Summary

This article explains how to create a simple workflow using Object Definition and Implementation, Standard Tasks (Pftc), Event Definition And Implementation, Rule Definition and Implementation, Triggering an Event Explicitly by programming, process a work item in exceptional cases and starting a workflow via the work item manager API .

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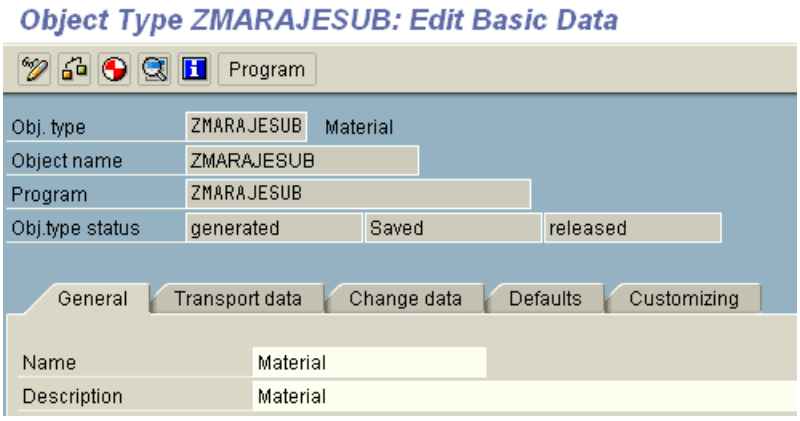
Date: 15 Mar 2005

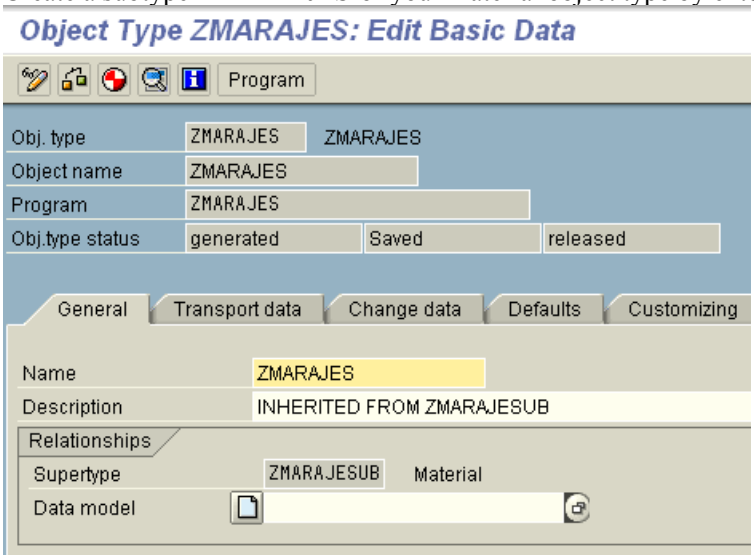
Object Definition and Implementation

When implementing a workflow you will often notice that the object types supplied by SAP do not meet your requirements fully.
In these cases, you must extend an existing object type by creating a customer specific subtype for it.

In Transaction SWO1 , create a subtype 'ZMARAJESUB' for object type BUS1001.

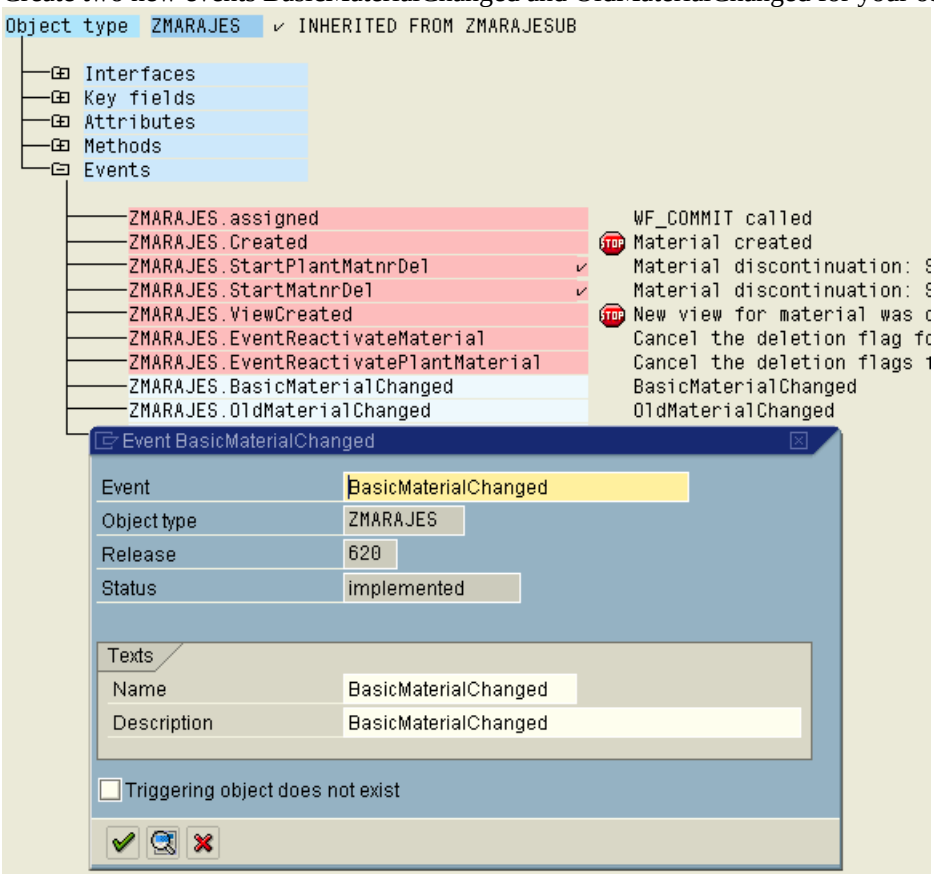


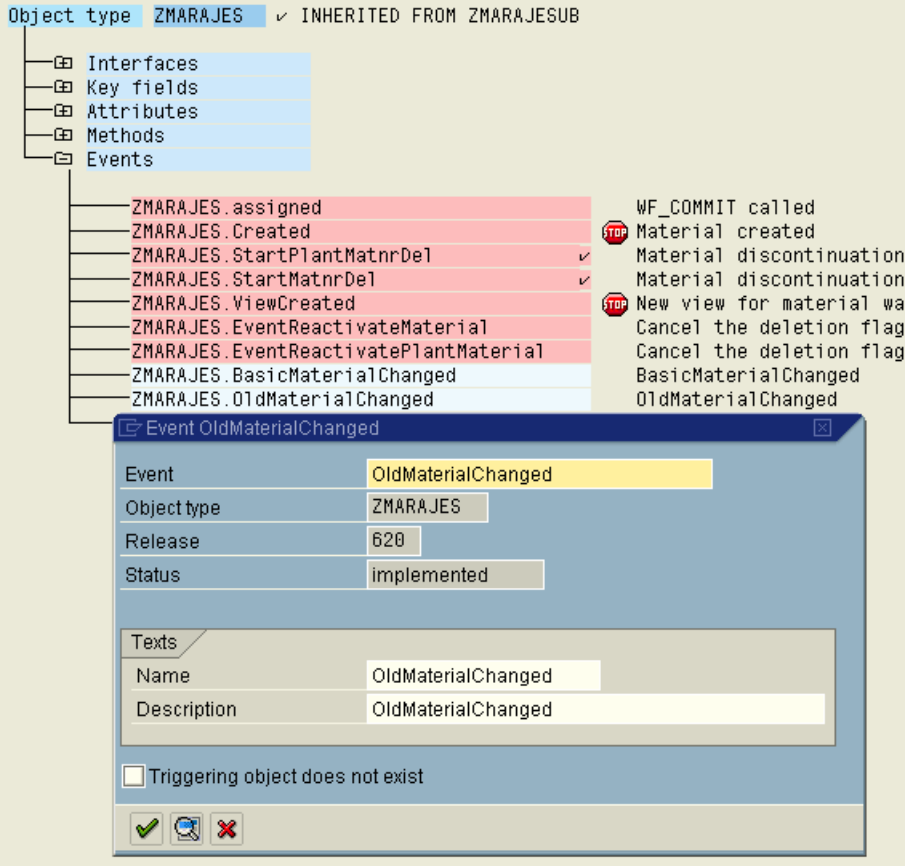
Create a subtype 'ZMARAJES'of your material object type by entering your parent object 'ZMARAJESUB'.



Extend your new object type so that it meets additional requirements.

For the workflow development , you require events as triggering or terminating events of your tasks. Create two new events BasicMaterialChanged and OldMaterialChanged for your object type.



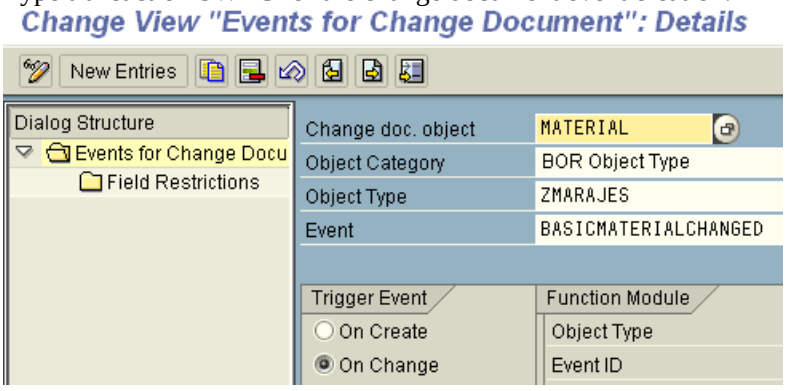


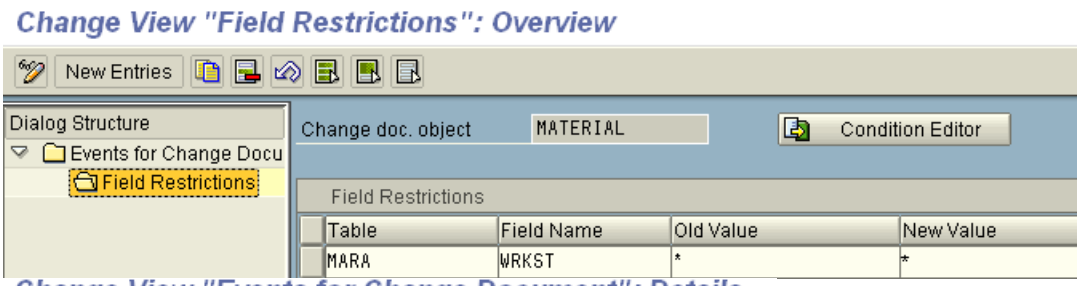
Implement the two events using event creation from change documents.The Change document required is MATERIAL.

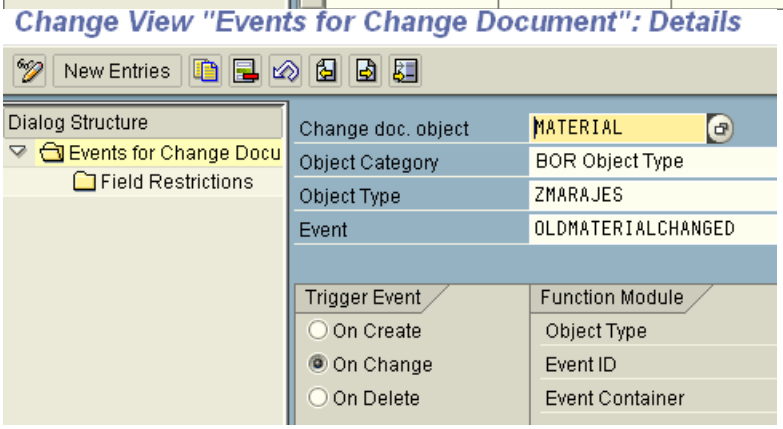
Restrict the triggering of the event for BasicMaterialChanged to the mara-wrkst field and for OldMaterialChanged to mara-bismt.

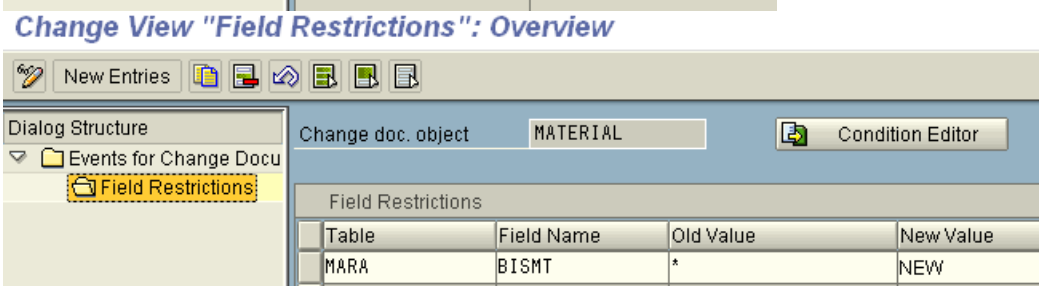
For the Old MaterialChanged, add a field restriction so that the event is only triggered when mara-bismt changes from anything to NEW.

Type transaction SWEC for the change document event creation.

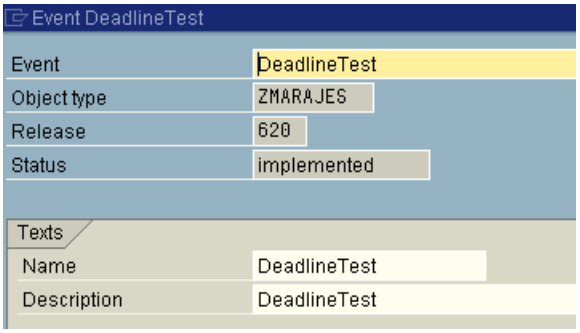


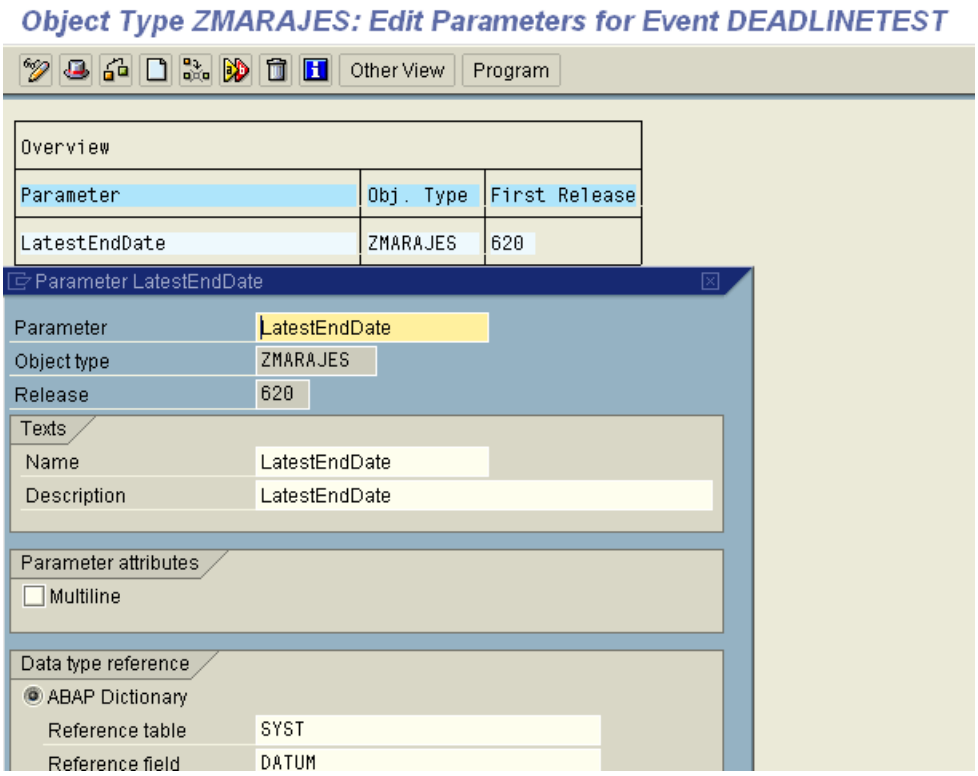




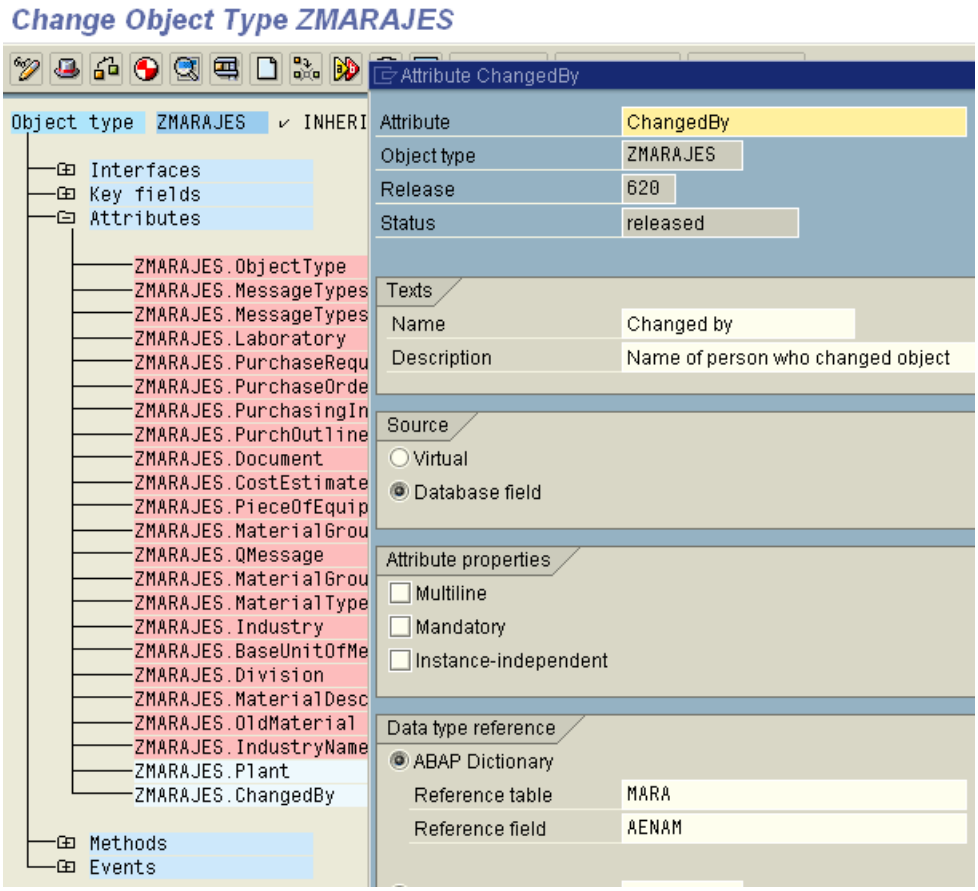


Define another DeadlineTest event for you object type with a LatestEndDate parameter
Referring to the syst-datum field. This parameter will be used to transfer an end deadline for a step within a workflow.

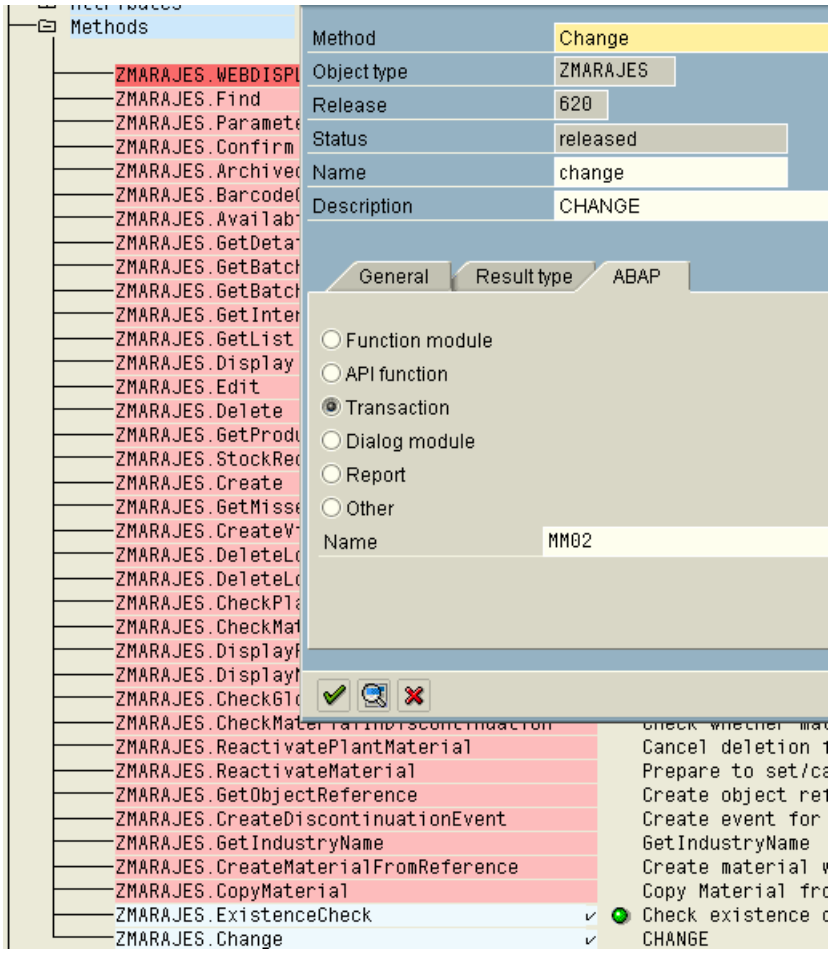




Create a new ChangedBy attribute based on the mara-aenam field. This attribute specifies the user who last changed the underlying material.
You will use this attribute later to filter out your material.



Create a new Change method on the basis of transaction MM02. This transaction writes your changes to the database using an update task.
deselect the synchronous flag in General tab.



Now select the method and then choose the program icon to generate the code.

```
BEGIN_METHOD CHANGE CHANGING CONTAINER.
DATA:
    MATERIALVIEW TYPE T132T-STATM.
 SWC_GET_ELEMENT CONTAINER 'MaterialView' MATERIALVIEW.
 IF MATERIALVIEW IS INITIAL.
 MATERIALVIEW = 'K'.
 ENDIF.

 SET PARAMETER ID 'MAT' FIELD OBJECT-KEY-MATERIAL.
 SET PARAMETER ID 'MXX' FIELD MATERIALVIEW.
 CALL TRANSACTION 'MM02' AND SKIP FIRST SCREEN.

END_METHOD.
```

Create a new DisplayView method. The purpose ot this method is to display a material from a particular view. The Desired view is to be transferred using the MaterialView input parameter.
Select the flag dialog and synchronous in General tab.

