

How to Integrate HTML5 Into Web Dynpro Standard Business Processes

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Background

- DataXstream
 - A Leader In SAP Consulting, SAP Product Development, and SAP Cloud Computing
 - Over 18+ Years SAP Experience with 100% Project Success Rate
- Sean Cloherty
 - Web Design / Development
 - SAP Web Dynpro ABAP
 - Product Development & Integration
- Michael Champion
 - SAP ABAP / Web Dynpro ABAP
 - SAP PI / XI
 - Product Development & Integration



Agenda

- What tools did we use?
- What does the standard Lean Order Management look like?
- What did we do to enhance LOM to make it look AWESOME?
- Challenges we ran into
- Demo video of enhanced LOM System
- How did we do it!?!?
- QA

Tools

HTML5

- Cool new elements like <canvas>

JavaScript

- New client-side interactions + customizations

Web Dynpro ABAP

- HTML Islands to make it all possible!

Why use HTML Islands and JavaScript?

- Enhances the GUI of standard Lean Order Management
- Work around limitations of Web Dynpro interface
- More connectivity and interface options with external device



Example of Lean Order Management (LOM)

Retail Order: 120000934 [Help](#)

Sales Organization DX01/10/10 Total Amount 0.00 USD Total Net Value 0.00 USD Total Tax 0.00 Payments 0.00 USD Refund 0.00 USD Delivered 0.00 USD Returned 0.00 USD
Balance Due 0.00 USD

Retail Order 120000934 has been saved

[Edit](#) | [Cancel](#) | [Tender](#) | [Return](#) | [Print Preview](#) You can also [...](#)

[Main View](#) | [Header Details](#) | [Item Details](#) | [Incompletion Log](#) | [Change Documents](#) | [Delivery](#) | [Order Summary](#) | [Customer History](#)

Document Header

Sales Document Type: Retail Order Order reason:
Sold-to party: Mike Franklin / 37 Woodlawn Terrace / St. Louis MO 63103 Delivery block:
Ship-to party: Mike Franklin / 37 Woodlawn Terrace / St. Louis MO 63103 Requested deliv.date:
PO number: Alt.tax classific.:

Item Overview

[Delete](#) | [Check Availability](#) | [Update Prices](#) | [Other Functions](#)

<input type="checkbox"/>	Item	Material	Order Quantity	Sales unit	Description	Net value	Currency	Del.Blckd.
<input type="checkbox"/>								
<input type="checkbox"/>								
<input type="checkbox"/>								
<input type="checkbox"/>								
<input type="checkbox"/>								

Difficult to read messaging

Data displayed in monotone colors



Example of Enhanced LOM

DXS Retail Order: 210000385

User: MCHAMPION
Terminal: DXSD1
Printer: SPHP

Total Amount	0.00 USD	Total Net Value	0.00 USD	Total Tax	0.00 USD	Balance Due	0.00 USD
Payments	0.00 USD	Refund	0.00 USD	Delivered	0.00 USD	Returned	0.00 USD

Main View | Header Details | Item Details | Tenders | Delivery | Documents | Customer History

Document Header

Sales Document Type: YXOR DXS Retail Order

Sold-to party: new customer / 1234 Anywhere Street / Williamsburg VA 23185
Ship-to party: new customer / 1234 Anywhere Street / Williamsburg VA 23185

PO number:
Purchase order date:

Order reason:
Delivery block:

* Requested deliv. date:
Delivering Plant:

Alt. tax classific.:

Item Overview

Item	Material	Order Quantity	Sales unit	Net value	Del. Block.	Rejected	Description
				0.00	<input type="checkbox"/>	<input type="checkbox"/>	
				0.00	<input type="checkbox"/>	<input type="checkbox"/>	
				0.00	<input type="checkbox"/>	<input type="checkbox"/>	
				0.00	<input type="checkbox"/>	<input type="checkbox"/>	
				0.00	<input type="checkbox"/>	<input type="checkbox"/>	
				0.00	<input type="checkbox"/>	<input type="checkbox"/>	
				0.00	<input type="checkbox"/>	<input type="checkbox"/>	

Example of LOM

Standard
Pop-Up

The screenshot shows the SAP Return 300000159 interface. A pop-up dialog titled "Return Inventory" is displayed in the center, asking "Return to Inventory. Process returned goods to inventory?" with "Yes" and "No" buttons. An orange box highlights the dialog, and an arrow points from the "Standard Pop-Up" text to it. The background interface includes a navigation bar with tabs like "Main View", "Header Details", and "Item Details". The "Item Overview" table is visible below the dialog.

