

How to...

Enhance Web Printing

BUSINESS INFORMATION WAREHOUSE



ASAP “How to...” Paper



**Applicable Releases: BW 3.0B, Support Package 9
May 2003**

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1 Business Scenario

Your reporting end users would like to modify the format of their BW Web Applications to improve the layout when printing from the web. This includes the ability to print headers and footers on each page, rather than just on the first page, and set page breaks. Since some reports have a large number of rows and columns, users would like to choose the number of rows and columns that will be displayed on each page.

2 The Result

In this "How to..." paper we will define a BEx Web Application that is linked to a print service through the context menu.

Navigation block:

G/L Account	Structure	Structure
-------------	-----------	-----------

G/L: Balances - quarter breakdown

	2000			
G/L Account	1st quarter balance	2nd Quarter Balance	3rd Quarter Balance	4th Quarter Balance
Land and similar rig	65.490.901,01 EUR	65.490.901,01 EUR	65.490.901,01 EUR	65.490.901,01 EUR
ADP - real estate	9.997.672,75 EUR	-9.997.672,75 EUR	-9.997.672,77 EUR	-9.997.672,77 EUR
Machinery	486,66 EUR	6.711.486,66 EUR	6.711.486,66 EUR	6.845.889,96 EUR
ADP-mach	763,49 EUR	-4.243.045,64 EUR	-4.243.045,68 EUR	-4.243.045,68 EUR
Office equi	492,18 EUR	2.529.492,18 EUR	2.529.492,18 EUR	2.633.642,18 EUR
ADP - fixts	517,89 EUR	-1.605.320,92 EUR	-1.605.320,90 EUR	-1.605.320,90 EUR
LVA (fixts/	516,49 EUR	1.516,49 EUR	1.516,49 EUR	1.516,49 EUR
ADP-LVA	516,49 EUR	-1.516,49 EUR	-1.516,49 EUR	-1.516,49 EUR
Capitalized	115,04 EUR	11.115,04 EUR	11.115,04 EUR	11.115,04 EUR
Assets und	624,21 EUR	5.624,21 EUR	5.624,21 EUR	5.624,21 EUR
Investment	242,11 EUR	-56.242,11 EUR	-56.242,11 EUR	-56.242,11 EUR
Obligations		6.500.000,00 EUR	9.000.000,00 EUR	9.000.000,00 EUR
Stocks FA	1.058.374,20 EUR	1.058.374,20 EUR	2.034.016,27 EUR	2.034.016,27 EUR
Other loans, long-te				478.009,46 EUR
Ordinary share capit	-19.799.731,64 EUR	-19.799.731,64 EUR	-19.799.731,64 EUR	-19.799.731,64 EUR
Share premium accoun	-9.154.672,79 EUR	-9.154.672,79 EUR	-9.154.672,79 EUR	-9.154.672,79 EUR
Reserves required by	-14.827.464,55 EUR	-14.827.464,55 EUR	-14.827.464,55 EUR	-14.827.464,55 EUR

When you call the print service through the context menu, a second browser window opens where you can adjust print settings and then print the page with header lines, footer lines and page breaks.

Preview Mode

Header Line

&IMG:Mime/BEx/Icons/sap_ &TITLE&

height (in cm) indent left (in cm) intent right (in cm)

Data Area

padding top (in cm) indent left (in cm) indent right (in cm)

Data Rows Data Columns

Footer Line

&DATE& &PAGE& of &PAGETOT&

height (in cm) indent left (in cm) indent right (in cm)

Enter Reset

 G/L: Balances - quarter breakdown

Textelements and Variables:

Author	DANNER
Last Changed by	DANNER
InfoProvider	0FIGL_C01
Query Technical Name	ZFIGL_C01_Q0030
Query Description	G/L: Balances - quarter breakdown
Key Date	23.10.2002

3 Preliminary Steps

Before you can implement the solution described in section 4 you have to import BW 3.0B Support Package 9 into the BW System. Additionally, you have to import the transport file that is distributed with this "How To..." paper. This is usually done by system administration or by a basis consultant. You have to copy the two files provided with this paper in the system's transport directory and use transaction SMTS to import them into your system

The transport file contains 6 objects in the customer name space:

Object Type	Object Name	Description
Package	Z_PRINT_HELP_SERVICE	Package

ABAP OO Class	Z_PRINT_HELP_SERVICE	This class implements a print help service with metric measures.
ABAP OO Class	Z_PRINT_HELP_SERVICE_IMP	This class implements a print help service with imperial measures.
ABAP OO Class	Z_PRINT_HELP_SERVICE_ALL_DP	Currently not in use.
Include File	Z_PRINT_HTML_TEMPLATE	This file contains the HTML coding that is used by Z_PRINT_HELP_SERVICE.
Include File	Z_PRINT_HTML_TEMPLATE_IMP	This file contains the HTML coding that is used by Z_PRINT_HELP_SERVICE_IMP.