Change Object Type ZMARAJE

Method DisplayView

Method	DisplayView
Object type	ZMARAJES
Release	620
Status	released
Name	DisplayView
Description	Display View

General | Result type | ABAP

- ○ Function module
- ○ API function
- ◉ Transaction
- ○ Dialog module
- ○ Report
- ○ Other

Name: MM03

Object Type ZMARAJES: Edit Parameters for Method DISPLAYVIEW

Other View | Program | Exceptions

Overview

Parameter	Obj. Type	First Release	Imp.	Man.	Exp.
MaterialView	ZMARAJES	620	☑	☐	☑

Parameter MaterialView

Parameter	MaterialView
Object type	ZMARAJES
Release	620

Texts

Name	MaterialView
Description	MaterialView

Parameter attributes

- ☑ Import
- ☐ Mandatory
- ☑ Export
- ☐ Multiline

Data type reference

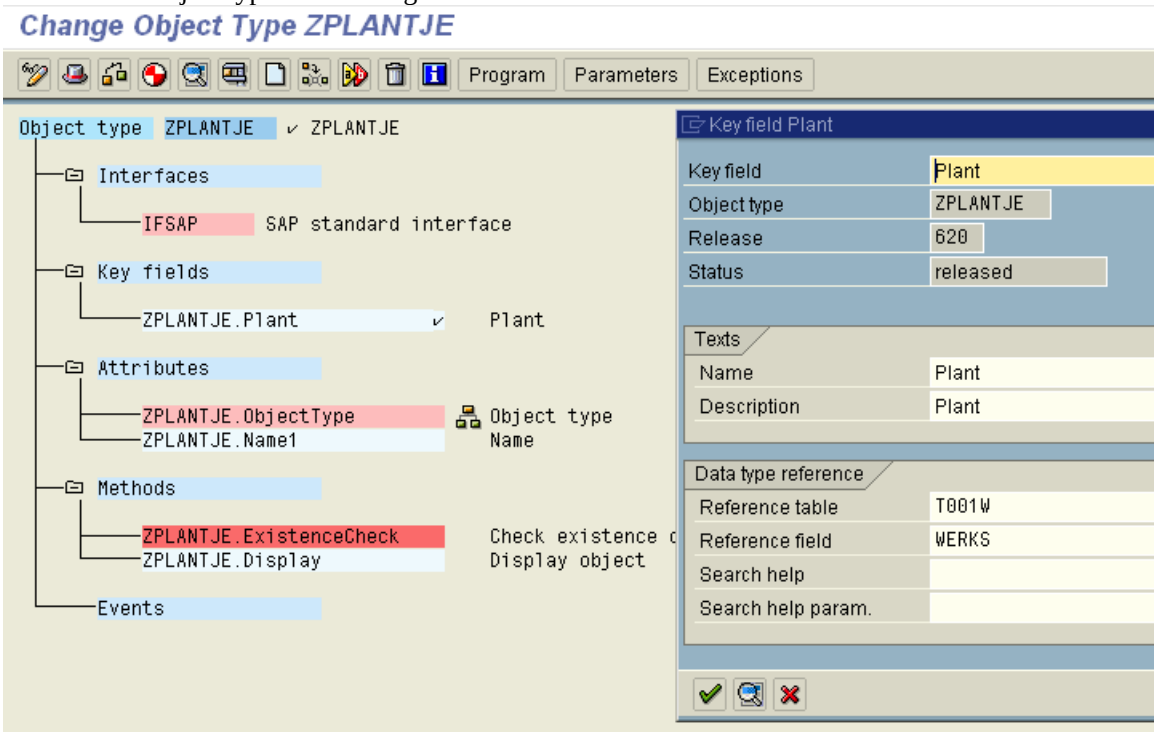
◉ ABAP Dictionary

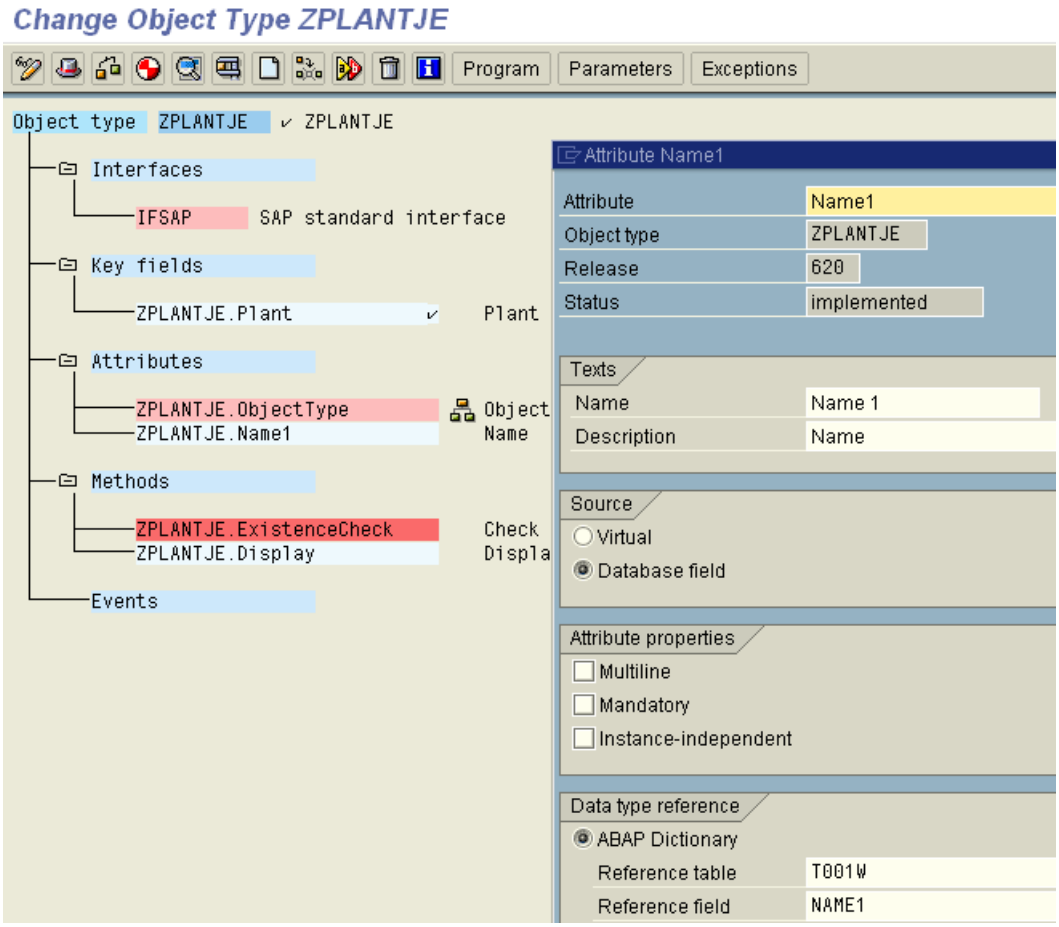
Reference table	T132T
Reference field	STATM

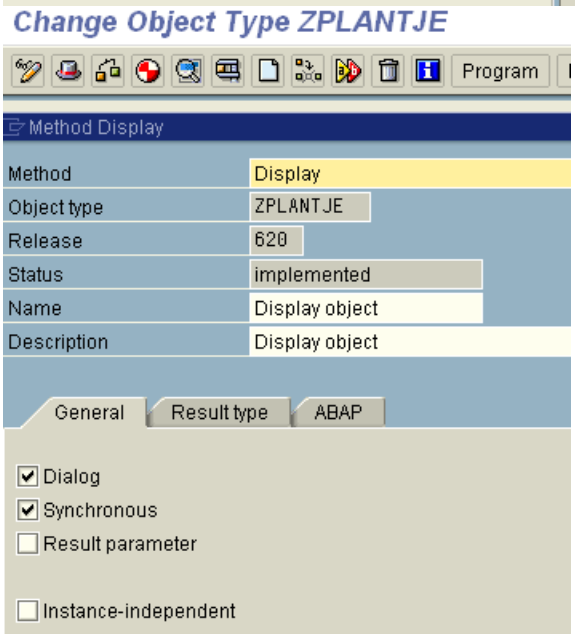
Select the program icon to generate the code.You need to add code to set the view to K that is ‘Basis Data 1’as a default(This default the view to the basis view if no view is received). You can diplay the actual view using transacation MM03. transaction MM03 recognizes a SET/GET parameter MXX
Which you can use to control the view where the transaction is started. Supply this SET/GET parameter with your input parameter value.

```
BEGIN_METHOD DISPLAYVIEW CHANGING CONTAINER.
 DATA:
     MATERIALVIEW TYPE T132T-STATM.
  SWC_GET_ELEMENT CONTAINER 'MaterialView' MATERIALVIEW.
  IF MATERIALVIEW IS INITIAL.
  MATERIALVIEW = 'K'.
  ENDIF.

  SET PARAMETER ID 'MAT' FIELD OBJECT-KEY-MATERIAL.
  SET PARAMETER ID 'MXX' FIELD MATERIALVIEW.
  CALL TRANSACTION 'MM03' AND SKIP FIRST SCREEN.
  SWC_set_ELEMENT CONTAINER 'MaterialView' MATERIALVIEW.
 END_METHOD.
```

A Material master can be assigned to several different plants.Create a plant virtual attribute that refers to your object type zplantje.
ZPLANTJE object type is following.







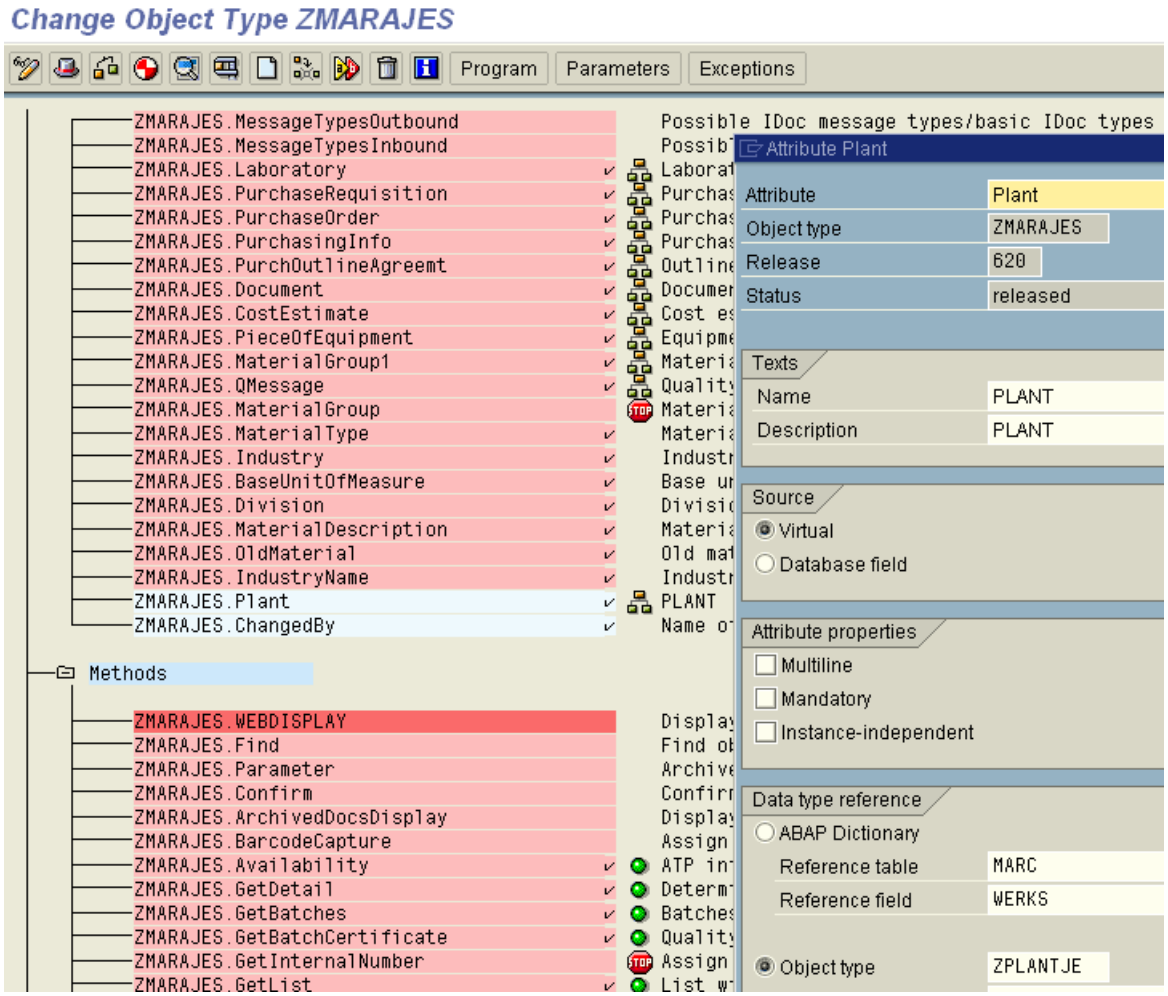
***** Implementation of object type ZPLANTJE **
INCLUDE <OBJECT>.
BEGIN_DATA OBJECT. " Do not change.. DATA is generated
* only private members may be inserted into structure private

```
DATA:
" begin of private,
"   to declare private attributes remove comments and
"   insert private attributes here ...
" end of private,
  BEGIN OF KEY,
     PLANT LIKE T001W-WERKS,
  END OF KEY,
     _T001W LIKE T001W.
END_DATA OBJECT. " Do not change.. DATA is generated

TABLES: T001W,V_T001W.
GET_TABLE_PROPERTY T001W.
DATA SUBRC LIKE SY-SUBRC.
* Fill TABLES T001W to enable Object Manager Access to Table Properti
  PERFORM SELECT_TABLE_T001W USING SUBRC.
  IF SUBRC NE 0.
    EXIT_OBJECT_NOT_FOUND.
  ENDIF.
END_PROPERTY.
*
* Use Form also for other(virtual) Properties to fill TABLES T001W
FORM SELECT_TABLE_T001W USING SUBRC LIKE SY-SUBRC.
* Select single * from T001W, if OBJECT-_T001W is initial
  IF OBJECT-_T001W-MANDT IS INITIAL
  IF OBJECT-_T001W-MANDT IS INITIAL
  AND OBJECT-_T001W-WERKS IS INITIAL.
    SELECT SINGLE * FROM T001W CLIENT SPECIFIED
       WHERE MANDT = SY-MANDT
       AND WERKS = OBJECT-KEY-PLANT.
    SUBRC = SY-SUBRC.
    IF SUBRC NE 0. EXIT. ENDIF.
    OBJECT-_T001W = T001W.
  ELSE.
    SUBRC = 0.
    T001W = OBJECT-_T001W.
  ENDIF.
ENDFORM.
BEGIN_METHOD DISPLAY CHANGING CONTAINER.
 select single * from t001w where werks = object-key-plant.
 check sy-subrc eq 0.
 if t001w-vlfkz is initial.
  CLEAR V_T001W.
  V_T001W-MANDT = SY-MANDT.
  V_T001W-WERKS = OBJECT-KEY-PLANT.
  CALL FUNCTION 'VIEW_MAINTENANCE_SINGLE_ENTRY'
  EXPORTING
  ACTION                    = 'SHOW'
   VIEW_NAME                 = 'V_T001W'
   CHANGING
    ENTRY                    = V_T001W.
     else.
      SET PARAMETER ID 'WRK' FIELD OBJECT-KEY-PLANT.
```

CALL TRANSACTION 'WB03' AND SKIP FIRST SCREEN.
endif.

END_METHOD.

A Material master can be assigned to several different plants.Create a plant virtual attribute that refers to your object type ZPLANTJE.
In this attribute, display one of the plants to which the material is assigned.create the MARC table to find the particular plants that a material is assigned to. The key is the WERKS field.After the first record is found, cancel the action and generate an object reference of the type ZPLANTJE for this plant.This object reference is returned in the plant attribute.

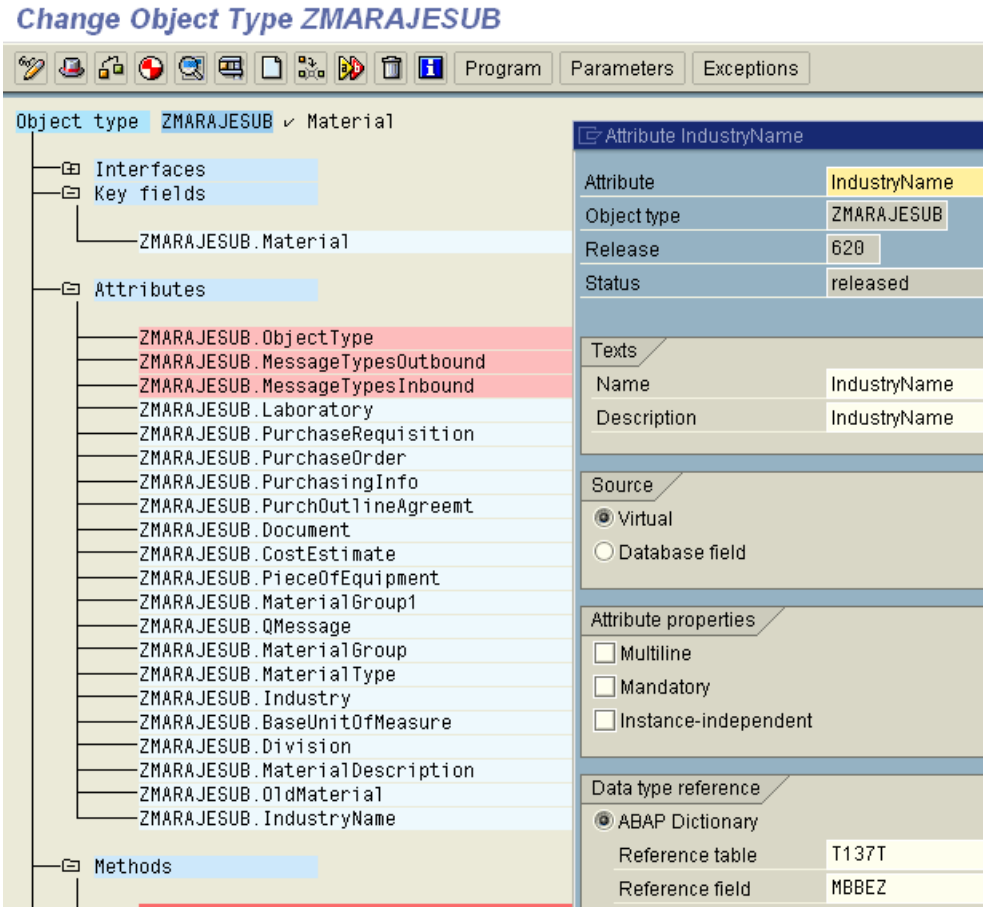


***** Implementation of object type ZMARAJES *****

INCLUDE <OBJECT>.
BEGIN_DATA OBJECT. " Do not change.. DATA is generated
* only private members may be inserted into structure private
DATA:
" begin of private,
" to declare private attributes remove comments and
" insert private attributes here ...
" end of private,
BEGIN OF KEY,

```
      MATERIAL LIKE MARA-MATNR,
   END OF KEY,
      PLANT TYPE SWC_OBJECT.
 END_DATA OBJECT. " Do not change.. DATA is generated
GET_PROPERTY PLANT CHANGING CONTAINER.
data: werks like marc-werks.
if object-plant is initial.
select werks from marc into werks up to 1 rows
where matnr = object-key-material.
endselect.
swc_create_object object-plant 'ZPLANTJE' werks.
endif.
  SWC_SET_ELEMENT CONTAINER 'Plant' OBJECT-PLANT.
END_PROPERTY.
```

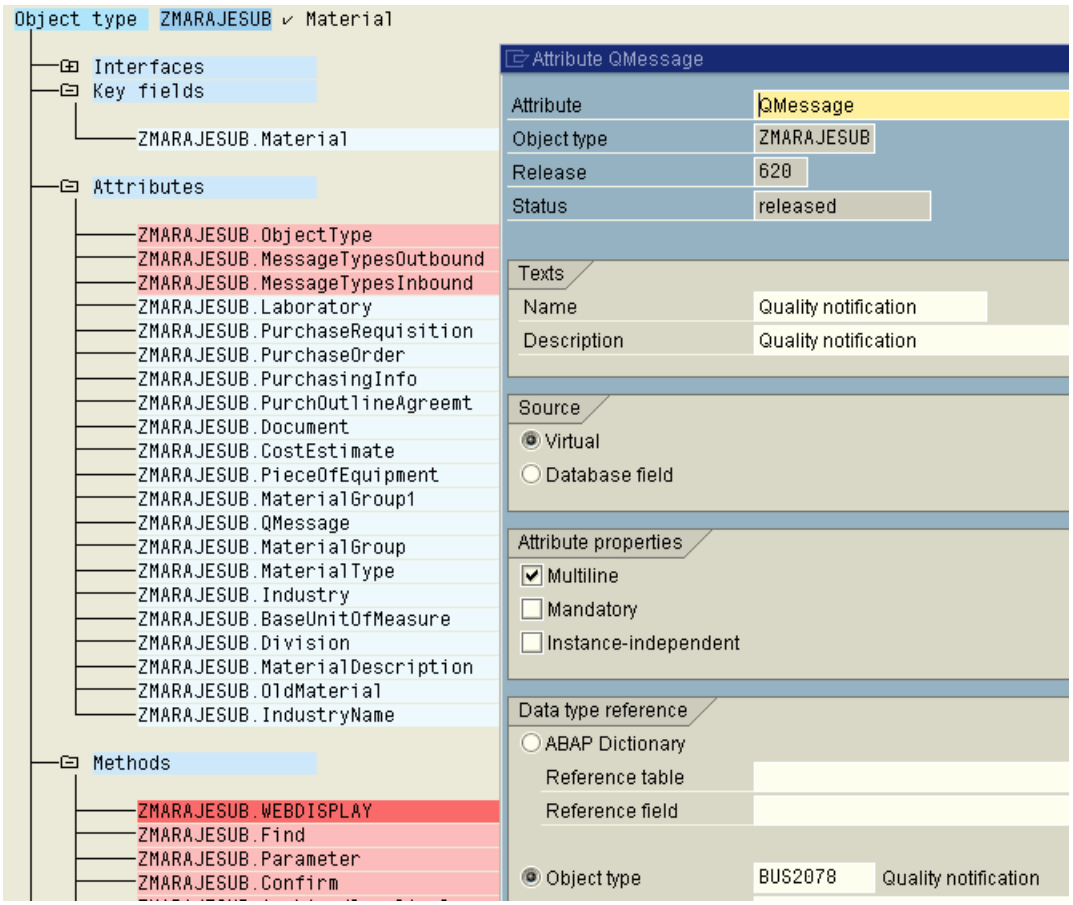
Create a virtual database field attribute IndustryName for the long text for the value of the existing Industry attribute. The industry name can be read from the MBBEZ field of the T137T table on a language-specific basis.




```
*****          Implementation of object type ZMARAJESUB  ********
INCLUDE <OBJECT>.
BEGIN_DATA OBJECT. " Do not change.. DATA is generated
* only private members may be inserted into structure private
DATA:
" begin of private,
"   to declare private attributes remove comments and
"   insert private attributes here ...
```

```
" end of private,
  BEGIN OF KEY,
     MATERIAL LIKE MARA-MATNR,
  END OF KEY,

     QMESSAGE TYPE SWC_OBJECT OCCURS 0,
     INDUSTRYNAME TYPE T137T-MBBEZ,

END_DATA OBJECT. " Do not change.. DATA is generated

 TABLES: MARA,  t137t, qmel, t006.
GET_PROPERTY INDUSTRYNAME CHANGING CONTAINER.

##this is implemented as a virtual attribute
 data: getindustryname like t137t-mbbez,
       industry_key like mara-mbrsh.

 if object-industryname eq space.
    swc_get_property self 'Industry' industry_key.

 select single * from t137t where spras eq sy-langu and
                             mbrsh eq industry_key.
 if sy-subrc eq 0.
    object-industryname = t137t-mbbez.
 else.
    object-industryname = space.
 endif.
 endif.
   SWC_SET_ELEMENT CONTAINER 'IndustryName' OBJECT-INDUSTRYNAME.
 END_PROPERTY.
BEGIN_METHOD GETINDUSTRYNAME CHANGING CONTAINER.

data: getindustryname like t137t-mbbez.
data: industry_key like mara-mbrsh.
swc_get_property self 'industry' industry_key.
select single * from t137t where spras = sy-langu
                      and mbrsh = industry_key.
if sy-subrc eq 0.
getindustryname = t137t-mbbez.
else.
getindustryname = space.
endif.
swc_set_element container result getindustryname.
END_METHOD.
```

Create a virtual, multiline and object-value Qmessage attribute that lists all quality notifications where the current material is used. The delivered bus2078 object type represents quality notifications.The quality notifications are contained in the QMEL table, while the notifications that refer to a particular material are located on the material number field in QMEL.



