**Step-by-Step: From the Data Model to
the BI Application in the Web**

SAP NetWeaver 7.0

Document Version 1.00 – March 2008

Typographic Conventions

Type Style	Represents
Example Text	Words or characters quoted from the screen. These include field names, screen titles, pushbuttons labels, menu names, menu paths, and menu options.
	Cross-references to other documentation.
Example text	Emphasized words or phrases in body text, graphic titles, and table titles.
EXAMPLE TEXT	Technical names of system objects. These include report names, program names, transaction codes, table names, and key concepts of a programming language when they are surrounded by body text, for example, SELECT and INCLUDE.
`Example text`	Output on the screen. This includes file and directory names and their paths, messages, names of variables and parameters, source text, and names of installation, upgrade and database tools.
`Example text`	Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.
`<Example text>`	Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.
EXAMPLE TEXT	Keys on the keyboard, for example, `F2` or `ENTER`.

Icons in Body Text

Icon	Meaning
⚠	Caution
⛭	Example
💡	Note
⬆	Recommendation
◇	Syntax

Additional icons are used in SAP Library documentation to help you identify different types of information at a glance. For more information, see *Help on Help → General Information Classes and Information Classes for Business Information Warehouse* on the first page of any version of *SAP Library*.

Contents

Step-by-Step: From the Data Model to the BI Application in the Web

Task

This tutorial guides you step-by-step through the basic procedures for creating a simple but complete SAP NetWeaver BI scenario. Complete means that you create a simple data model, define the data flow from the source to the BI store of your data model, and then load data or enter data directly in the BI system. To be able to analyze the data, you then create a Web-based BI application that you broadcast by E-mail to your employees.

The company in our scenario produces laptops, PCs and computer accessories, and distributes its products over various channels. An advertising campaign for the Internet distribution channel was started in July by the marketing department. The success of the campaign is to be checked in October of the same year in order to decide whether and how the campaign should be continued. A revenue report containing the data of the past quarter and showing the revenue for the various distribution channels during this time is therefore required.

Objective

At the end of the tutorial you will be able to perform the following tasks:

- Create a simple BI data model with InfoObjects (characteristics, key figures) and an InfoCube for storing data in the BI system.

  In our scenario, the "container" for the revenue data is an InfoCube. It consists of key figures and characteristics. The key figures provide the transaction data to be analyzed, in our case sales figures and amounts. The characteristics are the reference objects for the key figures; in our scenario these are *Product*, *Product Group* and *Channel*. They contain the master data, which remains unchanged over a long period of time. The master data of the characteristics in this scenario can be attributes and texts.

  You create the data model in the following steps:

  - Creating Key Figures

  - Creating Characteristics

  - Creating InfoCubes

- Map the source structure of the data in the BI system and define the transformation of the data from the source structure to the target format. In this way you will be able to define the data flow in the BI system.

  The structure and properties of the source data are represented in the BI system with DataSources. In our scenario, we need DataSources to copy master data for the characteristic *Product* as well as sales data from the relevant file to the entry layer of the BI system.

  The transformations define which fields of the DataSource are assigned to which InfoObjects in the target and how the data is transformed during the load process. In our simple scenario, the transformations are kept simple and do not contain any complex rules. The assignment is direct, that is the fields of the source are copied to the InfoObjects of the target one-to-one.

  You create the necessary objects for defining the data flow in the following steps:

- Creating DataSources for Master Data of Characteristic "Product"

- Creating DataSources for Transaction Data

- Creating Transformations for Master Data from Characteristic „Product"

- Creating Transformations for InfoCubes

- Load the data.

  The load processes are executed using InfoPackages and data transfer processes. The InfoPackages load the data from the relevant file into the DataSource, and the data transfer processes load the master data from the DataSource into the characteristic *Product* or the transaction data into the InfoCube. When the data transfer process is executed, the data is subject to the corresponding transformation. For the characteristics *Product Group* and *Channel*, we show that it is also possible to load small amounts of master data directly in the BI system instead of from the source. In this case neither DataSources and transformations nor InfoPackages and data transfer processes are required.

  You create the necessary objects for loading data in the following steps:

  - Creating Master Data Directly in the System

  - Loading Master Data for Characteristic "Product"

  - Loading Transaction Data

- Define a query that is used as the basis for a Web application and allows for an ad-hoc analysis of the data in the Web.

  You create the query in the following step:

  - Defining Queries

- Create a Web application with navigation options and functions, such as printing based on the query.

  You create the Web application in the following step:

  - Creating Web Applications

- Analyze the data in the Web application, add comments to it, and broadcast it by E-mail to other employees.

  You analyze and broadcast the data in the following steps:

  - Analyzing Data in the Web Application

  - Broadcasting Web Applications by E-Mail

Prerequisites

Systems, Installations and Authorizations

- You have a BI system in which usage types BI ABAP and BI Java are installed and configured.

- You installed the SAP front end with the BI front end add-on.

- You installed a Web browser.

- You installed and configured the Adobe document services.

- You installed Adobe Reader.

- You have a user that is assigned to the following roles:

   S_RS_RDEAD

   S_RS_ROPAD

   S_RS_RDEMO

   S_RS_ROPOP

   S_RS_RREDE

   S_RS_RREPU

   To be able to broadcast BI contents by e-mail at a later time, you have sufficient authorization for authorization object S_OC_SEND.

Data

The sample data for our scenario is available as csv files:

- Tutorial_Prod_Attr.csv

   This file contains the attributes for characteristic *Product*.

- Tutorial_Prod_Texts.csv

   This file contains the texts for characteristic *Product*.

- Tutorial_Trans.csv

   This file contains the sales data for the months July to September.

You stored the files in a folder on your local host. You can download the files from the following Internet address: `sdn.sap.com/irj/sdn/nw-bi` → *Knowledge Center (SAP NetWeaver 7.0)* → *Getting Started* → *Documentation* → *Sample Data for BI Tutorial*.

Knowledge

You have a basic knowledge of the architecture of SAP NetWeaver BI and have read the section *Business Intelligence: Overview* in the SAP NetWeaver 7.0 BI documentation under the following Internet address: `help.sap.com/nw70` → *Functional View* → *SAP NetWeaver by Key Capability* → *Information Integration: Key Areas* → *Business Intelligence* → *Business Intelligence: Overview*.

Continue with ...

1   Creating Key Figures

Use

You create the key figures *Revenue*, *Quantity* and *Price*.

Revenue and *Quantity* are values that can be analyzed at a later time. These are quantities and amounts and form the data part of the InfoCube.

The key figure *Price* is used in our scenario as an attribute for the InfoObject *Product*, which you will create at a later time.

Procedure

1. Log onto the BI system with a user that has sufficient authorizations for executing the scenario.

2. Start the Data Warehousing Workbench in the SAP menu by choosing *Modeling →*
    Data Warehousing Workbench: Modeling.
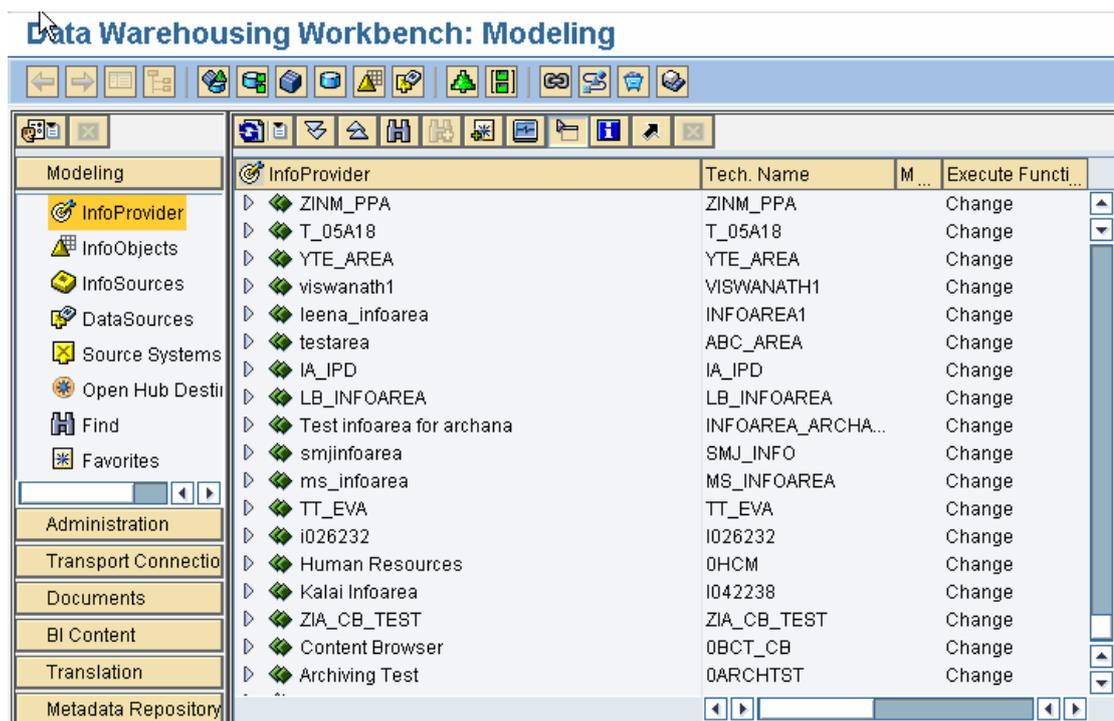
Various functional areas are displayed at the left in the Data Warehousing Workbench. In the functional area *Modeling* you can display different views on the objects used in the Data Warehouse, such as InfoProviders and InfoObjects. These views show the objects in a tree. You call the functions for the relevant object from context menus (right mouse button).

3. Under *Modeling,* choose ◢*InfoObjects* .

    The InfoObject tree is displayed.

4. From the context menu at the root node *InfoObjects* of the InfoObject tree, choose *Create InfoArea*.

5. On the next screen, enter a technical name and a description for the InfoArea.

    The InfoArea is displayed in the InfoObject tree. It is used to group your InfoObjects.

