

SAP Business One v10 – How to create UDF & UDT in SAP Business One

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Introduction

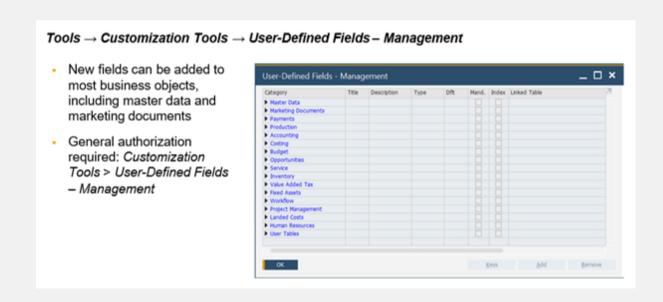
The UDF (User Defined Fields) are fields that the system does not have by default; it is possible to add these additional fields to the master data and documents to adapt the specific needs or processes of each business. In addition to UDFs, you can add new tables to the database; the UDT (User Defined Tables) give you the ability to store additional, related sets of data.

In the next pages, you can find how to add your own fields to objects in the SAP Business One database. You will be able to define fields with different types and structure, including mandatory fields, and set validation rules, default values, and lists of values to assist users in data entry.

Adding User Defined Fields

You can add new fields to most business objects, including business partner and item master data, and marketing documents. These fields are stored in the database and table of the business object.

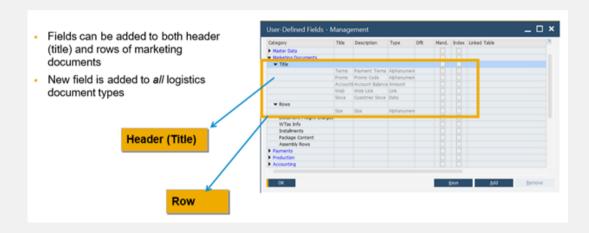
1) Only authorized users can add user-defined fields. The general authorization is Tools > Customization Tools > User-Defined Fields > Management.



Marketing document Header and Row fields

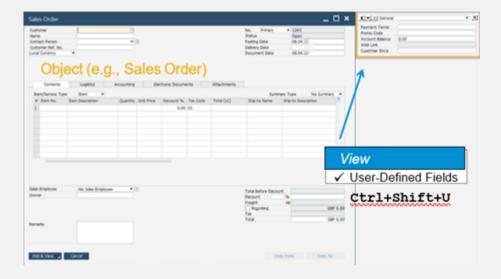
You can add fields to both the header area and to the rows of marketing documents.

When you add a user-defined field to the marketing documents object, the new field is added to all logistics document types, including all sales and purchasing document types, and some inventory documents such as Goods Receipt and Goods Issue.



3.1 Header Level

- When you add User Defined Fields (UDFs) at the header level, the new fields appear in a separate window positioned by default to the right of the existing document window.
- This window is not visible immediately. To open this window, choose View > User Defined Fields from the top menu bar, or use the key sequence Ctrl+Shift+U. You can reposition this window to the left or bottom of the existing window.
- UDF's added to the header are editable after the document has been added.
- If the User Defined Fields are not used in a marketing document, the new window can remain closed.

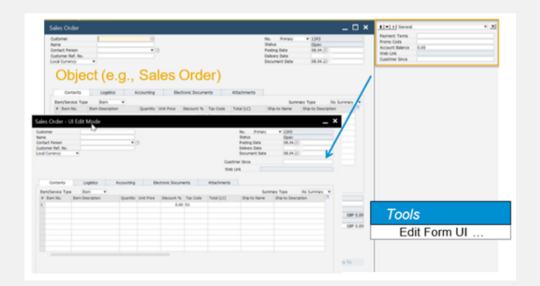


3.2 Moving User Defined Fields - Header level

 Authorized users can use the Tools > Edit Form UI function to drag relevant user-defined fields from the side window to the main form area, thus dispensing with the side window.

Authorized users can make this change just for their own use or for other users by creating a UI Configuration template.

 In the UI configuration template, select the form that has the UDFs added, then drag the fields into position. The template can then be assigned to users.

