

## Add User-Defined Fields in Risk Management 10.0

Master data storage for most objects in Risk Management uses HR Organizational data tables. The following example describes how to enhance a control with customer-specific fields. Although this example uses the object control, the principles are similar for all Risk Management objects which are stored in HR Organizational data tables.

The following lists Risk Management objects that could be enhanced within HR Organizational data tables:

O	Organization	O0	Risk category
OM	Opportunity category	O7	Activity category
OS	Central opportunity	OF	Risk
OL	Opportunity	O1	Central risk
OE	Activity	O6	Response template

In following example, the control documentation (type P2) is enhanced with a drop-down list box named COSO Relevance, with the date when this field was set. An additional comment field will also be added for users to enter further information regarding the attribute.

### Supported customer-specific fields

Starting with Risk Management release 10.0 there is more flexibility in defining the customer-specific fields. You can define them as:

- Single value
- Multiple value
- Regulation specific value
- Multiple regulation specific value

Each category of customer specific fields is stored differently within HR databases structures.

Single value uses infotype with time constraint 2.

Multiple value uses infotype with time constraint 3 in this case the infotype can contain only single field.

For regulation specific values we use a subtype in addition for the regulation. More details are described in the below example.

## Overview of Tasks

**Before you start:** check SAP Note **1470670** for an updated version of the document and additional information.

1. Preparation: **Coordinate Number Ranges and Authorizations**
2. **Create Data Elements in the ABAP Dictionary**
3. **Generating the Infotypes (Data Storage)**
4. **Generating Subtypes (data storage for long text fields)**
5. **Adding the New Fields to the SAP GUI Transactions for Data Maintenance**
6. **Run report to check the customer field setup and to generate/correct the metadata**
7. **Display/Edit New Fields in the WEB UI.**  
Custom fields are displayed on the UI automatically. There is an optional BAdI implementation to change the look of the fields or to default a value etc.
8. **Including the Fields in Online Reporting**

To perform these tasks:

- You must have the S\_DEVELOP authorization profile or the equivalent.
- You must test all changes in the development system before transporting them to the test and production systems.

**Note:** The changes do not cause conflicts with upgrades since they are not considered as modifications of the delivered SAP standard.

### Task: Coordinate Number Ranges and Authorizations

The HR Organizational data is stored in infotypes. Infotypes are numbered with 4-digit numbers, with the numbers up to 8999 reserved for standard delivery. For example, Risk Management's infotypes belong to the interval 5300-5339. Customer-defined infotypes should begin with 9, followed by 3 digits, specifying the infotype itself.

Before you begin, you must understand which infotype numbers can be used in your project. Reserve them for Risk Management-specific use. Remember that Risk Management may not be the only application using HR Organizational data tables, and it is likely that other projects within your organization are using some infotype numbers too. For this example, the infotype number 9101 is used.

An ABAP developer needs to:

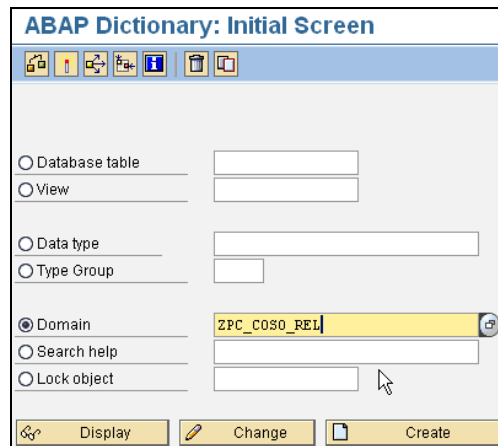
- Have basic skills with respect to ABAP and DDIC (ABAP dictionary)
- Prepare the package where the development will be located according to the project standards of the organization
- Prepare the transport request where the development will be stored
- Authorize a user to do the development work (grant S\_DEVELOP authorization profile or the equivalent)

## Task: Create Data Elements in the ABAP Dictionary

In the ABAP dictionary, the developer describes where and how the data is going to be stored. Domains and data elements must be created. Then a structure must be created that uses these elements.

For the comment and the date in our example, the standard domains can be used. For the dropdown list box, a special domain will be created where the domain values can be specified.