6. In the context menu of the InfoArea, choose *Create InfoObject Catalog*.

7. On the next screen, enter a technical name and description, and select *Key Figure* as the *InfoObject Type*.

8. Choose 🗋*Create.*

    You go to the screen for InfoObject catalog editing.
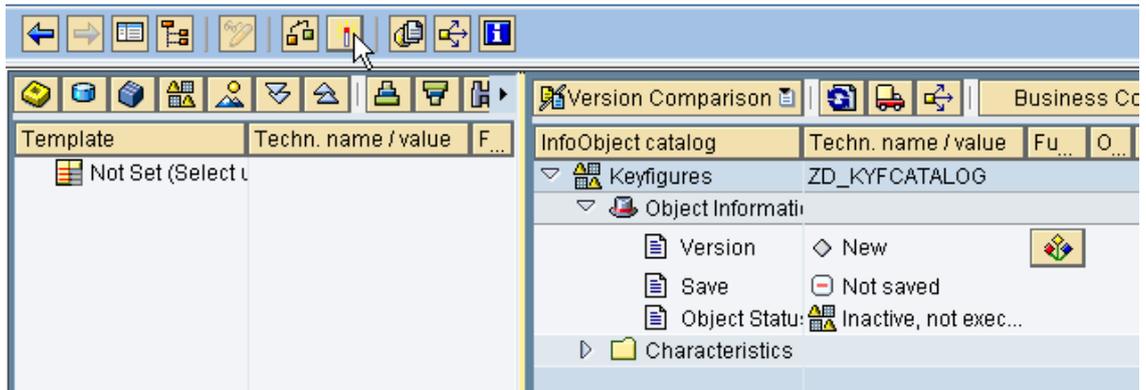
9. Activate the InfoObject catalog.

    The InfoObject catalog is displayed in your InfoArea. It is used to group your key figures.

10. Perform the following procedures to create each of the key figures *Revenue*, *Quantity* and *Price*.

    a. Choose *Create InfoObject...* in the InfoArea for your InfoObject catalog for key figures.

    b. Enter the required data on the next screen:

Input Field	Revenue	Quantity	Price
KeyFig.	ZD_REV	ZD_QTY	ZD_PRICE
Long description	Revenue	Quantity	Price

    c. Choose ✔*Continue*.

        The key figure maintenance screen appears.

    d. Make the following entries on the tab page *Type/unit*:

Field	Revenue	Quantity	Price
Type/Data Type	Amount	Quantity	Amount
Data Type	CURR – Currency field, stored as DEC	QUAN – Quantity field, points to a unit field with format UN	CURR – Currency field, stored as DEC
Unit/currency	0CURRENCY	0UNIT	0CURRENCY

The information on the tab page is as follows for the key figure *Revenue*:

    e. Activate the InfoObject.

Result

You created the following key figures for the scenario:

- *Revenue* (ZD_REV)

- *Quantity* (ZD_QTY)

- *Price* (ZD_PRICE)

These key figures are displayed in your InfoObject catalog. *Revenue* and *Quantity* can be used later to define the InfoCube.

Continue with ...

2   Creating Characteristics

Use

You create the characteristics *Product Group*, *Channel* and *Product*.

The characteristics are required to define the reference when analyzing the sales data. In this scenario, you want to see the sales for the Internet distribution channel.

You create the characteristic *Product* with several attributes. The attributes for a characteristic are InfoObjects that are used to structure and order the characteristic. In our scenario, the attributes *Price* and *Currency* are defined as pure display attributes that provide additional information about *Product*. On the other hand, you define the attribute *Product Group* as a navigation attribute. It can thus be used in the query like a normal characteristic and can also be used without the characteristic *Product*.

Procedure

1. In the *Modeling* area of the Data Warehousing Workbench, choose *InfoObjects*.

2. In the context menu of your InfoArea, choose *Create InfoObject Catalog*.

3. On the next screen, enter a technical name and a description.

4. Select *Char.* as *InfoObject Type.*

5. Choose 🗋*Create.*

   You go to the screen for InfoObject catalog editing.

6. Activate the InfoObject catalog.

   The InfoObject catalog is displayed in your InfoArea. It is used to group your key characteristics.

7. Perform the following procedure for the characteristics *Product Group, Channel* and *Product.*

   a. Choose *Create InfoObject...* in the InfoArea of your InfoObject catalog for characteristics.

   b. Enter the required data on the next screen:

Input Field	Product Group	Channel	Product
Char.	ZD_PGROUP	ZD_CHAN	ZD_PROD
Long description	Product Group	Channel	Product

   c. Choose ✔*Continue*.

      The characteristic maintenance screen appears.

   d. Make the following entries on the tab page *General*:

Field	Product Group	Channel	Product
Data Type	CHAR – character string	CHAR – character string	CHAR – character string
Length	6	5	10
Characteristic Is Document Property	-	Set the indicator.	-

   The information on the tab page is as follows for the characteristic *Product*:
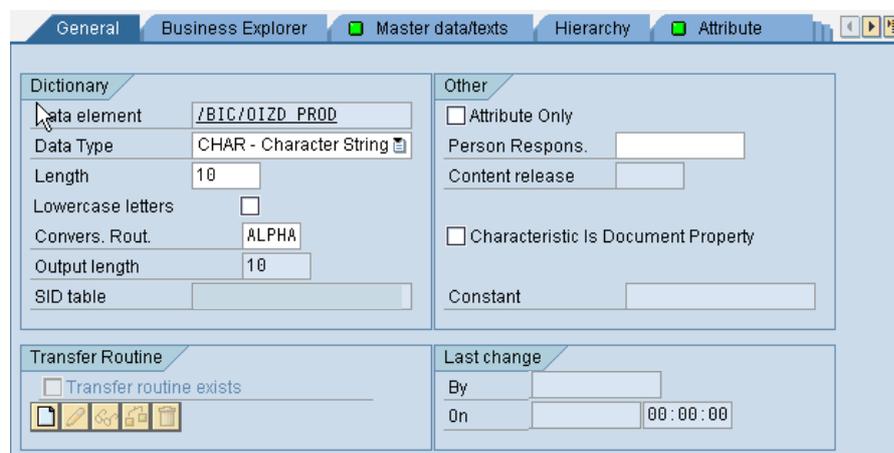
    e. Go to the *Master data/texts* tab page.

         i. Select *With master data* and *With texts* if they are not already selected.

         ii. In the field below *Character. is InfoProvider,* enter the technical name of your InfoArea and confirm your entry.

              The system sets the indicator *Character. is InfoProvider*.

         iii. For the characteristic *Product*: Select the indicator *Medium length text exists* and deselect *Short text exists*.

    The information on the tab page is as follows for the characteristic *Product*:
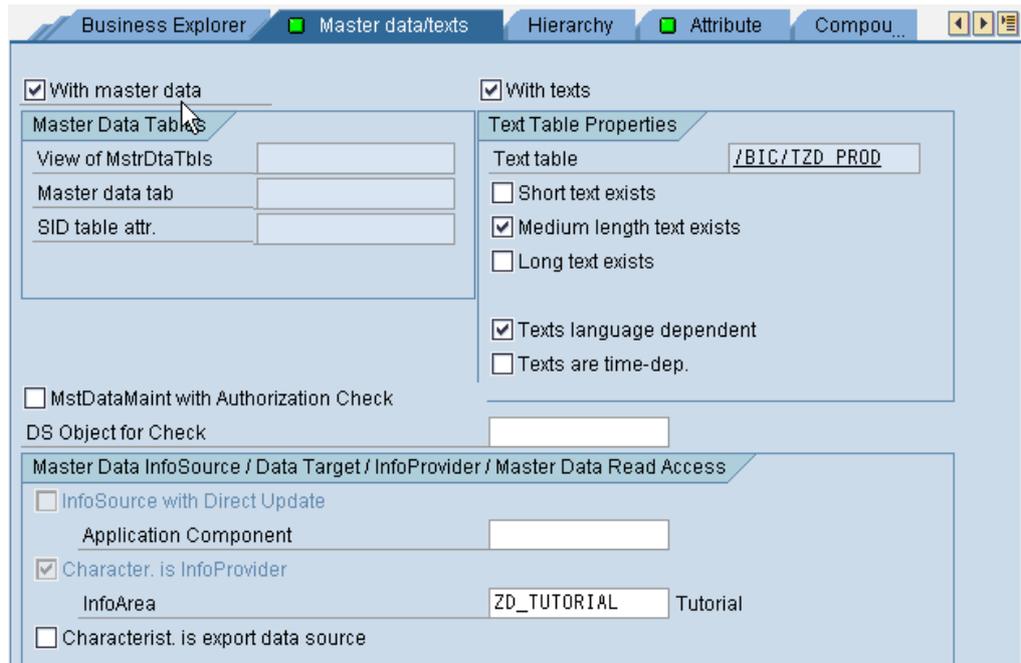
For the characteristic *Product*: Go to the tab page *Attribute*.

      iv. Add the following InfoObjects as attributes. Note the order:

          1. ZD_PRGOUP - *Product Group*

          2. 0CURRENCY - *Currency Key* (the currency key is a shipped InfoObject of BI Content)

          3. ZD_PRICE - *Price*

      v. Activate the attribute *Product Group* (ZD_PRGROUP) by choosing 🖉 *Navigation Attribute On/IOff* as navigation attribute.

      vi. Select the key figure *Texts of char.* for this attribute.
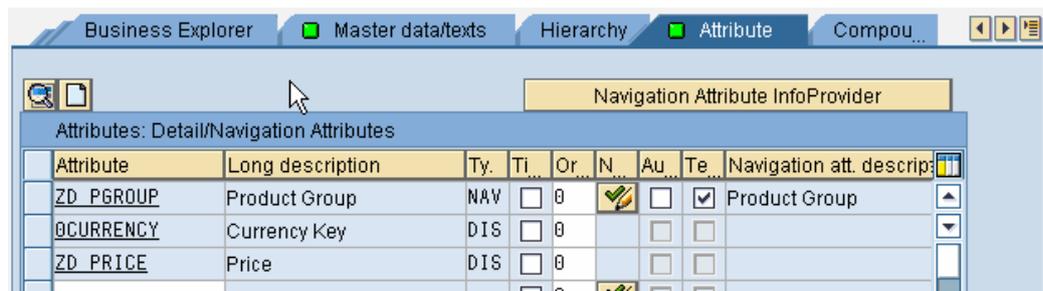
f. Activate the InfoObject.