GET_PROPERTY QMESSAGE CHANGING CONTAINER.

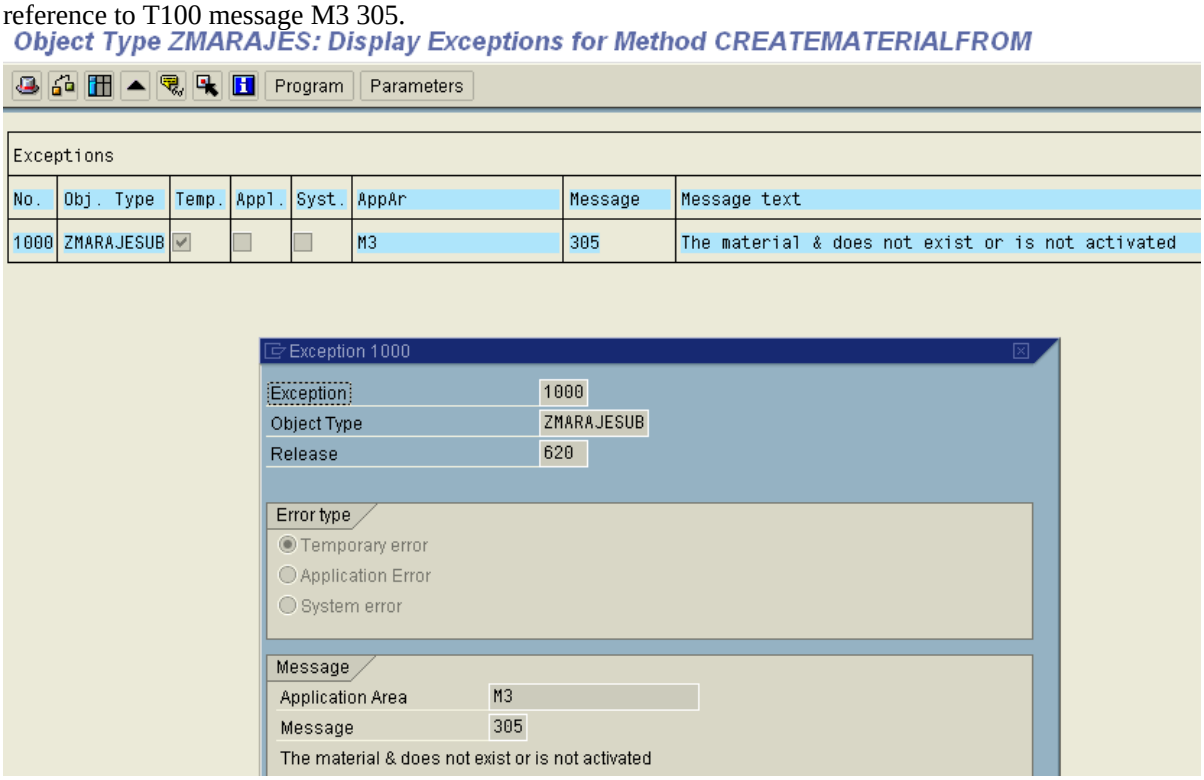
```
data: local_qmel like qmel occurs 0 with header line.
data: this_qmel type swc_object.
data: lineno like sy-tfill.
describe table object-QMessage lines lineno.
if lineno eq 0.
 select * from qmel into table local_qmel
           where matnr eq object-key-material.

loop at local_qmel.
 swc_create_object this_qmel 'BUS2078' local_qmel-qmnum.
 if sy-subrc eq 0.
    append this_qmel to object-qmessage.
endif.
endloop.
endif.
  SWC_SET_TABLE CONTAINER 'QMessage' OBJECT-QMESSAGE.
END_PROPERTY.
```

Create a new method CreateMaterialFromReference.Using a material number transferred via the input parameter
ReferencematerialNumber, this instance – independent asynchronous method is intended to generate a new material for which

the material type and the industry from the reference material are transferred.

```
BEGIN_METHOD CREATEMATERIALFROMREFERENCE CHANGING CONTAINER.
data: referencematerialno like mara-matnr,
      industry like mara-mbrsh,
      mat_type like mara-mtart.
      data: ref_mat type swc_object.
  swc_get_element container 'ReferenceMaterialNo' referencematerialno.
  swc_create_object ref_mat 'ZMARAJES' referencematerialno.
if sy-subrc ne 0.
   exit_return 1000 referencematerialno space space space.
endif.

swc_get_property ref_mat 'Industry' Industry.
swc_get_property ref_mat 'MaterialType' mat_type.
set parameter id 'RMA' field referencematerialno.
set parameter id 'MTA' field mat_type.
set parameter id 'MTP' field Industry.
call transaction 'MM01'.
END_METHOD.
```

If no material exist for the transferred reference material number, an exception is to be triggered with reference to T100 message M3 305.

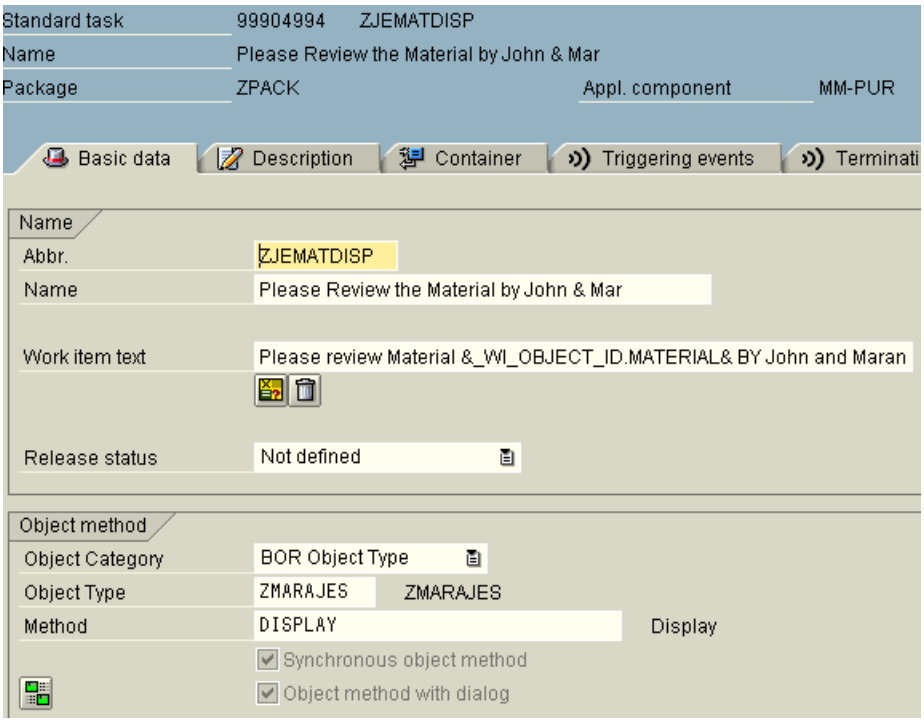



```
BEGIN_METHOD COPYMATERIAL CHANGING CONTAINER.
data: industry like mara-mbrsh,
      mat_type like mara-mtart.
swc_get_property self 'Industry' industry.
swc_get_property self 'MaterialType' Mat_type.

set parameter id 'RMA' field object-key-material.
set parameter id 'MTA' field mat_type.
set parameter id 'MTP' field Industry.
```

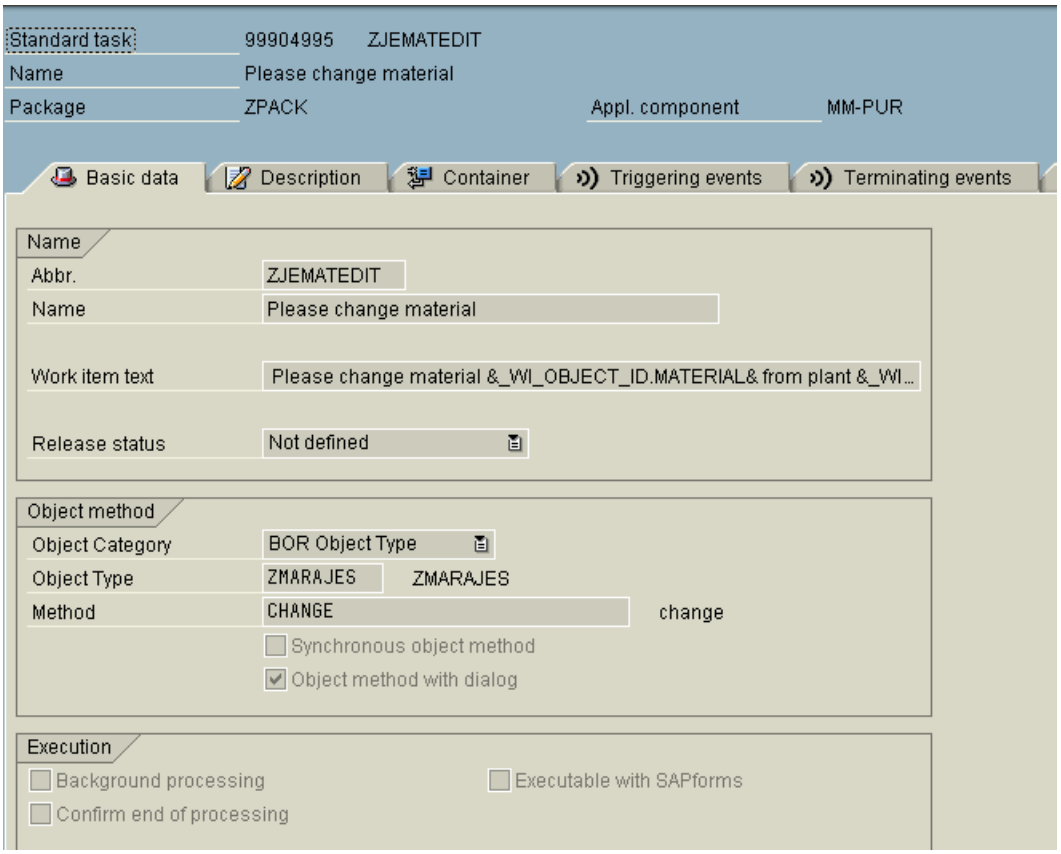
call transaction 'MM01'.
END_METHOD.

Standard Tasks (Pftc)

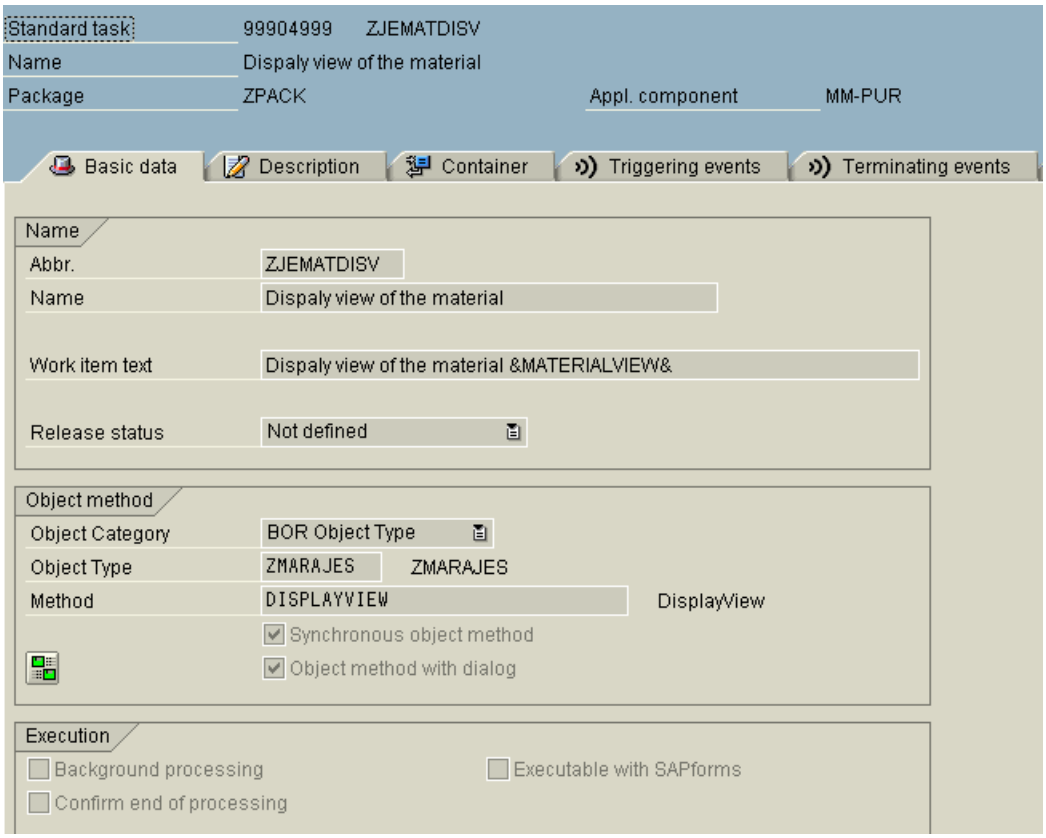
Create A New Standard Task For Displaying A Material Master.
Create The Task Zjematdisp Ts99904994 With The Method Display.Define The Task As A General Task.Specify Both A Workitem Text And A Task Description.Output The Material Number In Both Texts.



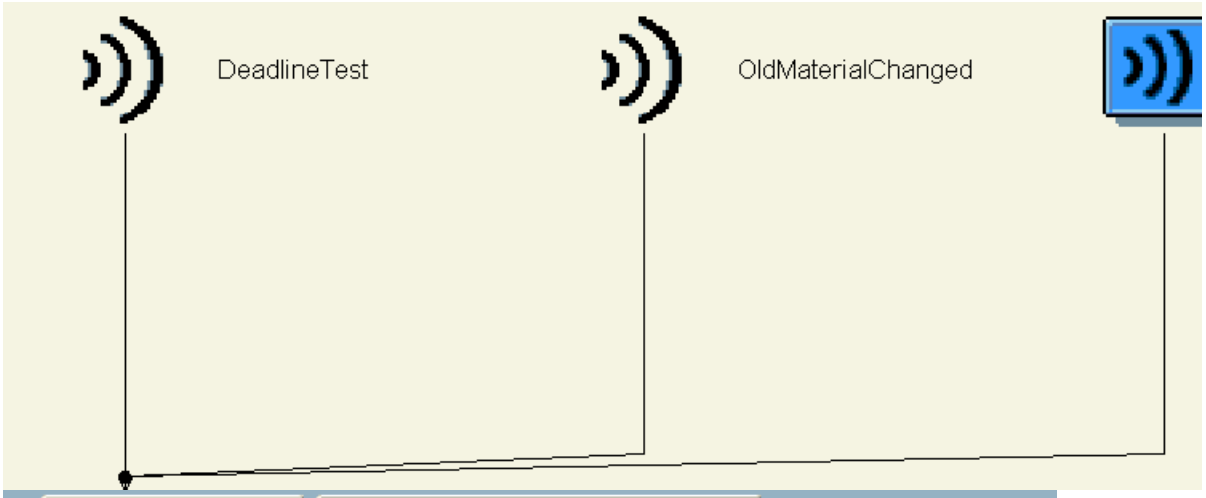
Create A New Standard Task Zjematedit Ts 99904995 For Changing The Material Master.Define The Task As A General Task.Specify A Text For Latest End And Completion And A Task Description. In Addition To The Material Number, Also Issue The Number And Name Of A Plant For This Material In All Texts..As This Task Is Asynchronous, You Must Atleast Define One Terminating Event.Use The Basicmaterialchanged Event For This.Add A Notification Agent.Select The Notification Tab In The Workflow.This Step Is To Have Deadline Monitoring, Activate Deadline Monitoring For The Latest End. Select Latest End Tab In The Workflow Defenition Of The Task.When Testing You Workflow Look For The Following Things: The Notification Of Completion On The Change Step, The Deadline Text On The Change Step.



Create A Standard Task Zjematdispv Ts99904997 With The Dispalyview Method For Displaying A Material Master From A Particular View. Define The Task As General Task. Display View K Corresponds To The Basis Data 1 View As The Default Value For The Parameter For Controlling The View Called From The Material.



Create New **Workflow Template** zjechgmm Ws99902876 For Changing A Material Master . Define Oldmaterialchanged As A Triggering Event For Your Workflow.Implement The Binding Between The Triggering Event And The Workflow, Activate The Binding.Incorporate
Zjematedit Ts 99904995 And Zjematdisp Ts99904994 Single-Step Tasks In To Your Worflow Definition. Define Terminating Event Basicmaterialchanged For The Step Zjematedit Ts 99904995.This Step Should Have Deadline Monitoring . Activate Dead Line Monitoring For The Latest End. This Is To Be Triggered If The Step Has Not Been Fully Processed After 2 Minutes.Define The Workflow Initiator As The Message Recipent It The Latest End Is Missed. Define Deadline Test As Another Triggering Event For Your Workflow.Define The Binding Between The Event Parameters And The Input Parameters Of The Workflow.Activate The Event Linkage.



