

Show Master Data Details

With the newly provided API `GetSingleMasterData`, it is possible to retrieve the attribute values of a specific master data record by using VBA code. When double-clicking an attribute value in the planning view, a logic can be implemented to show further details about the attribute values of the specific master data record. As of today, business users would need to use the function **Manage > Single...** in the **Master Data** group in the **SAP IBP** ribbon or open a master data workbook to achieve the same result.

In this example, we show you how you can display master data details for specific product IDs in the planning view. The same code can be used and adjusted for other attributes.

HOW TO START

As a first step, you need to create a planning view for which you want to include a specific logic to show master data details. To use our sample code, Product ID needs to be included as an attribute, in addition to others.

Location ID	Customer ID	Product ID	Key Figure	W13 20	W14 20	W15 20	W16 20	W17 20	W18 20	W19 20	W20 20	W21 20	W22 20	W23 20	W24 20	W25 2022
DC Hong Kong	00621000	FIN126.MTS-DI,PD,SerialNo	Statistical Fcst Qty	605	590	591	636	580	586	601	565	576	597	574	605	590
			Sales Fcst Qty	732	458	425	448	577								
			Actuals Qty Prior Yr													
			Local Demand Plan													
			Sensed Demand Qty Final	605	590	591	636	580	586	601	565	576	597	574	605	590
			Demand Planning Qty	605	590	591	636	580	586	601	565	576	597	574	605	590
	0062100003	FIN126.MTS-DI,PD,SerialNo	Statistical Fcst Qty	864	872	864	872	864	872	864	872	864	872	864	872	864
			Sales Fcst Qty	1.049	688	741	746	790								
			Actuals Qty Prior Yr													
			Local Demand Plan	864	872	864	872	864	872	864	872	864	872	864	872	864
			Sensed Demand Qty Final	864	872	864	872	864	872	864	872	864	872	864	872	864
			Demand Planning Qty	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400
	0037100001	FIN126.MTS-DI,PD,SerialNo	Statistical Fcst Qty	1.526	1.526	1.344	1.400	1.316								
			Sales Fcst Qty													
			Actuals Qty Prior Yr													
			Local Demand Plan	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400
			Sensed Demand Qty Final	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400
			Demand Planning Qty	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400
	0037100002	FIN126.MTS-DI,PD,SerialNo	Statistical Fcst Qty	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400
			Sales Fcst Qty	1.316	1.414	1.330	1.260	1.344								
			Actuals Qty Prior Yr													
			Local Demand Plan	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400

The trigger to show the master data details of a specific Product ID is a double-click on that cell. To implement this, we use the `Worksheet_BeforeDoubleClick` VBA event provided by Microsoft in combination with the SAP IBP APIs `GetSingleMasterData`.

If a cell is double-clicked, we check whether the cell includes the Product ID. If it does, we determine the Product ID from the formula of the cell. Then we retrieve the attribute values of the Product ID from the master data type **Product** and show them in a message box (see screenshot below).

The screenshot shows the SAP IBP 'Show Master Data Details' dialog. The dialog lists the following attributes for the selected product:

- ABCD: C
- ABCDLOCKED:
- ABCKYZCOUNTERHELPER:
- BRAND: BRND400
- CATEGORY:
- ITEMTYPECATEGORY:
- MATYPED: FERT
- PLMSTATUS: EXISTING
- PRDDESCR: FIN126, MTS-DI, PD, SerialNo
- PRDFAMILY: FAMILY 400-SMARTPHONES
- PRDGROUP: L004
- PRDSERIES:
- PRODSUBFAMILY: SUB-FAMILY 400
- QUICKTURNMARKET:
- UOMDESCR: PIECE
- UOMID: PC
- XYZDESCR:
- XYZID: X
- XYZLOCKED:

The background table shows data for two locations: DC Hong Kong and DC Rotterdam. The columns are Location ID, Customer ID, Product ID, and Key Figure. The data is organized into a grid with columns for weeks (W16 20, W17 20, W18 20, W19 20, W20 20, W21 20, W22 20, W23 20, W24 20, W25 2022, W26 2022).

The code for this use case is part of the worksheet "Planning" and looks like the following:

Private IBPAutomationObject As Object

Private Sub Worksheet_BeforeDoubleClick(ByVal Target As Range, Cancel As Boolean)

Dim formula As String

Dim productID As String

Dim attributes() As String

Dim length As Integer

Dim details() As String

Dim attributeID As String

Dim attributeValue As String

On Error GoTo ErrorHandler:

If IBPAutomationObject Is Nothing Then Set IBPAutomationObject = Application.COMAddIns("IBPXLClient.Connect").Object

'Check if the cell includes the product ID

formula = Target.Formula2

If InStr(1, formula, "=@ EPMOlapMemberO(("[PRDID].[" = 0 Then

Exit Sub

End If

'Determine the Product ID

productID = Replace(formula, "=@ EPMOlapMemberO(("[", "")

productID = Left(productID, InStr(2, productID, "]""))