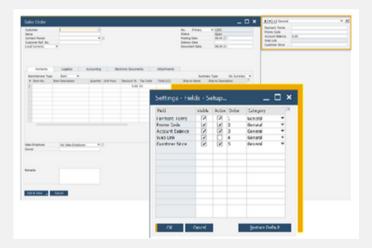


3.3 Settings for User Defined Fields

If you decide to keep User Defined Fields in the side window, you
can manage them using the settings window. To open the
settings window for user-defined fields, press Ctrl+Shift+B, or
choose Tools > Customization Tools > Settings. The menu only
shows active when you select a form with User Defined Fields.

The user can make the User Defined Fields visible or invisible, and active or inactive, in the User Defined Fields side window. For example, you can make all the fields relevant for a sales order invisible in a purchase order.

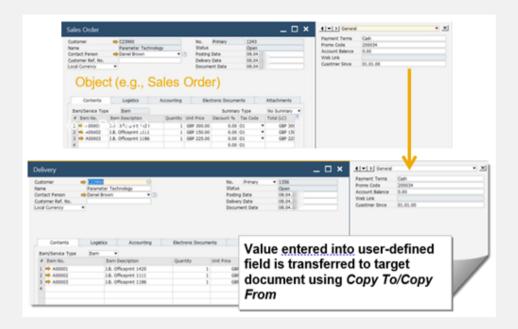
There is also the option to define new categories to group related fields and only display the fields for a category.



3.4 Copying UDF values in Marketing Documents

When using the Copy To/ Copy From function to generate a new document from a base document, the value of a User Defined Field is transferred to the target document. This also applies to documents generated through the Document Generation Wizard.

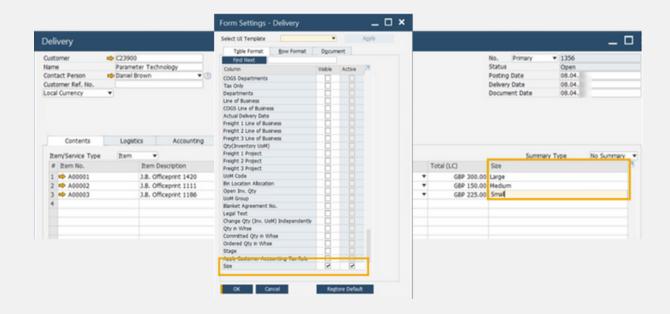
If multiple base documents are copied to a target document, and the User Defined Field has different values in these base documents, the field value is not copied.



3.5 Row Level

When you add a field at the row level, the system adds this field as an additional column in the row. The field is visible and active by default.

You can change these settings or move the field to a new position on the row using standard form settings.

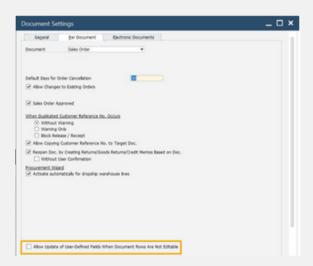


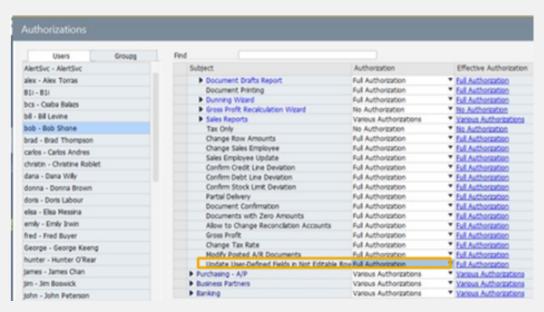
3.6 Editing User Defined Fields – Row Level

Row level UDF's are behaving the same as system columns. For example, if a sales order is open, and rows can be updated, so are the UDF's. Once the order is closed, the UDF's are also blocked.

 You can allow editing row level UDF's from the Administration > System Initialization > Document Settings > Per Document.

In addition, you can use the general authorization to determine which user can edit row level UDF's on the sales and purchasing modules.