Version-Indepedent (Task) | Version-Dependent (Current Workflow Version)

Basic Data | Description | Start Events | Start Forms | Version Overview | Function Group

Abbreviation	ZJECHGMMCC
Description	Workflow to review material by John
Release status	Not defined
SAPphone	Not suitable for SAPphone

Work Item Text

Workflow to review material &MATERIAL.MATERIAL& an
d &MATERIAL.MATERIALDESCRIPTION& by John and Maran

Version-Indepedent (Task) | Version-Dependent (Current Workflow Version)

Basic Data | Description | Start Events | Start Forms | Version Overview | Function Group

Workflow start using triggering events

A...	B...	C...	Obje...	Object Type	Event of the object
			BO	ZMARAJES	DEADLINETEST
			BO	ZMARAJES	OLDMATERIALCHANGED

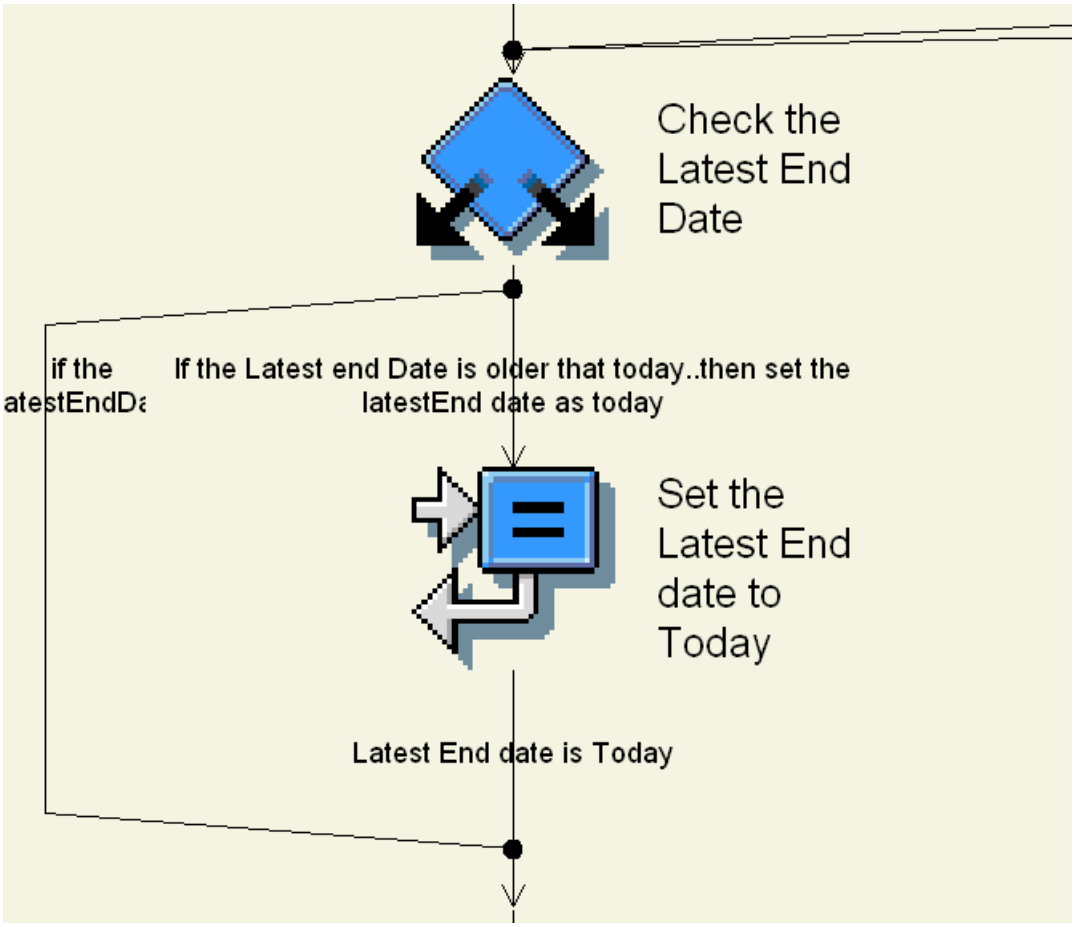
Standard task	99904995	ZJEMATEDIT	
Name	Please change material		
Package	ZPACK	Appl. component	MM-PUR

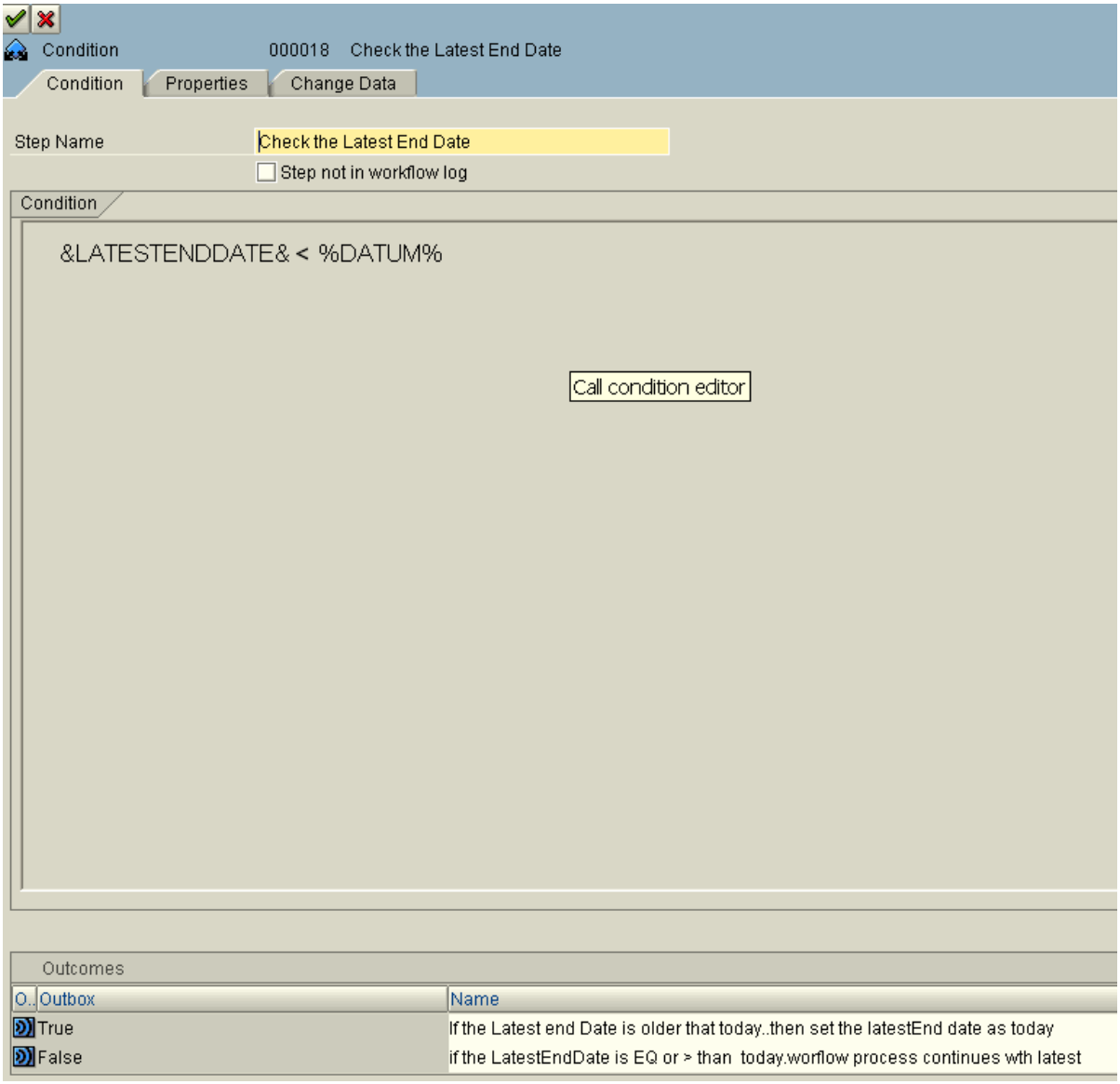
Basic data | Description | Container | Triggering events | Terminating events | Default rules | SAPphone

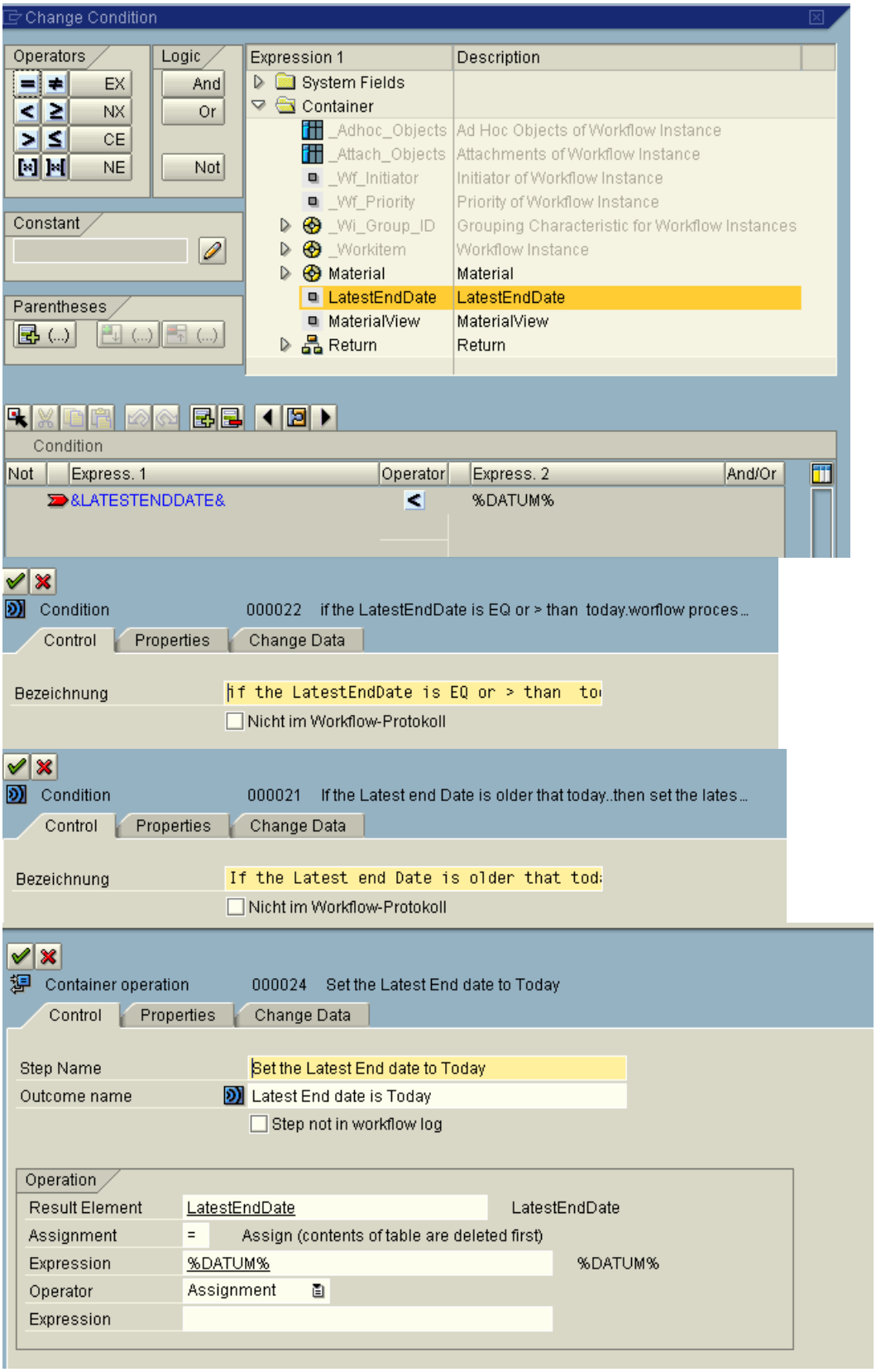
Standard events

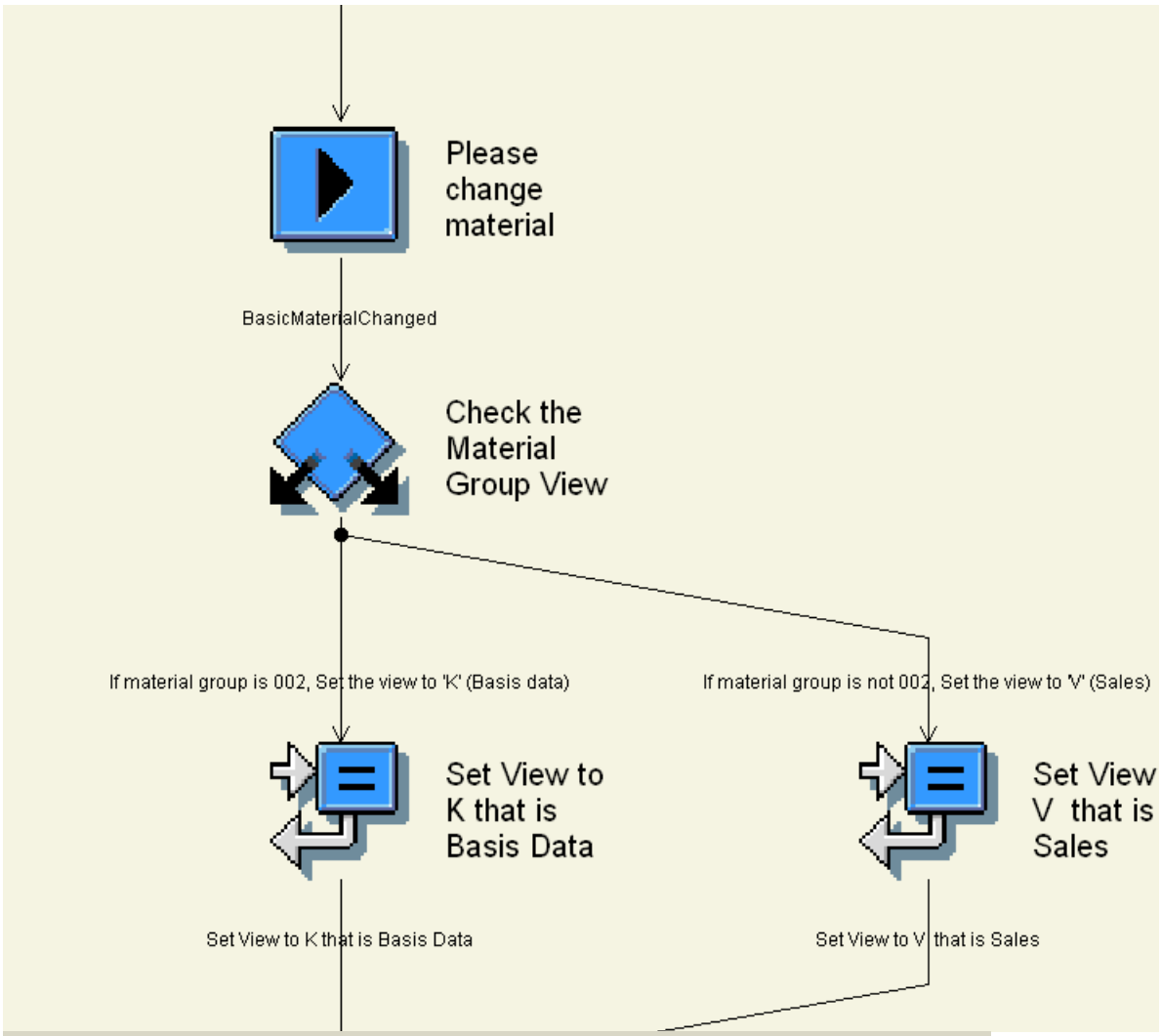
Bindin...	Element	Object Category	Object Type	Event	Name
☑	_WI_OBJECT_ID	BOR Object Type	ZMARAJES	BASICMATERIALCHANGED	ARAJES BasicMateria...

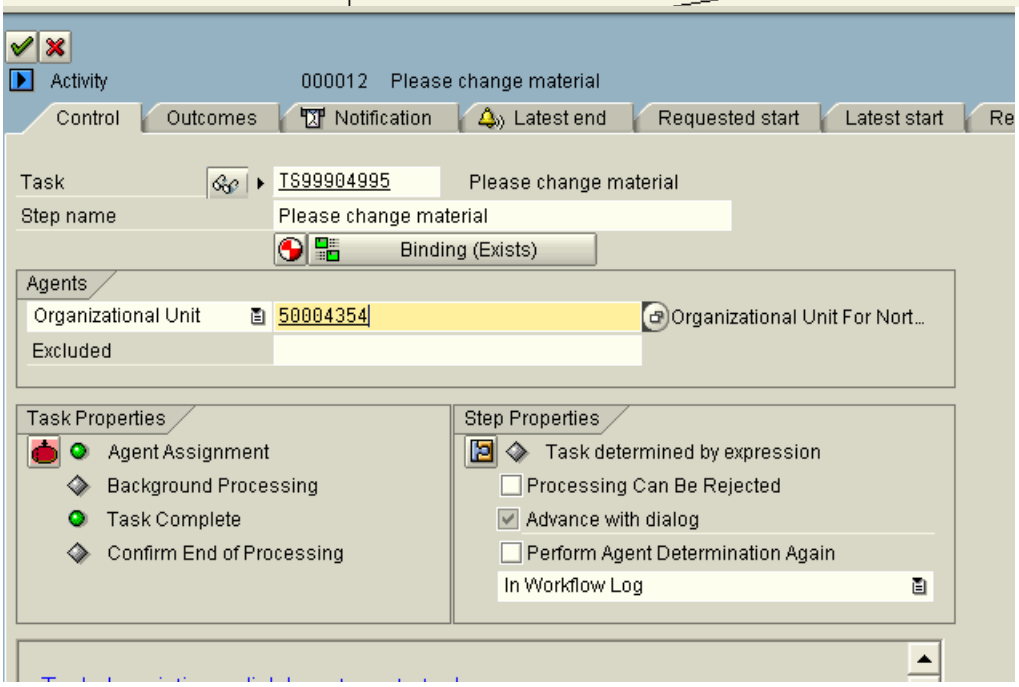
The Latest End For The Edit Step Should Be On The Date Determined Via Latestenddate. If The Latestenddate Is Older Than Today, Use A Container Operation To Set The Latest End Date To Today.Ensure In Your Workflow That This Parameter Cannot Contain A Deadline In The Past.

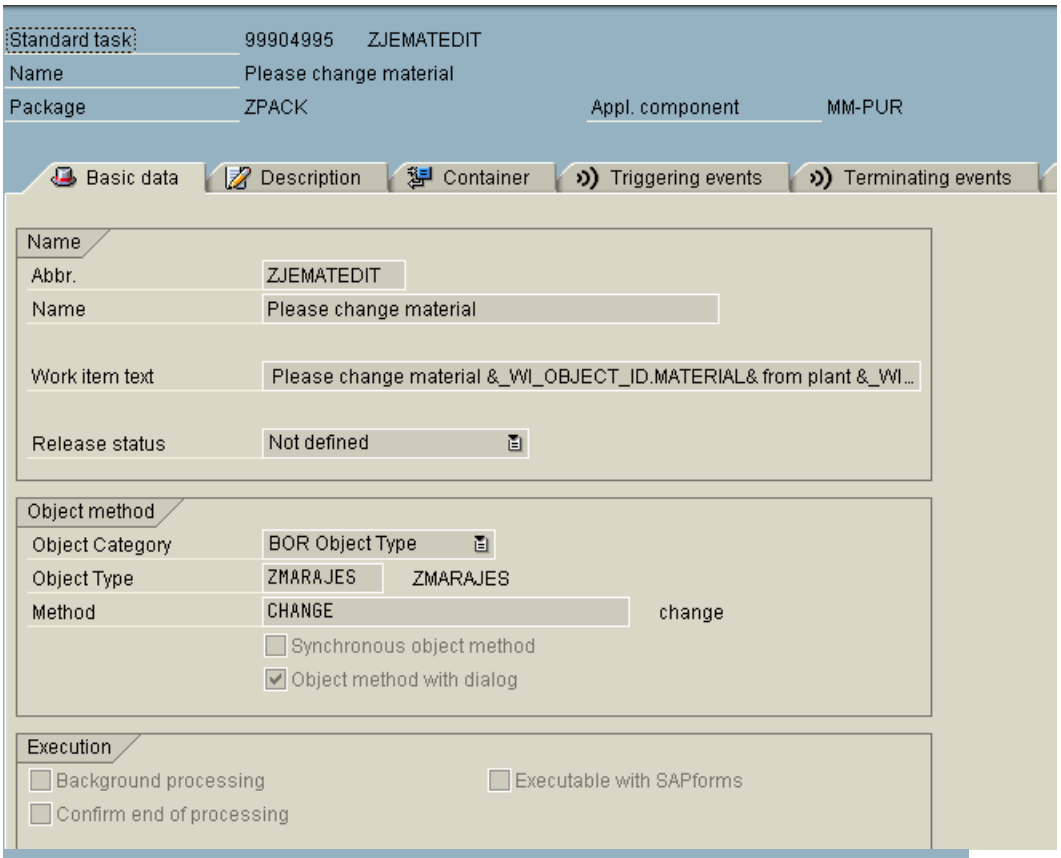


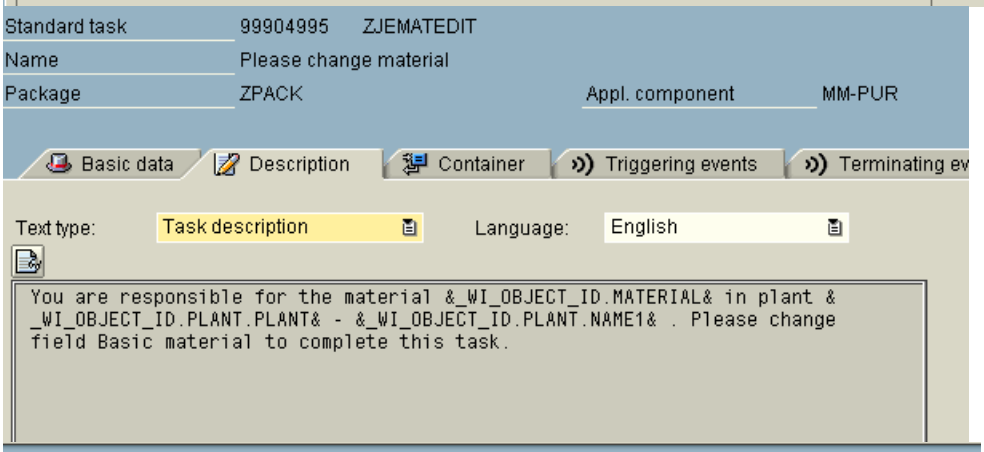

Condition 000018 Check the Latest End Date
Condition
Properties
Change Data
Step Name
Check the Latest End Date
Step not in workflow log
Condition
&LATESTENDDATE& < %DATUM%
Call condition editor
Outcomes
O..
Outbox
Name
True
If the Latest end Date is older that today..then set the latestEnd date as today
False
if the LatestEndDate is EQ or > than today.worflow process continues wth latest

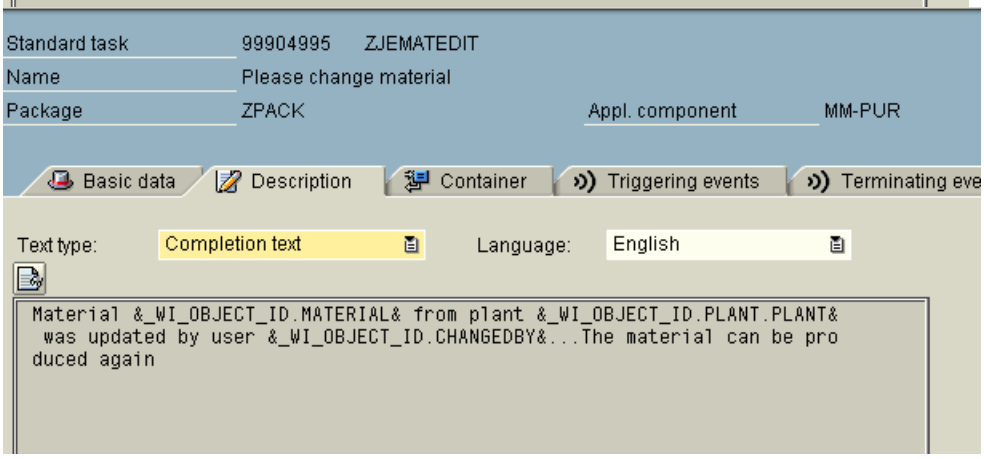

Change Condition
Operators
EX
NX
CE
NE
Logic
And
Or
Not
Constant
Parentheses
(...)
Expression 1
Description
System Fields
Container
_Adhoc_Objects
Ad Hoc Objects of Workflow Instance
_Attach_Objects
Attachments of Workflow Instance
_Wf_Initiator
Initiator of Workflow Instance
_Wf_Priority
Priority of Workflow Instance
_Wi_Group_ID
Grouping Characteristic for Workflow Instances
_Workitem
Workflow Instance
Material
Material
LatestEndDate
LatestEndDate
MaterialView
MaterialView
Return
Return
Condition
Not
Express. 1
Operator
Express. 2
And/Or
&LATESTENDDATE&
<
%DATUM%
Condition
000022
if the LatestEndDate is EQ or > than today.worflow proces...
Control
Properties
Change Data
Bezeichnung
if the LatestEndDate is EQ or > than to
Nicht im Workflow-Protokoll
Condition
000021
If the Latest end Date is older that today..then set the lates...
Control
Properties
Change Data
Bezeichnung
If the Latest end Date is older that tod
Nicht im Workflow-Protokoll
Container operation
000024
Set the Latest End date to Today
Control
Properties
Change Data
Step Name
Set the Latest End date to Today
Outcome name
Latest End date is Today
Step not in workflow log
Operation
Result Element
LatestEndDate
LatestEndDate
Assignment
=
Assign (contents of table are deleted first)
Expression
%DATUM%
%DATUM%
Operator
Assignment
Expression

