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> How to use AJAX in WebClient UI Tableview

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### How to use AJAX in WebClient UI Tableview



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Active Participant



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842

**SAP Managed Tags:** SAP Customer Relationship Management,  
CRM Interaction Center, CRM WebClient UI

## Introduction

11.11.4

The purpose of this blog is to explain how we can easily use **AJAX** to trigger asynchronous HTTP requests in Web UI Tableviews.

There are several blogs available on SAP Community about AJAX implementations in the Web UI but this blog focuses on Tableview integration.

Use cases for such implementation are unlimited but the current use case is the following:

In the Business Partner's Identification Numbers assignment block we maintain the National Register ID of B2C customers (in a custom ID Type). For GDPR reasons, this value is encrypted before it is stored in the database table. But there is a business requirement to allow some agents seeing the decrypted ID. For performance reason and to avoid reloading the whole page, an asynchronous HTTP request is triggered to display the decrypted ID.

Remark: how is this ID first encrypted is not part of the scope of this blog. What is important to know is that encryption/decryption is done by an external API.

Individual Business Partner: Mr. Fabian Joiris 1000 BRUXELLES-BRUXELLES

Individual Account Details   Service Requests   Attachments   Relationships   **Identification Numbers**   Bank Details   Tax Numbers   Addresses

▼ Identification Numbers


Actions	Custom Actions	ID Type	ID Type Description	ID number	Decrypted ID
		HCM001	HR Employee	00000001	
 		<input type="text" value="ZNATID"/> 	National Register ID	<input type="text" value="!CVS7jZ3&amp;WX/?"/> 	<input type="text" value="123456789"/>

Figure 1 - Final result

As a starting point I used the excellent blog from jerry.wang:

[How to implement and debug AJAX functionality in WebClient UI component](#)

## Realization

Summary of the steps:

- Enhancement of the standard Web UI Component/View
- Creation of a custom Tableview Iterator
- Creation of a custom HTTP Handler Class and SICF service

## Enhancement of the standard Web UI Component/View

Component: BP\_DATA, View: AccountIDNumberList

### Creation of a custom Tableview Iterator

Create a new custom Class (e.g. ZL\_BP\_DATA\_ACCOUNTIDNUMB1\_IT) implementing interface IF\_HTMLB\_TABLEVIEW\_ITERATOR

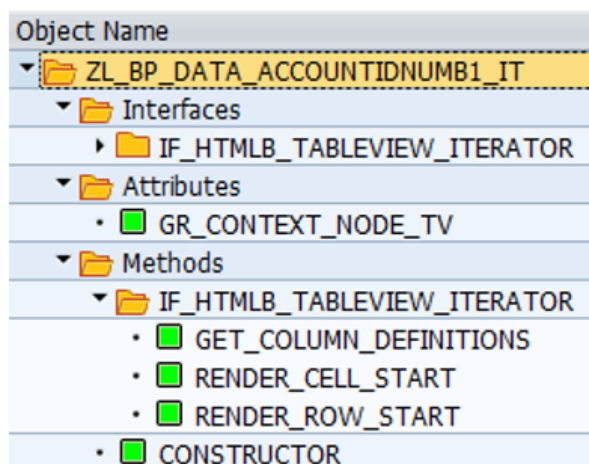


Figure 2 - Iterator

Create attribute GR\_CONTEXT\_NODE\_TV type ref to CL\_BSP\_WD\_CONTEXT\_NODE\_TV

Implement method Constructor

```
1      METHOD CONSTRUCTOR.  
2  
3          gr_context_node_tv = ir_context_node_tv.  
4  
5      ENDMETHOD.
```

## Implement method IF\_HTMLB\_TABLEVIEW\_ITERATOR~RENDER\_CELL\_START

Thanks to this method we can generate the HTML DOM elements required to execute the Javascript:

- THTMLB Button: triggers the AJAX Request (*lr\_button->onclientclick*)
- THTMLB Textview: displays the AJAX Response text. The generated `<span>` HTML DOM element is uniquely identified within the table (*lr\_textview->id*)

```

1  METHOD if_htmlb_tableview_iterator~render_cell_start.
2
3      DATA: lv_ident_type TYPE string,
4              lv_ident_code TYPE string,
5              lv_txtid_s    TYPE string,
6              lv_txtid_l    TYPE string,
7              lv_index      TYPE char2,
8              lr_button     TYPE REF TO cl_thtmlb_button,
9              lr_textview   TYPE REF TO cl_thtmlb_textview.
10
11  * Check that Identification Number Row Type is 'National Regis
12      lv_ident_type = gr_context_node_tv->collection_wrapper->fi
13      CHECK lv_ident_type EQ 'ZNATID'.
14
15      MOVE p_row_index TO lv_index.
16
17  * Generate the suffix and the full DOM element ID for the tabl
18      CONCATENATE 'TXT.ZNATID.' lv_index INTO lv_txtid_s.
19      MOVE p_tableview_id TO lv_txtid_l.
20      REPLACE FIRST OCCURRENCE OF 'Table' IN lv_txtid_l WITH lv_
21
22      CASE p_column_key.
23
24  * Add Button 'Decrypt' in column <STRUCT.ATTR1>
25      WHEN '<STRUCT.ATTR1>'.
26          lv_ident_code = gr_context_node_tv->collection_wrapper
27          CREATE OBJECT lr_button.
28          lr_button->onclickclick = |doDecryptID('| && lv_ident
29          lr_button->text = TEXT-001.
30          p_replacement_bee      = lr_button.
31
32  * Add Textview in column <STRUCT.ATTR2>
33      WHEN '<STRUCT.ATTR2>'.
34          CREATE OBJECT lr_textview.
35          lr_textview->id = lv_txtid_s.
36          p_replacement_bee = lr_textview.
37
38      ENDCASE.
39
40  ENDMETHOD.

```

Where `<STRUCT.ATTR1>` and `<STRUCT.ATTR2>` are two attributes of the Tableview Context Node, either standard or custom. These two attributes must be added to the View Configuration. In this case these attributes represent columns 'Custom Actions' and 'Decrypted ID'

Two parameters are passed to the Javascript function 'doDecryptID':

**lv\_ident\_code** = encrypted ID (value of the inputfield 'Identification Number')

**lv\_txtid\_l** = unique identifier of the '<span>' HTML DOM element in the client HTML page

Methods `IF_HTMLB_TABLEVIEW_ITERATOR~GET_COLUMN_DEFINITIONS` and `IF_HTMLB_TABLEVIEW_ITERATOR~RENDER_ROW_START` can remain empty

## Adjust View Controller

On the enhanced Controller Class (Z...\_IMPL), create attribute `ITERATOR` type ref to `ZL_BP_DATA_ACCOUNTIDNUMB1_IT`

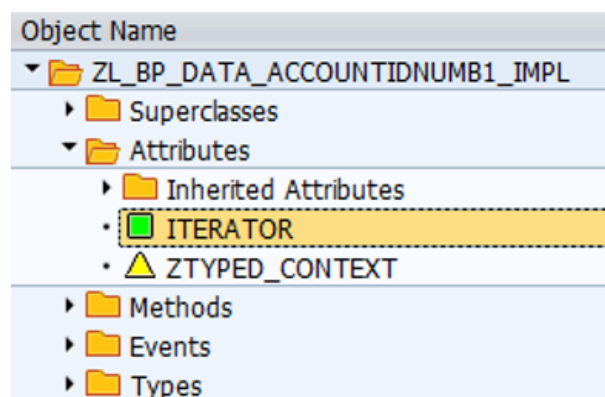


Figure 3 - Controller

Redefine and implement method `DO_INIT_CONTEXT`

```
1 METHOD do_init_context.  
2  
3 CALL METHOD super->do_init_context.  
4  
5 CREATE OBJECT iterator  
6 EXPORTING  
7     ir_context_node_tv = typed_context->builidnumber.  
8  
9 ENDMETHOD.
```

If you have enhanced the Context Node, of course you have to pass the enhanced one:

