# NaturalONE

## Natural for Ajax

Version 8.2.7

March 2013

This document applies to NaturalONE Version 8.2.7.

**Document ID: ONE-NNATNJX-827-20130320**

## Table of Contents

Preface ..... xvii
I Introduction ..... 1
1 Introduction ..... 3
What is a Rich Internet Application? ..... 4
Rich Internet Applications with Natural ..... 4
Mixed Applications ..... 5
II First Steps ..... 7
2 About this Tutorial ..... 9
3 Enabling a Natural Project for Ajax Developer ..... 13
4 Creating a User Interface Component ..... 15
5 Getting Started with the Layout Painter ..... 19
Creating a New Layout ..... 20
Elements of the Layout Painter ..... 22
Previewing the Layout ..... 22
Viewing the XML Code ..... 23
Opening the Ajax Developer Perspective ..... 23
6 Writing the GUI Layout ..... 25
Specifying the Properties for the Natural Page ..... 26
Specifying a Name for the Title Bar ..... 27
Specifying a Name and Method for the Button ..... 28
Adding the Input and Output Areas ..... 28
Adding the Image ..... 31
Adding a Horizontal Distance ..... 32
Adding an Instructional Text ..... 33
Adding a Vertical Distance ..... 33
Saving Your Layout ..... 34
7 Creating the Natural Code ..... 35
Content of the Adapter ..... 36
Creating the Main Program ..... 37
Testing the Completed Application ..... 39
8 Some Background Information ..... 41
Name Binding between Controls and Adapter ..... 42
Data Exchange at Runtime ..... 42
Files and their Locations ..... 43
III ..... 45
9 Developing the User Interface ..... 47
Enabling a Natural Project for Ajax Developer ..... 48
Creating a User Interface Component ..... 48
Creating a Natural Page ..... 49
Specifying Properties for the Natural Page ..... 50
Designing the Page ..... 50
Binding Properties and Methods ..... 51
Previewing the Layout ..... 51

Viewing the Protocol ........ 51
Saving the Layout ........ 52
Generating the Adapter ........ 52
Data Type Mapping ........ 53
10 Developing the Application Code ........ 55
Generating the Main Program ........ 56
Executing the Main Program ........ 57
Debugging the Main Program ........ 57
Structure of the Main Program ........ 57
Handling Page Events ........ 58
Built-in Events and User-defined Events ........ 58
Sending Events to the User Interface ........ 59
Using Pop-Up Windows ........ 60
Debugging Modal Pop-up Windows ........ 61
Using Natural Maps ........ 62
Navigating between Pages and Maps ........ 62
Using Pages and Maps Alternatively ........ 63
11 Deploying the Application ........ 65
General Information ........ 66
Content of a Natural for Ajax Web Application ........ 66
Content of the Sample webconfig Directory ........ 67
Using the Deployment Wizard for Web Applications ........ 69
Starting the Deployment from Eclipse ........ 77
Starting the Deployment from the Command Line ........ 78
Status Code Handling ........ 79
Deploying the Web Application Archive (.war) ........ 80
12 Natural Parameters and System Variables ........ 81
13 Usage of Edit Masks ........ 83
General Information ........ 84
Data Types with Edit Masks ........ 84
Natural Profile Parameters ........ 86
Specifying Edit Masks in Layouts ........ 86
Edit Masks at Runtime ........ 87
14 Multi Language Management ........ 89
15 Support of Right-to-Left Languages ........ 91
16 Server-Side Scrolling and Sorting ........ 93
General Information ........ 94
Variants of Server-Side Scrolling and Sorting ........ 94
Controls that Support Server-Side Scrolling and Sorting ........ 98
Data Structures for Server-Side Scrolling and Sorting ........ 98
Server-Side Scrolling and Sorting in Trees ........ 100
Events for Server-Side Scrolling and Sorting ........ 101
IV Application Modernization ........ 103
17 Overview of Conversion Steps ........ 105
18 Map Conversion ........ 107

General Information ........ 108
Using the Map Converter ........ 109
Location of the Files ........ 114
After the Conversion ........ 114
Using the Conversion Rules Tool ........ 116
Using the Conversion Logs Tool ........ 117
19 Customizing the Map Conversion Process ........ 119
Map Converter Processing ........ 120
Conversion Rules ........ 124
Templates ........ 134
Tag Converters ........ 136
20 Code Conversion ........ 139
General Information ........ 140
Generating Adapters ........ 140
Structure of a Map-Based Application ........ 140
Structure of a Natural for Ajax Application ........ 141
Tasks of the Code Conversion ........ 142
DEFINE DATA Statement ........ 142
INPUT Statement ........ 143
REINPUT Statement ........ 144
PF-Key Event Handling ........ 146
SET KEY Statement ........ 147
Processing Rules ........ 150
System Variables ........ 150
Variable Names Containing Special Characters ........ 151
V Typical Page Layout ........ 153
21 NATPAGE ........ 155
Properties ........ 156
22 TITLEBAR ........ 163
Properties ........ 164
23 HEADER ........ 169
Properties ........ 170
24 PAGEBODY ........ 171
Properties ........ 172
25 STATUSBAR ........ 175
General Information ........ 176
Example ........ 176
Properties ........ 177
VI Working with Containers ........ 179
26 Positioning of Controls inside a Container ........ 181
Row Types - TR and ITR ........ 182
Some More Details on ITR ........ 183
TR Properties ........ 184
ITR Properties ........ 186
27 Defining the Width of Controls inside a Container ........ 189

Controlling the Width of Controls .................................................................. 190
HDIST and VDIST Controls ............................................................................ 192
HDIST Properties ............................................................................................. 194
VDIST Properties ............................................................................................. 195
rowspan and colspan Definitions .................................................................. 196
CELLSPAN Control .......................................................................................... 196
CELLSPAN Properties ..................................................................................... 198
Rules for Positioning Controls inside Containers ......................................... 200
28 Vertical Sizing of Containers and Controls ................................................... 201
Vertical Pixel Sizing ......................................................................................... 202
Vertical Percentage Sizing .............................................................................. 203
Finishing the Example ..................................................................................... 206
29 Overview of Different Containers ..................................................................... 209
Different Kind of Containers ........................................................................... 210
Row Containers ................................................................................................. 210
Column Containers .......................................................................................... 211
Row and Column Containers in Combination ............................................. 212
Nesting Containers ........................................................................................... 213
30 ROWAREA and COLAREA .............................................................................. 215
ROWAREA Properties ..................................................................................... 216
COLAREA Properties ....................................................................................... 223
31 ROWAREAWITHHEADER ................................................................................ 229
Simple Example ................................................................................................ 230
ROWAREAWITHHEADER Properties .......................................................... 231
ROWAREAHEADER Properties .................................................................... 234
ROWAREABODY Properties .......................................................................... 235
32 ROWTABAREA and COLTABAREA ................................................................ 237
ROWTABAREA Properties ............................................................................. 239
COLTABAREA Properties ............................................................................... 253
TABPAGE Properties ....................................................................................... 262
The Most Common Error ................................................................................. 263
Example: Controlling which Tab is displayed by the Server Adapter ........... 263
Example: Controlling the Visibility of Tab Pages ........................................... 265
33 ROWTABLE0 and COLTABLE0 ....................................................................... 269
ROWTABLE0 Properties .................................................................................. 271
COLTABLE0 Properties ................................................................................... 273
34 ROWDYNAVIS and COLDYNAVIS ................................................................. 275
ROWDYNAVIS Properties .............................................................................. 277
COLDYNAVIS Properties ................................................................................ 279
Some Comments on Controlling the Visibility of Controls ........................... 281
35 ROWDIV and INNERDIV .................................................................................. 283
When to Use ROWDIV and INNERDIV Containers ..................................... 286
ROWDIV Properties ......................................................................................... 287
INNERDIV Properties ...................................................................................... 288
36 ROWSCROLLAREA .......................................................................................... 291

ROWSCROLLAREA Properties ..... 293
37 HSPLIT and VSPLIT ..... 297
Example for HSPLIT ..... 298
Example for VSPLIT ..... 300
HSPLIT Properties ..... 301
VSPLIT Properties ..... 302
SPLITCELL Properties ..... 303
Defining the Split Size ..... 304
38 HLINE and VLINE ..... 305
VLINE Properties ..... 307
HLINE Properties ..... 308
39 Performance Optimization with Containers ..... 309
40 ROWTABSUBPAGES and STRAIGHTTABPAGE ..... 313
Adapter Interface ..... 314
Built-in Events ..... 315
Session Management ..... 315
Performance Considerations ..... 316
ROWTABSUBPAGES Properties ..... 316
STRAIGHTTABPAGE Properties ..... 319
VII Working with Controls ..... 321
41 Some Common Rules for all Controls ..... 323
Name and Text ID ..... 324
Table, Row, Column, Control ..... 324
Explicit Alignment ..... 324
Binding to Adapter Parameters ..... 325
Directly Influencing the Control Style ..... 325
Dynamically Controlling the Visibility and the Display Status of Controls ..... 326
Focus Management ..... 327
Flushing of Inputs ..... 328
Tab Sequence ..... 329
Tooltips ..... 330
Images ..... 331
Documents ..... 332
42 BREADCRUMB ..... 335
Example ..... 336
Adapter Interface ..... 336
Built-in Events ..... 336
Properties ..... 337
43 BUTTON ..... 339
Example: Simple Button ..... 340
Example: Button with Image ..... 341
Hiding and Disabling Buttons ..... 341
Properties ..... 341
44 BUTTONLIST ..... 347

Adapter Interface ........ 348
Properties ........ 348
45 CHECKBOX ........ 351
Properties ........ 352
46 COMBODYN2 ........ 357
Adapter Interface ........ 358
Properties ........ 358
47 COMBOFIX ........ 363
COMBOFIX Properties ........ 364
COMBOOPTION Properties ........ 368
48 DATEINPUT ........ 369
Example ........ 370
Properties ........ 370
49 DROPICON ........ 377
Example ........ 378
Properties ........ 378
50 FIELD ........ 383
Built-in Events ........ 384
Properties ........ 384
51 FILEUPLOAD/FILEUPLOAD2 ........ 397
FILEUPLOAD ........ 398
FILEUPLOAD2 ........ 399
FILEUPLOAD Properties ........ 400
FILEUPLOAD2 Properties ........ 404
52 ICON ........ 407
Example ........ 408
Properties ........ 408
53 ICONLIST ........ 413
Adapter Interface ........ 414
Built-in Events ........ 414
Properties ........ 414
54 IHTML ........ 417
Properties ........ 418
55 IMAGEOUT ........ 421
Properties ........ 422
56 IMAGEVIEWER ........ 425
Adapter Interface ........ 426
Example ........ 427
Properties ........ 427
57 LABEL ........ 431
Example ........ 433
Aligning the Text ........ 433
Properties ........ 434
58 MENUBUTTON ........ 439
Example ........ 440

MENUBUTTON Properties ... 441
MENUITEM Properties ... 443
59 METHODLINK ... 445
Properties ... 446
60 MULTISELECT ... 451
Example ... 452
Adapter Interface ... 452
Properties ... 452
61 NEWSFEED ... 457
Example ... 459
Built-in Events ... 460
Properties ... 460
62 RADIOBUTTON ... 461
Properties ... 462
63 SCHEDULELINE ... 467
Properties ... 468
64 SLIDER ... 475
Example ... 476
Adapter Interface ... 477
Properties ... 477
65 STRIPSEL ... 483
Example ... 484
Properties ... 484
66 SUBCISPAGE2 ... 489
Example ... 490
Adapter Interface ... 491
Session Management ... 491
Properties ... 492
67 SUBPAGE ... 495
Properties ... 496
68 TABSEL ... 499
Adapter Interface ... 500
Built-in Events ... 500
Properties ... 501
69 TABSTRIP2 ... 503
Example ... 504
Adapter Interface ... 504
Built-in Events ... 504
Properties ... 505
70 TAGCLOUD ... 509
Example ... 510
Adapter Interface ... 511
Built-in Events ... 511
Properties ... 511
71 TEXT ... 515

Properties ..... 516
72 TEXTOUT ..... 523
Example ..... 524
Properties ..... 524
73 TOGGLE ..... 531
Properties ..... 532
74 ACTIVEX ..... 537
Properties ..... 538
75 CHART ..... 541
About the SVG and JPEG Formats ..... 542
Example ..... 542
CHART Properties ..... 544
CHARTCOLUMN Properties ..... 545
76 GOOGLEMAP ..... 547
Before You Start ..... 548
Example ..... 549
Typical Problems ..... 551
Properties ..... 552
77 LINECHART ..... 555
Example ..... 557
LINECHART Properties ..... 558
LINECHARTSERIES Properties ..... 560
CSVLINECHARTSERIES Properties ..... 560
78 NETMEETING ..... 561
Example ..... 562
Properties ..... 562
79 REPORT ..... 565
Example ..... 566
Built-in Events ..... 567
Properties ..... 567
80 SKYPECALL ..... 571
Example ..... 573
Properties ..... 573
81 TIMER ..... 575
82 NJX:BUTTONITEM ..... 577
Example ..... 578
Built-in Events ..... 578
Properties ..... 579
83 NJX:BUTTONITEMFIX ..... 583
Example ..... 584
Built-in Events ..... 584
Properties ..... 585
84 NJX:BUTTONITEMLIST ..... 591
Example ..... 593
Adapter Interface ..... 593

Built-in Events ..... 593
Properties ..... 594
85 NJX:BUTTONITEMLISTFIX ..... 595
Example ..... 596
Adapter Interface ..... 596
Built-in Events ..... 597
Properties ..... 597
86 NJX:DOCUMENTLINK ..... 599
Properties ..... 600
87 NJX:EVENTDATA ..... 605
Example ..... 607
Adapter Interface ..... 608
88 NJX:FIELDITEM ..... 609
Example ..... 611
Adapter Interface ..... 612
Built-in Events ..... 612
Properties ..... 612
89 NJX:FIELDLIST ..... 623
Example ..... 625
Adapter Interface ..... 626
Built-in Events ..... 626
Properties ..... 626
90 NJX:FIELDVALUE ..... 629
Example ..... 631
Adapter Interface ..... 631
Built-in Events ..... 631
Properties ..... 631
91 NJX:MASHZONE ..... 641
Before You Start ..... 642
Example ..... 643
Adapter Interface ..... 645
Properties ..... 646
92 NJX:NJXFILEDOWNLOAD ..... 649
Example ..... 651
Adapter Interface ..... 651
Properties ..... 651
93 NJX:NJXFILEUPLOAD2 ..... 655
Example ..... 657
Adapter Interface ..... 657
Built-in Events ..... 657
Properties ..... 658
94 NJX:NJXVARIABLE ..... 661
Example ..... 662
Properties ..... 662
VIII Working with Grids ..... 663

95 Basics ..... 665
96 TEXTGRID2 ..... 667
A Simple Example ..... 668
Adapter Interface ..... 669
Selecting Rows in a TEXTGRID2 ..... 669
TEXTGRID2 Properties ..... 670
COLUMN Properties ..... 676
Dynamic Setting of Text Styles in TEXTGRID2 ..... 680
97 TEXTGRIDSSS2 - TEXTGRID2 with Server-Side Scrolling ..... 683
Performance Considerations ..... 684
Example ..... 684
Adapter Interface ..... 686
Using Server-Side Scrolling ..... 686
Using Server-Side Sorting ..... 687
Setting the Client-Side Loading Behavior ..... 687
TEXTGRIDSSS2 Properties ..... 687
98 ROWTABLEAREA2 - The Flexible Control Grid ..... 697
Example ..... 698
Adapter Interface ..... 700
Built-in Events ..... 700
Making Grids Look like Grids ..... 701
Making Columns Movable ..... 702
ROWTABLEAREA2 Properties ..... 703
STR Properties ..... 710
99 FLEXLINE - Flexible Columns in Control Grids ..... 713
Example ..... 714
Adapter Interface ..... 716
ATTRIBUTES ..... 716
FLEXLINE Properties ..... 716
100 MGDGRID - Managing the Grid ..... 719
Example ..... 721
Adapter Interface ..... 722
Built-in Events ..... 723
MGDGRID Properties ..... 723
ROWINSERT Properties ..... 728
ROWCOPY Properties ..... 728
ROWDELETE Properties ..... 729
101 GRIDCOLHEADER - Flexible Column Headers ..... 731
Flexible Column Sizing ..... 732
Flexible Column Sorting ..... 734
GRIDCOLHEADER Properties ..... 735
Smart Selection of Rows - SELECTOR Control ..... 738
SELECTOR Properties ..... 739
IX Working with Trees ..... 743
102 Basics ..... 745

Types of Trees ..... 746
When to Use Which Type ..... 747
103 TREENODE3 in Control Grid (ROWTABLEAREA2) ..... 749
Example ..... 750
Adapter Interface ..... 751
Built-in Events ..... 751
Properties ..... 751
104 CLIENTTREE ..... 757
Example ..... 758
Adapter Interface ..... 758
Built-in Events ..... 759
Properties ..... 759
X Working with Menus ..... 763
105 Types of Menus ..... 765
106 MENU ..... 767
Example ..... 768
Adapter Interface ..... 769
Built-in Events ..... 769
Properties ..... 769
107 DLMENU ..... 773
Example ..... 774
Adapter Interface ..... 775
Built-in Events ..... 775
Properties ..... 775
108 XCIPOPUPMENU - Enable Context Menus ..... 777
Example ..... 778
Adapter Interface ..... 779
Built-in Events ..... 780
XI Non-Visual Controls and Hot Keys ..... 781
109 TIMER ..... 783
Example ..... 784
Properties ..... 785
110 XCIDATADEF - Data Definition ..... 787
Example ..... 788
Properties ..... 791
111 XCICONTEXT ..... 795
General Information ..... 796
Example ..... 796
Properties ..... 797
112 NJX:XCIOPENPOPUP ..... 799
Example ..... 800
Adapter Interface ..... 800
113 NJX:XCILIVINGPOPUP ..... 803
Example ..... 804
Adapter Interface ..... 804

114 Extended Hot Key Management .......... 805
Direct Hot Key Definitions with Certain Controls .......... 806
Hot Key Definitions for Certain Controls .......... 806
115 Function Key Handling .......... 809
116 NJX:OBJECTS .......... 811
General Information .......... 812
Example .......... 813
Adapter Interface .......... 813
117 NJX:SESSIONPARAMS .......... 815
General Information .......... 816
Example .......... 816
Adapter Interface .......... 817
118 NJX:TRIGGEREVENT .......... 819
Examples .......... 820
Adapter Interface .......... 822
XII Working with Workplaces .......... 823
119 What are Multi Frame Pages? .......... 825
120 Definition of Multi Frame Pages .......... 827
MFPAGE .......... 828
MFCISFRAME .......... 829
MFHTMLFRAME .......... 832
MFFRAMESET .......... 833
121 Application Designer Workplace Framework .......... 835
Framework Overview .......... 837
Functions Frame: MFWPFUNCTIONS .......... 838
Active Functions Frame: MFWPACTIVEFUNCTIONS .......... 840
Content Frame: MFWPCONTENT .......... 841
Filling the MFWPFUNCTIONS Frame Initially: MFWPBOOTSTRAPINFO .......... 842
Customizing the MFWPFUNCTIONS Behavior .......... 853
Session Management inside the Workplace .......... 862
Workplace API for Dynamic Manipulation .......... 863
122 Creating Your Own Workplace Application .......... 865
General Information .......... 866
Using the Default Workplace Framework .......... 866
Customizing the Frames, Dialogs and Messages of the Default Workplace Framework .......... 867
Using Your Own Standard Pop-up Dialogs and Messages .......... 867
Using Your Own Active Functions Frame .......... 869
123 Executing and Debugging Workplace Applications .......... 871
General Information .......... 872
Creating a Session Configuration on the Application Server .......... 872
Configuring the Session in Your Workplace Application .......... 873
Executing the Workplace Application in NaturalONE .......... 873
Debugging the Workplace Application in NaturalONE .......... 873

124 Multi Language Management in Workplace Applications ............................ 877
General Information ........................................................................................ 878
Language Switch in Content Pages ............................................................... 879
Language Switch in Function Tree and Activities Pane ................................ 879
125 NJX:XCIWPINFO2 .......................................................................................... 881
Example ............................................................................................................ 882
Adapter Interface ............................................................................................. 882
126 NJX:XCIWPFUNCTIONS ............................................................................... 887
Example ............................................................................................................ 888
Adapter Interface ............................................................................................. 888
127 NJX:XCIWPACCESS2 ...................................................................................... 895
Example ............................................................................................................ 896
Adapter Interface ............................................................................................. 896
XIII Working with PDF Documents ................................................................ 899
128 Working with PDF Documents ........................................................................ 901
General Information ........................................................................................ 902
About the Adapter Listener ............................................................................ 902
Example ............................................................................................................ 903
Built-in Events ................................................................................................. 905
Advanced Data Binding and Rendering ....................................................... 905

# Preface

This documentation explains how to create rich internet applications which use the Ajax (Asynchronous JavaScript and XML) technology. It should be used together with the *Ajax Developer* documentation.

This documentation is organized under the following headings:

| **Using Natural for Ajax** | |
|---|---|
| **Introduction** | What is Natural for Ajax? |
| **First Steps** | How to create a "Hello World!" application. |
| **Developing the User Interface** | How to develop the user interface. |
| **Developing the Application Code** | How to develop the application code. |
| **Deploying the Application** | How to deploy a rich GUI application from a version control system to a WAR file. |
| **Natural Parameters and System Variables** | Gives an overview of the Natural parameters and system variables that are evaluated in Natural for Ajax applications and sent to Application Designer. |
| **Usage of Edit Masks** | Describes how Natural for Ajax supports the Natural edit mask concept. |
| **Multi Language Management** | Describes aspects to be considered for internationalization. |
| **Support of Right-to-Left Languages** | Describes how Natural for Ajax supports right-to-left languages and bidirectional text. |
| **Server-Side Scrolling and Sorting** | Describes how Natural for Ajax supports the concept of server-side scrolling and sorting. |
| **Application Modernization** | How to convert a character-based Natural application to a Natural for Ajax application. |
| **Application Designer Reference (adapted to Natural for Ajax)** | |
| **Typical Page Layout** | Describes the elements used for the layout of a page. |
| **Working with Containers** | Shows you how to work with containers - containers are areas on the page that can hold controls. |
| **Working with Controls** | Shows you how to work with the elements that are placed into containers - the controls. |
| **Working with Grids** | Explains what grids are and how to use them. |
| **Working with Trees** | Explains the basic types of trees and how to use them. |
| **Working with Menus** | Shows you how to arrange a number of functions in a structured way. |
| **Non-Visual Controls and Hot Keys** | Describes how to develop controls that do not have visual effects. |
| **Working with Workplaces** | Deals with applications that organize multiple pages in so-called workplaces. |

| | |
|---|---|
| Working with PDF Documents | Explains how to create PDF documents for Natural page layouts. |

**Note:** This documentation describes the Application Designer controls that are mapped to Natural and are verified for the use with Natural. Application Designer controls that are not contained here have either no mapping to Natural or their usability with Natural is not verified. The latest version of the Application Designer documentation is available at ***http://documentation.softwareag.com/webmethods/application_designer.htm***.

If you want to develop your own custom controls, see Custom Controls.

Using the runtime version of Natural for Ajax, which is not part of NaturalONE, you can

- start a Natural application from the logon page or with a URL,
- manage the configuration file for the session using the configuration tool,
- modify the style sheet which controls the font, the color and the representation of the PF keys,
- activate the preconfigured security settings of Natural for Ajax and adapt them to your requirements,
- create your own trust files for a secure connection between the Natural Web I/O Interface server and Natural for Ajax,
- enable logging in the case of problems with Natural for Ajax.

For detailed information, see *Client Configuration* in the documentation for the standalone version of Natural for Ajax.

# I Introduction

# 1 Introduction

- What is a Rich Internet Application? .......... 4
- Rich Internet Applications with Natural .......... 4
- Mixed Applications .......... 5

Using Natural for Ajax, you can create rich internet applications which use the Ajax (Asynchronous JavaScript and XML) technology. This enables Natural users on Windows, UNIX and mainframe platforms to develop and use Natural applications with a browser-based user interface, similar to GUI desktop applications.

## What is a Rich Internet Application?

Classical HTML- and browser-based applications suffer from known disadvantages. The server responds to each user interaction with a new page. This may lead to long response times and new rendering in the browser and thus to a discontinuous workflow for the user. The possibilities offered by DHTML overcome these disadvantages, but they are complicated to use and make it hard to build a comfortable user interface. The user interface is therefore often simpler and less comfortable than users are accustomed to from their experience with desktop applications. Although it is possible to provide complex controls and features like drag-and-drop, this is hard to implement - especially if compatibility with all commonly used browsers is required. Classical GUI applications also have the disadvantage that a client component of the application must be installed on each client machine.

Rich internet applications that use the Ajax technology overcome these disadvantages by combining the reachability of browser-based applications with the rich user interface of GUI applications. Software AG provides support for the development of rich internet applications with Application Designer. Natural for Ajax combines the user interface capabilities of Application Designer with the application development capabilities of Natural.

## Rich Internet Applications with Natural

At runtime, a rich internet application with Natural has the following structure:

- A Natural host session on a Windows, UNIX or mainframe server runs the application code. Other than with a map application, the application does not deal with user interface issues. It contains only the application logic and communicates with the user interface layer by sending and receiving data. The data is displayed in page in a web browser. Events - such as button clicks - that the user raises in the web browser are passed back to the application code. Along with an event, the application code receives also the data that the user modified in the web browser. It processes the event and the data and returns modified data back to the web browser page.
- Natural for Ajax, which is running on an application server, merges the data received from the Natural application into a DHTML page and delivers the page to the web browser. In the inverse direction, Natural for Ajax forwards events that the user raised in the web browser along with the modified data to the Natural application.

- A web browser renders the DHTML page. JavaScript code on the page processes local user interaction and exchanges data with Natural for Ajax as needed. It uses Ajax technology to exchange data with the Natural application in the background without having to re-render the page as a whole.

At development time, a rich internet application is created with Natural in the following way:

- Application Designer is used to develop the user interface layout of a web page and to bind the controls on the page to data elements in the application. Application Designer is contained in the Natural for Ajax module running on the application server.
- When the user saves the page layout, a Natural module of type “Adapter” is generated. The adapter serves as an interface between the application code and the page layout. It contains:
  - A data structure that describes the data that the Natural application has to deliver to the application server in order to populate the web page.
  - The Natural code necessary to transfer the data structure to the user interface and to receive modified data back.
  - A code skeleton, in the form of comment lines, that contains handlers for the expected events. The application programmer can copy this code skeleton into the main program to implement the event handlers.
- Then a main program is implemented that exchanges data with the web page using the adapter and handles the events. The event handler code has no knowledge of the web page layout, but operates only on the page data that is sent and received through the adapter.
- The navigation between different pages is implemented. A rich internet application navigates between pages in the same way as a map application would navigate between maps.

## Mixed Applications

With the support of Unicode, Natural has introduced the Natural Web I/O Interface which renders Natural maps in a web browser. Typically, if you are running map-oriented applications and wish to change them to rich internet applications, you will do this gradually. In certain parts of an application, maps might be replaced by rich GUI pages, other parts will possibly be left unchanged. Therefore, Natural supports running mixed applications which consist of both maps and rich GUI pages. With maps, the application controls the page layout, and the rendering mechanism therefore respects the layout information that the application provides. With rich GUI pages, the application does not control the layout; the layout is controlled by Application Designer. However, for the users of an application the switch between maps and rich GUI pages is seamless.

# II First Steps

This part is organized under the following headings:

About this Tutorial

Enabling a Natural Project for Ajax Developer

Creating a User Interface Component

Getting Started with the Layout Painter

Writing the GUI Layout

Creating the Natural Code

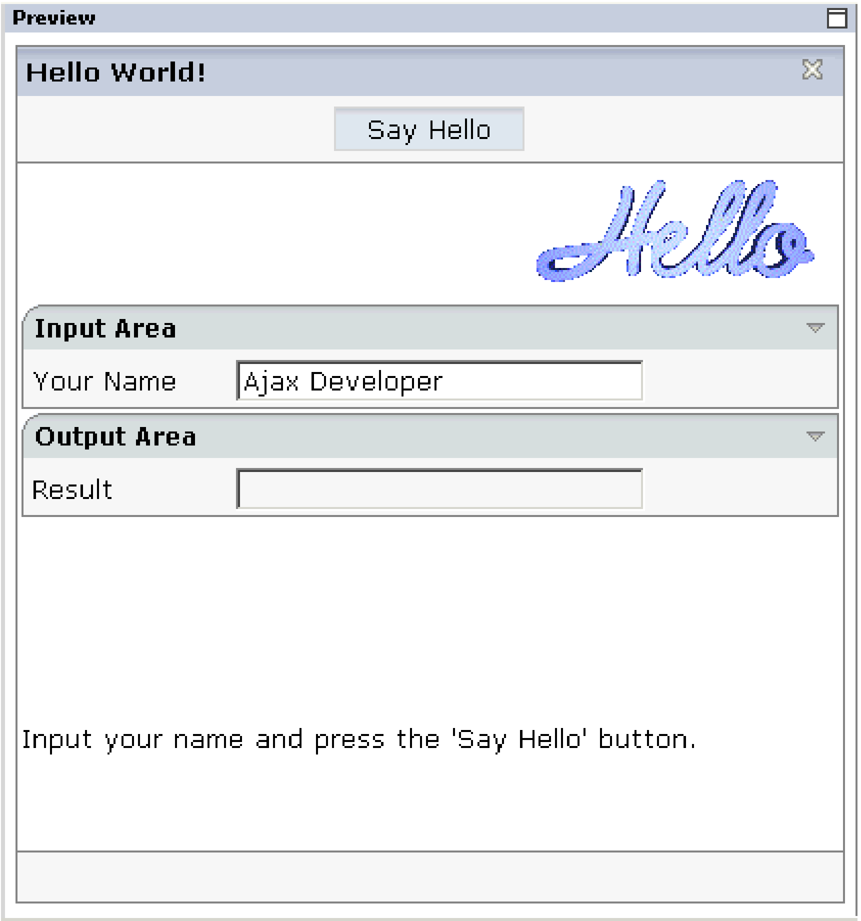
Some Background Information

It is important that you work through the exercises in the same sequence as they appear in this tutorial. Problems may occur if you skip an exercise.

# 2 About this Tutorial

This tutorial provides an introduction to working with Natural for Ajax. It explains how to create a “Hello World!” application. This covers all basic steps you have to perform when creating pages with Natural for Ajax: you create a layout file, you create an adapter and a main program, and you run the application.

When you have completed all steps of this tutorial, the page for your “Hello World!” application will look as follows:



Your Name Ajax Developer

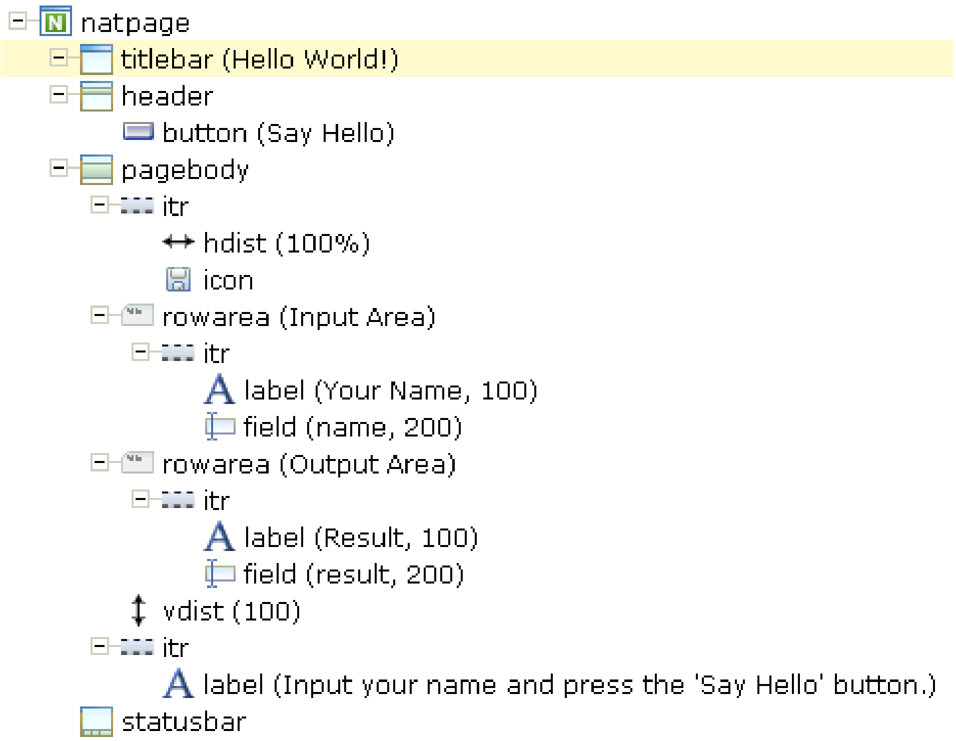
Result

Input your name and press the 'Say Hello' button.

Your application will act in the following way: When you enter a name in the **Your Name** field and choose the **Say Hello** button, the **Result** field displays "Hello World" and the name you have entered.

To reach this goal, you will proceed as follows:

1. You work with a Natural project that has been enabled for Ajax Developer.
2. You add a new user interface component to your Natural project. This is a folder which will contain all of your page layouts.
3. You will then create the following page layout:



- natpage
  - titlebar (Hello World!)
  - header
    - button (Say Hello)
  - pagebody
    - itr
      - hdist (100%)
      - icon
    - rowarea (Input Area)
      - itr
        - label (Your Name, 100)
        - field (name, 200)
    - rowarea (Output Area)
      - itr
        - label (Result, 100)
        - field (result, 200)
    - vdist (100)
    - itr
      - label (Input your name and press the 'Say Hello' button.)
  - statusbar

This corresponds to the following XML layout:

```
<?xml version="1.0" encoding="UTF-8"?>
<natpage natsource="HELLO-A">
    <titlebar name="Hello World!">
    </titlebar>
    <header withdistance="false">
        <button name="Say Hello" method="sayHello">
        </button>
    </header>
    <pagebody>
        <itr takefullwidth="true">
            <hdist width="100%">
            </hdist>
            <icon image="../cisdemos/images/hello.gif">
            </icon>
        </itr>
        <rowarea name="Input Area">
            <itr>
                <label name="Your name" width="100">
                </label>
                <field valueprop="name" width="200">
                </field>
            </itr>
        </rowarea>
        <rowarea name="Output Area">
            <itr>
```

```
                <label name="Result" width="100">
                </label>
                <field valueprop="result" width="200" displayonly="true">
                </field>
            </itr>
        </rowarea>
        <vdist pixelheight="100">
        </vdist>
        <itr>
            <label name="Input your name and press the &apos;Say Hello&apos; ↩
button." asplaintext="true">
            </label>
        </itr>
    </pagebody>
    <statusbar withdistance="false">
    </statusbar>
</natpage>
```

4. When you save your layout for the first time, an intelligent HTML page and the Natural adapter for this page are generated.

5. You will then create the main program which will use the adapter to display the page and which will handle the events that occur on the page, for example, when you choose the **Say Hello** button of your application.

You can now proceed with your first exercise: ***Enabling a Natural Project for Ajax Developer***.

# 3 Enabling a Natural Project for Ajax Developer

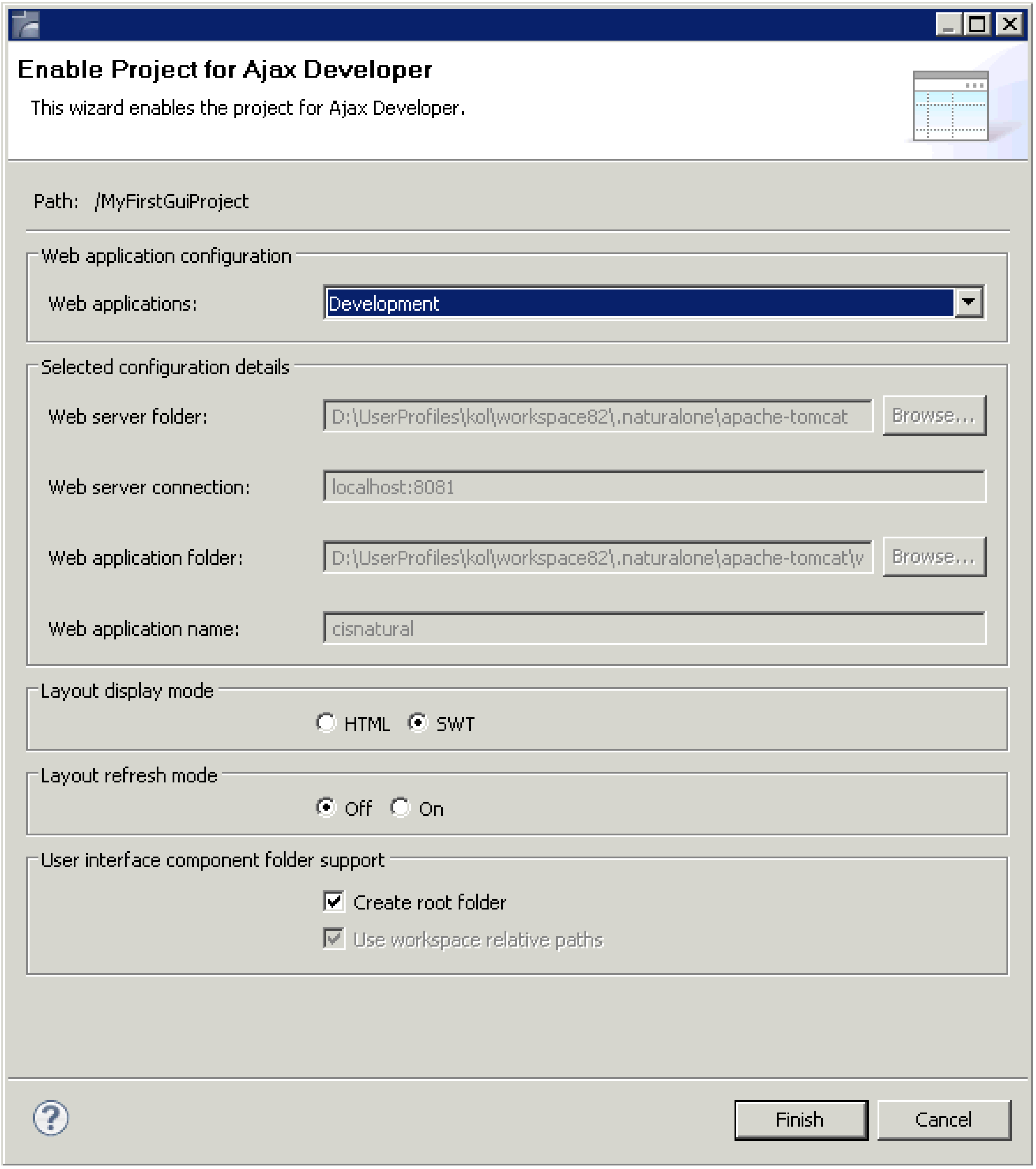
This tutorial assumes that a Natural project containing a library has already been created. The library name that is used in this tutorial is `CISHELLO`.

Before you can define layout pages for a Natural project, you have to enable this project for Ajax Developer.

### To enable a project for Ajax Developer

1. In the **Navigator** view, select the Natural project that you want to enable.
2. Invoke the context menu and choose **Enable for Ajax Developer**.

   The following dialog box appears:



**Enable Project for Ajax Developer**

This wizard enables the project for Ajax Developer.

Path: /MyFirstGuiProject

Web application configuration

Web applications: Development

Selected configuration details

Web server folder: D:\UserProfiles\kol\workspace82\.naturalone\apache-tomcat

Web server connection: localhost:8081

Web application folder: D:\UserProfiles\kol\workspace82\.naturalone\apache-tomcat\v

Web application name: cisnatural

Layout display mode

○ HTML ● SWT

Layout refresh mode

● Off ○ On

User interface component folder support

☑ Create root folder

☑ Use workspace relative paths

3 Use the default settings, that is, leave the **Web applications** drop-down list box with the default value **Development**.

4 Choose the **Finish** button.

The icon for the project changes to indicate that the project has been enabled for Ajax Developer.

You can now proceed with the next exercise: *Creating a User Interface Component*.

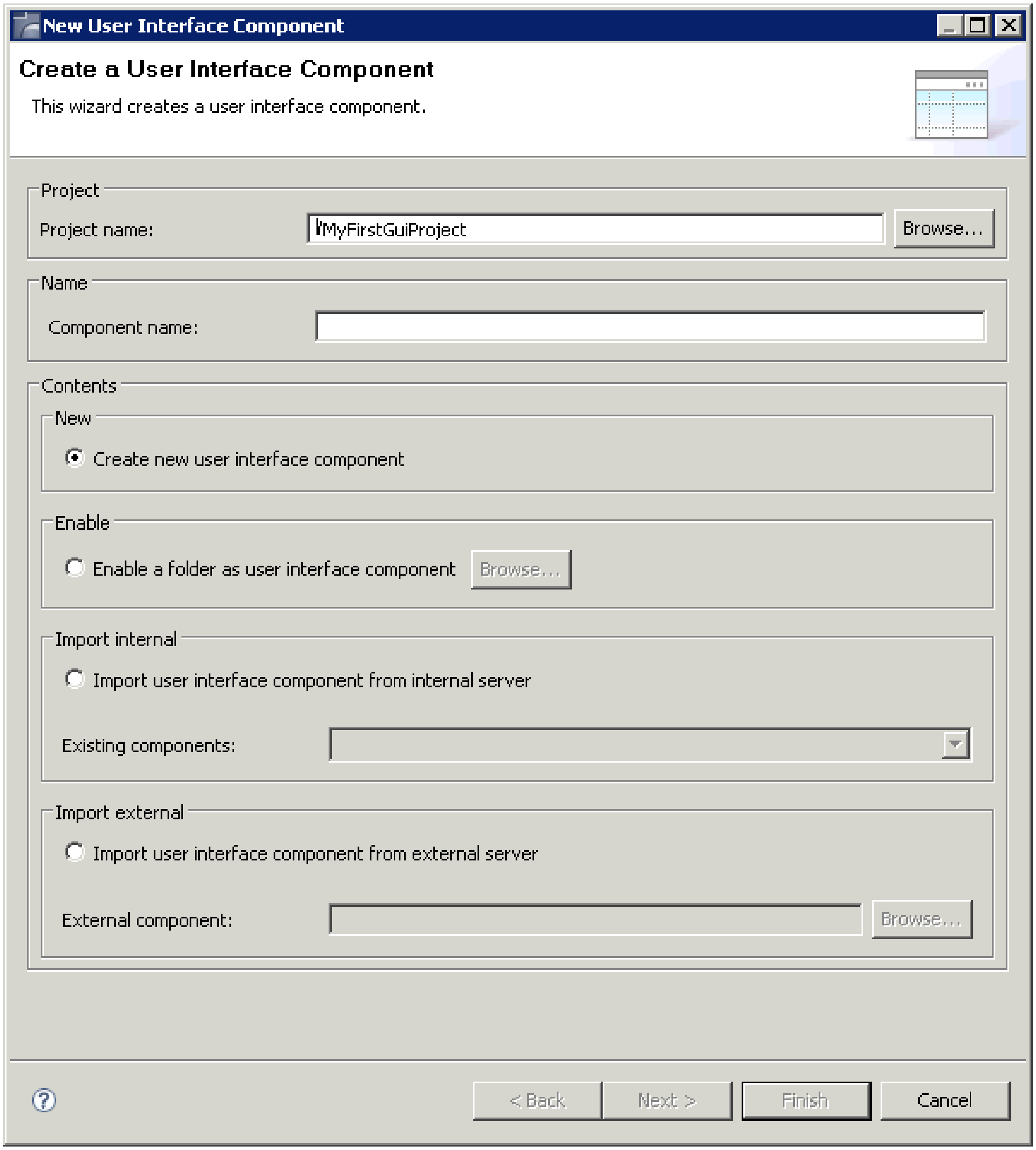
# 4 Creating a User Interface Component

Page layouts are stored in so-called “user interface component” folders. You have to create such a folder for each Natural project that is to contain page layouts.

### To create a user interface component

1. In the **Navigator** view, select the Natural project in which you want to create a user interface component.
2. From the **File** menu, choose **New > User Interface Component**.

   The following dialog box appears:



New User Interface Component

Create a User Interface Component

This wizard creates a user interface component.

Project

Project name: MyFirstGuiProject

Name

Component name:

Contents

New

● Create new user interface component

Enable

○ Enable a folder as user interface component

Import internal

○ Import user interface component from internal server

Existing components:

Import external

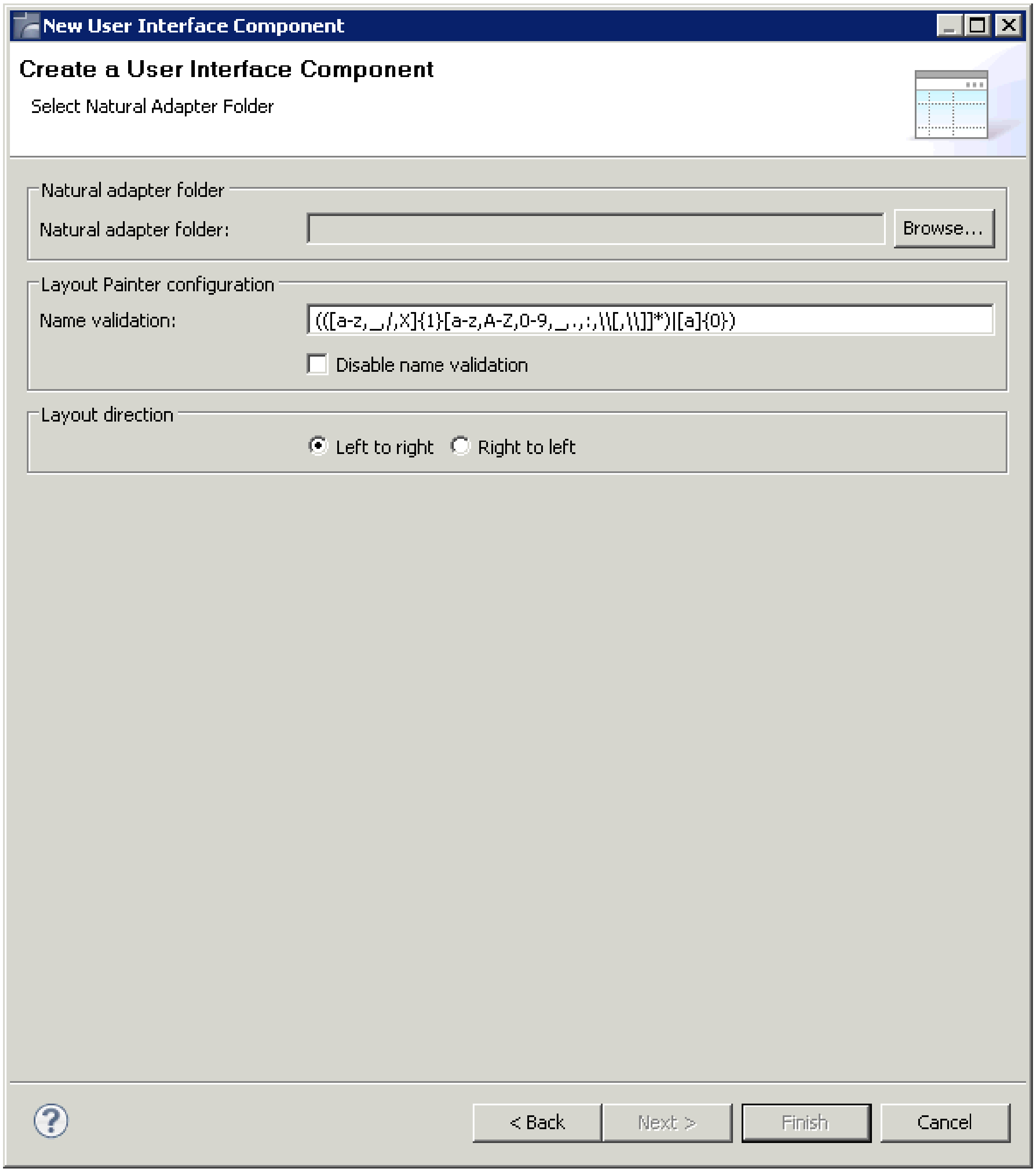
○ Import user interface component from external server

External component:

3 In the **Component name** text box, enter a name for your user interface component (for example "MyFirstUI").

4 Choose the **Next** button.

The following page appears:



New User Interface Component

Create a User Interface Component

Select Natural Adapter Folder

Natural adapter folder

Natural adapter folder:

Layout Painter configuration

Name validation: (([a-z,_,/,X]{1}[a-z,A-Z,0-9,_,.,:,\\[,\\]]*)|[a]{0})

☐ Disable name validation

Layout direction

● Left to right ○ Right to left

5 Choose the **Browse** button.

6 In the resulting dialog box, select the folder into which the adapters are to be generated and choose the **OK** button. Usually, you will select the *SRC* folder of a Natural library.

For this tutorial, you select the *SRC* folder in the library `CISHELLO`.

**Note:** If you want to use a layout direction different than the one used in this tutorial, select the **Right to left** option button. This tutorial, however, explains how to design your layout in the left-to-right direction.

7 Choose the **Finish** button.

A new folder with the component name that you have defined is now shown in the **Navigator** view.

You can now proceed with the next exercise: ***Getting Started with the Layout Painter***.

# 5 Getting Started with the Layout Painter

- Creating a New Layout ........ 20
- Elements of the Layout Painter ........ 22
- Previewing the Layout ........ 22
- Viewing the XML Code ........ 23
- Opening the Ajax Developer Perspective ........ 23

The Layout Painter is used to write the page layout.

## Creating a New Layout

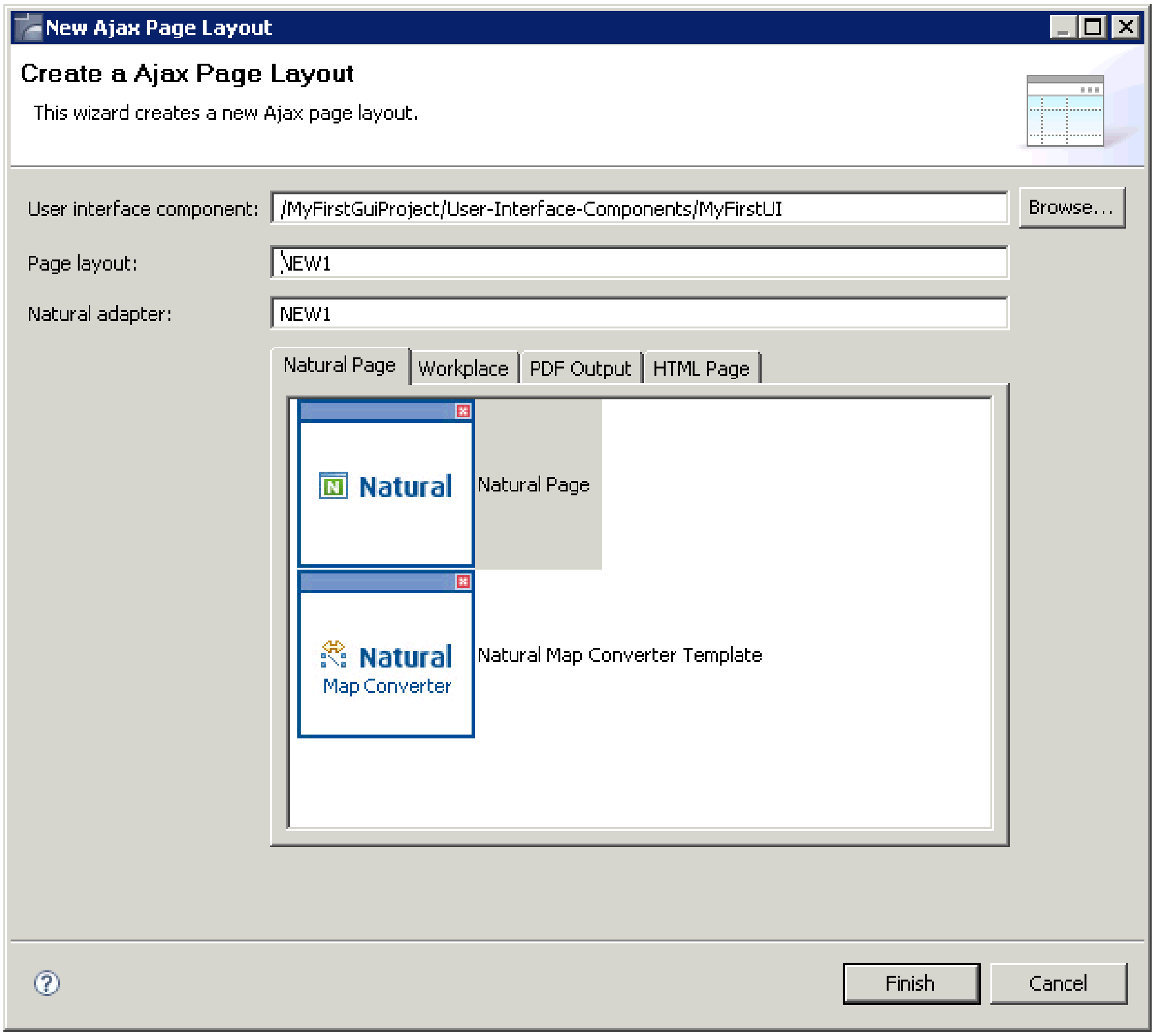
You will now create a layout which is stored in the user interface component you have previously created.

### To create a new layout

1 In the **Navigator** view, select the user interface component.

2 From the **File** menu, choose **New > Page Layout**.

The following dialog box appears:



New Ajax Page Layout

Create a Ajax Page Layout

This wizard creates a new Ajax page layout.

User interface component: /MyFirstGuiProject/User-Interface-Components/MyFirstUI

Page layout: NEW1

Natural adapter: NEW1

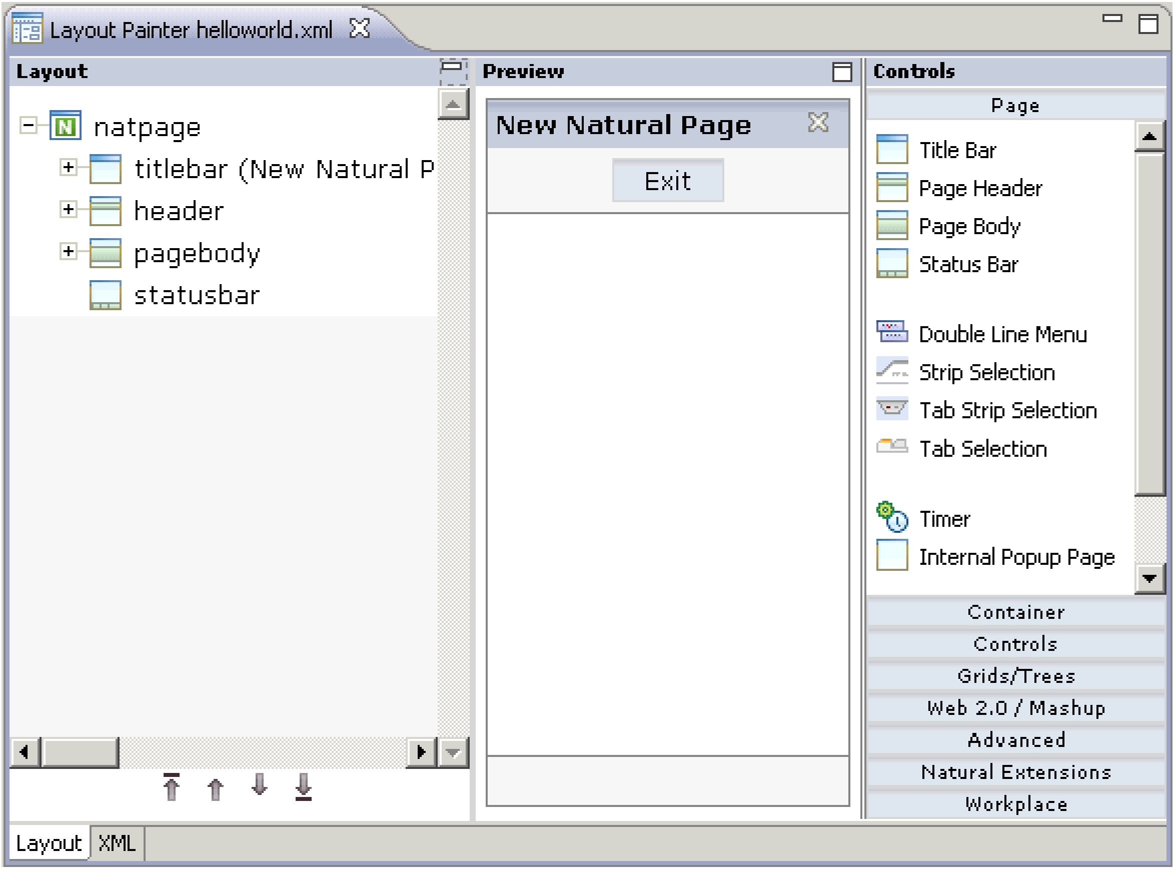
3 Enter "helloworld" in the **Page layout** text box. This is the name of your layout definition.

4 Enter a valid Natural object name in the **Natural adapter** text box. The name you specify here is used to create a Natural adapter object when you save the layout.

5 On the **Natural Page** tab, select the template for the Natural page.

6 Choose the **Finish** button.

The Layout Painter appears.



**Note:** The file *helloworld.xml* is stored in the *xml* folder of the user interface component.

## Elements of the Layout Painter

The Layout Painter is divided into several areas:

- **Layout Area (left side)**
  This area shows the layout tree which contains the controls that represent the XML layout definition. You drag these controls from the controls palette into the layout tree. Each node in the layout tree represents an XML tag.
- **Preview Area (middle)**
  The preview area shows the HTML page which is created using the controls in the layout area. This page is refreshed each time, you choose the **Refresh Preview** command (see below).
- **Controls Palette (right side)**
  Each control is represented by an icon. A tool tip is provided which appears when you move the mouse pointer over the control. This tool tip displays the XML tag which will be used in the XML layout. The palette is structured into sections, where each section represents certain types of controls.

When the Layout Painter is active, the additional menu **Ajax Developer** is shown in the menu bar.

## Previewing the Layout

The layout tree inside the Layout Painter already contains some nodes that were copied from the template that you chose in the dialog in which you specified the name of the page. When you modify the layout and want to find out how the current layout definitions are rendered on the page, you can preview the layout as described below.

The preview area is a sensitive area. When you select a control in the preview area (for example, the title bar), this control is automatically selected in the layout tree.

### To preview the layout

- From the **Ajax Developer** menu, choose **Refresh Preview**.

## Viewing the XML Code

When creating the layout, you can view the currently defined XML code.

### To view the XML code

- Choose the **XML** tab which is shown at the bottom of the Layout Painter.

  At this stage of the tutorial, the resulting page contains the following XML layout definition for the nodes which were copied from the template.

```
<natpage natsinglebyte="true" xmlns:njx="http://www.softwareag.com/njx/njxMapConverter">
    <titlebar name="New Natural Page">
    </titlebar>
    <header withdistance="false">
        <button name="Exit" method="onExit">
        </button>
    </header>
    <pagebody>
    </pagebody>
    <statusbar withdistance="false">
    </statusbar>
</natpage>
```

## Opening the Ajax Developer Perspective

Ajax Developer provides its own perspective which provides just the views which are important for editing layouts.

**Note:** It is not mandatory to use the Ajax Developer perspective; the same views are provided in the NaturalONE perspective.

### To open the Ajax Developer perspective

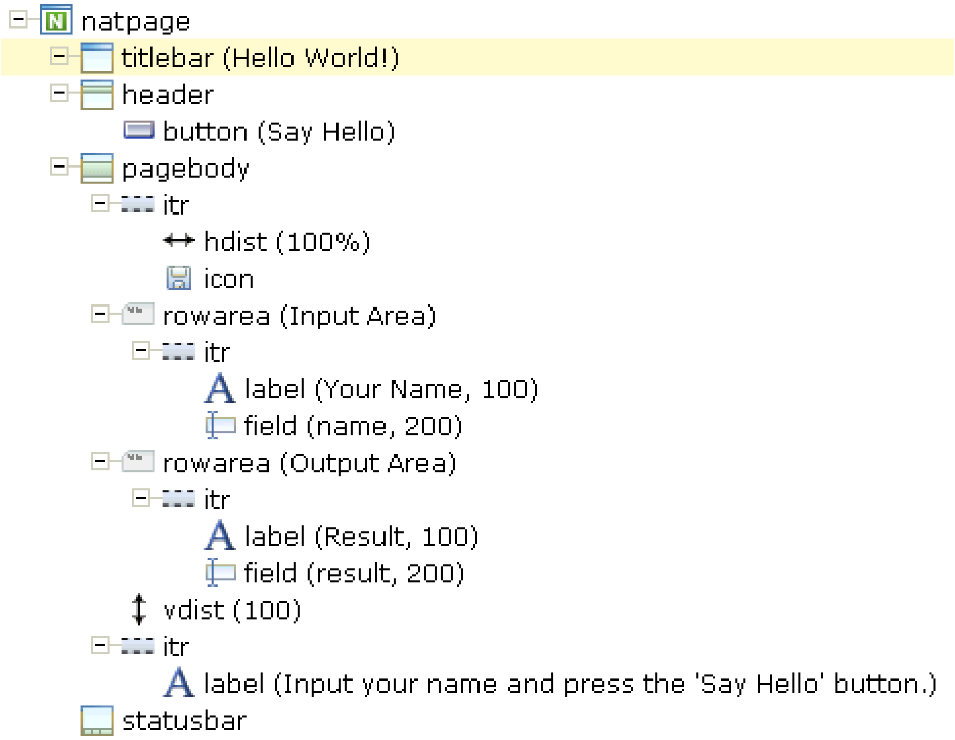
1. From the **Window** menu, choose **Open Perspective > Other**.
2. In the resulting **Open Perspective** dialog box, select **Ajax Developer** and choose the **OK** button.

You can now proceed with the next exercise: *Writing the GUI Layout*.

# 6 Writing the GUI Layout

- Specifying the Properties for the Natural Page ........ 26
- Specifying a Name for the Title Bar ........ 27
- Specifying a Name and Method for the Button ........ 28
- Adding the Input and Output Areas ........ 28
- Adding the Image ........ 31
- Adding a Horizontal Distance ........ 32
- Adding an Instructional Text ........ 33
- Adding a Vertical Distance ........ 33
- Saving Your Layout ........ 34

You will now create the layout for your "Hello World!" application. When you have completed all exercises in this chapter, the layout should look as shown below and the **XML code** should be the same as shown in the section *About this Tutorial*.



```
natpage
    titlebar (Hello World!)
    header
        button (Say Hello)
    pagebody
        itr
            hdist (100%)
            icon
        rowarea (Input Area)
            itr
                label (Your Name, 100)
                field (name, 200)
        rowarea (Output Area)
            itr
                label (Result, 100)
                field (result, 200)
        vdist (100)
        itr
            label (Input your name and press the 'Say Hello' button.)
    statusbar
```

**Tip:** **Preview the layout** and **view the XML code** each time you have completed an exercise. When important properties are not set, this is indicated in the **Problems** view. To get more information about problems, you can also choose **Show Protocol** from the **Ajax Developer** menu.

## Specifying the Properties for the Natural Page

You will now specify the following for the Natural page:

- **Name for the Natural Adapter (`natsource`)**
  The value in the property `natsource` defines the name of the adapter. The adapter is a Natural object that your application will use to communicate with the page. It will be generated when you save the page layout.

  If you do not specify a value for `natsource`, the name that you have specified for the layout (without the extension ".xml") will be used as the name for the Natural adapter. If you want to use the adapter in a development environment other than NaturalONE, you must make sure that the resulting name matches the naming conventions for Natural object names.

- **Handling of Strings (natsinglebyte)**
  Using the property natsinglebyte, you can specify how the strings displayed on this page are to be handled in the Natural application. Natural knows two types of strings: Unicode strings (format U) and code page strings (format A). By default, the strings displayed in web pages are mapped to Unicode strings in Natural. For this tutorial, you will specify that code page strings are to be used. Therefore, you will set the property natsinglebyte to "true".

  If you do not specify a value for natsinglebyte or when you set it to "false", Unicode strings will be used.

### To specify the properties for the Natural page

1 In the layout tree, select the node **natpage**.

The properties for this control are now shown in the **Properties** view.

2 Specify the following properties:

| Property | Value |
|---|---|
| natsource | HELLO-A |
| natsinglebyte | true |

## Specifying a Name for the Title Bar

You will now specify the string "Hello World!" which is to appear in the title bar of your application.

### To specify the name for the title bar

1 In the layout tree, select the node **titlebar (New Natural Page)**.

The properties for this control are now shown in the **Properties** view. You can see the default entry "New Natural Page" for the name property.

2 Specify the following property:

| Property | Value |
|---|---|
| name | Hello World! |

When you press ENTER, the node in the layout tree changes to **titlebar (Hello World!)**.

**Note:** Properties that are left blank are not shown in the XML code.

## Specifying a Name and Method for the Button

You will now specify the string "Say Hello" which is to appear on the button. And you will specify the name of the method that is to be invoked when the user chooses this button.

### To specify the name and the method for the button

1 In the layout tree, open the **header** node.

**Note:** By clicking the icon of a node, you hide or expand the node's subnodes.

You can now see the entry for the button with the default name "Exit".

2 Select the node **button (Exit)**.

3 Specify the following properties:

| Property | Value |
|---|---|
| `name` | Say Hello |
| `method` | sayHello |

The method needs to be programmed in the adapter. This will be explained later in this tutorial.

## Adding the Input and Output Areas

The input and output areas in this tutorial are created using **Row Area** controls. These controls can be found in the **Container** section of the controls palette.

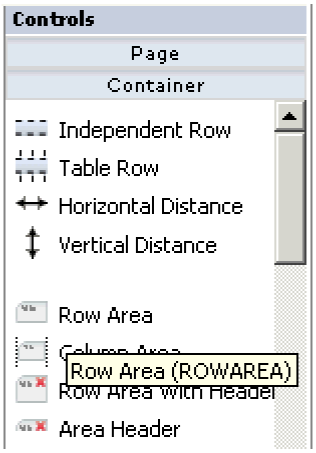
Each row area will contain an **Independent Row** control which in turn contains a **Label** and a **Field** control. These controls can be found in the **Controls** section of the controls palette.

For adding controls to your layout, you drag them from the controls palette onto the corresponding tree node in the layout tree. This is explained below.

### To create the input area

1 Open the **Container** section of the controls palette.

When you move the mouse over a control, a tool tip appears which also displays the control name which will be used in the XML layout. For example:



2 Drag the **Row Area** control from the controls palette onto the **pagebody** node in the layout tree.

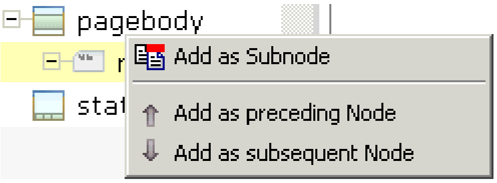
The row area is added as a subnode of the **pagebody** node. The new subnode is automatically selected so that you can maintain the properties of the row area directly in the **Properties** view.

3 Specify the following property:

| Property | Value |
|---|---|
| `name` | Input Area |

4 Drag the **Independent Row** control from the controls palette onto the **rowarea (Input Area)** node in the layout tree.

When you drop information into the tree, the system will sometimes respond by offering a context menu with certain options about where to place the control. In this case, the following context menu appears.



5 Choose the **Add as Subnode** command.

The control is now inserted below the **rowarea (Input Area)** node. The new node is shown as **itr**.

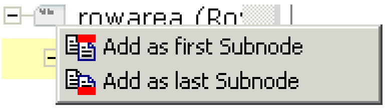
6 Open the **Controls** section of the controls palette.

7 Drag the **Label** control from the controls palette onto the **itr** node you have just inserted and specify the following properties:

| Property | Value |
|---|---|
| `name` | Your Name |
| `width` | 100 |

8 Drag the **Field** control from the controls palette onto the **itr** node you have previously inserted.

A context menu appears and you have to specify where to place the control.



9 From the context menu, choose the **Add as last Subnode** command.

10 Specify the following properties for the field:

| Property | Value |
|---|---|
| `valueprop` | name |
| `width` | 200 |

### To create the output area

- Create the output area in the same way as the input area (add it as the last subnode of the **pagebody** node), with the following exceptions:

  **Row Area**
  Specify a different value for the following property:

  | Property | Value |
  |---|---|
  | `name` | Output Area |

  **Label**
  Specify a different value for the following property:

| Property | Value |
|---|---|
| `name` | Result |

**Field**

Specify different values for the following properties:

| Property | Value |
|---|---|
| `valueprop` | result |
| `displayonly` | true |

## Adding the Image

You will now add the image which is to be shown above the input area. To do so, you will use the **Icon** control which can be found in the **Controls** section of the controls palette.

All resources that your user interface component needs (such as images) must be contained in your project directory in the Eclipse workspace. It is good practice to create a specific folder for these resources.

### ▶ To create a folder for images

1. In the **Navigator** view, select the user interface component for which you want to create a folder.
2. Invoke the context menu and choose **New > Other**.
3. In the resulting dialog box, expand the **General** node, select **Folder** and choose the **Next** button.
4. Specify a folder name (for example, "images") and then choose the **Finish** button.
5. The image that you need for this tutorial is provided in the */.naturalone/apache-tomcat/webapps/cisnatural/njxdemos/images* directory in your Eclipse workspace. Copy it to the images folder that you have just created.

### ▶ To add the image

1. Drag the **Icon** control from the controls palette onto the **pagebody** node in the layout tree.

   The icon is added as the last subnode of the **pagebody** node. It is automatically placed into an **itr** (independent row) node.
2. Specify the following property for the icon:

| Property | Value |
|---|---|
| image | images/hello.gif |

**Note:** You can also choose the icon using the browse button which is shown next to the property name.

3 Select the **itr** node containing the icon and choose the following button below the layout tree:

⤒

The selected node is now moved up so that it appears as the first subnode of the **pagebody** node.

4 Specify the following property for the **itr** node:

| Property | Value |
|---|---|
| takefullwidth | true |

## Adding a Horizontal Distance

You will now move the image to the right side of the page. To do so, you will use the **Horizontal Distance** control which can be found in both the **Controls** section and the **Container** section of the controls palette.

### To add the horizontal distance

1 Drag the **Horizontal Distance** control from the controls palette onto the **itr** node containing the icon.

2 From the resulting context menu, choose the **Add as first Subnode** command.

The node **hdist** is inserted into the tree.

3 Specify the following property:

| Property | Value |
|---|---|
| width | 100% |

## Adding an Instructional Text

You will now enter a text which is to appear below the output area and which tells the user what to do.

To do so, you will once again use the **Independent Row** control into which you will insert a **Label** control.

**Note:** The **Independent Row** control can be found in both the **Controls** section and the **Container** section of the controls palette.

### To add the independent row with the label

1. Drag the **Independent Row** control from the controls palette onto the **pagebody** node in the layout tree.
2. From the resulting context menu, choose the **Add as last Subnode** command.

   The node **itr** is inserted into the tree.
3. Drag the **Label** control from the controls palette onto the **itr** node you have just created.
4. Specify the following properties for the label:

| Property | Value |
|---|---|
| `name` | Input your name and press the 'Say Hello' button. |
| `asplaintext` | true |

## Adding a Vertical Distance

When you preview the layout, you will see that the text you have just added appears directly below the output area. You will now move the text 100 pixels to the bottom.

To do so, you will use the **Vertical Distance** control which can be found in both the **Controls** section and the **Container** section of the controls palette.

### To add the vertical distance

1. Drag the **Vertical Distance** control from the controls palette onto the **itr** node containing the label.
2. From the resulting context menu, choose the **Add as preceding Node** command.

The node **vdist** is inserted into the tree.

3 Specify the following property:

| Properties | Value |
|---|---|
| `height` | 100 |

## Saving Your Layout

If you have not already done so, you should now save your layout. Layouts are saved using the standard Eclipse functionality.

When you save a layout for the first time, an HTML file is generated (in addition to the XML file) which is placed into your user interface component (however, this HTML file can only be seen in the file system and not in Eclipse itself). This HTML file is updated each time you save the layout.

The Natural adapter is also created when you save your layout for the first time. The adapter has the name that you have specified in the `natsource` property of the Natural page, plus the extension that is used for adapters (*HELLO-A.NS8*) and is located in the *SRC* folder of your Natural library. Your application program will use the adapter to communicate with the page.

### To save the layout

- From the **File** menu, choose **Save**.

  Or:

  Press CTRL+S.

  Or:

  Choose the following button from the Eclipse toolbar:

  💾

You can now proceed with the next exercise: *Creating the Natural Code*.

# 7 Creating the Natural Code

- Content of the Adapter ........ 36
- Creating the Main Program ........ 37
- Testing the Completed Application ........ 39

## Content of the Adapter

When you saved your page layout, the Natural adapter HELLO-A was created for your page. This is the name that you have specified earlier in this tutorial. Your application program will use the adapter to communicate with the page.

The adapter code looks as follows:

```
* PAGE1: PROTOTYPE       --- CREATED BY Application Designer --- /*<RO>>
* PROCESS PAGE USING 'XXXXXXXX' WITH
* NAME RESULT
DEFINE DATA PARAMETER
/*( PARAMETER
1 NAME (A) DYNAMIC
1 RESULT (A) DYNAMIC
/*) END-PARAMETER
END-DEFINE
*
/*( PROCESS PAGE
PROCESS PAGE U'/MyFirstUI/helloworld' WITH
PARAMETERS
 NAME U'name'
  VALUE NAME
 NAME U'result'
  VALUE RESULT
END-PARAMETERS
/*) END-PROCESS
*
*  TODO: Copy to your calling program and implement.
/*/*( DEFINE EVENT HANDLER
* DECIDE ON FIRST *PAGE-EVENT
*  VALUE U'nat:page.end',U'nat:browser.end'
*   /* Page closed.
*   IGNORE
*  VALUE U'sayHello'
*   /* TODO: Implement event code.
*   PROCESS PAGE UPDATE FULL
*  NONE VALUE
*   /* Unhandled events.
*   PROCESS PAGE UPDATE
* END-DECIDE
/*/*) END-HANDLER
*
END /*<<RO>
```

## Creating the Main Program

You will now create the main program which uses the adapter to display the page and which handles its events. The name of the program will be `HELLO-P` and you will store it in the library `CISHELLO`.

### To create the main program

1. Open the NaturalONE perspective.
2. In the **Navigator** view, select the *SRC* folder of the library `CISHELLO`.
3. Invoke the context menu for the adapter `HELLO-A` and choose **Generate Main Program**.
4. In the resulting dialog box, enter "HELLO-P" as the name of the new program and choose the **OK** button.

   The program with the specified name is now created.
5. Initialize the page data. In the page layout definition, the property `name` has been bound to the FIELD control with the label **Your Name**. For the property `name`, a parameter `NAME` has been generated into the parameter data area of the adapter. Thus, in order to preset the FIELD control, we will preset the variable `NAME` with the value "Ajax Developer".

   ```
   DEFINE DATA LOCAL
   1 NAME (A) DYNAMIC
   1 RESULT (A) DYNAMIC
   END-DEFINE
   *
   NAME := 'Ajax Developer'
   PROCESS PAGE USING 'HELLO-A'
   WITH NAME RESULT
   ```

6. Handle the events that can occur on the page. A template for the event handler code has been generated as a comment block into the page adapter `HELLO-A`. List the adapter `HELLO-A` and copy this comment block into your main program and terminate the program with an `END` statement:

   ```
   DEFINE DATA LOCAL
   1 NAME (A) DYNAMIC
   1 RESULT (A) DYNAMIC
   END-DEFINE
   *
   NAME := 'Ajax Developer'
   PROCESS PAGE USING 'HELLO-A'
   WITH NAME RESULT
   *
   DECIDE ON FIRST *PAGE-EVENT
   ```

```
  VALUE 'nat:page.end',U'nat:browser.end'
  /* Page closed.
    IGNORE
  VALUE 'sayHello'
  /* TODO: Implement event code.
    PROCESS PAGE UPDATE FULL
  NONE VALUE
  /* Unhandled events.
    PROCESS PAGE UPDATE
END-DECIDE
*
END
```

After the page has been displayed, the user raises events on the page by using the controls. The name of the raised event is then contained in the system variable `*PAGE-EVENT`. Depending on the event, the program modifies the page data, resends it to browser with a `PROCESS PAGE UPDATE FULL` statement and waits for the next event to occur.

The predefined events `nat:page.end` and `U'nat:browser.end'` are raised when the user closes the page or closes the browser. The event `sayHello` is raised when the user chooses the **Say Hello** button. Previously in this tutorial, you have bound the event `sayHello` to this button while designing the page. The `NONE VALUE` block should always be defined as above. It contains the default handling of all events that are not handled explicitly.

7 When the event `sayHello` occurs, we want to display a greeting in the FIELD control with the label **Result**. Therefore, we modify the variable `RESULT` (which is bound to the corresponding FIELD control in the page layout) accordingly before we resend the page data.

```
DEFINE DATA LOCAL
1 NAME (A) DYNAMIC
1 RESULT (A) DYNAMIC
END-DEFINE
*
NAME := 'Ajax Developer'
PROCESS PAGE USING 'HELLO-A'
WITH NAME RESULT
*
DECIDE ON FIRST *PAGE-EVENT
  VALUE 'nat:page.end',U'nat:browser.end'
  /* Page closed.
    IGNORE
  VALUE 'sayHello'
  /* TODO: Implement event code.
    COMPRESS 'Hello, ' NAME '!' TO RESULT
    PROCESS PAGE UPDATE FULL
  NONE VALUE
  /* Unhandled events.
    PROCESS PAGE UPDATE
END-DECIDE
*
END
```

The main program is now complete.

8 Save your changes and use the **Build Natural Project** command to update the Natural server and catalog the sources of the current project.

> **Note:** When **Build Natural projects automatically** is selected in the Natural preferences, the Natural server is automatically updated each time you save a source or add a new source. The source is uploaded to the Natural server and is cataloged there.

## Testing the Completed Application

You will now execute the program and check whether it provides the desired result. If it contains errors, you can debug it.

### To execute the program

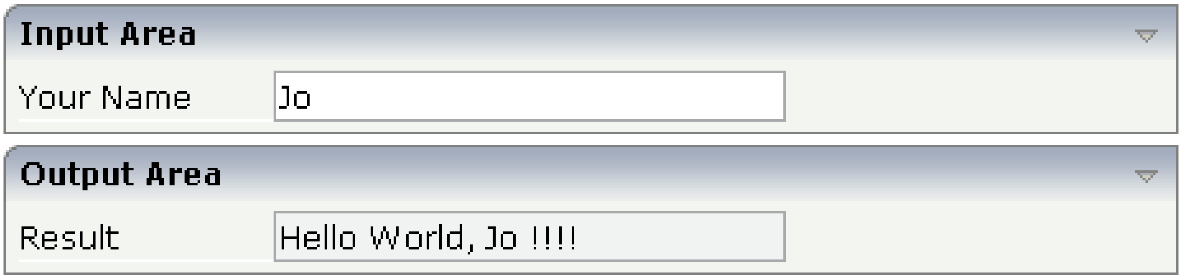
1 In the **Navigator** view, select the program `HELLO-P`.

2 Invoke the context menu and choose **NaturalONE > Execute**.

The program is executed and the output is shown in the browser.

3 Enter your name and choose the **Say Hello** button.

The page should now successfully “talk” to your adapter.



Input Area

Your Name: Jo

Output Area

Result: Hello World, Jo !!!!

### To debug the program

1 In the **Navigator** view, select the program `HELLO-P`.

2 Invoke the context menu and choose **NaturalONE > Debug**.

The Debug perspective is opened. In the editor window, the debugger waits at the first executable source code line. You can now use the standard Eclipse functionality to debug the Natural program.

You have now completed this tutorial. See the remaining section of these *First Steps* for **some background information**.

# 8 Some Background Information

- Name Binding between Controls and Adapter ........................................................................... 42
- Data Exchange at Runtime ........................................................................................................ 42
- Files and their Locations ........................................................................................................... 43

## Name Binding between Controls and Adapter

Which are the critical parts when building the “Hello World!” application?

- The NATPAGE control in the layout points to the name of the adapter object (property `natsource`).
- The FIELD control in the layout points to the property name of the adapter (property `valueprop`).
- The BUTTON control in the layout points to the event `sayHello()` of the adapter (property `method`).

There is a name binding between the layout definition and its corresponding adapter. This is the simple and effective approach of the development process: The adapter represents a logical abstraction of what the page displays. All layout definitions are kept in the page - all the logic is kept in the adapter. (Or better: behind the adapter. The adapter itself should only be a facade to the “real” application logic.)

## Data Exchange at Runtime

What happens at runtime?

- When the user starts a Natural session from the logon page, the Natural program that the user specified in the command line is started.
- The Natural program executes a `PROCESS PAGE` statement, using an adapter.
- The `PROCESS PAGE` statement passes the name of the HTML page to be used and the initial page data to the browser.
- The browser displays the page. JavaScript code on the page distributes the initial data to the controls.
- The user provides some input, for example, enters the name. The content change is stored inside the page. The Natural program is not yet involved.
- The user does something which causes a flush of the changes (for example, the user chooses a button). Therefore, all registered data changes are packaged and are sent through the adapter to the Natural program, including the information which event has been raised.
- The Natural program receives the modified data.
- The system variable `*PAGE-EVENT` receives the name of the raised event.
- The event handler in the Natural program modifies the data and resends it to the page using a `PROCESS PAGE UPDATE` statement.
- And so forth.

With a standard HTTP connection, only the changed content of the screen is passed when operating on one page. The layout is kept stable in the browser. Consequently, there is no flickering of the page due to page reloading.

All steps described in the list above are done completely transparent to your adapter; i.e. you do not have to cope with session management, stream parsing, error management, building up HTML on the server, etc. You just have to provide an intelligent HTML page by defining it in the Layout Painter and an adapter object.

## Files and their Locations

Have a look at the files created for your “Hello World!” application and take notice of the directory in which they are located.

- The XML layout definition is kept in the *cisnatfirst/xml* directory.
- The generated HTML page is kept directly in the *cisnatfirst* directory of the user interface component. There are possibly also some other files inside this directory that start with "ZZZZ". These files are temporary files used when previewing pages inside the Layout Painter.
- The generated Natural adapters are kept in the directory that you specified while creating the user interface component.
- In the directory *cisnatfirst/accesspath*, “access restriction” files are generated. If you view these files inside the text editor, you see that one file is maintained for each page; it holds the information about which properties are accessed by the page.

# III

- 9 Developing the User Interface ..... 47
- 10 Developing the Application Code ..... 55
- 11 Deploying the Application ..... 65
- 12 Natural Parameters and System Variables ..... 81
- 13 Usage of Edit Masks ..... 83
- 14 Multi Language Management ..... 89
- 15 Support of Right-to-Left Languages ..... 91
- 16 Server-Side Scrolling and Sorting ..... 93

# 9 Developing the User Interface

- Enabling a Natural Project for Ajax Developer ........ 48
- Creating a User Interface Component ........ 48
- Creating a Natural Page ........ 49
- Specifying Properties for the Natural Page ........ 50
- Designing the Page ........ 50
- Binding Properties and Methods ........ 51
- Previewing the Layout ........ 51
- Viewing the Protocol ........ 51
- Saving the Layout ........ 52
- Generating the Adapter ........ 52
- Data Type Mapping ........ 53

In the ***First Steps*** tutorial, you have developed a small rich internet program step by step. In this tutorial, you have already performed most of the steps required to develop a rich internet application.

The general procedure to develop a rich internet application with Natural for Ajax is as follows:

1. Use Ajax Developer to design the web pages that form the user interface of your application.
2. Generate a Natural adapter for each page (by saving the page). The adapter is a Natural object that forms the interface between the application code and the web page.
3. Write the Natural application programs that contain the business logic and use adapters to exchange data with the web pages.

In this chapter, the first two steps (design and adapter) are explained in more detail. Step 3 (business logic) is described in the section ***Developing the Application Code*** which also addresses advanced topics that are not covered in the tutorial.

## Enabling a Natural Project for Ajax Developer

Before you can define layout pages for a Natural project, you have to enable the project for Ajax Developer. For detailed information, see *Enabling a Project for Ajax Developer* in the *Ajax Developer* documentation.

If you skip this step, you are asked to enable the project when you create the first user interface component in the project.

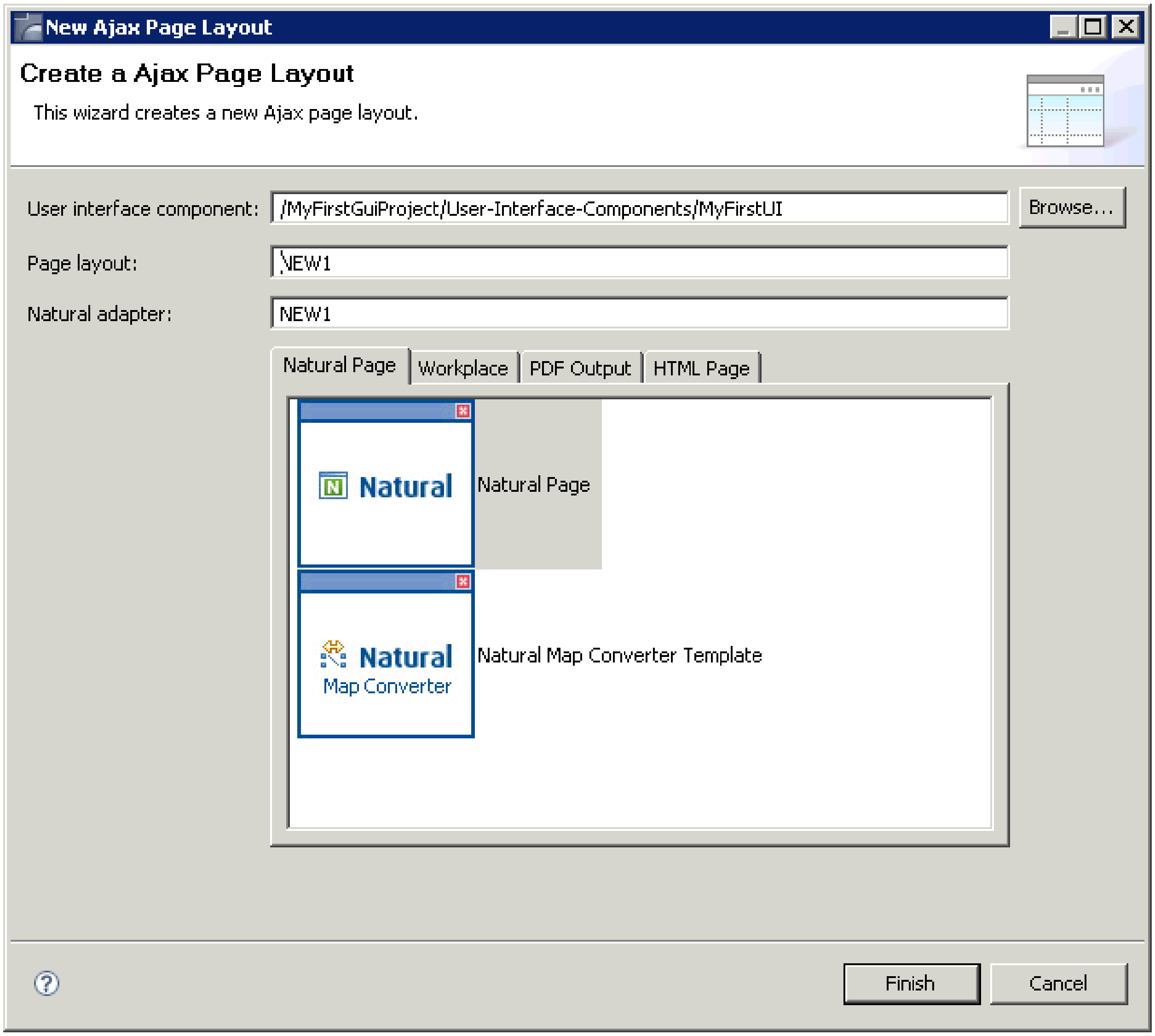
## Creating a User Interface Component

After the project has been enabled for Ajax Developer, you have to define the folder that is to contain the Natural adapters that will be generated from your page layouts. This is usually the *SRC* folder of a Natural library. For detailed information, see *Creating User Interface Components* in the *Ajax Developer* documentation.

## Creating a Natural Page

In order to create the layout of your web pages, you use Ajax Developer's Layout Painter.

Add a page layout to your project as described in *Creating a Layout* in the *Ajax Developer* documentation (select the template for the Natural page).



New Ajax Page Layout

Create a Ajax Page Layout

This wizard creates a new Ajax page layout.

User interface component: /MyFirstGuiProject/User-Interface-Components/MyFirstUI

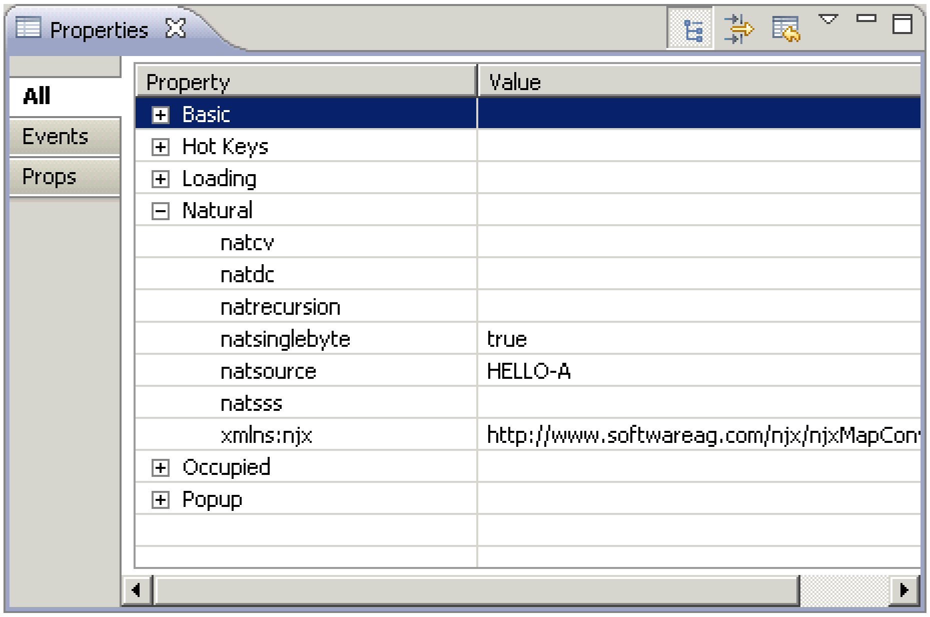
Page layout: NEW1

Natural adapter: NEW1

## Specifying Properties for the Natural Page

In order to specify generation options for the new page, you specify values for certain properties that are specific for Natural pages.

To define properties, you select the node **natpage** in the layout tree of the Layout Painter. The properties for this control are then shown in the **Properties** view. All Natural-specific properties are provided in the **Natural** node.



| Property | Value |
|---|---|
| ⊞ Basic | |
| ⊞ Hot Keys | |
| ⊞ Loading | |
| ⊟ Natural | |
| natcv | |
| natdc | |
| natrecursion | |
| natsinglebyte | true |
| natsource | HELLO-A |
| natsss | |
| xmlns:njx | http://www.softwareag.com/njx/njxMapCon |
| ⊞ Occupied | |
| ⊞ Popup | |

For information on the properties that are available for a Natural page, see **NATPAGE**.

## Designing the Page

Design your Natural page by dragging controls and containers from the controls palette onto the corresponding node in the layout tree or to the preview area. This has already been explained in the section ***Writing the GUI Layout*** of the tutorial.

**Note:** For more detailed information on defining the layout, see *Defining the XML Layout* in the *Ajax Developer* documentation.

## Binding Properties and Methods

Many of the controls you use on your page have properties that can be controlled by the application. Also the controls can raise events that your application may wish to handle. The next step is therefore assigning identifiers to each of these properties and events under which your application can later address them. This procedure is called “binding”.

To get an overview which properties and events are bindable to application variables and events, select a control in the layout tree and check the properties in the **Properties** view.

The usage and meaning of each of the properties and events is described for each control in the following sections of this Natural for Ajax documentation:

- *Typical Page Layout*
- *Working with Containers*
- *Working with Controls*
- *Working with Grids*
- *Working with Trees*
- *Working with Menus*
- *Non-Visual Controls and Hot Keys*
- *Working with Workplaces*
- *Working with PDF Documents*

## Previewing the Layout

To find out how the current layout definitions are rendered on the page, preview the layout as described *Previewing the Layout* of the *Ajax Developer* documentation.

## Viewing the Protocol

The protocol contains warnings and error messages that might occur while you design and preview your page. For further information, see *Viewing the Layout Painter Protocol* in the *Ajax Developer* documentation.

## Saving the Layout

Save the page layout as described in *Saving the Layout* in the *Ajax Developer* documentation. A Natural adapter is then generated into the folder that you specified when creating a user interface component. The adapter is updated each time you save the layout.

## Generating the Adapter

When you save the layout, a Natural adapter is generated according to the following rules:

| | |
|---|---|
| **Location** | The adapter is generated into the folder that you specified when creating a user interface component. See *Creating User Interface Components* in the *Ajax Developer* documentation. |
| **Name** | The name of the adapter is determined by the name you specified when creating a new layout. See *Creating a Layout* in the *Ajax Developer* documentation. |
| **Property identifiers** | For each control property that has been bound to an identifier (as described in ***Binding Properties and Methods***) a parameter in the parameter data area of the adapter is generated. The identifier is therefore validated against the Natural naming conventions for user-defined variables and translated to upper-case. If an identifier does not comply to these rules, a warning is generated into the protocol and as a comment into the adapter code. Additionally, the name must comply to the naming conventions for XML entities. This means especially that the name must start with a character.<br>To achieve uniqueness within 32 characters, the last four characters are (if necessary) replaced by an underscore, followed by a three-digit number. |
| **Event identifiers** | For each event that can be raised by a control on the page, an event handler skeleton is generated as a comment into the adapter.<br>**Caution:** Some controls raise events whose names are dynamically constructed at runtime.<br>For these events, no handler skeleton can be generated. The control reference contains information about these additional events.<br>The event identifiers are not validated. |

## Data Type Mapping

Several Application Designer controls have properties for which a data type can be specified. An example is the FIELD control. It has a `valueprop` property which can be restricted to a certain data type. The data type is used at runtime to validate user input. At generation time (that is, when a Natural adapter is generated for the page), the data type determines the Natural data format of the corresponding adapter parameter.

The following table lists the data types used in Application Designer and the corresponding Natural data formats.

| Application Designer | Natural |
|---|---|
| `color` | `A` or `U` (depending on the NATPAGE property `natsinglebyte`). The string must contain an RGB value, for instance "#FF0000" for the color red. |
| `date` | `D (YYYYMMDD)` |
| `float` | `F4` |
| `int` | `I4` |
| `long` | `P19` |
| `time` | `T (HHIISS)` |
| `timestamp` | `T (YYYYMMDDHHIISST)` |
| `N` *`n.n`* | `N`*`n.n`* |
| `P` *`n.n`* | `P`*`n.n`* |
| `string` (default) | `A` or `U` dynamic (depending on the NATPAGE property `natsinglebyte`). |
| `string` *`n`* | `A`*`n`* or `U`*`n`* (depending on the NATPAGE property `natsinglebyte`). |
| `xs:double` | `F8` |
| `xs:byte` | `I1` |
| `xs:short` | `I2` |

# 10 Developing the Application Code

- Generating the Main Program ........ 56
- Executing the Main Program ........ 57
- Debugging the Main Program ........ 57
- Structure of the Main Program ........ 57
- Handling Page Events ........ 58
- Built-in Events and User-defined Events ........ 58
- Sending Events to the User Interface ........ 59
- Using Pop-Up Windows ........ 60
- Debugging Modal Pop-up Windows ........ 61
- Using Natural Maps ........ 62
- Navigating between Pages and Maps ........ 62
- Using Pages and Maps Alternatively ........ 63

## Generating the Main Program

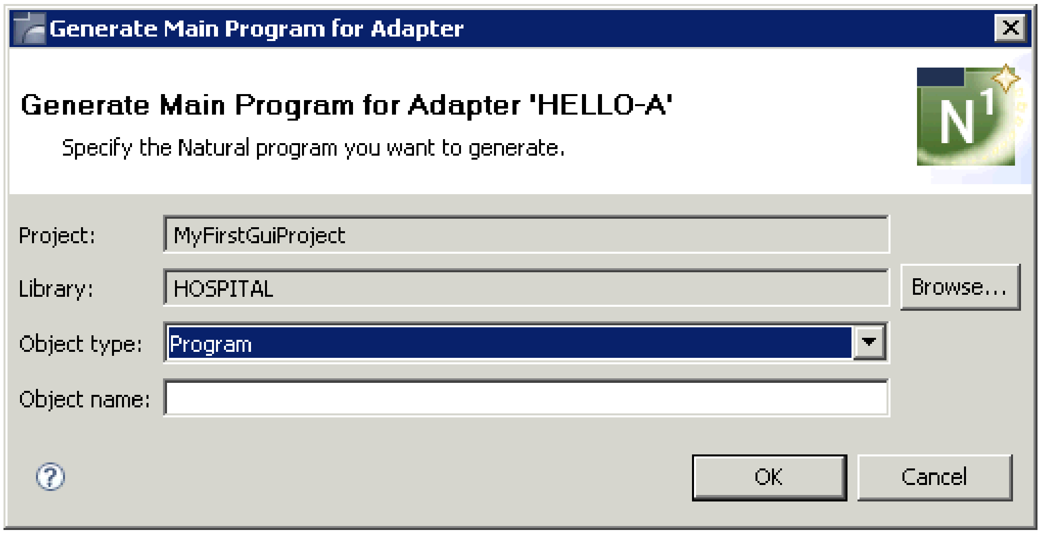
You can generate the main program, using the information provided in the adapter. This main program will call the adapter to display the page and handles the events that the user raises on the page.

The resulting program can be executed in a browser where it displays the page. However, it does not yet do anything useful, because it handles the incoming events only in a default way and contains no real application logic.

### To generate the main program

1. Open the NaturalONE perspective.
2. In the **Navigator** view, select the adapter for which you want to generate the main program.
3. Invoke the context menu and choose **Generate Main Program**.

   The following dialog box appears.



Generate Main Program for Adapter

Generate Main Program for Adapter 'HELLO-A'

Specify the Natural program you want to generate.

Project: MyFirstGuiProject

Library: HOSPITAL

Object type: Program

Object name:

4. Use the **Object type** drop-down list box to specify whether you want to generate a program or a subprogram.
5. In the **Object name** text box, enter the name for the main program.
6. Choose the **OK** button.

   The main program with the specified name is now created.
7. Handle the events that can occur on the page.

8 Save your changes and use the **Build Natural Project** command to update the Natural server and catalog the sources of the current project.

## Executing the Main Program

If you have generated a program, you can execute and test it immediately as described below. If you have generated a subprogram, you can test it using the **Test Subprogram** command which is part of the Business Services functionality.

**To execute the main program**

1 Make sure that the NaturalONE perspective is active.

2 In the **Navigator** view, select the main program.

3 Invoke the context menu and choose **NaturalONE > Execute**.

See also *Executing Objects* in *Using NaturalONE*.

## Debugging the Main Program

To see how the program works in detail, you can start it in the debugger.

**To debug the main program**

1 Make sure that the NaturalONE perspective is active.

2 In the **Navigator** view, select the main program.

3 Invoke the context menu and choose **NaturalONE > Debug**.

See also *Debugging Natural Applications* in *Using NaturalONE*.

## Structure of the Main Program

The main program that displays the page and handles its events has the following general structure:

- A `PROCESS PAGE USING` statement with the page adapter. The `PROCESS PAGE` statement displays the page in the user's web browser and fills it with data. Then, it waits for the user to modify the data and to raise an event.
- A `DECIDE` block with a `VALUE` clause for each event that shall be explictly handled.

- A default event handler for all events that shall not be explicitly handled.

Each event handler does the following:

- It processes the data the has been returned from the page in the user's web browser.
- It performs a PROCESS PAGE UPDATE FULL statement to re-execute the previous PROCESS PAGE USING statement with the modified data and to wait for the next event.

The default event handler does not modify the data. It does the following:

- It performs a PROCESS PAGE UPDATE statement to re-execute the previous PROCESS PAGE USING statement and to wait for the next event.

## Handling Page Events

When the PROCESS PAGE statement receives an event, the data structure that was passed to the adapter is filled with the modified data from the page and the system variable *PAGE-EVENT is filled with the name of the event. Now, the corresponding VALUE clause in the DECIDE statement is met and the code in the clause is executed.

The application handles the event by processing and modifying the data and resending it to the page with a PROCESS PAGE UPDATE FULL statement. Alternatively, it uses the PROCESS PAGE UPDATE statement without the FULL clause in order to resend the original (not modified) data.

## Built-in Events and User-defined Events

There are built-in events and user-defined events.

**Built-in Events**

The following built-in events can be received:

**nat:browser.end**

This is event is raised whenever the session is terminated by a browser action:

- Closing of the browser.
- Navigation to another page in the browser.
- Programmatic close in a workplace (for example, close all session functions).

In addition, this event is raised in the following cases:

- Timeout of the session.
- Removal of the session with the monitoring tool.

After the event is raised, the Natural session terminates.

**nat:page.end**
This event is raised when the user closes the page with the Close button in the upper right corner of the page.

**nat:page.default**
This event is sent if the Natural for Ajax client needs to synchronize the data displayed on the page with the data held in the application. It is usually handled in the default event handler and just responded with a `PROCESS PAGE UPDATE`.

Other built-in events can be sent by specific controls. These events are described in the control reference.

### User-defined Events

User-defined events are those events that the user has assigned to controls while designing the page layout with the Layout Painter. The names of these events are freely chosen by the user. The meaning of the events is described in the control reference.

## Sending Events to the User Interface

The `PROCESS PAGE UPDATE` statement can be accompanied by a `SEND EVENT` clause. With the `SEND EVENT` clause, the application can trigger certain events on the page when resending the modified data.

The following events can be sent to the page:

**nat:page.message**
This event is sent to display a text in the status bar of the page. It has the following parameters:

| Name | Format | Value |
|---|---|---|
| `type` | A or U | Sets the icon in the status bar ("S"=success icon, "W"=warning icon, "E"=error icon). |
| `short` | A or U | Short text. |
| `long` | A or U | Long text. |

**nat:page.valueList**
This event is sent to pass values to a FIELD control with value help on request (see also the description of the **FIELD** control in the control reference). It has the following parameters:

| Name | Format | Value |
|---|---|---|
| id | A or U | A list of unique text identifiers displayed in the FIELD control with value help. The list must be separated by semicolon characters. |
| text | A or U | A list of texts displayed in the FIELD control with value help. The list must be separated by semicolon characters. |

**nat:page.xmlDataMode**

This event is sent to switch several properties of controls on the page in one call to a predefined state. The state must be defined in an XML file that is expected at a specific place. See the information on XML property binding in the Application Designer documentation for further information.

| Name | Format | Value |
|---|---|---|
| data | A or U | Name of the property file to be used. |

## Using Pop-Up Windows

A rich GUI page can be displayed as a modal pop-up in a separate browser window. A modal pop-up window can open another modal pop-up window, thus building a window hierarchy. If a PROCESS PAGE statement and its corresponding event handlers are enclosed within a PROCESS PAGE MODAL block, the corresponding page is opened as a modal pop-up window.

The application can check the current modal pop-up window level with the system variable *PAGE-LEVEL. *PAGE-LEVEL = 0 indicates that the application code is currently dealing with the main browser window. *PAGE-LEVEL > 0 indicates that the application code is dealing with a modal pop-up window and indicates the number of currently stacked pop-up windows.

In order to modularize the application code, it makes sense to place the code for the handling of a modal pop-up window and the enclosing PROCESS PAGE MODAL block in a separate Natural module, for instance, a subprogram. Then the pop-up window can be opened with a CALLNAT statement and can thus be reused in several places in the application.

Example program MYPAGE-P:

```
DEFINE DATA LOCAL
1 FIELD1 (U) DYNAMIC
1 FIELD2 (U) DYNAMIC
END-DEFINE
*
PROCESS PAGE USING 'MYPAGE-A'
*
DECIDE ON FIRST *PAGE-EVENT
 VALUE U'nat:page.end',U'nat:browser.end'
  /* Page closed.
  IGNORE
 VALUE U'onPopup'
  /* Open a pop-up window with the same fields.
  CALLNAT 'MYPOP-N' FIELD1 FIELD2
  PROCESS PAGE UPDATE FULL
 NONE VALUE
  /* Unhandled events.
  PROCESS PAGE UPDATE
END-DECIDE
*
END
```

Example subprogram `MYPOP-N`:

```
DEFINE DATA PARAMETER
1 FIELD1 (U) DYNAMIC
1 FIELD2 (U) DYNAMIC
END-DEFINE
*
/* The following page will be opened as pop-up.
PROCESS PAGE MODAL
*
 PROCESS PAGE USING 'MYPOP-A'
*
 DECIDE ON FIRST *PAGE-EVENT
  VALUE U'nat:page.end',U'nat:browser.end'
   /* Page closed.
   IGNORE
  NONE VALUE
   /* Unhandled events.
   PROCESS PAGE UPDATE
 END-DECIDE
*
END-PROCESS
*
END
```

## Debugging Modal Pop-up Windows

When debugging Natural for Ajax applications with modal pop-up windows, it is recommended to use an external web browser instead of the internal web browser of Eclipse. Only then it is possible to step into the modal pop-up handling code.

See also *Debugging Natural Applications* in *Using NaturalONE*.

**To define the use an external web browser**

1. From the **Window** menu, choose **Preferences**.
2. Expand the **General** node and select **Web Browser**.
3. Select the **Use external web browser** option button and choose the **OK** button.

## Using Natural Maps

Rich internet applications written with Natural for Ajax need not only consist of rich GUI pages, but may also use classical maps. This is especially useful when an application that was originally written with maps shall only be partly changed to provide a rich GUI. In this case the application can run under Natural for Ajax from the very beginning and can then be “GUIfied” step by step.

## Navigating between Pages and Maps

Due to the similar structure of programs that use maps and programs that use adapters, it is easy for an application to leave a page and open a map, and vice versa. For each rich GUI page, you write a program that displays the page and handles its events. For each map, you write a program that displays the map and handles its events. In an event handler of the page, you call the program that handles the map. In an “event handler” of the map, you call the program that handles the page.

Example for program `MYPAGE-P`:

```
DEFINE DATA LOCAL
1 FIELD1 (U20)
1 FIELD2 (U20)
END-DEFINE
*
PROCESS PAGE USING 'MYPAGE'
*
DECIDE ON FIRST *PAGE-EVENT
 VALUE U'nat:page.end',U'nat:browser.end'
  /* Page closed.
  IGNORE
 VALUE U'onDisplayMap'
  /* Display a Map.
  FETCH 'MYMAP-P'
 NONE VALUE
  /* Unhandled events.
  PROCESS PAGE UPDATE
END-DECIDE
```

```
*
END
```

Example for program MYMAP-P:

```
DEFINE DATA LOCAL
1 FIELD1 (U20)
1 FIELD2 (U20)
END-DEFINE
*
SET KEY ALL
INPUT USING MAP 'MYMAP'
*
DECIDE ON FIRST *PF-KEY
 VALUE 'PF1'
  /* Display a rich GUI page.
  FETCH 'MYPAGE-P'
 NONE VALUE
  REINPUT WITH TEXT
  'Press PF1 to display rich GUI page.'
END-DECIDE
*
END
```

## Using Pages and Maps Alternatively

An application can also decide at runtime whether to use maps or rich GUI pages, depending on the capabilities of the user interface. The system variable *BROWSER-IO lets the application decide if it is running in a web browser at all. If this is the case, the system variable tells whether the application has been started under Natural for Ajax and may thus use both maps and pages, or whether it has been started under the Natural Web I/O Interface and may thus use only maps.

Example:

```
DEFINE DATA LOCAL
1 FIELD1 (U20)
1 FIELD2 (U20)
END-DEFINE
*
IF *BROWSER-IO = 'RICHGUI'
  /* If we are running under Natural for Ajax,
  /* we display a rich GUI page.
  PROCESS PAGE USING 'MYPAGE'
  DECIDE ON FIRST *PAGE-EVENT
    VALUE U'nat:page.end',U'nat:browser.end'
      /* Page closed.
      IGNORE
    NONE VALUE
```

```
      /* Unhandled events.
      PROCESS PAGE UPDATE
  END-DECIDE
ELSE
  /* Otherwise we display a map.
  SET KEY ALL
  INPUT USING MAP 'MYMAP'
  DECIDE ON FIRST *PF-KEY
    VALUE 'PF1'
      /* Map closed.
      IGNORE
    NONE VALUE
      REINPUT WITH TEXT
      'Press PF1 to terminate.'
END-DECIDE
END-IF
*
END
```

# 11 Deploying the Application

- General Information ........ 66
- Content of a Natural for Ajax Web Application ........ 66
- Content of the Sample webconfig Directory ........ 67
- Using the Deployment Wizard for Web Applications ........ 69
- Starting the Deployment from Eclipse ........ 77
- Starting the Deployment from the Command Line ........ 78
- Status Code Handling ........ 79
- Deploying the Web Application Archive (.war) ........ 80

## General Information

A Natural for Ajax application consists of two parts that are usually installed on two different machines. On one hand, there are Natural modules (adapters, programs, subprograms and other Natural objects) that are installed on a Natural server. On the other hand, there are page layouts of rich GUI pages and other user interface related files that are installed in a Natural for Ajax environment on an application server or servlet container.

The Natural modules are deployed to the Natural server with the Natural Ant deployment wizard (see *Deploying Natural Applications* in the *Using NaturalONE* documentation).

The user interface part of an application is packaged as a standard web application that can be deployed to an application server or servlet container. For this purpose, NaturalONE offers an additional deployment wizard, which is described below. This wizard collects all required information needed to package the user interface components of a Natural for Ajax application to a web application. It creates an Ant script which performs the packaging process. This process creates either a web archive file (*.war*) which can be deployed to one of the supported servlet containers (such as Apache Tomcat) or application servers (such as IBM WebSphere), or it creates plain folders and files which can be copied into an existing server environment (for servers where the deployment of *.war* archives is not supported, such as Sun Java System Application Server or JBoss Application Server 5).

⚠ **Important:** The deployment process for *.war* files as described in this document applies only for target environments where Natural for Ajax supports the deployment with a *.war* file. Currently, these are Apache Tomcat, IBM WebSphere, Oracle GlassFish and JBoss Application Server 6 and 7 environments. For environments where Natural for Ajax does not support the deployment with a *.war* file, an export functionality can be selected during the wizard process. Currently, these are JBoss Application Server 5 (and below) and Sun Java System Application Server environments.

The deployment process can either be started from within the NaturalONE Eclipse environment or via the Ant command line utility.

## Content of a Natural for Ajax Web Application

A deployed Natural for Ajax web application consists of the following elements:

- **User Interface Components**
  These are the elements which constitute the user interface of the application, such as layout pages, style sheets, images and language files.

- **Configuration Tool**
  This tool enables you to modify the session configuration (*sessions.xml*) after the deployment.
- **Runtime License File**
  To execute a Natural for Ajax application outside the development environment of NaturalONE, a Natural for Ajax runtime license is required. You received this license file with your Natural for Ajax product kit.
- **Special Files for the Web Application**
  You can customize your web application further by adding specific configuration files and web pages. To do this, you can add a directory named *webconfig* to your project. The files contained in this directory are packaged to specific, well-defined places in your web application:
  - **Root Directory**
    The files from your project's *webconfig/root* directory are placed in the root directory of the web application. This directory may contain, for example, your own application-specific *index.html* file.
  - ***WEB-INF* Directory**
    The files from your project's *webconfig/web-inf* directory are placed in the *WEB-INF* directory of the web application. Usually, this contains your own application-specific *web.xml* and *sessions.xml* files.
  - ***resources* Directory**
    The files from your project's *webconfig/resources* directory are placed in the *resources* directory of the web application. Usually, this contains your own application-specific style sheets.

To make it simple, a sample *webconfig* directory is provided (see **below**) that you can import into your project before deployment. If you are an experienced developer of web applications, you can create and modify the files in this directory.

⚠ **Important:** If the deployment mode **Deploy as file export** is selected in the deployment wizard, only the user interface components are deployed. In this case, it is assumed that all other elements mentioned above have already been installed on the application server.

## Content of the Sample webconfig Directory

Before packaging the application with the deployment wizard, it is useful to import the sample *webconfig* directory into your project. The files contained in this sample directory can be customized as needed, or left as they are. In their default state, they provide a comfortable approach to launch the application.

The sample *webconfig* directory can be found here:

`<workspace>`*/.naturalone/apache-tomcat/webapps/cisnatural/cisnatural*

The sample *webconfig* directory contains the following subdirectories:

- ***web-inf***

  If your project contains the files listed below, the packaging script adds them to the web application and replaces certain variables with the values you have specified in the deployment wizard. The files will be placed into the *WEB-INF* directory of the web application.

  - ***sessions.xml***

    This configuration file defines the sessions that can be invoked from the logon page. After the deployment, the configuration file can be modified using the configuration tool.

  - ***web.xml***

    This is the central configuration file for a web application. Modify this file only if you have experience with web applications.

  If you need to support different application servers which require different versions of the files *sessions.xml* and *web.xml*, you can place these files in specific subdirectories of the *WEB-INF* directory of the web application. For example:

  ```
  - WEB-INF
      - Tomcat
        - sessions.xml
        - web.xml
      - GlassFish
        - sessions.xml
        - web.xml
      - WebSphere6
        - sessions.xml
        - web.xml
      - WebSphere7
        - sessions.xml
        - web.xml
      - JBoss6
        - sessions.xml
        - web.xml
      - JBoss7
        - sessions.xml
        - web.xml
  ```

- ***root***

  This directory contains the following files which will be placed into the root directory of the web application:

  - ***start.html***

    This file is used to start the web application in the browser. You start the application with the following URL:

    ```
    http://<host>:<port>/<webcontext>/start.html
    ```

  - ***start.jnlp***
    This file is used to start the web application in the SWT client. You start the application with the following URL:

    ```
    http://<host>:<port>/<webcontext>/start.jnlp
    ```

  - ***index.html***
    This file provides links for starting the web application in the browser and in the SWT client. These correspond to the above URLs. In addition, it provides links for invoking the configuration tool and the tracing and monitoring tools for the application.

- ***resources***
  This directory contains the following file which will be placed in the *resources* directory of the web application:

  - ***sample.css***
    This is an example style sheet which is used to control the font, the color and the representation of the PF keys of classic I/O pages that your application might use. You can adapt this style sheet as needed or create more style sheets.

## Using the Deployment Wizard for Web Applications

The deployment wizard creates a WAR deployment file in your project root. This is an Ant script. You can create one or more WAR deployment files for a project, and you can also load an existing WAR deployment file and modify the current settings.

### To use the deployment wizard

1. In the **Navigator** view, select the project for which you want to create the deployment file.

   Or:

   If you want to load the settings of an existing WAR deployment file, select this file in the **Navigator** view.

2. From the **File** menu or from the context menu, choose **New > Other**.
3. In the resulting **New** dialog box, expand the **Natural** node, select **Deploy Natural War Ant** and then choose the **Next** button.

   The first page of the wizard appears (see below).

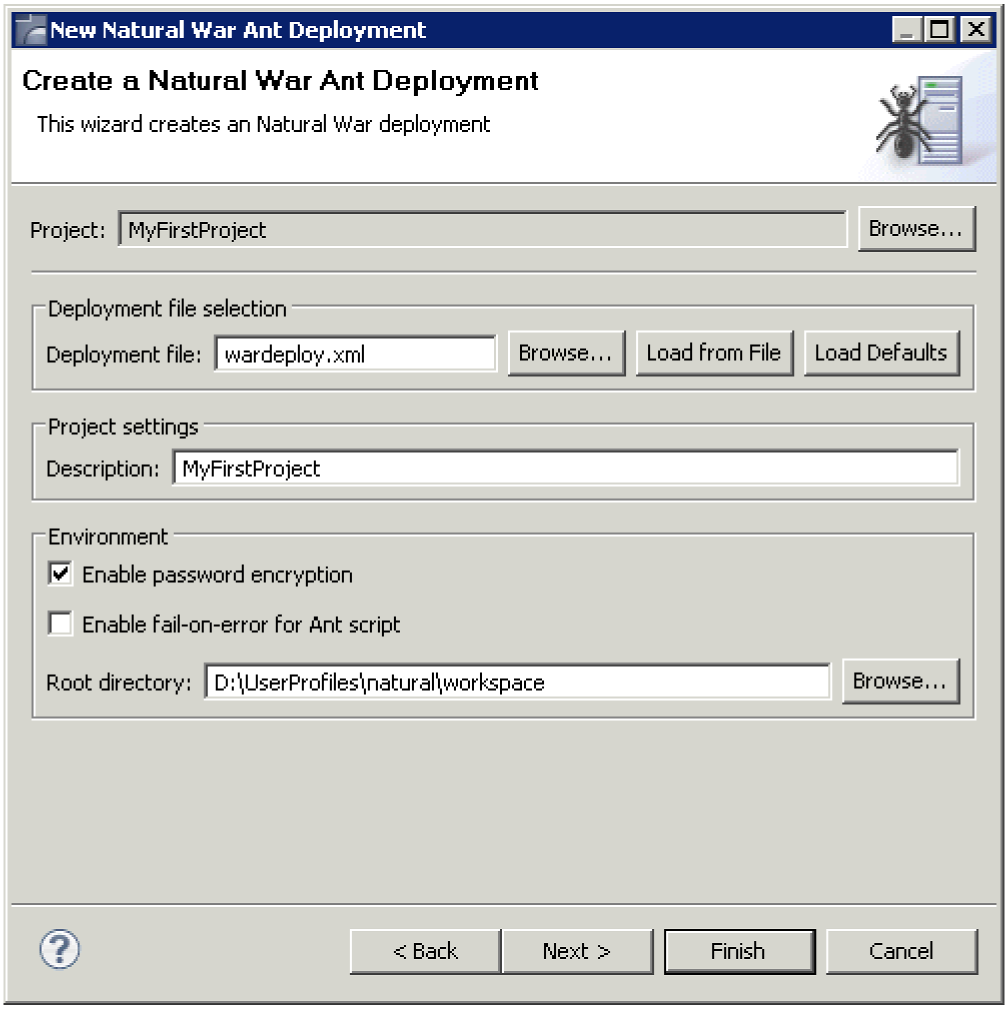
4. Specify all required information as described in the topics below. Use the **Next** button repeatedly to proceed from the first page of the wizard to the last page.
5. When all required information has been provided, choose the **Finish** button.

The different pages of the deployment wizard are described in the following topics:

- General Settings
- User Interface Components
- Repository
- Runtime and Web Settings
- Session Settings

## General Settings

On the first page of the wizard, you define general settings for the deployment.



New Natural War Ant Deployment

Create a Natural War Ant Deployment

This wizard creates an Natural War deployment

Project: MyFirstProject

Deployment file selection

Deployment file: wardeploy.xml

Project settings

Description: MyFirstProject

Environment

☑ Enable password encryption

☐ Enable fail-on-error for Ant script

Root directory: D:\UserProfiles\natural\workspace

**Deployment file**

The default name for the WAR deployment file is *wardeploy.xml*. This name is shown in this text box when an existing WAR deployment file was not selected while invoking the wizard. However, when an existing WAR deployment file was selected, the name of the selected file is shown and the settings from this file are automatically loaded.

You can enter any other name for your new deployment file. It is recommended that your new deployment file also has the extension ".xml".

**Note:** If you keep the name *wardeploy.xml*, the settings from an existing WAR deployment file with the same name are loaded the next time you select the project and invoke the wizard.

If you want to load an existing WAR deployment file, choose the **Browse** button. A dialog appears, providing for selection all WAR deployment files in the current project. Next, you have to choose the **Load from File** button. Otherwise, the settings in this file are not shown in the wizard and may thus be overwritten unintentionally.

If you want to return to the default settings of the deployment wizard (this also includes the information that can be specified on the other pages of the wizard), choose the **Load Defaults** button.

**Description**
This descriptive text is displayed in the administration tool of the application server or servlet container after the web application has been deployed.

**Enable password encryption**
When enabled, all passwords that are used in the deployment file are stored in an encrypted format.

**Enable fail-on-error for Ant script**
When enabled, the Ant script reports errors and terminates in the case of a build failure.

When disabled, the Ant script still reports errors but build failures are only triggered in severe situations (see also *Status Code Handling*).

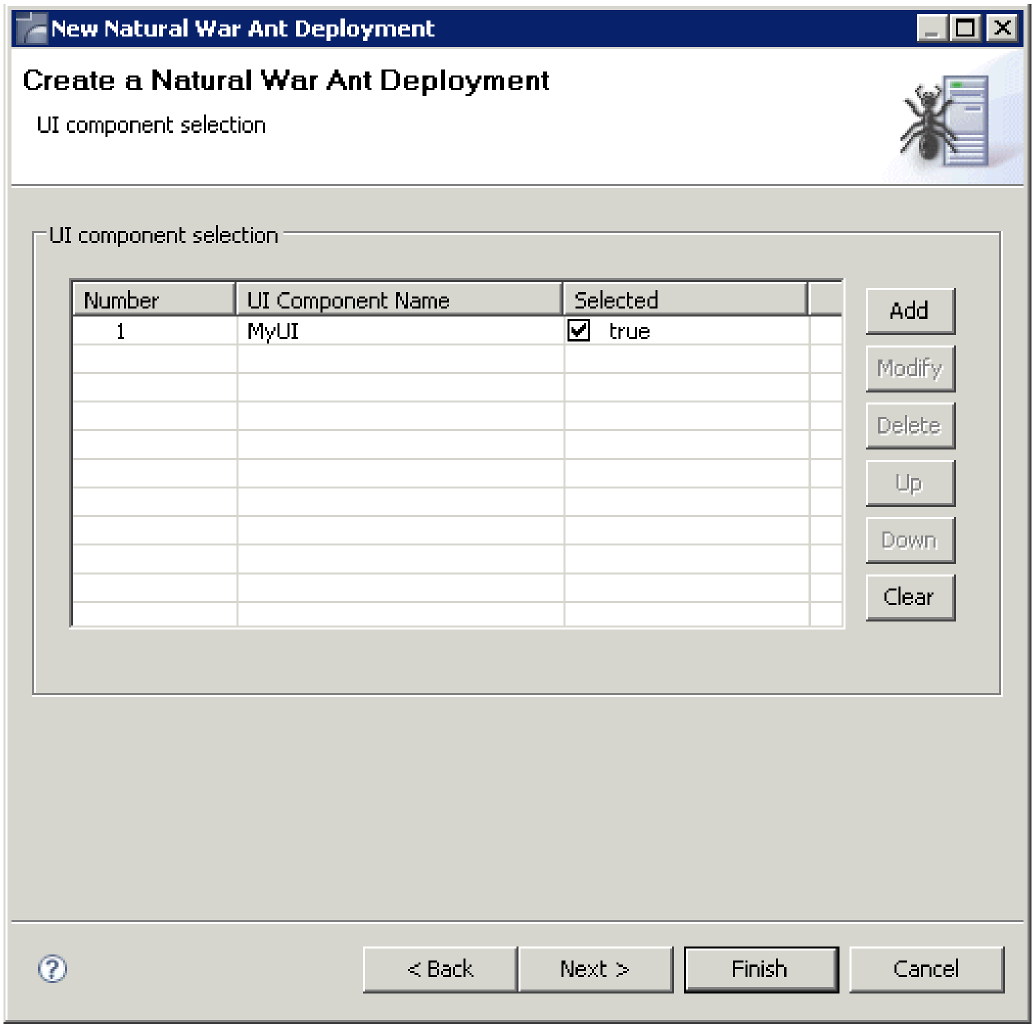
**Root directory**
This path should only be changed when you intend to start the deployment from the command line (that is, when the deployment is not to be started from Eclipse).

Specify the working directory in which the selected project is to be checked out and where the processing takes place. When the deployment is supposed to run on a different machine, you can insert the desired root path via copy-and-paste.

### User Interface Components

On the second page of the wizard, you specify the user interface components that are to be processed.

By default, all user interface components in the project are selected. If you want to exclude a user interface component from processing, remove the check mark in the **Selected** column.



Create a Natural War Ant Deployment

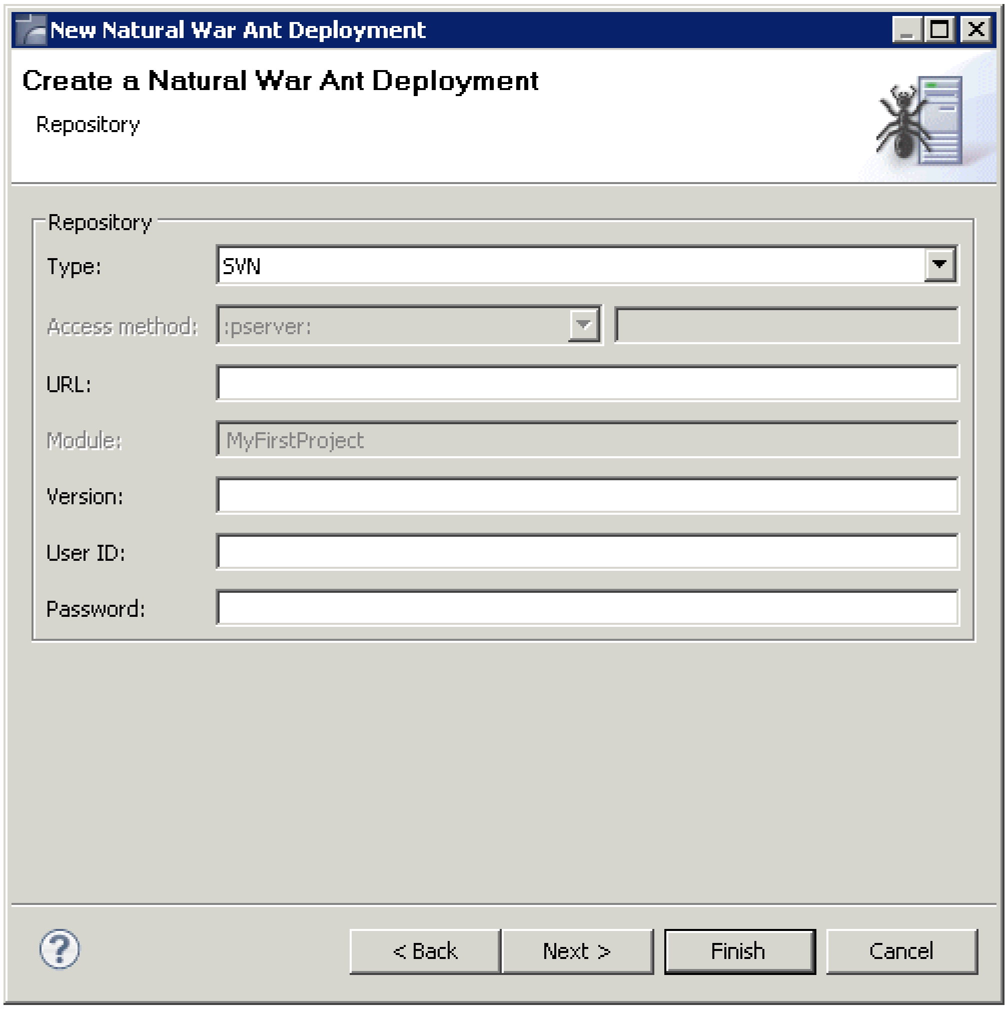
UI component selection

UI component selection

| Number | UI Component Name | Selected |
|---|---|---|
| 1 | MyUI | ☑ true |

## Repository

On the third page of the wizard, you define all settings related to the versioning repository. This can be either Subversion (SVN) or CVS. The settings are used to check out the entire project.