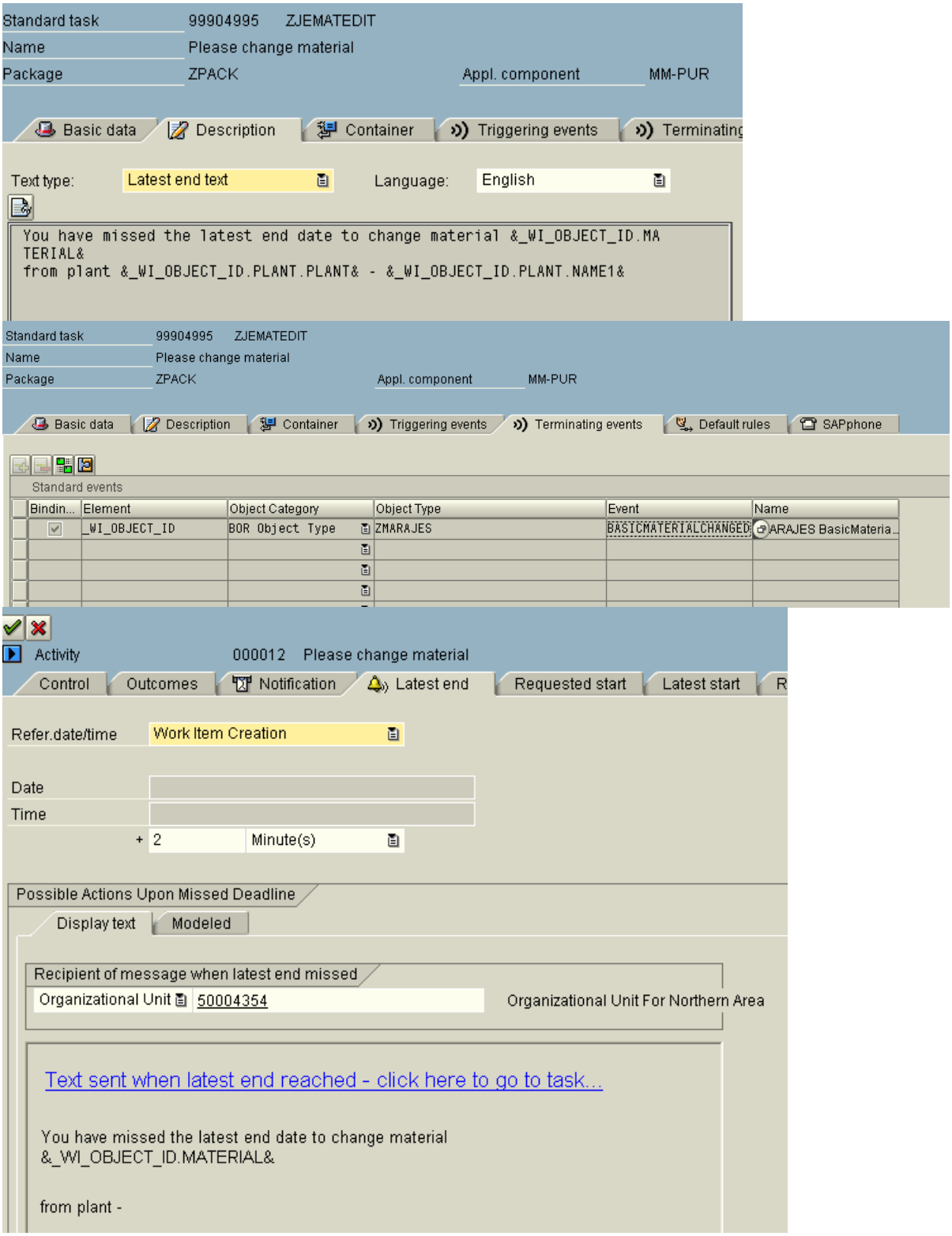

Please change material
BasicMaterialChanged
Check the Material Group View
If material group is 002, Set the view to 'K' (Basis data)
If material group is not 002, Set the view to 'V' (Sales)
Set View to K that is Basis Data
Set View V that is Sales
Set View to K that is Basis Data
Set View to V that is Sales

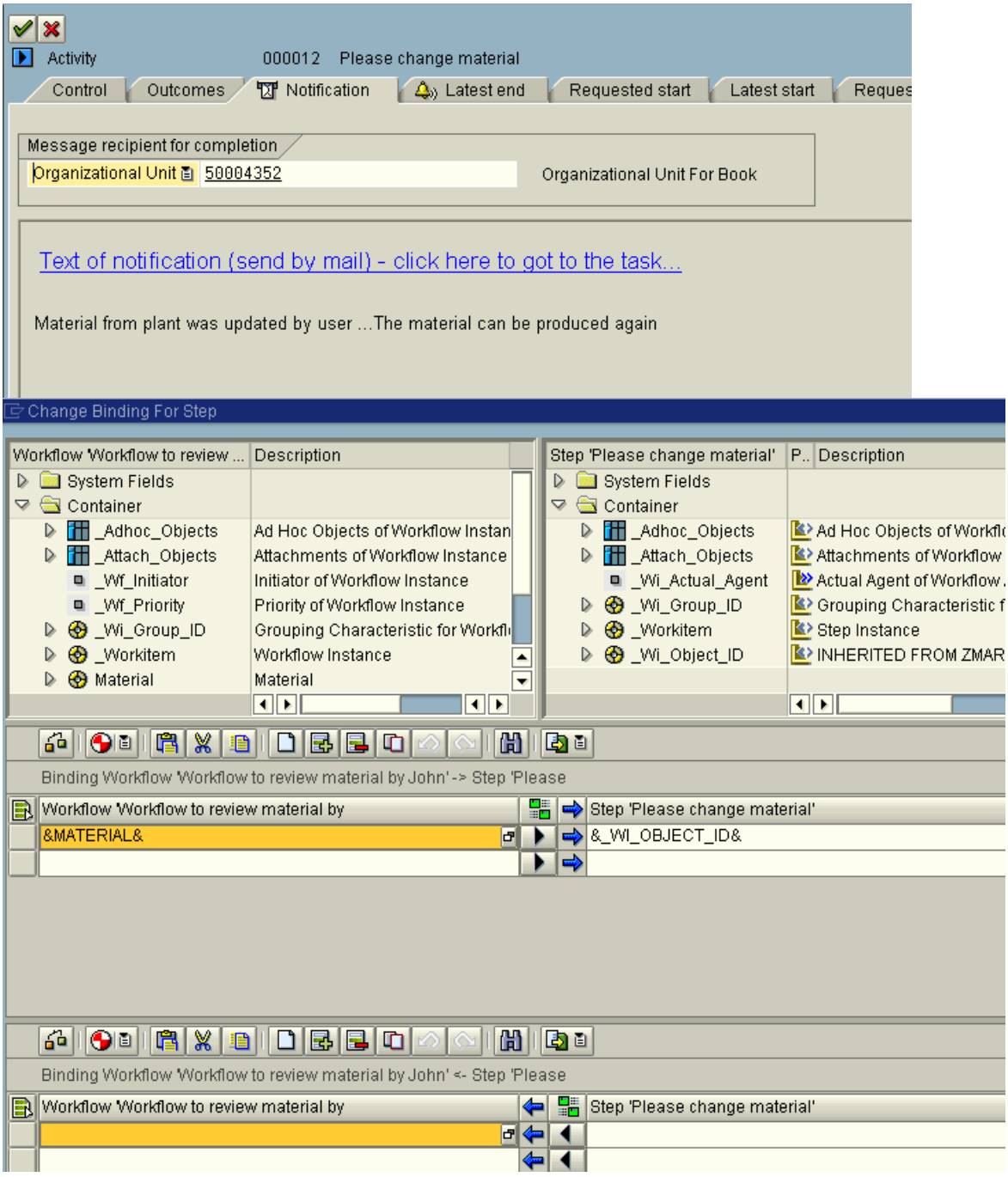

Activity
000012 Please change material
Control
Outcomes
Notification
Latest end
Requested start
Latest start
Task
TS99904995
Please change material
Step name
Please change material
Binding (Exists)
Agents
Organizational Unit
50004354
Organizational Unit For Nort...
Excluded
Task Properties
Agent Assignment
Background Processing
Task Complete
Confirm End of Processing
Step Properties
Task determined by expression
Processing Can Be Rejected
Advance with dialog
Perform Agent Determination Again
In Workflow Log

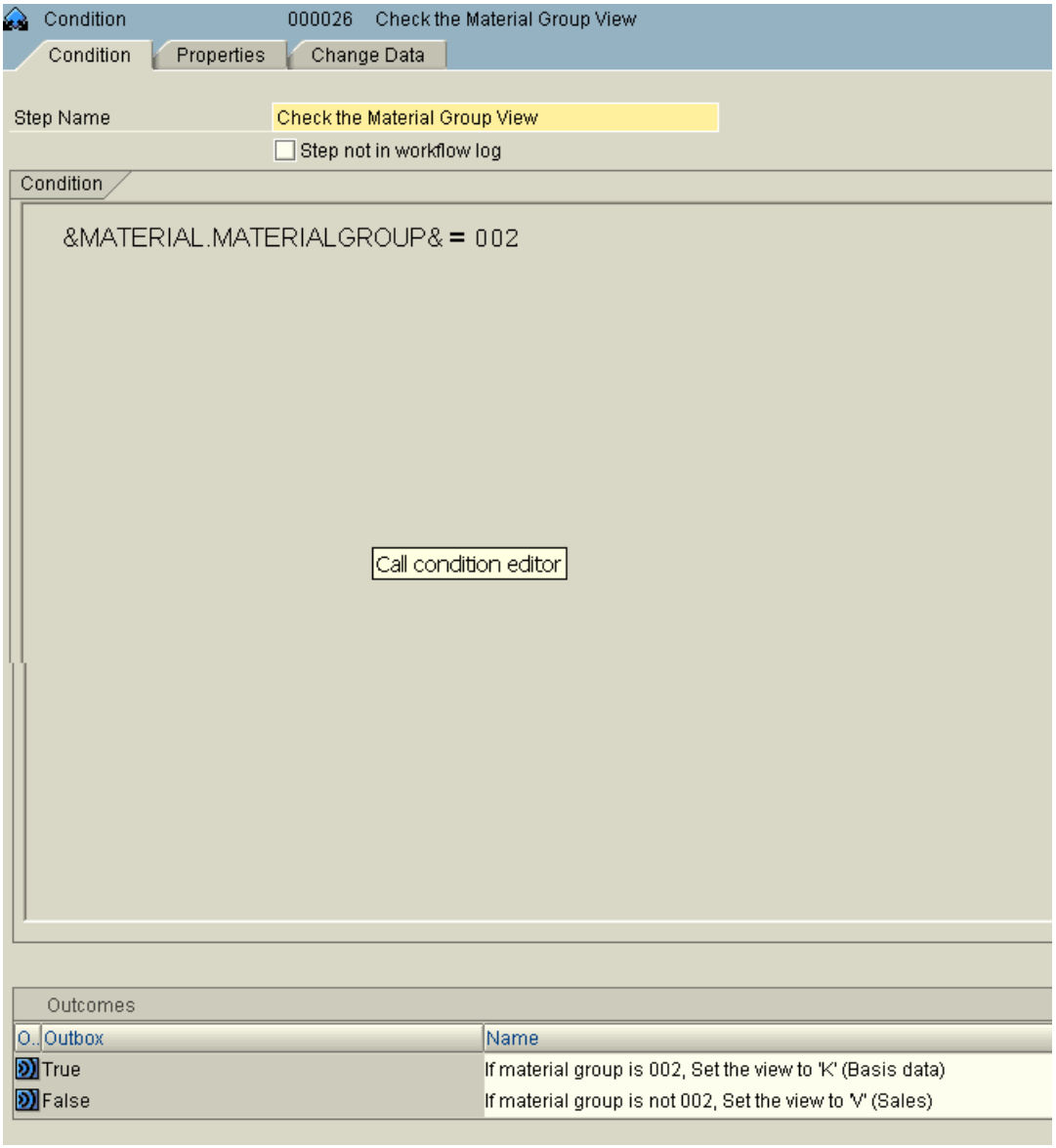

Standard task 99904995 ZJEMATEDIT
Name Please change material
Package ZPACK Appl. component MM-PUR
Basic data Description Container Triggering events Terminating events
Name
Abbr. ZJEMATEDIT
Name Please change material
Work item text Please change material &_WI_OBJECT_ID.MATERIAL& from plant &_WI...
Release status Not defined
Object method
Object Category BOR Object Type
Object Type ZMARAJES ZMARAJES
Method CHANGE change
Synchronous object method
Object method with dialog
Execution
Background processing
Executable with SAPforms
Confirm end of processing

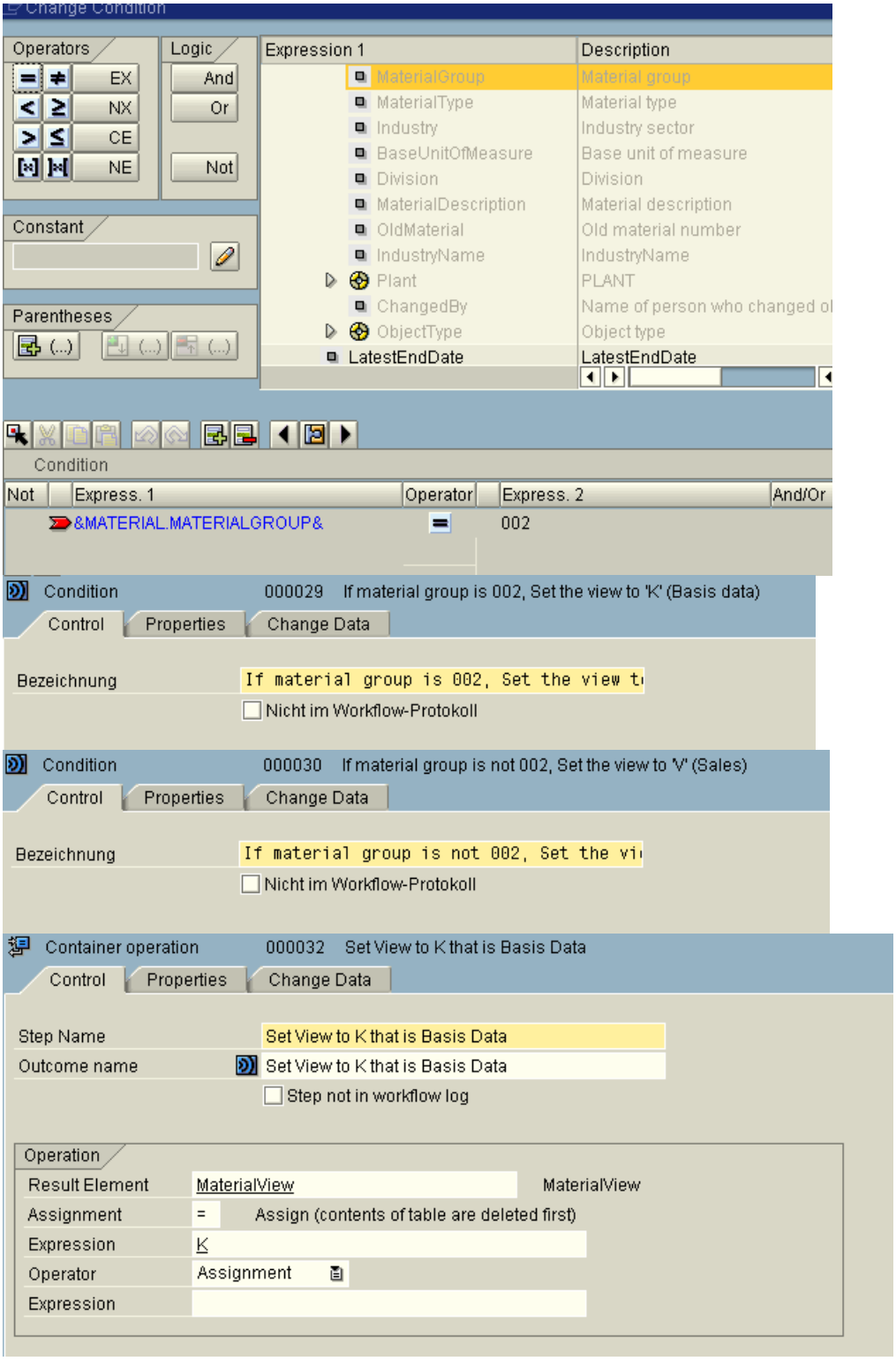

Standard task 99904995 ZJEMATEDIT
Name Please change material
Package ZPACK Appl. component MM-PUR
Basic data Description Container Triggering events Terminating ev
Text type: Task description Language: English
You are responsible for the material &_WI_OBJECT_ID.MATERIAL& in plant &
_WI_OBJECT_ID.PLANT.PLANT& - &_WI_OBJECT_ID.PLANT.NAME1& . Please change
field Basic material to complete this task.

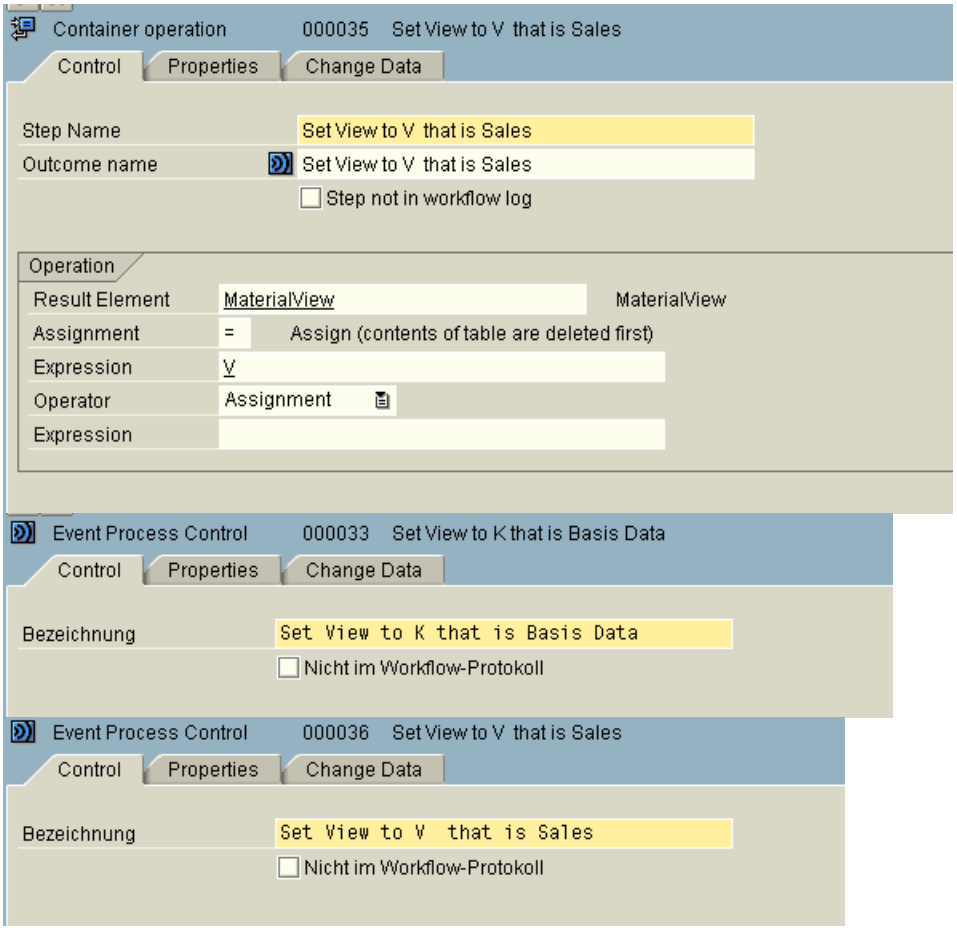

Standard task 99904995 ZJEMATEDIT
Name Please change material
Package ZPACK Appl. component MM-PUR
Basic data Description Container Triggering events Terminating eve
Text type: Completion text Language: English
Material &_WI_OBJECT_ID.MATERIAL& from plant &_WI_OBJECT_ID.PLANT.PLANT&
was updated by user &_WI_OBJECT_ID.CHANGEDBY&...The material can be pro
duced again

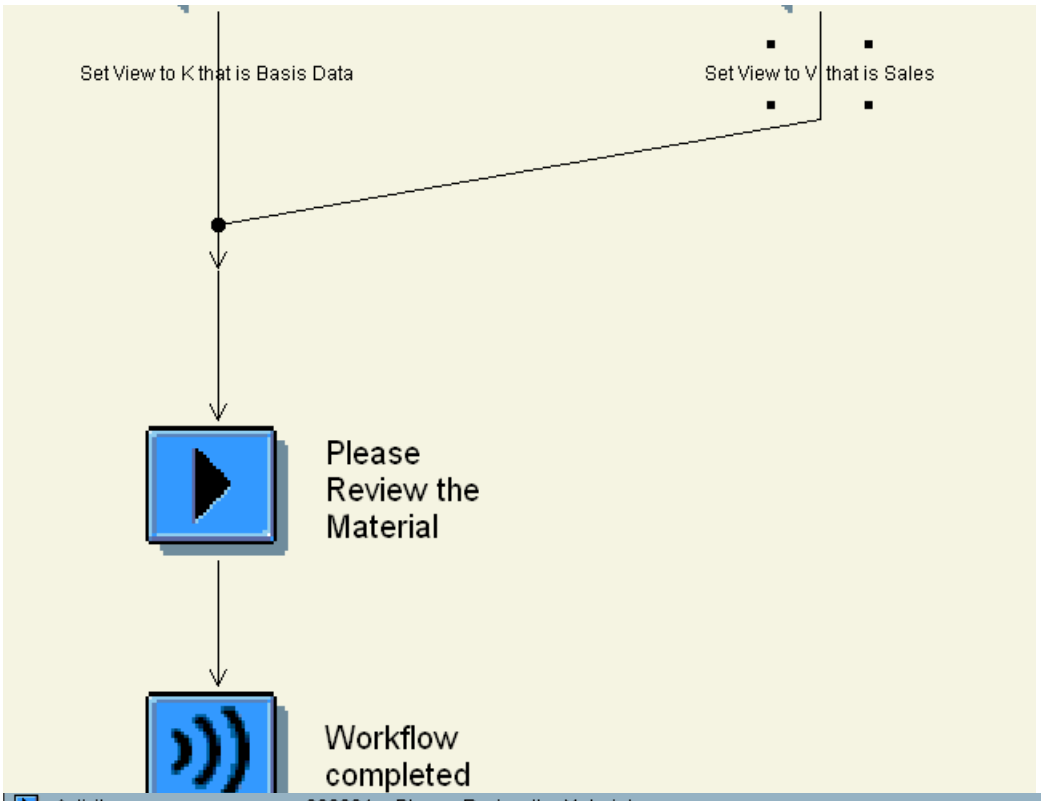

Standard task 99904995 ZJEMATEDIT
Name Please change material
Package ZPACK Appl. component MM-PUR
Basic data
Description
Container
Triggering events
Terminating
Text type: Latest end text
Language: English
You have missed the latest end date to change material &_WI_OBJECT_ID.MA
TERIAL&
from plant &_WI_OBJECT_ID.PLANT.PLANT& - &_WI_OBJECT_ID.PLANT.NAME1&
Standard task 99904995 ZJEMATEDIT
Name Please change material
Package ZPACK Appl. component MM-PUR
Basic data
Description
Container
Triggering events
Terminating events
Default rules
SAPphone
Standard events
Bindin...
Element
Object Category
Object Type
Event
Name
_WI_OBJECT_ID
BOR Object Type
ZMARAJES
BASICMATERIALCHANGED
ARAJES BasicMateria...
Activity 000012 Please change material
Control
Outcomes
Notification
Latest end
Requested start
Latest start
Refer.date/time Work Item Creation
Date
Time
+ 2 Minute(s)
Possible Actions Upon Missed Deadline
Display text
Modeled
Recipient of message when latest end missed
Organizational Unit 50004354
Organizational Unit For Northern Area
Text sent when latest end reached - click here to go to task...
You have missed the latest end date to change material
&_WI_OBJECT_ID.MATERIAL&
from plant -


