



Enhancing Output Determination

Technical Solution Guide

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Enhancing Output Determination

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Enhancing Output Determination

Enhancing Output Determination

Output Determination is one of several functions that use the R/3 condition technique. The purpose of this document is to demonstrate how to enhance output determination using the standard user exits built into R/3. In many cases, designing a successful enhancement requires both functional configuration and program logic. This document explains the user exit functionality, and then details two sample enhancements taken from actual projects. The examples were built on a 4.6C system.

This document assumes that the reader understands the condition technique and its configuration for Output Determination.

Condition Usage Code

The condition technique is used in several areas of SD (Pricing, Output Determination, etc.). All of these areas share the same functions and programs for maintaining condition records, etc. To differentiate between these areas, the Condition Usage Code is used. The condition technique for output determination is identified via usage code 'B'. Many of the objects related to output determination contain this code in either the object name or as a high order key in configuration tables. For example, building condition table 900 in output determination creates a physical table name B900. In pricing, where the condition usage code is 'A', the physical table name is A900.

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Application Area

The Application Area subdivides the condition usage of the condition technique (for example, sales order, billing, purchase order). The communication structures and processing functions for output determination are built separately for each application area. Table T681A contains all application areas defined in R/3. Table T681Z contains the subset of those application areas that are relevant for output determination. The following list is from T681Z.

Application Areas Relevant for Output Determination

Area	Description
CF	Error control
CV	Document administration
DB	Customers
E1	Inbound delivery
EA	Purchasing RFQ
EF	Purchase Order
EL	Purchasing Scheduling Agreement Release
ES	Data entry sheet
EV	Purchasing Outline Agreement
K1	Sales activities
M1	Rough Goods Receipt
MD	Direct buying
ME	Inventory management
MR	Invoice verification
NF	Nota fiscal
P1	Direct Manufacturing
PA	JIT call
RS	Automotive
V1	Sales
V2	Shipping
V3	Billing
V4	Shipping (Special case)

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Area	Description
V5	Groups
V6	Handling units
V7	Transport
W0	All. table Group
W1	Sales promotion group
WA	Allocation table
WB	Retail promotion
WE	Labeling
WN	Free Sett. Rel. Del.
WR	Agency Business
WS	Free Sett. Agreement
WT	Trading contract

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Communication Structures

R/3 uses work areas called communication structures to pass data from the calling application to the output determination functions. There are separate structures for header and item data (when relevant). In many cases, the communication structures contain special includes for customer specific enhancements. Only these special includes should be modified by the customer. The following example is the delivery header communication structure. The first screen displays the top portion of the structure.

The screenshot shows the SAP Dictionary: Display Structure window for structure KOMKBV2. The window title is "Dictionary: Display Structure". The structure name is "KOMKBV2" and it is "Active". The short text is "Output determination communication area header appl.V2". The window has tabs for "Attributes", "Components", "Entry help/check", and "Currency/quantity fields". The "Components" tab is selected, showing a table of components. The table has columns: Component, Component type, DTyp, Length, Dec.p..., and Short text. The table contains 20 rows of data.

Component	Component type	DTyp	Length	Dec.p...	Short text
VBELN	VBELN	CHAR	10	0	Sales and distribution document number
VKORG	VKORG	CHAR	4	0	Sales organization
VSTEL	VSTEL	CHAR	4	0	Shipping point/receiving point
LSTEL	LSTEL	CHAR	2	0	Loading point
VTWEG	VTWEG	CHAR	2	0	Distribution channel
SPART	SPART	CHAR	2	0	Division
VKBUR	VKBUR	CHAR	4	0	Sales office
BZIRK	BZIRK	CHAR	6	0	Sales district
KDGRP	KDGRP	CHAR	2	0	Customer group
PARVW	PARVW	CHAR	2	0	Partner function
PARNR	NA_PARNR	CHAR	10	0	Message partner
KNDNR	KUNNR_v	CHAR	10	0	Customer number
KUNWE	KUNWE	CHAR	10	0	Ship-to party
KUNAG	KUNAG	CHAR	10	0	Sold-to party
LIFNR	ELIFN	CHAR	10	0	Vendor's account number
LLAND	LLAND	CHAR	3	0	Destination country
INCO1	INCO1	CHAR	3	0	Incoterms (part 1)
VSBED	VSBED	CHAR	2	0	Shipping conditions
ZTERM	DZTERM	CHAR	4	0	Terms of payment key

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Towards the bottom of the structure, the *include* for customer enhancements is found (KOMKBZ4). These includes always contain the field DUMMY. This field exists because in earlier versions of R/3, the data dictionary did not allow structures that contained no fields. SAP put the DUMMY field into these structures just to get around this requirement. When customer specific fields are added to these structures, the DUMMY field should be deleted. On several occasions, we have seen programmers actually leave the DUMMY field as is, but use it as an indicator for some purpose. We strongly recommend that this practice not be used. If a field is required, it should be created with a relevant name and data element.

The screenshot shows the SAP Dictionary: Display Structure window for structure KOMKBV2. The structure is active and its short text is "Output determination communication area header appl.V2". The "Components" tab is selected, showing a list of components. The component DUMMY is highlighted in yellow. The table below shows the details of the components.

Component	Component type	DType	Length	Dec.p...	Short text
CMPSM	CMPSM	CHAR	1	0	Credit check data is obsolete
CMGST	CMGST	CHAR	1	0	Overall status of credit checks
.INCLUDE	KOMKBZ4		0	0	Output determination header appl.V2: Customer modification
DUMMY	DUMMY	CHAR	1	0	Dummy function in length 1
IX KOMK	KOIDX	INT4	10	0	Index number for internal tables
IX KOMT1_V	KOIDX	INT4	10	0	Index number for internal tables
IX KOMT1_B	KOIDX	INT4	10	0	Index number for internal tables
LVSTK	LVSTK	CHAR	1	0	Overall status of warehouse management activities
WERKS	EMPFW	CHAR	4	0	Receiving plant for deliveries
TRSTA	TRSTA	CHAR	1	0	Transportation planning status
ADDIX	ADDI_DELIK	CHAR	1	0	Additional is relevant for delivery

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Communication Structures by Application Area

Table T681Z contains the communication structure names for each application area. The name usually corresponds to the application area, but there are exceptions. Notice in the following list that application areas EA and EF use the same header structure.

Area	Header Structure	Item Structure
CF	KOMKBCF	
CV	KOMKBCV	
DB		
E1	KOMKBE1	
EA	KOMKBEA	
EF	KOMKBEA	KOMPBEA
EL	KOMKBEA	
ES	KOMKBES	
EV	KOMKBEA	
K1	KOMKBK1	
M1	KOMKBM1	
MD	KOMKBMD	
ME	KOMKBME	KOMPBME
MR	KOMKBMR	KOMPBMR
NF	KOMKBNF	
P1	KOMKBP1	
PA	KOMKBPA	
RS	KOMKBRS	
V1	KOMKBV1	KOMPBV1
V2	KOMKBV2	KOMPBV2
V3	KOMKBV3	KOMPBV3
V4		
V5	KOMKBV5	
V6	KOMKBV6	
V7	KOMKBV7	
W0		

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Area	Header Structure	Item Structure
W1		
WA	KOMKBWA	KOMPBWA
WB	KOMKBWB	KOMPWBW
WE	KOMKBWE	
WN	KOMKBWN	
WR	KOMKBWR	KOMPBWR
WS	KOMKBWS	
WT	KOMKBWT	KOMPBWT

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The Field Catalog

The field catalog is a configuration table (T681F) that contains all fields that can be used as key fields when building condition tables. When the field catalog is maintained, the available field list is based on the fields contained in the field catalog structure.

Field Catalog Structure

There are separate field catalogs for each condition usage code. For output determination, the field catalog structure is KOMB. Like the communication structures, the field catalog structure contains an *include* for customer specific fields (KOMBZ).

The screenshot shows the SAP Dictionary: Display Structure window for the KOMB structure. The window title is "Dictionary: Display Structure". The structure name is "KOMB" and it is "Active". The short text is "Field catalog for condition key: output determination". The window has tabs for "Attributes", "Components", "Entry help/check", and "Currency/quantity fields". The "Components" tab is selected, showing a list of components with columns: Component, Component type, DType, Length, Dec.p..., and Short text. The list contains 289 items, with the first 20 items visible.

Component	Component type	DType	Length	Dec.p...	Short text
VKORG	VKORG	CHAR	4	0	Sales organization
VTWEG	VTWEG	CHAR	2	0	Distribution channel
SPART	SPART	CHAR	2	0	Division
VSTEL	VSTEL	CHAR	4	0	Shipping point/receiving point
LSTEL	LSTEL	CHAR	2	0	Loading point
VKBUR	VKBUR	CHAR	4	0	Sales office
VKGRP	VKGRP	CHAR	3	0	Sales group
KDGRP	KDGRP	CHAR	2	0	Customer group
BZIRK	BZIRK	CHAR	6	0	Sales district
ALAND	ALAND	CHAR	3	0	Departure country (country from which the goods are sent)
WAERK	WAERK	CUKY	5	0	SD document currency
KNDNR	KUNNR_V	CHAR	10	0	Customer number
KUNNR	KUNAG	CHAR	10	0	Sold-to party
KUNWE	KUNWE	CHAR	10	0	Ship-to party
KUNRE	KUNRE	CHAR	10	0	Bill-to party
KNRZE	KUNRG	CHAR	10	0	Payer
EKAUF	EKAUF	NUMC	10	0	Buyer
LIFNR	ELIFN	CHAR	10	0	Vendor's account number
LIFRE	LIFRE	CHAR	10	0	Different invoicing party

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In this example, the KOMBZ include has been modified with several new fields. The DUMMY field was removed.

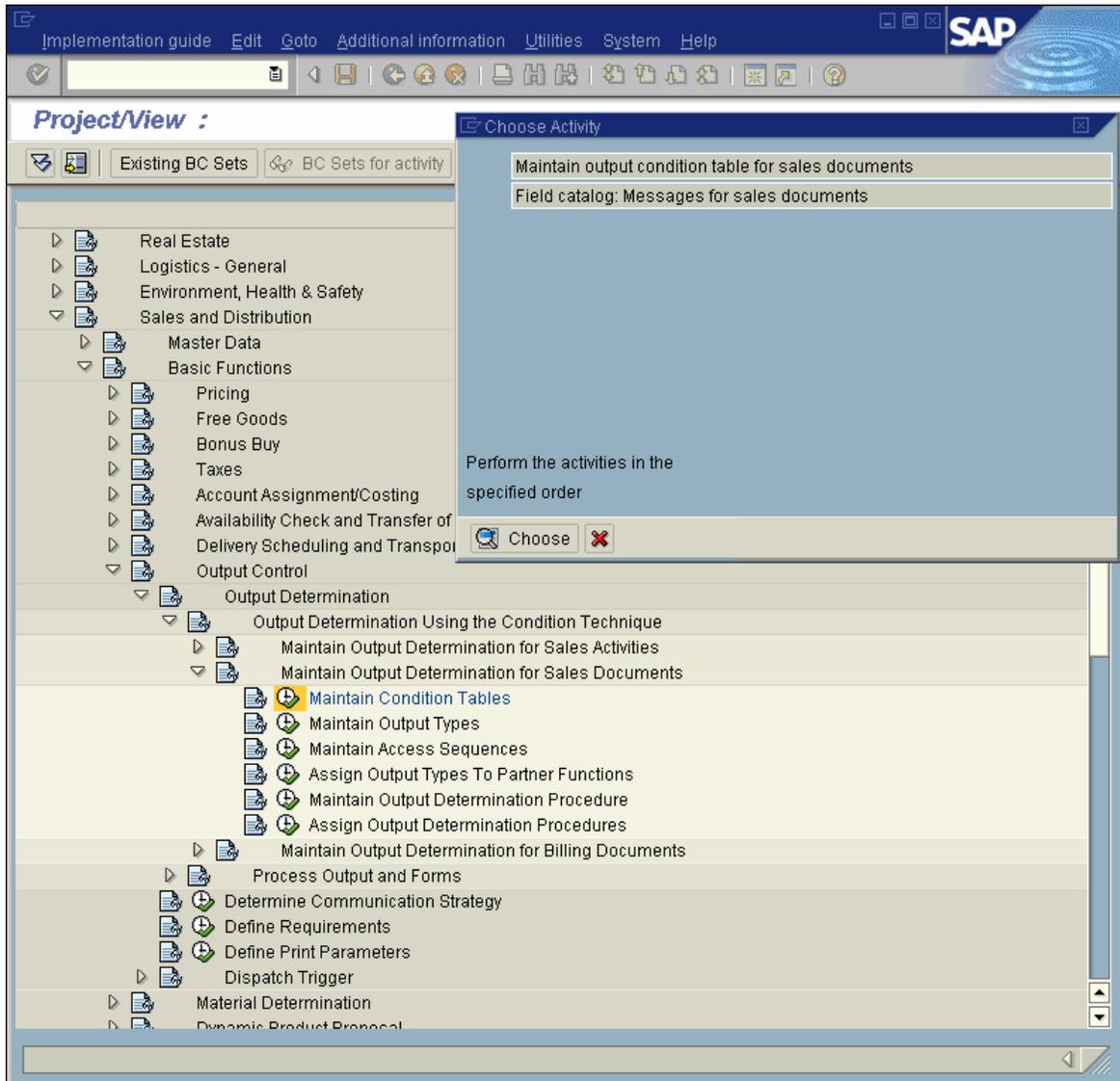
The screenshot shows the SAP Dictionary: Display Structure window for the structure KOMBZ. The window title is "Dictionary: Display Structure" and the structure name is "KOMBZ". The short text is "Field catalog for condition key: output determination". The window is divided into several tabs: "Attributes", "Components", "Entry help/check", and "Currency/quantity fields". The "Components" tab is active, showing a list of components with columns for Component, Component type, DType, Length, Dec.p..., and Short text. The component ". INCLUDE" with type "KOMBZ" is highlighted in yellow. The list includes various customer groups (KVG1-KV5), RTI order indicators, and other planning and credit management related components.