1. Enter transaction SE11 (ABAP Dictionary), specifying the domain name ZPC\_COSO\_REL. Choose *Create*.



ABAP Dictionary: Initial Screen

☐ Database table

☐ View

☐ Data type

☐ Type Group

☒ Domain

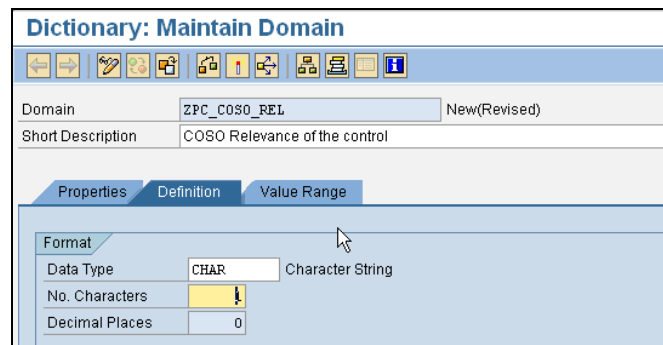
☐ Search help

☐ Lock object

ZPC\_COSO\_REL

Display Change Create

2. For the new domain, maintain the description and the data type – CHAR, length 1.



Dictionary: Maintain Domain

Domain: ZPC\_COSO\_REL New(Revised)

Short Description: COSO Relevance of the control

Properties Definition Value Range

Format

Data Type: CHAR Character String

No. Characters: 1

Decimal Places: 0

3. Select the *Value Range* tab and specify the domain values:

**Dictionary: Maintain Domain**

Domain: ZPC\_COSO\_REL New(Revised)

Short Description: COSO Relevance of the control

Properties Definition Value Range

Single Vals

Fix.Val.	Short Descript.
	none
A	Low
B	Medium
C	High

- Maintain the value for the first empty field at the top for the default value.

**Note:** If your organization operates with multiple languages, enter transaction code SE63 and input the languages you want to appear on the screen.

- Save, check and activate. You must put the object into your customer-specific package.
- Create the data elements. It is important to create specific data elements for each field, because the labels of the user interface elements associated with these fields come directly from the data element definition.
- Enter the transaction SE11 (ABAP Dictionary).
- Specify the data type ZPC\_COSO\_REL and choose *Create*. Select *Data element* in the dialog box.
- Each data element must have a description and a domain (use ZPC\_COSO\_REL for this example).
- Select the tab *Field labels* and specify the text to be used in the UI.

**Dictionary: Maintain Data Element**

Data element: ZPC\_COSO\_REL Active

Short Description: COSO relevance for Control

Attributes Data Type Further Characteristics Field Label

	Length	Field Label
Short	10	COSO Rel.
Medium	15	COSO Relevance
Long	20	COSO Relevance
Heading	40	COSO Relevance

- Save, check, and activate the data element.

Repeat the steps for the other two data elements:

- ZPC\_COSO\_DATE, domain DATS
- ZPC\_COSO\_COMMENT, domain TEXT100.

12. Arrange the data elements into a structure. On the initial screen of the transaction SE11, select a data type and enter the name in the form as HRI9nnn (HRI9101 for this example).
13. In the dialog box, select *Structure*.
14. Create three fields with their respective data elements on the *Components* tab. Be sure that the fields are included in the customer namespace. The field name can only be up to 16 characters in length.
  - ZZCOSO\_REL
  - ZZCOSO\_DATE
  - ZZCOSO\_COMMENT

Component	RTy	Component type	Data Type	Length	Decim	Short Description
ZZCOSO_REL	<input type="checkbox"/>	ZPC_COSO_REL	CHAR	1		0 COSO relevance for Control
ZZCOSO_DATE	<input type="checkbox"/>	ZPC_COSO_DATE	DATS	8		0 COSO Date
ZZCOSO_COMMENT	<input type="checkbox"/>	ZPC_COSO_COMMENT	CHAR	100		0 COSO comment

15. Include the short text description (mandatory) and the enhancement category: From the menu -> *Extras* -> *Enhancement category*, select *Cannot be enhanced* and choose *Copy*.