Activity
000012 Please change material
Control
Outcomes
Notification
Latest end
Requested start
Latest start
Reques
Message recipient for completion
Organizational Unit
50004352
Organizational Unit For Book
Text of notification (send by mail) - click here to got to the task...
Material from plant was updated by user ...The material can be produced again
Change Binding For Step
Workflow 'Workflow to review ...
Description
System Fields
Container
_Adhoc_Objects
Ad Hoc Objects of Workflow Instan
_Attach_Objects
Attachments of Workflow Instance
_Wf_Initiator
Initiator of Workflow Instance
_Wf_Priority
Priority of Workflow Instance
_Wi_Group_ID
Grouping Characteristic for Workfl
_Workitem
Workflow Instance
Material
Step 'Please change material'
P..
Description
System Fields
Container
_Adhoc_Objects
Ad Hoc Objects of Workfl
_Attach_Objects
Attachments of Workflow
_Wi_Actual_Agent
Actual Agent of Workflow
_Wi_Group_ID
Grouping Characteristic f
_Workitem
Step Instance
_Wi_Object_ID
INHERITED FROM ZMAR
Binding Workflow 'Workflow to review material by John' -> Step 'Please
Workflow 'Workflow to review material by
Step 'Please change material'
&MATERIAL&
&_WI_OBJECT_ID&
Binding Workflow 'Workflow to review material by John' <- Step 'Please
Workflow 'Workflow to review material by
Step 'Please change material'


Condition 000026 Check the Material Group View
Condition
Properties
Change Data
Step Name
Check the Material Group View
Step not in workflow log
Condition
&MATERIAL.MATERIALGROUP& = 002
Call condition editor
Outcomes
O..
Outbox
Name
True
If material group is 002, Set the view to 'K' (Basis data)
False
If material group is not 002, Set the view to 'V' (Sales)


Change Condition
Operators
EX
NX
CE
NE
Logic
And
Or
Not
Constant
Parentheses
(...)
Expression 1
Description
MaterialGroup
Material group
MaterialType
Material type
Industry
Industry sector
BaseUnitOfMeasure
Base unit of measure
Division
Division
MaterialDescription
Material description
OldMaterial
Old material number
IndustryName
IndustryName
Plant
PLANT
ChangedBy
Name of person who changed ol
ObjectType
Object type
LatestEndDate
LatestEndDate
Condition
Not
Express. 1
Operator
Express. 2
And/Or
&MATERIAL.MATERIALGROUP&
002
Condition
000029
If material group is 002, Set the view to 'K' (Basis data)
Control
Properties
Change Data
Bezeichnung
If material group is 002, Set the view t
Nicht im Workflow-Protokoll
Condition
000030
If material group is not 002, Set the view to 'V' (Sales)
Control
Properties
Change Data
Bezeichnung
If material group is not 002, Set the vi
Nicht im Workflow-Protokoll
Container operation
000032
Set View to K that is Basis Data
Control
Properties
Change Data
Step Name
Set View to K that is Basis Data
Outcome name
Set View to K that is Basis Data
Step not in workflow log
Operation
Result Element
MaterialView
MaterialView
Assignment
=
Assign (contents of table are deleted first)
Expression
K
Operator
Assignment
Expression


Container operation 000035 Set View to V that is Sales
Control
Properties
Change Data
Step Name
Set View to V that is Sales
Outcome name
Set View to V that is Sales
Step not in workflow log
Operation
Result Element
MaterialView
MaterialView
Assignment
=
Assign (contents of table are deleted first)
Expression
V
Operator
Assignment
Expression
Event Process Control 000033 Set View to K that is Basis Data
Control
Properties
Change Data
Bezeichnung
Set View to K that is Basis Data
Nicht im Workflow-Protokoll
Event Process Control 000036 Set View to V that is Sales
Control
Properties
Change Data
Bezeichnung
Set View to V that is Sales
Nicht im Workflow-Protokoll



Activity 000004 Please Review the Material

Control | Outcomes | Notification | Latest end | Requested start | Latest start | Requested end

Task TS99904999 Dispaly view of the material

Step name Please Review the Material

Binding (Exists)

Agents

Organizational Unit 50004352 Organizational Unit For Book

Excluded

Task Properties

- Agent Assignment
- Background Processing
- Task Complete
- Confirm End of Processing

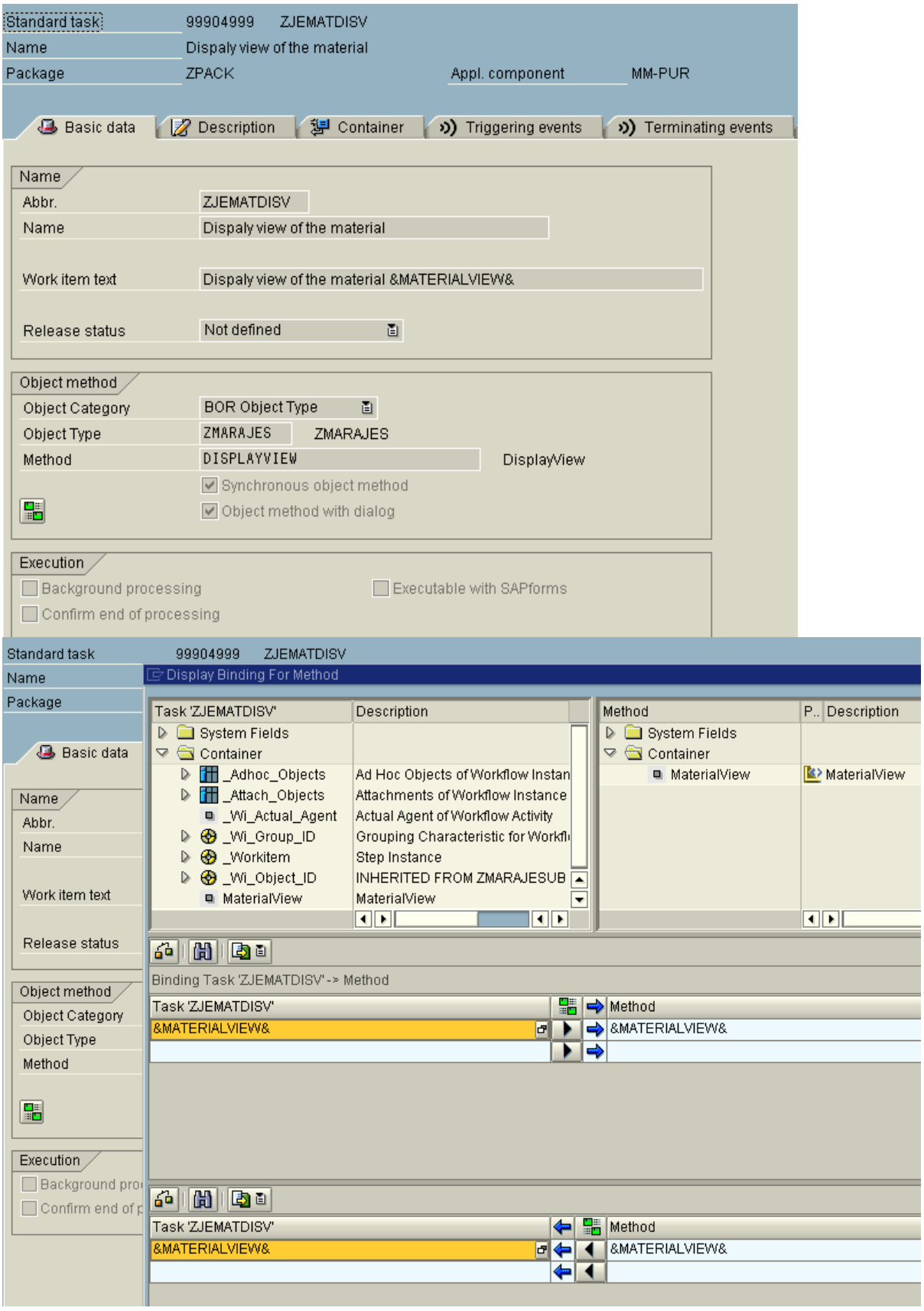
Step Properties

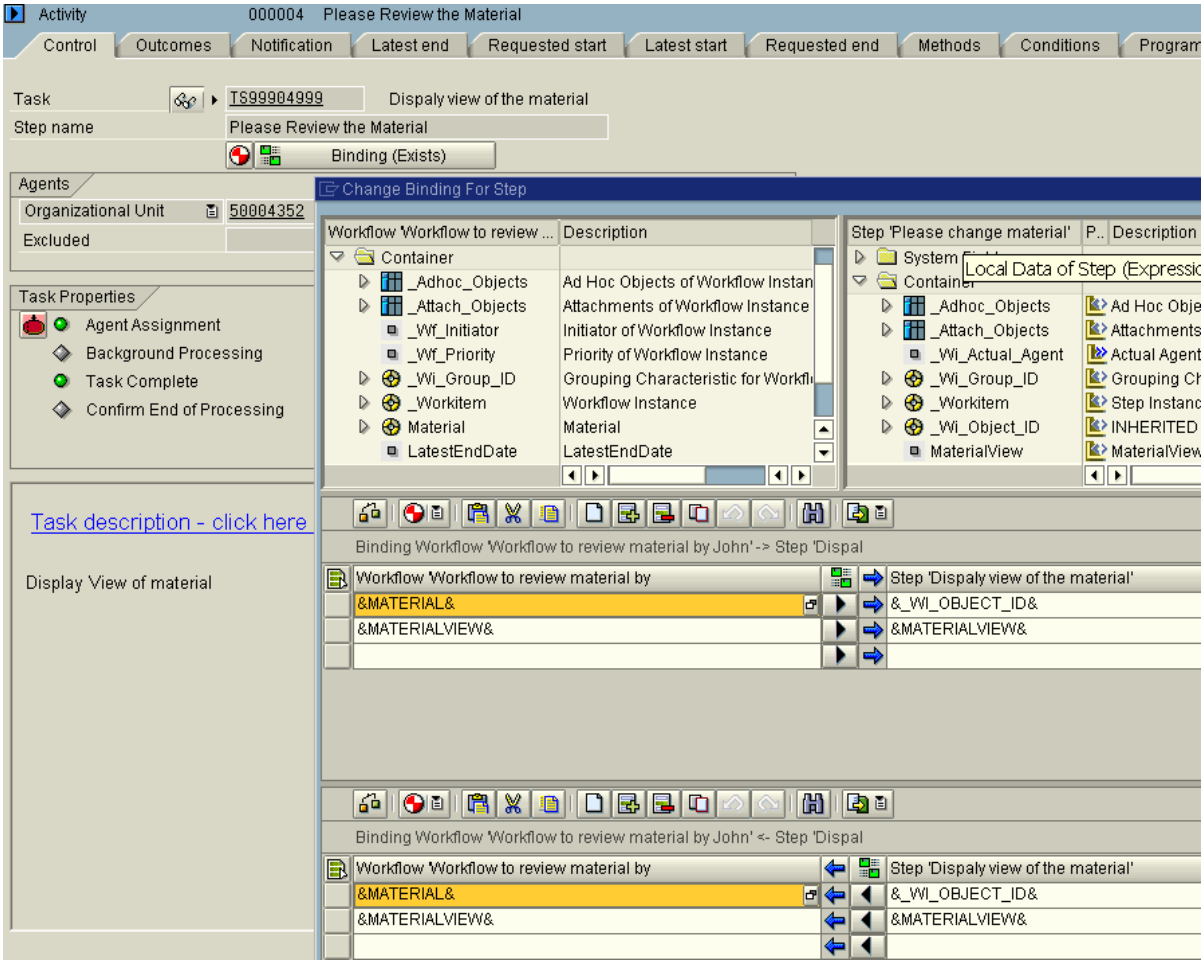
- Task determined by expression
- [ ] Processing Can Be Rejected
- [x] Advance with dialog
- [ ] Perform Agent Determination Again

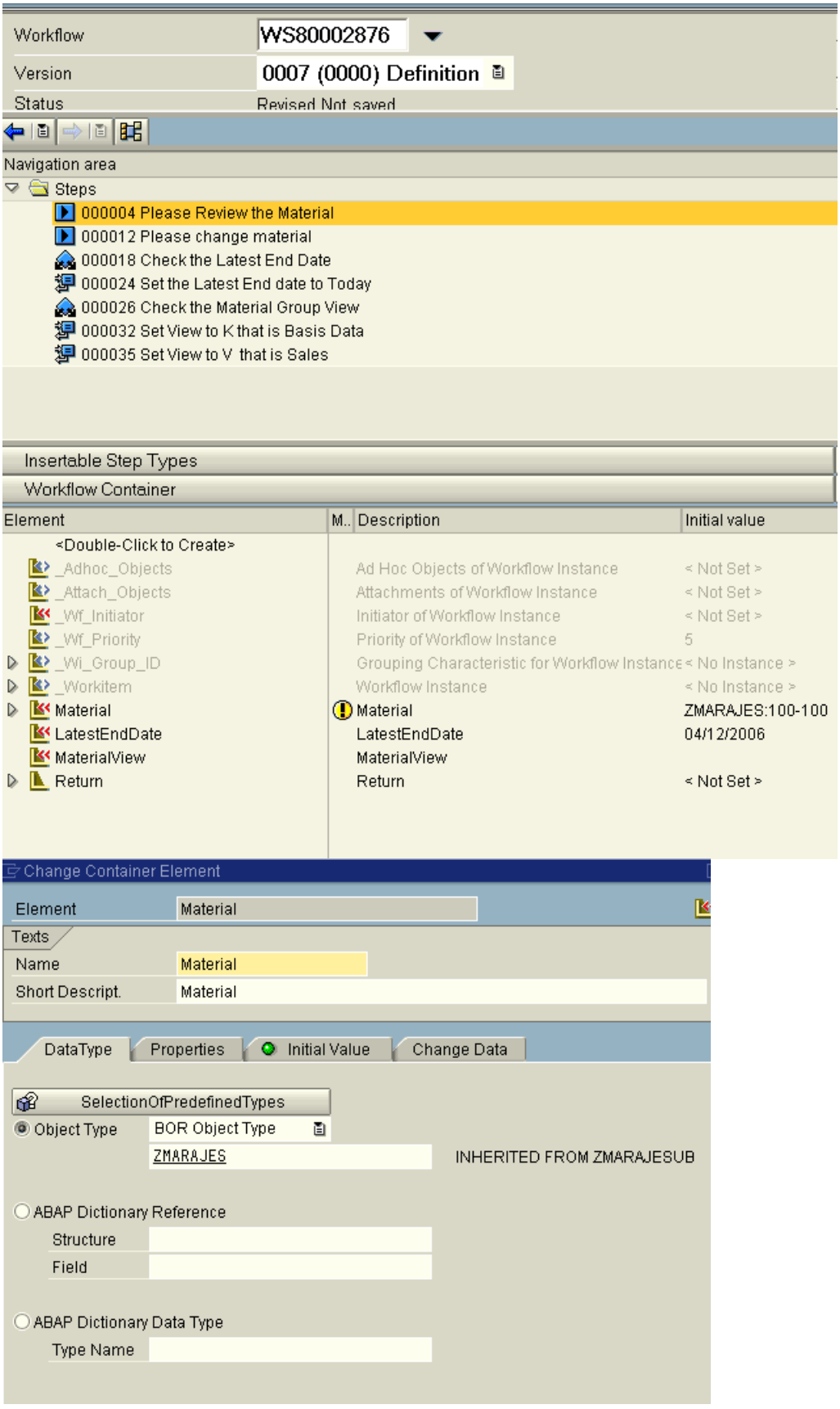
In Workflow Log

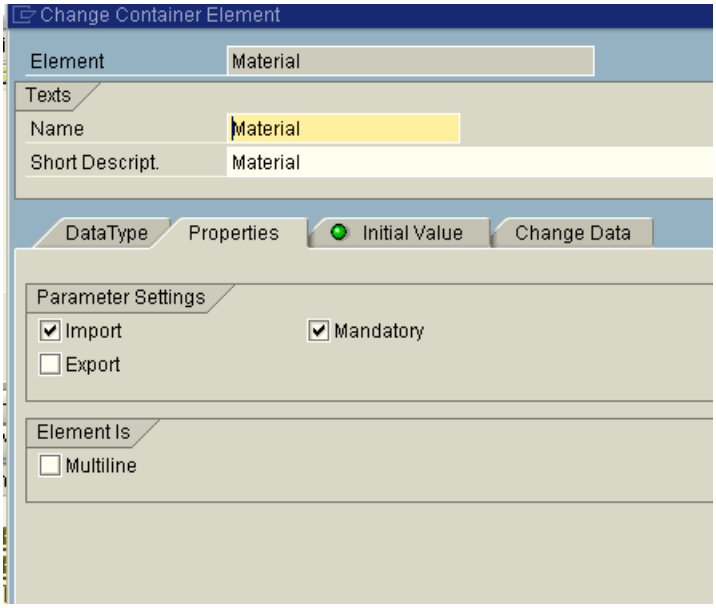
Task description - click here to go to task...

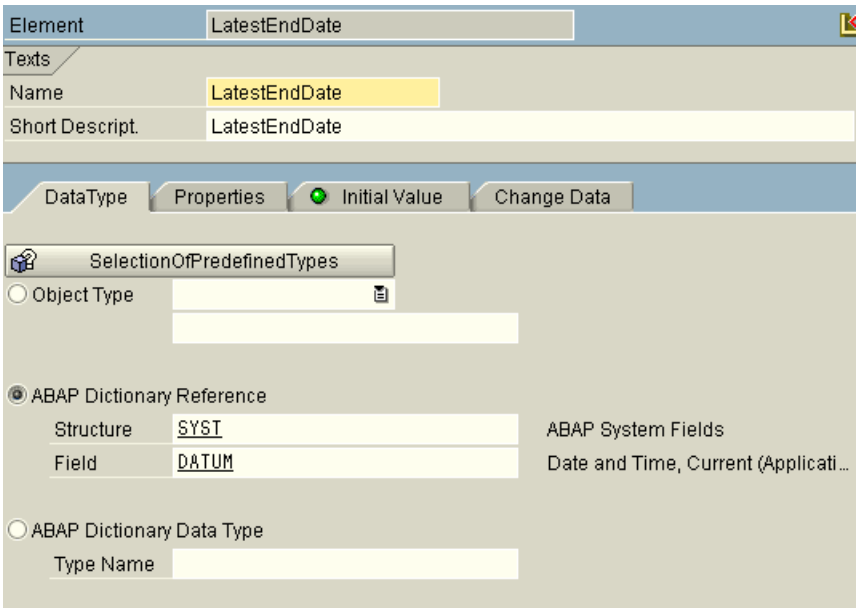
Display View of material

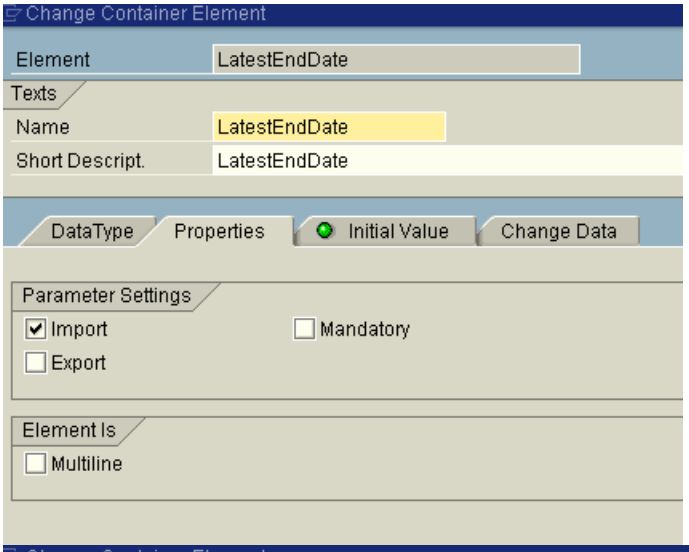

Standard task 99904999 ZJEMATDISV
Name Dispaly view of the material
Package ZPACK Appl. component MM-PUR
Basic data
Description
Container
Triggering events
Terminating events
Name
Abbr. ZJEMATDISV
Name Dispaly view of the material
Work item text Dispaly view of the material &MATERIALVIEW&
Release status Not defined
Object method
Object Category BOR Object Type
Object Type ZMARAJES ZMARAJES
Method DISPLAYVIEW DisplayView
Synchronous object method
Object method with dialog
Execution
Background processing
Executable with SAPforms
Confirm end of processing
Standard task 99904999 ZJEMATDISV
Name
Package
Basic data
Name
Abbr.
Name
Work item text
Release status
Object method
Object Category
Object Type
Method
Execution
Display Binding For Method
Task 'ZJEMATDISV'
Description
System Fields
Container
_Adhoc_Objects
Ad Hoc Objects of Workflow Instan
_Attach_Objects
Attachments of Workflow Instance
_Wi_Actual_Agent
Actual Agent of Workflow Activity
_Wi_Group_ID
Grouping Characteristic for Workfl
_Workitem
Step Instance
_Wi_Object_ID
INHERITED FROM ZMARAJESUB
MaterialView
Method
P..
Description
System Fields
Container
MaterialView
MaterialView
Binding Task 'ZJEMATDISV' -> Method
Task 'ZJEMATDISV'
Method
&MATERIALVIEW&
&MATERIALVIEW&
Task 'ZJEMATDISV'
Method
&MATERIALVIEW&
&MATERIALVIEW&