Component	Component type	DType	Length	Dec.p...	Short text
INGRP	INGRP	CHAR	3	0	Planner Group for Customer Service and Plant Maintenance
QMART	QMART	CHAR	2	0	Notification Type
PRIOK	PRIOK	CHAR	1	0	Priority
ARTPR	ARTPR	CHAR	2	0	Priority Type
KOKRS	KOKRS	CHAR	4	0	Controlling Area
KOSTL	KOSTL	CHAR	10	0	Cost Center
. INCLUDE	KOMBZ		0	0	Permitted fields for output determination: Customer modific.
KVGR1	KVGR1	CHAR	3	0	Customer group 1
KVGR2	KVGR2	CHAR	3	0	Customer group 2
KVGR3	KVGR3	CHAR	3	0	Customer group 3
KVGR4	KVGR4	CHAR	3	0	Customer group 4
KVGR5	KVGR5	CHAR	3	0	Customer group 5
ZZ RTI ORDER	ZZ RTI ORDER	CHAR	1	0	RTI order indicator
VAGRP	VAGRP	CHAR	3	0	Responsible planner group/department
KAPLANER	KAPLANER	CHAR	3	0	Capacity planner group
VBFIX	CMF_VBFIX	NUMC	2	0	Predefined department
KKBER	KKBER	CHAR	4	0	Credit control area
SBGRP	SBGRP_CM	CHAR	3	0	Credit representative group for credit management
CTLPC	CTLPC_CM	CHAR	3	0	Credit management: Risk category

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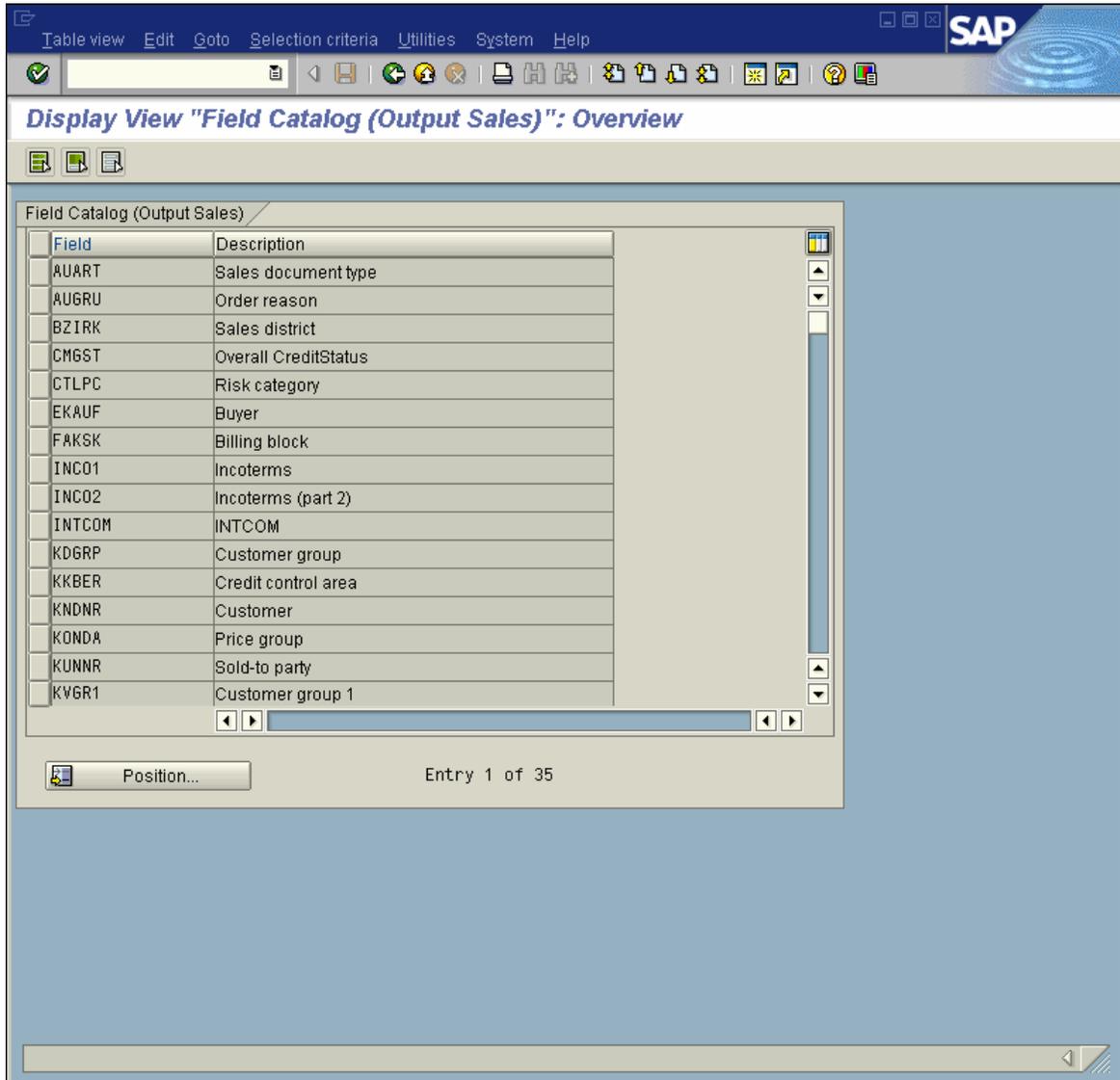
Maintaining the Field Catalog

The field catalog maintenance transaction is found next to the corresponding condition table maintenance transaction in the IMG. Although the field catalog transaction is listed second, it is processed first.



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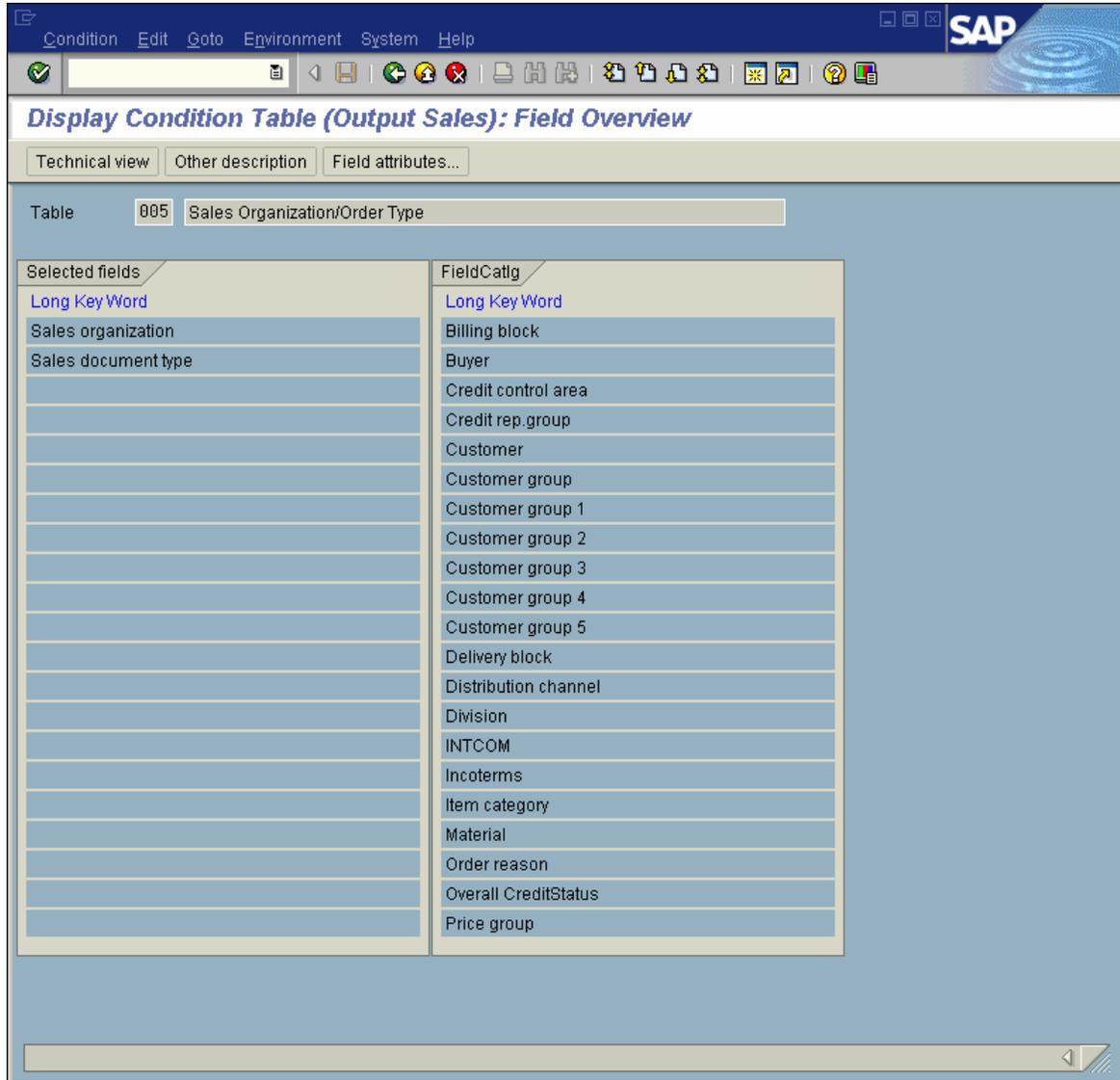
The field catalog maintenance program is a standard SM30 screen that maintains table T681F. All field catalogs used in the condition technique are contained in T681F. The high order keys of this table are the condition usage code and application area. Since this transaction maintains the field catalog for sales orders, the T681F entries maintained are from condition usage code 'B' and application area 'V1'. While adding fields, the valid field list consists of the fields in the field catalog structure (KOMB).



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Building Condition Tables

When building condition tables, the available fields in the right pane, are the fields from T681F in the corresponding condition usage and application area. ('B', 'V1').



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Processing Function Modules

There are two main function groups used for output determination. V61B contains the main functions that enable output determination. VCOM contains functions and user exits for filling the communication structures with document data from the calling programs.

Relevant OSS Notes

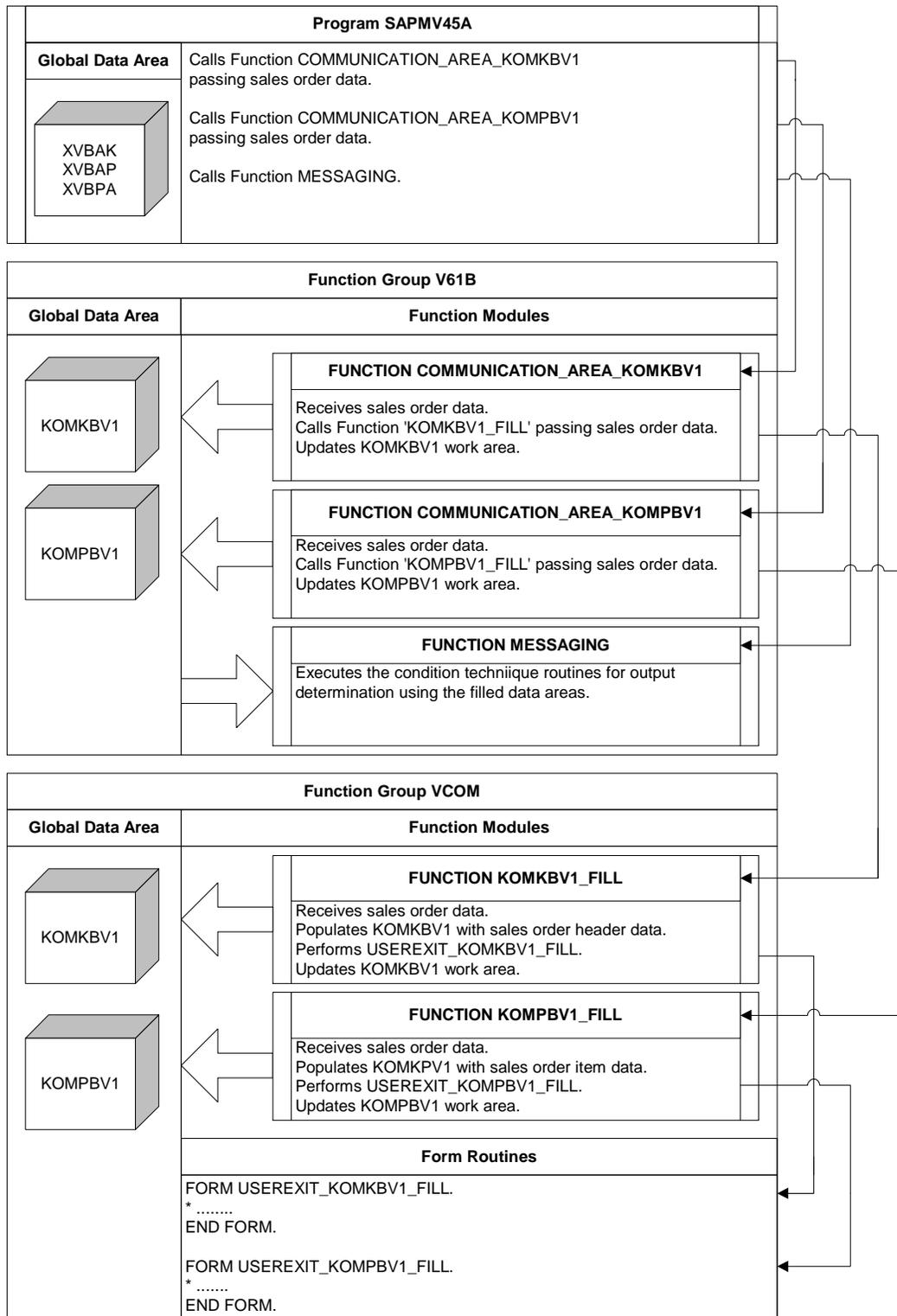
The following OSS notes may be helpful in understanding output determination enhancements.

