Customization Tools:
User-Defined Fields and Tables

SAP Business One
Release 9.0

Welcome to the topic on User-Defined Fields and User-Defined Tables.

Objectives

Objectives:

- Add fields and tables to objects in SAP Business One
- Add user-defined values to user-defined fields

On completion of this topic, you will be able to add your own fields and tables to objects in SAP Business One. You will also learn to add user-defined values to these user defined fields.

Business Scenario

- There is a need to track a status level for each customer – gold, silver, and bronze.

- The salesperson needs to record the customer's preferred delivery time when processing a sales order.

Solution: These requirements can be implemented with user-defined fields.

Additional fields are often added to master data and documents to implement a customer's business process. Here are two business requirements that can be implemented with user-defined fields.

- There is a need to track a status level for each customer – gold, silver, and bronze. You can add a user-defined field to the customer master data to hold and track the status value.

- Additionally, the salesperson needs to record the customer's preferred delivery time when processing a sales order. You can add a user-defined field to the sales order document, and record the delivery time in this field.

Agenda

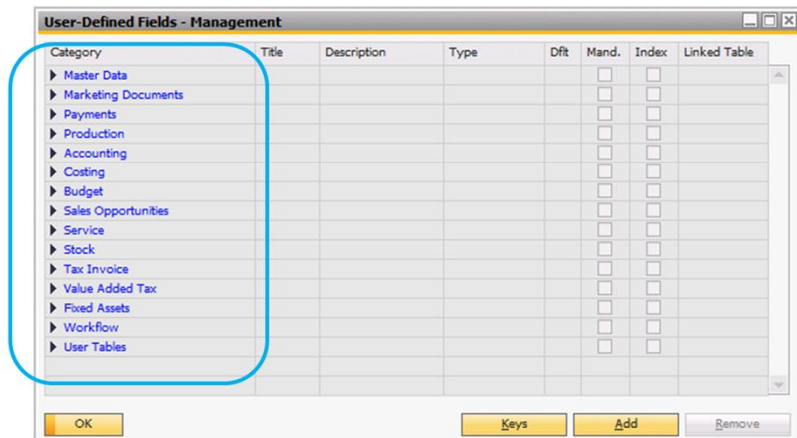- **User-Defined Fields**
- User-Defined Tables

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In the first part of this topic, we will cover user-defined fields.

User-Defined Fields

Tools → Customization Tools → User-Defined Fields – Management

- New fields can be added to most business objects, including master data and marketing documents

- General authorization required

You can add new fields to most business objects, including business partner and item master data, and marketing documents.

Only authorized users can add user-defined fields. The general authorization is located in the authorizations window by navigating to *Customization Tools > User-Defined Fields – Management*.

Row and Header Fields

- Fields can be added to both header (title) and rows of marketing documents
- New field is added to all logistics document types

User-Defined Fields

Object (e.g., Sales Order) — General — New Field (×5) — Header (Title)

Field is added to all logistics document types

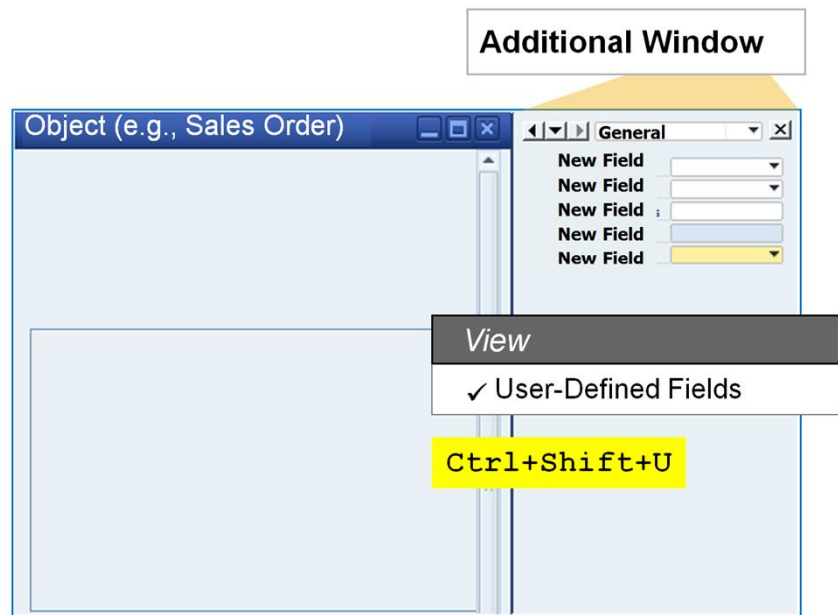| #	Item No.	Quantity	Unit Price	Total	New Field
1					

Row

User-defined fields are frequently added to marketing documents. You can add fields to both the header (title) and 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.

User-Defined Fields – Header Level

- UDFs added at the header level appear in a separate window

- To view this window, use the *View* menu or press **Ctrl+Shift+U**

- **Note:** UDFs added to the header of the marketing documents object are available in all marketing document types

Additional Window

Object (e.g., Sales Order)	General
	New Field
	New Field
	New Field ;
	New Field
	New Field

View

✓ User-Defined Fields

`Ctrl+Shift+U`

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.