Maintain Enhancement Category for HRI9101


Enhancement Category for Structure

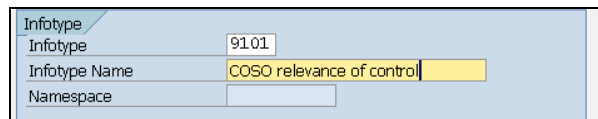
☐ Can Be Enhanced (Deep)  
☐ Can be enhanced (character-type or numeric)  
☐ Can be enhanced (character-type)  
☒ Cannot Be Enhanced  
☐ Not classified

16. Save, check and activate the structure.

## Task: Generating the Infotypes (Data Storage)

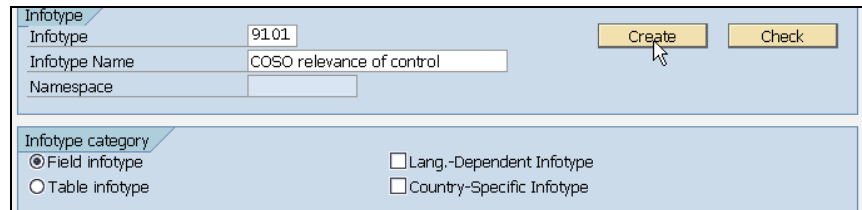
After creating the dictionary structure for the new infotype, you need to generate the complete infotype. For the example, use the all-in-one transaction PPCI (Create Infotype).

1. Enter the transaction PPCI. Enter the infotype 9101 for this example, and the name.
2. Choose *Create* .



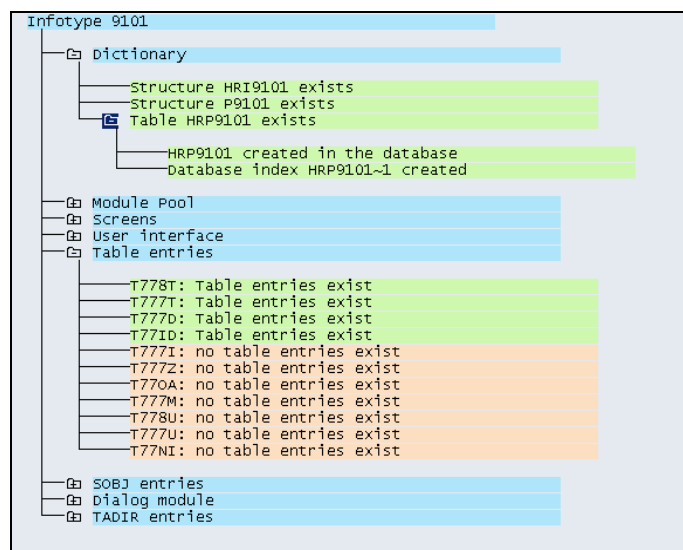
Infotype	9101
Infotype Name	COSO relevance of control
Namespace	

3. Select the infotype category *Field infotype*. Do not change the Language- and Country-dependency settings. Select *Create* again to create all the dependent entries.



Infotype	9101	Create	Check
Infotype Name	COSO relevance of control		
Namespace			
<b>Infotype category</b>			
<input checked="" type="radio"/> Field infotype	<input type="checkbox"/> Lang.-Dependent Infotype		
<input type="radio"/> Table infotype	<input type="checkbox"/> Country-Specific Infotype		

4. After the confirmation that the infotype has been created, bring the infotype into the context of Risk Management objects (in this case, the control). To do this, return to the initial screen of PPCI and choose *Change*. A tree structure appears with all the aspects of the infotype that can be edited:



The green entries are satisfactory. They were generated automatically by the transaction PPCI within the creation of the infotype. The following steps are to correct the orange entries.

5. Position the cursor at the entry T777I and select *Edit*. This brings you to the transaction SM30 (Maintain Table Views), where the view T777I is prefilled.

6. Maintain the following settings:

- Select *Maintain*.
- Locate the infotype 9101. Select the infotype and select *Time constraint*.
- Select *New entries*.
- Fill in the values *P2*, *9101*, *<nothing>*, *2* or *3* (see below).
- Confirm the warning, that the P2 is not your namespace, and save the entry.

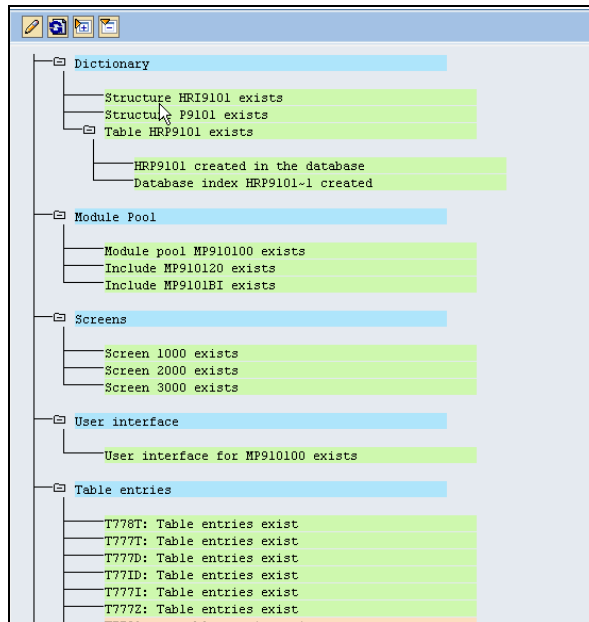
Notes to the settings:

- P2 is *Local Control* other object types exist – *Reference Control* (P3), which does not contain any data, and *Central control* (P5). Create an additional entry for the central process steps, using the P5 9101 and next object types. That is, this infotype and related fields relate both to the central and local control objects.
- Infotype 9101 is the one used in the example
- Subtypes are not used in the example. Keep this field empty.
- There are several possible time-constraints, but only 2 and 3 are relevant for Risk Management:
  - 1 means *time-dependent, without gaps*, which is the most probable variant. In such a case, for a given date, the relationship of the object and the infotype record is 1:1 - do not use this setting
  - 2 means *time-dependent, with gaps*, which is similar to 1. In such a case, for a given date, the relationship of the object and the infotype record is 1:0 in each point of time (There is either one infotype record or no infotype record at each point in time) – this value is used in case the field is single value field
  - 3 means *multiple values at any time*, which is better for tabular data, where the relationship between the object and infotype record is 1:N. For a given date, one object can be related with zero, one, or multiple records – this value is used in case you want to have a multiple value field

7. Maintain the second grouping of settings: infotypes per object type. You must include entries for two object types, P2 and P5. The infotype is always 9101, and leave the remaining fields empty:

New Entries: Overview of Added Entries				
Dialog Structure	Ob	Object type text	IT	Infotype Name
▼ Infotypes	P2	Local Process Step	9101	COSO enhancement
Time constraint	P5	Central Process Step	9101	COSO enhancement
Infotypes per object t				

8. Save, leave the transaction, and restart the transaction PPCI in Change mode. Confirm that the entries T777I and T777Z are now green.

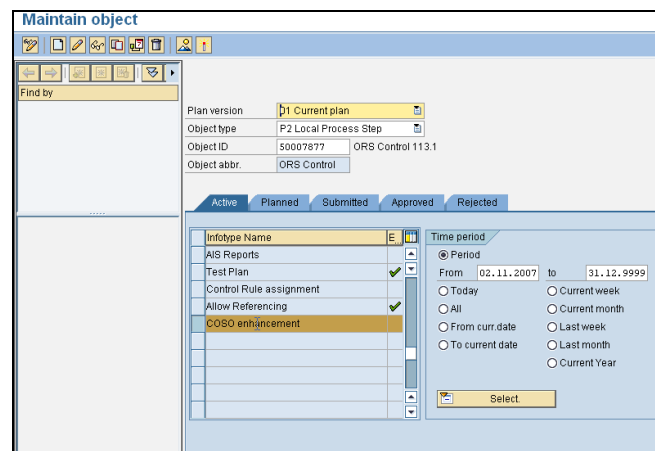


9. To show the new fields in the SAP GUI transaction GRFN\_STR\_CHANGE go back to the start page of PPCI. Choose *Create* for your infotype. Then choose Infotype->Create Subscreen.

Now the storage for the data has been generated. The data objects are attached to Risk Management objects. They are time-dependent by nature, as is most Risk Management data. You can now check the new data storage and add data to the objects. Proceed as follows:

10. Start the transaction PP01. On the initial screen, specify the plan version (it is usually 01), the object you want to see (select *Local Control*, for example P2) and the object ID (this is different in every system, but you can use search or F4 value help to find an object ID of an arbitrary control). Press *Enter*.

In the table below your selection you can see all infotypes which are available for the control. The new infotype that was just created and attached to the P2 object is visible.





**Note:** Use the buttons for creation, display, maintenance and deletion of the entries in the infotype. This can be done on the simple generated screens, which are sufficient for basic maintenance by a power user.

For example, the screenshot below shows the data entry of new values for the control selected in the timeframe shown. This screen was accessed by selecting *Create Infotype*.