The disclaimer on the title page also applies for all objects contained in the transport file.

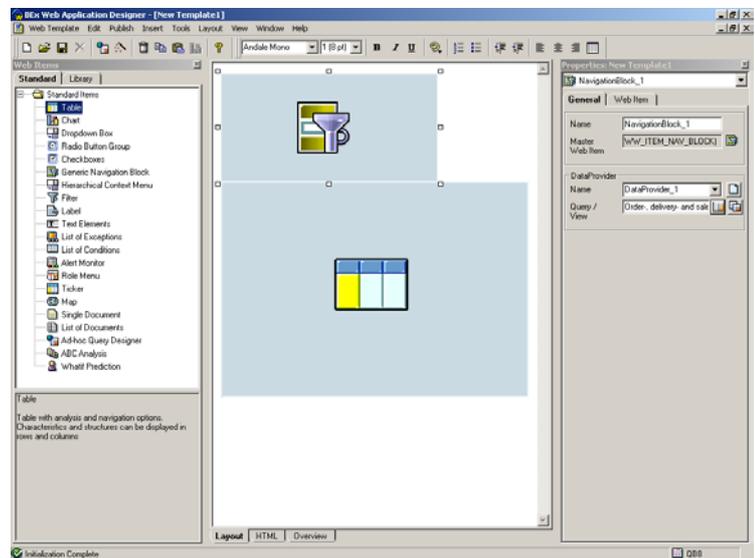
Since the objects are located in the customer namespace, you can apply any changes to these objects to adapt the print service to your needs without modifying SAP standard.

Note: If any object with the same name already exists in your system, you should not import the transport file. This would overwrite the already existing definition.

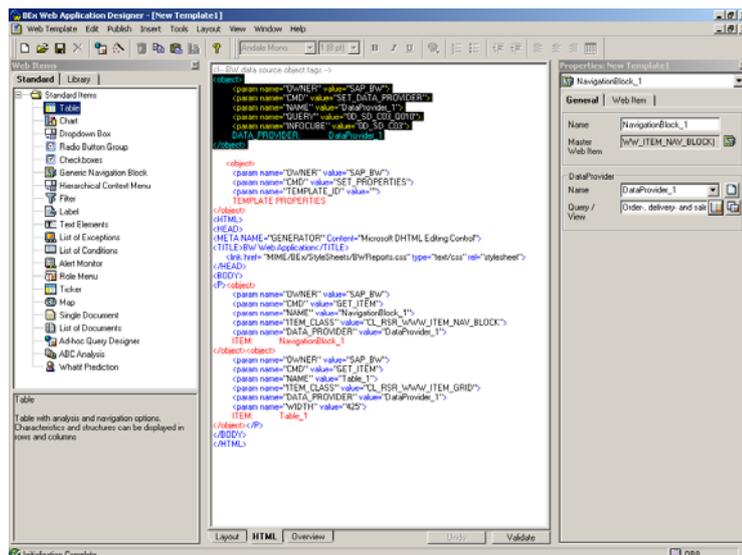
4 The Step By Step Solution

4.1 Create a new BW Web Application and register a new Help Service

1. Create a BW Web Application using the BEx Web Application Designer. For example, drag & drop a Filter and Navigation Block web item into the layout tab of the template. Assign (Data Bind) a Query or Query View to your items. Save the template to your Favorites or to a Role.