If the fields are not required in a specific document type, you can keep the new window invisible.

User-Defined Fields – Row Level

- UDFs at the row level are visible and active by default
- Use standard form settings to make invisible or inactive

#	BP No.	Name	Debit	Credit	New Field
1					
				Row	

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 make the user-defined field invisible or inactive by using the standard form settings for the document row.

Properties of User-Defined Fields
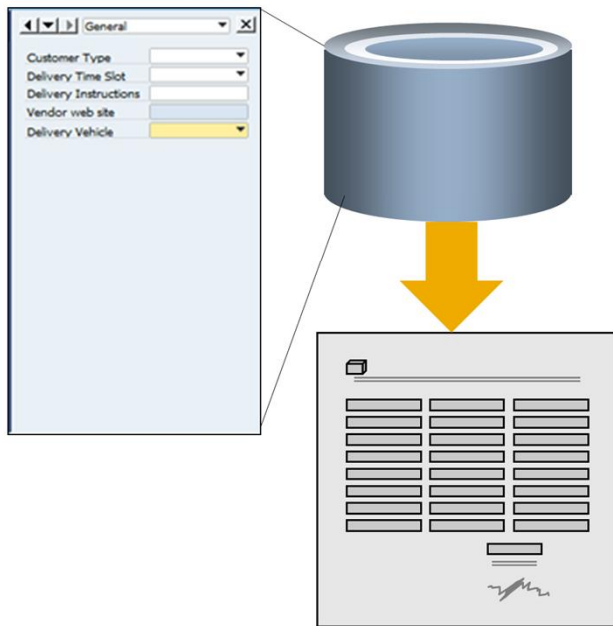
General Customer Type Delivery Time Slot Delivery Instructions Vendor web site Delivery Vehicle	• UDFs are added to the object's table and have prefix "U_" • UDFs retained during upgrade, and can be copied to a new company • New field is added to *all* document instances, including records already saved in the database • UDFs function as normal fields and can be used in queries and reports • Can import data into user-defined fields using Data Transfer Workbench.

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_".
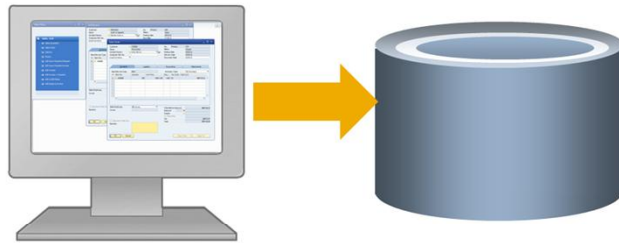
User-defined fields are retained during an upgrade to a new release. When you create a new company, you have the option to copy user-defined fields from the current company to the new company.

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.

Properties of User-Defined Fields (Cont.)

The following workstations are connected to the company.
Disconnect them in order to continue.

PALN00483300A

Wait for other users to log off

Force close open documents for connected users

Try again   Cancel   Ignore
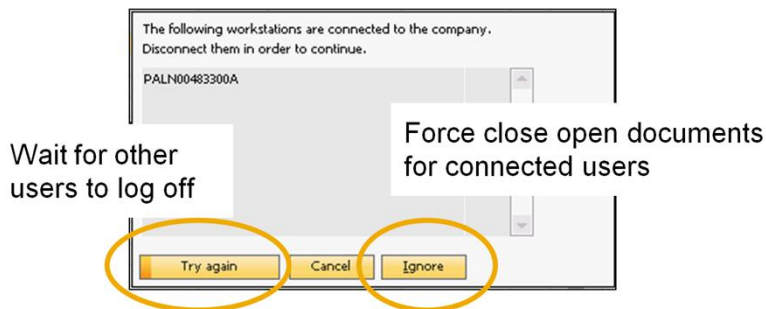
- When you add a new field, the database structure is updated

- If other users are logged in, you have option to:
  - Wait for users to log off
  - Force close open documents for connected users

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

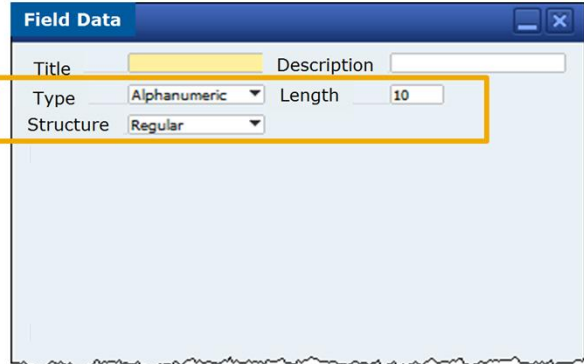- Ignore - the system will force close all open documents for all connected users

