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Uladzislau Pralat

February 7, 2017 | 2 minute read

Dynamic Fiori Launchpad Tile Explained

19 8 25,213

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I came across a number of resources that explain Dynamic Fiori Launchpad Tile creation. They are missing some details or provide simplistic examples. In my blog I added clarity focusing on important aspects of implementation and provided more realistic example.

Assigned Tags

SAP Fiori

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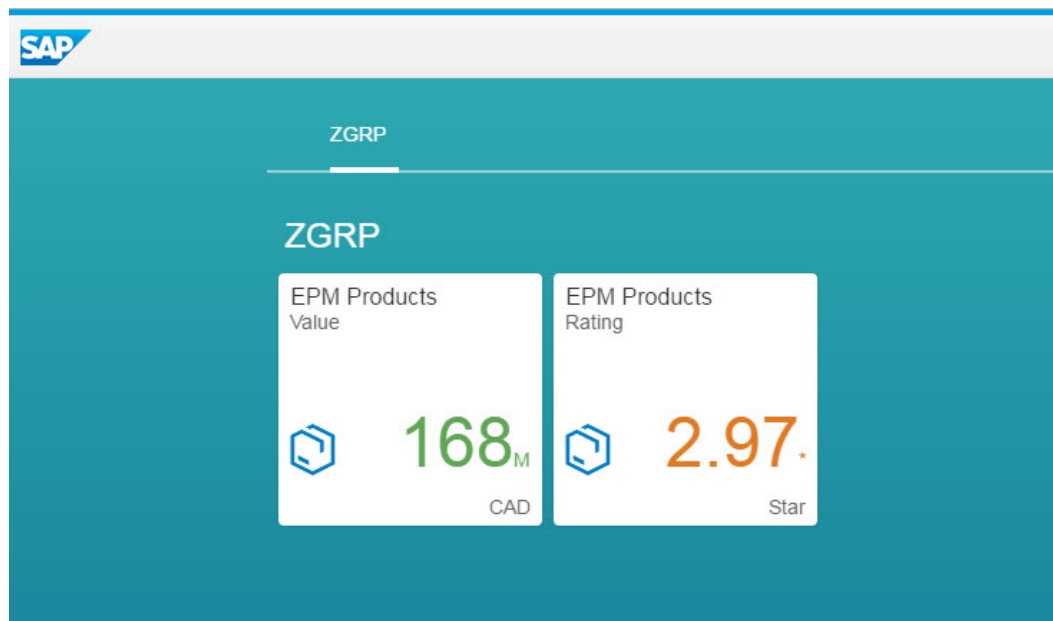
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In my example the same OData Service is used to feed two dynamic tile and calculating values dynamically using CDS views.



As you can see from snapshot above there are two dynamic tiles. Left tile displays stock value and right one average product rating. Color coding is used for the values, for example, stock value ranged from 100 to 200 millions CAD is considered as good.

Lets see how it is implemented. To begin with, I defined ZDYN_TILE DDIC structure to provide information for dynamic tiles.

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By Devisha Bhavik Nov 27, 2017