The screenshot shows the 'Create COSO enhancement' screen in SAP. The title bar at the top reads 'Create COSO enhancement'. Below the title bar, there is a toolbar with icons for navigation and actions. The main area is divided into two sections. The top section contains fields for 'Local Process Step' (ORS Control), 'Planning Status' (Active), and 'Validity' (02.11.2007 to 31.12.9999). The bottom section, titled 'COSO enhancement', contains fields for 'COSO Relevance' (B), 'COSO Date' (01.11.2007), and 'COSO comment' (comment). A 'Find by' field is located on the left side of the screen. A 'Display change info' button is located next to the 'Validity' field.

Field	Value
Local Process Step	ORS Control
Planning Status	Active
Validity	02.11.2007 to 31.12.9999
COSO enhancement	
COSO Relevance	B
COSO Date	01.11.2007
COSO comment	comment

If your intention is only to enhance data storage and maintain these fields automatically or use some special purpose transactions or even PP01 itself, then you are finished.

However, in the example, the intention is to have the end users maintain these fields. For this, continue to the next section.

### Task: Generating Subtypes (data storage for long text fields)

This step should be used to allow creation of custom fields with unlimited length.

1. Enter transaction "OOSU"
2. Click on "New Entries" and provide
  - infotype 1002
  - new subtype ID in the customer namespace, i.e. starting with Y or Z followed by 3 more characters or digits
  - subtype text, which might be later translated and is also used as field label on UI

**New Entries: Overview of Added Entries**

Infotyp.	Infotype Name	Subtyp	Subtype text
1002		ZTXT	Long text field 1

Dialog Structure

- Subtypes
- Time constraint

3. Press "Enter" and select newly created line
4. click on "Time constraint" on the left side, click on "New Entries" and provide:
  - object type, where you want the long text to be attached
  - infotype 1002 and newly defined subtype
  - correct time-constraint, most likely "1"
5. Press ENTER (you get the warning about usage of the SAP-reserved object types - this can be ignored) and save the entered data

Please note that the long text cannot be stored as multiple or regulation specific value.

## Task: Adding the New Fields to the SAP GUI Transactions for Data Maintenance

Risk Management offers SAP GUI-based administrative transactions to work with the data that is stored in HR Organizational data tables. The transactions GRFN\_STR\_CHANGE and GRFN\_STR\_DISPLAY are easier (and safer) to use than PP01. In this topic, the steps will detail how to make the new infotype available in these transactions.

1. Enter transaction OOFFRAMEWORKCUST (Hierarchy Framework Customizing). Note that this transaction is cross-client. Check what is client dependent and what is not to see how the custom fields work in a multi-client system.
2. Select *Tab Page Definition* and complete the following fields:
  - Name: ZIT9101 (Z is customer namespace, IT is a standard naming convention, and 9101 is the number of the example infotype)
  - Description: Provide the description you want to see in the UI (for example COSO Relevance)
  - Infotype specific: Select the checkbox
  - Infotype: Provide the number (in this example, use 9101)

Tab Page Definition					
Tab Page	Description	Forecast time log. active	Infotype-specific	Infotype	
ZIT9101	COSOEnhancement	<input type="checkbox"/>	<input checked="" type="checkbox"/>	9101	
		<input type="checkbox"/>	<input type="checkbox"/>		
		<input type="checkbox"/>	<input type="checkbox"/>		
		<input type="checkbox"/>	<input type="checkbox"/>		
		<input type="checkbox"/>	<input type="checkbox"/>		
		<input type="checkbox"/>	<input type="checkbox"/>		

3. Select *Tab Page in Scenario for Each Object Type*. This step will connect this new tab page within the scenario with the desired object types. Complete the following fields:
  - Select *New entries*
  - Scenario: GRFN0
  - Object Type: P2
  - Tab Page: ZIT9101.
  - Sequence (the order of the tab within the existing tab strip for the object within the *Structure Setup Expert Mode* of Risk Management)

Note: The other fields do not need to be completed.

