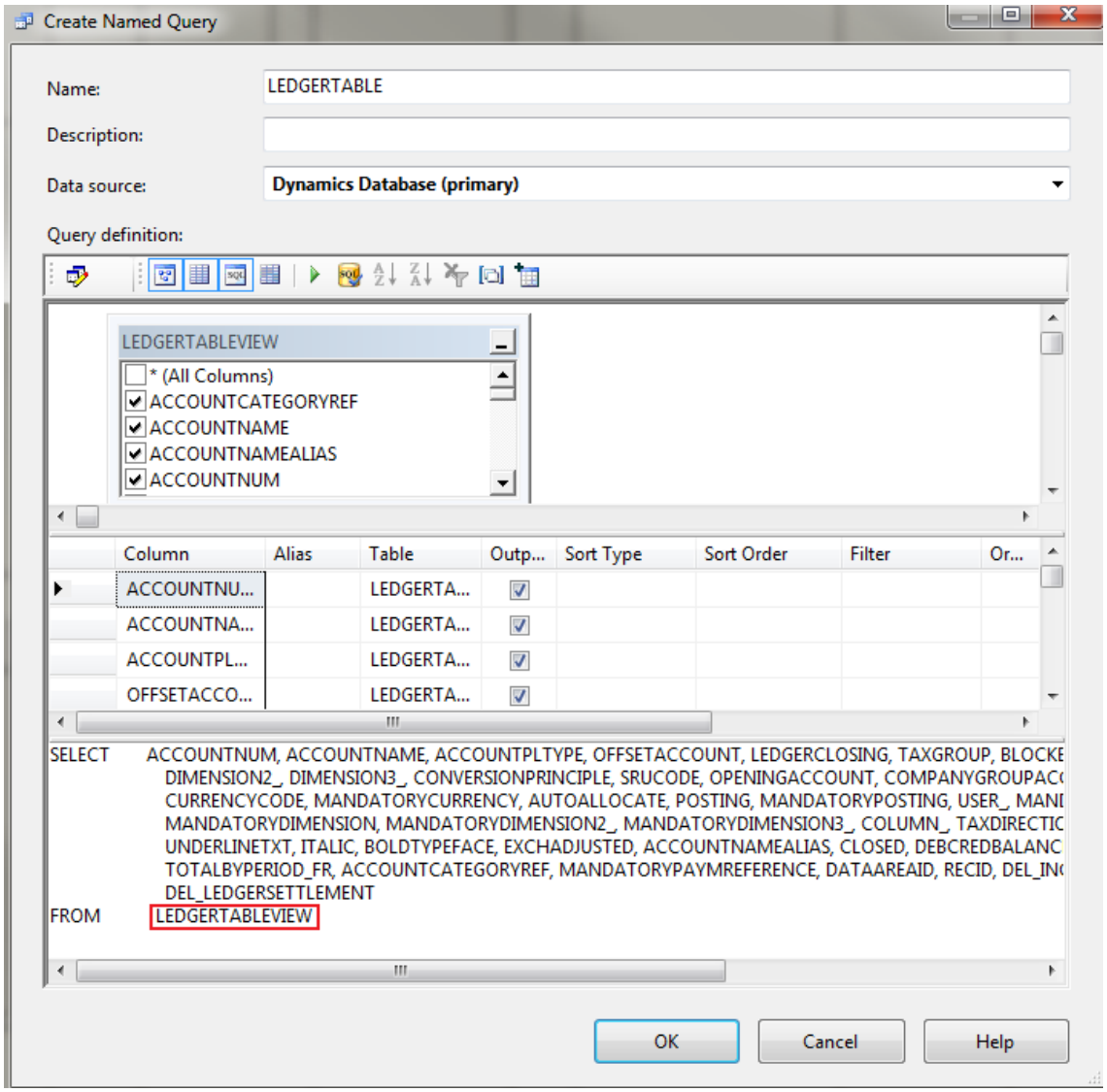


9. Save your changes, right-click **LedgerTableView**, and then click **Synchronize**.

Replace the tables in the Data Source View with the AX view

After you create the views for each shared table, you must update the online analytical processing (OLAP) database to use the views instead of the tables. To do this, replace the tables in the DSV with the AX view. To replace the **LedgerTable** table with the **LedgerTableView** view, do as follows:

1. Open the project that contains the default cubes in BIDS.
2. In Solution Explorer, open the Data Source View. Under **Tables**, right-click **LedgerTable**, point to **Replace Table**, and then click **With New Named Query**.
3. In the **Create Named Query** window, leave the name as LedgerTable and in the query section of the window replace FROM LEDGERTABLE with FROM LEDGERTABLEVIEW.



4. Click **Run** to verify that data is returned.

5. Click **OK** to save your changes.

Deploy and process the updated Data Source View

To deploy and process the DSV, do as follows:

1. From Solution Explorer, right-click the Dynamics AX database and then click **Process**.
2. Click **Yes** to build and deploy the project first.
3. Click **Run**.

Note that all of the cubes will be processed when you choose to process the database in this way. This is preferable in this case because you may have updated multiple tables in the DSV, which could affect more than one cube.

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