Demo: User-Defined Fields
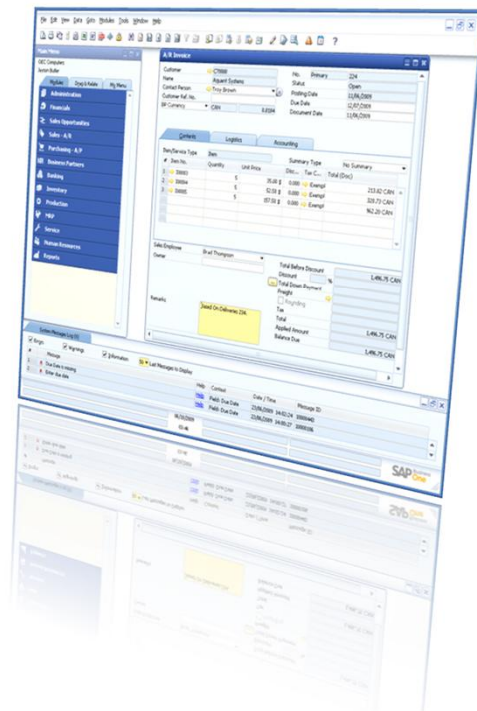
This demo will show how to add user-defined fields to the header and row of a marketing document.

Type and Structure

Type	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	▪ Hyperlink ▪ Image	

Field Data

Title   Description

Type   Alphanumeric   Length   10

Structure   Regular

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. If you mistakenly choose the wrong type or structure, you can remove the field, and start again.
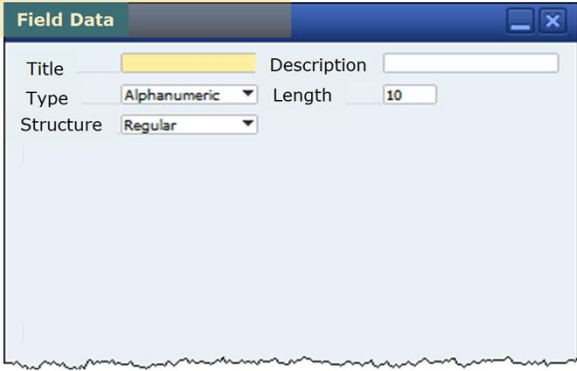
Type and Structure

Type	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	▪ Hyperlink ▪ Image	

Field Data

Title
Type   Alphanumeric
Structure   Regular

Description
Length   10

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.

Type and Structure

Type	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	▪ Hyperlink ▪ Image	

Field Data

Title

Description

Type Alphanumeric ▼ Length 10

Structure Regular ▼

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

Type and Structure

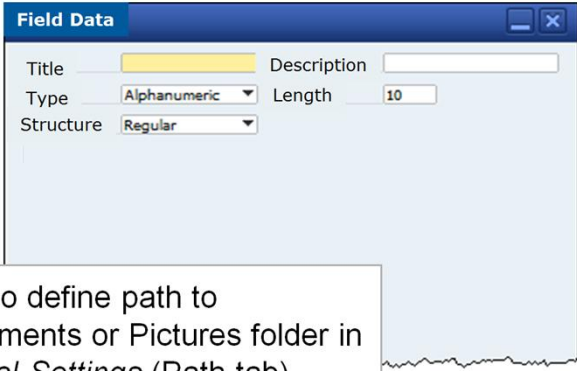| Type	Structure	Maximum Length
Alphanumeric	▪ Regular ▪ Address ▪ Telephone No. ▪ Text	254 2GB (header) / 255KB row
Numeric	-	
Date/Time	▪ Date ▪ Hour	
Units and Totals	▪ Rate ▪ Amount ▪ Price ▪ Quantity ▪ Percents ▪ Measure	
General	▪ Hyperlink ▪ Image	

Field Data

Title		Description	
Type	Alphanumeric ▼	Length	10
Structure	Regular ▼		

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.

Type and Structure

Type	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	• Hyperlink • Image	

Field Data

Title		Description	
Type	Alphanumeric ▼	Length	10
Structure	Regular ▼		

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*.

Type and Structure

Type	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	• Hyperlink • Image	

Field Data

Title ☐ Description ☐
Type Alphanumeric ▼ Length 10
Structure Regular ▼

Need to define path to
Attachments or Pictures folder in
General Settings (Path tab).

If you select the General type, the new field can hold links or graphics.

- Fields with the Link structure can link to a file or to a web address. You must first define the default path to the Attachments folder. This is done in the General Settings. This default path is opened when the user double-clicks the new field. The user can either select a file from the default folder, or enter a web address in place of the file name.

- Fields with the Image structure can accommodate pictures. You must first define the default path to the Pictures folder, in the General Settings. If this default path is not defined, an error will occur when the image field is used. When the user double-clicks the image field, the default folder opens, enabling them to select an image file. The user can then change to a different folder to locate the image.

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.

Values for a User-Defined Field

- Option to define list of valid values
- User can select a value from list, but cannot update list

- Another option is to add user-defined values to the field. A query can populate the field with the result

You have the option of defining a list of values for the user-defined field.

In the example, you can see that three values have been supplied for the field – gold, silver, and bronze.

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.

Note that you can also add a query as *user-defined values* to a user-defined field. The query can populate the field based on the result of the query. This functionality is covered in the next topic.