Note	Description
32662	User name added to new condition table
39462	Expand field catalog in message determination
159684	Not all fields are displayed in condition table

Process Flow

The following diagram and screen shots illustrate how the processing functions are called using sales order output as an example.

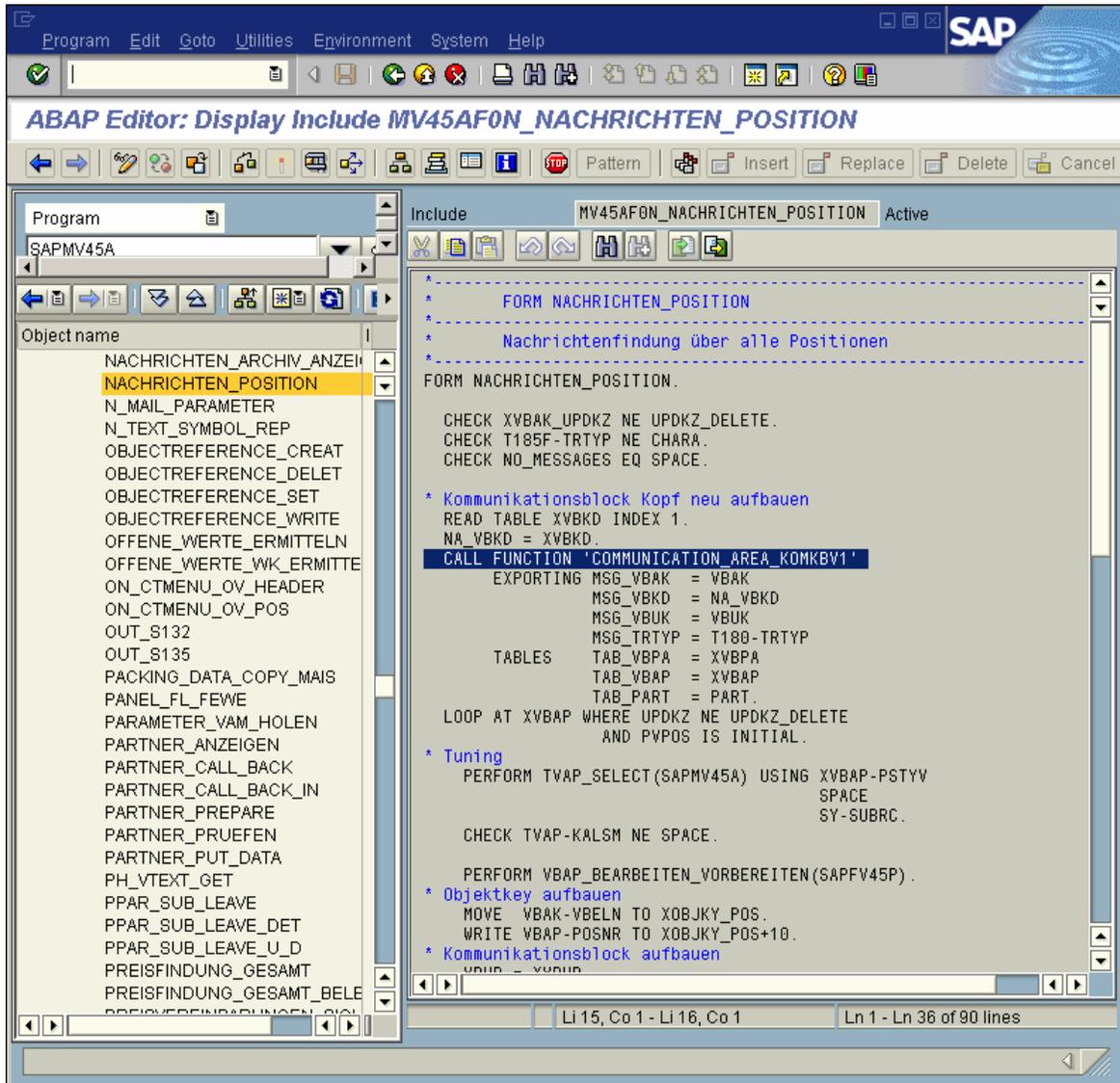
Enhancing Output Determination



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Step 1 Filling the Header Structure

Function COMMUNICATION_AREA_KOMKBV1 is called. All of the relevant order data is passed to the function module (VBAK, VBUK, VBPA, VBAP). The function module is contained in function group V61B. This function group's global data area is where the communication structure data is held during the output process.



```
ABAP Editor: Display Include MV45AF0N_NACHRICHTEN_POSITION

Program: SAPMV45A
Object name: NACHRICHTEN_POSITION

*-----*
*      FORM NACHRICHTEN_POSITION
*-----*
*      Nachrichtenfindung über alle Positionen
*-----*
FORM NACHRICHTEN_POSITION.

  CHECK XVBAK_UPDKZ NE UPDKZ_DELETE.
  CHECK T185F-TRTYP NE CHARA.
  CHECK NO_MESSAGES EQ SPACE.

* Kommunikationsblock Kopf neu aufbauen
  READ TABLE XVBKD INDEX 1.
  NA_VBKD = XVBKD.
  CALL FUNCTION 'COMMUNICATION_AREA_KOMKBV1'
    EXPORTING MSG_VBAK = VBAK
              MSG_VBKD = NA_VBKD
              MSG_VBUK = VBUK
              MSG_TRTYP = T180-TRTYP
    TABLES  TAB_VBPA = XVBPA
              TAB_VBAP = XVBAP
              TAB_PART = PART.

  LOOP AT XVBAP WHERE UPDKZ NE UPDKZ_DELETE
    AND PVPOS IS INITIAL.

* Tuning
    PERFORM TVAP_SELECT(SAPMV45A) USING XVBAP-PSTYV
                                      SPACE
                                      SY-SUBRC.

  CHECK TVAP-KALSM NE SPACE.

  PERFORM VBAP_BEARBEITEN_VORBEREITEN(SAPFV45P).

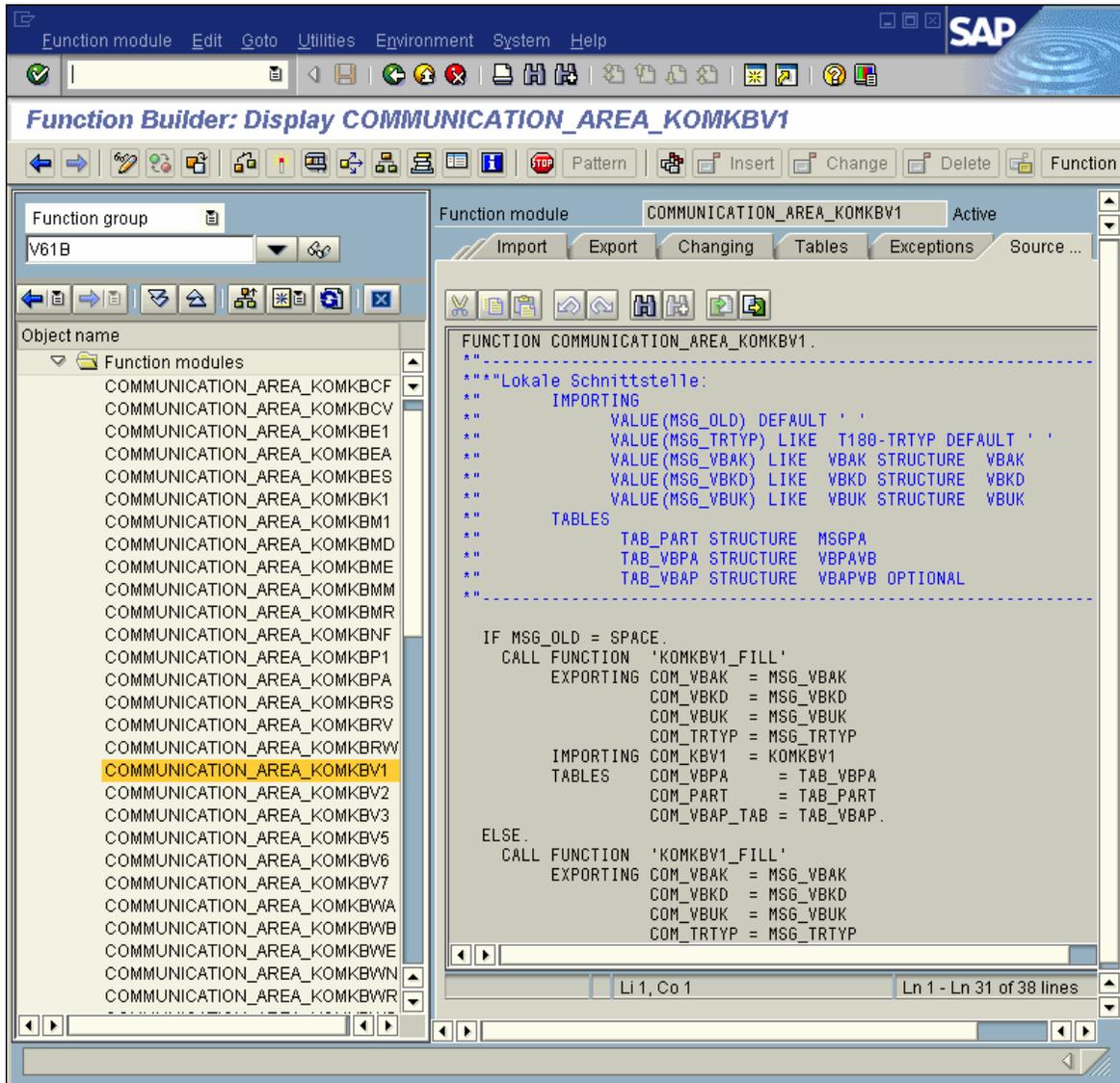
* Objektkey aufbauen
  MOVE VBAK-VBELN TO XOBJKY_POS.
  WRITE VBAP-POSNR TO XOBJKY_POS+10.

* Kommunikationsblock aufbauen
  UPDKZ = XVBAK-UPDKZ.
```

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Step 2 Call Function **COMMUNICATION_AREA_KOMKBV1**

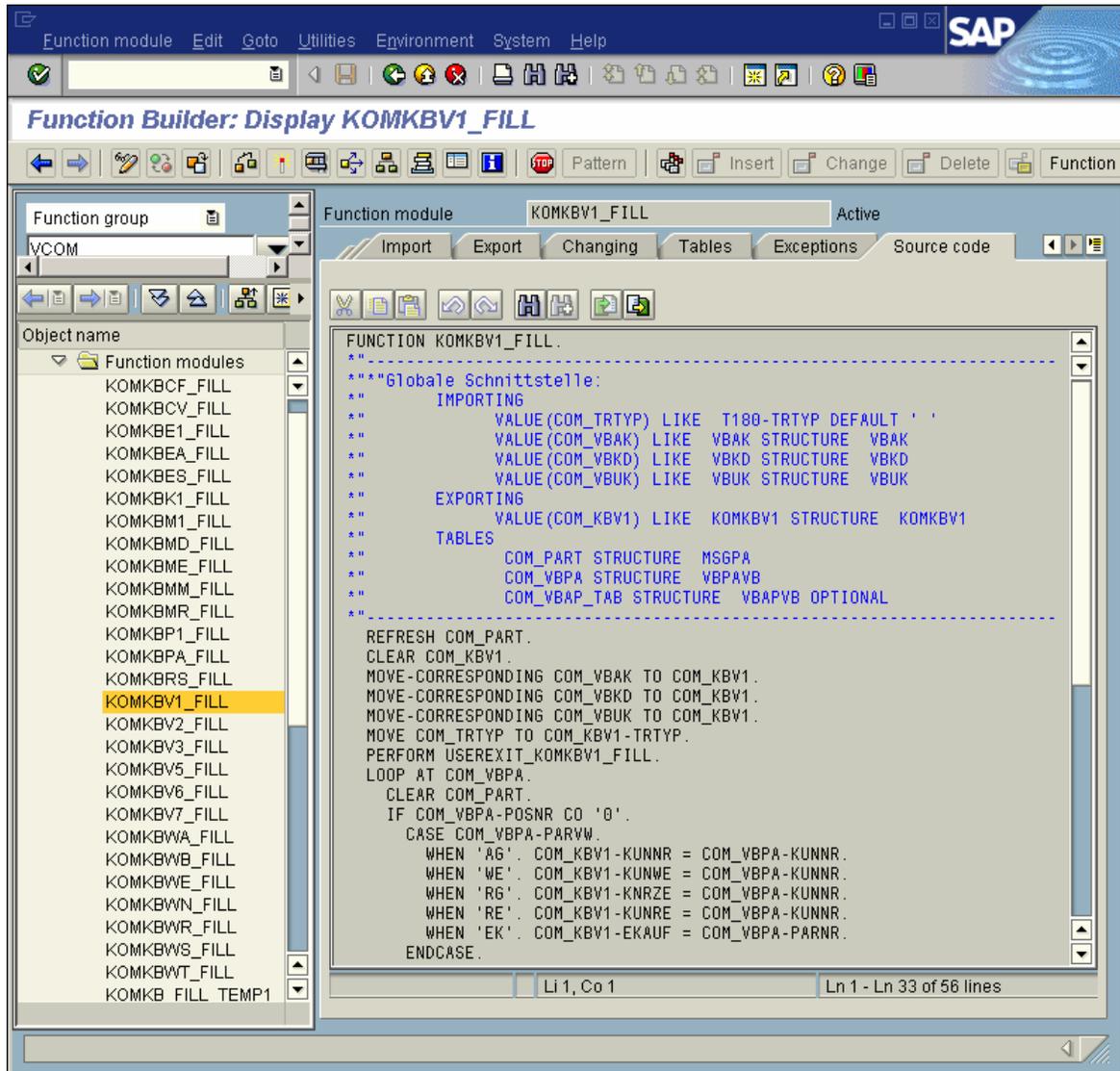
This function calls the communication structure fill function KOMKBV1_FILL passing the order data structures. The KOMKBV1 communication structure is returned from the call and is now completely filled. The structure is defined in the global data area of V61B and will remain in memory until the output is processed by subsequent function calls.