2. Select the HTML tab, and then find the item object tag for the table.



3. Edit the HTML to add the Help Service parameters. This code registers a new Help Service to the Web Item (Table_1). The value 'ZPRINTING' is a logical name. You can define any other logical name as well. The parameter HELP_SERVICE_CLASS links this new help service to an ABAP OO class that implements the service. In this case, the parameter value is 'Z_PRINT_HELP_SERVICE' for the printing help service that has been delivered with the attached transport file. You can use 'Z_PRINT_HELP_SERVICE_IMP' instead, if you would like to use imperial measures. **See preliminary steps.**

```

<object>
  <param name="OWNER" value="SAP_BW">
  <param name="CMD" value="GET_ITEM">
  <param name="NAME" value="Table_1">
  <param name="ITEM_CLASS" value="CL_RSR_WWW_ITEM_GRID">
  <param name="DATA_PROVIDER" value="DataProvider_1">
  <param name="WIDTH" value="425">
  <param name="HELP_SERVICE" value="ZPRINTING">
  <param name="HELP_SERVICE_CLASS" value="Z_PRINT_HELP_SERVICE">
  ITEM:      Table_1
</object>

```

4.2 Call the print help service from your Web Application through a link

1. Edit the HTML code to launch the new Help Service from the BW Web Application. One option is to use a link to execute a SAP_BW_URL command, which will launch the print settings in the same window. Save the web template.

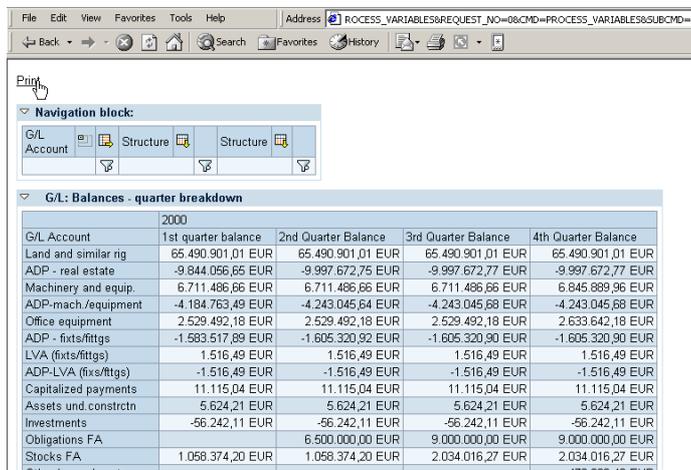
```
<A href='<SAP_BW_URL cmd="PROCESS_HELP_WINDOW" help_service="ZPRINTING" item="Table_1">>Print</A>
```

The help service name is the logical name that you assigned in section 4.1 step 3. The item is the one that you have chosen in section 4.1 step 2.

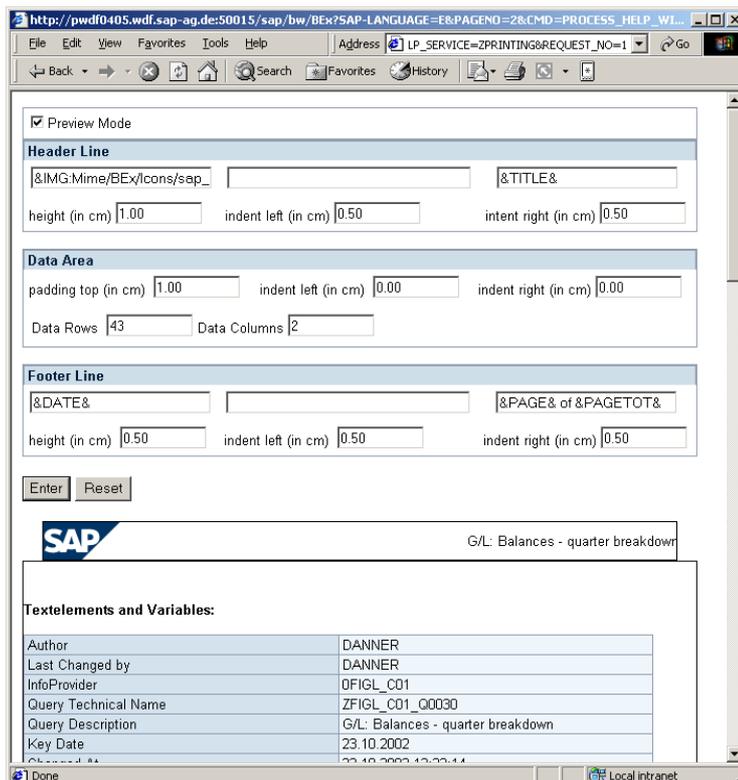
See the Appendix for additional parameters that can be added to the SAP BW command URL.

See section 4.3 if you want to call the print help service through the context menu.