Result

You created the following characteristics for the scenario:

- *Product Group* (ZD_PGROUP)

- *Channel* (ZD_CHAN)

- *Product* (ZD_PROD)

These characteristics are displayed in your InfoObject catalog and can be used to define the InfoCube.

The characteristic *Product* contains the display attributes *Price* and *Currency* and the navigation attribute *Product Group*.

You will create the master data for characteristics *Product Group* and *Channel* directly in the BI system later on. You will load the master data for characteristic *Product* into the BI system later.

## Continue with ...

3 Creating InfoCubes

Use

You create an InfoCube into which sales data for the scenario is loaded. As InfoProvider, the InfoCube provides the basic data for the query.

Procedure

1. You are in the *Modeling* functional area of the Data Warehousing Workbench.

2. Choose *InfoProvider*.

   The InfoProvider tree is displayed. The InfoArea created previously in the InfoObject tree is also displayed in the InfoProvider tree. It contains the characteristics that were defined as InfoProvider and is used to group further objects.

3. In the context menu of the InfoArea, choose *Create InfoCube*.

4. In the next screen, enter `ZD_SALES` as the technical name under *InfoCube* and `sales Overview` as the description.

5. Select *Standard InfoCube* as *InfoProvider Type* and choose ☐ *Create*.

   You go to the screen for InfoCube editing.

6. Choose *Create New Dimensions* in the context menu of the folder *Dimensions*.

7. Enter `Product` as the description for the new dimension and choose ☐ *Create Another Dimension*.

8. Enter `sales Organization` as the description for the new dimension and choose ✔ *Continue*.

   The dimensions are inserted.

9. In the toolbar in the left area, choose ⚏ *InfoObject Catalog*.

10. On the next screen, select your InfoObject catalog for characteristics as the template and choose ✔ *Continue*.

   The InfoObject catalog is displayed in the left area with the characteristics you created.
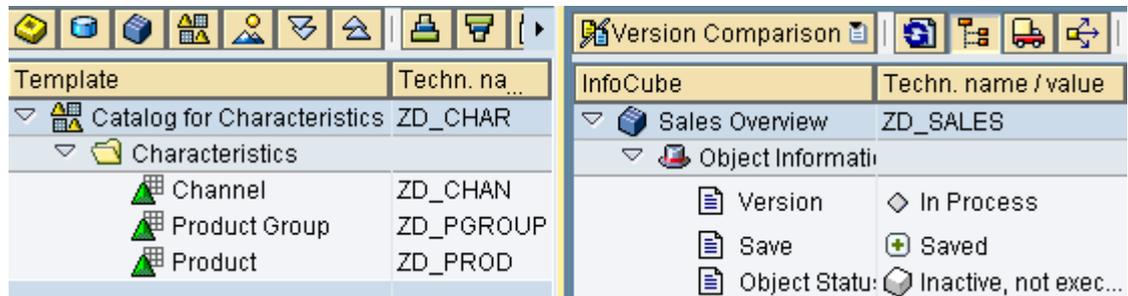
11. Assign the characteristics to the dimensions as follows with drag and drop:

Characteristic	Dimension
ZD_PROD (Product)	Product
ZD_CHAN (Channel)	Sales Organization

12. Choose *InfoObject Direct Input* in the context menu of the dimension *Sales Organization*.

13. On the next screen, enter the characteristic `0DOC_NUMBER` (*Sales Document*) and choose ✔ *Continue*.

    The characteristic *Sales Document* is a shipped InfoObject of BI Content.

14. Expand the folder *Navigation Attributes*. Activate the navigation attribute *Product Group* (ZD_PROD__ZDPGROUP) by setting the indicator in column *On/Off*.
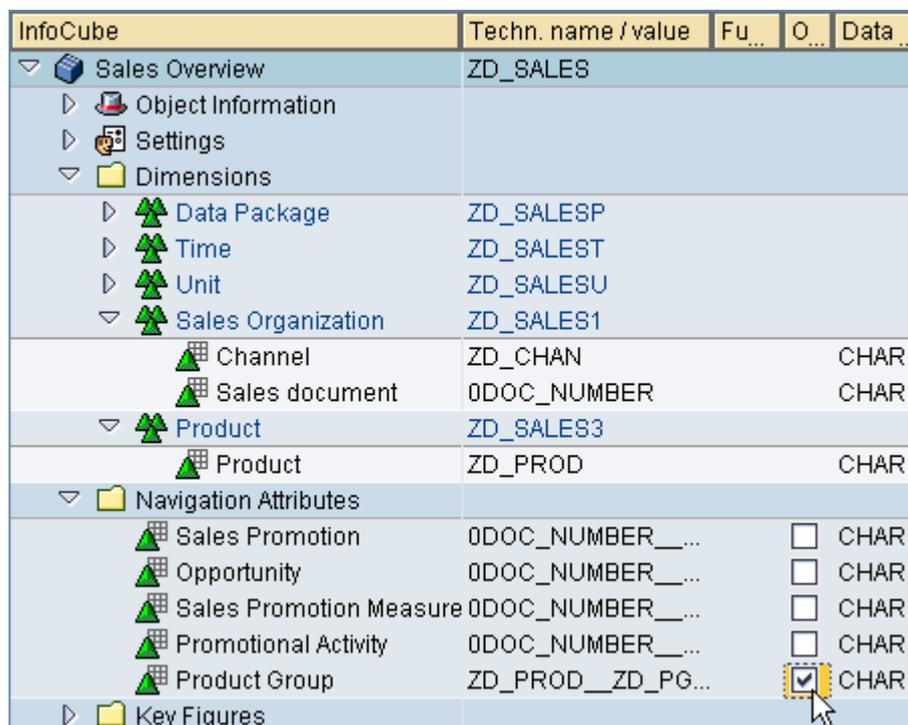
15. If it does not yet exist, add the following time characteristics of BI Content to the dimension *Time.* To do this, choose *of InfoObject Direct Input* in the context menu of the dimension *Time*, enter the required data, and choose ✔*Continue*.

    ○ **0CALMONTH** *(Calendar Year/Month)*

    ○ **0CALMONTH2** *(Calendar Month)*

    ○ **0CALWEEK** *(Calendar Year/Week)*

    ○ **0CALYEAR** *(Calendar Year)*

16. Choose *of InfoObject Direct Input* in the context menu of the folder *Key Figures* and enter the following key figures:

    ○ **ZD_QTY** *(Quantity)*

    ○ **ZD_REV** *(Revenue)*

17. Delete *Dimension1*, which is not required, if it exists. To do so, choose *Delete* in the context menu of the dimension.

18. Activate the InfoCube.

Result

You created the InfoCube *Sales Overview*. You can now create the required objects for loading data.

Continue with ...

4 Creating DataSources for Master Data of Characteristic "Product"

Use

You create two DataSources for the characteristic *Product*. The DataSources are required to copy the master data attributes (values) and texts for the characteristic *Product* from the file to the BI system.

> The master data for the characteristics *Product Group* and *Channel* are later created directly in the system. No DataSources are therefore required in our scenario for these characteristics.

Prerequisites

File source system PC_FILE exists.

Procedure

Perform the following procedure for the attributes and texts for characteristic *Product.*

1. You are in the *Modeling* functional area of the Data Warehousing Workbench.

2. Choose 📇*DataSources.*

3. From the toolbar in the right screen area, choose 📇 *Choose Source System*.

4. In the menu option *File*, select the source system with the technical name PC_FILE.

   A hierarchical tree of the DataSources for this source system is displayed. The DataSources are structured semantically by application component.

5. Select *Create application component...* from the context menu at the root node of the DataSource tree.

6. On the next screen, enter a technical name and a description for the application component.

   The application component is used to group your DataSources for this scenario.

7. In the context menu of your application component, choose *Create DataSource.*

8. Enter the required data on the next screen.

Input Field	Attributes	Texts
DataSource	`ZD_PROD_ATTRIBUTES`	`ZD_PROD_TEXTS`
Data Type DataSource	*Master Data Attributes*	*Master Data Text*

9. Choose ✔*Transfer.*

   The DataSource maintenance screen appears.

10. Enter the required data on the tab page *General Info*.

Input Field	Attributes	Texts
Short description	`Product – Attributes`	`Product – Texts`

11. Go to the tab page *Extraction* and define the following:

Field	Attributes	Texts
Adapter	Load Text-Type File from Local Workstation	Load Text-Type File from Local Workstation
File Name	From the files of your local host, select the file *Tutorial_Prod_Attr.csv*.	From the files of your local host, select the file *Tutorial_Prod_Texts.csv*.
Header Rows to be Ignored	1	1
Data Format	Separated with Separator (for Example, CSV)	Separated with Separator (for Example, CSV)
Data Separator	;	;
Escape Sign	"	"
Number format	Direct Entry	User Master Record
Thousands Separator	.	Not applicable
Decimal Point Separator	,	Not applicable

The information on the tab page is as follows for attributes:

The information on the tab page is as follows for texts:

12. Select the tab page *Proposal* and choose 🗄️*Load Examples*.

13. Using the data in the file, the system creates a field proposal for the DataSource.

14. Go to the *Fields* tab page.

    In the dialog box, choose 🗔 *Yes*.

    The field list of the DataSource is copied from the *Proposal* tab page.