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Step 3 Call Function KOMKBV1_FILL

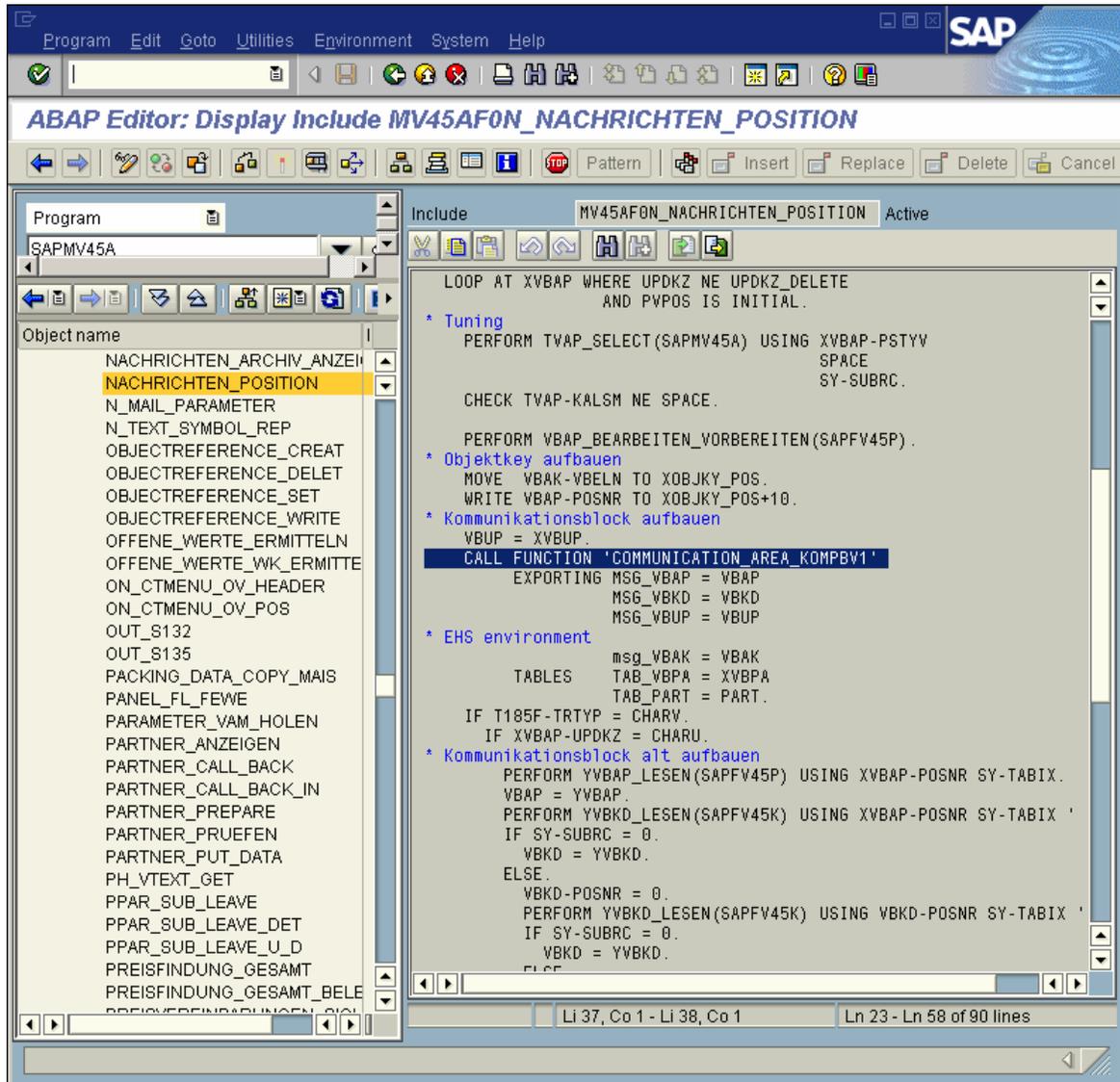
This function fills the header communication structure. It also calls the user exit routines associated with the structure type. All of the 'fill' functions and user exits are contained in function group VCOM.



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Step 4 Filling the Item Structure

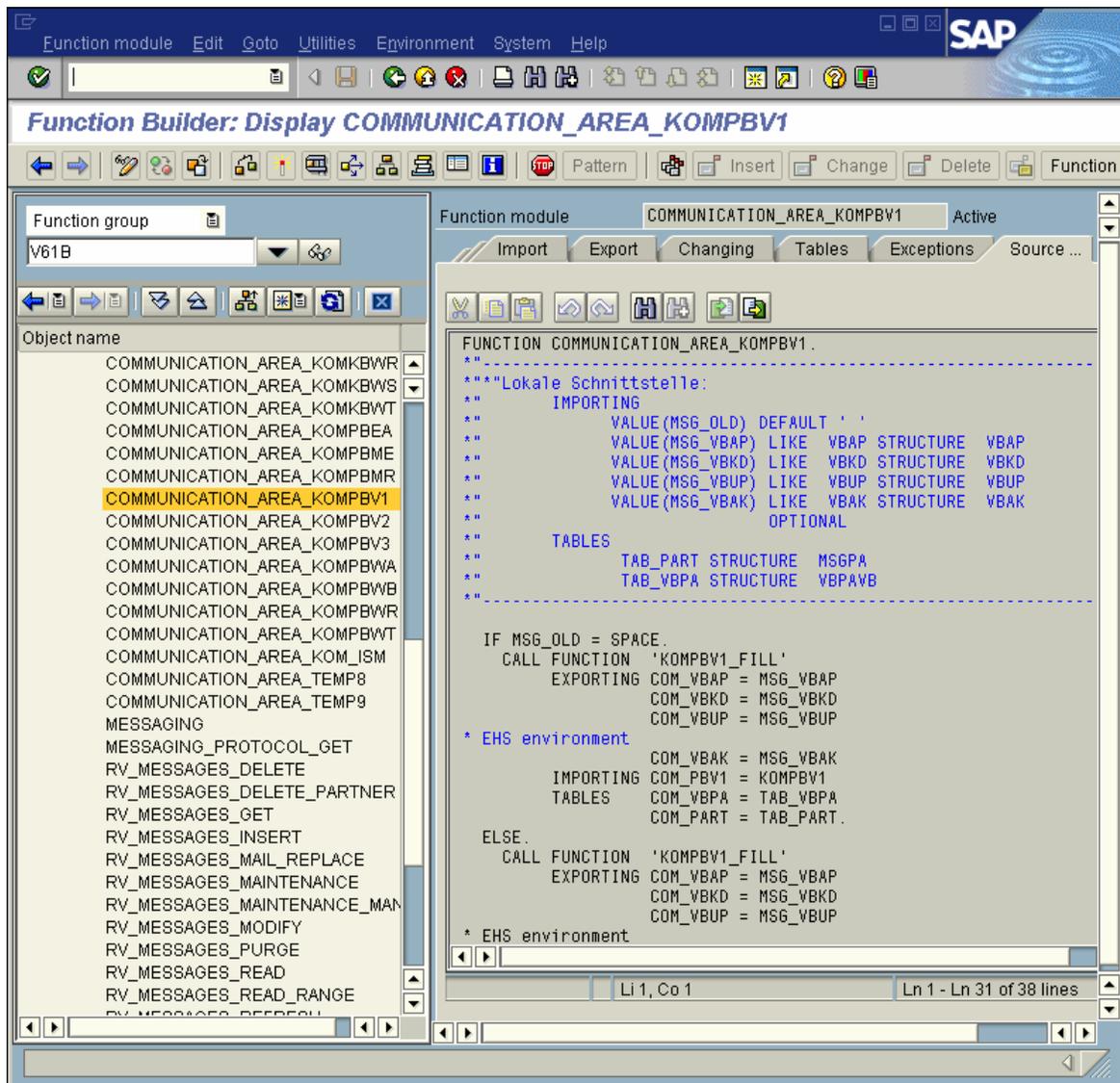
After the previous function calls, control has been returned to the sales order program. The next step is to fill the item structure. Function `COMMUNICATION_AREA_KOMPBV1` is called. The same order data is passed to the function module (`VBAK`, `VBUK`, `VBPA`, `VBAP`).



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Step 5 Call Function **COMMUNICATION_AREA_KOMPBV1**

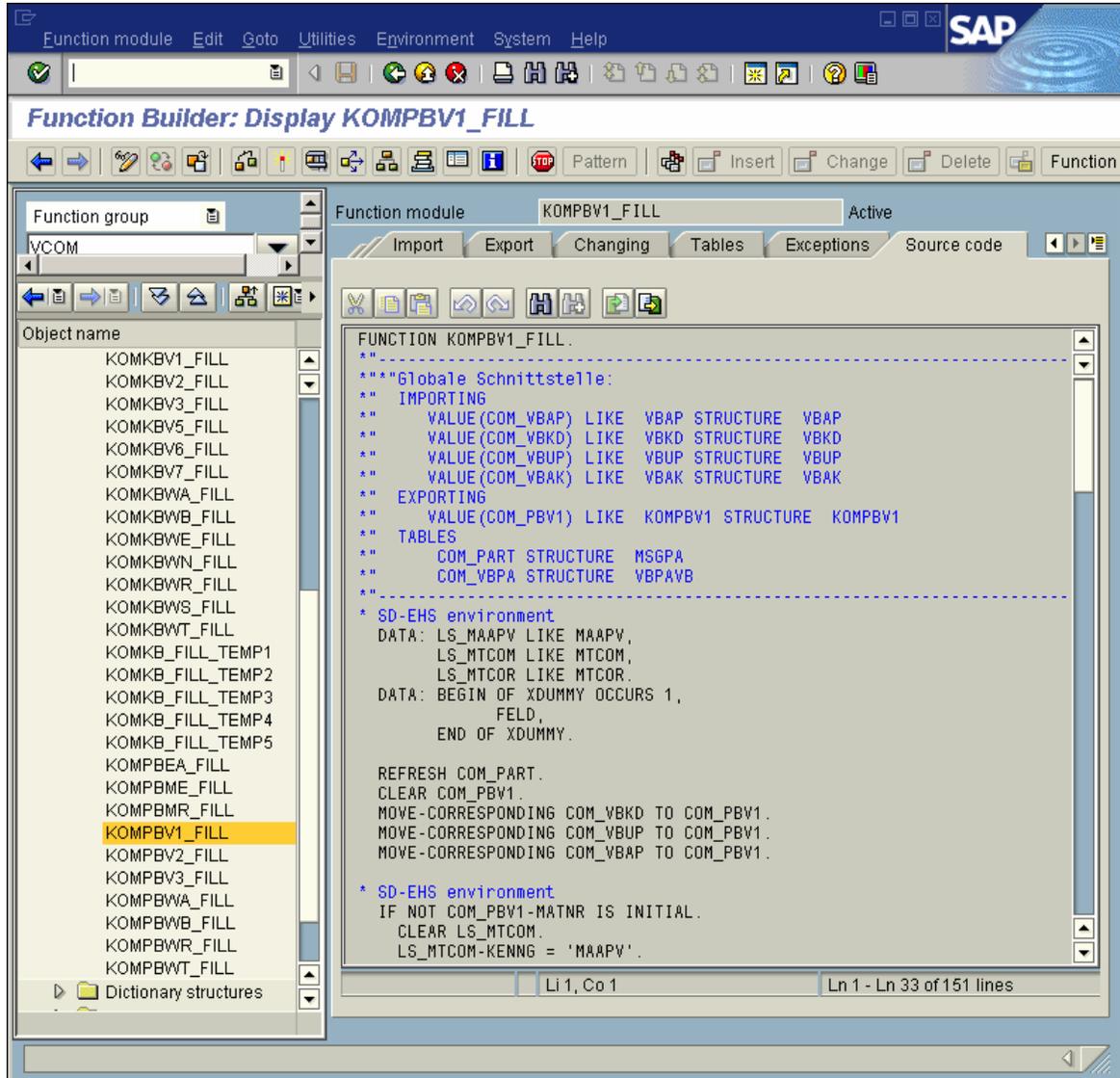
This function calls the communication structure fill function KOMPBV1_FILL passing the order data structures. The KOMPBV1 communication structure is returned from the call and is now completely filled. The structure is defined in the global data area of V61B and like the header structure, will remain in memory until the output is processed by subsequent function calls.