2. Open the web template in the browser. Call the print help service by following the link defined in section 4.2 step 1.

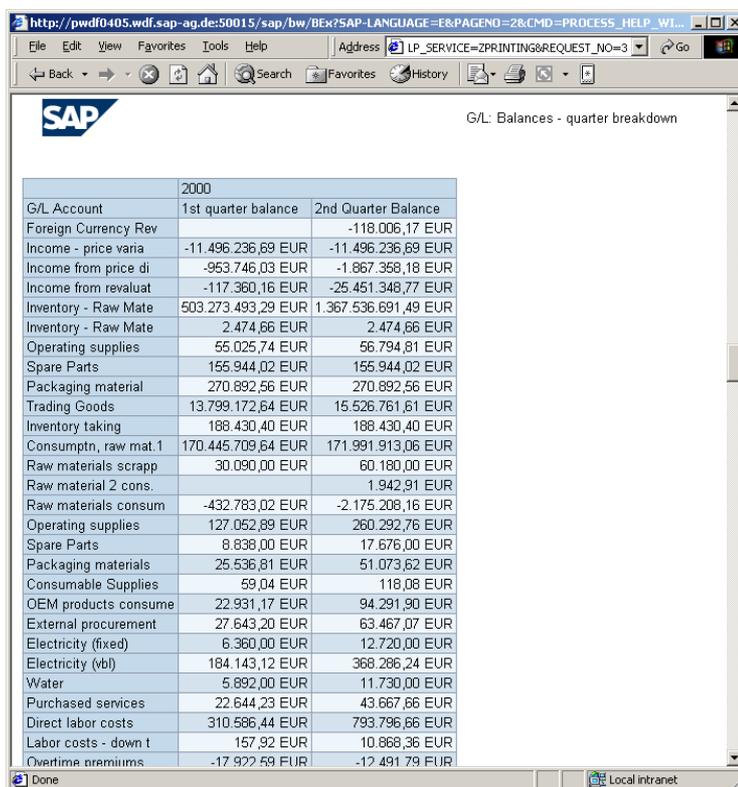


3. Maintain the Print Settings. In the dialogue window you can adjust the Header Line, Data Area, and Footer Line settings. Then select Enter. The settings will be changed in the preview area. To go back to the default settings, choose Reset. When you have completed your changes, remove the flag for Preview Mode, and select Enter.

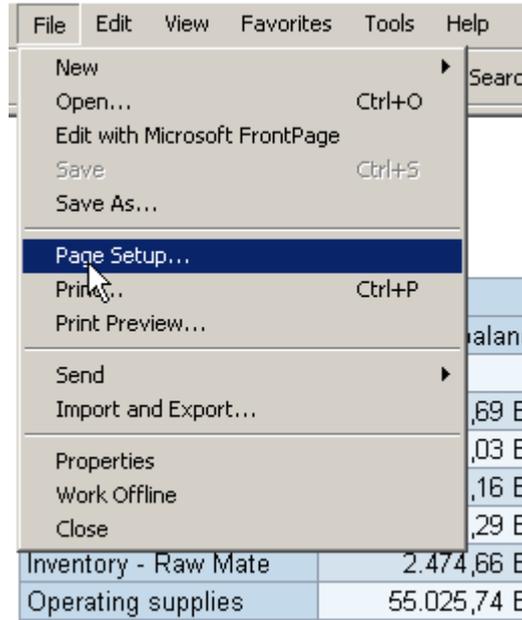


4. The system will now generate an HTML page with page breaks, header and footer lines, according to the settings you made in the previous step.