'Retrieve the attribute values of the Product ID from the master data type "Product"

attributes = IBPAutomationObject.GetSingleMasterData("Product", Array(productID))

'Determine the length of the array

length = UBound(attributes)

ReDim details(length)

'Determine the ID and the value of the retrieved attributes

For i = 0 To length

attributeID = GetID(attributes(i))

attributeValue = GetValue(attributes(i))

details(i) = attributeID + ": " + attributeValue

Next

'Show a message box with the attribute ID and values of the master data record
MsgBox Join(details, vbNewLine), vbOKOnly, "Master Data Details"

Exit Sub

ErrorHandling:

'Implement an error handling to help the user to understand what went wrong
MsgBox Err.Description, vbOKOnly, "Microsoft Excel: Custom VBA code"

End Sub

Private Function **GetID**(attributeDef As String) As String
 GetID = Mid(attributeDef, 2, InStr(attributeDef, ".[.]" - 2)
End Function

Private Function **GetValue**(attributeDef As String) As String
 GetValue = Mid(attributeDef, InStr(attributeDef, ".[.]" + 6)
 GetValue = Left(GetValue, Len(GetValue) - 1)
End Function

Code explained row by row:

Please note: code lines which already have been explained in the tutorial for use cases provided with release 2202 are not explained in detail again, so please check those samples as well.

formula = Target.Formula2
If InStr(1, formula, "=@ EPMOlapMemberO("[PRDID].[.]" = 0 Then
 Exit Sub
End If

Check whether the formula of the target cell which was double-clicked contains Product ID.

productID = Replace(formula, "=@ EPMOlapMemberO("", "")
productID = Left(productID, InStr(2, productID, "]"))
From the formula of the cell, filter out Product ID, which is needed as input parameter to call the API
GetSingleMasterData. In our example we filter out [PRDID].[.][FG126]:

```
=@ EPMOlapMemberO("[PRDID].[.][FG126]";"";"FIN126,MTS-DI,PD,SerialNo";"";"000")
```

attributes =

IBPAutomationObject.GetSingleMasterData("Product", Array(productID))

Call the API GetSingleMasterData, passing "Product" as masterDataType and Product ID as keyValues. The parameter keyValues is of type String[]. Therefore, you need to pass a one-dimensional string array, even if only one key attribute value is passed, see [GetSingleMasterData](#) on the SAP Help Portal for further information.

length = UBound(attributes)

Determine the length of the array which was retrieved.

ReDim details(length)

Use the [ReDim statement](#) provided by Microsoft to change the dimension of the array details().

For i = 0 To length
 attributeID = GetID(attributes(i))
 attributeValue = GetValue(attributes(i))
 details(i) = attributeID + ": " + attributeValue
Next

Next

The return value of the API GetSingleMasterData is a one-dimensional String array and contains the attribute values in following format: [attribute ID].[.][attribute value]. To not show the attributes in this technical format, you can determine the attribute ID and the attribute value by using the for loop and the

custom functions GetID and GetValue. Then, save the attribute ID and the attribute value in the right format to the details array.

MsgBox Join(details, vbNewLine), vbOKOnly, "Master Data Details"

Show the attribute IDs and attribute values as **Msgbox** in the format that you saved to the details array by using the **Join function** provided by Microsoft, and including a line break after each attribute. Display OK button only and insert "Master Data Details" as title.

Private Function GetID(attributeDef As String) As String
GetID = Mid(attributeDef, 2, InStr(attributeDef, ".[.].[") - 2)
End Function

This function is used to filter out the attribute ID from the format [attribute ID].[attribute value].

Private Function GetValue(attributeDef As String) As String
GetValue = Mid(attributeDef, InStr(attributeDef, ".[.].[") + 5)
GetValue = Left(GetValue, Len(GetValue) - 1)
End Function

This function is used to filter out the attribute value from the format [attribute ID].[attribute value].

Further comments to the code:

- In this example, all related attributes of the master data type "Product" are displayed. If only specific attributes are relevant for your business users, you may filter them out from the attributes array, reorder them and only add the needed ones to the details array instead of adding one after the other in the same order. To do so, you can use the **Filter function** (VBA function provided by Microsoft) and a helper array. In the example code below, we filter out PRDDESCR (Product Description) from the attributes array, determine the ID and the value, and add them to the details array.

```
Dim helper () As String
helper = Filter(attributes, "[PRDDESCR].[.].")
attributeID = GetID(helper(0))
attributeValue = GetValue(helper(0))
details(0) = attributeID + ": " + attributeValue
```

The same can be done for other attributes (PRDFAMILY, PRDGROUP, BRAND, ABCID,...), and then exchange the part 'Determine the ID and the value' of the retrieved attributes accordingly.