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Step 6 Call Function *KOMPBV1_FILL*

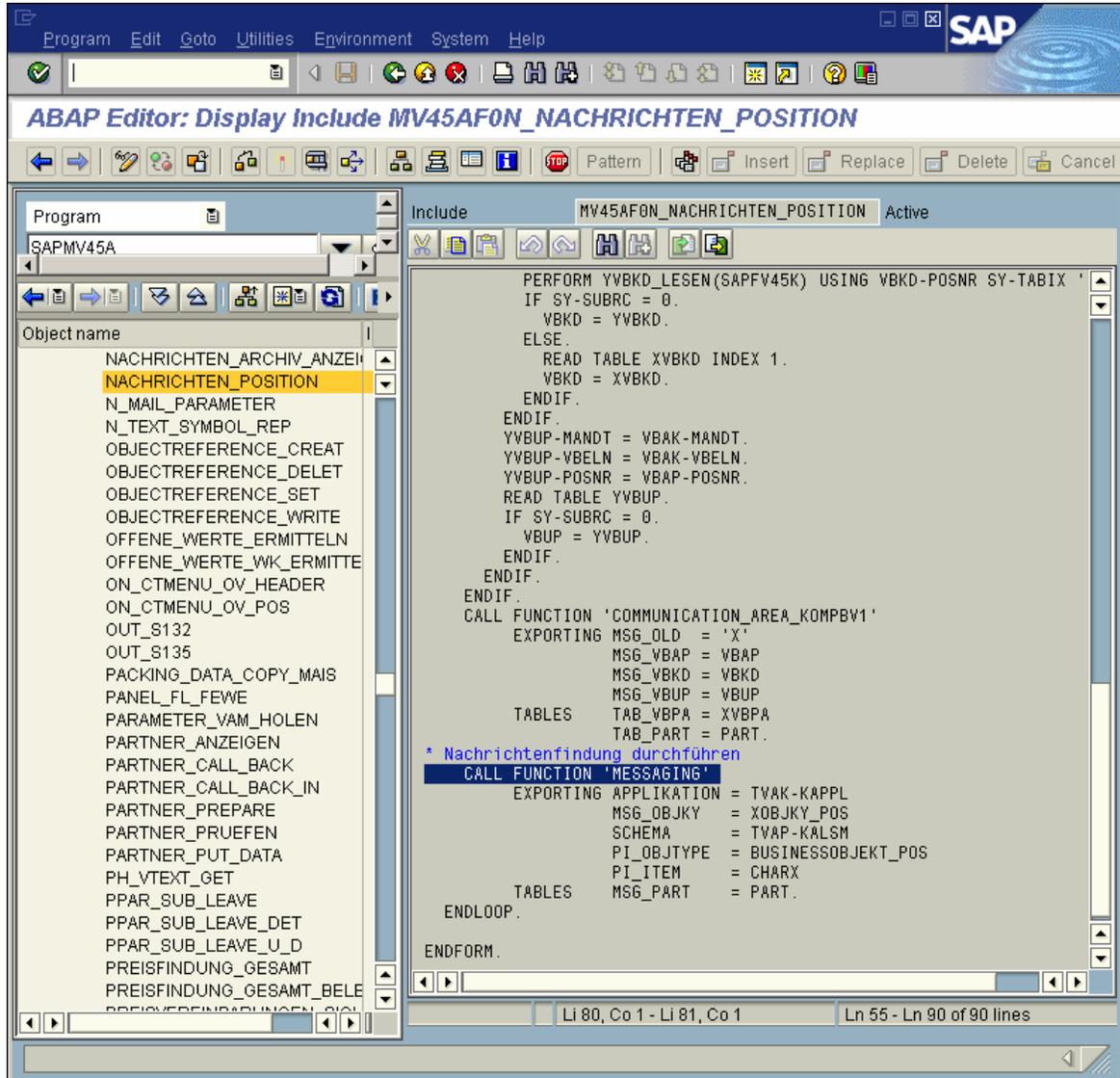
This function fills the item communication structure. It also calls the user exit routines associated with the structure type.



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Step 7 Call Function MESSAGING

This function triggers the output. It is contained in function group V61B and has access to the communication structures that were filled by the previous function calls.



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Sales Order Confirmation Output Enhancement Example

The following section demonstrates how to enhance output determination using the user exits provided. Although this is a sales order example, the basic process is the same for all other output.

Business Requirement

During order entry, the system has been configured to generate an order confirmation using the standard configuration. The order confirmation is sent to the customer. The company has introduced a new product line and wants to re-direct the order confirmations to an internal sales person for all orders that contain at least one of the new products. All of these confirmations are to be emailed to the same sales person.

Solution

To solve this problem, a new condition table will be added to the access sequence for the order confirmation. A condition record will be found only if one of the new products is contained in the order. The table will be positioned first in the access sequence and when accessed successfully, the remaining tables will not be processed. A field will be created to denote that one of the new products is present on the order. A user exit will be written to examine the materials on the order, and set the indicator accordingly.

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Step 1 Create a new field for use in Output Determination

For header level sales order output determination, the system uses communication structure KOMKBV1 to pass order data to the output determination processing routines. In addition to the standard fields, this structure contains an *include* for customer defined fields (KOMKBZ3).

The screenshot shows the SAP Dictionary: Display Structure for structure KOMKBV1. The structure is active and has the short text 'Output determination communication area header appl.V1'. The 'Components' tab is selected, showing a list of components with columns for Component, Component type, DType, Length, Dec.p..., and Short text. The component '.INCLUDE' with component type 'KOMKBZ3' is highlighted in yellow.

Component	Component type	DType	Length	Dec.p...	Short text
CMPSL	CMPSL	CHAR	1	0	Status of credit check of reserves 4
CMPS0	CMPS0	CHAR	1	0	Status of credit check for customer reserve 1
CMPS1	CMPS1	CHAR	1	0	Status of credit check for customer reserve 2
CMPS2	CMPS2	CHAR	1	0	Status of credit check for customer reserve 3
CMPSM	CMPSM	CHAR	1	0	Credit check data is obsolete
CMGST	CMGST	CHAR	1	0	Overall status of credit checks
.INCLUDE	KOMKBZ3			0	Output determination header appl. V1: Customer modification
KVGR1	KVGR1	CHAR	3	0	Customer group 1
KVGR2	KVGR2	CHAR	3	0	Customer group 2
KVGR3	KVGR3	CHAR	3	0	Customer group 3
KVGR4	KVGR4	CHAR	3	0	Customer group 4
KVGR5	KVGR5	CHAR	3	0	Customer group 5
ERDAT	ERDAT	DATS	8	0	Date on which the record was created
ZZ RTI ORDER	ZZ RTI ORDER	CHAR	1	0	RTI order indicator
COSTA	COSTA_D	CHAR	1	0	Confirmation status for ALE
INTCOM	INTCOM	CHAR	1	0	Indicator for call context

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Using the customer modification structure KOMKBZ3, new field ZZ_RTI_ORDER was added. This field is an indicator that will be set if the sales order contains an item for the special subset of materials.

The screenshot shows the SAP Dictionary: Display Structure window for structure KOMKBZ3. The window title is "Dictionary: Display Structure". The structure name is "KOMKBZ3" and it is "Active". The short text is "Output determination header appl. V1: Customer modification".

The main area displays a table of components. The table has columns: Component, Component type, DType, Length, Dec.p..., and Short text. The row for "ZZ_RTI_ORDER" is highlighted in yellow.

Component	Component type	DType	Length	Dec.p...	Short text
KVGR1	KVGR1	CHAR	3	0	Customer group 1
KVGR2	KVGR2	CHAR	3	0	Customer group 2
KVGR3	KVGR3	CHAR	3	0	Customer group 3
KVGR4	KVGR4	CHAR	3	0	Customer group 4
KVGR5	KVGR5	CHAR	3	0	Customer group 5
ERDAT	ERDAT	DATS	8	0	Date on which the record was created
ZZ_RTI_ORDER	ZZ_RTI_ORDER	CHAR	1	0	RTI order indicator

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Step 2 **Make ZZ_RTI_ORDER available to the field catalog**

Since we plan to use this field as a key to a condition table, it must be available in the field catalog for output determination. Structure KOMB contains all fields that are available in the field catalog. This structure contains an *include* for customer defined fields (KOMBZ).

The screenshot shows the SAP Dictionary: Display Structure for structure KOMB. The structure is active and its short text is "Field catalog for condition key: output determination". The "Components" tab is selected, showing a list of components. The component ".INCLUDE" with type "KOMBZ" is highlighted, indicating it is the include for customer-defined fields.

Component	Component type	DType	Length	Dec.p...	Short text
PRIOK	PRIOK	CHAR	1	0	Priority
ARTPR	ARTPR	CHAR	2	0	Priority Type
KOKRS	KOKRS	CHAR	4	0	Controlling Area
KOSTL	KOSTL	CHAR	10	0	Cost Center
.INCLUDE	KOMBZ		0	0	Permitted fields for output determination: Customer modific.
KVGR1	KVGR1	CHAR	3	0	Customer group 1
KVGR2	KVGR2	CHAR	3	0	Customer group 2
KVGR3	KVGR3	CHAR	3	0	Customer group 3
KVGR4	KVGR4	CHAR	3	0	Customer group 4
KVGR5	KVGR5	CHAR	3	0	Customer group 5
ZZ_RTI_ORDER	ZZ_RTI_ORDER	CHAR	1	0	RTI order indicator
VAGRP	VAGRP	CHAR	3	0	Responsible planner group/department
KAPPLANER	KAPPLANER	CHAR	3	0	Capacity planner group
VBFIX	CMF_VBFIX	NUMC	2	0	Predefined department
KKBER	KKBER	CHAR	4	0	Credit control area
SBGRP	SBGRP_CM	CHAR	3	0	Credit representative group for credit management
CTLPC	CTLPC_CM	CHAR	3	0	Credit management: Risk category
CMGST	CMGST	CHAR	1	0	Overall status of credit checks

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Using the customer modification structure KOMBZ, new field ZZ_RTI_ORDER was added. This field is an indicator that will be set if the sales order contains an item for the special subset of materials.

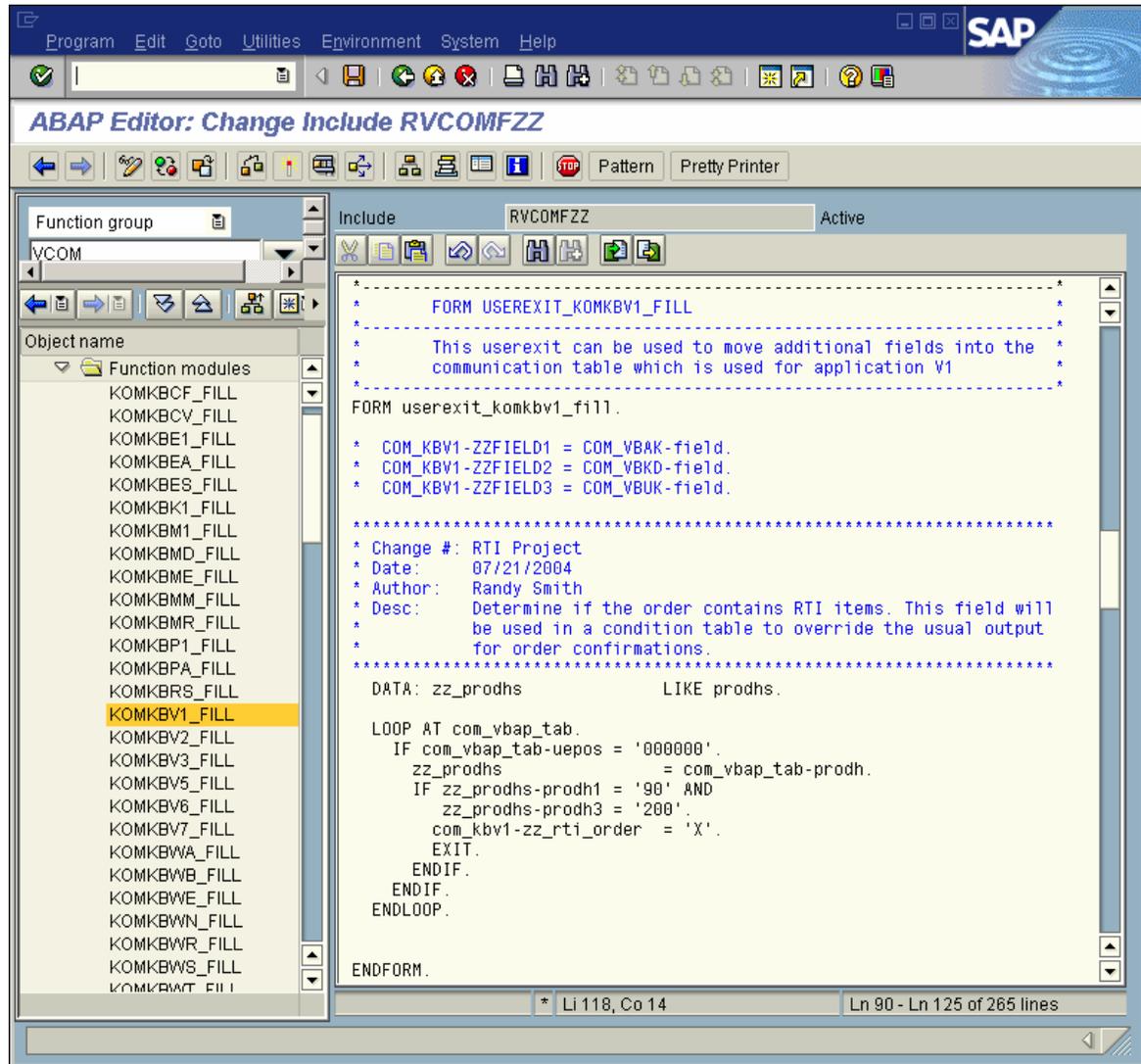
The screenshot shows the SAP Dictionary: Display Structure window for structure KOMBZ. The window title is "Dictionary: Display Structure" and the structure name is "KOMBZ". The short text is "Permitted fields for output determination: Customer modif.". The window is divided into tabs: "Attributes", "Components", "Entry help/check", and "Currency/quantity fields". The "Components" tab is active, showing a table of components. The table has columns: Component, Component type, DType, Length, Dec.p..., and Short text. The component "ZZ_RTI_ORDER" is highlighted in yellow.