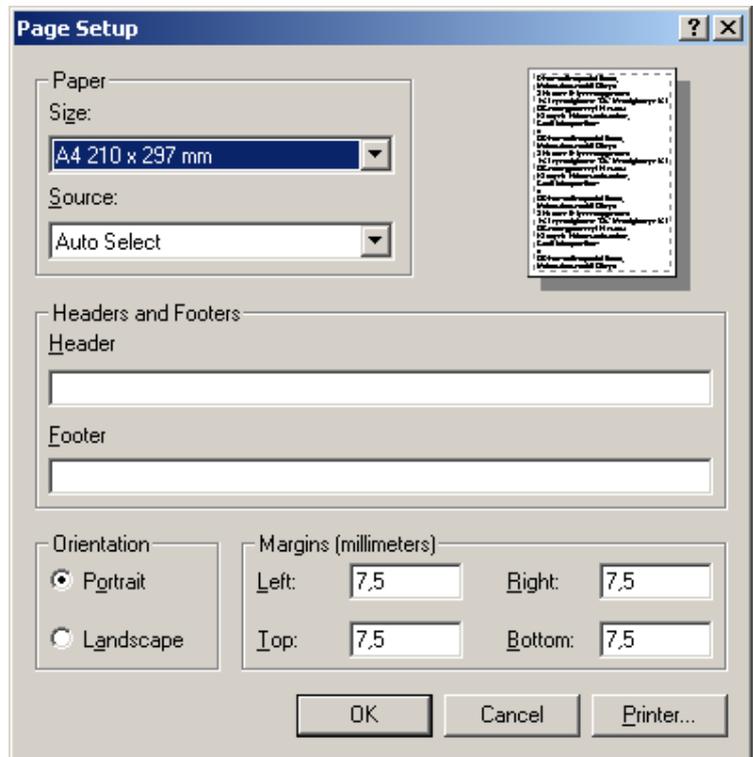
Note: If you need to go back and edit the Print Settings, double-click anywhere in the header, data area, or footer line.



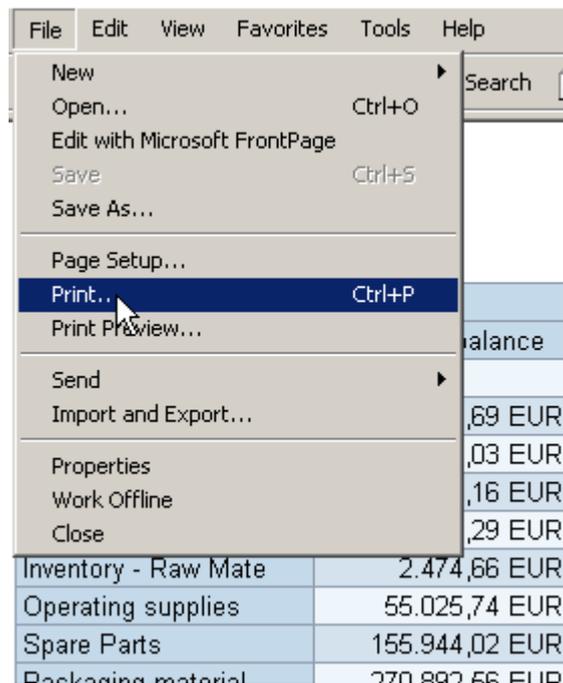
- Before you print this page, you should check the page setup settings of your browser.



Make sure that you select the right paper size and orientation, delete the Header and Footer line, and define proper values for page margins.



- Now you can print the HTML page using the browser's print option.



4.3 Call the print help service from your Web Application using the Context Menu

- Edit the HTML code to launch the new Help Service from the BW Web Application. One option is to extend the context menu to call the print help service in a separate window.

Identify the Template Properties object tag and add the parameters to enhance the context menu.

```
<object>
  <param name="OWNER" value="SAP_BW">
  <param name="CMD" value="SET_PROPERTIES">
  <param name="TEMPLATE_ID" value="ZGD_PRINT_HOW_TO">
  <param name="SUPPRESS_SYSTEM_MESSAGES" value="X">
  <param name="SUPPRESS_WARNINGS" value="X">
  <param name="CMENU_LABEL" value="Print">
  <param name="CMENU_FUNCTION" value="callPrintHelpService">
  TEMPLATE PROPERTIES
</object>
```

- In the header area of the template implement the JavaScript function that handles your customer defined menu entries.

```
<script language=javascript>
function callPrintHelpService(parameter, cell_type, filter, parameter1, parameter2, item, dataprovider, x, y) {
  var url = SAP_BW_URL_Get();
  url = url + "&CMD=PROCESS_HELP_WINDOW&HELP_SERVICE=ZPRINTING&ITEM=Table_1";

  if( dataprovider == "DataProvider_1")
    window.open(url, "Print", "width=800, height=600, menubar=yes, toolbar=no, scrollbars=yes, resizable=yes");
}
</script>
```