Default Field

- Default value can be set for any new field
- Value will appear in all new instances of the object

You can optionally set a default value for any user-defined field.

In the example, we have selected Bronze (value 3) as the default from the list of valid values.

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

Mandatory Field

- If field is mandatory, user will not be able to add record without entering field value
- To set field as mandatory, you initially need to supply a default value

You can make the user-defined field mandatory. The user will not be able to add a new record without entering data into the mandatory field.

When you set a user-defined field as mandatory, you need to initially supply a default value, to maintain the integrity of the database. However, if you are working with release 8.82 and later, you can afterwards update the user-defined field and remove the default value.

If you set a user-defined field mandatory, and the field already has a default value, you can choose whether to insert the default value into all existing instances of the object, or whether to only insert the default value into new instances.

Demo: User-Defined Fields
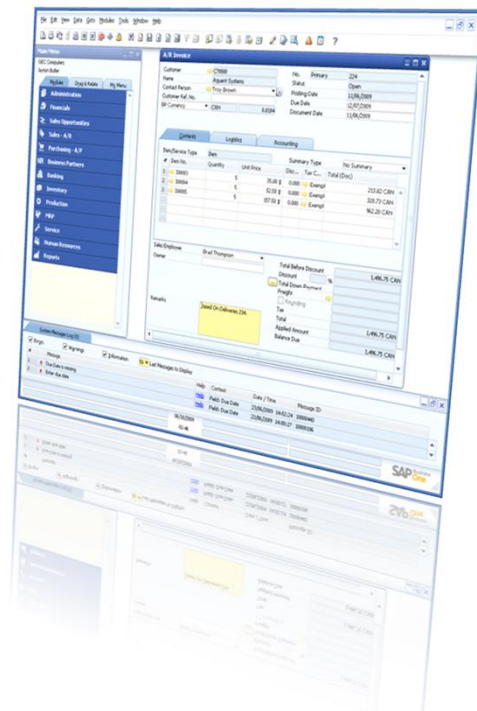
This demo will show how to add user-defined fields with a list of values.

User-Defined Fields in Marketing Documents

■ When using *Copy To/ Copy From* or the *Document Generation Wizard*, value entered in a user-defined field is transferred to target document
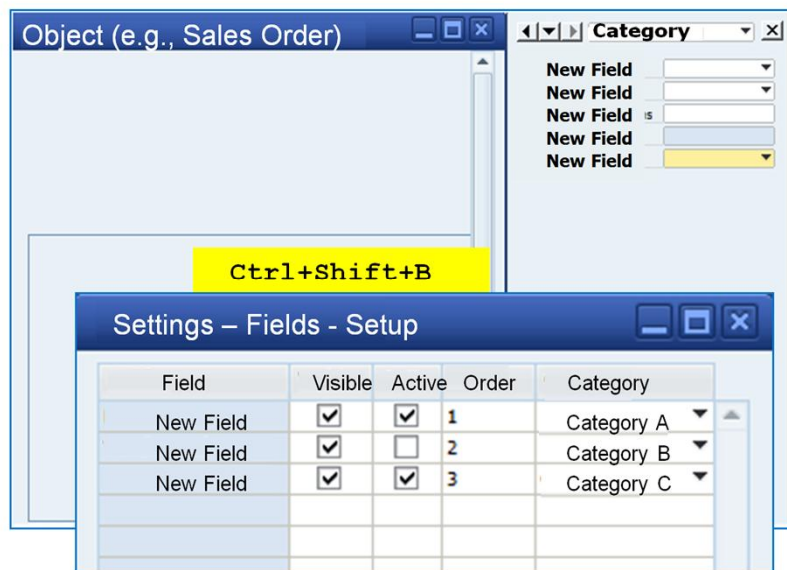
Object (e.g., Sales Order)	General
	New Field
	New Field
	New Field
	New Field
	New Field

| Object (e.g., Delivery) | General |

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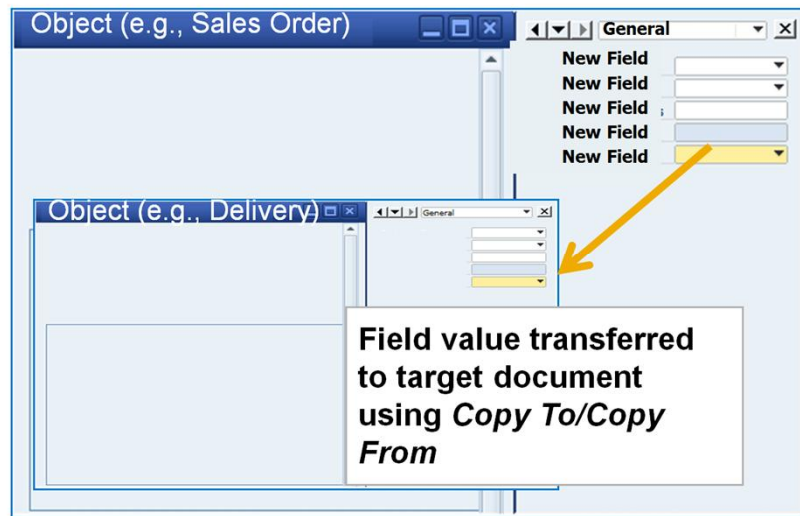
When using the *Copy To/ Copy From* function to generate a new document from a base document, the value of a user-defined field is transferred to the target document. This also applies to documents generated through the *Document Generation Wizard.*

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.