Component	Component type	DType	Length	Dec.p...	Short text
KVGR1	KVGR1	CHAR	3	0	Customer group 1
KVGR2	KVGR2	CHAR	3	0	Customer group 2
KVGR3	KVGR3	CHAR	3	0	Customer group 3
KVGR4	KVGR4	CHAR	3	0	Customer group 4
KVGR5	KVGR5	CHAR	3	0	Customer group 5
ZZ_RTI_ORDER	ZZ_RTI_ORDER	CHAR	1	0	RTI order indicator

Enhancing Output Determination

In this user exit, the new logic loops thru the items (COM_VBAP_TAB) and using the product hierarchy, determines if any of the new products exist on the order. If any are found, the ZZ_RTI_ORDER indicator is set to 'X'.

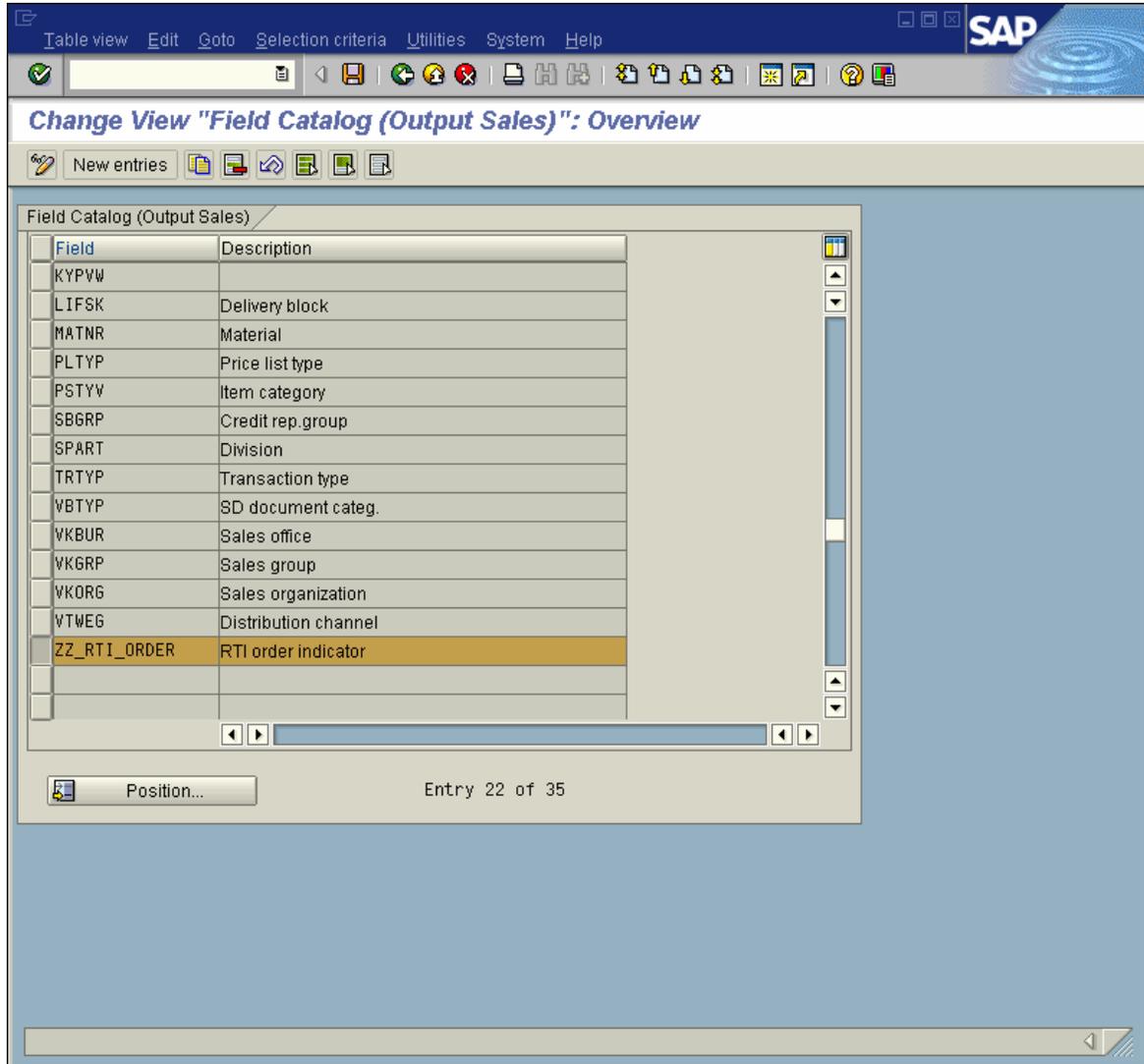
Note that no data base selects are required for this. The most common error made with these enhancements is the programmer redundantly selecting data that already resides in memory.



Enhancing Output Determination

Step 4 Adding ZZ_RTI_ORDER to the field catalog

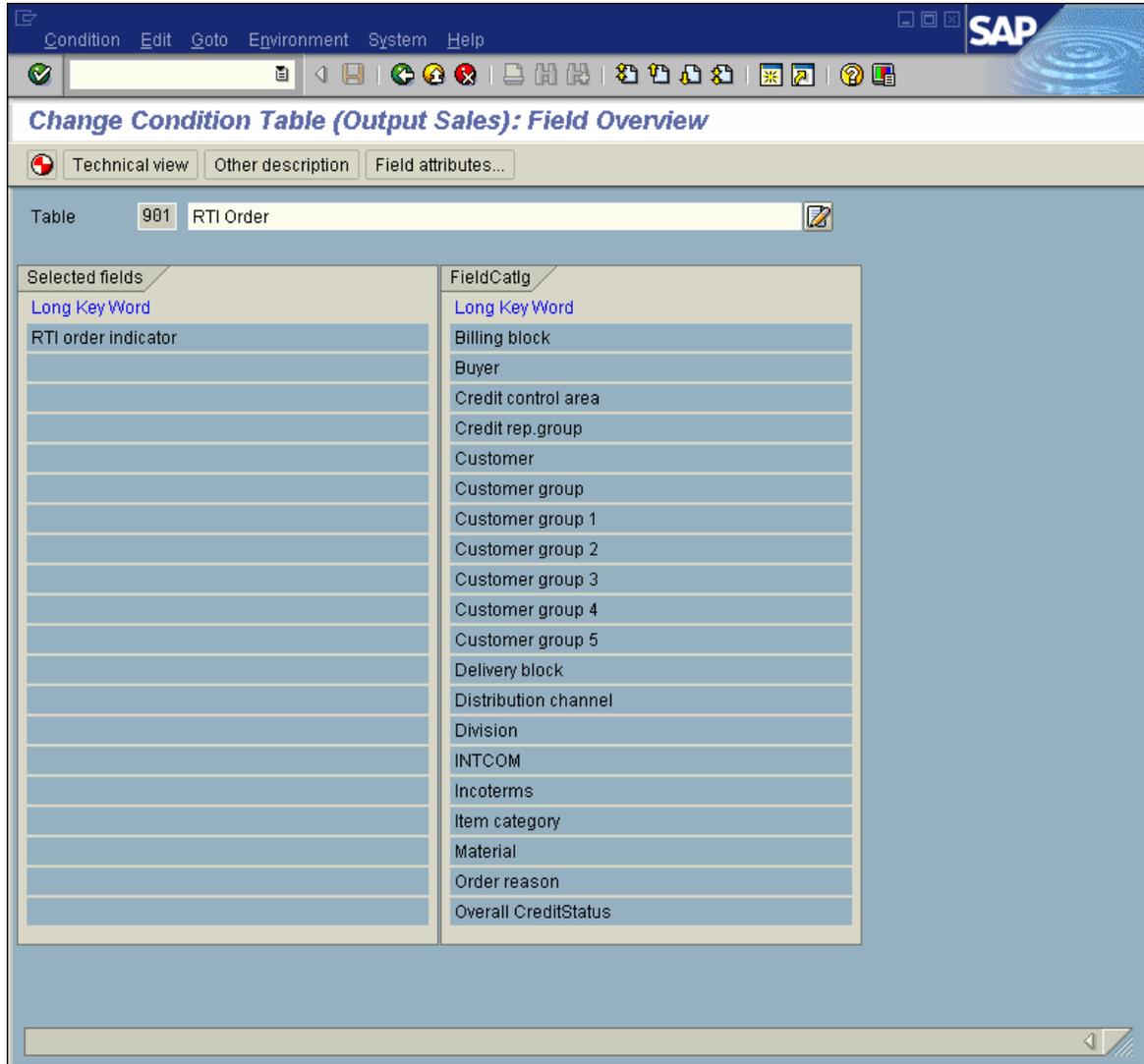
Using transaction V/86, the ZZ_RTI_ORDER field is added to the field catalog for sales order related output determination.



Enhancing Output Determination

Step 5 *Building the new condition table*

Using transaction V/57, condition table 901 is created. The only field in this table will be the ZZ_RTI_ORDER indicator.



Enhancing Output Determination

Step 6 Adding the new condition table to the access sequence

Using transaction V/48, condition table 901 is added to access sequence Z002. The table is inserted as the first table in the sequence. Access Z002 is assigned to the order confirmation output type.

The screenshot shows the SAP V/48 transaction interface. The title bar reads 'Change View "Accesses": Overview'. The main window displays the 'Accesses' table for access sequence Z002. The table has the following data:

Ac...	Tab	Description	Requiremnt	Exclusive
5	901	RTI Order		<input checked="" type="checkbox"/>
10	5	Sales Organization/Order Type		<input checked="" type="checkbox"/>
20	701	Sales org./Sold-to pt		<input checked="" type="checkbox"/>
30	501	Sales org./Sales off.		<input type="checkbox"/>

The interface also shows a 'Dialog Structure' tree on the left with 'Access Sequences' > 'Accesses' > 'Fields' expanded. At the bottom, there is a 'Position...' button and the text 'Entry 1 of 4'.

Enhancing Output Determination

Step 7 *Creating a Sales Rep customer master*

At this client, sales reps are defined using customer master records. Order confirmations are sent via email to a contact person assigned to the customer. Here we defined the contact person for our special email.

The screenshot shows the SAP Customer Master: Contact person details screen. The window title is "Change Customer: Contact person details". The main form contains the following fields:

Contact person	0000004277	Gender	unknown
VIP		Date of birth	
Department		Marital status	
Function	11	Ord. Conf. recipient	
Power of att.			
Higher partner			
Rep. number			
Call frequency		<input type="checkbox"/> Advertising mat	
Buying habits			
Remarks			

Below the main form, there is a "Preview" button and a "Person" section with the following details:

Title					
Last name	Smith				
First name	Randy				
Acad. title					
Format	Randy Smith				
Function					
Department					
Room no.		Floor		Building	

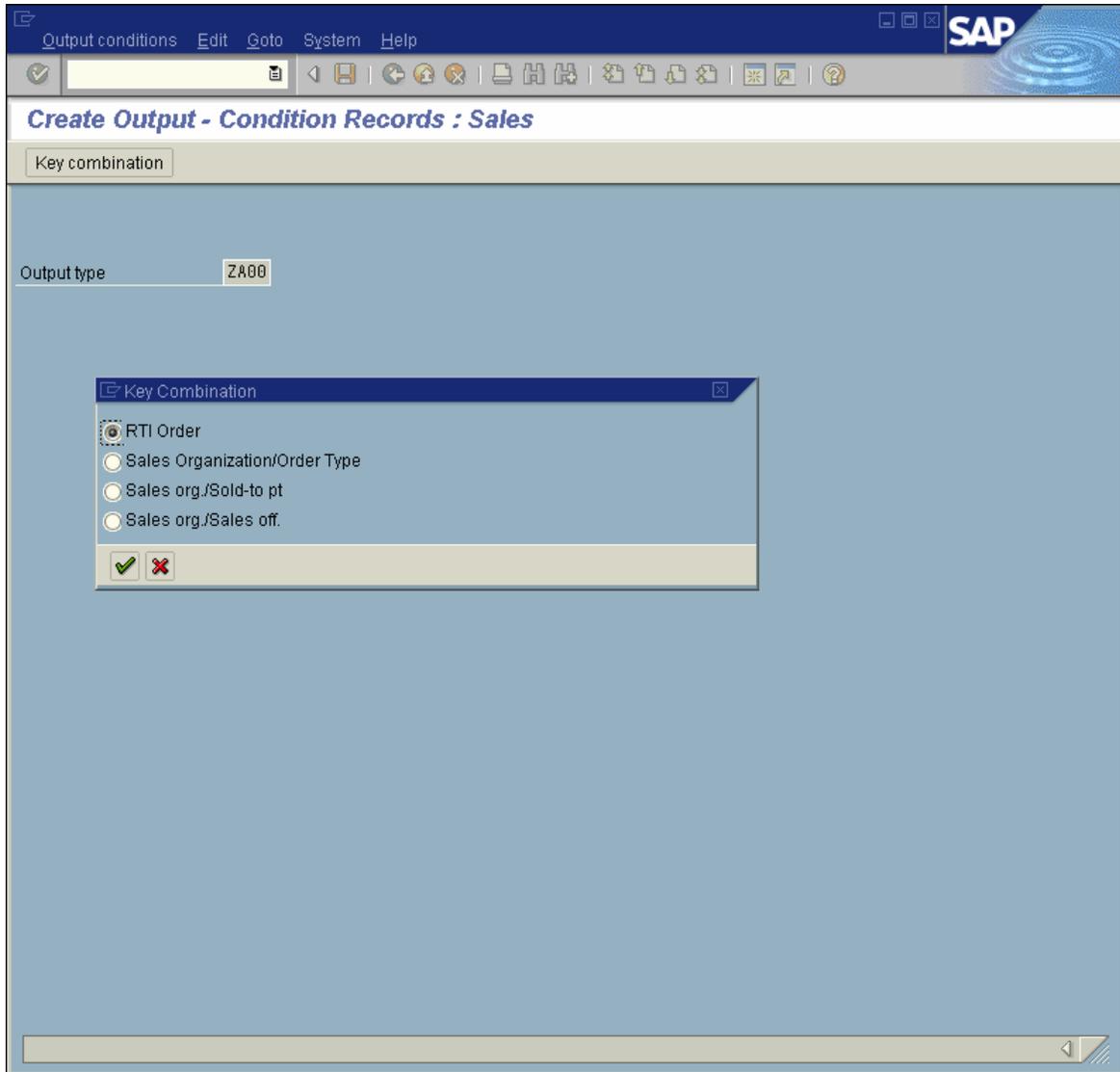
Below the "Person" section, there is a "Communication" section with the following details:

Language		Other communication...
Telephone no.	-	
Fax	-	
Internet mail	rsmith@saptechsolutions.com	

Enhancing Output Determination

Step 8 ***Maintaining the condition record.***

Using transaction VV11, a single condition record is added to table 901.



