

Web Dynpro Java Foundation – What's new in SAP NetWeaver 2004S

Applies to:

Web Dynpro for Java UI Development, SAP NetWeaver 2004s

Summary

This article comprises a list of new features, UI elements and generic services which are available in the minor SAP NetWeaver release 2004s. The most outstanding new functions are the strongly enhanced Web Dynpro UI Element Library, extended table capabilities, table popins, popup menus, implicit UI personalization for Portal-based Web Dynpro UIs, an enhanced and simplified file upload and download, the storage of mime resources within context attributes and the interoperability with non-Web-Dynpro applications based on the new suspend and resume plug concept.

Created on: 3 July 2006

Author Bio



After his studies in mathematics, physics and computer science Bertram Ganz finished his teacher training at a German grammar school stressing technical sciences. He has been a member of the Web Dynpro Java Runtime development team (SAP NetWeaver ESI Foundation UI) since 2002. The main focus of his work is on knowledge transfer, rollout, and documentation. Bertram regularly publishes articles on Web Dynpro in the context of the SAP NetWeaver Application Server. He also runs several Web Dynpro trainings and is the co-author of the SAP Press Book, Java Programming with the SAP Web Application Server.

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Overview

In the minor SAP NetWeaver 2004s release the Web Dynpro Java Foundation was extended with new functionality and new UI elements. It is kept binary compatible with NetWeaver 04 and was not changed in respect of the existing Web Dynpro programming model.

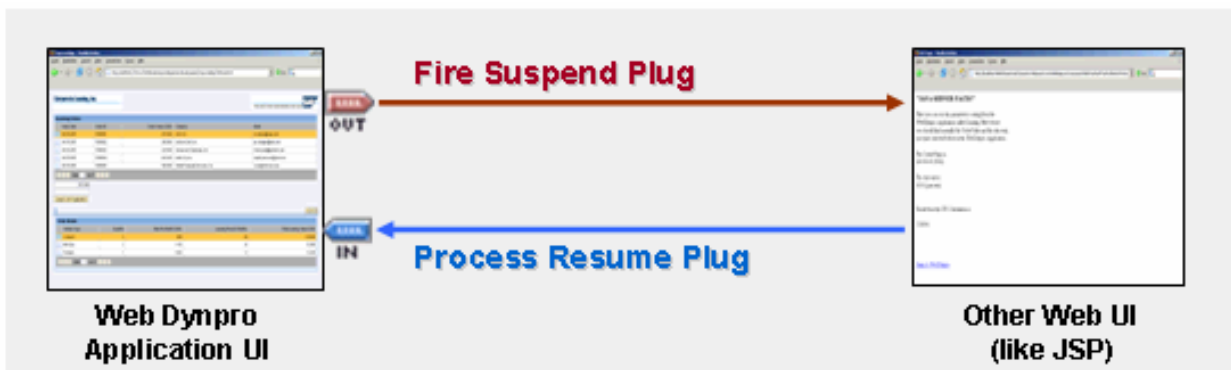
Programming Model

Enhanced File Up- and Download

- New Dictionary type *Resource* for typing MIME objects allows a purely declarative, zero-coding approach to display static MIME resources
- On-Demand-Stream concept allows to store mime objects within context attribute after the user requested the resource
- Changes in
- Related API extensions and modifications: [IWDFileUpload](#), [IWDFileDownload](#), [IWDFOutputMassDataSource](#), [IWDRResource](#), [IWDCachedResource](#), [IWDIInputStream](#), [WDFileDownloadBehavior](#), [WDRResourceFactory](#), [WDRResourceFactory.IWDRResourceFactory](#)

Interoperability with non-WD applications

- New *Suspend-* and *Resume-Plug* concept allows to interoperate with non-Web-Dynpro applications
- Web Dynpro Applications can be shifted in a suspend-state without being destroyed and without being visible on the UI
- URL-parameter-based data transfer (GET and POST)
- Added new hook method *wdDoApplicationStateChange()* which is called for the root component controller
- Added classes and interfaces: [WDApplicationStateChangeReason](#), [IWDAApplicationStateChangeInfo](#), [IWDAApplicationStateChangeReturn](#)