New Natural War Ant Deployment
Create a Natural War Ant Deployment
Repository
Repository
< Back
Next >
Finish
Cancel

Type: SVN

Access method: :pserver:

URL:

Module: MyFirstProject

Version:

User ID:

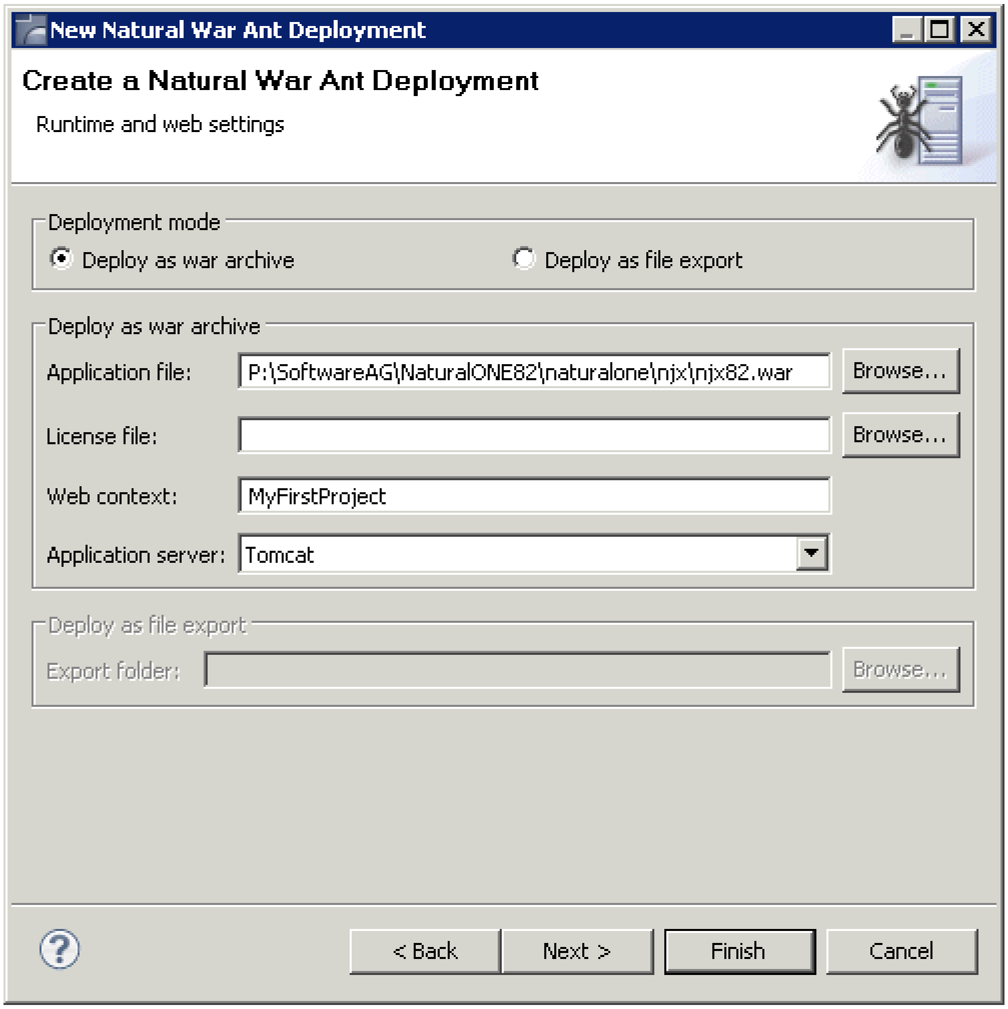
Password:

From the **Type** drop-down list box, select the type of versioning repository that you are using, and then specify all required information. The names of the text boxes and their availability changes according to the selected type.

The wizard usually collects a set of default information as given for the selected project. In most cases, only minor corrections have to be made to the defaults, for example, user ID and password may have to be provided.

### Runtime and Web Settings

The fourth page of the wizard shows information which applies to the web application that is to be created.



New Natural War Ant Deployment

Create a Natural War Ant Deployment

Runtime and web settings

Deployment mode

● Deploy as war archive ○ Deploy as file export

Deploy as war archive

Application file: P:\SoftwareAG\NaturalONE82\naturalone\njx\njx82.war

License file:

Web context: MyFirstProject

Application server: Tomcat

Deploy as file export

Export folder:

**Deployment mode**

The deployment wizard can either create a *.war* archive or export the selected components to a folder that you have to specify. Depending on your choice (**Deploy as war archive** or **Deploy as file export**), different options are available on this page of the wizard.

**Application file**

Only available when **Deploy as war archive** is selected.

Your web application is created based on a basic Natural for Ajax web application that is provided with your NaturalONE installation. This text box is preset with the path to this web application. Normally, you should not change this setting.

**License file**

Only available when **Deploy as war archive** is selected.

In a runtime environment, a Natural for Ajax runtime license is required. Specify the path to this license file. You received a runtime license file with your Natural for Ajax product kit.

**Web context**

Only available when **Deploy as war archive** is selected.

The web context is the root of all URLs of your web application. When you later deploy the application to an application server or servlet container, you will start it with the following URL:

```
http://<host>:<port>/<webcontext>/start.html
```

where `<host>` and `<port>` are the host name and port number of your application server or servlet container.

**Application server**

Only available when **Deploy as war archive** is selected.

Select the type of application server for which the *.war* archive is to be created. Different application servers might require different sets of configuration files. This option allows you to select the application server-specific files as discussed under ***Content of the Sample webconfig Directory***.

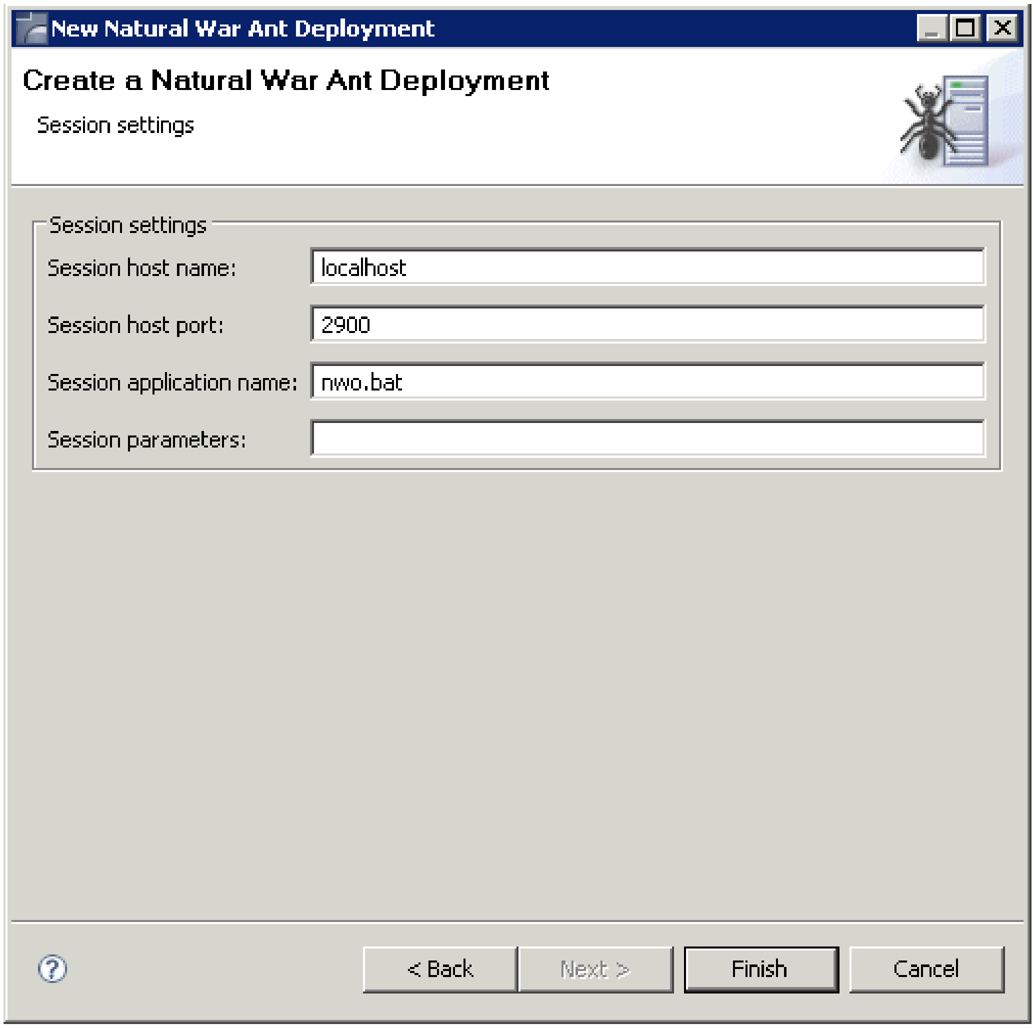
**Export folder**

Only available when **Deploy as file export** is selected.

Specify the destination folder for the exported files. The destination folder must refer to an existing Natural for Ajax application environment inside an application server's directory structure. In particular, a *WEB-INF* directory must be available within the destination folder. This is necessary because the user interface components have to be regenerated when they are deployed to the application server. This is achieved by using the tools from the *WEB-INF* directory of an existing Natural for Ajax application.

### Session Settings

The fifth (and last) page of the wizard shows the options that your web application will use by default to connect to the Natural server. The packaging script places the values you specify here into the *sessions.xml* file of your web application. After you have deployed the application, you can use the configuration tool to modify these settings or to add alternative connection parameters.


New Natural War Ant Deployment
Create a Natural War Ant Deployment
Session settings
< Back
Next >
Finish
Cancel

Session settings

Session host name: localhost

Session host port: 2900

Session application name: nwo.bat

Session parameters:

**Session host name**

The name or TCP/IP address of the server on which Natural and the Natural Web I/O Interface server are running.

**Session host port**

The TCP/IP port number on which the Natural Web I/O Interface server is listening.

**Session application name**

- **Natural for Mainframes**

  The name of the Natural program or a command sequence that starts your application as you would enter it on the `NEXT` prompt. Example:

```
TEST01 data1,data2
```

- **Natural for UNIX**
  The name of the UNIX shell script for starting the Natural application (a file similar to *nwo.sh*).
- **Natural for Windows**
  The name of the Windows command file (*.bat*) for starting the Natural application.

**Session parameters**
Optional. Parameters for starting the Natural application. This can be stack parameters, a parameter file/module or other Natural-specific information.

- **Natural for Mainframes**
  Used to pass dynamic Natural profile parameters to the session, for example:

  ```
  SYSPARM=(MYPARMS) STACK=(LOGON MYAPPL)
  ```

  **Note:** It is recommended to specify the Natural program that starts the application with the option **Session application name** instead of passing it with the profile parameter `STACK`.

- **Natural for UNIX and Natural for Windows**
  Used when the above shell script (UNIX) or command file (Windows) uses the parameter `$5` after "natural", for example:

  ```
  PARM=MYPARM STACK=(LOGON MYLIB;MENU)
  ```

## Starting the Deployment from Eclipse

When you start the deployment process from Eclipse, it is not possible to execute the `checkout` and `update` targets of the deployment file since these targets would access the versioning repository, and this is not feasible from within an Eclipse environment. If you want to check out a specific revision from the versioning repository or if you want to update your project with sources from the versioning repository, you have to start the deployment from the command line as described below.

For testing purposes, for example, it is helpful to start the deployment process from Eclipse. Since the WAR deployment file is an Ant script, the built-in Eclipse functionality of starting Ant scripts is used here. The `build` target of the Ant script will then be executed.

### To start the deployment from Eclipse

- In the **Navigator** view, select your WAR deployment file, invoke the context menu and choose **Run As > Ant Build**.

The deployment process is started, and the output of the deployment file is written to the **Console** view.

When **Deploy as war archive** has been selected as the deployment mode, the web application (*.war* file) is created in the project directory. To see the file in the **Navigator** view, a refresh may be required.

When **Deploy as file export** has been selected as the deployment mode, the directories and files are generated within the specified destination folder.

## Starting the Deployment from the Command Line

You can start the deployment process from a Windows command line such as the Command Prompt (*cmd.exe*) or from a shell command line on a Linux system. When you start the deployment from the command line, special requirements must be met.

The following topics are covered below:

- Prerequisites
- Starting the Deployment

### Prerequisites

The prerequisites for deploying a web application are the same as for deploying Natural applications. See *Prerequisites* in *Deploying Natural Applications*, which is part of *Using NaturalONE*. However, you have to copy the WAR deployment file to the root directory (instead of the Natural deployment file).

### Starting the Deployment

When all prerequisites are in place, the deployment can be started by issuing specific Ant calls. This section just provides some examples (where the default name *wardeploy.xml* is used).

- Print the help screen of the Ant script:

```
ant -lib path-to-mylib -f wardeploy.xml help
```

- Perform an initial checkout of the project sources from the versioning repository:

```
ant -lib path-to-mylib -f wardeploy.xml checkout
```

- Perform an update of the project sources from the versioning repository:

```
ant -lib path-to-mylib -f wardeploy.xml update
```

- With a single call, perform an update of the project sources from the versioning repository first, and then package the web application:

```
ant -lib path-to-mylib -f wardeploy.xml update build
```

- In the above examples, the logging information is written to standard output. If logging information is to be written to a file, use a call such as the following:

```
ant -lib path-to-mylib -f wardeploy.xml update build -logfile mylogfile.txt
```

## Status Code Handling

The Ant deployment script for Ajax can run in two status code modes. The mode can be toggled by specifying the command line parameter `-Dnatural.ant.ajax.failonerror` as described in the following table.

| Command Line Option | Description |
|---|---|
| `-Dnatural.ant.ajax.failonerror=no` | Only severe errors such as missing project directories will lead to a build failure with a status code other than 0. This is the default mode. |
| `-Dnatural.ant.ajax.failonerror=yes` | In addition to the severe errors described above, errors occurring during checkout or update will also lead to a status code other than 0 and hence will lead to a build failure. |

**Note:** The default mode can also be changed on the first page of the deployment wizard.

When the additional status code handling has been enabled, the Ant tool as well as the internally used tools such as SVN or CVS clients may issue specific status codes. In case the status codes are unclear, refer to the documentation of these tools.

## Deploying the Web Application Archive (.war)

The way you actually deploy the web application to a production application server or servlet container depends on the server you are using. Usually, an application server or servlet container provides an Administration Console for deploying and configuring an application (Apache Tomcat, IBM WebSphere, Oracle GlassFish, JBoss Application Server). Or you can simply copy the web application into an application directory on the server (Apache Tomcat, Oracle GlassFish, JBoss Application Server).

# 12 Natural Parameters and System Variables

The following Natural parameters and system variables are evaluated in Natural for Ajax applications and sent to Application Designer:

- DC

  The character assigned to the DC parameter is used in the representation of decimal fields in Application Designer.

- DTFORM

  This parameter is used for all date fields in Application Designer pages. In your application, the date is shown according to the setting of the DTFORM parameter.

- EMFM

  The value of the EMFM parameter is evaluated for fields in Application Designer pages for which a dynamic edit mask has been assigned. See also ***Usage of Edit Masks***.

- *CURS-FIELD

  Identify the operand that represents the value of the control that has the input focus. When the Natural system function POS is applied to a Natural operand that represents the value of a control, it yields the identifier of that operand.

- *LANGUAGE

  Change the language while an application is running. See also ***Multi Language Management***.

# 13 Usage of Edit Masks

- General Information ........ 84
- Data Types with Edit Masks ........ 84
- Natural Profile Parameters ........ 86
- Specifying Edit Masks in Layouts ........ 86
- Edit Masks at Runtime ........ 87

## General Information

Natural for Ajax supports a subset of the Natural edit mask concept in order to support output formatting for most of the commonly used fields.

If edit mask support is specified for a field, the field content is

- rendered according to the edit mask during output, and
- checked for validity against the edit mask during user input.

Due to the nature of data being handled with a Natural for Ajax client, not all of the different Natural edit mask types make sense. Therefore, only a subset of edit mask types is available for Natural for Ajax.

## Data Types with Edit Masks

In all controls that support the property `datatype`, edit masks can be specified for the data types listed in the topics below:

- Edit Masks for Numeric Fields
- Edit Masks for Alphanumeric Fields
- Edit Masks for Date and Time Fields
- Edit Masks for Logical Fields

For detailed information on edit masks, see the Natural documentation for the appropriate platform.

### Edit Masks for Numeric Fields

Edit masks for numeric fields can be specified for the following data types:

- `N` *`n.n`*
- `P` *`n.n`*
- `int`
- `long`
- `float`
- `xs:double`
- `xs:byte`
- `xs:short`
- `xs:decimal`

The full set of Natural numeric edit masks can be applied for these data types.

### Edit Masks for Alphanumeric Fields

Edit masks for alphanumeric fields can be specified for the following data type:

- `string` *`n`*

The full set of Natural alphanumeric edit masks can be applied for this data type.

### Edit Masks for Date and Time Fields

Edit masks for date and time fields can be specified for the following data types:

- `date`
- `time`
- `timestamp` (can only be displayed)
- `xs:date`
- `xs:time`
- `xs:dateTime` (can only be displayed)

A subset of the Natural edit masks can be applied for these data types.

Edit masks for date fields may contain the following characters:

| Character | Usage |
|---|---|
| DD | Day. |
| ZD | Day, with zero suppression. |
| MM | Month. |
| ZM | Month, with zero suppression. |
| YYYY | Year, 4 digits. |
| YY | Year, 2 digits. |
| Y | Year, 1 digit. Must not be used for input fields. |

The time in a date/time edit mask may contain the following characters:

| Character | Usage |
|---|---|
| T | Tenths of a second. |
| SS | Seconds. |
| ZS | Seconds, with zero suppression. |
| II | Minutes. |
| ZI | Minutes, with zero suppression. |
| HH | Hours. |
| ZH | Hours, with zero suppression. |

### Edit Masks for Logical Fields

Edit masks for logical fields can be specified for the following data types:

- L
- xs:boolean

The full set of Natural logical edit masks can be applied for these data types.

## Natural Profile Parameters

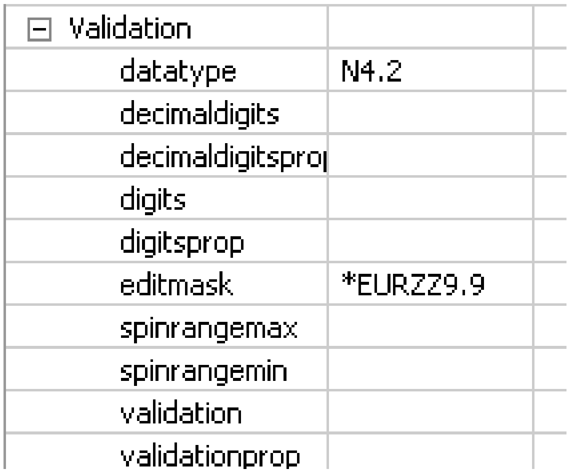
The following Natural profile parameters are evaluated for the edit mask processing of Natural for Ajax:

- DC
- EMFM

For detailed information on these profile parameters, see the Natural documentation for the appropriate platform.

## Specifying Edit Masks in Layouts

An edit mask is added to a specific data type in the following way:



| | |
|---|---|
| ⊟ Validation | |
| datatype | N4.2 |
| decimaldigits | |
| decimaldigitspro | |
| digits | |
| digitsprop | |
| editmask | *EURZZ9.9 |
| spinrangemax | |
| spinrangemin | |
| validation | |
| validationprop | |

The `datatype` property of a field is specified (here the numeric type `N4.2`) and the `editmask` property is filled with the proper (here numeric) edit mask.

## Edit Masks at Runtime

At runtime, fields with edit masks are processed as follows:

- When a field has an edit mask and when a value is to be displayed in that field, the value is processed and formatted according to the edit mask and is displayed afterwards.
- When a user enters a value into a field which has an edit mask, the value is validated against that edit mask and the real value is extracted from the entered value by stripping the irrelevant portions of the edit mask.

# 14 Multi Language Management

The multi language management is responsible for changing the text IDs into strings that are presented to the user.

There are two translation aspects:

- All literals in the GUI definitions of a layout are replaced by strings which are language-specific. This is based on the multi language management of Application Designer.

  **Note:** Detailed information on the multi language management is provided in the Application Designer documentation at ***http://documentation.softwareag.com/webmethods/application_designer.htm***.

- Literals that are contained in your application code are handled with the language management of Natural.

In a Natural for Ajax application, both language management systems are related by common language codes. The language codes used are those that are defined for the Natural profile parameter `ULANG` and the system variable `*LANGUAGE`.

The Application Designer documentation describes how the text files containing the language-dependent texts are created and maintained (see the information on writing multi language layouts at the above URL). For a multi-lingual Natural for Ajax application, the names of the directories that contain the text files should be chosen according to the Natural language codes, for instance */multilanguage/4* for Spanish texts.

When an application is started from the Natural logon page, the user can select the language to be used. Depending on the selected language, the same (Natural) language code is set up both in Application Designer and in the Natural session, so that both language management systems are then configured to use the same language.

**Note:** The language for a session can also be defined in the configuration file *sessions.xml*, using the Natural for Ajax configuration tool. See *Using the Configuration Tool* in the *Client*

*Configuration* documentation which is included in the Natural for Ajax documentation for the standalone version of this product.

It is also possible to change the language while an application is running. This is done by setting the Natural system variable `*LANGUAGE` in the Natural program. Each time this system variable is changed, Natural for Ajax changes the language code for the web pages when the next update of the page occurs.

For compatibility with the predefined multi language directories in Application Designer, the English and German texts need not be stored in */multilanguage/1* and */multilanguage/2*, but can be contained in */multilanguage/en* and */multilanguage/de*.

See also: ***Multi Language Management in Workplace Applications***.

# 15 Support of Right-to-Left Languages

Natural for Ajax supports right-to-left languages and bidirectional text without specific actions taken by the application. The browser displays and accepts bidirectional text always in the expected order.

Applications can use the same page layouts both in left-to-right and in right-to-left screen direction. To switch the screen direction, the statement `SET CONTROL` is used as follows:

| Statement | Description |
|---|---|
| `SET CONTROL 'VON'` | Sets the screen direction to right-to-left. |
| `SET CONTROL 'VOFF'` | Sets the screen direction to left-to-right. |
| `SET CONTROL 'V'` | Switches from left-to-right to right-to-left screen direction and vice versa. |

# 16 Server-Side Scrolling and Sorting

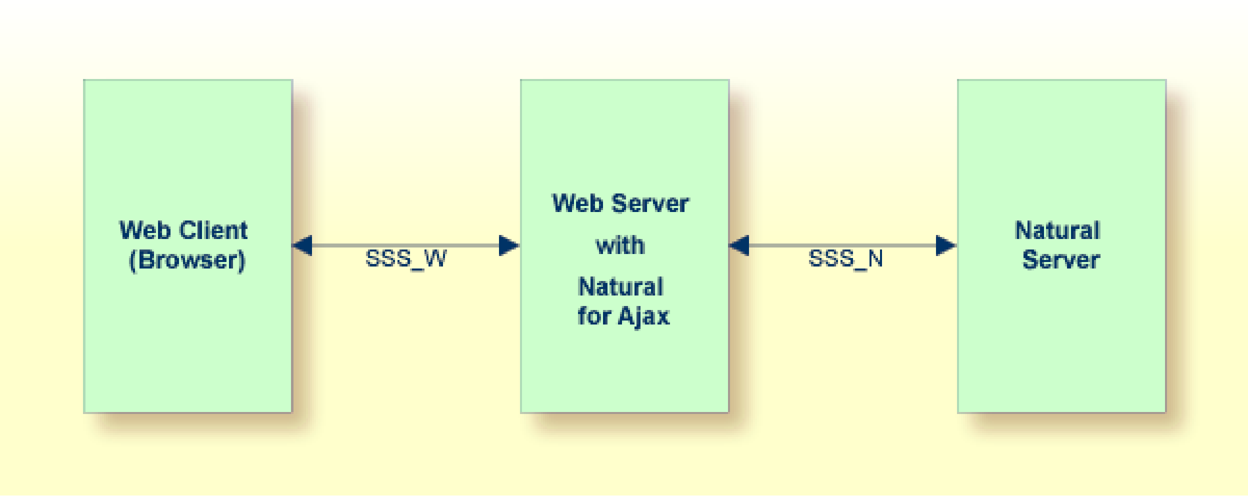
- General Information .......... 94
- Variants of Server-Side Scrolling and Sorting .......... 94
- Controls that Support Server-Side Scrolling and Sorting .......... 98
- Data Structures for Server-Side Scrolling and Sorting .......... 98
- Server-Side Scrolling and Sorting in Trees .......... 100
- Events for Server-Side Scrolling and Sorting .......... 101

## General Information

It is often the case that a web application has to display an arbitrary amount of data in a grid control, for instance, the records from a database table. In these cases, it is mostly not efficient to send all data as a whole to the web client. Instead, it will be intended to display a certain amount of data to begin with and to send more data as the user scrolls through the page. To support this, the grid controls in Natural for Ajax support the concept of server-side scrolling and sorting.

## Variants of Server-Side Scrolling and Sorting

The following graphic illustrates the different types of server-side scrolling and sorting that are supported by Natural for Ajax.



With respect to server-side scrolling and sorting, the following options can be used:

- **No Server-Side Scrolling and Sorting**
  The Natural application sends the grid data to the web server as a whole. The web server sends the grid data to the web client (browser) as a whole.

  Advantage: Neither the web server nor the Natural application are involved in the process of scrolling and sorting. As long as the user only scrolls and sorts, no round trip from the web client to the web server or to the Natural server is necessary.

  Disadvantage: A round trip between web server and Natural server that is triggered by other user actions transports the entire grid data.

- **Web Server-Side Scrolling and Sorting (SSS_W)**
  The Natural application sends the grid data to the web server as a whole. The web server sends the grid data to the web client (browser) in portions.

  Advantage: The Natural application is not involved in the process of scrolling and sorting. As long as the user only scrolls and sorts, no round trip from the web server to the Natural server is necessary.

  Disadvantage: A round trip between web server and Natural server that is triggered by other user actions transports the entire grid data.
- **Natural Server-Side Scrolling and Sorting (SSS_N)**
  The Natural application sends the grid data to the web server in portions. The web server sends the grid data to the web client (browser) in portions.

  Advantage: A round trip between web server and Natural application passes only the visible data portion.

  Disadvantage: The Natural application must support the process of scrolling and sorting with a specific application logic.

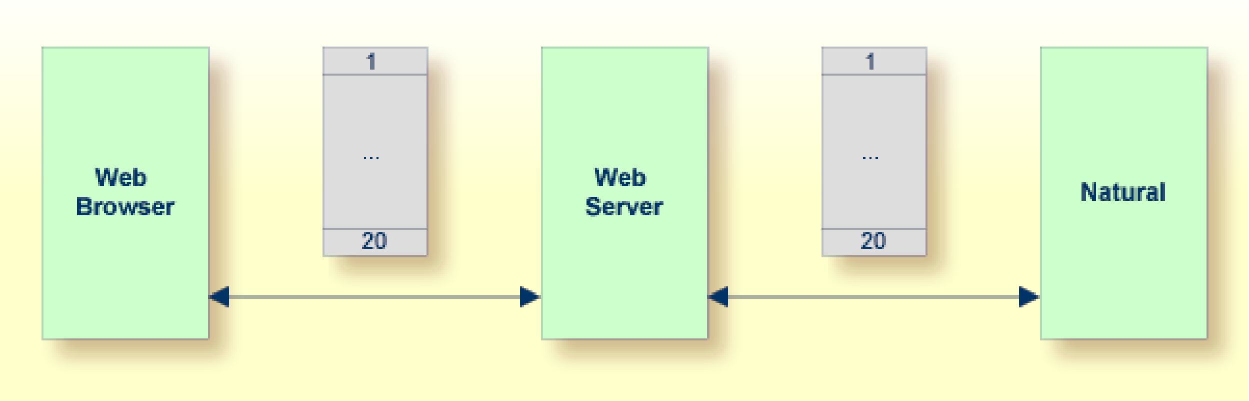
The decision between these options will often depend on the expected data volume. The application can decide dynamically at runtime which option to use.

The following topics show the difference between these three options

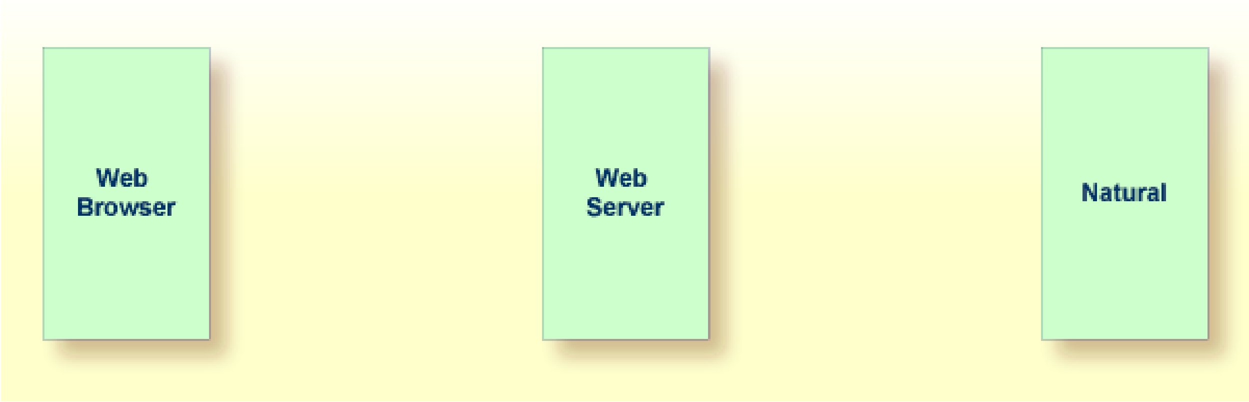
- No Server-Side Scrolling and Sorting
- Web Server-Side Scrolling and Sorting
- Natural Server-Side Scrolling and Sorting

## No Server-Side Scrolling and Sorting

Step 1: The grid is configured at design time to a row count of twenty. The Natural application sends twenty rows and indicates that no further rows are to be expected (`SIZE=0`).

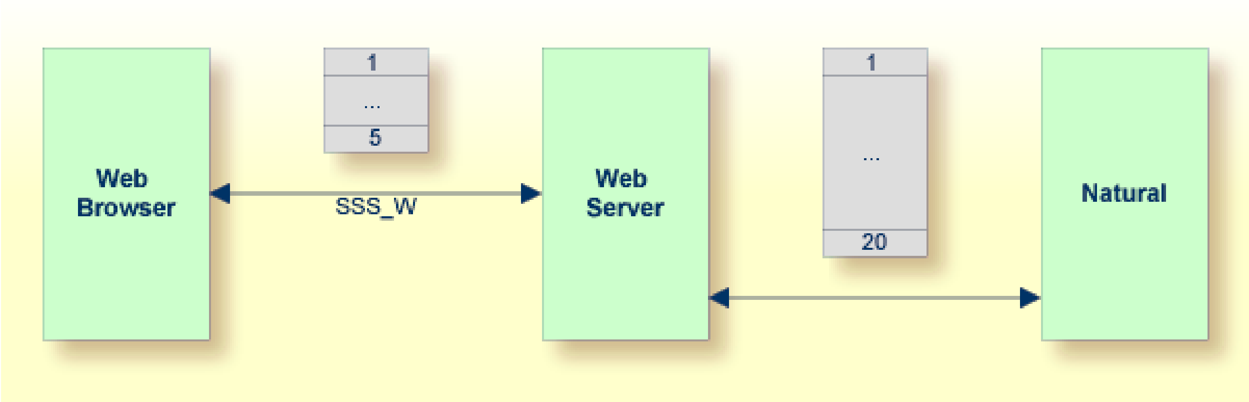


Step 2: When you scroll up and down, no server round trips to the web server or to the Natural application are performed.

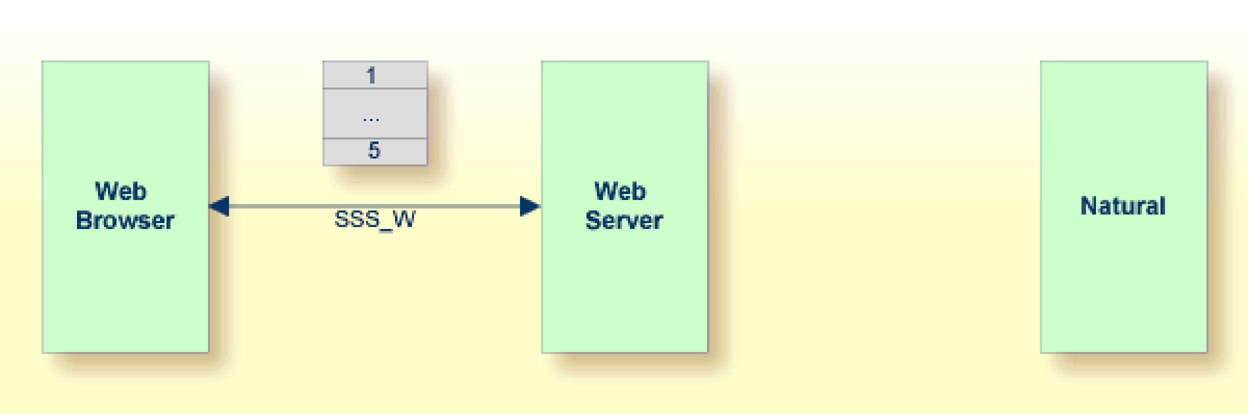


### Web Server-Side Scrolling and Sorting

Step 1: The grid is configured at design time to a row count of five. The Natural application sends twenty rows and indicates that no further rows are to be expected (`SIZE=0`).

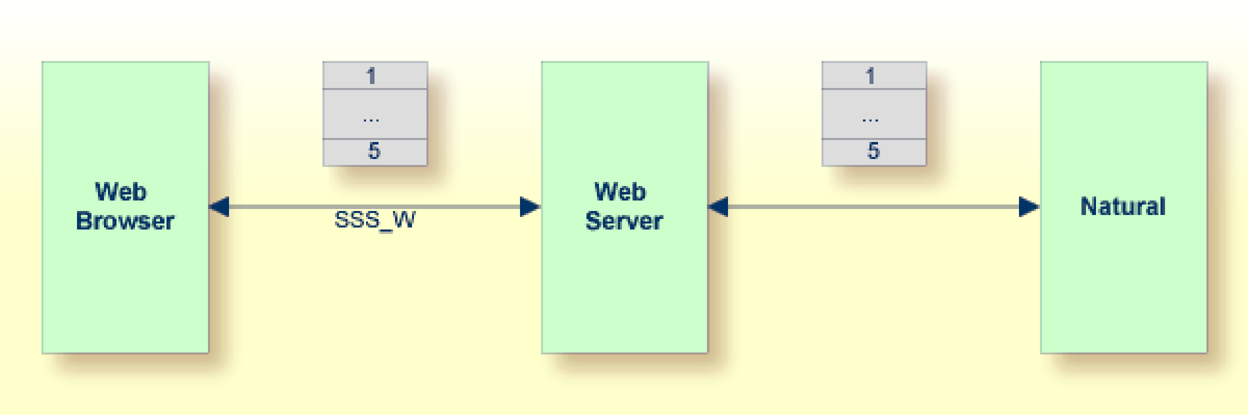


Step 2: When you scroll up and down, the web browser requests additional records from the web server There are no server round trips to Natural.

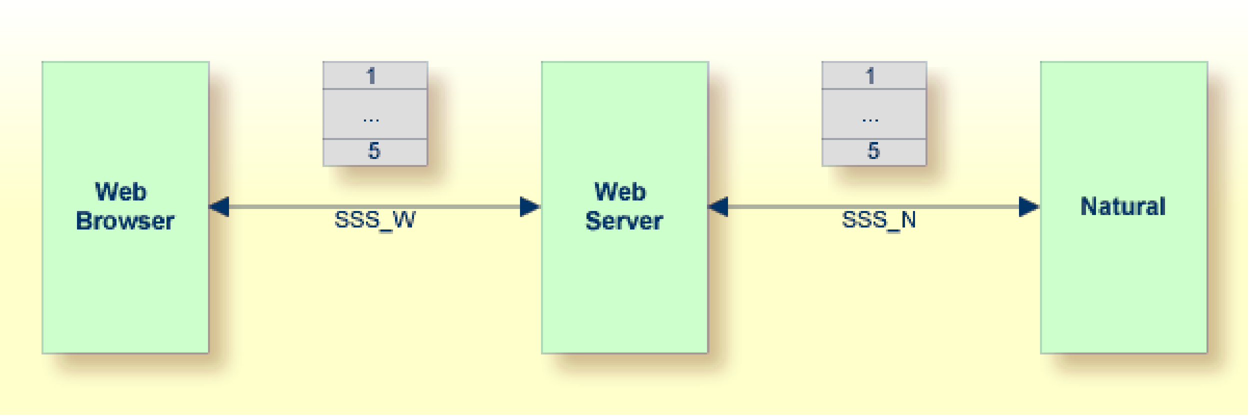


### Natural Server-Side Scrolling and Sorting

Step 1: The grid is configured at design time to a row count of five. The Natural application sends five rows and indicates that further rows are to be expected (`SIZE=20`).



Step 2: When you scroll up and down, the web browser requests additional records from the web server. The web server requests additional records from the Natural application.



The Natural application can dynamically decide at runtime which option of server-side scrolling and sorting it wants to use. This can depend on the number of records contained in a search result.

- If the application does not want to use server-side scrolling and sorting at all, it sends as many rows to the web browser as the grid is configured to hold, or it sends fewer rows.
- If the application wants to use web server-side scrolling and sorting, it sends all available rows and sets the `SIZE` parameter to zero in the data structure that represents the grid in the application.
- If the application wants to use Natural server-side scrolling and sorting, it sends only part of the available rows and indicates in the `SIZE` parameter how many rows are to be expected altogether.

## Controls that Support Server-Side Scrolling and Sorting

The following controls support server-side scrolling and sorting:

- **TEXTGRIDSSS2**
- **ROWTABLEAREA2**
- **MGDGRID**

**Note:** For compatibility reasons with earlier versions of Natural for Ajax, you have to set the `natsss` property of NATPAGE to true in order to activate server-side scrolling and sorting for the controls ROWTABLEAREA2 and MGDGRID. If this property is set to true, for all instances of these grid controls on a page, the necessary data structures are generated into the Natural adapter interface.

## Data Structures for Server-Side Scrolling and Sorting

If you use the TEXTGRIDSSS2 control or if you use the ROWTABLEAREA2 or MGDGRID control and have set the property `natsss` to true for the page, the following additional data structure is generated into the adapter interface for each instance of these controls. This data structure is used to control the scroll and sort behavior at runtime.

```
1 LINESINFO
2 ROWCOUNT (I4)
2 SIZE (I4)
2 SORTPROPS (1:*)
3 ASCENDING (L)
3 PROPNAME (U) DYNAMIC
2 TOPINDEX (I4)
```

The name of the data structure is derived from the name of the variable that is bound to the grid. In this example, the variable `LINES` had been bound to the grid. Therefore, the name `LINESINFO` was generated.

With each event that is related to scrolling and sorting, the application receives the information how many rows it should deliver at least (`ROWCOUNT`) and the index of the first record to be delivered (`TOPINDEX`).

In `SORTPROPS`, the application receives the information in which sort sequence the records should be delivered and by which columns the records should be sorted.

On the other hand, the application itself can specify a sort sequence (also using multiple sort criteria) and indicate this sort sequence by filling the structure with the desired sort criteria.

- If web server-side scrolling and sorting is used, the specified sort sequence is automatically created on the web server.
- If Natural server-side scrolling and sorting is used, the application itself must provide the records in the specified sort sequence.
- With the TEXTGRIDSSS2 control, the first three specified sort criteria are automatically indicated in the column headers of the grid.
- With the ROWTABLEAREA2 control, the first specified sort criterion is automatically indicated in the column headers of the grid. If more sort criteria are to be indicated, the application should provide custom grid headers.

In `SIZE`, the application can indicate whether the delivered amount of rows represents all available data (`SIZE=0`, no Natural server-side scrolling), or whether there are more rows to come (`SIZE=`*`total-number-of-records`*, Natural server-side scrolling).

When Natural server-side scrolling is used, the application will, for instance, hold the available rows (mostly the result of a database search) in an X-array, sort this X-array as requested and deliver the requested portion of rows. However, other implementations and optimizations are possible, depending on the needs and possibilities of the application.

## Server-Side Scrolling and Sorting in Trees

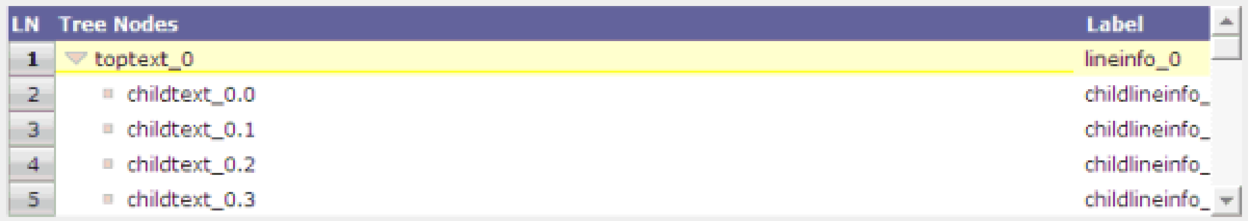
The ROWTABLEAREA2 control can also be configured as a tree control, where each row represents a tree node. In this case, the data structure that supports server-side scrolling contains one more field, DSPINDEXFIRST.

```
1 LINESINFO
2 DSPINDEXFIRST (I4)
2 ROWCOUNT (I4)
2 SIZE (I4)
2 SORTPROPS (1:*)
3 ASCENDING (L)
3 PROPNAME (U) DYNAMIC
2 TOPINDEX (I4)
```

The need for this additional control field comes from the fact that a tree can contain hidden items.

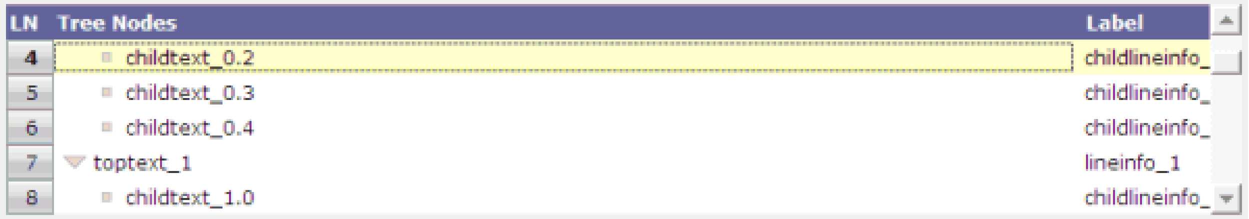
The rows sent by the Natural application must always start with an item at level one. The additional field DSPINDEXFIRST is provided because the visible part of the tree can start at a node with a level greater than one (a subnode). In DSPINDEXFIRST, the application must indicate the index of the first visible row within the rows sent from Natural.

### Example



| LN | Tree Nodes | Label |
|---|---|---|
| 1 | toptext_0 | lineinfo_0 |
| 2 | childtext_0.0 | childlineinfo_ |
| 3 | childtext_0.1 | childlineinfo_ |
| 4 | childtext_0.2 | childlineinfo_ |
| 5 | childtext_0.3 | childlineinfo_ |

The top nodes of the tree are open and the user scrolls down as shown below:



| LN | Tree Nodes | Label |
|---|---|---|
| 4 | childtext_0.2 | childlineinfo_ |
| 5 | childtext_0.3 | childlineinfo_ |
| 6 | childtext_0.4 | childlineinfo_ |
| 7 | toptext_1 | lineinfo_1 |
| 8 | childtext_1.0 | childlineinfo_ |

The Natural application is supposed to send data starting with a top node. In our example, this is the node named **toptext_0**. But the first visible child node would be **childtext_0.2**. This means that among the sent items, the first three items are hidden. The application sets the value for `DSPINDEXFIRST` to "3" when sending the data.

## Events for Server-Side Scrolling and Sorting

In order to support server-side scrolling and sorting, an application must handle a number of related events properly. The events are described with the corresponding controls. Examples on how to handle the events are provided in the library `SYSEXNJX`.

# IV Application Modernization

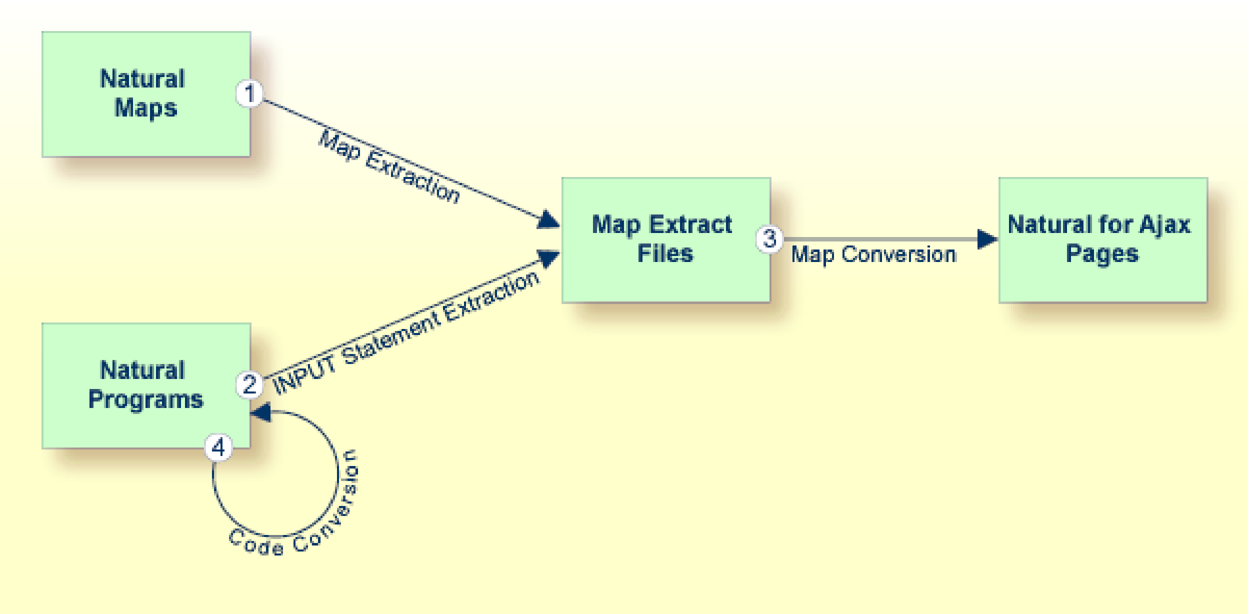
This part describes how to convert a character-based Natural application to a Natural for Ajax application.

The information in this part is organized under the following headings:

Overview of Conversion Steps
Map Conversion
Customizing the Map Conversion Process
Code Conversion

# 17 Overview of Conversion Steps

The conversion of a character-based Natural application to a Natural for Ajax application consists of several steps as illustrated in the following graphic:



- **Step 1: Map Extraction**
  Extracts from each Natural map the information that is required to create a corresponding Natural for Ajax page. For each map, a map extract file is created. This step is automatically performed by the Map Converter, see below.
- **Step 2:** `INPUT` **Statement Extraction**
  This step is required for Natural applications that do not use maps, but use `INPUT` statements for the dynamic specification of the screen layouts.

  Extracts from each `INPUT` statement in the source code the information that is required to create a corresponding Natural for Ajax page. For each `INPUT` statement, a map extract file is created.

This file has the same format as a map extract file created by the map extraction process, and it is also intended as input for the map conversion.

Required tool: Natural Engineer which is provided with NaturalONE.

- **Step 3: Map Conversion**
  Processes the map extract files and creates the corresponding Natural for Ajax pages.

  Required tool: Map Converter.

  See ***Map Conversion*** and ***Customizing the Map Conversion Process*** for further information.

- **Step 4: Code Conversion**
  This step requires that the Natural for Ajax pages have already been created.

  Modifies the application code in such as way that it can use the newly created Natural for Ajax pages. The application can still run in a terminal, in the Natural Web I/O Interface client or in batch as before. But it can now also run in a Natural for Ajax session with the new Natural for Ajax pages.

  Required tool: Natural Engineer which is provided with NaturalONE.

  Code conversion can also be performed manually. See ***Code Conversion*** for further information.

The resulting Natural for Ajax application mimics the character-based application. The user interface is not restructured in the sense that several maps are combined into a single page or that complex maps are split into several separate pages. This kind of restructuring is not part of the conversion, but of the normal development of a Natural for Ajax application.

# 18 Map Conversion

- General Information ..... 108
- Using the Map Converter ..... 109
- Location of the Files ..... 114
- After the Conversion ..... 114
- Using the Conversion Rules Tool ..... 116
- Using the Conversion Logs Tool ..... 117

## General Information

The Map Converter analyses the code of a Natural map and creates a so-called "map extract file" for each map. The map extract file contains information about the map. Normally, the map extract file is automatically deleted when the conversion process is completed. However, you also have the option to keep this file. The map extract files have the extension *.njx* and are not human-readable. They are only intended as input for the map conversion.

The conversion process can also be started on an existing map extract file which has been created for the `INPUT` statements in your source code.

The conversion process creates a Natural for Ajax page layout from each map extract file. Controls on the map are converted to controls on the page. Many features of the original map are converted to features of the page.

**Note:** It is only possible to process character maps. GUI elements contained in maps are not extracted.

By default, the Map Converter uses a predefined set of page templates and conversion rules that control the conversion process. The templates and the conversion rules can be modified or extended to adapt the converter to the requirements of a specific conversion project. With the advanced option to program own conversion handlers, the Map Converter provides additional flexibility and extensibility.

The following tools are available for the conversion of maps:

- **Map Converter**
  This tool is used for mass generation of layouts and also for generating single layouts. See ***Using the Map Converter*** for further information.
- **Conversion Rules**
  You can use this tool to copy the conversion rules from other user interface components to the current user interface component. See ***Using the Conversion Rules Tool*** for further information.
- **Conversion Logs**
  You can use this tool to view or delete the log files that have been created during the conversion. See ***Using the Conversion Logs Tool*** for further information.

## Using the Map Converter

The Map Converter is used for mass generation of layouts and also for generating single layouts.

### To convert maps

1 In the **Navigator** view, select the Natural project which contains the maps that are to be converted.

Or:

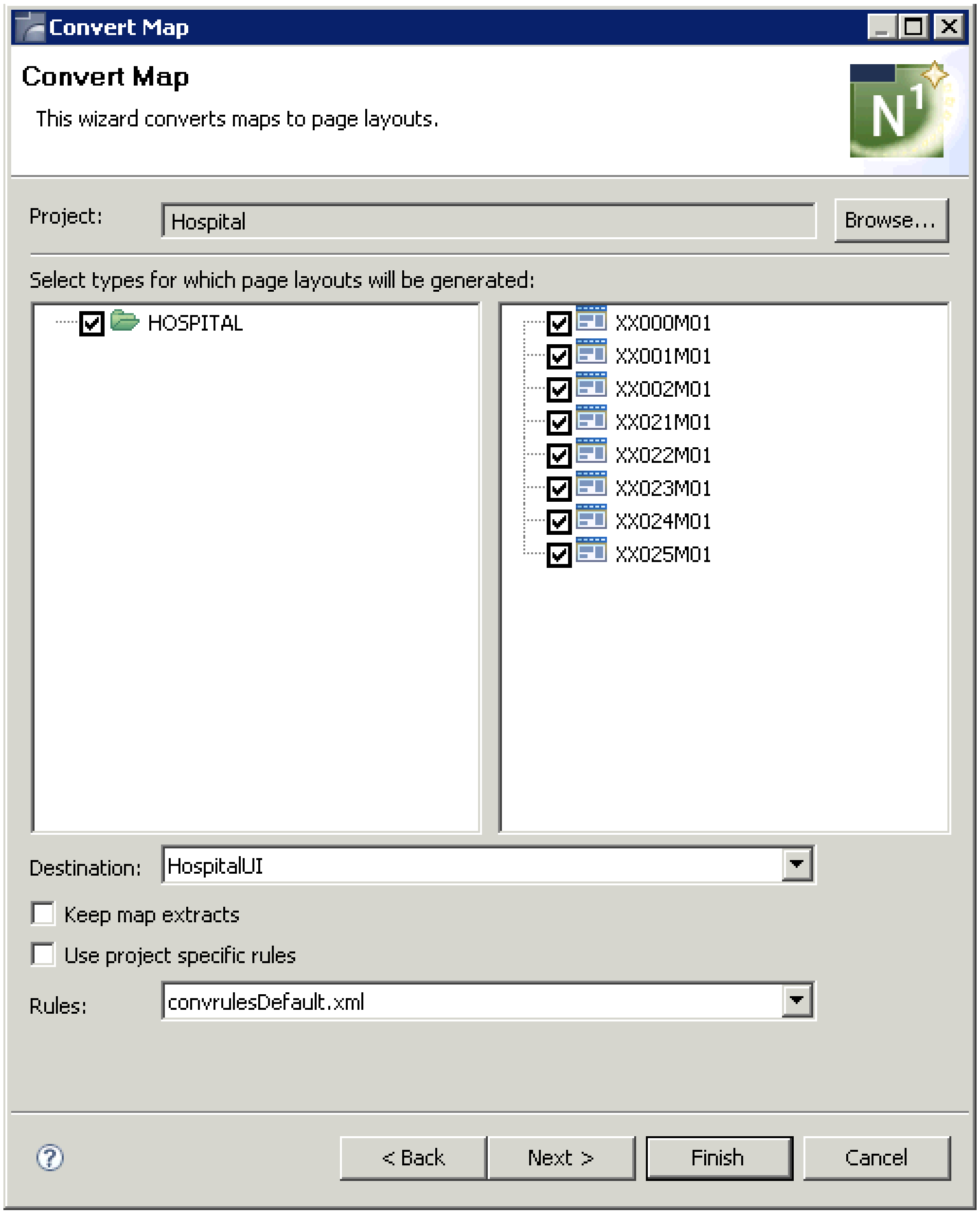
If you want to convert just a couple of maps or already existing map extract files, select them in the **Navigator** view.

2 From the **File** menu, choose **New > Other**. In the resulting **New** dialog box, expand the **Natural** node, select **Map Conversion** and then choose the **Next** button.

Or:

If you have selected single maps or map extract files, invoke the context menu and choose **Convert Map**.

The following dialog box appears.



Convert Map

**Convert Map**

This wizard converts maps to page layouts.

Project: Hospital

Select types for which page layouts will be generated:

☑ HOSPITAL

☑ XX000M01
☑ XX001M01
☑ XX002M01
☑ XX021M01
☑ XX022M01
☑ XX023M01
☑ XX024M01
☑ XX025M01

Destination: HospitalUI

□ Keep map extracts

□ Use project specific rules

Rules: convrulesDefault.xml

The left side of the dialog box shows the libraries in the selected project.

The right side of the dialog box shows the maps in the library which is currently selected on the left. If available, map extract files are also shown.

3. Select all maps and map extract files for which you want to generate a layout.
4. From the **Destination** drop-down list box, select the user interface component in the current project into which the layouts are to be generated.
5. If the map extract files which are generated for the selected maps are to be deleted after the generation, leave the **Keep map extracts** check box blank. If you want to keep the map extract files, select this check box.

6 If you want to use the default conversion rules and related templates, leave the **Use project-specific rules** check box empty. In this case, the **Rules** drop-down list box provides for selection the default conversion rules.

If you want to use your own project-specific conversion rules, select this check box. In this case, the **Rules** drop-down list box provides for selection the project-specific conversion rules that can be found in the *convrules* subfolder of your user interface component. See also ***Using the Conversion Rules Tool***.

7 From the **Rules** drop-down list box, select the conversion rules that you want to use.

8 Choose the **Next** button to display the optional preview pages of the wizard (see below).

Or:

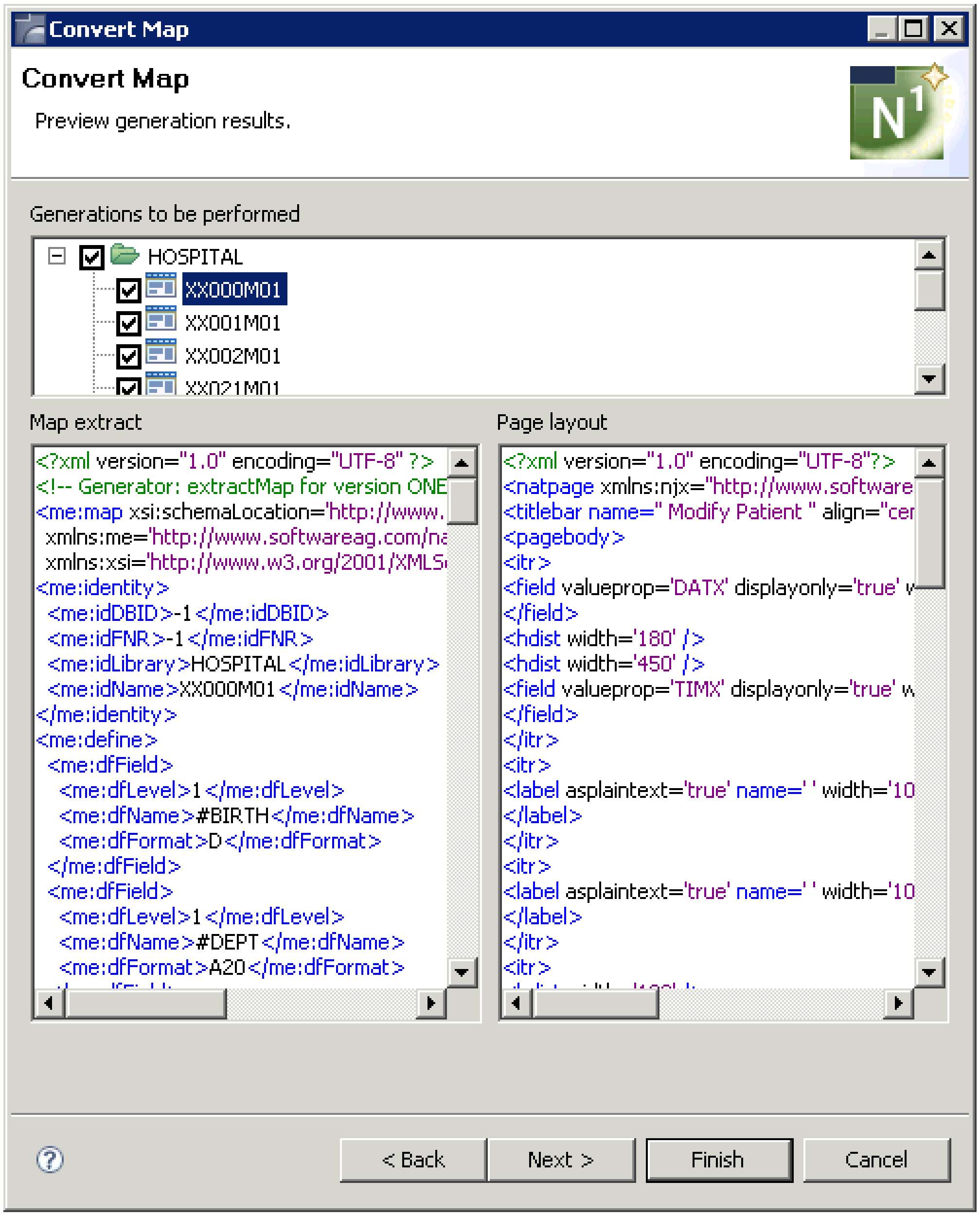
Choose the **Finish** button to perform all selected actions and to close the wizard.

The preview pages for the following actions are provided in the wizard when you choose the **Next** button repeatedly:

- Previewing the Generation Results
- Previewing the Page Layout

### Previewing the Generation Results

The second page of the wizard lists all maps and map extract files that you have selected on the first page. When you select one of these entries, information such as the following is shown at the bottom of the page.



☑ HOSPITAL
- ☑ XX000M01
- ☑ XX001M01
- ☑ XX002M01
- ☑ XX021M01

Map extract

```
<?xml version="1.0" encoding="UTF-8" ?>
<!-- Generator: extractMap for version ONE
<me:map xsi:schemaLocation="http://www.
 xmlns:me="http://www.softwareag.com/na
 xmlns:xsi="http://www.w3.org/2001/XMLS
<me:identity>
 <me:idDBID>-1</me:idDBID>
 <me:idFNR>-1</me:idFNR>
 <me:idLibrary>HOSPITAL</me:idLibrary>
 <me:idName>XX000M01</me:idName>
</me:identity>
<me:define>
 <me:dfField>
  <me:dfLevel>1</me:dfLevel>
  <me:dfName>#BIRTH</me:dfName>
  <me:dfFormat>D</me:dfFormat>
 </me:dfField>
 <me:dfField>
  <me:dfLevel>1</me:dfLevel>
  <me:dfName>#DEPT</me:dfName>
  <me:dfFormat>A20</me:dfFormat>
```

Page layout

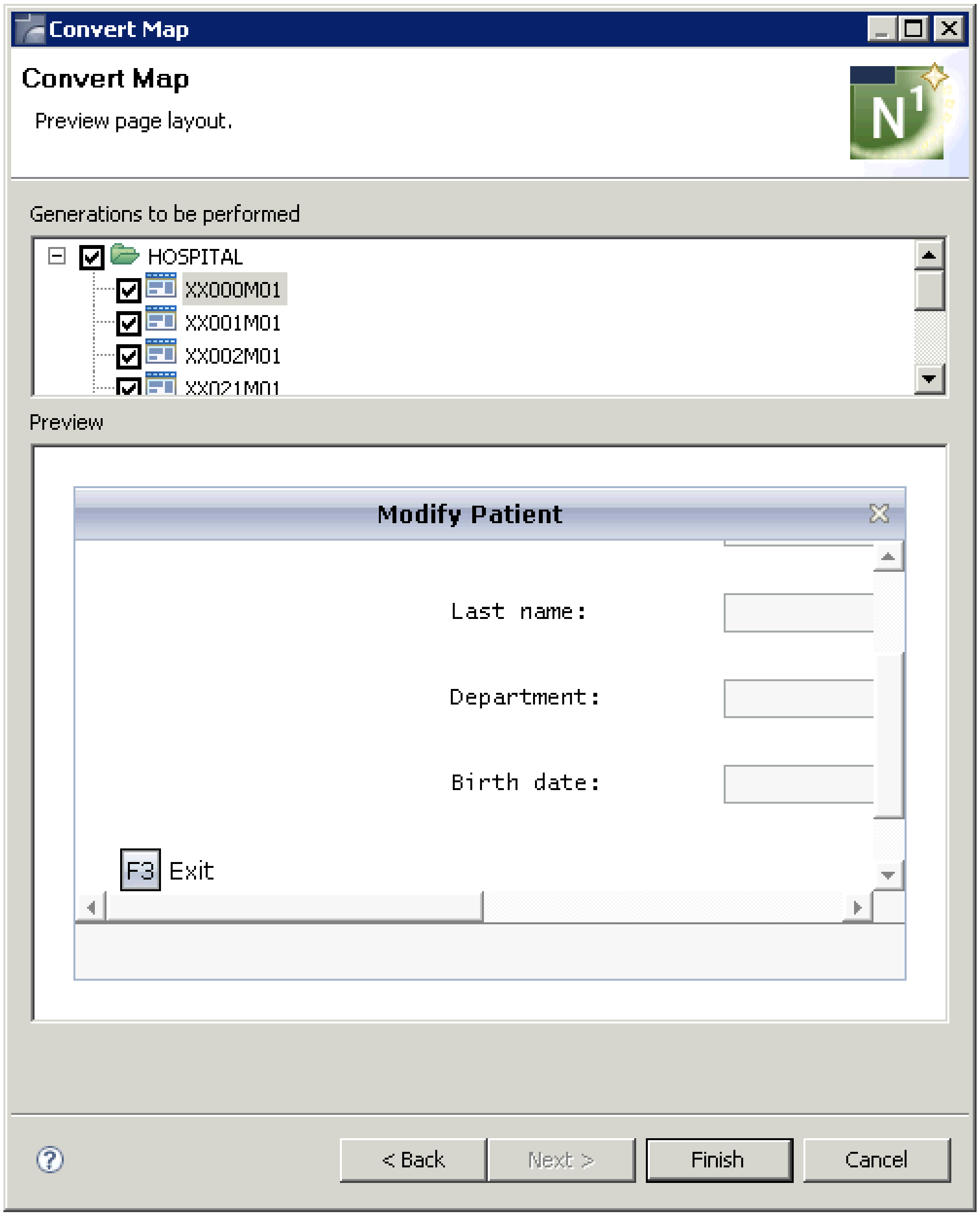
```
<?xml version="1.0" encoding="UTF-8"?>
<natpage xmlns:njx="http://www.software
<titlebar name=" Modify Patient " align="cer
<pagebody>
<itr>
<field valueprop='DATX' displayonly='true' w
</field>
<hdist width='180' />
<hdist width='450' />
<field valueprop='TIMX' displayonly='true' w
</field>
</itr>
<itr>
<label asplaintext='true' name=' ' width='10
</label>
</itr>
<itr>
<label asplaintext='true' name=' ' width='10
</label>
</itr>
<itr>
```

The left side of the page shows the XML code of the map extract file (either of the map extract file that will be generated for a selected map, or of an existing map extract file).

The right side shows the XML code that will be generated for the page layout.

### Previewing the Page Layout

The third (and last) page of the wizard lists all maps and map extract files that you have selected on the first page. When you select one of these entries, the preview area at the bottom of this page shows the layout that will be generated for this entry. This is the page layout as it will appear in the browser.



Convert Map

Convert Map

Preview page layout.

Generations to be performed

- ☑ HOSPITAL
  - ☑ XX000M01
  - ☑ XX001M01
  - ☑ XX002M01
  - ☑ XX021M01

Preview

Modify Patient

Last name:

Department:

Birth date:

F3 Exit

## Location of the Files

The following table explains where the different types of files can be found.

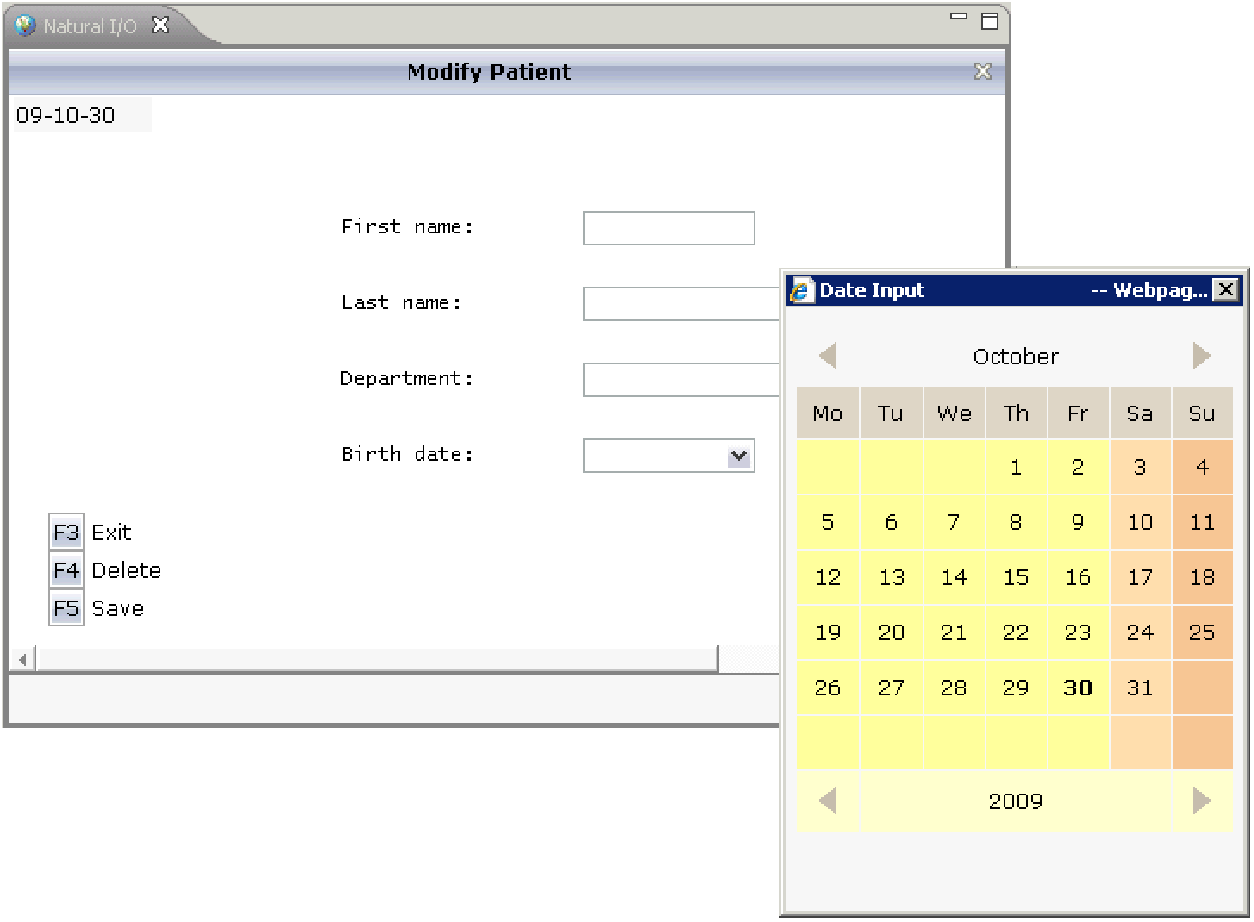
| These files ... | ... are stored in this folder |
|---|---|
| Adapters, maps | *SRC* subfolder of the library. |
| Conversion rules | *convrules* subfolder of the user interface component. |
| Map extract files | *RES* subfolder of the library which also contains the corresponding map (only if the **Keep map extracts** option was specified). |
| Page layouts | *xml* subfolder of the user interface component. |

## After the Conversion

The conversion process creates a page layout in the user interface component that you specified as the destination in the **Map Converter**. When you save the page layout, a Natural adapter is generated into the folder that you specified when creating a user interface component.

You will notice that the parameter data area is the same as in the original map. This is the case even though the map uses system variables and variables with special characters. The necessary translation is done inside the generated adapter code and does not influence the application code. In more complex cases, the parameter data area of the adapter will contain more fields or partly different fields than the parameter data area of the map. This depends also on the applied conversion rules.

After the conversion, you create a main program for the adapter and run it in the browser.



09-10-30

October

| Mo | Tu | We | Th | Fr | Sa | Su |
|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 26 | 27 | 28 | 29 | **30** | 31 | |
| | | | | | | |

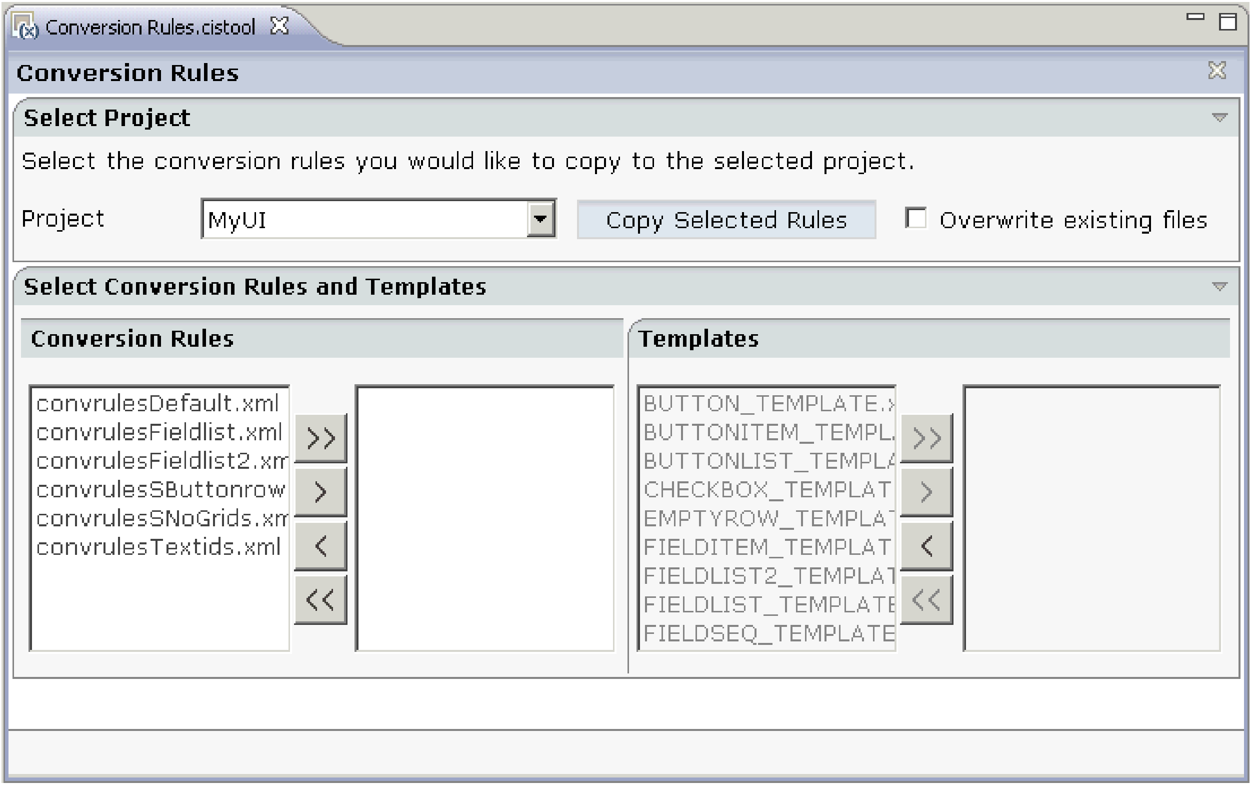
2009

You may notice the following effects of the applied conversion rules:

- The title in the first row of the map has been placed into the caption of the page and the asterisks have been stripped off. Your application will quite surely have a different layout of the map titles. The conversion rules can therefore be adapted to accommodate the needs of your application, and the rule that identifies the title and places it into the caption is just a simple application of customizing the conversion rules.
- The literals such as "F4 Delete" on the map have each been turned into a button control and a label. This is also due to a sample conversion rule contained in the default conversion rules.
- The date field has been converted to a field control with the data type "date". This enables the user to select the date with the **Date Input** dialog box.

## Using the Conversion Rules Tool

Using this tool you can copy the default conversion rules and templates to a selected user interface component for modification.



Conversion Rules.cistool

Conversion Rules

Select Project

Select the conversion rules you would like to copy to the selected project.

Project: MyUI

Copy Selected Rules

□ Overwrite existing files

Select Conversion Rules and Templates

Conversion Rules

convrulesDefault.xml
convrulesFieldlist.xml
convrulesFieldlist2.xm
convrulesSButtonrow
convrulesSNoGrids.xm
convrulesTextids.xml

Templates

BUTTON_TEMPLATE.x
BUTTONITEM_TEMPL
BUTTONLIST_TEMPLA
CHECKBOX_TEMPLAT
EMPTYROW_TEMPLA
FIELDITEM_TEMPLAT
FIELDLIST2_TEMPLAT
FIELDLIST_TEMPLATE
FIELDSEQ_TEMPLATE

### To invoke the Conversion Rules tool

1 In the **Navigator** view, select the Natural project for which you want to invoke the Conversion Rules tool.

2 Invoke the context menu and from the **Ajax Developer** menu, choose **Conversion Rules**.

### To copy the conversion rules

1 From the **Project** drop-down list box, select the user interface component into which you want to copy the conversion rules.

2 In the **Conversion Rules** box, select the rules file(s) that you want to copy and choose the > button.

Or:

If you want to copy all files, choose the **>>** button.

The selected files are shown on the right side of the **Conversion Rules** box.

To deselect one or more files, you can use the **<** or **<<** button.

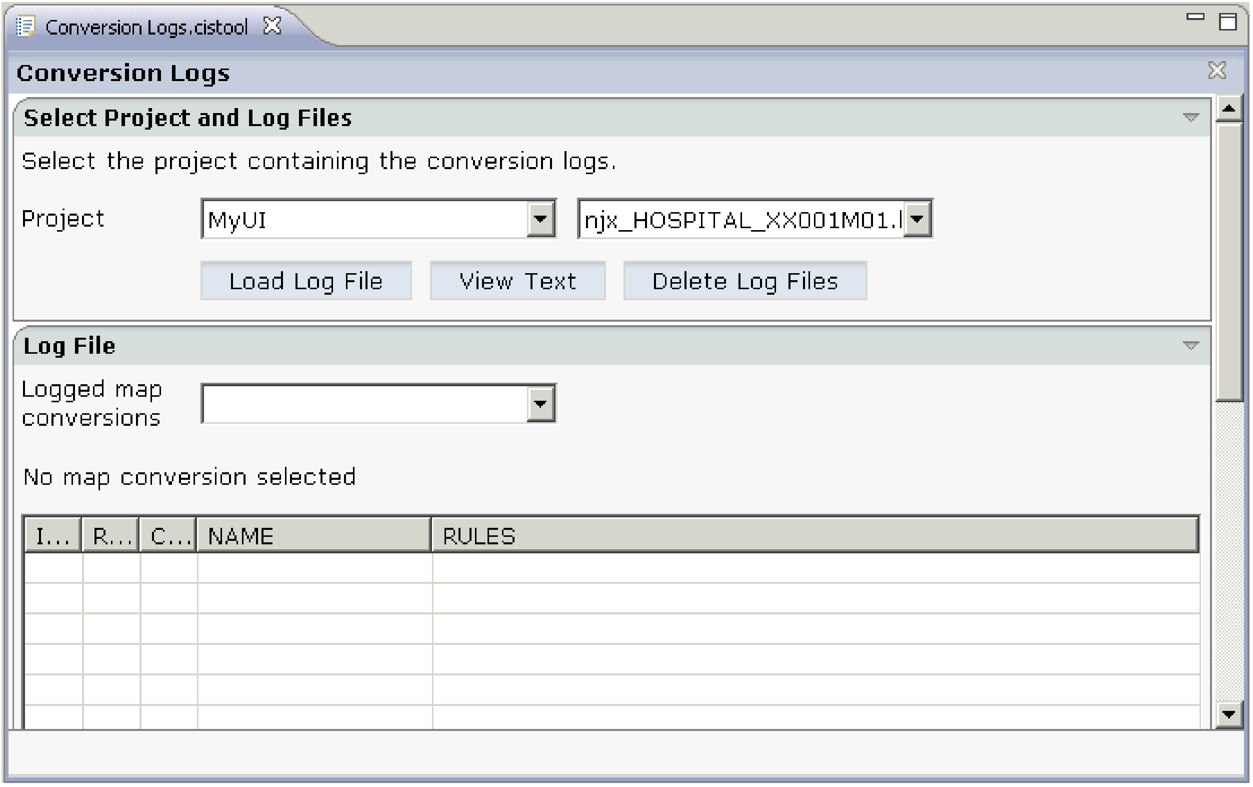
For each selected rules file, the templates that are used in the rules file are automatically selected in the **Templates** box, so that always a consistent set of rules and templates is selected for copying.

3 Optional. If you want to overwrite any existing rules and templates files with the same names in the selected project, activate the **Overwrite existing files** check box.

4 Choose the **Copy Selected Rules** button to copy the rules and templates files to the selected project.

## Using the Conversion Logs Tool

Using this tool you can view the log files that have been created during the conversion of Natural maps to Natural for Ajax layouts. You can also delete these log files.



Select the project containing the conversion logs.

Project: MyUI | njx_HOSPITAL_XX001M01.l

Logged map conversions:

No map conversion selected

### To invoke the Conversion Logs tool

1 In the **Navigator** view, select the Natural project for which you want to invoke the Conversion Logs tool.

2 Invoke the context menu and from the **Ajax Developer** menu, choose **Conversion Logs**.

### To view a log file

1 From the **Project** drop-down list box, select the user interface component for which you want to view a log file.

The log files contained in this user interface component are shown in the drop-down list box to the right.

2 Select the log file that you want to view.

3 Choose the **Load Log File** button.

Log lines for the selected log file are now shown at the bottom of the tool. Each log file contains the conversion results of one or several maps. The log lines that are shown belong to an individual map; this is the map that is selected in the **Logged map conversions** drop-down list box.

4 Optional. Select a different map from the **Logged map conversions** drop-down list box.

The conversion result of the newly selected map is immediately shown at the bottom of the tool.

5 Optional. Choose the **View Text** button to display the content of the selected log file as a CSV file in a dialog. This shows the conversion results for all maps.

### To delete log files

1 Select the project for which you want to delete the log files.

2 Choose the **Delete Log Files** button.

A dialog appears asking to confirm the deletion.

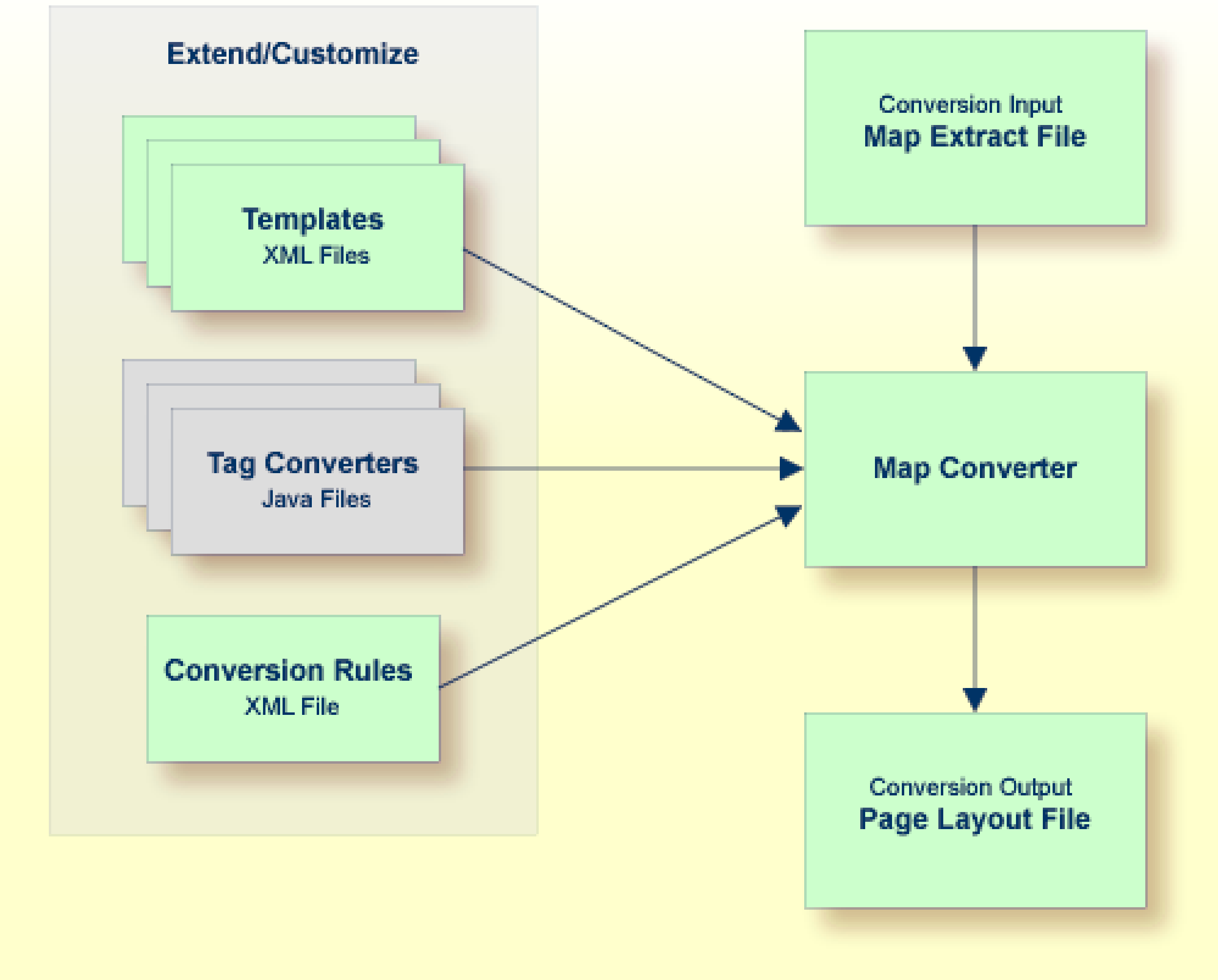
3 Choose the **Yes** button to delete all log files in the selected project.

# 19 Customizing the Map Conversion Process

- Map Converter Processing ........ 120
- Conversion Rules ........ 124
- Templates ........ 134
- Tag Converters ........ 136

## Map Converter Processing

The map conversion process reads a map extract file and transforms it into a corresponding Natural for Ajax page layout file. The conversion process is controlled by rules and templates.



The Map Converter ships with a default set of conversion rules and corresponding template files. This set allows for default map conversions without changing rules or templates. In most cases, you will add or modify some conversion rules and/or templates to customize the conversion according to the requirements of your application.

For advanced customization, there is also the possibility to plug own Java-written conversion classes (the so-called “tag converters”) into the conversion processing. But you should only do this in very rare cases.

The following topics are covered below:

- Processing of Rows and Columns
- Processing of Sequence and Grid Areas
- Summary: Processing Steps of the Map Converter

## Processing of Rows and Columns

By default, for each row and column in a map, a corresponding row and column is generated in the layout. By default, the Map Converter inserts the converted rows and columns at a defined position within a corresponding page template. Template and insert position can be defined by the user. Skipping or different handling of specific rows and columns can be defined via corresponding conversion rules.

The following sections describe the default processing for rows and columns in case no specific rules for different insert positions are specified:

- Rows
- Columns

### Rows

For each row in a map, the Map Converter generates an ITR (independent table row) control with the default settings. For empty rows, an ITR control containing the control defined in the *EMPTYROW_TEMPLATE* is generated.

### Columns

The fields and literals within a row are aligned to columns according to the following rules:

- **Column Start Position**
  If an absolute column start position is defined for a field or literal in the map, the corresponding control in the page layout is aligned so that it starts exactly with the specified column. This is done by inserting a HDIST (horizontal distance) control with a corresponding width as a filler.

  **Note:** A precise vertical alignment of fields is only possible if absolute column start positions are defined for the fields.

- **Conversion Rules**
  If no absolute column start position is defined for a field or literal in the map, a HDIST control is not added as a filler by default. In this case, the field or literal is simply appended as the last subnode of the current ITR control. In many cases, this would result in a layout that requires additional manual adding of fillers. This is because appending two field controls without adding any HDIST control often does not look as intended. Therefore, the Map Converter includes default conversion rules for filler settings. You can modify the default conversion rules or add your own conversion rules to fine-tune this behavior. For more information, see *Conversion Rules*.

- **Column Width**
  A character map has a fixed number of rows and columns. For the literal "ABCD", this means that it uses exactly 4 columns. Calculating the correct width and height of field on a web page is more complex. The width of "ABCD" will most likely be greater than the width of "llll". Very short fields (with a length of one or two characters) should have a minimum width so that the content is fully visible. You can fine-tune the width by adapting the predefined conversion rule variable `$$widthfactor$$` or by adding your own conversion rules. For more information, see *Conversion Rules*.

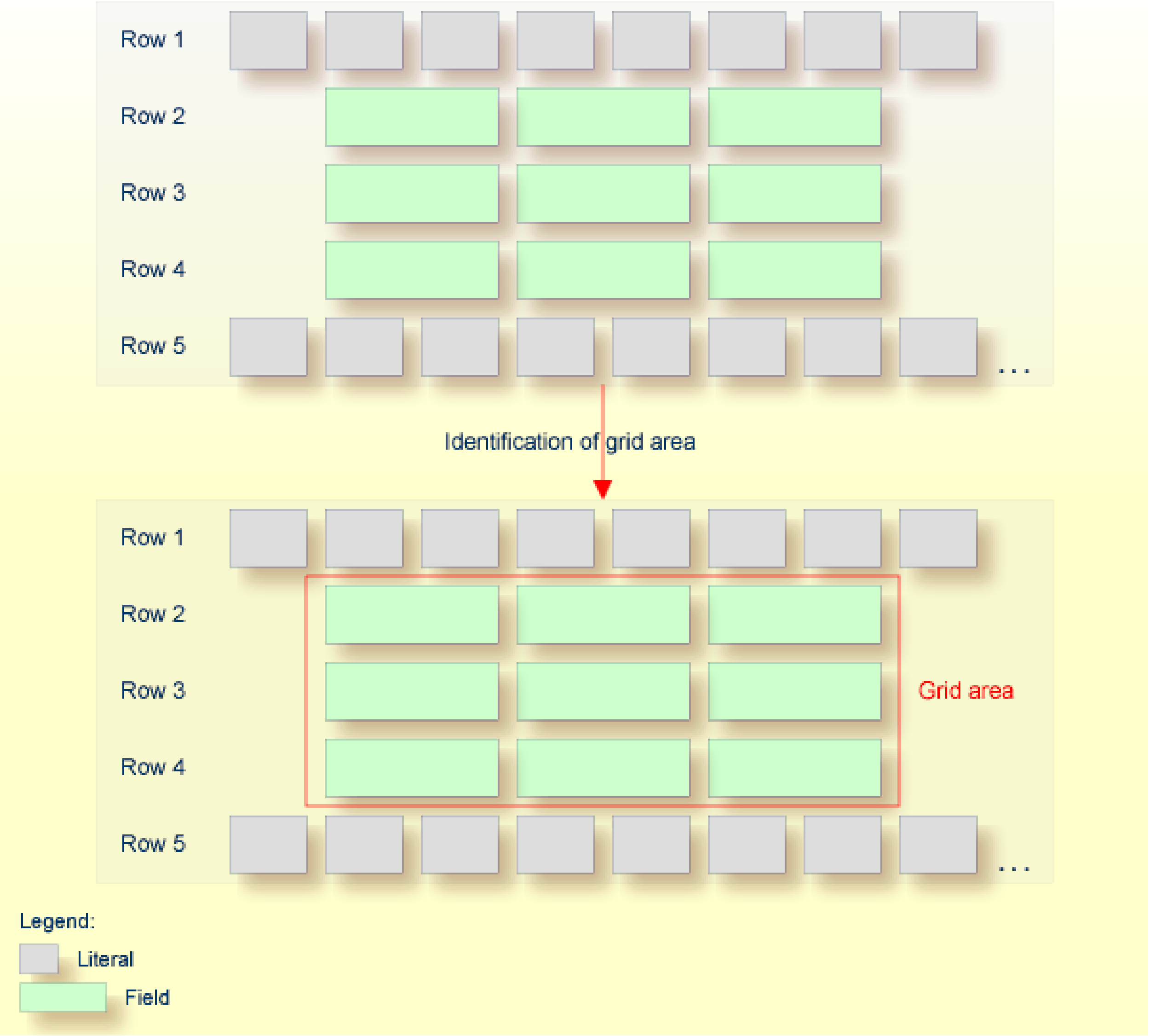
### Processing of Sequence and Grid Areas

The map extract file also contains information about arrays. With Application Designer, arrays are usually rendered as grid controls. Application Designer provides a couple of grid controls:

- **TEXTGRID2** - a grid containing text.
- **TEXTGRIDSSS2** - a text grid with server-side scrolling.
- **ROWTABLEAREA2** - a grid containing other controls.
- **MGDGRID** - a managed grid.

The Map Converter tries to convert arrays into suitable grid controls. Before the real conversion of arrays to grid controls can be done, the Map Converter must first identify the sequence and grid areas on the map. During this process of area identification, the Map Converter groups literals and fields together into sequences and areas. Whether the corresponding fields or literals are actually converted into a grid depends on the conversion rules that are executed after this area identification step.

This process of area identification is simply a kind of marking. The corresponding sequence and area objects can be used as source in the conversion rules to define the actual controls.



### Summary: Processing Steps of the Map Converter

The conversion is done in several steps:

1. The map extract file is loaded and the corresponding rows and columns are collected.
2. The sequence and grid areas are identified.
3. For each row, the list of items in this row is processed, according to the column order. An item can be one of the following: a simple literal, a field or an area. For each found item, the corresponding conversion rules are executed.

# Conversion Rules

Different conversion projects have different requirements to the conversion process. The Map Converter is driven by conversion rules and thus allows for flexible control of the conversion process. Conversion rules define how source items (items from a given map extract file) are mapped to target items (items in the page layout to be created) and under which conditions a certain source item shall be converted to a certain target item. The Map Converter is delivered with a default set of conversion rules contained in the file *convrulesDefault.xml* in the subdirectory *convrules* in the Application Designer project *njxmapconverter*. A more application-specific conversion can be achieved by copying and modifying the default set of rules or by adding own rules.

Each set of conversion rules is defined in an XML file according to the XML schema *convrules.xsd* in the subdirectory *convrules* in the Application Designer project *njxmapconverter*. Each individual conversion rule consists of a name, a description, a source and a target. The source identifies an element in the map extract file. The target identifies controls and attributes to be generated in the page layout.

The conversion rules make often use of regular expressions and so-called capture groups. For more information about regular expressions, see for instance the web site ***http://www.regular-expressions.info***.

The following topics are covered below:

- Conversion Rules Examples
- Default Conversion Rules File
- Conversion Rules that Often Need to be Adapted
- Writing Your Own Conversion Rules

## Conversion Rules Examples

The following examples are provided:

- Example 1
- Example 2

- Example 3

### Example 1

The following example rule (contained in the default conversion rules file) defines that fields in the map extract file with the qualification `AD=O` shall be converted to field controls with the property `displayonly="true"`.

```
<convrule rulename="Ofield_rule">
  <description>Defines the control template to be used for input fields
  which are specified as output only.</description>
  <source>
    <sourceitem>ifField</sourceitem>
    <sourcecond>
      <condattr>//ifAD</condattr>
      <condvalue>.*O.*</condvalue>
    </sourcecond>
  </source>
  <target>
    <targetitem>$OFIELD_TEMPLATE</targetitem>
  </target>
</convrule>
```

The source element specifies that this rule applies to fields (element `ifField`) that have an `AD` parameter (element `ifAD`) that contains a letter "O" (matching the regular expression `.*O.*`). The target element specifies that these fields are to be converted to whatever is contained in the template file *OFIELD_TEMPLATE.xml*. This template file must be contained in the same directory as the conversion rules file.

The template file contains the detailed specification of the field to be generated. The file *OFIELD_TEMPLATE.xml* delivered with the map converter contains, for instance, the following:

```
<?xml version="1.0" encoding="UTF-8"?>
<field valueprop="$$" width="$$" noborder="true" displayonly="true"/>
```

That is, the resulting field is generated without a border (`noborder="true"`) and as a display-only field (`displayonly="true"`). The `valueprop` and `width` to be assigned (`$$`) are not determined by this rule, but are left under the control of other rules.

### Example 2

The following example rule (contained in the default conversion rules file) defines that for all fields that are defined with the format A*n* in the map extract file, an attribute `datatype="string n"` shall be added to the element that is generated into the page layout.

```
<convrule rulename="AfixType_rule">
  <description>All Natural "An" dfFields are converted to the
  Application Designer datatype "string n". Example: "A10" is
  converted to "string n".</description>
  <source>
    <sourceitem>dfField</sourceitem>
      <selection>
        <selectattr>dfFormat</selectattr>
        <selectval>A([0-9]+)</selectval>
      </selection>
    </source>
    <target>
      <targetitem>$$</targetitem>
      <targetattr>
        <attrname>datatype</attrname>
        <attrvalue>string $1</attrvalue>
      </targetattr>
    </target>
</convrule>
```

The source element specifies that this rule applies to fields that have in the field definition (element `dfField`) a format (element `dfFormat`) of A*n* (matching the regular expression `A([0-9]+)`). The target element specifies that for whatever element is generated into the page layout for this kind of fields, an attribute `datatype="string $1"` shall be added. In terms of regular expressions, `$1` refers to the contents of the first “capture group” of the regular expression `A([0-9]+)`. In case of a format A20, `$1` will evaluate to 20 and thus an attribute `datatype="string 20"` will be generated.

The control to be generated into the page layout (`<targetitem>$$</targetitem>`) is not determined by this rule, but is left under the control of other rules.

Summary: The combination of the two rules in example 1 and 2 makes sure that output fields, for example, of format A20 are converted to field controls with `displayonly="true"` and `datatype="string 20"`.

### Example 3

The following more advanced rule was created for the use of a specific conversion project. The following task had to be achieved: A literal of the format "F10 Change" shall be converted to a button that is named "F10", is labeled "Change" and raises an event named "PF10". With the explanations from the examples above, the rule should be nearly self-explanatory.

Note that according to the rules of regular expressions, the variable `$1` refers to the string matched by the expression part in the first pair of parentheses (the first “capture group”), that is for instance "F10", and the variable `$3` refers to the string matched by the expression part in the third pair of parentheses (the third “capture group”), that is for instance "Change".

```
<convrule rulename="Function_rule" lone="true">
<description>Generates a button from specific literals.</description>
  <source>
    <sourceitem>ltLiteral</sourceitem>
    <selection>
      <selectattr>ltName</selectattr>
      <selectval>(F[0-9]+)(\p{Space})(.*)</selectval>
    </selection>
  </source>
  <target>
    <targetitem>$BUTTON_TEMPLATE</targetitem>
    <targetattr>
      <attrname>name</attrname>
      <attrvalue>$1</attrvalue>
    </targetattr>
    <targetattr>
      <attrname>method</attrname>
      <attrvalue>P$1</attrvalue>
    </targetattr>
  </target>
  <target>
    <targetitem>hdist</targetitem>
    <targetattr>
      <attrname>width</attrname>
      <attrvalue>4</attrvalue>
    </targetattr>
  </target>
  <target>
    <targetitem>label</targetitem>
    <targetattr>
      <attrname>name</attrname>
      <attrvalue>$3</attrvalue>
    </targetattr>
  </target>
</convrule>
```

### Default Conversion Rules File

The Map Converter is delivered with a default set of conversion rules contained in the file *convrulesDefault.xml* in the subdirectory *convrules* in the Application Designer project *njxmapconverter*. A more application-specific conversion can be achieved by copying and modifying the default set of rules or by adding own rules.

The following topics are covered below:

- Root Rule
- Data Type Conversion Rules
- Other Default Conversion Rules

#### Root Rule

Like every conversion rules file, the file contains exactly one "Root_rule". The root rule specifies the template file to be used for the overall page layout. In this template file, the application-specific page layout can be defined, using company logos, colors, fonts, etc. The root rule must always have "map" as the source item and must refer to some variable defined in the page template file as the target item. The place of that variable specifies where in the page template the converted map items are placed. See for instance the root rule from the default conversion rules:

```
<convrule rulename="Root_rule">
  <description>Exactly one rule with the sourceitem "map" is required.
  This rule must define the natpage template and insert position of
  the conversion result.</description>
  <source>
    <sourceitem>map</sourceitem>
  </source>
  <target>
    <targetitem>$NATPAGE_TEMPLATE.$MAPROOT</targetitem>
  </target>
</convrule>
```

The rule refers to a page layout template *NATPAGE_TEMPLATE.xml* and refers to a variable defined in that template where the converted map elements shall be placed. Here is the corresponding content of the page layout template *NATPAGE_TEMPLATE.xml*:

```
<?xml version="1.0" encoding="UTF-8"?>
<natpage xmlns:njx=http://www.softwareag.com/njx/njxMapConverter
  natsource="$$NATSOURCE$$" natsinglebyte="true">
  <titlebar name="$$TITLEVAR$$" align="center">
  </titlebar>
  <pagebody>
    <njx:njxvariable name="MAPROOT"/>
  </pagebody>
  <statusbar withdistance="false"/>
</natpage>
```

This template specifies the following:

- The overall page layout shall consist of the elements `titlebar`, `pagebody` and `statusbar`.
- The converted map elements shall be placed into the `pagebody`.
- The name of the Natural adapter to be generated from that page layout shall be determined by a rule (`natsource="$$NATSOURCE$$"`). There must be a corresponding rule that yields a value for the variable `$$NATSOURCE$$`, for instance derived from the map name. We shall see later how to define such a rule.
- All strings in the page layout shall be mapped to Natural variables of type A in the adapter interface (`natsinglebyte="true"`).
- The text displayed in the title bar shall be determined by a rule (`name="$$TITLEVAR$$"`). There must be a corresponding rule that yields a value for the variable `$$TITLEVAR$$`, for instance derived from a literal in the first row in the map. We shall see later how to define such a rule.

### Data Type Conversion Rules

The default conversion rules file contains a set of rules that control the conversion of data types: from Natural data types in the map to corresponding Application Designer data types in the page layout. An example was given above in ***Example 2***. Usually, these rules need not be adapted. They have been chosen in such a way that the process of extracting maps, converting them to layouts and generating Natural adapters for these usually yields the same data types in the adapter interface as in the map interface.

### Other Default Conversion Rules

Other default conversion rules define a default mapping for literals, modifiable fields, output fields, modifiable grids, output grids, system variables and fields with special characters like "#" in their names. These rules need only be adapted in special cases.

## Conversion Rules that Often Need to be Adapted

Some conversion rules need to be adapted in nearly all conversion projects. These rules are contained in the section "APPLICATION SPECIFIC RULES" in the default conversion rules file.

The following topics are covered below:

- Naming of Adapters

- Setting the Title of a Map

### Naming of Adapters

Each application has a different naming convention for Natural objects. There is a rule (it is named "Natsource_rule" in the default conversion rules file) that controls how adapter names are derived from map names. The rule replaces the first letter "M" in the map name with an "A" and places the resulting string into the variable `NATSOURCE`. Remember that in the default page template, the `natsource` property of NATPAGE (which defines the adapter name to generated) is preset with the variable reference `$$NATSOURCE$$`. Thus, a map with the name `TESTM1` results in an adapter named `TESTA1`. Other naming conventions for maps will require a more sophisticated adapter naming rule.

### Setting the Title of a Map

Each application has a different way of showing titles in a map. Often, the title string shall be placed into the title bar of the resulting page layout during conversion. There is a rule (in the default conversion rules file, it is named "Titlevar_rule") that controls how the title string in a map is recognized. The rule searches in the first row of a map for a literal enclosed in "***" and places the resulting string into the variable `TITLEVAR`. Remember that in the default page template, the `name` property of the `titlebar` element (which defines the string to be shown in the title bar) is preset with the variable reference `$$TITLEBAR$$`. So this rule takes care that the found literal is placed into the `titlebar` element of the page. Other conventions for map titles will require a more sophisticated rule.

## Writing Your Own Conversion Rules

When writing your own conversion rules, you can use the default rules as examples. In order to write rules from scratch, you need to know the elements of the map that can be referred to as source items and the full syntax of the rule definition.

- The XML schema of the map extract files is contained in the file *naturalmap.xsd* in the subdirectory *convrules* in the Application Designer project *njxmapconverter*.
- As described in ***Processing of Sequence and Grid Areas***, one step in the map conversion is the detection of sequence and grid areas in the map. Conversion rules can also refer to the detected sequence and grid areas. The XML schema of the map extract files after the detection of sequence and grid areas is described in the extended XML schema *naturalmapxml_extended.xsd* in the same directory.
- The syntax of the conversion rules is described by the XML schema *convrules.xsd* in the same directory.

The basic structure of a conversion rule is as follows:

```
<convrule rulename="...">
  <description>...</description>
  <source>...</source>
  <target>...</target>
  <target>...</target>
  ...
</convrule>
```

This means, a conversion rule consists of one `source` element and (optionally) one or several `target` elements. The `source` element identifies an item from the map. The `target` elements specify the conversion output. If no `target` elements are specified, nothing is generated from the identified `source` element.

The basic structure of a `source` element is as follows (example):

```
<source>
  <sourceitem>ltLiteral</sourceitem>
    <selection>
      <selectattr>ltName</selectattr>
      <selectval>\*\*\*(.*)\*\*\*</selectval>
    </selection>
    <sourcecond>
      <condattr>ltRow</condattr>
      <condvalue>1</condvalue>
    </sourcecond>
</source>
```

The `sourceitem` element refers to a specific kind of item on a map, such as a literal (`ltLiteral`), a defined field (`dfField`), an input field (`ifField`) or the identifier of the map (`identity`). The elements that can be used here are specified by the XML schema that describes the map extract after the detection of sequence and grid areas (*naturalmapxml_extended.xsd*). Therefore, the elements `sequenceArea` and `gridArea`, which are only known after this processing, can also be used here.

The `selectattr` and `selectval` elements are used to match an element of a specific kind by its attribute values. The `selectval` element uses regular expressions to perform a match. Capturing groups such as `(.*)` can be used here, so that the target part of the conversion rule can later refer to parts of the matched value.

Finally, there can be zero, one or several `sourcecond` elements, which allow to define further to which map items the rule applies. If several `sourcecond` elements are specified, the rule is triggered only if all conditions match (logical AND).

The basic structure of a `target` element is as follows:

```
<target>
  <targetitem>...</targetitem>
  <targetattr>
    <attrname>...</attrname>
    <attrvalue>...</attrvalue>
  </targetattr>
  <targetattr>
    ...
  </targetattr>
  ...
</target>
```

In detail, there are several different options to specify a target item:

- Specify the root element name of an Application Designer control, along with its attributes and attribute values. The attribute value can be a constant, a variable or a reference to a capturing group from a regular expression in a `sourcecond` element of the same rule. In this case, the corresponding control is generated during conversion.

  ```
  <target>
    <targetitem>label</targetitem>
    <targetattr>
      <attrname>height</attrname>
      <attrvalue>10</attrvalue>
    </targetattr>
    <targetattr>
      <attrname>width</attrname>
      <attrvalue>$$width$$</attrvalue>
    </targetattr>
    <targetattr>
      <attrname>name</attrname>
      <attrvalue>$1</attrvalue>
    </targetattr>
  </target>
  ```

- Specify the name of a variable that is defined in the conversion rules file in a `convvariable` element.

  ```
  <target>
    <targetitem>$$name$$</targetitem>
  </target>
  ```

- Refer to the name of a template file, optionally along with attribute names and values. In this case, whatever is contained in the template file will be generated. Attribute definitions in the template file are replaced.

```
<target>
  <targetitem>$BUTTON_TEMPLATE</targetitem>
  <targetattr>
    <attrname>name</attrname>
    <attrvalue>$1</attrvalue>
  </targetattr>
  <targetattr>
    <attrname>method</attrname>
    <attrvalue>P$1</attrvalue>
  </targetattr>
</target>
```

- Refer to the name of a template variable and the name of a template file, separated by a dot. In this case, the template variable is replaced with whatever is contained in the template file.

```
<target>
  <targetitem>$GRIDITEM.$GRIDITEM_TEMPLATE</targetitem>
</target>
```

- Only in the root rule: Specify the name of a template file and the name of a template variable that is contained in this file, separated by a dot. In this case, the template variable is replaced with the entire result of the map conversion.

```
<target>
  <targetitem>$NATPAGE_TEMPLATE.$MAPROOT</targetitem>
</target>
```

- Specify "$$" as the target item. This is useful when writing a more general rule that is to apply after another more specific rule has already created a target item. The attributes specified along with the target item "$$" are applied to the already created target item, whatever this target item was.

```
<target>
  <targetitem>$$</targetitem>
  <targetattr>
    <attrname>datatype</attrname>
    <attrvalue>xs:double</attrvalue>
  </targetattr>
</target>
```

- Specify "$." as the target item. This refers to the template that is currently being processed. The attributes specified along with the target item "$." are applied to the current template.

```
<target>
  <targetitem>$.</targetitem>
  <targetattr>
    <attrname>$$NATSOURCE$$</attrname>
    <attrvalue>$1-A</attrvalue>
  </targetattr>
</target>
```

## Templates

The Map Converter assembles page layouts from templates. Which templates are used, how they are assembled and how variables in templates are filled is controlled by the conversion rules.

A template file describes the general layout of an entire Application Designer page layout or of an individual Application Designer control. A template can contain variables and references to other templates. During conversion, the Map Converter resolves the structure of the templates and fills the variables with specific values, depending on the contents of the map.

A template file can describe a simple control such as a FIELD control or a more complex control such as a TEXTGRIDSSS2 control. For the same control, multiple templates may exist. For example, an *ofield_TEMPLATE* and an *ifield_TEMPLATE* may both be templates for the FIELD control. The *ofield_TEMPLATE* would be used for output fields, the *ifield_TEMPLATE* for modifiable fields. Which template is used for which subset of fields of the map is specified in the conversion rules.

Template files are well-formed XML files which contain control definitions. They are placed in the folder *convrules* of your Application Designer project directory. The file name must end with "_TEMPLATE.xml". The Map Converter ships with a set of default template files.

The following topics are covered below:

- Variables in Templates
- Templates in Templates
- Editing Templates

### Variables in Templates

As already seen in the examples above, templates can contain variables. Variables can be freely defined by the user. Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<natpage xmlns:njx=http://www.softwareag.com/njx/njxMapConverter
  natsource="$$NATSOURCE$$" natsinglebyte="true">
  <titlebar name="$$TITLEVAR$$" align="center">
  </titlebar>
  <pagebody>
    <njx:njxvariable name="MAPROOT"/>
  </pagebody>
  <statusbar withdistance="false"/>
</natpage>
```

- **Variables as placeholders for the property values of controls**
  An example is the variable `$$TITLEVAR$$` in the template above. If a template contains a variable such as `name="$$TITLEVAR$$"`, there must be a corresponding rule that yields a value for the variable `$$TITLEVAR$$`. The Map Converter replaces the variable with this value.

  The built-in variable `$$` has a specific meaning. If it occurs as a property value, there is no specific rule needed to produce the value. Instead, the Map Converter receives the value from a so-called tag converter. Tag converters are Java classes that are delivered with the Map Converter. Exchanging or writing your own tag converters is an advanced way of extending the Map Converter and is usually not required. See *Tag Converters* for further information.

- **Variables as placeholders for controls and containers**
  An example is the variable `MAPROOT` in the template above. Such a variable is defined by inserting an NJX:NJXVARIABLE control (from the controls palette of the Layout Painter) into a template. As long as the XML of the template is well-formed, an NJX:NJXVARIABLE control can be inserted at any place in the template. Conversion rules refer to this variable as `$MAPROOT`. Notice that the value in the `name` property of an NJX:NJXVARIABLE control does not start with $. Instead, the NJX:NJXVARIABLE control itself defines that it is a variable. The NJX:NJXVARIABLE control is a special control in the **Natural Extensions** section of the Layout Painter's controls palette.

### Templates in Templates

Templates can refer to other templates. This can be done via adding variables. The variable can serve as a placeholder for another template. The template name is defined via a corresponding rule.

Example (*GRID_TEMPLATE.xml*):

```
<?xml version="1.0" encoding="UTF-8"?>
<rowtablearea2 withborder="false" griddataprop="$$gridname$$" rowcount="$$" >
  <tr>
    <hdist></hdist>
    <njx:njxvariable name="GRIDHEADER" />
  </tr>
  <repeat>
    <tr>
      <hdist></hdist>
      <njx:njxvariable name="GRIDITEM" />
    </tr>
  </repeat>
</rowtablearea2>
```

This means: A conversion rule like the following maps a grid area detected in the map to a ROWTABLEAREA2 control and formats the header and rows as specified in the templates *GRIDHEADER_TEMPLATE.xml* and *GRIDITEM_TEMPLATE.xml*.

```
<convrule rulename="Griditem_rule">
    <description>Mapping rule for the items of grid.</description>
    <source>
      <sourceitem>gridArea//ifField</sourceitem>
    </source>
    <target>
      <targetitem>$GRIDITEM.$GRIDITEM_TEMPLATE</targetitem>
    </target>
    <target>
      <targetitem>$GRIDHEADER.$GRIDHEADER_TEMPLATE</targetitem>
    </target>
</convrule>
```

### Editing Templates

Only NATPAGE templates (like the default NATPAGE template *NATPAGE_TEMPLATE.xml*) can be edited with the Layout Painter. Templates for individual controls must currently be edited using a text editor.

## Tag Converters

A template must be a valid XML document. The root element must correspond to the root element of a valid Application Designer control. Templates can contain variables. A special variable is the variable `$$`.

Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<button name="$$" method="$$"></button>
```

Each template is processed by a so-called tag converter. Tag converters are in charge of resolving the variable `$$`. A tag converter is a Java class that must support a specific interface and be available in the class path of the Map Converter. Which tag converter is used depends on the root element of the template.

In the above example, the root element is the BUTTON control. The following rule applies:

- If a Java class with the name `com.softwareag.natural.mapconverter.converters.BUTTONConverter` is found in the Java class path, this Java class is used as the tag converter.
- Otherwise, the class `com.softwareag.natural.mapconverter.converters.DEFAULTConverter` is used as the tag converter.

In the above example, the Map Converter tries to find the class `BUTTONConverter` first. Since a specific tag converter for the BUTTON control is not delivered with the Map Converter, the class `DEFAULTConverter` is used as the tag converter.

In order to supply a custom tag converter for the BUTTON control, for instance, you would have to create a Java class `BUTTONConverter` that belongs to the package `com.softwareag.natural.mapconverter.converters` and make it available in the Java class path of the Map Converter.

Detailed information on how to write your own tag converters is provided in the Application Designer development workplace as Javadoc; see **Map Converter Extension API** in the **Natural Tools** node of the navigation frame (under **Tools & Documentation**).

# 20 Code Conversion

- General Information ..... 140
- Generating Adapters ..... 140
- Structure of a Map-Based Application ..... 140
- Structure of a Natural for Ajax Application ..... 141
- Tasks of the Code Conversion ..... 142
- DEFINE DATA Statement ..... 142
- INPUT Statement ..... 143
- REINPUT Statement ..... 144
- PF-Key Event Handling ..... 146
- SET KEY Statement ..... 147
- Processing Rules ..... 150
- System Variables ..... 150
- Variable Names Containing Special Characters ..... 151

## General Information

After the **Map Converter** has been used to create page layouts from map extract files, the last step in the conversion process is adapting the application code to the new user interface. This step can either be performed manually or, with Natural Engineer, partly automatically. In the following, the manual code conversion is described.

## Generating Adapters

First of all, it is necessary to generate HTML code and Natural adapters from the page layouts that have been created by the Map Converter. This is the same procedure as with page layouts that have been created manually with the Layout Painter. Then, the adapters are imported into the Natural development environment.

## Structure of a Map-Based Application

In this context, we need not consider the application code as a whole, but only the layer that handles the user interface. Often, the user interface handling part of a map-based application is structured in the following way:

- `DEFINE DATA`
- Initialization
- `REPEAT`
  - `INPUT [USING MAP` *`map-name`*`]`
    - Includes client-side validations (processing rules)
  - Server-side validations
    - `REINPUT` or `ESCAPE TOP`
  - `DECIDE ON *PF-KEY`
    - Function key handler 1
      - Processing
      - `REINPUT` or `ESCAPE TOP`
    - Function key handler 2
      - Processing
      - `REINPUT` or `ESCAPE TOP`

        - Function key handler *n*
            - Processing
            - ESCAPE BOTTOM
        - ...
    - END-DECIDE
- END-REPEAT
- Cleanup
- END

In practice,

- the REPEAT loop might or might not be there, and
- there might not be a clean DECIDE structure for the function key handlers. Instead, checks for the pressed function key might be spread all over the code.

However, accepting these differences, the above structure should match a large number of applications.

## Structure of a Natural for Ajax Application

The corresponding part of a Natural for Ajax application looks as follows:

- DEFINE DATA
- Initialization
- REPEAT
    - PROCESS PAGE USING *adapter-name*
        - Includes client-side validations
    - Server-side validations
        - PROCESS PAGE UPDATE FULL
    - DECIDE ON *PAGE-EVENT
        - Event handler 1
            - Processing
            - PROCESS PAGE UPDATE FULL or ESCAPE TOP
        - Event handler 2
            - Processing
            - PROCESS PAGE UPDATE FULL or ESCAPE TOP

        - Event handler *n*
            - Processing
            - `ESCAPE BOTTOM`
        - ...
    - `END-DECIDE`
- `END-REPEAT`
- Cleanup
- `END`

## Tasks of the Code Conversion

The code conversion should achieve the following:

- It should be minimal invasive.
- It should not duplicate business code.
- The converted application should be able to run not only with the new user interface, but also in a terminal session, in a Natural Web I/O Interface session and in batch, if it did so before the code conversion.

In detail, the code conversion needs to deal with the statements and constructs mentioned below.

## DEFINE DATA Statement

The `DEFINE DATA` statement must be extended because the data structures exchanged between a program and map are not fully identical to those exchanged between a program and the corresponding adapter.

The default conversion rules delivered with the Map Converter perform a data type mapping that tries to ensure that the data elements in the map interface are mapped to data elements of the same type and name in the adapter interface.

The Application Designer controls are usually not only bound to business data elements, but also to additional control fields. Which control fields these are depends on the way in which the elements of a map are mapped to Application Designer controls by the Map Converter rules. For instance, a `statusprop` can be assigned to a field, which results in an additional parameter in the parameter data area of the adapter. An array on a map can have been converted to a grid control with server-side scrolling. In this case, the additional data structures needed to control server-side scrolling need to be added to the `DEFINE DATA` statement.

### statusprop

The `statusprop` is needed to control the error status or focus of a **FIELD** control dynamically (see **example 3** for the `REINPUT` statement below where it is used to replace the `MARK *field-name` clause). The default conversion rules contain a rule that creates a `statusprop` property for each map field that is controlled by a control variable. The adapter generator creates from this property a corresponding status variable and a comment line that identifies the status variable as belonging to the field.

**Example**

The parameter data area of the map contains:

```
01 LIB-NAME (A8)
01 LIB-NAME-CV (C)
```

The parameter data area of the adapter will then contain:

```
* statusprop= STATUS_LIB-NAME-CV
01 LIB-NAME (A8)
01 STATUS_LIB-NAME-CV (A) DYNAMIC
```

The variable `STATUS_LIB-NAME-CV` is not yet known to the main program and must be defined there.

## INPUT Statement

The replacement for the `INPUT` statement is the `PROCESS PAGE` statement. In its simplest form, the `INPUT` statement just references the map. In this case, it is just replaced by a `PROCESS PAGE` statement with the corresponding adapter.

**Example 1**

Main program before conversion:

```
INPUT USING MAP 'MMENU'
```

Main program after conversion:

```
IF *BROWSER-IO NE 'RICHGUI'
  INPUT USING MAP 'MMENU'
ELSE
  PROCESS PAGE USING 'AMENU'
END-IF
```

The INPUT statement can come with a message text that is displayed in the status bar. There is no direct replacement for this construction because the PROCESS PAGE statement (in contrast to the PROCESS PAGE UPDATE statement) does not support the SEND EVENT clause.

**Example 2**

Main program before conversion:

```
INPUT WITH TEXT MSG01 USING MAP 'MMENU'
```

Main program after conversion (no message will be displayed):

```
IF *BROWSER-IO NE 'RICHGUI'
  INPUT WITH TEXT MSG01 USING MAP 'MMENU'
ELSE
  PROCESS PAGE USING 'AMENU'
END-IF
```

## REINPUT Statement

The replacement for the REINPUT statement is the PROCESS PAGE UPDATE statement. In its simplest form, the REINPUT statement comes with a message text that is displayed in the status bar. In the converted code, this is handled by the SEND EVENT clause of the PROCESS PAGE UPDATE statement.

**Example 1**

Main program before conversion:

```
REINPUT [FULL] WITH TEXT MSG01
```

Main program after conversion:

```
IF *BROWSER-IO NE 'RICHGUI'
  REINPUT [FULL] WITH TEXT MSG01
ELSE
  PROCESS PAGE UPDATE [FULL]
    AND SEND EVENT 'nat:page.message'
    WITH PARAMETERS
      NAME 'type' VALUE 'E'
      NAME 'short' VALUE MSG01
    END-PARAMETERS
END-IF
```

The REINPUT statement can come with a message number and replacements. In this case, the message must be created from number and replacements before it is sent to the status bar with the SEND EVENT clause.

**Example 2**

This example uses a subprogram GETMSTXT that builds the message text from number and replacements.

Main program before conversion:

```
REINPUT [FULL] WITH TEXT *MSGNR, REPL1, REPL2
```

Main program after conversion:

```
IF *BROWSER-IO NE 'RICHGUI'
  REINPUT [FULL] WITH TEXT *MSGNR, REPL1, REPL2
ELSE
  CALLNAT 'GETMSTXT' MSTEXT MSGNR REPL1 REPL2
  PROCESS PAGE UPDATE [FULL]
    AND SEND EVENT 'nat:page.message'
    WITH PARAMETERS
      NAME 'type' VALUE 'E'
      NAME 'short' VALUE MSTEXT
    END-PARAMETERS
END-IF
```

**Example 3**

The REINPUT statement can come with a MARK clause in order to put the focus on a field. This case requires that a statusprop property is created for the field during map conversion. The variable bound to the statusprop property is then used before the PROCESS PAGE UPDATE statement to set the FOCUS to the field.

Main program before conversion:

```
REINPUT [FULL] WITH TEXT MSG01 MARK *LIB-NAME
```

Main program after conversion:

```
01 STATUS_LIB-NAME-CV (A) DYNAMIC
...
IF *BROWSER-IO NE 'RICHGUI'
  REINPUT [FULL] WITH TEXT MSG01 MARK *LIB-NAME
ELSE
  STATUS_LIB-NAME-CV := 'FOCUS'
  PROCESS PAGE UPDATE FULL
    AND SEND EVENT 'nat:page.message'
    WITH PARAMETERS
      NAME 'type' VALUE 'W'
      NAME 'short' VALUE MSG01
    END-PARAMETERS
END-IF
```

## PF-Key Event Handling

The original application might contain checks for the content of the system variable *PF-KEY at arbitrary places in the code. In order to handle function key events correctly in the converted application, several things need to be achieved:

- In response to the function keys, the converted application must raise events that are named like the possible contents of *PF-KEY. This can be achieved by using a page template such as *NATPAGEHOTKEYS_TEMPLATE.xml* which contains the required hot key definitions.
- A common local variable must be set up right after the INPUT or PROCESS PAGE statement that contains either the value *PF-KEY or *PAGE-EVENT, depending on the execution environment. The name of the variable can be freely chosen. In the example below, the name XEVENT is used.
- The events nat:page.end and nat:browser.end must be handled in such a way so that the program terminates. See also ***Built-in Events and User-defined Events***.
- A default event handler must be set up that takes care of the values of *PAGE-EVENT that are not expected by the original application code. These unexpected events are simply replied with a PROCESS PAGE UPDATE FULL statement.

**Example**

```
01 XEVENT (U) DYNAMIC
...
PROCESS PAGE USING ...
...
IF *BROWSER-IO = 'RICHGUI'
  DECIDE FOR FIRST CONDITION
    WHEN *PAGE-EVENT = 'nat:page.end'
      STOP
    WHEN *PAGE-EVENT = MASK ('PF'*) OR = MASK ('PA'*)
    OR = 'ENTR' OR = 'CLR'
      XEVENT := *PAGE-EVENT
    WHEN NONE
```

```
      PROCESS PAGE UPDATE FULL
  END-DECIDE
ELSE
  XEVENT := *PF-KEY
END-IF
```

All references to `*PF-KEY` in the code must then be replaced by references to `XEVENT`.

## SET KEY Statement

Natural for Ajax provides two controls (**NJX:BUTTONITEMLIST** and **NJX:BUTTONITEMLISTFIX**) that represent a row of buttons. These controls can be used to replace the visual representation of the function keys from the original application. If the page template *NATPAGEPFKEYS_TEMPLATE.xml* or a similar individually adapted template is used during map conversion, each resulting page will contain a row of function key buttons. The subject of this section is how the converted application can control the labeling and the program-sensitivity of the function keys with only little code changes.

Natural controls the labeling and program-sensitivity of the function keys in a highly dynamic way. The corresponding application code (`SET KEY` statements) can be distributed across program levels and can be lexically separated from the corresponding `INPUT` statements. Also, the `SET KEY` statement has several flavors, some affecting all keys and others affecting only individual keys. As a result, the status of the function keys at a given point in time can only be determined at application runtime.

Therefore, the following approach is chosen: Natural provides the application programming interface (API) `USR4005` that reads the current function key naming and program-sensitivity at runtime. During code conversion, a call to this API is inserted after each `SET KEY` statement or into each round trip. This call reads the function key status and passes it to the user interface.

**Example**

Main program before conversion:

```
SET KEY ENTR NAMED 'Enter' PF1 NAMED 'F1' PF2 NAMED 'F2'
PF3 NAMED 'Modify' PF4 NAMED 'Delete' PF5 NAMED 'F5'
PF6 NAMED 'F6' PF7 NAMED 'Create' PF8 NAMED 'Display'
PF9 NAMED 'F9' PF10 NAMED 'F10' PF11 NAMED 'F11' PF12 NAMED 'F12'
*
INPUT USING MAP "KEYS-M"
*
END
```

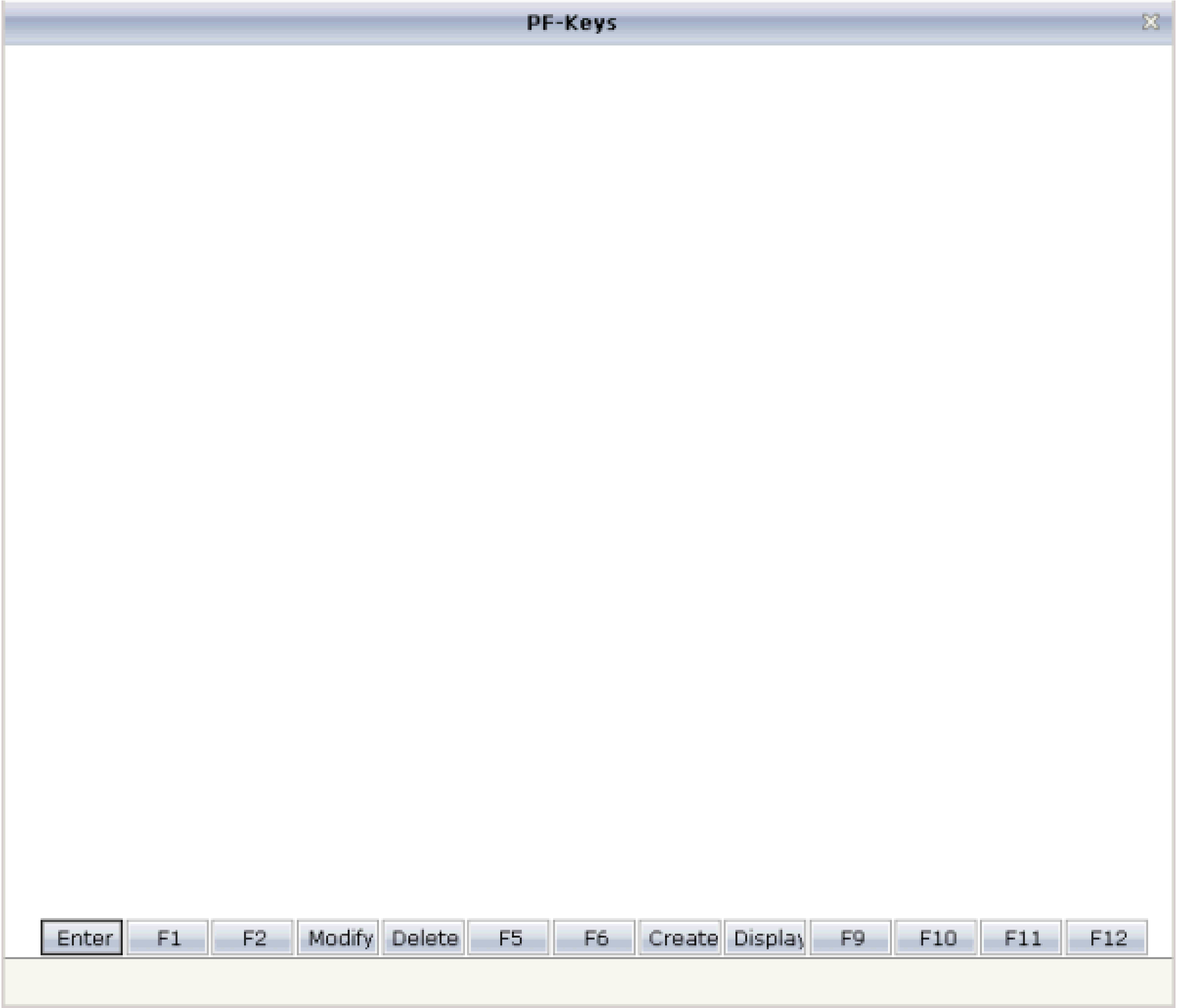
Map before conversion:

```
                                  *** PF-Keys ***





















Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Enter F1    F2    Modif Delet F5    F6    Creat Displ F9    F10   F11   F12
```

Main program after conversion:

```
DEFINE DATA LOCAL
1 PFKEY (1:*)
2 METHOD (A) DYNAMIC
2 NAME (A) DYNAMIC
2 TITLE (A) DYNAMIC
2 VISIBLE (L)
1 METHODS (A4/13) CONST <'ENTR','PF1','PF2','PF3','PF4',
'PF5','PF6','PF7','PF8','PF9','PF10','PF11','PF12'>
END-DEFINE
*
SET KEY ENTR NAMED 'Enter' PF1 NAMED 'F1' PF2 NAMED 'F2'
PF3 NAMED 'Modify' PF4 NAMED 'Delete' PF5 NAMED 'F5'
PF6 NAMED 'F6' PF7 NAMED 'Create' PF8 NAMED 'Display'
PF9 NAMED 'F9' PF10 NAMED 'F10' PF11 NAMED 'F11' PF12 NAMED 'F12'
*
IF *BROWSER-IO NE "RICHGUI"
  INPUT USING MAP "KEYS-M"
ELSE
  EXPAND ARRAY PFKEY TO (1:13)
  METHOD(1:13) := METHODS (*)
  CALLNAT "GETKEY-N" PFKEY (*)
  PROCESS PAGE USING "KEYS-A"
END-IF
*
END
```

Page after conversion:



**Explanation**

The structure PFKEY is generated into the Natural adapter of the page as the application interface to the BUTTONITEMLISTFIX control.

The subprogram GETKEY-N is a convenience wrapper for the API subprogram USR4005. It uses USR4005 to determine the labeling and the program-sensitivity status for a given list of function keys. Each function key is identified by the *PF-KEY value it raises. GETKEY-N returns the function key information in a data structure suitable for the application interface of the BUTTONITEMLISTFIX control. The subprogram is delivered in the library SYSEXNJX in source code and can be adapted to the needs of the application.

## Processing Rules

The Natural maps in the application to be converted may contain processing rules. In the sense of a Natural for Ajax application, the processing rules are server-side validations because they are executed on the Natural server side of the application.

In order to extract processing rules from the maps and to turn them into server-side validations in the converted application, the Natural Engineer function “Separate Processing Rules from Maps” can be used.