Enhancing Output Determination

Billing Output Enhancement Example

The following section demonstrates how to implement a requirement routine to prevent condition access in output determination. Although this is a billing document example, the basic process is the same for all other output.

Business Requirement

The customer has defined a special 'No charge' order type that is used to ship sample products. For these orders, billing output is to be suppressed. The billing type associated with these orders is the standard F2.

Solution

To solve this problem, an output requirement routine will be coded and assigned to the output type within the relevant output determination procedure. Within this routine, we need to examine the sales order type associated with the invoice. Unfortunately, the order type is not included in the communication structures used for billing output. Therefore, a user exit will be coded to provide it.

Enhancing Output Determination

Step 1 Create a new field for use in Output Determination

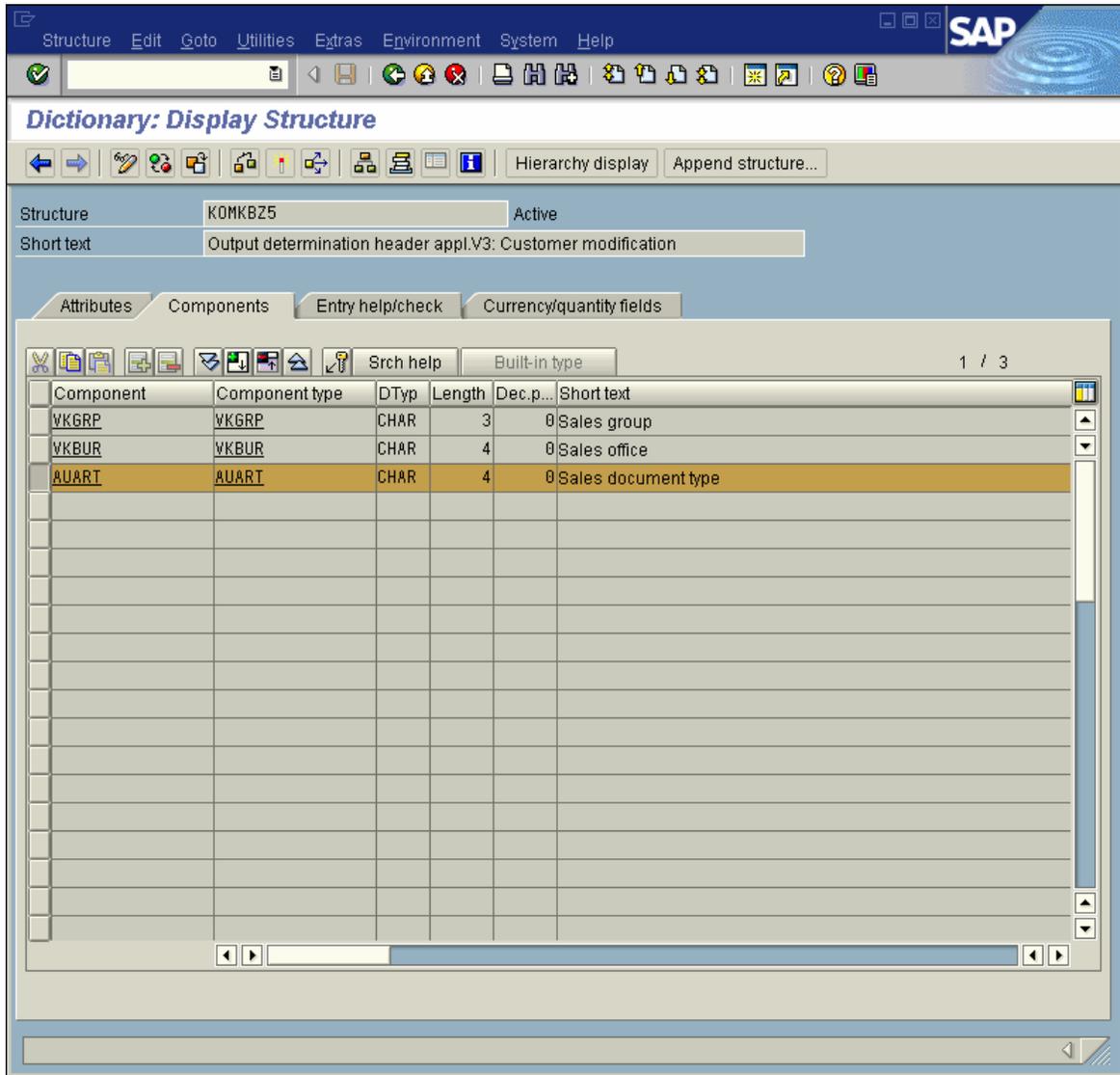
For header level billing output determination, the system uses communication structure KOMKBV3 to pass order data to the output determination processing routines. In addition to the standard fields, this structure contains an *include* for customer defined fields (KOMKBZ5).

The screenshot shows the SAP Dictionary: Display Structure for structure KOMKBV3. The table below represents the data shown in the screenshot.

Component	Component type	DType	Length	Dec.p...	Short text
IEVER	IEVER	CHAR	1	0	Domestic Mode of Transport for Foreign Trade
EMBKZ	EMBKZ	CHAR	1	0	ID: General export embargo for export control
NATCO	NATCO	CHAR	1	0	ID: Member of NATO
EWRCO	EWRCO	CHAR	1	0	ID: European Economic Area (rel. for export control)
XEGLD	XEGLD	CHAR	1	0	Indicator: European Union member ?
HLAND	HLAND	CHAR	3	0	Delivering country
AKART	AKART	CHAR	2	0	Financial document processing: Type of financial document
AKKTP	AKKTP	CHAR	1	0	Financial document processing: Financial document category
EXNUM	EXNUM	CHAR	10	0	Number of foreign trade data in MM and SD documents
CROSS_COMP	XFELD	CHAR	1	0	Checkbox
.INCLUDE	KOMKBZ5		0	0	Output determination header appl.V3: Customer modification
VKGRP	VKGRP	CHAR	3	0	Sales group
VKBUR	VKBUR	CHAR	4	0	Sales office
AUART	AUART	CHAR	4	0	Sales document type
IX_KOMK	KOIDX	INT4	10	0	Index number for internal tables
IX_KOMT1_V	KOIDX	INT4	10	0	Index number for internal tables
IX_KOMT1_B	KOIDX	INT4	10	0	Index number for internal tables

Enhancing Output Determination

Using the customer modification structure KOMKBZ5, the order type field AUART was added.

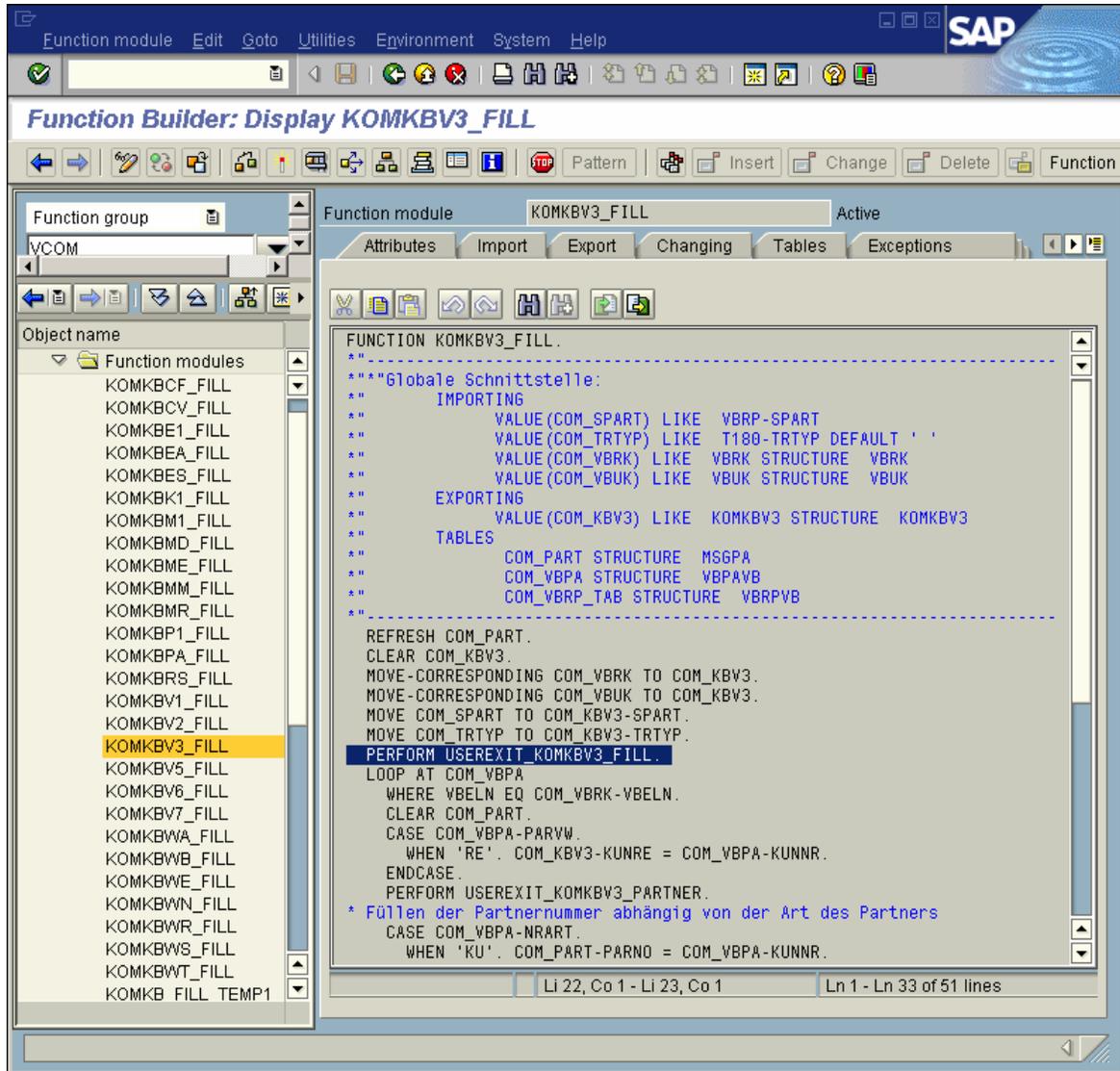


There are many who debate whether or not a standard field name (i.e. AUART) should be specified in a user exit structure. Even SAP would probably recommend using a 'Z' field (i.e. ZZAUART). They will argue that if SAP were to add the standard field in a future release, a syntax error would result. While true, we feel that ending up with redundant fields is worse than fixing a syntax error. To correct the error would simply require that the field be deleted from the user exit structure.

Enhancing Output Determination

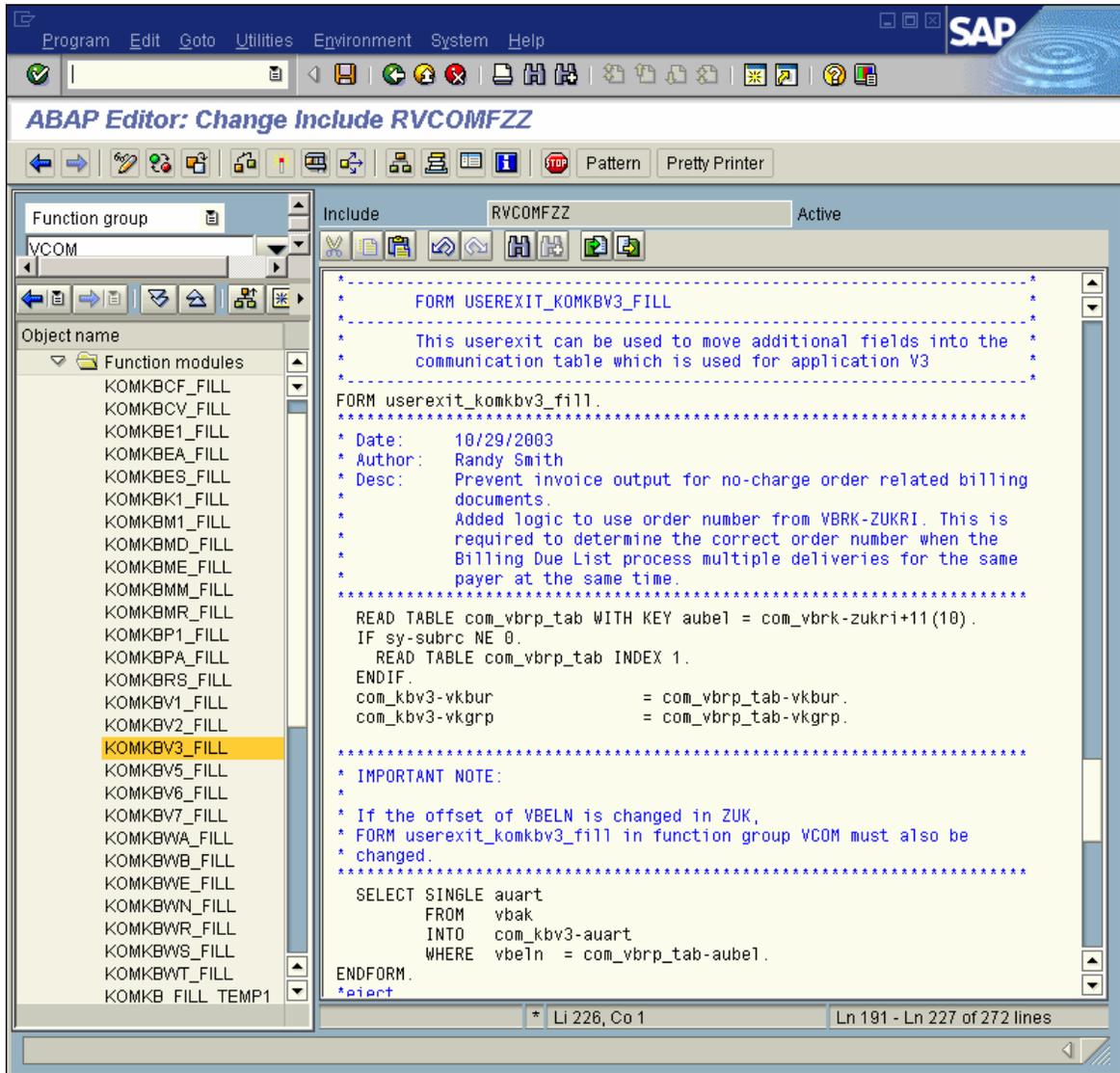
Step 2 *Populating the AUART field*

During billing output, the system calls function KOMKBV3_FILL to populate the communication structures with billing document data. All of the relevant billing data is passed into this function having been read previously. The function calls form USEREXIT_KOMKBV3_FILL which is the header level user exit routine. For this project, we need to add the sales order type. Since order information is not passed into this function module, we will need to select it in our user exit.