Properties of User Defined Fields

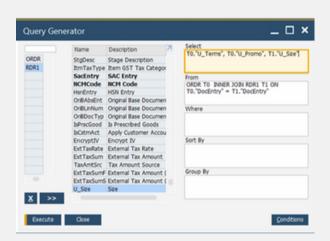
User Defined Fields are added to the respective database table for the object. They can be quickly identified in the table since they have the prefix "U_". In the example below you can see a new field added to the order row table RDR1.

User Defined Fields are retained during an upgrade to a new release.

An important point about User Defined Fields is that when you add a new field to an object, the new field is added to all instances of the object, including records already saved in the database.

UDFs function as normal fields and can therefore be used in queries and reports.

You can also import data into User Defined Fields using the Data Transfer Workbench. In the DTW template, simply add these fields at the end of the spreadsheet. Enter the name of the field in the header row and enter the value as you would for a standard field.



It is important to remember that, when you add a user-defined field, the database structure is updated. Therefore, you should only add new fields when no other users are logged in.

If you try to add a new field, the system will warn you if there are logged in users. You have the option to:

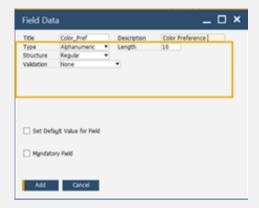
- Try Again: You can notify the users close their work and wait until they have logged out of the system.
- Ignore: The system will force close all open documents for all connected users.

Type and Structure

When you create a user-defined field you can select a Type and optionally a Structure for each User Defined Field.

The Structure is dependent on the Type and influences the format of the field.

Be aware that you cannot change the type and structure after you have added the field to the database. If you mistakenly choose the wrong type or structure, you can remove the field and start again.



5.1 Alphanumeric

Fields with Alphanumeric type can have one of the structures shown here. A Regular structure can hold up to a maximum of 254 characters. A Text structure can accommodate 2 GB of text in header fields and 255 KB of text in row fields.

Туре	Structure	Maximum Length
Alphanumeric	RegularAddressTelephone No.Text	254 2GB (header) / 255KB row
Numeric		
Date/Time	Date Hour	
Units and Totals	 Rate Amount Price Quantity Rercepts Measure 	
General	LinkImage	

5.2 Numeric

Fields with Numeric type can only hold integers, therefore there is no structure.

Туре	Structure	Maximum Length
Alphanumeric	Regular Address Telephone No.	254
	 Text 	2GB (header) / 255KB row
Numeric		
Date/Time	Date Hour	
Units and Totals	 Rate Amount Price Quantity Percents Measure 	
General	LinkImage	

5.3 Date/Time

Fields selected with the Date/Time type can have Date or Hour as the structure.

These fields behave in exactly the same way as other date and time fields in the system; for example, the calendar icon is available in a field with the date structure.

Туре	Structure	Maximum Length
Alphanumeric	 Regular Address Telephone No. 	254
	 Text 	2GB (header) / 255KB row
Numeric	•	
Date/Time	Date Hour	
Units and Totals	 Rate Amount Price Quantity Rescents Measure 	
General	LinkImage	

5.4 Units and Totals

To enter fractions as well as integer numbers in the new field, use the Units and Totals type and select one of the structures shown here. Decimal places will display in the new field according to the initialization settings on the Display tab of the General Settings.

Туре	Structure	Maximum Length
Alphanumeric	RegularAddressTelephone No.	254
	 Text 	2GB (header) / 255KB row
Numeric		
Date/Time	DateHour	
Units and Totals	Rate Amount Price Quantity Percents Measure	
General	LinkImage	

5.5 General

If you select the General type, the new field can hold links or graphics. You must first define the default path to the Attachments folder, in the General Settings.

 Fields with the Image structure can accommodate pictures. You must first define the default path to the Pictures folder, in the General Settings.

The user can, at any time, change an image or web address by pressing the Ctrl key and double-clicking the image or web address.

Туре	Structure	Maximum Length
Alphanumeric	Regular Address Telephone No. Text	254 2GB (header) / 255KB row
Numeric		
Date/Time	Date Hour	
Units and Totals	Rate Amount Price Quantity Percents Measure	
General	• Link • Image	Need to define path to Attachments or Pictures folder in <i>General Settings</i> (Path tab).

