



SAP Business One Welcomes you to the Weekly Partner Webinar Series

SAP Business One SDK 2005:
Grid type data in UI API

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Please note that we are recording this session!

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Target Group / Knowledge level:

- **Basic** / *Advanced* / *Expert*

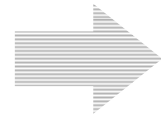
Required:

- **Knowledge of SAP Business One 2005 SDK components**

Recommended:

- **UI API knowledge – especially basic knowledge on grid type UI items and datasources (see E-learning flashback “Databinding” <http://service.sap.com/~sapidb/011000358700000468902006E/index.htm>)**

Agenda: Tips and Workarounds around UI API



Introduction

Performance

Saving

Sorting

Other features and workarounds



System Form vs. „User-defined“ Form

System Form:

Special case: limitations apply

Formatted Searches vs. UI API programming

User-defined Form:

UDO vs. „no object“

DB values 1:1 vs. Reformatting necessary (e.g. date)

Functionality

Saving data – or display only?

Is Sorting a must?

May it be necessary to scroll through code?

Layout

„Lookups“: ChooseFromLists vs. Formatted Search

Predefined values (2 vs. more than 2 => CheckBox or ComboBox)

Linkage to objects (Linked Buttons)

Settings per column / row / cell

Form settings

Matrix:

- All „grids“ on System Forms are Matrixes
- Only Matrixes work with Form Settings
- Only Matrixes can interact with UDOs
- A particular cell can only be activated by calling the Click() method (Form.ActiveItem cannot be used for this purpose)

-Relevant Data Source types:

DBDataSource Data in exactly 1 SAP Business One table or UDT – e.g. no joins
Conditions („...WHERE ...“) can be applied – no sorting etc.

UserDataSource Data not in SAP Business One table or UDT (or DB) or
data to be formatted or sorted for display purposes

DI API's Recordset object can be used to retrieve the data

Data can only be set row by row – no random access!

Grid:

- Does not support UDO + Form Settings
- Is not relevant on System Forms' grids
- needs to have layout changes to be reapplied after each reload
- Relevant Data Source type:

DataTable

- Allows to use SQL statements
 - Data in 1 or more SAP Business One table or UDT or any other table(s) or databases...
 - Includes sorting, joins etc.
 - Data types for Columns are the data types in DB (currency without currency code – cannot be changed)
- Can alternatively be built column-by-column in code
 - Provides „Collapsible mechanism“ (look-alike tree)

ActiveX:

-Use the ActiveX object if you need to use other types of grids, but check how well it will fit into SAP Business One from a look-and-feel perspective!

-Please note that there may be conflicts between how this object is implemented and the license mechanism of the object you want to use:

The UI API ActiveX only takes the GUID – no further parameters – for instantiation!

Limitation on System Forms:

Values cannot be modified through Datasources

Values can only be read from Datasources when the data have been saved to the database before (new records are not accesible through Datasources)

Limitation on User-Defined Forms:

Formatted Searches won't run automatically

General (Matrix + Grid):

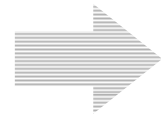
No setting of styles or characteristics per cell

No scrolling through code capabilities

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There are not too many chances to take influence since:

- **Changing data through Datasources is not possible (Exception)**
- **Changes are not copied into Datasources e.g when a cell loses focus – or when the data are going to be saved.**

However it is possible to:

- **Add additional conditions in Choose from List (available since 2005)**
- **Use SDK instead of Formatted searches with the following limitations:**
 - **In both cases only single cells can be changed**
 - **The biggest effect will be that using SDK you can decide to change data or not especially when e.g. data are copied into a target document (e.g. A/R Invoice from Sales Order) – Formatted Searches would run there**

Performance comparison on a user-defined form

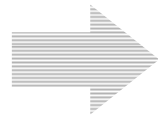
	DBDataSrc.	UserDataSrc.	DataTable	Cell.Specific	DI Recordset
Load from DB	Fast	- Use any (!) other option	Fast	-	OK
Display (Matrix)	Fast	„Slower“	-	Slow	-
Display (Grid)	-	-	Fast	Slow	-

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- **Data which are not originating in tables which are handled by the business object behind a system form must be saved in the „After“ event of the et_ITEM_PRESSED on item „1“ through DI API capabilities (e.g. UserTable object or Recordset object)**
- **Data can be prevented from being saved when:**
 - **Returning a non-zero error code in SBO_SP_TransactionNotification**
 - **Blocking the further processing of the save action in the „Before“ event of the et_ITEM_PRESSED on item „1“**
- **Unsaved data have to be accessed through the cells**
- **2005A SP01 comes with a new event that allows developers to get the internal key of the record that has just been added / updated / removed – and eventually access it through DI API**

UDO

- When linking your Form to a UDO you can register to services provided by SAP Business One application (Add, Update, Find, Close etc) thus reducing developing time.