15. Make the following changes and enhancements:

    ○ For the attribute:

        i. Change the data type of the field PRICE from *DEC* to *CURR* and confirm your entry.

        ii. Under *Curr/Unit* enter `CURRENCY` for the referenced currency/unit field

    ○ For the texts:

        i. Change the data type of the field LANGUAGE from *CHAR* to *LANG* and confirm your entry.

        ii. Select *Language Field* as the field type for the field LANGUAGE.

    The field list for attributes is as follows:

    The field list for texts is as follows:

16. Activate the DataSource.

17. Go to the tab page *Preview* and check the data before the actual load process by choosing 🗄️ Read Preview Data.

Result

You created the master data DataSources for characteristic *Product*. At activation, a table is created for each DataSource in the entry layer of the BI system, the persistent staging area (PSA), and the source data is stored there during the transfer.

Continue with ...

5 Creating DataSources for Transaction Data

Use

You create a transaction data DataSource to copy the sales data from the file to the BI system.

Prerequisites

File source system PC_FILE exists.

Procedure

1. In the *Modeling* area of the Data Warehousing Workbench, choose *DataSources*.

2. In the context menu of your application component, choose *Create DataSource...*

3. In the next screen, enter **ZD_SALES** for *DataSource* and select *Transaction Data* as the *Data Type DataSource.*

4. Choose ✔*Transfer.*

   The DataSource maintenance screen appears.

5. On tab page *General Info.* enter **Sales Data** as *Short description*.

6. Go to the tab page *Extraction* and define the following:

Field	Entry/Selection
Adapter	Load Text-Type File from Local Workstation
File Name	File of your workstation, select the file *Tutorial_Trans.csv*.
Header Rows to be Ignored	2
Data Format	Separated with Separator (for Example, CSV)
Data Separator	;
Escape Sign	"
Number format	Direct Entry
Thousands Separator	.
Decimal Point Separator	,
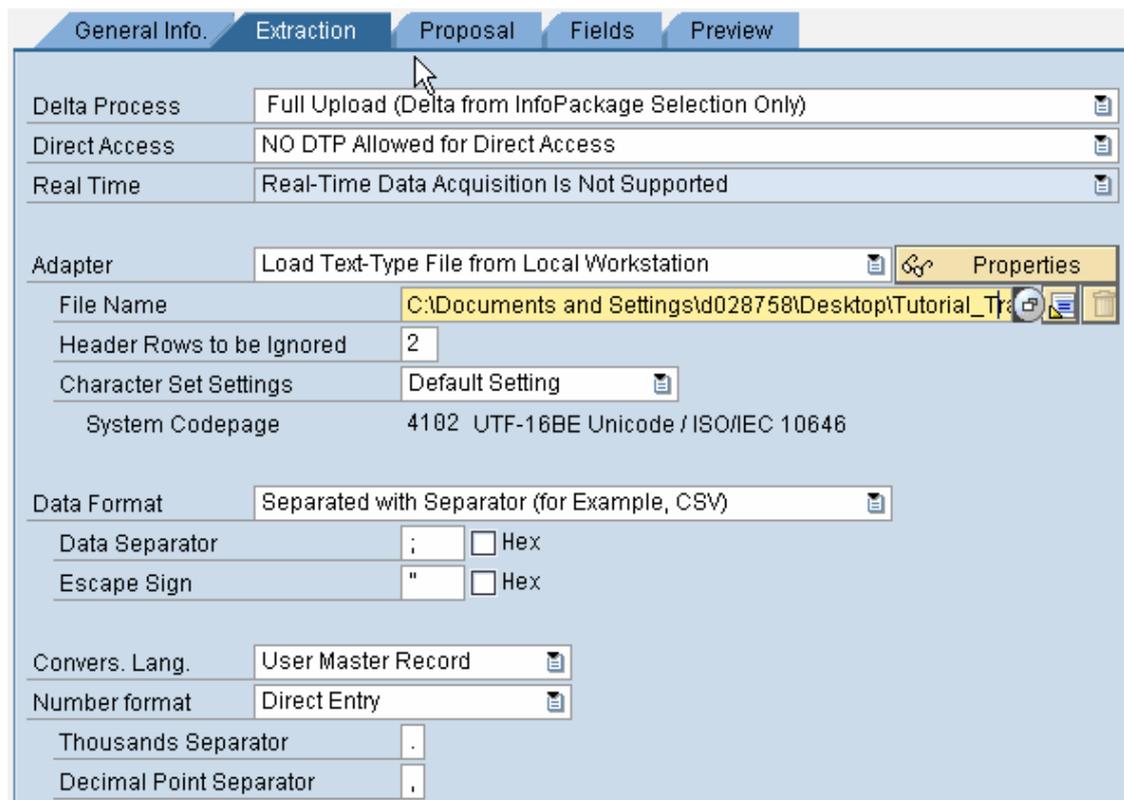
7. Go to tab page *Proposal* and choose 🗔 *Load Example Data* to create a proposal for the DataSource.

9. Go to the *Fields* tab page.

   In the dialog box, choose 🔲 *Yes*.

   The field list of the DataSource is copied from the *Proposal* tab page.

10. Make the following changes and enhancements:

    a. Change the data type for the following fields from *CHAR* to...

Field	Data type
CALENDERDAY	DATS
QUANTITY	QUAN
UNIT	UNIT
REVENUE	CURR
CURRENCY	CUKY

    b. Under *curr/unit,* enter **UNIT** as the name of the referenced currency/unit field for the field QUANTITY and **CURRENCY** for the field REVENUE.

c. Change the *Format* for the field REVENUE from *internal* to *external*.

	Pos.	Field	Descript.	T.	InfoObject	Data type	Lngth	Decim.	Extern.	L.	K.	Conv.	Format	SS C.	cur/unit	S.	Sel. Opts	Field Type
	1	PRODUCT	Product	☑		CHAR	7		7	☐	☐		Internal					
	2	SALESDOC	Sales Doc	☑		CHAR	11		11	☐	☐		Internal					
	3	CALENDARDAY	Calendar Day	☑		DATS	8		8	☐	☐		Internal					
	4	CHANNEL	Channel	☑		CHAR	7		7	☐	☐		Internal					
	5	QUANTITY	Quantity	☑		QUAN	7		8	☐	☐		Internal		UNIT			
	6	UNIT	Unit	☑		UNIT	3		3	☐	☐		Internal					
	7	REVENUE	Revenue	☑		CURR	9	2	11	☐	☐		External		CURRENCY			
	8	CURRENCY	Currency	☑		CUKY	5		5	☐	☐		Internal					

11. Activate the DataSource.

12. Go to the tab page *Preview* and check the data before the actual load process by choosing 🔍*Read Preview Data*.

Result

You created the DataSource for the sales data. At activation, a table is created for the DataSource in the entry layer of the BI system, the Persistent Staging Area (PSA), and the data is stored there during the transfer.

Continue with ...

6 Creating Transformations for Master Data of Characteristic "Product"

Use

You create transformations for the attributes and texts of characteristic *Product* (ZD_PROD).

> 💡
>
> The master data for the characteristics *Product Group* and *Channel* will be created later directly in the system. No transformations are therefore required in our scenario for these characteristics.

Procedure

1. You are in the *Modeling* functional area of the Data Warehousing Workbench.

2. Choose 🎯 *InfoProvider*.

3. Choose *Create Transformation...* from the context menu at the symbol for texts 📗 under your InfoObject *Product* (ZD_PROD).

4. Select object type *DataSource* as source of the transformation and select your DataSource for texts ZD_PROD_TEXTS and source system PC_FILE.

5. Choose ✔ *Create Transformation*.

   The maintenance screen for the transformation appears. The fields of the DataSource are displayed at the left and the rule group with the target InfoObjects at the right.

6. With the mouse, connect the DataSource fields with the target InfoObjects as follows:

DataSource Field	InfoObject
PRODID	ZD_PROD
PRODDESC	0TXTMD
LANGUAGE	0LANGU

7. Activate your transformation.

8. Exit from the transformation maintenance screen.

9. Choose *Create Transformation...* from the context menu at the symbol for attributes ⬛ under your InfoObject *Product* (ZD_PROD).

10. Select object type *DataSource* as source of the transformation and select your DataSource for attributes ZD_PROD_ATTRIBUTES and source system PC_FILE.

11. Choose ✔ *Create Transformation*.

    The maintenance screen for the transformation appears.

12. With the mouse, connect the DataSource fields with the target InfoObjects as follows:

DataSource Field	InfoObject
PRODID	ZD_PROD
PG_ID	ZD_PGROUP
CURRENCY	0CURRENCY
PRICE	ZD_PRICE

13. Activate your transformation.

Result

You created the transformations for the master data for characteristic *Product* and have now completed all preparation for creating and executing the load processes for the attributes and texts of characteristic *Product*.

Continue with ...

7 Creating Transformations for InfoCubes

Use

You create a transformation for InfoCube *Sales Overview* (ZD_SALES).

The source (DataSource) and target (InfoCube) of the transformation have different time characteristics. The granular time characteristic CALENDERDAY is in the source, whereas the InfoCube contains several less granular time characteristics. By assigning CALENDERDAY to these less granular time characteristics, they are automatically filled by an automatic time conversion. You are not required to make a special entry.

Procedure

1. Go to the Data Warehousing Workbench; in the *Modeling* area choose *InfoProvider*.

2. In the context menu of your InfoCube, choose *Create Transformation...*

3. On the next screen, select object type *DataSource* as source of the transformation, and select the DataSource for transaction data ZD_SALES and source system PC_FILE.

4. Choose ✔ *Create Transformation*.

   The maintenance screen for the transformation appears. The fields of the DataSource are displayed at the left and the rule group with the target InfoObjects at the right.