Managing Multiple UDFs in a Document

- User-defined fields may not be relevant for every document type

- Users can manage the display of multiple UDFs using the settings window :

- To open the settings window:
  - Ctrl+Shift+B
  - *Tools → Customization Tools → Settings*

Object (e.g., Sales Order)		

Category
New Field
New Field
New Field IS
New Field
New Field

Ctrl+Shift+B

Settings – Fields - Setup

Field	Visible	Active	Order	Category
New Field	☑	☑	1	Category A
New Field	☑	☐	2	Category B
New Field	☑	☑	3	Category C

Sometimes user-defined fields may not be relevant for every document type; for example, a field in a sales order may not be relevant in a purchase order.

Users can manage the display of user-defined fields when they process documents using the settings window. The settings window is different to the standard form settings window, but works in a similar way. To open the settings window for user-defined fields, press **Ctrl+Shift+B**, or choose *Tools > Customization Tools > Settings.*

Managing Multiple UDFs in a Document

- Define categories to group related fields and display by category selection
- Make fields invisible or inactive for a document type
- Change the display order of UDFs in the window
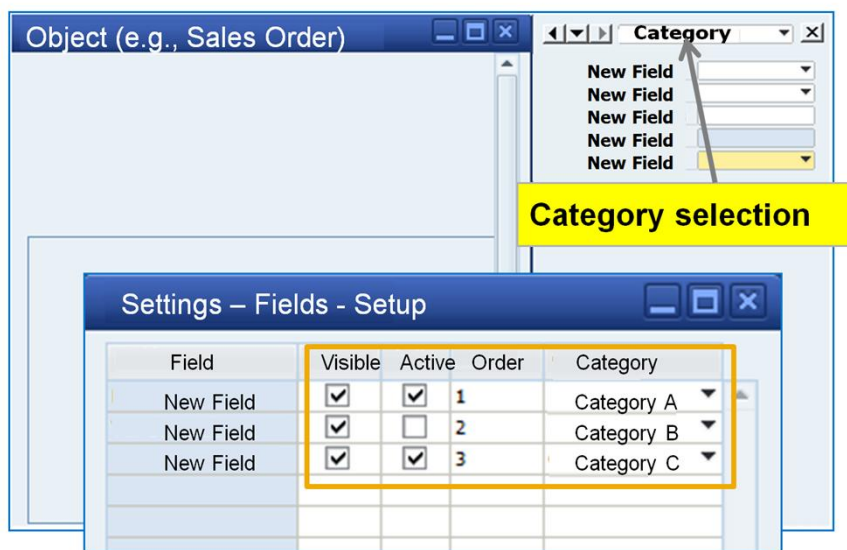
Using the settings window, users can:

- Define new categories to group related fields and display them in a document type by selecting the category. The user can choose to display fields for a single category or can choose to display all categories.

- Make fields invisible or inactive for a document type. For example, you can make all the fields relevant for a sales order invisible in a purchase order document type.

- Change the display order of the fields by setting the numerical order. In this way, the most frequently used fields can be sorted to the top, for ease of use.

Demo: Managing User-Defined Fields
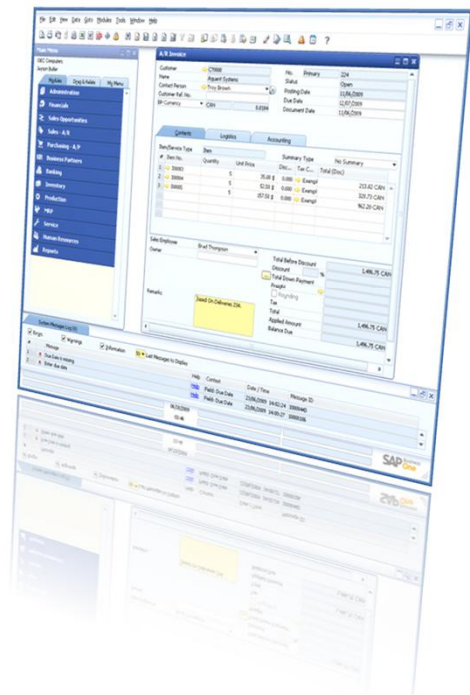
This demo will show you how to manage user-defined fields using the settings window.

Agenda

- User-Defined Fields
- **User-Defined Tables**

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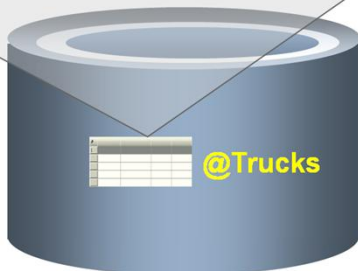
In the last part of this topic, we will cover user-defined tables.