Scenario		GRFN0
Object type		P2
Tab Page		ZIT9101
<b>Tab Page in Scenario for each Object Type</b>		
Sequence	15	
Program name		
Screen number		
FM for icons		
FM for text		
<input type="checkbox"/> Exclude tab page		

4. Repeat the settings for the object type P5.

5. Save, and leave the transaction.
6. Start transaction GRFN\_STR\_DISPLAY. Navigate to any control (central or local in this example) and verify that you can see the new tab among the other tabs for the control.

from 02.11.2007

PROCESS - CENTRAL PRO	ID	Valid from	Valid to	Assigned as...	Assigned until
JPG08 Invoices >\$10k reviewed by AP Mgr	P2 50008410	23.10.2007	Unlimited		
JPG AP Invoicing	P1 50008405	23.10.2007	Unlimited	23.10.2007	Unlimited

Details for JPG08 Invoices >\$10k reviewed by AP Mgr

IT5302 IT5326 IT5330 IT5332 Custom demo field COSO Enhancement

Valid from 23.10.2007  
To 31.12.9999

COSO Relevance  
COSO Date  
COSO comment

7. "Long Text fields" implemented using the subtypes are visible automatically in the GRFN\_STR\_CHANGE transaction after the correct "Time constraint" is maintained as described above.

## Task: Including the Fields in Online Reporting

First task to do is to include the fields into the reporting (so called attr) structures so they are accessible in the report. To do so:

1. Enter transaction SE11.
2. Enter the data type GRFN\_S\_XX\_ATTR to add entity relevant custom fields. (Bellow you can see list of reporting relevant entities and its codes)
3. Choose Display.
4. Double-click on the included structure CI\_GRRM\_XXX, where "XXX" stands for entity name (see include names in table below)
5. Confirm that you want to create a new structure and include your infotype structure there
6. Maintain the enhancement category as "Cannot be enhanced"
7. Save, check and activate
8. In case some of the custom fields are using the domain with fixed values (in our example it is ZZCOSO\_REL) you can include also the domain texts in the reporting. To do so, display again structure GRFN\_S\_XX\_ATTR.
9. Double-click on the included structure CI\_GRRM\_XXX\_T, where "XXX" stands for entity name (see text include names in table below).
10. Confirm that you want to create a new structure and include the fields following naming convention YYY\_T where "YYY" stands for the fieldname in include CI\_GRRM\_XXX. As a component type for this field you need to use newly created data element with corresponding field label (Heading) and domain "DDTEXT"
11. Maintain the enhancement category as "Cannot be enhanced"
12. Save, check and activate

HR OType	Entity name	XX in attr	Reporting include	Reporting domain text include
O	Organization	OU	CI_GRFN_ORGUNIT	CI_GRFN_ORGUNIT_T
OM	Opportunity category	OG	CI_GRRM_COGROUP	-
OS	Central opportunity	OC	CI_GRRM_COPP	CI_GRRM_COPP_T
OL	Opportunity	OR	CI_GRRM_OPPORTUNITY	CI_GRRM_OPPORTUNITY_T
OE	Activity	AC	CI_GRRM_ACTIVITY	CI_GRRM_ACTIVITY_T
O0	Risk category	RG	CI_GRRM_CRGROUP	CI_GRRM_CRGROUP_T
O7	Activity category	CA	CI_GRRM_CACTIVITY	CI_GRRM_CACTIVITY_T
OF	Risk	RS	CI_GRRM_RISK	CI_GRRM_RISK_T
O1	Central risk	CR	CI_GRRM_CRISK	CI_GRRM_CRISK_T
O6	Response template	RT	CI_GRRM_RESP_TEMPL	CI_GRRM_RESP_TEMPL_T