5. With the mouse, connect the DataSource fields with the target InfoObjects as follows:

DataSource Field	InfoObject
PRODUCT	ZD_PROD
SALESDOC	0DOC_NUMBER
CALENDARDAY	0CALMONTH
	0CALMONTH2
	0CALWEEK
	0CALYEAR
CHANNEL	ZD_CHAN
QUANTITY	ZD_QTY
REVENUE	ZD_REV

   Fields UNIT and CURRENCY are automatically assigned.
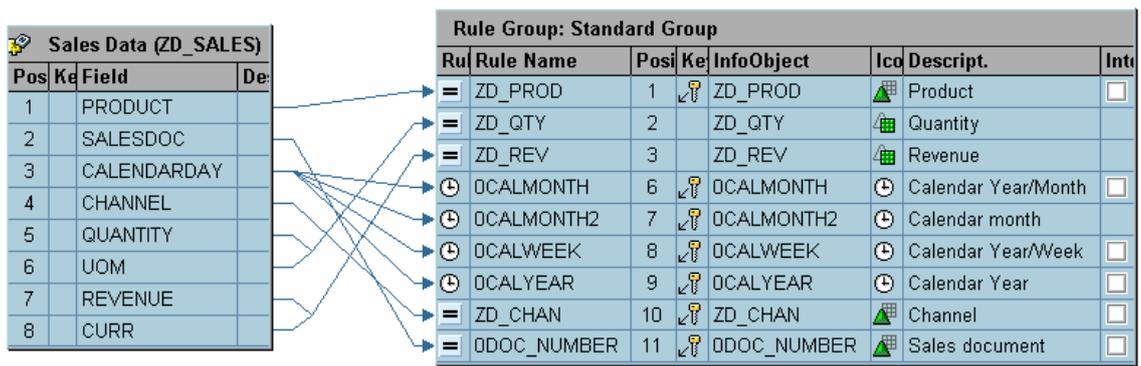
6. Activate your transformation.

Result

You created the transformation for the sales data and have now completed all preparations for creating and executing the load process for the sales data.

Continue with ....

8   Creating Master Data Directly in the System

Use

You can create the master data for characteristics *Product Group* and *Channel* directly in the BI system at a later time.

If the number of master data records for an InfoObject is very small, you can enter this master data directly in the system without loading it.

Procedure

1. In the *Modeling* area of the Data Warehousing Workbench, choose *InfoObjects*.

2. In the InfoObject catalog for characteristics, choose *Maintain master data* from the context menu of your InfoObject *Product Group* (ZD_PGROUP).

3. Choose *Execute*.

4. Choose *Create.*

5. Enter `DS10` as Product Group and `Computer` as the Short description and choose *Continue*.

6. Repeat steps 4 and 5 with the following values:

Product Group	Description
DS20	Accessories
DS30	Hardware

7. Save your entries and return to the InfoObject tree.

---

8. Repeat steps 2-7 for the characteristic *Channel* (ZD_CHAN) with the following values:

Channel	Description
1	Internet
2	Fax
3	Phone
4	Other

Result

You filled the characteristics:

- *Product Group* (ZD_PGROUP)

- *Channel* (ZD_CHAN)

with values.

Continue with ...

# 9 Loading Master Data for Characteristic "Product"

Use

You create InfoPackages for the characteristic *Product* and execute them in order to load the master data attributes and texts from the file in the entry layer of the BI system into the Persistent Staging Area (PSA). You create data transfer processes and execute them in order to load the data from the PSA into the master data tables of the characteristic. The defined transformations are executed at this time.

Procedure

1. Go to the Data Warehousing Workbench; in the *Modeling* area choose *InfoProvider*.

   The attributes and texts are displayed with transformation and DataSource in your InfoArea below the characteristic *Product*.

2. Perform the following steps, first for the attributes of the characteristic and then for the texts of the characteristic.

   a. From the context menu of the DataSource, choose *Create InfoPackage...*

   b. On the next screen, enter a description for the InfoPackage and choose ✔ *Save*.

   The InfoPackage maintenance screen for the scheduler appears.

c. Go to the tab page *Schedule* and choose ⊕*Start*.
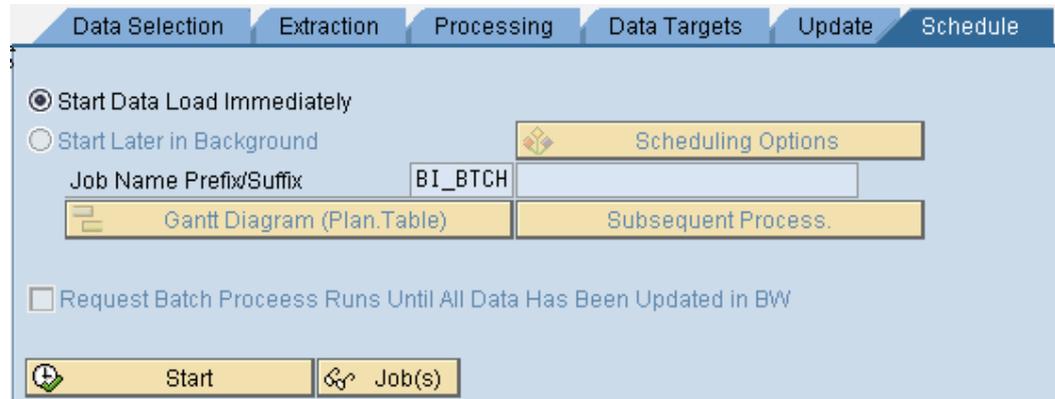
d. To check the load process, choose ⊞ *Monitor* in the toolbar of the InfoPackage maintenance screen.

e. On the next screen, select the date and choose ⊕*Execute*.

The monitor for the load process is displayed.

f. Select the load process for your DataSource from the tree at the left of the screen.

💡

If you cannot find the load process directly, change the tree with ⊞ *Configure Tree* so that the DataSource and the data are displayed below the status. The load process (request) is displayed below the date.

You can display the status of the individual process steps during the load process on the tab page *Details*.
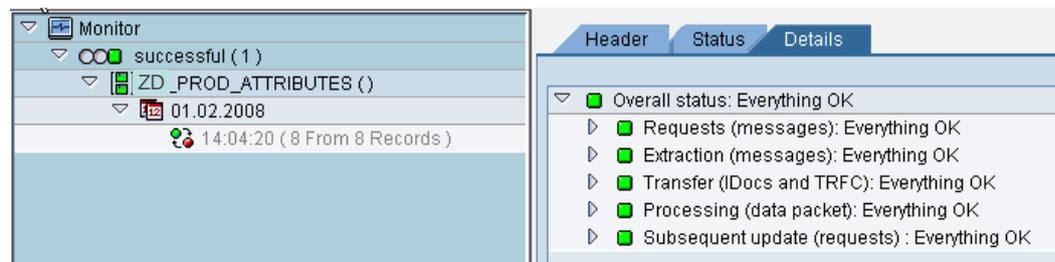
g. Exit from the InfoPackage maintenance screen.

h. From the context menu for the DataSource, choose *Create Data Transfer Process...*

The system displays a generated description, the type, source and target of the data transfer process.

i. Choose ✔*Continue*.

j. The data transfer process maintenance screen appears.

k. On the *Extraction* tab page, select extraction mode *Full*.

l. Activate the data transfer process.

m. Select the tab page *Execute* and choose ⏱*Execute*.
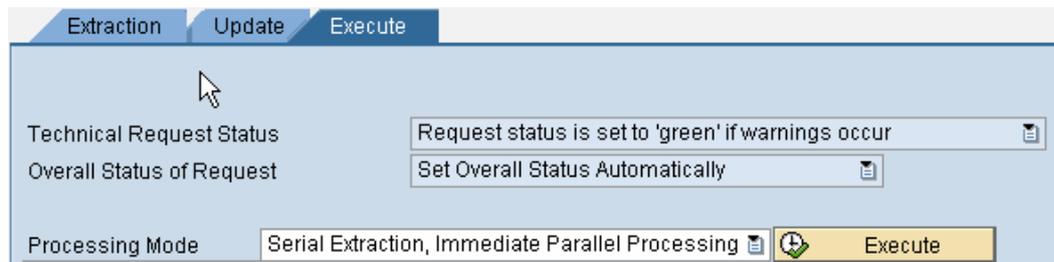
n. Confirm the next dialog box.

The data transfer process monitor appears.

The monitor displays the status of the load process. You can display the status of the individual process steps during the load process on the tab page *Details*.

If the status is yellow, refresh the status display for the load process with 🔄 *Refresh Request*.
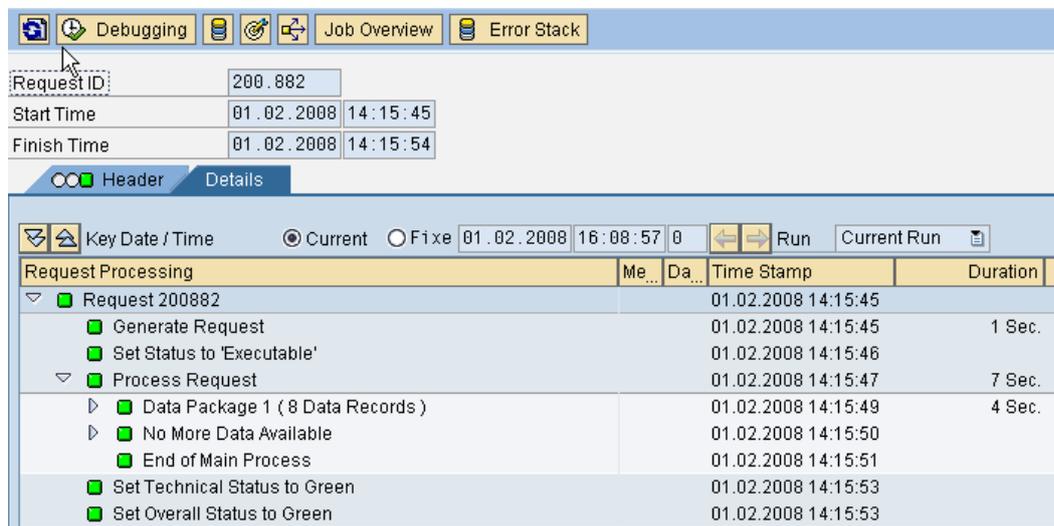
Result

You successfully loaded the data into the master data and text table of characteristic *Product*. The data is now available for the analysis.