*ztyped\_context->zbuilidnumber*

## Adjust .htm page

(AccountIDNumberList.htm)

Define URL variable for custom SICF service: *zcrajax\_natid\_d*

```
1 <%  
2 data: lv_url TYPE string,  
3     lv_query type string.  
4     lv_query = 'q='.  
5     lv_url = cl_crm_web_utility=>create_url( iv_path = '/sap/crm/z  
6     %>
```

Add the following javascript code

```
<script>
var gv_txtid;

function GetXmlHttpRequest(){
    if (window.XMLHttpRequest) {
        return new XMLHttpRequest();
    }
    if (window.ActiveXObject) {
        return new ActiveXObject("Microsoft.XMLHTTP");
    }
    return null;
}

function stateChanged() {
    if (xmlhttp.readyState == 4) {
        document.getElementById(gv_txtid).innerHTML = xmlhttp.res
    }
}

function getRequestURL(str) {
    var url = "<%= lv_url %>" + str;
    url = url + "&sid=" + Math.random();
    return url;
}

function doDecryptID(str,txtid){
    if (str.length == 0 ) {
        document.getElementById(txtid).innerHTML = "";
        return;
    }
    gv_txtid = txtid;
    xmlhttp = GetXmlHttpRequest();
    if (xmlhttp == null ){
        alert ("Your browser does not support XML HTTP Request");
        return;
    }
    var requesturl = getRequestURL(str);
    xmlhttp.onreadystatechange = stateChanged;
    xmlhttp.open("GET",requesturl,true);
    xmlhttp.send(null);
}
```



```

}
</script>

```

(This code could be included in a .js file uploaded to the MIMEs Repository)

Add standard tag attribute *iterator* to the BSP Extension Table element (CHTMLB, THTMLB...)

```

1  <htmlb:configTable id                = "Table"
2                                table    = "//BuildIDNumber/Ta
3                                ...
4                                iterator  = "<%= controller->i
5                                ...
6                                />

```

## Create custom HTTP Handler Class and SICF service

Create new custom HTTP Handler Class (implementing interface IF\_HTTP\_EXTENSION) and assign it to new custom SICF service that you referenced in the .htm page.

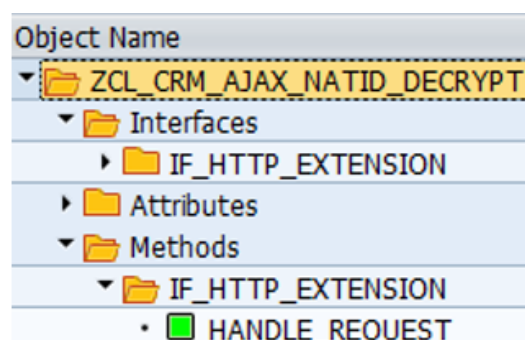


Figure 4 - Handler Class

Tx SICF

### Create/Change a Service

Path

Service Name  ☒ Service (Active)

Lang.  [Other Languages](#)

Description

Description 1

Description 2

Description 3

[Service Data](#) [Logon Data](#) [Handler List](#) [Error Pages](#) [Administration](#)

Handler List (in Order of Execution)

N..	Handler
1	<u>ZCL_CRM_AJAX_NATID_DECRYPT</u>

Figure 5 - SICF Service

Implement method IF\_HTTP\_EXTENSION~HANDLE\_REQUEST

```
1 METHOD if_http_extension~handle_request.
2
3     DATA: lv_ident_code TYPE string,
4           lv_ident_nr    TYPE string.
5
6     lv_ident_code = server->request->get_form_field( 'q' ).
7
8     * call external API to retrieve the decrypted ID from the encr
9     *****
10    Call External API
11        exporting lv_ident_code (encrypted ID)
12        importing lv_ident_nr (decrypted ID)
13    *****
14
15    server->response->set_cdata( lv_ident_nr ).
16
17 ENDMETHOD.
```

Details of the API call is not documented as it is not the purpose of this blog

**Conclusion:** With a minimum of enhancements it is possible to use AJAX within any Web UI Tableview

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