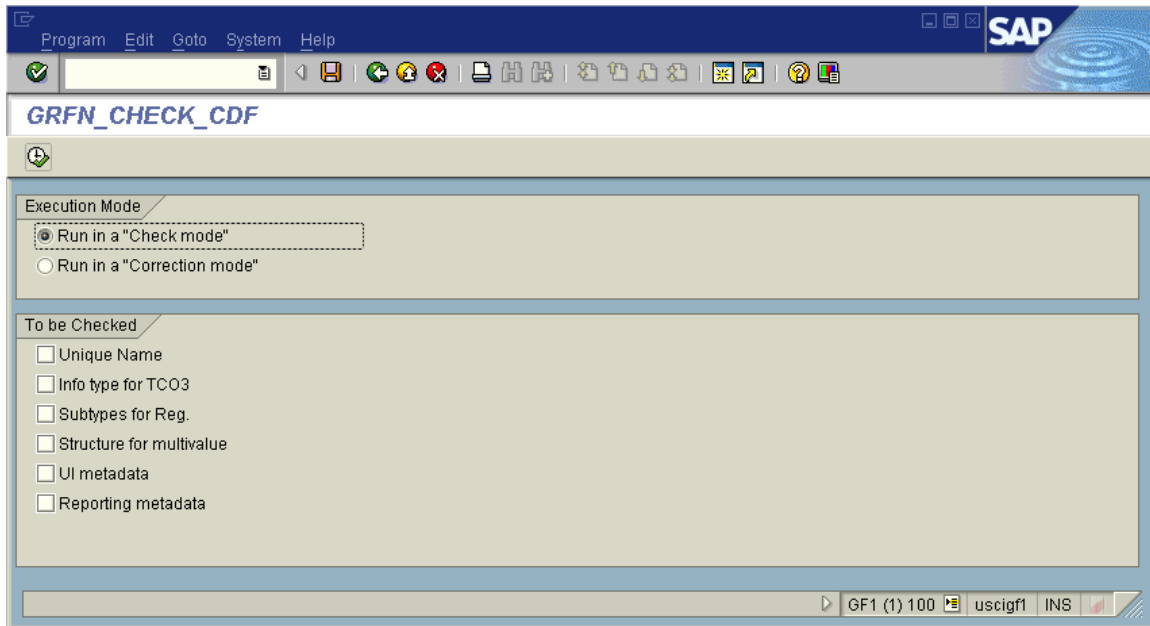
To add customer fields to the standard report you have to go to IMG node "Customer enhancements to standard reports". In this IMG activity you can add the field to the report and you can use it also as a filter criteria. For details please refer to the IMG activity documentation.

When the fields are maintained in reporting metadata they automatically appear in the ALV based report output, however if you want to display them in the customize Crystal Report layout you have to add the fields in Crystal Report Designer to the corresponding Crystal Report template. Please refer to Crystal report related documentation for details.

### Task: Run report to check the customer field setup and to generate/correct the metadata

The report GRFN\_CHECK\_CDF can be used to check the customer field setup and to generate/correct the metadata. You can run it in the "Check" or "Correction" mode. In check mode you can check for following inconsistencies:

- Unique field name
- Infotype structure for time constraint 3
- Subtypes for regulations
- Structure for multi value – this option is not relevant for HR fields
- UI metadata
- Reporting metadata



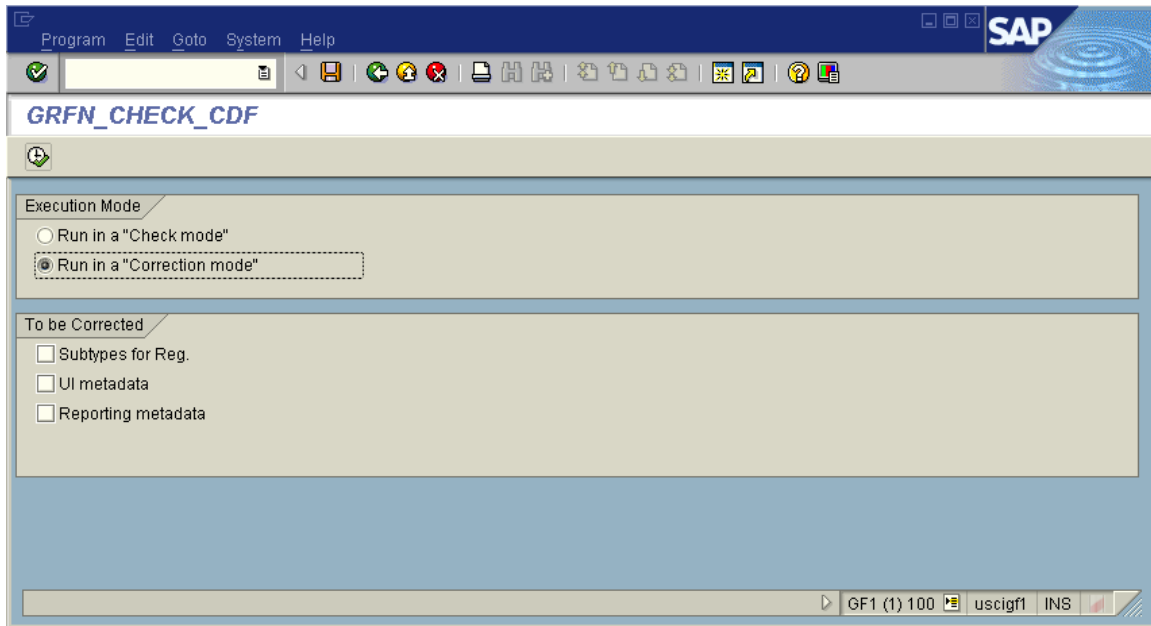
When you select required checks and run the report you will get a result in form of table. The report lists all the fields which are defined for specific entity. Each line is marked by traffic light:

- Green is not problem for the field
- Yellow is the problem that can be automatically solved by the report executed in "Correction" mode
- Red is a field design error, which cannot be solved automatically and required manual adjustments of customer field design

Last column in the report provides description of the problem for yellow and red lines.