User-Defined Tables

Tools → Customization Tools → User-Defined Tables - Setup

- User-defined tables (UDTs) store additional, related sets of data

- User tables have the prefix @

- Information about new table is stored in OUTB table

- Option to copy UDTs when creating new company

- To set up table, enter name and description, and leave object type as No Object

Table Name	Description	Object Type
TRUCKS	Delivery Trucks	No Object ▼

@Trucks

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 user-defined tables by the '@' prefix so you can easily distinguish them from system tables. In our example, the table is called @TRUCKS.

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

When you create a new company, you have the option to copy user-defined tables from the currently selected company to the new company.
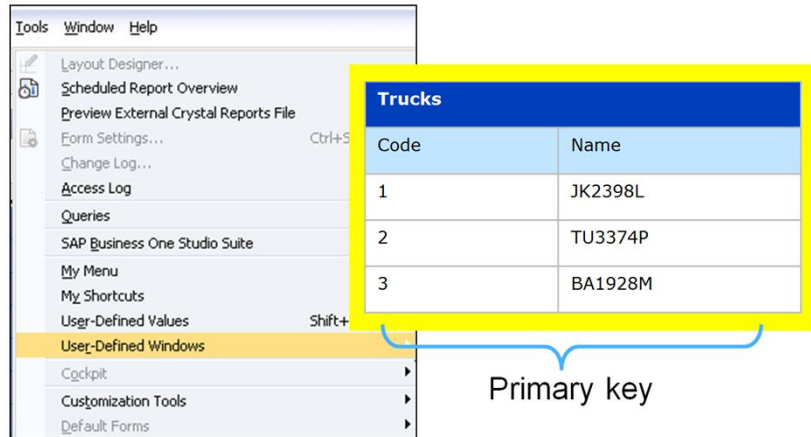
To set up a user table, you enter a name and description. Here we have created a new table to hold information about a set of delivery vehicles that the company owns. We want to record details such as the vehicle registration number, model, and capacity. The object type is not relevant for user tables; it is only relevant when creating user-defined objects using the Software Development Kit. You should leave the selection as No Object, since you cannot change the object type after you have added the user table.

Entering Data in User-Defined Tables

Tools → User-Defined Windows

- Access table from the *Tools* menu bar

- Table initially created with two columns – code and name

- Code and name must be unique in each row

- Can import data to table using Data Transfer Workbench

Table Name	Description	Object Type
TRUCKS	Delivery Trucks	No Object ▼

Tools menu:
- Layout Designer…
- Scheduled Report Overview
- Preview External Crystal Reports File
- Form Settings…   Ctrl+S
- Change Log…
- Access Log
- Queries
- SAP Business One Studio Suite
- My Menu
- My Shortcuts
- User-Defined Values   Shift+
- User-Defined Windows
- Cockpit ▶
- Customization Tools ▶
- Default Forms ▶

Trucks

Code	Name
1	JK2398L
2	TU3374P
3	BA1928M

Primary key

You access a new user-defined table by selecting the table from the *Tools > User-Defined Windows* menu bar.

- The table is initially created with two columns, code and name.

- You can enter data in these two columns. These fields are used as the primary key, so must be unique for each row that you add to the table.

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

Link User-Defined Table to User-Defined Field

Tools > Customization Tools >
User-Defined Fields – Management

- To make table visible, link it to a user-defined field in a document or form using the *Set Linked Table* checkbox
- UDF must be Alphanumeric type

Note: You can link the same user-defined table to multiple user-defined fields.

Field Data

Title	Vehicle	Description	Delivery Vehicle
Type	Alphanumeric ▼	Length	30
Structure	Regular		