3. Save the web template. Open it in a browser. Call the context menu and invoke the print service.

G/L: Balances - quarter breakdown				
2000				
G/L Account	1st quarter balance	2nd Quarter Balance	3rd Quarter Balance	4th Quarter Balance
Land and similar rig	65.490.901,01 EUR	65.490.901,01 EUR	65.490.901,01 EUR	65.490.901,01 EUR
ADP - real estate	-9.844.056,66 EUR	-9.997.672,75 EUR	-9.997.672,77 EUR	-9.997.672,77 EUR
Machinery and equip.	6.711.486,66 EUR	6.711.486,66 EUR	6.711.486,66 EUR	6.711.486,66 EUR
ADP-mach./equipment	-4.184.763,49 EUR	-4.243.045,64 EUR	-4.243.045,68 EUR	-4.243.045,68 EUR
Office equipment	2.529.492,18 EUR	2.529.492,18 EUR	2.529.492,18 EUR	2.529.492,18 EUR
ADP - fixts/fitts	1.699.517,89 EUR	-1.605.320,92 EUR	-1.605.320,90 EUR	-1.605.320,90 EUR
LVA (fixts/fitts)	6,49 EUR	1.516,49 EUR	1.516,49 EUR	1.516,49 EUR
ADP-LVA (fixts/fitts)	6,49 EUR	-1.516,49 EUR	-1.516,49 EUR	-1.516,49 EUR
Capitalized ps	5,04 EUR	11.115,04 EUR	11.115,04 EUR	11.115,04 EUR
Assets und c	4,21 EUR	5.624,21 EUR	5.624,21 EUR	5.624,21 EUR
Investments	2,11 EUR	-56.242,11 EUR	-56.242,11 EUR	-56.242,11 EUR
Obligations F		6.500.000,00 EUR	9.000.000,00 EUR	9.000.000,00 EUR
Stocks FA	4,20 EUR	1.058.374,20 EUR	2.034.016,27 EUR	2.034.016,27 EUR
Other loans, l				
Ordinary shar	11,64 EUR	-19.799.731,64 EUR	-19.799.731,64 EUR	-19.799.731,64 EUR
Share premium account	-9.154.672,79 EUR	-9.154.672,79 EUR	-9.154.672,79 EUR	-9.154.672,79 EUR
Reserves required by	-14.827.464,55 EUR	-14.827.464,55 EUR	-14.827.464,55 EUR	-14.827.464,55 EUR
Other reserves	481.485,83 EUR	481.485,83 EUR	481.485,83 EUR	481.485,83 EUR

4. Follow the instructions in section 4.2 to adapt the print settings and send the file to the printer.

The screenshot shows a web browser window with the URL http://pwwf0405.wdf.sap-ag.de:50015/sap/bw/BEx?SAP-LANGUAGE=E&PAGENO=2&CMD=PROCESS_HELP_W.... The browser's menu bar includes File, Edit, View, Favorites, Tools, and Help. The 'File' menu is open, showing options like New, Open..., Edit with Microsoft FrontPage, Save, Save As..., Page Setup..., Print..., Print Preview..., Send, Import and Export..., Properties, Work Offline, and Close. The 'Print...' option is highlighted. The main content area displays the 'G/L: Balances - quarter breakdown' table, which is partially visible. Below the table, there is a 'Filter Values:' section with a dropdown arrow.

5 Limitations

5.1 Changing of print orientation

If you want to change print orientation from portrait to landscape or vice versa, it is not enough to change the page layout in the browser's page setup menu. Additionally, you have to adapt the two parameters `p_page_height` and `p_page_width` to the new page layout. You can specify these parameters in the URL when you first call the print service. Additionally, you can set the defaults in the attributes of class `Z_PRINT_HELP_SERVICE` or `Z_PRINT_HELP_SERVICE_IMP`, respectively.

This means that with the solution described in this paper, the end user cannot simply switch between portrait and landscape mode. The report designer has to decide whether a report should be printed portrait or landscape and adapt the parameters `p_page_height` and `p_page_width` accordingly.

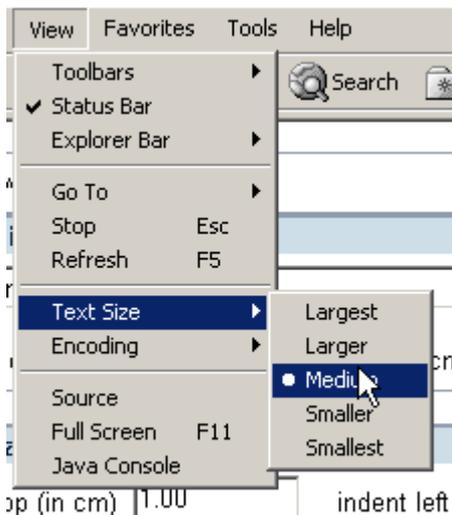
Alternatively, you could adapt `Z_PRINT_HELP_SERVICE` in a way that you can change these two parameters interactively.