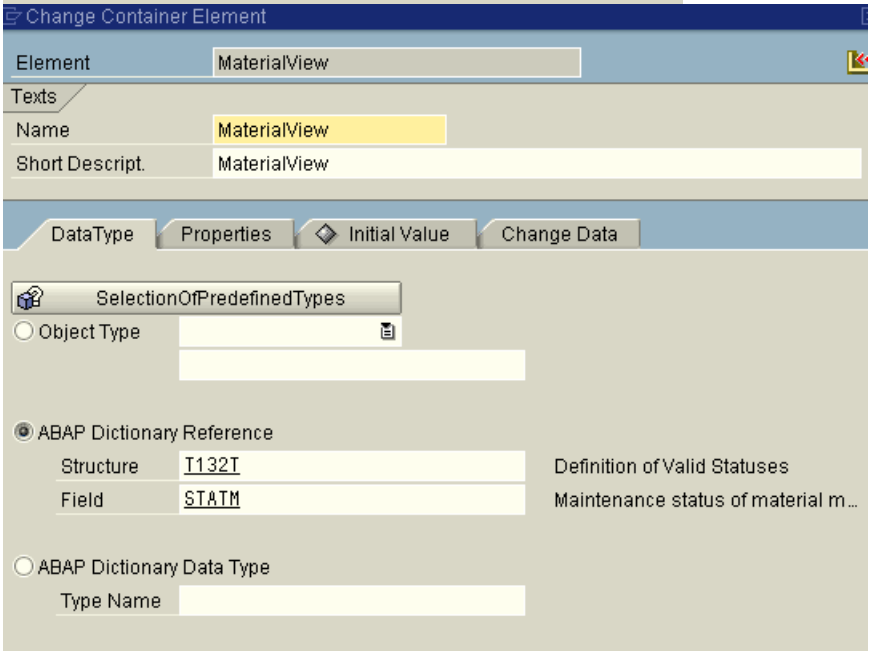

Activity 000004 Please Review the Material
Control
Outcomes
Notification
Latest end
Requested start
Latest start
Requested end
Methods
Conditions
Program
Task
TS99904999
Dispaly view of the material
Step name
Please Review the Material
Binding (Exists)
Agents
Organizational Unit
50004352
Excluded
Task Properties
Agent Assignment
Background Processing
Task Complete
Confirm End of Processing
Task description - click here
Display View of material
Change Binding For Step
Workflow 'Workflow to review ...
Description
Container
_Adhoc_Objects
Ad Hoc Objects of Workflow Instan
_Attach_Objects
Attachments of Workflow Instance
_Wf_Initiator
Initiator of Workflow Instance
_Wf_Priority
Priority of Workflow Instance
_Wi_Group_ID
Grouping Characteristic for Workfl
_Workitem
Workflow Instance
Material
Material
LatestEndDate
LatestEndDate
Step 'Please change material'
P..
Description
Container
Local Data of Step (Expressic
_Adhoc_Objects
Ad Hoc Obje
_Attach_Objects
Attachments
_Wi_Actual_Agent
Actual Agent
_Wi_Group_ID
Grouping Ch
_Workitem
Step Instanc
_Wi_Object_ID
INHERITED
MaterialView
MaterialView
Binding Workflow 'Workflow to review material by John' -> Step 'Dispal
Workflow 'Workflow to review material by
Step 'Dispaly view of the material'
&MATERIAL&
&_WI_OBJECT_ID&
&MATERIALVIEW&
&MATERIALVIEW&
Binding Workflow 'Workflow to review material by John' <- Step 'Dispal
Workflow 'Workflow to review material by
Step 'Dispaly view of the material'
&MATERIAL&
&_WI_OBJECT_ID&
&MATERIALVIEW&
&MATERIALVIEW&

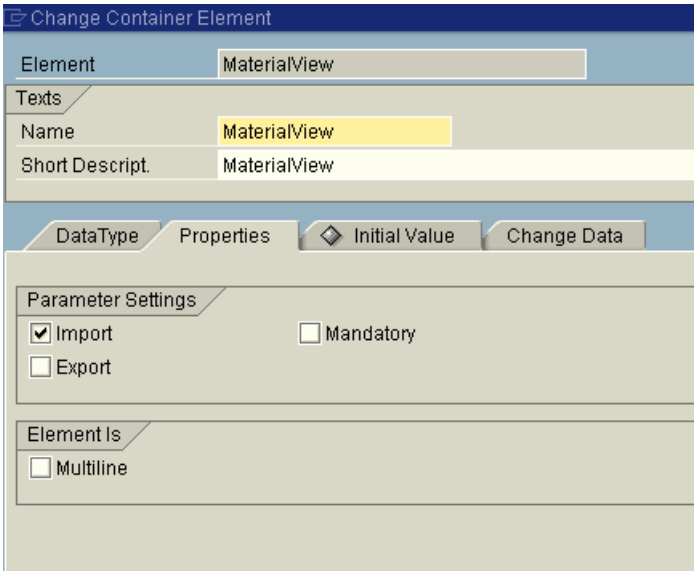

Workflow
WS80002876
Version
0007 (0000) Definition
Status
Revised Not saved
Navigation area
Steps
000004 Please Review the Material
000012 Please change material
000018 Check the Latest End Date
000024 Set the Latest End date to Today
000026 Check the Material Group View
000032 Set View to K that is Basis Data
000035 Set View to V that is Sales
Insertable Step Types
Workflow Container
Element
M..
Description
Initial value
<Double-Click to Create>
_Adhoc_Objects
Ad Hoc Objects of Workflow Instance
< Not Set >
_Attach_Objects
Attachments of Workflow Instance
< Not Set >
_Wf_Initiator
Initiator of Workflow Instance
< Not Set >
_Wf_Priority
Priority of Workflow Instance
5
_Wi_Group_ID
Grouping Characteristic for Workflow Instance
< No Instance >
_Workitem
Workflow Instance
< No Instance >
Material
Material
ZMARAJES:100-100
LatestEndDate
LatestEndDate
04/12/2006
MaterialView
MaterialView
Return
Return
< Not Set >
Change Container Element
Element
Material
Texts
Name
Material
Short Descript.
Material
DataType
Properties
Initial Value
Change Data
SelectionOfPredefinedTypes
Object Type
BOR Object Type
ZMARAJES
INHERITED FROM ZMARAJESUB
ABAP Dictionary Reference
Structure
Field
ABAP Dictionary Data Type
Type Name


Change Container Element
Element
Material
Texts
Name
Material
Short Descript.
Material
DataType
Properties
Initial Value
Change Data
Parameter Settings
Import
Mandatory
Export
Element Is
Multiline


Element
LatestEndDate
Texts
Name
LatestEndDate
Short Descript.
LatestEndDate
DataType
Properties
Initial Value
Change Data
SelectionOfPredefinedTypes
Object Type
ABAP Dictionary Reference
Structure
SYST
ABAP System Fields
Field
DATUM
Date and Time, Current (Applicati...
ABAP Dictionary Data Type
Type Name


Change Container Element
Element
LatestEndDate
Texts
Name
LatestEndDate
Short Descript.
LatestEndDate
DataType
Properties
Initial Value
Change Data
Parameter Settings
Import
Mandatory
Export
Element Is
Multiline

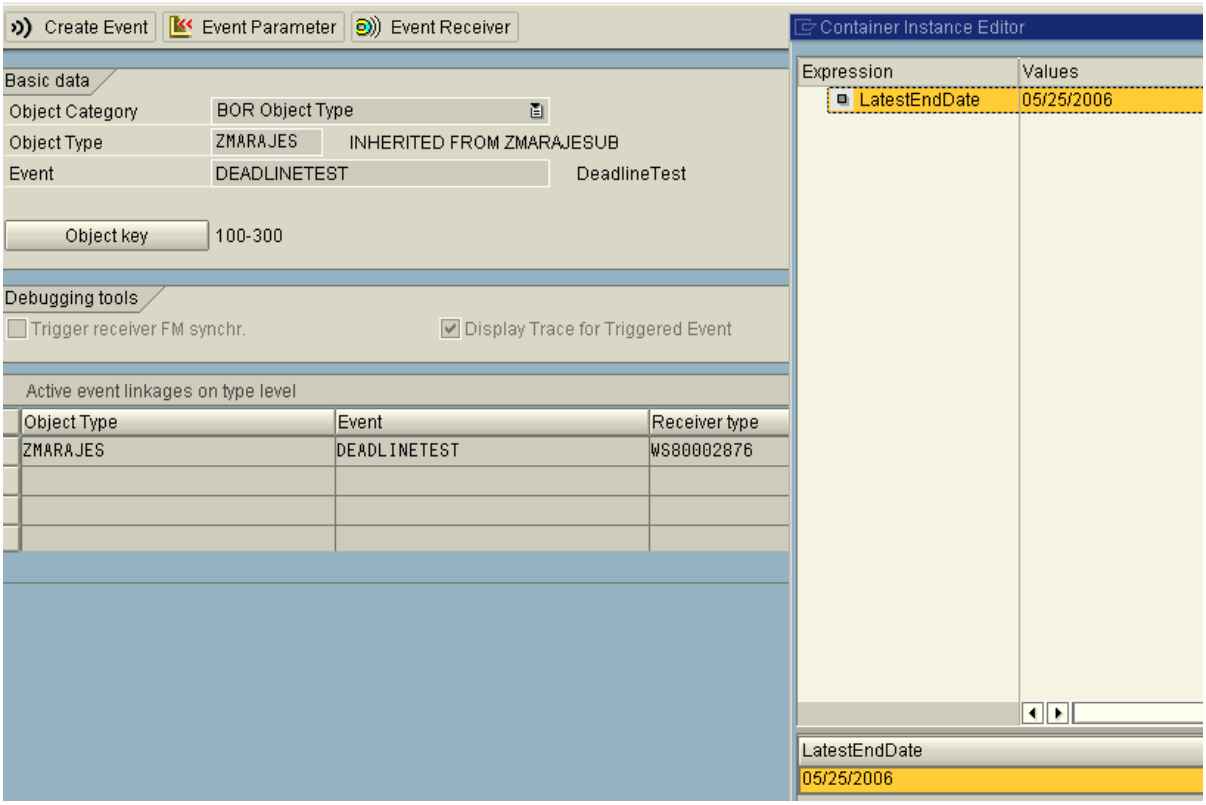

Change Container Element
Element
MaterialView
Texts
Name
MaterialView
Short Descript.
MaterialView
DataType
Properties
Initial Value
Change Data
SelectionOfPredefinedTypes
Object Type
ABAP Dictionary Reference
Structure
T132T
Definition of Valid Statuses
Field
STATM
Maintenance status of material m...
ABAP Dictionary Data Type
Type Name



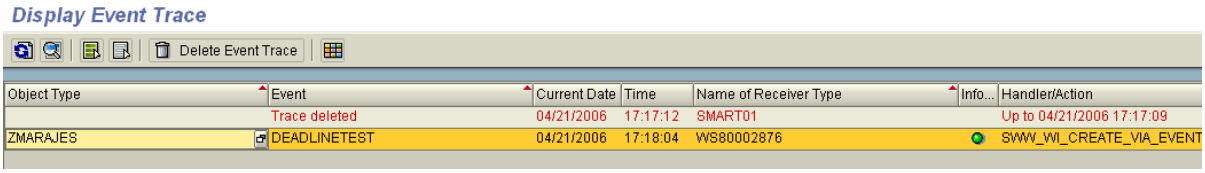
Execute The Workflow And Check.

In Swue Create Event To Trigger Your Workflow From The Deadline Test Event.Before Starting The Test, Be Sure To Provide A Date By Selecting Event Parameter From The Menu Bar. Test With A Date Greater Than Today And Test With An Old Date.Use The Workflow Log (Swi2_Freq) To Verify Your Container Operation Worked Successfully.

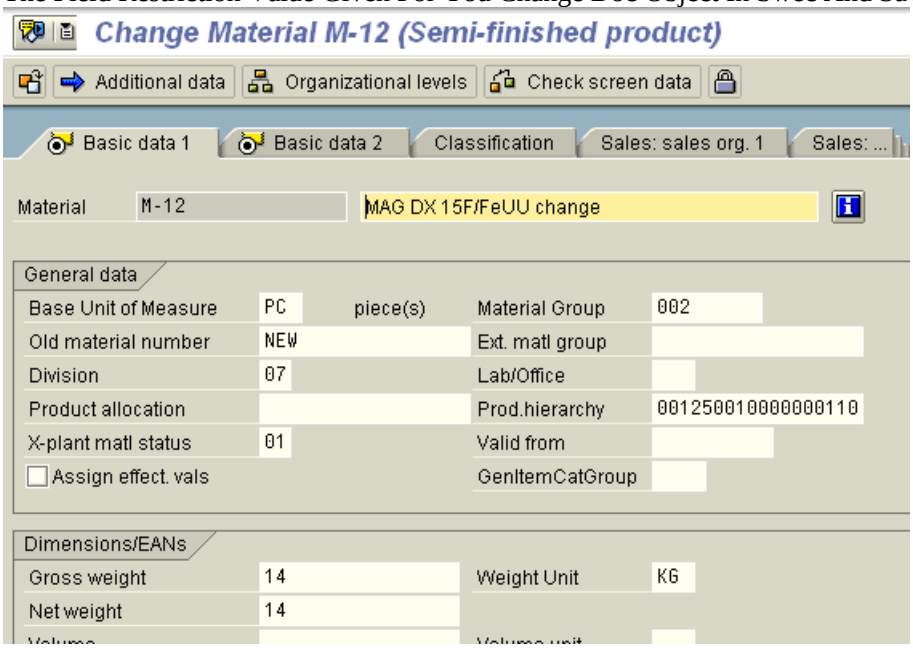
Create Event



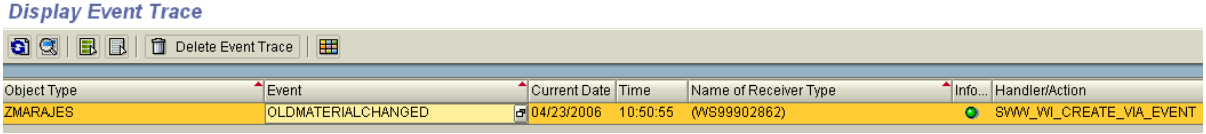
Go To Swel And Check Event Is Raised Or Not.



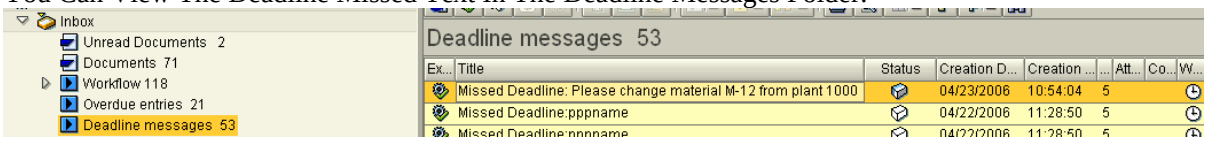
Go To Mm02 For Your Material , Select Basis Data View Of The Material, Change The Old Material Field To The Field Restriction Value Given For You Change Doc Object In Swec And Save The Material.

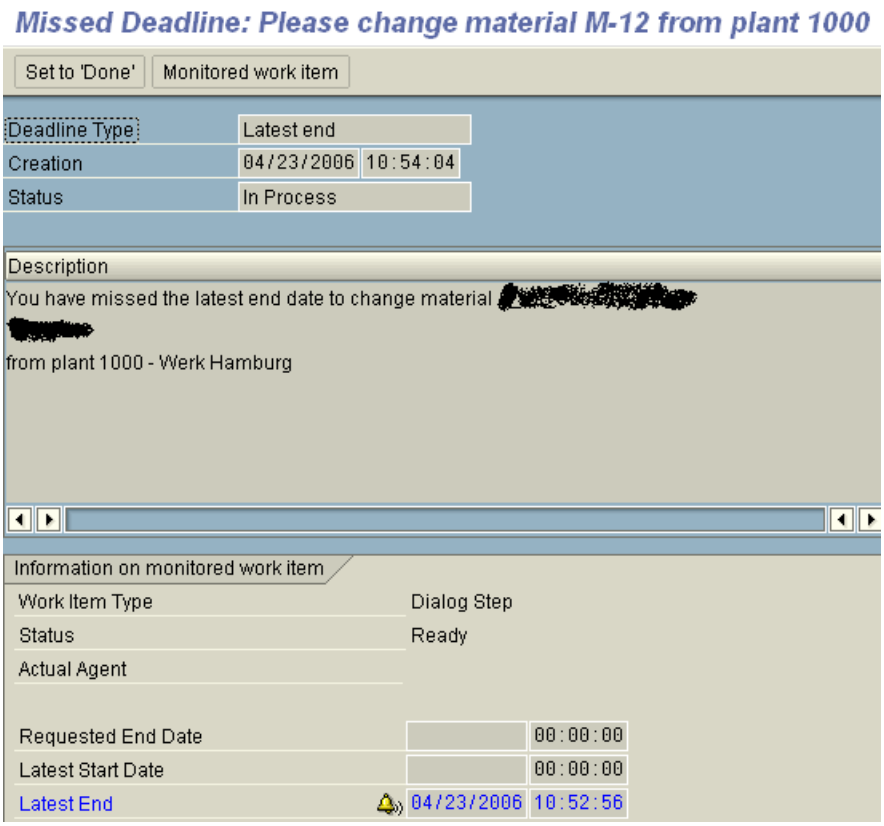


Use Transaction Swel And Check The Event Trace To Ensure That The Triggering Event Really Was Triggered.

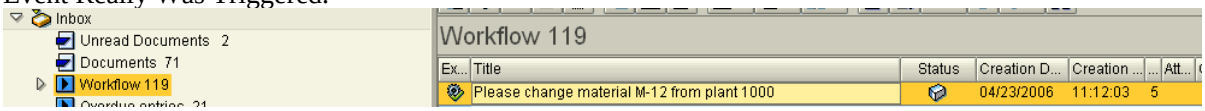


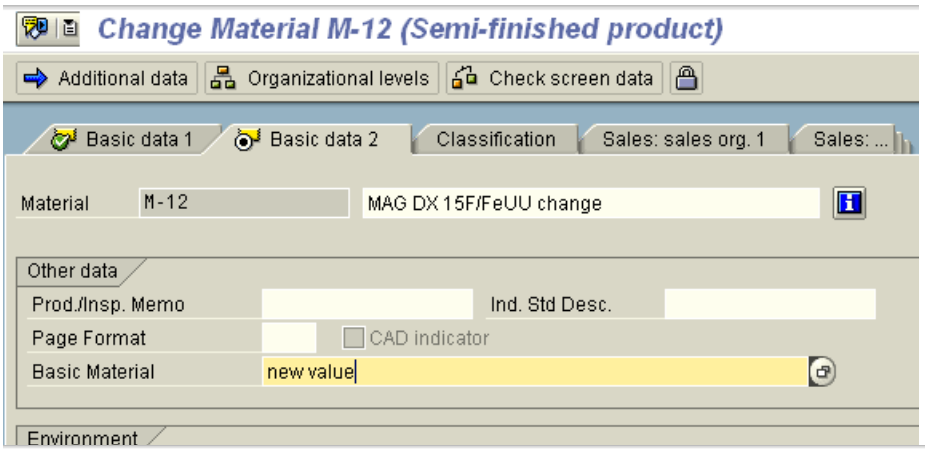
Go To Your Inbox Sbwp And Notice The Workitems In Your Inbox. Execute The Workitem And Update The Basic Material Field In Basis Data. If The Workitem Is Not Executed With 2 Minutes From The Inbox. Then You Can View The Deadline Missed Text In The Deadline Messages Folder.

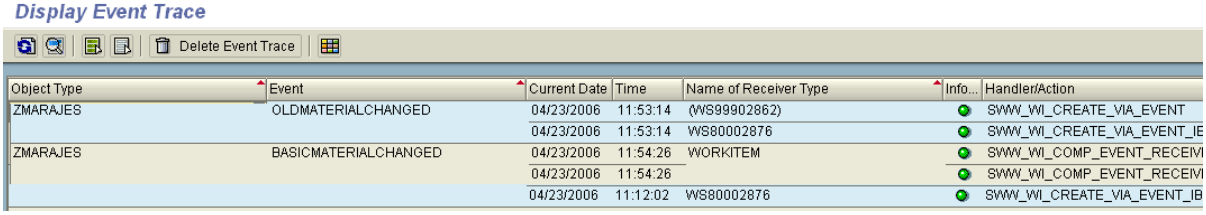




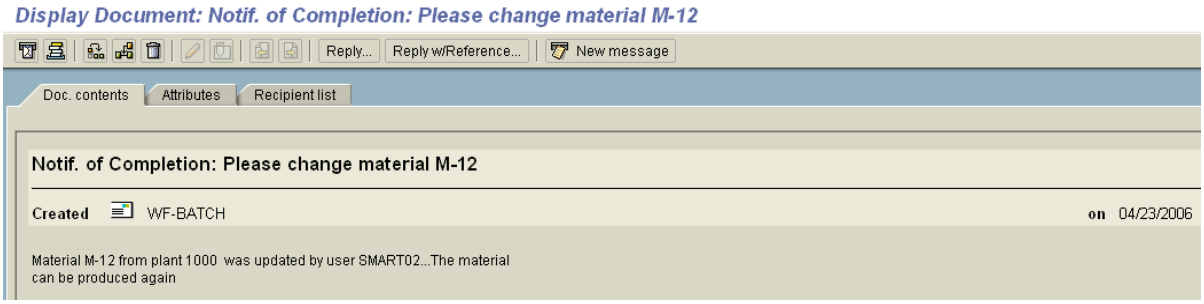
Execute The Workitem From The Inbox. Change The Basic Material Field And Save It. Once Saved Terminating Event Will Be Raised. Check The Event Trace Swel To Ensure That Terminating Event Really Was Triggered.