☐ Set Valid Values for Field

☐ Set Default Value for Field

☐ Mandatory Field

☑ Set Linked Table   TRUCKS ▼
                       TRUCKS - Delivery vehicles

[Add]   [Cancel]
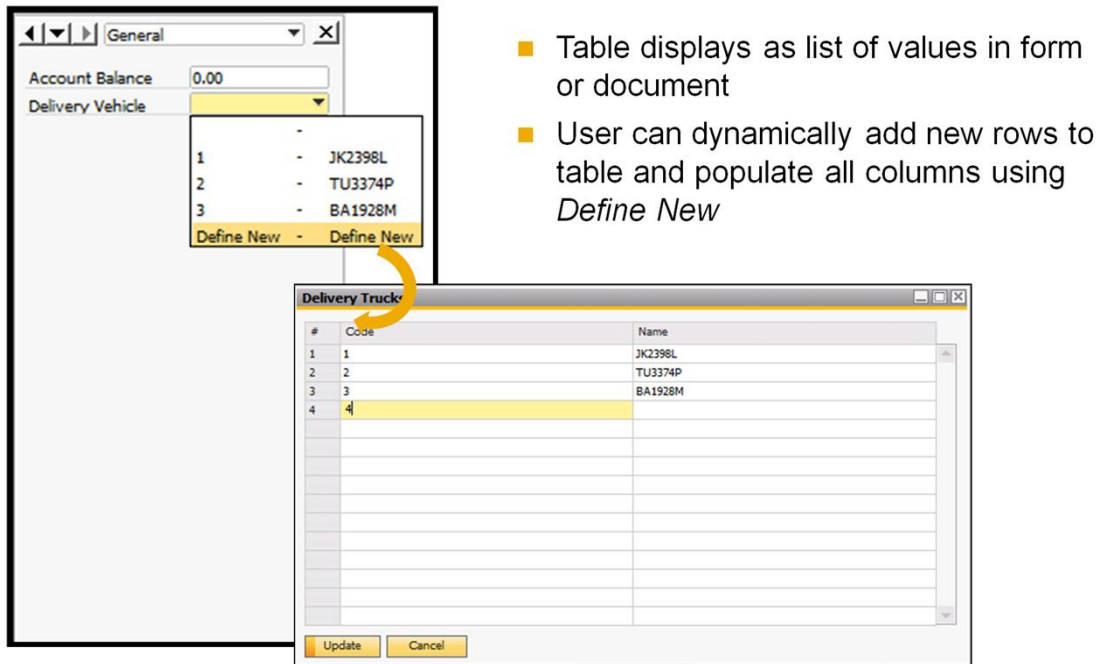
To make a user table directly visible to users in a form or document, you can link the table to a user-defined field in the document or form.

Note that user tables can only be linked to UDFs with the Alphanumeric type and Regular structure.

Choose *Tools > Customization Tools > User-Defined Fields – Management* and choose the *Set Linked Table* checkbox for the field. Then select the user-defined table.

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.

Link User-Defined Table to User-Defined Field (Cont.)

- Table displays as list of values in form or document
- User can dynamically add new rows to table and populate all columns using *Define New*

The table displays as a list of values in the form or document, where only the first two columns are visible.

The user has the ability to dynamically add new rows to the table using the "Define New" option. The user can view and populate all columns in the table.

Adding Columns to User-Defined Tables

Tools → Customization Tools → User-Defined Fields – Management

- You can add columns to a user-defined table

- Each column is added as a user-defined field to the table
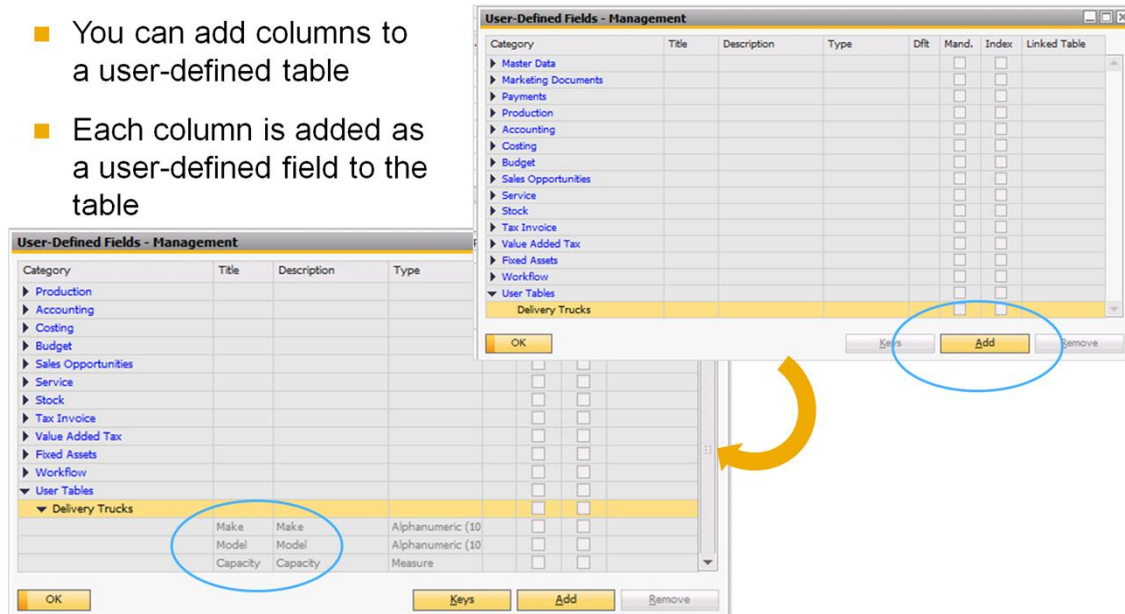
You can add columns to a user-defined table from the *User-Defined Fields – Management* window.

The extra columns are first added as a user-defined field. Select the table under the **User Tables** object and choose *Add.*

In the example, we have added three additonal columns – Capacity, Make, and Model, to the Delivery Vehicles table.

Adding Columns to User-Defined Tables (Cont.)

Tools → User-Defined Windows

- To enter data in the new columns, open the table from the *Tools* menu, or open the table from the linked UDF

- If new columns are not visible in window, adjust width of columns

Additional columns

Delivery Trucks

#	Code	Name	Capacity	Make	Model
1	1	JK2398L	500	Ford	
2	2	TU3374P	300	Mercedes	
3	3	BA1928M	800	Nissan	
4					

Update   Cancel

You can now enter data for the new columns. Choose *Tools > User-Defined Windows* and select the table. Alternately you can open the table from the linked UDF in a document or form.