Item	Material	Order	Net value	Currency	Del. Bldd.
10	100714		2,599.98	USD	

Example of Enhanced LOM

Retail Order: 10002341

User: MCHAMPION
Terminal: DXS01
Printer: SPHP

Save Document | Read Only | Print Preview | Exit | Return | You can also ,

Total Amount: **0.00 USD** | Total Net Value: **0.00 USD** | Total Tax: **0.00 USD** | Balance Due: **0.00 USD**
Payments: **0.00 USD** | Refund: **0.00 USD** | Delivered: **0.00 USD** | Returned: **0.00 USD**

Main View | Header Details

Document Header

Sold-to party: 100105 | PO number: | Order reason: | * Requested deliv. date: 09/09/2014 | Alt. tax classific.: 2

Operations Center / 980 W. Telegraph Road / Santa

Customer Text

Please review the following customer notes:
All purchases of \$1,000 or more must be approved by Jasen Theck @ (767) 867-5309.

Confirm

Item Overview

Delete | Check Availability | Update Prices | Other Functions

Item	Material	Order Quantity	Sales unit	Del. Bkcd.	Rejected	Description	Item cat.
				<input type="checkbox"/>	<input type="checkbox"/>		
				<input type="checkbox"/>	<input type="checkbox"/>		
				<input type="checkbox"/>	<input type="checkbox"/>		
				<input type="checkbox"/>	<input type="checkbox"/>		
				<input type="checkbox"/>	<input type="checkbox"/>		

Which one would you choose?

Retail Order: 120000934 [Help](#)

Sales Organization: DIX141010 Total Amount: 0.00 USD Total Net Value: 0.00 USD Total Tax: 0.00 Payments: 0.00 USD Refund: 0.00 USD Delivered: 0.00 USD Returned: 0.00 USD
Balance Due: 0.00 USD

✓ Retail Order 120000934 has been saved

[Edit](#) [Cancel](#) [Tender](#) [Return](#) [Print Preview](#) You can also

Main View Header Details Item Details Incompletion Log Change Documents Delivery Order Summary Customer History

Document Header

Sales Document Type: ZORD Retail Order Order reason:

Sold-to party: 16 Mike Franklin / 37 Woodlawn Terrace / St. Louis MO 63103 Delivery block:

Ship-to party: 16 Mike Franklin / 37 Woodlawn Terrace / St. Louis MO 63103 Requested deliv. date: 09/09/2014

PO number: Alt tax classic:

Item Overview

[Delete](#) [Check Availability](#) [Update Prices](#) [Other Functions](#)

Item	Material	Order Quantity	Sales unit	Description	Net value	Currency	Del. Block

Return to Inventory: Process returned goods to inventory?

Yes No

DXS Retail Order: 2100000385 User: MCHAMPION
Terminal: DIX01 Privilege: SHIPP

[Save Document](#) [Read Only](#) [Print Preview](#) [Exit](#) [Return](#) You can also

Total Amount: 0.00 USD **Total Net Value: 0.00 USD** **Total Tax: 0.00 USD** **Balance Due: 0.00 USD**
Payments: 0.00 USD **Refund: 0.00 USD** **Delivered: 0.00 USD** **Returned: 0.00 USD**

Main View Header Details Item Details Tenders Delivery Documents Customer History

Document Header

Sales Document Type: YXOR DXS Retail Order

Sold-to party: 16 new customer / 1234 Anywhere Street / Williamsburg VA 23185 Ship-to party: 16 new customer / 1234 Anywhere Street / Williamsburg VA 23185

PO number: Purchase order date: 09/09/2014

Order reason: Delivery block:

* Requested deliv. date: 09/09/2014 Delivering Plant:

Alt tax classic:

Item Overview

[Delete](#) [Check Availability](#) [Update Prices](#) [Other Functions](#)

Item	Material	Order Quantity	Sales unit	Net value	Del. Block	Rejected	Description
				0.00	<input type="checkbox"/>	<input type="checkbox"/>	
				0.00	<input type="checkbox"/>	<input type="checkbox"/>	
				0.00	<input type="checkbox"/>	<input type="checkbox"/>	
				0.00	<input type="checkbox"/>	<input type="checkbox"/>	
				0.00	<input type="checkbox"/>	<input type="checkbox"/>	

Retail Order: 10002341

Please remove the following customer notes.
All purchases of \$100 or more must be approved by John Thack @ 570-817-8300.

Confirm



Challenges & Things To Watch Out For...