There is currently no function available that automatically turns processing rules into client-side validations in Application Designer.

## System Variables

If a map displays a system variable (for example, *DATX), a specific default conversion rule takes care that the necessary code for handling the system variable is generated into the Natural adapter of the resulting page layout.

**Example 1**

The map displays the contents of the system variables *DATX and *TIMX. The contents of these system variables are not modifiable.

The DEFINE DATA statement of the adapter will then contain:

```
LOCAL
01 XDATX (A8)
01 XTIMX (A8)
```

The body of the adapter will then contain:

```
XDATX := *DATX
XTIMX := *TIMX
*
PROCESS PAGE ... WITH
PARAMETERS
...
 NAME U'XDATX'
  VALUE XDATX
 NAME U'XTIMX'
  VALUE XTIMX
END-PARAMETERS
```

The main program needs no special adaptation.

**Example 2**

The map displays the content of the system variable *CODEPAGE. The content of this system variables is modifiable.

The DEFINE DATA statement of the adapter will then contain:

```
LOCAL
01 XCODEPAGE (A64)
```

The body of the adapter will then contain:

```
XCODEPAGE := *CODEPAGE
*
PROCESS PAGE ... WITH
PARAMETERS
...
 NAME U'XCODEPAGE'
  VALUE XCODEPAGE
...
END-PARAMETERS
*
*CODEPAGE := XCODEPAGE
```

The main program needs no special adaptation.

## Variable Names Containing Special Characters

A similar procedure applies to special characters contained in variable names. These are the following special characters:

+<br>
#<br>
/<br>
@<br>
§<br>
&<br>
$

**Note:** The hash (#) can occur only as the first character.

Variables names containing these special characters cannot be directly bound to Application Designer control attributes. A specific default conversion rule replaces the names containing these special characters with configurable replacements. The original field name is generated into the parameter data area of the Natural adapter and a corresponding mapping is generated into the PROCESS PAGE statement of the adapter.

**Example**

The map displays the variables #FIRST and #LAST.

The DEFINE DATA statement of the adapter will then contain:

```
DEFINE DATA PARAMETER
1 #FIRST (A16)
1 #LAST (A20)
```

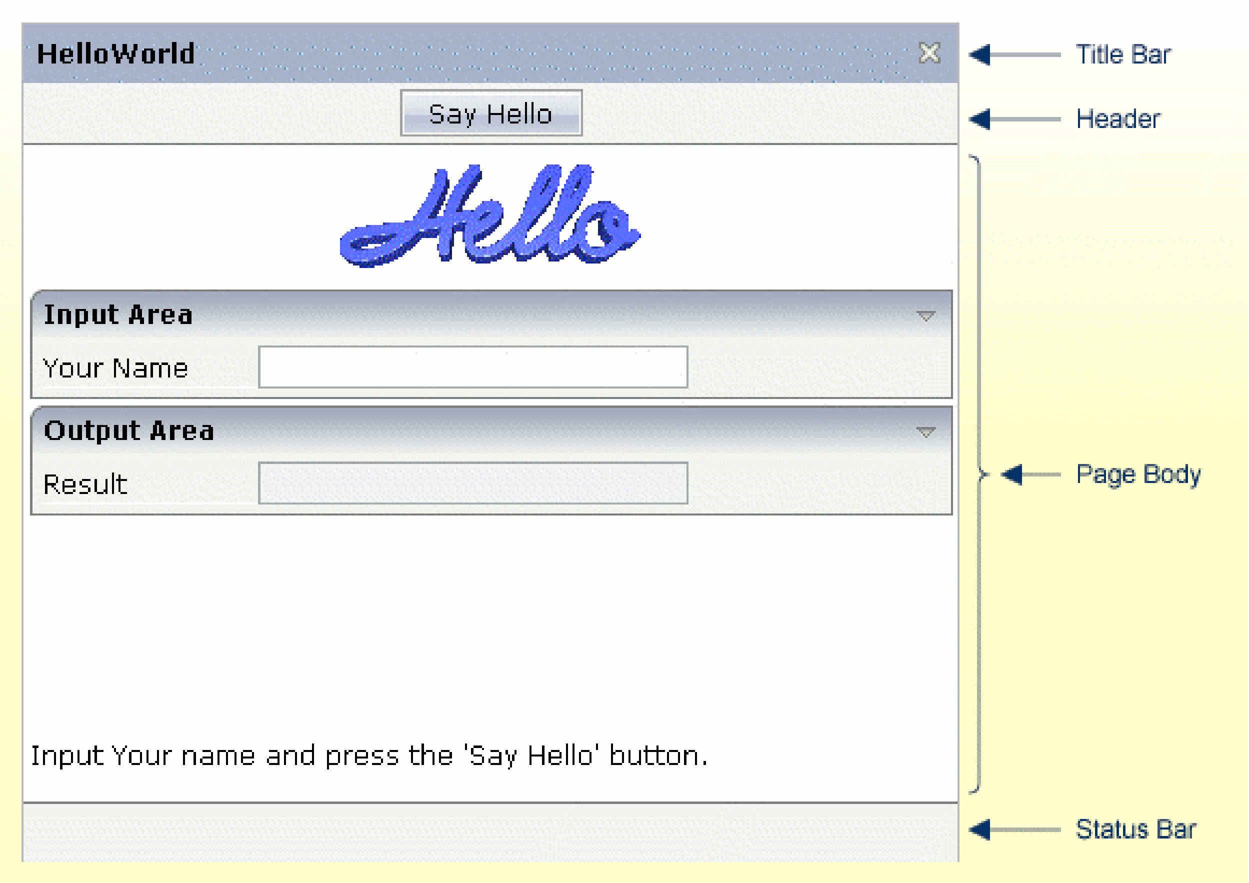
The body of the adapter will then contain:

```
...
PROCESS PAGE ... WITH
PARAMETERS
...
NAME U'HFIRST'
  VALUE #FIRST
 NAME U'HLAST'
  VALUE #LAST
...
END-PARAMETERS
```

The main program needs no special adaptation.

# V Typical Page Layout

The layout of a page typically contains the following elements:



Input Your name and press the 'Say Hello' button.

This part describes these elements in more detail.

**NATPAGE**

**TITLEBAR**

**HEADER**

**PAGEBODY**

**STATUSBAR**

# 21 NATPAGE

- Properties ........ 156

The NATPAGE control is always the top node of a Natural page's layout definition. The Natural page, on the one hand, generates the visible container in which all the contained elements are placed; on the other hand, some Natural-specific settings are defined on page level.

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| translationreference | This is the "translation reference" that is passed to the multi language management.<br>The "tranlation reference" is a logical term representing a group of textids together with their translation. If using the standard file based multi language management that comes with CIS as default then a "translation reference" represents one file containing text-ids and translations in a comma separated format.<br>Translation information is loaded by the multi language management "per translation reference". I.e. if a page links to a certain translation reference then all the translation information that is avaible through this reference is loaded in one step and is also buffered.<br>You can set up different scenarios: either each page may address an own translation reference. E.g. if your page is named "abc.xml" then it references to "abc" - as consequence there is (per language) one abc.csv file holding translation information for this page. If you have a second page "def.xml" then you may define "def" accordingly. In this case each page is independent from the other. - On the other side you are required to translate certain "common text-ids" mulitple times.<br>If you on the other hand define one translation reference for multiple pages then you can share text-ids throughout the various pages.<br>Please set up a strategy for using translation references when starting using the multi language management. The strategy should also include a structured way of naming text-ids. Text-ids may only be shared in an efficient way if it is clear what they stand for. E.g. you may names of buttons in the following way: "btn_save" and "btn_saveas". | Sometimes obligatory | |
| stylesheetfile | URL of a style sheet file used for control rendering.<br>Typically the style sheet file used for control rendering is set dynamically e.g. the style depends on the user who is | Optional | css |

| | | | |
|---|---|---|---|
| | currently logged on. When defining the style sheet file by this property, the style sheet file is not set dynamically but defined in a fix way for this page.<br>The style sheet file must be defined as URL, relative to the generated page. A valid value may be "../softwareag/styles/CIS_DEFAULT.css".<br>If not using the "hard setting" of the style sheet file via this property then the style sheet is determined by the runtime in the following way:<br>(1) The adapter object provides for a "String getStyle()" method that return the URL. You can override the default method and pass back your own URL.<br>(2) When using the default implementation derived from com.softwareag.cis.server.Model then the getStyle() method accesses the CIS session context. You can set the session's style by calling "findCISessionContext()" in your adapter and calling "setStyle()" in the session context's object. | | |
| addstylesheetfile | URL of an additional style sheet file.<br>You may use this additional style sheet file in order to define more styles than are provided in the "normal" style sheet file. Typical situations are:<br>(A) Some controls offer the possibility to render defined content by style-class definitions (e.g. inside a TEXTGRID you can dynamically define which style-class is used for a certain cell).<br>(B) If you define own controls by using the control extension framework and if these controls require own style classes then these style classes may be provided inside the additional style sheet file.<br>By using the additional style sheet file you are able to avoid doing manipulations to the "normal" style sheet files that come from CIS or that are generated inside the tool "Style Sheet Editor". | Optional | css |
| imagestopreload | Semicolon separated list of image-URLs that are directly preloaded in an invisible area of the page. If images are used inside a tree or a text grid then they are loaded by dynamically generated HTML that is placed into a corresponding area of the page. In order to optimise the loading you can preload such images by listing them in this property. | Optional | |

| | | | |
|---|---|---|---|
| | The URL of the images must be relative to your generated HTML page.<br>Example: if your page has a tree with certain node images then you may define: "images/nodeopened.gif" images/nodeclosed.gif; images/nodeendnode.gif". | | |
| darkbackground | Normally a page background is in light colour (white if using CIS_DEFAULT style sheet). CIS style sheets also have a dark(er) grey colour to be used.<br>If DARKBACKGROUND is set to true then the darker background colour is chosen. This property typically is used if using the SUBCISPAGE tag or ROWTABSUBPAGES tag to seamlessly integrate inner pages into darker container areas. | Optional | true<br>false |
| helpid | This is the id that is passed into the help management for the page.<br>If a user clicks F1 inside the page and if there is no specific context sensitive control help available (e.g. help for field) then the help for the page is popped up. | Optional | |
| visiblevalueifundefined | Several CIS controls support a VISIBLEPROP property. The VISIBLEPROP contains the binding to an adapter property that decides at runtime if a control is visible or not.<br>This property defines how these controls behave if there is no implementation available for the property.<br>Example: the VISIBLEPROP of a CHECKBOX is binding to a property "cbvisible" but there is not corresponding implementation "getCbvisible". If set to "true" then all controls with undefined visibility are displayed. If set to "false" then they are hidden. | Optional | true<br>false |
| contextmenumethod | Name of the event that is sent to the adapter when the user clicks into the page with the right mouse button and no other control (e.g. texgrid, tree,...) handled the click so far. | Optional | |
| immediatedisplay | Flag that indicates if the screen is visible within the initial loading phase. Default is false. When using the default you see a light HTML page showing a "just loading" image. Use property "justloadingurl" to specify a page of choice. | Optional | true<br>false |
| autotab | Sets the default behavior if an automatic tab should be executed for FIELD controls in this layout. Notice that this default is not used for FIELD controls in FLEXLINEs. | Optional | true<br>false |

| | | | |
|---|---|---|---|
| focusmgtprop | Name of adapter parameter that dynamically controls the focus management in the browser for the current server roundtrip. Valid values provided by the adapter are: 0 (=default), 1 (= suppress focus), 2 (= set focus), 3 (= open tabs in TABPAGE controls). | Optional | 1<br>2<br>3 |
| addjavascriptlibs | Comma separated list of URLs of additional javascript libraries. Example: "../yourproject/js/yourlib.js". Used to include non-CIS javascript. Example of Usage: with the DATEINPUT control you can run own rules to convert and validate user input. | Optional | |
| flushmethod | Name of the event that is sent to the adapter in case the page loses the focus. | Optional | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| adapterlisteners | Semicolon separated list of classes which connect to the server side adapter processing as adapter listeners (each one supporting the interface IAdapterListener). | Optional | |
| framebufferpriority | Priority (integer) that is used to manage the page within the CIS frame buffer. Use value "-1" to indicate that the page should not be buffered at all (typically used when having a FILEUPLOAD2 control on the page). Default is "0". Use any other integer value to indicate higher priority. | Optional | 0<br>-1 |
| centralcontextmenu | If set to 'true' then the context menu is rendered in a central frame. This central frame can be specified via the "popupdivframe" setting in cisconfig. | Optional | true<br>false |
| usexmlhttprequest | By default CIS framework is using hidden frame communication (asynchronous server communication). Use this attribute in order to use "XMLHTTPRequests". Typical usage is with timer pages (to avoid seeing ongoing communication to server on browser's statusbar). | Optional | |
| withownborder | If set to "true" the page will be surrounded by an additional border. | Optional | true<br>false |
| userinputprop | Name of the adapter parameter which will have a value of "true" if some userinput in the page or one of its subpages has been done since the last server-roundtrip. | Optional | |
| Natural | | | |
| natsource | Specifies a name for the Natural adapter object that will later be generated from your page layout. During adapter generation, this name is checked to match the Natural naming conventions for objects. If you do not specify a name here, the adapter name is taken from the layout name. This might result in names that are not valid for | Optional | |

| | | | |
|---|---|---|---|
| | Natural objects. These adapters can only be used in Natural for Eclipse. | | |
| natsinglebyte | Specifies whether string properties of the page are to be mapped to Unicode strings (U) or code page strings (A) in Natural. The value "true" means code page strings. The value "false" means Unicode strings (default). | Optional | true<br>false |
| natrecursion | Properties of controls used in the page might have a recursive structure. These structures are mapped to multi-dimensional arrays in the Natural adapter. Natural arrays are limited to three dimensions. Therefore, the recursion depth of these structures can be limited using this property. | Optional | 1<br>2<br>3<br>int-value |
| natdc | Specifies the character that is to be used as the decimal character in the format specifications of variables with decimal format in the parameter data area of the Natural adapter. For example, if a comma (,) is specified, "(N7,2)" is generated. If a period (.) is specified, "(N7.2)" is generated. The default is the period (.). | Optional | ,<br>. |
| natsss | The controls ROWTABLEAREA2 and MGDGRID support server-side scrolling and sorting. The corresponding data structures are generated into the parameter data area of the Natural adapter only if this attribute has been set to true. The default is false. This is for compatibility with earlier versions. For the control TEXTGRIDSSS2, the server-side scrolling data structures are always generated. | Optional | true<br>false |
| natcv | Name of a Natural control variable that shall be assigned to the page. The control variable must be defined in a Data Definition (XCIDATADEF) control on the same page. The application can use the control variable to check the modification status of the page. | Optional | |
| xmlns:njx | Internal use only. Do not modify this. | Optional | |
| Popup | | | |
| popupwidth | Each CIS page can be opened as a popup dialog. This properties define the pixel width preferred for the page. - See the property "popupheight" for more information. | Optional | 100px<br>200px<br>300px<br>400px |
| popupheight | Each CIS page can be opened as a popup dialog. This property defines the pixel height preferred for the page.<br>A popup is typically opened by calling the "openPopup"-method in your adapter code. If no further definition is done then the popup will open in the height | Optional | 100px<br>200px<br>300px<br>400px |

| | | | |
|---|---|---|---|
| | that is defined by this value. You can also dynamically manipulate the size and position of the popup by using the Model-method "setPopupFeatures" - please read corresponding documentation inside the Java API documentation. | | |
| popupfeatures | In addition to POPUPWIDTH and POPUPHEIGHT you can control the appearance of the popup dialog in which the current page may be displayed. You define a string to maintain different feature aspects, separated by semi-colon.<br>center:yes\|no<br>edge:sunken\|raised<br>resizable:yes\|no<br>scroll:yes\|no<br>status:yes\|no (to display or hide a status bar)<br>An example string looks as follows: "dialogLeft:100px"<br>There is one special function built in by which you can position a popup relative to its caller's window (the dialogLeft and dialogTop definition normally refer to absolute coordinates of the screen): by specifying "dialogLeft: SCRX(100)px" you define that the position is 100 pixels right from the left top corner of the current window. - Use "dialogTop: SCRY(100)px" in the same way for vertical positioning.<br>Please also pay attention to the methods "setPopupTitle()" and "setPopupPageFeatures()" in the com.casabac.server.Model class. By using these method you can define popup parameters in a dynamic way inside your adapter implementation. | Optional | dialogLeft: 200px<br>dialogTop: 100px<br>edge: sunken<br>resizable: yes<br>status: no |
| Occupied | | | |
| occupiedimage | URL of the image that is displayed to indicate that the screen is just communicating to the server. This is the image that is located in the top left corner and which by default is a flashing hour glass.<br>You can specify any image, e.g. also animated GIF files. If you want your image not to be visible in the top left corner but "somewhere" in the screen then draw an image with some transparent area on the left and above the image that you want to show. | Optional | |
| occupiedpixelheight | When the screen is busy, because the client is exchanging information with the server, an hour glass image is | Optional | |

| | | | |
|---|---|---|---|
| | displayed at the top left corner. With this property you define the pixel height of this hour glass image. | | |
| occupiedpixelwidth | When the screen is busy, because the client is exchanging information with the server, an hour glass image is displayed at the top left corner. With this property you define the pixel width of this hour glass image. | Optional | |
| Hot Keys | | | |
| hotkeys | Comma separated list of hot keys. A hotkey consists of a list of keys and a method name. Separate the keys by "-" and the method name again with a comma<br>Example:<br>ctrl-alt-65;onCtrlAltA;13;onEnter ...defines two hot keys. Method onCtrlAltA is invoked if the user presses Ctrl-Alt-A. Method "onEnter" is called if the user presses the ENTER key.<br>Use the popup help within the Layout Painter to input hot keys. | Optional | |
| Loading | | | |
| justloadingurl | URL of the page that is displayed to indicate that screen is just loading. Typically this is a light HTML page showing a loading image of choice. Use plain HTML - not a generated CIS page. | Optional | |

# 22 TITLEBAR

- Properties .......... 164

The title bar is typically placed at the top of a page. The text in the title bar can either be set statically inside the layout definition, or it can be dynamically resolved by a property of the corresponding adapter.

The title bar can have a close icon (cross at the top right) and an online help icon.The close icon triggers the `nat:page.end` event in the Natural application.

## Properties

| Basic | | | |
|---|---|---|---|
| name | Text that is displayed inside the control. Please do not specify the name when using the multi language management - but specify a "textid" instead. | Sometimes obligatory | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Sometimes obligatory | |
| withclose | In the right top corner of the titlebar there is by default a close-icon. Define "false" in this property in order to hide this icon.<br>The close-icon calls the method "endProcess" of your adapter. "endProcess" is implemented in the class "com.softwareag.cis.server.Model" and by default ends the subsession the adapter is running in. - Override this implementation if this default implementation does not fit to your needs. | Optional | true<br>false |
| align | Horizontal alignment of the text that is shown. | Optional | left<br>center<br>right |
| image | URL of image that is displayed inside the control. Any image type (.gif, .jpg, ...) that your browser does understand is valid.<br>Use the following options to specify the URL:<br>(A) Define the URL relative to your page. Your page is generated directly into your project's folder. Specifiying "images/xyz.gif" will point into a directory parallel to your page. Specifying | Optional | |

| | | | |
|---|---|---|---|
| | "../HTMLBasedGUI/images/new.gif" will point to an image of a neighbour project.<br>(B) Define a complete URL, like "http://www.softwareag.com/images/logo.gif". | | |
| helpid | Id that is passed to the online help management.<br>If this "helpid" is specified then a help-icon will be displayed in the right top corner. If clicking on the icon then the corresponding help will show up. | Optional | |
| titlestyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| pixelheight | Height of the control in pixels. | Optional | 1<br>2<br>3<br>int-value |
| straighttext | If the text of the control contains HTML tags then these are by default interpreted by the browser. Specifiying STRAIGHTTEXT as "true" means that the browser will directly render the characters without HTML interpretation.<br>Example: if you want to output the source of an HTML text then STRAIGHTTEXT should be set to "true". | Optional | true<br>false |
| closetitle | The text that is entered here appears as tooltip on the close-icon on the right top border of the titlebar. | Optional | |
| closetitletextid | Multi language dependent text that displays the tooltip on the close-icon. Do not specify a CLOSETITLE if you are specifying a CLOSETITLEID. | Optional | |

| | | | |
|---|---|---|---|
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Binding | | | |
| valueprop | Name of the adapter parameter that provides a value from which the titlebar text is dynamically derived.<br>Do not use "name" or "textid" when using this "valueprop" property. | Optional | |
| visibleprop | Name of the adapter parameter that provides the information if this control is displayed or not. As consequence you can control the visibility of the control dynamically. | Optional | |
| imageprop | Name of adapter parameter which dynamically provides the URL of the image that is shown inside the control.<br>The URL must either be an absolute URL or a relative URL. | Optional | |
| withcloseprop | Name of the adapter parameter that indicates if the close icon of the titlebar is visible.<br>The server side property will be of type (L). | Optional | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natsysvar | If the control shall be bound to a Natural system variable, this attribute specifies the name of the system variable. | Optional | |
| njx:natsysio | If the control shall be bound to a Natural system variable with the attribute njx:natsysvar, this attribute indicates if the system variable is modifiable. The default is false. | Optional | |
| njx:natstringtype | If the control shall be bound to a Natural system variable of string format with the attribute njx:natsysvar, this attribute indicates the format of the string, A (code page) or U (Unicode). The default is A. | Optional | |

| | | | |
|---|---|---|---|
| njx:natcv | Name of a Natural control variable that shall be assigned to the control. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |

# 23 HEADER

- Properties .......... 170

The header is an area in which you can place buttons, icons and menus. The area itself is grey and has a dark grey line at its bottom (if using the standard style sheet). The header is used to display buttons and icons that are valid for the whole page. Typically, it is placed directly under the title bar.

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| nocellspacing | Flag that indicates if there is space between controls within the the header table. Default is FALSE. | Optional | true<br>false |
| align | Horizontal alignment of the control's content. | Optional | left<br>center<br>right |
| visibleprop | Name of the adapter parameter that provides the information if this control is displayed or not. As consequence you can control the visibility of the control dynamically. | Optional | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

# 24 PAGEBODY

- Properties ........ 172

The page body is the main area in which you place the body part of your layout. The body adapts its height to the current window's height, while elements such as TITLEBAR, HEADER and STATUSBAR keep a constant height. If the page body's size is too small to hold its content, you scroll through the elements that are inside the PAGEBODY.

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| vscroll | Definition of the vertical scrollbar's appearance.<br>You can define that scrollbars only are shown if the content is exceeding the control's area ("auto"). Or scrollbars can be shown always ("scroll"). Or scrollbars are never shown - and the content is cut ("hidden").<br>Default is "auto". | Optional | auto<br>scroll<br>hidden |
| hscroll | Definition of the horizontal scrollbar's appearance.<br>You can define that the scrollbars only are shown if the content is exceeding the control's area ("auto"). Or scrollbars can be shown always ("scroll"). Or scrollbars are never shown - and the content is cut ("hidden").<br>Default is "auto". | Optional | auto<br>scroll<br>hidden |
| takefullheight | Indicates if the content of the control's area gets the full available height.<br>If you use percentage sizing inside the control's area then this property must be switched to 'true'. If you use no explicit vertical sizing at all - or you use vertical pixel sizing for your controls - the property must be switched to 'false'.<br>Background information: container control's internally open up a table in which you place rows (ITR/TR) which then hold controls (e.g. LABEL/FIELD). The table that is opened up normally has no explicit height and grows with its content as consequence. By specifying "takefullheight=true" the table itself is sized to fill the maximum height of the available area. | Optional | true<br>false |
| pagebodystyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080 | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |

| | | | |
|---|---|---|---|
| | You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Padding | | | |
| horizdist | Defines if there is always a small horizontal distance kept between the border of the PAGEBODY area and its content. Set to 'false' if you want controls in the page body to directly start at the very left and to end at the very end - without any distance.<br>Default is 'true'. | Optional | true<br>false |
| paddingleft | Number of pixels which you want to keep as margin between the pagebody's border and its content. If you want that all contents inside your page body keeps a horizontal distance of 50 pixels on the left then specify:<br>PADDINGLEFT = 50<br>The PADDINGLEFT and PADDINGRIGHT values are added in addition to the small horizontal distance which is added via the HORIZDIST property. | Optional | 1<br>2<br>3<br>int-value |
| paddingright | Number of pixels which you want to keep as margin between the pagebody's border and its content. If you want that all contents inside your page body keeps a horizontal distance of 50 pixels on the right then specify:<br>PADDINGRIGHT = 50<br>The PADDINGLEFT and PADDINGRIGHT values are added in addition to the small horizontal distance which is added via the HORIZDIST property. | Optional | 1<br>2<br>3<br>int-value |
| paddingtop | Number of pixels which you want to keep as margin between the pagebody's border and its content. If you want that all contents inside your page body keeps a vertical distance of 50 pixels on the top then specify:<br>PADDINGTOP = 50 | Optional | 1<br>2<br>3<br>int-value |
| paddingbottom | Number of pixels which you want to keep as margin between the pagebody's border and its content. If you want that all contents inside your page body keeps a vertical distance of 50 pixels on the bottom then specify: | Optional | 1<br>2 |

| | | | |
|---|---|---|---|
| | PADDINGBOTTOM = 50 | | 3<br>int-value |
| Logon Form | | | |
| withformtag | Default value is false. If set to true all controls included in the pagebody tag will be surrounded by a form tag - only in the generatet html page.<br>That makes it possible to save or transfer forms.<br>i.e. save username and password or a complete search form.<br>You will also need an 'submitbutton' - please have a look at the button control. | Optional | true<br>false |

# 25 STATUSBAR

- General Information ........ 176
- Example ........ 176
- Properties ........ 177

## General Information

Normally, the status bar is located at the bottom of a page. It is a grey area (if using the standard style sheet) where status information can be seen. The status information is derived dynamically from the parameters sent with the `nat:page.message` event (see *Sending Events to the User Interface*). The information consists of three parts:

- Type of the status message - whether it is an error message (E), a warning (W) or a success message (S). Depending on the type, a small icon is displayed to the left of the message.
- The status message itself - the text displayed within the status message.
- A long text for the status - optional text shown in a dialog when clicking on the status message.

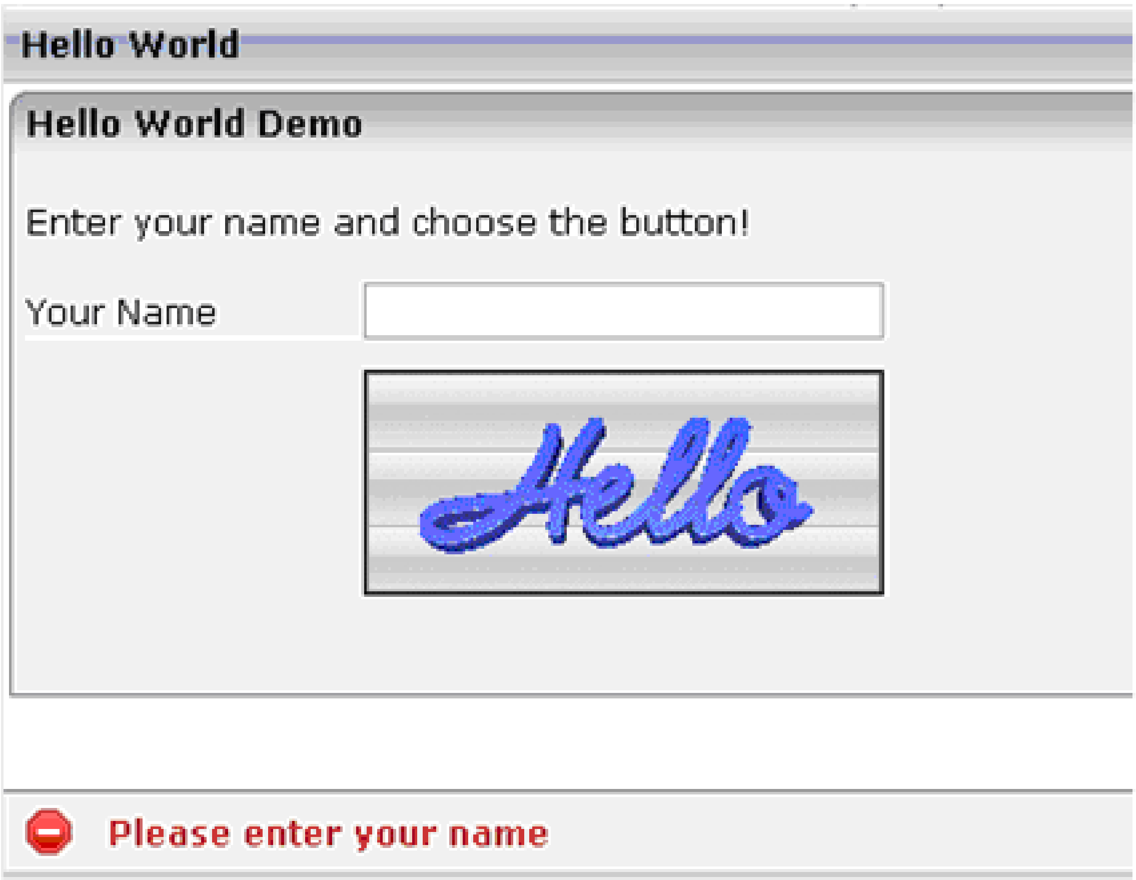
As an alternative to applying the status information as parameters of the `nat:page.message` event, you can apply your own `typeprop`, `shorttextprop` and `longtextprop` properties to the STATUSBAR control. This will generate the corresponding fields in your Natural variable. At runtime, you can apply the corresponding values in the usual way. Applying values to the generated fields has the same effect as sending the parameter values with the `nat:page.message` event. You can even mix both methods.

## Example

In the "Hello World!" application of the **njxdemos** project (`HELLOW-P.NSP`), you want to display an error message if the user clicks the **Say Hello!** button and has not yet entered a name.

```
DECIDE ON FIRST *PAGE-EVENT
...
  VALUE U'onHelloWorld'
  IF YOURNAME = ' '
    PROCESS PAGE UPDATE FULL AND SEND EVENT 'nat:page.message' WITH
      PARAMETERS
        NAME 'type'  VALUE 'E'
        NAME 'short' VALUE 'Please enter your name'
      END-PARAMETERS
  ELSE
      COMPRESS "HELLO WORLD" YOURNAME INTO RESULT
      PROCESS PAGE UPDATE FULL
  END-IF
...
```

The screen including the error message looks as follows:



Hello World

Hello World Demo

Enter your name and choose the button!

Please enter your name

## Properties

| Basic | | | |
|---|---|---|---|
| typeprop | Name of the adapter parameter that provides as value the type of the status message. The type defines the image that is rendered at the beginning of the message.<br>Currently there are 3 supported values: E for error, W for warning, S for success.<br>Please pay attention: Do not use the name messageType. This name is internally used when no property name is specified. | Optional | |
| shorttextprop | Name of the adapter parameter that provides as value the message text that is visible inside the status bar.<br>Please pay attention: Do not use the name messageShortText. This name is internally used when no property name is specified. | Optional | |
| longtextprop | Name of the adapter parameter that provides as value the long message text. The long text pops up if clicking onto the short text mesage. | Optional | |

| | | | |
|---|---|---|---|
| | Please pay attention: Do not use the name messageLongText. This name is internally used when no property name is specified. | | |
| straighttext | If the text of the control contains HTML tags then these are by default interpreted by the browser. Specifiying STRAIGHTTEXT as "true" means that the browser will directly render the characters without HTML interpretation.<br>Example: if you want to output the source of an HTML text then STRAIGHTTEXT should be set to "true". | Optional | true<br>false |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

# VI Working with Containers

Containers are areas on your screen that can hold controls (such as fields, labels, etc.) or other container(s). Containers are the preferred way to structure elements inside your page body.

The information provided in this part is organized under the following headings:

**Positioning of Controls inside a Container**

**Defining the Width of Controls inside a Container**

**Vertical Sizing of Containers and Controls**

**Overview of Different Containers**

**ROWAREA and COLAREA**

**ROWAREAWITHHEADER**

**ROWTABAREA and COLTABAREA**

**ROWTABLE0 and COLTABLE0**

**COLDYNAVIS and ROWDYNAVIS**

**ROWDIV and INNERDIV**

**ROWSCROLLAREA**

**HSPLIT and VSPLIT**

**HLINE and VLINE**

**Performance Optimization with Containers**

**ROWTABSUBPAGES and STRAIGHTTABPAGE**

# 26 Positioning of Controls inside a Container

- Row Types - TR and ITR ........ 182
- Some More Details on ITR ........ 183
- TR Properties ........ 184
- ITR Properties ........ 186

Containers internally build an HTML table in which you place rows. Inside each row you place the controls - or again container(s).

## Row Types - TR and ITR

There are two types of rows:

- The TR row is a normal table row. If you place more table rows - one under the other - inside one container, the columns inside the table row are all synchronized. See the example below in order to understand what “synchronized” means.

  Since controls are placed into columns, all controls are positioned in a synchronized way.
- The ITR row is a special table row. If you place more ITR table rows - one under the other - inside one container, each row has an independent set of columns; i.e. columns are not synchronized.

Have a look at the following XML layout description:

```
<rowarea name="With TR">
    <tr>
        <label name="First Name" width="100">
        </label>
        <field valueprop="fname" width="200">
        </field>
    </tr>
    <tr>
        <label name="Last Name" width="200">
        </label>
        <field valueprop="lname" width="200">
        </field>
    </tr>
</rowarea>
<rowarea name="With ITR">
    <itr takefullwidth="true">
        <label name="First Name" width="100px">
        </label>
        <field valueprop="fname" width="200">
        </field>
    </itr>
    <itr takefullwidth="true">
        <label name="Last Name" width="200">
        </label>
        <field valueprop="lname" width="200" length="20">
        </field>
    </itr>
</rowarea>
```

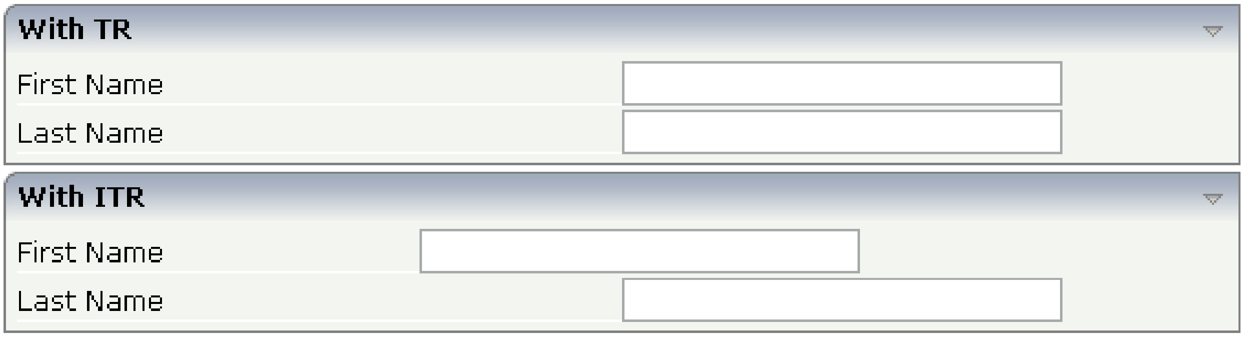
Note that each control (label, button, fields, etc.) is placed into one column of its own. If you have many controls inside one row - and have several rows one below the other - synchronized columns (using TR rows) sometimes cause funny results.

What is better, TR or ITR? Of course, it depends. The recommendation is:

- Use ITR as default. Using ITR, each row is defined independently from other rows that are positioned in the same container. You can change the number of controls (i.e. you internally change the number of managed columns) in one row without interdependencies to other rows.
- Only use TR if you really want to synchronize columns. A typical area of usage is inside the grid management (ROWTABLEAREA2 control): in a grid you explicitly desire to have synchronized columns inside the grid's table.

## Some More Details on ITR

There are two ROWAREA containers. The first one uses TR rows, the second one uses ITR rows. The label for **First Name** has a width of 100 pixels, the label for **Last Name** has a width of 200 pixels. Now look at the result:



Inside the TR rows, all columns are synchronized - while in the ITR rows, each row is individually arranged.

How does the ITR control work internally? For each row, an individual table is opened with one row. Example: you define the following area in the XML layout definition:

```
<area>
  <itr>
    ...
    ...
  </itr>
  <itr>
    ...
    ...
  </itr>
</area>
```

The generated HTML looks like this:

```
<table>
  <tr>
    <td colspan="100">
      <table>
        <tr>
          ...
          ...
        </tr>
      </table>
    </td>
  </tr>
  <tr>
    <td colspan="100">
      <table>
        <tr>
          ...
          ...
        </tr>
      </table>
    </td>
  </tr>
</table>
```

Inside each row there is a table definition of its own, holding exactly one row.

You can define a `takefullwidth` property with the ITR definition, defining the width of the internal table of an ITR tag. If the `takefullwidth` property is set to "true", this means that the internal table that is kept per row is internally opened to use 100% of the available width. Without any definition, the table will be as big as it is required by its content.

## TR Properties

| Basic | | | |
|---|---|---|---|
| visibleprop | Name of the adapter parameter that provides the information if this control is displayed or not. As consequence you can control the visibility of the control dynamically. | Optional | |
| height | Height of the control.<br>There are three possibilities to define the height: | Optional | 100<br>150<br>200 |

| | | | |
|---|---|---|---|
| | (A) You do not define a height at all. As consequence the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20"). Please note: the row content may overrule this setting. The height setting "100px" of an embedded textbox will beat a row height of "50px".<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | 250<br>300<br>250<br>400<br>50%<br>100% |
| withalterbackground | Flag that indicates if the grid line shows alternating background color (like rows within a textgrids). Default is false. Please note: controls inside the row must have transparent background. In case of the FIELD control simply set property TRANSPARENTBACKGROUND to true. | Optional | true<br>false |
| trstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

## ITR Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| takefullwidth | If set to "true" then the control takes all available horizontal width as its width. If set to "false" then the control does not have a predefined width but grows with its content. | Optional | true<br>false |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| align | Alignment of the content of the ITR row.<br>Background: the ITR as independent table row renders a table into its content area. Inside this table a row is opened in which the controls are placed.<br>This table normally is starting on the left of the ITR row. With this ALIGN property you can explicitly define the alignement of the table. | Optional | left<br>center<br>right |
| valign | Vertical alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | Optional | top<br>middle<br>bottom |
| fixlayout | The fixlayout property is important for saving rendering performance inside your browser. To become effective it requires to have specified the height and the width (if available as property) of the control. | Optional | true<br>false |

| | | | |
|---|---|---|---|
| | If setting fixlayout to "true" then the control's area is defined as area which is not sized dependent on its content (as normally done with table rendering). Instead the size is predefined from outside without letting the browser "look" into the content of the area. If the content is not fitting into the area then it is cut.<br>You typically use this control if the content of the control's area is flexibly sizable. E.g. if the content (e.g. a TEXTGRID control) is following the size of the container.<br>When using vertical percentage based sizing you should pay attention to set the fixlayout-property to "true" as often as possible. - The browser as consequence will be much faster in doing its rendering because a screen consists out of "building blocks" with simple to calculate sizes. | | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Visibility | | | |
| visibleprop | Name of the adapter parameter that provides the information if this control is displayed or not. As consequence you can control the visibility of the control dynamically. | Optional | |
| Appearance | | | |
| itrstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| itrclass | CSS style class definition that is directly passed into this control.<br>The style class can be either one which is part of the "normal" CIS style sheet files (i.e. the ones that you maintain with the style sheet editor) - or it can be one of an other style sheet file that you may reference via the ADDSTYLESHEET property of the PAGE tag. | Optional | |

| | | | |
|---|---|---|---|
| tablestyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| Binding | | | |
| itrstyleprop | Name of the adapter parameter that dynamically provides the style of the control. | Optional | |

# 27 Defining the Width of Controls inside a Container

- Controlling the Width of Controls ........ 190
- HDIST and VDIST Controls ........ 192
- HDIST Properties ........ 194
- VDIST Properties ........ 195
- rowspan and colspan Definitions ........ 196
- CELLSPAN Control ........ 196
- CELLSPAN Properties ........ 198
- Rules for Positioning Controls inside Containers ........ 200

As mentioned in the previous section, each control is automatically embedded into a column. Consequently, the width of the control is, on the one hand, determined by the size of the control itself - on the other hand, the column is part of a table row and also follows the table row's sizing.

## Controlling the Width of Controls

Every control that allows width sizing offers a corresponding `width` property. In this property, put either an absolute pixel (`width="100"`) or a percentage value (`width="50%"`). The rendering follows the strategy:

- If the width of a control is specified as a pixel value, the width is fixed: if the browser screen is too small to display all controls, the controls will not be reduced but keep their pixel size. Depending on your settings in the PAGEBODY tag (`hscroll` property), the displayed elements will be cut off or will be accessible by a scroll bar.
- If the width of a control is defined as a percentage value (`width="50%"`), HTML renders the control accordingly. If the screen is too small to show all controls, the browser will try to reduce elements according to the table rendering rules.

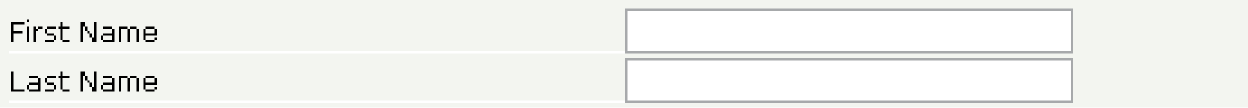
If you define the width of a control as a percentage value, the width relates to

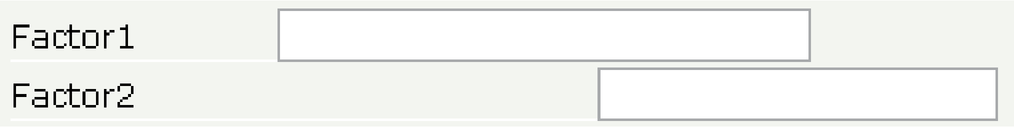
- the width of the area in case of using TR rows, or to
- the width definition of the ITR row if using ITR rows. This width definition can either be absolute or percentage-based.

The following example shows a page in which controls hold absolute width values:

```
<itr takefullwidth="true">
    <label name="Factor1" width="20%">
    </label>
    <field valueprop="factor1" width="80%">
    </field>
</itr>
<itr takefullwidth="true">
    <label name="Factor2" width="20%">
    </label>
    <field valueprop="factor2" width="60%">
    </field>
    <hdist width="20%">
    </hdist>
```

For two different screen sizes, the HTML page looks as follows:



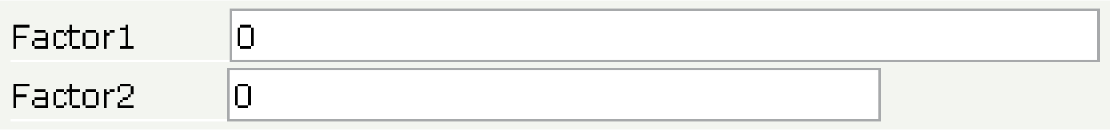


The size of the controls changes according to their percentage definition.

A similar screen is now built using absolutely defined pixel sizes:

```
<itr takefullwidth="false">
    <label name="Factor1" width="100">
    </label>
    <field valueprop="factor1" width="200">
    </field>
</itr>
<itr takefullwidth="true">
    <label name="Factor2" width="100">
    </label>
    <field valueprop="factor2" width="150">
    </field>
</itr>
```

In the ITR definition, there is no `width` specification - therefore, the controls will occupy exactly the space they require. The result looks as follows:



The size of the controls will not change when changing the screen size.

Pay attention to what was said previously: Controls are placed into columns; columns are placed into table rows; and table rows are placed into containers. If you place a control into a row and define this control to have a width of 100%, then the elements “above” have to take care of providing the space to which the control relates its "100%". More concrete: If you place a FIELD control with a width of 100% into an ITR row that does not provide for a width of 100% itself (using the property `takefullwidth`), then the result will be a minimum-width field (100% of nothing).

Pixel sizing represents a bottom-up sizing approach: a control defines its width - all the other controls around (e.g. the container in which the control is placed) have as a consequence to adapt to the control's size: if the control is defined to occupy more space, then the container has to follow and provide for the space.

Percentage sizing represents a top-down sizing approach: the inner control tells how many percentages of the space that is granted from the outer control is occupied. As a consequence the outer control needs to define its size properly. Either the outer control itself defines a pixel size or it itself defines a percentage size - thus passig the respsonsibility to the next higher level. This might end up in a casacading defintion of “percentage sizing” - up to the PAGEBODY control, which is the outer-most container of a page.

There are four commonly used properties for sizing:

- `width`/`height` - this is the quite obvious definition as explained in this section.
- `takefullwidth`/`takefullheight` - this is an equivalent to `width="100%"` and `height="100%"`.

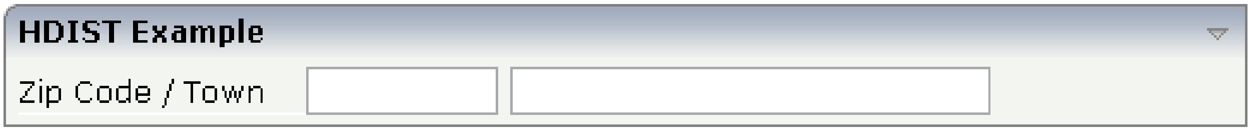
## HDIST and VDIST Controls

HDIST means “horizontal distance”. VDIST means “vertical distance”.

### HDIST Control

The HDIST control represents a distance to be placed between controls. The distance itself holds a certain width that again can either be a pixel width or a percentage width.

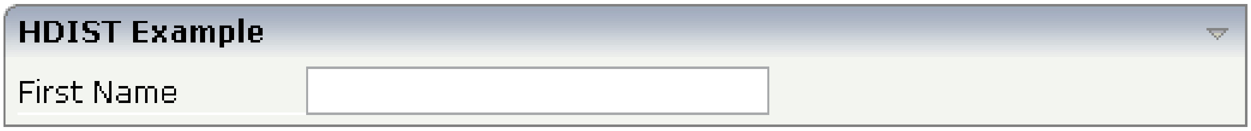
The following example shows a table row into which a town and a zip code is put:



Between the two FIELD controls, you see a small distance that separates the fields from one another. The corresponding XML layout definition is:

```
<rowarea name="HDIST Example">
    <itr>
        <label name="Zip Code / Town" width="120">
        </label>
        <field valueprop="zipcode" width="80">
        </field>
        <hdist width="5">
        </hdist>
        <field valueprop="town" width="200">
        </field>
    </itr>
</rowarea>
```

The HDIST control is also very useful for percentage-based sizing of widths. If you want a control to occupy 50% of the available width, you have to “fill the gap” in the following way:



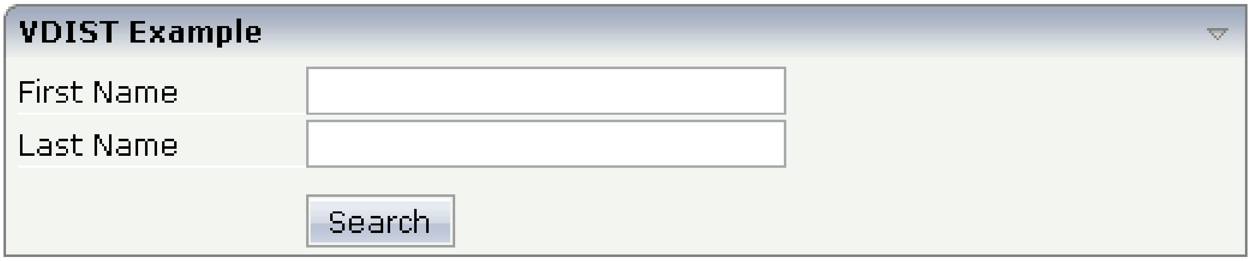
The corresponding XML layout definition is:

```
<rowarea name="HDIST Example">
    <itr height="100%">
        <label name="First Name" width="120">
        </label>
        <field valueprop="fname" width="50%">
        </field>
        <hdist width="50%">
        </hdist>
    </itr>
</rowarea>
```

Pay attention: when using percentage sizing, then you should take care of filling the "100%" by the controls inside the row. Otherwise, the browser will distribute the remaining space to its columns - i.e. the controls will not be positioned the way you expect.

### VDIST Control

The VDIST control is the counterpart of the HDIST control - in vertical direction. The following example shows a scenario in which the line containing the BUTTON control keeps a vertical distance of 10 pixels from the lines containing the FIELD controls:



The layout definition is:

```
<rowarea name="VDIST Example">
    <itr height="100%">
        <label name="First Name" width="120">
        </label>
        <field valueprop="fname" width="200">
        </field>
    </itr>
    <itr height="100%">
        <label name="Last Name" width="120">
        </label>
        <field valueprop="lname" width="200">
        </field>
    </itr>
    <vdist height="10">
    </vdist>
    <itr>
        <hdist width="120">
        </hdist>
        <button name="Search" method="onSearch">
        </button>
    </itr>
</rowarea>
```

Note that an HDIST control is used in the line containing the BUTTON control to align the button to the fields.

## HDIST Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| width | Width of the HDIST control, either in pixels or as percentage value.<br>If no width is defined then a default width of 2 pixels is assigned. | Optional | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Binding | | | |

| | | | |
|---|---|---|---|
| visibleprop | Name of the adapter parameter that provides the information if this control is displayed or not. As consequence you can control the visibility of the control dynamically. | Optional | |

## VDIST Properties

| Basic | | | |
|---|---|---|---|
| height | Height of the VDIST control, either in pixels or as percentage value. If no width is defined then a default width of 3 pixels is assigned. | Optional | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| backgroundstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

## rowspan and colspan Definitions

Each control has a `colspan` and `rowspan` property that is "1" by default. This definition is directly transferred to the column definition that is placed around the control.

Example:

```
<tr>
  <control colspan="2">
  </control>
</tr>
```

If you specify the above definition, the created HTML code looks like this:

```
<tr>
  <td colspan="2" rowspan="1">
    ... control-specific HTML code ...
  </td>
</tr>
```

The usage of `rowspan` and `colspan` only makes sense in scenarios in which you define multiple rows inside one container and if you use TR rows at the same time. You do not have to pay attention to them if working in ITR rows.

Again: first check if the TR way of arranging controls is really the best approach - compared to the ITR approach. Using TR means you have to “fight” with `colspan` and `rowspan` definitions in order to properly lay out your controls. With ITR, each row is independently defined from its neighbor rows.

## CELLSPAN Control

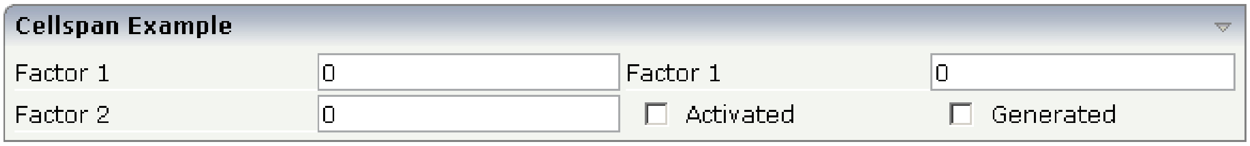
Inside one row, you can place controls or nested containers. Containers again allow you to specify new rows inside the container.

There is a special control, the CELLSPAN control. With the CELLSPAN control, you can quickly define one cell inside a row of a container to place other controls. The CELLSPAN control has a `width` property to specify the width of its inner content.

Have a look at the following example:

```
<rowarea name="Cellspan Example">
    <tr>
        <label name="Factor 1" width="25%">
        </label>
        <field valueprop="factor1" width="25%">
        </field>
        <hdist></hdist>
        <cellspan width="50%">
            <label name="Factor 1" width="50%">
            </label>
            <field valueprop="factor1" width="50%">
            </field>
        </cellspan>
    </tr>
    <tr>
        <label name="Factor 2" width="25%">
        </label>
        <field valueprop="factor2" width="25%">
        </field>
        <hdist></hdist>
        <cellspan width="50%">
            <checkbox valueprop="activated" width="10%">
            </checkbox>
            <label name="Activated" width="40%" asplaintext="true">
            </label>
            <checkbox valueprop="generated" width="10%">
            </checkbox>
            <label name="Generated" width="40%" asplaintext="true">
           </label>
        </cellspan>
    </tr>
</rowarea>
```

Each TR row contains one CELLSPAN definition with a width of 50%. The inner content of the CELLSPAN definitions is completely different between the rows:



You could add controls to the CELLSPAN definition in the first row without any implications inside the second row. The CELLSPAN control internally operates similar to the ITR control: it builds a table on its own and decouples its content from the surrounding table rendering.

## CELLSPAN Properties

| Basic | | | |
|---|---|---|---|
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| title | Text that is shown as tooltip for the control.<br>Either specify the text "hard" by using this TITLE property - or use the TITLETEXTID in order to define a language dependent literal. | Optional | |

| | | | |
|---|---|---|---|
| titletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text that is used for the control. | Optional | |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| colspanprop | Name of the adapter parameter which dynamically provides a colspan value at runtime. | Optional | |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| cellstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

| | | | |
|---|---|---|---|
| backgroundclass | CSS style class definition that is directly passed into this control.<br>The style class can be either one which is part of the "normal" CIS style sheet files (i.e. the ones that you maintain with the style sheet editor) - or it can be one of an other style sheet file that you may reference via the ADDSTYLESHEET property of the PAGE tag. | Optional | |

## Rules for Positioning Controls inside Containers

This is a collection of rules you should consider when positioning controls inside containers:

- Make up your mind where to use relative percentage values or absolute pixel definitions.
- Do not mix percentage and pixel values inside one container.
- Internally, Application Designer controls are mapped to the HTML tags `TABLE`, `TR` and `TD`. When developing, you should have in mind the normal HTML table management.
- Structure your container not as one big container holding one complex table, each row holding a lot of controls. Instead, use the possibility to define nested containers or CELLSPAN controls in order to structure your layout.

# 28 Vertical Sizing of Containers and Controls

- Vertical Pixel Sizing ........ 202
- Vertical Percentage Sizing ........ 203
- Finishing the Example ........ 206

Nearly all controls which can be sized offer vertical sizing by a corresponding `height` property. You can set the value of this property either as a pixel value or as a percentage value.

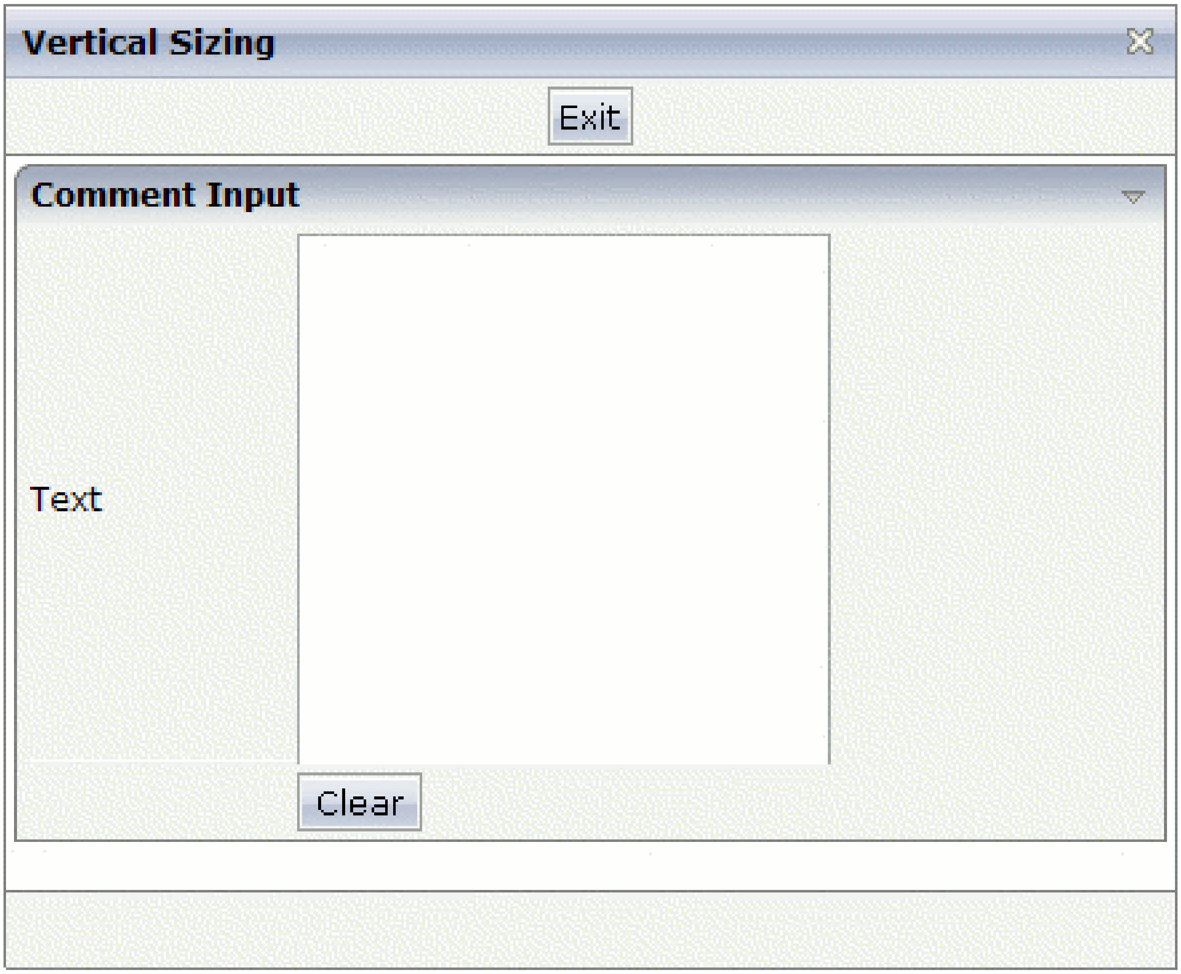
## Vertical Pixel Sizing

This is the default. Controls either occupy their standard height or the height is explicitly defined in pixels. The whole page is sized from the bottom to the top.

Look at the following example:

```
<pagebody>
    <rowarea name="Comment Input">
        <itr>
            <label name="Text" width="100">
            </label>
            <text valueprop="comment" width="200" height="200">
            </text>
        </itr>
        <vdist>
        </vdist>
        <itr>
            <hdist width="100">
            </hdist>
            <button name="Clear" method="onClear">
            </button>
        </itr>
    </rowarea>
</pagebody>
```

The corresponding screen looks as follows:



The vertical size of the ROWAREA is exactly as big as required by its content. The TEXT control is defined to be 200 pixels high.

## Vertical Percentage Sizing

Use the same example, but this time the size of the TEXT control should be as big as possible - depending on the size of the browser window. It should take the full available height.

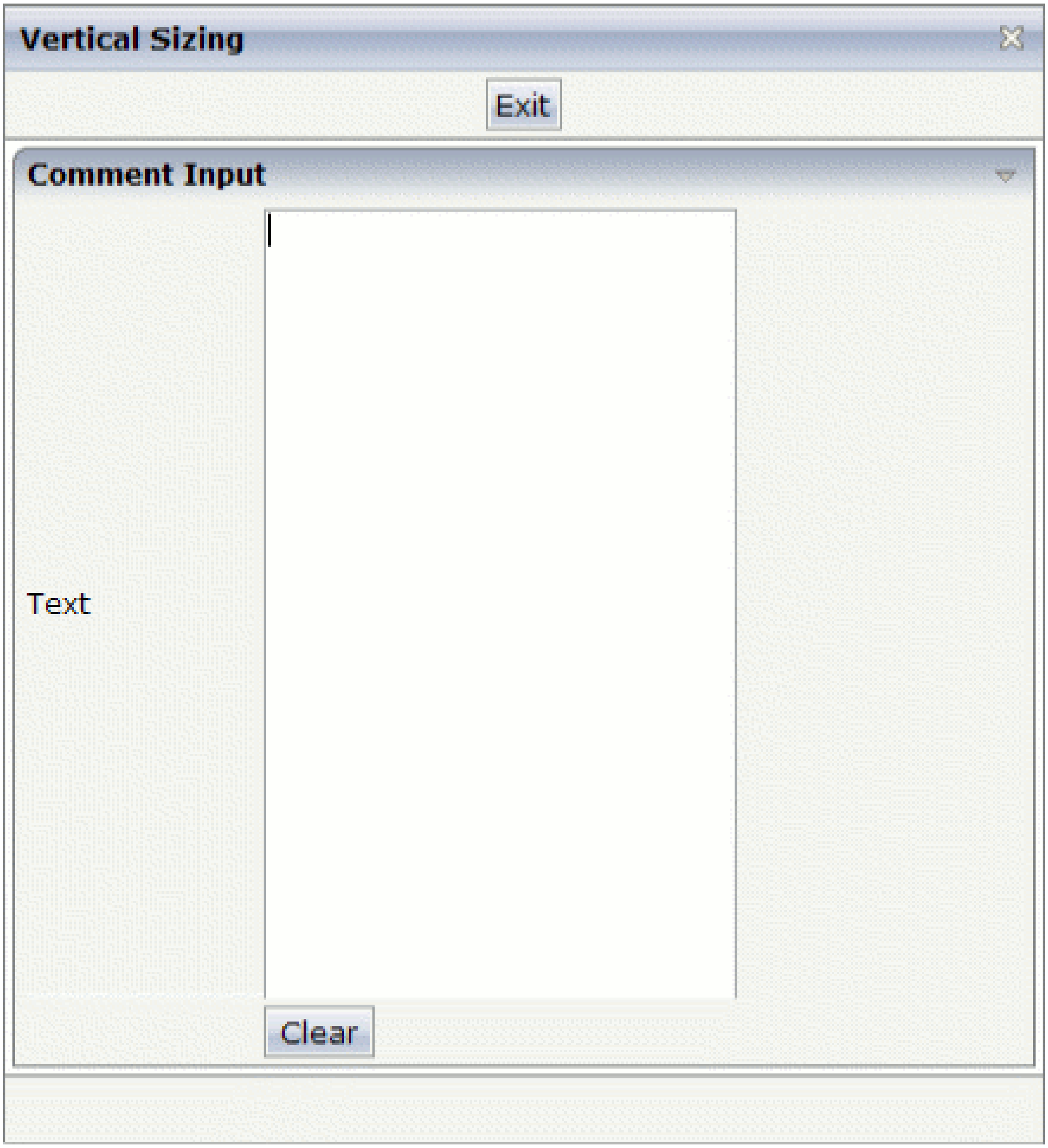
The XML layout definition looks as follows:

```
<pagebody takefullheight="true">
    <rowarea name="Comment Input" height="100%">
        <itr height="100%">
            <label name="Text" width="100">
            </label>
            <text valueprop="comment" width="200" height="100%">
            </text>
        </itr>
        <vdist>
        </vdist>
        <itr>
            <hdist width="100">
            </hdist>
            <button name="Clear" method="onClear">
            </button>
        </itr>
    </rowarea>
    <vdist>
    </vdist>
</pagebody>
```

The TEXT control now occupies a height of 100%. However, the definition of the whole size of the page is passed down from the PAGEBODY to the control:

- In the PAGEBODY, the property `takefullheight` is set to "true". This means that the content of the page body gets passed 100% of the available height.
- On the next level, the ITR row - in which the TEXT control is placed - is defined to have a height of "100%". This means it tries to grab as much height as possible. On the same level, there is also a VDIST (vertical distance) control and another ITR row - with no height defined. This means that these controls get as much height as they require due to their content - but the whole remaining vertical space is assigned to the first ITR row with the HEIGHT of "100%".

The result page looks as follows:



By changing the size of the browser window, the height of the whole control arrangement will follow accordingly.

You see that sizing by percentage values means that you have to think from top to bottom - just the opposite direction as you think with pixel values. This is nothing new for you if you are used to work with normal HTML tables - in fact, everything that is done below the diverse container controls is done by table rendering.

Conclusion: The example shows you that the `height` property of controls can be defined as a percentage value - but needs an outside reference to depend on. Some of the controls, such as the

PAGEBODY, do not offer explicitly a `height` property but only a property `takefullheight` that can be set to "true". This is equivalent to a definition of `HEIGHT="100%"`.

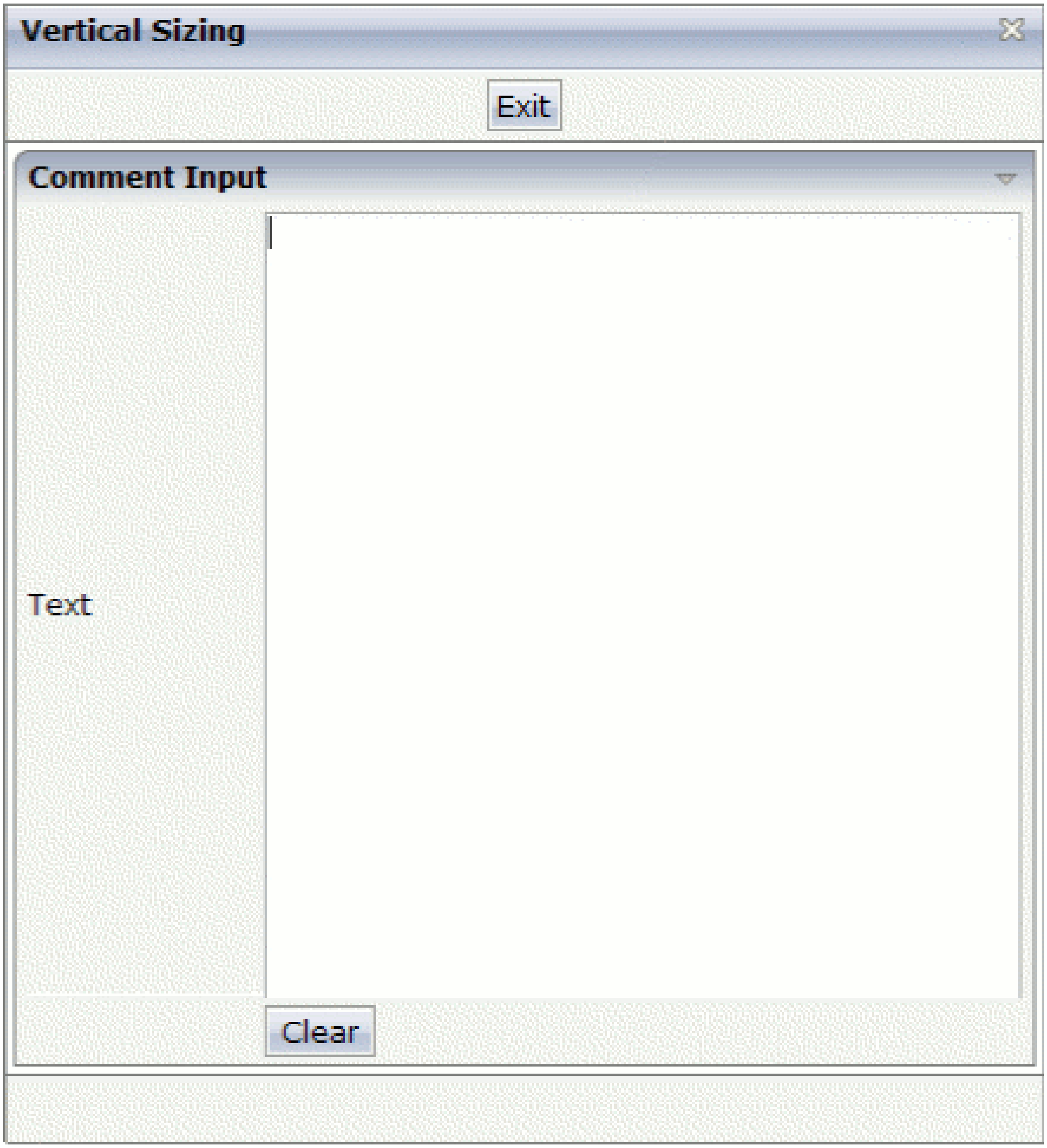
## Finishing the Example

This has nothing to do with vertical sizing, but with horizontal sizing. We cannot finish the example without having changed it also in a way that it occupies the full available horizontal width. The layout definition now looks as follows:

```
<pagebody takefullheight="true">
    <rowarea name="Comment Input" height="100%">
        <itr takefullwidth="true" height="100%">
            <label name="Text" width="100">
            </label>
            <text valueprop="comment" width="100%" height="100%">
            </text>
        </itr>
        <vdist>
        </vdist>
        <itr>
            <hdist width="100">
            </hdist>
            <button name="Clear" method="onClear">
            </button>
        </itr>
    </rowarea>
    <vdist>
    </vdist>
</pagebody>
```

The `width` property of the TEXT control is set to "100%". Similar to the vertical height management, the available width is passed from the ITR row definition above - which occupies 100% of the available width inside the ROWAREA. The ROWAREA always occupies the whole available width - it does not require an explicit width definition.

The result is now:


Vertical Sizing
Exit
Comment Input
Text
Clear

# 29 Overview of Different Containers

- Different Kind of Containers ........ 210
- Row Containers ........ 210
- Column Containers ........ 211
- Row and Column Containers in Combination ........ 212
- Nesting Containers ........ 213

## Different Kind of Containers

Currently, there are the following types of containers:

- **ROWAREA and COLAREA**
  These are containers holding a title. The graphic area represented by the container is surrounded by a border. The content of the area container can be reduced by clicking on the title - and resized by clicking again on the title.
- **ROWTABAREA and COLTABAREA**
  These are containers holding different pages (TABPAGE elements) which can be toggled.
- **ROWTABLE0 and COLTABLE0**
  These are containers you do not see; i.e. a container does not have any borders or any special coloring. Use it just for arranging elements inside the container.
- **ROWDYNAVIS and COLDYNAVIS**
  This is a container that is the same as the ROWTABLE0 or COLTABLE0 container but with an additional feature: You can control the visibility of the whole container dynamically by an adapter property. Use this container if you want to display or hide a certain area of your screen depending on some business logic.

  A typical example is an address management: the user enters an address located in the United States. Therefore, an additional area has to appear in which the user enters the state information. For other countries, this area is not required and should not be visible.

## Row Containers

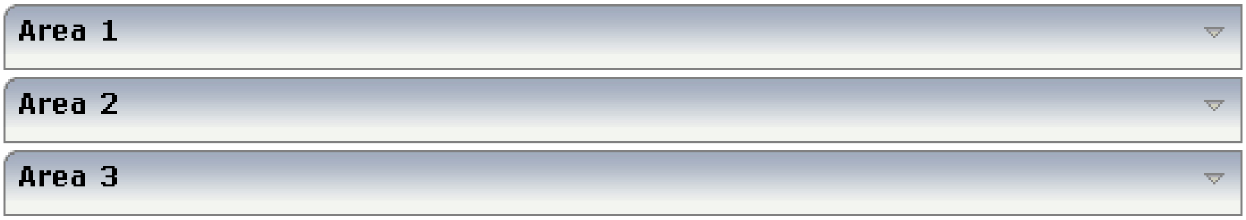
The containers have a row implementation and a column implementation.

Row containers occupy the whole available width they can obtain. They are placed directly in other containers. You can place several row containers inside one container. Therefore, they are arranged one below the other.

Example:

```
<pagebody>
    <rowarea name="Area 1">
    </rowarea>
    <rowarea name="Area 2">
    </rowarea>
    <rowarea name="Area 3">
    </rowarea>
</pagebody>
```

The above XML layout produces the following HTML page:



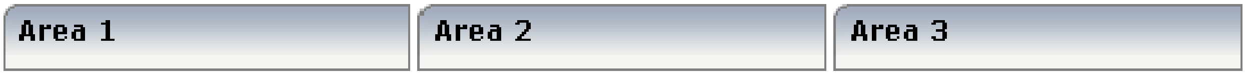
## Column Containers

Column containers are placed inside rows, i.e. into TR rows or ITR rows. You can place several column containers inside one row. Therefore, they are arranged in a way that one column container follows the other horizontally.

Example:

```
<pagebody>
    <itr width="100%">
        <colarea name="Area 1" width="33%">
        </colarea>
        <hdist>
        </hdist>
        <colarea name="Area 2" width="33%">
        </colarea>
        <hdist>
        </hdist>
        <colarea name="Area 3" width="33%">
        </colarea>
    </itr>
</pagebody>
```

The above XML layout produces the following HTML page:



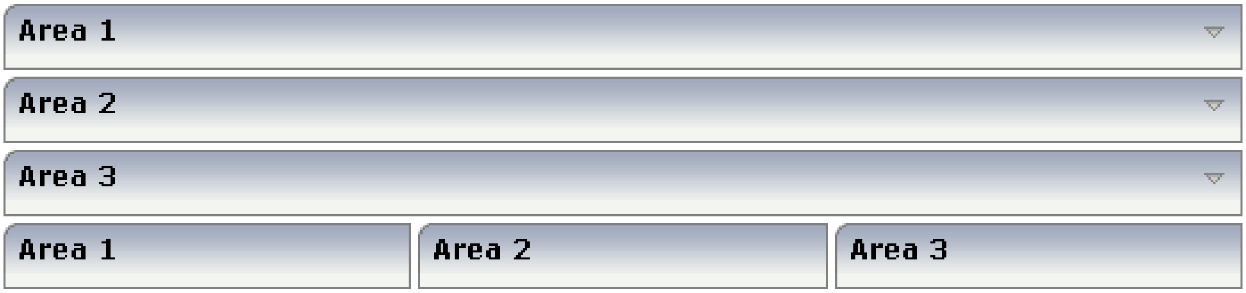
With column containers, you have to specify the width (either as a pixel value or as a percentage value) of the container. Note that - if using percentage widths - you have to place them into an ITR row that itself occupies the whole available width (`itr width="100%"`).

## Row and Column Containers in Combination

It is possible to use row and column containers in combination. The following example combines the two examples shown above.

```
<pagebody>
    <rowarea name="Area1">
    </rowarea>
    <rowarea name="Area 2">
    </rowarea>
    <rowarea name="Area 3">
    </rowarea>
    <itr width="100%">
        <colarea name="Area 1" width="33%">
        </colarea>
        <hdist>
        </hdist>
        <colarea name="Area 2" width="33%">
        </colarea>
        <hdist>
        </hdist>
        <colarea name="Area 3" width="33%">
        </colarea>
    </itr>
</pagebody>
```

The HTML page looks as follows:

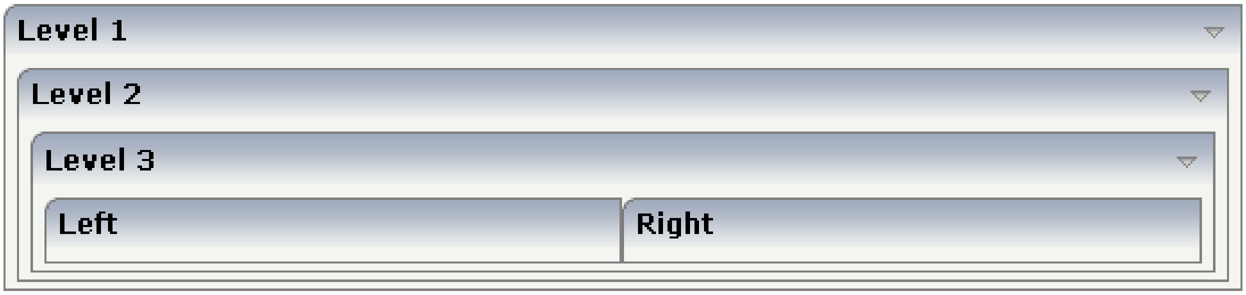


## Nesting Containers

It is possible to nest containers - one into another - in any way. Example:

```
<pagebody>
    <rowarea name="Level 1">
        <rowarea name="Level 2">
            <rowarea name="Level 3">
                <itr width="100%">
                    <colarea name="Left" width="50%">
                    </colarea>
                    <hdist>
                    </hdist>
                    <colarea name="Right" width="50%">
                    </colarea>
                </itr>
            </rowarea>
        </rowarea>
    </rowarea>
</pagebody>
```

The above XML code produces the following HTML page:



# 30 ROWAREA and COLAREA

- ROWAREA Properties ........ 216
- COLAREA Properties ........ 223

The ROWAREA or COLAREA container represents an area surrounded by a border and which may have a title text. By clicking on the title of such a control, the inner content is hidden (the ROWAREA or COLAREA is “folded”).

## ROWAREA Properties

| Basic | | | |
|---|---|---|---|
| name | Text that is displayed inside the control. Please do not specify the name when using the multi language management - but specify a "textid" instead. | Sometimes obligatory | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Sometimes obligatory | |
| nameprop | Name of adapter parameter which dynamically provides the text that is shown inside the control. | Optional | |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |

| | | | |
|---|---|---|---|
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Visibility | | | |
| foldable | The "folding"-function that is available by clicking on the title of the area can be switched off ("false"). "True" is the default. | Optional | true<br>false |
| foldableprop | Name of the adapter parameter that dynamically controls whether clicking on the title of the area will fold/unfoald this area.<br>Valid values provided by the adapter parameter are TRUE (=foldable) and FALSE(=not foldable). | Optional | |
| foldedprop | Name of adapter parameter which controls whether the content of the ROWAREA is folded (true) or displayed (false).<br>By using this property you can dynamically control the "folded"-status of the control at runtime. | Optional | |
| visibleprop | Name of the adapter parameter that provides the information if this control is displayed or not. As consequence you can control the visibility of the control dynamically. | Optional | |
| flush | Flushing behaviour of the input control.<br>By default an input into the control is registered within the browser client - and communicated to the server adapter object when a user e.g. presses a button. By using the FLUSH property you can change this behaviour.<br>Setting FLUSH to "server" means that directly after changing the input a synchronization with the server adapter is triggered. As consequence you directly can react inside your adapter logic onto the change of the corresponding value. - Please be aware of that during the synchronization always all changed properties - also the ones that were changed before - are transferred to the adapter object, not only the one that triggered the synchonization.<br>Setting FLUSH to "screen" means that the changed value is populated inside the page. You use this option if you have redundant usage of the same property inside one page and if you | Optional | screen<br>server |

| | | | |
|---|---|---|---|
| | want to pass one changed value to all its representaion directly after changing the value. | | |
| flushmethod | When the data synchronization of the control is set to FLUSH="server" then you can specify an explicit event to be sent when the user updates the content of the control. By doing so you can distinguish on the server side from which control the flush of data was triggered. | Optional | |
| Appearance | | | |
| image | URL of image that is displayed inside the control. Any image type (.gif, .jpg, ...) that your browser does understand is valid.<br>Use the following options to specify the URL:<br>(A) Define the URL relative to your page. Your page is generated directly into your project's folder. Specifiying "images/xyz.gif" will point into a directory parallel to your page. Specifying "../HTMLBasedGUI/images/new.gif" will point to an image of a neighbour project.<br>(B) Define a complete URL, like "http://www.softwareag.com/images/logo.gif". | Optional | |
| imageprop | Name of adapter parameter which dynamically provides the URL of the image that is shown inside the control.<br>The URL must either be an absolute URL or a relative URL. | Optional | |
| withtoppadding | The control by default renders some blank vertical space (2 pixels) on top of its area. Reason: if you vertically arrange one ROW/COLAREA after the other then automatically some distance is put between.<br>By specifying "false" you can avoid this behaviour. " | Optional | true<br>false |
| withleftborder | The control normally renders a black border around its area. With the properties WITHLEFTBORDER, WITHRIGHTBORDER and WITHBOTTOMBORDER you can avoid this.<br>Reason behing: somtimes you want a ROWAREA/COLAREA to be used as "neighbour" of other ROWAERA/COLAREA controls. In this case one of the "neighbours" has | Optional | true<br>false |

| | | | |
|---|---|---|---|
| | to avoid the rendering of border lines - otherwise two border lines will be rendered. | | |
| withtopborder | See description of WITHLEFTBORDER property. | Optional | true<br>false |
| withrightborder | See description of WITHLEFTBORDER property. | Optional | true<br>false |
| withbottomborder | See description of WITHLEFTBORDER property. | Optional | true<br>false |
| paddingleft | Number of pixels between the left border and the area's content. Default is 5 pixels. | Optional | 1<br>2<br>3<br>int-value |
| paddingright | Number of pixels between the right border and the area's content. Default is 5 pixels. | Optional | 1<br>2<br>3<br>int-value |
| areastyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| contenttablestyle | CSS style definition that is applied to the content part of the ROWAREA control. | Optional | background-color: #FF0000 |

| | | | |
|---|---|---|---|
| | | | color: #0000FF<br>font-weight: bold |
| notabstop | The title of the area by default can be used by the user to hide/show the area's content. In order to also reach this title with the tab-key is is part of the normal tab-sequence of a page.<br>Set this property to "true" if you do not want to make the title reachable by tab-key. As consequnece hiding/showing will only be available by mouse-clicking on the title. | Optional | true<br>false |
| fixlayout | The fixlayout property is important for saving rendering performance inside your browser. To become effective it requires to have specified the height and the width (if available as property) of the control.<br>If setting fixlayout to "true" then the control's area is defined as area which is not sized dependent on its content (as normally done with table rendering). Instead the size is predefined from outside without letting the browser "look" into the content of the area. If the content is not fitting into the area then it is cut.<br>You typically use this control if the content of the control's area is flexibly sizable. E.g. if the content (e.g. a TEXTGRID control) is following the size of the container.<br>When using vertical percentage based sizing you should pay attention to set the fixlayout-property to "true" as often as possible. - The browser as consequence will be much faster in doing its rendering because a screen consists out of "building blocks" with simple to calculate sizes. | Optional | true<br>false |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1<br>2<br>5<br>10 |

| | | | |
|---|---|---|---|
| | | | 32767 |
| withcontenttoppadding | The control by default renders some blank vertical space (3 pixels) on bottom of the content area.<br>By specifying "false" you can avoid this behaviour. | Optional | true<br>false |
| withcontentbottompadding | The control by default renders some blank vertical space (3 pixels) on bottom of the content area.<br>By specifying "false" you can avoid this behaviour. | Optional | true<br>false |
| withfadedtoggling | The animation of the controls can be switched off! Please take a look in your cisconfig.xml file. Set animatecontrols="true" (default) if you generally want to animate all of your controls.<br>The rowarea control has a seperate switch (withfadedtoggling = true/false) to (de)activate the 'FadedToggling' animation especially for this single rowarea control.<br>Notice: Entering true or false into the withfadedtoggling attribute overwrites the general animatecontrols setting ! | Optional | true<br>false |
| stylevariant | Some controls offer the possibility to define style variants. By this style variant you can address different styles inside your style sheet definition file (.css). If not defined "normal" styles are chosen, if defined (e.g. "VAR1") then other style definitions (xxxVAR1xxx) are chosen.<br>Purpose: you can set up style variants in the style sheet defintion and use them multiple times by addressing them via the "stylevariant" property. CIS currently offerst two variants "VAR1" and "VAR2" but does not predefine any semantics behind - this is up to you! | Optional | |
| titlerowontop | Default value is 'true'. If set to 'false' the titlerow is rendered at the bottom of this area. | Optional | true<br>false |
| toggleimgtitle | A text that is displayed as tooltip of the toggle image. | Optional | |
| toggleimgtitletextid | Multi language dependent text that is displayed as tooltip of the toggle image. | Optional | |

| | | | |
|---|---|---|---|
| | Do not specify a "toogleimagetitle" inside the control if specifying a "toggleimagetextid". | | |
| Online Help | | | |
| title | Text that is shown as tooltip for the control.<br>Either specify the text "hard" by using this TITLE property - or use the TITLETEXTID in order to define a language dependent literal. | Optional | |
| titletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text that is used for the control. | Optional | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natsysvar | If the control shall be bound to a Natural system variable, this attribute specifies the name of the system variable. | Optional | |
| njx:natsysio | If the control shall be bound to a Natural system variable with the attribute njx:natsysvar, this attribute indicates if the system variable is modifiable. The default is false. | Optional | |
| njx:natstringtype | If the control shall be bound to a Natural system variable of string format with the attribute njx:natsysvar, this attribute indicates the format of the string, A (code page) or U (Unicode). The default is A. | Optional | |
| njx:natcv | Name of a Natural control variable that shall be assigned to the control. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The | Optional | |

| | | | |
|---|---|---|---|
| | Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | | |

## COLAREA Properties

The properties of COLAREA are very similar to those of ROWAREA.

| Basic | | | |
|---|---|---|---|
| name | Text that is displayed inside the control. Please do not specify the name when using the multi language management - but specify a "textid" instead. | Sometimes obligatory | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Sometimes obligatory | |
| nameprop | Name of adapter parameter which dynamically provides the text that is shown inside the control. | Optional | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Sometimes obligatory | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |

| | | | |
|---|---|---|---|
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| takefullheight | Indicates if the content of the control's area gets the full available height.<br>If you use percentage sizing inside the control's area then this property must be switched to 'true'. If you use no explicit vertical sizing at all - or you use vertical pixel sizing for your controls - the property must be switched to 'false'.<br>Background information: container control's internally open up a table in which you place rows (ITR/TR) which then hold controls (e.g. LABEL/FIELD). The table that is opened up normally has no explicit height and grows with its content as consequence. By specifying "takefullheight=true" the table itself is sized to fill the maximum height of the available area. | Optional | true<br>false |
| image | URL of image that is displayed inside the control. Any image type (.gif, .jpg, ...) that your browser does understand is valid.<br>Use the following options to specify the URL:<br>(A) Define the URL relative to your page. Your page is generated directly into your project's folder. Specifiying "images/xyz.gif" will point into a directory parallel to your page. Specifying "../HTMLBasedGUI/images/new.gif" will point to an image of a neighbour project.<br>(B) Define a complete URL, like "http://www.softwareag.com/images/logo.gif". | Optional | |
| imageprop | Name of adapter parameter which dynamically provides the URL of the image that is shown inside the control.<br>The URL must either be an absolute URL or a relative URL. | Optional | |
| fixlayout | The fixlayout property is important for saving rendering performance inside your browser. To become effective it requires to have specified the height and the width (if available as property) of the control. | Optional | true<br>false |

| | | | |
|---|---|---|---|
| | If setting fixlayout to "true" then the control's area is defined as area which is not sized dependent on its content (as normally done with table rendering). Instead the size is predefined from outside without letting the browser "look" into the content of the area. If the content is not fitting into the area then it is cut.<br>You typically use this control if the content of the control's area is flexibly sizable. E.g. if the content (e.g. a TEXTGRID control) is following the size of the container.<br>When using vertical percentage based sizing you should pay attention to set the fixlayout-property to "true" as often as possible. - The browser as consequence will be much faster in doing its rendering because a screen consists out of "building blocks" with simple to calculate sizes. | | |
| withleftborder | The control normally renders a black border around its area. With the properties WITHLEFTBORDER, WITHRIGHTBORDER and WITHBOTTOMBORDER you can avoid this.<br>Reason behing: somtimes you want a ROWAREA/COLAREA to be used as "neighbour" of other ROWAERA/COLAREA controls. In this case one of the "neighbours" has to avoid the rendering of border lines - otherwise two border lines will be rendered. | Optional | true<br>false |
| withtopborder | See description of WITHLEFTBORDER property. | Optional | true<br>false |
| withrightborder | See description of WITHLEFTBORDER property. | Optional | true<br>false |
| withbottomborder | See description of WITHLEFTBORDER property. | Optional | true<br>false |
| paddingleft | Number of pixels between the left border and the area's content. Default is 5 pixels. | Optional | 1<br>2<br>3 |

| | | | |
|---|---|---|---|
| | | | int-value |
| paddingright | Number of pixels between the right border and the area's content. Default is 5 pixels. | Optional | 1<br>2<br>3<br>int-value |
| areastyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| contenttablestyle | CSS style that is applied to the content are of the COLAREA control. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| withcontenttoppadding | The control by default renders some blank vertical space (3 pixels) on bottom of the content area.<br>By specifying "false" you can avoid this behaviour. | Optional | true<br>false |
| withcontentbottompadding | The control by default renders some blank vertical space (3 pixels) on bottom of the content area.<br>By specifying "false" you can avoid this behaviour. | Optional | true<br>false |
| titlerowontop | Default value is 'true'. If set to 'false' the titlerow is rendered at the bottom of this area. | Optional | true<br>false |

| | | | |
|---|---|---|---|
| stylevariant | Some controls offer the possibility to define style variants. By this style variant you can address different styles inside your style sheet definition file (.css). If not defined "normal" styles are chosen, if defined (e.g. "VAR1") then other style definitions (xxxVAR1xxx) are chosen.<br>Purpose: you can set up style variants in the style sheet defintion and use them multiple times by addressing them via the "stylevariant" property. CIS currently offerst two variants "VAR1" and "VAR2" but does not predefine any semantics behind - this is up to you! | Optional | |
| withtoppadding | The control by default renders some blank vertical space (2 pixels) on top of its area. Reason: if you vertically arrange one ROW/COLAREA after the other then automatically some distance is put between.<br>By specifying "false" you can avoid this behaviour. " | Optional | true<br>false |
| Online Help | | | |
| title | Text that is shown as tooltip for the control.<br>Either specify the text "hard" by using this TITLE property - or use the TITLETEXTID in order to define a language dependent literal. | Optional | |
| titletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text that is used for the control. | Optional | |

# 31 ROWAREAWITHHEADER

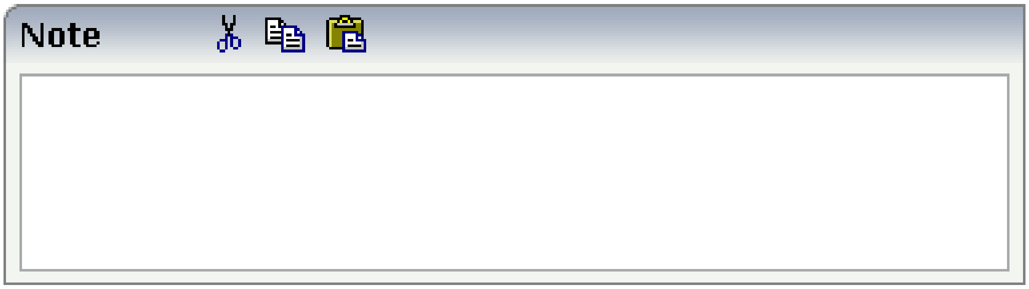
- Simple Example ........ 230
- ROWAREAWITHHEADER Properties ........ 231
- ROWAREAHEADER Properties ........ 234
- ROWAREABODY Properties ........ 235

This container represents an area surrounded by a border which may have a title text. By clicking on the title, the inner content is hidden (the container is “folded”). You can place icons (**ICON**, **ICONLIST**) into the header line (ROWAREAHEADER). Other content is placed into the ROWAREABODY container.

## Simple Example

```
<rowareawithheader>
    <rowareaheader name="Note">
        <hdist width="20">
        </hdist>
        <icon image="../HTMLBasedGUI/images/cut.gif" method="onCut">
        </icon>
        <hdist width="6">
        </hdist>
        <icon image="../HTMLBasedGUI/images/copy.gif" method="onCopy">
        </icon>
        <hdist width="6">
        </hdist>
        <icon image="../HTMLBasedGUI/images/paste.gif" method="onPaste">
        </icon>
    </rowareaheader>
    <rowareabody>
        <itr takefullwidth="true">
            <text valueprop="text" width="100%" rows="5">
            </text>
        </itr>
    </rowareabody>
</rowareawithheader>
```

The above XML layout produces a page which looks as follows:



There are three icons within the header line (ROWAREAHEADER). The text box is placed into the body container (ROWAREABODY).

## ROWAREAWITHHEADER Properties

| Basic | | | |
|---|---|---|---|
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Visibility | | | |
| foldable | The "folding"-function that is available by clicking on the title of the area can be switched off ("false"). "True" is the default. | Optional | true<br>false |
| foldableprop | Name of the adapter parameter that dynamically controls whether clicking on the title of the area will fold/unfoald this area.<br>Valid values provided by the adapter parameter are TRUE (=foldable) and FALSE(=not foldable). | Optional | |
| foldedprop | Name of adapter parameter which controls whether the content of the ROWAREA is folded (true) or displayed (false).<br>By using this property you can dynamically control the "folded"-status of the control at runtime. | Optional | |
| visibleprop | Name of the adapter parameter that provides the information if this control is displayed or not. As consequence you can control the visibility of the control dynamically. | Optional | |
| flush | Flushing behaviour of the input control.<br>By default an input into the control is registered within the browser client - and communicated to the server adapter object when a user | Optional | screen<br>server |

| | | | |
|---|---|---|---|
| | e.g. presses a button. By using the FLUSH property you can change this behaviour.<br>Setting FLUSH to "server" means that directly after changing the input a synchronization with the server adapter is triggered. As consequence you directly can react inside your adapter logic onto the change of the corresponding value. - Please be aware of that during the synchronization always all changed properties - also the ones that were changed before - are transferred to the adapter object, not only the one that triggered the synchonization.<br>Setting FLUSH to "screen" means that the changed value is populated inside the page. You use this option if you have redundant usage of the same property inside one page and if you want to pass one changed value to all its representaion directly after changing the value. | | |
| flushmethod | When the data synchronization of the control is set to FLUSH="server" then you can specify an explicit event to be sent when the user updates the content of the control. By doing so you can distinguish on the server side from which control the flush of data was triggered. | Optional | |
| Appearance | | | |
| height | (already explained above) | | |
| withleftborder | The control normally renders a black border around its area. With the properties WITHLEFTBORDER, WITHRIGHTBORDER and WITHBOTTOMBORDER you can avoid this.<br>Reason behing: somtimes you want a ROWAREA/COLAREA to be used as "neighbour" of other ROWAERA/COLAREA controls. In this case one of the "neighbours" has to avoid the rendering of border lines - otherwise two border lines will be rendered. | Optional | true<br>false |
| withtopborder | See description of WITHLEFTBORDER property. | Optional | true<br>false |
| withrightborder | See description of WITHLEFTBORDER property. | Optional | true<br>false |
| withbottomborder | See description of WITHLEFTBORDER property. | Optional | true<br>false |
| withtoppadding | The control by default renders some blank vertical space (2 pixels) on top of its area. Reason: if you vertically arrange one ROW/COLAREA after the other then automatically some distance is put between.<br>By specifying "false" you can avoid this behaviour. " | Optional | true<br>false |
| image | URL of image that is displayed inside the control. Any image type (.gif, .jpg, ...) that your browser does understand is valid. | Optional | |

| | | | |
|---|---|---|---|
| | Use the following options to specify the URL:<br>(A) Define the URL relative to your page. Your page is generated directly into your project's folder. Specifiying "images/xyz.gif" will point into a directory parallel to your page. Specifying "../HTMLBasedGUI/images/new.gif" will point to an image of a neighbour project.<br>(B) Define a complete URL, like "http://www.softwareag.com/images/logo.gif". | | |
| imageprop | Name of adapter parameter which dynamically provides the URL of the image that is shown inside the control.<br>The URL must either be an absolute URL or a relative URL. | Optional | |
| nameprop | Name of adapter parameter which dynamically provides the text that is shown inside the control. | Optional | |
| fixlayout | The fixlayout property is important for saving rendering performance inside your browser. To become effective it requires to have specified the height and the width (if available as property) of the control.<br>If setting fixlayout to "true" then the control's area is defined as area which is not sized dependent on its content (as normally done with table rendering). Instead the size is predefined from outside without letting the browser "look" into the content of the area. If the content is not fitting into the area then it is cut.<br>You typically use this control if the content of the control's area is flexibly sizable. E.g. if the content (e.g. a TEXTGRID control) is following the size of the container.<br>When using vertical percentage based sizing you should pay attention to set the fixlayout-property to "true" as often as possible. - The browser as consequence will be much faster in doing its rendering because a screen consists out of "building blocks" with simple to calculate sizes. | Optional | true<br>false |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |

| | | | |
|---|---|---|---|
| njx:natsysvar | If the control shall be bound to a Natural system variable, this attribute specifies the name of the system variable. | Optional | |
| njx:natsysio | If the control shall be bound to a Natural system variable with the attribute njx:natsysvar, this attribute indicates if the system variable is modifiable. The default is false. | Optional | |
| njx:natstringtype | If the control shall be bound to a Natural system variable of string format with the attribute njx:natsysvar, this attribute indicates the format of the string, A (code page) or U (Unicode). The default is A. | Optional | |
| njx:natcv | Name of a Natural control variable that shall be assigned to the control. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |

## ROWAREAHEADER Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| name | Text that is displayed inside the control. Please do not specify the name when using the multi language management - but specify a "textid" instead. | Optional | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Optional | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Online Help | | | |
| title | Text that is shown as tooltip for the control.<br>Either specify the text "hard" by using this TITLE property - or use the TITLETEXTID in order to define a language dependent literal. | Optional | |
| titletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text that is used for the control. | Optional | |
| Appearance | | | |
| align | Horizontal alignment of the controls inside the header line. | Optional | left<br>center<br>right |
| notabstop | The title of the area by default can be used by the user to hide/show the area's content. In order to also reach this title with the tab-key is is part of the normal tab-sequence of a page. | Optional | true<br>false |

| | | | |
|---|---|---|---|
| | Set this property to "true" if you do not want to make the title reachable by tab-key. As consequnece hiding/showing will only be available by mouse-clicking on the title. | | |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1<br>2<br>5<br>10<br>32767 |

## ROWAREABODY Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| paddingleft | Number of pixels between the left border and the area's content. Default is 5 pixels. | Optional | 1<br>2<br>3<br>int-value |
| paddingright | Number of pixels between the right border and the area's content. Default is 5 pixels. | Optional | 1<br>2<br>3<br>int-value |
| bodystyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080 | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |

| | | | |
|---|---|---|---|
| | You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | | |
| withcontenttoppadding | The control by default renders some blank vertical space (3 pixels) on bottom of the content area.<br>By specifying "false" you can avoid this behaviour. | Optional | true<br>false |
| withcontentbottompadding | The control by default renders some blank vertical space (3 pixels) on bottom of the content area.<br>By specifying "false" you can avoid this behaviour. | Optional | true<br>false |

# 32 ROWTABAREA and COLTABAREA

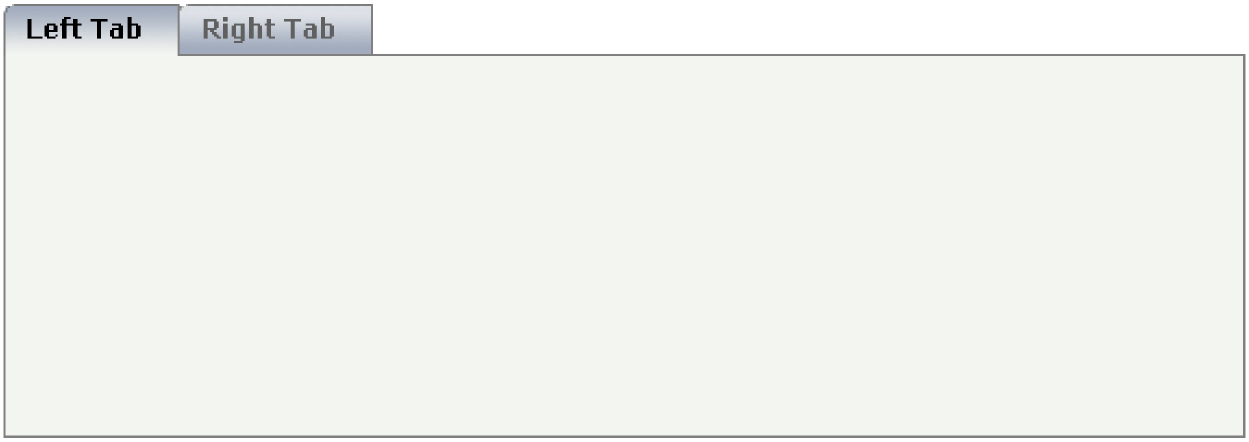
- ROWTABAREA Properties ........ 239
- COLTABAREA Properties ........ 253
- TABPAGE Properties ........ 262
- The Most Common Error ........ 263
- Example: Controlling which Tab is displayed by the Server Adapter ........ 263
- Example: Controlling the Visibility of Tab Pages ........ 265

The ROWTABAREA or COLTABAREA container is the representation of a tab control. A tab area consists of the ROWTABAREA or COLTABAREA definition. Inside this definition, you define TABPAGE containers representing the individual pages between which you can navigate.

Example:

```
<pagebody>
    <rowtabarea height="200" name1="Left Tab" page1="LEFT" name2="Right Tab" ↩
page2="RIGHT">
        <tabpage id="LEFT" takefullheight="true">
        </tabpage>
        <tabpage id="RIGHT" takefullheight="true">
        </tabpage>
    </rowtabarea>
</pagebody>
```

The above XML layout produces the following page:



Inside the ROWTABAREA definition, specify the name and the ID of each area you want to display. Pay attention to the naming of the `page*` properties: the name must not contain any blank spaces or non-alphanumeric characeters. Start the `page*` values with a character, not with a number.

Specify the individual toggle areas - by the TABPAGE definition. Each TABPAGE holds an ID which must be equal to the definition on ROWTABAREA level. Each TABPAGE has a `display` property which is set to "none" for all TABPAGE definitions except the first one.

Each TABPAGE is a container itself - i.e. inside the TABPAGE, place controls (or containers) by adding ITR or TR rows and place elements into these rows.

## ROWTABAREA Properties

| Basic | | | |
|---|---|---|---|
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Obligatory | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| leftindent | Inserts a horizontal distance left of the first "tab" and shifts the "tabs" to the right as consequence. The value you may define represents the number of pixels that are inserted. | Optional | 1<br>2<br>3<br>int-value |
| scrollable | If set to "true" then small icons will appear on the right border of the control. If the size of the "tabs" is too big and some tabs are cut as consequence then you can use these icons for scrolling left and right. | Optional | true<br>false |
| name1 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Sometimes obligatory | |
| textid1 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Sometimes obligatory | |
| page1 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Obligatory | |

| | | | |
|---|---|---|---|
| withclose1 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | true<br>false |
| name2 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid2 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page2 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| withclose2 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | true<br>false |
| name3 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid3 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page3 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| withclose3 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | true<br>false |

| | | | |
|---|---|---|---|
| name4 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid4 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page4 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| withclose4 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | true<br>false |
| name5 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid5 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page5 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| withclose5 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | true<br>false |
| name6 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid6 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page6 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and | Optional | |

| | | | |
|---|---|---|---|
| | that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | | |
| withclose6 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | true<br>false |
| name7 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid7 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page7 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| withclose7 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | true<br>false |
| name8 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid8 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page8 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |

| | | | |
|---|---|---|---|
| withclose8 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | true<br>false |
| name9 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid9 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page9 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| withclose9 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | true<br>false |
| name10 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid10 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page10 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| withclose10 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | true<br>false |

| | | | |
|---|---|---|---|
| name11 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid11 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page11 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| withclose11 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | true<br>false |
| name12 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid12 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page12 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| withclose12 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | true<br>false |
| name13 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid13 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page13 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and | Optional | |

| | | | |
|---|---|---|---|
| | that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | | |
| withclose13 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | true<br>false |
| name14 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid14 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page14 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| withclose14 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | true<br>false |
| name15 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid15 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page15 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |

| | | | |
|---|---|---|---|
| withclose15 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | true<br>false |
| name16 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid16 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page16 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| withclose16 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | true<br>false |
| Binding | | | |
| openedindexprop | Name of adapter parameter which represents the index of the "tab" that is currently opened.<br>There are two ways of using the property: either you can define which "tab" should be opened or you can react to "tab" selections by the user. (Also have a look onto the property OPENMETHOD!).<br>The property must be of type "int" or "Integer" (or "String"). The left most "tab" represents index "0", the next one "1", etc. | Optional | |
| openmethod | Name of the event that is sent to the adapter when the user does a "tab" selection. The index of the "tab" that is opened can be transferred to the adapter by using the property OPENEDINDEXPROP. | Optional | |
| visibleprop1 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. | Optional | |

| | | | |
|---|---|---|---|
| | You don't have to set a value at runtime, but you need to specify a valid name. | | |
| visibleprop2 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop3 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop4 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop5 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop6 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop7 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop8 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop9 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to | Optional | |

| | | | |
|---|---|---|---|
| | automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | | |
| visibleprop10 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop11 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop12 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop13 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop14 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop15 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop16 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |

| Appearance | | | |
|---|---|---|---|
| withleftborder | If specified as "false" then no left border will be drawn. | Optional | true<br>false |
| withrightborder | If specified as "false" then no right border will be drawn. | Optional | true<br>false |
| withbottomborder | If specified as "false" then no bottom border will be drawn. | Optional | true<br>false |
| stylevariant | Some controls offer the possibility to define style variants. By this style variant you can address different styles inside your style sheet definition file (.css). If not defined "normal" styles are chosen, if defined (e.g. "VAR1") then other style definitions (xxxVAR1xxx) are chosen.<br>Purpose: you can set up style variants in the style sheet defintion and use them multiple times by addressing them via the "stylevariant" property. CIS currently offerst two variants "VAR1" and "VAR2" but does not predefine any semantics behind - this is up to you! | Optional | VAR1 |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1<br>2<br>5<br>10<br>32767 |
| withtoppadding | The control by default renders some blank vertical space (2 pixels) on top of its area. Reason: if you vertically arrange one ROW/COLAREA after the other then automatically some distance is put between.<br>By specifying "false" you can avoid this behaviour. " | Optional | true<br>false |
| tabpagepaddingleft | Number of pixels between the left border and the area's content. Default is 5 pixels. | Sometimes obligatory | 1<br>2<br>3<br>int-value |

| | | | |
|---|---|---|---|
| tabpagepaddingright | Number of pixels between the right border and the area's content. Default is 5 pixels. | Optional | 1<br>2<br>3<br>int-value |
| tabpagepaddingtop | Number of pixels between the top border and the area's content. Default is 5 pixels. | Optional | 1<br>2<br>3<br>int-value |
| tabpagepaddingbottom | Number of pixels between the bottom border and the area's content. Default is 5 pixels. | Optional | 1<br>2<br>3<br>int-value |
| withflash | Adds animation effects when the user uses the control. | Optional | |
| Online Help | | | |
| title1 | Tooltip text that appears on the corresponding tab. | Optional | |
| title2 | Tooltip text that appears on the corresponding tab. | Optional | |
| title3 | Tooltip text that appears on the corresponding tab. | Optional | |
| title4 | Tooltip text that appears on the corresponding tab. | Optional | |
| title5 | Tooltip text that appears on the corresponding tab. | Optional | |
| title6 | Tooltip text that appears on the corresponding tab. | Optional | |
| title7 | Tooltip text that appears on the corresponding tab. | Optional | |
| title8 | Tooltip text that appears on the corresponding tab. | Optional | |
| title9 | Tooltip text that appears on the corresponding tab. | Optional | |
| title10 | Tooltip text that appears on the corresponding tab. | Optional | |
| title11 | Tooltip text that appears on the corresponding tab. | Optional | |
| title12 | Tooltip text that appears on the corresponding tab. | Optional | |
| title13 | Tooltip text that appears on the corresponding tab. | Optional | |
| title14 | Tooltip text that appears on the corresponding tab. | Optional | |
| title15 | Tooltip text that appears on the corresponding tab. | Optional | |
| title16 | Tooltip text that appears on the corresponding tab. | Optional | |
| titletextid1 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |

| | | | |
|---|---|---|---|
| titletextid2 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid3 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid4 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid5 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid6 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid7 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid8 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid9 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid10 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid11 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid12 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid13 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid14 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid15 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |

| | | | |
|---|---|---|---|
| titletextid16 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| Comment | | | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Miscellaneous | | | |
| testtoolid1 | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |
| testtoolid2 | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |
| testtoolid3 | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |
| testtoolid4 | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |
| testtoolid5 | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |
| testtoolid6 | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |
| testtoolid7 | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |
| testtoolid8 | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |
| testtoolid9 | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |
| testtoolid10 | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |
| testtoolid11 | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |
| testtoolid12 | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |

| | | | |
|---|---|---|---|
| testtoolid13 | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |
| testtoolid14 | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |
| testtoolid15 | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |
| testtoolid16 | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |

## COLTABAREA Properties

The properties of COLTABAREA are very similar to those of ROWTABAREA.

| | | | |
|---|---|---|---|
| Basic | | | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Obligatory | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| leftindent | Inserts a horizontal distance left of the first "tab" and shifts the "tabs" to the right as consequence. The value you may define represents the number of pixels that are inserted. | Optional | 1<br>2<br>3<br>int-value |
| scrollable | If set to "true" then small icons will appear on the right border of the control. If the size of the "tabs" is too big and some tabs | Optional | true |

| | | | |
|---|---|---|---|
| | are cut as consequence then you can use these icons for scrolling left and right. | | false |
| name1 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Sometimes obligatory | |
| textid1 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Sometimes obligatory | |
| page1 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Obligatory | |
| name2 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid2 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page2 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| name3 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid3 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page3 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| name4 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid4 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page4 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters. | Optional | |

| | | | |
|---|---|---|---|
| | For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | | |
| name5 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid5 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page5 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| name6 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid6 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page6 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| name7 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid7 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page7 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| name8 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid8 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page8 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" | Optional | |

| | | | |
|---|---|---|---|
| | id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | | |
| name9 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid9 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page9 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| name10 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid10 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page10 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| name11 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid11 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page11 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| name12 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid12 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |

| | | | |
|---|---|---|---|
| page12 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| name13 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid13 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page13 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| name14 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid14 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page14 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| name15 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |
| textid15 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page15 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| name16 | Text that is shown in the corresponding "tab". Either define the text as NAME or as language dependent TEXTID. | Optional | |

| | | | |
|---|---|---|---|
| textid16 | Text ID that is transferred in a corresponding literal at runtime by the multi language management. | Optional | |
| page16 | Id of the TABPAGE that is defined as child of the TABAREA. Use an id that is unique within the page and that is a "healthy" id: starting with characters, without blanks and without "strange" characters.<br>For each "tab" of the TABAREA you have to create one corresponding TABPAGE below - holding exactly the id that is defined in the PAGE property. | Optional | |
| Binding | | | |
| openedindexprop | Name of adapter parameter which represents the index of the "tab" that is currently opened.<br>There are two ways of using the property: either you can define which "tab" should be opened or you can react to "tab" selections by the user. (Also have a look onto the property OPENMETHOD!).<br>The property must be of type "int" or "Integer" (or "String"). The left most "tab" represents index "0", the next one "1", etc. | Optional | |
| openmethod | Name of the event that is sent to the adapter when the user does a "tab" selection. The index of the "tab" that is opened can be transferred to the adapter by using the property OPENEDINDEXPROP. | Optional | |
| visibleprop1 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop2 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop3 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop4 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop5 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically | Optional | |

| | | | |
|---|---|---|---|
| | set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | | |
| visibleprop6 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop7 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop8 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop9 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop10 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop11 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop12 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop13 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop14 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name | Optional | |

| | | | |
|---|---|---|---|
| | for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | | |
| visibleprop15 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| visibleprop16 | Name of property that defines if the corresponding tag is visible or not. NOTICE: If you want the framework to automatically set the focus to the first visible tab you also must apply a name for the attribute OPENEDINDEXPROP. You don't have to set a value at runtime, but you need to specify a valid name. | Optional | |
| Appearance | | | |
| withleftborder | If specified as "false" then no left border will be drawn. | Optional | |
| withrightborder | If specified as "false" then no right border will be drawn. | Optional | |
| withbottomborder | If specified as "false" then no bottom border will be drawn. | Optional | |
| stylevariant | Some controls offer the possibility to define style variants. By this style variant you can address different styles inside your style sheet definition file (.css). If not defined "normal" styles are chosen, if defined (e.g. "VAR1") then other style definitions (xxxVAR1xxx) are chosen.<br>Purpose: you can set up style variants in the style sheet defintion and use them multiple times by addressing them via the "stylevariant" property. CIS currently offerst two variants "VAR1" and "VAR2" but does not predefine any semantics behind - this is up to you! | Optional | VAR1 |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1<br>2<br>5<br>10<br>32767 |
| Online Help | | | |
| title1 | Tooltip text that appears on the corresponding tab. | Optional | |
| title2 | Tooltip text that appears on the corresponding tab. | Optional | |
| title3 | Tooltip text that appears on the corresponding tab. | Optional | |
| title4 | Tooltip text that appears on the corresponding tab. | Optional | |

| | | | |
|---|---|---|---|
| title5 | Tooltip text that appears on the corresponding tab. | Optional | |
| title6 | Tooltip text that appears on the corresponding tab. | Optional | |
| title7 | Tooltip text that appears on the corresponding tab. | Optional | |
| title8 | Tooltip text that appears on the corresponding tab. | Optional | |
| title9 | Tooltip text that appears on the corresponding tab. | Optional | |
| title10 | Tooltip text that appears on the corresponding tab. | Optional | |
| title11 | Tooltip text that appears on the corresponding tab. | Optional | |
| title12 | Tooltip text that appears on the corresponding tab. | Optional | |
| title13 | Tooltip text that appears on the corresponding tab. | Optional | |
| title14 | Tooltip text that appears on the corresponding tab. | Optional | |
| title15 | Tooltip text that appears on the corresponding tab. | Optional | |
| title16 | Tooltip text that appears on the corresponding tab. | Optional | |
| titletextid1 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid2 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid3 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid4 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid5 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid6 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid7 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid8 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid9 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid10 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |

| | | | |
|---|---|---|---|
| titletextid11 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid12 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid13 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid14 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid15 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| titletextid16 | Text ID for the tooltip of the corresponding "tab". At runtime the multi language management replaces the textid with a language dependent literal. | Optional | |
| Comment | | | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

## TABPAGE Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| id | Id of the TABPAGE. Each page has an id that refers to the PAGE1 .. PAGE9 definition inside the ROW/COLTABAREA control that contains the TABPAGE. Clicking a "tab" will display the TABPAGE with the associated id. | Obligatory | |
| display | Initial display status of the TABPAGE. The first TABPAGE inside the ROW/COLTABAREA control must be set to "". All others need to be set ot "none". - If a ROW/COLTABAREA should show up with two or more pages being visible one below the other then check the setting of this property!" | Sometimes obligatory | |
| takefullheight | Indicates if the content of the control's area gets the full available height.<br>If you use percentage sizing inside the control's area then this property must be switched to 'true'. If you use no explicit vertical sizing at all - or you use vertical pixel sizing for your controls - the property must be switched to 'false'.<br>Background information: container control's internally open up a table in which you place rows (ITR/TR) which then hold controls (e.g. | Optional | true<br>false |

| | | | |
|---|---|---|---|
| | LABEL/FIELD). The table that is opened up normally has no explicit height and grows with its content as consequence. By specifying "takefullheight=true" the table itself is sized to fill the maximum height of the available area. | | |
| fixlayout | The fixlayout property is important for saving rendering performance inside your browser. To become effective it requires to have specified the height and the width (if available as property) of the control.<br>If setting fixlayout to "true" then the control's area is defined as area which is not sized dependent on its content (as normally done with table rendering). Instead the size is predefined from outside without letting the browser "look" into the content of the area. If the content is not fitting into the area then it is cut.<br>You typically use this control if the content of the control's area is flexibly sizable. E.g. if the content (e.g. a TEXTGRID control) is following the size of the container.<br>When using vertical percentage based sizing you should pay attention to set the fixlayout-property to "true" as often as possible. - The browser as consequence will be much faster in doing its rendering because a screen consists out of "building blocks" with simple to calculate sizes. | Optional | true<br>false |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

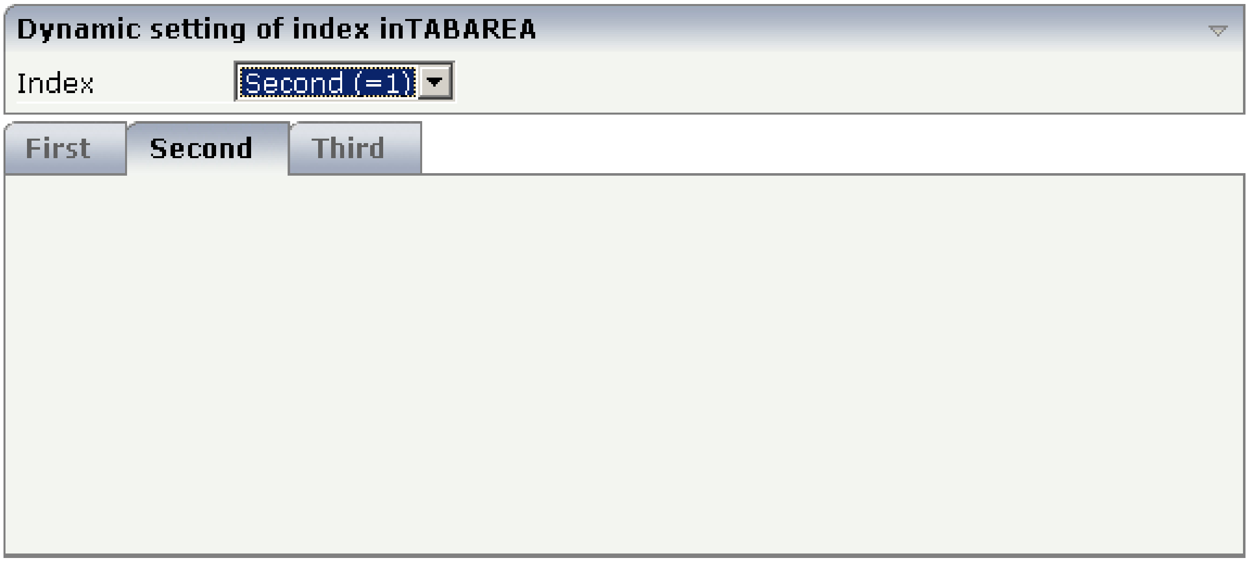
## The Most Common Error

Do you receive errors when clicking in the tabs? Then take a further look at the ID assignments in the ROWTABAREA or COLTABAREA control on the one hand, and in the TABPAGE control on the other hand: each `page*` property of a ROWTABAREA or COLTABAREA defines an ID that must exactly match an `id` property of TABPAGE.

If you have more than one ROWTABAREA or COLTABAREA inside your page: do not use the same IDs - each ID must be unique throughout one page.

## Example: Controlling which Tab is displayed by the Server Adapter

The following example demonstrates the usage of the property `openedindexprop` on ROWTABAREA level:



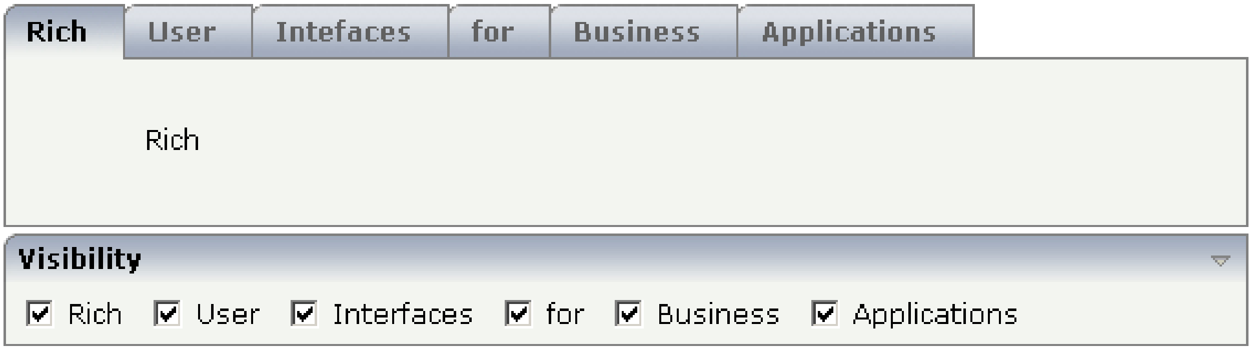
The user selects the value of the property `index` using the combo control. The `index` property controls also which tab is displayed inside the ROWTABAREA control.

The layout definition is as follows:

```
<pagebody>
    <rowarea name="Dynamic setting of index in TABAREA">
        <itr>
            <label name="Index" width="100">
            </label>
            <combofix valueprop="index" size="1" flush="server">
                <combooption name="First  (=0)" value="0">
                </combooption>
                <combooption name="Second  (=1)" value="1">
                </combooption>
                <combooption name="Third (=2)" value="2">
                </combooption>
            </combofix>
        </itr>
    </rowarea>
    <rowtabarea height="200" openedindexprop="index"
                name1="First" page1="FIRST"
                name2="Second" page2="SECOND"
                name3="Third" page3="THIRD">
        <tabpage id="FIRST">
        </tabpage>
        <tabpage id="SECOND">
        </tabpage>
        <tabpage id="THIRD">
        </tabpage>
    </rowtabarea>
</pagebody>
```

## Example: Controlling the Visibility of Tab Pages

For each individual tab page, you can control at runtime whether it is visible or not. The following example allows the user to control the visibility of tabs using check boxes:



The XML layout is:

```
<rowtabarea height="100" name1="Rich" page1="RICH" visibleprop1="page1Visibility"
                         name2="User" page2="USER" visibleprop2="page2Visibility"
                         name3="Intefaces" page3="INTERFACES" ↩
visibleprop3="page3Visibility"
                         name4="for" page4="FOR" visibleprop4="page4Visibility"
                         name5="Business" page5="BUSINESS" ↩
visibleprop5="page5Visibility"
                         name6="Applications" page6="APPLICATIONS"
                                              visibleprop6="page6Visibility">
    <tabpage id="RICH">
        <vdist height="20">
        </vdist>
        <itr>
            <hdist width="60">
            </hdist>
            <label name="Rich" asplaintext="true" textalign="center">
            </label>
        </itr>
    </tabpage>
    <tabpage id="USER">
        ...
    </tabpage>
    ...
    ...
    ...
<rowarea name="Visibility">
    <itr>
        <checkbox valueprop="page1Visibility" flush="server">
        </checkbox>
        <hdist>
        </hdist>
        <label name="Rich" asplaintext="true">
        </label>
        <hdist width="10">
        </hdist>
        <checkbox valueprop="page2Visibility" flush="server">
        </checkbox>
        <hdist>
        </hdist>
        <label name="User" asplaintext="true">
        </label>
        <hdist width="10">
        </hdist>
        <checkbox valueprop="page3Visibility" flush="server">
        </checkbox>
        <hdist>
        </hdist>
        <label name="Interfaces" asplaintext="true">
        </label>
        <hdist width="10">
        </hdist>
        <checkbox valueprop="page4Visibility" flush="server">
        </checkbox>
        <hdist>
        </hdist>
        <label name="for" asplaintext="true">
        </label>
        <hdist width="10">
        </hdist>
        <checkbox valueprop="page5Visibility" flush="server">
        </checkbox>
        <hdist>
        </hdist>
        <label name="Business" asplaintext="true">
        </label>
        <hdist width="10">
        </hdist>
        <checkbox valueprop="page6Visibility" flush="server">
        </checkbox>
        <hdist>
        </hdist>
        <label name="Applications" asplaintext="true">
        </label>
        <hdist width="10">
        </hdist>
    </itr>
</rowarea>
```

You see that the definition of the properties that control the visibility of tab pages is done in the ROWTABAREA (not on TABPAGE level). The check boxes reference the same adapter properties as used on ROWTABAREA level.

**Note:** In the previous example, the `openedindexprop` property of the ROWTABAREA was used. Be aware of the fact that each tab page still keeps its stable index position - no matter whether it is displayed or not.

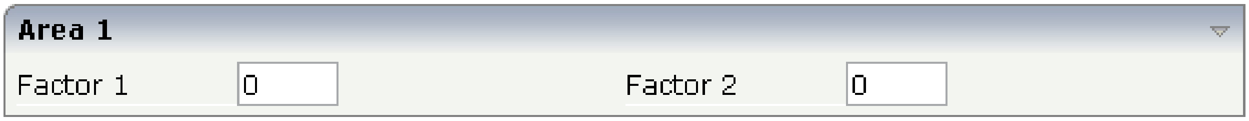
# 33 ROWTABLE0 and COLTABLE0

- ROWTABLE0 Properties ........ 271
- COLTABLE0 Properties ........ 273

The ROWTABLE0 or COLTABLE0 container is not visible. Normally, it is just used for arranging controls. The following example shows how to define two columns - inside a ROWAREA - to arrange controls:

```
<pagebody>
    <rowarea name="Area 1">
        <itr takefullwidth="true">
            <coltable0 width="50%" takefullheight="true">
                <itr>
                    <label name="Factor 1" width="100">
                    </label>
                    <field valueprop="factor1" length="5">
                    </field>
                </itr>
            </coltable0>
            <coltable0 width="50%" takefullheight="true">
                <itr>
                    <label name="Factor 2" width="100">
                    </label>
                    <field valueprop="factor2" length="5">
                    </field>
                </itr>
            </coltable0>
        </itr>
    </rowarea>
</pagebody>
```

The result looks as follows:



Inside the ROWAREA, two COLTABLE0 tags are placed - each occupying 50% of the width. Each COLTABLE0 area builds - independently from the other - its own table rows (ITR rows in the example).

All complex field arrangements should be done by using ROWTABLE0/COLTABLE0 tags as shown in the example.

## ROWTABLE0 Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| align | Alignment of the content of the ITR row.<br>Background: the ITR as independent table row renders a table into its content area. Inside this table a row is opened in which the controls are placed.<br>This table normally is starting on the left of the ITR row. With this ALIGN property you can explicitly define the alignement of the table. | Optional | left<br>center<br>right |
| valign | Vertical alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | Optional | top<br>middle<br>bottom |
| fixlayout | The fixlayout property is important for saving rendering performance inside your browser. To become effective it requires to have specified the height and the width (if available as property) of the control.<br>If setting fixlayout to "true" then the control's area is defined as area which is not sized dependent on its content (as normally done with table rendering). Instead the size is predefined from outside without letting the browser "look" into the content of the area. If the content is not fitting into the area then it is cut. | Optional | true<br>false |

| | | | |
|---|---|---|---|
| | You typically use this control if the content of the control's area is flexibly sizable. E.g. if the content (e.g. a TEXTGRID control) is following the size of the container.<br>When using vertical percentage based sizing you should pay attention to set the fixlayout-property to "true" as often as possible. - The browser as consequence will be much faster in doing its rendering because a screen consists out of "building blocks" with simple to calculate sizes. | | |
| tablestyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| flashprop | Name of the adapter parameter that triggers a "flashing" of the area. "Flashing" means that the area is animated for a short point of time in order to make the user aware that e.g. some change of data happened inside the area. The value is an index - whenever you change the index then a flashing of the control is triggered on client side.<br>Pay attention: do not mix the "flashing" of an area with the "flushing" of controls - "flushing" is the way an input control (e.g. field) triggers server side updates when the user changed the value, "flashing" is pure animation. | Optional | |

## COLTABLE0 Properties

The properties for COLTABLE0 are very similar to those of ROWTABLE0.

| Basic | | | |
|---|---|---|---|
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| widthprop | Name of adapter parameter that dynamically defines the height of the control. Must return a valid width. | Optional | |
| takefullheight | Indicates if the content of the control's area gets the full available height.<br>If you use percentage sizing inside the control's area then this property must be switched to 'true'. If you use no explicit vertical sizing at all - or you use vertical pixel sizing for your controls - the property must be switched to 'false'.<br>Background information: container control's internally open up a table in which you place rows (ITR/TR) which then hold controls (e.g. LABEL/FIELD). The table that is opened up normally has no explicit height and grows with its content as consequence. By specifying "takefullheight=true" the table itself is sized to fill the maximum height of the available area. | Optional | true<br>false |
| fixlayout | The fixlayout property is important for saving rendering performance inside your browser. To become effective it requires to have specified the height and the width (if available as property) of the control.<br>If setting fixlayout to "true" then the control's area is defined as area which is not sized dependent on its content (as | Optional | true<br>false |

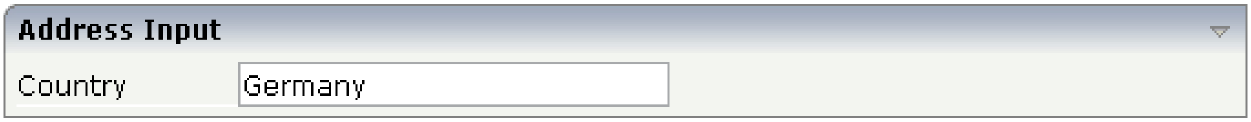
| | | | |
|---|---|---|---|
| | normally done with table rendering). Instead the size is predefined from outside without letting the browser "look" into the content of the area. If the content is not fitting into the area then it is cut.<br>You typically use this control if the content of the control's area is flexibly sizable. E.g. if the content (e.g. a TEXTGRID control) is following the size of the container.<br>When using vertical percentage based sizing you should pay attention to set the fixlayout-property to "true" as often as possible. - The browser as consequence will be much faster in doing its rendering because a screen consists out of "building blocks" with simple to calculate sizes. | | |
| tablestyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

# 34 ROWDYNAVIS and COLDYNAVIS

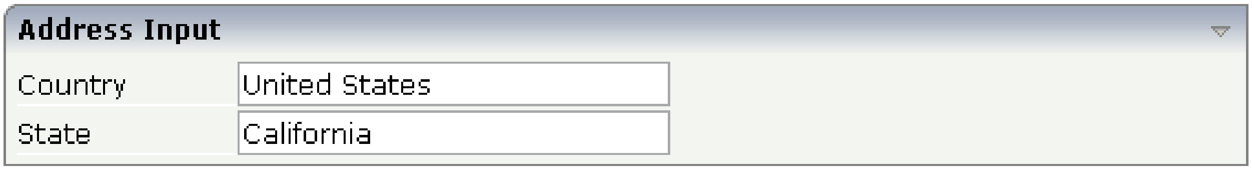
- ROWDYNAVIS Properties ..... 277
- COLDYNAVIS Properties ..... 279
- Some Comments on Controlling the Visibility of Controls ..... 281

The ROWDYNAVIS or COLDYNAVIS container is used to add dynamic reaction to your layout.