Dictionary: Display Structure

Structure: ZDYN_TILE Active

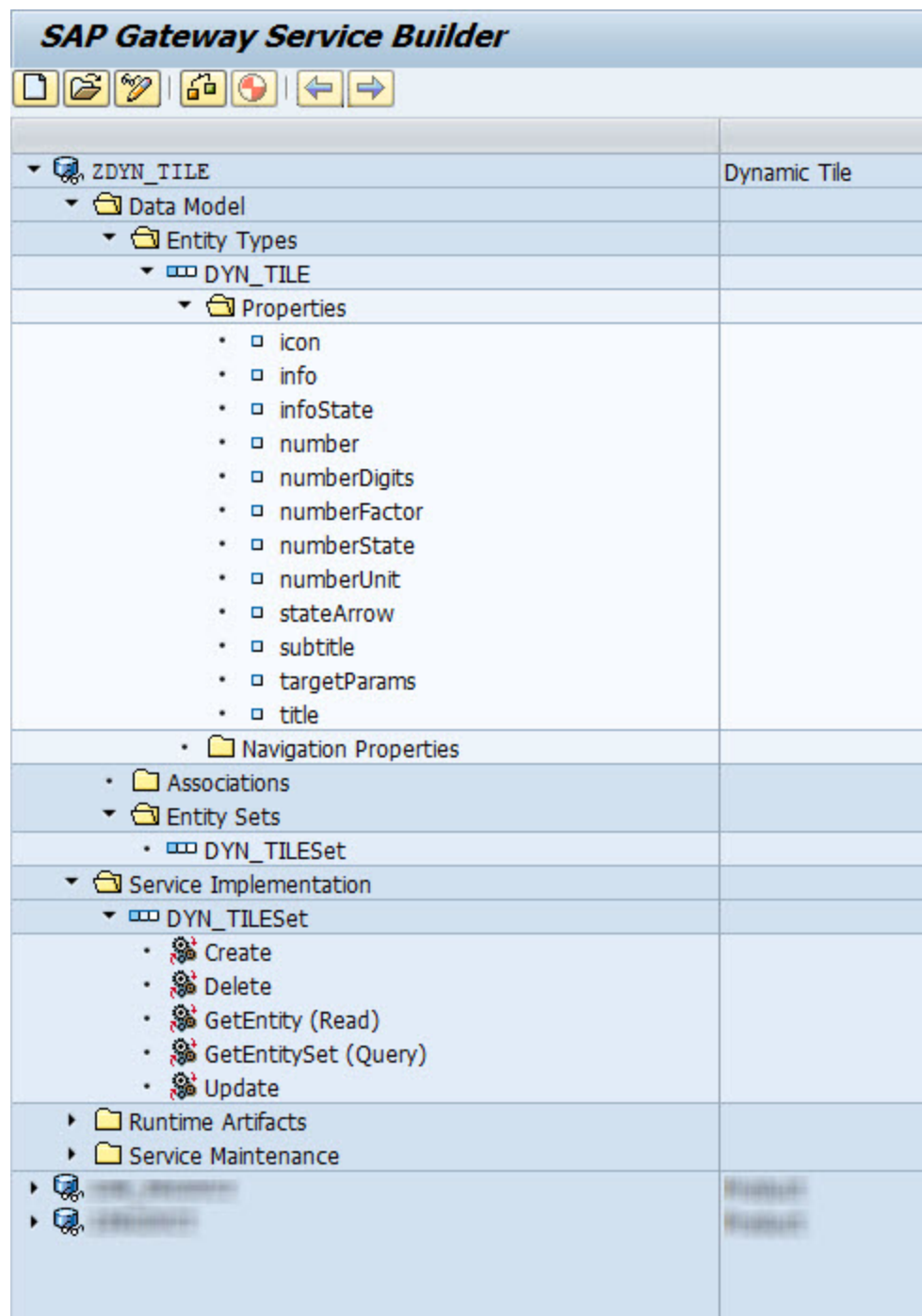
Short Description: Dynamic Tile

Attributes Components Entry help/check Currency/quantity fields

Predefined Type 1 / 12

Component	Typing Method	Component Type	Data Type	Length	Deci...	Short Description
ICON	Types	TEXT40	CHAR	40	0	Text, 40 Characters Long
INFO	Types	TEXT40	CHAR	40	0	Text, 40 Characters Long
INFSTATE	Types	TEXT40	CHAR	40	0	Text, 40 Characters Long
NUMBER	Types	TEXT40	CHAR	40	0	Text, 40 Characters Long
NUMBERDIGITS	Types	TEXT40	CHAR	40	0	Text, 40 Characters Long
NUMBERFACTOR	Types	TEXT40	CHAR	40	0	Text, 40 Characters Long
NUMBERSTATE	Types	TEXT40	CHAR	40	0	Text, 40 Characters Long
NUMBERUNIT	Types	TEXT40	CHAR	40	0	Text, 40 Characters Long
STATEARROW	Types	TEXT40	CHAR	40	0	Text, 40 Characters Long
SUBTITLE	Types	TEXT40	CHAR	40	0	Text, 40 Characters Long
TARGETPARAMS	Types	TEXT40	CHAR	40	0	Text, 40 Characters Long
TITLE	Types	TEXT40	CHAR	40	0	Text, 40 Characters Long

Next I used the above structure to define DYN_TILE entity of ZDYN_TILE_SRV_01 OData Service