Non-UDO

- Data must be saved through DI API capabilities (e.g. UserTable object or Recordset object) – ideally in the „After“ event of the et_ITEM_PRESSED on item „1“

- **You should use the datasources to gather the data for performance reasons**
- **UDO data cannot yet be saved through DI API; on a UDO form they will be saved by the UDO itself however**
- **Data can be saved through the UserTable object which represents a single record in a UDT**
- **Unfortunately the UserTable object is not a „business object“ so that the XML capabilities of DI API cannot be used to add or update UDT records**

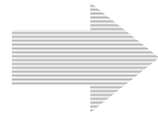
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Sample 1:

System Matrix – sort through code (when possible!):

```
Dim b1Matrix as Matrix
```

```
b1Matrix = m_uiApp.Forms.Item("191").Items.Item("3").Specific
```

```
b1Matrix.Columns.Item("1").TitleObject.Click(SAPbouiCOM.BoCellClick  
Type.ct_Double, 0)
```

Sample 2:

User-defined Matrix:

```
Dim b1Matrix as Matrix
```

```
b1Matrix = m_uiApp.Forms.Item(„XX_Hallo").Items.Item("3").Specific
```

```
b1Matrix.Columns.Item("1").TitleObject.Click(SAPbouiCOM.BoCellClick  
Type.ct_Double, 0) `=> has no effect
```

Sorting (continued)

Sample 2 User-defined Matrix(continued):

Just one option:

<Set up DBDataSource Conditions >

DBDataSource.Query

< ****Populate Array & Quicksort it**** >

for counter = 0 to (DBDataSource.Size - 1)

 <Set offset on DBDataSource to ****offset from Array**** >

 <Set some values to UserDataSources>

 Matrix.AddRow

next

Sorting (continued #2)

Sample 3:

Grid (only available as „user-defined“):

```
Dim oGrid As SAPbouiCOM.Grid

Dim oDataTable As SAPbouiCOM.DataTable

' Add a Grid item to the form

oItem = oForm.Items.Add("MyGrid",
SAPbouiCOM.BoFormItemTypes.it_GRID)

' Set the grid dimensions and position

oItem.Left = 20

...

' fill the grid with sorted data

oGrid = oItem.Specific

oDataTable = oForm.DataSources.DataTables.Add("MyDataTable")

oDataTable.ExecuteQuery("select CardCode, CardName, DocDate,
DocNum, DocTotal, DocStatus from OINV order by DocEntry desc")
```

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„Lookups“: ChooseFromLists vs. Formatted Search

- **ChooseFromLists** are available since 2005A
- **Formatted Searches** could provide similar functionality when just one value is needed

Linkage to objects (Linked Buttons)

- **Available for Matrix** since 2004
- **For the Grid** needs to be done after loading the data
- **Linked buttons** are never displayed when the respective input field is empty

Settings per column / row / cell

- **Settings (read-only, color)** are only available per column

Form settings...

- **can be accessed** since 2005A
- **can only handle 1 Matrix**

E.g. Currency Exchange Rate Form

If a cell is in a form but it would be necessary to scroll to view (and click into it) a workaround is needed since no method for scrolling is available:

1. set appropriate width of Rates-form by code
2. call `AutoResizeColumns()` method of Rates-Matrix object

After calling the `AutoResizeColumns` clicking into a cell which is in a cell which is not displayed works!

```
If pVal.FormTypeEx = "866" Then
    Dim Matriz As SAPbouiCOM.Matrix
    Dim i As Integer
    Matriz = SBOApp.Forms.Item(FormUID).Items.Item("4").Specific
    For i = 0 To Matriz.Columns.Count - 1
        If Matriz.Columns.Item(i).Title = MyCurrency Then
            Matriz.Columns.Item(i).Cells.Item(Now().Day).Click()
        End If
    Next
End If
```


Article on Data sources on SDN:

<https://www.sdn.sap.com/irj/servlet/prt/portal/prtroot/docs/library/uuid/a823d190-0201-0010-268a-c37eab1e768e>

Thank you !

Additional information:

<http://service.sap.com/smb>

<http://sdn.sap.com>

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