Web Dynpro Runtime API extensions:

Besides those classes and APIs related with resources, input streams and file up- and download listed above the following enhancements were done:

- Introduced IWD-abstraction-APIs [IWDRRequest](#), [IWDRResponse](#), [IWDRProtocolAdapter](#) for *request* and *response* objects.
- A new [WDRProtocolAdapter](#) class replaces the [WDWebContextAdapter](#) which is now deprecated.
- New [IWDRURLService](#)-API to generate URLs more easily without adding context information. It is accessible via the adapted [IWDRComponent](#)-API (can be accessed in every Web Dynpro controller class with the shortcut variable `wdComponentAPI`) or the [IWDAApplication](#)-API.

- New [IWDAAttributePointer](#)-API allows to address context attributes within node element instances.

See also: [Web Dynpro Java Runtime API in SAP NW 2004S - SPS 7](#)

Generic UI Services

Implicit UI Personalization

- Allow Admin and End User Personalisation (P13N).
- Override a UI element property with a fixed value. For every UI element property (e.g. UIElement.visible, Button.text) UI designers have decided if the property should be available for admin or end user p13n.
 - *Example:* end user will be allowed to hide things (i.e. set UIElement.visible = NONE), admin will be allowed to change a button's text.
- Default values are currently not supported
- Rearrange content of an aggregation: End user will be allowed to rearrange table columns only. Admin can even rearrange rows of a form or tabs in a tabstrip.
- Add decorative elements: An admin will be allowed to add decorative UI elements (images, help texts, links). This is useful e.g. to add help texts to a self-service UI.

The image shows two screenshots of SAP NetWeaver 2004s illustrating implicit UI personalization for a table. The top screenshot shows the 'Admin Role Personalization Dialog' for a table. It features a table with columns: Address, Title, First name, Last name, Phone, Street, Zip, City, State, Country, and Monthly salary. Below the table is a 'Personalize Table "Table"' dialog with options for 'Not personalized', 'Disabled', and 'Invisible'. A 'Custom extension fields' table is also visible, with columns for 'Custom extension field', 'Context path', 'Preferred editor', and 'Visibility'. The 'SALARY' field is highlighted with a red box and the text 'Can be made visible'. The bottom screenshot shows the 'End User Personalization Dialog' for the same table. It features a table with columns: Address, Title, First name, Last name, and a 'Visible?' checkbox. The 'Position' field is highlighted with a red box. Annotations include 'CTRL-right click on the table's upper left cell' and a red box around the 'Can be made visible' checkbox.



Implicit UI Personalisation is only supported for those Web Dynpro UIs running on the *Web Dynpro Portal Page Builder*.

Custom Extension Fields

Automatically add UI for *custom extension fields*

- The admin will be allowed to add UI elements for custom extension fields to a table or a container.
- This is the only p13n option that is not completely transparent to the application.

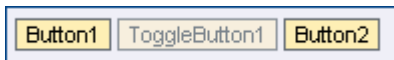
- Rather, the new UI elements are available to the application as if it had created these itself. This is useful e.g. if you like to make all columns of your table sortable.
- This completes our support for modification-free addition of a field in backend, transport of that data to Java server and throughout the Web Dynpro application to the UI (and back again).



Restriction: For the time being the Adaptive RFC Model is the only one which supports the described custom extension field capabilities. Custom Extension fields are only supported for those Web Dynpro UIs running on the *Web Dynpro Portal Page Builder*.