I also implemented GetEntity method of DYN_TILESet Entity Set

```

1  METHOD dyn_tileset_get_entity.
2  DATA: w_numberFactor TYPE text40,
3         w_numberState  TYPE text40.
4  CONSTANTS: c_numberUnit TYPE text40 VALUE 'CAD'.
5
6  TRY.
7      CASE IT_KEY_TAB[ name = 'title' ]-VALUE.
8          WHEN 'EPM Products Value'.
9              SELECT sum( value )
10             FROM zsnwd_pd_value( p_target_currency = @c_numberUnit,
11                                p_exchange_rate_date = @sy-datum )
12             INTO (@DATA(w_value)).
13
14             IF w_value BETWEEN 100000000 AND 2000000000.
15                 w_numberState = 'Positive'.
16             ELSE.
17                 w_numberState = 'Negative'.
18             ENDIF.
19
20             IF w_value > 999999999.
21                 w_numberFactor = 'B'.
22                 w_value = w_value / 1000000000.
23             ELSEIF w_value > 999999.
24                 w_value = w_value / 1000000.
25                 w_numberFactor = 'M'.
26             ELSEIF w_value > 999.
27                 w_value = w_value / 1000.
28                 w_numberFactor = 'M'.
29             ENDIF.
30
31             er_entity = VALUE #( icon      = 'sap-icon://product'
32                                number     = CONV string( CONV i( w_value ) )
33                                numberDigits = '1'
34                                numberFactor = w_numberFactor
35                                numberState = w_numberState
36                                numberUnit  = c_numberUnit
37                                subtitle    = 'Value'
38                                title       = 'EPM Products' ).
39          WHEN 'EPM Products Rating'.
40              SELECT count( * ), sum( average_rating )
41             FROM zsnwd_pd_rating
42             INTO (@DATA(w_count), @DATA(w_rating) ).
43              w_rating = w_rating / w_count.
44
45              IF w_rating >= 4.
46                  w_numberState = 'Positive'.
47              ELSEIF w_rating >= 3.
48                  w_numberState = 'Negative'.
49              ELSEIF w_rating < 3.
50                  w_numberState = 'Critical'.
51              ENDIF.
52
53             er_entity = VALUE #( icon      = 'sap-icon://product'
54                                number     = CONV string( w_rating )
55                                numberDigits = '1'
56                                numberFactor = '*'
57                                numberState = w_numberState
58                                numberUnit  = 'Star'

```

```

58 |
59 |         subtitle = 'Rating'
60 |         title    = 'EPM Products' ).
61 |
62 |     ENDCASE.
63 |     CATCH cx_sy_itab_line_not_found INTO DATA(itab_line_not_found).
64 |     ENDTRY.
65 |
66 | ENDMETHOD.

```

Next created CDS views used in the method above

ZSNWD_PD_VALUE CDS View:

```

1 @AbapCatalog.sqlViewName: 'zepm_pd_value'
2 @AbapCatalog.compiler.CompareFilter: true
3 @AccessControl.authorizationCheck: #CHECK
4 @EndUserText.label: 'EPM Product Value'
5 define view zsnwd_pd_value
6     with parameters
7         p_target_currency: abap.cuky( 5 ),
8         p_exchange_rate_date: abap.dats
9 as select from Zsnwd_Pd_Stock inner join Zsnwd_Pd(
10     p_target_currency : $parameters.p_target_currency,
11     p_exchange_rate_date : $parameters.p_exchange_rate_date )
12 on Zsnwd_Pd_Stock.product_id = Zsnwd_Pd.product_id {
13     Zsnwd_Pd.product_id,
14     Zsnwd_Pd.price,
15     Zsnwd_Pd_Stock.quantity,
16     cast( Zsnwd_Pd.price * Zsnwd_Pd_Stock.quantity as abap.dec( 17, 2 )) as value
17 }

```

ZSNWD_PD_STOCK CDS View:

```

1 @AbapCatalog.sqlViewName: 'zepm_pd_stock'
2 @AbapCatalog.compiler.CompareFilter: true
3 @AccessControl.authorizationCheck: #CHECK
4 @EndUserText.label: 'EPM Product Stock'
5 define view Zsnwd_Pd_Stock as select from snwd_stock inner join snwd_pd
6     on snwd_stock.product_guid = snwd_pd.node_key {
7     snwd_pd.product_id,
8     sum( snwd_stock.quantity ) as quantity
9 } group by snwd_pd.product_id
10 having sum( snwd_stock.quantity) > 0