Continue with ...

10 Loading Transaction Data

Use

You create an InfoPackage and execute it in order to load the sales data from the file in the entry layer of the BI system into the Persistent Staging Area (PSA). You create a data transfer process and execute it in order to load the sales data from the PSA into the InfoCube *Sales Overview*. The defined transformation is executed at this time.

Procedure

1. Go to the Data Warehousing Workbench; in the *Modeling* area choose *InfoProvider*.

    The transformation and the DataSource are displayed in the InfoArea below the InfoCube *Sales Overview*.

2. In the context menu of the DataSource, choose *Create InfoPackage*...

3. On the next screen, enter a description for the InfoPackage and choose ✔ *Save*.

    The InfoPackage maintenance screen for the scheduler appears.

4. Go to the tab page *Schedule* and choose 🕐 *Start*.
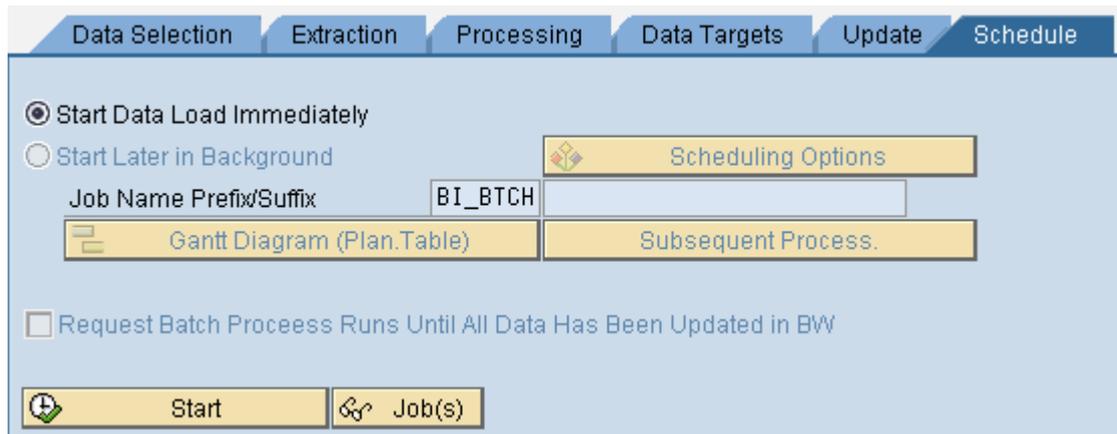
5. To check the load process, choose 🔲 *Monitor* in the toolbar of InfoPackage maintenance.

6. On the next screen, select the date and choose 🕐 *Execute*.

    The monitor for the load process is displayed.

7. Select the load process for your DataSource from the tree at the left of the screen.

    💡

    If you cannot find the load process, change the tree with 🔳 *Configure Tree* so that the DataSource and the data are displayed below the status. The load process (request) is displayed below the date.

    You can display the status of the individual process steps during the load process on tab page *Details*.
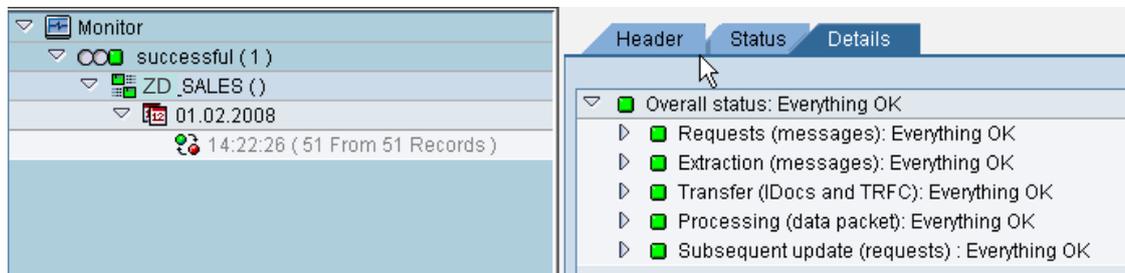
8. Exit the InfoPackage maintenance screen.

9. From the context menu of the DataSource, choose *Create Data Transfer Process....*

The system displays a generated description, the type, source and target of the data transfer process.

10. Choose ✔ *Continue*.

11. The data transfer process maintenance screen appears.

12. Go to tab page *Extraction* and select extraction mode *Full*.

13. Activate the data transfer process.

14. Go to tab page *Execute* and choose 🕐*Execute*.

15. Confirm the next dialog box.

The data transfer process monitor appears.

The monitor displays the status of the load process. You can display the status of the individual process steps during the load process on tab page *Details*. If the status is yellow, refresh the status display for the load process with 🔄 *Refresh Request*.

Result

You successfully loaded the sales data into InfoCube *Sales Overview*. The data is now available for the analysis.

Continue with ...

11 Defining Queries

Use

You define a query that is used as the data provider for the BEx Web application.

Procedure

Starting the Query Designer and Selecting the InfoProvider

1. Start the BEx Query Designer by choosing *Start → Programs → Business Explorer → Query Designer*.

2. Log on to the BI system.

3. In the toolbar, choose ☐ *New Query...*

4. Choose *Find.*

5. Enter *ZD_SALES* as the search string in the upper empty field, select *Search in Technical Name* and deselect *Search in Description*.

6. Choose *Find.*

   InfoCube *ZD_SALES* is displayed in the lower empty field.

7. Select the InfoCube *ZD_SALES* and choose *Open*.

   The data of InfoCube *Sales Overview* (ZD_SALES) is displayed in the left part of the *InfoProvider* screen of the Query Designer.

Defining Characteristic Restrictions in the Filter

1. Expand the dimension *Time* and drag the characteristic *Calendar Year/Month* to the *Characteristic Restrictions* with drag and drop.

2. Select *Calendar Year/Month* and, in the context menu, select *Restrict...*.

   The input help dialog for selecting characteristic values with which the query is filtered at runtime appears.

3. Under *Show* choose *Value Ranges*.

4. Enter *Between* as operator and select *July 2007* to *September 2007* as the interval. To do this:

   a. Call the input help for the lower value of the interval using the input help ⬜ *Select from List*.

   b. Choose *Show → Single Values*.

   c. Select *July 2007* and choose *OK*.

      The lower value *July 2007* appears in the first field.

   d. Repeat steps a to c for the upper value and select *September 1007*.

5. To add this restriction to the selection, choose the arrow to the right *Move to Selection*.
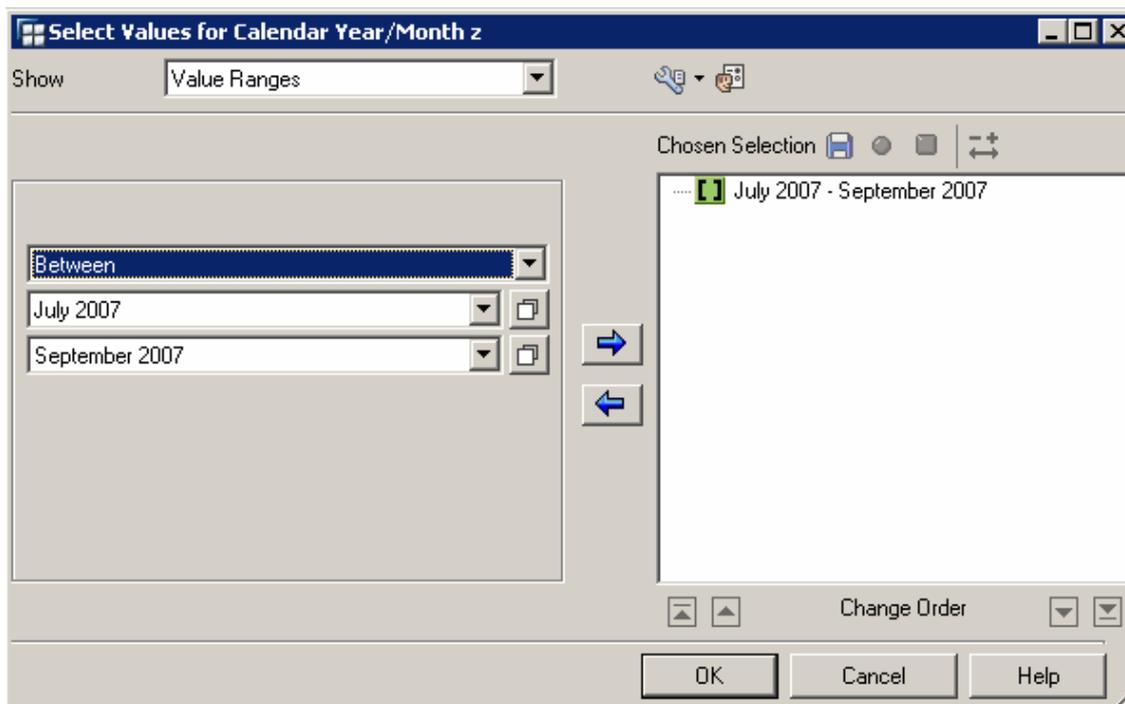
6. Choose *OK*.

7. Drag the characteristic *Calendar Year/Month* to the right area *Default Values* and in the context menu select *Restrict...*

8. Select *September 2007* (which automatically appears in the *History*) and add the value using the arrow to the right.

9. Choose *OK*.

The restrictions in the filter have an effect on the entire query. In this case the InfoProvider data is aggregated for the calendar months July 2007 – September 2007. The proposed value is used as an initial value in the initial view (when executing the query or Web application) and can be changed if required. For example, users can display the sales data for July or August instead of September.