New UI Elements

ButtonRow



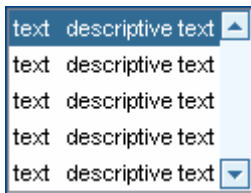
- The UI element ButtonRow can be used to arrange buttons in a row
- Does not contain additional properties
- Has methods to create and maintain the inserted buttons
- See JavaDoc of [IWDButtonRow-API](#)

BreadCrumb



- Displays the current page in the context of a navigation path
- Example: Display a history of the pages last visited or the structure of the information provided
- Consists of individual links or entirely represents a link
- See JavaDoc of [IWDBreadCrumb-API](#)

ItemListBox

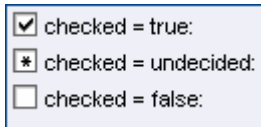


- An ItemListbox provides different values for selection, similar to the DropDownBox.
- Variable number of displayed values
- Allows multiple selection of entries in contrast to a DropDownBox
- See JavaDoc of [IWDItemListBox-API](#)

ToggleLink

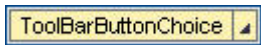
- A *ToggleLink* is a link that can display two different states (displayed with a triangle symbol)
- checked=false:
- checked=true:
- See JavaDoc of [IWDToggleLink-API](#)


TriStateCheckBox



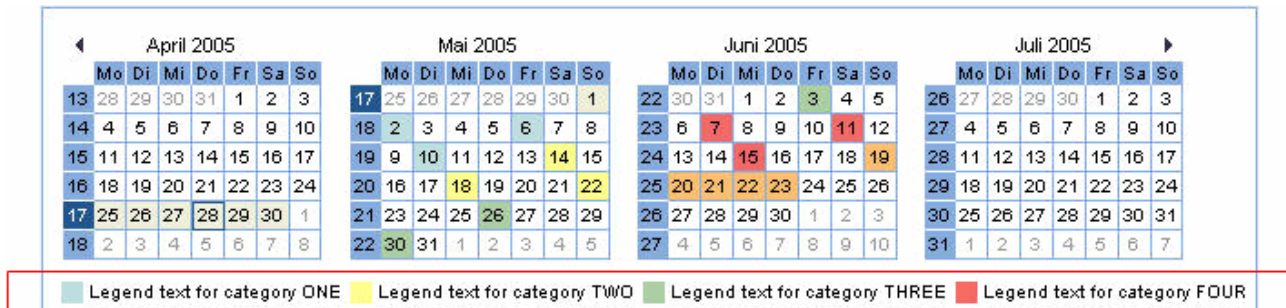
- Extension of a *Checkbox* which can have the values *true* and *false* and also the state *undecided*.
- The checkmark in the box indicates that the option is selected and the value is set to true,
- Asterisk indicates the status *undecided*
- See JavaDoc of [IWDTriStateCheckBox-API](#)

ToolBarButtonChoice



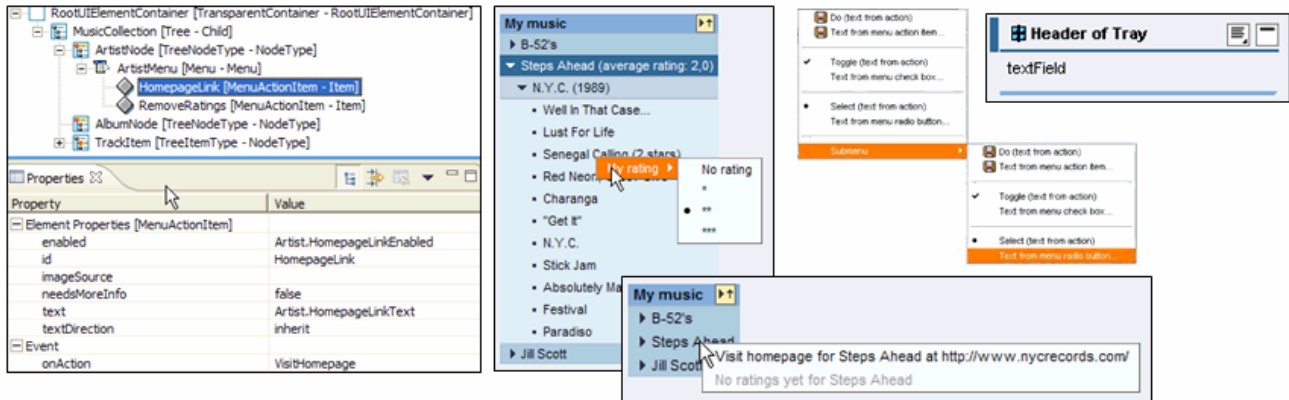
- A *ToolBarButtonChoice* is a button that offers to choose among several options via a small triangle symbol.
- Triangle symbol opens a menu from which an action can be selected.
- Selected action is set to the button and can then be executed by the user.
- The *repeatSelectedAction* property makes it possible that the last selected action remains on the button after execution of an action: 
- See JavaDoc of [IWDToolBarButtonChoice -API](#)