```


ZSNWD_PD CDS View:

```

1 @AbapCatalog.sqlViewName: 'ZEPM_PD'
2 @AbapCatalog.compiler.CompareFilter: true
3 @AccessControl.authorizationCheck: #CHECK
4 @EndUserText.label: 'EPM Product'
5 define view Zsnwd_Pd
6   with parameters
7     p_target_currency: abap.cuky( 5 ),
8     p_exchange_rate_date: abap.dats
9   as select from snwd_pd {
10    snwd_pd.product_id,
11    currency_conversion(
12      amount          => snwd_pd.price,
13      source_currency => snwd_pd.currency_code,
14      target_currency => $parameters.p_target_currency,
15      exchange_rate_date => $parameters.p_exchange_rate_date,
16      exchange_rate_type => 'M',
17      error_handling   => 'SET_TO_NULL'           // otherwise data inconsist
18    ) as price
19 }

```

ZSNWD_PD_RATING CDS View:

```

1 @AbapCatalog.sqlViewName: 'ZEMP_PD_RATING'
2 @AbapCatalog.compiler.CompareFilter: true
3 @AccessControl.authorizationCheck: #CHECK
4 @EndUserText.label: 'EPM Product Rating'
5 define view Zsnwd_Pd_Rating as select from snwd_rev_head
6 inner join snwd_pd
7   on snwd_rev_head.entity_key = snwd_pd.node_key {
8   snwd_rev_head.average_rating,
9   snwd_pd.product_id
10 }
11 where snwd_rev_head.item_count > 0

```

Tested ZDYN_TILE_SRV_01 OData Service for DYN_TILESet EntitySet GetEntity method for both keys: EPM Products Value and EPM Products Rating

SAP Gateway Client

Execute Select Maintain Service Service Implementation EntitySets Add URI Option

HTTP Method: ☒ GET ☐ POST ☐ PUT ☐ PATCH ☐ MERGE ☐ DELETE ☐ Reuse HTTP Connection (e.g. for Soft State)

Request URI: /sap/opu/odata/SAP/ZDYN_TILE_SRV_01/DYN_TILESet('EPM Products Value')

Protocol: ☒ HTTP ☐ HTTPS Test Group: Test Case:

Response in Browser Error Log HTTP Header Use as Request Data Explorer

HTTP Response - Processing Time = 310 ms

Header Name	Value
~status_code	200
~status_reason	OK
sap-metadata-last...	Tue, 27 Sep 2016 13:30:24 GMT
content-type	application/atom+xml;type=entry;charset=utf-8
~server_protocol	HTTP/1.0
set-cookie	sap-usercontext=sap-language=E&sap-client=251; path=

```
<?xml version="1.0" encoding="utf-8" ?>
- <entry xml:base="http://sap.com:8000/sap/opu/odata/SAP/ZDYN_TILE_SRV_01/" xmlns="http://www.w3.org/2005/Atom"
  xmlns:d="http://schemas.microsoft.com/ado/2007/08/dataservices">
  <id>http://sap.com:8000/sap/opu/odata/SAP/ZDYN_TILE_SRV_01/DYN_TILESet('EPM%20Products')</id>
  <title type="text">DYN_TILESet('EPM%20Products')</title>
  <updated>2017-02-07T15:04:56Z</updated>
  <category term="ZDYN_TILE_SRV_01.DYN_TILE" scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
  <link href="DYN_TILESet('EPM%20Products')" rel="self" title="DYN_TILE" />
  - <content type="application/xml">
    - <m:properties>
      <d:icon>sap-icon://product</d:icon>
      <d:info />
      <d:infoState />
      <d:number>168</d:number>
      <d:numberDigits>1</d:numberDigits>
      <d:numberFactor>M</d:numberFactor>
      <d:numberState>Positive</d:numberState>
      <d:numberUnit>CAD</d:numberUnit>
      <d:stateArrow />
      <d:subtitle>Value</d:subtitle>
      <d:targetParams />
      <d:title>EPM Products</d:title>
    </m:properties>
  </content>
</entry>
```


SAP Gateway Client

Execute Select Maintain Service Service Implementation EntitySets Add URI Option

HTTP Method: GET POST PUT PATCH MERGE DELETE ☐ Reuse HTTP Connection (e.g. for Soft State)

Request URI: /sap/opu/odata/SAP/ZDYN_TILE_SRV_01/DYN_TILESet('EPM Products Rating')