The container is not visible - similar to the TABLE0 container. What is the difference? You control the appearance of the container by an adapter property. Have a look at the following example.



If you enter "United States" as a country, the input line for the state will appear under the input line for the country:



The XML code looks as follows:

```
<rowarea name="Address Input">
    <itr>
        <label name="Country" width="100">
        </label>
        <field valueprop="country" flush="true" length="30">
        </field>
    </itr>
    <rowdynavis valueprop="visible">
        <itr>
            <label name="State" width="100">
            </label>
            <field valueprop="state" length="30">
            </field>
        </itr>
    </rowdynavis>
</rowarea>
```

A ROWDYNAVIS container is placed inside the ROWAREA container.

## ROWDYNAVIS Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| valueprop | Name of adapter parameter that defines if the area is visible ("true") or invisible ("false"). | Obligatory | |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| style | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| fixlayout | The fixlayout property is important for saving rendering performance inside your browser. To become effective it | Optional | true |

| | | | |
|---|---|---|---|
| | requires to have specified the height and the width (if available as property) of the control.<br>If setting fixlayout to "true" then the control's area is defined as area which is not sized dependent on its content (as normally done with table rendering). Instead the size is predefined from outside without letting the browser "look" into the content of the area. If the content is not fitting into the area then it is cut.<br>You typically use this control if the content of the control's area is flexibly sizable. E.g. if the content (e.g. a TEXTGRID control) is following the size of the container.<br>When using vertical percentage based sizing you should pay attention to set the fixlayout-property to "true" as often as possible. - The browser as consequence will be much faster in doing its rendering because a screen consists out of "building blocks" with simple to calculate sizes. | | false |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |

## COLDYNAVIS Properties

The properties of COLDYNAVIS are very similar to those of ROWDYNAVIS.

| | | | |
|---|---|---|---|
| Basic | | | |
| valueprop | Name of adapter parameter that defines if the area is visible ("true") or invisible ("false"). | Obligatory | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| takefullheight | Indicates if the content of the control's area gets the full available height.<br>If you use percentage sizing inside the control's area then this property must be switched to 'true'. If you use no explicit vertical sizing at all - or you use vertical pixel sizing for your controls - the property must be switched to 'false'.<br>Background information: container control's internally open up a table in which you place rows (ITR/TR) which then hold controls (e.g. LABEL/FIELD). The table that is opened up normally has no explicit height and grows with its content as consequence. By specifying "takefullheight=true" the table itself is sized to fill the maximum height of the available area. | Optional | true<br>false |
| style | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are: | Optional | background-color: #FF0000<br>color: #0000FF |

| | | | |
|---|---|---|---|
| | border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | | font-weight: bold |
| fixlayout | The fixlayout property is important for saving rendering performance inside your browser. To become effective it requires to have specified the height and the width (if available as property) of the control.<br>If setting fixlayout to "true" then the control's area is defined as area which is not sized dependent on its content (as normally done with table rendering). Instead the size is predefined from outside without letting the browser "look" into the content of the area. If the content is not fitting into the area then it is cut.<br>You typically use this control if the content of the control's area is flexibly sizable. E.g. if the content (e.g. a TEXTGRID control) is following the size of the container.<br>When using vertical percentage based sizing you should pay attention to set the fixlayout-property to "true" as often as possible. - The browser as consequence will be much faster in doing its rendering because a screen consists out of "building blocks" with simple to calculate sizes. | Optional | true<br>false |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and | Optional | |

| | | | |
|---|---|---|---|
| | #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | | |
| njx:natcv | Name of a Natural control variable that shall be assigned to the control. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |

## Some Comments on Controlling the Visibility of Controls

ROWDYNAVIS and COLDYNAVIS are container controls that are explicitly defined to provide an area which can be explicitly switched on and off. In addition you will later on see that many controls can control their visiblity and their input status by themselves. For example, a FIELD control can specify if it is invisible, editable, holding an error input etc. in a dynamic way. You may also have noticed that an ITR row definition has an associated `visibleprop` property - linking to a data property that dynamically controls the visibility of the row at runtime.

Use ROWDYNAVIS and COLDYNAVIS for explicitly defining container areas to be switched on/off. Use the control's binding to properties to do the fine-granular control of visibility inside one container.

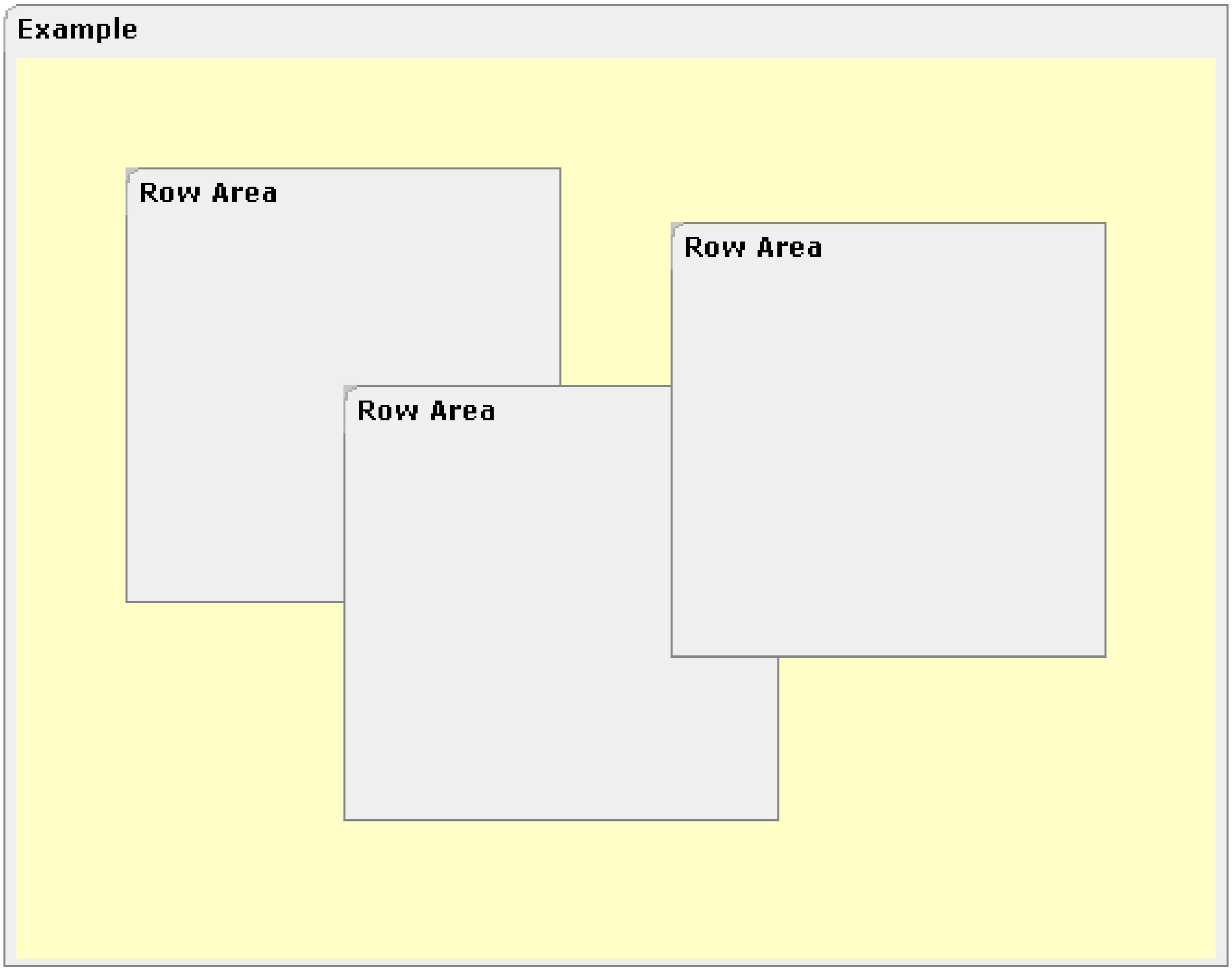
A bad example of usage would be if you place a COLDYNAVIS container around each FIELD that you want to control in means of visibility. Use the FIELD's `statusprop` property instead.

# 35 ROWDIV and INNERDIV

- When to Use ROWDIV and INNERDIV Containers ........ 286
- ROWDIV Properties ........ 287
- INNERDIV Properties ........ 288

The ROWDIV container represents an area with a defined size. Inside this area you can arrange INNERDIV containers. The INNERDIV containers have a defined x-, y- and z-position inside the ROWDIV area, and they have a defined width and height. INNDERDIV containers can overlap; by using the z-position, you can define which INNERDIV container is on top of which other INNERDIV container. Inside an INNERDIV container, you can arrange any other container or control - just as with normal containers.

Have a look at the following example:

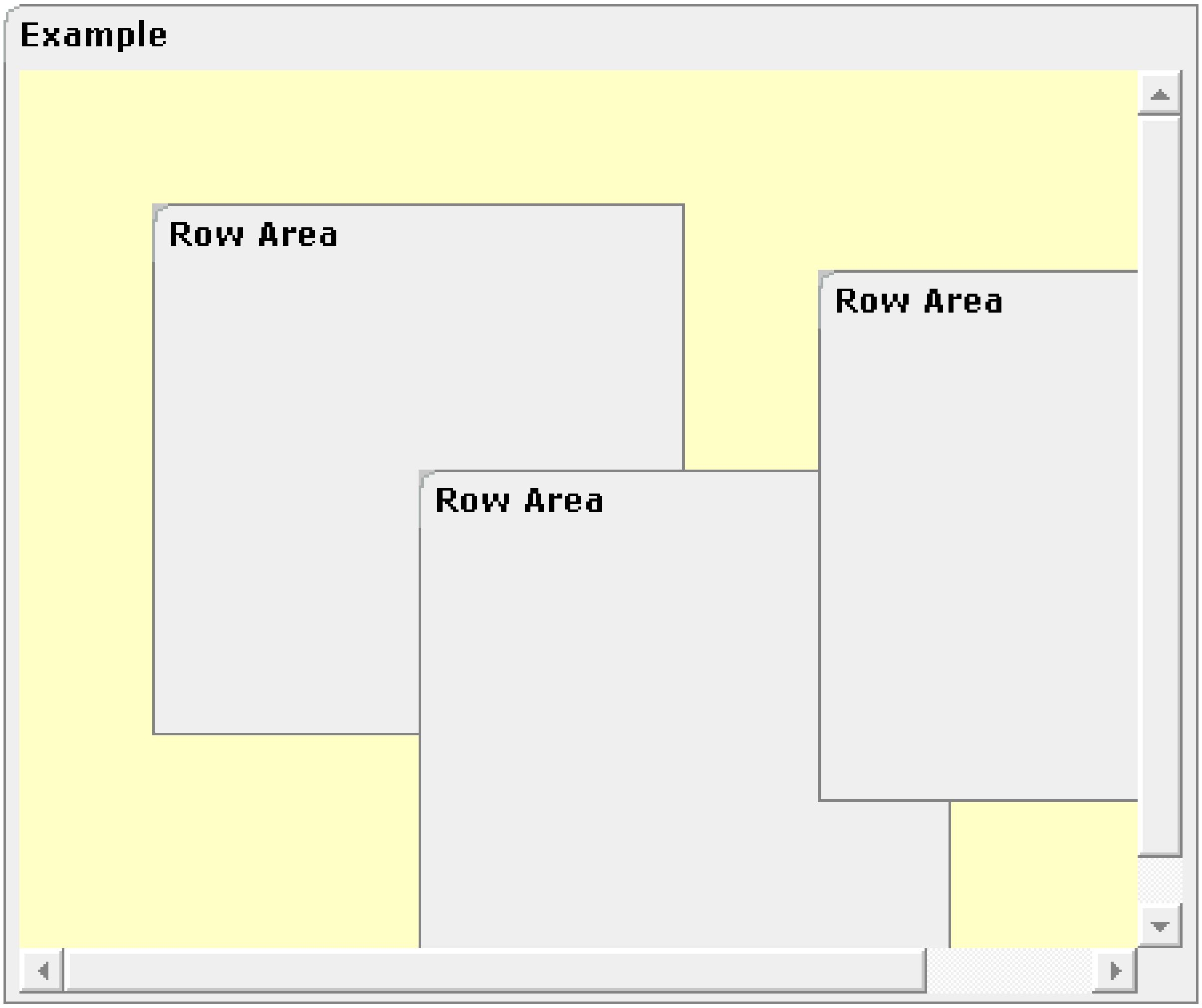


Inside a ROWAREA container, a ROWDIV container is arranged. Inside the ROWDIV container, three INNERDIV containers are arranged - each one holding a ROWAREA.

The XML layout definition looks as follows:

```
<rowarea name="Example" height="100%">
    <rowdiv height="100%" style="background-color: #FFFFC0">
        <innerdiv width="200" height="200" zindex="99" left="150" top="150"
                  style="background-color: #C0C0C0">
            <rowarea name="Row Area" height="100%" withtoppadding="false">
            </rowarea>
        </innerdiv>
        <innerdiv width="200" height="200" zindex="98" left="50" top="50"
                  style="background-color: #C0C0C0">
            <rowarea name="Row Area" height="100%" withleftborder="true" ↩
withtopborder="true"
                     withrightborder="true" withbottomborder="true" ↩
withtoppadding="false">
            </rowarea>
        </innerdiv>
        <innerdiv width="200" height="200" zindex="100" left="300" top="75"
                  style="background-color: #C0C0C0">
            <rowarea name="Row Area" height="100%" withtoppadding="false">
            </rowarea>
        </innerdiv>
    </rowdiv>
</rowarea>
```

If the ROWDIV area is too small to hold the INNERDIV containers, then the ROWDIV area starts scrolling:



## When to Use ROWDIV and INNERDIV Containers

The typical usage scenarios of ROWDIV and INNERDIV containers is:

- when you want to place a certain area at a certain position on the screen - without wanting to explicitly define VDIST/HDIST elements;
- when you want to explicitly work with overlapping areas.

Note that the parallel usage of pixel and percentage sizing is not supported with ROWDIV and INNERDIV in the same way as supported with normal containers (for example, ROWAREA and COLAREA). With normal containers, you can specify scenarios like the following: the left container occupies 200 pixels, the right container occupies 100%. The table rendering is clever enough to render the result accordingly. With INNERDIV containers, the percentage definitions are always in relation to the height and width of the surrounding ROWDIV control.

Consequence: Do not use ROWDIV and INNERDIV for the basic structuring of containers inside your page, but only use them for the two usage aspects mentioned before.

## ROWDIV Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Obligatory | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| style | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | |
| divclass | CSS style class definition that is directly passed into this control.<br>The style class can be either one which is part of the "normal" CIS style sheet files (i.e. the ones that you maintain with the style sheet editor) - or it can be one of an other style sheet file that you may reference via the ADDSTYLESHEET property of the PAGE tag. | Optional | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

# INNERDIV Properties

| Basic | | | |
|---|---|---|---|
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Obligatory | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Obligatory | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| left | Left position of control. Either define a pixel value ("100") or a percentatge value ("30%"). | Obligatory | |
| top | Top position of control. Either define a pixel value ("100") or a percentatge value ("30%"). | Obligatory | |
| zindex | Z-index of the control. If two controls overlap then the one with the higher z-index is drawn in front of the other one. | Optional | 1<br>2<br>3 |

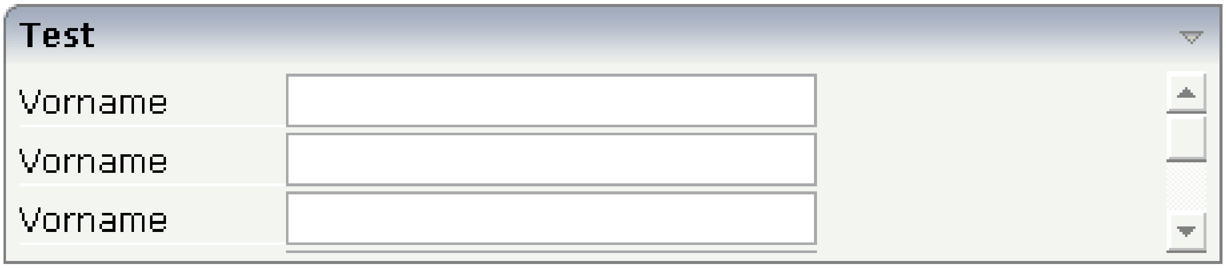
| | | | |
|---|---|---|---|
| | | | int-value |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| leftdistance | If set to "true" then a small distance (3px) is kept between the left border of the control and its content. Default is "false". | Optional | true<br>false |
| rightdistance | If set to "true" then a small distance (3px) is kept between the right border of the control and its content. Default is "false". | Optional | true<br>false |
| style | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | |
| Binding | | | |
| widthprop | Name of adapter parameter that dynamically prvides the width of the control. Must return a valid width. | Optional | |
| leftprop | Name of adapter parameter that dynamically provides the left position of the control. Must return a valid value for 'left position'. | Optional | |
| dropwidthprop | Name of the adapter parameter that dynamically provides the width of the drop target. | Optional | |
| dropoffsetprop | Name of the adapter parameter that dynamically provides the offset used for the drop target. | Optional | |
| dropmethod | Name of the event that is sent to the adapter when the user is dragging another DROPICON control over this control and drops it there. Do not use this parameter if this control should not accept other DROPICON controls within a drag and drop process (i.e. is not a drop target). | Optional | |

# 36 ROWSCROLLAREA

- ROWSCROLLAREA Properties ........ 293

The ROWSCROLLAREA represents a container area with a certain size. The container is not visible. If the contents of the container area exceed the size of the container area, then scroll bars are added accordingly.

Have a look at the following example:



Inside a normal ROWAREA with the title "Test", a ROWSCROLLAREA is positioned. Inside the ROWSCROLLAREA, a number of lines is arranged so that the total height of the lines exceeds the height of the ROWSCROLLAREA. Consequently, a vertical scroll bar is shown on the right.

The XML layout looks as follows:

```
<rowarea name="Test" height="100">
    <rowscrollarea height="100%">
        <itr>
            <label name="Vorname" width="100">
            </label>
            <field valueprop="firstname" width="200">
            </field>
        </itr>
        <itr>
            <label name="Vorname" width="100">
            </label>
            <field valueprop="firstname" width="200">
            </field>
        </itr>
        <itr>
            <label name="Vorname" width="100">
            </label>
            <field valueprop="firstname" width="200">
            </field>
        </itr>
        <itr>
            <label name="Vorname" width="100">
            </label>
            <field valueprop="firstname" width="200">
            </field>
        </itr>
        <itr>
            <label name="Vorname" width="100">
            </label>
            <field valueprop="firstname" width="200">
            </field>
        </itr>
        <itr>
            <label name="Vorname" width="100">
            </label>
            <field valueprop="firstname" width="200">
            </field>
        </itr>
    </rowscrollarea>
</rowarea>
```

## ROWSCROLLAREA Properties

| Basic | | | |
|---|---|---|---|
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Obligatory | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| takefullheight | Indicates if the content of the control's area gets the full available height.<br>If you use percentage sizing inside the control's area then this property must be switched to 'true'. If you use no explicit vertical sizing at all - or you use vertical pixel sizing for your controls - the property must be switched to 'false'.<br>Background information: container control's internally open up a table in which you place rows (ITR/TR) which then hold controls (e.g. LABEL/FIELD). The table that is opened up normally has no explicit height and grows with its content as consequence. By specifying "takefullheight=true" the table | Optional | true<br>false |

| | | | |
|---|---|---|---|
| | itself is sized to fill the maximum height of the available area. | | |
| takefullwidth | If set to "true" then the control takes all available horizontal width as its width. If set to "false" then the control does not have a predefined width but grows with its content. | Optional | true<br>false |
| areastyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| areaclass | CSS style class definition that is directly passed into this control.<br>The style class can be either one which is part of the "normal" CIS style sheet files (i.e. the ones that you maintain with the style sheet editor) - or it can be one of an other style sheet file that you may reference via the ADDSTYLESHEET property of the PAGE tag. | Optional | |
| fixlayout | The fixlayout property is important for saving rendering performance inside your browser. To become effective it requires to have specified the height and the width (if available as property) of the control.<br>If setting fixlayout to "true" then the control's area is defined as area which is not sized dependent on its content (as normally done with table rendering). Instead the size is predefined from outside without letting the browser "look" into the content of the area. If the content is not fitting into the area then it is cut.<br>You typically use this control if the content of the control's area is flexibly sizable. E.g. if the content (e.g. a TEXTGRID control) is following the size of the container.<br>When using vertical percentage based sizing you should pay attention to set the fixlayout-property to "true" as often as possible. - The browser as consequence will be much faster | Optional | true<br>false |

| | | | |
|---|---|---|---|
| | in doing its rendering because a screen consists out of "building blocks" with simple to calculate sizes. | | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| hscroll | Definition of the horizontal scrollbar's appearance.<br>You can define that the scrollbars only are shown if the content is exceeding the control's area ("auto"). Or scrollbars can be shown always ("scroll"). Or scrollbars are never shown - and the content is cut ("hidden").<br>Default is "auto". | Optional | auto<br>scroll<br>hidden |

# 37 HSPLIT and VSPLIT

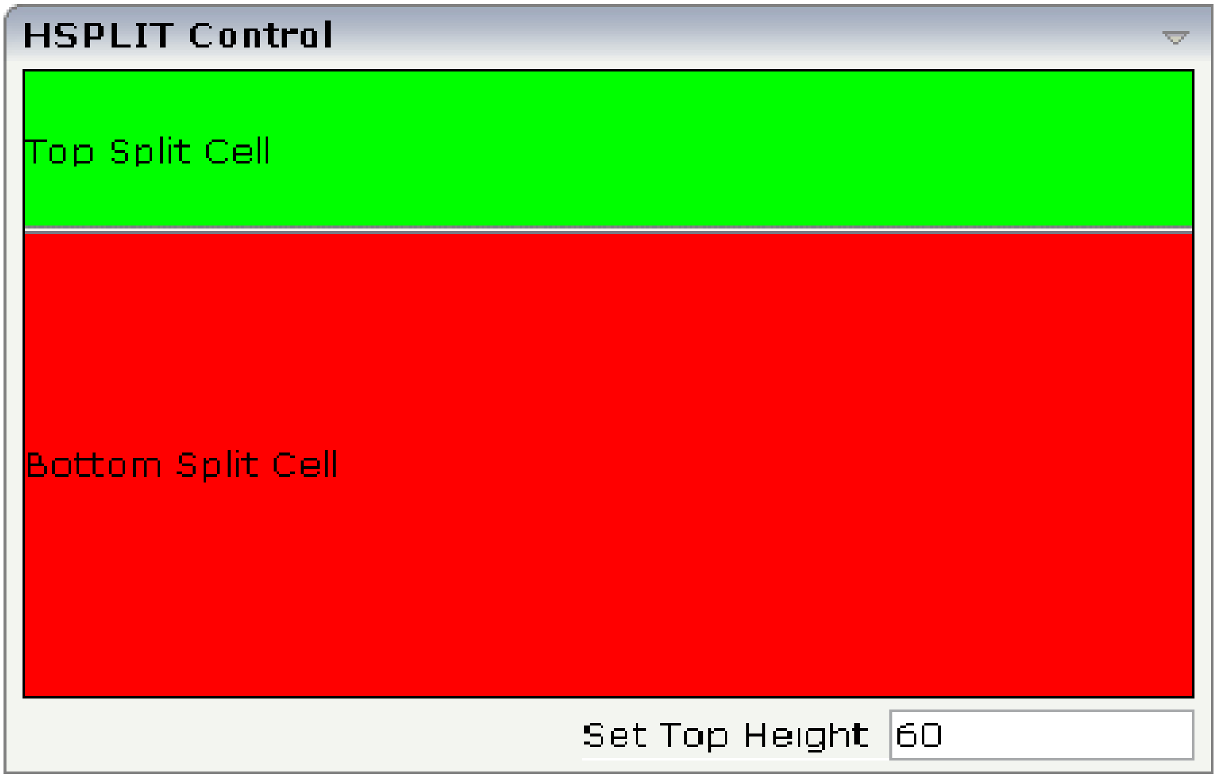
- Example for HSPLIT ........ 298
- Example for VSPLIT ........ 300
- HSPLIT Properties ........ 301
- VSPLIT Properties ........ 302
- SPLITCELL Properties ........ 303
- Defining the Split Size ........ 304

HSPLIT or VSPLIT allows to define a container area that is subdivided into two split cells. Between the split cells there is a border. By dragging and dropping the border, you can change the size of the split cells. Each split cell itself is a container that can be used just as normal.

While an HSPLIT control subdivides an area into two split cells by a horizontal line, VSPLIT uses a vertical line.

## Example for HSPLIT

The following example shows the usage of the HSPLIT control:



HSPLIT Control

Top Split Cell

Bottom Split Cell

Set Top Height 60

The split area is divided into two cells: a green cell and a red cell. In addition, there is a line at the bottom in which you can provide the split factor.

The XML layout definition is:

```
<rowarea name="HSPLIT Control" height="100%">
    <hsplit height="100%" heighttopprop="heighttop" hsplitstyle="border:1 solid ↩
#000000">
        <splitcell takefullheight="true" cellstyle="background-color: #00FF00">
            <tr height="100%">
                <label name="Top Split Cell" asplaintext="true">
                </label>
            </tr>
        </splitcell>
        <splitcell takefullheight="true" cellstyle="background-color: #FF0000">
            <tr height="100%">
                <label name="Bottom Split Cell" asplaintext="true">
                </label>
            </tr>
        </splitcell>
    </hsplit>
    <vdist>
    </vdist>
    <itr>
        <hdist width="100%">
        </hdist>
        <label name="Set Top Height" width="100">
        </label>
       <field valueprop="heighttop" width="100" flush="server" validation="[0-9%]+"
               validationuserhint="100, 200, 500, 30%, 50%">
        </field>
    </itr>
</rowarea>
```

You see that the vertical split area consists of

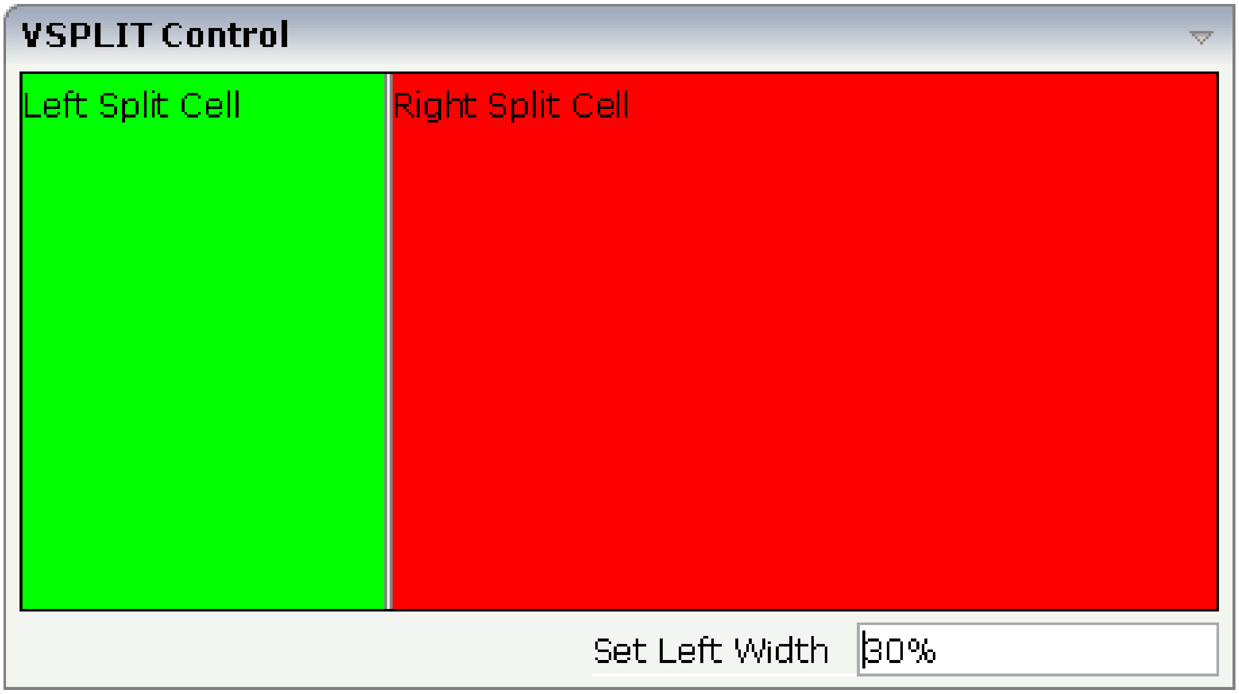
- one VSPLIT definition, and
- two SPLITCELL definitions.

It is not allowed to have more than two split cells inside one HSPLIT container.

The sizing of the split cells can be done by using a property that is referenced by the HSPLIT property `heighttopprop`. The property must return either a percentage value or a pixel value. When the user changes the size by moving the line between the split cells, then the current new pixel width of the left split cell is written back into the property.

## Example for VSPLIT

The VSPLIT control is defined in the same way as the HSPLIT control - but now transferred to vertical dimension. It looks like:



The VSPLIT part of the XML layout definition is:

```
<vsplit height="200" widthleftprop="widthleft" vsplitstyle="border: 1 solid #000000">
    <splitcell takefullheight="true" cellstyle="background-color:#00FF00">
        <itr>
            <label name="Left Split Cell" asplaintext="true">
            </label>
        </itr>
    </splitcell>
    <splitcell takefullheight="true" cellstyle="background-color: #FF0000">
        <itr>
            <label name="Right Split Cell" asplaintext="true">
            </label>
        </itr>
    </splitcell>
</vsplit>
```

## HSPLIT Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| heighttop | Definition of the initial height of the top split area.<br>The height either is a pixel value ("100") or a percentage value ("50%").<br>You can also define the height dynamically by your adapter - see documentation for HEIGHTTOPPROP property. | Optional | 1<br>2<br>3<br>int-value |
| heighttopprop | Name of adapter parameter that specifies the height of the top split area.<br>The value must either be a pixel value ("100") or a percentatge value. | Optional | |
| hsplitstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |

| | | | |
|---|---|---|---|
| | Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| vscroll | Definition of the vertical scrollbar's appearance.<br>You can define that scrollbars only are shown if the content is exceeding the control's area ("auto"). Or scrollbars can be shown always ("scroll"). Or scrollbars are never shown - and the content is cut ("hidden").<br>Default is "auto". | Optional | auto<br>scroll<br>hidden |

## VSPLIT Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| widthleftprop | Name of adapter parameter that specifies the width of the left split area.<br>The value must either be a pixel value ("100") or a percentatge value. | Optional | |

| | | | |
|---|---|---|---|
| vsplitstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| overflow | Definition of the vertical scrollbar's appearance.<br>You can define that the scrollbars only are shown if the content is exceeding the control's area ("auto"). Or scrollbars can be shown always ("scroll"). Or scrollbars are never shown - and the content is cut ("hidden").<br>Default is "auto". | Optional | auto<br>scroll<br>hidden |

## SPLITCELL Properties

| Basic | | | |
|---|---|---|---|
| takefullheight | Indicates if the content of the control's area gets the full available height.<br>If you use percentage sizing inside the control's area then this property must be switched to 'true'. If you use no explicit vertical sizing at all - or you use vertical pixel sizing for your controls - the property must be switched to 'false'.<br>Background information: container control's internally open up a table in which you place rows (ITR/TR) which then hold controls (e.g. LABEL/FIELD). The table that is opened up normally has no explicit height and grows with its content as consequence. By specifying "takefullheight=true" the table itself is sized to fill the maximum height of the available area. | Optional | true<br>false |

| | | | |
|---|---|---|---|
| cellstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

## Defining the Split Size

The split size of HSPLIT and VSPLIT can be set in the following ways:

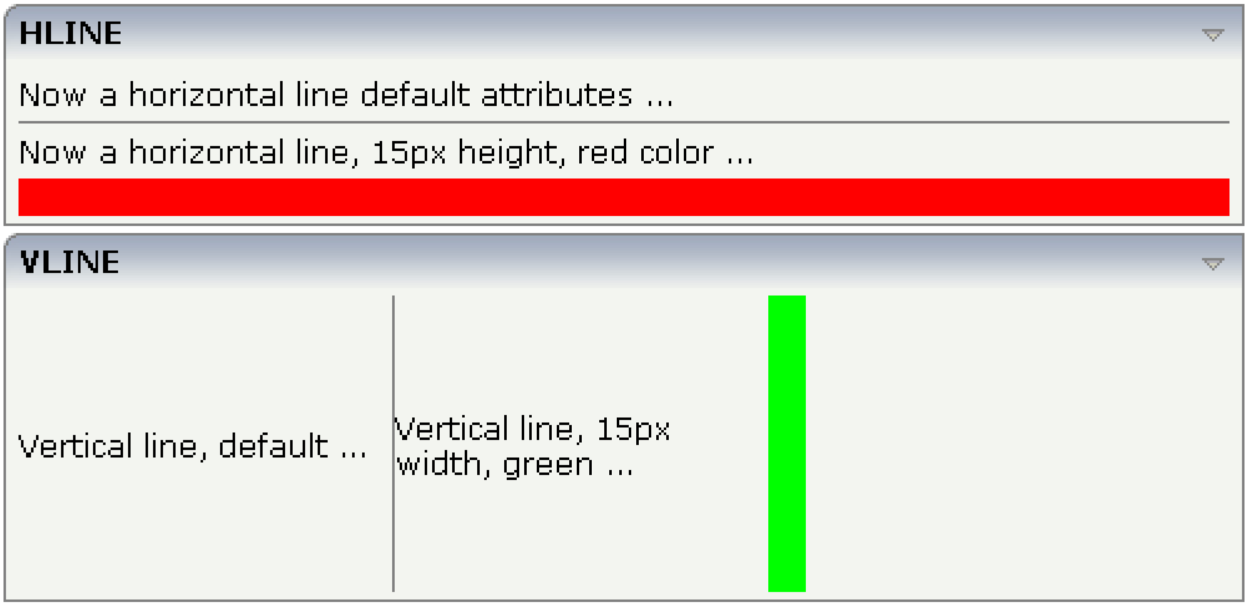
- Fixed definition if initial split size: by using the HSPLIT property `heighttop` and the VSPLIT property `widthleft`, you can preset the size in a “hard way”. The value will be used as the initial size.
- By using the HSPLIT property `heighttopprop` and the VSPLIT property `widthleftprop`, the size can be defined by a server side property. Maybe you have some personalization in which the size is kept for every split area - and proposed the next time the user visits the page.

# 38 HLINE and VLINE

- VLINE Properties ........ 307
- HLINE Properties ........ 308

Both controls are actually not container controls, but they are typically used for structuring content - this is the reason why they are mentioned here. The controls are rather simple: they represent lines. HLINE represents a horizontal line and VLINE represents a vertical line.

Have a look at this demo:


HLINE
Now a horizontal line default attributes ...
Now a horizontal line, 15px height, red color ...
VLINE
Vertical line, default ...
Vertical line, 15px width, green ...

The corresponding XML layout definition is:

```
<rowarea name="HLINE">
    <itr>
       <label name="Now a horizontal line default attributes ..." asplaintext="true">
        </label>
    </itr>
    <hline>
    </hline>
    <itr>
        <label name="Now a horizontal line, 15px height, red color ..." ↩
asplaintext="true">
        </label>
    </itr>
    <hline height="15" color="#FF0000">
    </hline>
</rowarea>
<rowarea name="VLINE" height="150">
    <itr height="100%">
        <label name="Vertical line, default ..." width="150" asplaintext="true">
        </label>
        <vline>
        </vline>
        <label name="Vertical line, 15px width, green ..." width="150" ↩
asplaintext="true">
```

```
        </label>
        <vline width="15" color="#00FF00">
        </vline>
    </itr>
</rowarea>
```

For each line, you can define its width/height and its color.

## VLINE Properties

| Basic | | | |
|---|---|---|---|
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | |
| color | Color of the control. Value must follow format "#rrggbb", e.g. #000000 for black. | Optional | #FF0000<br>#00FF00<br>#0000FF<br>#FFFFFF<br>#808080<br>#000000 |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

## HLINE Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | |
| color | Color of the control. Value must follow format "#rrggbb", e.g. #000000 for black. | Optional | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

# 39 Performance Optimization with Containers

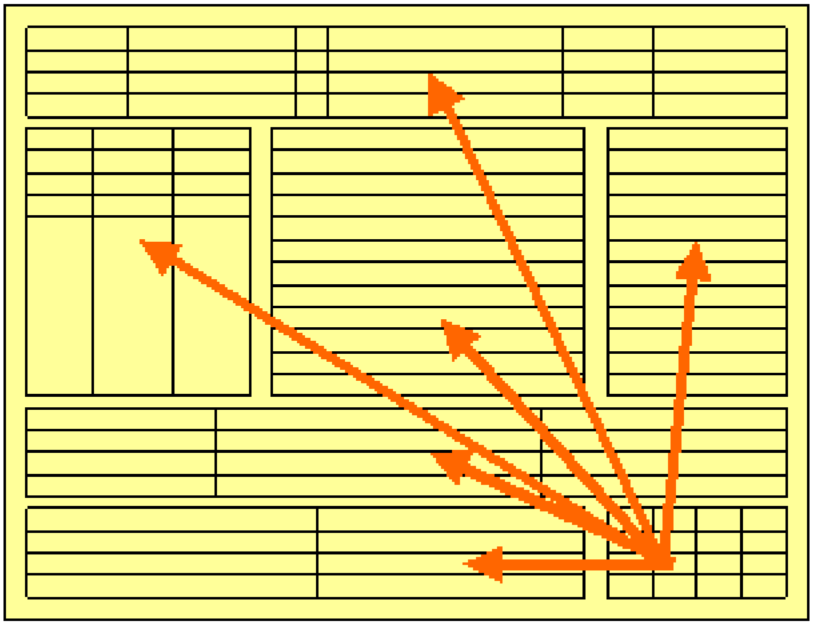
Containers internally use HTML table rendering for arranging their content: inside a container there are rows, inside the rows there are columns and inside the columns there are controls.

HTML table rendering is very powerful: if you have already written pages on your own using an HTML editor, then you know that you can size the container in the following way:

```
<table width='100%'>
<tr>
  <td width='100'>Hallo</td>
  <td width='100%'>Hello world!</td>
  <td><img src='xyz.gif'></td>
</tr>
</table>
```

During rendering time, the browser tries to optimize the table rendering. The browser knows that inside the definitions there is one column that wants to occupy the whole width, one column that wants to have a width of 100 pixels and one column that holds an image. Consequently, it somehow renders the table so that the best result is rendered. This optimization is quite expensive - especially if you have tables nested in tables nested in tables etc.

In nested table scenarios, every little change in one table can have the consequence that the whole HTML table is optimized again.



Since the optimization now happens on several levels, the browser uses a lot of resources to do so. This can be noticed especially if you render pages with a height of 100%: the page is not built by appending one information after the other - but you tell that the controls occupy a certain percentage based height of the whole page.

How can you find that out? If you have got the feeling that a page behaves in a slow way and you are not sure whether it is your server side application or the browser side rendering, then there are two ways to easily find out:

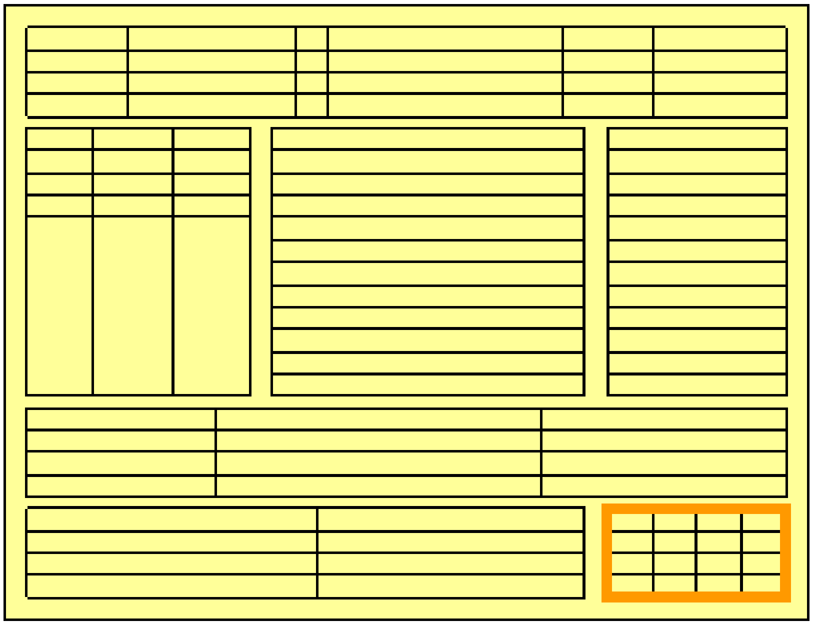
- Look into the Application Designer log file. Each server side request is recorded with its consumption of milliseconds on server side.
- Resize the page in the browser: if this is not fast but takes time, then this is an indicator for bad rendering performance - or in other words: for a lot of optimization that is happening behind the curtain.

But: there are nice ways to speed up the rendering - and to build optimization limits for the browser. Internally, the ways are quite simple, but the consequence can be dramatic.

Most containers support a `fixlayout` property: the possible values are "true" or "false" - "false" being the default. When switching the `fixlayout` property to "true", then the content area of the container is internally arranged in such a way that the area always determines its size from its own width and height specification. The browser does not look into the contents of the area in order to try to optimize the size of the area, but always follows the width and height that you define.

What happens if the controls inside your container area do not fit into the area? What does not fit inside the container area, is cut.

Setting fixlayout to "true" means that the browser only optimizes table rendering inside the container - but never outside - because the container has a certain size:



Follow the rules:

- Every time the size of a container area is not determined by its content but is explicitly set by you, switch the fixlayout flag to "true".
- The flag only has consequences if you define the width and height of the corresponding container. In cases in which the width is defined by the control (for example, ROWAREA always has a width of 100%), you have to define the height. The height is either defined by a corresponding height property or by a takefullheight property.

# 40 ROWTABSUBPAGES and STRAIGHTTABPAGE

- Adapter Interface ........ 314
- Built-in Events ........ 315
- Session Management ........ 315
- Performance Considerations ........ 316
- ROWTABSUBPAGES Properties ........ 316
- STRAIGHTTABPAGE Properties ........ 319

The ROWTABSUBPAGES control allows you to switch between several Application Designer pages such as NATPAGE using tabs. The displayed number of tabs and names are dynamically set by the Natural application at runtime. A page layout may only contain a single ROWTABSUBPAGES control. If you want to render more than one ROWTABSUBPAGES control in a page layout, you have to create a modular structure using **SUBCISPAGE2** controls.

Optionally, the ROWTABSUBPAGES control may contain exactly one STRAIGHTTABPAGE control as a subnode. STRAIGHTTABPAGE must be the first tab. This allows for combining **ROWTABAREA** behavior with ROWTABSUBPAGES behavior. Having a STRAIGHTTABPAGE as the first tab improves the loading behavior of ROWTABSUBPAGES. For an example, see the **njxdemos** project.

## Adapter Interface

```
1 MYTABPAGES
2 SELECTEDINDEX (A) DYNAMIC
2 TABITEMS (1:*)
3 NAME (A) DYNAMIC
3 PAGEID (A) DYNAMIC
3 PAGENAME (A) DYNAMIC
3 PAGEURL (A) DYNAMIC
```

| Element | Description |
|---|---|
| `SELECTEDINDEX` | Set the active page. The default is "0". |
| `TABITEMS` | Array with a corresponding data object for each tab:<br>`'/cisnatural/NatLogon.html&xciParameters.natsession=Local& xciParameters.natparamext=stack%3D%28LOGON+SYSEXNJX%3BCTRSBI-P%29'` |
| `NAME` | The visible text that is to be shown on the tab. |
| `PAGEID` | For each `PAGEID` in the same Application Designer subsession, a new Natural session is created. Identical `PAGEID` elements within a subsession will refer to the same Natural session.<br>If you do not want to create a new Natural session for this tab, leave `PAGEID` empty and specify `PAGENAME` instead. See also ***Session Management*** below. |
| `PAGENAME` | `PAGENAME` is only required if you do not want to create a new Natural session for this tab. In this case, you must leave `PAGEID` empty. Instead, you specify the name of the page layout in `PAGENAME`. This can either be the name of the layout without the extension (such as "mylayout") or a relative path (such as "/myuicomponent/mylayout.html"). See also ***Session Management*** below. |

| Element | Description |
|---|---|
| PAGEURL | The URL for loading the page. Example:<br>`'../servlet/StartCISPage?PAGEURL=/cisnatural/NatLogon.html& xciParameters.natsession=Workplace& xciParameters.natparam=stack%3D%28LOGON+SYSEXNJX%3BHELLOW-P%29'` |

## Built-in Events

In case the tabs share the same Natural session (see *Session Management* below), an event is triggered in the Natural application as soon as a different tab is selected. With this event, the Natural application can apply the data that is required to display the page on the tab. For details, see the corresponding example in the **njxdemos** project.

The name of the triggered event is `reactOnSwitchTo`*`pagename`*, where *`pagename`* is the name of the layout (without the extension) which will be activated with the next event. For example, the event `reactOnSwitchToMylayout` will activate the layout named "mylayout.xml". Note the CamelCase notation for the event name. Even though the first character of the layout name is a lower-case "m", this is always an upper-case "M" within the event name.

## Session Management

With the ROWTABSUBPAGES control, you can either use the same Natural session for multiple tabs or you can use a different Natural session for each tab.

If a new Natural session is to be created for a tab, you have to specify a `PAGEID` value for this tab. In this case, the session management for the ROWTABSUBPAGES control is the same as described for the **SUBCISPAGE2** control. See *Session Management*.

Alternatively, multiple tabs of the ROWTABSUBPAGES control can use the same Natural session. If you do not specify a `PAGEID` value, but specify a `PAGENAME` value for multiple tabs, all NATPAGE pages in these tabs will run in the same Natural session. Note that the Natural session used for the tabs is not the same Natural session as the Natural session used for the NATPAGE which contains the ROWTABSUBPAGES control. In this case, you have two different Natural sessions: one for the NATPAGE containing the ROWTABSUBPAGES control, and another for the tabs in the ROWTABSUBPAGES control.

## Performance Considerations

The performance considerations regarding when to use ROWTABAREA and when to use ROWTABSUBPAGES as described in the Application Designer documentation also apply to NATPAGE controls. See the description of the ROWTABSUBPAGES control in the Application Designer documentation. This can be found in *Working with Pages*, in the part *Embedding Pages into Pages*. The latest version of the Application Designer documentation is available at ***http://documentation.softwareag.com/webmethods/application_designer.htm***.

With Natural applications, an additional aspect has to be considered. The ROWTABSUBPAGES control allows you to embed Natural applications which run on different servers. Regarding resources, the Natural application needs to decide which NATPAGE in a "tab" is to use its own Natural session (see also ***Session Management*** above).

## ROWTABSUBPAGES Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| pagesprop | Name of the adapter parameter that provides the content of the control | Obligatory | |
| triggerserver | Flag indicating whether the adapter should be triggered if the user switches between pages. If set to true, method trigger() inside the TABSUBPAGESInfo object is called - before switching the page. Therefore the adapter can abort a page switch - maybe a user has to enter some data first on the current page before switching to another one. | Optional | true<br>false |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |

| | | | |
|---|---|---|---|
| scrollable | If set to "true" then small icons will appear on the right border of the control. If the size of the "tabs" is too big and some tabs are cut as consequence then you can use these icons for scrolling left and right. | Optional | true<br>false |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Optional | |
| fastbufferswitch | If this property is switched to "true" (default is "false") then the contained subpages are buffered in a way that switching between tabs is not done by loading a new page but by just switching the visibility of pages. Please pay attention to that switching between pages in this case does not reload the page content from the server when switching!<br>In order to enable fast switching you have to set the framebuffersize in cisconfig (n +1), n being the number of tabs to switch. | Optional | true<br>false |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| borderwidth | Border width (in pixels) of the sub-page that is contained inside this control. Define "0" to avoid rendering any border. | Optional | 1<br>2<br>3<br>int-value |
| leftindent | Inserts a horizontal distance left of the first "tab" and shifts the "tabs" to the right as consequence. The value you may define represents the number of pixels that are inserted. | Optional | 1<br>2<br>3<br>int-value |
| paddingleft | Number of pixels which you want to keep as margin between the tab control's left border and the inner sub page. Default is 5 pixel. | Optional | 1<br>2<br>3<br>int-value |
| paddingtop | Number of pixels which you want to keep as margin between the upper tab row and the inner sub page. Default is 5 pixel. | Optional | 1<br>2<br>3 |

| | | | |
|---|---|---|---|
| | | | int-value |
| paddingright | Number of pixels which you want to keep as margin between the tab control's right border and the inner sub page. Default is 5 pixel. | Optional | 1<br>2<br>3<br>int-value |
| paddingbottom | Number of pixels which you want to keep as margin between the bottom of the tab control and the inner sub page. Default is 5 pixel. | Optional | 1<br>2<br>3<br>int-value |
| pagestyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | |
| Miscellaneous | | | |
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |

## STRAIGHTTABPAGE Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| id | Id of the TABPAGE. Each page has an id that refers to the PAGE1 .. PAGE9 definition inside the ROW/COLTABAREA control that contains the TABPAGE. Clicking a "tab" will display the TABPAGE with the associated id. | Obligatory | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

# VII Working with Controls

Controls are the elements that are placed inside containers. This part first gives some common rules that are valid for all controls, then describes the controls in more detail.

The information provided in this part is organized under the following headings:

Some Common Rules for all Controls

BREADCRUMB

BUTTON

BUTTONLIST

CHECKBOX

COMBODYN2

COMBOFIX

DATEINPUT

DROPICON

FIELD

FILEUPLOAD/FILEUPLOAD2

ICON

ICONLIST

IHTML

IMAGEOUT

IMAGEVIEWER

LABEL

MENUBUTTON

METHODLINK

MULTISELECT

NEWSFEED

RADIOBUTTON

SCHEDULELINE

SLIDER

STRIPSEL

SUBCISPAGE2

SUBPAGE

TABSEL

TABSTRIP2

TAGCLOUD

TEXT

TEXTOUT

TOGGLE

**Special Controls:**

ACTIVEX

CHART

GOOGLEMAP

LINECHART

NETMEETING

REPORT

SKYPECALL

TIMER

**Natural for Ajax Controls:**

NJX:BUTTONITEM

NJX:BUTTONITEMFIX

NJX:BUTTONITEMLIST

NJX:BUTTONITEMLISTFIX

NJX:DOCUMENTLINK

NJX:EVENTDATA

NJX:FIELDITEM

NJX:FIELDLIST

NJX:FIELDVALUE

NJX:MASHZONE

NJX:NJXFILEDOWNLOAD

NJX:NJXFILEUPLOAD2

NJX:NJXVARIABLE

# 41 Some Common Rules for all Controls

- Name and Text ID ........ 324
- Table, Row, Column, Control ........ 324
- Explicit Alignment ........ 324
- Binding to Adapter Parameters ........ 325
- Directly Influencing the Control Style ........ 325
- Dynamically Controlling the Visibility and the Display Status of Controls ........ 326
- Focus Management ........ 327
- Flushing of Inputs ........ 328
- Tab Sequence ........ 329
- Tooltips ........ 330
- Images ........ 331
- Documents ........ 332

## Name and Text ID

Every time a control needs a static text definition (the name of a button or the name of a label), there are always two possibilities to define this text:

- Specify a name directly.
- Specify a text ID. This is a literal replaced with a string that is determined inside the multi language management at runtime.

## Table, Row, Column, Control

Most controls that allow dynamic sizing offer the following properties:

- `colspan` - number of columns occupied by the control.
- `rowspan` - number of rows occupied by the control.
- `width` - width.
- `height` - height.

These properties influence the way how controls are placed into container rows.

## Explicit Alignment

Controls are put into table columns. If the column is wider or higher than the control itself, then you can explicitly control the vertical and horizontal alignment of the control inside the columns.

Most controls offer two properties:

- `valign`
  Specifies the vertical alignment. Valid values are "top", "middle", "bottom". "middle" is the default value.
- `align`
  Specifies the horizontal alignment. Valid values are "left", "center", "right". The default value depends on the control. For example, labels are aligned "left" by default, the default for radio buttons is "center".

Pay attention: `valign` and `align` only affect the position of the control inside the column in which it is positioned if the column is larger than the control. If the column is exactly as wide and high as the control itself, which is the typical case, then they do not have any visual effects - and also need not be defined.

`align`/`valign` do not affect the control's internal alignment.

## Binding to Adapter Parameters

Most controls provide properties to specify the binding to the adapter processing. There is a naming convention, which is:

- The names of the properties which specify the binding to an adapter parameter end with "prop".
- The names of the properties which specify the binding to an event end with "method".

The type of the adapter parameter which is referenced by a control depends on the control itself:

- Most controls directly bind to scalar adapter parameters.
- More complex controls bind to an array of group structures.

The type of adapter parameter is described with each control.

## Directly Influencing the Control Style

All controls that incorporate textual information - such as labels, buttons or fields - offer the possibility to influence directly the style that is used for displaying the information.

The normal style is derived from the definition inside a cascading style definition file (file *layout.css* inside the *html/general* directory of the server). Overwrite or enhance this style information for your controls by passing the style information inside the corresponding style properties.

The properties specifying the style information end with the suffix "style", e.g. there is a property `labelstyle` for the label tag. The value of the property can be any kind of a valid HTML style specification. If you want to change the display style of a label to be large and blue, define the label in the following way:

```
<label name="Test" width="150" labelstyle="font-size: 24pt; color: #0000FF">
</label>
```

## Dynamically Controlling the Visibility and the Display Status of Controls

It is possible to influence the visibility of all input controls (FIELD, BUTTON, etc.) by adapter parameters.

For some of these controls there is a property `visibleprop`, specifying an adapter parameter that returns "true" or "false". By this, you can control whether you want to display the control within the client or not.

Input controls support a property `statusprop` and a property `displayprop`. Using the corresponding adapter parameters, you can dynamically control the display status of the input control. The adapter parameter for the `statusprop` can contain the following values:

INVISIBLE
ERROR
ERROR_NO_FOCUS
FOCUS
FOCUS_NO_SELECT

The adapter parameter for the `displayprop` specifies whether the control is display-only (TRUE) or whether it can be edited (FALSE). The adapter parameter can contain the values "TRUE" and "FALSE".

The combination of these two parameter values dynamically defines how the controls are rendered at runtime. The following table defines the rendering of the control for the different combinations:

| `displayprop` | `statusprop` | **Control Status** |
|---|---|---|
| FALSE (default) | EDIT (deprecated) [1] | EDIT |
| FALSE (default) | INVISIBLE | INVISIBLE |
| FALSE (default) | ERROR | ERROR |
| FALSE (default) | ERROR_NO_FOCUS | ERROR_NO_FOCUS |
| FALSE (default) | FOCUS | FOCUS |
| FALSE (default) | FOCUS_NO_SELECT | FOCUS_NO_SELECT |
| TRUE | DISPLAY (deprecated) [1] | DISPLAY |
| TRUE | INVISIBLE | INVISIBLE |
| TRUE | ERROR | ERROR_DISPLAY |
| TRUE | ERROR_NO_FOCUS | ERROR_DISPLAY |
| TRUE | FOCUS | DISPLAY |
| TRUE | FOCUS_NO_SELECT | DISPLAY |

[1] For `statusprop`, the above-mentioned deprecated values are still supported to ensure compatibility with older versions. In case you use these deprecated values for `statusprop`, the values for `displayprop` are ignored.

The difference in behavior between "FOCUS" and "FOCUS_NO_SELECT" affects only the FIELD and TEXT controls. For these controls, FOCUS set the focus and selects the complete text inside the control. "FOCUS_NO_SELECT" sets the focus to the control, but does not select the text. For all other controls, "FOCUS_NO_SELECT" behaves like "FOCUS".

For all other controls - and for more complex manipulations of what is visible and not - use the possibility to be able to control the visibility of rows (ITR, TR) or containers (ROWAREA, ROWTABLE0): these controls provide for a visibility parameter and consequently can be switched on and off.

There is an extended management of what the control status "INVISIBLE" means. Most input controls (FIELD, CHECKBOX, etc.) supporting a `statusprop` or a `visibleprop` also support a property `invisiblemode`. The allowed values of `invisiblemode` are:

- **invisible**
  The corresponding control is completely removed. The horizontal space it occupied before is taken out.
- **cleared**
  The corrresponding control is not visible but still occupies its horizontal space.
- **disabled**
  The corresponding control is displayed with a disabled state. This state is only allowed with a certain number of controls (e.g. button and icon).

## Focus Management

Sometimes you want to control the keyboard focus inside a page. Here are the internal rules how a page finds out where to put the focus on.

The default reaction is - if a page is displayed for the first time - to put the focus on the first input control (FIELD, CHECKBOX, RADIOBUTTON, etc.) that is available inside a page. After that, you can navigate through the input controls - and the focus is kept stable when interacting with the server.

With `statusprop` - as mentioned in the previous section - you can interrupt this default reaction; there are two possibilities:

- If an input control is set to status "ERROR", it requests the focus automatically. The purpose is to guide the user automatically to those fields that are not correctly entered.

- If an input control is set to status "FOCUS", it is editable - just as normal - and also requests the focus.

If several input controls are requesting the focus at the same time, the focus is put on the first corresponding input control.

Sometimes you want to change the focus management behavior of the framework for specific server round trips. For TABPAGE controls, you sometimes want the framework not only to set the focus to the first focus-requesting input control but also to open the corresponding tab. For some events, you sometimes do not want the framework to automatically set the focus to the first focus-requesting control. The `focusmgtprop` property of the NATPAGE control allows you to control the focus management for single server round trips. Depending on the executed event, the application can define different focus management modes for corresponding server round trips. For more information, see the description of the `focusmgtprop` property of the **NATPAGE** control.

## Flushing of Inputs

Most input controls (FIELD, CHECKBOX, RADIOBUTTON, COMBOFIX, etc.) support a property named `flush`. This property controls whether data input from a user causes an immediate synchronisation with the server or whether data input from a user is stored internally within the client and is synchronized with the next flushing event (e.g. when choosing a button).

There are three different values that can be specified with the `flush` property:

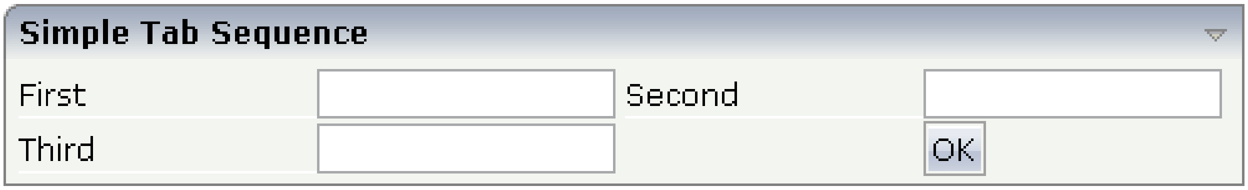
- **""(blank)**
  The data is not synchroized after leaving the control. This is the default.
- **server**
  The data is synchronized with the server immediately when the data has been entered, i.e. when the user has left the corresponding input field.
- **screen**
  The data is synchronized within the controls of the screen. This means - if you have two fields displaying the same property - you can synchronize the fields immediately, without interacting with the server.

**Tip:** On the one hand, it is useful to flush information in a very fine granular way; you can react on wrong entered data immediately - on the other hand, you have to remember that each flush causes network traffic. The screen's data is sent to the server side processing and the screen waits for the response of the server. During this time, the page is blocked for input and the user sees an hour glass popping up in the left top corner of the screen.

## Tab Sequence

By default, the tab sequence of the controls of a page is defined by the order of the controls inside the page's XML layout definition. Using the property `tabindex`, this order can be overridden and the order of the tab index can be explicitly defined.

The following example shows a page with three fields and one button with an explicitly defined tab sequence:



The XML layout definition is:

```
<rowarea name="Simple Tab Sequence">
    <itr takefullwidth="true">
        <coltable0 width="50%">
            <itr>
                <label name="First" width="120">
                </label>
                <field valueprop="first" width="120" tabindex="1">
                </field>
            </itr>
            <itr>
                <label name="Third" width="120">
                </label>
                <field valueprop="third" width="120" tabindex="3">
                </field>
            </itr>
        </coltable0>
        <coltable0 width="50%">
            <itr>
                <label name="Second" width="120">
                </label>
                <field valueprop="second" width="120" tabindex="2">
                </field>
            </itr>
            <itr>
                <hdist width="120">
                </hdist>
                <button name="OK" method="onOK" tabindex="4">
                </button>
            </itr>
        </coltable0>
    </itr>
</rowarea>
```

According to the sequence of controls inside the layout definition, the default tab sequence would be: field **First**, field **Third**, field **Second** and button **OK**.

Due to explicitly defining the `tabindex` property for the fields and the button, the tab sequence is now correct: field **First**, field **Second**, field **Third** and button **OK**.

Pay attention:

- Once having started to explicitly set the tab index in a page, you must consequently continue with all controls of the page. Adding new controls without tab index, is internally interpreted as if these controls were defined with tab index "0".
- Equal tab indices in controls are allowed. In this case, the sequence of the controls inside the layout definition defines the tab sequence among the controls with an equal index.
- Moving controls from one location to the other within a page typically means that you have to adapt the tab sequence accordingly.

The tab index usually is a positive integer value. You may define tab index "-1" for excluding certain controls from the tab sequence at all. In this case, the corresponding controls may only be reached by mouse clicking.

Conclusion:

- In typical pages, you do not have to take care of the tab sequence at all because the default (tab sequence by order of controls in page layout) is adequate to the user's experience.
- Only use the explicit definition of the tab sequence if really it is required - the effort for maintaing each tab index with each control should not be underestimated.

## Tooltips

Tooltips can be applied to many controls. If the user hovers with the mouse cursor over a control for some seconds, a small yellow box appears showing some more detailed explanation.

The corresponding controls offer two properties:

- `title`
  Here you can specify a hard-coded text that is used as the tooltip.
- `titletextid`
  Here you specify a text ID that is passed to the multi language management..

## Images

This section describes how to apply images that are contained in binary variables on the Natural server to your page layout. The images can be applied statically and dynamically.

**Static Images**

Many controls provide properties for loading images. In the corresponding image properties, you usually specify an absolute or relative URL such as "../myproject/images/myicon.gif". For images which are contained in binary variables on the Natural server, however, you must use a different URL value such as "nat:myimage1". Example:

```
<itr>
  <icon image="nat:myimage1">
  </icon>
</itr>
```

The prefix "nat:" indicates that the image is contained in a binary variable on the Natural server. "myimage1" is the name that your Natural application uses for this image. There is no need to download or copy the image manually from the Natural server to the application server or web container. This is done automatically by the Natural for Ajax framework.

You simply add an NJX:OBJECTS control to your page layout and provide the image data in the corresponding Natural data fields as shown below:

```
<natpage>
    <njx:objects>
    </njx:objects>
...
    <pagebody>
...
      <itr>
        <icon image="nat:myimage1">
        </icon>
      </itr>
```

For information on how to load the image into the data structure of the NJX:OBJECTS control, see the description of the **NJX:OBJECTS** control.

**Dynamic Images**

Dynamic images are specified in the same way as static images. You also add an NJX:OBJECTS control to your page layout. This time, you specify the images that are contained in a binary variable on the Natural server in the corresponding dynamic image properties of the control as shown below:

```
<natpage>
    <njx:objects>
    </njx:objects>
...
    <pagebody>
...
      <itr>
        <imageout valueprop="myimageprop">
        </imageout>
      </itr>
```

This allows your Natural program to apply images which are contained in a binary variable on the Natural server and images which reside in the web application layer alternatively to the same dynamic image property at runtime ("myimageprop" in the above example).

For information on how to load the image into the data structure of the NJX:OBJECTS control, see the description of the **NJX:OBJECTS** control.

## Documents

This section describes how to embed, download and upload documents that are contained in binary variables on the Natural server to your page layout.

**Embedding and Downloading Documents**

As with images, you add an NJX:OBJECTS control to your page layout and load the document into the corresponding data structure of the NJX:OBJECTS control. For further information, see the description of the **NJX:OBJECTS** control.

To embed a document into your page layout, you add a **SUBPAGE** control to your page. In the `valueprop` property of the SUBPAGE control, you have to specify the corresponding document URL dynamically at runtime. If you want to force downloading instead of opening the document, add the parameter `DOWNLOAD=TRUE` to the URL (for example, "nat:mydoc.pdf?DOWNLOAD=TRUE").

Via the **NJX:DOCUMENTLINK** control, you can integrate hyperlinks to documents. When clicking on a hyperlink, the corresponding document is opened in a pop-up dialog.

As an alternative to the NJX:DOCUMENTLINK control, you can use the predefined event `showDocumentForXXX` in all controls which support a method property. `XXX` is the name of a property you can choose. For `XXX`, a corresponding Natural field will automatically be generated in your Natural adapter. To show a document, when the `showDocumentForXXX` event is triggered, the Natural program must apply a valid document URL to the `XXX` field. This URL can refer to documents transported in the data structure of the NJX:OBJECTS control. It can also be a normal browser URL for a document which is accessible from within the web application.

Via the **NJX:NJXFILEDOWNLOAD** control, you can integrate hyperlinks which are directly executed by the browser. To force downloading the document, add the parameter `DOWNLOAD=TRUE` to the URL (for example, "nat:mydoc.pdf?DOWNLOAD=TRUE").

See also the **naturaldocument** example in the **njxdemos** project.

**Uploading Documents**

Via the **NJX:NJXFILEUPLOAD2** control you can upload documents from the client to the NJX:OBJECTS data structure. You can also upload dynamically generated PDF documents to the NJX:OBJECTS data structure by triggering corresponding built-in events in the **REPORT** control.

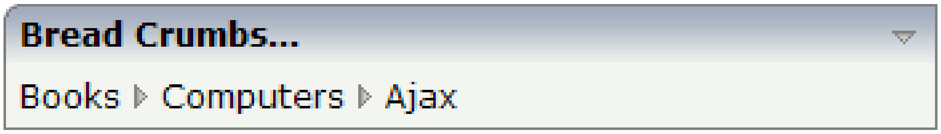
# 42 BREADCRUMB

- Example .......... 336
- Adapter Interface .......... 336
- Built-in Events .......... 336
- Properties .......... 337

The BREADCRUMB control represents a horizontal list of links. The number of links and the name of each link is dynamically controlled by the application.

The control always occupies 100% of the given width.

## Example



Bread Crumbs...

Books ▸ Computers ▸ Ajax

The XML layout definition is:

```
<rowarea name="Bread Crumbs...">
    <breadcrumb breadcrumbprop="items">
    </breadcrumb>
</rowarea>
```

## Adapter Interface

```
1 ITEMS (1:*)
2 STYLE (U) DYNAMIC
2 TEXT (U) DYNAMIC
2 TOOLTIP (U) DYNAMIC
1 ITEMSINFO
2 SELECTEDITEM (I4)
```

## Built-in Events

`value-of-breadcrumbprop`.onSelect

## Properties

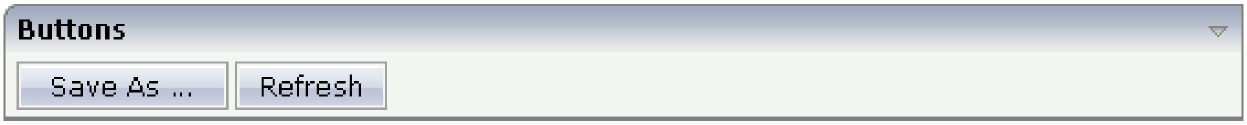
| Basic | | | |
|---|---|---|---|
| breadcrumbprop | Name of the adapter parameter that represents the control in the adapter. | Obligatory | |
| breadcrumbstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| pixeldistance | Pixel distance between the links that are rendered. | Optional | 1<br>2<br>3<br>int-value |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

# 43 BUTTON

- Example: Simple Button ........ 340
- Example: Button with Image ........ 341
- Hiding and Disabling Buttons ........ 341
- Properties ........ 341

The BUTTON control represents a button. Within the definition, specify an event that is sent to the adapter when choosing the button.

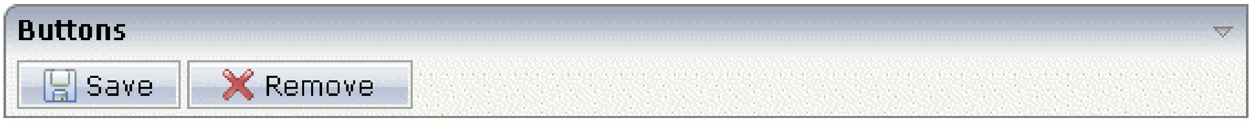
## Example: Simple Button



The XML layout definition is:

```
<rowarea name="Buttons">
    <itr>
        <button name="Save As ..." method="saveAs">
        </button>
        <hdist>
        </hdist>
        <button name="Refresh" method="refresh">
        </button>
    </itr>
</rowarea>
```

## Example: Button with Image



The XML layout definition is:

```
<rowarea name="Buttons">
    <itr>
       <button name="Save" method="onSave" image="../HTMLBasedGUI/images/save.gif">
        </button>
        <hdist>
        </hdist>
        <button name="Remove" method="onRemove" ↩
image="../HTMLBasedGUI/images/remove.gif">
        </button>
    </itr>
</rowarea>
```

## Hiding and Disabling Buttons

Buttons (like many other controls) can be dynamically hidden by using the `visibleprop` property - and referencing to a server side property that decides whether to hide a button or not.

There are two modes of hiding that can be controlled by using the property `invisiblemode`:

- If set to "disabled", the button is grayed and is not selectable anymore.
- If set to "invisible", the button is hidden.

## Properties

| Basic | | | |
|---|---|---|---|
| name | Text that is displayed inside the control. Please do not specify the name when using the multi language management - but specify a "textid" instead. | Sometimes obligatory | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime. | Sometimes obligatory | |

| | | | |
|---|---|---|---|
| | Do not specify a "name" inside the control if specifying a "textid". | | |
| method | Name of the event that is sent to the adapter when the user presses the button. | Obligatory | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| name | (already explained above) | | |
| textid | (already explained above) | | |
| image | URL of image that is displayed inside the control. Any image type (.gif, .jpg, ...) that your browser does understand is valid.<br>Use the following options to specify the URL:<br>(A) Define the URL relative to your page. Your page is generated directly into your project's folder. Specifiying "images/xyz.gif" will point into a directory parallel to your page. Specifying "../HTMLBasedGUI/images/new.gif" will point to an image of a neighbour project.<br>(B) Define a complete URL, like "http://www.softwareag.com/images/logo.gif". | Optional | gif<br>jpg<br>jpeg |
| invisiblemode | This property has three possible values:<br>(1) "invisible": the button is not visible without occupying any space.<br>(2) "disabled": the button is deactivated: it is "grayed" and does not show any roll over effects any more.<br>(3)"cleared": the button is not visible but it still occupies space. | Optional | invisible<br>disabled<br>cleared |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring | Optional | 100<br>120<br>140<br>160<br>180<br>200<br>50% |

| | | | |
|---|---|---|---|
| | up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | 100% |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| imageheight | Pixel height of image inside button. | Optional | |
| imagewidth | Pixel width of image inside button. | Optional | |
| textstyle | CSS style definition that is directly passed into the text of this control.<br>With the style you can individually influence the text of the button. You can specify any style sheet expressions. Examples are:<br>font-weight: bold<br>color: #FF0000 | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| buttonstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080 | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |

| | | | |
|---|---|---|---|
| | You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | | |
| stylevariant | Some controls offer the possibility to define style variants. By this style variant you can address different styles inside your style sheet definition file (.css). If not defined "normal" styles are chosen, if defined (e.g. "VAR1") then other style definitions (xxxVAR1xxx) are chosen.<br>Purpose: you can set up style variants in the style sheet defintion and use them multiple times by addressing them via the "stylevariant" property. CIS currently offerst two variants "VAR1" and "VAR2" but does not predefine any semantics behind - this is up to you! | Optional | VAR1<br>VAR2 |
| align | Horizontal alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimes the size of the column is bigger than the size of the control itself. In this case the "align" property specifies the position of the control inside the column. In most cases you do not require the align control to be explicitly defined because the size of the column around the controls exactly is sized in the same way as the contained control.<br>If you want to directly control the alignment of text: in most text based controls there is an explicit property "textalign" in which you align the control's contained text. | Optional | left<br>center<br>right |
| valign | Vertical alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | Optional | top<br>middle<br>bottom |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns. | Optional | 1<br>2<br>3<br>4 |

| | | | |
|---|---|---|---|
| | The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | | 5<br>50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| imagedisabled | URL of image that is displayed if the control is disabled. Use properties VISIBLEPROP and INVISIBLEMODE to disable the control. | Optional | gif<br>jpg<br>jpeg |
| submitbutton | Set this property to true and the button will work as an 'Submitbutton', that is neccessary if you want to transfer and/or save form values.<br>i.e. password and username or complete search forms<br>Default value is false.<br>You should only use a 'Submitbutton' if the withformtag option of the pagebody tag is set true. | Optional | true<br>false |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1<br>2<br>5<br>10<br>32767 |
| Binding | | | |
| method | (already explained above) | | |

| | | | |
|---|---|---|---|
| visibleprop | Name of the adapter parameter that provides the information if this control is displayed or not. As consequence you can control the visibility of the control dynamically. | Optional | |
| nameprop | Name of an adapter parameter that provides the text to be displayed inside the button. Typically buttons have static texts either defined by the property "name" or "textid". Via "nameprop" you can dynamically set the button's text by your application. Use the nameprop in cases the button's text should change dependent on your logic.<br>Example: you may want to define the button's text to reflect the next status the user can set to a business object. | Optional | |
| titleprop | Name of the adapter parameter that dynamically defines the title of the control. The title is displayed as tool tip when ther user moves the mouse onto the control. | Optional | |
| imageprop | Name of adapter parameter that provides as value the URL of the image that is shown inside the control. | Optional | |
| imagedisabledprop | Name of the adapter parameter that provides as value the URL of the image that is shown when the control is disabled. | Optional | |
| focusedprop | Name of the adapter parameter which indicates if the control should receive focus. | Optional | |
| Online help | | | |
| title | Text that is shown as tooltip for the control.<br>Either specify the text "hard" by using this TITLE property - or use the TITLETEXTID in order to define a language dependent literal. | Optional | |
| titletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text that is used for the control. | Optional | |
| titleprop | (already explained above) | | |
| Miscellaneous | | | |
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |

# 44 BUTTONLIST

- Adapter Interface ........................................ 348
- Properties ........................................ 348

The button list represents a vertical arrangement of buttons. The number of buttons and the name on each button are dynamically controlled by the application.

The controls always occupy 100% of the given width and occupy the height required by the buttons.

## Adapter Interface

```
1 BUTTONLIST (1:*)
2 ID (U) DYNAMIC
2 IMAGEURL (U) DYNAMIC
2 METHOD (U) DYNAMIC
2 STYLE (U) DYNAMIC
2 TEXT (U) DYNAMIC
```

## Properties

| Basic | | | |
|---|---|---|---|
| buttonlistprop | Name of the adapter parameter that represents the control in the adapter. | Obligatory | |
| pixeldistance | Pixel distance between the buttons that are rendered. | Optional | 1<br>2<br>3<br>int-value |
| buttonstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |

| | | | |
|---|---|---|---|
| imageheight | Pixel height of image inside button. | Optional | |
| imagewidth | Pixel width of image inside button. | Optional | |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1<br>2<br>5<br>10<br>32767 |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Miscellaneous | | | |
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |

# 45 CHECKBOX

- Properties ........ 352

The CHECKBOX control displays a check box. It represents a boolean value in the application.

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| valueprop | Name of the adapter parameter that represents the control in the adapter. | Obligatory | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| displayonly | If set to true, the FIELD will not be accessible for input. It is just used as an output field. | Optional | true<br>false |
| align | Horizontal alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimes the size of the column is bigger than the size of the control itself. In this case the "align" property specifies the position of the control inside the column. In most cases you do not require the align control to be explicitly defined because the size of the column around the controls exactly is sized in the same way as the contained control. | Optional | left<br>center<br>right |

| | | | |
|---|---|---|---|
| | If you want to directly control the alignment of text: in most text based controls there is an explicit property "textalign" in which you align the control's contained text. | | |
| valign | Vertical alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | Optional | top<br>middle<br>bottom |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| invisiblemode | If the visibility of the control is determined dynamically by an adapter property then there are two rendering modes if the visibility is "false":<br>(1) "invisible": the control is not visible.<br>(2)"cleared": the control is not visible but it still occupies space. | Optional | invisible<br>cleared |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1 |

| | | | |
|---|---|---|---|
| | | | 2<br>5<br>10<br>32767 |
| Label | | | |
| name | Text that is displayed inside the control. Please do not specify the name when using the multi language management - but specify a "textid" instead. | Optional | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Optional | |
| hdistpixelwidth | Witdh of the distance between checkbox and label in pixel. | Optional | |
| labelstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| Binding | | | |
| valueprop | (already explained above) | | |
| displayprop | Name of the adapter parameter that dynamically passes information whether the field is displayonly("true") or not ("false"). Notice that in the Natural code the type for the field is alphanumeric. | Optional | |
| statusprop | Name of the adapter parameter that dynamically passes information how the control should be rendered and how it should act. Valid parameter values at runtime: "INVISIBLE", "FOCUS", "FOCUS_NO_SELECT", "ERROR", | Optional | |

| | | | |
|---|---|---|---|
| | "ERROR_NO_FOCUS". Use DISPLAYPROP to dynamically define whether the field is displayonly. | | |
| flush | Flushing behaviour of the input control.<br>By default an input into the control is registered within the browser client - and communicated to the server adapter object when a user e.g. presses a button. By using the FLUSH property you can change this behaviour.<br>Setting FLUSH to "server" means that directly after changing the input a synchronization with the server adapter is triggered. As consequence you directly can react inside your adapter logic onto the change of the corresponding value. - Please be aware of that during the synchronization always all changed properties - also the ones that were changed before - are transferred to the adapter object, not only the one that triggered the synchonization.<br>Setting FLUSH to "screen" means that the changed value is populated inside the page. You use this option if you have redundant usage of the same property inside one page and if you want to pass one changed value to all its representaion directly after changing the value. | Optional | screen<br>server |
| flushmethod | When the data synchronization of the control is set to FLUSH="server" then you can specify an explicit event to be sent when the user updates the content of the control. By doing so you can distinguish on the server side from which control the flush of data was triggered. | Optional | |
| Online Help | | | |
| helpid | Help id that is passed to the online help management in case the user presses F1 on the control. | Optional | |
| title | Text that is shown as tooltip for the control.<br>Either specify the text "hard" by using this TITLE property - or use the TITLETEXTID in order to define a language dependent literal. | Optional | |
| titletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text that is used for the control. | Optional | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is | Optional | |

| | | | |
|---|---|---|---|
| | generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | | |
| njx:natsysvar | If the control shall be bound to a Natural system variable, this attribute specifies the name of the system variable. | Optional | |
| njx:natsysio | If the control shall be bound to a Natural system variable with the attribute njx:natsysvar, this attribute indicates if the system variable is modifiable. The default is false. | Optional | |
| njx:natcv | Name of a Natural control variable that shall be assigned to the control. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |
| Miscellaneous | | | |
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |

Typically, the CHECKBOX is followed by a LABEL control naming the displayed check box. In the LABEL definition, set the property `asplaintext` to "true".

# 46 COMBODYN2

- Adapter Interface ............................................................ 358
- Properties ............................................................ 358

The COMBODYN control is the dynamic counterpart of the COMBOFIX control. Whereas the selection options inside the COMBOFIX control are defined in a fixed way inside the page definition, the COMBODYN2 control offers the possibility to control the selection options dynamically in the application.

## Adapter Interface

```
1 COSTCENTER (U) DYNAMIC
1 VALIDCOSTCENTERS (1:*)
2 ID (U) DYNAMIC
2 NAME (U) DYNAMIC
2 SELECTED (L)
```

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| valueprop | Name of the adapter parameter that provides the content of the control. | Obligatory | |
| validvaluesprop | Name of the adapter parameter that provides the valid values that are available as selectable options. | Obligatory | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Sometimes obligatory | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| width | (already explained above) | | |

| | | | |
|---|---|---|---|
| size | Number of rows that are displayed inside the control. If specified as "1" (default) then the control is rendered as combo box - if ">1" then the control is rendered as multi line selection. | Optional | |
| displayonly | If set to true, the FIELD will not be accessible for input. It is just used as an output field. | Optional | |
| direction | Presets the default(BiDi) direction of the control. Use black string in order to have the default value. | Optional | rtl<br>ltr |
| align | Horizontal alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimes the size of the column is bigger than the size of the control itself. In this case the "align" property specifies the position of the control inside the column. In most cases you do not require the align control to be explicitly defined because the size of the column around the controls exactly is sized in the same way as the contained control.<br>If you want to directly control the alignment of text: in most text based controls there is an explicit property "textalign" in which you align the control's contained text. | Optional | left<br>center<br>right |
| valign | Vertical alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | Optional | top<br>middle<br>bottom |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns. | Optional | 1<br>2<br>3<br>4 |

| | | | |
|---|---|---|---|
| | The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | | 5<br>50<br>int-value |
| renderasfield | If set to "true" then the combo box is rendered like a FIELD control that offers valid value support.<br>Default is "false".<br>The normal translation of COMBODYN2 into HTML renders an HTML-select control. This control has certain limitations inside Internet Explorer: it only offers a very reduced set of styles to manipulate its look and feel and - much worse: it always occupies z-index "0" i.e. if you other areas overlapping the COMBODYN2 area then COMBODYN2 is always on the top. This is quite ugly if e.g. a menu is opened and parts of the menu overlap a COMBODYN2 control. | Optional | true<br>false |
| allowmultiselection | If set to true then multiple selections are allowed. | Optional | true<br>false |
| combostyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | |
| invisiblemode | If the visibility of the control is determined dynamically by an adapter property then there are two rendering modes if the visibility is "false":<br>(1) "invisible": the control is not visible.<br>(2)"cleared": the control is not visible but it still occupies space. | Optional | invisible<br>cleared |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0 |

| | | | |
|---|---|---|---|
| | | | 1<br>2<br>5<br>10<br>32767 |
| Binding | | | |
| valueprop | (already explained above) | | |
| validvaluesprop | (already explained above) | | |
| displayprop | Name of the adapter parameter that dynamically passes information whether the field is displayonly("true") or not ("false"). Notice that in the Natural code the type for the field is alphanumeric. | Optional | |
| statusprop | Name of the adapter parameter that dynamically passes information how the control should be rendered and how it should act. Valid parameter values at runtime: "INVISIBLE", "FOCUS", "FOCUS_NO_SELECT", "ERROR", "ERROR_NO_FOCUS". Use DISPLAYPROP to dynamically define whether the field is displayonly. | Optional | |
| titleprop | Name of the adapter parameter that dynamically defines the title of the control. The title is displayed as tool tip when ther user moves the mouse onto the control. | Optional | |
| flush | Flushing behaviour of the input control.<br>By default an input into the control is registered within the browser client - and communicated to the server adapter object when a user e.g. presses a button. By using the FLUSH property you can change this behaviour.<br>Setting FLUSH to "server" means that directly after changing the input a synchronization with the server adapter is triggered. As consequence you directly can react inside your adapter logic onto the change of the corresponding value. - Please be aware of that during the synchronization always all changed properties - also the ones that were changed before - are transferred to the adapter object, not only the one that triggered the synchonization.<br>Setting FLUSH to "screen" means that the changed value is populated inside the page. You use this option if you have redundant usage of the same property inside one page and if you want to pass one changed value to all its representaion directly after changing the value. | Optional | screen<br>server |

| | | | |
|---|---|---|---|
| flushmethod | When the data synchronization of the control is set to FLUSH="server" then you can specify an explicit event to be sent when the user updates the content of the control. By doing so you can distinguish on the server side from which control the flush of data was triggered. | Optional | |
| Online Help | | | |
| helpid | Help id that is passed to the online help management in case the user presses F1 on the control. | Optional | |
| titleprop | (already explained above) | | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natsysvar | If the control shall be bound to a Natural system variable, this attribute specifies the name of the system variable. | Optional | |
| njx:natsysio | If the control shall be bound to a Natural system variable with the attribute njx:natsysvar, this attribute indicates if the system variable is modifiable. The default is false. | Optional | |
| njx:natstringtype | If the control shall be bound to a Natural system variable of string format with the attribute njx:natsysvar, this attribute indicates the format of the string, A (code page) or U (Unicode). The default is A. | Optional | |
| njx:natcv | Name of a Natural control variable that shall be assigned to the control. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |
| Miscellaneous | | | |
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |

# 47 COMBOFIX

- COMBOFIX Properties ........ 364
- COMBOOPTION Properties ........ 368

The COMBOFIX control is a selection control. Depending on its configuration, it is either displayed as a combo box or as a selection list.

The COMBOFIX control allows specifying a defined set of values which can be selected. This set of values is defined as part of the layout definition - it cannot be controlled dynamically by the application.

**Note:** If you want to use dynamic selection, there are two possibilities. Either use the COMBODYN control which has the same look and feel as the COMBOFIX control, but where the selectable values are not specified as part of the page definition and are controlled by the application. Or use the value help pop-up dialogs.

## COMBOFIX Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| valueprop | Name of the adapter parameter that provides the content of the control. | Obligatory | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| width | (already explained above) | | |
| size | Number of rows that are displayed inside the control. If specified as "1" (default) then the control is rendered as combo box - if ">1" then the control is rendered as multi line selection. | Optional | |

| | | | |
|---|---|---|---|
| displayonly | If set to true, the FIELD will not be accessible for input. It is just used as an output field. | Optional | |
| direction | Presets the default(BiDi) direction of the control. Use black string in order to have the default value. | Optional | rtl<br>ltr |
| align | Horizontal alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimes the size of the column is bigger than the size of the control itself. In this case the "align" property specifies the position of the control inside the column. In most cases you do not require the align control to be explicitly defined because the size of the column around the controls exactly is sized in the same way as the contained control.<br>If you want to directly control the alignment of text: in most text based controls there is an explicit property "textalign" in which you align the control's contained text. | Optional | left<br>center<br>right |
| valign | Vertical alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | Optional | top<br>middle<br>bottom |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). | Optional | 1<br>2<br>3<br>4<br>5 |

| | | | |
|---|---|---|---|
| | It does not make sense in ITR rows, because these rows are explicitly not synched. | | 50<br>int-value |
| combostyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | |
| invisiblemode | If the visibility of the control is determined dynamically by an adapter property then there are two rendering modes if the visibility is "false":<br>(1) "invisible": the control is not visible.<br>(2)"cleared": the control is not visible but it still occupies space. | Optional | invisible<br>cleared |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1<br>2<br>5<br>10<br>32767 |
| datatype | By default, the control is managing its content as string. By explicitly setting a datatype you can define that the control will format the data coming from the server: if the field has datatype "date" and the user inputs "010304" then the input will be translated into "01.03.2004" (or other representation, dependent on date format settings).<br>Please note: the datatype "float" is named a bit misleading - it represents any decimal format number. The server side | Optional | xs:string<br>------------------------<br>N n.n<br>P n.n<br>string n |

| | | | |
|---|---|---|---|
| | representation may be a float value, but also can be a double or a BigDecimal property. | | |
| Binding | | | |
| valueprop | (already explained above) | | |
| displayprop | Name of the adapter parameter that dynamically passes information whether the field is displayonly("true") or not ("false"). Notice that in the Natural code the type for the field is alphanumeric. | Optional | |
| statusprop | Name of the adapter parameter that dynamically passes information how the control should be rendered and how it should act. Valid parameter values at runtime: "INVISIBLE", "FOCUS", "FOCUS_NO_SELECT", "ERROR", "ERROR_NO_FOCUS". Use DISPLAYPROP to dynamically define whether the field is displayonly. | Optional | |
| flush | Flushing behaviour of the input control.<br>By default an input into the control is registered within the browser client - and communicated to the server adapter object when a user e.g. presses a button. By using the FLUSH property you can change this behaviour.<br>Setting FLUSH to "server" means that directly after changing the input a synchronization with the server adapter is triggered. As consequence you directly can react inside your adapter logic onto the change of the corresponding value. - Please be aware of that during the synchronization always all changed properties - also the ones that were changed before - are transferred to the adapter object, not only the one that triggered the synchonization.<br>Setting FLUSH to "screen" means that the changed value is populated inside the page. You use this option if you have redundant usage of the same property inside one page and if you want to pass one changed value to all its representaion directly after changing the value. | Optional | screen<br>server |
| flushmethod | When the data synchronization of the control is set to FLUSH="server" then you can specify an explicit event to be sent when the user updates the content of the control. By doing so you can distinguish on the server side from which control the flush of data was triggered. | Optional | |
| Online Help | | | |
| helpid | Help id that is passed to the online help management in case the user presses F1 on the control. | Optional | |
| Miscellaneous | | | |

| | | | |
|---|---|---|---|
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |

## COMBOOPTION Properties

| Basic | | | |
|---|---|---|---|
| name | Name that is displayed as selectable option. Either use the NAME property to specify the text in a "hard" way or use the TEXTID property to define the text in a language dependent way. | Optional | |
| textid | Text ID that is used for this option. The text id is passed to the multi language management in order to find a language dependent text. | Optional | |
| value | Actual value of the option that is passed into the adapter property specified by VALUEPROP inside the COMBOFIX control. | Optional | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

# 48 DATEINPUT

- Example ........................................................................................................................ 370
- Properties ...................................................................................................................... 370

The DATEINPUT control is used to input a date or a date with time. The input can be done both with the keyboard or by opening a pop-up in which the user can browse through a calendar. The calendar can be controlled by server side processing in the following way:

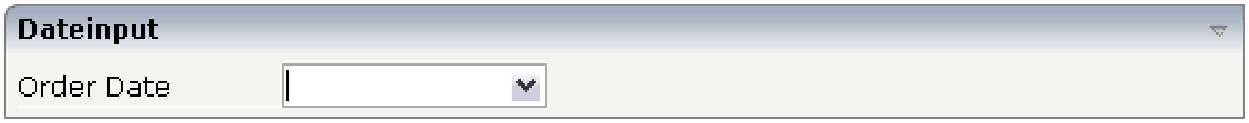
- You can define a valid-from and a valid-to date. Thus, the control will not allow the user to input an invalid date.
- You can explicitly control the color and the tooltip information inside the calendar. For example, you may set up a calendar in which vacation times are hightlighted in a certain way.

## Example

The most simple usage scenario is to just use the DATEINPUT control in the following way:

```
<rowarea name="Dateinput">
    <itr>
        <label name="Order Date" width="120">
        </label>
        <dateinput valueprop="orderDate" width="120">
        </dateinput>
    </itr>
</rowarea>
```

The corresponding screen looks like this:



## Properties

| Basic | | | |
|---|---|---|---|
| valueprop | Name of the adapter parameter that provides the content of the control. | Optional | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content. | Optional | 100<br>120<br>140<br>160<br>180 |

| | | | |
|---|---|---|---|
| | (B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | 200<br>50%<br>100% |
| datatype | By default, the DATEINPUT control is managing a day. By explicitly setting a datatype you can define that the control is managing a day and time. In the first use type CDATE within your adapter program - in the second case use type CTIMESTAMP. | Optional | date<br>datetime<br>------------------------<br>xs:date<br>xs:dateTime |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Binding | | | |
| valueprop | (already explained above) | | |
| fromprop | Name of the adapter parameter that provides a lower limit for the value of the control. The value is used for client side validation of user input. | Optional | |
| toprop | Name of the adapter parameter that provides an upper limit for the value of the control. The value is used for client side validation of user input. | Optional | |
| infoprop | Name of the adapter parameter that provides style information that is used inside the date popup. | Optional | |
| secondsvisprop | Name of the adapter parameter that provides a boolean that indicates if to show additional seconds. This property make sense only if property DATATYPE is set to "daytime". | Optional | |
| statusprop | Name of the adapter parameter that dynamically passes information how the control should be rendered and how it should act. Valid parameter values at runtime: "INVISIBLE", "FOCUS", "FOCUS_NO_SELECT", "ERROR", "ERROR_NO_FOCUS". Use DISPLAYPROP to dynamically define whether the field is displayonly. | Optional | |
| flush | Flushing behaviour of the input control. | Optional | screen |

| | | | |
|---|---|---|---|
| | By default an input into the control is registered within the browser client - and communicated to the server adapter object when a user e.g. presses a button. By using the FLUSH property you can change this behaviour.<br>Setting FLUSH to "server" means that directly after changing the input a synchronization with the server adapter is triggered. As consequence you directly can react inside your adapter logic onto the change of the corresponding value. - Please be aware of that during the synchronization always all changed properties - also the ones that were changed before - are transferred to the adapter object, not only the one that triggered the synchonization.<br>Setting FLUSH to "screen" means that the changed value is populated inside the page. You use this option if you have redundant usage of the same property inside one page and if you want to pass one changed value to all its representaion directly after changing the value. | | server |
| flushmethod | When the data synchronization of the control is set to FLUSH="server" then you can specify an explicit event to be sent when the user updates the content of the control. By doing so you can distinguish on the server side from which control the flush of data was triggered. | Optional | |
| Appearance | | | |
| invisiblemode | If the visibility of the control is determined dynamically by an adapter property then there are two rendering modes if the visibility is "false":<br>(1) "invisible": the control is not visible.<br>(2)"cleared": the control is not visible but it still occupies space. | Optional | invisible<br>cleared |
| displayonly | If set to true, the FIELD will not be accessible for input. It is just used as an output field. | Optional | true<br>false |
| align | Horizontal alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimes the size of the column is bigger than the size of the control itself. In this case the "align" property specifies the position of the control inside the column. In most cases you do not require the | Optional | left<br>center<br>right |

| | | | |
|---|---|---|---|
| | align control to be explicitly defined because the size of the column around the controls exactly is sized in the same way as the contained control.<br>If you want to directly control the alignment of text: in most text based controls there is an explicit property "textalign" in which you align the control's contained text. | | |
| valign | Vertical alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | Optional | top<br>middle<br>bottom |
| inputstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| colspan | Column spanning of control. | Optional | 1<br>2 |

| | | | |
|---|---|---|---|
| | If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | | 3<br>4<br>5<br>50<br>int-value |
| noborder | Boolean value defining if the control has a border. Default is "false". | Optional | true<br>false |
| transparentbackground | Boolean value defining if the control is rendered with a transparent background. Default is "false". | Optional | true<br>false |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1<br>2<br>5<br>10<br>32767 |
| Valuehelp | | | |
| popupicon | URL of image that is displayed inside the right corner of the field to indicate to the user that there is some value help available.. Any image type (.gif, .jpg, ...) that your browser does understand is valid.<br>Use the following options to specify the URL:<br>(A) Define the URL relative to your page. Your page is generated directly into your project's folder. Specifiying "images/xyz.gif" will point into a directory parallel to your page. Specifying "../HTMLBasedGUI/images/new.gif" will point to an image of a neighbour project.<br>(B) Define a complete URL, like "http://www.softwareag.com/images/logo.gif". | Optional | gif<br>jpg<br>jpeg |

| | | | |
|---|---|---|---|
| popupinputonly | Boolean property that control if a field with POPUPMETHOD defined is still usable for keyboard input. If "false" (= default) then the user can input a value either directly via keyboard or by using the popupmethod's help. If set to "true" then no keyboard input is possible - but only selection from the popup-method's help. | Optional | true<br>false |
| popuponalt40 | Value help in a field is triggered either by clicking with the mouse or by pressing a certain key inside the field. The "traditional" keys are "cusrsor-down", "F7" or "F4". Sometimes you do not want to mix other "cursor-down" behaviour (e.g. scrolling in lists) with the value help behaviour. In this case switch this property to "true" - and the value help will only come up anymore when "alt-cursor-down" is pressed. | Optional | true<br>false |
| Online Help | | | |
| title | Text that is shown as tooltip for the control.<br>Either specify the text "hard" by using this TITLE property - or use the TITLETEXTID in order to define a language dependent literal. | Optional | |
| titletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text that is used for the control. | Optional | |
| titleprop | Name of the adapter parameter that dynamically defines the title of the control. The title is displayed as tool tip when ther user moves the mouse onto the control. | Optional | |
| helpid | Help id that is passed to the online help management in case the user presses F1 on the control. | Optional | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |

| | | | |
|---|---|---|---|
| njx:natsysvar | If the control shall be bound to a Natural system variable, this attribute specifies the name of the system variable. | Optional | |
| njx:natsysio | If the control shall be bound to a Natural system variable with the attribute njx:natsysvar, this attribute indicates if the system variable is modifiable. The default is false. | Optional | |
| njx:natstringtype | If the control shall be bound to a Natural system variable of string format with the attribute njx:natsysvar, this attribute indicates the format of the string, A (code page) or U (Unicode). The default is A. | Optional | |
| njx:natcv | Name of a Natural control variable that shall be assigned to the control. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |

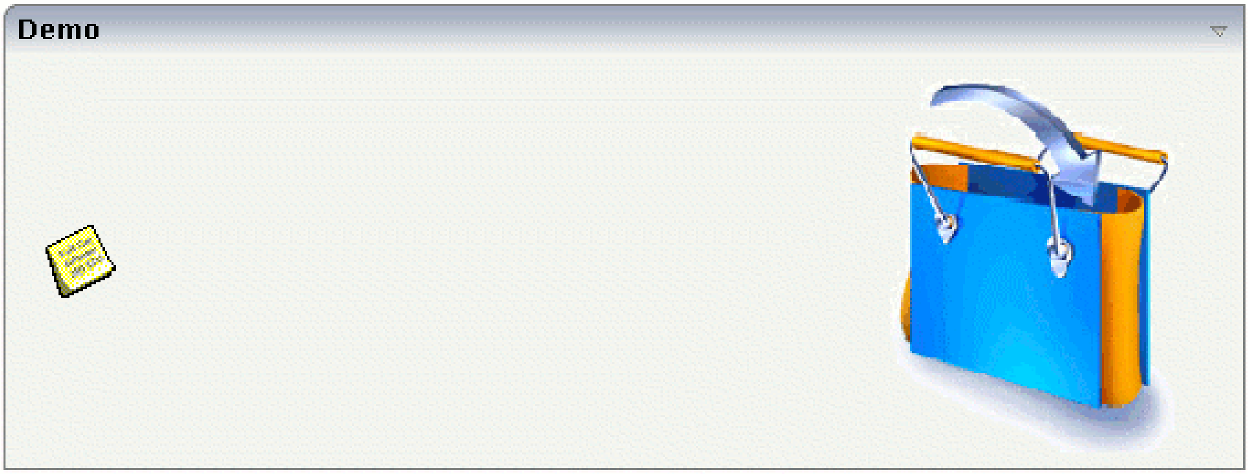
# 49 DROPICON

- Example ........................................................ 378
- Properties ........................................................ 378

The DROPICON control is an icon that can be used in order to build drag-and-drop scenarios. A DROPICON can be defined as the starting point of a drag-and-drop operation or as the target point of a drag-and-drop operation.

## Example

Have a look at the following screen:



The user can click the left mouse button on the left icon (drag), move the mouse to the right icon and then release the mouse button (drop).

The configuration of drag and drop is quite simple: the icon that is used for starting drag-and-drop operations leaves a certain drag information - a plain string. The receiving icon, on which the user performs the drop operation, receives both an event and the string which was left by the icon from where the operation was started.

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| image | URL that points to the image that is shown as icon.<br>The URL either is an absolute URL or a relative URL. If using a relative URL then be aware of that the generated page is located directly inside your project's directory.<br>Example: "images/icon.gif" points to an icon in an images-folder that is parallel to the page itself. | Obligatory | gif<br>jpg<br>jpeg |

| | | | |
|---|---|---|---|
| | "../HTMLBasedGUI/images/new.gif" point to a URL that is located inside a different project. | | |
| draginfo | String containing any kind of application data to identify the source DROPINFO control within a drag and drop process. Use property DROPINFOPROP to return this data on runtime. | Optional | |
| draginfoprop | Name of the adapter parameter that provides for information that is passed to the adapter when dropping this control over another DROPICON. Do not use this property (or property DROPINFO respectively) if you do not want the user to drag this control. | Optional | |
| dropinfoprop | Name of the adapter parameter to that the "drag info" of the dragged DROPICON control is set. Do not use this property if this control should not accept other DROPICON controls within a drag and drop process (i.e. is not a drop target). | Optional | |
| dropmethod | Name of the event that is sent to the adapter when the user is dragging another DROPICON control over this control and drops it there. Do not use this parameter if this control should not accept other DROPICON controls within a drag and drop process (i.e. is not a drop target). | Sometimes obligatory | |
| method | Name of the event that is sent to the adapter when clicking on the control. | Sometimes obligatory | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Binding | | | |
| draginfoprop | (already explained above) | | |
| dropinfoprop | (already explained above) | | |
| dropmethod | (already explained above) | | |
| imageprop | Name of adapter parameter that provides as value the URL of the image that is shown inside the control. | Optional | |
| method | (already explained above) | | |
| visibleprop | Name of the adapter parameter that provides the information if this control is displayed or not. As consequence you can control the visibility of the control dynamically. | Optional | |
| titleprop | Name of the adapter parameter that dynamically defines the title of the control. The title is displayed as tool tip when ther user moves the mouse onto the control. | Optional | |
| Appearance | | | |
| image | (already explained above) | | |
| invisiblemode | If the visibility of the control is determined dynamically by an adapter property then there are two rendering modes if the visibility is "false": | Optional | invisible<br>cleared |

| | | | |
|---|---|---|---|
| | (1) "invisible": the control is not visible.<br>(2)"cleared": the control is not visible but it still occupies space. | | |
| imageinactive | If the visibility is dynamically controlled by using the INVISIBLEPROP then there are two ways the icon reacts if the corresponding property passes back "false".<br>If you want the icon to switch into an inactive status then define inside this property the URL of the image that is the inactive counter part to the normal icon image. Maybe the image is a grayed version of the normal icon image.<br>If you do not define a value for this property then the icon is made invisible. | Optional | |
| imagewidth | Pixel width of the image that is shown inside the icon. If not defined then the icon is rendered with its normal width. | Optional | |
| imageheight | Pixel height of the image that is shown inside the icon. If not defined then the icon is rendered with its normal height. | Optional | |
| withdistance | If set to "true" then 2 pixels of distance are kept on the left and on the right of the icon.<br>Reason behing: if arranging several icons inside one table row (ITR, TR) then a certain distance is kept between the icons when this property is set to "true". | Optional | true<br>false |
| align | Horizontal alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimes the size of the column is bigger than the size of the control itself. In this case the "align" property specifies the position of the control inside the column. In most cases you do not require the align control to be explicitly defined because the size of the column around the controls exactly is sized in the same way as the contained control.<br>If you want to directly control the alignment of text: in most text based controls there is an explicit property "textalign" in which you align the control's contained text. | Optional | left<br>center<br>right |
| valign | Vertical alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | Optional | top<br>middle<br>bottom |

| | | | |
|---|---|---|---|
| colstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| spanstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1<br>2<br>5<br>10<br>32767 |
| Online Help | | | |
| title | Text that is shown as tooltip for the control. | Optional | |

| | | | |
|---|---|---|---|
| | Either specify the text "hard" by using this TITLE property - or use the TITLETEXTID in order to define a language dependent literal. | | |
| titletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text that is used for the control. | Optional | |
| titleprop | (already explained above) | | |

# 50 FIELD

- Built-in Events ........................................ 384
- Properties ........................................ 384

The FIELD control is used for entering data. It provides the following features:

- Normal input/output of text.
- Password input.
- Dynamic control if input is allowed.
- Dynamic highlighting of field in case of errors.
- Flush the input directly to the server when leaving the field.
- Raise an event on pressing F4 or F7 or on click - useful for value help pop-up dialogs
- Adapt the output to a data type (e.g. transfer "YYYYMMDD" to a visible date field)

## Built-in Events

findValidValuesForXXX

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| valueprop | Name of the adapter parameter that provides the content of the control. | Obligatory | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Sometimes obligatory | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |

| | | | |
|---|---|---|---|
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| width | (already explained above) | | |
| length | Width of FIELD in amount of characters. WIDTH and LENGTH should not be used together. Note that the actual size of the control depends on the font definition if using the LENGTH property. | Optional | 5<br>10<br>15<br>20<br>int-value |
| maxlength | Maximum number of characters that a user may enter into this FIELD. This property is not depending on the LENGTH property - please do not get confused by the similar naming. MAXLENGTH has nothing to do with the optical sizing of the control but only with the number of characters you may input. | Optional | 5<br>10<br>15<br>20<br>int-value |
| autotab | If set to true, an automatic tab is executed for fields with a specified MAXLENGTH when the maxlength value is reached. For fields without a MAXLENGTH specified it has no effect. Default is true. | Optional | true<br>false |
| textalign | Alignment of text inside the control. | Optional | left<br>center<br>right |
| password | If set to "true", each entered character is displayed as a '*'. | Optional | true<br>false |
| displayonly | If set to true, the FIELD will not be accessible for input. It is just used as an output field. | Optional | true<br>false |
| direction | Presets the default(BiDi) direction of the control. Use black string in order to have the default value. | Optional | rtl<br>ltr |
| uppercase | If "true" then all input is automatically transferred to upper case characters. | Optional | true |

| | | | |
|---|---|---|---|
| | | | false |
| align | Horizontal alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimes the size of the column is bigger than the size of the control itself. In this case the "align" property specifies the position of the control inside the column. In most cases you do not require the align control to be explicitly defined because the size of the column around the controls exactly is sized in the same way as the contained control.<br>If you want to directly control the alignment of text: in most text based controls there is an explicit property "textalign" in which you align the control's contained text. | Optional | left<br>center<br>right |
| valign | Vertical alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | Optional | top<br>middle<br>bottom |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. | Optional | 1<br>2<br>3<br>4<br>5 |

| | | | |
|---|---|---|---|
| | TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | | 50<br>int-value |
| fieldstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| noborder | Boolean value defining if the control has a border. Default is "false". | Optional | true<br>false |
| transparentbackground | Boolean value defining if the control is rendered with a transparent background. Default is "false". | Optional | true<br>false |
| bgcolorprop | Name of the adapter parameter that provides the background color of the control. | Optional | |
| fgcolorprop | Name of the adapter parameter that passes back a color value (e.g. "#FF0000" for red color). The color value is used as text color in the control. - The background color is automatically chosen dependent from the text color: for light text colors the background color is black, for dark text colors the color is default. Use BGCOLORPROP to choose both - text and background color. | Optional | |
| invisiblemode | If the visibility of the control is determined dynamically by an adapter property then there are two rendering modes if the visibility is "false":<br>(1) "invisible": the control is not visible. | Optional | invisible<br>cleared |

| | | | |
|---|---|---|---|
| | (2)"cleared": the control is not visible but it still occupies space. | | |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1<br>2<br>5<br>10<br>32767 |
| Binding | | | |
| valueprop | (already explained above) | | |
| alwaysflush | If set to TRUE then a specified server flushmethod is also called in case the value has not changed. The default is FALSE, meaning that a server flushmethod is only called for a changed value. | Optional | true<br>false |
| flush | Flushing behaviour of the input control.<br>By default an input into the control is registered within the browser client - and communicated to the server adapter object when a user e.g. presses a button. By using the FLUSH property you can change this behaviour.<br>Setting FLUSH to "server" means that directly after changing the input a synchronization with the server adapter is triggered. As consequence you directly can react inside your adapter logic onto the change of the corresponding value. - Please be aware of that during the synchronization always all changed properties - also the ones that were changed before - are transferred to the adapter object, not only the one that triggered the synchonization.<br>Setting FLUSH to "screen" means that the changed value is populated inside the page. You use this option if you have redundant usage of the same property inside one page and if you want to pass one changed value to all its representaion directly after changing the value. | Optional | screen<br>server |

| | | | |
|---|---|---|---|
| flushmethod | When the data synchronization of the control is set to FLUSH="server" then you can specify an explicit event to be sent when the user updates the content of the control. By doing so you can distinguish on the server side from which control the flush of data was triggered. | Optional | |
| contextmenu | If set to TRUE for a field myfield, method/event reactOnContextMenuMyfield will be called/triggered on right mouse click. In this method/event you can set a contextmenu correspondingly. Please use the attribute CONTEXTMENUMETHOD in case you would like to use a different method/eventname. In case a valid value is specified for the CONTEXTMENUMETHOD attribute, the value for the CONTEXTMENU attribute is ignored. Default value is FALSE. | Optional | true<br>false |
| contextmenumethod | Name of the event that is sent to the adapter when the user presses the right mouse button in an empty area. | Optional | |
| displayprop | Name of the adapter parameter that dynamically passes information whether the field is displayonly("true") or not ("false"). Notice that in the Natural code the type for the field is alphanumeric. | Optional | |
| statusprop | Name of the adapter parameter that dynamically passes information how the control should be rendered and how it should act. Valid parameter values at runtime: "INVISIBLE", "FOCUS", "FOCUS_NO_SELECT", "ERROR", "ERROR_NO_FOCUS". Use DISPLAYPROP to dynamically define whether the field is displayonly. | Optional | |
| valuetextprop | Name of the adapter parameter that provides a "human understandable" description for the value: in some cases you enter an id into a FIELD but want to display the id and a description to the user. At runtime, the values provided by the VALUEPROP- and the VALUETEXTPROP-property are combined into one text (string) that is returned into the FIELD. | Optional | |
| textidmode | If using property "valuetextprop" then a field knows an id and a text for a certain value. There are three types of display: either both are shown together, separated by an "-" (e.g. "id - text"). Or only text is shown or only the id is shown. If not defined at all then the system's default text | Optional | 0<br>1<br>2 |

| | | | |
|---|---|---|---|
| | id-mode will be chosen. The default mode can be defined as part of the CIS session context. | | |
| titleprop | Name of the adapter parameter that dynamically defines the title of the control. The title is displayed as tool tip when ther user moves the mouse onto the control. | Optional | |
| bgcolorprop | (already explained above) | | |
| fgcolorprop | (already explained above) | | |
| autocallpopupmethod | Name of the adapter parameter that controls that the field's value help event is sent to the adapter with a certain offset (milliseconds) after last key down event. | Optional | true<br>false |
| lengthprop | Name of the adapter parameter that dynamically provides the width of the FIELD in amount of characters. | Optional | |
| maxlengthprop | Name of the adapter parameter that provides the maximum number of characters that a user may enter into this FIELD. Consider to use MAXLENGTH to define this number in a static way. | Optional | |
| Validation | | | |
| datatype | By default, the FIELD control is managing its content as string. By explicitly setting a datatype you can define that the control...<br>...will check the user input if it reflects the datatype. E.g. if the user inputs "abc" into a field with datatype "int" then a corresponding error message will popup when the user leaves the field.<br>...will format the data coming from the server or coming form the user input: if the field has datatype "date" and the user inputs "010304" then the input will be translated into "01.03.2004" (or other representation, dependent on date format settings).<br>In addition valeu popups are offered for the user automatically for some datatypes: e.g. when specifying datatype "date" the automatically the field provides a calendar input popup.<br>Please note: the datatype "float" is named a bit misleading - it represents any decimal format number. The server side representation may be | Optional | date<br>float<br>int<br>long<br>time<br>timestamp<br>color<br>xs:decimal<br>xs:double<br>xs:date<br>xs:dateTime<br>xs:time<br>------------------------<br>N n.n<br>P n.n |

| | | | |
|---|---|---|---|
| | a float value, but also can be a double or a BigDecimal property. | | string n<br>L<br>xs:boolean<br>xs:byte<br>xs:short |
| editmask | NATPAGE only: Natural edit mask. | Optional | |
| validationrules | Contains information used for Data Validation.<br>Use the Validation Rules Editor to make changes! | Optional | |
| validation | Regular expression against which the content of the field is checked on client side when the user changes the field. If the validation fails then an error message popup up and informs the user about the wrong input. | Optional | [a-zA-Z0-9_.-]<br>{1,}\\@[a-zA-Z0-9_.-]<br>{1,}\\.\\w{2,}\\d{5}<br>[0-9 )(-/+]+ |
| validationprop | Name of the adapter parameter that provides a regular expression for the validation of the field. Works the same way as VALIDATION but in a dynamic way. | Optional | |
| validationuserhint | If a client side validation fails due to wrong user input then an error popup is opened. If you define a hint inside this property then the hint is output to the user in order to tell in which way to input the value. The hint is not language dependent. | Optional | |
| validationuserhintprop | If using validation expressions (either property "validation" or "validationprop") then a popup comes up if the user inputs wrong values into a field. Inside this popup a certain text may be added in order to explain to the user what he/she did not correctly input. This text can be either statically defined or dynamically - by using this property. | Optional | |
| digits | Number that specifiies how many digits are to be displayed (ie digits before the comma). If using this feature then the DATATYPE property must be set to 'float'. See also DECIMALDIGITS. | Optional | 1<br>2<br>3<br>int-value |

| | | | |
|---|---|---|---|
| digitsprop | Name of the adapter parameter that provides information how many digits are to be displayed (i. e. digits before the decimal character). If this feature is used, the DATATYPE property must be set to 'float'. | Optional | |
| decimaldigits | Number that specifiies how many decimal digits are to be displayed. If using this feature then the DATATYPE property must be set to 'float'. | Optional | 1<br>2<br>3<br>int-value |
| decimaldigitsprop | Name of the adapter parameter that provides information how many decimal digits are to be displayed (i. e. digits before the decimal character). If this feature is used, the DATATYPE property must be set to 'float'. | Optional | |
| spinrangemin | An integer value which defines the lower bound of the value range. | Optional | 1<br>2<br>3<br>int-value |
| spinrangemax | An integer value which defines the upper bound of the value range. | Optional | 1<br>2<br>3<br>int-value |
| Valuehelp | | | |
| popupmethod | Name of the event that is sent to the adapter when the user requests value help by pressing F4 or F7 or by clicking into the FIELD with the right mouse button. When using the popupmethod together with the NJX:EVENTDATA control in a grid, then the event name must have the griddataprop name as prefix. Example: mygrid.mypopupmethod. If the POPUPMETHOD is defined, a small icon is shown inside the field to indicate to the user that there is some value help available. | Optional | openIdValueCombo<br>openIdValueHelp<br>openIdValueComboOrPopup |
| popupinputonly | Boolean property that control if a field with POPUPMETHOD defined is still usable for keyboard input. If "false" (= default) then the | Optional | true<br>false |

| | | | |
|---|---|---|---|
| | user can input a value either directly via keyboard or by using the popupmethod's help. If set to "true" then no keyboard input is possible - but only selection from the popup-method's help. | | |
| popupprop | Name of the adapter parameter that provides the information whether a POPUPMETHOD is available or not. This feature is used in scenarios in which a FIELD offers e.g. value help or not, depending on business logic inside the adapter. | Optional | |
| popuponalt40 | Value help in a field is triggered either by clicking with the mouse or by pressing a certain key inside the field. The "traditional" keys are "cusrsor-down", "F7" or "F4". Sometimes you do not want to mix other "cursor-down" behaviour (e.g. scrolling in lists) with the value help behaviour. In this case switch this property to "true" - and the value help will only come up anymore when "alt-cursor-down" is pressed. | Optional | true<br>false |
| popupcombowidth | Pixel width of the standard "openIdValueCombo" popup dialog. Default is field width or at least 150 pixel. | Optional | 1<br>2<br>3<br>int-value |
| popupicon | URL of image that is displayed inside the right corner of the field to indicate to the user that there is some value help available.. Any image type (.gif, .jpg, ...) that your browser does understand is valid.<br>Use the following options to specify the URL:<br>(A) Define the URL relative to your page. Your page is generated directly into your project's folder. Specifiying "images/xyz.gif" will point into a directory parallel to your page. Specifying "../HTMLBasedGUI/images/new.gif" will point to an image of a neighbour project.<br>(B) Define a complete URL, like "http://www.softwareag.com/images/logo.gif". | Optional | gif<br>jpg<br>jpeg |
| touchpadinput | Boolean property that decides if touch pad support is offered for the FIELD control. The default is "false". If switched to "true" then you can input data into the field via a touch pad. As | Optional | true<br>false |

| | | | |
|---|---|---|---|
| | consequence you can use this control for making inputs through a touch terminal. | | |
| onlinehelp | | | |
| helpid | Help id that is passed to the online help management in case the user presses F1 on the control. | Optional | |
| title | Text that is shown as tooltip for the control.<br>Either specify the text "hard" by using this TITLE property - or use the TITLETEXTID in order to define a language dependent literal. | Optional | |
| titletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text that is used for the control. | Optional | |
| formula | Contains information used by the Formula Editor.<br>Use the Formula Editor to make changes! | Optional | |
| Hot Keys | | | |
| hotkeys | Comma separated list of hot keys. A hotkey consists of a list of keys and a method name. Separate the keys by "-" and the method name again with a comma<br>Example:<br>ctrl-alt-65;onCtrlAltA;13;onEnter ...defines two hot keys. Method onCtrlAltA is invoked if the user presses Ctrl-Alt-A. Method "onEnter" is called if the user presses the ENTER key.<br>Use the popup help within the Layout Painter to input hot keys. | Optional | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that | Optional | |

| | | | |
|---|---|---|---|
| | are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | | |
| njx:natsysvar | If the control shall be bound to a Natural system variable, this attribute specifies the name of the system variable. | Optional | |
| njx:natsysio | If the control shall be bound to a Natural system variable with the attribute njx:natsysvar, this attribute indicates if the system variable is modifiable. The default is false. | Optional | |
| njx:natstringtype | If the control shall be bound to a Natural system variable of string format with the attribute njx:natsysvar, this attribute indicates the format of the string, A (code page) or U (Unicode). The default is A. | Optional | |
| njx:natcv | Name of a Natural control variable that shall be assigned to the control. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |
| Miscellaneous | | | |
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |
| autocallpopupmethodoffset | The offset (milliseconds) after the last key down event for calling the AUTOCALLPOPUPMETHOD. Makes only sense if an AUTOCALLPOPUPMETHOD is specified. | Optional | 1<br>2<br>3<br>int-value |

# 51 FILEUPLOAD/FILEUPLOAD2

- FILEUPLOAD ........ 398
- FILEUPLOAD2 ........ 399
- FILEUPLOAD Properties ........ 400
- FILEUPLOAD2 Properties ........ 404

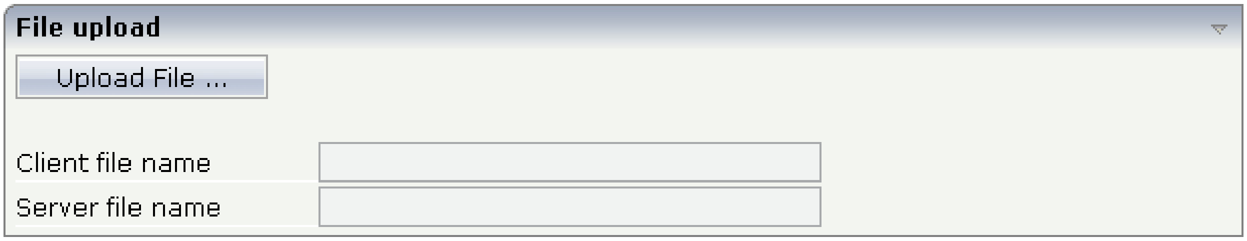
The file upload controls simplify the process of uploading files from the client to the server. Two types are available:

- The FILEUPLOAD control is represented by a button. When you choose the button, a dialog appears showing the file upload form (field input and a file selection button).
- With the FILEUPLOAD2 control, you embed the file upload form into your page.

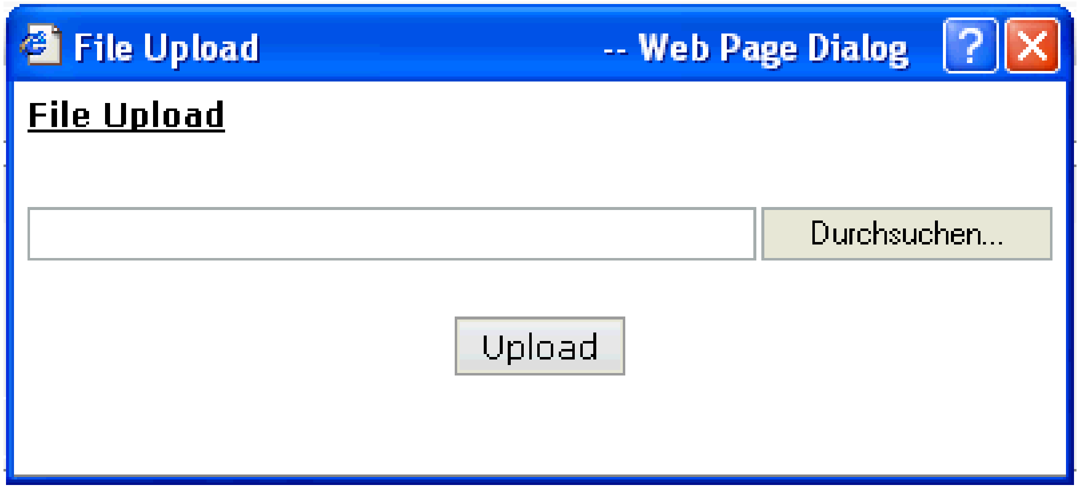
Both types have the program binding, i.e. you can switch between the two types without touching your code.

## FILEUPLOAD

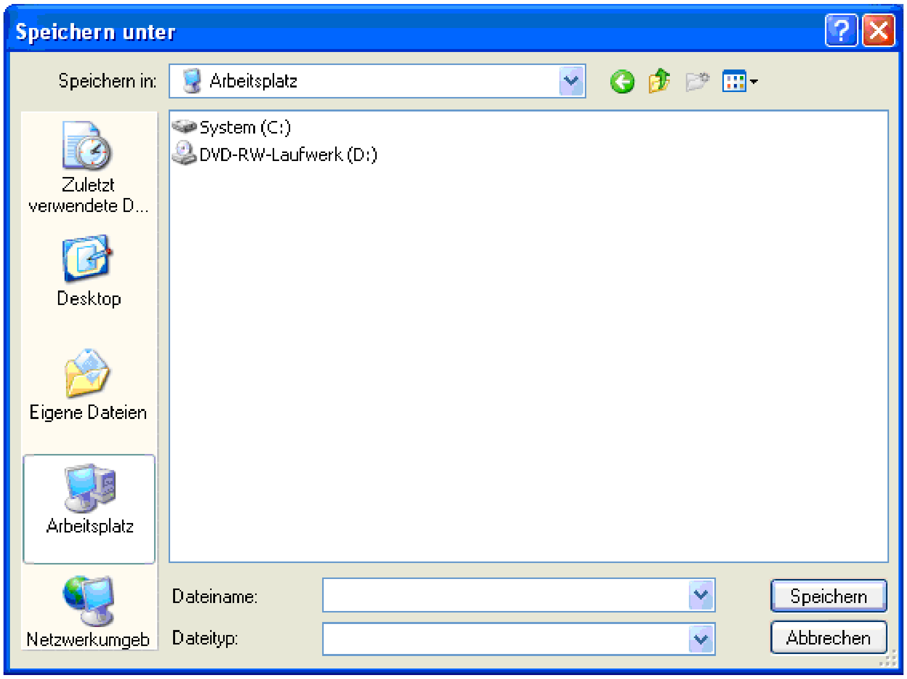
The FILEUPLOAD control simplifies the process of uploading files from the client to the server. Look at the following example:



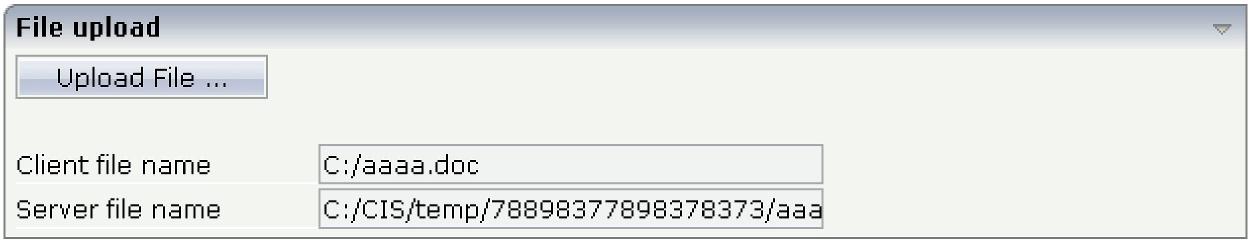
The control - from the look-and-feel perspective - is a button with some special reaction. When you choose the button, the following dialog appears:



You can either enter a file name or you can invoke the file selection dialog by choosing the button to the right of the field (which appears in the language of the browser).



After choosing the **Upload** button, the first screen looks as follows:

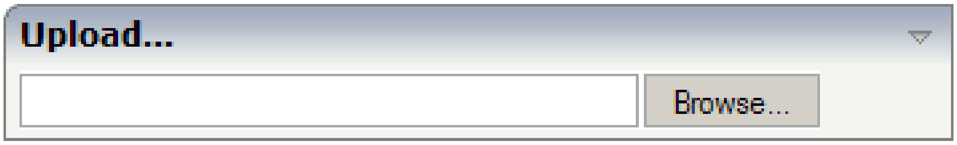


Client file name C:/aaaa.doc

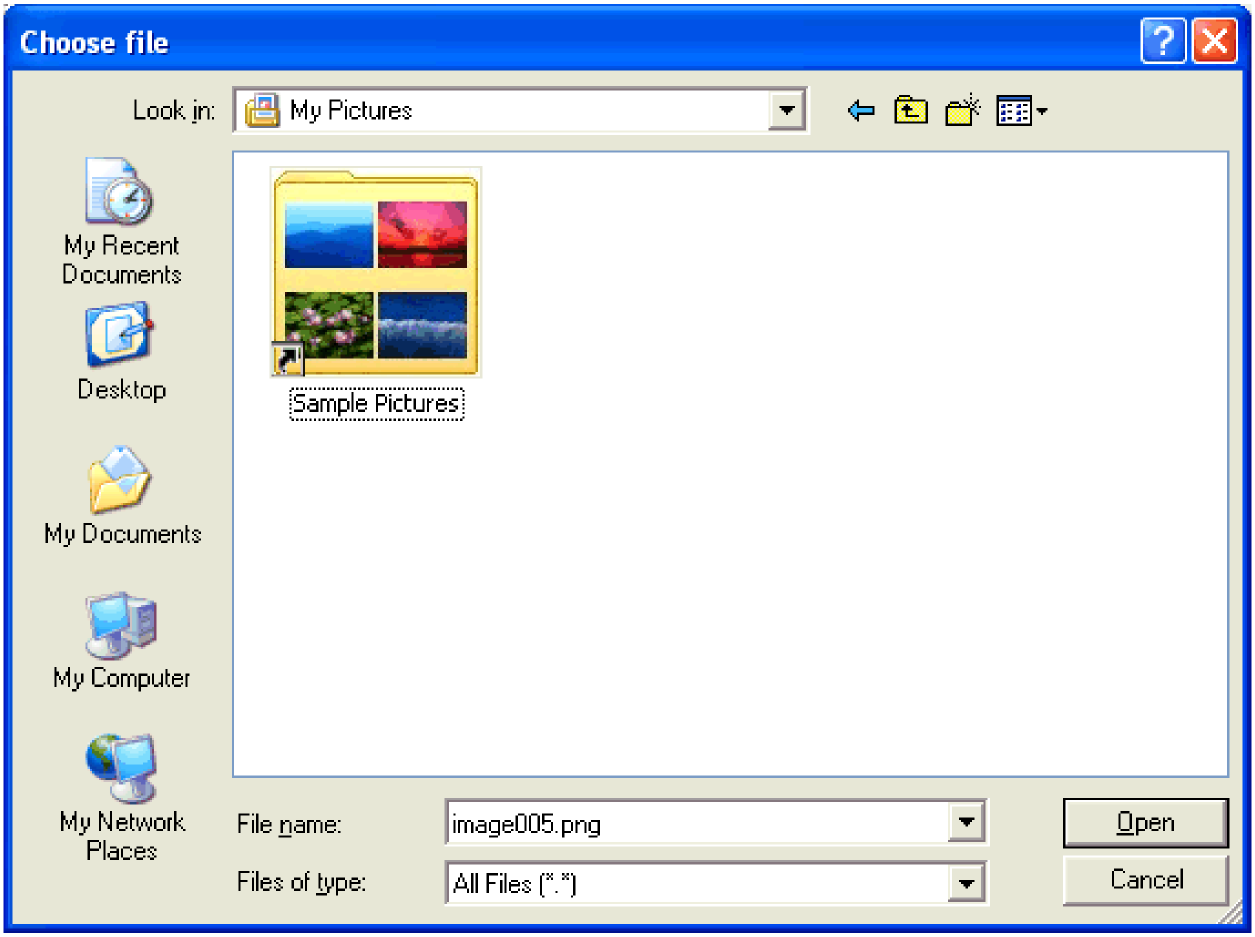
Server file name C:/CIS/temp/78898377898378373/aaa

## FILEUPLOAD2

With the FILEUPLOAD2 control, you embed the file upload form into your page.