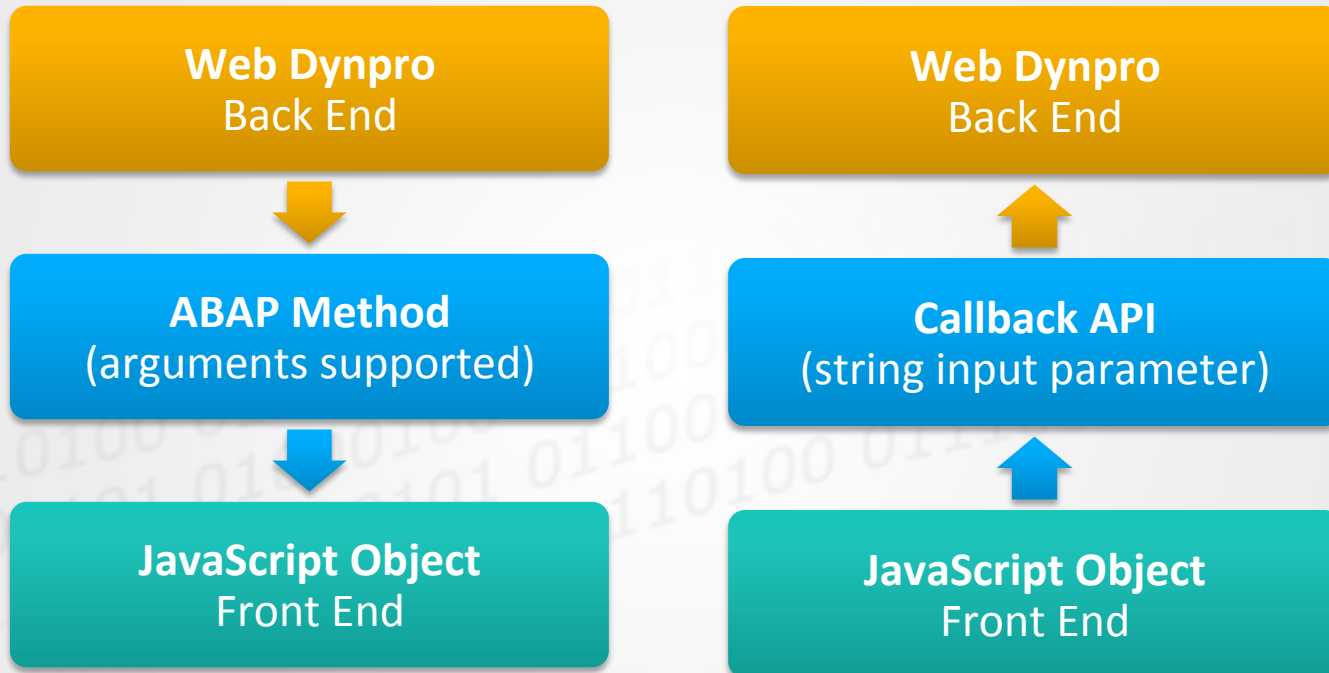
Browser Compatibility

- Know your target audience
- Have fallbacks in place
- Standards Mode

Security

- Don't pass critical control over to the client side
- Validate any client-side input on the server side

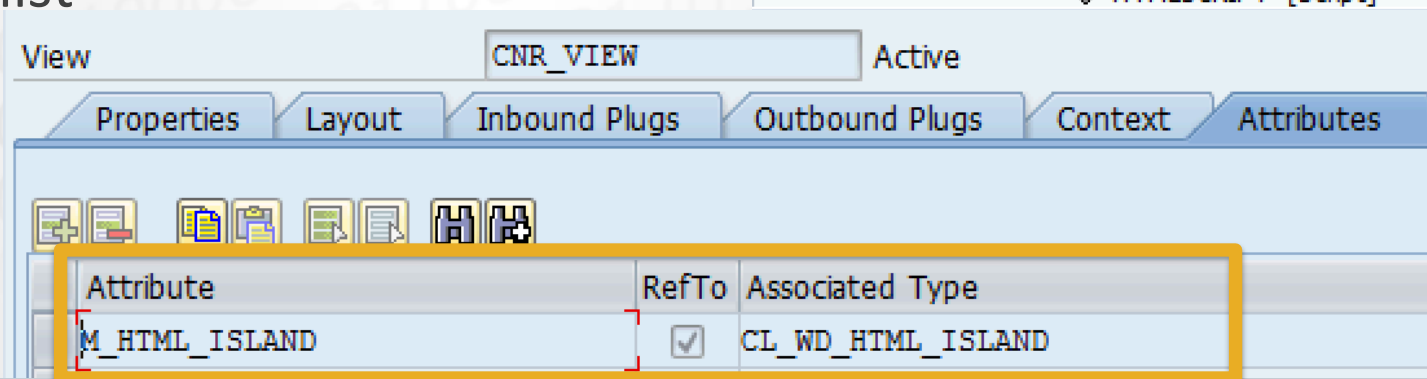
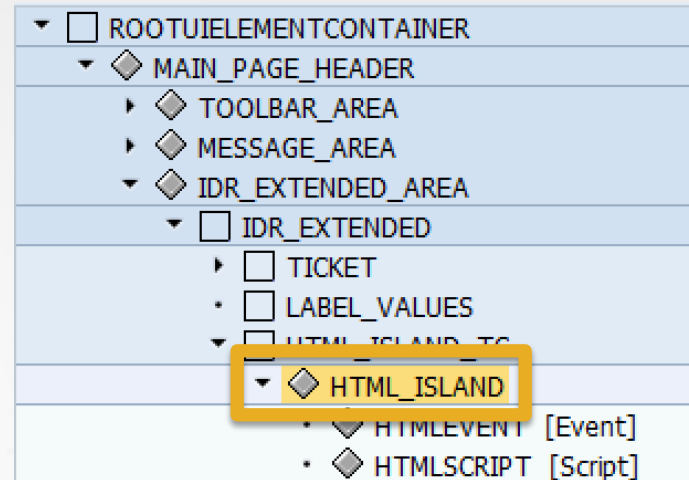
Communication To and From