Protocol: HTTP HTTPS Test Group Test Case

Response in Browser Error Log HTTP Header Use as Request Data Explorer

HTTP Response - Processing Time = 97 ms

Header Name	Value
~status_code	200
~status_reason	OK
sap-metadata-last...	Tue, 27 Sep 2016 13:30:24 GMT
content-type	application/atom+xml;type=entry;charset=utf-8
~server_protocol	HTTP/1.0
set-cookie	sap-usercontext=sap-language=E&sap-client=251; path=

```
<?xml version="1.0" encoding="utf-8" ?>
- <entry xml:base="http://sap.com/odata/8000/sap/opu/odata/SAP/ZDYN_TILE_SRV_01/" xmlns="http://www.w3.org/2005/Atom"
  xmlns:d="http://schemas.microsoft.com/ado/2007/08/dataservices">
  <id>http://sap.com/odata/8000/sap/opu/odata/SAP/ZDYN_TILE_SRV_01/DYN_TILESet('EPM%20Products')</id>
  <title type="text">DYN_TILESet('EPM%20Products')</title>
  <updated>2017-02-07T15:05:55Z</updated>
  <category term="ZDYN_TILE_SRV_01.DYN_TILE" scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme" />
  <link href="DYN_TILESet('EPM%20Products')" rel="self" title="DYN_TILE" />
  - <content type="application/xml">
    - <m:properties>
      <d:icon>sap-icon://product</d:icon>
      <d:info />
      <d:infoState />
      <d:number>2.97</d:number>
      <d:numberDigits>1</d:numberDigits>
      <d:numberFactor>*</d:numberFactor>
      <d:numberState>Critical</d:numberState>
      <d:numberUnit>Star</d:numberUnit>
      <d:stateArrow />
      <d:subtitle>Rating</d:subtitle>
      <d:targetParams />
      <d:title>EPM Products</d:title>
    </m:properties>
  </content>
</entry>
```

And finally maintained EPM Products Value and EPM Products Rating Dynamic Tiles in Fiori Launchpad Designer

Configure: "EPM Products"

General	Dynamic Data	Navigation
Title: EPM Products	Service URL: /DYN_TILE_SRV_01/DYN_TILESet('EPM Products Value')?format=json	Use semantic object navigation: <input checked="" type="checkbox"/>
Subtitle: Value	Refresh Interval in Seconds: 2	Semantic Object: ZSO
Keywords:		Action: display
Icon: sap-icon://product		Parameters:
Information:		Target URL: #ZSO-display
Number Unit:		

← Configure: 'EPM Products'

General	Dynamic Data	Navigation
Title: EPM Products	Service URL: /N_TILE_SRV_01/DYN_TILESet('EPM Products Rating')/?\$format=json	Use semantic object navigation: <input checked="" type="checkbox"/>
Subtitle: Rating	Refresh Interval in Seconds: 2	Semantic Object: ZSO
Keywords:		Action: display
Icon: sap-icon://product		Parameters:
Information:		Target URL: #ZSO-display
Number Unit:		

Service URLs for EPM Products Value Dynamic Tile:

/sap/opu/odata/SAP/ZDYN_TILE_SRV_01/DYN_TILESet('EPM Products Value')/?\$format=json

Service URL for EPM Products Rating Dynamic Tile:

/sap/opu/odata/SAP/ZDYN_TILE_SRV_01/DYN_TILESet('EPM Products Rating')/?\$format=json

Source code for this example can be downloaded from here:

[ZDYN_TILE Structure](#)

[DYN_TILESET_GET_ENTITY Method](#)

[ZSNWD_PD_VALUE CDS View](#)

[ZSNWD_PD_STOCK CDS View](#)

[ZSNWD_PD CDS View](#)[ZSNWD_PD_RATING CDS View](#)[Alert Moderator](#)

19 Comments

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Former Member

February 15, 2017 at 2:36 am

Super blog . Very much useful .

Like 0 | Share



Former Member

May 3, 2017 at 12:10 am

Nice blog! I have tried this and have a few differences in what I see.

Firstly, when I debug the GET_ENTITY code I find that IT_KEY_TAB is sending through 'Icon' as the name field and not 'Title' as was contained in the above code. Would like to understand if I am missing something in the setup for this to happen.