You can either enter a file name or you can invoke the file selection dialog by choosing the button to the right of the field (which appears in the language of the browser).

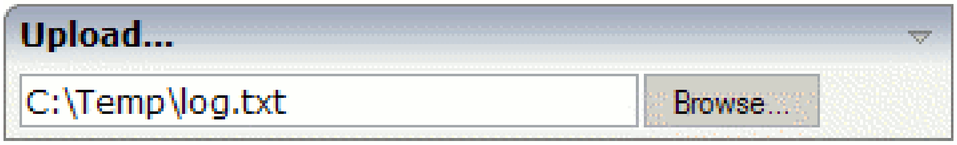


Look in: My Pictures

File name: image005.png

Files of type: All Files (*.*)

After choosing the file, the screen looks as follows:



C:\Temp\log.txt

## FILEUPLOAD Properties

| Basic | | | |
|---|---|---|---|
| name | Text that is displayed inside the control. Please do not specify the name when using the multi language management - but specify a "textid" instead. | Sometimes obligatory | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Sometimes obligatory | |

| | | | |
|---|---|---|---|
| cfileprop | Name of the adapter parameter in which the client file name is passed at upload time. | Obligatory | |
| sfileprop | Name of the adapter parameter in which at upload time the name of the target file is written, which is a copy of the client file in the server file system. Note that this file name is not the same as the client file name. | Obligatory | |
| method | Name of the event that is sent to the adapter when a file is uploaded. The file data is available on the server at the point of time this method is called. | Obligatory | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| image | URL of image that is displayed inside the control. Any image type (.gif, .jpg, ...) that your browser does understand is valid.<br>Use the following options to specify the URL:<br>(A) Define the URL relative to your page. Your page is generated directly into your project's folder. Specifiying "images/xyz.gif" will point into a directory parallel to your page. Specifying "../HTMLBasedGUI/images/new.gif" will point to an image of a neighbour project.<br>(B) Define a complete URL, like "http://www.softwareag.com/images/logo.gif". | Optional | gif<br>jpg<br>jpeg |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control | Optional | 100<br>150<br>200<br>250 |

| | | | |
|---|---|---|---|
| | (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | 300<br>250<br>400<br>50%<br>100% |
| visibleprop | Name of the adapter parameter that provides the information if this control is displayed or not. As consequence you can control the visibility of the control dynamically. | Optional | |
| invisiblemode | This property has three possible values:<br>(1) "invisible": the button is not visible without occupying any space.<br>(2) "disabled": the button is deactivated: it is "grayed" and does not show any roll over effects any more.<br>(3)"cleared": the button is not visible but it still occupies space. | Optional | invisible<br>cleared |
| buttonstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | |
| align | Horizontal alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimes the size of the column is bigger than the size of the control itself. In this case the "align" property specifies the position of the control inside the column. In most cases you do not require the align control to be explicitly defined because the size of the column around the controls exactly is sized in the same way as the contained control. | Optional | left<br>center<br>right |

| | | | |
|---|---|---|---|
| | If you want to directly control the alignment of text: in most text based controls there is an explicit property "textalign" in which you align the control's contained text. | | |
| valign | Vertical alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | Optional | top<br>middle<br>bottom |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| Binding | | | |
| cfileprop | (already explained above) | | |
| sfileprop | (already explained above) | | |
| method | (already explained above) | | |
| visibleprop | (already explained above) | | |
| Online Help | | | |
| title | Text that is shown as tooltip for the control.<br>Either specify the text "hard" by using this TITLE property - or use the TITLETEXTID in order to define a language dependent literal. | Optional | |
| titletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text that is used for the control. | Optional | |

## FILEUPLOAD2 Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| cfileprop | Name of the adapter parameter in which the client file name is passed at upload time. | Optional | |
| sfileprop | Name of the adapter parameter in which at upload time the name of the target file is written, which is a copy of the client file in the server file system. Note that this file name is not the same as the client file name. | Optional | |
| method | Name of the event that is sent to the adapter when a file is uploaded. The file data is available on the server at the point of time this method is called. | Optional | |
| withsubmitbutton | If set to "TRUE" adds an additional button to the control to start the file upload. | Optional | true<br>false |
| submitbuttonname | The name of the submit button in case WITSUBMITBUTTON is set to "true". | Optional | |
| submitbuttontextid | "Textid" for the name of the submitbutton if WITHSUBMITBUTTON is set to "true". | Optional | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Binding | | | |
| cfileprop | (already explained above) | | |
| sfileprop | (already explained above) | | |
| method | (already explained above) | | |

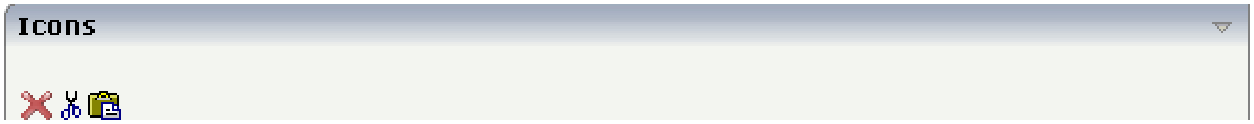
| | | | |
|---|---|---|---|
| visibleprop | Name of the adapter parameter that provides the information if this control is displayed or not. As consequence you can control the visibility of the control dynamically. | Optional | |
| invisiblemode | If the visibility of the control is determined dynamically by an adapter property then there are two rendering modes if the visibility is "false":<br>(1) "invisible": the control is not visible.<br>(2)"cleared": the control is not visible but it still occupies space. | Optional | invisible<br>disabled<br>cleared |
| Appearance | | | |
| invisiblemode | (already explained above) | | |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| darkbackground | Normally the background is in light colour but the CIS style sheets also have a dark(er) grey colour to be used.<br>If DARKBACKGROUND is set to true then the darker background colour is chosen. This property typically is used to integrate light coloured controls into darker container areas. | Optional | true<br>false |

# 52 ICON

- Example ........ 408
- Properties ........ 408

The ICON control is similar to the BUTTON control, but it uses an image to display its function. When chosen, it sends an event to the adapter.

## Example



The XML layout definition is:

```
<rowarea name="Icons">
    <itr>
        <icon image="../HTMLBasedGUI/images/remove.gif" method="remove" ↩
title="Remove">
        </icon>
       <icon image="../HTMLBasedGUI/images/cut.gif" method="cut" withdistance="true"
              title="Cut">
        </icon>
       <icon image="../HTMLBasedGUI/images/paste.gif" method="paste" title="Paste">
        </icon>
    </itr>
</rowarea>
```

## Properties

| Basic | | | |
|---|---|---|---|
| image | URL that points to the image that is shown as icon.<br>The URL either is an absolute URL or a relative URL. If using a relative URL then be aware of that the generated page is located directly inside your project's directory.<br>Example: "images/icon.gif" points to an icon in an images-folder that is parallel to the page itself. "../HTMLBasedGUI/images/new.gif" point to a URL that is located inside a different project. | Obligatory | gif<br>jpg<br>jpeg |
| imagertl | URL that points to the image that is shown as icon.<br>The URL either is an absolute URL or a relative URL. If using a relative URL then be aware of that the | Optional | gif<br>jpg<br>jpeg |

| | | | |
|---|---|---|---|
| | generated page is located directly inside your project's directory.<br>Example: "images/icon.gif" points to an icon in an images-folder that is parallel to the page itself. "../HTMLBasedGUI/images/new.gif" point to a URL that is located inside a different project. | | |
| method | Name of the event that is sent to the adapter when clicking on the control. | Obligatory | |
| name | Text that is displayed inside the control. Please do not specify the name when using the multi language management - but specify a "textid" instead. | Optional | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Optional | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| imagewidth | Pixel width of the image that is shown inside the icon. If not defined then the icon is rendered with its normal width. | Optional | |
| imageheight | Pixel height of the image that is shown inside the icon. If not defined then the icon is rendered with its normal height. | Optional | |
| textsize | The HTML font size of the text. Corresponding to the HTML definition "1" means "smallest" and "6" means "biggest". | Optional | 1<br>2<br>3<br>4<br>5<br>6 |
| imageinactive | If the visibility is dynamically controlled by using the INVISIBLEPROP then there are two ways the icon reacts if the corresponding property passes back "false".<br>If you want the icon to switch into an inactive status then define inside this property the URL of the image that is the inactive counter part to the normal | Optional | gif<br>jpg<br>jpeg |

| | | | |
|---|---|---|---|
| | icon image. Maybe the image is a grayed version of the normal icon image.<br>If you do not define a value for this property then the icon is made invisible. | | |
| align | Horizontal alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimes the size of the column is bigger than the size of the control itself. In this case the "align" property specifies the position of the control inside the column. In most cases you do not require the align control to be explicitly defined because the size of the column around the controls exactly is sized in the same way as the contained control.<br>If you want to directly control the alignment of text: in most text based controls there is an explicit property "textalign" in which you align the control's contained text. | Optional | left<br>center<br>right |
| valign | Vertical alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | Optional | top<br>middle<br>bottom |
| withdistance | If set to "true" then 2 pixels of distance are kept on the left and on the right of the icon.<br>Reason behing: if arranging several icons inside one table row (ITR, TR) then a certain distance is kept between the icons when this property is set to "true". | Optional | true<br>false |
| colstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |

| | | | |
|---|---|---|---|
| | style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | | |
| spanstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| invisiblemode | If the visibility of the control is determined dynamically by an adapter property then there are two rendering modes if the visibility is "false":<br>(1) "invisible": the control is not visible.<br>(2)"cleared": the control is not visible but it still occupies space. | Optional | invisible<br>cleared |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1<br>2<br>5<br>10<br>32767 |
| nameposition | Position of the (optional) text to the icon. Aside or below, default is aside.<br>Set the corresponding text in the name or the text id property. | Optional | aside<br>below |

| | | | |
|---|---|---|---|
| displaymenuindicator | If set to true a small indicator signals that there is a corresponding menu 'behind this icon'. Default is false. | Optional | true<br>false |
| Binding | | | |
| method | (already explained above) | | |
| visibleprop | Name of the adapter parameter that provides the information if this control is displayed or not. As consequence you can control the visibility of the control dynamically. | Optional | |
| titleprop | Name of the adapter parameter that dynamically defines the title of the control. The title is displayed as tool tip when ther user moves the mouse onto the control. | Optional | |
| imageprop | Name of adapter parameter that provides as value the URL of the image that is shown inside the control. | Optional | |
| imageinactiveprop | Name of the adapter parameter that provides as value the URL of the image that is shown when the control is inactive. | Optional | |
| Online Help | | | |
| title | Text that is shown as tooltip for the control.<br>Either specify the text "hard" by using this TITLE property - or use the TITLETEXTID in order to define a language dependent literal. | Optional | |
| titletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text that is used for the control. | Optional | |
| titleprop | (already explained above) | | |
| Miscellaneous | | | |
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |

# 53 ICONLIST

- Adapter Interface ........ 414
- Built-in Events ........ 414
- Properties ........ 414

The ICONLIST is very similar to the BUTTONLIST, representing a list of items instead of a list of buttons. The list can either be a vertical list or a horizontal list.

## Adapter Interface

```
1 ICONLIST (1:*)
2 DRAGINFO (U) DYNAMIC
2 DROPINFO (U) DYNAMIC
2 ID (U) DYNAMIC
2 IMAGEURL (U) DYNAMIC
2 METHOD (U) DYNAMIC
2 NAME (U) DYNAMIC
2 TEXT (U) DYNAMIC
```

## Built-in Events

*value-of-iconlistprop*.onDrop
*value-of-iconlistprop*.onSelect

## Properties

| Basic | | | |
|---|---|---|---|
| iconlistprop | Name of the adapter parameter that represents the control in the application. | Obligatory | |
| vertical | Direction of the icon list.<br>If not specified (or set to "true") then the icons are arranged in one column, one below the other. If specified as "false" then the icons are arrange in one row, one aside the other. | Optional | true<br>false |
| cellspacing | An icons of the ICONLIST control is embedded into an internal cell. The CELLSPACING property defined the number of pixels that are kept between the icon an the border of this cell.<br>Use the CELLSPACING in order to define a certain distance each icon keeps from the next item. | Optional | 1<br>2<br>3<br>int-value |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

| | | | |
|---|---|---|---|
| Appearance | | | |
| imagewidth | Pixel width of the image that is shown inside the icon. If not defined then the icon is rendered with its normal width. | Optional | |
| imageheight | Pixel height of the image that is shown inside the icon. If not defined then the icon is rendered with its normal height. | Optional | |
| align | Horizontal alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimes the size of the column is bigger than the size of the control itself. In this case the "align" property specifies the position of the control inside the column. In most cases you do not require the align control to be explicitly defined because the size of the column around the controls exactly is sized in the same way as the contained control.<br>If you want to directly control the alignment of text: in most text based controls there is an explicit property "textalign" in which you align the control's contained text. | Optional | left<br>center<br>right |
| tablestyle | Style definition (following CSS style sheet definitions) that is used for the background area of the ICONLIST control. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| cellstyle | Style definition (following CSS style sheet definitions) that is used for each cell area of the ICONLIST control in which an icon is kept. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| displaymenuindicator | If set to true a small indicator signals that there is a corresponding menu 'behind this icon'. Default is false. | Optional | true<br>false |
| additionaltextposition | Position of the text that is displayed inside the control. Use method ICONLISTItem.setName to set the text. | Optional | aside<br>below |
| textsize | The HTML font size of the text. Corresponding to the HTML definition "1" means "smallest" and "6" means "biggest". | Optional | 1<br>2<br>3 |

| | | | |
|---|---|---|---|
| | | | 4<br>5<br>6 |
| withrightpadding | Flag (boolean) that indicates whether to insert a padding right hand of the last icon. This attribute does apply for horizontal ICONLIST only (see attribute VERTICAL). Default is true. | Optional | true<br>false |
| Miscellaneous | | | |
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |

# 54 IHTML

- Properties ........................................................................................................................ 418

The IHTML control is used to embed server side generated HTML inside a page that is provided by the application. The IHTML control is very flexible on the one hand. On the other hand, you have to take care about what is defined inside the IHTML area.

Use this control if you have, for example, a server side report generation program already producing HTML as output which you want to include into your pages, etc.

## Properties

| Basic | | | |
|---|---|---|---|
| valueprop | Name of the adapter parameter that provides the content of the control. | Optional | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an | Optional | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |

| | | | |
|---|---|---|---|
| | ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| ihtmlstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| valign | Vertical alignment of control in its column. | Optional | top |

| | | | |
|---|---|---|---|
| | Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | | middle<br>bottom |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |

# 55 IMAGEOUT

- Properties ........................................................................................................................ 422

The IMAGEOUT control is used to present images inside a page. The name of the image is not statically defined inside the layout but is controlled by the application through an adapter parameter.

## Properties

| Basic | | | |
|---|---|---|---|
| valueprop | Name of the adapter parameter that provides as value the URL of the image that is shown inside the control. | Optional | |
| titleprop | Name of the adapter parameter that dynamically defines the title of the control. The title is displayed as tool tip when ther user moves the mouse onto the control. | Optional | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element | Optional | |

| | | | |
|---|---|---|---|
| | does not specify a width then the rendering result may not represent what you expect. | | |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |

# 56 IMAGEVIEWER

- Adapter Interface ........ 426
- Example ........ 427
- Properties ........ 427

The IMAGEVIEWER control is used to display images inside a web page. The image can be rotated, zoomed and translated (that is, moved into a specified direction).

The image formats that can be displayed with the IMAGEVIEWER control depend on the capabilities of your web browser. The following image formats normally work in all browsers: JPEG, GIF and PNG.

You can use the mouse wheel to zoom in and out of the page. When an image is zoomed so that its full content does not fit into the page, you can use the mouse to move another portion of the image into view: press and hold the left mouse button inside the image and then move the mouse.

## Adapter Interface

```
1 IMAGE
2 IMAGEURL (U) DYNAMIC
2 IMAGEHEIGHT (I4)
2 IMAGEWIDTH (I4)
2 ROTATION (I4)
2 XCENTER (I4)
2 YCENTER (I4)
2 ZOOMFACTOR (F4)
```

| Element | Description |
|---|---|
| IMAGEURL | The path to the image to be displayed. |
| IMAGEHEIGHT(*) | The height of the image in pixels. |
| IMAGEWIDTH(*) | The width of the image in pixels. |
| ROTATION | The rotation parameter in degrees. Valid values: 0, 90, 180 or 270. If using a different value (for example, 45), the values are rounded to the next valid value. |
| XCENTER(*) | The current center point of the image on the x-axis (that is, the position of the corresponding pixel on the x-axis). |
| YCENTER(*) | The current center point of the image on the y-axis (that is, the position of the corresponding pixel on the y-axis). |
| ZOOMFACTOR(*) | The zoom factor of the image inside the image viewer. When setting the zoom factor to 0, the image is zoomed so that it fits completely into the control. A zoom factor of 1.0 shows the image in its original size. |

(*) The marked values are not available at program start. They are calculated when the image is loaded into the web page. After the image has been loaded into the web page, the `loadmethod` is triggered. This event arrives as `*PAGE-EVENT` in the server page. To get the information of the marked elements back from the page, you will have to wait for the `loadmethod` event to be triggered by the page. When you use the mouse to move another portion of the image into view, the page is synchronized with the server by sending the `movemethod` information. When you use the mouse wheel, the page is synchronized with the server by sending the methods which have been defined with the `zoominmethod` and `zoomoutmethod` properties (see ***Properties*** below).

## Example

An example which shows the usage of the IMAGEVIEWER control is provided in the library `SYSEXNJX`. See the program `CTRIMV-P.NSP`.

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| valueprop | Name of the adapter parameter that provides as value the URL of the image that is shown inside the control. | Obligatory | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 10<br>20<br>40<br>100<br>300 |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control | Optional | 10<br>20<br>40<br>100<br>300 |

| | | | |
|---|---|---|---|
| | can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Binding | | | |
| valueprop | (already explained above) | | |
| titleprop | Name of the adapter parameter that dynamically defines the title of the control. The title is displayed as tool tip when ther user moves the mouse onto the control. | Optional | |
| loadmethod | Name of the event that is sent to the adapter when the image is loaded. | Optional | |
| movemethod | Name of the event that is sent to the adapter when the image is moved in the browser. | Optional | |
| zoominmethod | Name of the event that is sent to the adapter on zoom in of the image in the browser. | Optional | |
| zoomoutmethod | Name of the event that is sent to the adapter on zoom out of the image in the browser. | Optional | |
| Natural | | | |

| | | | |
|---|---|---|---|
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |

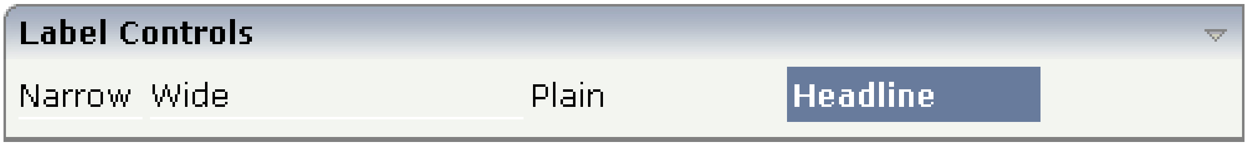
# 57 LABEL

- Example ........ 433
- Aligning the Text ........ 433
- Properties ........ 434

The LABEL control is a static text. The tag has different properties to control the design of the label. It can be used to display plain text or as a headline of a grid.

By default, the label is rendered with a white line under the text. The default is suitable if a FIELD control follows the label.

## Example



The XML layout definition is:

```
<rowarea name="Label Controls">
    <itr>
        <label name="Narrow" width="50">
        </label>
        <hdist>
        </hdist>
        <label name="Wide" width="150">
        </label>
        <hdist>
        </hdist>
        <label name="Plain" width="100" asplaintext="true">
        </label>
        <hdist>
        </hdist>
        <label name="Headline" width="100" asheadline="true">
        </label>
    </itr>
    <vdist>
    </vdist>
</rowarea>
```

For a better separation between the LABEL controls, horizontal distances (HDIST) were added.

## Aligning the Text

Use the property `textalign` in order to align the label's text. Do not use the `align` property. `textalign` refers to the text inside the control, `align` refers to the position of the control inside the surrounding cell - if the cell is larger than the control.

## Properties

| Basic | | | |
|---|---|---|---|
| name | Text that is displayed inside the control. Please do not specify the name when using the multi language management - but specify a "textid" instead. | Sometimes obligatory | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Sometimes obligatory | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Sometimes obligatory | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| nowrap | If the textual content of the control exceeds the size of the control then the browser automatically breaks the line and arranges the text accordingly.<br>You can avoid this behaviour by setting NOWRAP to "true". No line break will be performed by the browser. | Optional | true<br>false |
| width | (already explained above) | | |
| height | Height of the control.<br>There are three possibilities to define the height: | Optional | 100<br>150<br>200 |

| | | | |
|---|---|---|---|
| | (A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | 250<br>300<br>250<br>400<br>50%<br>100% |
| asheadline | If set to true, the label has a dark background and the text is written in white (if using the standard style sheet).<br>You may use this rendering style is you use labels as headlines of control grids (ROWTABLEAREA2 control). | Optional | true<br>false |
| asplaintext | If set to true, no white line is drawn under the label text (if using the standard style sheet).<br>You may use this rendering style if the label is used to name a RADIOBUTTON control or a CHECKBOX control. | Optional | true<br>false |
| textalign | Horizontal alignment of the text that is shown. | Optional | left<br>center<br>right |
| cuttext | Boolean property defining the rendering if the text of the label does not fit into the defined width. If "true" then the text is cut - the part that does not fit is hidden. If "false" then the browser opens a second line.<br>Default is "false". | Optional | true<br>false |
| labelstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |

| | | | |
|---|---|---|---|
| | Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | | |
| labelstyleclass | CSS style class used for rendering. | Optional | |
| stylevariant | Some controls offer the possibility to define style variants. By this style variant you can address different styles inside your style sheet definition file (.css). If not defined "normal" styles are chosen, if defined (e.g. "VAR1") then other style definitions (xxxVAR1xxx) are chosen.<br>Purpose: you can set up style variants in the style sheet defintion and use them multiple times by addressing them via the "stylevariant" property. CIS currently offerst two variants "VAR1" and "VAR2" but does not predefine any semantics behind - this is up to you! | Optional | VAR1<br>VAR2<br>VAR3<br>VAR4 |
| align | Horizontal alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimes the size of the column is bigger than the size of the control itself. In this case the "align" property specifies the position of the control inside the column. In most cases you do not require the align control to be explicitly defined because the size of the column around the controls exactly is sized in the same way as the contained control.<br>If you want to directly control the alignment of text: in most text based controls there is an explicit property "textalign" in which you align the control's contained text. | Optional | left<br>center<br>right |
| valign | Vertical alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | Optional | top<br>middle<br>bottom |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |

| | | | |
|---|---|---|---|
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| invisiblemode | If the visibility of the control is determined dynamically by an adapter property then there are two rendering modes if the visibility is "false":<br>(1) "invisible": the control is not visible.<br>(2)"cleared": the control is not visible but it still occupies space. | Optional | invisible<br>cleared |
| Binding | | | |
| visibleprop | Name of the adapter parameter that provides the information if this control is displayed or not. As consequence you can control the visibility of the control dynamically. | Optional | |
| Online Help | | | |
| title | Text that is shown as tooltip for the control.<br>Either specify the text "hard" by using this TITLE property - or use the TITLETEXTID in order to define a language dependent literal. | Optional | |
| titletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text that is used for the control. | Optional | |

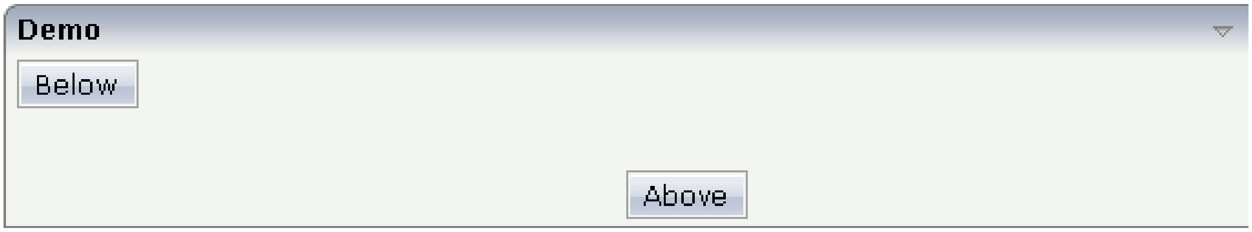
# 58 MENUBUTTON

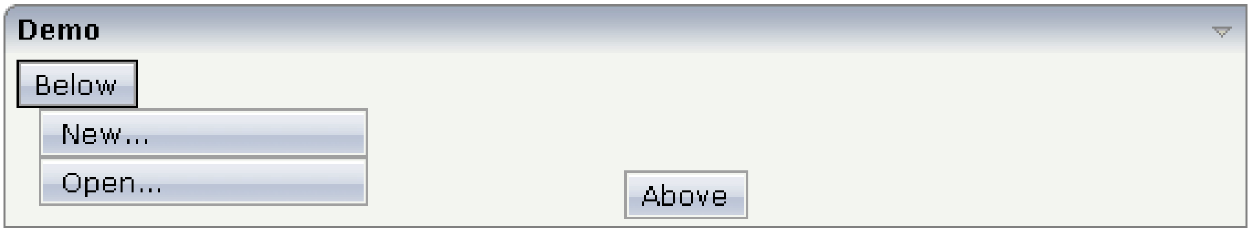
- Example ........................................ 440
- MENUBUTTON Properties ........................................ 441
- MENUITEM Properties ........................................ 443

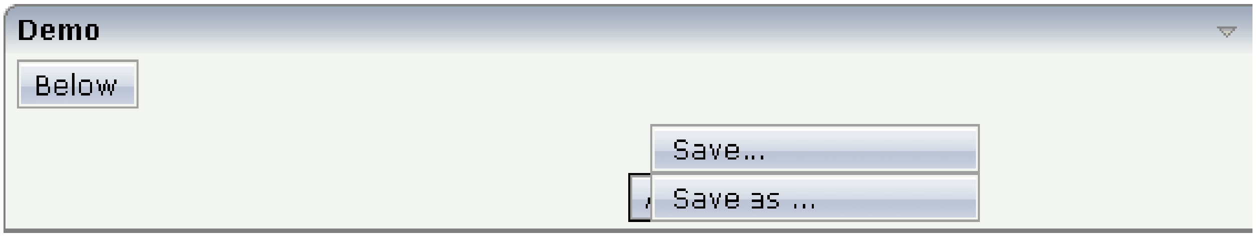
The MENUBUTTON control offers the possibility to arrange buttons in a hierarchy.

## Example

In the following example, there are two menu buttons which act differently when they are selected:







The XML code for the example looks as follows:

```
<rowarea name="Demo">
    <itr takefullwidth="true">
        <coltable0 width="50%" takefullheight="true">
            <itr>
                <menubutton name="Below" menuposition="below">
                    <menuitem name="New..." method="newFile" pixelwidth="150">
                    </menuitem>
                    <menuitem name="Open..." method="openFile" pixelwidth="150">
                    </menuitem>
                </menubutton>
            </itr>
        </coltable0>
        <coltable0 width="50%">
            <vdist height="50">
            </vdist>
            <itr>
                <menubutton name="Above" menuposition="above">
                    <menuitem name="Save..." method="saveFile" pixelwidth="150">
                    </menuitem>
                 <menuitem name="Save as ..." method="saveAsFile" pixelwidth="150">
                    </menuitem>
                </menubutton>
            </itr>
        </coltable0>
    </itr>
</rowarea>
```

In the definition of a menu item, an event that is to be sent to an adapter is exactly defined like with a normal button.

## MENUBUTTON Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| name | Text that is displayed inside the control. Please do not specify the name when using the multi language management - but specify a "textid" instead. | Sometimes obligatory | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Sometimes obligatory | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| menuposition | above if the menu should popup above the base menu button - below if the menu should popup below the base menu button.<br>The default is below. | Optional | above<br>below |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control | Optional | 100<br>120<br>140<br>160<br>180<br>200<br>50% |

| | | | |
|---|---|---|---|
| | can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | 100% |
| visibleprop | Name of the adapter parameter that provides the information if this control is displayed or not. As consequence you can control the visibility of the control dynamically. | Optional | |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| buttonstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | |

## MENUITEM Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| name | Text that is displayed inside the control. Please do not specify the name when using the multi language management - but specify a "textid" instead. | Sometimes obligatory | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Sometimes obligatory | |
| method | Name of the event that is sent to the adapter when clicking on the control. | Obligatory | |
| pixelwidth | Width of the control in pixels. | Obligatory | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| pixelheight | Height of the control in pixels. | Optional | |
| itemstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | |

# 59 METHODLINK

- Properties ........................................................................................................................ 446

The METHODLINK is a control that renders a text that is dynamically provided by the application through an adapter parameter. The text is rendered as a hyperlink. When clicking on the hyperlink, an event is sent to the adapter. It is used in scenarios in which users are in the habit of following links instead of choosing buttons or icons.

## Properties

| Basic | | | |
|---|---|---|---|
| name | Text that is displayed inside the control. Please do not specify the name when using the multi language management - but specify a "textid" instead. | Optional | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Optional | |
| method | Name of the event that is sent to the adapter when clicking on the control. | Obligatory | |
| valueprop | Name of the adapter parameter that provides the text that is shown as link. | Obligatory | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Sometimes obligatory | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |

| | | | |
|---|---|---|---|
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| width | (already explained above) | | |
| straighttext | If the text of the control contains HTML tags then these are by default interpreted by the browser. Specifiying STRAIGHTTEXT as "true" means that the browser will directly render the characters without HTML interpretation.<br>Example: if you want to output the source of an HTML text then STRAIGHTTEXT should be set to "true". | Optional | true<br>false |
| linkstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| linkclass | CSS style class definition that is directly passed into this control.<br>The style class can be either one which is part of the "normal" CIS style sheet files (i.e. the ones that you maintain with the style sheet editor) - or it can be one of an other style sheet file that you may reference via the ADDSTYLESHEET property of the PAGE tag. | Optional | |
| align | Horizontal alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimes the size of the column is bigger than the size of the control itself. In this case the "align" property specifies the position of the control inside | Optional | left<br>center<br>right |

| | | | |
|---|---|---|---|
| | the column. In most cases you do not require the align control to be explicitly defined because the size of the column around the controls exactly is sized in the same way as the contained control.<br>If you want to directly control the alignment of text: in most text based controls there is an explicit property "textalign" in which you align the control's contained text. | | |
| valign | Vertical alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | Optional | top<br>middle<br>bottom |
| nowrap | If the textual content of the control exceeds the size of the control then the browser automatically breaks the line and arranges the text accordingly.<br>You can avoid this behaviour by setting NOWRAP to "true". No line break will be performed by the browser. | Optional | true<br>false |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |

| | | | |
|---|---|---|---|
| Binding | | | |
| valueprop | (already explained above) | | |
| method | (already explained above) | | |
| titleprop | Name of the adapter parameter that dynamically defines the title of the control. The title is displayed as tool tip when ther user moves the mouse onto the control. | Optional | |
| linkstatusprop | Name of the adapter parameter that dynamically defines how the link should be rendered and how it should act. Valid values are "DISPLAY" and "EDIT". | Optional | |
| oncontextmenumethod | Name of the event that is sent to the adapter when the user presses the right mouse button in an empty area. | Optional | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |
| Miscellaneous | | | |
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |
| pseudoclassessupport | Set this attribute to TRUE when you have set an own CSS style class for the LINKCLASS property which uses pseudo classes like ':hover' and ':link'. | Optional | true<br>false |

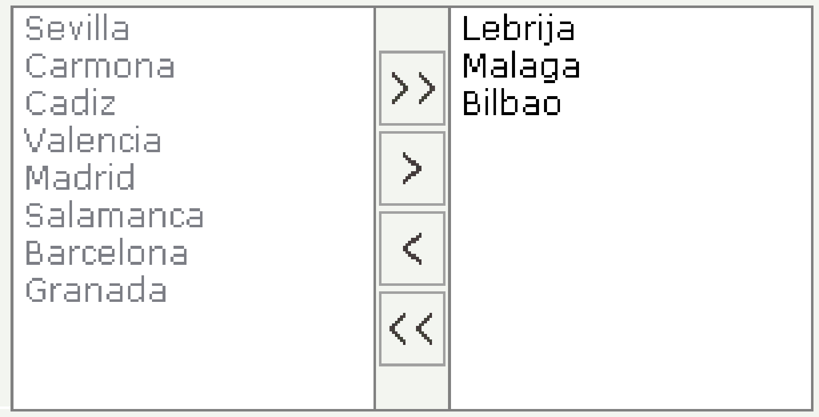
| | | | |
|---|---|---|---|
| | A HREF attribute will be created, which is required to make the pseudo classes work correctly. Set this property only if you use pseudo classes. Note: If you set this property the text "javascript:void(0)" will be displayed in the status bar when the mouse pointer hovers over the link. This cannot be avoided. | | |

# 60 MULTISELECT

- Example ........................................ 452
- Adapter Interface ........................................ 452
- Properties ........................................ 452

The MULTISELECT control allows comfortable input of multiple selections of items from a defined number of items.

## Example



The available items are rendered on the left and are brought to the right by choosing the corresponding button. There are buttons to bring all items from the left to the right, and back.

## Adapter Interface

```
1 TOWNS (1:*)
2 ID (U) DYNAMIC
2 SELECTED (L)
2 TEXT (U) DYNAMIC
```

## Properties

| Basic | | | |
|---|---|---|---|
| valueprop | Name of the adapter parameter representing this control in the application. | Obligatory | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content. | Obligatory | 100<br>120<br>140<br>160 |

| | | | |
|---|---|---|---|
| | (B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | 180<br>200<br>50%<br>100% |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Obligatory | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| displayonly | If set to true, the FIELD will not be accessible for input. It is just used as an output field. | Optional | true<br>false |
| withupdown | If set to true, corresponding up and down arrows appear on the right hand side. These arrows allow for changing the order of the selected items. | Optional | true<br>false |
| align | Horizontal alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimes the size of the column is bigger than the size of the control itself. In this case the "align" property specifies the position of the control inside the column. In most cases you do not require the align control to be explicitly defined because the size of the column around the controls exactly is sized in the same way as the contained control. | Optional | left<br>center<br>right |

| | | | |
|---|---|---|---|
| | If you want to directly control the alignment of text: in most text based controls there is an explicit property "textalign" in which you align the control's contained text. | | |
| valign | Vertical alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | Optional | top<br>middle<br>bottom |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| msstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press | Optional | |

| | | | |
|---|---|---|---|
| | right mouse-button in your browser and select the "View source" or "View frame's source" function. | | |
| Binding | | | |
| valueprop | (already explained above) | | |
| flush | Flushing behaviour of the input control.<br>By default an input into the control is registered within the browser client - and communicated to the server adapter object when a user e.g. presses a button. By using the FLUSH property you can change this behaviour.<br>Setting FLUSH to "server" means that directly after changing the input a synchronization with the server adapter is triggered. As consequence you directly can react inside your adapter logic onto the change of the corresponding value. - Please be aware of that during the synchronization always all changed properties - also the ones that were changed before - are transferred to the adapter object, not only the one that triggered the synchonization.<br>Setting FLUSH to "screen" means that the changed value is populated inside the page. You use this option if you have redundant usage of the same property inside one page and if you want to pass one changed value to all its representaion directly after changing the value. | Optional | screen<br>server |
| flushmethod | When the data synchronization of the control is set to FLUSH="server" then you can specify an explicit event to be sent when the user updates the content of the control. By doing so you can distinguish on the server side from which control the flush of data was triggered. | Optional | |
| Online Help | | | |
| helpid | Help id that is passed to the online help management in case the user presses F1 on the control. | Optional | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |

| | | | |
|---|---|---|---|
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |
| Miscellaneous | | | |
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |

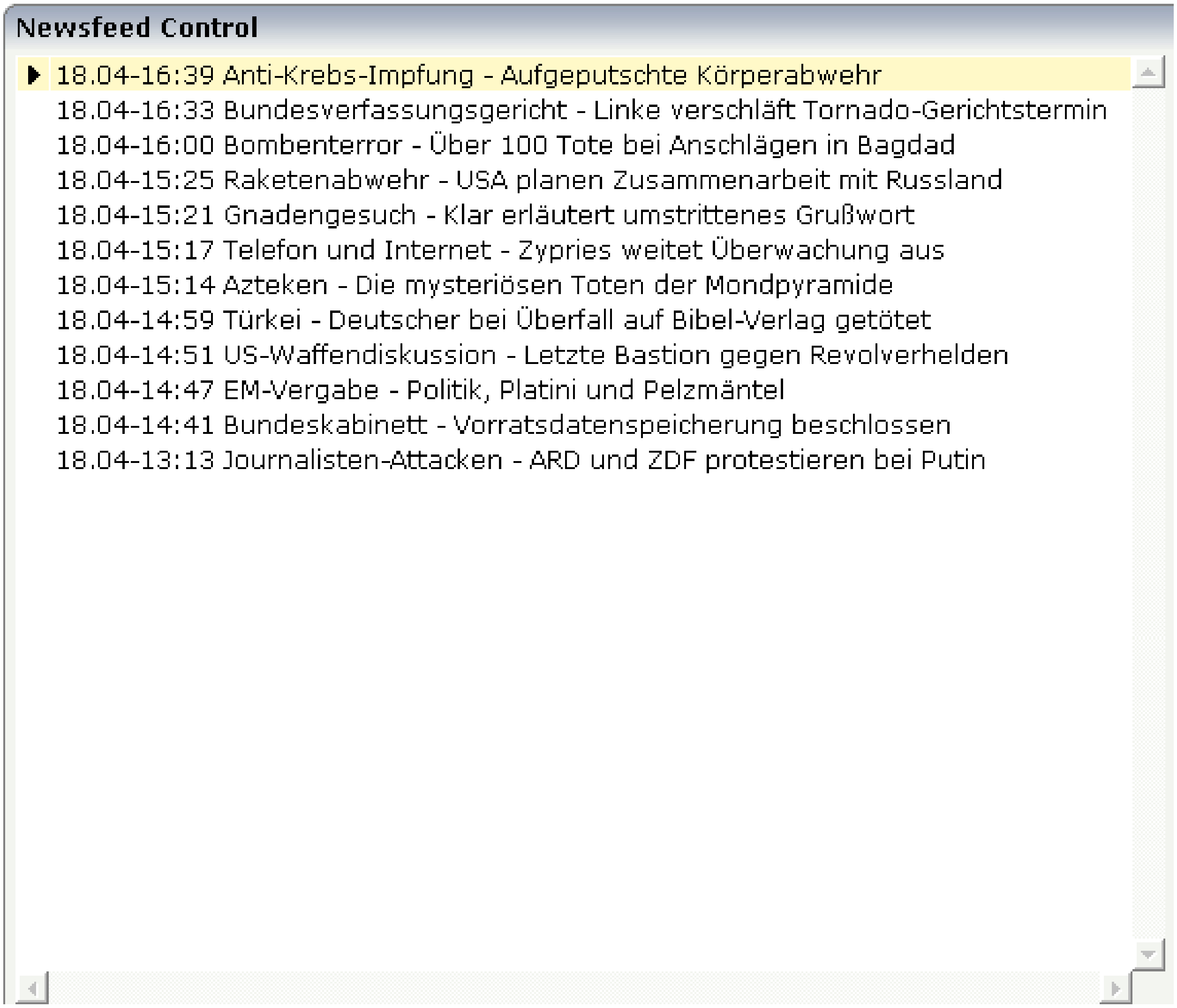
# 61 NEWSFEED

- Example ........ 459
- Built-in Events ........ 460
- Properties ........ 460

The NEWSFEED control is a simple-to-use “newsreader” within the Natural pages. It offers the possibility to read news feeds (RSS feeds and Atom feeds).

⚠ **Important:** In order to use the NEWSFEED control, you have to specify a valid RSS or Atom feed URL (for example ***http://news.cnet.com/2547-1001_3-0-5.xml***). If necessary, you also have to specify your proxy server settings (host, port, user name, password).

## Example



Newsfeed Control

18.04-16:39 Anti-Krebs-Impfung - Aufgeputschte Körperabwehr
18.04-16:33 Bundesverfassungsgericht - Linke verschläft Tornado-Gerichtstermin
18.04-16:00 Bombenterror - Über 100 Tote bei Anschlägen in Bagdad
18.04-15:25 Raketenabwehr - USA planen Zusammenarbeit mit Russland
18.04-15:21 Gnadengesuch - Klar erläutert umstrittenes Grußwort
18.04-15:17 Telefon und Internet - Zypries weitet Überwachung aus
18.04-15:14 Azteken - Die mysteriösen Toten der Mondpyramide
18.04-14:59 Türkei - Deutscher bei Überfall auf Bibel-Verlag getötet
18.04-14:51 US-Waffendiskussion - Letzte Bastion gegen Revolverhelden
18.04-14:47 EM-Vergabe - Politik, Platini und Pelzmäntel
18.04-14:41 Bundeskabinett - Vorratsdatenspeicherung beschlossen
18.04-13:13 Journalisten-Attacken - ARD und ZDF protestieren bei Putin

The XML layout definition is:

```
<rowarea name="Newsfeed Control" width="560">
  <newsfeed infoprop="newsfeedinfoprop" width="550" height="450">
  </newsfeed>
</rowarea>
```

## Built-in Events

`value-of-infoprop`.onOpenLink
`value-of-infoprop`.onOpenLinkNewTarget

## Properties

| Basic | | | |
|---|---|---|---|
| infoprop | Name of the adapter parameter that represents the control in the adapter. | Obligatory | |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| splitstyle | By default the newsfeed control appears within a vsplit control. Headers on the left and content on the right. Set this value to hsplit and the control appears within a hsplit control. Headers on top, content on the bottom. | Optional | vsplit<br>hsplit |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

# 62 RADIOBUTTON

- Properties ........ 462

The RADIOBUTTON control displays the radio button. Radio buttons can be grouped together so that a group of RADIOBUTTON controls manipulates one adapter parameter. Each RADIOBUTTON instance represents one value for the adapter parameter.

## Properties

| Basic | | | |
|---|---|---|---|
| valueprop | Name of the adapter parameter that provides the content of the control. | Obligatory | |
| value | Value that represents this instance of the RADIOBUTTON control.<br>The value is set into the adapter property that is defined by the VALUEPROP property when the user clicks onto the control. - Vice versa: the control is switched to "marked" when the adapter property holds the value defined. | Optional | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| displayonly | If set to true, the FIELD will not be accessible for input. It is just used as an output field. | Optional | true<br>false |
| align | Horizontal alignment of control in its column. | Optional | left |

| | | | |
|---|---|---|---|
| | Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimes the size of the column is bigger than the size of the control itself. In this case the "align" property specifies the position of the control inside the column. In most cases you do not require the align control to be explicitly defined because the size of the column around the controls exactly is sized in the same way as the contained control.<br>If you want to directly control the alignment of text: in most text based controls there is an explicit property "textalign" in which you align the control's contained text. | | center<br>right |
| valign | Vertical alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | Optional | top<br>middle<br>bottom |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| invisiblemode | If the visibility of the control is determined dynamically by an adapter property then there are two rendering modes if the visibility is "false":<br>(1) "invisible": the control is not visible. | Optional | invisible<br>cleared |

| | | | |
|---|---|---|---|
| | (2)"cleared": the control is not visible but it still occupies space. | | |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1<br>2<br>5<br>10<br>32767 |
| datatype | By default, the control is managing its content as string. By explicitly setting a datatype you can define that the control will format the data coming from the server: if the field has datatype "date" and the user inputs "010304" then the input will be translated into "01.03.2004" (or other representation, dependent on date format settings).<br>Please note: the datatype "float" is named a bit misleading - it represents any decimal format number. The server side representation may be a float value, but also can be a double or a BigDecimal property. | Optional | xs:string<br>------------------------<br>N n.n<br>P n.n<br>string n |
| Label | | | |
| name | Text that is displayed inside the control. Please do not specify the name when using the multi language management - but specify a "textid" instead. | Optional | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Optional | |
| hdistpixelwidth | Witdh of the distance between checkbox and label in pixel. | Optional | |
| labelstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |

| | | | |
|---|---|---|---|
| | Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | | |
| Binding | | | |
| valueprop | (already explained above) | | |
| displayprop | Name of the adapter parameter that dynamically passes information whether the field is displayonly("true") or not ("false"). Notice that in the Natural code the type for the field is alphanumeric. | Optional | |
| statusprop | Name of the adapter parameter that dynamically passes information how the control should be rendered and how it should act. Valid parameter values at runtime: "INVISIBLE", "FOCUS", "FOCUS_NO_SELECT", "ERROR", "ERROR_NO_FOCUS". Use DISPLAYPROP to dynamically define whether the field is displayonly. | Optional | |
| flush | Flushing behaviour of the input control.<br>By default an input into the control is registered within the browser client - and communicated to the server adapter object when a user e.g. presses a button. By using the FLUSH property you can change this behaviour.<br>Setting FLUSH to "server" means that directly after changing the input a synchronization with the server adapter is triggered. As consequence you directly can react inside your adapter logic onto the change of the corresponding value. - Please be aware of that during the synchronization always all changed properties - also the ones that were changed before - are transferred to the adapter object, not only the one that triggered the synchonization.<br>Setting FLUSH to "screen" means that the changed value is populated inside the page. You use this option if you have redundant usage of the same property inside one page and if you want to pass one changed value to all its representaion directly after changing the value. | Optional | screen<br>server |
| flushmethod | When the data synchronization of the control is set to FLUSH="server" then you can specify an explicit event to be sent when the user updates the content of the control. By doing so you can distinguish on the server side from which control the flush of data was triggered. | Optional | |
| Online Help | | | |
| helpid | Help id that is passed to the online help management in case the user presses F1 on the control. | Optional | |

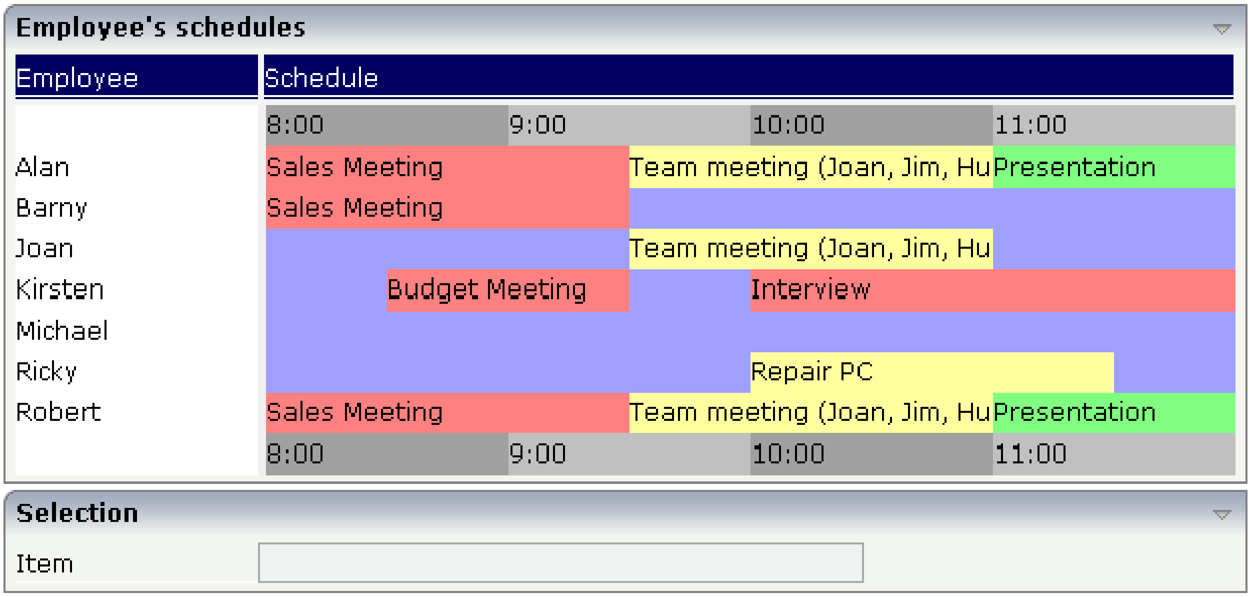
| | | | |
|---|---|---|---|
| title | Text that is shown as tooltip for the control.<br>Either specify the text "hard" by using this TITLE property - or use the TITLETEXTID in order to define a language dependent literal. | Optional | |
| titletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text that is used for the control. | Optional | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natcv | Name of a Natural control variable that shall be assigned to the control. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |
| Miscellaneous | | | |
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |

The RADIOBUTTON control is typically followed by a label explaining its meaning.

# 63 SCHEDULELINE

- Properties .................................................................................................................... 468

The SCHEDULELINE control is used to define screens like the following:



You can display a certain sequence of items, each item holding a text, a color value, a size and an identifier. When clicking on an item, a certain event is sent to your adapter and the ID of the selected item is returned to perform activities in your program.

## Properties

| Basic | | | |
|---|---|---|---|
| valueprop | Name of the adapter parameter that represents the control in the adapter.<br>It returns a semicolon separated list of schedule items. Each item is represented by a color, a width, a text and a selection id. The width is not a pixel width but represents a "portion" that this schedule item represents.<br>Example: #FF0000\"1000;Text 1;1;#00FF00;500;Text 2;2<br>The total "logical width" is 1500. The firts item occupies 2/3 of the width, the right item occupies 1/3 of the width.<br>The selection is required in case you want to react on user selections. If a user clicks onto one schedule item then the adapter is notified by a certain event - the id of the schedule item is passed as reference. Please have a look into the corresponding property descriptions. | Obligatory | |

| | | | |
|---|---|---|---|
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Obligatory | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| pixelheight | Height of the control in pixels. | Optional | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| width | (already explained above) | | |
| pixelheight | (already explained above) | | |
| pixelsizemode | A schedule line consists of sections, each one rendered with a certain width. By default the width does not represent a pixel value but represents a logical size. The width of the section depends on the logical size of one section compared with the logical size of the other sections.<br>When switching this property to "true" then the size of the sections are interpreted as real pixel values. | Optional | true<br>false |
| cellalign | Horizontal alignment of the text inside the control's schedule items. | Optional | left<br>center<br>right |
| cellvalign | Vertical alignement of the text inside the control's schedule items. | Optional | top<br>middle<br>bottom |
| cellstyle | Style that is used inside the schedule item cells. Can be any CSS style. | Optional | background-color: #FF0000 |

| | | | |
|---|---|---|---|
| | | | color: #0000FF<br>font-weight: bold |
| cellnowrap | If switched to "true" then the text inside the schedule item cells is not broken if exceeding the size of the control - the text is cut instead.<br>Default is "false". | Optional | true<br>false |
| valign | Vertical alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | Optional | top<br>middle<br>bottom |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| crosslineids | Flag (true \| false) that indicates that cells of different lines (within ROWTABLEAREA2) does not have same ids. If set to false the control is able to detect and skip unnecessary re-draws (performance). | Optional | true<br>false |
| tablestyle | CSS style definition that is directly passed into this control. | Optional | background-color: #FF0000 |

| | | | |
|---|---|---|---|
| | With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | | color: #0000FF<br>font-weight: bold |
| Binding | | | |
| valueprop | (already explained above) | | |
| selectmethod | Name of the event that is sent to the adapter when the user selects one schedule item with the mouse. | Optional | |
| selscheduleprop | Name of an adapter parameter in which the id of the selected schedule item is passed. | Optional | |
| seltypeprop | Name of an adapter parameter that is used in the following way:<br>If the user selects an item it can also be determined, if the item is selected by the left or by the right mouse button. In case the user uses the left mouse button, the value LEFT is passed into the property, which is referenced by the SELTYPEPROP property. In case the user uses the right mouse button, the value RIGHT is passed. | Optional | |
| preselectmode | If set to "true" then schedule items holding an id can be "preselected": the user can click on a schedule item and it is "grayed" as consequence - without directly calling the selection method. The selection method is called when double clicking onto the schedule item.<br>Default is "false".<br>The reaction of the control when clicking with the right mouse button remains untouched: still the selection method is called by a single right mouse button click. | Optional | true<br>false |
| Vertical | | | |
| verticalschedule | Flag that indicates if the line is rendered vertically. Default is false. | Optional | true<br>false |

| | | | |
|---|---|---|---|
| tooltipprop | Name of an adapter parameter that contains the comma separated list of help texts that are displayed on mouse over (tooltip). | Optional | |
| imageprop | Name of an adapter parameter that returns a comma separated string of image URLs. An URL either is an absolute URL or a relative URL. If using a relative URL then be aware of that the generated page is located directly inside your project's directory.<br>Example: "images/green.gif;;red.gif" | Optional | |
| imageorientation | Flag that indicates to render the image at the left or right hand of the text. | Optional | left<br>right |
| dropinfoprop | Name of the adapter parameter to that the id of the dragged cell is set. Do not use this property if you do not want to support drag and drop within the SCHEDULELINE. The server side property needs to be of type "String". | Optional | |
| onmovemethod | Name of the event that is sent to the adapter on drop of one cell (source) over another cell (target). Use property DROPINFOPROP to get the id of the dragged cell (source). Use SELSCHEDULEPROP to get the id of the cell that got the drop (target). | Optional | |
| controlkeyprop | Name of an adapter parameter to that the information is set whether the user pressed the CTRL key when selecting a cell. | Optional | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, | Optional | |

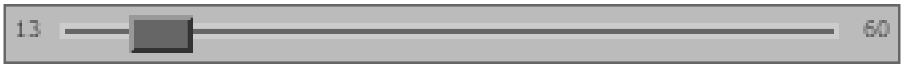
| | | | |
|---|---|---|---|
| | uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | | |

# 64 SLIDER

- Example .......... 476
- Adapter Interface .......... 477
- Properties .......... 477

The SLIDER control represents a slider. The main use of the slider is to limit the user input to specific values. It uses a number representation for its values, but the numbers can also be used to express string values.

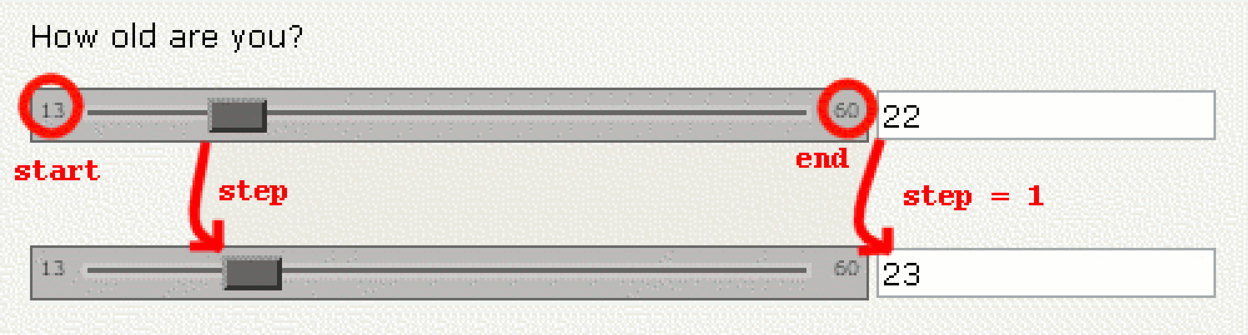
## Example



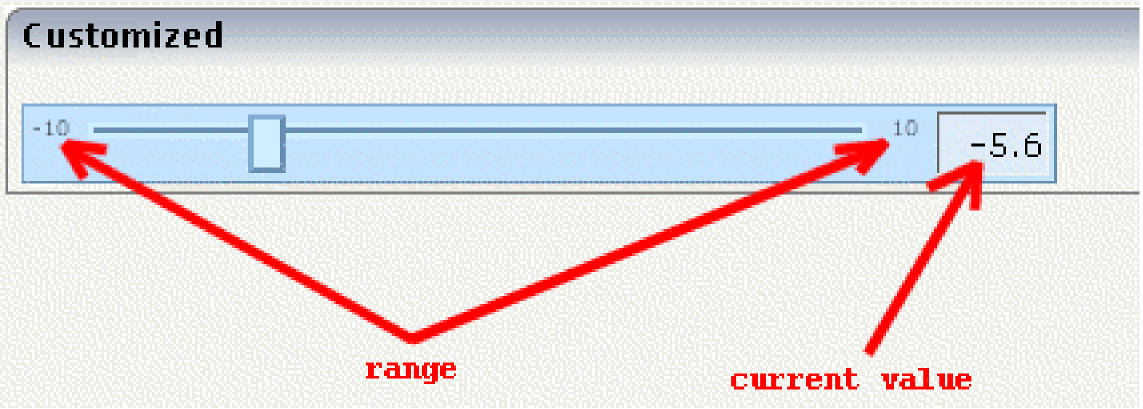
The XML layout definition is:

```
<rowarea name="Number Output">
    <itr>
        <slider valueprop="slider1" from="13" to="60" showrange="true"
                                              showcurrentvalue="false">
        </slider>
    </itr>
</rowarea>
```

The control can be customized by setting its start value, end value and a step. The start and end values form a closed interval. The step defines the distance between two valid values represented by the slider in this interval.



In the above example, the value for the step is the default value "1". The possible values represented by the slider are the integers from "13" to "60". It is possible to specify a floating-point number as a step, for example "0,25". The slider can be further customized by setting the properties showrange and showcurrentvalue which show the range (start and end value) and the current value of the slider while the user is moving it. The width and height of the slider point is adjustable. The slider point is the element which the user drags and drops. The colors, the borders of the slider, the point, the line, the range and the current value can also be customized.



## Adapter Interface

```
1 SLIDER
2 DISPLAYONLY (L)
2 FROM (F4)
2 SLIDERVALUE (F4)
2 STEP (F4)
2 TO (F4)
```

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| valueprop | Name of the adapter parameter that provides the content of the control. | Obligatory | |
| Appearance | | | |
| width | Width of the slider. Can be given in pixels or percentage. | Optional | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |

| | | | |
|---|---|---|---|
| displayonly | If set to true, the SLIDER will not be accessible for input. It is just used as an output. | Optional | true<br>false |
| showrange | Boolean value. Whether to show the range of the slider. The range is the "from" and "to" values. | Optional | true<br>false |
| showcurrentvalue | Boolean value. Whether to show the current value of the slider while it is moving. | Optional | true<br>false |
| mainbgcolor | Background color of the slider container.<br>This should be a valid CSS color value. For example a name(blue, red), a hexadecimal value(#99CCFF) or others. | Optional | #FF0000<br>#00FF00<br>#0000FF<br>#FFFFFF<br>#808080<br>#000000 |
| mainbordercolor | Border color of the slider container.<br>This should be a valid CSS border-color value. You can specify a different color for the top, right, bottom and left border in this sequence. For example: #BBBBBB #666666 #666666 #BBBBBB | Optional | #bbb #666 #666 #bbb<br>#BFCFFF #00248F #00248F #BFCFFF |
| mainborderwidth | Border width of the slider container. | Optional | thin<br>medium<br>thick<br>1px<br>2px<br>5px<br>10px |
| pointbgcolor | Background color of the slider point.<br>This should be a valid CSS color value. For example a name(blue, red), a hexadecimal value(#99CCFF) or others. | Optional | #FF0000<br>#00FF00<br>#0000FF<br>#FFFFFF<br>#808080 |

| | | | |
|---|---|---|---|
| | | | #000000 |
| pointbordercolor | Border color of the slider point.<br>This should be a valid CSS border-color value. You can specify a different color for the top, right, bottom and left border in this sequence. For example: #BBBBBB #666666 #666666 #BBBBBB | Optional | #bbb #666 #666 #bbb<br>#BFCFFF #00248F #00248F #BFCFFF |
| pointborderwidth | Border width of the slider point. | Optional | thin<br>medium<br>thick<br>1px<br>2px<br>5px<br>10px |
| pointwidth | Width of the slider point in pixels. The value must be an integer value. | Optional | 10<br>20<br>40<br>100<br>300 |
| pointheight | Height of the slider point in pixels. The value must be an integer value. | Optional | 10<br>20<br>40<br>100<br>300 |
| linebgcolor | Background color of the slider line.<br>This should be a valid CSS color value. For example a name(blue, red), a hexadecimal value(#99CCFF) or others. | Optional | #FF0000<br>#00FF00<br>#0000FF<br>#FFFFFF<br>#808080<br>#000000 |

| | | | |
|---|---|---|---|
| linebordercolor | Border color of the slider line.<br>This should be a valid CSS border-color value. You can specify a different color for the top, right, bottom and left border in this sequence. For example: #BBBBBB #666666 #666666 #BBBBBB | Optional | #bbb #666 #666 #bbb<br>#BFCFFF #00248F #00248F #BFCFFF |
| lineborderwidth | Border width of the slider line. | Optional | thin<br>medium<br>thick<br>1px<br>2px<br>5px<br>10px |
| rangefontsize | Font size of the slider range. | Optional | xx-small<br>x-small<br>small<br>medium<br>large<br>x-large<br>xx-large<br>smaller<br>larger<br>150% |
| valuebgcolor | Background color of the slider current value which is shown if the "showcurrentvalue" property is set to true.<br>This should be a valid CSS color value. For example a name(blue, red), a hexadecimal value(#99CCFF) or others. | Optional | #FF0000<br>#00FF00<br>#0000FF<br>#FFFFFF<br>#808080<br>#000000 |

| | | | |
|---|---|---|---|
| valuebordercolor | Background color of the slider current value which is shown if the "showcurrentvalue" property is set to true.<br>This should be a valid CSS border-color value. You can specify a different color for the top, right, bottom and left border in this sequence. For example: #bbb #666 #666 #bbb | Optional | #bbb #666 #666 #bbb<br>#BFCFFF #00248F #00248F #BFCFFF |
| valueborderwidth | Border width of the slider current value which is shown if the "showcurrentvalue" property is set to true. | Optional | thin<br>medium<br>thick<br>1px<br>2px<br>5px<br>10px |
| valuefontsize | Font size of the slider current value which is shown if the "showcurrentvalue" property is set to true. | Optional | xx-small<br>x-small<br>small<br>medium<br>large<br>x-large<br>xx-large<br>smaller<br>larger<br>150% |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE | Optional | |

| | | | |
|---|---|---|---|
| | statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |

# 65 STRIPSEL

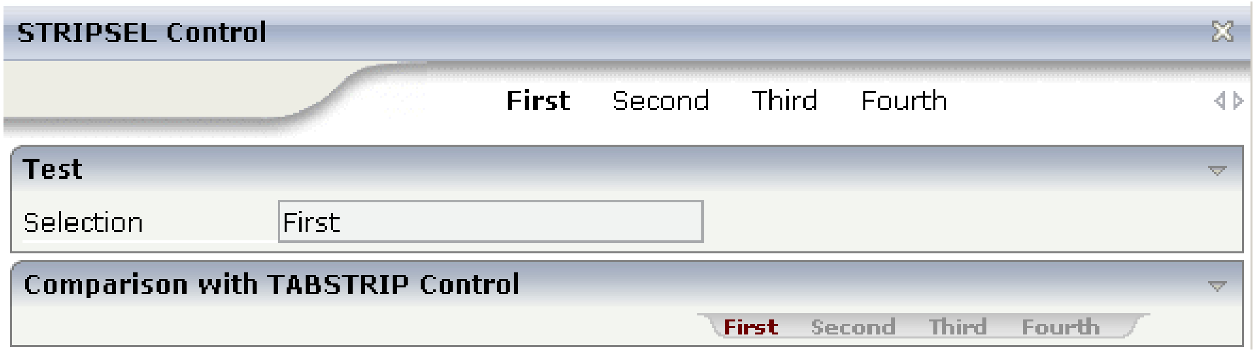
- Example ........................................ 484
- Properties ........................................ 484

The STRIPSEL control is very similar to the TABSTRIP2 control: the user selects one option out of many.

The STRIPSEL control is typically located somewhere at the top of a page, but it can also be positioned anywhere else.

## Example

Programming a STRIPSEL control is the same as programming the TABSTRIP2 control - just the rendering of the control differs:



Selection First

In this example, the STRIPSEL control is the control below the titlebar. For comparison, the TABSTRIP2 control has also been added.

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| tabstripprop | Name of the adapter parameter that represents the control in the adapter. | Optional | |
| align | Horizontal alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimes the size of the column is bigger than the size of the control itself. In this case the "align" property specifies the position of the control inside the column. In most cases you do not require the align control to be explicitly defined because the size of the column around the controls exactly is sized in the same way as the contained control. | Optional | left<br>center<br>right |

| | | | |
|---|---|---|---|
| | If you want to directly control the alignment of text: in most text based controls there is an explicit property "textalign" in which you align the control's contained text. | | |
| scrollable | Flag that indicates if the control shows scroll icons on the right upper corner. Default is true | Optional | true<br>false |
| backgroundstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| scrolllefttitle | Help text that is displayed if the user moves the mouse of the scroll to left icon. | Optional | |
| scrolllefttitletextid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Optional | |
| scrollrighttitle | Help text that is displayed if the user moves the mouse of the scroll to right icon. | Optional | |
| scrollrighttitletextid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Optional | |
| scrollleftimage | URL of image that is displayed inside the control. Any image type (.gif, .jpg, ...) that your browser does understand is valid.<br>Use the following options to specify the URL: | Optional | gif<br>jpg<br>jpeg |

| | | | |
|---|---|---|---|
| | (A) Define the URL relative to your page. Your page is generated directly into your project's folder. Specifiying "images/xyz.gif" will point into a directory parallel to your page. Specifying "../HTMLBasedGUI/images/new.gif" will point to an image of a neighbour project.<br>(B) Define a complete URL, like "http://www.softwareag.com/images/logo.gif". | | |
| scrollleftimagertl | URL of image that is displayed inside the control. Any image type (.gif, .jpg, ...) that your browser does understand is valid.<br>Use the following options to specify the URL:<br>(A) Define the URL relative to your page. Your page is generated directly into your project's folder. Specifiying "images/xyz.gif" will point into a directory parallel to your page. Specifying "../HTMLBasedGUI/images/new.gif" will point to an image of a neighbour project.<br>(B) Define a complete URL, like "http://www.softwareag.com/images/logo.gif". | Optional | gif<br>jpg<br>jpeg |
| scrollrightimage | URL of image that is displayed inside the control. Any image type (.gif, .jpg, ...) that your browser does understand is valid.<br>Use the following options to specify the URL:<br>(A) Define the URL relative to your page. Your page is generated directly into your project's folder. Specifiying "images/xyz.gif" will point into a directory parallel to your page. Specifying "../HTMLBasedGUI/images/new.gif" will point to an image of a neighbour project.<br>(B) Define a complete URL, like "http://www.softwareag.com/images/logo.gif". | Optional | gif<br>jpg<br>jpeg |
| scrollrightimagertl | URL of image that is displayed inside the control. Any image type (.gif, .jpg, ...) that your browser does understand is valid.<br>Use the following options to specify the URL:<br>(A) Define the URL relative to your page. Your page is generated directly into your project's folder. Specifiying "images/xyz.gif" will point into a directory parallel to your page. Specifying | Optional | gif<br>jpg<br>jpeg |

| | | | |
|---|---|---|---|
| | "../HTMLBasedGUI/images/new.gif" will point to an image of a neighbour project.<br>(B) Define a complete URL, like "http://www.softwareag.com/images/logo.gif". | | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |

# 66 SUBCISPAGE2

- Example ........ 490
- Adapter Interface ........ 491
- Session Management ........ 491
- Properties ........ 492

The SUBCISPAGE2 control allows you to embed Application Designer pages such as a NATPAGE into another Application Designer page. You may already have read the section describing the **SUBPAGE** control which allows you to embed any HTML page into an Application Designer page. The differences between the SUBCISPAGE2 control and the SUBPAGE control are:

- With SUBCISPAGE2, you embed an Application Designer page. With SUBPAGE, you embed a normal HTML page.
- Application Designer pages are usually started using the servlet "StartCISPage" which creates an embedding frame in which the Application Designer page is placed. The SUBCISPAGE2 control automatically creates this frame.
- The embedded page is automatically linked to the Application Designer session management. It runs in the same session. This allows the outer page to interact with the embedded page.

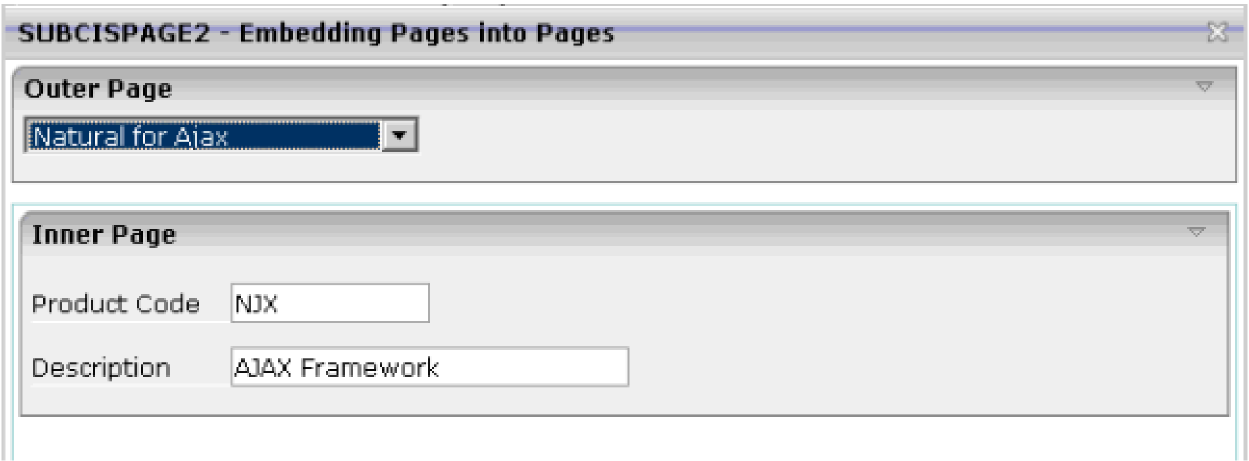
## Example

The following is one usage scenario for the SUBCISPAGE2 control:

- Have a page which allows you to select a product from a list.
- Have an embedded page which shows the details of the selected product.

This way, you can modularize complex or large screens. The details can also be delivered by a Natural application which is different from the one which does the search.

Normally, it is not appropriate to use this feature if you just have a few simple fields as shown in the example below. However, this simple example clearly explains how this feature works. You can find it in the **njxdemos** project. The outer page allows you to select a product. The inner page shows the product details.



SUBCISPAGE2 - Embedding Pages into Pages

Outer Page

Natural for Ajax

Inner Page

Product Code: NJX

Description: AJAX Framework

The XML code for the SUBCISPAGE2 control in the outer page is:

```
<rowtable0>
  <itr width="100%">
   <subcispage2 subcispageprop="innerPage" width="100%" height="300" borderwidth="1">
    </subcispage2>
  </itr>
</rowtable0>
```

## Adapter Interface

```
1 INNERPAGE
2 CHANGEINDEX (I4)
2 PAGE (A) DYNAMIC
2 PAGEID (A) DYNAMIC
```

| Element | Description |
|---|---|
| CHANGEINDEX | Change this value if the embedded page is to be refreshed. Refreshing means that a server roundtrip will be executed for the embedded page. This allows the corresponding Natural program to send new data to the browser. |
| PAGE | The URL for opening the embedded page. Example for a NATPAGE:<br>`'/cisnatural/NatLogon.html&xciParameters.natsession=Local&`<br>`xciParameters.natparamext=stack%3D%28LOGON+SYSEXNJX%3BCTRSBI-P%29'` |
| PAGEID | For each PAGEID in the same Application Designer subsession, a new Natural session is created. Identical PAGEID elements within a subsession will refer to the same Natural session. |

## Session Management

A NATPAGE runs in an Application Designer subsession. For information on session management in workplaces, see *Session Management inside the Workplace*.

For non-workplace applications, all NATPAGE pages run in the same Application Designer subsession. Exactly one Natural session is applied to this subsession. If the embedded NATPAGE pages would also use this Natural session, it would not work. Instead, you have to specify a PAGEID for each embedded page. For each different PAGEID within an Application Designer subsession, a new Natural session is opened. All Natural sessions opened during the lifetime of an Application Designer subsession exist as long as the Application Designer subsession exists. For example, if you close the browser, all Natural sessions are closed.

## Properties

| Basic | | | |
|---|---|---|---|
| subcispageprop | Name of the adapter parameter that provides the content of the control. | Optional | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| width | (already explained above) | | |
| height | (already explained above) | | |

| | | | |
|---|---|---|---|
| borderwidth | Border size of control in pixels. Specify "0" not to render any border at all. | Optional | 1<br>2<br>3<br>int-value |
| withownborder | Default is false. If WITHOWNBORDER is set to true, the subcispage2 control is rendered with its own 3D lookalike border. Set BORDERWIDTH to 0 if WITHOWNBORDER is set to true. | Optional | true<br>false |
| pagestyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50 |

| | | | |
|---|---|---|---|
| | | | int-value |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |

# 67 SUBPAGE

- Properties .......... 496

The SUBPAGE control defines an area in which an HTML page is shown. The URL of the page is not statically defined, but is dynamically controlled by the application.

Due to the browser's capability to embed installed plug-ins, you can use non-HTML objects to be called - and which the browser is able to understand. For example, if you have Microsoft Office installed (or the viewers for Microsoft Office documents) and you pass the name of a Word document as the URL, the Word document will be embedded into the page.

## Properties

| Basic | | | |
|---|---|---|---|
| valueprop | Name of the adapter parameter that provides the URL to be displayed inside the SUBPAGE control.<br>Please note: the SUBPAGE control only re-renders its inner content if the URL provided by the property really changes. The SUBPAGE control does not "know" if something changed inside the contained page and that it has to redraw the page. - If you want to refresh the inner page explicitly append some random number to your URL, e.g.: http://...url...?RANDOM=45435. By changing the number the browser will reload the URL. | Obligatory | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Sometimes obligatory | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content. | Sometimes obligatory | 100<br>150<br>200<br>250<br>300 |

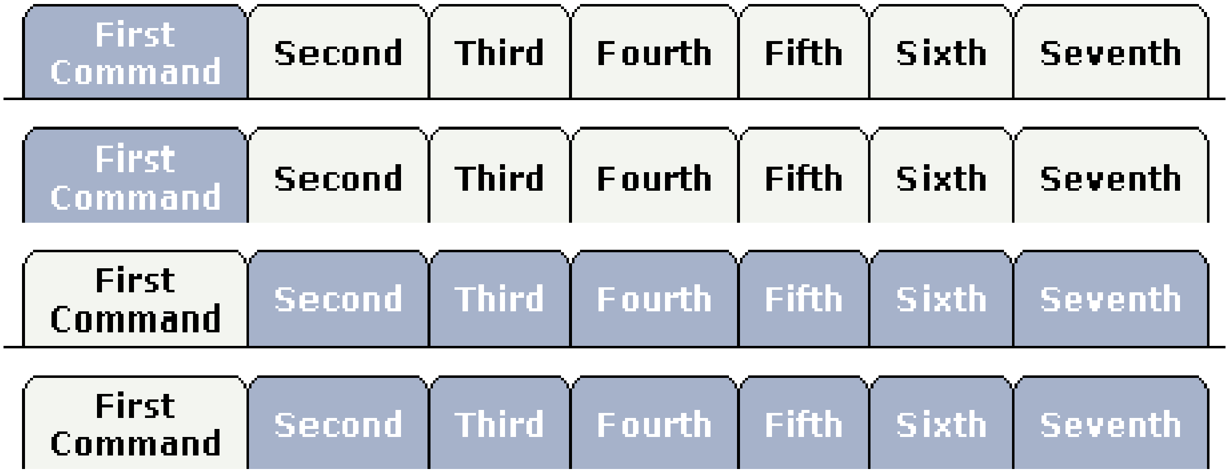
| | | | |
|---|---|---|---|
| | (B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | 250<br>400<br>50%<br>100% |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| width | (already explained above) | | |
| height | (already explained above) | | |
| scrolling | Definition of the scrollbar's appearance.<br>You can define that the scrollbars only are shown if the content is exceeding the control's area ("auto"). Or scrollbars can be shown always ("scroll"). Or scrollbars are never shown - and the content is cut ("hidden").<br>Default is "auto". | Optional | auto<br>yes<br>no |
| pagestyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50 |

| | | | |
|---|---|---|---|
| | | | int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| alwaysreload | When setting to false, the subpage is not reloaded when a page switch is executed, default is true. | Optional | true<br>false |
| Binding | | | |
| valueprop | (already explained above) | | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |

# 68 TABSEL

- Adapter Interface ........................................ 500
- Built-in Events ........................................ 500
- Properties ........................................ 501

The TABSEL control looks as shown in the following example:



The number of tabs is dynamically defined at runtime. There are various output options:

- With/without a horizontal line below the control.
- Normal or reverse coloring.

Like the TABSTRIP control, the TABSEL control does not provide internal containers that are switched when selecting tabs. It just represents one tab line.

## Adapter Interface

```
1 TABS
2 SELECTEDITEM (I4)
2 TSITEMS (1:*)
3 ID (U) DYNAMIC
3 NAME (U) DYNAMIC
3 TITLE (U) DYNAMIC
```

## Built-in Events

*`value-of-tabselprop`*.onSelect

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| tabselprop | Name of the adapter parameter that represents the control in the adapter. | Obligatory | |
| bottomborder | If set to "true" then a bottom border is rendered below the tab selection. If set to "false" then no bottom border will be drawn. | Optional | true<br>false |
| reversecolors | Reverses the color scheme of the TABSEL control. | Optional | true<br>false |
| leftindent | Inserts a horizontal distance left of the first "tab" and shifts the "tabs" to the right as consequence. The value you may define represents the number of pixels that are inserted. | Optional | 1<br>2<br>3<br>int-value |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

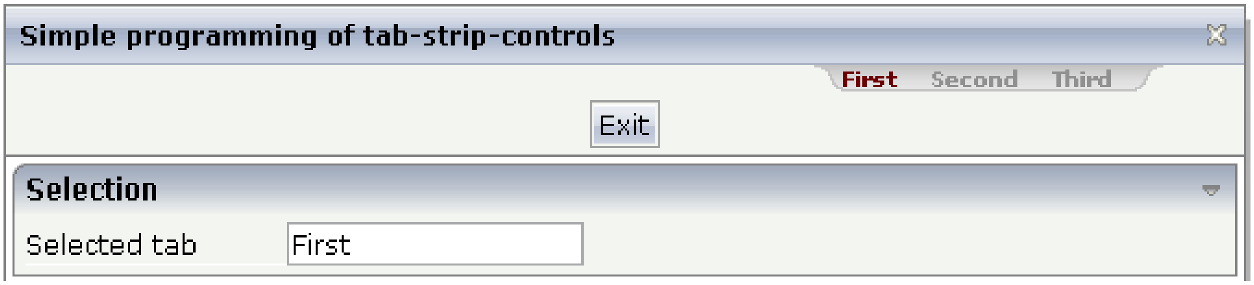
# 69 TABSTRIP2

- Example ........ 504
- Adapter Interface ........ 504
- Built-in Events ........ 504
- Properties ........ 505

The TABSTRIP2 control is used to navigate through certain aspects of your application. The way you navigate depends completely on your implementation.

## Example

The control looks as follows:



Selected tab: First

For each aspect, there is one tab holding a name and an index. The left-most tab holds index 1, the next one 2, etc.

## Adapter Interface

```
1 TABS
2 SELINDEX (I4)
2 TSITEMS (1:*)
3 NAME (U) DYNAMIC
```

## Built-in Events

*value-of-tabstripprop*.onSelect

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| tabstripprop | Name of the adapter parameter that represents the control in the adapter. | Optional | |
| align | Horizontal alignment of the control's content. | Optional | left<br>center<br>right |
| scrollable | If set to "true" then small icons will appear on the right border of the control. If the size of the "tabs" is too big and some tabs are cut as consequence then you can use these icons for scrolling left and right. | Optional | true<br>false |
| backgroundstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| scrollleftimage | URL of image that is displayed inside the control. Any image type (.gif, .jpg, ...) that your browser does understand is valid.<br>Use the following options to specify the URL:<br>(A) Define the URL relative to your page. Your page is generated directly into your project's folder. Specifiying "images/xyz.gif" will point into a directory parallel to your page. Specifying "../HTMLBasedGUI/images/new.gif" will point to an image of a neighbour project. | Optional | gif<br>jpg<br>jpeg |

| | | | |
|---|---|---|---|
| | (B) Define a complete URL, like "http://www.softwareag.com/images/logo.gif". | | |
| scrollleftimagertl | URL of image that is displayed inside the control. Any image type (.gif, .jpg, ...) that your browser does understand is valid.<br>Use the following options to specify the URL:<br>(A) Define the URL relative to your page. Your page is generated directly into your project's folder. Specifiying "images/xyz.gif" will point into a directory parallel to your page. Specifying "../HTMLBasedGUI/images/new.gif" will point to an image of a neighbour project.<br>(B) Define a complete URL, like "http://www.softwareag.com/images/logo.gif". | Optional | gif<br>jpg<br>jpeg |
| scrollrightimage | URL of image that is displayed inside the control. Any image type (.gif, .jpg, ...) that your browser does understand is valid.<br>Use the following options to specify the URL:<br>(A) Define the URL relative to your page. Your page is generated directly into your project's folder. Specifiying "images/xyz.gif" will point into a directory parallel to your page. Specifying "../HTMLBasedGUI/images/new.gif" will point to an image of a neighbour project.<br>(B) Define a complete URL, like "http://www.softwareag.com/images/logo.gif". | Optional | gif<br>jpg<br>jpeg |
| scrollrightimagertl | URL of image that is displayed inside the control. Any image type (.gif, .jpg, ...) that your browser does understand is valid.<br>Use the following options to specify the URL:<br>(A) Define the URL relative to your page. Your page is generated directly into your project's folder. Specifiying "images/xyz.gif" will point into a directory parallel to your page. Specifying "../HTMLBasedGUI/images/new.gif" will point to an image of a neighbour project.<br>(B) Define a complete URL, like "http://www.softwareag.com/images/logo.gif". | Optional | gif<br>jpg<br>jpeg |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) | Optional | |

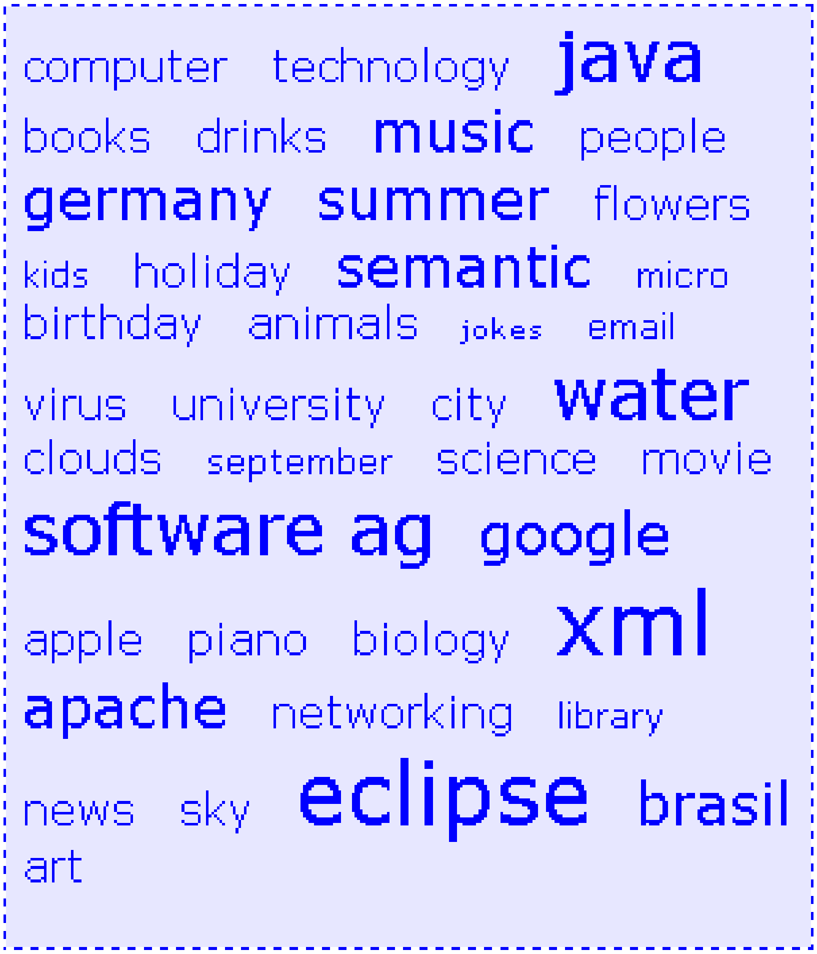
| | | | |
|---|---|---|---|
| | is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |

# 70 TAGCLOUD

- Example ........ 510
- Adapter Interface ........ 511
- Built-in Events ........ 511
- Properties ........ 511

The TAGCLOUD control represents a collection of tags. A tag is a keyword assigned to an information resource (picture, video clip or others). In a tag cloud, the tags are mainly shown by their popularity.

## Example


computer technology java
books drinks music people
germany summer flowers
kids holiday semantic micro
birthday animals jokes email
virus university city water
clouds september science movie
software ag google
apple piano biology xml
apache networking library
news sky eclipse brasil
art

As you can see, different tags can be added to a tag cloud. They differ by their popularity. The most popular tags are those with a bigger font size.

The XML layout definition is:

```
<itr>
   <tagcloud tagcloudprop="tagCloud"
          width="300" height="350"
          borderstyle="dotted" borderwidth="1px"
          bordercolor="#0000FF" backgroundcolor="#E6E6FA"
          textcolor="#0000FF">
   </tagcloud>
</itr>
```

The tag cloud can be customized by defining a background color.

## Adapter Interface

```
1 TAGCLOUD
2 TCLITEM (1:*)
3 ID (U) DYNAMIC
3 POPULARITY (I4)
3 TEXT (U) DYNAMIC
```

The index of the selected tag cloud can easily be determined with an **NJX:EVENTDATA** control.

## Built-in Events

`value-of-tagcloudprop`.onSelect

## Properties

| Basic | | | |
|---|---|---|---|
| tagcloudprop | Name of the adapter parameter that represents the control in the adapter. | Obligatory | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the | Optional | 100<br>120<br>140<br>160<br>180<br>200 |

| | | | |
|---|---|---|---|
| | parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | 50%<br>100% |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| borderstyle | Choose the style the controls border. | Optional | solid<br>double<br>groove<br>dotted<br>dashed<br>inset<br>outset<br>ridge<br>hidden |
| borderwidth | Border size of control in pixels. Specify "0" not to render<br>any border at all. | Optional | thin<br>medium<br>thick<br>1px<br>2px<br>5px |

| | | | |
|---|---|---|---|
| | | | 10px |
| bordercolor | Sets the border color of the control. | Optional | #FF0000<br>#00FF00<br>#0000FF<br>#FFFFFF<br>#808080<br>#000000 |
| backgroundcolor | Sets the background color of the control. | Optional | #FF0000<br>#00FF00<br>#0000FF<br>#FFFFFF<br>#808080<br>#000000 |
| textcolor | Sets the text color of the control. | Optional | #FF0000<br>#00FF00<br>#0000FF<br>#FFFFFF<br>#808080<br>#000000 |

# 71 TEXT

- Properties ........ 516

The TEXT control represents a multi line text edit control. It represents the value of an adapter parameter.

## Properties

| Basic | | | |
|---|---|---|---|
| valueprop | Name of the adapter parameter that provides the content of the control. | Obligatory | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Sometimes obligatory | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| flush | Flushing behaviour of the input control.<br>By default an input into the control is registered within the browser client - and communicated to the server adapter object when a user | Optional | screen<br>server |

| | | | |
|---|---|---|---|
| | e.g. presses a button. By using the FLUSH property you can change this behaviour.<br>Setting FLUSH to "server" means that directly after changing the input a synchronization with the server adapter is triggered. As consequence you directly can react inside your adapter logic onto the change of the corresponding value. - Please be aware of that during the synchronization always all changed properties - also the ones that were changed before - are transferred to the adapter object, not only the one that triggered the synchonization.<br>Setting FLUSH to "screen" means that the changed value is populated inside the page. You use this option if you have redundant usage of the same property inside one page and if you want to pass one changed value to all its representaion directly after changing the value. | | |
| flushmethod | When the data synchronization of the control is set to FLUSH="server" then you can specify an explicit event to be sent when the user updates the content of the control. By doing so you can distinguish on the server side from which control the flush of data was triggered. | Optional | |
| datatype | By default, the control is managing its content as string. By explicitly setting a datatype you can define that the control will format the data coming from the server: if the field has datatype "date" and the user inputs "010304" then the input will be translated into "01.03.2004" (or other representation, dependent on date format settings).<br>Please note: the datatype "float" is named a bit misleading - it represents any decimal format number. The server side representation may be a float value, but also can be a double or a BigDecimal property. | Optional | string n<br>xs:string |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| width | (already explained above) | | |
| displayonly | If set to true, the FIELD will not be accessible for input. It is just used as an output field. | Optional | true<br>false |
| direction | Presets the default(BiDi) direction of the control. Use black string in order to have the default value. | Optional | rtl<br>ltr |
| displayprop | Name of the adapter parameter that dynamically passes information whether the field is displayonly("true") or not ("false"). Notice that in the Natural code the type for the field is alphanumeric. | Optional | |

| | | | |
|---|---|---|---|
| statusprop | Name of the adapter parameter that dynamically passes information how the control should be rendered and how it should act. Valid parameter values at runtime: "INVISIBLE", "FOCUS", "FOCUS_NO_SELECT", "ERROR", "ERROR_NO_FOCUS". Use DISPLAYPROP to dynamically define whether the field is displayonly. | Optional | |
| wrap | Specifies the line wrapping inside the control. By default a line that exceeds the width of the control is broken automatically.<br>You may define this property to not wrap at all ("off") - in this case the text control offers horizontal scroll bars to scroll the text.<br>There are two styles of wrapping "soft" and "hard". The difference between "soft" and "hard" is the way the text is - if changed by the user - passed back to the adapter property: when specifying "soft" then line breaks which are caused by wrapping are not sent to the server, when specifying "hard" then line breaks caused by wrapping are sent as carriage return/ line feed. - Be carefule when specifying "hard" as consequence!<br>The wrap attribute is not part of the HTML standard. It depends on the browser if wrap=hard/soft are supported. | Optional | soft<br>hard<br>off |
| rows | Height of control specified by number of rows. Either define the height by the HEIGHT property or by the ROWS property. Do not specify both!<br>When specifying the height by ROWS then be aware of that the height depends from the font size used inside the control (that is defined in the styles sheet definition). | Optional | |
| cols | Width of control specified by number of characters. Either define the width by the WIDTH property or by the COLS property. Do not specify both!<br>When specifying the width by COLS then be aware of that the width depends from the font size used inside the control (that is defined in the styles sheet definition). | Optional | |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |

| | | | |
|---|---|---|---|
| maxlength | Maximum number of characters that a user may enter into this FIELD. This property is not depending on the LENGTH property - please do not get confused by the similar naming. MAXLENGTH has nothing to do with the optical sizing of the control but only with the number of characters you may input. | Optional | 5<br>10<br>15<br>20<br>int-value |
| maxlengthprop | Name of the adapter parameter that provides the maximum number of characters that a user may enter into this FIELD. Consider to use MAXLENGTH to define this number in a static way. | Optional | |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| textareastyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | |
| title | Text that is shown as tooltip for the control.<br>Either specify the text "hard" by using this TITLE property - or use the TITLETEXTID in order to define a language dependent literal. | Optional | |
| titletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text that is used for the control. | Optional | |

| | | | |
|---|---|---|---|
| titleprop | Name of the adapter parameter that dynamically defines the title of the control. The title is displayed as tool tip when ther user moves the mouse onto the control. | Optional | |
| scroll | Definition of the scrollbar's appearance.<br>You can define that the scrollbars only are shown if the content is exceeding the control's area ("auto"). Or scrollbars can be shown always ("scroll"). Or scrollbars are never shown - and the content is cut ("hidden").<br>Default is "auto". | Optional | auto<br>scroll<br>hidden |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1<br>2<br>5<br>10<br>32767 |
| Online Help | | | |
| helpid | Help id that is passed to the online help management in case the user presses F1 on the control. | Optional | |
| title | (already explained above) | | |
| titletextid | (already explained above) | | |
| titleprop | (already explained above) | | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natsysvar | If the control shall be bound to a Natural system variable, this attribute specifies the name of the system variable. | Optional | |

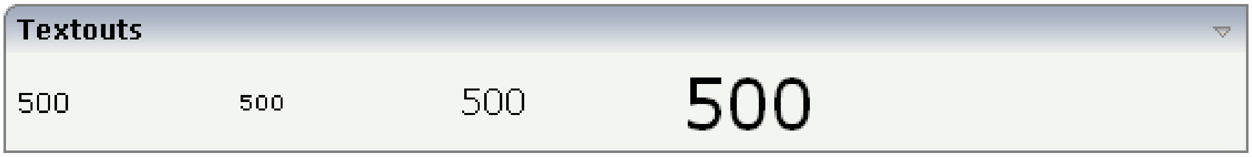
| | | | |
|---|---|---|---|
| njx:natsysio | If the control shall be bound to a Natural system variable with the attribute njx:natsysvar, this attribute indicates if the system variable is modifiable. The default is false. | Optional | |
| njx:natstringtype | If the control shall be bound to a Natural system variable of string format with the attribute njx:natsysvar, this attribute indicates the format of the string, A (code page) or U (Unicode). The default is A. | Optional | |
| njx:natcv | Name of a Natural control variable that shall be assigned to the control. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |
| Miscellaneous | | | |
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |

# 72 TEXTOUT

- Example ........ 524
- Properties ........ 524

The TEXTOUT control is used to display plain text. The text is not statically defined (as a label) but is controlled by an adapter property.

## Example



The XML layout definition is:

```
<rowarea name="Textouts">
    <itr>
        <textout valueprop="factor1" width="100">
        </textout>
        <textout valueprop="factor1" width="100" textsize="1">
        </textout>
        <textout valueprop="factor1" width="100" textsize="3">
        </textout>
        <textout valueprop="factor1" width="100" textsize="6">
        </textout>
    </itr>
</rowarea>
```

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you | Sometimes obligatory | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |

| | | | |
|---|---|---|---|
| | specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | |
| valueprop | Name of the adapter parameter that provides the content of the control. | Obligatory | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| width | (already explained above) | | |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| nowrap | If the textual content of the control exceeds the size of the control then the browser automatically breaks the line and arranges the text accordingly.<br>You can avoid this behaviour by setting NOWRAP to "true". No line break will be performed by the browser. | Optional | true<br>false |
| textsize | The HTML font size of the text. Corresponding to the HTML definition "1" means "smallest" and "6" means "biggest". | Optional | 1<br>2<br>3<br>4<br>5<br>6 |

| | | | |
|---|---|---|---|
| textcolor | Colour of the text. Input a value like "#FF0000". | Optional | #FF0000<br>#00FF00<br>#0000FF<br>#FFFFFF<br>#808080<br>#000000 |
| datatype | By default, the control is managing its content as string. By explicitly setting a datatype you can define that the control will format the data coming from the server: if the field has datatype "date" and the user inputs "010304" then the input will be translated into "01.03.2004" (or other representation, dependent on date format settings).<br>Please note: the datatype "float" is named a bit misleading - it represents any decimal format number. The server side representation may be a float value, but also can be a double or a BigDecimal property. | Optional | date<br>float<br>int<br>long<br>time<br>timestamp<br>color<br>xs:decimal<br>xs:double<br>xs:date<br>xs:dateTime<br>xs:time<br>------------------------<br>N n.n<br>P n.n<br>string n<br>L<br>xs:boolean<br>xs:byte<br>xs:short |
| straighttext | If the text of the control contains HTML tags then these are by default interpreted by the browser. Specifiying | Optional | true<br>false |

| | | | |
|---|---|---|---|
| | STRAIGHTTEXT as "true" means that the browser will directly render the characters without HTML interpretation.<br>Example: if you want to output the source of an HTML text then STRAIGHTTEXT should be set to "true". | | |
| align | Horizontal alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimes the size of the column is bigger than the size of the control itself. In this case the "align" property specifies the position of the control inside the column. In most cases you do not require the align control to be explicitly defined because the size of the column around the controls exactly is sized in the same way as the contained control.<br>If you want to directly control the alignment of text: in most text based controls there is an explicit property "textalign" in which you align the control's contained text. | Optional | left<br>center<br>right |
| valign | Vertical alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | Optional | top<br>middle<br>bottom |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table | Optional | 1<br>2<br>3<br>4<br>5 |

| | | | |
|---|---|---|---|
| | rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | | 50<br>int-value |
| bgcolorprop | Name of an adapter parameter that passes back a color value (e.g. "#FF0000" for red color). The color value is used as background color in the control. The color of the text color is automatically chosen dependent from the background color: for light background colors the text color is black, for dark background colors the color is white. Use FGCOLORPROP to choose the text color on your own. | Optional | |
| fgcolorprop | Name of an adapter parameter that passes back a color value (e.g. "#FF0000" for red color). The color value is used as text color in the control. The background color is automatically chosen dependent from the text color: for dark text colors the background color is transparent (default), for light text colors the color is black. Use BGCOLORPROP to choose both - the text and background color. | Optional | |
| textoutstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| textoutclass | CSS style class definition that is directly passed into this control.<br>The style class can be either one which is part of the "normal" CIS style sheet files (i.e. the ones that you maintain with the style sheet editor) - or it can be one of an other style sheet file that you may reference via the ADDSTYLESHEET property of the PAGE tag. | Optional | |
| stylevariant | Some controls offer the possibility to define style variants. By this style variant you can address different styles | Optional | VAR1 |

| | | | |
|---|---|---|---|
| | inside your style sheet definition file (.css). If not defined "normal" styles are chosen, if defined (e.g. "VAR1") then other style definitions (xxxVAR1xxx) are chosen.<br>Purpose: you can set up style variants in the style sheet defintion and use them multiple times by addressing them via the "stylevariant" property. CIS currently offerst two variants "VAR1" and "VAR2" but does not predefine any semantics behind - this is up to you! | | VAR2<br>VAR3<br>VAR4 |
| Binding | | | |
| valueprop | (already explained above) | | |
| titleprop | Name of the adapter parameter that dynamically defines the title of the control. The title is displayed as tool tip when ther user moves the mouse onto the control. | Optional | |
| bgcolorprop | (already explained above) | | |
| fgcolorprop | (already explained above) | | |
| visibleprop | Name of the adapter parameter that provides the information if this control is displayed or not. As consequence you can control the visibility of the control dynamically. | Optional | |
| invisiblemode | If the visibility of the control is determined dynamically by an adapter property then there are two rendering modes if the visibility is "false":<br>(1) "invisible": the control is not visible.<br>(2)"cleared": the control is not visible but it still occupies space. | Optional | invisible<br>cleared |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natsysvar | If the control shall be bound to a Natural system variable, this attribute specifies the name of the system variable. | Optional | |

| | | | |
|---|---|---|---|
| njx:natsysio | If the control shall be bound to a Natural system variable with the attribute njx:natsysvar, this attribute indicates if the system variable is modifiable. The default is false. | Optional | |
| njx:natstringtype | If the control shall be bound to a Natural system variable of string format with the attribute njx:natsysvar, this attribute indicates the format of the string, A (code page) or U (Unicode). The default is A. | Optional | |
| njx:natcv | Name of a Natural control variable that shall be assigned to the control. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |
| Miscellaneous | | | |
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |

# 73 TOGGLE

- Properties ........................................ 532

The TOGGLE control is used to display and to edit a selection status. In principle, it acts similar to a CHECKBOX control, but it

- allows to define different icon images for the "true" and "false" representations;
- allows being informed when the user presses the CTRL or SHIFT key when clicking the icon. With this information, you can react on a combination of SHIFT and click in a different way than to a normal click or a combination of CTRL and click. This is especially useful inside grid processing when you want to allow the user to do mass selections.

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| valueprop | Name of the adapter parameter that represents the value of the control. | Obligatory | |
| trueimage | Image URL that is shown if the corresponding property value is "true". | Obligatory | gif<br>jpg<br>jpeg |
| falseimage | Image URL that is shown if the corresponding property value is "true". | Obligatory | gif<br>jpg<br>jpeg |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |

| | | | |
|---|---|---|---|
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | |
| partialimage | Image URL that is shown if the corresponding property value is "null". | Optional | |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0 |

| | | | |
|---|---|---|---|
| | | | 1<br>2<br>5<br>10<br>32767 |
| backgroundclass | CSS style class definition that is directly passed into this control.<br>The style class can be either one which is part of the "normal" CIS style sheet files (i.e. the ones that you maintain with the style sheet editor) - or it can be one of an other style sheet file that you may reference via the ADDSTYLESHEET property of the PAGE tag. | Optional | |
| Binding | | | |
| valueprop | (already explained above) | | |
| statusprop | Name of the adapter parameter that dynamically passes information how the control should be rendered and how it should act. Valid parameter values at runtime: "INVISIBLE", "FOCUS", "FOCUS_NO_SELECT", "ERROR", "ERROR_NO_FOCUS". Use DISPLAYPROP to dynamically define whether the field is displayonly. | Optional | |
| shiftmethod | Name of the event that is sent to the adapter when the user clicks on the toggle control and presses the Shift-key the same time. | Optional | |
| controlmethod | Name of the event that is sent to the adapter when the user clicks on the toggle control and presses the Ctrl-key the same time. | Optional | |
| flush | Flushing behaviour of the input control.<br>By default an input into the control is registered within the browser client - and communicated to the server adapter object when a user e.g. presses a button. By using the FLUSH property you can change this behaviour.<br>Setting FLUSH to "server" means that directly after changing the input a synchronization with the server adapter is triggered. As consequence you directly can react inside your adapter logic onto the change of the corresponding value. - Please be aware of that during the synchronization always all changed properties - also the ones that were changed before - are transferred to the adapter object, not only the one that triggered the synchonization.<br>Setting FLUSH to "screen" means that the changed value is populated inside the page. You use this option if you have redundant usage of the same property inside one page and if you want to pass one changed value to all its representaion directly after changing the value. | Optional | screen<br>server |

| | | | |
|---|---|---|---|
| flushmethod | When the data synchronization of the control is set to FLUSH="server" then you can specify an explicit event to be sent when the user updates the content of the control. By doing so you can distinguish on the server side from which control the flush of data was triggered. | Optional | |
| Online Help | | | |
| title | Text that is shown as tooltip for the control.<br>Either specify the text "hard" by using this TITLE property - or use the TITLETEXTID in order to define a language dependent literal. | Optional | |
| titletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text that is used for the control. | Optional | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natcv | Name of a Natural control variable that shall be assigned to the control. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |
| Miscellaneous | | | |
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |

# 74 ACTIVEX

- Properties ........................................ 538

This is a “hot topic”: embedding ActiveX controls in pages. Before telling you what the control does, let us explain why we do it:

Of course, the client integration of ActiveX controls has - from browser or SWT perspective - only disadvantages:

- ActiveX controls are not secure: you decide to run one control or not. But do not have a “sandbox” as you have with JavaScript or with applets. Using an ActiveX control means that this contol - once running - has native access to your computer, just as any other native program.
- ActiveX controls are bound to the Microsoft Windows platform.
- ActiveX controls need to be explicitly installed on the client side - maybe automated in some way, but still an explicit installation is necessary.

But - and this is why we support them - in some cases, they are a nice way to integrate other software which runs out of the scope of the browser.

Example: you may want to integrate your user interface with a barcode reader which is connected to your client via a serial interface. In this case, there is no way to access this barcode reader via JavaScript. You need to use an ActiveX control (or a signed applet) to connect to the serial device.

There is a simple interface between HTML/JavaScript and ActiveX, and vice versa. ActiveX controls can be embedded into an HTML page and it is possible to directly access properties of the ActiveX control from JavaScript. This interface was used for building the ACTIVEX control that you can use as an Application Designer control. Calling methods in the ACTIVEX or send/receive events is not supported.

## Properties

| Basic | | | |
|---|---|---|---|
| classid | Class id of the ActiveX control. A string in the format "8E27C92B-1264-101C-8A2F-040224009C02" representing the UUID of the ActiveX component. The CLASSID is used inside the HTML client to reference the ActiveX control. | Optional | |
| progid | The unique program identifier which has been registered for this ActiveX Control like "Shell.Explorer" | Optional | |
| xinitparams | Init parameters that are used for creating an instance of the ActiveX control. Values are passed as semicolon separated string: property;value;property;value etc.<br>The property is the name of the ActiveX control's property that is initialized with the corresponding value. | Optional | |
| setxparams | Same as GETXPARAMS but now the other direction. Adapter properties that are transferred (on change) into corresponding ActiveX properties with | Optional | |

| | | | |
|---|---|---|---|
| | each repsonse. The string format is the same: activeXProperty;adapterProperty;activeXProperty;adapterProperty etc. | | |
| getxparams | Semicolon separated list of which ActiveX control are linked with which adapter properties. The format is: activeXProperty;adapterProperty;activeXProperty;adapterProperty etc.<br>With each request send from the browser the ActiveX properties are collected in from the ActiveX control and are transferred (if they have changed) into the corresponding adapter properties.activex_attr_progid"Program id of the ActiveX control. E.g. "MSCAL.Calendar" for the Microsoft calendar. The PROGID is used inside the SWT client to access the ActiveX control. | Optional | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| reloadprop | Name of the adapter parameter that indicates that the ActiveX control is reloaded with every response from the server that changed data of the ActiveX control. | Optional | |
| useparamtag | Set to false if setting the parameters in your ActiveX does not work using the html param tag. Normally you don't have to set this attribute. | Optional | true<br>false |

| | | | |
|---|---|---|---|
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

# 75 CHART

- About the SVG and JPEG Formats ........ 542
- Example ........ 542
- CHART Properties ........ 544
- CHARTCOLUMN Properties ........ 545

The CHART control allows you to present statistics information in a graph. You can choose among several different chart types. Additionally, you can choose the rendering format: SVG or JPEG. To use SVG rendering, you must install an SVG viewer into your browser. See also *http://www.adobe.com/svg/viewer/install/*.

## About the SVG and JPEG Formats

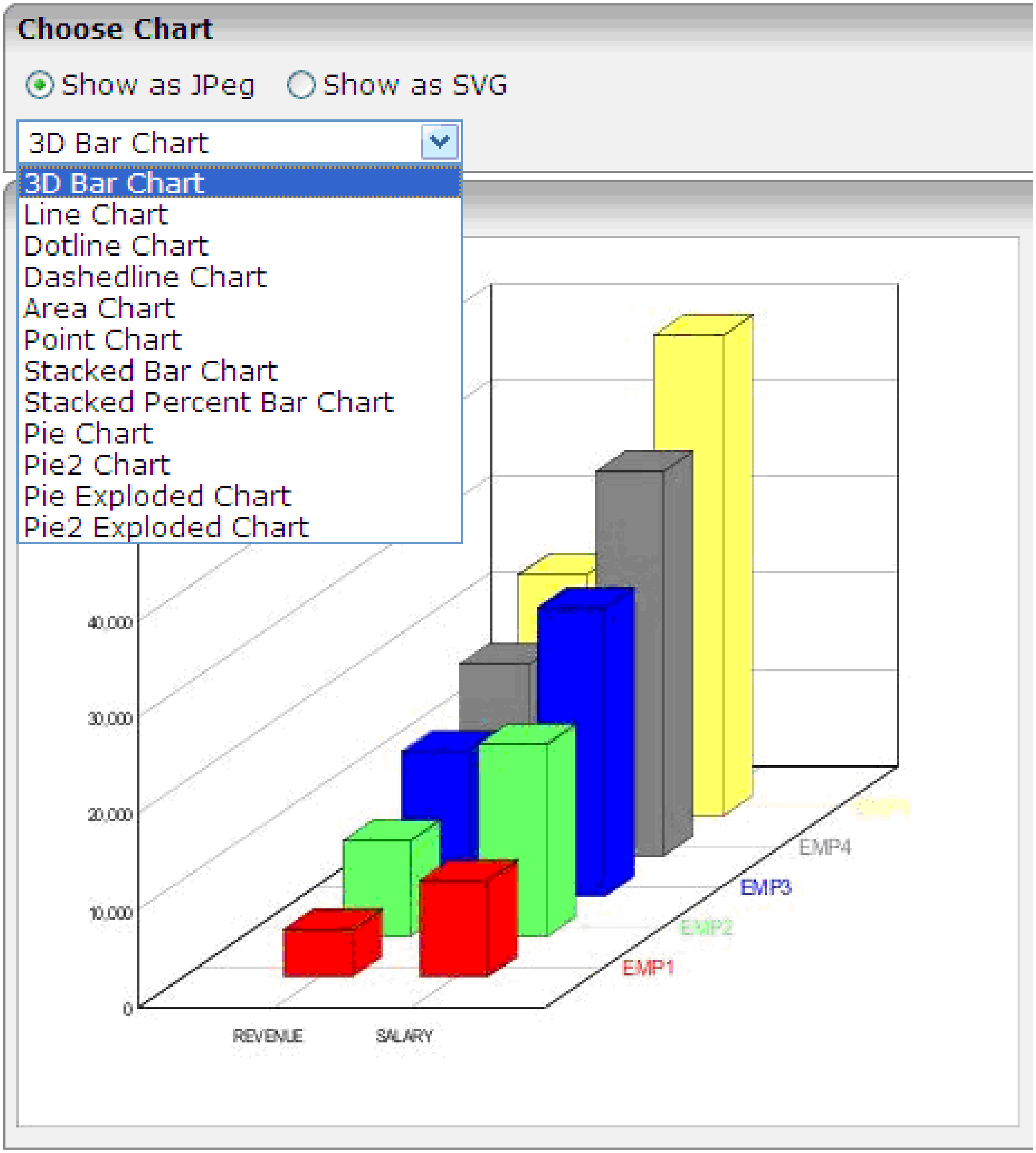
When to use which format?

- **SVG**
  SVG is a vector format. You can use it in printable documents because the quality of rendering is scalable. SVG requires a plug-in on browser side to be displayed; it does not come with Internet Explorer or Mozilla. The plug-in is available by installing an up-to-date version of Adobe Reader (from our experience, it became available with Adobe Reader 5.0).
- **JPEG**
  JPEG is a format for pixel images. It is easily displayable in any browser without requiring any plug-ins. However, it has limited printing quality.

## Example

The appearance of the chart can be customized statically at design time or dynamically at runtime. The **njxdemos** project contains the following examples, including layouts and corresponding Natural source code:

- **ctrlgraph**
  Shows the settings for the static appearance.
- **ctrlgraph2**
  Shows the settings for the dynamic appearance.


Choose Chart
● Show as JPeg
○ Show as SVG
3D Bar Chart
3D Bar Chart
Line Chart
Dotline Chart
Dashedline Chart
Area Chart
Point Chart
Stacked Bar Chart
Stacked Percent Bar Chart
Pie Chart
Pie2 Chart
Pie Exploded Chart
Pie2 Exploded Chart
40,000
30,000
20,000
10,000
0
REVENUE
SALARY
EMP5
EMP4
EMP3
EMP2
EMP1

## CHART Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| arrayprop | The chart control renders a set of items. Each item represents a line (or corresponding chart visualization, e.g. a set of bars). The ARRAYPROP attribute defines the name of the adapter parameter that represents this lines-structure. | Obligatory | |
| height | Height of the chart. Use pixel definitions only, not percentage definitions. | Optional | 1<br>2<br>3<br>int-value |
| width | Width of chart. Use pixel definitions only, not percentage definitions. | Optional | 1<br>2<br>3<br>int-value |
| charttype | Type of chart - i.e. whether the output should be rendered as a set of lines, a set of bars, etc. | Optional | bar<br>3dbar<br>line<br>dotline<br>dashedline<br>area<br>point<br>stacked<br>stacked100<br>pie<br>pie2<br>pieexploded<br>pie2exploded |

| | | | |
|---|---|---|---|
| outputformat | Output format: SVG as default. Creation of various image types is supprted as well - please open valid values for seeing the list of supported types. | Optional | svg<br>jpeg |
| colors | Comma seperated list of colors. Example: #FF6060 | Optional | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Binding | | | |
| charttypeprop | The name of the adapter parameter which provides the charttype. | Optional | |
| outputformatprop | The name of the adapter parameter which provides the outputformat. | Optional | |
| colorsprop | The name of the adapter parameter which provides the colors to be used in the chart as comma separated list. | Optional | |

## CHARTCOLUMN Properties

| Basic | | | |
|---|---|---|---|
| property | Each item of a chart represents one line. Each line holds as information (1) the text of the line and (2) multiple key figures that are the values to be rendered as line. E.g. a line may have the values "region,revenue,cost,profit". In this case the "region" is the element passing the text of the line, whereas the other elements are passing the key figure information. For each element you maintain one CHARTCOLUMN item, each one pointing to the data element that passes the value at runtime. | Obligatory | |
| xaxisproperty | This is an indicator of the attribute "PROPERTY" is holding a text value (then "true") or a key figure value (then "false"). In the example of a line "region,revenue,cost,profit" the corresponding XAXISPROPERTY would be "true,false,false,false". | Optional | true<br>false |
| title | The text shown for this item as corresponding title on the xaxis. If no title is specified then the property name (see property above) is used as xaxis title. | Optional | |
| titleprop | The name of the adapter parameter which provides the title. | Optional | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

# 76 GOOGLEMAP

- Before You Start ........ 548
- Example ........ 549
- Typical Problems ........ 551
- Properties ........ 552

The GOOGLEMAP control is used to provide for Google Maps support within Application Designer pages. The control internally makes use of the Google Maps API. In order to use the control on your site, you need to sign up for a Google Maps API key at ***https://developers.google.com/maps/signup***. Make sure that you agree with the Google Maps APIs Terms of Service (***https://developers.google.com/maps/terms***).

## Before You Start

In order to use the GOOGLEMAP control, you need to sign up for a Google Maps API key. A key is valid for a single "directory" on your web server only, i.e. you sign up for a URL like *http://www.mysite.com/mywebapp/myproject*. With a standard installation of Application Designer on localhost, you may sign up for the URL *http://localhost:8080/mywebapp/myproject*. Typically, you develop your Application Designer web application not on the site on which you run it later in productive mode. Therefore, you may sign up for two different sites (development and production site).

**Required Steps**

1. Choose the project directory that keeps the layouts using the GOOGLEMAP control.
2. Sign up for a Google Maps API key at ***https://developers.google.com/maps/signup*** for this project directory (e.g. *http://localhost:8080/mywebapp/myproject*).
3. Create the API key page. Store the key page in the registered project directory. You are free in naming the file (the file extension must be "html"). The GOOGLEMAP control embeds your API key as a subpage. The subpage must have the following minimum structure:

```
<html>
  <head>
    <script src=" ↩
http://maps.google.com/maps?file=api&amp;v=2.x&amp;key=YOUR_API_KEY"></script>
    <script src="../HTMLBasedGUI/general/googlemapsscript.js"></script>
  </head>
  <body>
    <div id="map" style="position:absolute; top0; left:0;"></div>
  </body>
</html>
```

   You see that the page includes two JavaScript libraries. The first line refers to the Google Maps API. Replace the placeholder "YOUR_API_KEY" with your Google Maps API key. With the second line, the page includes the control's scripting (calls from Application Designer to the Google Maps). The page body is quite simple: it contains a single `div` tag with the ID "map". This `div` is used as an anchor to insert Google Maps controls dynamically.

# Example

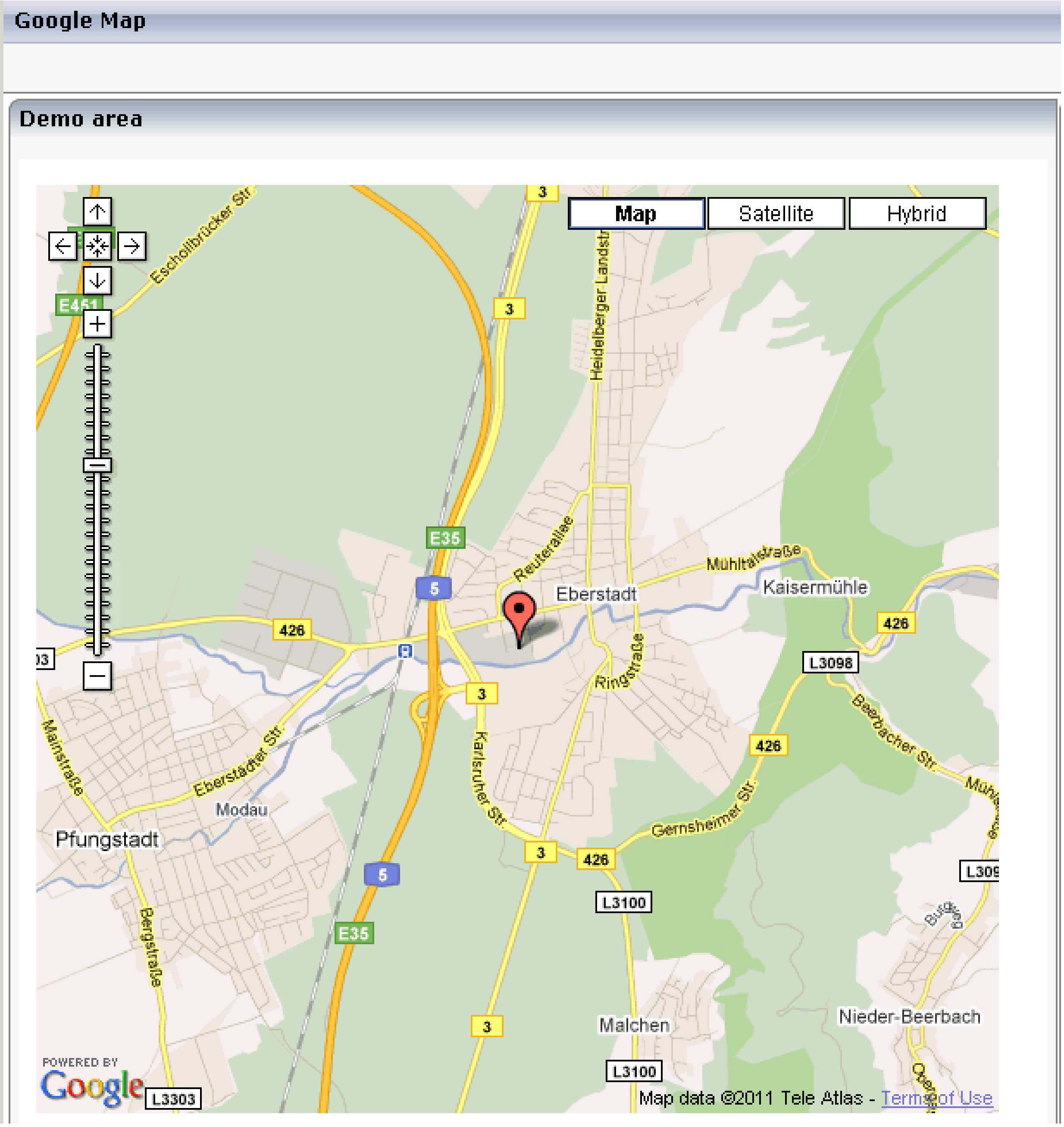
- General Usage

## General Usage

In your Natural program, you can set the address (or latitude and longitude) and optionally the zoom level.

**Note:** The usage of address or longitude/latitude is mutually exclusive.

For example, when you specify "Uhlandstrasse 12, 64297 Darmstadt, Germany" as the address value, the following map is shown.



Google Map

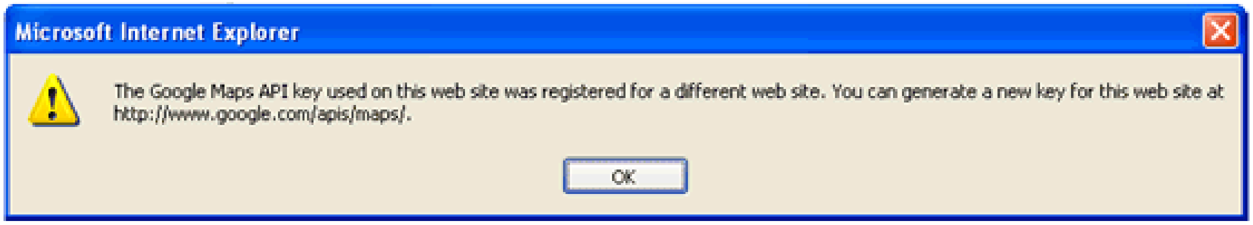
Demo area

## Typical Problems

- Google Map API Key
- Map Remains Gray

### Google Map API Key

Your Google Maps API key is bound to a directory on a certain web server (i.e. you sign up for the URL *http://mycomputer.mydomain.com:8080/mywebapp/myproject*). If you use your key for another URL, Google shows an error message:



The Google Maps API key used on this web site was registered for a different web site. You can generate a new key for this web site at http://www.google.com/apis/maps/.

Reasons that cause the error:

- You have registered your computer using the computer's name (e.g. *http://mycomputer...*). But the Application Designer development workplace is started using the URL *http://localhost...*.

  Solution: start the Application Designer workplace with *http://mycomputer...*.

- The registered directory (e.g. *.../mywebapp/myproject*) does not match your installation (either a mistake in writing when signing up for the key or you have renamed the web application or project after registration).

  Solution: rename your web application or project to match the registered names. Or sign up for a new key and insert the new key into the API key page. In the latter case, delete the content of the browser's cache. Otherwise, the browser will use the former API key page (and thus the old key).

### Map Remains Gray

If you use longitude and latitude for placing the marker on the map, their values may exceed the map top (or bottom) border. If you are able to find the map by scrolling down (or up), then this is the case. Check the values for longitude and latitude in this case.

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| addressprop | Name of adapter parameter that returns the address to be displayed - e.g. "New York" or "1600 Amphitheatre Pky, Mountain View, CA" | Optional | |
| longitudeprop | Name of the adapter parameter that returns the longitude in decimal format. Example: in order to display Palo Alto (United States) return "-122.1419". Return "1000.0" in order to hide the map. | Optional | |
| latitudeprop | Name of the adapter parameter that returns the latitude in decimal format. Example: in order to display Palo Alto (United States) return "34.4419". Return "1000.0" in order to hide the map. | Optional | |
| apikeypagename | Name of the Maps API Key page. Example: mygooglemapsapikey.html. Keep this file within the project directory (directory within the CIS HTML pages are kept). The GOOGLEMAP-control expects this file within certain Javascript includes and content. Have look into chapter "Google Map - Before You Start" within the Developers Guide | Optional | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20"). | Optional | 100<br>150<br>200<br>250<br>300<br>250 |

| | | | |
|---|---|---|---|
| | (C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | 400<br>50%<br>100% |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| width | (already explained above) | | |
| height | (already explained above) | | |
| mapmode | Lets you toggle between map types (e.g., Map and Satellite) | Optional | 1<br>2 |
| controltype | Lets you toggle between a small and large pan/zoom control | Optional | small<br>large |
| infotextprop | Name of the adapter parameter that provides for an additional help text. If used the text is displayed within an info window that points to the center of the map. | Optional | |
| pagestyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5 |

| | | | |
|---|---|---|---|
| | | | 50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| Binding | | | |
| latitudeprop | (already explained above) | | |
| longitudeprop | (already explained above) | | |
| zoomlevelprop | Name of the adapter parameter that provides for the zoom level (integer). Default value is 4. | Optional | |
| infotextprop | (already explained above) | | |

# 77 LINECHART

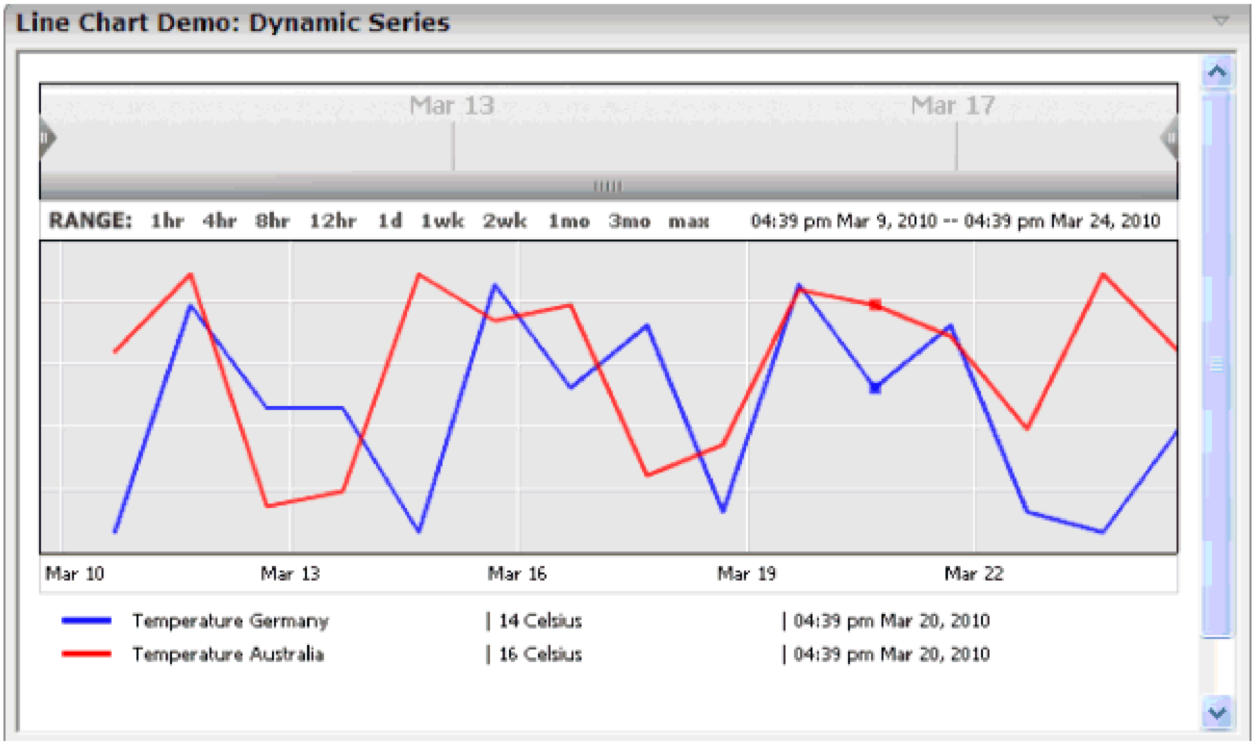
- Example ........ 557
- LINECHART Properties ........ 558
- LINECHARTSERIES Properties ........ 560
- CSVLINECHARTSERIES Properties ........ 560

The LINECHART control allows you to build line charts. This control requires that Adobe Flash Player is installed.

For each line chart, you can define a time range and render multiple series within this time range. For each series, you specify name, measures and the values you would like to see for the series.

The following topics are covered below:

## Example


Line Chart Demo: Dynamic Series
Mar 13
Mar 17
RANGE: 1hr 4hr 8hr 12hr 1d 1wk 2wk 1mo 3mo max
04:39 pm Mar 9, 2010 -- 04:39 pm Mar 24, 2010
Mar 10
Mar 13
Mar 16
Mar 19
Mar 22
Temperature Germany | 14 Celsius | 04:39 pm Mar 20, 2010
Temperature Australia | 16 Celsius | 04:39 pm Mar 20, 2010

The above example shows two series in the time range of March 9th through March 24th.

**Note:** The **ctrllinechart** example in the **njxdemos** project contains a complete working example including layout and Natural source code.