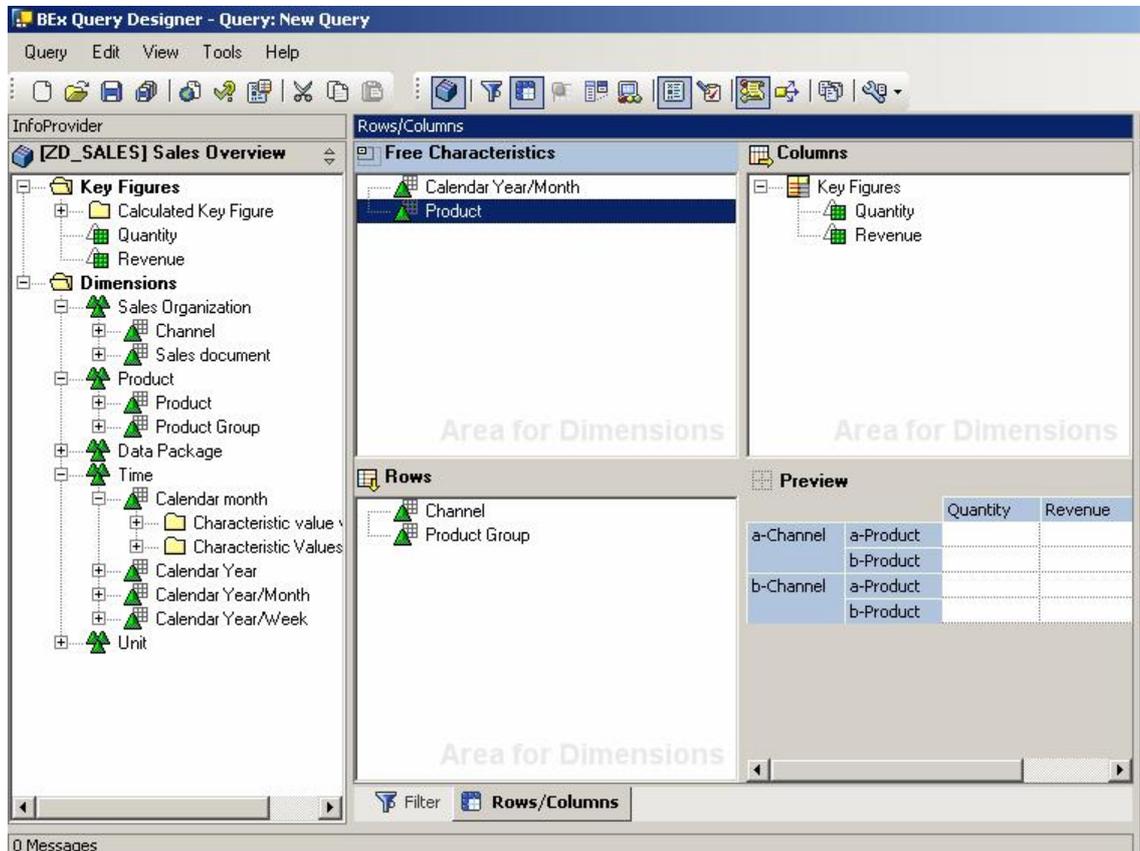## Selecting Characteristics and Key Figures for Navigation

1. Choose the screen area *Rows/Columns*.

   It is displayed as a tab following the tab *Filter* at the bottom of the screen area.

2. In the screen area *InfoProvider,* expand the dimension *Sales Organization* and drag the characteristic *Channel* to Rows with drag and drop.

3. In the screen area *InfoProvider,* expand the dimension *Product* and drag the characteristic *Product Group* to Rows (under *Channel*) with drag and drop.

4. Drag the key figures *Quantity* and *Revenue* from the screen area *InfoProvider* to the Columns with drag and drop.

   The key figures are automatically arranged in a structure with the default name *Key Figures* since key figures are always displayed in a structure for technical

reasons. You can change the name of the structure if required by selecting *Key Figures* and changing the description of the structure in the right screen area *Properties*.

5. Drag the characteristic *Product* from the screen area *InfoProviders* to the area *Free Characteristics* with drag and drop. (It already automatically contains the characteristic *Calendar Year/Month*, which you added to the filter.)

The arrangement of the characteristics and key figures in the rows and columns defines the initial view on the data table. You can change it by navigating. The free characteristics can be used for navigation. For example, users can add one of the free characteristics to the table.

Saving Queries

1. From the toolbar, choose 🖫 *Save Query*.

2. Enter **Sales Summer 2007** as the description and **ZD_SALES_2007** as the technical name.

3. Choose *Save*.

Displaying the Query on the Web (Optional)

To check the data and structure of the query, you can execute the query ad hoc in the Web.

1. From the toolbar, choose 🔘 *Execute... ..*

2. Log onto the portal.

The query is displayed in the BEx Web Analyzer. This enables you to perform an ad hoc analysis of the data.

| Sales Summer 2007 | | | | | Last Data Update: 11.12.2007 11:36:04 |

New Analysis | Open | Save As... | **Display As** Table | Information | Send | Print Version | Export to Excel | Comments | Filter Settings

			Quantity ⇕	Revenue ⇕
▼ Columns	Channel ⇕	Product Group ⇕	EA	$
▪ Key Figures	Fax	Computer	15	9.764,85
▼ Rows		Result	15	9.764,85
▪ Channel	Internet	Accessories	3.805	363.028,00
▪ Product Group		Computer	295	176.692,05
▼ Free characteristics		Hardware	1.200	27.588,00
▪ Calendar Year/Month		Result	5.300	567.308,05
▪ Product	Phone	Accessories	1.275	19.008,75
		Computer	220	138.217,80
		Result	1.495	157.226,55
	Overall Result		6.810	734.299,45

Result

You created the query and can now create the BEx Web application.

## Continue with ....

12 Creating Web Applications

Use

You create a Web application in which you can analyze sales data for the year 2007 on the Web. The data for the analysis is available in query ZD_SALES_2007. The query data is displayed in a table in the Web application. To create a Web application, you integrate the Web item *Analysis* in the Web template. By simply pressing a button, you can create a PDF document in the Web application and send the analysis by e-mail; you use the Web item *Button Group* in the Web template to do this. To filter the data by month, you can use a dropdown box that can be inserted into the Web template as a Web item.

Procedure

Calling the Web Application Designer and Creating the Data Provider

1. Start the BEx Web application by choosing *Start → Programs → Business Explorer → Web Application Designer*.

2. Log onto the BI system.

3. In the initial screen of the Web Application Designer, click on the link *Create New Blank Web Template*.

4. In the lower part of the layout view choose *New Data Provider*.

5. In the dialog box for the data provider type select *Query* and enter the name of the query **ZD_SALES_2007** in the field following *Query*.

6. Choose *OK*.
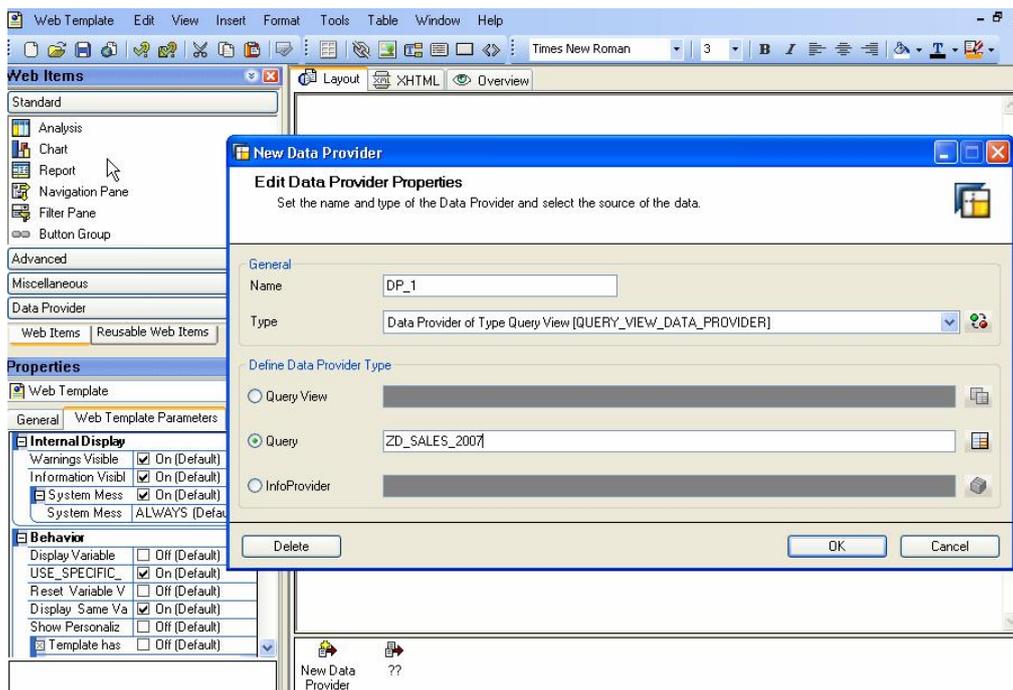
7. The data provider is displayed in the lower part of the layout view in the Web Application Designer.

Designing the Layout of the Web Application (Inserting HTML Table and Free Text)

1. Enter a meaningful text such as <SALES 2007> in the Web template area, and format it as required using the formatting functions (for example, font, font size, font color) in the toolbar.

2. Insert a new line at the end of the text.

3. In the toolbar, choose ⊞ *(Insert Table).*

4. On the *Custom* tab in the next dialog box, define the table so that it has one row and two columns and choose *OK*.

Inserting an HTML table simplifies the arrangement of the Web items in the Web template and thus permits you to design your layout.


Inserting Web Items

1. Insert the Web items *Button Group* and *Dropdown Box* in the table.

    a. In the *Web Items* screen area, select the Web item group *Standard*.

b. Drag the *Button Group* Web item to the left column of the table with drag and drop.

c. Drag the *Dropdown Box* Web item to the right column of the table with drag and drop.

d. Bring the two columns closer together if required.