Validation Options

In addition to the type and structure for a user-defined field, you have the option of specifying validation options:

- Linked to Entities
- Valid Values
- Advanced

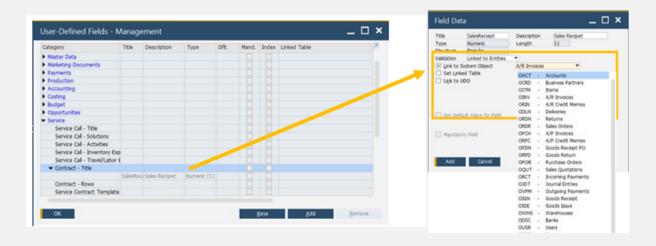


6.1 Linked to Entities

The option Linked to Entities allows you to set up a direct link between a user-defined field in a form and a system object, a User Defined Table, or a user-defined object. In the example below we have linked a User Defined Field in the service contract form with the A/R invoice object.

The link is established by the user who creates the form. In the User Defined Field the user will be shown all the instances of the chosen object and can select one to create the direct link.

Be aware that the user must select the correct instance, since the system shows all rows stored in the database for the chosen object.



6.2 Valid Values

If Valid values option is chosen, you can define a list of possible values for the User Defined Field. This definition is made when you add the UDF.

In the example to the right, you can see that there are three possible values for the field: silver, gold and platinum.

This list is available in the document as a dropdown list, allowing the user to select one of the values.

The user cannot update the values in the list. The list values can only be updated by the authorized user from the User Defined Fields – Management window.



6.3 Advanced

If the Advanced option is selected the system lets you set some simple validation rules for when the user enters data in the User Defined Field.

The validation rules apply to all UDF types except for General type.

The validation controls vary according to the type and structure of the UDFs. For example, for alphanumeric type the rules can check which characters the user can enter in the field, and how many characters.

Other rules allow you to validate that the value entered is equal to, less than, or greater than a value entered when you add the User Defined Field.

Default and Mandatory Fields

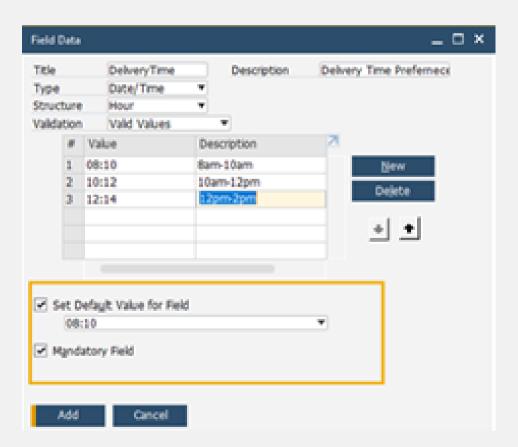
You can optionally set a default value for any User Defined Field.

In the example, we have selected a default time from the list of valid values.

The default value set for a field will appear in all new instances of the object.

You can optionally set the User Defined Field as mandatory. The user will not be able to add a new record without entering data into the mandatory field.

When you set a UDF as mandatory, you need to initially supply a default value, to maintain the integrity of the database. After you have added the user-defined field you can remove the default value.



Adding User Defined Tables

In addition to User Defined Fields, you can add new tables to the database. User Defined Tables (UDTs) give you the ability to store additional, related sets of data.

The User Defined Table becomes part of the company database. The system identifies this tables by the '@' prefix so you can easily distinguish them from system tables.

When you create a new company, you have the option to copy User Defined Tables from the currently selected company to the new company.



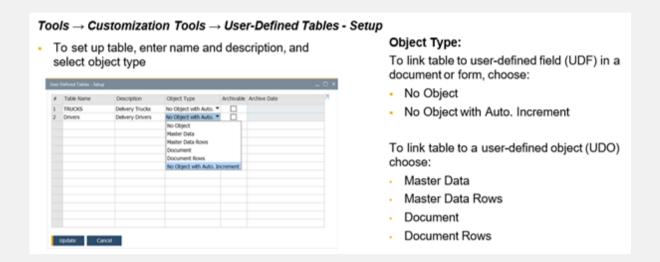
8.1 Object Type for User Defined Tables

User Defined Tables (UDT) can be linked to a User Defined Field (UDF) in a document or form. To do this you must choose the correct object type when you create the table.