5.2 Printing of charts

The solution described in this paper does not support printing of charts

5.3 Fit-to-page

The solution described in this paper does not support "fit-to-page". If you are using the standard style sheet, you can scale the print preview with the browser's scaling facilities. This affects the print preview as well as the actual print out.



5.4 Printing of several DataProviders

The solution described in this paper does not support printing of several DataProviders. If you need this functionality, you have to implement this individually. The transport files contain an ABAP OO class `Z_PRINT_HELP_SERVICE_ALL_DP`. This class shows you how you can access all DataProviders in your current web application and create a print preview from that. However, this is only meant as an example or reference for your own implementation.

6 Appendix

6.1 Header and Footer Line Parameters

In the header and footer line the following placeholders are supported:

Placeholder Name	Description
&DATE&	Replaced with current date.
&TITLE&	Replaced with report title (long text).
&PAGE&	Replaced with current page number.
&PAGETOT&	Replaced with number of total pages.
&IMG:Mime/BEx/lcons/sap_logo.gif &	Replaced with image in MIME repository. The pathname and image name should be adapted to your local settings, e.g. Mime/Customer/Images/company_logo.gif

6.2 URL Parameters

The example implementation of the print help service supports the following URL parameters:

Parameter Name	Description
P_HEADER_LEFT	String to be displayed in the left part of the header line.
P_HEADER_CENTER	String to be displayed in the center part of the header line.
P_HEADER_RIGHT	String to be displayed in the right part of the header line.
P_HEADER_HEIGHT	Height of the header area.
P_HEADER_INDENT_LEFT	Left indent of the header area.
P_HEADER_INDENT_RIGHT	Right indent of the header area.
P_FOOTER_LEFT	String to be displayed in the left part of the footer line.
P_FOOTER_CENTER	String to be displayed in the center part of the footer line.
P_FOOTER_RIGHT	String to be displayed in the right part of the footer line.
P_FOOTER_HEIGHT	Height of the footer area.
P_FOOTER_INDENT_LEFT	Left indent of the footer area.
P_FOOTER_INDENT_RIGHT	Right indent of the footer area.
P_DATA_AREA_PADDING_TOP	Space between header area and data area.
P_DATA_AREA_INDENT_LEFT	Left indent of the data area.
P_DATA_AREA_INDENT_RIGHT	Right indent of the data area.
P_DATA_AREA_ROWS	Number of rows that should be displayed on one page. When this number of rows is reached, the service inserts a page break.
P_DATA_AREA_COLUMNS	Number of columns that should be displayed on one page. When this number of columns is reached, the

	service inserts a page break. If this parameter is an initial value, then all columns are displayed on one page.
P_PAGE_WIDTH	Width of printable area, i.e. page width minus margins.
P_PAGE_HEIGHT	Height of printable area, i.e. page height minus margins.
P_STYLESHEET	Name of a stylesheet that should be used for print output, e.g. Mime/Custom/Stylesheets/BW_print_stylesheet.css
P_PREVIEW_MODE	Flag to indicate whether print service should be called in preview mode.
P_SHOW_FILTER	Flag to indicate whether or not to show filter values.
P_SHOW_VARIABLES	Flag to indicate whether or not to show variable values.
P_PRINT_MODIFY_CLASS	Name of an ABAP OO class that implements the table interface. This class can be used to influence rendering of the print output.