How did we do it!?!

Add the HTML Island to the Web Dynpro View UI & Attributes

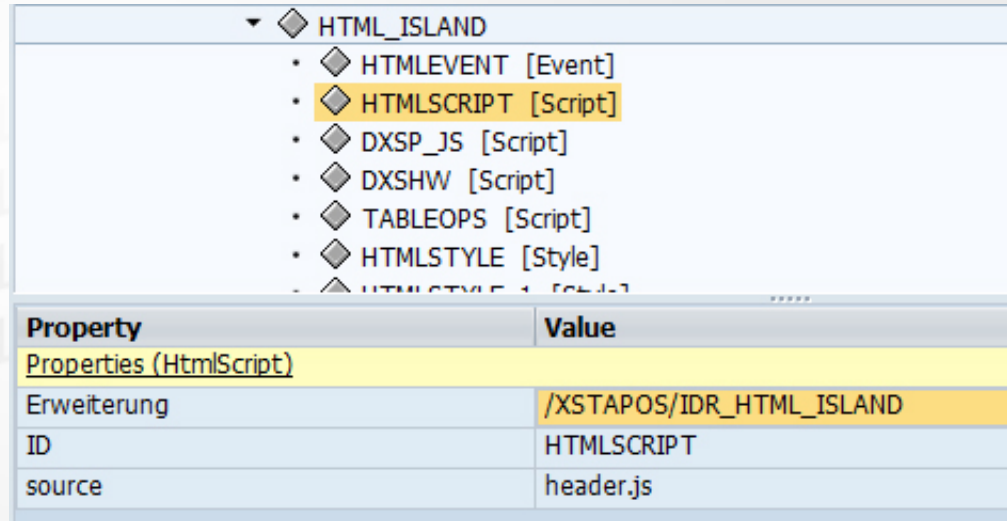
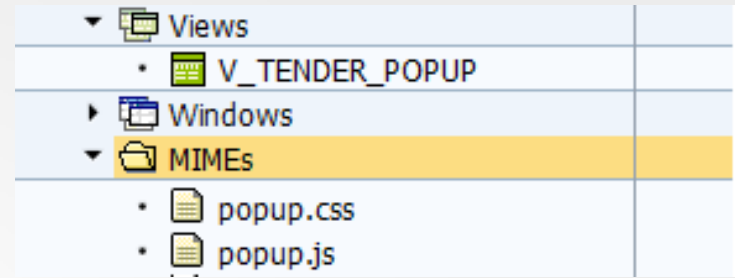
- Add HTML Island UI element
- Add HTML Island class reference to attribute list



How did we do it!?!

Add Your JavaScripts

- Import your .JS files as MIME objects
- Add an HTMLSCRIPT element to your newly created HTML Island



How did we do it!?!