To link to a UDF choose No Object or No Object with Auto Increment. To link to a User Defined Object (UDO) choose one of the other options:

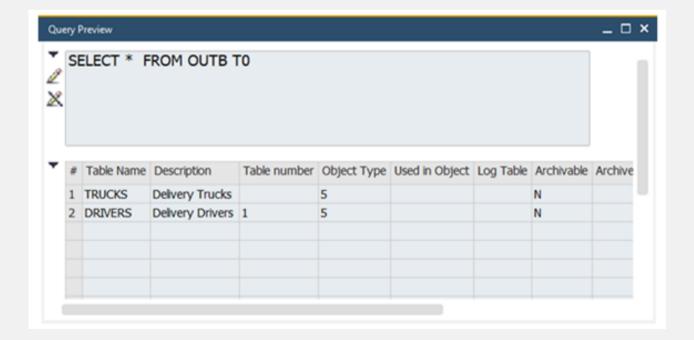
- Choose Master Data if the object will hold master data. You can also create child tables by selecting Master Data Rows as the object type.
- Choose Document if the object will hold transactional data. You can also create child tables by selecting Document Rows as the object type.

Note that you cannot change the Object Type after you have added the user table to the system.



8.2 Information about User Defined Tables

Information about each new table is stored in the OUTB system table. Information includes the object type.

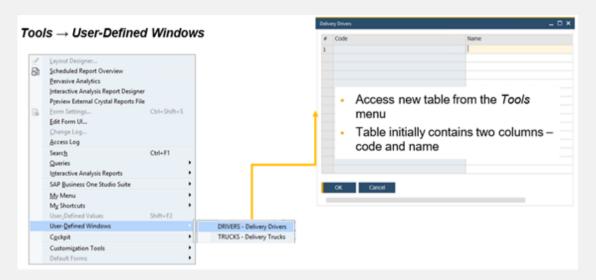


Linking a User Defined Table to a UDF

To link table to user-defined field (UDF) in a document or form, you create the table with the object type No Object.

 Access a newly created User Defined Table by selecting the table from the Tools menu.

The table initially contains two columns, code and name.

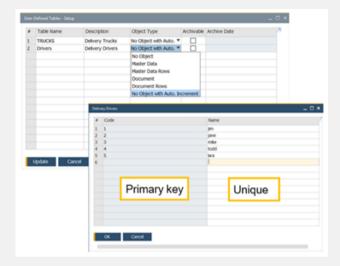


Entering Data in a New Table

In our example, we want to use the table in a User Defined Field in a delivery document. Therefore, when we set up the table, we could choose either **No Object** or **No Object with Auto Increment** as the object type.

- If you choose No Object as the object type when you create the table, the Code column is editable and you can enter a unique value for each row.
- If you choose No Object with Auto Increment as the object type, the Code column is not editable and the value will be auto incremented for each row of data you enter. We chose this option so the primary key is updated for us.

The Code is the primary key and the Name must be unique for each row that you add to the table. In addition, you have the option to select any field or combination of fields from the user table as a new key. This option can speed up searches.

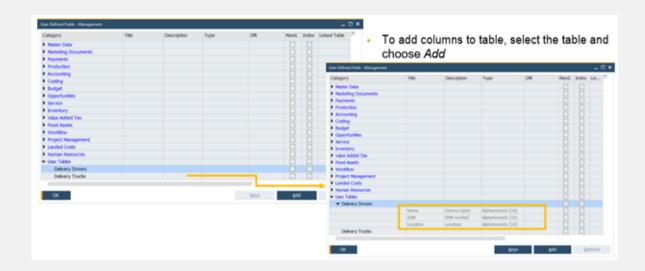


Adding Columns to a UDT

In order to be useful, a User Defined Table needs additional columns. Each column is added as a **User Defined Field**.

• Select the name of the table in the User Defined Fields management window. Then add a User Defined Field for each column.