Examples

1. Command URL to call print help service not in preview mode and specify number of rows and columns per page:

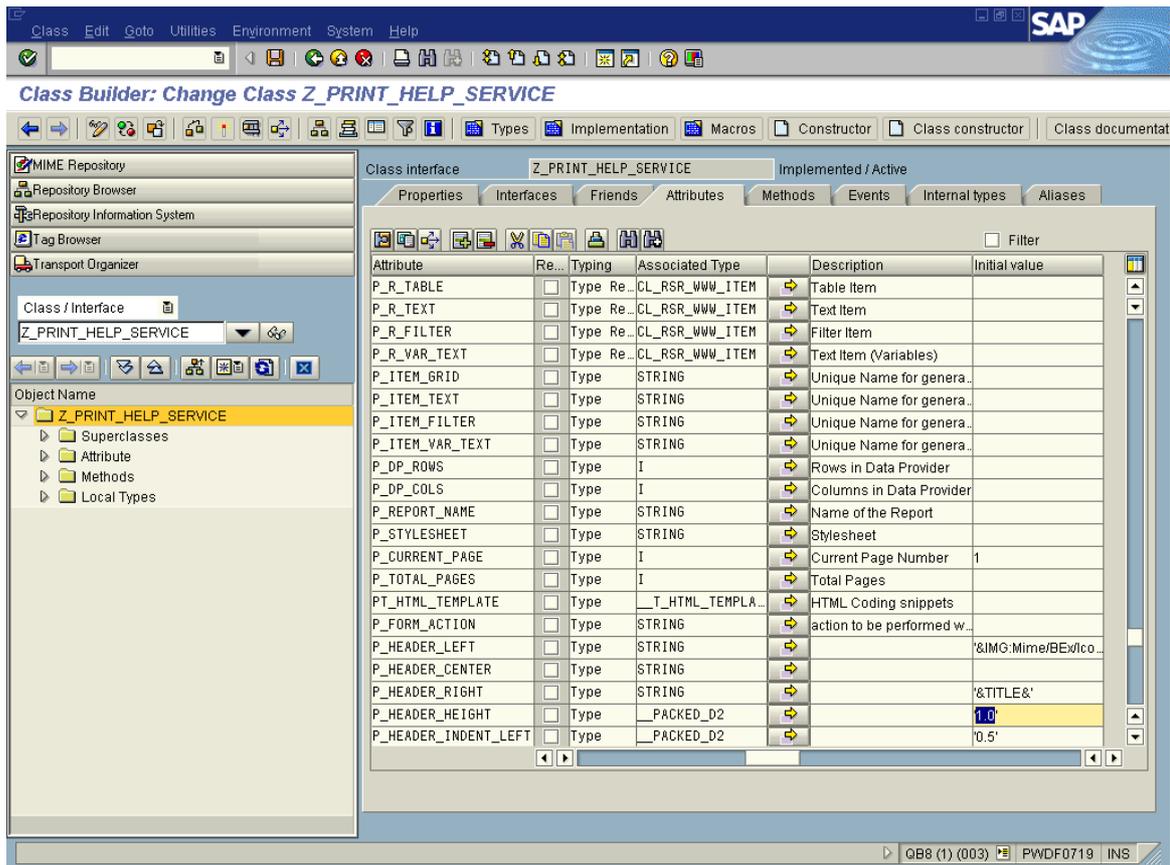
```
<SAP_BW_URL cmd="PROCESS_HELP_WINDOW" help_service="ZPRINTING"
item="Table_1" P_DATA_AREA_ROWS='40' P_DATA_AREA_COLUMNS='3'
P_PREVIEW_MODE=' '>
```

2. Command URL to call print help service specifying a table interface class:

```
<SAP_BW_URL cmd="PROCESS_HELP_WINDOW" help_service="ZPRINTING"
item="Table_1" P_PRINT_MODIFY_CLASS="myTableInterfaceImplementation">
```

6.3 Changing the example implementation Z_PRINT_HELP_SERVICE

To change the default settings for the attributes, i.e. P_HEADER_HEIGHT, goto transaction SE80. Then select 'Class / Interface' and then 'Z_PRINT_HELP_SERVICE'. Double-click on the object name 'Z_PRINT_HELP_SERVICE', and then choose 'Display <-> Change'. Choose the Attributes tab, and then change the Initial value. Then Save.



If you would like to change the page processing, e.g. add a title page, etc., please check the method process_cmd of the implemented class. This is the central method of the help service implementation, i.e. all http requests coming from the client are handled by this method. All other methods of the print service are called from process_cmd.

To understand how the print service works, create a web template that calls the print service in the same window, set a break point in method process_cmd and run the template in transaction rsrt in the BW system. The system stops at the break point and you can use the debugger to scan through the coding step by step.

6.4 Supported Browsers

The print service creates HTML code that is only properly interpreted by the following browsers.

- Microsoft Internet Explorer 5.x
- Microsoft Internet Explorer 6.0