You can define series statically at design time, using the LINECHARTSERIES control. The ID, name and measure of the series is defined at design time. Only the values of this series over time are provided dynamically at runtime.

```
<rowarea name="Line Chart Demo: Static Series" height="100%">
  <itr takefullwidth="true" height="100%">
    <linechart linechartinfoprop="lineChartInfo"
       arrayprop="lineChartValues" startdateprop="myStartDate"
       enddateprop="myEndDate" width="100%" height="350px">
      <linechartseries id="temp" name="Temperature" measure="Celsius" color="FF6060">
      </linechartseries>
    </linechart>
  </itr>
</rowarea>
```

Alternatively, you can define the series themselves dynamically at runtime, using the CSVLINECHARTSERIES control.

```
<rowarea name="Line Chart Demo: Dynamic Series" height="100%">
  <itr takefullwidth="true" height="100%">
    <linechart linechartinfoprop="dynLineChartInfo"
       arrayprop="lineChartValues" startdateprop="myStartDate"
       enddateprop="myEndDate" width="100%" height="350px">
     <csvlinechartseries idsprop="ids" namesprop="names" measuresprop="measures" ↩
colorsprop="colors">
      </csvlinechartseries>
    </linechart>
  </itr>
</rowarea>
```

## LINECHART Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| linechartinfoprop | Name of the adapter parameter that represents the line chart in the adapter. | Obligatory | |
| arrayprop | The line chart renders a set of items. Each item represents a point in the line chart. The ARRAYPROP attribute defines the name of the adapter parameter that represents these items. | Obligatory | |
| startdateprop | The line chart renders the values for a specific time range. The STARTDATEPROP attribute defines the name of the adapter parameter that provides the value for the start date. | Obligatory | |
| enddateprop | The line chart renders the values for a specific time range. The ENDDATEPROP attribute defines the name of the adapter parameter that provides the value for the end date. | Obligatory | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| height | Height of the control.<br>There are three possibilities to define the height: | Optional | 100<br>150 |

| | | | |
|---|---|---|---|
| | (A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | 200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| align | Horizontal alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimes the size of the column is bigger than the size of the control itself. In this case the "align" property specifies the position of the control inside the column. In most cases you do not require the align control to be explicitly defined because the size of the column around the controls exactly is sized in the same way as the contained control.<br>If you want to directly control the alignment of text: in most text based controls there is an explicit property "textalign" in which you align the control's contained text. | Optional | left<br>center<br>right |
| valign | Vertical alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | Optional | top<br>middle<br>bottom |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but | Optional | 1<br>2 |

| | | | |
|---|---|---|---|
| | you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | | 3<br>4<br>5<br>50<br>int-value |

## LINECHARTSERIES Properties

| Basic | | | |
|---|---|---|---|
| id | An id which is used to identify single items or a series of items rendered from this control. | Obligatory | |
| name | Text that is displayed inside of this controls for a single series. | Optional | |
| measure | Text that is displayed inside of this control for the measure of this series. | Optional | |
| color | Color of the control. Value must follow format "#rrggbb", e.g. #000000 for black. | Optional | |

## CSVLINECHARTSERIES Properties

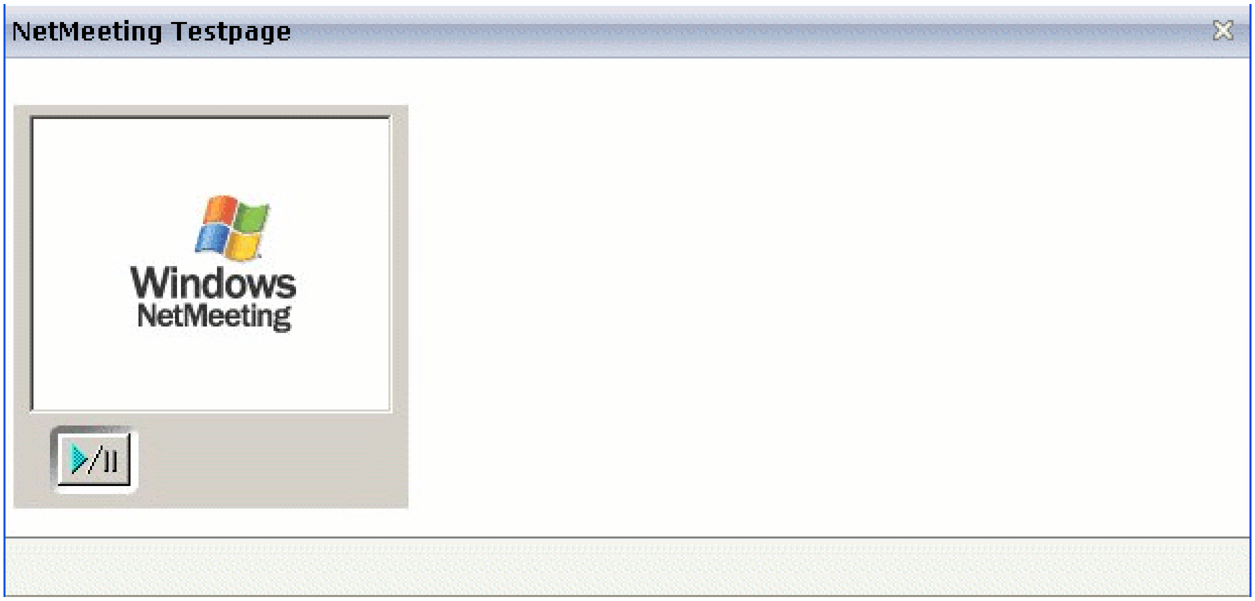
| Basic | | | |
|---|---|---|---|
| idsprop | Name of the adapter parameter that dynamically provides a comma separated list of series ids. | Obligatory | |
| namesprop | Name of the adapter parameter that dynamically provides a comma separate list of series names. | Optional | |
| measuresprop | Name of the adapter parameter that dynamically provides a comma separate list of measure names for the series rendered in the line chart. | Optional | |
| colorsprop | Name of the adapter parameter that dynamically provides a comma separated list of colors used by this control. | Optional | |

# 78 NETMEETING

- Example ........ 562
- Properties ........ 562

The NETMEETING control allows you to start NetMeeting sessions within your Application Designer pages.

## Example



The XML layout definition is:

```
<pagebody>
  <itr>
    <netmeeting calltoprop="callto" modeprop="modep" width="300">
    </netmeeting>
  </itr>
</pagebody>
```

## Properties

| Basic | | | |
|---|---|---|---|
| calltoprop | Name of the adapter parameter that provides the contact data of the 'contact' that should be called.<br>The data has to have the following semantics.<br>ILS Server/email adress e.g. ils.netmeeting.de/contact@testmail.com | Optional | |
| modeprop | Name of the adapter parameter that holds the mode of the control. | Optional | |

| | | | |
|---|---|---|---|
| | Possible are:<br>FULL, PREVIEWONLY, PREVIEWNOPAUSE, REMOTEONLY, REMOTENOPAUSE, DATAONLY | | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |

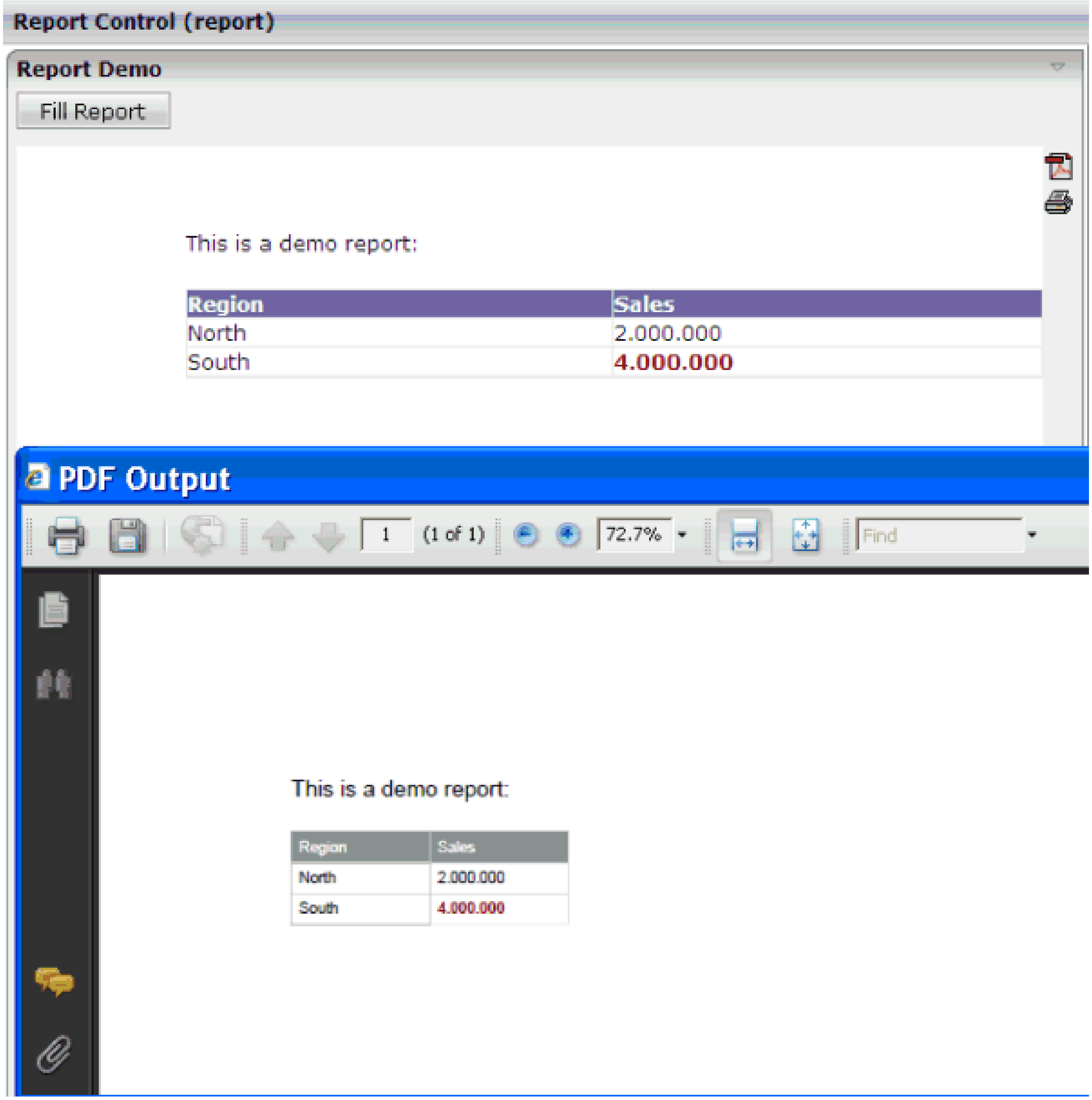
# 79 REPORT

- Example ........ 566
- Built-in Events ........ 567
- Properties ........ 567

The REPORT control is used to create report output. The report may include text information and table information. It may also have style definitions such as colors and highlighting of certain cells.

## Example

The REPORT control provides an automated conversion of the report output into a PDF document, and it allows the user to directly print the report on the client's printer. For more information, see the **ctrlreport** example in the **njxdemos** project.



This is a demo report:

| Region | Sales |
|---|---|
| North | 2.000.000 |
| South | 4.000.000 |

This is a demo report:

| Region | Sales |
|---|---|
| North | 2.000.000 |
| South | 4.000.000 |

## Built-in Events

*value-of-reportprop*.onGeneratePDF - Assign this event to a button, hot key or other control if you want to trigger the PDF generation under control of the application.

*value-of-reportprop*.onGeneratePrintVersion - Assign this event to a button, hot key or other control if you want to trigger printing under control of the application.

*value-of-reportprop*.onUploadPDF - Assign this event to a button, hot key or other control if you want to upload the generated PDF to the Natural server. The PDF content will be added to the **NJX:OBJECTS** cache with "onUploadPDF" as the `CONTENTID`.

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| reportprop | Name of the server side data representation of the control. | Obligatory | |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Obligatory | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| showpdf | If set to "true" then a PDF icon is rendered in the right top corner of the control. When the user clicks on the icon then the report is automatically rendered as PDF - and the result will show up in a popup window. | Optional | true<br>false |

| | | | |
|---|---|---|---|
| | Pay attention: if setting this property to "true" then you also have to choose a special constructor when creating the REPORTInfo instance on server side, in which the instance of the model is passed as argument.<br>Example:<br>public class XYZAdapter extends Adapter<br>{<br>REPORTInfo m_report = new REPORTInfo(this)<br>...<br>} | | |
| showprintversion | If switched to "true" then a small print icon will appear right from the report area. The print icon opens up a modal popup from which the HTML produced inside the report can be directly sent to the printer.<br>Pay attention: if specifying "true" then the adapter property holding the REPORTInfo object must create the REPORTInfo instance with passing "this" in the constructor. | Optional | true<br>false |
| showupload | NATPAGE layouts only: If set to "true" then a PDF icon is rendered in the right top corner of the control. When the user clicks on the icon then the report is automatically rendered as PDF and the PDF content is added to the NJX:OBJECTS cache for an upload to the Natural server. The event value-of-reportprop.onUploadPDF is triggered in the Natural application. The Natural application can access the PDF in the NJX:OBJECTS data structure during this event. | Optional | true<br>false |
| areastyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |

| | | | |
|---|---|---|---|
| | browser and select the "View source" or "View frame's source" function. | | |
| areastyleclass | CSS style class used for rendering. | Optional | |
| fixlayout | The fixlayout property is important for saving rendering performance inside your browser. To become effective it requires to have specified the height and the width (if available as property) of the control.<br>If setting fixlayout to "true" then the control's area is defined as area which is not sized dependent on its content (as normally done with table rendering). Instead the size is predefined from outside without letting the browser "look" into the content of the area. If the content is not fitting into the area then it is cut.<br>You typically use this control if the content of the control's area is flexibly sizable. E.g. if the content (e.g. a TEXTGRID control) is following the size of the container.<br>When using vertical percentage based sizing you should pay attention to set the fixlayout-property to "true" as often as possible. - The browser as consequence will be much faster in doing its rendering because a screen consists out of "building blocks" with simple to calculate sizes. | Optional | true<br>false |

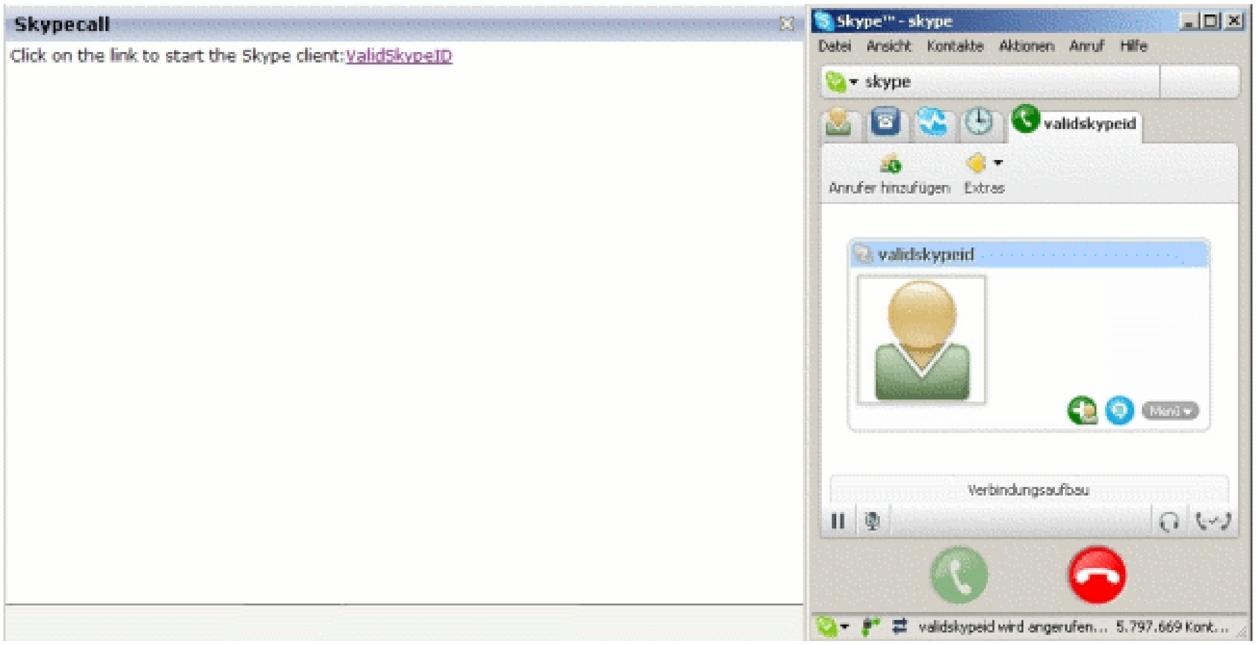
# 80 SKYPECALL

- Example ........................................ 573
- Properties ........................................ 573

The SKYPECALL control allows you to start the Skype client with given contact data from your Natural pages.

⚠ **Important:** In order to use the SKYPECALL control you need to have a valid Skype account and the Skype client must be installed. For further information, see ***http://www.skype.com/***.

## Example



Skypecall

Click on the link to start the Skype client:ValidSkypeID

Skype™ - skype
Datei Ansicht Kontakte Aktionen Anruf Hilfe
skype
validskypeid
Anrufer hinzufügen
Extras
validskypeid
Menü
Verbindungsaufbau
validskypeid wird angerufen... 5.797.669 Kont...

The XML layout definition is:

```
<pagebody>
  <itr>
   <label name="Click on the link to start the Skype client: "
        asplaintext="true"></label>
   <skypecall valueprop="skypecall"></skypecall>
  </itr>
</pagebody>
```

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| valueprop | Name of the adapter parameter that contains the phone number or the Skype ID of the person that should be called. It is also possible to set some parameters.<br>For further information, see the Skype API.<br>Note: The Skype client must be installed if you want to use this control. | Obligatory | |
| Natural | | | |

| | | | |
|---|---|---|---|
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |

# 81 TIMER

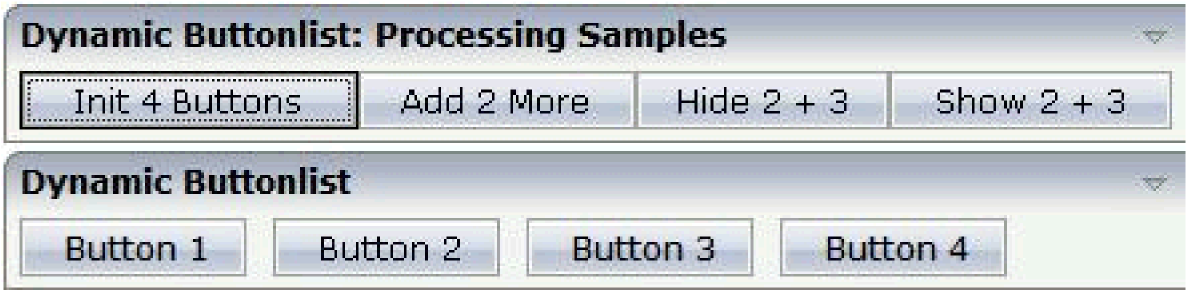
For detailed information on the **TIMER** control, see ***Non-Visual Controls and Hot Keys***.

# 82 NJX:BUTTONITEM

- Example ........ 578
- Built-in Events ........ 578
- Properties ........ 579

The NJX:BUTTONITEM control is used to configure the buttons in an **NJX:BUTTONITEMLIST** control. Only one NJX:BUTTONITEM control is needed in an NJX:BUTTONITEMLIST control. This NJX:BUTTONITEM control is used to configure all buttons in the same way.

## Example



The XML code for the example looks as follows:

```
<rowarea name="Dynamic Buttonlist">
    <itr>
        <njx:buttonitemlist buttonlistprop="dynbuttons"
        buttoncount="10" hdist="10">
            <njx:buttonitem width="100">
            </njx:buttonitem>
        </njx:buttonitemlist>
    </itr>
</rowarea>
```

## Built-in Events

The NJX:BUTTONITEM control behaves like a **BUTTON** control.

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| image | URL of image that is displayed inside the control. Any image type (.gif, .jpg, ...) that your browser does understand is valid.<br>Use the following options to specify the URL:<br>(A) Define the URL relative to your page. Your page is generated directly into your project's folder. Specifiying "images/xyz.gif" will point into a directory parallel to your page. Specifying "../HTMLBasedGUI/images/new.gif" will point to an image of a neighbour project.<br>(B) Define a complete URL, like "http://www.softwareag.com/images/logo.gif". | Optional | gif<br>jpg<br>jpeg |
| invisiblemode | This property has three possible values:<br>(1) "invisible": the button is not visible without occupying any space.<br>(2) "disabled": the button is deactivated: it is "grayed" and does not show any roll over effects any more.<br>(3)"cleared": the button is not visible but it still occupies space. | Optional | invisible<br>disabled<br>cleared |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |

| | | | |
|---|---|---|---|
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| imageheight | Pixel height of image inside button. | Optional | |
| imagewidth | Pixel width of image inside button. | Optional | |
| textstyle | CSS style definition that is directly passed into the text of this control.<br>With the style you can individually influence the text of the button. You can specify any style sheet expressions. Examples are:<br>font-weight: bold<br>color: #FF0000 | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| buttonstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| stylevariant | Some controls offer the possibility to define style variants. By this style variant you can address different styles inside your | Optional | VAR1 |

| | | | |
|---|---|---|---|
| | style sheet definition file (.css). If not defined "normal" styles are chosen, if defined (e.g. "VAR1") then other style definitions (xxxVAR1xxx) are chosen.<br>Purpose: you can set up style variants in the style sheet defintion and use them multiple times by addressing them via the "stylevariant" property. CIS currently offerst two variants "VAR1" and "VAR2" but does not predefine any semantics behind - this is up to you! | | VAR2 |
| align | Horizontal alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimes the size of the column is bigger than the size of the control itself. In this case the "align" property specifies the position of the control inside the column. In most cases you do not require the align control to be explicitly defined because the size of the column around the controls exactly is sized in the same way as the contained control.<br>If you want to directly control the alignment of text: in most text based controls there is an explicit property "textalign" in which you align the control's contained text. | Optional | left<br>center<br>right |
| valign | Vertical alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | Optional | top<br>middle<br>bottom |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns. | Optional | 1<br>2<br>3<br>4 |

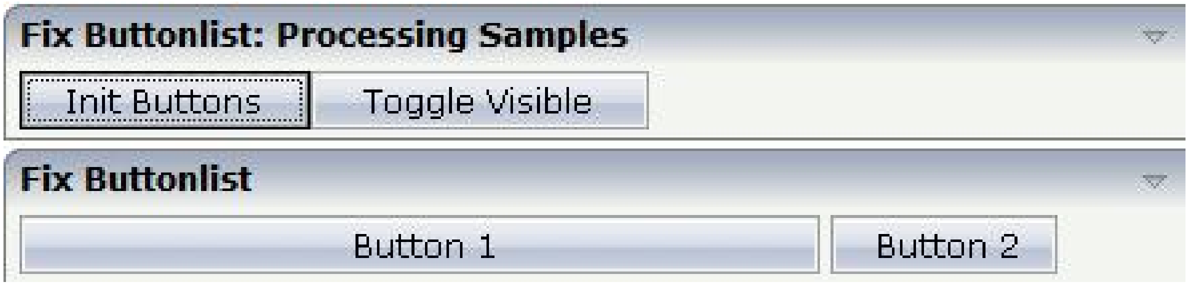
| | | | |
|---|---|---|---|
| | The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | | 5<br>50<br>int-value |
| imagedisabled | URL of image that is displayed if the control is disabled. Use properties VISIBLEPROP and INVISIBLEMODE to disable the control. | Optional | gif<br>jpg<br>jpeg |
| submitbutton | Set this property to true and the button will work as an 'Submitbutton', that is neccessary if you want to transfer and/or save form values.<br>i.e. password and username or complete search forms<br>Default value is false.<br>You should only use a 'Submitbutton' if the withformtag option of the pagebody tag is set true. | Optional | true<br>false |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1<br>2<br>5<br>10<br>32767 |
| focusedprop | Name of the adapter parameter which indicates if the control should receive focus. | Optional | |
| Miscellaneous | | | |
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |

# 83 NJX:BUTTONITEMFIX

- Example ........ 584
- Built-in Events ........ 584
- Properties ........ 585

The NJX:BUTTONITEMFIX control is used to configure the individual buttons in an **NJX:BUTTONITEMLISTFIX** control. For each button in the NJX: BUTTONITEMLISTFIX control, one NJX:BUTTONITEMFIX control is needed.

## Example



The XML code for the example looks as follows:

```
<rowarea name="Fix Buttonlist">
    <itr>
        <njx:buttonitemlistfix buttonlistprop="fixbuttons" hdist="4">
            <njx:buttonitemfix method="onButton1"
             invisiblemode="cleared" width="300">
            </njx:buttonitemfix>
            <njx:buttonitemfix method="onButton2"
             invisiblemode="disabled" width="100">
            </njx:buttonitemfix>
        </njx:buttonitemlistfix>
    </itr>
</rowarea>
```

## Built-in Events

The NJX:BUTTONITEMFIX control behaves like a **BUTTON** control.

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| name | Text that is displayed inside the control. Please do not specify the name when using the multi language management - but specify a "textid" instead. | Sometimes obligatory | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Sometimes obligatory | |
| method | Name of the event that is sent to the adapter when the user presses the button. | Obligatory | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| image | URL of image that is displayed inside the control. Any image type (.gif, .jpg, ...) that your browser does understand is valid.<br>Use the following options to specify the URL:<br>(A) Define the URL relative to your page. Your page is generated directly into your project's folder. Specifiying "images/xyz.gif" will point into a directory parallel to your page. Specifying "../HTMLBasedGUI/images/new.gif" will point to an image of a neighbour project.<br>(B) Define a complete URL, like "http://www.softwareag.com/images/logo.gif". | Optional | gif<br>jpg<br>jpeg |
| invisiblemode | This property has three possible values:<br>(1) "invisible": the button is not visible without occupying any space.<br>(2) "disabled": the button is deactivated: it is "grayed" and does not show any roll over effects any more.<br>(3)"cleared": the button is not visible but it still occupies space. | Optional | invisible<br>disabled<br>cleared |
| width | Width of the control.<br>There are three possibilities to define the width: | Optional | 100<br>120<br>140 |

| | | | |
|---|---|---|---|
| | (A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | 160<br>180<br>200<br>50%<br>100% |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| imageheight | Pixel height of image inside button. | Optional | |
| imagewidth | Pixel width of image inside button. | Optional | |
| textstyle | CSS style definition that is directly passed into the text of this control.<br>With the style you can individually influence the text of the button. You can specify any style sheet expressions. Examples are:<br>font-weight: bold<br>color: #FF0000 | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |

| | | | |
|---|---|---|---|
| buttonstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| stylevariant | Some controls offer the possibility to define style variants. By this style variant you can address different styles inside your style sheet definition file (.css). If not defined "normal" styles are chosen, if defined (e.g. "VAR1") then other style definitions (xxxVAR1xxx) are chosen.<br>Purpose: you can set up style variants in the style sheet defintion and use them multiple times by addressing them via the "stylevariant" property. CIS currently offerst two variants "VAR1" and "VAR2" but does not predefine any semantics behind - this is up to you! | Optional | VAR1<br>VAR2 |
| align | Horizontal alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimes the size of the column is bigger than the size of the control itself. In this case the "align" property specifies the position of the control inside the column. In most cases you do not require the align control to be explicitly defined because the size of the column around the controls exactly is sized in the same way as the contained control.<br>If you want to directly control the alignment of text: in most text based controls there is an explicit property "textalign" in which you align the control's contained text. | Optional | left<br>center<br>right |
| valign | Vertical alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | Optional | top<br>middle<br>bottom |
| colspan | Column spanning of control. | Optional | 1 |

| | | | |
|---|---|---|---|
| | If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | | 2<br>3<br>4<br>5<br>50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| imagedisabled | URL of image that is displayed if the control is disabled. Use properties VISIBLEPROP and INVISIBLEMODE to disable the control. | Optional | gif<br>jpg<br>jpeg |
| submitbutton | Set this property to true and the button will work as an 'Submitbutton', that is neccessary if you want to transfer and/or save form values.<br>i.e. password and username or complete search forms<br>Default value is false.<br>You should only use a 'Submitbutton' if the withformtag option of the pagebody tag is set true. | Optional | true<br>false |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1<br>2<br>5<br>10 |

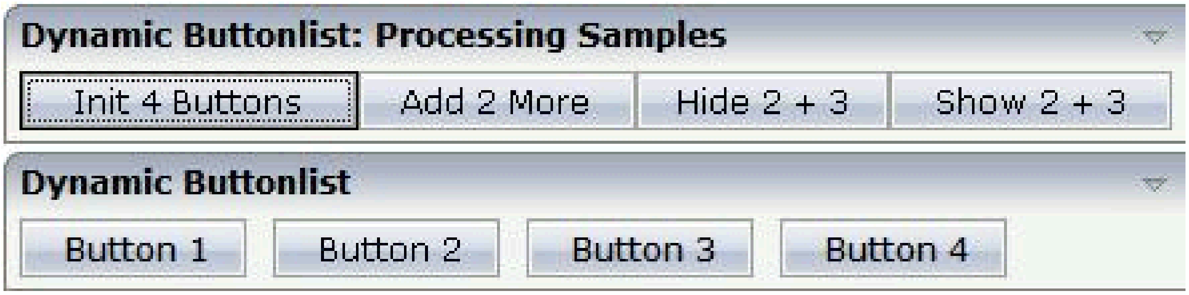
| | | | |
|---|---|---|---|
| | | | 32767 |
| Binding | | | |
| method | (already explained above) | | |
| Online help | | | |
| title | Text that is shown as tooltip for the control.<br>Either specify the text "hard" by using this TITLE property - or use the TITLETEXTID in order to define a language dependent literal. | Optional | |
| titletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text that is used for the control. | Optional | |
| Miscellaneous | | | |
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |

# 84 NJX:BUTTONITEMLIST

- Example ........ 593
- Adapter Interface ........ 593
- Built-in Events ........ 593
- Properties ........ 594

The NJX:BUTTONITEMLIST control is used to arrange buttons in a horizontal line. In contrast to the **NJX:BUTTONITEMLISTFIX** control, the number of buttons in an NJX:BUTTONITEMLIST control can be changed dynamically (up to an upper limit defined at design time), but the layout of the buttons cannot be configured individually. Instead, all buttons in the list are configured with the same layout.

## Example



The XML code for the example looks as follows:

```
<rowarea name="Dynamic Buttonlist">
    <itr>
        <njx:buttonitemlist buttonlistprop="dynbuttons"
        buttoncount="10" hdist="10">
            <njx:buttonitem width="100">
            </njx:buttonitem>
        </njx:buttonitemlist>
    </itr>
</rowarea>
```

## Adapter Interface

```
1 DYNBUTTONS (1:*)
2 METHOD (A) DYNAMIC
2 NAME (A) DYNAMIC
2 TITLE (A) DYNAMIC
2 VISIBLE (L)
```

## Built-in Events

The buttons in the NJX:BUTTONITEMLIST control (NJX:BUTTONITEM controls) behave like **BUTTON** controls.

## Properties

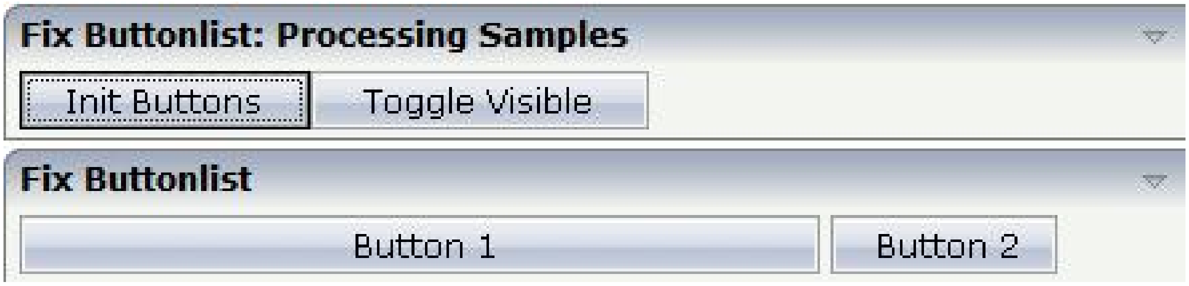
| Basic | | | |
|---|---|---|---|
| buttonlistprop | Name of the adapter parameter that represents the control in the adapter. | Obligatory | |
| buttoncount | Maximum count of buttons in the buttonlist.<br>If no buttoncount is defined then a default of 10 is assigned. | Optional | |
| hdist | Horizontal distance between the buttons. Can be specified either in pixels or as percentage value.<br>If no width is defined then a default width of 2 pixels is assigned. | Optional | |

# 85 NJX:BUTTONITEMLISTFIX

- Example ... 596
- Adapter Interface ... 596
- Built-in Events ... 597
- Properties ... 597

The NJX:BUTTONITEMLISTFIX control is used to arrange buttons in a horizontal line. In contrast to the **NJX:BUTTONITEMLIST** control, the number of buttons in an NJX:BUTTONITEMLIST control cannot be changed dynamically, but the layout of the buttons can be configured individually.

## Example



The XML code for the example looks as follows:

```
<rowarea name="Fix Buttonlist">
    <itr>
        <njx:buttonitemlistfix buttonlistprop="fixbuttons" hdist="4">
            <njx:buttonitemfix method="onButton1"
             invisiblemode="cleared" width="300">
            </njx:buttonitemfix>
            <njx:buttonitemfix method="onButton2"
             invisiblemode="disabled" width="100">
            </njx:buttonitemfix>
        </njx:buttonitemlistfix>
    </itr>
</rowarea>
```

## Adapter Interface

```
1 FIXBUTTONS (1:*)
2 METHOD (A) DYNAMIC
2 NAME (A) DYNAMIC
2 TITLE (A) DYNAMIC
2 VISIBLE (L)
```

## Built-in Events

The buttons in the NJX:BUTTONITEMLISTFIX control (NJX:BUTTONITEMFIX controls) behave like **BUTTON** controls.

## Properties

| Basic | | | |
|---|---|---|---|
| buttonlistprop | Name of the adapter parameter that represents the control in the adapter. | Obligatory | |
| hdist | Horizontal distance between the buttons. Can be specified either in pixels or as percentage value.<br>If no width is defined then a default width of 2 pixels is assigned. | Optional | |
| focusedprop | Name of the adapter parameter which indicates if the control should receive focus. | Optional | |

# 86 NJX:DOCUMENTLINK

- Properties ........ 600

The NJX:DOCUMENTLINK control is used to render text that is dynamically provided by the application through an adapter parameter. The text is rendered as a hyperlink. In a second adapter parameter, the application provides an URL to a document. This URL can refer to documents transported in the data structure of the **NJX:OBJECTS** control. It can also be a normal browser URL for a document which is accessible from within the web application.

When clicking on the hyperlink, the document is opened in a pop-up dialog.

**Note:** See also ***Documents*** in *Some Common Rules for all Controls*.

## Properties

| Basic | | | |
|---|---|---|---|
| name | Text that is displayed inside the control. Please do not specify the name when using the multi language management - but specify a "textid" instead. | Optional | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Optional | |
| valueprop | Name of the adapter parameter that provides the text that is shown as link. | Obligatory | |
| linkprop | Name of adapter parameter providing the URL for the document which should be opened in a popup dialog when clicking on the link. The URL may either refer to a document on the Natural sever (nat:mydoc.pdf) or may be an absolute or relative browser URL ("http://....", ".../mydoc.pdf"). | Obligatory | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will | Sometimes obligatory | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |

| | | | |
|---|---|---|---|
| | only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| width | (already explained above) | | |
| straighttext | If the text of the control contains HTML tags then these are by default interpreted by the browser. Specifiying STRAIGHTTEXT as "true" means that the browser will directly render the characters without HTML interpretation.<br>Example: if you want to output the source of an HTML text then STRAIGHTTEXT should be set to "true". | Optional | true<br>false |
| linkstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| linkclass | CSS style class definition that is directly passed into this control.<br>The style class can be either one which is part of the "normal" CIS style sheet files (i.e. the ones that you maintain with the style sheet editor) - or it can be one of an other style sheet file that you may | Optional | |

| | | | |
|---|---|---|---|
| | reference via the ADDSTYLESHEET property of the PAGE tag. | | |
| align | Horizontal alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimes the size of the column is bigger than the size of the control itself. In this case the "align" property specifies the position of the control inside the column. In most cases you do not require the align control to be explicitly defined because the size of the column around the controls exactly is sized in the same way as the contained control.<br>If you want to directly control the alignment of text: in most text based controls there is an explicit property "textalign" in which you align the control's contained text. | Optional | left<br>center<br>right |
| valign | Vertical alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | Optional | top<br>middle<br>bottom |
| nowrap | If the textual content of the control exceeds the size of the control then the browser automatically breaks the line and arranges the text accordingly.<br>You can avoid this behaviour by setting NOWRAP to "true". No line break will be performed by the browser. | Optional | true<br>false |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| rowspan | Row spanning of control. | Optional | 1<br>2 |

| | | | |
|---|---|---|---|
| | If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | | 3<br>4<br>5<br>50<br>int-value |
| Binding | | | |
| valueprop | (already explained above) | | |
| linkprop | (already explained above) | | |
| titleprop | Name of the adapter parameter that dynamically defines the title of the control. The title is displayed as tool tip when ther user moves the mouse onto the control. | Optional | |
| linkstatusprop | Name of the adapter parameter that dynamically defines how the link should be rendered and how it should act. Valid values are "DISPLAY" and "EDIT". | Optional | |
| oncontextmenumethod | Name of the event that is sent to the adapter when the user presses the right mouse button in an empty area. | Optional | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a | Optional | |

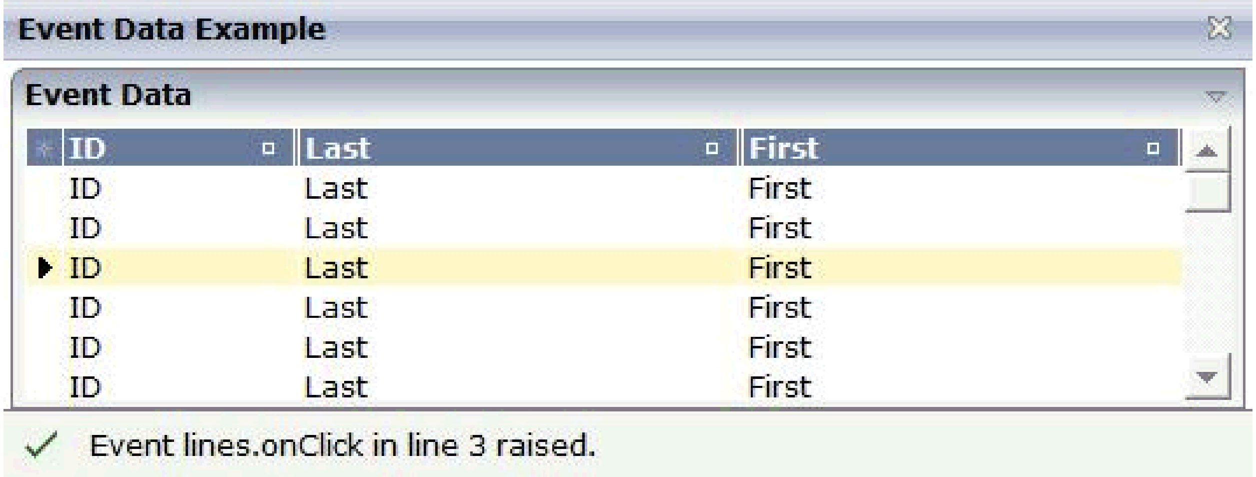
| | | | |
|---|---|---|---|
| | generated statusprop variable to which field the statusprop belongs. | | |
| Miscellaneous | | | |
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |

# 87 NJX:EVENTDATA

- Example .......... 607
- Adapter Interface .......... 608

The NJX:EVENTDATA control supplies additional information related to specific events. With some events, the application needs additional information to handle the event properly. Only one instance of the control needs to be added to the page. This instance provides the event data for all events of other controls on the page that supply additional data. If the page does not contain an instance of the NJX:EVENTDATA control, no additional event data is supplied to the application.

## Example



Event Data Example

Event Data

| ID | Last | First |
|---|---|---|
| ID | Last | First |
| ID | Last | First |
| ID | Last | First |
| ID | Last | First |
| ID | Last | First |
| ID | Last | First |

✓ Event lines.onClick in line 3 raised.

The XML layout definition is:

```
<?xml version="1.0" encoding="UTF-8"?>
<natpage natsource="CTREVD-A" natsinglebyte="true"
xmlns:njx="http://www.softwareag.com/njx/njxMapConverter">
    <titlebar name="Event Data Example">
    </titlebar>
    <pagebody takefullheight="true">
        <rowarea name="Event Data" height="100%">
            <itr height="100%">
                <textgrid2 griddataprop="lines" width="100%"
                 height="100%" selectprop="selected"
                 onclickmethod="lines.onClick">
                    <column name="ID" property="id" width="100">
                    </column>
                    <column name="Last" property="last">
                    </column>
                    <column name="First" property="first">
                    </column>
                </textgrid2>
            </itr>
        </rowarea>
    </pagebody>
    <statusbar withdistance="false">
    </statusbar>
    <njx:eventdata>
    </njx:eventdata>
</natpage>
```

## Adapter Interface

```
1 LINES (1:*)
2 FIRST (A) DYNAMIC
2 ID (A) DYNAMIC
2 LAST (A) DYNAMIC
2 SELECTED (L)
1 XCIEVENTDATA
2 XCIINDEX (I4)
```

If a left click is applied to the grid, the index of the line is contained in `XCIEVENTDATA.XCIINDEX`.

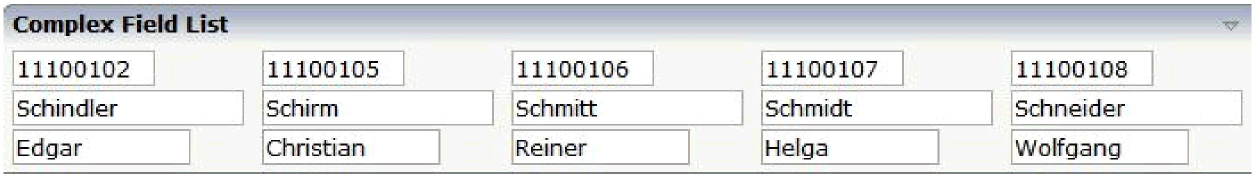
Note that in order to receive the event data, the click event must refer to a specific control. In this example, it must therefore be named `lines.onClick`, not just `onClick`.

# 88 NJX:FIELDITEM

- Example ........ 611
- Adapter Interface ........ 612
- Built-in Events ........ 612
- Properties ........ 612

The NJX:FIELDITEM control is used to configure the individual fields in an **NJX:FIELDLIST** control in order to create a complex field list. The fields of a complex field list are mapped to a group array in the Natural application. For each field in the NJX:FIELDLIST control, one NJX:FIELDITEM control is needed. The NJX:FIELDITEM controls are used to configure the fields in the list independently.

## Example



Complex Field List

| | | | | |
|---|---|---|---|---|
| 11100102 | 11100105 | 11100106 | 11100107 | 11100108 |
| Schindler | Schirm | Schmitt | Schmidt | Schneider |
| Edgar | Christian | Reiner | Helga | Wolfgang |

The XML code for the example looks as follows:

```
<rowarea name="Complex Field List">
    <itr>
        <njx:fieldlist fieldlistprop="columns" fieldcount="5"
         hdist="60">
            <njx:fielditem valueprop="id" width="80"
             invisiblemode="cleared">
            </njx:fielditem>
        </njx:fieldlist>
    </itr>
    <itr>
        <njx:fieldlist fieldlistprop="columns" fieldcount="5"
         hdist="10">
            <njx:fielditem valueprop="last" width="130"
             invisiblemode="invisible">
            </njx:fielditem>
        </njx:fieldlist>
    </itr>
    <itr>
        <njx:fieldlist fieldlistprop="columns" fieldcount="5"
         hdist="40">
            <njx:fielditem valueprop="first" width="100"
             invisiblemode="invisible">
            </njx:fielditem>
        </njx:fieldlist>
    </itr>
</rowarea>
```

## Adapter Interface

```
1 COLUMNS (1:*)
2 FIRST (A) DYNAMIC
2 ID (A) DYNAMIC
2 LAST (A) DYNAMIC
2 STATUS (A) DYNAMIC
```

For all NJX:FIELDLIST controls that are bound to the same value in `fieldlistprop` (here: `columns`), one common structure array is generated (here: `COLUMNS`).

For each NJX:FIELDITEM control, an element in the structure is generated according to the value bound in `valueprop` (here: `FIRST`, `ID` and `LAST`).

For each occurrence of the structure array, a parameter with the fixed name `STATUS` is generated. This parameter can be used to control the status of the elements in a similar way as it is done with the `statusprop` of the **FIELD** control.

## Built-in Events

The fields in the NJX:FIELDLIST control (NJX:FIELDITEM controls or NJX:FIELDVALUE controls) behave like **FIELD** controls.

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| valueprop | Name of the adapter parameter that provides the content of the control. | Obligatory | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100"). | Sometimes obligatory | 100<br>120<br>140<br>160<br>180<br>200<br>50% |

| | | | |
|---|---|---|---|
| | (C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | 100% |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| width | (already explained above) | | |
| length | Width of FIELD in amount of characters. WIDTH and LENGTH should not be used together. Note that the actual size of the control depends on the font definition if using the LENGTH property. | Optional | 5<br>10<br>15<br>20<br>int-value |
| maxlength | Maximum number of characters that a user may enter into this FIELD. This property is not depending on the LENGTH property - please do not get confused by the similar naming. MAXLENGTH has nothing to do with the optical sizing of the control but only with the number of characters you may input. | Optional | 5<br>10<br>15<br>20<br>int-value |
| autotab | If set to true, an automatic tab is executed for fields with a specified MAXLENGTH when the maxlength value is reached. For fields without a MAXLENGTH specified it has no effect. Default is true. | Optional | true<br>false |
| textalign | Alignment of text inside the control. | Optional | left<br>center<br>right |
| password | If set to "true", each entered character is displayed as a '*'. | Optional | true<br>false |

| | | | |
|---|---|---|---|
| displayonly | If set to true, the FIELD will not be accessible for input. It is just used as an output field. | Optional | true<br>false |
| direction | Presets the default(BiDi) direction of the control. Use black string in order to have the default value. | Optional | rtl<br>ltr |
| uppercase | If "true" then all input is automatically transferred to upper case characters. | Optional | true<br>false |
| align | Horizontal alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimes the size of the column is bigger than the size of the control itself. In this case the "align" property specifies the position of the control inside the column. In most cases you do not require the align control to be explicitly defined because the size of the column around the controls exactly is sized in the same way as the contained control.<br>If you want to directly control the alignment of text: in most text based controls there is an explicit property "textalign" in which you align the control's contained text. | Optional | left<br>center<br>right |
| valign | Vertical alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | Optional | top<br>middle<br>bottom |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |

| | | | |
|---|---|---|---|
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| fieldstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| noborder | Boolean value defining if the control has a border. Default is "false". | Optional | true<br>false |
| transparentbackground | Boolean value defining if the control is rendered with a transparent background. Default is "false". | Optional | true<br>false |
| invisiblemode | If the visibility of the control is determined dynamically by an adapter property then there are two rendering modes if the visibility is "false":<br>(1) "invisible": the control is not visible.<br>(2)"cleared": the control is not visible but it still occupies space. | Optional | invisible<br>cleared |

| | | | |
|---|---|---|---|
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1<br>2<br>5<br>10<br>32767 |
| Binding | | | |
| valueprop | (already explained above) | | |
| flush | Flushing behaviour of the input control.<br>By default an input into the control is registered within the browser client - and communicated to the server adapter object when a user e.g. presses a button. By using the FLUSH property you can change this behaviour.<br>Setting FLUSH to "server" means that directly after changing the input a synchronization with the server adapter is triggered. As consequence you directly can react inside your adapter logic onto the change of the corresponding value. - Please be aware of that during the synchronization always all changed properties - also the ones that were changed before - are transferred to the adapter object, not only the one that triggered the synchonization.<br>Setting FLUSH to "screen" means that the changed value is populated inside the page. You use this option if you have redundant usage of the same property inside one page and if you want to pass one changed value to all its representaion directly after changing the value. | Optional | screen<br>server |
| flushmethod | When the data synchronization of the control is set to FLUSH="server" then you can specify an explicit event to be sent when the user updates the content of the control. By doing so you can distinguish on the server side from which control the flush of data was triggered. | Optional | |
| valuetextprop | Name of the adapter parameter that provides a "human understandable" description for the value: in some cases you enter an id into a | Optional | |

| | | | |
|---|---|---|---|
| | FIELD but want to display the id and a description to the user. At runtime, the values provided by the VALUEPROP- and the VALUETEXTPROP-property are combined into one text (string) that is returned into the FIELD. | | |
| textidmode | If using property "valuetextprop" then a field knows an id and a text for a certain value. There are three types of display: either both are shown together, separated by an "-" (e.g. "id - text"). Or only text is shown or only the id is shown. If not defined at all then the system's default text id-mode will be chosen. The default mode can be defined as part of the CIS session context. | Optional | |
| titleprop | Name of the adapter parameter that dynamically defines the title of the control. The title is displayed as tool tip when ther user moves the mouse onto the control. | Optional | |
| bgcolorprop | Name of the adapter parameter that provides the background color of the control. | Optional | |
| fgcolorprop | Name of the adapter parameter that passes back a color value (e.g. "#FF0000" for red color). The color value is used as text color in the control. - The background color is automatically chosen dependent from the text color: for light text colors the background color is black, for dark text colors the color is default. Use BGCOLORPROP to choose both - text and background color. | Optional | |
| autocallpopupmethod | Name of the adapter parameter that controls that the field's value help event is sent to the adapter with a certain offset (milliseconds) after last key down event. | Optional | true<br>false |
| maxlengthprop | Name of the adapter parameter that provides the maximum number of characters that a user may enter into this FIELD. Consider to use MAXLENGTH to define this number in a static way. | Optional | |
| Validation | | | |
| datatype | By default, the FIELD control is managing its content as string. By explicitly setting a datatype you can define that the control...<br>...will check the user input if it reflects the datatype. E.g. if the user inputs "abc" into a field with datatype "int" then a corresponding error message will popup when the user leaves the field. | Optional | date<br>float<br>int<br>long<br>time |

| | | | |
|---|---|---|---|
| | ...will format the data coming from the server or coming form the user input: if the field has datatype "date" and the user inputs "010304" then the input will be translated into "01.03.2004" (or other representation, dependent on date format settings).<br>In addition valeu popups are offered for the user automatically for some datatypes: e.g. when specifying datatype "date" the automatically the field provides a calendar input popup.<br>Please note: the datatype "float" is named a bit misleading - it represents any decimal format number. The server side representation may be a float value, but also can be a double or a BigDecimal property. | | timestamp<br>color<br>xs:decimal<br>xs:double<br>xs:date<br>xs:dateTime<br>xs:time<br>------------------------<br>N n.n<br>P n.n<br>string n<br>L<br>xs:boolean<br>xs:byte<br>xs:short |
| validationrules | Contains information used for Data Validation.<br>Use the Validation Rules Editor to make changes! | Optional | |
| validation | Regular expression against which the content of the field is checked on client side when the user changes the field. If the validation fails then an error message popup up and informs the user about the wrong input. | Optional | [a-zA-Z0-9_.-]<br>{1,}\\@[a-zA-Z0-9_.-]<br>{1,}\\.\\w{2,}\\d{5}<br>[0-9 )(-/+]+ |
| validationprop | Name of the adapter parameter that provides a regular expression for the validation of the field. Works the same way as VALIDATION but in a dynamic way. | Optional | |
| validationuserhint | If a client side validation fails due to wrong user input then an error popup is opened. If you define a hint inside this property then the hint is output to the user in order to tell in which way to input the value. The hint is not language dependent. | Optional | |

| | | | |
|---|---|---|---|
| validationuserhintprop | If using validation expressions (either property "validation" or "validationprop") then a popup comes up if the user inputs wrong values into a field. Inside this popup a certain text may be added in order to explain to the user what he/she did not correctly input. This text can be either statically defined or dynamically - by using this property. | Optional | |
| digits | Number that specifiies how many digits are to be displayed (ie digits before the comma). If using this feature then the DATATYPE property must be set to 'float'. See also DECIMALDIGITS. | Optional | 1<br>2<br>3<br>int-value |
| digitsprop | Name of the adapter parameter that provides information how many digits are to be displayed (i. e. digits before the decimal character). If this feature is used, the DATATYPE property must be set to 'float'. | Optional | |
| decimaldigits | Number that specifiies how many decimal digits are to be displayed. If using this feature then the DATATYPE property must be set to 'float'. | Optional | 1<br>2<br>3<br>int-value |
| decimaldigitsprop | Name of the adapter parameter that provides information how many decimal digits are to be displayed (i. e. digits before the decimal character). If this feature is used, the DATATYPE property must be set to 'float'. | Optional | |
| spinrangemin | An integer value which defines the lower bound of the value range. | Optional | 1<br>2<br>3<br>int-value |
| spinrangemax | An integer value which defines the upper bound of the value range. | Optional | 1<br>2<br>3<br>int-value |

| | | | |
|---|---|---|---|
| Valuehelp | | | |
| popupmethod | Name of the event that is sent to the adapter when the user requests value help by pressing F4 or F7 or by clicking into the FIELD with the right mouse button. When using the popupmethod together with the NJX:EVENTDATA control in a grid, then the event name must have the griddataprop name as prefix. Example: mygrid.mypopupmethod. If the POPUPMETHOD is defined, a small icon is shown inside the field to indicate to the user that there is some value help available. | Optional | openIdValueCombo<br>openIdValueHelp<br>openIdValueComboOrPopup |
| popupinputonly | Boolean property that control if a field with POPUPMETHOD defined is still usable for keyboard input. If "false" (= default) then the user can input a value either directly via keyboard or by using the popupmethod's help. If set to "true" then no keyboard input is possible - but only selection from the popup-method's help. | Optional | true<br>false |
| popupprop | Name of the adapter parameter that provides the information whether a POPUPMETHOD is available or not. This feature is used in scenarios in which a FIELD offers e.g. value help or not, depending on business logic inside the adapter. | Optional | |
| popuponalt40 | Value help in a field is triggered either by clicking with the mouse or by pressing a certain key inside the field. The "traditional" keys are "cusrsor-down", "F7" or "F4". Sometimes you do not want to mix other "cursor-down" behaviour (e.g. scrolling in lists) with the value help behaviour. In this case switch this property to "true" - and the value help will only come up anymore when "alt-cursor-down" is pressed. | Optional | true<br>false |
| popupcombowidth | Pixel width of the standard "openIdValueCombo" popup dialog. Default is field width or at least 150 pixel. | Optional | 1<br>2<br>3<br>int-value |
| popupicon | URL of image that is displayed inside the right corner of the field to indicate to the user that there is some value help available.. Any image type (.gif, .jpg, ...) that your browser does understand is valid. | Optional | gif<br>jpg<br>jpeg |

| | | | |
|---|---|---|---|
| | Use the following options to specify the URL:<br>(A) Define the URL relative to your page. Your page is generated directly into your project's folder. Specifiying "images/xyz.gif" will point into a directory parallel to your page. Specifying "../HTMLBasedGUI/images/new.gif" will point to an image of a neighbour project.<br>(B) Define a complete URL, like "http://www.softwareag.com/images/logo.gif". | | |
| touchpadinput | Boolean property that decides if touch pad support is offered for the FIELD control. The default is "false". If switched to "true" then you can input data into the field via a touch pad. As consequence you can use this control for making inputs through a touch terminal. | Optional | true<br>false |
| onlinehelp | | | |
| helpid | Help id that is passed to the online help management in case the user presses F1 on the control. | Optional | |
| title | Text that is shown as tooltip for the control.<br>Either specify the text "hard" by using this TITLE property - or use the TITLETEXTID in order to define a language dependent literal. | Optional | |
| titletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text that is used for the control. | Optional | |
| formula | Contains information used by the Formula Editor.<br>Use the Formula Editor to make changes! | Optional | |
| Hot Keys | | | |
| hotkeys | Comma separated list of hot keys. A hotkey consists of a list of keys and a method name. Separate the keys by "-" and the method name again with a comma<br>Example:<br>ctrl-alt-65;onCtrlAltA;13;onEnter ...defines two hot keys. Method onCtrlAltA is invoked if the user presses Ctrl-Alt-A. Method "onEnter" is called if the user presses the ENTER key.<br>Use the popup help within the Layout Painter to input hot keys. | Optional | |

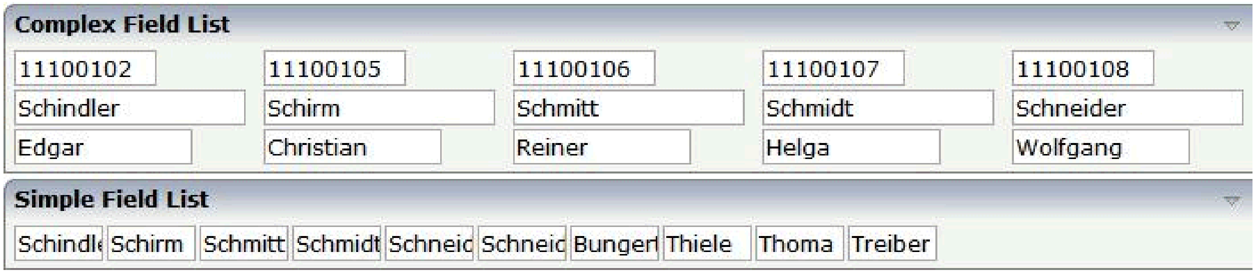
| | | | |
|---|---|---|---|
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |
| Miscellaneous | | | |
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |

# 89 NJX:FIELDLIST

- Example ........ 625
- Adapter Interface ........ 626
- Built-in Events ........ 626
- Properties ........ 626

The NJX:FIELDLIST control is used to arrange fields or groups of fields in a horizontal line. The difference of using the NJX:FIELDLIST control instead of individual fields is that the NJX:FIELDLIST control binds the contained fields to an array or array group in the application, while individual fields are bound to individual variables.

## Example



Complex Field List

| | | | | |
|---|---|---|---|---|
| 11100102 | 11100105 | 11100106 | 11100107 | 11100108 |
| Schindler | Schirm | Schmitt | Schmidt | Schneider |
| Edgar | Christian | Reiner | Helga | Wolfgang |

Simple Field List

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Schindl | Schirm | Schmitt | Schmidt | Schneic | Schneic | Bungert | Thiele | Thoma | Treiber |

The XML code for the example looks as follows:

```
<rowarea name="Complex Field List">
    <itr>
        <njx:fieldlist fieldlistprop="columns" fieldcount="5"
         hdist="60">
            <njx:fielditem valueprop="id" width="80"
             invisiblemode="cleared">
            </njx:fielditem>
        </njx:fieldlist>
    </itr>
    <itr>
        <njx:fieldlist fieldlistprop="columns" fieldcount="5"
         hdist="10">
            <njx:fielditem valueprop="last" width="130"
             invisiblemode="invisible">
            </njx:fielditem>
        </njx:fieldlist>
    </itr>
    <itr>
        <njx:fieldlist fieldlistprop="columns" fieldcount="5"
         hdist="40">
            <njx:fielditem valueprop="first" width="100"
             invisiblemode="invisible">
            </njx:fielditem>
        </njx:fieldlist>
    </itr>
</rowarea>
<rowarea name="Simple Field List">
    <itr>
        <njx:fieldlist fieldlistprop="simple" fieldcount="10">
            <njx:fieldvalue width="50">
            </njx:fieldvalue>
        </njx:fieldlist>
    </itr>
</rowarea>
```

## Adapter Interface

```
1 COLUMNS (1:*)
2 FIRST (A) DYNAMIC
2 ID (A) DYNAMIC
2 LAST (A) DYNAMIC
2 STATUS (A) DYNAMIC
1 SIMPLE (A/1:*) DYNAMIC
```

For all NJX:FIELDLIST controls that are bound to the same value in `fieldlistprop` (here: `columns`), one common structure array is generated (here: `COLUMNS`).

For each NJX:FIELDITEM control, an element in the structure is generated according to the value bound in `valueprop` (here: `FIRST`, `ID` and `LAST`).

For each occurrence of the structure array, a parameter with the fixed name `STATUS` is generated. This parameter can be used to control the status of the elements in a similar way as it is done with the `statusprop` of the **FIELD** control.

For a simple field list (one that contains an NJX:FIELDVALUE control), a simple array is generated according to the value bound in `valueprop` (here: `SIMPLE`).

## Built-in Events

The fields in the NJX:FIELDLIST control (NJX:FIELDITEM controls or NJX:FIELDVALUE controls) behave like **FIELD** controls.

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| fieldlistprop | Name of the adapter parameter that represents the control in the adapter. | Obligatory | |
| fieldcount | Maximum count of fields in the fieldlist. If no fieldcount is defined then a default of 10 is assigned. | Optional | |
| hdist | Horizontal distance between the fields Can be specified either in pixels or as percentage value.<br>If no width is defined then a default width of 2 pixels is assigned. | Optional | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance | Optional | |

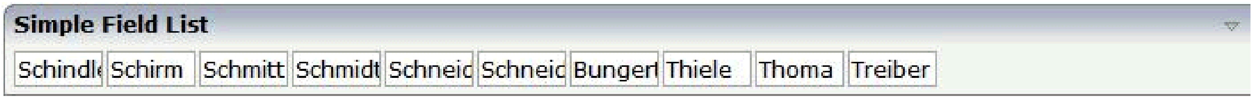
| | | | |
|---|---|---|---|
| | HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |

# 90 NJX:FIELDVALUE

- Example ........ 631
- Adapter Interface ........ 631
- Built-in Events ........ 631
- Properties ........ 631

The NJX:FIELDVALUE control is used to configure the fields in an **NJX:FIELDLIST** control in order to create a simple field list. The fields of a simple field list are mapped to an array in the Natural application. Only one NJX: FIELDVALUE control is needed in an NJX: FIELDLIST control. This NJX:FIELDVALUE control is used to configure all fields in the list in the same way.

## Example



Simple Field List

Schindl | Schirm | Schmitt | Schmidt | Schneic | Schneic | Bungert | Thiele | Thoma | Treiber

The XML code for the example looks as follows:

```
<rowarea name="Simple Field List">
    <itr>
        <njx:fieldlist fieldlistprop="simple" fieldcount="10">
            <njx:fieldvalue width="50">
            </njx:fieldvalue>
        </njx:fieldlist>
    </itr>
</rowarea>
```

## Adapter Interface

```
1 SIMPLE (A/1:*) DYNAMIC
```

For a simple field list (one that contains an NJX:FIELDVALUE control), an array is generated according to the value bound in `valueprop` (here: `SIMPLE`).

## Built-in Events

The NJX:FIELDVALUE control behaves like a **FIELD** control.

## Properties

| Basic | | | |
|---|---|---|---|
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content. | Sometimes obligatory | 100<br>120<br>140<br>160 |

| | | | |
|---|---|---|---|
| | (B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | 180<br>200<br>50%<br>100% |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| width | (already explained above) | | |
| length | Width of FIELD in amount of characters. WIDTH and LENGTH should not be used together. Note that the actual size of the control depends on the font definition if using the LENGTH property. | Optional | 5<br>10<br>15<br>20<br>int-value |
| maxlength | Maximum number of characters that a user may enter into this FIELD. This property is not depending on the LENGTH property - please do not get confused by the similar naming. MAXLENGTH has nothing to do with the optical sizing of the control but only with the number of characters you may input. | Optional | 5<br>10<br>15<br>20<br>int-value |
| autotab | If set to true, an automatic tab is executed for fields with a specified MAXLENGTH when the maxlength value is reached. For fields without a MAXLENGTH specified it has no effect. Default is true. | Optional | true<br>false |
| textalign | Alignment of text inside the control. | Optional | left<br>center<br>right |

| | | | |
|---|---|---|---|
| password | If set to "true", each entered character is displayed as a '*'. | Optional | true<br>false |
| displayonly | If set to true, the FIELD will not be accessible for input. It is just used as an output field. | Optional | true<br>false |
| direction | Presets the default(BiDi) direction of the control. Use black string in order to have the default value. | Optional | rtl<br>ltr |
| uppercase | If "true" then all input is automatically transferred to upper case characters. | Optional | true<br>false |
| align | Horizontal alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimes the size of the column is bigger than the size of the control itself. In this case the "align" property specifies the position of the control inside the column. In most cases you do not require the align control to be explicitly defined because the size of the column around the controls exactly is sized in the same way as the contained control.<br>If you want to directly control the alignment of text: in most text based controls there is an explicit property "textalign" in which you align the control's contained text. | Optional | left<br>center<br>right |
| valign | Vertical alignment of control in its column.<br>Each control is "packaged" into a column. The column itself is part of a row (e.g. ITR or TR). Sometimtes the size of the column is bigger than the size of the control. In this case the "align" property specify the position of the control inside the column. | Optional | top<br>middle<br>bottom |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns. | Optional | 1<br>2<br>3<br>4<br>5 |

| | | | |
|---|---|---|---|
| | The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | | 50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| fieldstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| noborder | Boolean value defining if the control has a border. Default is "false". | Optional | true<br>false |
| transparentbackground | Boolean value defining if the control is rendered with a transparent background. Default is "false". | Optional | true<br>false |
| invisiblemode | If the visibility of the control is determined dynamically by an adapter property then there are two rendering modes if the visibility is "false": | Optional | invisible<br>cleared |

| | | | |
|---|---|---|---|
| | (1) "invisible": the control is not visible.<br>(2)"cleared": the control is not visible but it still occupies space. | | |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1<br>2<br>5<br>10<br>32767 |
| Binding | | | |
| flush | Flushing behaviour of the input control.<br>By default an input into the control is registered within the browser client - and communicated to the server adapter object when a user e.g. presses a button. By using the FLUSH property you can change this behaviour.<br>Setting FLUSH to "server" means that directly after changing the input a synchronization with the server adapter is triggered. As consequence you directly can react inside your adapter logic onto the change of the corresponding value. - Please be aware of that during the synchronization always all changed properties - also the ones that were changed before - are transferred to the adapter object, not only the one that triggered the synchonization.<br>Setting FLUSH to "screen" means that the changed value is populated inside the page. You use this option if you have redundant usage of the same property inside one page and if you want to pass one changed value to all its representaion directly after changing the value. | Optional | screen<br>server |
| flushmethod | When the data synchronization of the control is set to FLUSH="server" then you can specify an explicit event to be sent when the user updates the content of the control. By doing so you can distinguish on the server side from which control the flush of data was triggered. | Optional | |

| | | | |
|---|---|---|---|
| textidmode | If using property "valuetextprop" then a field knows an id and a text for a certain value. There are three types of display: either both are shown together, separated by an "-" (e.g. "id - text"). Or only text is shown or only the id is shown. If not defined at all then the system's default text id-mode will be chosen. The default mode can be defined as part of the CIS session context. | Optional | |
| bgcolorprop | Name of the adapter parameter that provides the background color of the control. | Optional | |
| fgcolorprop | Name of the adapter parameter that passes back a color value (e.g. "#FF0000" for red color). The color value is used as text color in the control. - The background color is automatically chosen dependent from the text color: for light text colors the background color is black, for dark text colors the color is default. Use BGCOLORPROP to choose both - text and background color. | Optional | |
| autocallpopupmethod | Name of the adapter parameter that controls that the field's value help event is sent to the adapter with a certain offset (milliseconds) after last key down event. | Optional | true<br>false |
| maxlengthprop | Name of the adapter parameter that provides the maximum number of characters that a user may enter into this FIELD. Consider to use MAXLENGTH to define this number in a static way. | Optional | |
| Validation | | | |
| datatype | By default, the FIELD control is managing its content as string. By explicitly setting a datatype you can define that the control...<br>...will check the user input if it reflects the datatype. E.g. if the user inputs "abc" into a field with datatype "int" then a corresponding error message will popup when the user leaves the field.<br>...will format the data coming from the server or coming form the user input: if the field has datatype "date" and the user inputs "010304" then the input will be translated into "01.03.2004" (or other representation, dependent on date format settings).<br>In addition valeu popups are offered for the user automatically for some datatypes: e.g. when | Optional | date<br>float<br>int<br>long<br>time<br>timestamp<br>color<br>xs:decimal<br>xs:double<br>xs:date |

| | | | |
|---|---|---|---|
| | specifying datatype "date" the automatically the field provides a calendar input popup.<br>Please note: the datatype "float" is named a bit misleading - it represents any decimal format number. The server side representation may be a float value, but also can be a double or a BigDecimal property. | | xs:dateTime<br>xs:time<br>------------------------<br>N n.n<br>P n.n<br>string n<br>L<br>xs:boolean<br>xs:byte<br>xs:short |
| validationrules | Contains information used for Data Validation.<br>Use the Validation Rules Editor to make changes! | Optional | |
| validation | Regular expression against which the content of the field is checked on client side when the user changes the field. If the validation fails then an error message popup up and informs the user about the wrong input. | Optional | [a-zA-Z0-9_.-]<br>{1,}\\@[a-zA-Z0-9_.-]<br>{1,}\\.\\w{2,}\\d{5}<br>[0-9 )(-/+]+ |
| validationuserhint | If a client side validation fails due to wrong user input then an error popup is opened. If you define a hint inside this property then the hint is output to the user in order to tell in which way to input the value. The hint is not language dependent. | Optional | |
| validationuserhintprop | If using validation expressions (either property "validation" or "validationprop") then a popup comes up if the user inputs wrong values into a field. Inside this popup a certain text may be added in order to explain to the user what he/she did not correctly input. This text can be either statically defined or dynamically - by using this property. | Optional | |
| digits | Number that specifiies how many digits are to be displayed (ie digits before the comma). If using this feature then the DATATYPE property must be set to 'float'. See also DECIMALDIGITS. | Optional | 1<br>2<br>3 |

| | | | |
|---|---|---|---|
| | | | int-value |
| digitsprop | Name of the adapter parameter that provides information how many digits are to be displayed (i. e. digits before the decimal character). If this feature is used, the DATATYPE property must be set to 'float'. | Optional | |
| decimaldigits | Number that specifiies how many decimal digits are to be displayed. If using this feature then the DATATYPE property must be set to 'float'. | Optional | 1<br>2<br>3<br>int-value |
| decimaldigitsprop | Name of the adapter parameter that provides information how many decimal digits are to be displayed (i. e. digits before the decimal character). If this feature is used, the DATATYPE property must be set to 'float'. | Optional | |
| spinrangemin | An integer value which defines the lower bound of the value range. | Optional | 1<br>2<br>3<br>int-value |
| spinrangemax | An integer value which defines the upper bound of the value range. | Optional | 1<br>2<br>3<br>int-value |
| Valuehelp | | | |
| popupmethod | Name of the event that is sent to the adapter when the user requests value help by pressing F4 or F7 or by clicking into the FIELD with the right mouse button. When using the popupmethod together with the NJX:EVENTDATA control in a grid, then the event name must have the griddataprop name as prefix. Example: mygrid.mypopupmethod. If the POPUPMETHOD is defined, a small icon is shown inside the field to indicate to the user that there is some value help available. | Optional | openIdValueCombo<br>openIdValueHelp<br>openIdValueComboOrPopup |

| | | | |
|---|---|---|---|
| popupinputonly | Boolean property that control if a field with POPUPMETHOD defined is still usable for keyboard input. If "false" (= default) then the user can input a value either directly via keyboard or by using the popupmethod's help. If set to "true" then no keyboard input is possible - but only selection from the popup-method's help. | Optional | true<br>false |
| popupprop | Name of the adapter parameter that provides the information whether a POPUPMETHOD is available or not. This feature is used in scenarios in which a FIELD offers e.g. value help or not, depending on business logic inside the adapter. | Optional | |
| popuponalt40 | Value help in a field is triggered either by clicking with the mouse or by pressing a certain key inside the field. The "traditional" keys are "cusrsor-down", "F7" or "F4". Sometimes you do not want to mix other "cursor-down" behaviour (e.g. scrolling in lists) with the value help behaviour. In this case switch this property to "true" - and the value help will only come up anymore when "alt-cursor-down" is pressed. | Optional | true<br>false |
| popupcombowidth | Pixel width of the standard "openIdValueCombo" popup dialog. Default is field width or at least 150 pixel. | Optional | 1<br>2<br>3<br>int-value |
| popupicon | URL of image that is displayed inside the right corner of the field to indicate to the user that there is some value help available.. Any image type (.gif, .jpg, ...) that your browser does understand is valid.<br>Use the following options to specify the URL:<br>(A) Define the URL relative to your page. Your page is generated directly into your project's folder. Specifiying "images/xyz.gif" will point into a directory parallel to your page. Specifying "../HTMLBasedGUI/images/new.gif" will point to an image of a neighbour project.<br>(B) Define a complete URL, like "http://www.softwareag.com/images/logo.gif". | Optional | gif<br>jpg<br>jpeg |
| touchpadinput | Boolean property that decides if touch pad support is offered for the FIELD control. The | Optional | true |

| | | | |
|---|---|---|---|
| | default is "false". If switched to "true" then you can input data into the field via a touch pad. As consequence you can use this control for making inputs through a touch terminal. | | false |
| onlinehelp | | | |
| helpid | Help id that is passed to the online help management in case the user presses F1 on the control. | Optional | |
| title | Text that is shown as tooltip for the control.<br>Either specify the text "hard" by using this TITLE property - or use the TITLETEXTID in order to define a language dependent literal. | Optional | |
| titletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text that is used for the control. | Optional | |
| formula | Contains information used by the Formula Editor.<br>Use the Formula Editor to make changes! | Optional | |
| Hot Keys | | | |
| hotkeys | Comma separated list of hot keys. A hotkey consists of a list of keys and a method name. Separate the keys by "-" and the method name again with a comma<br>Example:<br>ctrl-alt-65;onCtrlAltA;13;onEnter ...defines two hot keys. Method onCtrlAltA is invoked if the user presses Ctrl-Alt-A. Method "onEnter" is called if the user presses the ENTER key.<br>Use the popup help within the Layout Painter to input hot keys. | Optional | |
| Miscellaneous | | | |
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |

# 91 NJX:MASHZONE

- Before You Start ........ 642
- Example ........ 643
- Adapter Interface ........ 645
- Properties ........ 646

The NJX:MASHZONE control is used to integrate an ARIS MashZone application into a Natural for Ajax page. The data to be displayed is provided by a Natural application. The NJX:MASHZONE control itself consists of a display area for the MashZone application (similar to the area defined with a **SUBPAGE** control) and of a set of data containers representing the data sources of a MashZone data feed.

To use the NJX:MASHZONE control, you must also add an **NJX:OBJECTS** control to your page layout. The NJX:OBJECTS control is used to transport the data objects from the Natural application to the Natural for Ajax server.

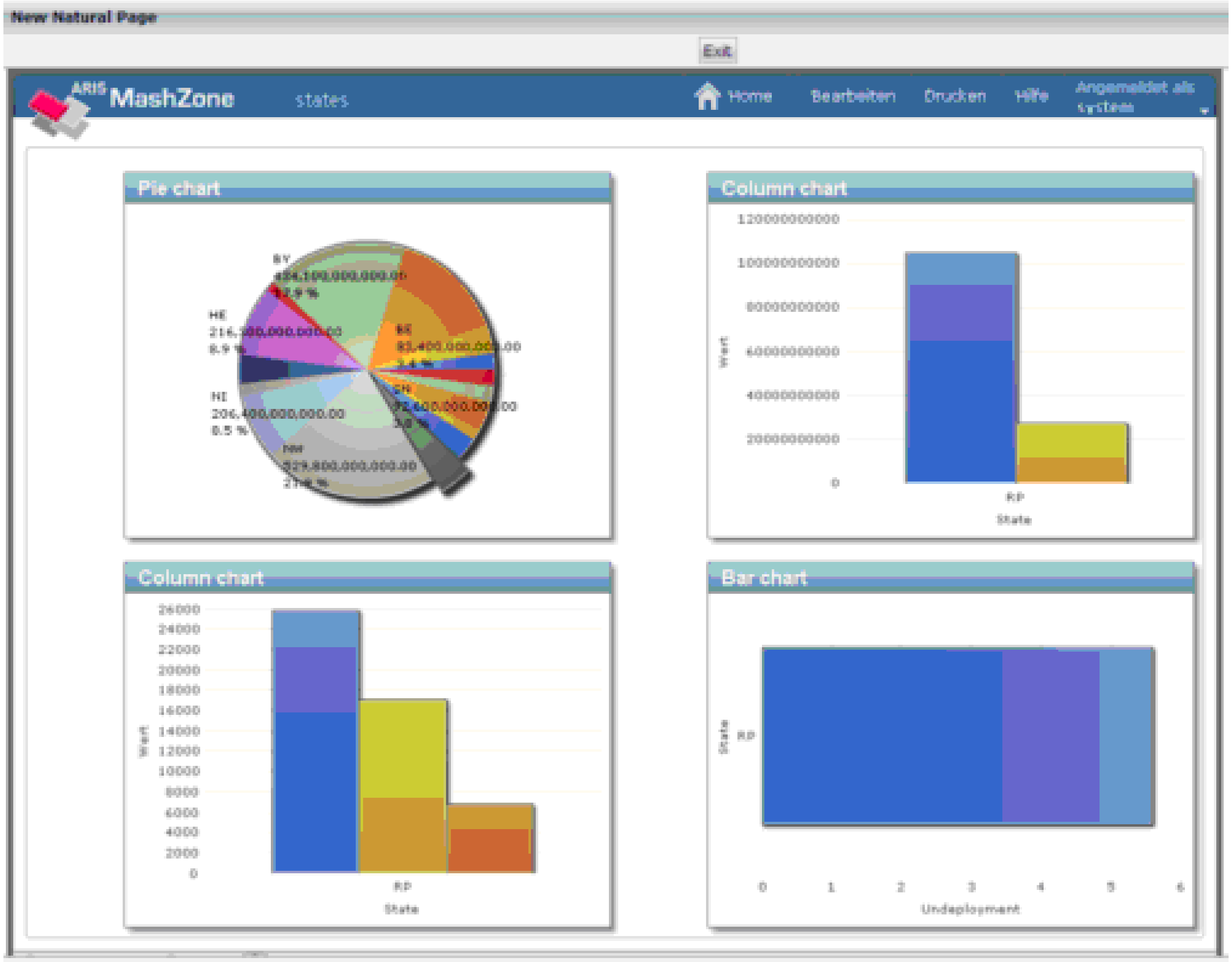
The following topics are covered below:

## Before You Start

If you want to use the NJX:MASHZONE control, you have to consider the following:

- The product ARIS MashZone must have been installed beforehand. Although it is not necessary to install ARIS MashZone on the same host as the Natural for Ajax server, you have to keep in mind that data files that have been generated by Natural for Ajax must be accessible by ARIS MashZone.
- The ARIS MashZone application that is going to be displayed inside the NJX:MASHZONE control must have been created beforehand. Especially the data source structures on which the data feeds for this MashZone application are based must already be known during application creation time.
- The Natural application used to generate the MashZone data must take care of the correct structure of the data so that the data files generated during runtime correspond to the structures that have been defined for the MashZone application. If, for example, some data source in CSV file format is used in the MashZone application, the Natural application has to provide the data in exactly the same format.

## Example



The XML layout definition is:

```
<pagebody>
    <mash:mashzone valueprop="mymash" height="750" width="1000">
    </mash:mashzone>
</pagebody>
```

Sample program:

```
DEFINE DATA LOCAL
/* MashZone control
1 MYMASH
2 DATASOURCE (1:*)
3 OBJECTID (A) DYNAMIC
3 FILENAME (A) DYNAMIC
3 REFRESH (L)
2 URL (A) DYNAMIC
/* Objects control
1 XCIOBJECTS (1:*)
2 CONTENT (B) DYNAMIC
2 CONTENTID (A) DYNAMIC
2 CONTENTTYPE (A) DYNAMIC
/* Local variables
1 #MYBLOB (B) DYNAMIC
1 #MYCLOB (A) DYNAMIC
1 #MYURL (A) DYNAMIC
END-DEFINE
/*
/* Fill actual data with a fixed structure
/*
COMPRESS        'State   ; GDI            ; Per Capita GDI    ; Per Capita Income ;
 Debt            ; Per Capita Debt ; Undeployment' H'0a' INTO #MYCLOB LEAVING NO
COMPRESS #MYCLOB 'BW      ; 352.600.000.000  ; 32.811           ; 19.261         ↩
   ;
 44.113.000.000  ; 4.109           ; 4,0'          H'0a' INTO #MYCLOB LEAVING NO
.
.
.
#MYBLOB := #MYCLOB
/*
/* Fill object control data structure
/*
CALLNAT "MAKEURL" XCIOBJECTS(*) #MYBLOB #MYURL 'MYMASHID'
/*
/* Fill MashZone control data structure
/*
MYMASH.URL := 'http://myhost:16360/mashzone/guest/app/Viewer.html
?guid=70a107ab-e04e-4ac6-88dc-f8cd35601649&language=en&plainmode=true'
EXPAND ARRAY MYMASH.DATASOURCE TO (1:1)
MYMASH.OBJECTID(1) := #MYURL
MYMASH.FILENAME(1) := 'C:\Temp\states.csv'
MYMASH.REFRESH(1)  := TRUE
/* display page
PROCESS PAGE USING "MYMASH"
/* handle events
DECIDE ON FIRST *PAGE-EVENT
 VALUE U'nat:page.end',U'nat:browser.end'
  /* Page closed.
  IGNORE
 VALUE U'onExit'
  /* TODO: Implement event code.
  PROCESS PAGE UPDATE FULL
 NONE VALUE
  /* Unhandled events.
  PROCESS PAGE UPDATE
END-DECIDE
*
END
```

**Note:** In this version of the NJX:MASHZONE control, it is only possible to use absolute path names in the `FILENAME` element of the MashZone control data structure. This may lead to undesirable effects when the Natural application is processed by multiple clients in parallel. If this is the case, the Natural application must assure that the update of the files happens in a controlled manner, for example, by applying the `REFRESH` flag accordingly.

## Adapter Interface

```
1 MYMASH
2 DATASOURCE (1:*)
3 FILENAME (A) DYNAMIC
3 OBJECTID (A) DYNAMIC
3 REFRESH (L)
2 URL (A) DYNAMIC
```

The data structure for one NJX:MASHZONE control consists of the following elements:

- `URL` must be filled with the URL of the specific MashZone application.
- For each `DATASOURCE` occurrence, the following elements have to be filled:

| Element | Description |
|---|---|
| FILENAME | The name of the file on which the data feed definition of the MashZone application is based. |
| OBJECTID | The "nat:" URL obtained when filling the NJX:OBJECTS structures with the BLOB contents. |
| REFRESH | Indicates whether the BLOB content is to be copied into the file during the next page update. This should be set to TRUE during the initial page load in order to fill the file accordingly. Possible values: TRUE or FALSE. |

## Properties

Most control properties are identical with the properties of the same names of the **SUBPAGE** control.

| | | | |
|---|---|---|---|
| Basic | | | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Sometimes obligatory | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Sometimes obligatory | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| width | (already explained above) | | |
| height | (already explained above) | | |

| | | | |
|---|---|---|---|
| scrolling | Definition of the scrollbar's appearance.<br>You can define that the scrollbars only are shown if the content is exceeding the control's area ("auto"). Or scrollbars can be shown always ("scroll"). Or scrollbars are never shown - and the content is cut ("hidden").<br>Default is "auto". | Optional | auto<br>yes<br>no |
| pagestyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| Binding | | | |

| | | | |
|---|---|---|---|
| valueprop | Name of the adapter parameter that provides the content of the control. | Obligatory | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |

# 92 NJX:NJXFILEDOWNLOAD

- Example ........ 651
- Adapter Interface ........ 651
- Properties ........ 651

The NJX:NJXFILEDOWNLOAD control is used to add a link to your page layout for downloading files from the Natural server to the client.

To use the NJX:NJXFILEDOWNLOAD control, you must also add an **NJX:OBJECTS** control to your page layout.You can link to all files available in the NJX:OBJECTS cache. The link is directly passed to the browser. To force the browser to download a file instead of opening it, you append the parameter `DOWNLOAD=true` to your link (for example, "nat:mydoc?DOWNLOAD=true"). The `CONTENTID` of the file in the NJX:OBJECTS cache will be used as a suggestion for the name of the downloaded file. You can also refer to files outside of the NJX:OBJECTS cache by using a normal browser link. In this case, the `DOWNLOAD` parameter is not evaluated by the Natural for Ajax framework.

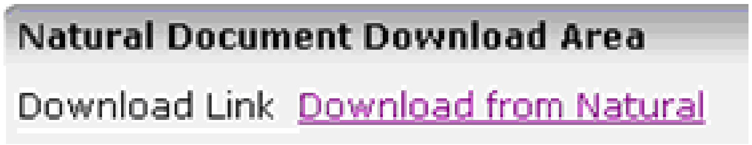
To trigger a download from another control (for example, from a BUTTON control), you have to use the **SUBPAGE** control instead. See the **njxdemos** project for an example.

**Note:** The NJX:NJXFILEDOWNLOAD control is only supported for the HTML client. It is not supported for the SWT Client.

The following topics are covered below:

**Note:** See also ***Documents*** in *Some Common Rules for all Controls*.

## Example



Natural Document Download Area

Download Link Download from Natural

The XML layout definition is:

```
<itr>
   <label name="Download Link" width="100">
   </label>
   <njx:njxfiledownload  valueprop="mydownload" >
   </njx:njxfiledownload>
</itr>
```

When you choose the **Download from Natural** link in this example, the file download dialog from your operating system appears.

## Adapter Interface

```
1 MYDOWNLOAD
2 LINKPROP (A) DYNAMIC
2 NAMEPROP (A) DYNAMIC
```

## Properties

| Basic | | | |
|---|---|---|---|
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this | Optional | 100<br>120<br>140<br>160<br>180<br>200<br>50% |

| | | | |
|---|---|---|---|
| | control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | 100% |
| valueprop | Name of the adapter parameter that provides the content of the control. | Optional | |
| withsubmitbutton | If set to "TRUE" adds an additional button to the control to start the file upload. | Optional | true<br>false |
| submitbuttonname | The name of the submit button in case WITSUBMITBUTTON is set to "true". | Optional | |
| submitbuttontextid | "Textid" for the name of the submitbutton if WITHSUBMITBUTTON is set to "true". | Optional | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Binding | | | |
| valueprop | (already explained above) | | |
| visibleprop | Name of the adapter parameter that provides the information if this control is displayed or not. As consequence you can control the visibility of the control dynamically. | Optional | |
| invisiblemode | If the visibility of the control is determined dynamically by an adapter property then there are two rendering modes if the visibility is "false":<br>(1) "invisible": the control is not visible.<br>(2)"cleared": the control is not visible but it still occupies space. | Optional | invisible<br>disabled<br>cleared |
| Appearance | | | |
| invisiblemode | (already explained above) | | |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| colspan | Column spanning of control. | Optional | 1<br>2 |

| | | | |
|---|---|---|---|
| | If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | | 3<br>4<br>5<br>50<br>int-value |
| darkbackground | Normally the background is in light colour but the CIS style sheets also have a dark(er) grey colour to be used.<br>If DARKBACKGROUND is set to true then the darker background colour is chosen. This property typically is used to integrate light coloured controls into darker container areas. | Optional | true<br>false |

# 93 NJX:NJXFILEUPLOAD2

- Example ........ 657
- Adapter Interface ........ 657
- Built-in Events ........ 657
- Properties ........ 658

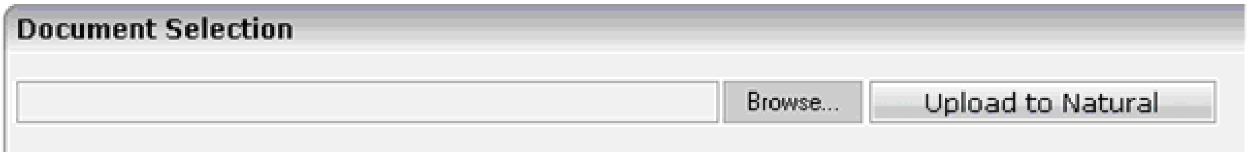
The NJX:NJXFILEUPLOAD2 control is used to upload files from the client to the Natural server. The rendering is identical to the **FILEUPLOAD2** control.

To use the NJX:NJXFILEUPLOAD2 control, you must also add an **NJX:OBJECTS** control to your page layout because the uploaded file will be added to the NJX:OBJECTS data structure. Once a file is uploaded, the Natural application can refer to the file via the `CONTENTID` of the uploaded object.

The following topics are covered below:

**Note:** See also ***Documents*** in *Some Common Rules for all Controls*.

## Example



The XML layout definition is:

```
<itr>
   <njx:njxfileupload2 width="400" valueprop="myupload"
        withsubmitbutton="true" submitbuttonname="Upload to Natural">
   </njx:njxfileupload2>
</itr>
```

## Adapter Interface

```
1 MYUPLOAD
2 CEXT (A) DYNAMIC
2 CNAME (A) DYNAMIC
2 CONTENTID (A) DYNAMIC
2 CPATH (A) DYNAMIC
```

When uploading a file, the client-side file name, extension and path are provided in the `CNAME`, `CEXT` and `CPATH` fields, respectively. The Natural application can optionally specify a `CONTENTID` for the NJX:OBJECTS data structure. If `CONTENTID` is not specified, a concatenation of file name and extension is automatically set as the `CONTENTID` value.

## Built-in Events

When you choose the **Upload to Natural** button in the above example, the *`value-of-valueprop`*`.onUploadFinished` event is triggered in the Natural application. When this event is triggered, the `CNAME`, `CEXT`, `CPATH` and `CONTENTID` fields are filled, and the file content is provided in the data structure of the NJX:OBJECTS control.

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| valueprop | Name of the adapter parameter that provides the content of the control. | Optional | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| ihtmlstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000 | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |

| | | | |
|---|---|---|---|
| | background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

# 94 NJX:NJXVARIABLE

- Example ........ 662
- Properties ........ 662

The NJX:NJXVARIABLE control is used in Natural Map Converter templates in order to define a placeholder that is replaced during map conversion. For further information, see *Templates* in the section *Customizing the Map Conversion Process* of the *Application Modernization* part.

## Example

The Map Converter template `NATPAGE_TEMPLATE` contains a variable `MAPROOT` that receives the result of the map conversion process. As a result, the converted Natural map content is placed into the `pagebody` of the resulting page layout.

```
<?xml version="1.0" encoding="UTF-8"?>
<natpage xmlns:njx="http://www.softwareag.com/njx/njxMapConverter"
natsource="$$NATSOURCE$$" natsinglebyte="true">
    <titlebar name="$$TITLEVAR$$" align="center">
    </titlebar>
    <pagebody>
        <njx:njxvariable name="MAPROOT"/>
    </pagebody>
    <statusbar withdistance="false"/>
</natpage>
```

## Properties

| Basic | | | |
|---|---|---|---|
| name | The name of the variable. | Optional | |

# VIII Working with Grids

This part shows you how to deal with grids. Working with grids is as simple as working with singular properties because the grid management adapts seamlessly into the normal processing of the Application Designer environment.

The information provided in this part is organized under the following headings:

Basics
TEXTGRID2
TEXTGRIDSSS2 - TEXTGRID2 with Server-Side Scrolling
ROWTABLEAREA2 - The Flexible Control Grid
FLEXLINE - Flexible Columns in Control Grids
MGDGRID - Managing the Grid
GRIDCOLHEADER - Flexible Column Headers

# 95 Basics

It is quite simple: “normal” controls refer to an adapter and are bound to adapter parameters. Grid controls refer to an adapter as well - but are bound to a group array. Each array element provides group elements to access its content.

Two types of grid controls are available:

- The TEXTGRID2 control is a control that displays grid data - but does not allow any change to the data. You can select grid rows and colorize them in different ways. Change the order of columns dynamically and sort columns by clicking into the title row of the grid.

  There is a TEXTGRIDSSS2 control that is a certain variant of the TEXTGRID2 control.
- The ROWTABLEAREA2 is a container that internally allows you to use any normal control to be embedded inside a grid. Therefore, you can place normal FIELD controls, CHECKBOX controls etc. inside the ROWTABLEAREA2 container.

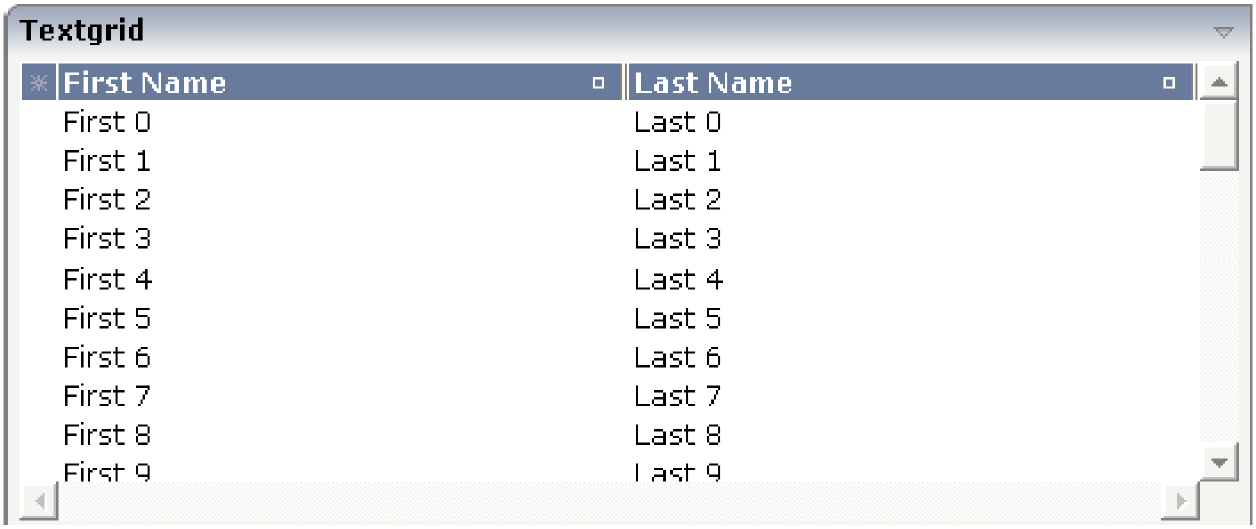
Use the TEXTGRID2 controls for displaying and selecting data. Use ROWTABLEAREA2 for entering data inside a grid.

# 96 TEXTGRID2

- A Simple Example ........ 668
- Adapter Interface ........ 669
- Selecting Rows in a TEXTGRID2 ........ 669
- TEXTGRID2 Properties ........ 670
- COLUMN Properties ........ 676
- Dynamic Setting of Text Styles in TEXTGRID2 ........ 680

## A Simple Example

The following example shows a TEXTGRID2 control:



Textgrid

| First Name | Last Name |
|---|---|
| First 0 | Last 0 |
| First 1 | Last 1 |
| First 2 | Last 2 |
| First 3 | Last 3 |
| First 4 | Last 4 |
| First 5 | Last 5 |
| First 6 | Last 6 |
| First 7 | Last 7 |
| First 8 | Last 8 |
| First 9 | Last 9 |

There are two columns which hold data. There is one column at the very left which displays a selection icon - in addition to a yellow background for a selected line. Even and odd lines are displayed in slightly different colors. At the very right of each title column, there is a symbol which indicates the sorting status; if you double-click on this symbol, the column is sorted first in ascending direction and, when clicking again, in descending direction. Change the sequence of columns by dragging the title of a column and dropping it on another column's title. Depending from where you drop, the column is either moved left or right.

The asterisk in the upper left corner of the grid is used to select/deselect all lines in the grid. The behavior depends on the setting of the `singleselect` property which determines whether multiple lines can be selected in the grid (default) or whether only one line can be selected:

- **Multiple Line Selection Mode**
  When you choose the asterisk for the first time, all lines are selected. When you choose the asterisk a second time, all lines are deselected.
- **Single Line Selection Mode**
  When you choose the asterisk (no matter how often), an existing selected line is deselected.

The XML layout definition is:

```
<rowarea name="Textgrid">
    <itr takefullwidth="true" fixlayout="true">
        <textgrid2 griddataprop="lines" width="100%" height="200" ↩
selectprop="selected"
                   hscroll="true">
            <column name="First Name" property="firstName" width="50%">
            </column>
            <column name="Last Name" property="lastName" width="50%">
            </column>
        </textgrid2>
    </itr>
    <vdist height="5">
    </vdist>
</rowarea>
```

The TEXTGRID2 definition is bound to a grid data property `lines`.

Inside the TEXTGRID2 control definition there are two columns. These columns are bound to the properties `firstName` and `lastName`.

## Adapter Interface

In the parameter data area of the adapter, the grid data is represented by the following data structure:

```
1 LINES (1:*)
2 FIRSTNAME (U) DYNAMIC
2 LASTNAME (U) DYNAMIC
2 SELECTED (L)
```

## Selecting Rows in a TEXTGRID2

Maybe you wonder why there is a `selected` field in the adapter parameter data area of the previous example.

This field is required for indicating which lines are currently selected and which are not. Each line which is displayed in the TEXTGRID2 control is represented in the adapter by an array occurrence of the array `LINES`. Therefore, the selection status of the grid (which lines are selected and which lines are not) is mirrored by the corresponding `selected` field of each array occurrence.

## TEXTGRID2 Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| griddataprop | Name of the adapter parameter that represents the grid in the adapter. | Obligatory | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Obligatory | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Obligatory | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |

| | | | |
|---|---|---|---|
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Selection | | | |
| selectableprop | Name of the adapter parameter that specifies wether a row in the grid is selectable (=true) or not (=false). The default is selectable. | Optional | |
| selectprop | Name of the adapter parameter that is used to mark if an individual row of the text grid is selected.<br>If the user selects a text grid row, the value "true" is passed into the corresponding array element of the adapter parameter. | Optional | |
| singleselect | If set to "true" then only one row can be selected inside the text grid. - If set to "false" then multiple lines can be selected by using Ctrl- and Shift-key during mouse selection.<br>Default is "false". | Optional | true<br>false |
| singleselectprop | Name of an adapter parameter that dynamically defines whether SINGLESELECT is true or false. | Optional | |
| onclickmethod | Name of the event that is sent to the adapter when the user selects a row.<br>In the event handler you can find the selected rows by iterating through the rows and finding out which one's selected element is set to "true". | Optional | |
| ondblclickmethod | Name of the event that is sent to the adapter when the user selects a row by a double click.<br>In the event handler you can find the selected rows by iterating through the rows and finding out which one's selected element is set to "true". | Optional | |
| withselectioncolumn | When defining a SELECTPROP property then automatically a selection column is added as first left column of the grid. Inside the column an icon inidicates if a row is currently selected.<br>Set this property to "false" in order to avoid the selection column. | Optional | true<br>false |
| withselectioncolumnicon | Flag that indicates whether the selection column shows a "select all" icon on top. Default is true. | Optional | true<br>false |
| fgselect | if switched to true then an additional "graying" of selected lines will be activated. Switch this property to "true" if you have coloured textgrid cells: the | Optional | true<br>false |

| | | | |
|---|---|---|---|
| | selection colour will not override the colour of each cell, as consequence you require an additional effect in order to make the user see which row is selected. | | |
| focusedprop | Name of an adapter parameter that is used to mark if an individual row of the text grid should receive the focus.<br>If the user selects a text grid row, the value "true" is passed into the corresponding array element of the adapter parameter. | Optional | |
| Right Mouse Button | | | |
| oncontextmenumethod | Name of the event that is sent to the adapter when the user clicks with the right mouse button onto an empty area of the grid. | Optional | |
| singleselectcontextmenu | With SHIFT and CTRL key the user can select multiple lines (use property SINGLESELECT to suppress this feature). Use this property to ensure that the context menu is requested only for a single line.<br>Default is "false". | Optional | true<br>false<br>noselection |
| enabledefaultcontextmenu | Use this property to enable the default context menu of the browser within the textgrid. Please note: do not enable the browser's context menu if your application itself provides for a context menu.<br>Default is "false". | Optional | true<br>false |
| Appearance | | | |
| width | (already explained above) | | |
| height | (already explained above) | | |
| minapparentrows | Number of rows that are displayed independent of the size of the server side collection. | Optional | 1<br>2<br>3<br>int-value |
| hscroll | Definition of the horizontal scrollbar's appearance.<br>You can define that the scrollbars only are shown if the content is exceeding the control's area ("auto"). Or scrollbars can be shown always ("scroll"). Or scrollbars are never shown - and the content is cut ("hidden").<br>Default is "auto". | Sometimes obligatory | auto<br>scroll<br>hidden |
| withtitlerow | If defined as "false" then no top title row is shown.<br>"True" is default. | Optional | true<br>false |

| | | | |
|---|---|---|---|
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| personalizable | If defined to "false" then no re-arranging of columns is offered to the user.<br>Default is "true". This means: if using COLUMN controls inside the grid definition then the user can re-arrange the sequence of columns by dragging and dropping them within the top title row. | Optional | true<br>false |
| stylevariant | Some controls offer the possibility to define style variants. By this style variant you can address different styles inside your style sheet definition file (.css). If not defined "normal" styles are chosen, if defined (e.g. "VAR1") then other style definitions (xxxVAR1xxx) are chosen.<br>Purpose: you can set up style variants in the style sheet defintion and use them multiple times by addressing them via the "stylevariant" property. CIS currently offerst two variants "VAR1" and "VAR2" but does not predefine any semantics behind - this is up to you! | Optional | VAR1<br>VAR2 |
| stylevariantprop | Name of the adapter parameter which dynamically defines the STYLEVARIANT value at runtime. | Optional | VAR1<br>VAR2 |

| | | | |
|---|---|---|---|
| backgroundstyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | |
| vscroll | Definition of the vertical scrollbar's appearance.<br>You can define that scrollbars only are shown if the content is exceeding the control's area ("auto"). Or scrollbars can be shown always ("scroll"). Or scrollbars are never shown - and the content is cut ("hidden").<br>Default is "auto". | Optional | auto<br>scroll<br>hidden |
| withrollover | The textgrid controls provide for a so called "roll over" effect. The row that is currently below the mouse pointer is highlighted in a certain way. Use this property to disable the roll over effect (Default is TRUE). | Optional | true<br>false |
| fixedcolumnsizes | When switching the FIXEDCOLUMNSIZES property to value "true" then internally the grid is arranged in a way that the area always determines its size out of the width specification of the COLUMN controls. The browser does not look into the column contents in order to try to optimise the size of the area - but always follows the width that you define. | Optional | true<br>false |
| requiredheight | Minimum height of the control in pixels. Use this property to ensure a minimum height if the overall control's height is a percentage of the available space - i.e. if value of property HEIGHT is a percentage (e.g. 100%).<br>Please note:You must not use FIXLAYOUT at the surrounding row container (ITR and ROWAREA). Otherwise: if the available space is less than the required height the end of the control is just cut off. | Optional | 1<br>2<br>3<br>int-value |

| | | | |
|---|---|---|---|
| disablecolumnresizing | Flag that indicates if the user can change the width of the grid columns. Default is false. | Optional | true<br>false |
| disablecolumnmoving | Flag that indicates if the user can change the order of grid columns. Default is false. | Optional | true<br>false |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1<br>2<br>5<br>10<br>32767 |
| Drag And Drop | | | |
| draginfoprop | Name of the row item property that passes back the line's "drag info". When using this attribute the grid lines can be dragged onto "drop targets" (e.g. DROPICON control). The dragged line is identified by its "drag info". Use any string/information applicable. | Optional | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a | Optional | |

| | | | |
|---|---|---|---|
| | generated statusprop variable to which field the statusprop belongs. | | |
| Miscellaneous | | | |
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |
| Deprecated | | | |
| directselectevent | Use ONCLICKMETHOD and ONDBLCLICKMETHOD instead. | Optional | ondblclick<br>onclick |
| directselectmethod | Use ONCLICKMETHOD and ONDBLCLICKMETHOD instead. | Optional | |

## COLUMN Properties

The COLUMN tag is the typical tag that is placed inside a TEXTGRID2 definition. The COLUMN definition defines a column with its binding to a property of the collection elements.

**Tip:** If you set the property `headernowrap="false"`, you usually have to increase the height of the header in the style sheet of your layout page. You can do this in the Style Sheet Editor: Go to the **Style Details** tab, expand the tree for TEXTGRID and then adjust the `height` value for `TEXTGRIDCellHeaderUnsorted`.

| | | | |
|---|---|---|---|
| Basic | | | |
| name | Text that is displayed inside the control. Please do not specify the name when using the multi language management - but specify a "textid" instead. | Sometimes obligatory | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Sometimes obligatory | |
| property | Property of the row item object that represents the column's content.<br>The content typically is straight text but can also be "complex HTML". | Obligatory | |
| width | Width of the control.<br>There are two possibilities to define the width:<br>(A) Pixel sizing: just input a number value (e.g. "100"). | Obligatory | 100<br>120<br>140 |

| | | | |
|---|---|---|---|
| | (B) Percentage sizing: input a percentage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element (textgrid2, textgridsss2) of the control properly defines a width this control can reference. | | 160<br>180<br>200<br>50%<br>100% |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| datatype | By default, the control is managing its content as string. By explicitly setting a datatype you can define that the control will format the data coming from the server: if the field has datatype "date" and the user inputs "010304" then the input will be translated into "01.03.2004" (or other representation, dependent on date format settings).<br>Please note: the datatype "float" is named a bit misleading - it represents any decimal format number. The server side representation may be a float value, but also can be a double or a BigDecimal property. | Optional | date<br>float<br>int<br>long<br>time<br>timestamp<br>color<br>xs:decimal<br>xs:double<br>xs:date<br>xs:dateTime<br>xs:time<br>------------------------<br>N n.n<br>P n.n<br>string n<br>L<br>xs:boolean<br>xs:byte<br>xs:short |

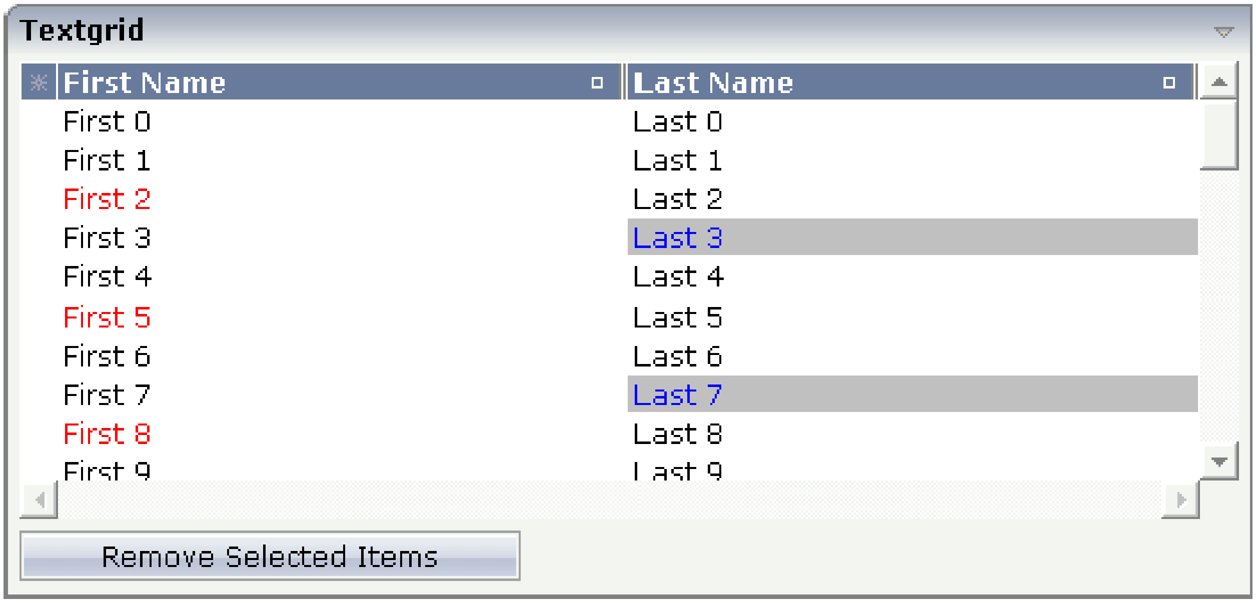
| | | | |
|---|---|---|---|
| align | Horizontal alignment of the control's content. | Optional | left<br>center<br>right |
| straighttext | If the text of the control contains HTML tags then these are by default interpreted by the browser. Specifiying STRAIGHTTEXT as "true" means that the browser will directly render the characters without HTML interpretation.<br>Example: if you want to output the source of an HTML text then STRAIGHTTEXT should be set to "true". | Optional | true<br>false |
| convertspaces | If switched to "true" then all spaces inside the text that is rendered into the column are converted to non breakable spaces (andnbsp\"). <br>Use this option if you have "meaningful" spaces inside the values you return from the server adapter object, e.g. if outputting some ASCII protocol inside a column. | Optional | true<br>false |
| cuttextline | If switched to "false" then the content of the column is broken if it excceeds the column's width definition. Default is "true" i.e. if the content is too big for the column cell then it is cut. | Optional | true<br>false |
| withsorticon | Flag that indicates if a small sort indicator is shown within the right corner of the control. Default is TRUE. | Optional | true<br>false |
| headerimage | URL of image that is displayed inside the control. Any image type (.gif, .jpg, ...) that your browser does understand is valid.<br>Use the following options to specify the URL:<br>(A) Define the URL relative to your page. Your page is generated directly into your project's folder. Specifiying "images/xyz.gif" will point into a directory parallel to your page. Specifying "../HTMLBasedGUI/images/new.gif" will point to an image of a neighbour project.<br>(B) Define a complete URL, like "http://www.softwareag.com/images/logo.gif". | Optional | |
| headernowrap | The textual content of the header is not wrapped automatically. No line break will be performed automatically by the browser. If you want the text of the header to be wrapped, set the value to "false". | Optional | true<br>false |
| Binding | | | |

| | | | |
|---|---|---|---|
| property | (already explained above) | | |
| textstyleprop | Name of the adapter parameter that provides a style-string that is used for rendering the column's content.<br>As consequence you can indiviudally assign a CSS-style to each cell of your text grid. | Optional | |
| textclassprop | Name of the adapter parameter that provides a style class to be used for rendering the content.<br>You can set up a limited number of style classes inside your style sheet definition - and dynamically reference them per grid cell. | Optional | |
| imageprop | Name of the adapter parameter that provides an image URL. The image is rendered at the very left of the column's area - in front of the text (PROPERTY property definition). | Optional | |
| linkmethod | Name of the event that is sent to the adapter if user clicks the column's text. | Optional | |
| celllinkmethodprop | Name of the row item property that passes back the name of a method or null. If the method name is not null then the corresponding column (cells) will show the text as method link. On click the provided row item cell method is called. | Optional | |
| celltitleprop | Name of the adapter parameter that provides the tooltip of this cell. | Optional | |
| Online help | | | |
| title | Text that is shown as tooltip for the control.<br>Either specify the text "hard" by using this TITLE property - or use the TITLETEXTID in order to define a language dependent literal. | Optional | |
| titletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text that is used for the control. | Optional | |
| sorttitle | Text that is shown as tooltip for the sort indicator.<br>Either input text by using this SORTTITLE property - or use the SORTTITLETEXTID in order to define a language dependent literal. | Optional | |
| sorttitletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text for the sort indicator. | Optional | |
| celltitleprop | (already explained above) | | |
| Natural | | | |

| | | | |
|---|---|---|---|
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natsysvar | If the control shall be bound to a Natural system variable, this attribute specifies the name of the system variable. | Optional | |
| njx:natsysio | If the control shall be bound to a Natural system variable with the attribute njx:natsysvar, this attribute indicates if the system variable is modifiable. The default is false. | Optional | |
| njx:natstringtype | If the control shall be bound to a Natural system variable of string format with the attribute njx:natsysvar, this attribute indicates the format of the string, A (code page) or U (Unicode). The default is A. | Optional | |
| njx:natcv | Name of a Natural control variable that shall be assigned to the control. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |

## Dynamic Setting of Text Styles in TEXTGRID2

The example from the previous sections will now be enhanced in order to demonstrate how to control the style of cells inside a TEXTGRID2 control dynamically:



| First Name | Last Name |
|---|---|
| First 0 | Last 0 |
| First 1 | Last 1 |
| First 2 | Last 2 |
| First 3 | Last 3 |
| First 4 | Last 4 |
| First 5 | Last 5 |
| First 6 | Last 6 |
| First 7 | Last 7 |
| First 8 | Last 8 |
| First 9 | Last 9 |

Some of the cells in the TEXTGRID2 control are rendered with a different style than the normal one. Each COLUMN definition has the property `textstyleprop`:

```
<rowarea name="Textgrid">
    <itr takefullwidth="true" fixlayout="true">
        <textgrid2 griddataprop="lines" width="100%" height="200" ↩
selectprop="selected"
                   hscroll="true">
            <column name="First Name" property="firstName" width="50%"
                    textstyleprop="firstNameStyle">
            </column>
            <column name="Last Name" property="lastname" width="50%"
                    textstyleprop="lastNameStyle">
            </column>
        </textgrid2>
    </itr>
    <vdist height="5">
    </vdist>
    <itr>
        <button name="Remove Selected Items" method="onRemoveSelectedItems">
        </button>
    </itr>
</rowarea>
```

# 97 TEXTGRIDSSS2 - TEXTGRID2 with Server-Side Scrolling

- Performance Considerations ........ 684
- Example ........ 684
- Adapter Interface ........ 686
- Using Server-Side Scrolling ........ 686
- Using Server-Side Sorting ........ 687
- Setting the Client-Side Loading Behavior ........ 687
- TEXTGRIDSSS2 Properties ........ 687

The TEXTGRIDSSS2 control is a variant of the **TEXTGRID2** control which is explained in the previous section. "SSS" is the abbreviation for "server-side scrolling". What this means is described in this chapter.

## Performance Considerations

The TEXTGRID2 control fetches all items belonging to the grid and renders them according to its layout definition. If there are more items available than the grid can display, a vertical scroll bar is displayed and you can scroll through the list.

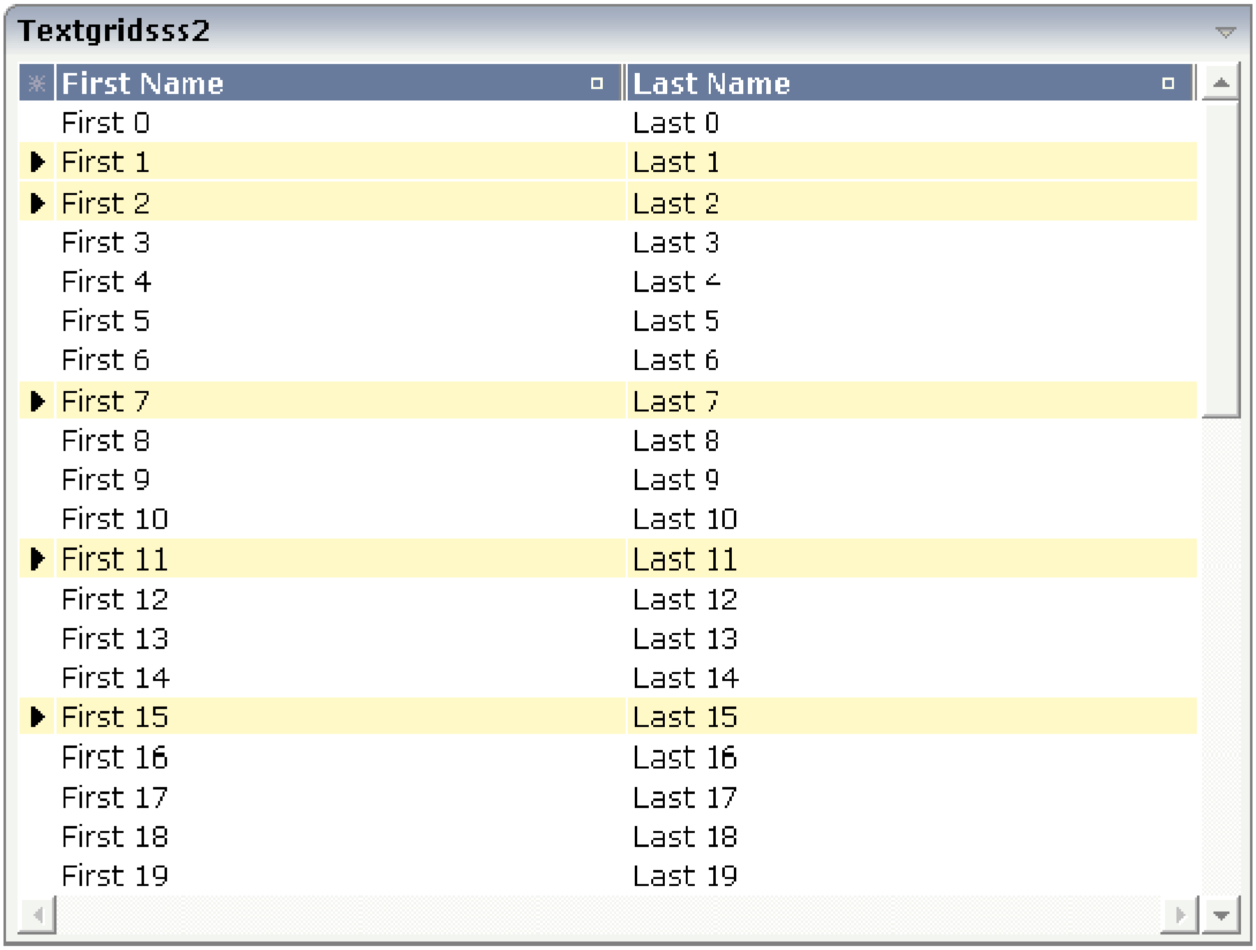
From scrolling perspective, this is very effective - the browser is very fast when scrolling is needed. But there are two disadvantages, especially for long lists:

- All the data that are to be displayed inside the grid must be available on the client side. Therefore, the data must be transferred from the server to the client at least one time. Imagine you have a grid of 10,000 lines: even if Application Designer transfers only “net data” and even if this happens in “delta transfer mode”, it must be transferred.
- In addition, the grid must be built completely in order to allow fast scrolling. This means - taking the above example - that 10,000 lines have to be rendered before the grid can be displayed. Table rendering is time-consuming and needs a lot of the client's CPU performance.

Consequence: text grids of the TEXTGRID2 control are easy to use, but they have their limitations in terms of scalability. You should use it only if a limited amount of information is to be displayed.

## Example

The TEXTGRIDSSS2 is very similar to the TEXTGRID2 control. However, some special behavior has been built in. The main differences are “in the background”. The TEXTGRIDSSS2 control only receives the data of the visible items. In this example, only the data of the first 20 items are returned and rendered. When scrolling down, the next 20 items are fetched and rendered. This means: the control requests always the data which are currently displayed.



Textgridsss2

|  | First Name | Last Name |
|---|---|---|
|  | First 0 | Last 0 |
| ▶ | First 1 | Last 1 |
| ▶ | First 2 | Last 2 |
|  | First 3 | Last 3 |
|  | First 4 | Last 4 |
|  | First 5 | Last 5 |
|  | First 6 | Last 6 |
| ▶ | First 7 | Last 7 |
|  | First 8 | Last 8 |
|  | First 9 | Last 9 |
|  | First 10 | Last 10 |
| ▶ | First 11 | Last 11 |
|  | First 12 | Last 12 |
|  | First 13 | Last 13 |
|  | First 14 | Last 14 |
| ▶ | First 15 | Last 15 |
|  | First 16 | Last 16 |
|  | First 17 | Last 17 |
|  | First 18 | Last 18 |
|  | First 19 | Last 19 |

Consequence: every scrolling step requires an interaction with the server. However, only a small amount of data - which is visible - is requested, not the data of all available items. The performance of the grid does not change with the number of items which are available. There is no time difference in rendering a text grid containing 100 or 10,000 items.

The layout definition is:

```
<rowarea name="Textgridsss2">
    <itr>
        <textgridsss2 griddataprop="lines" rowcount="20" width="100%"
                      selectprop="selected" singleselect="false" hscroll="true"
                      directselectmethod="onDirectSelection"
                      directselectevent="ondblClick">
            <column name="First Name" property="firstname" width="50%">
            </column>
            <column name="Last Name" property="lastname" width="50%">
            </column>
        </textgridsss2>
    </itr>
</rowarea>
```

## Adapter Interface

In the parameter data area of the adapter, the grid data is represented by the following data structure:

```
1 LINES (1:*)
2 FIRSTNAME (U) DYNAMIC
2 LASTNAME (U) DYNAMIC
2 SELECTED (L)
1 LINESINFO
2 ROWCOUNT (I4)
2 SIZE (I4)
2 SORTPROPS (1:*)
3 ASCENDING (L)
3 PROPNAME (U) DYNAMIC
2 TOPINDEX (I4)
```

The parameters are nearly the same as for the TEXTGRID2 control. In addition, there is a `LINESINFO` structure. This structure is used to control the server-side scrolling and the server-side sorting.

## Using Server-Side Scrolling

In the adapter parameters that represent the TEXTGRIDSSS2 control in the application, there are three parameters that control the server-side scrolling:

- `TOPINDEX`
- `ROWCOUNT`
- `SIZE`

In `TOPINDEX` and `ROWCOUNT`, the application receives the information how many items it should deliver to the page with the next scroll event and with which item the delivered amount should start.

In `SIZE`, the application returns the total number of items available. The client uses this information to set up the scroll bar correctly.

## Using Server-Side Sorting

In the adapter parameters that represent the TEXTGRIDSSS2 control in the application, there is a substructure that controls the server-side sorting: `SORTPROPS`. With the information in this structure, the client tells the application by which sort criteria and in which order the client expects the items to be sorted.

## Setting the Client-Side Loading Behavior

As an alternative to server-side scrolling, you can customize the client-side loading behavior. Setting the property `onloadbehaviour="collection"` activates performance-optimized client-side scrolling in the JavaScript/SWT client. As with the TEXTGRID2 control, the application must pass all items to the client at the beginning. But other than with the TEXTGRID2 control, these items are not immediately rendered in the grid. Instead, the JavaScript/SWT client caches the items and only renders the items that are currently visible. If you have a limited number of items, the TEXTGRIDSSS2 control thus combines the advantage of the easy-to-use TEXTGRID2 control with better performance. For a really large number of items, however, server-side scrolling is still the best solution.

**Note:** If you set `onloadbehaviour="collection"` for a grid control at design time, it is not possible to perform Natural server-side scrolling for this grid at runtime.

Sometimes, the number of items is not yet known at design-time. In such a case, you can set `onloadbehaviour="collectionorblock"`. Up to a defined number of items, the behavior is identical to `onloadbehaviour="collection"`. The maximum number of items for which client-side scrolling is to be done can be specified in the *cisconfig.xml* file. For a higher number of items, server-side scrolling is done. Switching between client-side scrolling and server-side scrolling is done automatically. You need not program anything to make it work.

## TEXTGRIDSSS2 Properties

| Basic | | | |
|---|---|---|---|
| griddataprop | Name of the adapter parameter that represents the grid in the adapter. | Obligatory | |
| rowcount | Number of rows that is renderes inside the control. | Obligatory | |

| | | | |
|---|---|---|---|
| | There are two ways of using this property - dependent on whether you in addition define the HEIGHT property:<br>If you do NOT define the HEIGHT property then the control is rendered with exactly the number of rows that is defined as ROWCOUNT value.<br>If a HEIGHT value is defined an addition (e.g. as percentage value "100%") then the number of rows depends on the actual height of the control. The ROWCOUNT value in this case indicates the maximum number of rows that is picked from the server. You should define this value in a way that it is not too low - otherwise your grid will not be fully filled. On the other hand it should not be defined too high ("100") because this causes more communication traffic and more rendering effort inside the browser. | | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Obligatory | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the | Optional | 100<br>150<br>200<br>250<br>300 |

| | | | |
|---|---|---|---|
| | height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | 250<br>400<br>50%<br>100% |
| onloadbehaviour | Loading behaviour of the items into the client.<br>"block" (=default) means that the client always requests the currently visible items from the server (=Server-Side Scrolling).<br>"collection" means that the client requests all items at the beginning from the server. The client itself implements the scrolling in the JavaScript/SWT (=Client-Side Scrolling)<br>New in CIT81: "collectionorblock" means that the runtime automicatically switches between Client-Side Scrolling and Server-Side Scrolling. | Optional | block<br>collection<br>collectionorblock |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Selection | | | |
| selectableprop | Name of the adapter parameter that specifies wether a row in the grid is selectable (=true) or not (=false). The default is selectable. | Optional | |
| selectprop | Name of the adapter parameter that is used to mark if an individual row of the text grid is selected.<br>If the user selects a text grid row, the value "true" is passed into the corresponding array element of the adapter parameter. | Optional | |
| singleselect | If set to "true" then only one row can be selected inside the text grid. - If set to "false" then multiple lines can be selected by using Ctrl- and Shift-key during mouse selection. | Optional | true<br>false |

| | | | |
|---|---|---|---|
| | Default is "false". | | |
| singleselectprop | Name of an adapter parameter that dynamically defines whether SINGLESELECT is true or false. | Optional | |
| onclickmethod | Name of the event that is sent to the adapter when the user selects a row.<br>In the event handler you can find the selected rows by iterating through the rows and finding out which one's selected element is set to "true". | Optional | |
| ondblclickmethod | Name of the event that is sent to the adapter when the user selects a row by a double click.<br>In the event handler you can find the selected rows by iterating through the rows and finding out which one's selected element is set to "true". | Optional | |
| withselectioncolumn | When defining a SELECTPROP property then automatically a selection column is added as first left column of the grid. Inside the column an icon inidicates if a row is currently selected.<br>Set this property to "false" in order to avoid the selection column. | Optional | true<br>false |
| withselectioncolumnicon | Flag that indicates whether the selection column shows a "select all" icon on top. Default is true. | Optional | true<br>false |
| fgselect | if switched to true then an additional "graying" of selected lines will be activated. Switch this property to "true" if you have coloured textgrid cells: the selection colour will not override the colour of each cell, as consequence you require an additional effect in order to make the user see which row is selected. | Optional | true<br>false |
| focusedprop | Name of an adapter parameter that is used to mark if an individual row of the text grid should receive the focus.<br>If the user selects a text grid row, the value "true" is passed into the corresponding array element of the adapter parameter. | Optional | |
| Right Mouse Button | | | |
| oncontextmenumethod | Name of the event that is sent to the adapter when the user clicks with the right mouse button onto an empty area of the grid. | Optional | |
| singleselectcontextmenu | With SHIFT and CTRL key the user can select multiple lines (use property SINGLESELECT to suppress this feature). Use this property to | Optional | true<br>false |

| | | | |
|---|---|---|---|
| | ensure that the context menu is requested only for a single line.<br>Default is "false". | | noselection |
| enabledefaultcontextmenu | Use this property to enable the default context menu of the browser within the textgrid. Please note: do not enable the browser's context menu if your application itself provides for a context menu.<br>Default is "false". | Optional | true<br>false |
| Appearance | | | |
| width | (already explained above) | | |
| height | (already explained above) | | |
| hscroll | Definition of the horizontal scrollbar's appearance.<br>You can define that the scrollbars only are shown if the content is exceeding the control's area ("auto"). Or scrollbars can be shown always ("scroll"). Or scrollbars are never shown - and the content is cut ("hidden").<br>Default is "auto". | Optional | auto<br>scroll<br>hidden |
| vscroll | Definition of the vertical scrollbar's appearance.<br>You can define that scrollbars only are shown if the content is exceeding the control's area ("auto"). Or scrollbars can be shown always ("scroll"). Or scrollbars are never shown - and the content is cut ("hidden").<br>Default is "auto". | Optional | auto<br>scroll<br>hidden |
| touchpadinput | Boolean property that decides if touch pad support is offered for the TEXTGRID control. The default is "false". If switched to "true" then you can scroll the grid via a touch pad. As consequence you can use this control for making inputs through a touch terminal. | Optional | true<br>false |
| withtitlerow | If defined as "false" then no top title row is shown.<br>"True" is default. | Optional | true<br>false |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is | Optional | 1<br>2<br>3 |

| | | | |
|---|---|---|---|
| | "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | | 4<br>5<br>50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| personalizable | If defined to "false" then no re-arranging of columns is offered to the user.<br>Default is "true". This means: if using COLUMN controls inside the grid definition then the user can re-arrange the sequence of columns by dragging and dropping them within the top title row. | Optional | true<br>false |
| stylevariant | Some controls offer the possibility to define style variants. By this style variant you can address different styles inside your style sheet definition file (.css). If not defined "normal" styles are chosen, if defined (e.g. "VAR1") then other style definitions (xxxVAR1xxx) are chosen.<br>Purpose: you can set up style variants in the style sheet defintion and use them multiple times by addressing them via the "stylevariant" property. CIS currently offerst two variants "VAR1" and "VAR2" but does not predefine any semantics behind - this is up to you! | Optional | |
| stylevariantprop | Name of the adapter parameter which dynamically defines the STYLEVARIANT value at runtime. | Optional | VAR1<br>VAR2 |
| backgroundstyle | CSS style definition that is directly passed into this control. | Optional | |

| | | | |
|---|---|---|---|
| | With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | | |
| withblockscrolling | If switched to "true" then the grid will show small scroll icons by which the user can scroll the grid's content. Scrolling typically is done by using the grid's scrollbar - the scroll icons that are switched on by this property are an additional possibility to scroll. | Optional | true<br>false |
| withrollover | The textgrid controls provide for a so called "roll over" effect. The row that is currently below the mouse pointer is highlighted in a certain way. Use this property to disable the roll over effect (Default is TRUE). | Optional | true<br>false |
| fixedcolumnsizes | When switching the FIXEDCOLUMNSIZES property to value "true" then internally the grid is arranged in a way that the area always determines its size out of the width specification of the COLUMN controls. The browser does not look into the column contents in order to try to optimise the size of the area - but always follows the width that you define. | Optional | true<br>false |
| requiredheight | Minimum height of the control in pixels. Use this property to ensure a minimum height if the overall control's height is a percentage of the available space - i.e. if value of property HEIGHT is a percentage (e.g. 100%).<br>Please note:You must not use FIXLAYOUT at the surrounding row container (ITR and ROWAREA). Otherwise: if the available space is less than the required height the end of the control is just cut off. | Optional | 1<br>2<br>3<br>int-value |
| minapparentrows | Minimum number of apparent rows. Insert a valid number to make sure that (e.g. 10) rows are shown for sure. | Optional | 1<br>2 |

| | | | |
|---|---|---|---|
| | | | 3<br>int-value |
| disablecolumnresizing | Flag that indicates if the user can change the width of the grid columns. Default is false. | Optional | true<br>false |
| disablecolumnmoving | Flag that indicates if the user can change the order of grid columns. Default is false. | Optional | true<br>false |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1<br>2<br>5<br>10<br>32767 |
| showemptylines | If set to false, no empty line will be rendered. By default empty lines are shown. | Optional | true<br>false |
| withsliderfreeze | Setting this to "true" prevents unwisched slider jumps while scrolling up/down in a grid with a huge number of lines (for example 20000). | Optional | true<br>false |
| Drag And Drop | | | |
| draginfoprop | Name of the row item property that passes back the line's "drag info". When using this attribute the grid lines can be dragged onto "drop targets" (e.g. DROPICON control). The dragged line is identified by its "drag info". Use any string/information applicable. | Optional | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two | Optional | |

| | | | |
|---|---|---|---|
| | names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |
| Miscellaneous | | | |
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |
| Deprecated | | | |
| directselectmethod | Use ONCLICKMETHOD and ONDBLCLICKMETHOD instead. | Optional | |
| directselectevent | Use ONCLICKMETHOD and ONDBLCLICKMETHOD instead. | Optional | ondblclick<br>onclick |

Inside the TEXTGRIDSSS2 definitions, COLUMN tags are also used to define its content. There is no difference in COLUMN tag usage between TEXTGRIDSSS2 and TEXTGRID2 definition.