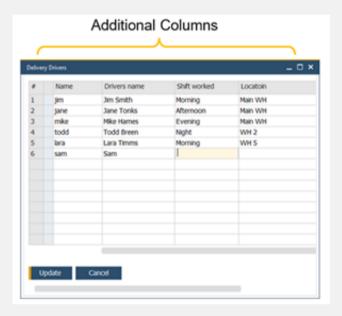
In the example, we have added four additional columns – Name, Shift, Available, and Location to the Delivery Drivers table. In these fields we will record the name of the driver, the hours they work, if they are available for assignment, and their location. With this information, a user will be able to select the best driver for the delivery.



Viewing the Columns Added to a UDT

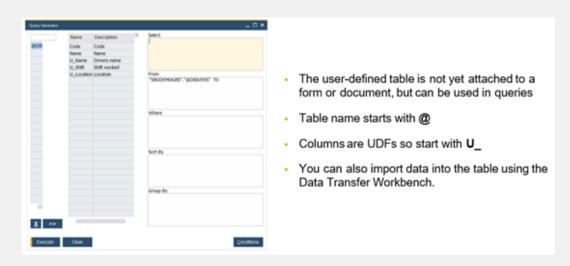
After the additional columns have been added to the table, you can enter data or add new rows by then choosing **Menu > Tools > User-Defined Windows**. Choose and select the table.

If the new columns are not visible in the window, you may need to adjust the width of the columns to bring the new fields into view.



Queries

At this point the user-defined table is not attached to any form or document so it is not accessible to the user. However, you can use the table in queries, and you can import data into the table using the Data Transfer Workbench.

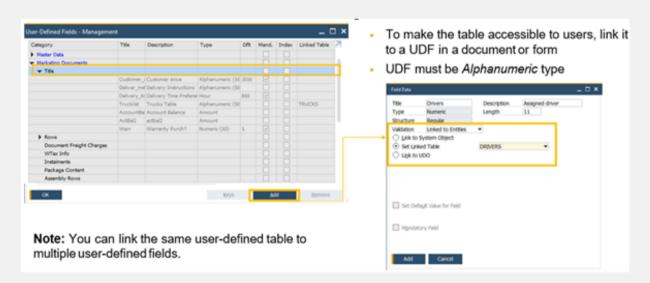


Linking the table to a UDF

To make a user table directly visible to users in a form or document, you link the table to a User Defined Field in the document or form. Note that user tables can only be linked to UDFs with the Alphanumeric type and Regular structure.

In the example, a User Defined Field called Drivers is added to the title area of the marketing documents object. When you add the User Defined Field choose the Set Linked Table validation option. Then select the User Defined Table from the dropdown list.

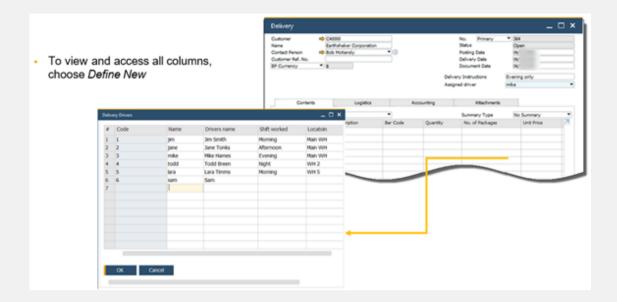
You can link the same User Defined Table to multiple User Defined Fields in different objects, at both the header and the row level. For example, you could link the trucks table to a User Defined Field in the pick list document in addition to the delivery document.



Using the UDT in a Document

When you select the User Defined Field, you can see the first two columns. Choose **Define New** to view and access all columns in the table.

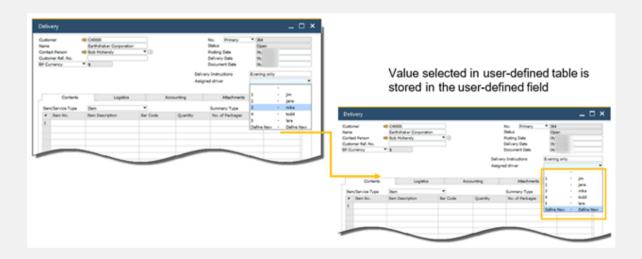
The user can edit and add rows to the table.



Selecting the Value from the UDT

In this example, the customer has requested an evening delivery, therefore a driver is selected who is available in for an evening delivery.