In correction mode you can select which problem should be adjusted. The possibilities for selection are slightly smaller than in check mode:

- Subtypes for regulations
- UI metadata
- Reporting metadata



When you select the required action and execute the report you need to provide a Workbench and/or Customizing request to store the adjustments.

It is recommended to run the report after any change in customer defined fields to check if any inconsistency exists. Also run the check report in any case when you face any problem concerning the customer defined fields, it will give you a first idea what can be the problem.

### **Task: Display/Edit New Fields in the WEB UI**

New fields are available on the UI automatically after you finish the steps described in the section “Adding the New Fields to the SAP GUI Transactions for Data Maintenance”.

The look of the field on the UI is predefined by Risk Management. The following UI types are supported:

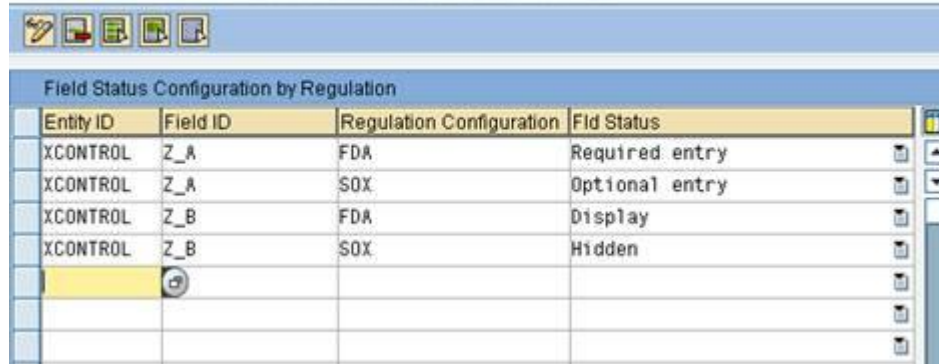
- Text Field
- Text Field Case Sensitive
- Text Field Numeric
- Date Field
- Time Field
- Icon
- Checkbox
- Dropdown List Box
- Radio Button Group
- Text Area (long text)

For the multi value fields there are “Add” and “Delete” links to add and delete new value beside each multi value field. For regulation specific value fields there is no difference in the UI only the values are stored regulation specific.

There are following options how to modify visibility of the fields on UI:

1. IMG Settings “Configurable UI” – where following UI attributes can be maintained per each “Regulation” for each Custom Field

## New Entries: Overview of Added Entries



Entity ID	Field ID	Regulation Configuration	Field Status
XCONTROL	Z_A	FDA	Required entry
XCONTROL	Z_A	SOX	Optional entry
XCONTROL	Z_B	FDA	Display
XCONTROL	Z_B	SOX	Hidden

Please ensure first that the UI metadata are properly generated – see the chapter “Report to check customer fields”

2. Enhancement spot GRFN\_API\_CUSTOMFIELD - which is called during the Retrieve and Update process.

There are changing attributes CT\_CUSTOMFIELD\_MDATA and CT\_CUSTOMFIELD\_DATA available in method AFTER\_RETRIEVE that can be modified. In the table

CT\_CUSTOMFIELD\_MDATA you can adjust following fields:

- UITYPE can be used to change the UI Type mentioned above
- HIDDEN can be used to hide the field on UI
- READONLY can be used to set the field “Display only”
- REQUIRED can be used to make the field required
- VALUESET can be used to define text for dropdown
- FIELDLABEL can be used to adjust label of the field

In the table CT\_CUSTOMFIELD\_MDATA you can adjust following fields:

- VALUE can be used for value defaulting

By the method BEFORE\_UPDATE you can modify the value entered by user or you can implement the “input check” and raise the exception in case the user entry does not pass the check.

It is not allowed to adjust any other fields then mentioned above; such adjustments might lead to UI malfunction.