# 98 ROWTABLEAREA2 - The Flexible Control Grid

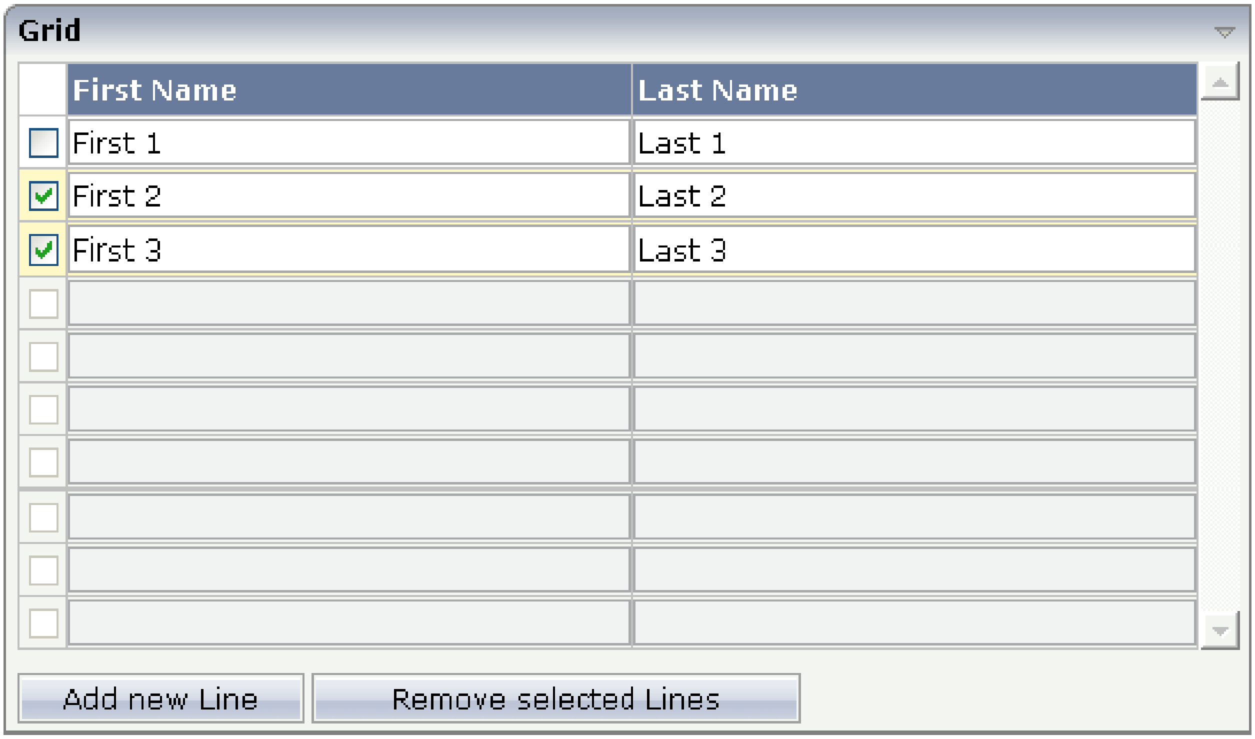
- Example ........ 698
- Adapter Interface ........ 700
- Built-in Events ........ 700
- Making Grids Look like Grids ........ 701
- Making Columns Movable ........ 702
- ROWTABLEAREA2 Properties ........ 703
- STR Properties ........ 710

The ROWTABLEAREA2 is a container control that allows other controls to be arranged inside its grid management.

The ROWTABLEAREA2 control supports server-side scrolling and sorting. This concept is explained in *Server-Side Scrolling and Sorting*. An example for the usage of server-side scrolling and sorting with the ROWTABLEAREA2 control is contained in the example library `SYSEXNJX`.

## Example

There is a grid that contains a header row and 10 lines. Each line contains one check box and two fields. Some of the lines are highlighted.



| | First Name | Last Name |
|---|---|---|
| □ | First 1 | Last 1 |
| ☑ | First 2 | Last 2 |
| ☑ | First 3 | Last 3 |
| □ | | |
| □ | | |
| □ | | |
| □ | | |
| □ | | |
| □ | | |
| □ | | |

The XML layout definition is:

```
<rowarea name="Grid">
   <rowtablearea2 griddataprop="lines" rowcount="10" width="100%" withborder="true">
       <tr>
           <hdist>
           </hdist>
           <label name="First Name" asheadline="true">
           </label>
           <label name="Last Name" asheadline="true">
           </label>
       </tr>
```

```
        <repeat>
            <str valueprop="selected">
                <checkbox valueprop="selected" flush="screen" width="30">
                </checkbox>
                <field valueprop="firstname" width="50%">
                </field>
                <field valueprop="lastname" width="50%">
                </field>
            </str>
        </repeat>
    </rowtablearea2>
    <vdist height="10">
    </vdist>
    <itr>
        <button name="Add new Line" method="onAddLine">
        </button>
        <hdist>
        </hdist>
        <button name="Remove selected Lines" method="onRemoveLines">
        </button>
    </itr>
</rowarea>
```

Note the following:

- There is a ROWTABLEAREA2 definition with the property `griddataprop="lines"`. There is a `rowcount` definition of "10". This is the same as for the text grid processing: the grid container is bound to a server-side collection. Similar to the TEXTGRIDSSS2 definition, there is a row count that defines the number of lines.
- Inside the ROWTABLEAREA2 definition, there is first the definition of a normal table row (TR) in which a distance and two labels are defined. The labels are rendered with `asheadline="true"`.
- Inside the REPEAT definition, there is a special table row definition "STR" (selectable table row) that itself contains one CHECKBOX and two FIELD definitions. CHECKBOX and FIELDs are bound to properties themselves.
- After the ROWTABLEAREA2 definition, there is a vertical distance and a row that contains two buttons with which a user can manipulate the grid.

The content of the REPEAT block is repeated as many times as defined inside the `rowcount` definition of ROWTABLEAREA2. The content holds a table row (STR) - therefore the result is a grid.

## Adapter Interface

In the parameter data area of the adapter, the grid data is represented by the following data structure:

```
1 LINES (1:*)
2 FIRSTNAME (U) DYNAMIC
2 LASTNAME (U) DYNAMIC
2 SELECTED (L)
```

If the grid has been configured for server-side scrolling and sorting, the data structure contains additional fields that control server-side scrolling and sorting (see below). In order to use server-side scrolling and sorting, set the property `natsss` in NATPAGE to "true".

```
1 LINES (1:*)
2 FIRSTNAME (U) DYNAMIC
2 LASTNAME (U) DYNAMIC
2 SELECTED (L)
1 LINESINFO
2 ROWCOUNT (I4)
2 SIZE (I4)
2 SORTPROPS (1:*)
3 ASCENDING (L)
3 PROPNAME (U) DYNAMIC
2 TOPINDEX (I4)
```

## Built-in Events

*`value-of-griddataprop`*.onCtrlSelect
*`value-of-griddataprop`*.onSelect
*`value-of-griddataprop`*.onShiftSelect
*`value-of-griddataprop`*.onSort
*`value-of-griddataprop`*.onTopindexChanged

## Making Grids Look like Grids

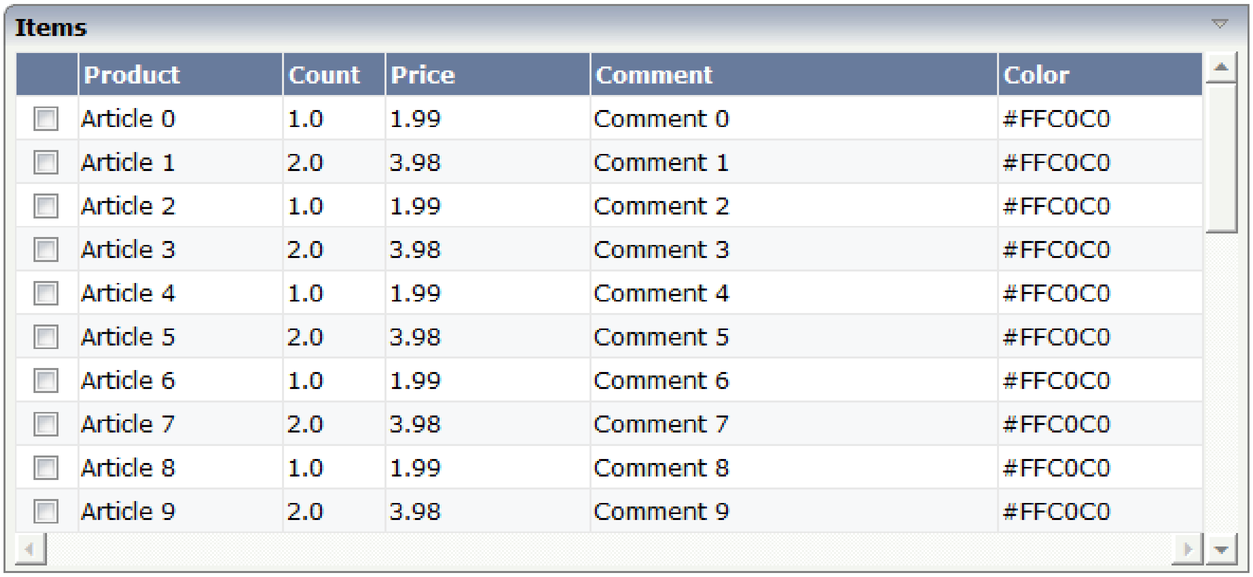
Fields typically contain a high number of FIELD controls. Typically, a FIELD control has a certain rendering that renders a field with a border and with a certain background color.

Be aware that inside the FIELD definition, there are two important properties:

- `noborder` - if set to "true", no border will be drawn
- `transparentbackground` - if set to "true", the field will always take over the background of the controls in which it is positioned (e.g. STR row).

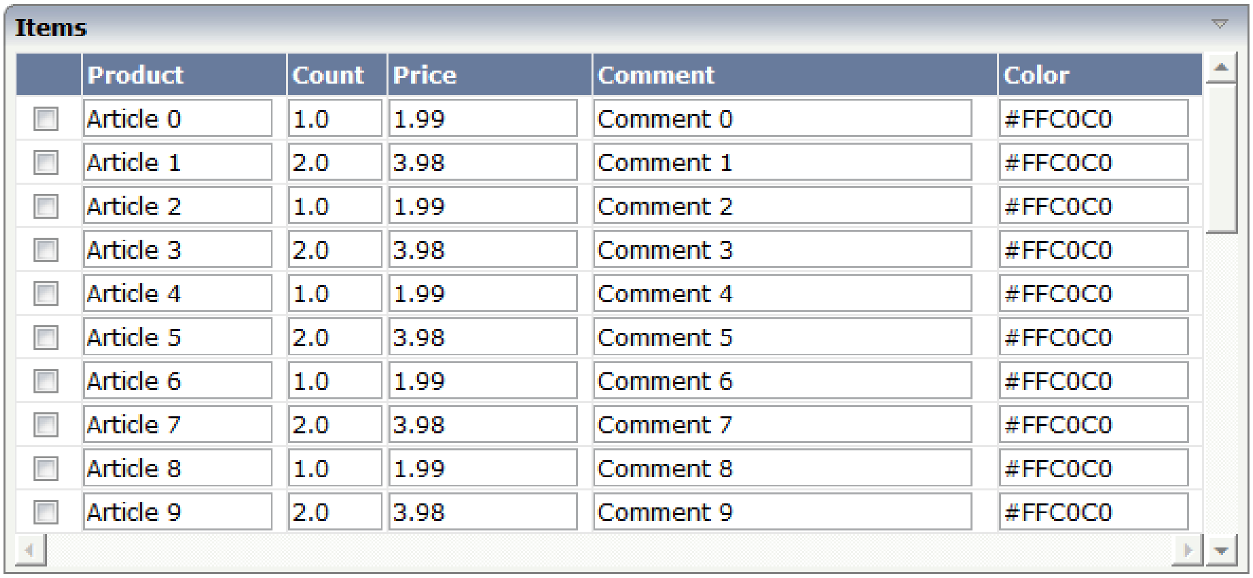
Have a look at the difference between the following screens. One screen uses the properties, the other screen does not use them.

This is a grid:



| | Product | Count | Price | Comment | Color |
|---|---|---|---|---|---|
| □ | Article 0 | 1.0 | 1.99 | Comment 0 | #FFC0C0 |
| □ | Article 1 | 2.0 | 3.98 | Comment 1 | #FFC0C0 |
| □ | Article 2 | 1.0 | 1.99 | Comment 2 | #FFC0C0 |
| □ | Article 3 | 2.0 | 3.98 | Comment 3 | #FFC0C0 |
| □ | Article 4 | 1.0 | 1.99 | Comment 4 | #FFC0C0 |
| □ | Article 5 | 2.0 | 3.98 | Comment 5 | #FFC0C0 |
| □ | Article 6 | 1.0 | 1.99 | Comment 6 | #FFC0C0 |
| □ | Article 7 | 2.0 | 3.98 | Comment 7 | #FFC0C0 |
| □ | Article 8 | 1.0 | 1.99 | Comment 8 | #FFC0C0 |
| □ | Article 9 | 2.0 | 3.98 | Comment 9 | #FFC0C0 |

This is collection of fields:



Items

| | Product | Count | Price | Comment | Color |
|---|---|---|---|---|---|
| □ | Article 0 | 1.0 | 1.99 | Comment 0 | #FFC0C0 |
| □ | Article 1 | 2.0 | 3.98 | Comment 1 | #FFC0C0 |
| □ | Article 2 | 1.0 | 1.99 | Comment 2 | #FFC0C0 |
| □ | Article 3 | 2.0 | 3.98 | Comment 3 | #FFC0C0 |
| □ | Article 4 | 1.0 | 1.99 | Comment 4 | #FFC0C0 |
| □ | Article 5 | 2.0 | 3.98 | Comment 5 | #FFC0C0 |
| □ | Article 6 | 1.0 | 1.99 | Comment 6 | #FFC0C0 |
| □ | Article 7 | 2.0 | 3.98 | Comment 7 | #FFC0C0 |
| □ | Article 8 | 1.0 | 1.99 | Comment 8 | #FFC0C0 |
| □ | Article 9 | 2.0 | 3.98 | Comment 9 | #FFC0C0 |

## Making Columns Movable

Columns in a ROWTABLEAREA2 control can be marked as movable so that these columns can be rearranged during execution time. The application program need not be changed.

To enable columns as movable columns, the following prerequisites must be fulfilled:

- The header row elements that are to represent movable columns must be defined with GRIDCOLHEADER controls.
- A specific column is defined as movable by setting the `movablecol` property of the GRIDCOLHEADER control to "true".
- The columns marked as movable must form a consecutive sequence. It is not possible to establish more than one sequence of movable columns within one grid.
- When columns are marked as movable, only FIELD and METHODLINK controls are allowed to be used in the table's body definition for the corresponding columns.

The following is an example of a layout definition with movable columns:

```
<rowarea name="Contents of the LINES structure">
    <rowtablearea2 griddataprop="lines" rowcount="15" width="100%"
     withborder="true">
        <tr>
            <label name="No." width="30" asheadline="true">
            </label>
            <label name="Dept" width="20%" asheadline="true">
            </label>
            <gridcolheader name="ID" width="20%" propref="id"
```

```
             withsorticon="false" movablecol="true">
            </gridcolheader>
            <gridcolheader name="Last Name" width="20%" propref="last"
             withsorticon="false" movablecol="true">
            </gridcolheader>
            <gridcolheader name="First Name" width="20%" propref="first"
             withsorticon="false" movablecol="true">
            </gridcolheader>
            <gridcolheader name="Reference" width="20%" propref="reflink"
             withsorticon="false" movablecol="true">
            </gridcolheader>
        </tr>
        <repeat>
            <str valueprop="selected">
                <selector valueprop="selected" singleselect="false">
                </selector>
                <treenode3 width="20%" withplusminus="true">
                </treenode3>
                <field valueprop="id" width="20%" noborder="true">
                </field>
                <field valueprop="last" width="20%" noborder="true">
                </field>
                <field valueprop="first" width="20%" noborder="true">
                </field>
                <methodlink method="reflinkclicked" valueprop="reflink"
                 width="20%">
                </methodlink>
            </str>
        </repeat>
    </rowtablearea2>
</rowarea>
```

The header row definition of the ROWTABLEAREA2 control contains a consecutive sequence of four GRIDCOLHEADER controls with the `movablecol` property set to "true". These GRIDCOLHEADER controls correspond to three FIELD controls and one METHODLINK control in the table's body definition.

## ROWTABLEAREA2 Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| griddataprop | Name of the adapter parameter that represents the control in the adapter. | Obligatory | |
| rowcount | Number of rows that is renderes inside the control. | Optional | |

| | | | |
|---|---|---|---|
| | There are two ways of using this property - dependent on whether you in addition define the HEIGHT property:<br>If you do NOT define the HEIGHT property then the control is rendered with exactly the number of rows that is defined as ROWCOUNT value.<br>If a HEIGHT value is defined an addition (e.g. as percentage value "100%") then the number of rows depends on the actual height of the control. The ROWCOUNT value in this case indicates the maximum number of rows that is picked from the server. You should define this value in a way that it is not too low - otherwise your grid will not be fully filled. On the other hand it should not be defined too high ("100") because this causes more communication traffic and more rendering effort inside the browser. | | |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |

| | | | |
|---|---|---|---|
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Sometimes obligatory | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| firstrowcolwidths | If set to "true" then the grid is sized according to its first row. This first row typically is a header-TR-row in which GRIDCOLHEADER controls are used as column headers for the subsequent rows.<br>Default is "false", i.e. the grid is sized according to its "whole content".<br>Please note: when using the GRIDCOLHEADER control within the header-TR-row this property must be set to "true" - otherwise column resizing (by drag and drop) does not work correctly. | Sometimes obligatory | true<br>false |
| onloadbehaviour | Loading behaviour of the items into the client.<br>"block" (=default) means that the client always requests the currently visible items from the server (=Server-Side Scrolling).<br>"collection" means that the client requests all items at the beginning from the server. | Optional | block<br>collection<br>collectionorblock |

| | | | |
|---|---|---|---|
| | The client itself implements the scrolling in the JavaScript/SWT (=Client-Side Scrolling)<br>New in CIT81: "collectionorblock" means that the runtime automicatically switches between Client-Side Scrolling and Server-Side Scrolling. | | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| withborder | If set to "false" then no thin border is drawn around the controls that are contained in the grid.<br>Default is "true". | Optional | true<br>false |
| hscroll | Definition of the horizontal scrollbar's appearance.<br>You can define that the scrollbars only are shown if the content is exceeding the control's area ("auto"). Or scrollbars can be shown always ("scroll"). Or scrollbars are never shown - and the content is cut ("hidden").<br>Default is "auto". | Optional | auto<br>scroll<br>hidden |
| vscroll | Definition of the vertical scrollbar's appearance.<br>You can define that scrollbars only are shown if the content is exceeding the control's area ("auto"). Or scrollbars can be shown always ("scroll"). Or scrollbars are never shown - and the content is cut ("hidden").<br>Default is "auto". | Optional | auto<br>scroll<br>hidden |
| firstrowcolwidths | (already explained above) | | |
| clipboardaccess | If switched to true then the content of the grid can be selected and exported into the client's clipboard. | Optional | true<br>false |
| withblockscrolling | If switched to "true" then the grid will show small scroll icons by which the user can scroll the grid's content. Scrolling typically is done by using the grid's | Optional | true<br>false |

| | | | |
|---|---|---|---|
| | scrollbar - the scroll icons that are switched on by this property are an additional possibility to scroll. | | |
| touchpadinput | If set to "true" then touch screen icons for scrolling are displayed in addition.<br>Default is "false". | Optional | true<br>false |
| requiredheight | Minimum height of the control in pixels. Use this property to ensure a minimum height if the overall control's height is a percentage of the available space - i.e. if value of property HEIGHT is a percentage (e.g. 100%).<br>Please note:You must not use FIXLAYOUT at the surrounding row container (ITR and ROWAREA). Otherwise: if the available space is less than the required height the end of the control is just cut off. | Optional | 1<br>2<br>3<br>int-value |
| tablestyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| darkbackground | Normally the background is in light colour but the CIS style sheets also have a dark(er) grey colour to be used.<br>If DARKBACKGROUND is set to true then the darker background colour is chosen. This property typically is used | Optional | true<br>false |

| | | | |
|---|---|---|---|
| | to integrate light coloured controls into darker container areas. | | |
| invisiblemodeincompletelastrow | If set to "invisible" an incomplete last row is not shown. | Optional | invisible<br>visible |
| withsliderfreeze | Setting this to "true" prevents unwisched slider jumps while scrolling up/down in a grid with a huge number of lines (for example 20000). | Optional | true<br>false |
| Binding | | | |
| oncontextmenumethod | Name of the event that is sent to the adapter when the user presses the right mouse button in the grid, but not on an existing row, but in an empty area of the grid. | Optional | |
| fwdtabkeymethod | Name of the event that is sent to the adapter when the user presses the TAB key within the very last cell of the grid (last cell within the last line). Use property FWDTABKEYFILTER to associate this call with a grid column. | Optional | |
| fwdtabkeyfilter | By default the FWDTABKEYMETHOD is called if the user presses the TAB key within the veryfirst cell of the grid. Input the name of a cell's VALUEPROP to associate the method call with any other column. | Optional | |
| bwdtabkeymethod | Name of the event that is sent to the adapter when the user presses SHIFT and TAB keys within the first cell of a grid line. Use property BWDTABKEYFILTER to associate this call with a cell of choice. | Optional | |
| bwdtabkeyfilter | By default the BWDTABKEYMETHOD is called if the user presses the SHIFT and TAB keys within the very first cell of the grid. Input the name of a cell's VALUEPROP to associate the method call with any other column. | Optional | |
| Hot Keys | | | |
| hotkeys | Comma separated list of hot keys. A hotkey consists of a list of keys and a method name. Separate the keys by "-" and the method name again with a comma | Optional | |

| | | | |
|---|---|---|---|
| | Example:<br>ctrl-alt-65;onCtrlAltA;13;onEnter ...defines two hot keys. Method onCtrlAltA is invoked if the user presses Ctrl-Alt-A. Method "onEnter" is called if the user presses the ENTER key.<br>Use the popup help within the Layout Painter to input hot keys. | | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |

## STR Properties

STR (selectable table row) is a normal table row (TR) that highlights its background depending on an adapter property.

| | | | |
|---|---|---|---|
| Basic | | | |
| valueprop | Name of the adapter parameter that defines if the row is selected or not. | Obligatory | |
| withalterbackground | Flag that indicates if the grid line shows alternating background color (like rows within a textgrids). Default is false. Please note: controls inside the row must have transparent background. In case of the FIELD control simply set property TRANSPARENTBACKGROUND to true. | Optional | true<br>false |
| showifempty | Flag that indicates if an unused row is visible. Example: if set to false a grid with rowcount ten and a server side collection size of seven will hide the three remaining rows.<br>Default is false. | Optional | true<br>false |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Binding | | | |
| valueprop | (already explained above) | | |
| onclickmethod | Name of the event that is sent to the adapter when the user clicks a line. | Optional | |
| ondblclickmethod | Name of the event that is sent to the adapter when the user double clicks a line. | Optional | |
| contextmenumethod | Name of the event that is sent to the adapter when the user presses the right mouse button in an empty area. | Optional | |
| proprefprop | Name of the adapter parameter that is filled when the user clicks a FIELD control. The VALUEPROP of the clicked field control will passed. | Optional | |
| backgroundcolorprop | Name of the adapter parameter that dynamically provides the background color for this control. | Optional | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group | Optional | |

| | | | |
|---|---|---|---|
| | structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | | |
| njx:natcv | Name of a Natural control variable that shall be assigned to the control. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |

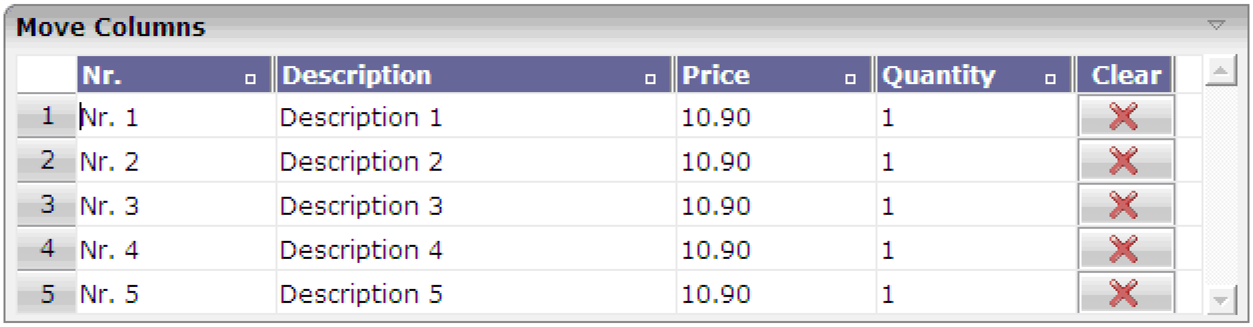
# 99 FLEXLINE - Flexible Columns in Control Grids

- Example ........ 714
- Adapter Interface ........ 716
- ATTRIBUTES ........ 716
- FLEXLINE Properties ........ 716

The FLEXLINE control offers the option to define the columns of a grid dynamically at runtime. That is: the application decides at runtime which column controls to use with which properties.

## Example

The following example shows a ROWTABLEAREA2 control containing a FLEXLINE control:



Move Columns

|  | Nr. | Description | Price | Quantity | Clear |
|---|---|---|---|---|---|
| 1 | Nr. 1 | Description 1 | 10.90 | 1 | ✗ |
| 2 | Nr. 2 | Description 2 | 10.90 | 1 | ✗ |
| 3 | Nr. 3 | Description 3 | 10.90 | 1 | ✗ |
| 4 | Nr. 4 | Description 4 | 10.90 | 1 | ✗ |
| 5 | Nr. 5 | Description 5 | 10.90 | 1 | ✗ |

The XML layout definition is:

```
<rowarea name="Move Columns">
  <rowtablearea2 griddataprop="lines" rowcount="5"
  width="100%" firstrowcolwidths="true">
    <tr>
      <label width="30" asplaintext="true"></label>
      <flexline infoprop="headerFL"></flexline>
      <hdist width="100%"></hdist>
    </tr>
    <repeat>
      <str valueprop="lineSelected">
        <selector valueprop="lineSelected" width="30"></selector>
        <flexline infoprop="/contentFL"></flexline>
        <hdist width="100%"></hdist>
        <xcidatadef dataprop="nr" clientdata="true"></xcidatadef>
        <xcidatadef dataprop="description" clientdata="true"></xcidatadef>
        <xcidatadef dataprop="price" clientdata="true"></xcidatadef>
        <xcidatadef dataprop="quantity" clientdata="true"></xcidatadef>
      </str>
    </repeat>
  </rowtablearea2>
</rowarea>
```

The grid uses two FLEXLINE controls: One for the grid headers and one for the grid lines. The controls to be used for the columns in a line are completely defined dynamically at runtime. The FLEXLINE control for the grid headers is dynamically filled with GRIDCOLHEADER controls at runtime. Therefore, all features of the GRIDCOLHEADER control (such as moving and resizing columns) are available in the grid.

The FLEXLINE control "headerFL", which is used for the headline of the table, binds to the following Natural data structure:

```
1 HEADERFL (1:*)
2 ATTRIBUTES (A) DYNAMIC
2 CONTROL (A) DYNAMIC
2 VALUEPROP (A) DYNAMIC
2 WIDTH (A) DYNAMIC
```

The FLEXLINE control "/contentFL" (note the initial slash which must be used for controls inside a grid), which is used for the lines of the table, binds to the following Natural data structure:

```
1 CONTENTFL (1:*)
2 ATTRIBUTES (A) DYNAMIC
2 CONTROL (A) DYNAMIC
2 VALUEPROP (A) DYNAMIC
2 WIDTH (A) DYNAMIC
```

As `CONTROL` value, the name of the control is passed. Valid values are:

BUTTON
CHECKBOX
COMBODYN2
DATEINPUT
FIELD
GRIDCOLHEADER
ICON
IMAGEOUT
METHODLINK
TEXT
TEXTOUT
TOGGLE

The `WIDTH` value must be set for all controls. The allowed values depend on the specific control.

If the control has a `valueprop` property, the field `VALUEPROP` must contain the name of the `valueprop` for this control. For GRIDCOLHEADER, the `VALUEPROP` must contain the value of the `propref` property.

`ATTRIBUTES` contains additional control properties that you want to use for the control as a semicolon-separated list of name-value pairs. Instead of defining the properties for a control at design time in the Layout Painter, you now pass them dynamically at runtime. Example for the FIELD control: "noborder;true".

The `VALUEPROP` value defined in the `CONTENTFL` data structure refers to elements of the `LINES` data structure. In the following example, the property "nr" is defined as element of the `LINES` data structure using the XCIDATADEF control.

```
EDITLINE.CONTROL(1):="field"
EDITLINE.VALUEPROP(1):="nr"
EDITLINE.WIDTH(1):="100%"
COMPRESS "noborder;true;transparentbackground;true" INTO CONTENTFL.ATTRIBUTES(1)" ↩
LEAVING NO SPACE
```

## Adapter Interface

In the parameter data area of the adapter, the grid data is represented by the following data structure:

```
1 CONTENTFL (1:*)
2 ATTRIBUTES (A) DYNAMIC
2 CONTROL (A) DYNAMIC
2 VALUEPROP (A) DYNAMIC
2 WIDTH (A) DYNAMIC
```

## ATTRIBUTES

As you can see in the above example, the properties of the controls are passed as a comma-separated string value of the `ATTRIBUTES` data field. If one of the property values contains a semicolon (;) itself, you must use a backslash followed by a semicolon (\;) in the property value. Example for edit mask properties in a FIELD control: "datatype;P5.2\;999.99".

You can use and combine any properties that are available for the controls with the exception of the `njx:*` properties (such as `njx:natname` or `njx:natcomment`). The `njx:*` properties are used to adapt the code generation of the corresponding Natural adapter code. Since no Natural adapter code is generated at runtime, these properties cannot be used in the `ATTRIBUTES` data field of the FLEXLINE control.

## FLEXLINE Properties

| Basic | | | |
|---|---|---|---|
| infoprop | Name of the adapter parameter that represents the control in the adapter. | Obligatory | |
| withborder | Flag that indicates if a border is drawn between the controls that are rendered inside the FLEXLINE control. Default is "false", i.e. no border is drawn. | Optional | true<br>false |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

| | | | |
|---|---|---|---|
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |

# 100 MGDGRID - Managing the Grid

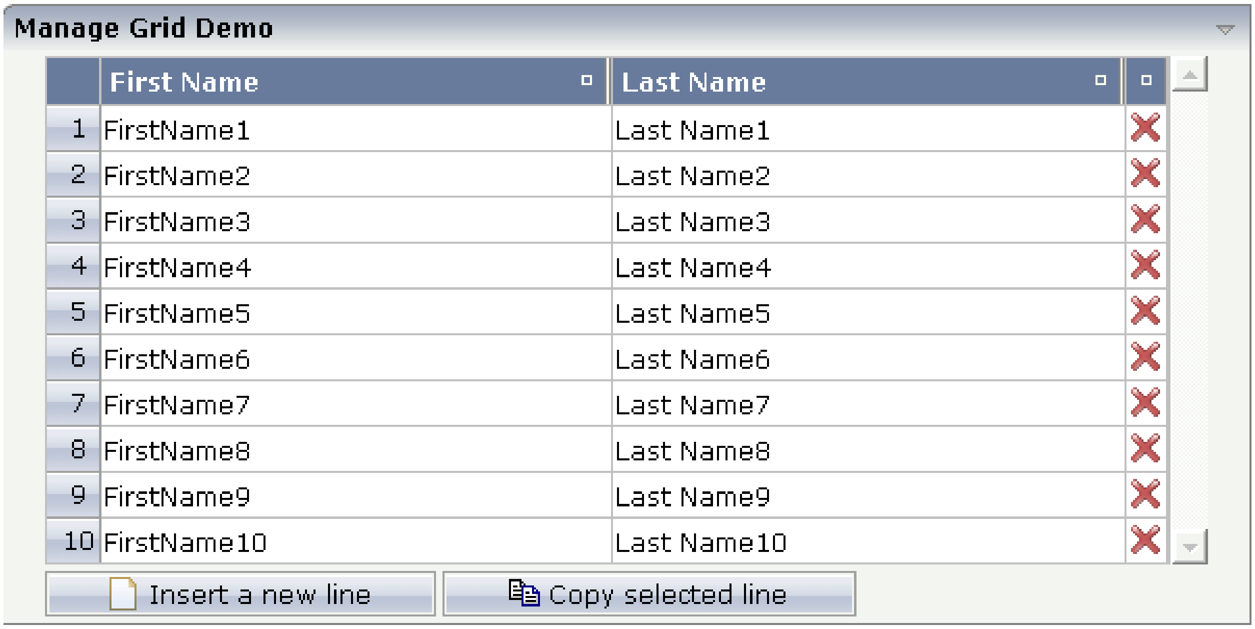
- Example ........ 721
- Adapter Interface ........ 722
- Built-in Events ........ 723
- MGDGRID Properties ........ 723
- ROWINSERT Properties ........ 728
- ROWCOPY Properties ........ 728
- ROWDELETE Properties ........ 729

The MGDGRID control is an extension of the **ROWTABLEAREA2** control. It allows to insert, copy and delete rows of the grid.

Like the ROWTABLEAREA2 control, the MGDGRID control supports server-side scrolling and sorting. This concept is explained in *Server-Side Scrolling and Sorting*. An example for the usage of server-side scrolling and sorting with the ROWTABLEAREA2 control is contained in the example library SYSEXNJX. The same example can be used to illustrate the usage of server-side scrolling and sorting with the MGDGRID control.

See also ***STR Properties*** which are described with the ROWTABLEAREA2 control.

## Example



| | First Name | Last Name | |
|---|---|---|---|
| 1 | FirstName1 | Last Name1 | ✗ |
| 2 | FirstName2 | Last Name2 | ✗ |
| 3 | FirstName3 | Last Name3 | ✗ |
| 4 | FirstName4 | Last Name4 | ✗ |
| 5 | FirstName5 | Last Name5 | ✗ |
| 6 | FirstName6 | Last Name6 | ✗ |
| 7 | FirstName7 | Last Name7 | ✗ |
| 8 | FirstName8 | Last Name8 | ✗ |
| 9 | FirstName9 | Last Name9 | ✗ |
| 10 | FirstName10 | Last Name10 | ✗ |

There is a grid that contains a header row and 10 lines. Each line contains two fields and a “delete row” control.

Each of the function controls (insert, copy, delete) can be added at the top of the MGDGRID, below the MGDGRID or within the lines of the MGDGRID.

Look at the corresponding layout definition:

```
<rowarea name="Manage Grid Demo">
  <mgdgrid griddataprop="mglines" rowcount="10" width="100%" firstrowcolwidths="true">
    <tr>
      <label name="  " width="25" asheadline="true">
      </label>
      <gridcolheader name="First Name" width="50%">
      </gridcolheader>
      <gridcolheader name="Last Name" width="50%" >
      </gridcolheader>
      <gridcolheader width="20">
      </gridcolheader>
      <hdist></hdist>
    </tr>
    <repeat>
      <str valueprop="selected" showifempty="true">
        <selector valueprop="selected" singleselect="true">
        </selector>
        <field valueprop="fname" width="100%">
        </field>
        <field valueprop="lname" width="100%">
        </field>
        <rowdelete>
        </rowdelete>
      </str>
    </repeat>
    <mgdfunctions>
      <rowinsert title="Insert a new line">
      </rowinsert>
      <rowcopy title="Copy selected line">
      </rowcopy>
    </mgdfunctions>
  </mgdgrid>
</rowarea>
```

The MGDGRID control is an extension to the ROWTABLEAREA2 control. See the description of the **ROWTABLEAREA2** control for further information.

## Adapter Interface

In the parameter data area of the adapter, the grid data is represented by the following data structure:

```
1 MGLINES (1:*)
2 FNAME (U) DYNAMIC
2 LNAME (U) DYNAMIC
2 SELECTED (L)
```

If the grid has been configured for server-side scrolling and sorting, the data structure contains additional fields that control server-side scrolling and sorting (see below). In order to use server-side scrolling and sorting, set the property `natsss` in NATPAGE to "true".

```
1 MGLINES (1:*)
2 FNAME (U) DYNAMIC
2 LNAME (U) DYNAMIC
2 SELECTED (L)
1 LINESINFO
2 ROWCOUNT (I4)
2 SIZE (I4)
2 SORTPROPS (1:*)
3 ASCENDING (L)
3 PROPNAME (U) DYNAMIC
2 TOPINDEX (I4) ↩
```

## Built-in Events

*value-of-griddataprop*.onCtrlSelect
*value-of-griddataprop*.onSelect
*value-of-griddataprop*.onShiftSelect
*value-of-griddataprop*.onSort
*value-of-griddataprop*.onTopindexChanged

## MGDGRID Properties

| Basic | | | |
|---|---|---|---|
| griddataprop | Name of the adapter parameter that represents the control in the adapter. | Obligatory | |
| rowcount | Number of rows that is renderes inside the control.<br>There are two ways of using this property - dependent on whether you in addition define the HEIGHT property:<br>If you do NOT define the HEIGHT property then the control is rendered with exactly the number of rows that is defined as ROWCOUNT value.<br>If a HEIGHT value is defined an addition (e.g. as percentage value "100%") then the number of rows depends on the actual height of the control. The ROWCOUNT value in this case indicates the maximum number of rows that is picked from the server. You should define this value in a way that it is not too low - otherwise your grid will not be fully filled. On the other hand it should not be defined too high ("100") because this causes more communication traffic and more rendering effort inside the browser. | Optional | |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content. | Optional | 100<br>150<br>200<br>250<br>300 |

| | | | |
|---|---|---|---|
| | (B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | 250<br>400<br>50%<br>100% |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Sometimes obligatory | 100<br>120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| firstrowcolwidths | If set to "true" then the grid is sized according to its first row. This first row typically is a header-TR-row in which GRIDCOLHEADER controls are used as column headers for the subsequent rows.<br>Default is "false", i.e. the grid is sized according to its "whole content".<br>Please note: when using the GRIDCOLHEADER control within the header-TR-row this property must be set to "true" - otherwise column resizing (by drag and drop) does not work correctly. | Sometimes obligatory | true<br>false |

| | | | |
|---|---|---|---|
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| withborder | If set to "false" then no thin border is drawn around the controls that are contained in the grid.<br>Default is "true". | Optional | true<br>false |
| hscroll | Definition of the horizontal scrollbar's appearance.<br>You can define that the scrollbars only are shown if the content is exceeding the control's area ("auto"). Or scrollbars can be shown always ("scroll"). Or scrollbars are never shown - and the content is cut ("hidden").<br>Default is "auto". | Optional | auto<br>scroll<br>hidden |
| vscroll | Definition of the vertical scrollbar's appearance.<br>You can define that scrollbars only are shown if the content is exceeding the control's area ("auto"). Or scrollbars can be shown always ("scroll"). Or scrollbars are never shown - and the content is cut ("hidden").<br>Default is "auto". | Optional | auto<br>scroll<br>hidden |
| firstrowcolwidths | (already explained above) | | |
| clipboardaccess | If switched to true then the content of the grid can be selected and exported into the client's clipboard. | Optional | true<br>false |
| withblockscrolling | If switched to "true" then the grid will show small scroll icons by which the user can scroll the grid's content. Scrolling typically is done by using the grid's scrollbar - the scroll icons that are switched on by this property are an additional possibility to scroll. | Optional | true<br>false |
| touchpadinput | If set to "true" then touch screen icons for scrolling are displayed in addition.<br>Default is "false". | Optional | true<br>false |
| requiredheight | Minimum height of the control in pixels. Use this property to ensure a minimum height if the overall control's height is a percentage of the available space - i.e. if value of property HEIGHT is a percentage (e.g. 100%). | Optional | 1<br>2<br>3<br>int-value |

| | | | |
|---|---|---|---|
| | Please note:You must not use FIXLAYOUT at the surrounding row container (ITR and ROWAREA). Otherwise: if the available space is less than the required height the end of the control is just cut off. | | |
| tablestyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon.<br>Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| Binding | | | |
| oncontextmenumethod | Name of the event that is sent to the adapter when the user presses the right mouse button in the grid, but not on an existing row, but in an empty area of the grid. | Optional | |
| fwdtabkeymethod | Name of the event that is sent to the adapter when the user presses the TAB key within the very last cell of the grid (last cell within the last line). Use property FWDTABKEYFILTER to associate this call with a grid column. | Optional | |
| fwdtabkeyfilter | By default the FWDTABKEYMETHOD is called if the user presses the TAB key within the veryfirst cell of the grid. Input the name of a cell's VALUEPROP to associate the method call with any other column. | Optional | |
| bwdtabkeymethod | Name of the event that is sent to the adapter when the user presses SHIFT and TAB keys within the first cell of a grid line. Use property BWDTABKEYFILTER to associate this call with a cell of choice. | Optional | |
| bwdtabkeyfilter | By default the BWDTABKEYMETHOD is called if the user presses the SHIFT and TAB keys within the very first cell of the grid. Input the name of a | Optional | |

| | | | |
|---|---|---|---|
| | cell's VALUEPROP to associate the method call with any other column. | | |
| Hot Keys | | | |
| hotkeys | Comma separated list of hot keys. A hotkey consists of a list of keys and a method name. Separate the keys by "-" and the method name again with a comma<br>Example:<br>ctrl-alt-65;onCtrlAltA;13;onEnter ...defines two hot keys. Method onCtrlAltA is invoked if the user presses Ctrl-Alt-A. Method "onEnter" is called if the user presses the ENTER key.<br>Use the popup help within the Layout Painter to input hot keys. | Optional | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |

## ROWINSERT Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| image | URL that points to the image that is shown as icon.<br>The URL either is an absolute URL or a relative URL. If using a relative URL then be aware of that the generated page is located directly inside your project's directory.<br>Example: "images/icon.gif" points to an icon in an images-folder that is parallel to the page itself. "../HTMLBasedGUI/images/new.gif" point to a URL that is located inside a different project. | Obligatory | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Binding | | | |
| visibleprop | Name of the adapter parameter that provides the information if this control is displayed or not. As consequence you can control the visibility of the control dynamically. | Optional | |
| Online Help | | | |
| title | Text that is shown as tooltip for the control.<br>Either specify the text "hard" by using this TITLE property - or use the TITLETEXTID in order to define a language dependent literal. | Optional | |
| titletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text that is used for the control. | Optional | |

## ROWCOPY Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| image | URL that points to the image that is shown as icon.<br>The URL either is an absolute URL or a relative URL. If using a relative URL then be aware of that the generated page is located directly inside your project's directory.<br>Example: "images/icon.gif" points to an icon in an images-folder that is parallel to the page itself. "../HTMLBasedGUI/images/new.gif" point to a URL that is located inside a different project. | Obligatory | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Binding | | | |

| | | | |
|---|---|---|---|
| visibleprop | Name of the adapter parameter that provides the information if this control is displayed or not. As consequence you can control the visibility of the control dynamically. | Optional | |
| Online Help | | | |
| title | Text that is shown as tooltip for the control.<br>Either specify the text "hard" by using this TITLE property - or use the TITLETEXTID in order to define a language dependent literal. | Optional | |
| titletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text that is used for the control. | Optional | |

## ROWDELETE Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| image | URL that points to the image that is shown as icon.<br>The URL either is an absolute URL or a relative URL. If using a relative URL then be aware of that the generated page is located directly inside your project's directory.<br>Example: "images/icon.gif" points to an icon in an images-folder that is parallel to the page itself. "../HTMLBasedGUI/images/new.gif" point to a URL that is located inside a different project. | Obligatory | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Binding | | | |
| visibleprop | Name of the adapter parameter that provides the information if this control is displayed or not. As consequence you can control the visibility of the control dynamically. | Optional | |
| Online Help | | | |
| title | Text that is shown as tooltip for the control.<br>Either specify the text "hard" by using this TITLE property - or use the TITLETEXTID in order to define a language dependent literal. | Optional | |
| titletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text that is used for the control. | Optional | |

# 101 GRIDCOLHEADER - Flexible Column Headers

- Flexible Column Sizing ........ 732
- Flexible Column Sorting ........ 734
- GRIDCOLHEADER Properties ........ 735
- Smart Selection of Rows - SELECTOR Control ........ 738
- SELECTOR Properties ........ 739

In the example introducing the ROWTABLEAREA2 control, the header of the grid was built by arranging certain LABEL controls, where the LABEL controls where rendered as headers:

```
<rowtablearea2 griddataprop="lines" rowcount="10" withborder="true" width="100%">
    <tr>
        ...
        <label name="First Name" asheadline="true">
        </label>
        ...
    </tr>
    <repeat>
...
...
...
```

It is also possible to use the GRIDCOLHEADER control in order to define the header of a grid. The advantages are:

- GRIDCOLHEADER controls are automatically rendered in “header style”.
- GRIDCOLHEADER controls allow to sort the grid content.
- GRIDCOLHEADER controls allow to resize a grid.

## Flexible Column Sizing

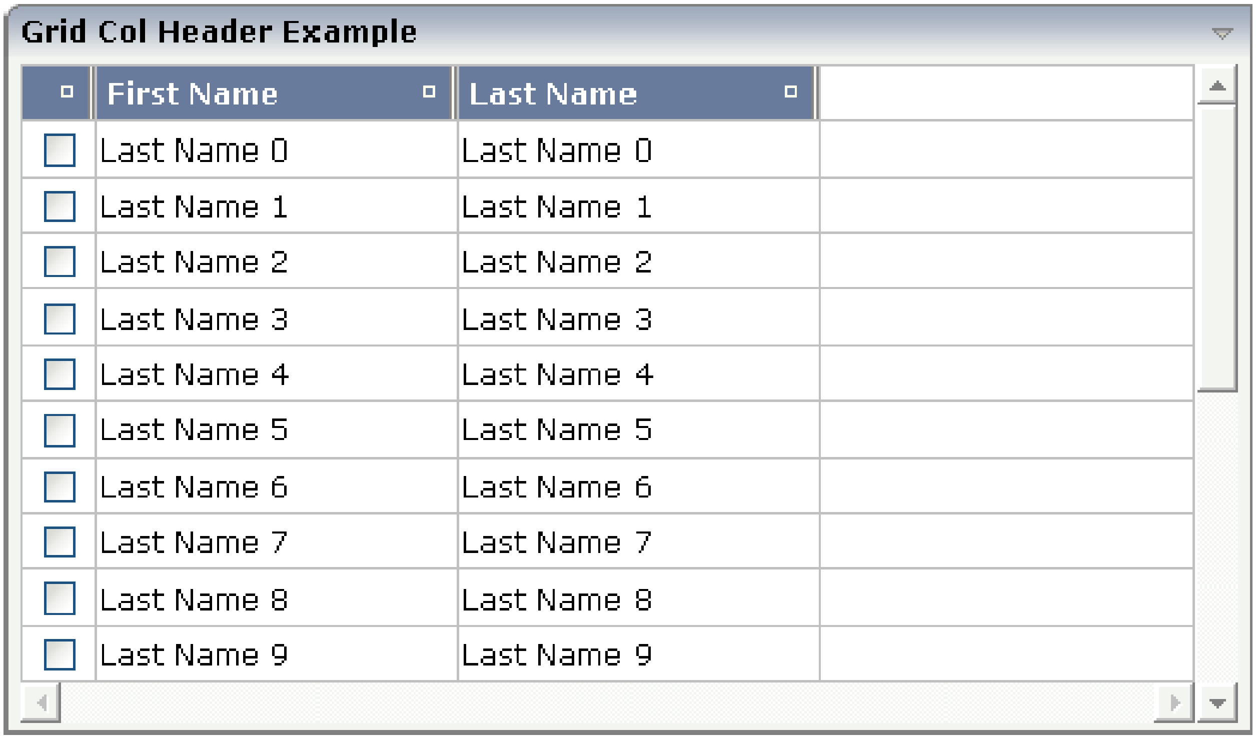
Let us have a look on the following grid definition:

```
<rowarea name="Grid Col Header Example">
   <rowtablearea2 griddataprop="lines" rowcount="10" width="100%" withborder="true"
                   hscroll="true" firstrowcolwidths="true">
        <tr>
            <gridcolheader name=" " width="30">
            </gridcolheader>
            <gridcolheader name="First Name" width="150">
            </gridcolheader>
            <gridcolheader name="Last Name" width="150">
            </gridcolheader>
            <hdist>
            </hdist>
        </tr>
        <repeat>
            <str valueprop="selected">
                <checkbox valueprop="selected" flush="screen" width="100%" ↩
align="center">
                </checkbox>
                <field valueprop="firstName" width="100%" noborder="true"
                       transparentbackground="true">
                </field>
                <field valueprop="lastName" width="100%" noborder="true"
                       transparentbackground="true">
                </field>
                <hdist>
                </hdist>
            </str>
        </repeat>
    </rowtablearea2>
</rowarea>
```

You see:

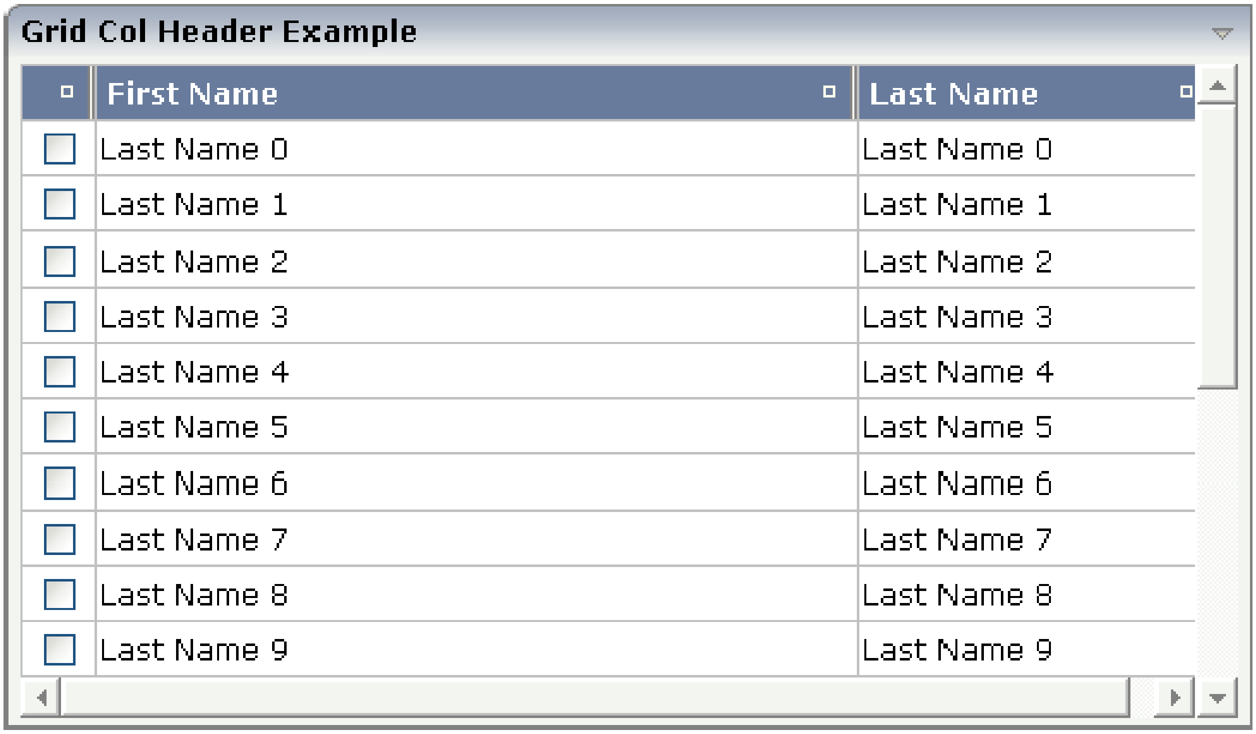
- The ROWTABLEAREA2 definition was set to always follow the column widths of the first row. The first row of the grid is the row containing the GRIDCOLHEADER controls, this means that this row defines the column sizing for the whole grid.
- The header row of the grid is built out of GRIDCOLHEADER controls, each one specifying a name and a width.
- The header row is closed with an horizontal distance.This is quite important: if your column widths do not horizontally fill the grid, then the remaining space is typically equally distributed among the columns. Even if GRIDCOLHEADER specifies a certain width, this may still be overridden by the browser. A horizontal distance control (HDIST) at the end makes the browser assign the remaining space to the distance control, not to the GRIDCOLHEADER controls.

When the user moves the mouse over the border of the header columns, then the cursor will change and the user can change the width of the columns:



Grid Col Header Example

| □ | First Name □ | Last Name □ | |
|---|---|---|---|
| □ | Last Name 0 | Last Name 0 | |
| □ | Last Name 1 | Last Name 1 | |
| □ | Last Name 2 | Last Name 2 | |
| □ | Last Name 3 | Last Name 3 | |
| □ | Last Name 4 | Last Name 4 | |
| □ | Last Name 5 | Last Name 5 | |
| □ | Last Name 6 | Last Name 6 | |
| □ | Last Name 7 | Last Name 7 | |
| □ | Last Name 8 | Last Name 8 | |
| □ | Last Name 9 | Last Name 9 | |



Grid Col Header Example

| ▫ | First Name ▫ | Last Name ▫ |
|---|---|---|
| □ | Last Name 0 | Last Name 0 |
| □ | Last Name 1 | Last Name 1 |
| □ | Last Name 2 | Last Name 2 |
| □ | Last Name 3 | Last Name 3 |
| □ | Last Name 4 | Last Name 4 |
| □ | Last Name 5 | Last Name 5 |
| □ | Last Name 6 | Last Name 6 |
| □ | Last Name 7 | Last Name 7 |
| □ | Last Name 8 | Last Name 8 |
| □ | Last Name 9 | Last Name 9 |

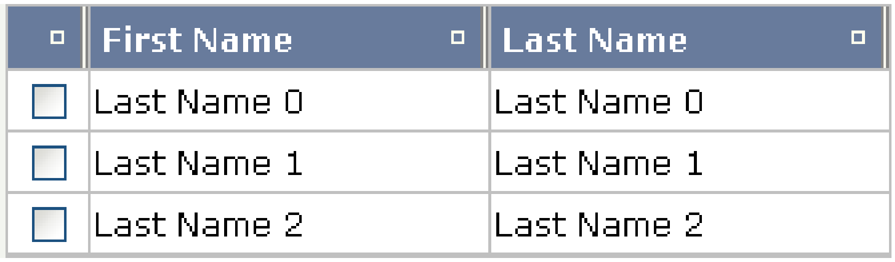
## Flexible Column Sorting

The GRIDCOLHEADER allows to bind to a property which is used for sorting. The XML definition of the previous example was extended to demonstrate this:

```
<rowarea name="Grid Col Header Example">
   <rowtablearea2 griddataprop="lines" rowcount="10" width="100%" withborder="true"
                  hscroll="true" firstrowcolwidths="true">
       <tr>
           <gridcolheader name=" " width="30" propref="selected">
           </gridcolheader>
           <gridcolheader name="First Name" width="150" propref="firstName">
           </gridcolheader>
           <gridcolheader name="Last Name" width="150" propref="lastName">
           </gridcolheader>
           <hdist>
           </hdist>
       </tr>
       <repeat>
           <str valueprop="selected">
               <checkbox valueprop="selected" flush="screen" width="100%" ↩
align="center">
               </checkbox>
               <field valueprop="firstName" width="100%" noborder="true"
                      transparentbackground="true">
```

```
                </field>
                <field valueprop="lastName" width="100%" noborder="true"
                       transparentbackground="true">
                </field>
                <hdist>
                </hdist>
            </str>
        </repeat>
    </rowtablearea2>
</rowarea>
```

Each GRIDCOLHEADER control now points to the property that is referenced in the subsequent FIELD/CHECKBOX definition. The control now displays small sort icons. The user can sort the information by choosing the icon.



| □ | First Name □ | Last Name □ |
|---|---|---|
| ☐ | Last Name 0 | Last Name 0 |
| ☐ | Last Name 1 | Last Name 1 |
| ☐ | Last Name 2 | Last Name 2 |

## GRIDCOLHEADER Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| name | Text that is displayed inside the control. Please do not specify the name when using the multi language management - but specify a "textid" instead. | Sometimes obligatory | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Sometimes obligatory | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control | Obligatory | 100<br>120<br>140<br>160<br>180<br>200<br>50% |

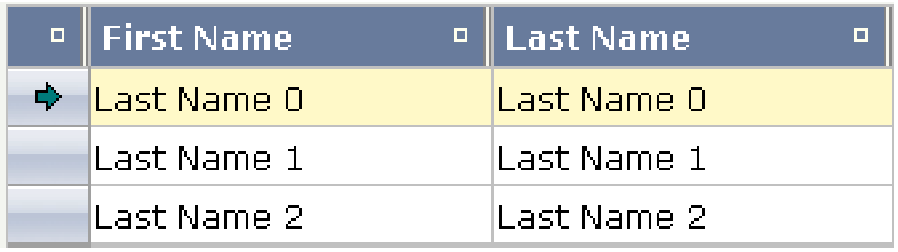
| | | | |
|---|---|---|---|
| | can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | 100% |
| propref | If the grid column visualizes data input the name of the property here. This property is located within the row item class. Example: if you use a FIELD or CHECKBOX control input the value of property VALUEPROP here. If the grid column does not visualize any data (e.g. you use a BUTTON control) input an unique column identifier. The PROPREF property is used as key when flushing 'column change events' to the application. | Optional | |
| Appearance | | | |
| title | Text that is shown as tooltip for the control.<br>Either specify the text "hard" by using this TITLE property - or use the TITLETEXTID in order to define a language dependent literal. | Optional | |
| titletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text that is used for the control. | Optional | |
| withsorticon | Flag that indicates if a small sort indicator is shown within the right corner of the control. Default is TRUE. | Optional | true<br>false |
| image | URL of image that is displayed inside the control. Any image type (.gif, .jpg, ...) that your browser does understand is valid.<br>Use the following options to specify the URL:<br>(A) Define the URL relative to your page. Your page is generated directly into your project's folder. Specifiying "images/xyz.gif" will point into a directory parallel to your page. Specifying "../HTMLBasedGUI/images/new.gif" will point to an image of a neighbour project.<br>(B) Define a complete URL, like "http://www.softwareag.com/images/logo.gif". | Optional | |
| nowrap | The textual content of the header is not wrapped automatically. No line break will be performed automatically by the browser. If you want the text of the header to be wrapped, set the value to "false". | Optional | true<br>false |
| stylevariant | Some controls offer the possibility to define style variants. By this style variant you can address different styles inside your style sheet definition file (.css). If not defined "normal" styles are chosen, if defined (e.g. "VAR1") then other style definitions (xxxVAR1xxx) are chosen.<br>Purpose: you can set up style variants in the style sheet defintion and use them multiple times by addressing them via the "stylevariant" property. CIS currently offerst two variants "VAR1" | Optional | VAR1<br>VAR2<br>VAR3<br>VAR4 |

| | | | |
|---|---|---|---|
| | and "VAR2" but does not predefine any semantics behind - this is up to you! | | |
| sorttitle | Text that is shown as tooltip for the sort indicator.<br>Either input text by using this SORTTITLE property - or use the SORTTITLETEXTID in order to define a language dependent literal. | Optional | |
| sorttitletextid | Text ID that is passed to the multi lanaguage management - representing the tooltip text for the sort indicator. | Optional | |
| movablecol | Set this attribute to TRUE if you want the columns to be movable at runtime. Default is FALSE. Please notice that only specific controls like FIELD in a grid support movable columns. | Optional | true<br>false |
| textalign | Alignment of text inside the control. | Optional | left<br>center<br>right |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1<br>2<br>5<br>10<br>32767 |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default it is "1" - but you may want to define the control to span over more than one columns. | Optional | 1<br>2<br>3 |

| | | | |
|---|---|---|---|
| | The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | | 4<br>5<br>50<br>int-value |
| Binding | | | |
| visibleprop | Name of the adapter parameter that provides the information if the column is displayed or not. | Optional | |
| Comment | | | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

## Smart Selection of Rows - SELECTOR Control

By using the SELECTOR control in combination with the STR control, you can build nice looking grids in which the user can select rows. Have a look at the following screen:



| | First Name | Last Name |
|---|---|---|
| ➡ | Last Name 0 | Last Name 0 |
| | Last Name 1 | Last Name 1 |
| | Last Name 2 | Last Name 2 |

The SELECTOR control is typically is used in the leftmost column. The user can select the control with the mouse or keyboard. In case of using the control for multiple selections, the user can select mulitple rows using a combination of CTRL and click or SHIFT and click.

The SELECTOR control references a boolan property inside a row object that is representing the selection state. The XML layout definition looks as follows:

```
<rowtablearea2 griddataprop="lines" rowcount="10" width="100%" withborder="true"
               hscroll="true" firstrowcolwidths="true">
     <tr>
         <gridcolheader name=" " width="30" propref="selected">
         </gridcolheader>
         <gridcolheader name="First Name" width="150" propref="firstName">
         </gridcolheader>
         <gridcolheader name="Last Name" width="150" propref="lastName">
         </gridcolheader>
         <hdist>
         </hdist>
     </tr>
     <repeat>
         <str valueprop="selected">
             <selector valueprop="selected" width="30" withlinenum="false"
                       singleselect="false">
             </selector>
             <field valueprop="firstName" width="100%" noborder="true"
                    transparentbackground="true">
             </field>
             <field valueprop="lastName" width="100%" noborder="true"
                    transparentbackground="true">
             </field>
             <hdist>
             </hdist>
         </str>
     </repeat>
</rowtablearea2>
```

You see the following:

- STR and SELECTOR are referencing the same property `selected` so that selections done by the SELECTOR control are automatically reflected in the selections of the row.
- SELECTOR is switched to allow multiple selections.
- By using the property `withlinenum`, you specify that inside the selector no line number is output. Instead, the SELECTOR is left empty if not selected, or it displays an icon if selected.

The selector simplifies programming of the grid selection a lot. When clicking the selector control, it automatically manages the referenced selection property of all rows that are managed inside the corresponding grid collection.

## SELECTOR Properties

| Basic | | | |
|---|---|---|---|
| valueprop | Name of adapter parameter that indicates the selection status of the row the selector refers to. The value is set and get by the SELECTOR control. | Optional | |
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100"). | Optional | 100<br>120<br>140<br>160<br>180 |

| | | | |
|---|---|---|---|
| | (C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | 200<br>50%<br>100% |
| singleselect | Indicates if the multiple lines can be selected ("false") or only one line can be selected ("true"). Default is "true". | Optional | true<br>false |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Binding | | | |
| valueprop | (already explained above) | | |
| Appearance | | | |
| withlinenum | There are two usage variants: either the line number of the corresponding row is shown as content of the SELECTOR control ("true") - or nothing is shown inside ("false").<br>In case of selecting "true" then the line number is automatically retrieved, i.e. you do not have to specify a property on adapter side to indicate the value of the line number. | Optional | true<br>false |
| image | If specifying WITHLINENUM to be "false" then a small arrow icon is shown inside the control if selecting a corresponding row. Input the URL of the icon to be shown if you do not want to use the default icon.<br>If specifying WITHLINENUM to be "true" then the line number of selected lines is output in bold font. | Optional | |
| imageprop | Name of the adapter parameter which provides an image URL dynamically at runtime. The image is shown for displaying selected rows. | Optional | |
| alwaysshowicon | Flag that indicates if the selector shows its image - independent from whether the corresponding line is selected or not. With ALWAYSHOWICON you can show icons on unselected lines, too. For that specify WITHLINENUM to be "false" and use IMAGEPROP.<br>Default is "false". | Optional | true<br>false |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1<br>2<br>5 |

| | | | |
|---|---|---|---|
| | | | 10<br>32767 |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natcv | Name of a Natural control variable that shall be assigned to the control. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |
| Miscellaneous | | | |
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |

# IX Working with Trees

This part shows you how to work with trees and tree nodes. The information is organized under the following headings:

**Basics**

**TREENODE3 in Control Grid (ROWTABLEAREA2)**

**CLIENTTREE**

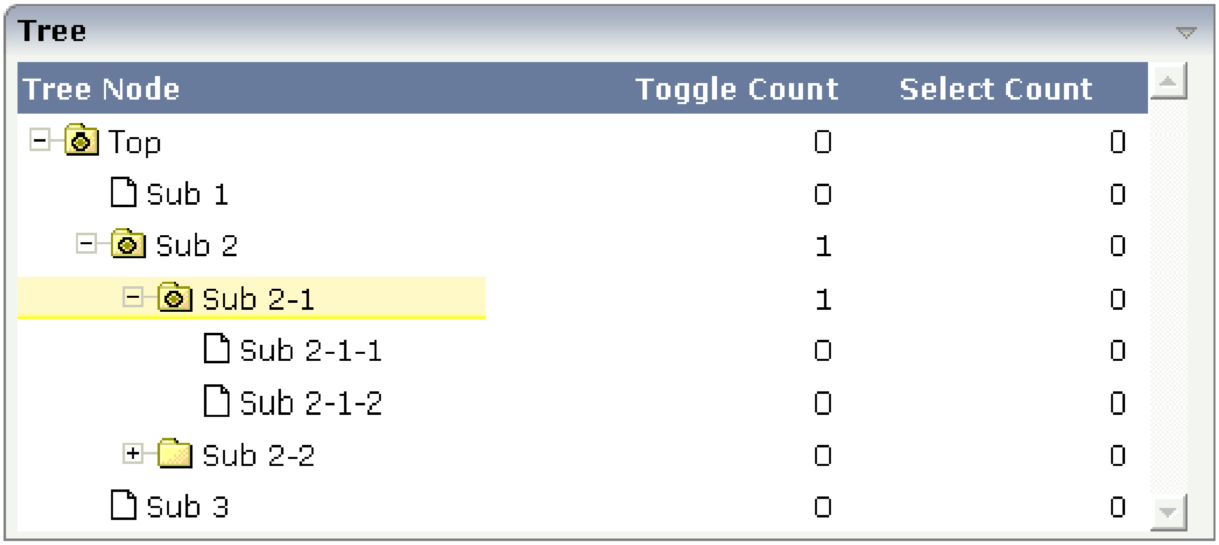
# 102 Basics

- Types of Trees ........ 746
- When to Use Which Type ........ 747

# Types of Trees

The following controls are available for building trees:

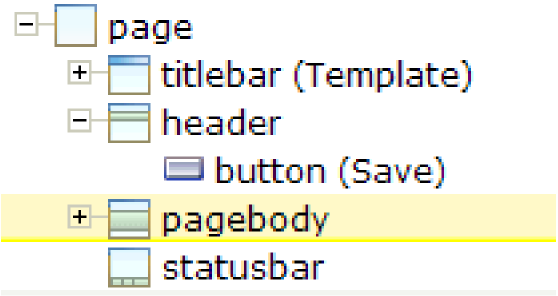
- **TREENODE3**
  This control displays a single tree node. It can be put into the normal control grid (ROWTABLEAREA2), and can consequently be combined with any other control (for example, FIELD, TEXTOUT, etc.).

  Tree

  | Tree Node | Toggle Count | Select Count |
  |---|---|---|
  | Top | 0 | 0 |
  | Sub 1 | 0 | 0 |
  | Sub 2 | 1 | 0 |
  | Sub 2-1 | 1 | 0 |
  | Sub 2-1-1 | 0 | 0 |
  | Sub 2-1-2 | 0 | 0 |
  | Sub 2-2 | 0 | 0 |
  | Sub 3 | 0 | 0 |

  Of course, you do not have to combine it with other controls. You can also use it “stand-alone” inside a ROWTABLEAREA2 grid:

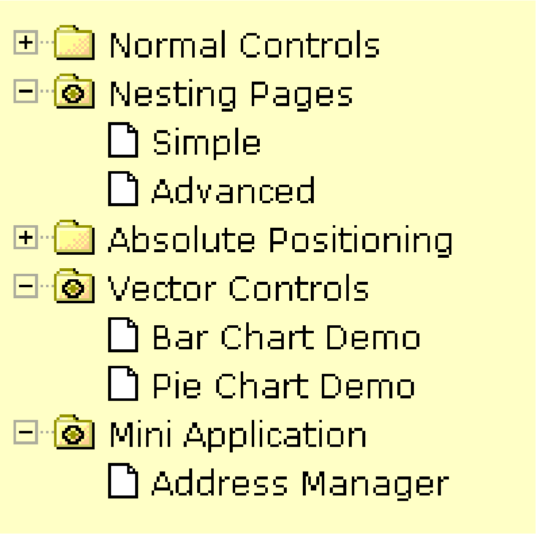
  

  - page
    - titlebar (Template)
    - header
      - button (Save)
    - pagebody
    - statusbar

  As with the normal ROWTABLEAREA2 management, only these items are transferred from the server to the client which are currently visible. Items which are collapsed or which are not in the visible area of the client, are not transferred.

  All scrolling of items and all toggling of items (opening/collapsing) goes through the server.

- **CLIENTTREE**
  This control represents a whole tree. You cannot add further controls into the tree node lines.



The data which is displayed inside the tree is transferred from the server to the client in one step - always the whole tree. The data is transferred when opening a page or when the tree data in the server is updated.

All scrolling of items and all toggling of items (opening/collapsing) is done in the client without going back to the server.

## When to Use Which Type

Use the TREENODE3 control inside the control grid ROWTABLEAREA2 in the following cases:

- High number of tree nodes.
- Tree nodes are not loaded from the beginning, but step by step.
- Data in the tree is exchanged/updated quite often.

Use the CLIENTTREE control in the following cases:

- Low number of tree nodes (100).
- High interactivity requirements for toggling nodes.
- Data in the tree is rather static. It is loaded once into the client, and afterwards it is not changed anymore.

Example: in the Application Designer environment, the tree controls are used in the following way:

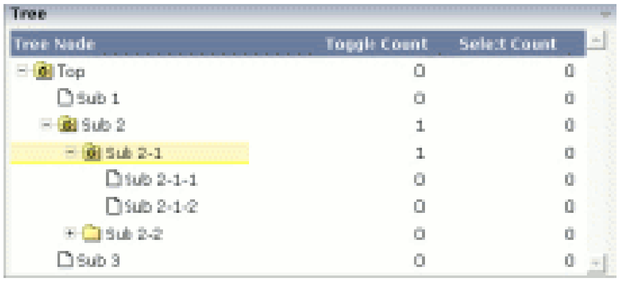
- In the workplace, a CLIENTTREE is loaded: the number of nodes is quite low, the tree represents a menu which is rather static.
- In the Layout Painter, a TREENODE2 in a ROWTABLEAREA2 is used for representing the XML control tree: the number of items can be quite high, the update rate of the tree data is very high.

# 103 TREENODE3 in Control Grid (ROWTABLEAREA2)

- Example ........ 750
- Adapter Interface ........ 751
- Built-in Events ........ 751
- Properties ........ 751

## Example

The following image shows an example for a tree management:



Tree

| Tree Node | Toggle Count | Select Count |
|---|---|---|
| Top | 0 | 0 |
| Sub 1 | 0 | 0 |
| Sub 2 | 1 | 0 |
| Sub 2-1 | 1 | 0 |
| Sub 2-1-1 | 0 | 0 |
| Sub 2-1-2 | 0 | 0 |
| Sub 2-2 | 0 | 0 |
| Sub 3 | 0 | 0 |

The grid contains three columns: the first column shows the tree node, the other two columns display some text information.

The XML layout definition is:

```
<rowarea name="Tree">
    <rowtablearea2 griddataprop="treeGridInfo" rowcount="8" width="500" ↩
withborder="false">
        <tr>
            <label name="Tree Node" width="200" asheadline="true">
            </label>
            <label name="Toggle Count" width="100" asheadline="true"
                   labelstyle="text-align:right">
            </label>
            <label name="Select Count" width="100" asheadline="true"
                   labelstyle="text-align:right">
            </label>
        </tr>
        <repeat>
            <tr>
                <treenode3 width="200" withplusminus="true"
                           imageopened="images/fileopened.gif"
                           imageclosed="images/fileclosed.gif"
                           imageendnode="images/fileendnode.gif">
                </treenode3>
                <textout valueprop="toggleCount" width="100" align="right">
                </textout>
                <textout valueprop="selectCount" width="100" align="right">
                </textout>
            </tr>
        </repeat>
    </rowtablearea2>
</rowarea>
```

You see that the TREENODE3 control is placed inside the control grid just as a normal control. There are certain properties available which influence the rendering: in the example, the name of the tree node images is statically overwritten. The flag `withplusminus` is set to true - consequently, small "+"/"-" icons are placed in front of the node.

## Adapter Interface

In the parameter data area of the adapter, the tree data is represented by the following data structure:

```
1 TREEGRIDINFO (1:*)
2 DRAGINFO (U) DYNAMIC
2 DROPINFO (U) DYNAMIC
2 LEVEL (I4)
2 OPENED (I4)
2 SELECTCOUNT (U) DYNAMIC
2 TEXT (U) DYNAMIC
2 TOGGLECOUNT (U) DYNAMIC
```

## Built-in Events

*value-of-griddataprop*.reactOnSelect
*value-of-griddataprop*.reactOnToggle

## Properties

| Basic | | | |
|---|---|---|---|
| width | Width of the control.<br>There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width | Optional | 1<br>2<br>3<br>int-value |

| | | | |
|---|---|---|---|
| | of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| withplusminus | If set to "true" then +/- Icons will be rendered in front of the tree items. | Optional | true<br>false |
| withlines | If set to "true" then the tree elements are connected with one another by gray lines.<br>Please pay attention: PAGE layouts (Java), if switching this property to "true" then you have to create the instance of your server side TREECollection object with a special constructor:<br>Example:<br>TREECollection m_tree = new TREECollection(true) | Optional | true<br>false |
| withtooltip | If set to "true" then the text of an item is also available as tool tip. Use this option in case you expect that the horizontal space of the item will not be sufficient to display the whole text of the item. | Optional | true<br>false |
| withtextinput | If set to "true" then the tree node can also be edited. Editing is started when the user double clicks the node.<br>The text that is input is passed into the property "text" which is implemented in the default NODEInfo implementation. | Optional | true<br>false |
| imageopened | Image of a tree node that has subnodes and that is currently showing its nodes. The image either is defined statically by this property or also may be defined dynamically - see the corresponding properties defined with this control. | Optional | |
| imageclosed | Image of a tree node that has subnodes and that is currently not showing its nodes. The image either is defined statically by this property or also may be defined dynamically - see the corresponding properties defined with this control. | Optional | |
| imageendnode | Image of a tree node that is an end node (leaf node). The image either is defined statically by this property or also may be defined dynamically - see the corresponding properties defined with this control. | Optional | |
| singleselect | If set to "true" then only one item can be selected. If set to "false" then multiple icons can be selected. | Optional | true<br>false |

| | | | |
|---|---|---|---|
| directselectevent | Event that represents a tree node selection. A tree node selection is done when the user clicks/doubleclicks on the tree node text. In this case the select() method is called in the corresponding node object on server side. | Optional | ondblclick<br>onclick |
| directselectelement | If set to "textonly" only user clicks on the tree node text will select the node. If set to "allspace" also user clicks outside the area occupied by the node text will select the node. | Optional | textonly<br>allspace |
| selectionstylevariant | Some controls offer the possibility to define style variants. By this style variant you can address different styles inside your style sheet definition file (.css). If not defined "normal" styles are chosen, if defined (e.g. "VAR1") then other style definitions (xxxVAR1xxx) are chosen.<br>Purpose: you can set up style variants in the style sheet defintion and use them multiple times by addressing them via the "stylevariant" property. CIS currently offerst two variants "VAR1" and "VAR2" but does not predefine any semantics behind - this is up to you! | Optional | VAR1<br>VAR2 |
| textstylevariant | Some controls offer the possibility to define style variants. By this style variant you can address different styles inside your style sheet definition file (.css). If not defined "normal" styles are chosen, if defined (e.g. "VAR1") then other style definitions (xxxVAR1xxx) are chosen.<br>Purpose: you can set up style variants in the style sheet defintion and use them multiple times by addressing them via the "stylevariant" property. CIS currently offerst two variants "VAR1" and "VAR2" but does not predefine any semantics behind - this is up to you! | Optional | VAR1<br>VAR2 |
| pixelshift | Number of pixels that each hierarchy level is indented. If not defined then a standard is used. | Optional | 1<br>2<br>3<br>int-value |
| pixelshiftendnode | Number of pixels that end nodes are indented. If not defined then a standard is used. | Optional | 1<br>2<br>3<br>int-value |
| colspan | Column spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of columns your control occupies. By default | Optional | 1<br>2 |

| | | | |
|---|---|---|---|
| | it is "1" - but you may want to define the control to span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | | 3<br>4<br>5<br>50<br>int-value |
| rowspan | Row spanning of control.<br>If you use TR table rows then you may sometimes want to control the number of rows your control occupies. By default it is "1" - but you may want to define the control two span over more than one columns.<br>The property only makes sense in table rows that are snychronized within one container (i.e. TR, STR table rows). It does not make sense in ITR rows, because these rows are explicitly not synched. | Optional | 1<br>2<br>3<br>4<br>5<br>50<br>int-value |
| pixelheight | Height of the control in pixels. | Optional | 1<br>2<br>3<br>int-value |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1<br>2<br>5<br>10<br>32767 |
| Binding | | | |
| imageprop | Name of an adapter parameter that provides for a image for the tree node.<br>Each node may provide for its own image, e.g. dependent on the type of node. | Optional | |

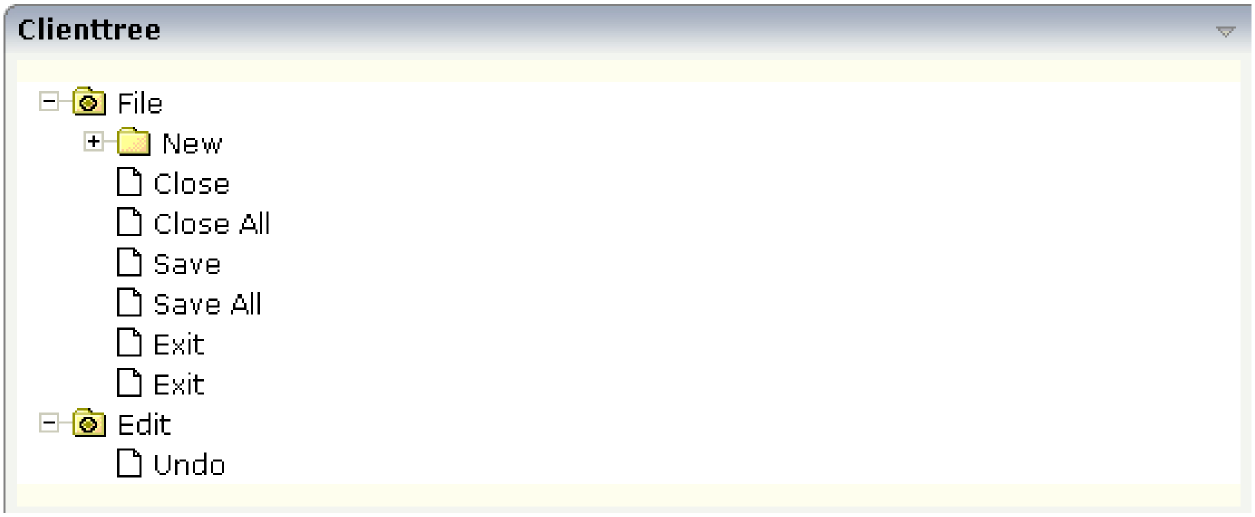
| | | | |
|---|---|---|---|
| | If the adapter property passes back an empty string, then the image is taken from the static definitions that you may parallely do by using the properties IMAGEOPENED, IMAGECLOSED and IMAGEENDNODE. | | |
| focusedprop | Name of the adapter parameter that indicates if the row receives the keyboard focus.<br>If more than one lines are returning "true", the first of them is receiving the focus. | Optional | |
| flush | Flush behaviour when using the possibility of having editable tree nodes. If double clicking on the tree node then you can edit its content. The FLUSH property defines how the browser behaves when leaving the tree node's input field:<br>If not defined ("") then nothing happens - the changed tree node text is communicated to the server side adapter object with the next roundtrip.<br>If defined as "server" then immediately when leaving the field a roundtrip to the server is initiated - in case you want your adapter logic to directly react on the item change.<br>If defined as "screen" then the changed tree node text is populated inside the page inside the front end. | Optional | screen<br>server |
| flushmethod | When the data synchronization of the control is set to FLUSH="server" then you can specify an explicit event to be sent when the user updates the content of the control. By doing so you can distinguish on the server side from which control the flush of data was triggered. | Optional | |
| tooltipprop | Name of the adapter parameter that provides for a text that is shown if the user moves the mouse over the tree item (tooltip). | Optional | |
| validdraginfosprop | Name of an adapter parameter that contains a comma separated list of valid drag informations. | Optional | |
| Drag and Drop | | | |
| enabledrag | If set to true then drag and drop is enabled within the tree. | Optional | true<br>false |

# 104 CLIENTTREE

- Example ........ 758
- Adapter Interface ........ 758
- Built-in Events ........ 759
- Properties ........ 759

## Example

The following example shows a simple client tree:



Clienttree

File<br>
New<br>
Close<br>
Close All<br>
Save<br>
Save All<br>
Exit<br>
Exit<br>
Edit<br>
Undo

The XML layout definition is:

```
<rowarea name="Clienttree">
    <clienttree treecollectionprop="tree" height="200" withplusminus="true"
                treestyle="background-color:#FEFEEE">
    </clienttree>
</rowarea>
```

In this example, the client tree is directly put as row into the ROWAREA container. The property `treecollectionprop` contains a reference to the property `tree` which contains the net data of the tree. With the property `treestyle`, an explicit background color is set.

## Adapter Interface

In the parameter data area of the adapter, the tree data is represented by the following data structure:

```
1 TREE (1:*)
2 LEVEL (I4)
2 OPENED (I4)
2 SELECTED (L)
2 TEXT (U) DYNAMIC
```

## Built-in Events

*value-of-treecollectionprop*.reactOnContextMenuRequest
*value-of-treecollectionprop*.reactOnSelect
*value-of-treecollectionprop*.reactOnToggle

## Properties

| Basic | | | |
|---|---|---|---|
| treecollectionprop | Name of the adapter parameter that represents the control in the adapter. | Optional | |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | 100<br>150<br>200<br>250<br>300<br>250<br>400<br>50%<br>100% |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| withplusminus | If set to "true" then +/- Icons will be rendered in front of the tree items. | Optional | true<br>false |

| | | | |
|---|---|---|---|
| withtooltip | If set to "true" then the text of an item is also available as tool tip. Use this option in case you expect that the horizontal space of the item will not be sufficient to display the whole text of the item. | Optional | true<br>false |
| selectionvisible | If set to "true" then the clicked item will also marked with a certain background color. The background color is defined by the style sheet settings. | Optional | true<br>false |
| singleselect | If set to "true" then only one item can be selected. If set to "false" then multiple icons can be selected. | Optional | true<br>false |
| imageopened | Image of a tree node that has subnodes and that is currently showing its nodes. The image either is defined statically by this property or also may be defined dynamically - see the corresponding properties defined with this control. | Optional | |
| imageclosed | Image of a tree node that has subnodes and that is currently not showing its nodes. The image either is defined statically by this property or also may be defined dynamically - see the corresponding properties defined with this control. | Optional | |
| imageendnode | Image of a tree node that is an end node (leaf node). The image either is defined statically by this property or also may be defined dynamically - see the corresponding properties defined with this control. | Optional | |
| treestyle | Style (following cascading style sheet definitions) that is directly passed to the background area of the client tree. You can manipulate e.g. the colour of the tree's background.<br>The style can also be set dynamically by specifying the property TREESTYLEPROP. | Optional | |
| selectionstylevariant | Some controls offer the possibility to define style variants. By this style variant you can address different styles inside your style sheet definition file (.css). If not defined "normal" styles are chosen, if defined (e.g. "VAR1") then other style definitions (xxxVAR1xxx) are chosen.<br>Purpose: you can set up style variants in the style sheet defintion and use them multiple times by addressing them via the "stylevariant" property. CIS currently offerst two variants "VAR1" and "VAR2" but does not predefine any semantics behind - this is up to you! | Optional | VAR1<br>VAR2 |
| hscroll | Definition of the horizontal scrollbar's appearance.<br>You can define that the scrollbars only are shown if the content is exceeding the control's area ("auto"). Or scrollbars can be shown always ("scroll"). Or scrollbars are never shown - and the content is cut ("hidden"). | Optional | auto<br>scroll<br>hidden |

| | | | |
|---|---|---|---|
| | Default is "auto". | | |
| pixelshift | Number of pixels that each hierarchy level is indented. If not defined then a standard is used. | Optional | 1<br>2<br>3<br>int-value |
| pixelshiftendnode | Number of pixels that end nodes are indented. If not defined then a standard is used. | Optional | 1<br>2<br>3<br>int-value |
| tabindex | Index that defines the tab order of the control. Controls are selected in increasing index order and in source order to resolve duplicates. | Optional | -1<br>0<br>1<br>2<br>5<br>10<br>32767 |
| withleftpadding | Flag that indicates if the control has a 10 pixel padding on left side. Default is true. | Optional | true<br>false |
| Binding | | | |
| treecollectionprop | (already explained above) | | |
| dynamicloading | If set to "true" then you indicate to the tree control that not all tree information may be loaded when initializing the tree (i.e. the tree collection on server side). As consequence the tree control will pass the "toggle-event" to the server - in case the subnodes of a certain nodes are not yet loaded.<br>In the case the toggle event is passed to the server, the method onToggle() is called inside the tree item. | Optional | true<br>false |
| imageopenedprop | Name of the adapter parameter that provides the image URL which is shown for opened tree nodes or end tree nodes. The value may be different from tree node to tree node. Each tree node may have an own image. | Optional | |

| | | | |
|---|---|---|---|
| imageclosedprop | Name of the adapter parameter that provides for the image URL which is shown for closed tree nodes. The value may be different from tree node to tree node. Each tree node may have an own image. | Optional | |
| treestyleprop | name of the adapter parameter that dynamically provides for a style value that is passed to the control's area (background of the client tree). You can as consequence e.g. define the background-colour of the tree dependent on your server side logic. | Optional | |
| treeclassprop | Name of the adapter parameter that passes back the name of a style sheet class that is taken to render the client tree's background area. - Similar to the property TREESTYLEPROP, but now a style class is passed, not the style itself. | Optional | |
| tooltipprop | Name of the adapter parameter that provides for a text that is shown if the user moves the mouse over the tree item (tooltip). | Optional | |
| oncontextmenumethod | Name of the event that is sent to the adapter when the user presses the right mouse button in an empty area of the client tree. | Optional | |
| directselectevent | Event that represents a tree node selection. A tree node selection is done when the user clicks/doubleclicks on the tree node text. In this case the select() method is called in the corresponding node object on server side. | Optional | ondblclick<br>onclick |
| focusedprop | Name of the adapter parameter that indicates if the row receives the keyboard focus.<br>If more than one lines are returning "true", the first of them is receiving the focus. | Optional | |
| Drag and Drop | | | |
| enabledrag | If set to true then drag and drop is enabled within the tree. | Optional | true<br>false |

# X Working with Menus

Menus are used to arrange a number of functions in a structured way.

The information provided in this part is organized under the following headings:

Types of Menus

MENU

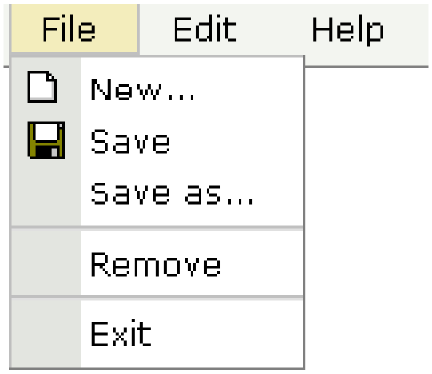
DLMENU

XCIPOPUPMENU - Enable Context Menus

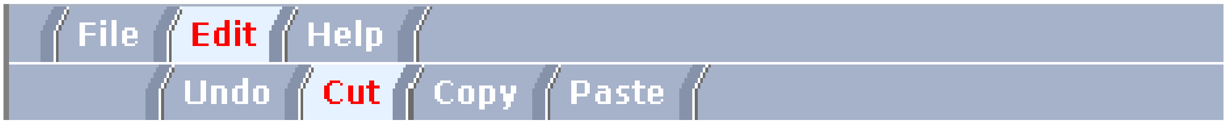
# 105 Types of Menus

The following menu controls are available:

- **MENU**
  This is the typical drop-down menu:

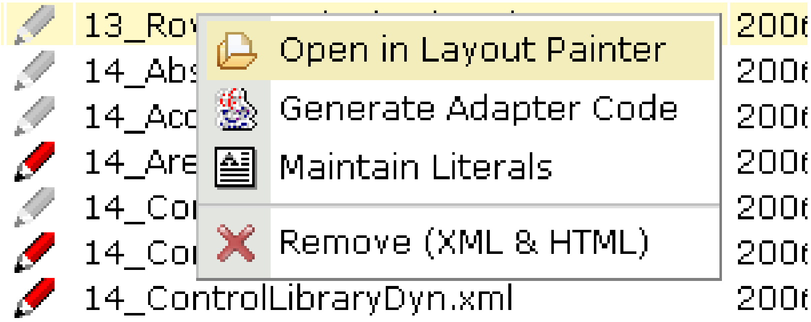


- **DLMENU**
  This is a double-line menu representing a two-level hierarchy. It can be found quite often in web applications.



  When clicking an item in the first line, the corresponding subitems are shown in the second line.

- **Context Menu**
  This is a menu which appears in certain controls (tree controls, grid controls) when the user presses the right mouse button.



All menu controls are dynamically configured by the application. This means:

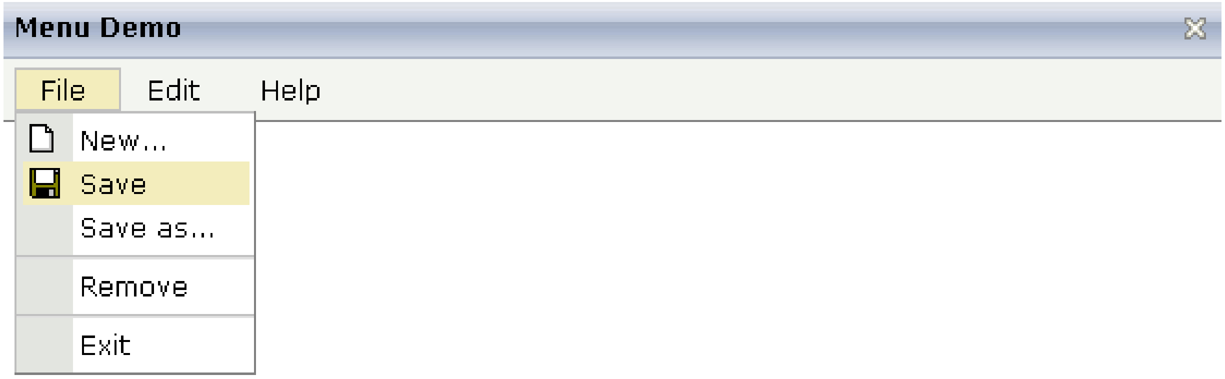
- The structure of the menu and its menu nodes is not statically defined but is dynamically controlled by the application through adapter parameters. For example, you can build a personalized menu taking the user's rights into consideration.
- Menu information can be dynamically updated during runtime.

# 106 MENU

- Example ........ 768
- Adapter Interface ........ 769
- Built-in Events ........ 769
- Properties ........ 769

## Example

The example looks as follows:



When clicking on a menu item for which a function has been defined, then the name of the function is displayed in the status bar.

The XML layout definition is:

```
<page model="Menue_01_Adapter">
    <titlebar name="Menu Demo">
    </titlebar>
    <header align="left" withdistance="false">
        <menu menucollectionprop="menuData" width="100">
        </menu>
    </header>
    <pagebody>
    </pagebody>
    <statusbar withdistance="false">
    </statusbar>
</page>
```

In this example, the menu is embedded in the header. By the property `menucollectionprop`, it is bound to the adapter property `menuData`.

## Adapter Interface

```
1 MENUDATA (1:*)
2 ID (U) DYNAMIC
2 IMAGEURL (U) DYNAMIC
2 LEVEL (I4)
2 METHOD (U) DYNAMIC
2 OPENED (I4)
2 TEXT (U) DYNAMIC
1 SELMENUITEM (U) DYNAMIC
```

## Built-in Events

items.reactOnSelect

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| menucollectionprop | Name of the adapter parameter that represents the control in the adapter. | Obligatory | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| width | Width of the control. | Optional | 100 |

| | | | |
|---|---|---|---|
| | There are three possibilities to define the width:<br>(A) You do not define a width at all. In this case the width of the control will either be a default width or - in case of container controls - it will follow the width that is occupied by its content.<br>(B) Pixel sizing: just input a number value (e.g. "100").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a width this control can reference. If you specify this control to have a width of 50% then the parent element (e.g. an ITR-row) may itself define a width of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | | 120<br>140<br>160<br>180<br>200<br>50%<br>100% |
| height | Height of the control.<br>There are three possibilities to define the height:<br>(A) You do not define a height at all. As consequence the control will be rendered with its default height. If the control is a container control (containing) other controls then the height of the control will follow the height of its content.<br>(B) Pixel sizing: just input a number value (e.g. "20").<br>(C) Percentage sizing: input a percantage value (e.g. "50%"). Pay attention: percentage sizing will only bring up correct results if the parent element of the control properly defines a height this control can reference. If you specify this control to have a height of 50% then the parent element (e.g. an ITR-row) may itself define a height of "100%". If the parent element does not specify a width then the rendering result may not represent what you expect. | Optional | |
| toggleimage | URL of the image that is shown on the right end of a menu item, if this item contains subitems. If not explicitly defined then a default icon is used. | Optional | |
| toggleimageprop | Name of the adapter parameter that provides a URL that defines the toggle image. The toggle icon is shown on the right end of a menu item that has subitems. | Optional | |
| menustyle | CSS style definition that is directly passed into this control.<br>With the style you can individually influence the rendering of the control. You can specify any style sheet expressions. Examples are:<br>border: 1px solid #FF0000<br>background-color: #808080<br>You can combine expressions by appending and separating them with a semicolon. | Optional | |

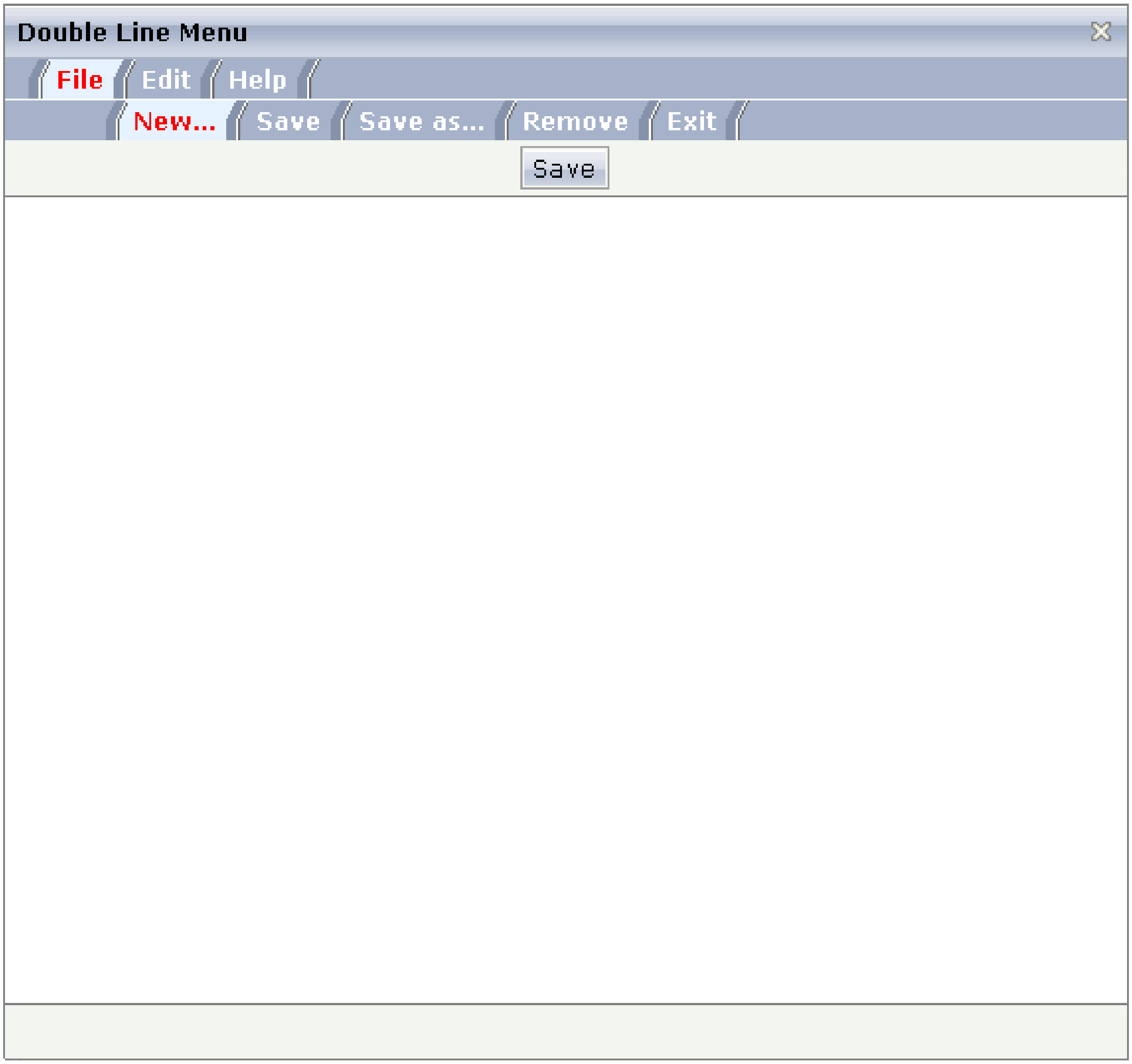
| | | | |
|---|---|---|---|
| | Sometimes it is useful to have a look into the generated HTML code in order to know where direct style definitions are applied. Press right mouse-button in your browser and select the "View source" or "View frame's source" function. | | |
| menustyleprop | Name of the adapter parameter that dynamically provides explicit style information for the control. | Optional | |

# 107 DLMENU

- Example ........ 774
- Adapter Interface ........ 775
- Built-in Events ........ 775
- Properties ........ 775

## Example

The example looks as follows:



A double-line menu is displayed. When selecting a menu item, then its text is written to the status bar.

The XML layout definition is:

```
<page model="menue_02_dl_Adapter">
    <titlebar name="Double Line Menu">
    </titlebar>
    <dlmenu menuprop="menuData">
    </dlmenu>
    <header withdistance="false">
        <button name="Save">
        </button>
    </header>
    <pagebody>
    </pagebody>
    <statusbar withdistance="false">
    </statusbar>
</page>
```

The DLMENU control is positioned directly following the title bar. In its property `menuprop`, it holds a binding to the property `menuData`.

## Adapter Interface

```
1 ITEMS (1:*)
2 LEVEL (I4)
2 METHOD (U) DYNAMIC
2 TEXT (U) DYNAMIC
```

## Built-in Events

items.onSelectSubItem

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| menuprop | Name of the adapter parameter that represents the control in the adapter. | Obligatory | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Optional | |
| align | Horizontal alignment of the control's content. | Optional | left<br>center |

| | | | |
|---|---|---|---|
| | | | right |
| onlyoneline | If set to "true" then the DLMENU control only contains its top line - there is no second line below. Default is "false". | Optional | true<br>false |
| cellseparatoronly | If set to "true" then only a very thin cell separator is added between two menu items. Otherwise the separation is rendered explicitely. | Optional | true<br>false |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Miscellaneous | | | |
| testtoolid | Use this attribute to assign a fixed control identifier that can be later on used within your test tool in order to do the object identification | Optional | |

# 108 XCIPOPUPMENU - Enable Context Menus

- Example .......... 778
- Adapter Interface .......... 779
- Built-in Events .......... 780

With an XCIPOPUPMENU control, you enable the usage of context menus on a page. The application creates the contents of the context menus dynamically at execution time, in response to certain events. There is only one instance of XCIPOPUPMENU needed in each page.

Context menus are supported on the page level and by the following controls:

- TEXTGRID2
- TEXTGRIDSSS2
- TREENODE2
- CLIENTTREE
- FIELD

The following events are raised when the user right-clicks in corresponding areas of the page:

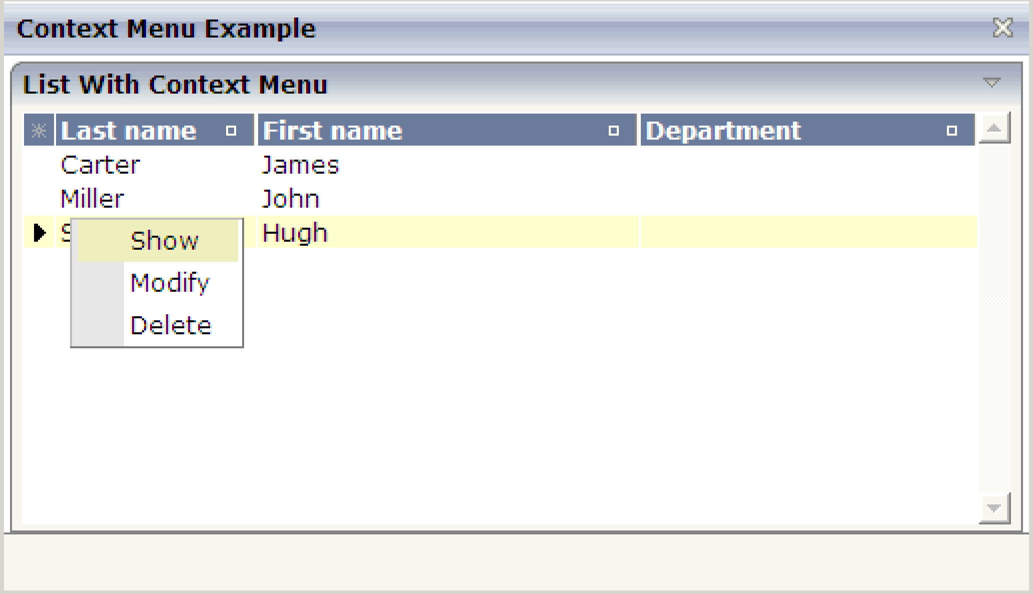
- When the user right-clicks in a non-empty line in a grid or tree, the event `value-of-griddataprop.reactOnContextMenuRequest` or `value-of-treecollectionprop.reactOnContextMenuRequest` is raised.
- When the user right-clicks in an empty line in a grid or tree, the event defined in the property `contextmenumethod` of the grid or tree is raised.
- When the user right-clicks in a FIELD control for which "myfield" has been defined with the `valueprop` property, the event `reactOnContextMenuMyfield` or the event defined in the property `contextmenumethod` of the FIELD control is raised (see the description of the FIELD control for more information on the properties `contextmenu` and `contextmenumethod`).
- When the user right-clicks elsewhere in the page, the event defined in the `contextmenumethod` of the page is raised.

In the event handler of these events, you do no have to necessarily open a context menu; you can also start other operations, if this makes sense. But in order to open a context menu, you need to fill the structure generated for the XCIPOPUPMENU control, which is described below.

If the user selects one of the context menu items, the event `xcipopupmenu.reactOnSelect` is raised.

## Example

The following screen displays a grid control with several rows. It uses the XCIPOPUPMENU control to show a context menu when the user right-clicks on a row. It shows a different context menu when the user right-clicks in an empty area of the grid and yet another one when the user right-clicks elsewhere in the page.



The XML layout definition contains the following:

```
<natpage>
    <xcipopupmenu>
    </xcipopupmenu>
...
</natpage>
```

The example Natural code is contained in the library `SYSEXNJX` as program `CTRCTX-P`.

## Adapter Interface

```
1 XCIPOPUPMENU
2 MENUNODE (1:*)
3 ID (A) DYNAMIC
3 IMAGE (A) DYNAMIC
3 LEVEL (I4)
3 REFERENCE (A) DYNAMIC
3 TEXT (A) DYNAMIC
2 ORIGINATORQUERY (A) DYNAMIC
2 SELECTEDREFERENCE (A) DYNAMIC
```

A menu is reflected by a tree of menu nodes. Each menu node is represented by an `ID`, a `TEXT`, an optional `IMAGE` and a `REFERENCE` value. When the user selects a menu item, the `REFERENCE` value of that menu item is then returned in the parameter `SELECTEDREFERENCE`.

The value of `ORIGINATORQUERY` is normally not used by Natural applications. The selected line can easier be determined with an **NJX:EVENTDATA** control.

## Built-in Events

xcipopupmenu.reactOnSelect

# XI Non-Visual Controls and Hot Keys

This part describes some controls that do not have any visual effect to your screen, but provide some client functions to be applied to your page.

The information provided in this part is organized under the following headings:

TIMER

XCIDATADEF - Data Definition

XCICONTEXT

NJX:XCIOPENPOPUP

NJX:XCILIVINGPOPUP

Extended Hot Key Management

Function Key Handling

NJX:OBJECTS

NJX:SESSIONPARAMS

NJX:TRIGGEREVENT

# 109 TIMER

- Example ........ 784
- Properties ........ 785

With a timer, you can regularly trigger a defined event sent by the client. For example, you can use a timer to regularly update information to be displayed inside your page.

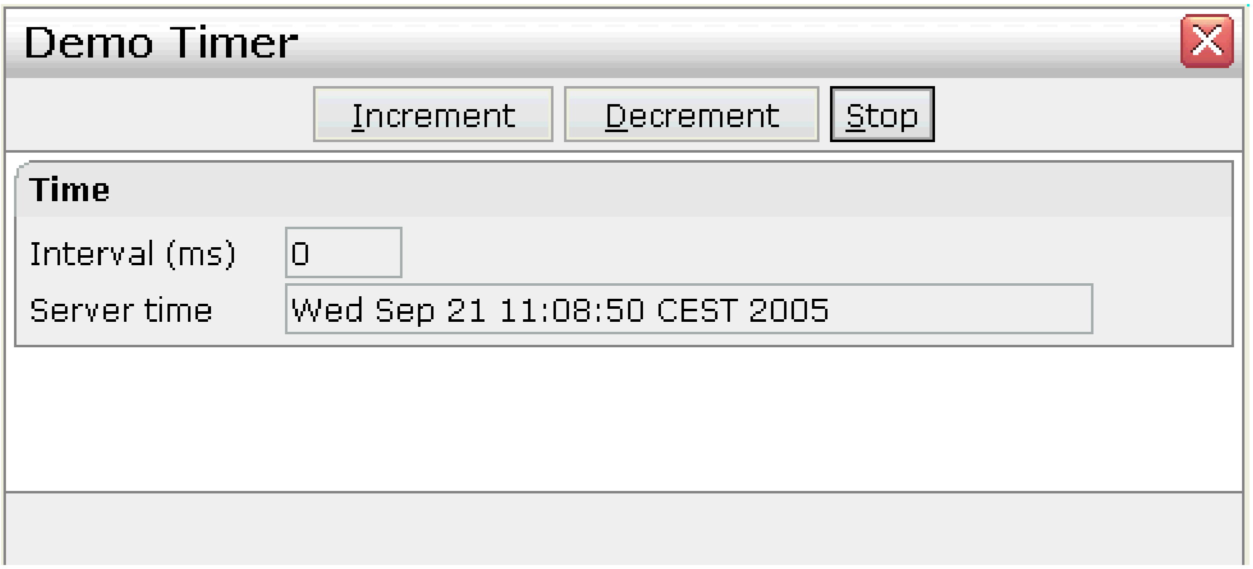
The timer tag is accessible as a valid subnode inside the page tag.

Specify either the `interval` or the `intervalprop` property in order to set the interval. In case of using a property for dynamically setting the interval, note the following:

- You can change the interval time at any time.
- You can stop the timer by setting the interval time to 0.

## Example

The following screen displays a time stamp of the server. It is refreshed depending on the interval field. Increase/decrease the interval time by choosing the corresponding buttons.



Demo Timer

Time

Interval (ms): 0

Server time: Wed Sep 21 11:08:50 CEST 2005

The XML layout definition is:

```
<?xml version="1.0" encoding="UTF-8"?>
<natpage natsinglebyte="true" ↩
xmlns:njx="http://www.softwareag.com/njx/njxMapConverter">
    <titlebar name="Demo Timer">
    </titlebar>
    <header withdistance="false">
        <button name="~~Increment" method="incrementTimer">
        </button>
        <button name="~~Decrement" method="decrementTimer">
        </button>
        <button name="~~Stop" method="stopTimer">
        </button>
    </header>
    <pagebody>
        <rowarea name="Time">
            <itr>
                <label name="Interval (ms)" width="100" asplaintext="true">
                </label>
                <field valueprop="interval" length="5" displayonly="true" ↩
datatype="int">
                </field>
            </itr>
            <itr>
                <label name="Server time" width="100" asplaintext="true">
                </label>
                <field valueprop="serverTime" length="50" displayonly="true">
                </field>
            </itr>
        </rowarea>
    </pagebody>
    <statusbar withdistance="false">
    </statusbar>
    <timer intervalprop="interval">
    </timer>
</natpage>
```

In this example, the timer tag does not send a defined event but refreshes the screen. The timer interval is retrieved by the property `interval` of the adapter object.

## Properties

| Basic | | | |
|---|---|---|---|
| interval | Duration in milliseconds the timer waits between calling the adapter method defined in the METHOD property.<br>Use this property to "hard code" the duration - or use INTERVALPROP to define the duration by an adapter property. | Sometimes obligatory | |
| intervalprop | Name of the adapter parameter that defines the timer interval duration. If 0 is passed then the timer is stopped. | Sometimes obligatory | |
| method | Name of the event that is sent to the adapter by the timer. | Obligatory | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

# 110 XCIDATADEF - Data Definition

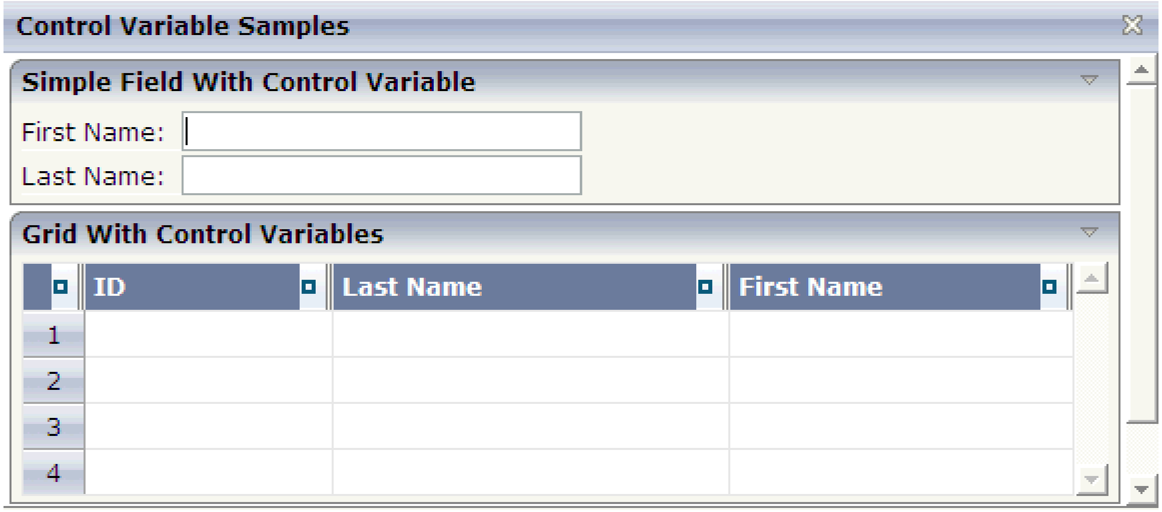
- Example ........ 788
- Properties ........ 791

With an XCIDATADEF control, you can define data structures that are exchanged between a page and its adapter, but which are not visually represented on the page. Examples are Natural control variables, which can be assigned to controls on a page after they have been defined in an XCIDATADEF control. They are not visually represented on the page, but can be evaluated by the application to control the modification status of the page and its controls.

The XCIDATADEF control allows the definition of scalar variables, structures, arrays, structures of arrays and arrays of structures. When an adapter is generated from a page that contains one or more XCIDATADEF controls, corresponding Natural data structures are generated into the parameter data area of the adapter.

## Example

The following example shows several field controls and a grid control. It uses XCIDATADEF controls to define control variables and assigns these in various ways to the fields and grid elements of the page.



The XML layout definition is:

```
<?xml version="1.0" encoding="UTF-8"?>
<natpage hotkeys="13;onEnter" natsource="CTRCV-A" natsinglebyte="true" natcv="cv-page"
  xmlns:njx="http://www.softwareag.com/njx/njxMapConverter">
    <titlebar name="Control Variable Samples">
    </titlebar>
    <pagebody takefullheight="true">
        <rowarea name="Simple Field With Control Variable">
            <itr>
                <label name="First Name:" width="80">
                </label>
                <field valueprop="firstname" width="200" njx:natcv="cv-firstname">
                </field>
                <hdist width="50">
                </hdist>
            </itr>
            <itr>
                <label name="Last Name:" width="80">
                </label>
                <field valueprop="lastname" width="200" njx:natcv="cv-lastname">
                </field>
            </itr>
        </rowarea>
        <rowarea name="Grid With Control Variables">
            <rowtablearea2 griddataprop="persons" rowcount="4" width="100%">
                <tr>
                    <gridcolheader width="30" propref="selected">
                    </gridcolheader>
                    <gridcolheader name="ID" width="25%" propref="id">
                    </gridcolheader>
                    <gridcolheader name="Last Name" width="40%" propref="last">
                    </gridcolheader>
                    <gridcolheader name="First Name" width="35%" propref="first">
                    </gridcolheader>
                </tr>
                <repeat>
                    <str valueprop="selected">
                        <selector valueprop="selected" singleselect="true">
                        </selector>
                        <field valueprop="id" width="25%" noborder="true"
                          transparentbackground="true">
                        </field>
                        <field valueprop="last" width="40%" noborder="true"
                      transparentbackground="true" njx:natcv="persons(*).cv-last">
                        </field>
                        <xcidatadef dataprop="cv-last" datatype="C">
                        </xcidatadef>
                        <field valueprop="first" width="35%" noborder="true"
                          transparentbackground="true" njx:natcv="cv-first(*)">
                        </field>
                    </str>
                </repeat>
            </rowtablearea2>
        </rowarea>
        <rowarea name="Description" height="100%">
            <itr takefullwidth="true" height="100%">
                <subpage valueprop="infopagename" height="100%" width="100%">
                </subpage>
            </itr>
        </rowarea>
    </pagebody>
    <statusbar withdistance="false">
    </statusbar>
    <xcidatadef dataprop="cv-firstname" datatype="C">
    </xcidatadef>
    <xcidatadef dataprop="cv-lastname" datatype="C">
    </xcidatadef>
    <xcidatadef dataprop="cv-first" datatype="C" array="true">
    </xcidatadef>
</natpage>
```

The above example shows various ways in which control variables can be defined and assigned to controls:

- `cv-page` is a scalar control variable that is assigned to the page as a whole. In the application, it reflects the modification status of the entire page.
- `cv-firstname` and `cv-lastname` are scalar control variables that are assigned to the FIELD controls `firstname` and `lastname`. They reflect the modification status of the respective controls.
- `cv-last` is a control variable that is defined as an element of the grid `persons`. Consequently, it is implicitly an array and is assigned to the element `last` as `persons(*).cv-last`. Each occurrence of `persons(*).cv-last` reflects the modification status of the corresponding occurrence of `persons.last`.
- `cv-first` is an array of control variables that is defined outside the grid `persons`. Consequently, it is assigned to the element `first` as `cv-first(*)`. Each occurrence of `cv-first(*)` reflects the modification status of the corresponding occurrence of `persons.first`. Note the difference to the previous case: because `cv-first(*)` is defined outside the grid `persons`, it is not automatically resized together with `persons.first`. Resizing `cv-first(*)` appropriately is in the responsibility of the application program.

The corresponding adapter code looks as follows:

```
DEFINE DATA PARAMETER
/*( PARAMETER
1 CV-FIRST (C/1:*)
1 CV-FIRSTNAME (C)
1 CV-LASTNAME (C)
1 CV-PAGE (C)
1 FIRSTNAME (A) DYNAMIC
1 INFOPAGENAME (A) DYNAMIC
1 LASTNAME (A) DYNAMIC
1 PERSONS (1:*)
2 CV-LAST (C)
2 FIRST (A) DYNAMIC
2 ID (A) DYNAMIC
2 LAST (A) DYNAMIC
2 SELECTED (L)
/*) END-PARAMETER
END-DEFINE
...
/*( PROCESS PAGE
PROCESS PAGE (CV=CV-PAGE) U'/njxdemos/ctrlcontrolvar' WITH
PARAMETERS
```

```
 NAME U'firstname'
  VALUE FIRSTNAME (CV=CV-FIRSTNAME)
 NAME U'infopagename'
  VALUE INFOPAGENAME
 NAME U'lastname'
  VALUE LASTNAME (CV=CV-LASTNAME)
 NAME U'persons(*).first'
  VALUE PERSONS.FIRST(*) (CV=CV-FIRST(*))
 NAME U'persons(*).id'
  VALUE PERSONS.ID(*)
 NAME U'persons(*).last'
  VALUE PERSONS.LAST(*) (CV=PERSONS.CV-LAST(*))
 NAME U'persons(*).selected'
  VALUE PERSONS.SELECTED(*) (EM='false'/'true')
END-PARAMETERS
/*) END-PROCESS
...
```

The example code is contained in the library SYSEXNJX as program CTRCV-P.

## Properties

| Basic | | | |
|---|---|---|---|
| dataprop | The XCIDATADEF control allows to create data structures for the processing side that are created in addition to data structures that are created by the normal controls. The DATAPROP represents the name of the data element that provides the content of the control. | Optional | |
| datatype | Data type of the data element. One of the list of valid values. Using the reserved word "type" you can nest multiple XCIDATADEF structures. | Optional | type<br>xs:string<br>xs:int<br>xs:float<br>xs:decimal<br>xs:double<br>xs:date<br>xs:dateTime<br>xs:time<br>xs:byte |

| | | | |
|---|---|---|---|
| | | | xs:short<br>xs:boolean<br>------------------------<br>N n.n<br>P n.n<br>string n<br>C<br>L |
| array | If set to true, the XCIDATADEF will be an array. | Optional | true<br>false |
| clientdata | Default is false. If set to true then the data is also send to the browser. Usually applications use the default setting. Only set this to true for small data that is really rendered in the browser. | Optional | true<br>false |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natsysvar | If the control shall be bound to a Natural system variable, this attribute specifies the name of the system variable. | Optional | |
| njx:natsysio | If the control shall be bound to a Natural system variable with the attribute njx:natsysvar, this attribute indicates if the system variable is modifiable. The default is false. | Optional | |
| njx:natstringtype | If the control shall be bound to a Natural system variable of string format with the attribute njx:natsysvar, this attribute indicates the format of the string, A (code page) or U (Unicode). The default is A. | Optional | |

| | | | |
|---|---|---|---|
| njx:natcv | Name of a Natural control variable that shall be assigned to the control. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |

# 111 XCICONTEXT

- General Information ........ 796
- Example ........ 796
- Properties ........ 797

The XCICONTEXT control can be used to exchange simple data values between different pages of an application. Example usage scenarios are:

- Share simple data between a page and an embedded page (see also **SUBCISPAGE2** control). The pages can share, for instance, a key value for the currently selected article. The embedded page shows details based on this key.
- Workplace scenarios in which multiple pages need to share some simple data.

## General Information

The XCICONTEXT control can hold multiple XCICONTEXTPARAM controls. Each of the XCICONTEXTPARAM controls defines a name and a value. At runtime, these names and values are automatically shared between all pages running in the same session.

The Natural applications change and access the corresponding data fields in the usual way. No additional coding is required for the data exchange - this is automatically done by the framework. Internally, the framework uses the session context (for more information on the session context, see the section *Saving Context Data* in the Application Designer documentation; this can be found under *Special Development Topics* > *Details on Session Mangement*).

## Example

The example showing the SUBCISPAGE2 control in the **njxdemos** project also shows how to use the XCICONTEXT control. In the layouts of all pages that are to share a specific data value, a corresponding XCICONTEXTPARAM with the same name has been defined. In the example below, the pages share the value for the "selectedArticle":

```
<xcicontext contextprop="mycontext">
  <xcicontextparam valueprop="selectedArticle" lookupname="selectedArticle">
  </xcicontextparam>
</xcicontext>
```

The generated data Natural data structure looks as follows:

```
1 MYCONTEXT
2 SELECTEDARTICLE (A) DYNAMIC
```

The Natural applications can now access the `SELECTEDARTICLE` field in the usual way.

## Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| contextprop | Name of the adapter parameter that provides the content of the control. | Optional | |
| Natural | | | |
| njx:natname | If a Natural variable with a name not valid for Application Designer (for instance #FIELD1) shall be bound to the control, a different name (for instance HFIELD1) can be bound instead. If the original name (in this case #FIELD1) is then specified in this attribute, the original name is generated into the parameter data area of the Natural adapter and a mapping between the two names is generated into the PROCESS PAGE statement of the Natural adapter. This mapping must not break a once defined group structure. If for instance a grid control that is bound to a name of GRID1 contains fields that are bound to FIELD1 and FIELD2 respectively, the corresponding njx:natname values may be #GRID1.#FIELD1 and #GRID1.#FIELD2, but not #GRID1.#FIELD1 and #MYGRID1.#FIELD2. | Optional | |
| njx:natcomment | The value of this attribute is generated as comment line into the parameter data area of the Natural adapter, before the field name. The Map Converter, for instance, uses this attributes to indicate for a generated statusprop variable to which field the statusprop belongs. | Optional | |

# 112 NJX:XCIOPENPOPUP

- Example ........ 800
- Adapter Interface ........ 800

The NJX:XCIOPENPOPUP control is used to configure certain parameters of a pop-up dialog before it is opened with a `PROCESS PAGE MODAL` statement. The control does not have design-time properties, nor does it raise events.

Two types of pop-up dialogs are supported, browser pop-ups and page pop-ups. Browser pop-ups are controlled by the web browser. To use them, pop-ups must be enabled in the browser settings. Page pop-ups are rendered by Natural for Ajax. To use them, pop-ups need not be enabled in the browser settings.

This control is intended to be used in the page that opens the pop-up dialog. An example for the usage of the control is provided in the library `SYSEXNJX`, program `CTRPOP-P`.

## Example

The XML code for the example looks as follows:

```
<natpage xmlns:njx="http://www.softwareag.com/njx/njxMapConverter">
    <njx:xciopenpopup>
    </njx:xciopenpopup >
</natpage>
```

## Adapter Interface

```
1 XCIOPENPOPUP
  2 FEATURES (A) DYNAMIC
  2 HEIGHT (I4)
  2 LEFT (I4)
  2 POPUPTYPE (A) DYNAMIC
  2 TITLE (A) DYNAMIC
  2 TOP (I4)
  2 WIDTH (I4)
```

Each element of the structure controls a parameter of the next pop-up dialog to be opened.

| Element | Meaning |
|---|---|
| `FEATURES` | Allows defining specific features of the pop-up dialog. See the property `popupfeatures` of the NATPAGE control. |
| `HEIGHT` | The height of the pop-up dialog. |
| `LEFT` | The left position of the pop-up dialog. |
| `POPUPTYPE` | Specifies whether the pop-up dialog is to be opened as a browser pop-up (value "POPUP") or as a page pop-up (value "PAGEPOPUP"). |
| `TITLE` | The title to be displayed in the caption of the pop-up dialog. |

| Element | Meaning |
|---|---|
| TOP | The top position of the pop-up dialog. |
| WIDTH | The height of the pop-up dialog. |

# 113 NJX:XCILIVINGPOPUP

- Example ........ 804
- Adapter Interface ........ 804

The NJX:XCILIVINGPOPUP control is used to configure certain parameters of a pop-up dialog from inside the running pop-up dialog. The control does not have design-time properties, nor does it raise events.

Two types of pop-up dialogs are supported, browser pop-ups and page pop-ups. Browser pop-ups are controlled by the web browser. To use them, pop-ups must be enabled in the browser settings. Page pop-ups are rendered by Natural for Ajax. To use them, pop-ups need not be enabled in the browser settings.

This control is intended to be used in the page that is opened as a pop-up dialog. An example for the usage of the control is provided in the library `SYSEXNJX`, program `CTRPOP-P`.

The following topics are covered below:

## Example

The XML code for the example looks as follows:

```
<natpage xmlns:njx="http://www.softwareag.com/njx/njxMapConverter">
    <njx:xcilivingpopup>
    </njx:xcilivingpopup >
</natpage>
```

## Adapter Interface

```
1 XCILIVINGPOPUP
  2 HEIGHT (I4)
  2 TITLE (A) DYNAMIC
  2 WIDTH (I4)
```

Each element of the structure controls a parameter of the next pop-up dialog to be opened.

| Element | Meaning |
|---|---|
| `HEIGHT` | The height of the pop-up dialog. |
| `TITLE` | The title to be displayed in the caption of the pop-up dialog. This is only possible in page pop-ups. |
| `WIDTH` | The height of the pop-up dialog. |

# 114 Extended Hot Key Management

- Direct Hot Key Definitions with Certain Controls ........ 806
- Hot Key Definitions for Certain Controls ........ 806

Extended hot key management provides the following features:

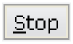
- Possibility to define hot keys with certain controls.
- Possibility to define language dependent hot keys.

## Direct Hot Key Definitions with Certain Controls

Some controls allow to directly specify hot keys within the text that is displayed inside the control. The controls that currently support this feature are:

- BUTTON
- MENU
- ROWTABAREA

Example: If you specify the button text to be "~~Stop", the button will look like this:



The text may both be directly maintained in the control (`name` property) or may come from the multi language management (`textid` property).

At the time, the hot key CTRL+ALT+S will be added to the page. The definition of hot keys in the texts of MENU controls or ROWTABAREA controls is done in the same way.

**Caution:** Application Designer does not check if hot keys are defined twice in a page.

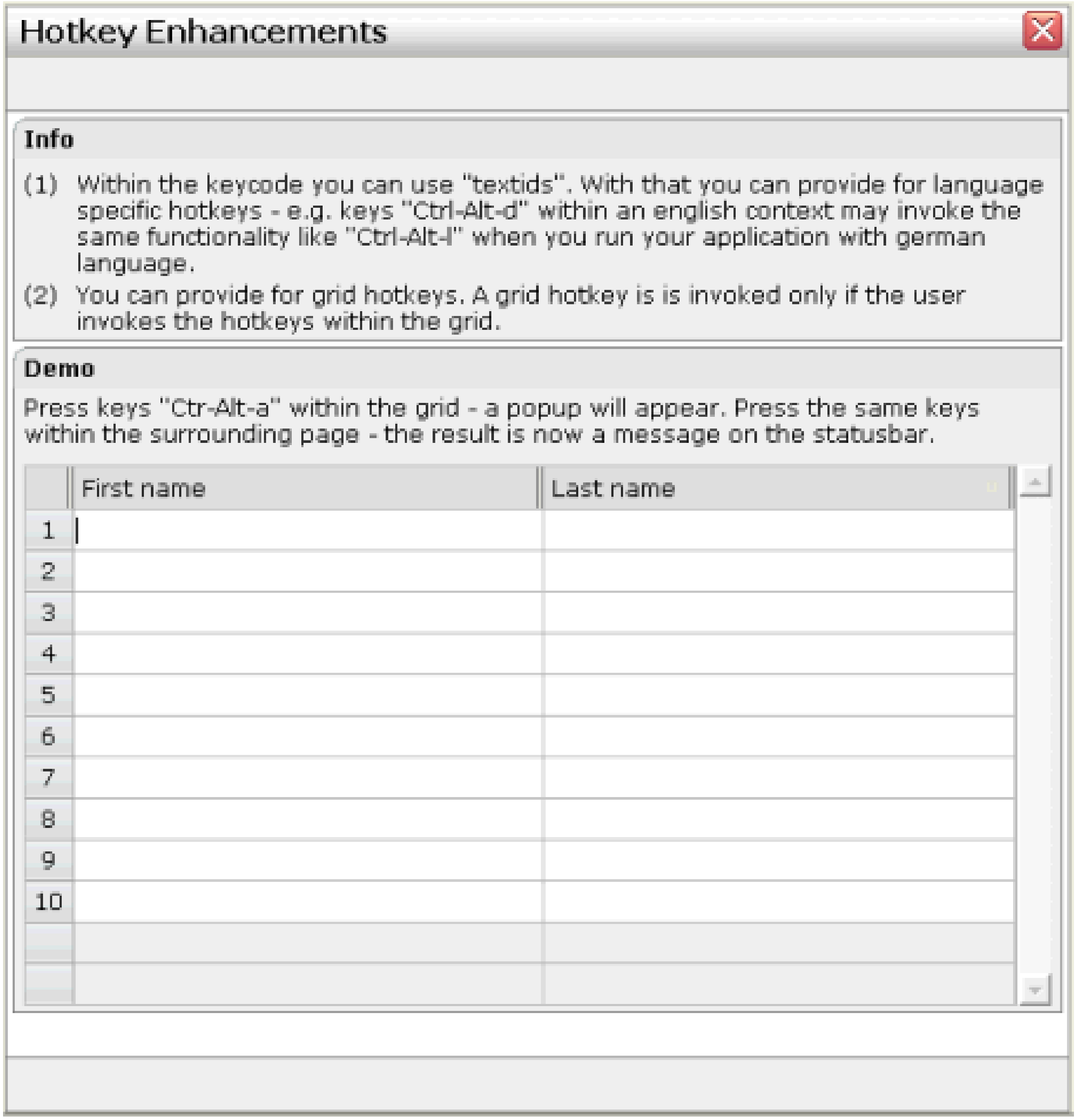
Why use CTRL+ALT as a default way to trigger the hot keys? This is because most of the simple ALT keys are already occupied by the browser.