The Name from the User Defined Table is now stored in the User Defined Field in the document.



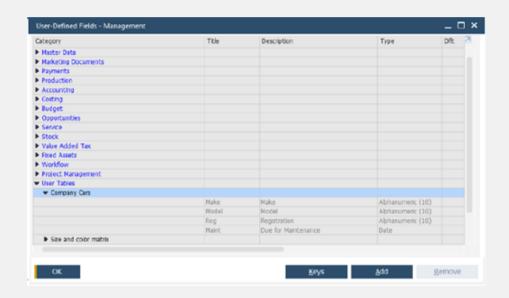
Linking a UDT as a User Defined Object

To link a user table as a User Defined Object (UDO) make sure you created the table with the object type MasterData or Document.

A User Defined Object consists of a User Defined Table and added User Defined Fields. These fields will hold the data for the new business object.

You can add UDFs using the SAP Business One application or via the DI API. In the example we created a user table called Company Cars, as a master data object.

We have added 4 User Defined Fields.

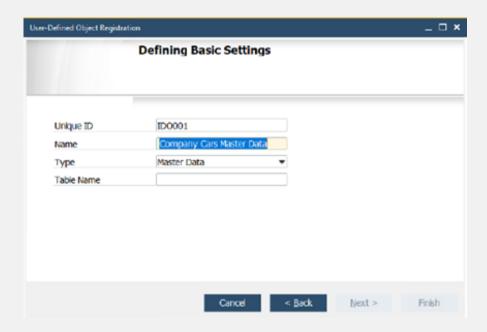


Registering the New Table as an Object

Once you have created the user table with the User Defined Fields you need to register it as an object in SAP Business One using the **Objects Registration Wizard**. The registration is per company.

- Enter a unique ID and select the User Defined Table name.
- As you progress through the wizard you will be prompted to select the services for the object, for example, Add, Update, Find, Delete. Add and Update are basic services and cannot be deselected.

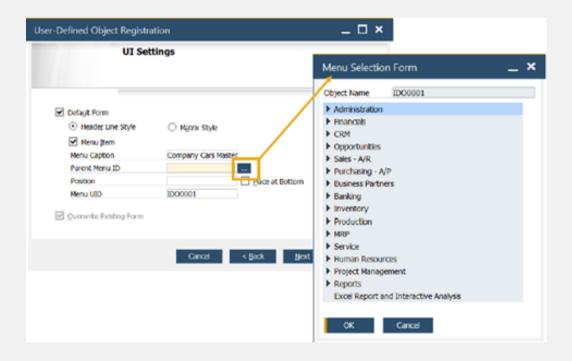
You can optionally select a child table, that will appear as rows in the master data or document object. Child tables are created by selecting the object type as Document Rows or Master Data Rows.



Adding the Object to the Main Menu

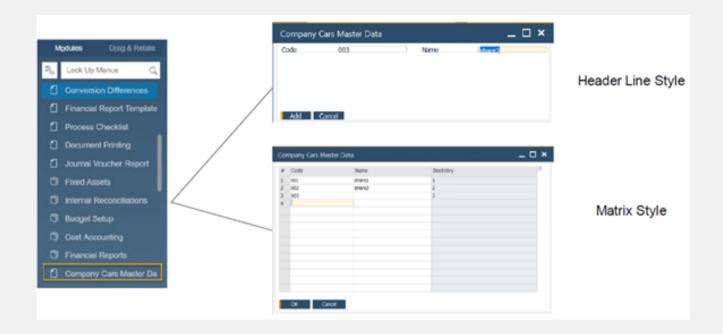
You can add the object to the main menu by selecting the Menu Item checkbox in the wizard.

You then select the module from the selection form, and the position within the module menu.



Style of the New Table

You can select either **Header Line Style** or **Matrix Style** in the wizard. This affects how the table displays when the user access it.



SAP Business One v10 – How to create UDF & UDT in SAP Business One



Innormax can help guide you through the analysis and implementation of the most suitable solution for your company. Our consultants have a long track record of helping businesses of all shapes and sizes succeed in many different industries in the area of traceability.

Using our resources and supporting technology like SAP Business
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