Additionally, is there any other code that needs to be put in place for the GET_ENTITYSET method to support this?

I have carried out the above however I still have an error appearing and there is no number. I get a HTTP request 404 error. The scenario I have is from SAP Cloud Platform (not using Gateway) so wondering if there is something different required. You can see in below screenshot that the number does come through to the entity no problems so I am thinking it is the actual tile set up itself.

I have entered the following in the tile config -

```
https://gwaas-*/odata/SAP/ZGWS_TPP_POCONF_DYNAM_SRV/DynamicDataSet('PO CONFIRMATION TEST')/?  
$format=json
```

This is the error in the console.

```
ONFIRMATION TEST')/?$format=json: HTTP request failed - 404 Not Found -  
sap.ushell.components.tiles.applauncherdynamic.DynamicTile
```

Thanks

Phil

```

<entry xmlns="http://www.w3.org/2005/Atom" xmlns:m="http://schemas.microsoft.com/ado/2007/08/dataservices/metadata"
xmlns:d="http://schemas.microsoft.com/ado/2007/08/dataservices" xml:base="https://[redacted]S_TI
  <id>
    https://gwaas[redacted]sap-icon%3A%2FFiori2%2FF0404'
  </id>
  <title type="text">DynamicDataSet</title>
  <updated>2017-05-02T23:51:14.506Z</updated>
  <category term="[redacted]" rel="edit" title="DynamicData"/>
  <link href="Dyn" rel="edit" title="DynamicData"/>
  <content type="application/xml">
    <m:properties>
      <d:Icon>sap-icon://Fiori2/F0404</d:Icon>
      <d:Info/>
      <d:Infostate>Positive</d:Infostate>
      <d:Number>20</d:Number>
      <d:Numberdigits>1</d:Numberdigits>
      <d:Numberfactor>*</d:Numberfactor>
      <d:Numberstate>Positive</d:Numberstate>
      <d:Numberunit>EA</d:Numberunit>
      <d:Statearrow/>
      <d:Subtitle>TEST</d:Subtitle>
      <d:Targetparams/>
      <d:Title>PO CONFIRMATION</d:Title>
    </m:properties>
  </content>
</entry>

```

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Former Member

June 1, 2017 at 8:47 am

Thank you very much for the article. I can not manage this parameter to change the color of the tile.

infoState

The color of the tile is adapted according to the value of this property. The precise color depends on the theme that you have selected in UI theme designer.

Allowed values: **Negative**, **Neutral**, **Positive**, **Critical**

Like 0 | Share

**Uladzislau Pralat** | Blog Post Author

June 2, 2017 at 9:45 am

Vitaliy, please check that your system up to date on support packs. It should work.

Like 0 | Share

**Former Member**

June 2, 2017 at 12:36 pm

SAP Fiori launchpad for software component SAP_UI 751, Fiori 2.0, SAPUI5 version: 1.44.1

Like 0 | Share

**Gregor Wolf** M ⚡

September 24, 2018 at 8:12 am

Dear Uladzislau,

thank you for this great example. Maybe you can update your Git repository and use the abapGit format. It supports also DDLS.

Best regards

Gregor

Like 0 | Share

**Mykola Chekalov**

October 8, 2018 at 3:34 pm

Why doesn't it work?

pic.1

```

- <content type="application/xml">
  - <m:properties>
    <d:Icon>sap-icon://product</d:Icon>
    <d:Info>EDMS single card</d:Info>
    <d:Infostate>Critical</d:Infostate>
    <d:Number> 0</d:Number>
    <d:Numberdigits>1</d:Numberdigits>
    <d:Numberfactor>M</d:Numberfactor>
    <d:Numberstate>Positive</d:Numberstate>
    <d:Numberunit>CAD</d:Numberunit>
    <d:Statearrow>Up</d:Statearrow>
    <d:Subtitle>Value</d:Subtitle>
    <d:Targetparams/>
    <d>Title>EDMS (Empty)</d>Title>
  </m:properties>
</content>
</entry>

```

pic.2

Dynamic Data		Na
Service URL:	<input type="text" value="/sap/opu/odata/sap/ZEDMS_TILE_SRV/EDMS_TileSet('1')/?\$format=json"/>	Use
Refresh Interval in Seconds:	<input type="text" value="1000"/>	Ser
		z

pic.3



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Uladzislau Pralat | Blog Post Author

October 9, 2018 at 10:36 am

Hi Mykola,

please check your entity key.