## Hot Key Definitions for Certain Controls

The controls PAGE, FIELD and ROWTABLEAREA2 support the property `hotkeys`.

The `hotkeys` property defines the active hot keys for the corresponding control. This means that you may have hot keys that are only valid inside a certain grid (ROWTABLEAREA2 control) or even inside a single FIELD, but are not valid inside the whole page (PAGE control).

Have a look at the following demo:



**Info**

(1) Within the keycode you can use "textids". With that you can provide for language specific hotkeys - e.g. keys "Ctrl-Alt-d" within an english context may invoke the same functionality like "Ctrl-Alt-l" when you run your application with german language.

(2) You can provide for grid hotkeys. A grid hotkey is is invoked only if the user invokes the hotkeys within the grid.

**Demo**

Press keys "Ctr-Alt-a" within the grid - a popup will appear. Press the same keys within the surrounding page - the result is now a message on the statusbar.

| | First name | Last name |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |

If the user presses CTRL+ALT+A inside the grid, the hot key is managed by the grid. If the user presses the same key outside the grid, the hot key is processed by a corresponding definition on page level. The XML layout looks as follows:

```
<page model="com.softwareag.cis.test40.GridHotkeysAdapter" ↩
translationreference="40_gridhotkeys"
      hotkeys="ctrl-alt-65;onCtrlAltAPage">
...
...
        <rowtablearea2 griddataprop="grid" rowcount="12" width="100%" ↩
firstrowcolwidths="true"
                       hotkeys="ctrl-alt-$KEYCODE_A;onCtrlAltA">
...
...
```

The `hotkeys` property on PAGE, FIELD or ROWTABLEAREA2 is a semicolon-separated list containing the hot key itself and the method it is calling. There can be multiple hot key definitions for the same control. When maintaining this property, use the special dialog in the Layout Painter that appears for the `hotkeys` property.

You can either specify the key code of the hot key or a text ID that is to be translated by the multi language management.

# 115 Function Key Handling

Some keyboard function keys are usually assigned to specific functions of the web browser. F5, for example, causes a page reload and F11 toggles full screen mode.

In a Natural for Ajax application, these keyboard function keys might be assigned as hot keys to events in the application. But the user should also have the option to use, for example, F11 in the usual way as a web browser function key. Therefore, the following rules apply:

- If the keyboard focus is on the Natural for Ajax page, the function key raises the corresponding event in the application.
- If the keyboard focus is not on the Natural for Ajax page, but in the area of the web browser (for example, in the address line), the function key raises the corresponding event in the web browser.

**Exception**

In Internet Explorer 7, F10 and F11 are handled by the web browser only if both the keyboard focus and the mouse pointer are in the area of the web browser.

# 116 NJX:OBJECTS

- General Information ........ 812
- Example ........ 813
- Adapter Interface ........ 813

The NJX:OBJECTS control is used to make assets that are contained in Natural binary variables (BLOBs) available to controls on the web page. Examples are images in arbitrary controls such ICON, IMAGEOUT, CLIENTTREE or MENU.

## General Information

In the Natural program, the NJX:OBJECTS control is represented with the following data structure:

```
1 XCIOBJECTS (1:*)
2 CONTENT (B) DYNAMIC
2 CONTENTID (A) DYNAMIC
2 CONTENTTYPE (A) DYNAMIC
```

With this data structure, images and other binary content can be transported from the Natural program to the application server or web container.

For each entry in the data structure, the following must be specified: the binary content itself, an identifier and (optionally) the content type. In your Natural program, you only add the binary content once, with a specific name. The binary content is then automatically cached in the application server or web container until the Natural application completes its execution. During a server roundtrip from Natural to the application server or web container, all binary content that is found for this data structure is added to the cache and the data structure is cleared. After a server roundtrip, the data structure is always empty.

When referencing binary content such as an image from within a control of your page layout, you usually specify an URL. For Natural binary content, the URL starts with the prefix "nat:" followed by a name. To reference binary content from within a design-time property such `image` in a control of your page layout, you specify this URL directly in your page layout. For example:

```
...
<icon image="nat:icon01">
</icon>
...
```

When referencing binary content using a dynamic property such as `imageprop`, you can use automatically generated names.

In both cases (when you apply the URLs to properties statically at design-time and when you apply the URLs dynamically at runtime), you do not have to work directly on the `XCIOBJECTS` structure. Instead, you can use the helper subprogram `MAKEURL` which can be found in the library `SYSEXNJX`. You can use your own names or you can leave it to the helper subprogram `MAKEURL` to generate the names. The `MAKEURL` subprogram adds a corresponding entry to the `XCIOBJECTS` data structure and returns an URL for this binary content. When the `CALLNAT` statement in the example below has been executed, the `MYURL` field contains a valid URL which you can apply to dynamic image properties (for example, in a grid or other dynamic controls).

```
DEFINE DATA LOCAL
1 MYURL (A) DYNAMIC
1 XCIOBJECTS (1:*)
2 CONTENT (B) DYNAMIC
2 CONTENTID (A) DYNAMIC
2 CONTENTTYPE (A) DYNAMIC
...
LOCAL
1 MYBLOB (B) DYNAMIC
...
END-DEFINE

CALLNAT "MAKEURL" XCIOBJECTS(*) MYBLOB MYURL
```

If you want to use your own name (for example, "icon01"), you have to specify the `CALLNAT` statement as follows:

```
CALLNAT "MAKEURL" XCIOBJECTS(*) MYBLOB MYURL "icon01"
```

Optionally, you can explicitly specify the content type. This is required for content types which are not automatically recognized by the browser. Example:

```
CALLNAT "MAKEURL" XCIOBJECTS(*) MYBLOB MYURL "icon01" "gif"
```

**Note:** See also ***Images*** in *Some Common Rules for all Controls*.

## Example

Examples which show the usage of the NJX:OBJECTS control are provided in the library `SYSEXNJX`: the programs `CTROB1-P` and `CTROB2-P`.

## Adapter Interface

```
1 XCIOBJECTS (1:*)
2 CONTENT (B) DYNAMIC
2 CONTENTID (A) DYNAMIC
2 CONTENTTYPE (A) DYNAMIC
```

| Element | Description |
|---|---|
| CONTENT | The binary content as contained in a Natural binary variable. |
| CONTENTID | A name used for caching in the application server or web container and for referencing the content from within an URL. |
| CONTENTTYPE | The content type as understood by a browser. For content types which are not automatically recognized by a browser, the content type has to be specified. |

# 117 NJX:SESSIONPARAMS

- General Information ........ 816
- Example ........ 816
- Adapter Interface ........ 817

The NJX:SESSIONPARAMS control is used to modify the following Natural for Ajax session parameters in the Natural application:

- STYLE: By specifying this parameter in the Natural application, you can change the style sheet of a running Natural for Ajax session.
- FIRSTDAYINWEEK: By specifying this parameter in the Natural application, you can define either Sunday or Monday as the first day in the week.

## General Information

In the Natural program, the NJX:SESSIONPARAMS control is represented with the following data structure:

```
1 XCISESSIONPARAMS
2 FIRSTDAYINWEEK (U) DYNAMIC
2 STYLE (U) DYNAMIC
```

Possible values for the FIRSTDAYINWEEK parameter are "SU" for Sunday and "MO" for Monday. Other values are not supported.

The STYLE parameter must contain the name of the style sheet that is to be used, including the path. For example, "../cis/styles/CIS_DEFAULT.css".

The following sample code shows how to change the Natural for Ajax session parameters in the Natural application:

```
XCISESSIONPARAMS.STYLE := '../cis/styles/CIS_DEFAULT.css'
XCISESSIONPARAMS.FIRSTDAYINWEEK := 'MO'   /* 'SU' or 'MO'
. . .
PROCESS PAGE UPDATE FULL
```

## Example

An example program CTRSEP-P which shows the usage of the NJX:SESSIONPARAMS control is provided in the library SYSEXNJX.

## Adapter Interface

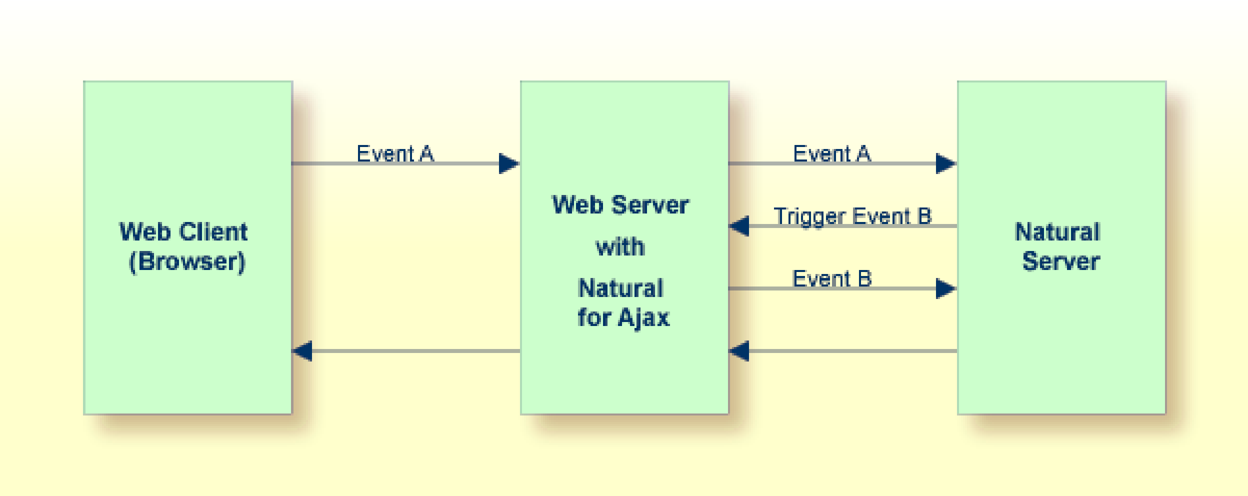
```
1 XCISESSIONPARAMS
2 FIRSTDAYINWEEK (U) DYNAMIC
2 STYLE (U) DYNAMIC
```

| Element | Description |
|---|---|
| `STYLE` | The name of the style sheet. |
| `FIRSTDAYINWEEK` | The first day of the week. This can be either "SU" for Sunday or "MO" for Monday. |

# 118 NJX:TRIGGEREVENT

- Examples ........ 820
- Adapter Interface ........ 822

The NJX:TRIGGEREVENT control can be used to trigger a server roundtrip between the web application and the Natural server.



## Examples

Common usage scenarios for the NJX:TRIGGEREVENT control are scenarios in which the event reaction of your Natural application consists of several parts which contain data handling and page navigation or pop-up handling. Triggering an event allows you to modularize and combine these different event reaction parts. Some specific sample use cases are described below.

**Pop-ups**

Your application might want to navigate to a specific page when a pop-up is closed. The navigation may depend on some return value of the pop-up. When the pop-up is closed, the Natural application can trigger an event depending on the pop-up result. In the triggered event, the Natural application can then do the navigation. The following code shows how this can be done:

```
DECIDE ON FIRST *PAGE-EVENT
 VALUE U'nat:page.end',U'nat:browser.end'
  /* Page closed.
  IGNORE
 VALUE U'onReactionA'
  FETCH 'MYPRGA'
  PROCESS PAGE UPDATE FULL
 VALUE U'onReactionB'
  FETCH 'MYPRGB'
  PROCESS PAGE UPDATE FULL
 VALUE U'onOpenMyPopup'
  PROCESS PAGE MODAL
   CALLNAT 'MYPOPUP' MYRETURN
  END-PROCESS
  IF MYRETURN = 'A' THEN
     XCITRIGGEREVENT:='onReactionA'
  END-IF
  IF MYRETURN = 'B' THEN
     XCITRIGGEREVENT:='onReactionB'
  END-IF
  PROCESS PAGE UPDATE FULL
 NONE VALUE
  /* Unhandled events.
  PROCESS PAGE UPDATE
END-DECIDE
```

### Workplace Applications

In a workplace application, you might want to open a logon page as the first page. On logon, your Natural application would dynamically define the function tree of the workplace and after that the logon page should be closed. The following code shows how this can be done:

```
DECIDE ON FIRST *PAGE-EVENT
 VALUE U'nat:page.end',U'nat:browser.end'
  /* Page closed.
  IGNORE
 VALUE U'onReady'
  /* Close the Login page.
  RESIZE ARRAY XCIWPACCESS2 TO (1:1)
  CMDCLOSECONTENTPAGE(1) := 'closeit'
  PROCESS PAGE UPDATE FULL
 VALUE U'onLogin'
  /* Define the function tree of the
  /* workplace dynamically
  ...
  ...
  /* Trigger the event 'onReady'.
  XCITRIGGEREVENT:='onReady'
  PROCESS PAGE UPDATE FULL
 NONE VALUE
  /* Unhandled events.
  PROCESS PAGE UPDATE
END-DECIDE
```

### TIMER Control

Using the TIMER control, you can automatically trigger an event repeatedly, based on the time interval. When navigating to a different page or when opening a page pop-up, you would like to stop the timer and start it again when returning to the page. This stopping and restarting of the timer can be achieved using an NJX:TRIGGEREVENT control. The following code shows how to stop the timer before opening a page pop-up, and how to restart the timer after closing the page pop-up.

```
DECIDE ON FIRST *PAGE-EVENT
 VALUE U'nat:page.end',U'nat:browser.end'
  /* Page closed.
  IGNORE
 VALUE U'onOpenMyPopup'
  PROCESS PAGE MODAL
   CALLNAT 'MYPOPUP'
  END-PROCESS
  /* start the timer again
  MYTIMERINTERVAL:=5000
  PROCESS PAGE UPDATE FULL
 VALUE U'onShowDetails'
  /* Stop the timer
  MYTIMERINTERVAL:=0
  /* customize popup settings
  XCIOPENPOPUP.POPUPTYPE:='PAGEPOPUP'
  XCIOPENPOPUP.TITLE:= 'Show Details'
  ...
  /* trigger an event to open the popup
  XCITRIGGEREVENT:='onOpenMyPopup'
  PROCESS PAGE UPDATE FULL
 NONE VALUE
  /* Unhandled events.
  PROCESS PAGE UPDATE
END-DECIDE
```

## Adapter Interface

```
1 XCITRIGGEREVENT (A) DYNAMIC
```

You have to specify the name of the event to be triggered.

# XII Working with Workplaces

This part deals with applications that organize multiple pages in so-called workplaces. A prerequisite of building workplaces is an understanding of multi frame pages.

The information provided in this part is organized under the following headings:

What are Multi Frame Pages?
Definition of Multi Frame Pages
Application Designer Workplace Framework
Creating Your Own Workplace Application
Executing and Debugging Workplace Applications
Multi Language Management in Workplace Applications
NJX:XCIWPINFO2
NJX:XCIWPFUNCTIONS
NJX:XCIWPACCESS2

# 119 What are Multi Frame Pages?

Multi frame pages are a special set of pages. Normal pages represent a generated HTML page - a multi frame page represents a generated HTML frameset page.

A multi frame page does not contain controls but frames in which other pages are positioned. Each frame is associated with an ID (called “target” in this section). A frame may be:

- a normal HTML page
- an intelligent Application Designer page
- a frameset itself containing frames

Multi frame pages are the preferred way of arranging Application Designer pages in a frameset. Besides enhanced possibilities of communication between frames, multi frame pages automatically take care of keeping all Application Designer frames inside the same session. See section *Session Management* in *Working with Pages* (which is part of the Application Designer documentation) for more details.

# 120 Definition of Multi Frame Pages

- MFPAGE .......... 828
- MFCISFRAME .......... 829
- MFHTMLFRAME .......... 832
- MFFRAMESET .......... 833

The definition of multi frame pages is done with the Layout Painter. When you create a new layout, a dialog appears in which you select a template. To create a multi frame page, you have to select the "Multi Frame Page" template. The Layout Painter will open just as usual, but instead of having the PAGE control as the highest control, you now see the control MFPAGE. You can reach a number of controls that are related to multi frame page management.

The following controls are “normal frame controls” (they are described below):

- MFPAGE - the top element of multi frame pages.
- MFCISFRAME - a frame in which an Application Designer HTML page is loaded.
- MFHTMLFRAME - a frame in which a normal HTML page is loaded.
- MFFRAMESET - an area that can be subdivided into frames itself.

The following controls are “workplace controls” (they are described in the section ***Application Designer Workplace Framework***. The Application Designer workplace is based on these controls.

- MFWPFUNCTIONS
- MFWPACTIVEFUNCTIONS
- MFWPCONTENT

## MFPAGE

The MFPAGE is the top node of every multi frame page. It can be subdivided into frames or framesets.

| | | | |
|---|---|---|---|
| Basic | | | |
| separation | Specifies how the corresponding internally used frameset is subdivided: choose "rows" for subdividing into rows, "cols" for subdividing into columns. | Obligatory | rows<br>cols |
| sizing | Defines the size of the contained sub-frames. If you have three sub-frames to show up inside the page then you might specify "200,200,*" to specify how the height (if SEPARATION is "rows") or the width (if SEPARATION is "cols") is distributed among the frames.<br>You can speficy per frame either a pixel value or a "*". | Obligatory | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| border | Space between frames contained in the frameset that is internally built up. | Optional | 1 |

| | | | |
|---|---|---|---|
| | | | 2<br>3<br>int-value |
| bordercolor | Sets the border color of the frame set. | Optional | #FF0000<br>#00FF00<br>#0000FF<br>#FFFFFF<br>#808080<br>#000000 |
| frameborder | Defines if to display a border around the contained frames. Valid values are "true" or "false". | Optional | true<br>false |
| framespacing | Defines the amount of additional space between the frames. Value is a pixel value. | Optional | 1<br>2<br>3<br>int-value |
| framesetstyle | Style passed to the HTML-frameset definition that is internally generated. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |

## MFCISFRAME

The MFCISFRAME represents a frame in which an Application Designer page is shown. The name of the page is passed as a parameter.

| | | | |
|---|---|---|---|
| Basic | | | |
| target | Id of the frame. Must be unique inside the frameset page. Must only contain alphanumeric characters.<br>The id is important! CIS offers certain methods inside the Model-class that allow an adapter to start operations for a certain frame (e.g. openeCIPageInFrame(...)). As part of the parameters of these methods a target-id is passed. The target-id is exactly the id you specifiy with the TARGET property. | Obligatory | |
| cisurl | URL of the page to be shown inside. Use /project/page.html as syntax, e.g. "/HTMLBasedGUI/empty.html".<br>Do NOT use only page.html believing that you do not have to specify the project because the multi frame page runs in the same project than the page you want to open - you ALWAYS have to specify the project! | Obligatory | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| resizable | Decision if the user is able to resize the frame. This property must be in synch with the definition in the "neighbour frames". If the neighbour frames do not support resizing then it will not be offered to the user as consequence.<br>Valid values are "true" and "false". Default is "true". | Optional | true<br>false |
| withborder | Boolean value defining if the frame has a border on its own. Default is "false". | Optional | true<br>false |
| framestyle | Style that is passed to the HTML-FRAME definition that is internally generated. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| bordercolor | Sets the border color of the frame set. | Optional | #FF0000<br>#00FF00<br>#0000FF<br>#FFFFFF<br>#808080 |

| | | | |
|---|---|---|---|
| | | | #000000 |
| marginheight | Defines top and bottom margin height. Value is a pixel value. Default is "0". | Optional | 1<br>2<br>3<br>int-value |
| marginwidth | Defines left and right margin width. Value is a pixel value. Default is "0". | Optional | 1<br>2<br>3<br>int-value |
| withownborder | Flag that indicates if started pages show an own border. Default is false. | Optional | true<br>false |
| Unload Behaviour | | | |
| unloadbehaviour | Reaction that CIS should take if the page inside the frame is closed. Possible values are "NOTHING" for doing nothing and "REMOVESESSION" for removing the session on server side.<br>Do not define this property just "by accident" but leave it to the default ("NOTHING").<br>You only switch to "REMOVESESSION" if you want that the server side session is destroyed when leaving the page. This is the case if you have one page that clearly indicates the closing of a session at the point of time when the page is closed. | Optional | NOTHING<br>REMOVESESSION |

Applications can change the page that is shown inside the MFCISFRAME by using the method `Adapter.openCISPageInTarget(...)`.

## MFHTMLFRAME

The MFHTMLFRAME represents a frame in which a normal HTML page is shown. This page can be a static HTML page or any URL - e.g. a URL referring to a certain JSP page.

| Basic | | | |
|---|---|---|---|
| target | Id of the frame. Must be unique inside the frameset page. Must only contain alphanumeric characters.<br>The id is important! CIS offers certain methods inside the Model-class that allow an adapter to start operations for a certain frame (e.g. openeCIPageInFrame(...)). As part of the parameters of these methods a target-id is passed. The target-id is exactly the id you specifiy with the TARGET property. | Obligatory | |
| url | URL to be opened inside the frame. The URL can be defined relative to the multi frame page or can be defined in an absolute way..<br>Example: You can define "../HTMLBasedGUI/workplace/header2.html" - or "http://www.softwareag.com". | Obligatory | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| resizable | Decision if the user is able to resize the frame. This property must be in synch with the definition in the "neighbour frames". If the neighbour frames do not support resizing then it will not be offered to the user as consequence.<br>Valid values are "true" and "false". Default is "true". | Optional | true<br>false |
| withborder | Boolean value defining if the frame has a border on its own. Default is "false". | Optional | true<br>false |
| scrolling | Boolean that indicates whether the frame can be scrolled. Default is true. | Optional | true<br>false |
| framestyle | Style that is passed to the HTML-FRAME definition that is internally generated. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |

| | | | |
|---|---|---|---|
| bordercolor | Sets the border color of the frame set. | Optional | #FF0000<br>#00FF00<br>#0000FF<br>#FFFFFF<br>#808080<br>#000000 |
| marginheight | Defines top and bottom margin height. Value is a pixel value. Default is "0". | Optional | 1<br>2<br>3<br>int-value |
| marginwidth | Defines left and right margin width. Value is a pixel value. Default is "0". | Optional | 1<br>2<br>3<br>int-value |

## MFFRAMESET

The MFFRAMESET represents a frame that is internally again divided into frames. The MFFRAMESET definition decides whether to divide into rows or columns, and how to size the inner frames.

| Basic | | | |
|---|---|---|---|
| target | Id of the frame. Must be unique inside the frameset page. Must only contain alphanumeric characters.<br>The id is important! CIS offers certain methods inside the Model-class that allow an adapter to start operations for a certain frame (e.g. openeCIPageInFrame(...)). As part of the parameters of these methods a target-id is passed. The target-id is exactly the id you specifiy with the TARGET property. | Obligatory | |
| separation | Specifies how the corresponding internally used frameset is subdivided: choose "rows" for subdividing into rows, "cols" for subdividing into columns. | Obligatory | rows<br>cols |

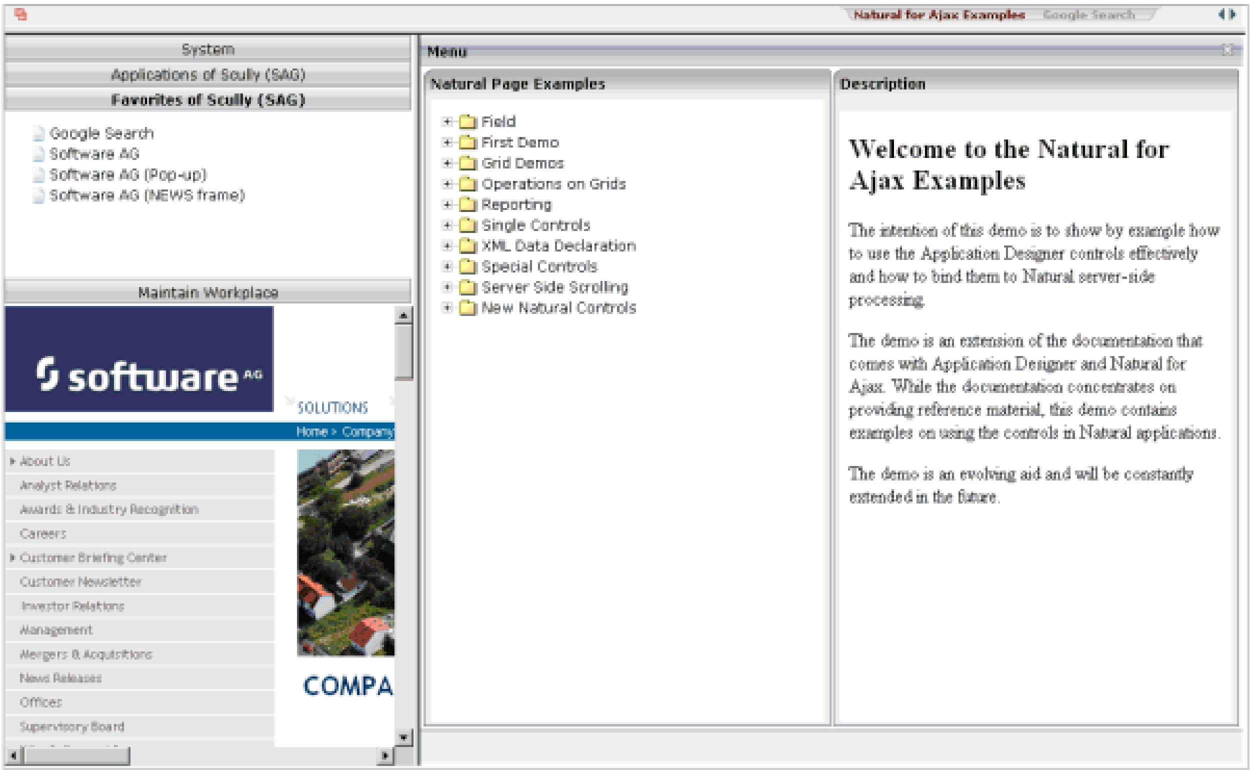
| | | | |
|---|---|---|---|
| sizing | Defines the size of the contained sub-frames. If you have three sub-frames to show up inside the page then you might specify "200,200,*" to specify how the height (if SEPARATION is "rows") or the width (if SEPARATION is "cols") is distributed among the frames.<br>You can speficy per frame either a pixel value or a "*". | Obligatory | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| border | Space between frames contained in the frameset that is internally built up. | Optional | 1<br>2<br>3<br>int-value |
| bordercolor | Sets the border color of the frame set. | Optional | #FF0000<br>#00FF00<br>#0000FF<br>#FFFFFF<br>#808080<br>#000000 |
| frameborder | Defines if to display a border around the contained frames. Valid values are "true" or "false". | Optional | true<br>false |
| framespacing | Defines the amount of additional space between the frames. Value is a pixel value. | Optional | 1<br>2<br>3<br>int-value |
| framesetstyle | Style passed to the HTML-frameset definition that is internally generated. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |

# 121 Application Designer Workplace Framework

- Framework Overview ........ 837
- Functions Frame: MFWPFUNCTIONS ........ 838
- Active Functions Frame: MFWPACTIVEFUNCTIONS ........ 840
- Content Frame: MFWPCONTENT ........ 841
- Filling the MFWPFUNCTIONS Frame Initially: MFWPBOOTSTRAPINFO ........ 842
- Customizing the MFWPFUNCTIONS Behavior ........ 853
- Session Management inside the Workplace ........ 862
- Workplace API for Dynamic Manipulation ........ 863

The Natural example library `SYSEXNJX` provides an example of a workplace built on base of the Application Designer framework. The example can be executed with the following URL:

*http://<host>:<port>/cisnatural/servlet/StartCISPage?PAGEURL=/njxdemos/wpdynworkplace.html*



Welcome to the Natural for Ajax Examples

The intention of this demo is to show by example how to use the Application Designer controls effectively and how to bind them to Natural server-side processing.

The demo is an extension of the documentation that comes with Application Designer and Natural for Ajax. While the documentation concentrates on providing reference material, this demo contains examples on using the controls in Natural applications.

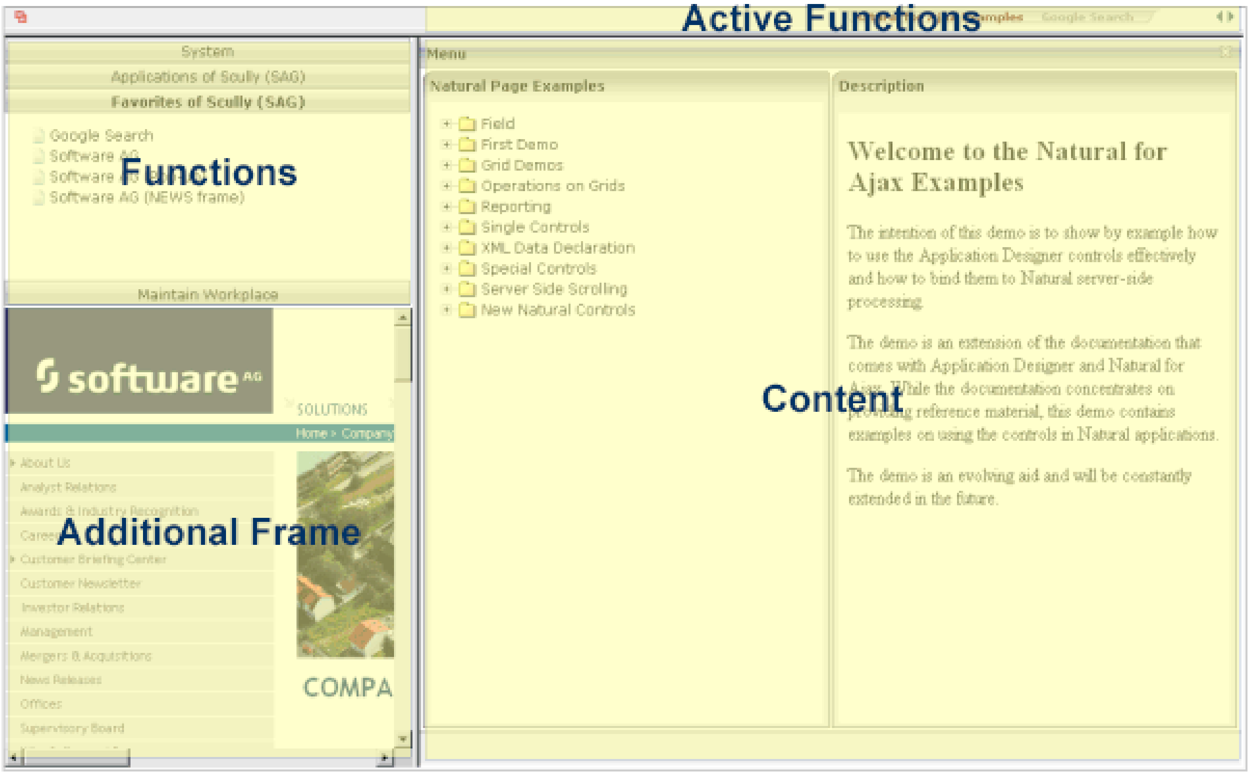
The demo is an evolving aid and will be constantly extended in the future.

The workplace framework bases on the multi frame page management described in the previous sections. It offers the following:

- flexible arrangement of frames,
- dynamic loading of available functions,
- possibility to change the environment at runtime via specific controls,
- execution of multiple tasks between which the user can switch ("multi document interface").

## Framework Overview

An Application Designer workplace is a certain arrangement of frames in a multi frame page. Some of the frames have predefined tasks. Have a look at the example workplace in which you can already see the most important frames:



Welcome to the Natural for Ajax Examples

The intention of this demo is to show by example how to use the Application Designer controls effectively and how to bind them to Natural server-side processing.

The demo is an extension of the documentation that comes with Application Designer and Natural for Ajax. While the documentation concentrates on providing reference material, this demo contains examples on using the controls in Natural applications.

The demo is an evolving aid and will be constantly extended in the future.

The "Functions" frame contains the available functions that can be chosen and invoked by the user. The "Content" frame contains the page or page sequence that is opened if a function is selected. The "Active Functions" frame shows the functions that were opened by the user and allows the user to navigate between the active functions.

Have a look at the XML layout definitions for this workplace; it defines how the frames are arranged (*../njx<nn>.ear/cisnatural.war/njxdemos/xml/wpdynworkplace.xml*):

```
<?xml version="1.0" encoding="UTF-8"?>
<mfpage separation="rows" sizing="20,*">
    <mfwpactivefunctions resizable="false" withborder="false" scrolling="false"
                         framestyle="border: 0px solid #000000">
    </mfwpactivefunctions>
    <mfframeset target="ZZZ" separation="cols" sizing="265,*">
       <mfframeset target="LEFTPART" separation="rows" sizing="*,400" border="true"
                   framesetstyle="border: 1px solid #808080">
           <mfwpfunctions bootstrapinfourl="/njxdemos/xml/wpdynbootstrapinfo.xml"
```

```
                         serversidescrolling="false" framestyle="border: 1 solid ↩
#808080;">
            </mfwpfunctions>
            <mfhtmlframe target="NEWS" url="../njxdemos/wpdynhowto.html"
                    resizable="true" withborder="false" scrolling="true"
                    framestyle="border: 1px solid #808080">
            </mfhtmlframe>
        </mfframeset>
        <mfwpcontent resizable="true" withborder="true" scrolling="false"
                     framestyle="border: 1 solid #808080;">
        </mfwpcontent>
    </mfframeset>
</mfpage>
```

You see that there are three special frame controls that are used internally: MFWPFUNCTIONS, MFWPACTIVEFUNCTIONS and MFWPCONTENT. In addition, there is one HTML page arranged below the MFWPFUNCTIONS control.

Let us take a closer look at each of the three workplace frame controls.

## Functions Frame: MFWPFUNCTIONS

This is the frame to hold the available functions to be selected by the user. The control has the following properties:

| | | | |
|---|---|---|---|
| Basic | | | |
| bootstrapclass | Name of the class that is responsible for passing the initial workplace configuration. The class must support interface "IMFWorkplace2" and must support a constructor without parameters.<br>When being displayed the workplace creates an instance of this class and asks for an object that represents the workplace setup. Have a look into the javadoc-documentation for interface "IMFWorkplace2" for more information. | Optional | |
| bootstrapinfourl | URL to an .xml file that holds the initial workplace configuration. Do not use BOOTSTRAPINFOURL and BOOSTRAPCLASS at the same time!<br>Use /project/directory/doc.xml as syntax, e.g. /HTMLBasedGUI/workplace/bootstrapworkplaceinfo.xml. | Optional | |
| serversidescrolling | Flag that decides if the function tree providing the available workplaces functions support client side scrolling (default, "false") or supports server side scrolling ("true"). Server side scrolling should be used if a function tree containes more than 100 nodes. | Optional | true<br>false |

| | | | |
|---|---|---|---|
| defaultcontentpage | URL of a page that is shown in the 'content area' by default. | Optional | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| contentstylesheet | Style sheet that should be used for the content that is started inside the workplace. | Optional | |
| framestyle | Style that is passed to the HTML-FRAME definition that is internally generated. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| bordercolor | Sets the border color of the frame set. | Optional | #FF0000<br>#00FF00<br>#0000FF<br>#FFFFFF<br>#808080<br>#000000 |
| marginheight | Defines top and bottom margin height. Value is a pixel value. Default is "0". | Optional | 1<br>2<br>3<br>int-value |
| marginwidth | Defines left and right margin width. Value is a pixel value. Default is "0". | Optional | 1<br>2<br>3<br>int-value |
| activefunctionsvariant | Defines how the MFWPACTIVEFUNCTIONS frame displays the list of started pages. You can either use a STRIPSEL or TABSTRIP control. Default is "tabstrip". | Optional | tabstrip<br>stripsel |
| withownborder | Flag that indicates if the functions page shows an additional border. Default is false. | Optional | true<br>false |
| workplacestylesheet | Style sheet that should be used for the workplace itself. | Optional | |

| | | | |
|---|---|---|---|
| withplusminus | If set to "true" then +/- Icons will be rendered in front of the mfwpfuntions. | Optional | true<br>false |
| workplaceproject | If set to a valid project name, standard messages and standard dialogs used by the default workplace framework will be generated into this project. At runtime the messages and dialogs of this project will be used instead of the default ones of the HTMLBasedGUI project. Generated multilanguage files:workplace and popups. Generated layouts:popupyesno and popupok. | Optional | |

## Active Functions Frame: MFWPACTIVEFUNCTIONS

This frame shows the functions that the user started and between which the user can switch.

| Basic | | | |
|---|---|---|---|
| resizable | Decision if the user is able to resize the frame. This property must be in synch with the definition in the "neighbour frames". If the neighbour frames do not support resizing then it will not be offered to the user as consequence.<br>Valid values are "true" and "false". Default is "true". | Optional | true<br>false |
| withborder | Boolean value defining if the frame has a border on its own. Default is "false". | Optional | true<br>false |
| scrolling | Boolean that indicates whether the frame can be scrolled. Default is true. | Optional | true<br>false |
| framestyle | Style that is passed to the HTML-FRAME definition that is internally generated. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| bordercolor | Sets the border color of the frame set. | Optional | #FF0000<br>#00FF00<br>#0000FF<br>#FFFFFF |

| | | | |
|---|---|---|---|
| | | | #808080<br>#000000 |
| marginheight | Defines top and bottom margin height. Value is a pixel value. Default is "0". | Optional | 1<br>2<br>3<br>int-value |
| marginwidth | Defines left and right margin width. Value is a pixel value. Default is "0". | Optional | 1<br>2<br>3<br>int-value |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

## Content Frame: MFWPCONTENT

This is the frame in which content is started that is selected from the functions area.

| | | | |
|---|---|---|---|
| Basic | | | |
| resizable | Decision if the user is able to resize the frame. This property must be in synch with the definition in the "neighbour frames". If the neighbour frames do not support resizing then it will not be offered to the user as consequence.<br>Valid values are "true" and "false". Default is "true". | Optional | true<br>false |
| withborder | Boolean value defining if the frame has a border on its own. Default is "false". | Optional | true<br>false |
| scrolling | Boolean that indicates whether the frame can be scrolled. Default is true. | Optional | true<br>false |
| framestyle | Style that is passed to the HTML-FRAME definition that is internally generated. | Optional | background-color: #FF0000<br>color: #0000FF |

| | | | |
|---|---|---|---|
| | | | font-weight: bold |
| bordercolor | Sets the border color of the frame set. | Optional | #FF0000<br>#00FF00<br>#0000FF<br>#FFFFFF<br>#808080<br>#000000 |
| marginheight | Defines top and bottom margin height. Value is a pixel value. Default is "0". | Optional | 1<br>2<br>3<br>int-value |
| marginwidth | Defines left and right margin width. Value is a pixel value. Default is "0". | Optional | 1<br>2<br>3<br>int-value |
| withownborder | Flag that indicates if started pages show an own border. Default is false. | Optional | true<br>false |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |

## Filling the MFWPFUNCTIONS Frame Initially: MFWPBOOTSTRAPINFO

The MFWPFUNCTIONS frame can be filled initially by using the `bootstrapinfourl` property. This property expects an URL to an XML file that represents the initial workplace setup (for example, *../njx<nn>.ear/cisnatural.war/njxdemos/xml/wpdynworkplace.xml*).

Have a look at the corresponding XML file:

```
<mfwpbootstrapinfo
         defaultcontentpage="/HTMLBasedGUI/empty.html"
         workplacestylesheet="../cis/styles/CIS_DEFAULT.css"
         synchtabnavigation="true"
         showdustbin="true"
         withtakeouttopopup="false"
         withcloseallwindowsicon="false"
         ↩
mfworkplaceeventlistener="com.softwareag.cis.workplace.MFDefaultEventListener"
         targetnameofresizableleftpart="AVAILABLEACTIVITIES"
         translationproject="tshmfp"
         translationreference="mfworkplace">

  <mfwptopic
         name="System"
         treeclass="WORKPLACETOPIC1ClientTree">

    <mfwpfolder
         name="System"
         draginfo="System"
         opened="true">

      <mfwpopencispage
         name="Login"
        activityurl="/cisnatural/NatLogon.html&amp;xciParameters.natsession=Workplace
                      ↩
&amp;xciParameters.natparam=stack%3D%28LOGON+SYSEXNJX%3BWPLGIN-P%29"
         onlyoneinstance="true"
        followpageswitches="true">
      </mfwpopencispage>

    </mfwpfolder>

  </mfwptopic>

  <mfwptopic
       name="Maintain Workplace"
       treeclass="WORKPLACETOPIC1ClientTree">

    <mfwpopencispage
       name="Maintain Function Tree"
      activityurl="/cisnatural/NatLogon.html&amp;xciParameters.natsession=Workplace
                    ↩
&amp;xciParameters.natparam=stack%3D%28LOGON+SYSEXNJX%3BWPFUNC-P%29"
       onlyoneinstance="true"
       followpageswitches="true">
    </mfwpopencispage>

    <mfwpopencispage
       name="Maintain Content Pages"
      activityurl="/cisnatural/NatLogon.html&amp;xciParameters.natsession=Workplace
                    ↩
```

```
&amp;xciParameters.natparam=stack%3D%28LOGON+SYSEXNJX%3BWPCONT-P%29"
       onlyoneinstance="true"
       followpageswitches="true">
    </mfwpopencispage>

  </mfwptopic>

</mfwpbootstrapinfo>
```

**Note:** To make sure that you are using a proper *bootstrapinfo.xml* file, use the XML Schema *editor.xsd* (and all corresponding XSD files) to validate your XML file (for example, in XMLSpy).

Overview of the bootstrapinfo hierarchy:

```
<mfwpbootstrapinfo>          // root tag
    <mfwptopic>              // new topic
       <mfwpfolder>          // MFWorkplaceTreeNodeFolder
       <mfwpopencispage>     // MFWorkplaceTreeNodeCISPage
       <mfwpopencispopup>    // MFWorkplaceTreeNodeCISPopup
       <mfwpopencistarget>   // MFWorkplaceTreeNodeCISTarget
       <mfwpopenhtmlpage>    // MFWorkplaceTreeNodeHTMLPage
       <mfwpopenhtmlpopup>   // MFWorkplaceTreeNodeHTMLPopup
       <mfwpopenhtmltarget>  // MFWorkplaceTreeNodeHTMLTarget
```

`<mfwpfolder>` can contain each of the other `<mfwptopic>` subtags including itself.

The following topics are covered below:

- MFWPBOOTSTRAPINFO Properties
- MFWPTOPIC Properties
- MFWPFOLDER Properties
- MFWPOPENCISPAGE Properties
- MFWPOPENCISPOPUP Properties
- MFWPOPENCISTARGET Properties
- MFWPOPENHTMLPAGE Properties
- MFWPOPENHTMLPOPUP Properties

- MFWPOPENHTMLTARGET Properties

### MFWPBOOTSTRAPINFO Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| defaultcontentpage | The workplace consists out of several frames, one of it the content frame. If there is no active activity in the workplace then the defaultContentPage is displayed inside the content frame. You can use this in two ways:<br>(1) Either create one "background page" which always is shown in an "empty" workplace.<br>(2) Or create one "background page" which the workplace opens by default. E.g. you want in a start-workplace to first present to the user a logon page.<br>EXAMPLE: "/HTMLBasedGUI/empty.html" | Optional | |
| workplacestylesheet | The stlye sheet which is used for the left and top frame of the workplace. If no style sheet is specified then the workplace adapts to the standard style sheet which is kept in the CISsession context. You typically want to use one fix child for a workplace - because the workplace is typically embedded in some other frames arranging some graphics/etc. around, and you do not want the workplace colour's to change independent from this.<br>EXAMPLE: "/cis/styles/XYZ_STLYE.css" | Optional | background-co #FF0000<br>color: #0000FF<br>font-weight: bo |
| translationproject | Name of the project where the actual used multilanguage file is located.<br>e.g. cisdemos | Optional | |
| translationreference | Name of the multilanguage .csv file.<br>e.g. test<br>(if the file test.csv should be used) | Optional | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| mfworkplaceeventlistener | Use this interface to react on workplace events.<br>(1) Create an implementation of this interface<br>(2) Use method `MFWorkplaceInfo.registerMFWorkplaceEventListener` to register your class | Optional | |

| | | | |
|---|---|---|---|
| | (3) Use method `NODEInfo.setDropInfo` on each tree item to be able to drag that item<br>Step two and three are typically done within the "bootstrap info provider"-class<br>A CISworkplace is a certain arrangement of frames in a multi frame page. The "functions"-frame (MFWPFUNCTIONS) holds the available functions to be selected by the user (click with the left mouse Button). In addition you can provide for right mouse button menu or drag and drop within the function tree. With that you may allow users to add/remove/shift menu items (personalization). | | |
| targetnameofresizableleftpart | The workplace may contain a favourite list. At the bottom of the favourite list there are some items by which you can influence the size of the corresponding left part of the workplace. The name of the target frame to be resized is passed with this method. | Optional | |
| View | | | |
| showdustbin | Flag that indicates wether the dustbin (have a look at the DEMO WORKPLACE) is shown or not.<br>Boolean value, default is false. | Optional | true<br>false |
| synchtabnavigation | Set flag that decides if the tree "on the left" is synchronized with the tab navigation "on the top". If the user selects an opened activity in the tab strip then the corresponsding tree node and topic is shown as consequence.<br>Pay attention: the base of the synchronization is the naming of nodes. There is currently no naming concept beyond (that e.g. assigns ids to nodes). Make sure, your tree nodes are set in a way that each one holds a unique name. Use the tabText (setTabText) in order to make nodes unique!<br>true ==> synchronization is done; false ==> synchronization is not done;<br>default is false. | Optional | true<br>false |
| withcloseallwindowsicon | Flag that indicates whether the CloseAllWindowsIcon is shown in the workplace or not.<br>Boolean value, default is false. | Optional | true<br>false |
| withtakeouttopopup | Flag that indicates | Optional | true<br>false |
| browsertitleappendix | Customize the browser title. An empty string means, that you don't want to set the activity title as browser title. A non-empty string means, that for each activity the browser title is set to a | Optional | |

| | | | |
|---|---|---|---|
| | concatenated value of the activity title and the browsertitleappendix you specified. Example: My Activity - My Browser Title Appendix. | | |

## MFWPTOPIC Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| name | Text of the topic. | Obligatory | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Optional | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| buttonstyle | Style info that is passed to the button representing the topic. | Optional | |
| iconurl | The button that represents this topic may have an additional icon in front of the text. Use this parameter to set the icon URL. | Optional | |
| treestyle | Background style for the tree. You can e.g. define background colors and background pictures. Avoid the usage of ' and " characters.<br>Please also have a look onto the method "setStyleClass" - via this method you can pass a reference to a CSS class. | Optional | background-color: #FF0000<br>color: #0000FF<br>font-weight: bold |
| treeclass | Sets the style class for rendering the tree area of the topic. There are 10 standard style classes available in the default style sheet: PLACETOPIC1ClientTree to WORKPLACETOPIC10ClientTree. These style sheets can be maintained within the CISstyle sheet editor. | Optional | |
| tooltip | Tooltip of the node. | Optional | |
| tooltipid | Text ID of the tooltip. | Optional | |

## MFWPFOLDER Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| name | Text of the tree node folder. | Obligatory | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Optional | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| draginfo | Any information that is useful to react on a drop event. Characters ' and \ are not allowed. | Optional | |
| opened | Flag that indicates whether the folder is opened or not.<br>Boolean value | Optional | true<br>false |
| tooltip | Text of the tooltip of the tree node folder. | Optional | |
| tooltipid | Text ID of the tooltip. | Optional | |

## MFWPOPENCISPAGE Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| name | Text of the node. | Obligatory | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Optional | |
| activityurl | URL to be started when user clicks on node. You can append parameters to the URL by appending them via "&param1=value1&param2=value2" | Obligatory | |
| followpageswitches | If the user navigates inside the called page (e.g. switches from one page to the other) then this navigation is registered. True means:<br>when reinvoking the page through the tree then the user come back exactly to the page where he/she stayed. False means: the user is brought back to the starting page always.<br>For HTML pages: Registering of the navigation is only supported for HTML pages in the framebuffer. This means you need to set the framebuffersize attribute in the cisconfig.xml file correspondingly. | Obligatory | |
| onlyoneinstance | A page with the corresponding text is only started once inside the workplace. If the page already exists no new pages is started but the existing one is picked. | Obligatory | true<br>false |

| | | | |
|---|---|---|---|
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| draginfo | Any information that is useful to react on a drop event. Characters ' and \ are not allowed. | Optional | |
| iconurl | URL for the icon in front of the text. The workplace iself is running in project "HTMLBasedGUI" - you have to go up first "../" to address your icons. | Optional | |
| tooltip | Text of the tooltip of the tree node. | Optional | |
| tooltipid | Text ID of the tooltip. | Optional | |

### MFWPOPENCISPOPUP Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| name | Text of the node. | Obligatory | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Optional | |
| activityurl | URL to be started when user clicks on node. You can append parameters to the URL by appending them via "&param1=value1&param2=value2" | Obligatory | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| draginfo | Any information that is useful to react on a drop event. Characters ' and \ are not allowed. | Optional | |
| iconurl | URL for the icon in front of the text. Must start with "../project". | Optional | |
| tooltip | Tooltip of the node. | Optional | |
| tooltipid | Text ID of tooltip. | Optional | |
| width | Set the dimension of the popup in pixels. (width) | Optional | 1<br>2<br>3<br>int-value |
| height | Set the dimension of the popup in pixels. (height) | Optional | 1<br>2<br>3<br>int-value |

| | | | |
|---|---|---|---|
| left | Set the dimension of the popup in pixels. (left) | Optional | 1<br>2<br>3<br>int-value |
| top | Set the dimension of the popup in pixels. (top) | Optional | 1<br>2<br>3<br>int-value |

### MFWPOPENCISTARGET Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| name | Text of the node. | Obligatory | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Optional | |
| activityurl | URL to be started when user clicks on node. You can append parameters to the URL by appending them via "&param1=value1&param2=value2". | Obligatory | |
| target | Name of the target Frame in which the CIS page is going to be opened.<br>During workplace definition each frame you define gets assigned a target-id. | Obligatory | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| draginfo | Any information that is useful to react on a drop event. Characters ' and \ are not allowed. | Optional | |
| iconurl | URL for the icon in front of the text. Must start with "../project". | Optional | |
| tooltip | Tooltip of the node. | Optional | |
| tooltipid | Text ID of the tooltip. | Optional | |

## MFWPOPENHTMLPAGE Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| name | Text of the node. | Optional | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Optional | |
| activityurl | URL to be started when user clicks on node. | Optional | |
| followpageswitches | If the user navigates inside the called page (e.g. switches from one page to the other) then this navigation is registered. True means:<br>when reinvoking the page through the tree then the user come back exactly to the page where he/she stayed. False means: the user is brought back to the starting page always.<br>For HTML pages: Registering of the navigation is only supported for HTML pages in the framebuffer. This means you need to set the framebuffersize attribute in the cisconfig.xml file correspondingly. | Optional | |
| onlyoneinstance | A page with the corresponding text is only started once inside the workplace. If the page already exists no new pages is started but the existing one is picked. | Optional | true<br>false |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| draginfo | Any information that is useful to react on a drop event. Characters ' and \ are not allowed. | Optional | |
| iconurl | URL for the icon in front of the text. Must start with "../project" | Optional | |
| tooltip | Tooltip of the node. | Optional | |
| tooltipid | Text ID of the tooltip. | Optional | |

## MFWPOPENHTMLPOPUP Properties

| | | | |
|---|---|---|---|
| Basic | | | |
| name | Text of the node. | Optional | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Optional | |
| activityurl | URL to be started when user clicks on node. | Obligatory | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |

| | | | |
|---|---|---|---|
| iconurl | URL for the icon in front of the text. Must start with "../project" | Optional | |
| draginfo | Any information that is useful to react on a drop event. Characters ' and \ are not allowed. | Optional | |
| tooltip | Tooltip of the node. | Optional | |
| tooltipid | Text ID of the tooltip. | Optional | |
| width | Set the dimension of the popup in pixels. (width) | Optional | 1<br>2<br>3<br>int-value |
| height | Set the dimension of the popup in pixels. (height) | Optional | 1<br>2<br>3<br>int-value |
| left | Set the dimension of the popup in pixels. (left) | Optional | 1<br>2<br>3<br>int-value |
| top | Set the dimension of the popup in pixels. (top) | Optional | 1<br>2<br>3<br>int-value |

### MFWPOPENHTMLTARGET Properties

| Basic | | | |
|---|---|---|---|
| name | Text of the node. | Obligatory | |
| textid | Multi language dependent text that is displayed inside the control. The "textid" is translated into a corresponding string at runtime.<br>Do not specify a "name" inside the control if specifying a "textid". | Optional | |
| activityurl | URL to be started when user clicks on node. | Obligatory | |
| target | Name of the target Frame in which the HTML Page is going to be opened. | Obligatory | |

| | | | |
|---|---|---|---|
| | When defining a workplace page you assign a target-id per frame. | | |
| comment | Comment without any effect on rendering and behaviour. The comment is shown in the layout editor's tree view. | Optional | |
| Appearance | | | |
| iconurl | URL for the icon in front of the text Must start with "../project". | Optional | |
| draginfo | Any information that is useful to react on a drop event. Characters ' and \ are not allowed. | Optional | |
| tooltip | Tooltip of the node. | Optional | |
| tooltipid | Text ID of the tooltip. | Optional | |

## Customizing the MFWPFUNCTIONS Behavior

The `mfworkplaceeventlistener` property of MFWPBOOTSTRAPINFO defines a Java class name. This class listens to events raised by the workplace and reacts accordingly. Examples for such events are context menu requests, or reactions to opening, closing, removing or switching of content pages. You can write your own event handler class by providing a Java class which implements the `com.softwareag.cis.workplace.IMFWorkplaceEventListener2` interface. See the Javadoc documentation (see also *Developing Java Extensions* in the *Ajax Developer* documentation).

Often, you do not want to write a complete event handler class. Instead, you would like to keep most of the default behavior, but simply customize pop-up messages and/or the shown context menus for the different nodes in the function tree. The following topics describe how to do simple customizations for the default event handler implementation.

You start with the class `com.softwareag.cis.workplace.MFCustomEventListener`. If you only want to customize pop-up messages, you can simply extend this class. If you would like to customize context menus and/or reactions to other events, you can use the `MFCustomEventListener` class as a template for writing your own custom event listener. The `MFCustomEventListener` class extends the `MFEventListenerBase` class which implements basic event reactions.

The following topics are covered below:

- Customizing Pop-up Messages
- Customizing Context Menus
- Implementing Custom Event Reactions (Advanced)

- Source Code for com.softwareag.cis.workplace.MFCustomEventListener

## Customizing Pop-up Messages

If you only want to customize pop-up messages and keep the default context menu and event reaction, proceed as follows.

Create a class (for example, `MyCustomEventListener`) and implement the following methods (see also the example below):

- `String getPopupMessageNumberOfWorkplaceActivitiesReached(...)`
- `String getPopupTitelMaxNumberOfWorkplaceActivitiesReached(...)`
- `String getPopupMessagePopupMenuClosedByUser()`
- `String getPopupTitelPopupMenuClosedByUser()`

```
public class MyCustomEventListener extends MFCustomEventListener
{
protected String getPopupMessageNumberOfWorkplaceActivitiesReached(
                      int    maxactivities)
{
    return "THIS IS MY OWN MESSAGE";
}

protected String getPopupTitleNumberOfWorkplaceActivitiesReached(
                      int    maxactivities)
{
    return "THIS IS MY OWN POP-UP TITLE";
}

protected String getPopupMessagePopupMenuClosedByUser()
{
    return "THIS IS MY OWN MESSAGE";
}

protected String getPopupTitlePopupMenuClosedByUser()
{
    return "THIS IS MY OWN POP-UP TITLE";
}
}
```

Specify the `MyCustomEventListener` class in your bootstrapinfo (see below) and put the class file into the classpath of your web application.

```
<mfwpbootstrapinfo
    defaultcontentpage="/HTMLBasedGUI/empty.html"
         ...
         mfworkplaceeventlistener="com.mycompany.MyCustomEventListener"
...
```

### Customizing Context Menus

If you would like to have your own context menus, you need to implement the following methods:

- `TREECollection buildContextMenu(...)`
- `TREECollection buildDropMenu(...)`
- `TREECollection buildFunctionContextMenu(...)`
- `TREECollection buildMFTopicContextMenu(...)`

All of these methods return a `TREECollection` object with the nodes for the context menu. For details of the different methods, see the corresponding JavaDoc documentation of the `com.softwareag.cis.workplace.MFEventListenerBase` class. See also *Developing Java Extensions* in the *Ajax Developer* documentation.

Recommendation:

1. Write your own class (for example, `AnotherCustomEventListener`) which extends `MFEventListenerBase`.
2. Use the `MFCustomEventListener` class as a template. Here you can see how a `TREECollection` object is built. You can copy all required information and paste it in your own class.

A `TREECollection` is an object which describes a tree of nodes. Each node implements some standard commands such as **Remove**, **Cut** or **Paste**. If you look at the `MFCustomerEventListener` class, you will see the class `MFCustomMenuNodeInfo` which extends the class `MFMenuNodeInfoBase`. The `MFMenuNodeInfoBase` class contains the implementation of a set of standard commands which are defined as `CMDID_*` fields in the class. See the corresponding Javadoc documentation for details (see also *Developing Java Extensions* in the *Ajax Developer* documentation). You can reuse the standard commands, or you can implement your own commands.

Recommendation for implementing your own commands:

1. Write your own node class (for example, `MyCustomMenuNodeInfo`) which extends `MFMenuNodeInfoBase`.
2. In the same way as the `MFCustomEventListener` class builds the `TREECollection` objects from `MFCustomMenuNodeInfo` nodes, your `AnotherCustomEventListener` class will build the `TREECollection` objects from the `MyCustomMenuNodeInfo` nodes.

To use your newly implemented event listener class `AnotherCustomEventListener`, specify the `AnotherCustomEventListener` class in your bootstrapinfo (see below) and put the class file into the classpath of your web application.

```
<mfwpbootstrapinfo
    defaultcontentpage="/HTMLBasedGUI/empty.html"
         ...
      mfworkplaceeventlistener="com.mycompany.AnotherCustomEventListener"
...
```

### Implementing Custom Event Reactions (Advanced)

If you also want to implement own reactions to other events, you create your own class (for example, `MyAdvancedEventListener`) which implements the interface `com.softwareag.cis.workplace.IMFWorkplaceEventListener2`. See the Javadoc documentation for details (see also *Developing Java Extensions* in the *Ajax Developer* documentation).

Your class must implement the `react*` methods of this interface:

```
public class MyAdvancedEventListener implements IMFWorkplaceEventListener2
{
   public void reactOnDrop(...){...}
   public Boolean reactOnCloseWindowRequest(...){...}
   ...
}
```

To add your `MyAdvancedEventListener` class to the bootstrapinfo, proceed in the same way as described in the previous topics.

### Source Code for com.softwareag.cis.workplace.MFCustomEventListener

```
package com.softwareag.cis.workplace;

import com.softwareag.cis.server.util.TREECollection;

/**
 * This class is an example of a simple custom event listener based on the
 * <code>MFEventListenerBase</code> default implementation. The source code is
 * available in the documentation.
 * <p>
 * It shows how to simply customize pop-up messages, pop-up titles and/or context
 * menus without having to write a complete event listener.
 * <p>
 *
 * @see com.softwareag.cis.workplace.MFEventListenerBase
 *
 */
public class MFCustomEventListener extends MFEventListenerBase
{
    /**
     * Objects of this class represent a context menu item. It extends the
     * default implementation for context menu items {@link #MFMenuNodeInfoBase}.
     * This default implementation defines default items for the basic commands
     * like CUT, PASTE, REMOVE.
     * <p>
     *
     * @see com.softwareag.cis.workplace#MFMenuNodeInfoBase
     *
     */
    public class MFCustomMenuNodeInfo extends MFMenuNodeInfoBase
    {
        /**
         * Constructor
         *
         * @param eventListener the event listener
         */
        MFCustomMenuNodeInfo(MFEventListenerBase eventListener)
        {
            super(eventListener);
        }

        /* (non-Javadoc)
         * @see ↩
com.softwareag.cis.workplace.MFMenuNodeInfoBase#init(java.lang.String,
         *      java.lang.String, com.softwareag.cis.workplace.IMFWorkplace,
         *      com.softwareag.cis.server.util.TREECollection,
         *      com.softwareag.cis.workplace.MFWorkplaceTreeNodeGeneral[],
         *      com.softwareag.cis.workplace.MFWorkplaceTreeNodeGeneral,
         *      com.softwareag.cis.workplace.MFWorkplaceTopic)
         */
        protected void init(String text,
                            String image,
                            IMFWorkplace workplace,
                            TREECollection tree,
                            MFWorkplaceTreeNodeGeneral[] treeNodes,
                            MFWorkplaceTreeNodeGeneral treeNode2,
                            MFWorkplaceTopic topic)
        {
            super.init(text, image, workplace, tree, treeNodes, treeNode2, topic);
        }

        /* (non-Javadoc)
         * @see com.softwareag.cis.workplace.MFMenuNodeInfoBase#init(int,
         *      com.softwareag.cis.workplace.IMFWorkplace,
         *      com.softwareag.cis.server.util.TREECollection,
         *      com.softwareag.cis.workplace.MFWorkplaceTreeNodeGeneral[],
         *      com.softwareag.cis.workplace.MFWorkplaceTreeNodeGeneral,
         *      com.softwareag.cis.workplace.MFWorkplaceTopic)
         */
        protected void init(int cmdid,
                            IMFWorkplace workplace,
                            TREECollection tree,
                            MFWorkplaceTreeNodeGeneral[] treeNodes,
                            MFWorkplaceTreeNodeGeneral treeNode2,
                            MFWorkplaceTopic topic)
        {
            super.init(cmdid, workplace, tree, treeNodes, treeNode2, topic);
        }

    }

    /*
     * (non-Javadoc)
     *
     * @see ↩
com.softwareag.cis.workplace.MFEventListenerBase#buildDropMenu(com.softwareag.cis.workplace.IMFWorkplace,
     *      com.softwareag.cis.workplace.MFWorkplaceTopic,
     *      com.softwareag.cis.workplace.MFWorkplaceTreeNodeGeneral,
     *      com.softwareag.cis.workplace.MFWorkplaceTreeNodeGeneral[])
     */
    protected TREECollection buildDropMenu(IMFWorkplace workplace,
                                           MFWorkplaceTopic topic,
                                           MFWorkplaceTreeNodeGeneral targetNode,
                                        MFWorkplaceTreeNodeGeneral[] droppedItems)
    {
        TREECollection menu = new TREECollection();
        MFCustomMenuNodeInfo menuNode = null;
        if (targetNode.getOpened() == 2)
        {
            menuNode = new MFCustomMenuNodeInfo(this);
            menuNode.init(MFMenuNodeInfoBase.CMDID_MOVEBEFORE, workplace, ↩
topic.getTree(), droppedItems, targetNode, topic);
            menu.addTopNode(menuNode, true);
            menuNode = new MFCustomMenuNodeInfo(this);
            menuNode.init(MFMenuNodeInfoBase.CMDID_MOVEBEHIND, workplace, ↩
topic.getTree(), droppedItems, targetNode, topic);
            menu.addTopNode(menuNode, true);
        }
        else
        {
            menuNode = new MFCustomMenuNodeInfo(this);
            menuNode.init(MFMenuNodeInfoBase.CMDID_MOVEASFIRST, workplace, ↩
topic.getTree(), droppedItems, targetNode, topic);
            menu.addTopNode(menuNode, true);
            menuNode = new MFCustomMenuNodeInfo(this);
            menuNode.init(MFMenuNodeInfoBase.CMDID_MOVEASLAST, workplace, ↩
topic.getTree(), droppedItems, targetNode, topic);
            menu.addTopNode(menuNode, true);
        }
        return menu;
    }
    /*
     * (non-Javadoc)
     *
     * @see ↩
com.softwareag.cis.workplace.MFEventListenerBase#buildContextMenu(com.softwareag.cis.workplace.IMFWorkplace,
     *      com.softwareag.cis.workplace.MFWorkplaceTopic,
     *      com.softwareag.cis.workplace.MFWorkplaceTreeNodeGeneral,
     *      com.softwareag.cis.workplace.MFWorkplaceTreeNodeGeneral[])
     */
    protected TREECollection buildContextMenu(IMFWorkplace workplace,
                                              MFWorkplaceTopic topic,
                                              MFWorkplaceTreeNodeGeneral item,
                                           MFWorkplaceTreeNodeGeneral[] selection)
    {
        TREECollection tree = topic.getTree();
        TREECollection menu = new TREECollection();

        // --------------------- Show with sub menu
        MFCustomMenuNodeInfo menuNode = null;
        menuNode = new MFCustomMenuNodeInfo(this);
        menuNode.init(MFMenuNodeInfoBase.CMDID_SHOW, workplace, tree, selection, ↩
null, topic);
        menu.addTopNode(menuNode, false);

        MFCustomMenuNodeInfo subNode = null;
        subNode = new MFCustomMenuNodeInfo(this);
       subNode.init(MFMenuNodeInfoBase.CMDID_SHOW_CONTENT_FRAME, workplace, tree, ↩
selection, null, topic);
        menu.addSubNode(subNode, menuNode, true, false);

        subNode = new MFCustomMenuNodeInfo(this);
        subNode.init(MFMenuNodeInfoBase.CMDID_SHOW_NEW_WINDOW, workplace, tree, ↩
selection, null, topic);
        menu.addSubNode(subNode, menuNode, true, false);

        // --------------- CUT
        menuNode = new MFCustomMenuNodeInfo(this);
        menuNode.init(MFMenuNodeInfoBase.CMDID_CUT, workplace, tree, selection, ↩
null, topic);
        menu.addTopNode(menuNode, true);

        // --------------- PASTE
        menuNode = new MFCustomMenuNodeInfo(this);
       menuNode.init(MFMenuNodeInfoBase.CMDID_PASTE, workplace, tree, selection, ↩
null, topic);
        menu.addTopNode(menuNode, true);
        if (super.getClipboardSize() == 0 ||
            item.getOpened() == 2) menuNode.setInactive(true);

        // --------------- Separator
        menuNode = new MFCustomMenuNodeInfo(this);
       menuNode.init("&SEPARATOR", null, workplace, tree, selection, null, topic);
```

```
        menu.addTopNode(menuNode, true);

        // --------------- REMOVE
        menuNode = new MFCustomMenuNodeInfo(this);
       menuNode.init(MFMenuNodeInfoBase.CMDID_REMOVE, workplace, tree, selection, ↩
null, topic);
        menu.addTopNode(menuNode, true);

        return menu;
    }

    /*
     * (non-Javadoc)
     *
     * @see ↩
com.softwareag.cis.workplace.MFEventListenerBase#buildFunctionContextMenu(com.softwareag.cis.workplace.IMFWorkplace,
     *      com.softwareag.cis.workplace.MFWorkplaceTopic)
     */
    protected TREECollection buildFunctionContextMenu(IMFWorkplace workplace,
                                                   MFWorkplaceTopic selectedTopic)
    {
        TREECollection menu = new TREECollection();
        MFCustomMenuNodeInfo menuNode = null;

        menuNode = new MFCustomMenuNodeInfo(this);
        menuNode.init(MFMenuNodeInfoBase.CMDID_REFRESHTOPIC, workplace, ↩
selectedTopic.getTree(), null, null, selectedTopic);
        menu.addTopNode(menuNode, true);

        menuNode = new MFCustomMenuNodeInfo(this);
        menuNode.init(MFMenuNodeInfoBase.CMDID_REMOVEALL, workplace, ↩
selectedTopic.getTree(), null, null, selectedTopic);
        menu.addTopNode(menuNode, true);

        return menu;
    }

    /*
     * (non-Javadoc)
     *
     * @see ↩
com.softwareag.cis.workplace.MFEventListenerBase#buildMFTopicContextMenu(com.softwareag.cis.workplace.IMFWorkplace,
     *      com.softwareag.cis.workplace.MFWorkplaceTopic)
     */
    protected TREECollection buildMFTopicContextMenu(IMFWorkplace workplace,
                                                   MFWorkplaceTopic selectedTopic)
    {
        TREECollection menu = new TREECollection();
        MFCustomMenuNodeInfo menuNode = null;

        menuNode = new MFCustomMenuNodeInfo(this);
        menuNode.init(MFMenuNodeInfoBase.CMDID_REFRESHTOPIC, workplace, ↩
selectedTopic.getTree(), null, null, selectedTopic);
        menu.addTopNode(menuNode, true);
        return menu;
    }

    /*
     * (non-Javadoc)
     *
     * @see ↩
com.softwareag.cis.workplace.MFEventListenerBase#getMaxNumberActivitiesMode()
     */
    protected int getMaxNumberActivitiesMode()
    {
        return MAX_NUMBER_ACTIVITIES_POPUP;
    }

    /*
     * (non-Javadoc)
     *
     * @see ↩
com.softwareag.cis.workplace.MFEventListenerBase#getPopupMessageNumberOfWorkplaceActivitiesReached(int)
     */
    protected String getPopupMessageNumberOfWorkplaceActivitiesReached(int ↩
maxactivities)
    {
        // use default
        return null;
    }

    /*
     * (non-Javadoc)
     *
     * @see ↩
com.softwareag.cis.workplace.MFEventListenerBase#getPopupTitelMaxNumberOfWorkplaceActivitiesReached(int)
     */
    protected String getPopupTitelMaxNumberOfWorkplaceActivitiesReached(int ↩
maxactivities)
    {
        // use default
        return null;
    }

    /*
     * (non-Javadoc)
     *
     * @see ↩
com.softwareag.cis.workplace.MFEventListenerBase#getPopupMessagePopupMenuClosedByUser()
     */
    protected String getPopupMessagePopupMenuClosedByUser()
    {
        // use default
        return null;
    }

    /*
     * (non-Javadoc)
     *
     * @see ↩
com.softwareag.cis.workplace.MFEventListenerBase#getPopupTitelPopupMenuClosedByUser()
     */
    protected String getPopupTitelPopupMenuClosedByUser()
    {
        // use default
        return null;
    }

}
```

## Session Management inside the Workplace

When the user selects functions in the MFWPFUNCTIONS frame, then pages are opened in the content frame, or as pop-ups or in a named target frame.

The workplace offers a “multi document interface” - i.e. you can work in parallel in several activities and you can switch between these activities. This structure is reflected in the server-side session structure. The section *Details on Session Management* in the *Special Development Topics* (which is part of the Application Designer documentation) explains this in a detailed way. However, some information is given below.

The session management of Application Designer knows sessions (typically representing a browser instance) and subsessions (reflecting a user activity with a defined life cycle). A session contains one or more subsessions. Inside one subsession, the adapter object are kept which are required by a page or a page sequence. Subsessions are isolated from one another.

The workplace proceeds in the following way:

- Every activity that is started inside the content is represented by a subsession of its own. If you have opened five Application Designer pages via the function tree inside the content area of the workplace, then there are five subsessions on the server side. If the user navigates between the activities (e.g. via the MFWPACTIVEFUNCTIONS frame), then from session point of view the user navigated between subsessions.
- The workplace itself also occupies one subsession. If Application Designer pages are opened in a pop-up or in a named target, then these pages are living inside the subsession of the workplace.

When programming content pages, you do not notice the session management: every page that you design and test in the Layout Painter behaves in the same way in the workplace. Due to the separation into subsessions, you are not aware of "neighboring" subsessions.

## Workplace API for Dynamic Manipulation

Internally, the workplace is started when the workplace frameset page is loaded. So far you got to know the framework to set up the workplace by providing a MFWPBOOTSTRAPINFO file.

But you can also dynamically manipulate the workplace. There are two typical usages:

- You can exchange all workplace definitions dynamically. Maybe you offer the user a “reduced” workplace just allowing the user to log on at the beginning. Afterwards, the “real” workplace for the user is built up - containing all functions available for the user.
- You can manipulate workplace definitions in an existing workplace. For example, you modify the title of an activity that is shown in the MFWPACTIVEFUNCTIONS area. Or you want to add certain nodes to an existing tree.

For this purpose, there is a set of controls containing the workplace functions that you can use from your application:

- **NJX:XCIWPINFO2**
- **NJX:XCIWPFUNCTIONS**
- **NJX:XCIWPACCESS2**

# 122 Creating Your Own Workplace Application

- General Information ........ 866
- Using the Default Workplace Framework ........ 866
- Customizing the Frames, Dialogs and Messages of the Default Workplace Framework ........ 867
- Using Your Own Standard Pop-up Dialogs and Messages ........ 867
- Using Your Own Active Functions Frame ........ 869

## General Information

When you create your own workplace application, it consists of several different elements:

- The workplace framework
  - Standard workplace frames and pop-up dialogs
  - Standard multi-language messages and texts
  - Standard behavior
- A specific application
  - Page layouts with Natural/Java implementation
  - Multi-language messages and texts
  - Style
  - Behavior

Depending on the application needs, it might be convenient to use the default implementation of the workplace framework as it is. Other applications might want to adapt the look-and-feel of the default workplace frames, standard pop-up dialogs and/or texts to their own needs. The topics below describe both approaches.

## Using the Default Workplace Framework

The default workplace framework is the workplace implementation as used in the development workplace itself. Standard dialogs and frames used in this implementation are not part of your project. They reside in the central project **HTMLBasedGUI** and are simply used from within your project.

To create a workplace application with the default look-and-feel, proceed as follows:

1. Use the Layout Painter to create a new layout which uses the "Multi Frame Workplace" layout template (this template is located on the **Workplace** tab).

   Customize all required properties to your needs. However, leave the `workplaceproject` property of the **MFWPFUNCTIONS** control empty.

2. Create an MFWPBOOTSTRAPINFO XML file. See ***Filling the MFWPFUNCTIONS Frame Initially: MFWPBOOTSTRAPINFO***.

   As the value for the `mfworkplaceeventlistener` property, specify "com.softwareag.cis.workplace.MFCustomEventListener". This is a ready-to-use default implementation. You can also add your own event listener, see ***Customizing the MFWPFUNCTIONS Behavior***.

## Customizing the Frames, Dialogs and Messages of the Default Workplace Framework

As shown in the section *Framework Overview*, the workplace framework contains the following predefined frames which can be customized slightly via the corresponding properties:

- Functions
- Active Functions
- Contents

In addition, the workplace framework uses own messages and standard dialogs from the central **HTMLBasedGUI** project. The files of the **HTMLBasedGUI** project are not intended to be modified because any modifications will be lost during the next product upgrade. Instead, you can use your own "Active Functions" frame and/or your own standard pop-up dialogs and standard messages as described below.

## Using Your Own Standard Pop-up Dialogs and Messages

Open your "Multi Frame Workplace" page layout in the Layout Painter. Set the value of the property `workplaceproject` to the name of your project. When saving the page layout, the following files will be generated into your project:

- `<myproject>`*/multilanguage/de/workplace.csv*
- `<myproject>`*/multilanguage/en/workplace.csv*
- `<myproject>`*/multilanguage/de/popups.csv*
- `<myproject>`*/multilanguage/en/popups.csv*
- `<myproject>`*/popupok.xml*
- `<myproject>`*/popupyesno.xml*

The *workplace.csv* files in the *multilanguage* directory contain standard messages used in the workplace framework for English and German. Be careful not to change the text IDs. However, you can adapt the texts and you can also add additional languages.

The names of the *popups.csv* files in the *multilanguage* directory are defined by the `translationreference` property. See the sample layout below.

The *popupok.xml* and *popupyesno.xml* files are the layouts for the used standard pop-up dialogs. Be sure not to change the names of the layouts, the corresponding adapter classes or the properties/methods. You can adapt the layouts but you must keep the following parts that are shown in bold below:

```
<page ispopup="true"
      model="com.softwareag.cis.popups.PopupOKModel"
      popupheight="170" popupwidth="310"
      translationreference="popups">
  <pagebody takefullheight="true">
    <itr height="100%" width="100%">
      <textout align="center" valign="middle"
               valueprop="question" width="100%">
      </textout>
    </itr>
    <vdist height="5">
    </vdist>
    <itr align="center">
      <button method="reactOnOK" textid="popupok.button0"
              withtd="false">
      </button>
    </itr>
    <vdist height="8">
    </vdist>
  </pagebody>
</page>
```

```
<page model="com.softwareag.cis.popups.PopupYesNoModel"
      translationreference="popups" popupwidth="310"
      popupheight="200">
  <pagebody takefullheight="true">
    <vdist height="5">
    </vdist>
    <itr width="100%" align="center">
    <textout valueprop="question" width="100%" height="100"
             align="center">
    </textout>
    </itr>
    <vdist height="5">
    </vdist>
    <itr align="center">
      <button textid="btnYes" method="reactOnYes">
      </button>
      <hdist width="10">
      </hdist>
      <button textid="btnNo" method="reactOnNo">
      </button>
    </itr>
    <vdist height="5">
    </vdist>
  </pagebody>
</page>
```

## Using Your Own Active Functions Frame

To create and use your own "Active Functions" frame, proceed as follows:

1. Use the Layout Painter to create a new layout which uses one of the following layout templates (these templates are located on the **Workplace** tab):

   Workplace Activities Frame
   Workplace Activities Frame 2
   Workplace Stripsel Activities Frame
   Workplace Stripsel Activities Frame 2

   The layout templates either use a **TABSTRIP2** or a **STRIPSEL** control to render the activities. Both variants are available with and without navigation frame icons ("Close All Windows", "Reopen Navigation Frame", "Close Navigation Frame"). The layout templates which contain the number 2 in their names include the additional navigation frame icons.

2. You can modify the generated layout, but you must keep the parts that are shown in bold below.

   ```
   <page
     model="com.softwareag.cis.workplace.MFActivitiesAdapter"
     translationreference="workplace"
     ...
     <tabstrip2 tabstripprop="activities2"
     ...
   ```

   For controlling the navigation frame, you can use the following method names:

   - `on0Size` (close the navigation frame)
   - `onNormalSize` (reopen the navigation frame)
   - `onCloseAll` (close all windows)

   Note that the generated layout is implemented by the Java adapter `com.softwareag.cis.workplace.MFActivitiesAdapter`. This Java adapter will handle these events. The "Active Function" frame cannot be implemented by a NATPAGE control. Also note that the events listed above are not passed to the Natural application.

3. In the **MFWPFUNCTIONS** control of your "Multi Frame Workplace" layout, set the `activefunctionsvariant` property to the URL of your own "Active Functions" frame layout. Example:

```
activefunctionsvariant="/myproject/myactiveFunctionsFrame.html"
```

# 123 Executing and Debugging Workplace Applications

- General Information ........ 872
- Creating a Session Configuration on the Application Server ........ 872
- Configuring the Session in Your Workplace Application ........ 873
- Executing the Workplace Application in NaturalONE ........ 873
- Debugging the Workplace Application in NaturalONE ........ 873

## General Information

If you want to execute and debug workplace applications with NaturalONE, you have to install a Natural Web I/O Interface server (NWO). The Natural Web I/O Interface server must run in the same environment (`FNAT`, `FUSER`, `FDIC` and `FSEC`) as the Natural Development Server (NDV) which is used in NaturalONE.

For detailed information, see the section *Installing and Configuring the Natural Web I/O Interface Server* in the *Natural Web I/O Interface* documentation, which is part of the Natural documentation for the different platforms.

## Creating a Session Configuration on the Application Server

This section describes how to create a session using NaturalONE's internal Tomcat server.

If you are using the internal Tomcat server of NaturalONE, make sure that identical session definitions for the workplace are defined in both: in the Tomcat server of your NaturalONE installation and in the Natural for Ajax web server installation outside of NaturalONE.

### To create a session

1. Start NaturalONE.
2. Find out on which port the internal Tomcat server of your NaturalONE installation is running.

   When the console output for the internal Tomcat server is enabled in the Natural preferences, you can see the port in the **Console** view when starting NaturalONE. Look for a message such as the following:

   ```
   Starting internal Tomcat server using HTTP port 8080 ...
   ```

   The port varies if several instances of NaturalONE are running in parallel. Normally, it is 8080.
3. Use the following URL to invoke the configuration tool of Natural for Ajax on this port:

   ```
   http://localhost:8080/cisnatural/conf_index.jsp
   ```

4. Invoke the **Session Configuration** page and create the required session.

   For detailed information, see *Client Configuration* in the documentation for the runtime version of Natural for Ajax. The latest version of the Natural for Ajax documentation (which is not part of the NaturalONE documentation) can always be found at ***http://documentation.softwareag.com/***.

## Configuring the Session in Your Workplace Application

After the session has been defined in the configuration tool, you have to configure this session in the XML file which represents your initial workplace setup. For detailed information, see ***Filling the MFWPFUNCTIONS Frame Initially: MFWPBOOTSTRAPINFO***.

## Executing the Workplace Application in NaturalONE

After you have installed and configured the Natural Web I/O Interface server and after the session has been defined in the configuration tool, you can execute your workplace application using NaturalONE's Ajax Developer.

### ▶ To execute the workplace application

1. In the **Navigator** view, select the XML layout which represents your workplace application.
2. Invoke the context menu and choose **Ajax Developer > Execute**.

## Debugging the Workplace Application in NaturalONE

After you have installed and configured the Natural Web I/O Interface server and after the session has been defined in the configuration tool, you can debug your workplace application. For debugging, you can start the workplace application in two different ways: you can start it from within NaturalONE using the context menu, or you can start it directly in the browser using URL parameters. This is described in the topics below.

The prerequisite for debugging, however, is that the debug attach server has been enabled in the Natural preferences and that at least one breakpoint has been set in a Natural program which belongs to your workplace application. For further information, see *Using a Debug Attach Server* in *Using NaturalONE*.

The following topics are covered below:

- Starting the Workplace Application from NaturalONE

- Starting the Workplace Application Directly in the Browser

### Starting the Workplace Application from NaturalONE

The following steps assume that you have already created a Natural project containing the relevant sources for the workplace application in NaturalONE.

#### To debug a workplace application

1 Open the source editor for a Natural program which belongs to the workplace application and set at least one breakpoint.

2 In the **Navigator** view, go to the **xml** folder which contains your page layouts.

3 Select the page layout for your workplace application (a page of type MFPAGE).

4 Invoke the context menu and choose **Ajax Developer > Debug**.

See also *Executing and Debugging User Interface Components* in the *Ajax Developer* documentation.

The workplace application is now started in the browser, in debug mode. When the program in which the breakpoint has been set is about to be executed inside the corresponding Natural session, the debugger is launched and the application stops at the first breakpoint. You can now use the **Debug** perspective as described in the section *Debugging Natural Applications* which is part of *Using Natural ONE*.

### Starting the Workplace Application Directly in the Browser

The parameters which are normally defined in the Natural preferences (host name and port number) and in the properties of a Natural project (client ID) can also be specified as URL parameters of the workplace application URL.

The following URL parameters are available for debugging purposes:

| URL Parameter | Description |
|---|---|
| `xciParameters.natdebugclientid` | The client ID which has been generated for the project or, if defined, a custom client ID. You can find this ID in the project properties. See also *Debug Attach Settings* in *Changing the Project Properties* which is part of *Using NaturalONE*. |
| `xciParameters.natdebughost` | The name of the host (or IP address) on which the debug attach server is running. Do not use "localhost" as the host name. |
| `xciParameters.natdebugport` | The number of the port to which the debug attach server is listening. |

Example:

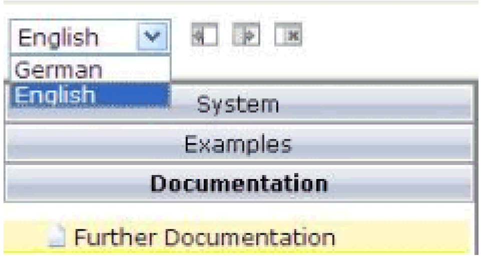
*http://localhost:8080/cisnatural/servlet/StartCISPage?PAGEURL=/njxdemos/wpdynworkplace.html&xciParameters.natdebugclientid=DC66D909-6872-4AFB-8898-D12B286BBE27&xciParameters.natdebughost=natqts43.eur.ad.sag&xciParameters.natdebugport=9999*

# 124 Multi Language Management in Workplace Applications

- General Information .... 878
- Language Switch in Content Pages .... 879
- Language Switch in Function Tree and Activities Pane .... 879

## General Information

The following provides some hints for multi language management in workplace applications which contain Natural layout pages. We assume that the user interface contains a combo box or another control which allows the end user to select the language in a Java-based layout page.



This small Java-based layout page can be very simple:

```
<?xml version="1.0" encoding="UTF-8"?>
<page model="com.softwareag.cis.test.workplace.LanguageSelectionAdapter"
    occupiedpixelheight="0" occupiedpixelwidth="0" ↩
contextmenumethod="processAsDefault">
    <pagebody vscroll="hidden" hscroll="hidden" horizdist="false">
        <vdist height="8">
        </vdist>
        <itr takefullwidth="true">
            <coltable0 width="100">
                <itr>
                    <hdist width="5">
                    </hdist>
                    <combofix valueprop="language" width="90" flush="server"
                        flushmethod="onLanguageChanged">
                        <combooption name="German" value="de">
                        </combooption>
                        <combooption name="English" value="en">
                        </combooption>
                    </combofix>
                </itr>
            </coltable0>
        </itr>
        <itr>
        </itr>
    </pagebody>
</page>
```

For an example of how to integrate such a page layout into a frameset of a workplace definition, see */njxdemos/xml/wpworkplacelan1.xml*. For language selection, this file uses the layout */njxdemos/xml/wplanselect1.xml*. Based on the user selection, the workplace application has to respond correspondingly. Depending on the application needs, the reactions can be different. The following sections provide information on some basic reactions. Your workplace application may implement its own specific handling.

## Language Switch in Content Pages

When the user selects a different language, the workplace application basically has two choices:

- either close the already started activities after asking or warning the user, or
- force the already started activities to switch to the newly selected language.

The `MFWorkplaceSessionUtil` class in the package `com.softwareag.cis.workplace` contains methods for performing both kinds of reaction.

Regardless of the variant you implement for the currently started activities, you want new layout pages to be started with the newly selected language. If your layout pages are implemented with Natural, use the configuration tool that is delivered with the Natural for Ajax product and set the **Language** option to **Set in workplace**. This makes sure that newly added or opened activities use the newly selected language.

## Language Switch in Function Tree and Activities Pane

Sometimes, the newly selected language should only be applied to the activities in the workplace. Sometimes, the workplace application also wants to change the language in the function tree and activity pane.

If you use a static workplace definition (that is, a *bootstrapinfo.xml* file) and want to change the language in the function tree later, you must use `textid` properties instead of names.

You can change the language for a static workplace definition by reloading the workplace definition. The `MFWorkplaceSessionUtil` class in the package `com.softwareag.cis.workplace` contains convenient methods for reloading the workplace definition. When reloading a function tree, make sure to

- either close the started activities first, or
- update the page titles in the activities pane.

If you modify the function tree dynamically using the **NJX:XCIWPINFO2** and/or **NJX:XCIWP-FUNCTIONS** controls and want to change the language in the function tree later, you must also use `textid` properties in these controls.

To update the page titles in already started activities, you simply call the method `replaceLiteralInPageTitles()` of the `MFWorkplaceSessionUtil` class.

To change the language in a dynamically defined function tree, you simply call the method `replaceLiteralInFunctionTree()` in the `MFWorkplaceSessionUtil` class. Instead of reloading the workplace definition, you can also use this method for statically defined function trees.

See also the **wpworkplacelan2** example in the **njxdemos** project.

# 125 NJX:XCIWPINFO2

- Example ........ 882
- Adapter Interface ........ 882

The NJX:XCIWPINFO2 control is used to access and exchange the function tree that is shown in the “Functions” frame (**MFWPFUNCTIONS**) as a whole. In order to perform incremental changes in the function tree, you should use the **NJX:XCIWPFUNCTIONS** control.

The NJX:XCIWPINFO2 control provides a functional API to the workplace. It does not have design time properties nor does it raise events.

## Example

The XML code for the example looks as follows:

```
<natpage xmlns:njx="http://www.softwareag.com/njx/njxMapConverter">
    <njx:xciwpinfo2>
    </njx:xciwpinfo2>
</natpage>
```

## Adapter Interface

```
1 XCIWPINFO_CHANGEINDEX (I4)
1 XCIWPINFO_NODE (1:*)
2 ACTIVITYID (U) DYNAMIC
2 ACTIVITYURL (U) DYNAMIC
2 BUTTONSTYLE (U) DYNAMIC
2 DRAGINFO (U) DYNAMIC
2 FOLLOWPAGESWITCHES (L)
2 HEIGHT (I4)
2 ICONURL (U) DYNAMIC
2 LEFT (I4)
2 LEVEL (I4)
2 NAME (U) DYNAMIC
2 ONLYONEINSTANCE (L)
2 OPENED (I4)
2 TARGET (U) DYNAMIC
2 TEXTID (U) DYNAMIC
2 TOOLTIP (U) DYNAMIC
2 TOOLTIPID (U) DYNAMIC
2 TOP (I4)
2 TREECLASS (U) DYNAMIC
2 TREESTYLE (U) DYNAMIC
2 TYPE (U) DYNAMIC2 WIDTH (I4)
```

Each occurrence in the array `XCIWPINFO_NODE` describes a node in the function tree. The function tree consists of up to three levels: topics, folders and nodes.

### Topic

The following structure elements are used to describe a topic:

| Element | Meaning |
|---|---|
| BUTTONSTYLE | Style info that is passed to the button representing the topic. |
| ICONURL | The button that represents this topic may have an additional icon in front of the text. Use this parameter to set the icon URL. |
| LEVEL | The following definition means "This is a topic":<br>`LEVEL = 1` |
| NAME | Name of the topic. |
| TEXTID | Multi language dependent text that is displayed inside the control. The `TEXTID` is translated into a corresponding string at runtime. |
| OPENED | The following definition means "The topic is closed":<br>`OPENED = 0`<br>The following definition means "The topic is opened":<br>`OPENED = 1` |
| TOOLTIP | Text of the tooltip for the topic. |
| TOOLTIPID | Multi language dependent text that is displayed inside the control. The `TOOLTIPID` is translated into a corresponding string at runtime. |
| TREECLASS | Set the style class for rendering the tree area of the topic. There are ten standard style classes available in the default style sheet: `PLACETOPIC1ClientTree` to `WORKPLACETOPIC10ClientTree`. These style sheets can be maintained with the style sheet editor of the Application Designer. |
| TREESTYLE | Background style for the tree. For example, you can define background colors and background pictures. Avoid the usage of single quote (') and double-quote (") characters. |

### Folder

The following structure elements are used to describe a folder:

| Element | Meaning |
|---|---|
| DRAGINFO | Any information that is useful to react on a drop event. The single quote (') and backslash (\\) characters are not allowed. |
| LEVEL | The following definitions mean "This is a folder":<br>`LEVEL >= 2` and `OPENED = 0`<br>or<br>`LEVEL >= 2` and `OPENED = 1` |
| NAME | Name of the folder. |

| Element | Meaning |
|---|---|
| TEXTID | Multi language dependent text that is displayed inside the control. The TEXTID is translated into a corresponding string at runtime. |
| OPENED | The following definition means "The folder is closed":<br>OPENED = 0<br>The following definition means "The folder is opened":<br>OPENED = 1 |
| TOOLTIP | Text of the tooltip for the folder. |
| TOOLTIPID | Multi language dependent text that is displayed inside the control. The TOOLTIPID is translated into a corresponding string at runtime. |

### Node that opens a page in the "Content" frame

The following structure elements are used to describe a node that opens an Application Designer page or HTML page in the "Content" frame:

| Element | Meaning |
|---|---|
| ACTIVITYURL | The URL to be loaded when the user clicks on a node. You can append parameters to the URL. |
| DRAGINFO | Any information that is useful to react on a drop event. The single quote (') and backslash (\) characters are not allowed. |
| FOLLOWPAGESWITCHES | If true, the workplace keeps the information when the user switches inside the content area from one page to the next. If the user reinvokes the page, the page to which the user switched last is shown, not the one from the ACTIVITYURL. The use of FOLLOWPAGESWITCHES only makes sense if ONLYONEINSTANCE is set to true.<br>The following applies for HTML pages: Registering of the navigation is only supported for HTML pages in the frame buffer. This means that you have to set the framebuffersize parameter in the *cisconfig.xml* file correspondingly. |
| ICONURL | The URL for the icon which is shown in front of the name. |
| LEVEL | The following definition creates a node on level 2, that is, directly under a topic:<br>LEVEL = 2 and OPENED = 2<br>The following definition creates a node on level 3, that is, under a folder:<br>LEVEL = 3 and OPENED = 2 |
| NAME | Name of the node. |
| TEXTID | Multi language dependent text that is displayed inside the control. The TEXTID is translated into a corresponding string at runtime. |
| ONLYONEINSTANCE | A page with the corresponding name is only started once inside the workplace. If the page already exists, no new page is started but the existing one is used. |

| Element | Meaning |
|---|---|
| OPENED | See the above description for LEVEL. |
| TOOLTIP | Text of the tooltip for the tree node. |
| TOOLTIPID | Multi language dependent text that is displayed inside the control. The TOOLTIPID is translated into a corresponding string at runtime. |
| TYPE | "cis" to open an Application Designer page, or "html" to open an HTML page. |

### Node that opens a page in a pop-up window

The following structure elements are used to describe a node that opens an Application Designer page or HTML page in a pop-up window:

| Element | Meaning |
|---|---|
| ACTIVITYURL | The URL to be loaded when the user clicks on a node. You can append parameters to the URL. |
| DRAGINFO | Any information that is useful to react on a drop event. The single quote (') and backslash (\) characters are not allowed. |
| HEIGHT | Set the dimension of the pop-up in pixels. |
| ICONURL | The URL for the icon which is shown in front of the name. |
| LEFT | Set the relative position of the pop-up in pixels. |
| LEVEL | The following definition creates a node on level 2, that is, directly under a topic:<br>LEVEL = 2 and OPENED = 2<br>The following definition creates a node on level 3, that is, under a folder:<br>LEVEL = 3 and OPENED = 2 |
| NAME | Name of the node. |
| TEXTID | Multi language dependent text that is displayed inside the control. The TEXTID is translated into a corresponding string at runtime. |
| OPENED | See the above description for LEVEL. |
| TOOLTIP | Text of the tooltip for the tree node. |
| TOOLTIPID | Multi language dependent text that is displayed inside the control. The TOOLTIPID is translated into a corresponding string at runtime. |
| TOP | Set the relative position of the pop-up in pixels. |
| TYPE | "cispopup" to open an Application Designer page, or "htmlpopup" to open an HTML page. |
| WIDTH | Set the dimension of the pop-up in pixels. |

### Node that opens a page in a target frame

The following structure elements are used to describe a node that opens an Application Designer page or HTML page in a target frame other than the “Content” frame:

| Element | Meaning |
|---|---|
| ACTIVITYURL | The URL to be loaded when the user clicks on a node. You can append parameters to the URL. |
| DRAGINFO | Any information that is useful to react on a drop event. The single quote (') and backslash (\) characters are not allowed. |
| ICONURL | The URL for the icon which is shown in front of the name. |
| LEVEL | The following definition creates a node on level 2, that is, directly under a topic:<br>LEVEL = 2 and OPENED = 2<br>The following definition creates a node on level 3, that is, under a folder:<br>LEVEL = 3 and OPENED = 2 |
| NAME | Name of the node. |
| TEXTID | Multi language dependent text that is displayed inside the control. The TEXTID is translated into a corresponding string at runtime. |
| OPENED | See the above description for LEVEL. |
| TARGET | Name of the target frame in which the page is to be opened. During workplace definition, you assign a target ID to each frame you define. |
| TOOLTIP | Text of the tooltip for the tree node. |
| TOOLTIPID | Multi language dependent text that is displayed inside the control. The TOOLTIPID is translated into a corresponding string at runtime. |
| TYPE | "cistarget": Open an Application Designer page.<br>"htmltarget": Open an HTML page. |

When the structure is passed to the application, it contains the information about the current function tree. The application may change this information and return it. In order to indicate that the function tree shall be updated in the user interface, the application must modify the value of XCIWPINFO_CHANGEINDEX on return. This is achieved, for instance, by the following statement:

```
ADD 1 TO XCIWPINFO_CHANGEINDEX
```

# 126 NJX:XCIWPFUNCTIONS

- Example .......................................................................................................................... 888
- Adapter Interface ................................................................................................................ 888

The NJX:XCIWPFUNCTIONS control is used to modify the function tree that is shown in the “Functions” frame (**MFWPFUNCTIONS**) incrementally. In order to access the content of the function tree or to exchange it as a whole, you have to use the **NJX:XCIWPINFO2** control.

The NJX:XCIWPFUNCTIONS control provides a functional API to the workplace. It does not have design time properties nor does it raise events.

## Example

The XML code for the example looks as follows:

```
<natpage xmlns:njx="http://www.softwareag.com/njx/njxMapConverter">
    <njx:xciwpfunctions>
    </njx:xciwpfunctions>
</natpage>
```

## Adapter Interface

```
1 XCIWPFUNCTIONS (1:*)
2 CMDADDFOLDER
3 ADDFOLDER_ASFIRST (L)
3 ADDFOLDER_FOLDERNAME (U) DYNAMIC
3 ADDFOLDER_FOLDERTEXTID (U) DYNAMIC
3 ADDFOLDER_OPENED (I4)
3 ADDFOLDER_TOPICNAME (U) DYNAMIC
3 ADDFOLDER_TOPICTEXTID (U) DYNAMIC
2 CMDADDNODE
3 ADDNODE_ACTIVITYID (U) DYNAMIC
3 ADDNODE_ACTIVITYURL (U) DYNAMIC
3 ADDNODE_ASFIRST (L)
3 ADDNODE_FOLDERNAME (U) DYNAMIC
3 ADDNODE_FOLDERTEXTID (U) DYNAMIC
3 ADDNODE_HEIGHT (I4)
3 ADDNODE_LEFT (I4)
3 ADDNODE_NAME (U) DYNAMIC
3 ADDNODE_TARGET (U) DYNAMIC
3 ADDNODE_TEXTID (U) DYNAMIC
3 ADDNODE_TOP (I4)
3 ADDNODE_TOPICNAME (U) DYNAMIC
3 ADDNODE_TOPICTEXTID (U) DYNAMIC
3 ADDNODE_TYPE (U) DYNAMIC
3 ADDNODE_WIDTH (I4)
2 CMDADDTOPIC
3 ADDTOPIC_SWITCHTOTOPIC (L)
3 ADDTOPIC_TOPICNAME (U) DYNAMIC
```

```
3 ADDTOPIC_TOPICTEXTID (U) DYNAMIC
3 ADDTOPIC_TREECLASS (U) DYNAMIC
2 CMDREMFOLDER
3 REMFOLDER_FOLDERNAME (U) DYNAMIC
3 REMFOLDER_FOLDERTEXTID (U) DYNAMIC
3 REMFOLDER_TOPICNAME (U) DYNAMIC
3 REMFOLDER_TOPICTEXTID (U) DYNAMIC
2 CMDREMNODE
3 REMNODE_FOLDERNAME (U) DYNAMIC
3 REMNODE_FOLDERTEXTID (U) DYNAMIC
3 REMNODE_NAME (U) DYNAMIC
3 REMNODE_TEXTID (U) DYNAMIC
3 REMNODE_TOPICNAME (U) DYNAMIC
3 REMNODE_TOPICTEXTID (U) DYNAMIC
2 CMDREMTOPIC
3 REMTOPIC_TOPICNAME (U) DYNAMIC
3 REMTOPIC_TOPICTEXTID (U) DYNAMIC
```

Each occurrence in the array XCIWPFUNCTIONS describes a command that is to be sent to the workplace API. Several commands can be sent in a sequence. For each command, a corresponding substructure must be filled.

**Add a topic**

The following structure elements belong to CMDADDTOPIC:

| Element | Meaning |
|---|---|
| ADDTOPIC_SWITCHTOTOPIC | "true": Open the new topic. |
| ADDTOPIC_TOPICNAME | Name of the topic. |
| ADDTOPIC_TOPICTEXTID | Multi language dependent text that is displayed inside the control. The ADDTOPIC_TOPICTEXTID is translated into a corresponding string at runtime. |
| ADDTOPIC_TREECLASS | Sets the style class for rendering the tree area of the topic. There are ten standard style classes available in the default style sheet: PLACETOPIC1ClientTree to WORKPLACETOPIC10ClientTree. These style sheets can be maintained with the style sheet editor of the Application Designer. |

**Add a folder**

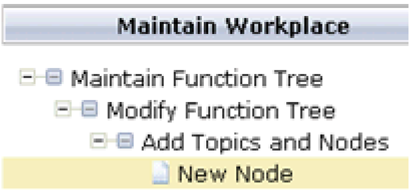
The following structure elements belong to CMDADDFOLDER:

| Element | Meaning |
|---|---|
| ADDFOLDER_ASFIRST | "true": Add this folder as the first folder under the given topic.<br>"false": Add this folder as the last folder under the given topic. |
| ADDFOLDER_FOLDERNAME | Name of the folder. |
| ADDFOLDER_FOLDERTEXTID | Multi language dependent text that is displayed inside the control. The ADDFOLDER_FOLDERTEXTID is translated into a corresponding string at runtime. |
| ADDFOLDER_OPENED | 0: Add the folder as a closed folder with potential subnodes.<br>1: Add the folder as an opened folder.<br>2: Add the folder as a closed folder without subnodes. |
| ADDFOLDER_TOPICNAME | Name of the topic to which the folder is to be added. |
| ADDFOLDER_TOPICTEXTID | Multi language dependent text that is displayed inside the control. The ADDFOLDER_TOPICTEXTID is translated into a corresponding string at runtime. |

### Add a node

You can add all kinds of topic subnodes with the CMDADDNODE structure. Since a function tree can have any depth, you can precisely define the parent node for which you would like to add the new node as a child node. This can be done by specifying corresponding XPATH-like path information in the ADDNODE_FOLDERNAME or ADDNODE_FOLDERTEXTID element.

Example:



To add the node named "New Node", specify the following:

```
ADDNODE_TOPICNAME="Maintain Workplace"
ADDNODE_FOLDERNAME = "Maintain Function Tree/Modify Function Tree/Add Topics ↩
and Nodes"
ADDNODE_NAME="New Node"
```

The following structure elements belong to CMDADDNODE:

| Element | Meaning |
|---|---|
| ADDNODE_NAME | Name of the node to be added. |
| ADDNODE_TEXTID | Multi language dependent text that is displayed inside the control. The ADDNODE_TEXTID is translated into a corresponding string at runtime. |
| ADDNODE_FOLDERNAME | Name of the folder to which the node is to be added. |
| ADDNODE_FOLDERTEXTID | Multi language dependent text that is displayed inside the control. The ADDNODE_FOLDERTEXTID is translated into a corresponding string at runtime. |
| ADDNODE_TOPICNAME | Name of the topic that contains this folder. |
| ADDNODE_TOPICTEXTID | Multi language dependent text that is displayed inside the control. The ADDNODE_TOPICTEXTID is translated into a corresponding string at runtime. |
| ADDNODE_ASFIRST | "true": Add this node as the first node under the given folder.<br>"false": Add this node as the last node under the given folder. |
| ADDNODE_ACTIVITYURL | The URL to be loaded when the user clicks on the node. You can append parameters to the URL. |
| ADDNODE_ACTIVITYID | Use this element if you want to start different pages with the same name. |
| ADDNODE_TYPE | "cis": A node that opens an Application Designer page in the “Content” frame.<br>"html": A node that opens an HTML page in the “Content” frame.<br>"cispopup": A node that opens an Application Designer page in a pop-up window.<br>"htmlpopup": A node that opens an HTML page in a pop-up window.<br>"cistarget": A node that opens an Application Designer page in a target frame other than the “Content” frame.<br>"htmlpopup": A node that opens an HTML page in a target frame other than the “Content” frame. |
| ADDNODE_LEFT | Only with type "cispopup" and "htmlpopup". Set the relative position of the pop-up in pixels. |
| ADDNODE_TOP | Only with type "cispopup" and "htmlpopup". Set the relative position of the pop-up in pixels. |
| ADDNODE_HEIGHT | Only with type "cispopup" and "htmlpopup". Set the dimension of the pop-up in pixels. |
| ADDNODE_WIDTH | Only with type "cispopup" and "htmlpopup". Set the dimension of the pop-up in pixels. |
| ADDNODE_TARGET | Only with type "cistarget" and "htmltarget". Name of the target frame in which the page is to be opened. During workplace definition, you assign a target ID to each frame you define. |

**Remove a topic**

The following structure elements belong to CMDREMTOPIC:

| Element | Meaning |
|---|---|
| REMTOPIC_TOPICNAME | Name of the topic to be removed. |
| REMTOPIC_TOPICTEXTID | Multi language dependent text that is displayed inside the control. The REMTOPIC_TOPICTEXTID is translated into a corresponding string at runtime. |

**Remove a folder**

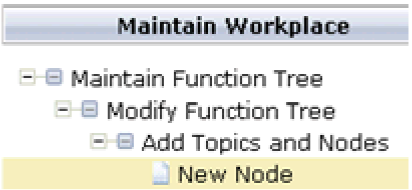
The following structure elements belong to CMDREMFOLDER:

| Element | Meaning |
|---|---|
| REMFOLDER_FOLDERNAME | Name of the folder to be removed. |
| REMFOLDER_FOLDERTEXTID | Multi language dependent text that is displayed inside the control. The REMFOLDER_FOLDERTEXTID is translated into a corresponding string at runtime. |
| REMFOLDER_TOPICNAME | Name of the topic that contains the folder. |
| REMFOLDER_TOPICTEXTID | Multi language dependent text that is displayed inside the control. The REMFOLDER_TOPICTEXTID is translated into a corresponding string at runtime. |

**Remove a node**

You can remove all kinds of topic subnodes with the CMDREMNODE structure. Since a function tree can have any depth, you can precisely define which node to remove by specifying corresponding XPATH-like path information in the REMNODE_FOLDERNAME or REMNODE_FOLDERTEXTID element.

Example:



To remove the node named "New Node", specify the following:

```
REMNODE_TOPICNAME="Maintain Workplace"
REMNODE_FOLDERNAME = "Maintain Function Tree/Modify Function Tree/Add Topics ↩
and Nodes"
REMNODE_NAME="New Node"
```

The following structure elements belong to CMDREMNODE:

| Element | Meaning |
|---|---|
| REMNODE_FOLDERNAME | Name of the folder that contains the node to be removed. |
| REMNODE_FOLDERTEXTID | Multi language dependent text that is displayed inside the control. The REMNODE_FOLDERTEXTID is translated into a corresponding string at runtime. |
| REMNODE_NAME | Name of the node to be removed. |
| REMNODE_TEXTID | Multi language dependent text that is displayed inside the control. The REMNODE_TEXTID is translated into a corresponding string at runtime. |
| REMNODE_TOPICNAME | Name of the topic that contains the folder with the node to be removed. |
| REMNODE_TOPICTEXTID | Multi language dependent text that is displayed inside the control. The REMNODE_TOPICTEXTID is translated into a corresponding string at runtime. |

# 127 NJX:XCIWPACCESS2

- Example ........ 896
- Adapter Interface ........ 896

The NJX:XCIWPACCESS2 control is used to open, activate and close content pages in the workplace, to open pages as pop-up windows, or to open pages in a frame.

This control provides a functional API to the workplace. It does not have design time properties nor does it raise events.

## Example

The XML code for the example looks as follows:

```
<natpage xmlns:njx="http://www.softwareag.com/njx/njxMapConverter">
    <njx:xciwpaccess2>
    </njx:xciwpaccess2>
</natpage>
```

## Adapter Interface

```
1 XCIWPACCESS2 (1:*)
  2 CMDADDPAGETOWORKPLACE
    3 ADD_ACTIVITYID (U) DYNAMIC
    3 ADD_ACTIVITYURL (U) DYNAMIC
    3 ADD_NAME (U) DYNAMIC
    3 ADD_TEXTID (U) DYNAMIC
    3 ADD_TYPE (U) DYNAMIC
  2 CMDCLOSECONTENTPAGE (U) DYNAMIC
  2 CMDINVOKEMETHODINCONTENTPAGE
    3 METHOD (U) DYNAMIC
  2 CMDOPENPAGEINTARGET
    3 OPEN_ACTIVITYURL (U) DYNAMIC
    3 OPEN_TARGET (U) DYNAMIC
    3 OPEN_TYPE (U) DYNAMIC
  2 CMDOPENPOPUP
    3 POPUP_ACTIVITYURL (U) DYNAMIC
    3 POPUP_HEIGHT (I4)
    3 POPUP_LEFT (I4)
    3 POPUP_TITLE (U) DYNAMIC
    3 POPUP_TITLEID (U) DYNAMIC
    3 POPUP_TOP (I4)
    3 POPUP_TYPE (U) DYNAMIC
    3 POPUP_WIDTH (I4)
  2 CMDSHOWPAGEINWORKPLACE
    3 SHOW_ACTIVITYID (U) DYNAMIC
    3 SHOW_ACTIVITYURL (U) DYNAMIC
    3 SHOW_NAME (U) DYNAMIC
    3 SHOW_TEXTID (U) DYNAMIC
    3 SHOW_TYPE (U) DYNAMIC
```

Each occurrence in the array XCIWPACCESS2 describes a command that is to be sent to the workplace API. Several commands can be sent in a sequence. For each command, a corresponding substructure must be filled.

**Open a page in the "Content" frame**

The following structure elements belong to CMDADDPAGETOWORKPLACE:

| Element | Meaning |
|---|---|
| ADD_ACTIVITYURL | The URL to be loaded. |
| ADD_ACTIVITYID | Use this element if you want to start different pages with the same name. |
| ADD_NAME | The name to be displayed in the "Active Functions" frame. |
| ADD_TEXTID | Multi language dependent text that is displayed inside the control. The ADD_TEXTID is translated into a corresponding string at runtime. |
| ADD_TYPE | "cis": Open an Application Designer page.<br>"html": Open an HTML page. |

**Open a page in a pop-up window**

The following structure elements belong to CMDOPENPOPUP:

| Element | Meaning |
|---|---|
| POPUP_ACTIVITYURL | The URL to be loaded. You can append parameters to the URL. |
| POPUP_TITLE | Title of the pop-up window. |
| POPUP_TITLEID | Multi language dependent text that is displayed inside the control. The POPUP_TITLEID is translated into a corresponding string at runtime. |
| POPUP_TYPE | "cis": Open an Application Designer page.<br>"html": Open an HTML page. |
| POPUP_LEFT | Set the relative position of the pop-up in pixels. |
| POPUP_TOP | Set the relative position of the pop-up in pixels. |
| POPUP_WIDTH | Set the dimension of the pop-up in pixels. |
| POPUP_HEIGHT | Set the dimension of the pop-up in pixels. |

**Open a page in a target frame other than the "Content" frame**

The following structure elements belong to CMDOPENPAGEINTARGET:

| Element | Meaning |
|---|---|
| OPEN_ACTIVITYURL | The URL to be loaded. You can append parameters to the URL. |
| OPEN_TARGET | Name of the target frame in which the page is to be opened. During workplace definition, you assign a target ID to each frame you define. |
| OPEN_TYPE | "cis": Open an Application Designer page.<br>"html": Open an HTML page. |

**Activate an already open page in the "Content" frame**

The following structure elements belong to CMDSHOWPAGEINWORKPLACE:

| Element | Meaning |
|---|---|
| SHOW_ACTIVITYURL | The URL to be loaded. You can append parameters to the URL. |
| SHOW_ACTIVITYID | Use this element if you want to start different pages with the same name. |
| SHOW_NAME | Name of the page in the “Active Functions” frame. |
| SHOW_TEXTID | Multi language dependent text that is displayed inside the control. The SHOW_TEXTID is translated into a corresponding string at runtime. |
| SHOW_TYPE | "cis": Activate an Application Designer page.<br>"html": Activate an HTML page. |

**Close the currently active page in the "Content" frame**

Assign the value "closeit" to CMDCLOSECONTENTPAGE.

**Close all pages in the "Content" frame**

Assign the value "all" to CMDCLOSECONTENTPAGE.

Or assign the value "allpopup" to CMDCLOSECONTENTPAGE. In this case, a yes/no pop-up will appear, asking whether you really want to close all content pages.

**Invoke a method (raise an event) in the currently active page in the "Content" frame**

The following structure element belongs to CMDINVOKEMETHODINCONTENTPAGE:

| Element | Meaning |
|---|---|
| METHOD | Name of the method/event. |

# XIII Working with PDF Documents

# 128 Working with PDF Documents

- General Information ........ 902
- About the Adapter Listener ........ 902
- Example ........ 903
- Built-in Events ........ 905
- Advanced Data Binding and Rendering ........ 905

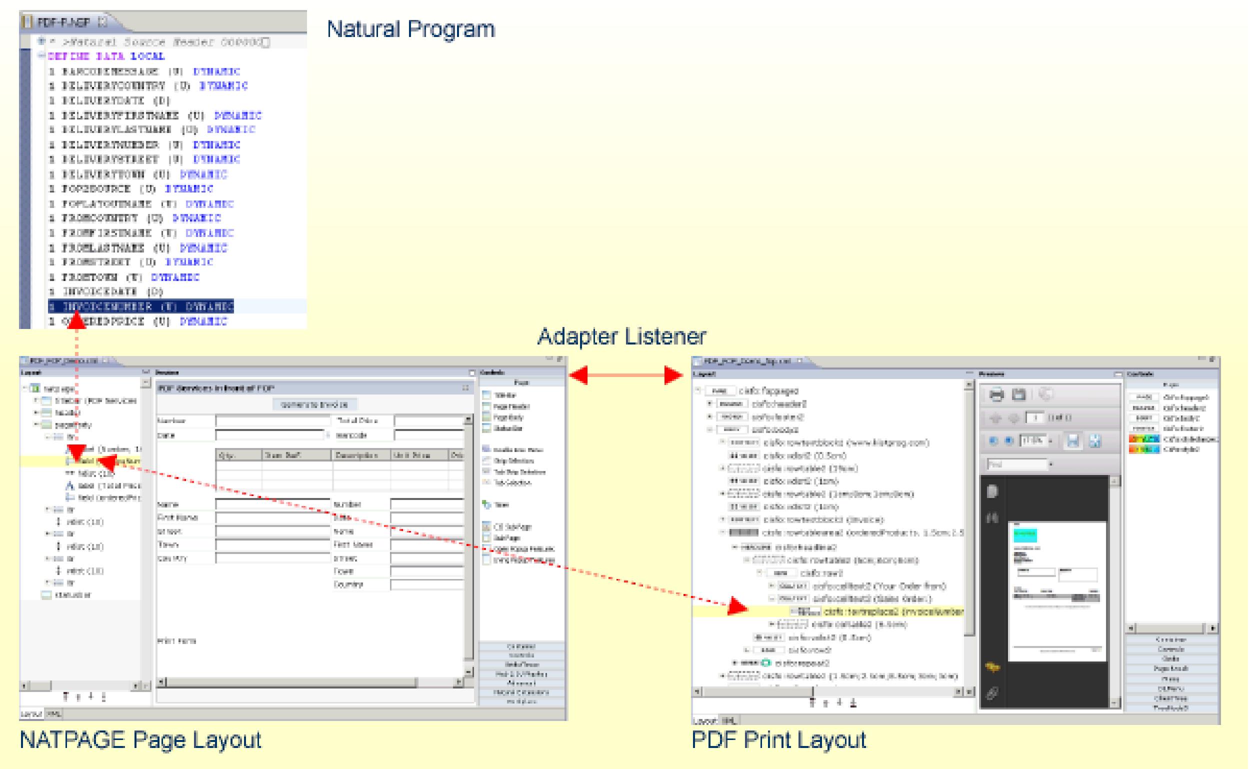
## General Information

There are 2 different ways to generate PDF documents for Natural page layouts:

- **REPORT control**
  You can fill a report dynamically at runtime from within your Natural program. According to the defined report, a PDF document is generated. This approach defines the look and feel of the PDF at runtime and therefore requires some programming in the corresponding Natural programs. For further information, see the description of the **REPORT** control.
- **Adapter Listener (**`com.softwareag.cis.server.adapterlistener.PDFFOPListener`**)**
  You can define the look and feel of the PDF document at design time. To do this, you create a specific PDF print form using the Layout Painter. This approach defines the PDF in a descriptive way and requires no programming on the Natural side. This approach is described in the topics below.

## About the Adapter Listener

Using the adapter listener `com.softwareag.cis.server.adapterlistener.PDFFOPListener`, you can bind a **NATPAGE** page layout to a PDF print layout. The data in the PDF layout is descriptively bound to the properties of the NATPAGE page layout at design time. The NATPAGE page layout and the PDF print layout share the same data which is provided from the Natural program.



```
* >Natural Source Header 000000
DEFINE DATA LOCAL
1 BARCODEMESSAGE (U) DYNAMIC
1 DELIVERYCOUNTRY (U) DYNAMIC
1 DELIVERYDATE (D)
1 DELIVERYFIRSTNAME (U) DYNAMIC
1 DELIVERYLASTNAME (U) DYNAMIC
1 DELIVERYNUMBER (U) DYNAMIC
1 DELIVERYSTREET (U) DYNAMIC
1 DELIVERYTOWN (U) DYNAMIC
1 FOP2SOURCE (U) DYNAMIC
1 FOPLAYOUTNAME (U) DYNAMIC
1 FROMCOUNTRY (U) DYNAMIC
1 FROMFIRSTNAME (U) DYNAMIC
1 FROMLASTNAME (U) DYNAMIC
1 FROMSTREET (U) DYNAMIC
1 FROMTOWN (U) DYNAMIC
1 INVOICEDATE (D)
1 INVOICENUMBER (U) DYNAMIC
1 ORDEREDPRICE (U) DYNAMIC
```

## Example

The following steps describe how to add PDF support to a NATPAGE. You will find a running example in the **njxdemos** project.

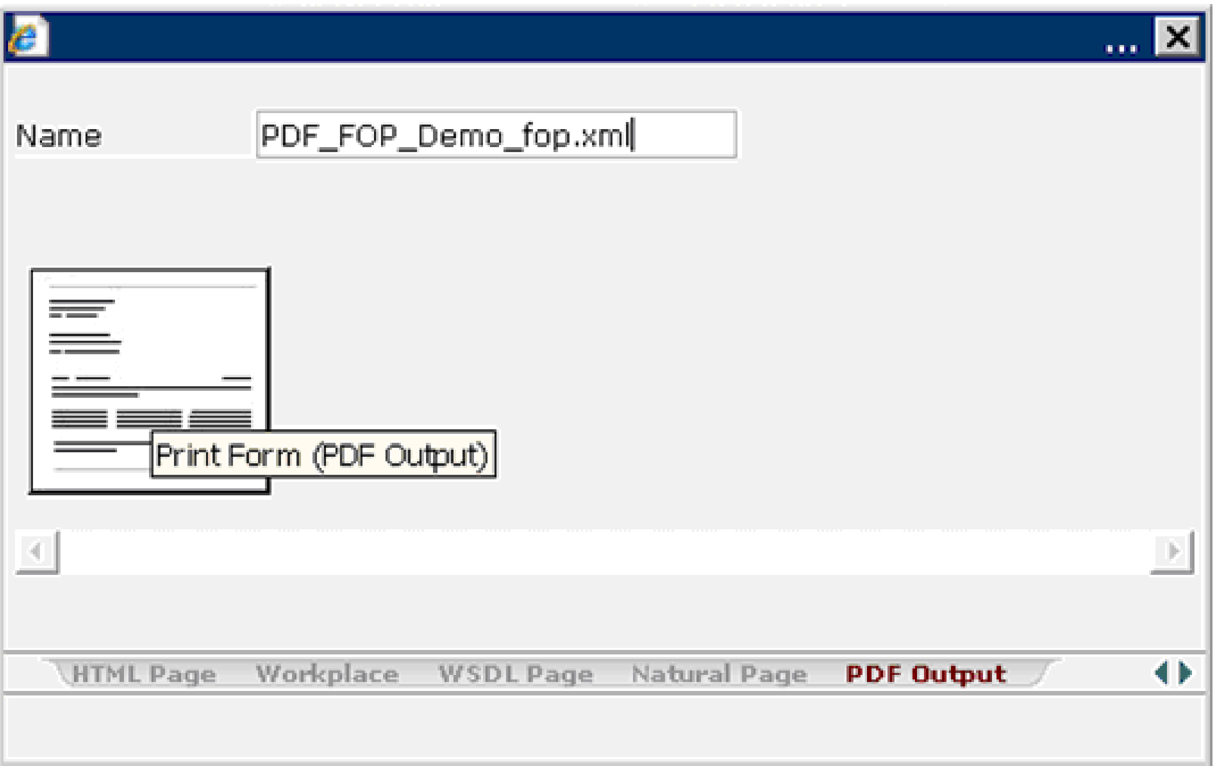
1. In your NATPAGE page layout, set the property `adapterlisteners` to "com.softwareag.cis.server.adapterlistener.PDFFOPListener". If you have already applied another adapter listener, append the new listener using a semicolon.

   ```
   <natpage ↩
   adapterlisteners="com.softwareag.cis.server.adapterlistener.PDFFOPListener"
   ...
   ```

2. Add a button or an icon (or any other control that binds to a method) to the NATPAGE page layout, and as method apply the name "onPrintPDF".

```
<button name="Generate Invoice" method="onPrintPDF">
</button>
...
```

3. Create a PDF print form in the same project as your NATPAGE page layout. The name of the print form must be the same as the name of your page, appended with "_fop". For example, if the name of your page is "PDF_FOP_Demo.xml", the name of the PDF print form must be "PDF_FOP_Demo_fop.xml".



Name PDF_FOP_Demo_fop.xml

4. In the PDF print form, you use specific CISFO controls to define the rendering and the binding to the data. Use the Layout Painter to add and modify the corresponding CISFO controls. For detailed information on these controls, see *PDF and FOP Services* in the Application Designer documentation.

   For the *PDF_FOP_Demo_fop.xml* layout, no Natural adapter will be generated. The data binding between the NATPAGE and the PDF print form is done via naming conventions. For example, the FIELD control with the name "invoiceNumber" which is defined in the NATPAGE is bound to the corresponding CISFO control in the PDF print form, as shown below.

```
<natpage...
    ...
    <field valueprop="invoiceNumber" width="200">
    </field>
...
</natpage>
```

```
<cisfo:foppage2 ...
    ...
    <cisfo:celltext2 text="Sales Order:">
        <cisfo:textreplace2 valueprop="invoiceNumber">
        </cisfo:textreplace2>
    </cisfo:celltext2>
...
</cisfo:foppage2>
```

## Built-in Events

When using the adapter listener `com.softwareag.cis.server.adapterlistener.PDFFOPListener`, the following events are supported and can be bound to a control's method property:

| Event | Description |
|---|---|
| `onPrintPDF` | Creates a PDF document and opens it in a modal pop-up. |
| `onUploadPDF` | Uploads the PDF document to the Natural server. See also ***Documents*** in *Some Common Rules for all Controls*. |

## Advanced Data Binding and Rendering

Some advanced topics regarding the data binding between the properties defined in the NATPAGE page layout and the PDF print form are covered below:

- Displaying Field Lists
- Customizing Decimal Digits in Grids
- Customizing Boolean Texts in Grids

- Multi Language Settings with Boolean Texts

### Displaying Field Lists

Example:

```
<njx:fieldlist fieldlistprop="myfieldlist" fieldcount="5" hdist="10">
    <njx:fielditem valueprop="myvalue" width="130" invisiblemode="invisible">
    </njx:fielditem>
</njx:fieldlist>
```

In the corresponding *_fop.xml* layout, the items of the above field list can be referenced as follows:

```
<cisfo:celltext2 text="First Item">
    <cisfo:textreplace2 valueprop="myfieldlist.items[0].myvalue">
    </cisfo:textreplace2>
</cisfo:celltext2>
...
<cisfo:celltext2 text="Second Item">
    <cisfo:textreplace2 valueprop="myfieldlist.items[1].myvalue">
    </cisfo:textreplace2>
</cisfo:celltext2>
```

Note that within the *_fop.xml* layouts, indexing starts with 0.

### Customizing Decimal Digits in Grids

To customize the decimal digits for all items in a grid, you simply add an **XCIDATADEF** field and refer to this central field as shown in the example below:

```
<xcidatadef dataprop="myDecimalDigits" datatype="int">
</xcidatadef>
```

```
<cisfo:repeat2>
  <cisfo:row2>
    <cisfo:replace2 valueprop="unitPrice" datatype="float"
                    decimaldigitsprop="/myDecimalDigits" bordercolor="black"
                    borderstyle="solid" borderwidth="1pt" padding="2pt"
                    textalign="right">
    </cisfo:replace2>
    <cisfo:replace2 valueprop="price" datatype="float"
                    decimaldigitsprop="/myDecimalDigits" bordercolor="black"
                    borderstyle="solid" borderwidth="1pt" padding="2pt"
                    textalign="right">
    </cisfo:replace2>
  </cisfo:row2>
</cisfo:repeat2>
```

If you would like to customize the decimal digits per item in a grid, add a corresponding XCIDATADEF field as a grid column as shown in the example below:

```
<textgridsss2 griddataprop="orderedProducts" rowcount="3" width="100%">
    <column name="Unit Price" property="unitPrice" width="100">
    </column>
    <column name="Price" property="price" width="100">
    </column>
    <xcidatadef dataprop="itemDecimalDigits" datatype="int">
    </xcidatadef>
</textgridsss2>
```

The name "itemDecimalDigits" is not fixed. You can choose any valid property name. From within the corresponding *_fop.xml* layout, you can refer to this setting as follows:

```
<cisfo:repeat2>
  <cisfo:row2>
    <cisfo:replace2 valueprop="unitPrice" datatype="float"
                    decimaldigitsprop="itemDecimalDigits" bordercolor="black"
                    borderstyle="solid" borderwidth="1pt" padding="2pt"
                    textalign="right">
    </cisfo:replace2>
    <cisfo:replace2 valueprop="price" datatype="float"
                    decimaldigitsprop="itemDecimalDigits" bordercolor="black"
                    borderstyle="solid" borderwidth="1pt" padding="2pt"
                    textalign="right">
    </cisfo:replace2>
  </cisfo:row2>
</cisfo:repeat2>
```

### Customizing Boolean Texts in Grids

To customize the Boolean texts for all items in a grid, you simply add an XCIDATADEF field and refer to this central field as shown in the example below:

```
<xcidatadef dataprop="mybooleantexts">
</xcidatadef>
```

```
<cisfo:repeat2>
  <cisfo:row2>
    <cisfo:replace2 valueprop="myChoice" datatype="boolean"
                    booleantextprop="/mybooleantexts" bordercolor="black"
                    borderstyle="solid" borderwidth="1pt" padding="2pt"
                    textalign="right">
    </cisfo:replace2>
    ...
  </cisfo:row2>
</cisfo:repeat2>
```

If you would like to customize the Boolean texts per item in a grid, add a corresponding XCIDATADEF field as a grid column as shown in the example below:

```
<textgridsss2 griddataprop="orderedProducts" rowcount="3" width="100%">
    <column name="Choice" property="myChoice" datatype="xs:boolean" width="100">
    </column>
    ...
    <xcidatadef dataprop="itemBooleanTexts" >
    </xcidatadef>
</textgridsss2>
```

The name "itemBooleanTexts" is not fixed. You can choose any valid property name. From within the corresponding *_fop.xml* layout, you can refer to this setting as follows:

```
<cisfo:repeat2>
  <cisfo:row2>
    <cisfo:replace2 valueprop="myChoice" datatype="boolean"
                    booleantextprop="itemBooleanTexts" bordercolor="black"
                    borderstyle="solid" borderwidth="1pt" padding="2pt"
                    textalign="right">
    </cisfo:replace2>
    ...
  </cisfo:row2>
</cisfo:repeat2>
```

### Multi Language Settings with Boolean Texts

`textid` properties are currently not available for Boolean texts. However, you can set the text value in the Natural application depending on the language. Example:

```
IF *LANGUAGE = 2
THEN
   MYBOOLEANVALUES:="Ja;Nein;"
ELSE
   MYBOOLEANVALUES:="Yes;No;"
END-IF
```