Legend



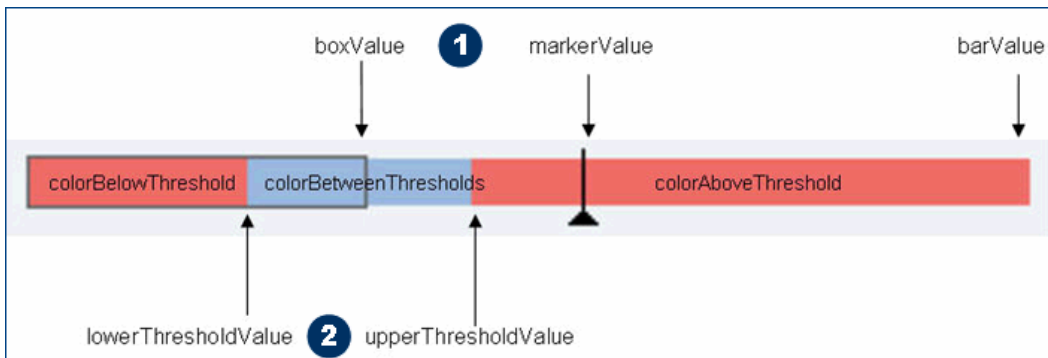
- Display a descriptive text for different colors used in an assigned UI element.
- Can be positioned anywhere in the view and be assigned to a *table* or a *DateNavigator*
- See JavaDoc of [IWDToolBarButtonChoice -API](#)

Popup Menus



- Allow static context menus
- Cannot be populated on demand
- Menus can be used in many UI elements: *TreeNode*s, *Tables*, *Trays*, *Image*, *ProgressIndicator*, *TextView*, *LinkToAction*, *LinkToURL*
- See JavaDoc of [IWDMenuItem](#)-API. See subinterfaces *IWDMenu*, *IWDMenuItem*, *IWDMenuCheckBox*, *IWDMenuRadioButton*, *IWDMenuSeparator*.

ValueComparison



- Can be used to compare the graphic display of several values.
- Properties *boxValue*, *markerValue* and *barValue* (1) visualize the relation of up to three comparison values.
- Two threshold values (2) can be set to define three differently colored areas.
- See JavaDoc of [IWDValueComparison](#)-API

Web Dynpro UI Element Reference in SAP Online Help

See also: [SAP Online Help - Web Dynpro Java UI Element Reference](#)

Highly Enhanced Table

General

- Grouped columns
- Support multiple selection without lead selection
- Custom extension columns
- New properties: *Display Empty Table Text*, *First Visible Scrollable Columns*, *Scrollable Col Count*, *Selected Popin*, *Row Selectable*, *Grid Mode*, *Legend Id*, *Fixed Table Layout*
- Enhanced table eventing: `IWDTable.onFilter`, `IWDTable.onSort`
- Parameter enrichment for table's `IWDTable.onLeadSelectEvent: newRow, oldRow`
- See JavaDoc of related APIs: [IWDTable](#), [IWDTableSingleMarkableCell](#), [IWDTableColumnGroup](#)
- See also: [SAP Online Help - Web Dynpro Java UI Element Reference - Table](#)

Cell Variants

The possibility to use different table cell editors in a TableColumn's cells.