Initialize HTML Island Class and Register Callback

- Check the FPM variants that your application is running
- Initialize the HTML Island class by assigning it to the HTML Island UI element
- Register any call back scripts

```
READ TABLE lt_wdr_pers_variants INTO ls_wdr_pers_variants WITH KEY config_id = 'LO_OIF_SDOC'.

IF sy-subrc = 0.

  IF wd_this->m_html_island IS INITIAL.
    wd_this->m_html_island ?= view->get_element( `HTML_ISLAND` ).
    wd_this->m_html_island->add_script_call(
      cl_wd_html_script_call=>new_call( )->variable( `DXSP`
                                                    )->function( `register`
                                                    )->add_callback_api( ) ).
  ENDIF.
ENDIF.
```

How did we do it!?!

Add Event to Receive JavaScript Response

- Add an HTMLEVENT element to your HTML Island UI element
- Create an action to capture the JavaScript call back
- Click the check box 'Transfer UI Event Parameters'

The screenshot shows a tree view of a UI element structure. The root is 'ROOTUIELEMENTCONTAINER', which contains 'MAIN_PAGE_HEADER'. Under 'MAIN_PAGE_HEADER' are 'TOOLBAR_AREA', 'MESSAGE_AREA', and 'IDR_EXTENDED_AREA'. 'IDR_EXTENDED_AREA' contains 'IDR_EXTENDED', which in turn contains 'TICKET', 'LABEL_VALUES', and 'HTML_ISLAND_TC'. 'HTML_ISLAND_TC' contains 'HTML_ISLAND', which has three children: 'HTMLEVENT [Event]', 'HTMLSCRIPT [Script]', and 'HTMLSCRIPT 1 [Script]'. The 'HTMLEVENT [Event]' element is highlighted in yellow.

Property	Value	B
Properties (HtmlEvent)		
Erweiterung	/XSTAPOS/IDR_HTML_ISLA...	
ID	HTMLEVENT	
enabled	<input checked="" type="checkbox"/>	
name	dxsp_handler	
Events		
onAction	POPOP_CALLBACK	

How did we do it!?!

Create Action to Process JavaScript Response

Event Handler ONACTIONPOPUP_CALLBACK

Parameter	RefTo	Opt	Associated Type	Description
WDEVENT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	CL_WD_CUSTOM_EVENT	
CONTEXT_ELEMENT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	IF_WD_CONTEXT_ELEMENT	
DATA	<input type="checkbox"/>	<input type="checkbox"/>	STRING	
ID	<input type="checkbox"/>	<input type="checkbox"/>	STRING	

```
1 method ONACTIONPOPUP_CALLBACK .
2   data ls_owerrms type /xstapos/owerrms.
3   data lv_msg_name type string. " message name
4   data lv_ALT_MSGID type /XSTAPOS/ALT_MSGID.
5   data lv_ALT_MSGNO type /XSTAPOS/ALT_MSGNO.
6   data lv_msg_resp type string. " message response
7   data lv_msg_var1 type string. " message variable 1
8   data lv_msg_var2 type string. " message variable 2
9   data lv_msg_var3 type string. " message variable 3
10  data lv_msg_var4 type string. " message variable 4
11
12  SPLIT data at '~&' into lv_msg_name lv_msg_resp lv_msg_var1 lv_msg_var2 lv_msg_var3 lv_msg_v
```

How did we do it!?!

Call JavaScript Function via ABAP

```
lo_call = cl_wd_html_script_call=>new_call( ).
lo_call->variable( `DXSP` ).
lo_call->function( `issuepopup` ).
** pass in the parameters
lo_call->add_string( lv_msgtyp ).
lo_call->add_string( lv_msgname ).
lo_call->add_string( lv_title ).
lo_call->add_string( lv_smsg ).
lo_call->add_string( lv_lmsg ).
lo_call->add_string( lv_scheme ).
lo_call->add_string( lv_event1 ).
lo_call->add_string( lv_lbl1 ).
lo_call->add_string( lv_event2 ).
lo_call->add_string( lv_lbl2 ).
** execute JS call
wd_this->m_html_island->add_script_call( lo_call ).
```



```
var DXSP = DXSP || {
  buttons: {},
  variables: [],
  issuepopup: function(p_type, msgname, title, smsg, lmsg, scheme, evt1, lbl1, evt2, lbl2) {
    p_type = p_type.toLowerCase();
    this.msgname = msgname;
    switch(p_type) {
      case "confirm":
        this.alert(title, smsg, lmsg, evt1, lbl1, scheme);
        break;
      case "decision":
        this.confirm(title, smsg, lmsg, evt1, lbl1, evt2, lbl2, scheme);
        break;
      case "list":
        this.list(title, smsg, lmsg, evt1, lbl1, evt2, scheme);
        break;
    }
  },
};
```

Q & A

Frequently Asked Questions

- What's the difference between HTML5 and SAP UI5?
- Is JavaScript the same as JAVA?