The screenshot shows the SAP Integrated Business Planning interface. A 'Show Master Data Details' dialog box is open, displaying the following information:

- Product ID: FG126
- Product Description: FIN126,MTS-DI,PD,SerialNo
- Product Family: FAMILY 400-SMARTPHONES
- Product Group: L004
- Brand: BRND400
- ABC Code: B

The background table shows data for two locations: DC Hong Kong and DC Rotterdam. The columns are Location ID, Customer ID, Product ID, and Key Figure. The Key Figure column lists various demand planning metrics.

- If you want to display the attributes names and not the attribute IDs in the master data details dialog box, as of now there is no simple way to do so using an API. One possibility is to hard code the names in your code (as you see it in the screenshot above), or you may include the attribute IDs and their names in a separate worksheet, and determine the name of a specific ID by a VBA method (see the function GetName below).

	A	B
1	Attribute ID	Attribute Name
2	ABCDSCR	ABC Desc
3	ABCID	ABC Code
4	ABCLocked	ABC Locked
5	ABXYZCOUNTERHELPER	ABC XYZ Helper
6	BRAND	Brand ID
7	CATEGORY	Category
8	ITEMTYPECATEGORY	Item Type Category Indicator
9	MATTYPEID	Material Type ID
10	PLMSTATUS	PLM Status
11	PRDDSCR	Product Description
12	PRDFAMILY	Product Family
13	PRDGROUP	Product Group
14	PRDSERIES	Product Series
15	PRDSUBFAMILY	Product Subfamily
16	QUICKTURNMARKET	Quick Turn Market Available
17	UOMDESCR	Base UOM Description
18	UOMID	Base UOM
19	XYZDESCR	XYZ Desc
20	XYZID	XYZ Code
21	XYZLOCKED	XYZ Locked
22		
23		
24		
25		
26		

The part in the code marked in yellow would need to be changed as follows, and the function GetName needs to be added (see xlsx file "Show Master Data Details_WithName"):

'Determine the ID and the value of the retrieved attributes

For i = 0 To length

attributeID = GetID(attributes(i))

attributeName = GetName(attributeID)

attributeValue = GetValue(attributes(i))

details(i) = attributeName + ": " + attributeValue

Next

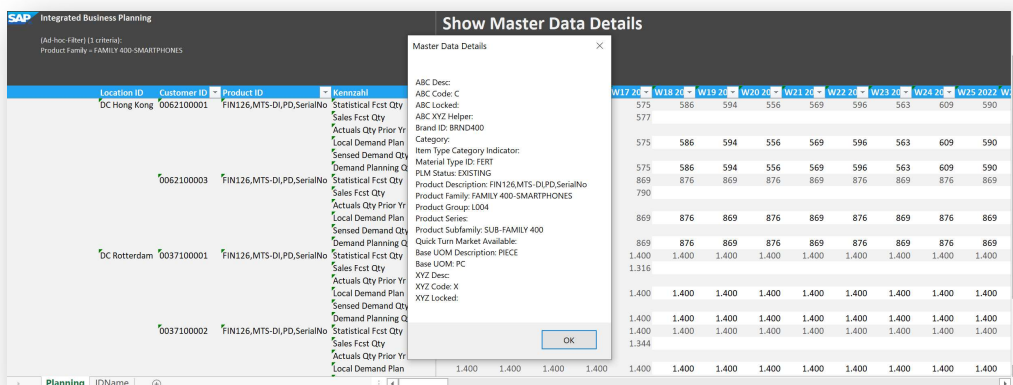
Private Function GetName(attributeID As String) As String

Dim position As range

Set position = Worksheets("IDName").range("A2:A21").Find(attributeID, LookIn:=xlValues)

GetName = Worksheets("IDName").Cells(position.Row, 2).Text

End Function



So as not to confuse the business user, the additional worksheet "IDName" can be hidden.

- If you want to implement a generic logic that every attribute can be double-clicked, and additional master data information is displayed, some more effort and VBA code is needed. To retrieve master data attribute values using the API `GetSingleMasterData`, the ID or name of the master data type and the key attribute values are needed.
 - The master data type is hard coded in our sample, and works with all planning areas where the name of the master data type `PRODUCT` equals “Product”. To retrieve the complete list of master data type IDs of the planning area you are connected to, you can use the API `GetMasterDataTypes`. To then determine the master data type of a specific attribute, there is currently no easy solution, so as shown in the example above, for attribute ID and attribute name you would need to create a worksheet where the dependencies between attributes and master data types are listed, which can be used in the VBA code.
 - If you already have the master data type, you can determine the ID of its key attributes by using the API `GetMasterDataTypeKeyAttributes`. To then determine the key attribute values the easiest way is to have the key attributes included in the planning view. You can then determine the key attribute values by using the API `GetAttributeValues` (see further details how this can be implemented in our sample **1.3 Change Master Data Attribute Value**).

Find further information about the different APIs which are available on the SAP Help Portal at [SAP IBP APIs](#).

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