Regards, Uladzislau

Like 0 | Share



Mykola Chekalov

October 9, 2018 at 2:49 pm

I'm so sorry, but what do you mean?

I've chosen the key in my structure.

Properties					
Name	Is Key	Edm Core Type	Prec.	Scale	
Icon	<input type="checkbox"/>	Edm.String	0	0	
Info	<input type="checkbox"/>	Edm.String	0	0	
Infostate	<input type="checkbox"/>	Edm.String	0	0	
Number	<input type="checkbox"/>	Edm.String	0	0	
Numberdigits	<input type="checkbox"/>	Edm.String	0	0	
Numberfactor	<input type="checkbox"/>	Edm.String	0	0	
Numberstate	<input type="checkbox"/>	Edm.String	0	0	
Numberunit	<input type="checkbox"/>	Edm.String	0	0	
Statearrow	<input type="checkbox"/>	Edm.String	0	0	
Subtitle	<input type="checkbox"/>	Edm.String	0	0	
Targetparams	<input type="checkbox"/>	Edm.String	0	0	
Title	<input checked="" type="checkbox"/>	Edm.String	0	0	

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Uladzislau Pralat | Blog Post Author

October 11, 2018 at 6:15 am

Mykola,

on your pic.1 OData Service Title property is equal to "EDMS (Empty)", but on pic. 2. you pass entity key "1" instead.

Regards, Uladzislau

Like 0 | Share

Appu John 

October 19, 2020 at 10:01 am

Hi [Mykola Chekalov](#)

the fields should be camelCase so Change the field name from "Numberstate" to "numberState"

"Tile" to "title" . it should work after that .

Regards,

Appu John

Like 0 | Share



Thomas Schreiber

November 21, 2018 at 12:39 pm

I have the same problem. We are also on UI5 version 1.44. Additionally, if the Infostate is not 'Neutral' the tile doesn't show any content value, only three dots '...'

Like 0 | Share



Appu John 

October 19, 2020 at 10:06 am

Hi Thomas Schreiber,

please check if the field names are same . it should be camelCase.

regards,

Appu John

Like 0 | Share

**Ramin Shafai**

March 29, 2021 at 5:20 pm

Super useful blog, even after 4 years.

One question though, what's a safe **refresh interval** to use for updating dynamic tiles? I've set it to **2 seconds** as per your example, but is that not going to put a lot of performance grind on the Launchpad if you have multiple dynamic tiles?

Thanks

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**Uladzislau Pralat** | Blog Post Author

March 29, 2021 at 6:02 pm

Hi Ramin,

I usually take a conservative approach to keep performance impact at minimum setting refresh time something like every 1 hour (definitely longer then timeout). Users can refresh Fiori Launchpad at any time anyway.

Regards, Uladzislau

Like 0 | Share

**Gianmarco Castañeda**

June 24, 2021 at 1:12 am

Thank you very much for the publication. My question is the following: Is it possible to bring a lot of dynamic tiles from the GET_ENTITYSET method?

The URI: /sap/opu/odata/sap/ZGWART_RESURTIDOV1_SRV/EnTyTileSet?\$filter=Title eq 'Zona'

this brings me a lot of logs, but on the launchpad it only brings me a single tile

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Uladzislau Pralat | Blog Post Author

June 26, 2021 at 12:22 am

Hi Gianmarco,

it is possible to fill with data multiple dynamic tile using the same OData Service. See my blog for details.

Regards, Uladzislau

Like 0 | Share



Stefan Thiemann

November 25, 2022 at 2:11 pm

Hi Uladzislau,

thanks for this nice blog post. Today I have implemented your solution from your book with the more generic `get_entity` method and it worked like a charm. I had the little hope, that the dynamic tile also works in combination with a variant which is saved as a tile.

For example I have created an OVP on quality notifications with a dynamic tile with the key figure for number of notifications with status open. Now I create a variant with plant = 4711 and save the variant as a new tile. Is there any way that the filter values of the saved variant are considered for the key figure of the new tile?

Kind regards,

Stefan

Like 0 | Share



Uladzislau Pralat | Blog Post Author

November 25, 2022 at 8:29 pm

Hi Stefan,

I tried to fulfill similar requirements, but could not figure out a solution so far.

Regards, Uladzislau

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