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.

The data in the table can be used to manually assign a delivery truck in a document, or a query can be written to assign a truck with the capacity to hold the delivery items.

Adding Keys

- Select any field or combination of fields as a key, to improve query performance

- Set key as unique to enforce unique constraint when new data is added
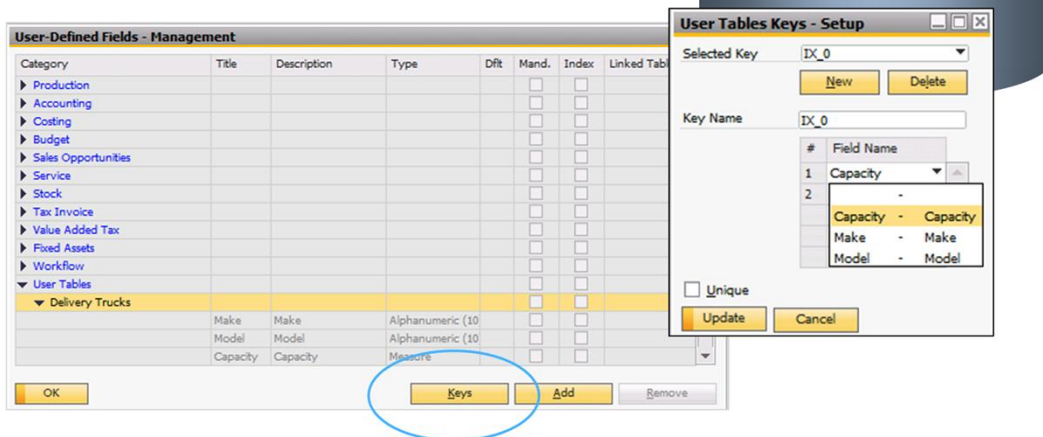
The default key for a user-defined table is the combination of the first two columns – column and name. In addition, you can select any field or combination of fields from the user table as a new key. This option allows the system to conduct a faster search using this field in queries.

You can optionally make the key unique. This enforces the unique constraint and prevents a new row being added with a field that has a duplicate value.

Demo

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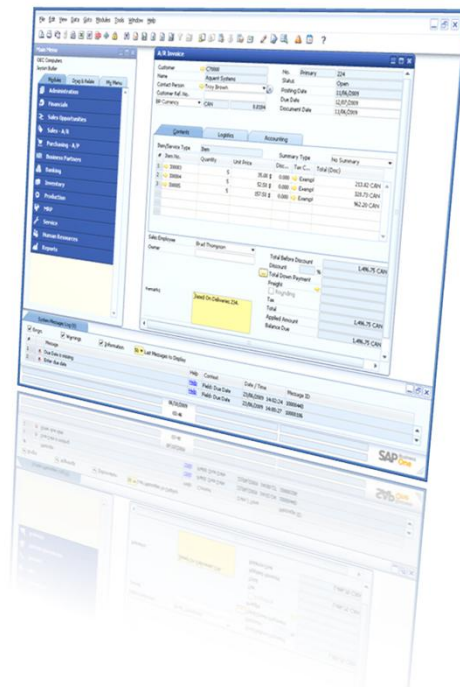
This demo will show how to set up a user-defined table.

User-Defined Fields and Tables: Key Points

Key points from this topic:

- You can add user-defined fields to most objects, at the header and the row-level

- User-defined fields are added to the table for the selected object, and have prefix "U_"

- User-defined fields at the header level show in a separate window. Use the *View* menu to open this window. To manage multiple UDFs at the header level, use the settings window to set fields invisible or assign the fields to categories

- UDFs can have various types and structures. The choice of structure affects the maximum length of the field

- You can optionally add a list of valid values to a UDF, or set a default value, or make the UDF mandatory

- You can create user-defined tables to hold related sets of information

- User-defined tables can be identified with the prefix "@"

- To make a user table available in a document or form, link the table to a UDF in the document or form

Here are some points to take away regarding user-defined fields and tables:

- You can add user-defined fields to most objects, at either the header level or the row level.

- User-defined fields are added to the table for the selected object, and have prefix "U_".

- User-defined fields added at the header level will show in a separate window to the side of the document. You can use the *View* menu to open this window.

- You can manage multiple user-defined fields at the header level using the settings window. This allows you to assign categories, set fields as invisible, and reorder the sequence.

- User-defined fields can have various types and structures, such as alphanumeric and regular. The choice of structure affects the maximum field length and the type of data you can enter in the field.

- You can optionally add a list of valid values to a UDF, or set a default value, or make the UDF mandatory

- You can create user-defined tables to the database. These tables can hold additional, related information. User-defined tables can be identified with the prefix "@".

- To make a user table available in a document or form, link the table to a UDF in

the document or form.

Thanks!

You have completed the topic for

User-Defined Fields and Tables.

Thank you for your time!

You have completed the topic for user-defined fields and user-defined tables.
Thank you for your time!

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