2. Drag the *Analysis* Web item to the area below the HTML table with drag and drop.
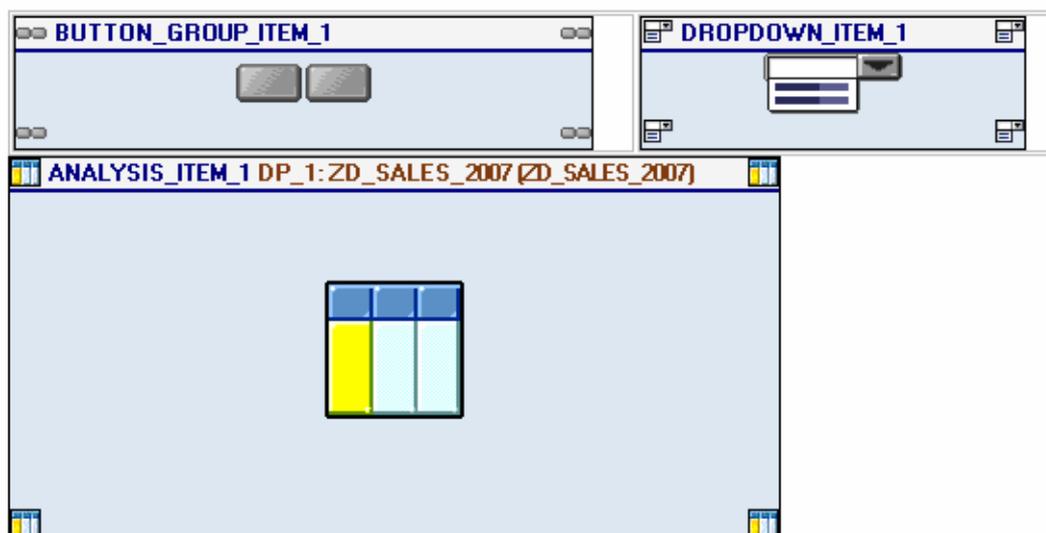
Defining Web Item Parameters

To define the Web item parameters, click on the relevant Web item and go to the tab page *Web Item Parameters* in the screen area *Properties*.

Button Group Web item

1. Click on the first pushbutton in the parameter group *Internal Display*. The *Edit Parameter* dialog box appears.

a. Enter the text **PDF** for the caption.

b. Click on the pushbutton to the right of the parameter *Command* below *Action*. The Command Wizard appears.

c. Choose *All Commands* → *Commands for Web Templates.*

d. Select the command *Export Web Application* and choose *Continue* with the mouse button.

If you precede the command with this indicator, the command is copied to the list of favorite commands.

e. From the command-specific parameters, select *PDF* as export format and choose *OK*.

f. Choose *OK* in the dialog box *Edit Parameter*.

Export Web Application [EXPORT]
Exports a Web application in a specified format (such as PDF or Excel)

| Internal Display	
Web Template	Default
Data Binding	
Web Items (0)	
* Web Item	Default
Command-Specific Parameters	
Export Format	**PDF [PDF]**
Scaling Factor	FIT_HORIZONTAL (Default)
Show Export Dialog	☑ On (Default)
Paper Size	DINA4 (Default)

You created the first pushbutton, which permits conversion to a PDF document in the Web application by pressing a button. Now create the second pushbutton.

2. Click on the second pushbutton in the parameter group *Internal Display*. The *Edit Parameter* dialog box appears.

a. Enter the text **Send** for the caption.

Button	
Caption	**Send**
Quick Info	Default
Icon	Default
Enabled	☑ On (Default)
Design	STANDARD (Default)
Action	INSTRUCTION (Default)
Command	Default
WITH_RELEASE_ACTION	☐ Off (Default)
Execute With ENTER	☐ Off (Default)

b. Select the pushbutton to the right of the parameter *Command* below *Action*. The Command Wizard appears.

c. Choose *All Commands* → *Commands for Web Templates*.

d. Select the command *Start Broadcaster* and choose *Continue*.

e. Select the command-specific parameter *START_WIZARD*.

f. Select *E-MAIL* as *Distribution Type (DISTRIBUTION_TYPE)* and choose *OK*.

g. Choose *OK* in the dialog box *Edit Parameter*.
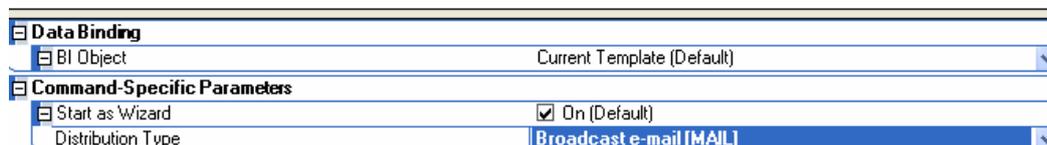
You created the second pushbutton, with which you can send the analysis in the Web application.

Dropdown Box

1. Select data connection type *Char./Structure Member (CHARACTERISTIC_SELECTION)* in Web item parameter group *Data Binding.*

2. Click on the pushbutton next to parameter *Selection of Characteristic*. The *Edit Parameter* dialog box appears.

3. Enter *DP_1* as data provider.

4. Under *Characteristic* select *CalYear/Month (0CALMONTH)* and choose *OK*.

5. Select *Label Visible*.

6. Choose *OK* in the dialog box *Processing Parameters*.

Analysis

1. Select DP_1 as data provider in the Web item parameter group *Data Binding*.

2. Activate the parameter *Document Symbols for Data (DOCUMENT_ICONS_DATA)* in the Web item parameter group.

You can copy the other predefined parameters for the Web item *Analysis*.

Saving and Executing the Web Template

1. In the menu bar choose Web Template → *Save as.*

2. Enter a meaningful name and a technical name for your Web template under *Description* and choose *OK*.

3. Choose 📋 *(Execute…).*

The Web template is displayed in the Web browser, where you can begin your analysis.

SALES 2007

| PDF | Send |

Calendar Year/Month: 09.2007 ▼

Channel ⇕	Product Group ⇕	Quantity ⇕ EA	Revenue ⇕ $
Fax	Computer	15	9.764,85
	Result	15	9.764,85
Internet	Accessories	3.805	363.028,00
	Computer	295	176.692,05
	Hardware	1.200	27.588,00
	Result	5.300	567.308,05
Phone	Accessories	1.275	19.008,75
	Computer	220	138.217,80
	Result	1.495	157.226,55
Overall Result		6.810	734.299,45

Result

You created a Web template for analyzing your sales data and launched it in the Web browser as a Web application.

Continue with ...

13 Analyzing Data in the Web Application

Use

You navigate in the Web application to analyze data and, if necessary, to add comments.

Procedure

1. Since you are interested in the revenue, you want to sort the revenue data. Click on the arrows in the *Revenue* field to sort the revenue data in increasing or decreasing order.

    You can also sort the revenue by clicking the alternative mouse button on *Revenue* and choosing *Sort → Sort Increasing* or *Sort Decreasing* in the context menu.

    You see that the greatest revenue is obtained with the distribution channel *Internet*.

2. To see the differences in the revenue data for the months July, August and September, select first *08.2007* and then *07.2007* in the dropdown box *Calendar Year/Month*.

    You see that the revenue data for the distribution channel *Internet* increased greatly. The marketing campaign for the Internet shop was apparently successful.

3. Filter the data back to September by selecting *09.2007* in the dropdown box.

4. To add a comment to the Web application about the successful increase in revenue using the Internet, create an appropriate document. At the subtotal of the distribution channel *Internet* (567.308,05) choose *Documents* → *Create New Comment* in the context menu*.*

5. Enter a name and description for the document.

6. Enter a text and choose *Save.*

General	BI

Name: *	Internet Sales
Description:	Successful Internet Sales Summer 2007
DOCUMENT_TYPE:	

Our internet campaign seems to be working well!
Have a look at the revenue in September 07.

Save

OK

7. Choose *OK*.

The revenue data for the distribution channel *Internet* now contains a symbol that indicates that it has a document.

The text is displayed when you click on the document symbol.

8. To store this view on the data, you want to create a PDF document that you can print when needed. Click on the *PDF* pushbutton.

9. Adjust the output of the PDF document to your requirements. For example, choose *Header → Links → Free Text* and enter *September Revenue* in the empty field.

10. Choose *OK*.

The PDF document is displayed.

You can print the PDF document or save it locally.

Result

You analyzed the data in the Web application and added a comment to this data.

The navigation steps described above demonstrate the simple analysis options available in a Web application. The more complex options for data analysis in the Web are described in detail in the documentation about the Business Explorer.

You can make the Web application available to your colleagues, for example by sending it by e-mail after the data analysis.

Continue with ....

14 Broadcasting Web Applications by E-Mail

Use

You can provide the BEx Web application to other employees in your company, for example, to colleagues in the sales department, by broadcasting it by e-mail.

Prerequisites

You have authorization for authorization object S_OC_SEND.

Make sure that the e-mail addresses of the recipients are entered in user maintenance (transaction code SU01) and that communication type *E-Mail* is specified.

Procedure

1. In the Web application, click on *Send*.

    The Broadcasting Wizard appears; it guides you step-by-step through the required settings.

2. Select output format *MHTML*.

> The system creates an MHTML file. All components (HTML, style sheet, pictures, and so on) of the entire HTML page are in one file. This output format is suitable if you want to generate one single document and broadcast it by e-mail or to the portal.

3. Choose *Continue*.

4. Enter the e-mail addresses of the recipients, separated with semicolons.

5. Enter a subject line and text, and define the importance of the e-mail.

6. Choose *Execute*.

Choose *Continue* for further steps in the Broadcasting Wizard with which you can save and schedule your broadcast settings. You do not need these additional steps if you want to execute the broadcast settings directly.

Result

You distributed the Web application by e-mail to the specified recipients, who receive an MHTML file containing the Web application. The data has the version at the time when the e-mail was sent. The data in this document cannot be subjected to a further analysis.

The Broadcasting Wizard allows various types of distribution, such as distribution to the portal, scheduling of the time of distribution, and creating different output formats. For example, distributing online links gives the recipients access to current data and an additional data analysis.