Table with CellVariants	
CellVariants	InputField
Apply	Horse
Text 1	Cat
Bird	Bird
	Elephant
Apply	Horse
<input checked="" type="checkbox"/>	Bird

Cell Variant Single Markable Cell

A table cell variant to mark, highlight or select a single marked cell in a table. The application can determine the selected cell based on parameter mapping.

Single Markable Cells		
Do Operation		
Col1	Col2	Col3
Not Markable	Not Markable	Not Markable
1.1	2.1	3.1
1.2	2.2	3.2
1.3	2.3	3.3
Not Markable	Not Markable	Not Markable
1.5	2.5	3.5
1.6	2.6	3.6
1.7	2.7	3.7
Not Markable	Not Markable	Not Markable
1.9	2.9	3.9

Operation on [attribute="Col2"; element.index=2]

Horizontal Scrolling

The possibility to display fewer table columns than nested in a Table. A horizontal scrollbar appears and allows scrolling through the columns. There is also an option to fix columns right or left aligned. All scrollable columns should have the same width to avoid resizing of the table after every scrolling action.

Flights		
Id	Connection	Airline
AZ	790	Alitalia
AZ	790	Alitalia
DL	106	Delta Airlines
DL	106	Delta Airlines

Row 89 of 407 Column 1 of 13

Hierarchical Column Headers

The possibility to arrange headers in a hierarchy

Flights			
Identification			
Id	Connection	Airline	Ir
AA	17	American Airlines	ir
AA	17	American Airlines	ir

Grouping Value

The possibility to merge cells in a column to visualize a hierarchy

Flights		
Id	Connection	Airline
SQ	988	Singapore Air
		Singapore Air
		Singapore Air
UA	233	United Airlines
		United Airlines
	941	United Airlines
		United Airlines
		United Airlines

Table Popins

- Popins are insertions between the rows of a Table, which may refer to a row or individual cells.
- A popin can be linked to the table for a *row popin* or to the TableColumn for a *column popin*. With a *column* or *cell* popin the associated cell is assigned the background color of the popin so that you can see that they belong together.
- The UI element *TablePopinToggleCell* is provided for expanding and collapsing the TablePopin
- See JavaDoc of [IWDTablePopin-API](#)

Flight Data					
	No.	Date	Airfare	Curr.	Plane
AA	0017	12.01.2004	1,00	USD	ppp
AA	0017	28.04.2004	422,94	USD	747-400
Max. capacity econ.			385	Occupied econ.	
			385		
AA	0017	26.05.2004	422,94	USD	747-400
AA	0017	23.06.2004	422,94	USD	747-400
AA	0017	21.07.2004	422,94	USD	747-400

Row Popin

Flight Data					
		Date	Airfare	Curr.	Plane
AA	0017	12.01.2004	1,00	USD	ppp
AA	0017	28.04.2004	422,94	USD	747-400
Carrier					
CONNID Popin					
AA	0017	26.05.2004	422,94	USD	747-400
AA	0017	23.06.2004	422,94	USD	747-400
AA	0017	21.07.2004	422,94	USD	747-400

Cell Popin

Adobe Integration

- Support for Digital Signatures
- Multi Platform Support: IE, Firefox, Mozilla on Windows as well as Firefox and Mozilla on Linux
- Complex Search Help in Adobe Forms



Restriction: The new *IWDRResource*-API and the *Resource* data type is not applicable for databinding in Adobe Forms

Portal Integration

Portal Platform Integration is now based on the new Web Dynpro Page Builder which yields several major enhancements

- Run Web Dynpro Java iViews as embedded iViews
- Get a seamless and consistent integration of Web Dynpro Java into the portal platform infrastructure
- Rich set of new portal services the tray-service or the page service
- Run ONE Web Dynpro application in several iViews
- Overcome the boundaries in the NW04 integration - splitting one Web Dynpro application into several iViews allows to reuse all page-support (like personalization of the layout) for these iViews
- Print iView Layouts

Enjoy the enhanced Web Dynpro Java Foundation in SAP NetWeaver 2004s,

Bertram Ganz, NW ESI F UI - Web Dynpro Foundation for Java

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