Enhancing Output Determination

In this user exit, the new logic determines the sales order type and moves it to the KOMKBV3 communication structure.



Enhancing Output Determination

Step 3 *Build the Requirement Routine*

Using transaction VOFM, create the requirement routine. The standard SAP routine is number 062. We cloned it to 962.

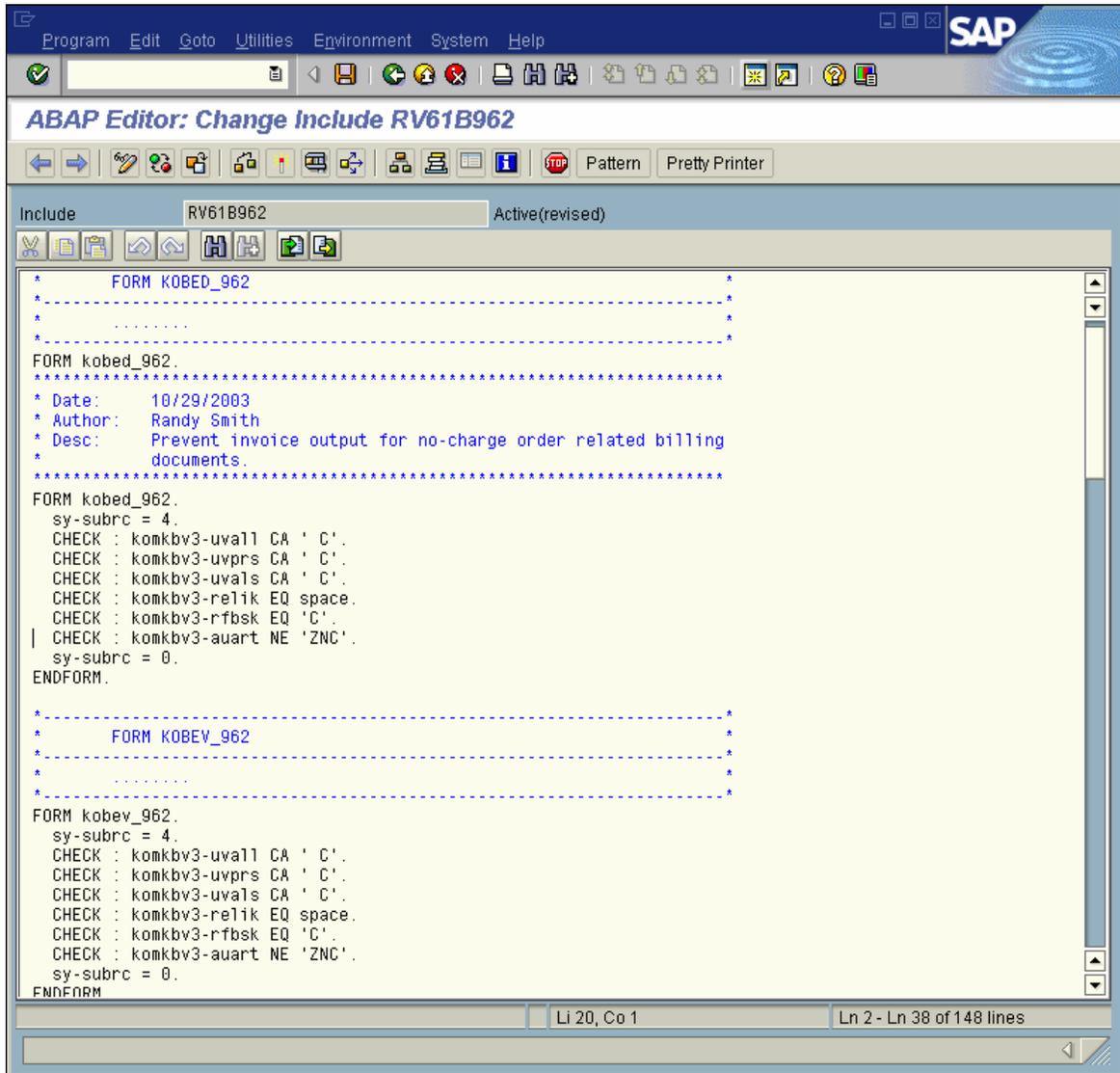
The screenshot shows the SAP VOFM (Requirements Output Control) transaction. The title bar reads "Display: Requirements Output control". Below the title bar is a toolbar with various icons. The main area contains a table with the following data:

Routine number	Description	Active	Application
403	Confirm. Advice Note	<input checked="" type="checkbox"/>	WA
404	AdviceNoteDistribCen	<input checked="" type="checkbox"/>	WA
405	Dunning Confirmation	<input checked="" type="checkbox"/>	WA
406	EBPP, Link by Mail	<input checked="" type="checkbox"/>	V3
407	EBPP, Paper Invoice	<input checked="" type="checkbox"/>	V3
421	Notification	<input checked="" type="checkbox"/>	WB
422	Notification Inquiry	<input checked="" type="checkbox"/>	WB
423	Confirmation Notif.	<input checked="" type="checkbox"/>	WB
424	Notif.Distrib.Centre	<input checked="" type="checkbox"/>	WB
425	Dunning Confirmation	<input checked="" type="checkbox"/>	WB
430	AR: Credit Invoice	<input checked="" type="checkbox"/>	V3
900	Order Conf Print	<input checked="" type="checkbox"/>	V1
901	Order Conf EDI	<input checked="" type="checkbox"/>	V1
932	KPG WM Transfer ord	<input checked="" type="checkbox"/>	V2
962	BillDoc:ReleasePost.	<input checked="" type="checkbox"/>	V3
		<input type="checkbox"/>	

Below the table is a "Position" button and a search field.

Enhancing Output Determination

One line of code was added to each form routine to check the sales order type. When it is ZNC, the return code will be set to 4 and the output will not be sent.



Enhancing Output Determination

Step 4 *Assigning the routine to an output type*

Using transaction V/42, assign the new requirement routine to the relevant output types in the output determination procedure.

The screenshot shows the SAP V/42 transaction interface. The title bar reads "Change View 'Control': Overview". The main window displays a table for the procedure "V10000 Billing Output". The table has columns for Step, Cntr, CTyp, Description, Requirement, and Manual only. The following table represents the data shown in the screenshot:

Step	Cntr	CTyp	Description	Requirement	Manual only
10	1	RD00	Invoice	962	
15	1	ZEXP	Export Invoice	62	
16	1	ZLAR	Inter LAR Inv.	62	
17	1	ZPRO	Proforma Invoice		
18	1	ZMEX	Mexico Invoice	962	
19	1	ZDEP	MX Deposit slip	62	
20	2	MAIL	Mail		
30	3	ESR0			

Below the table, there is a "Position..." button and the text "Entry 1 of 15". The left sidebar shows a "Dialog Structure" tree with "Procedures" and "Control" folders.

Enhancing Output Determination

Step 5 Testing the process

Below is the output determination process log of an invoice that originated from a ZNC order. The output was not sent due to requirement 962.

The screenshot displays the SAP Analysis Output window. The left pane shows a tree view of procedures under Z10000, including RD00, ZDEP, ZEX2, ZEXP, ZLAR, ZMEX, and ZPRO. The right pane shows an overview table of condition types and their messages.

Condition type	Message	Description
RD00	502	Output ignored (requirement 962 not fulfilled)
ZDEP	540	Output not found
ZEX2	540	Output not found
ZEXP	540	Output not found
ZLAR	540	Output not found
ZMEX	502	Output ignored (requirement 962 not fulfilled)
ZPRO	540	Output not found

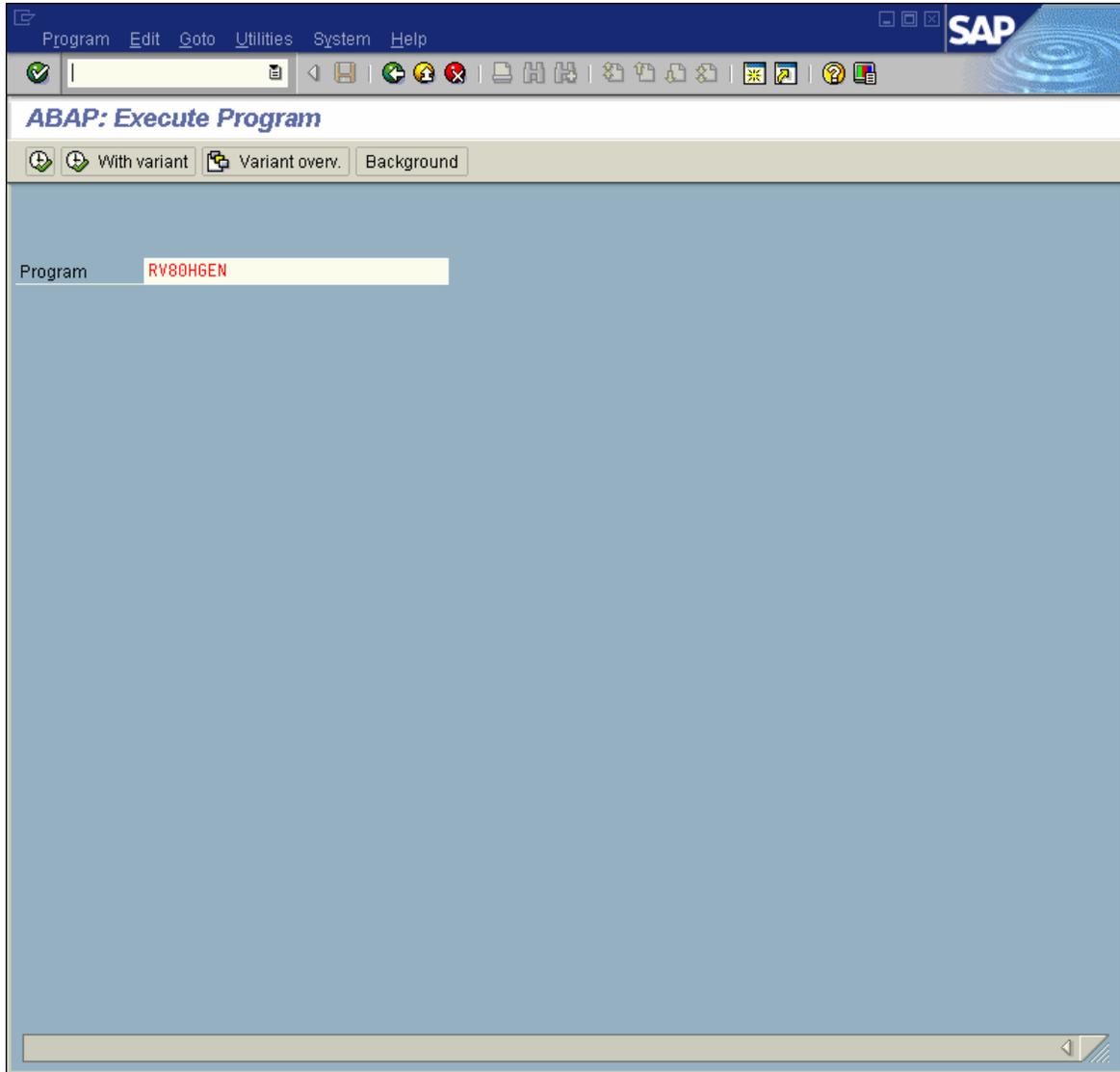
There are four levels of condition determination in the overview tree shown on the left hand side : Procedure (pricing procedure, output determination procedure, strategy), condition type (output type, strategy type), condition access and condition record.

The upper right-hand side of the screen shows detailed information on the level of the overview tree that you have selected.

Enhancing Output Determination

Step 6 ***Running the VOFM regeneration***

Whenever a VOFM routine is created, a special generation program should be run in each system that the routine is moved to. The program is usually executed by the Basis Team.



Note: This is a critical step that should not be overlooked. If this step is not executed, short dumps can be the result.

Enhancing Output Determination

The RV80HGEN completed.