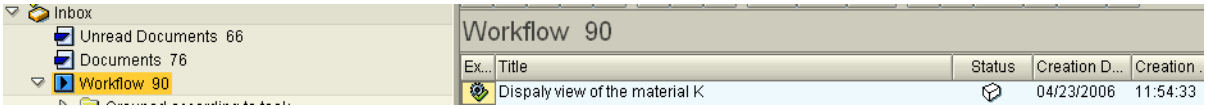




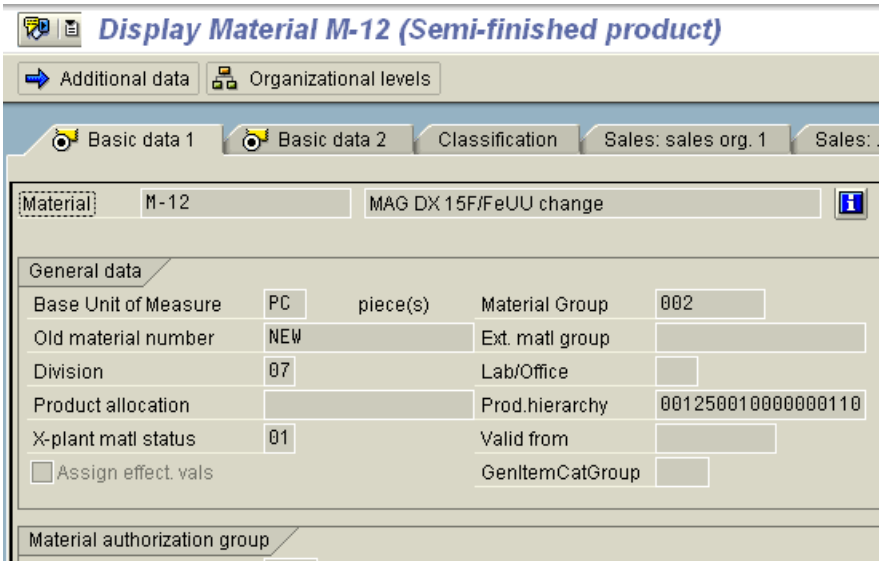
Once The Material Change Is Updated A Completion Text Is Sent To The Corresponding User.



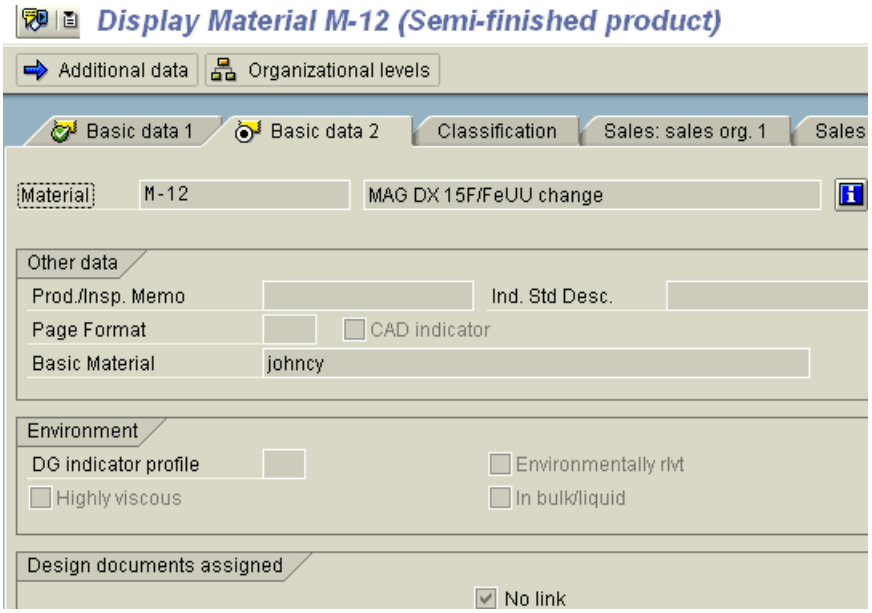
Now The Workflow Checks For The Material Group. If The Material Group In Basis Data 1 Is Set To 002, View Is Set To K, That Is Basis Data1. Else View Is Set To V That Is Sales Data.



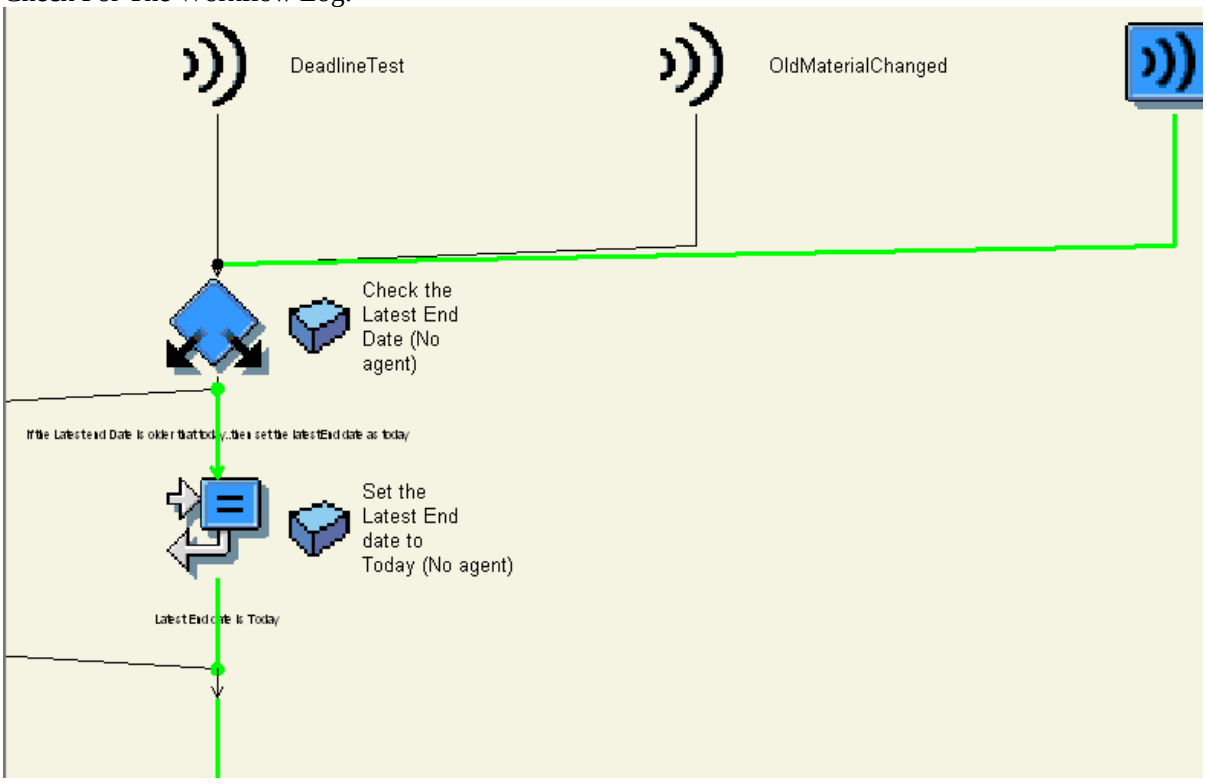
Execute The Workitem It Goes To Basis Data 1 In Display Mode.

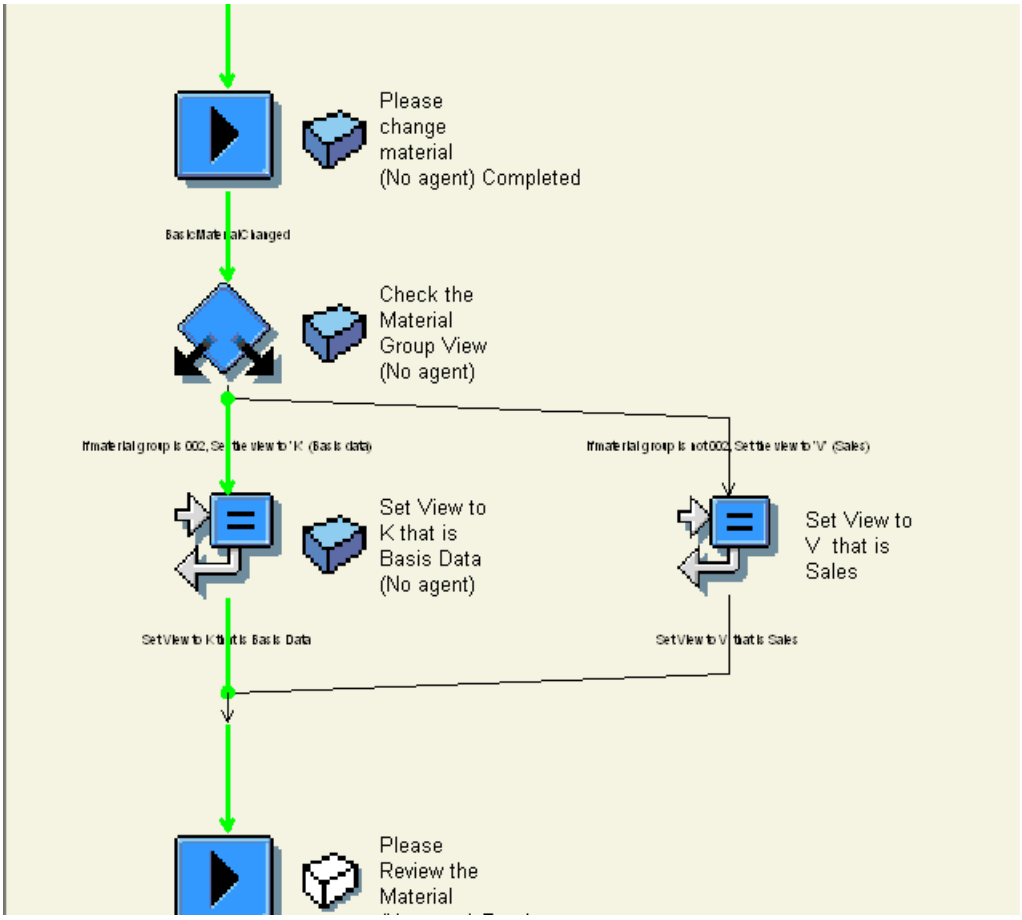


Once The Basicmaterialchanged Event Event Is Triggerd ..Check The Inbox For The Step
Please Review Materal. Where You Can See The Changes You Made For The Material Master In Display Mode.



Check For The Workflow Log.





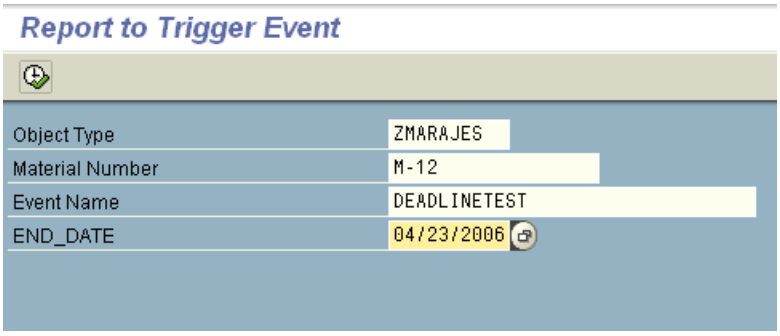
Event Definition And Implementation

Triggering an Event Explicitly by programming.

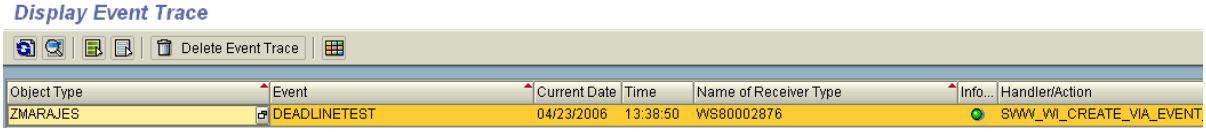
Create a report ZJEMARA_EVTCREATE that calls the Function Module SWE_EVENT_CREATE to trigger the event DeadlineTest for your object type 'ZMARAJES' . Use the function module to raise the event. The variable END_DATE
will be passed to this function module.in an event container.

```
*&---------------------------------------------------------------------*
*& REPORT  ZJEMARA_EVTCREATE                                           *
*&                                                                     *
*&---------------------------------------------------------------------*
*&                                                                     *
*&                                                                     *
*&---------------------------------------------------------------------*

REPORT  ZJEMARA_EVTCREATE                .
INCLUDE <CNTN01>.


DATA OBJKEY LIKE SWEINSTCOU-OBJKEY.
DATA EVENT_ID LIKE SWEDUMEVID-EVTID.
```

```
DATA CONTAINER LIKE SWCONT OCCURS 0 WITH HEADER LINE.


PARAMETERS : OBJ_TYPE LIKE SWETYPECOU-OBJTYPE DEFAULT 'ZMARAJES',
             MNO LIKE MARA-MATNR,
             EVT LIKE SWETYPECOU-EVENT DEFAULT 'DEADLINETEST',
             END_DATE LIKE SYST-DATUM.

IF EVT EQ 'DEADLINETEST'  AND END_DATE EQ SPACE.
  END_DATE = SY-DATUM - 1.
ENDIF.

SWC_SET_ELEMENT CONTAINER 'LATESTENDDATE' END_DATE.
OBJKEY = MNO.


CALL FUNCTION 'SWE_EVENT_CREATE'
  EXPORTING
    OBJTYPE          = OBJ_TYPE
    OBJKEY           = OBJKEY
    EVENT            = EVT
  IMPORTING
    EVENT_ID         = EVENT_ID
  TABLES
    EVENT_CONTAINER   = CONTAINER[]
  EXCEPTIONS
    OBJTYPE_NOT_FOUND = 1.
IF SY-SUBRC EQ 0.
  WRITE : EVENT_ID.
  COMMIT WORK.
  CALL TRANSACTION 'SWEL'.
ENDIF.
```



Use Transaction SWEL to verify the event DEADLINETEST were raised.



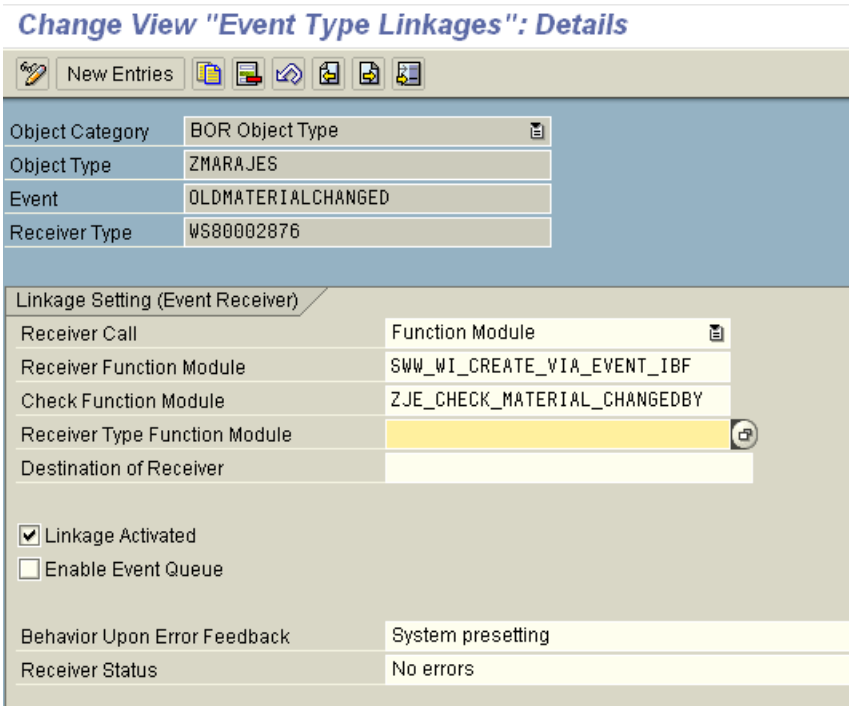
Create a **Check Function Module ZJE_CHECK_MATERIAL_CHANGEDBY** to ensure that your workfow is started only if you trigger and event for one of your materials and if you are the Last person to change the material.

Check in the function module whether the transferred material number represents one of your materials and whether the object attribute ChangedBy has the login id of your manager user as the value. If this is not the case an exception should be triggered.
Go to

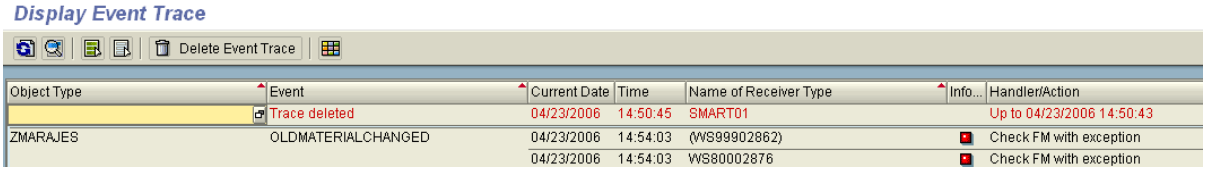
FUNCTION zje_check_material_changedby.

```
*"----------------------------------------------------------------------
*"*"Local interface:
*"  IMPORTING
*"     VALUE(OBJTYPE) LIKE  SWETYPECOU-OBJTYPE
*"     VALUE(OBJKEY) LIKE  SWEINSTCOU-OBJKEY
*"     VALUE(EVENT) LIKE  SWETYPECOU-EVENT
*"     VALUE(RECTYPE) LIKE  SWETYPECOU-RECTYPE
*"  TABLES
*"      EVENT_CONTAINER STRUCTURE  SWCONT
*"  EXCEPTIONS
*"      OBJECT_NOT_FOUND
*"      INVALID_USER
*"----------------------------------------------------------------------
  INCLUDE <cntn01>.
  DATA: object_ref TYPE swc_object,
  changer LIKE mara-aenam,
  user LIKE sy-uname.

***CREATE THE MATERIAL OBJECT REFERENCE
  swc_create_object object_ref objtype objkey.

  IF sy-subrc  NE 0.
    RAISE object_not_found.
  ENDIF.

****READ THE ATTRIBUTE OF THE CHANGEDBY FROM THE OBJECT TYPE ZMARAJES
  swc_get_property object_ref 'CHANGEDBY' changer.

  IF sy-subrc NE 0.
    RAISE object_not_found.
  ENDIF.


***READ THE CREATOR OF THIS EVENT
  swc_get_element event_container '_EVT_CREATOR' user.
  IF sy-subrc NE 0.
    user = sy-uname.
  ENDIF.

***CHECK IF EVENT CREATOR AND MATERIAL AND CHANGER ARE IDENTICAL

  IF changer EQ user.   " if smart02 = sy-uname
    RAISE invalid_user.
  ENDIF.


ENDFUNCTION.
```

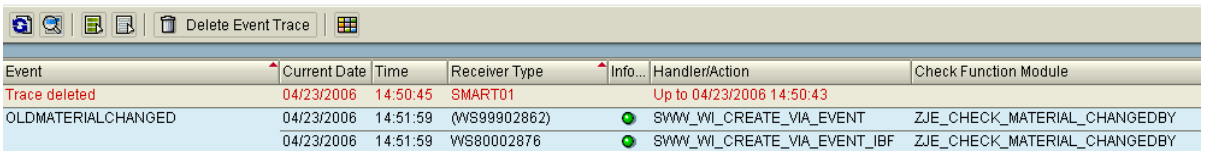
This check Function module checks, if the user who triggered the event (USER) is the same person who changed(CHANGER) the material and if the material changed is really one of your materials.
The coupling between an event and the receiver can be maintained in Tx SWE2 where you can enter your check function module to your workflow in the check function field.

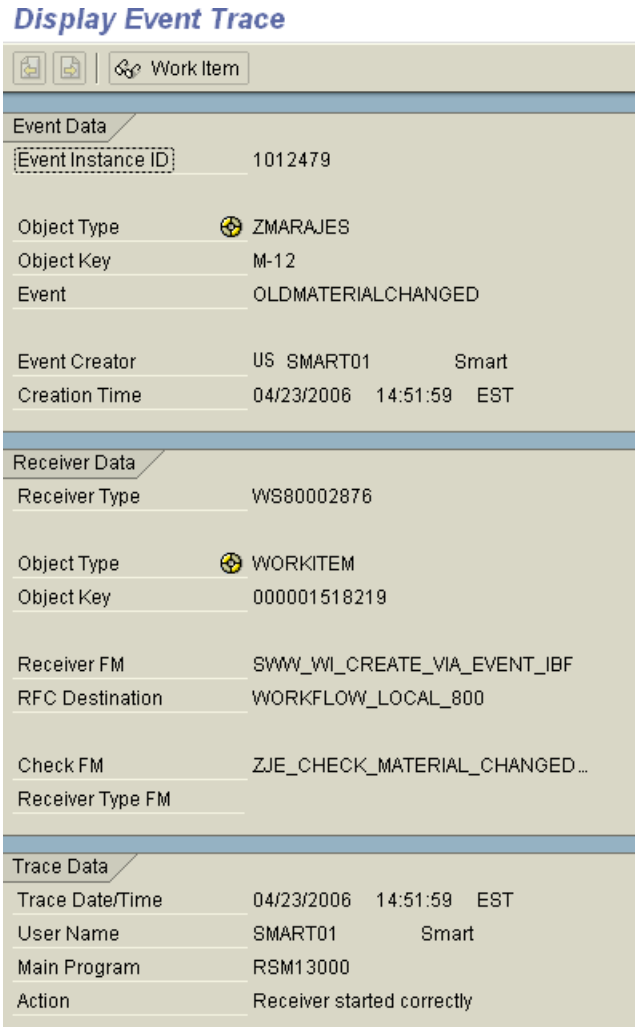


Now check whether your workflow is triggered only when your manager user is the last person to change the material.
Here when manger user is not the last person to change the material. Check function module triggers an exception.



When manager user is the last person to change the material.



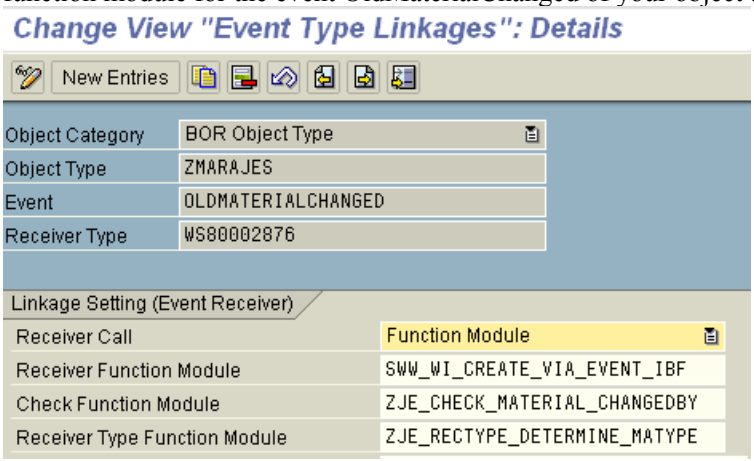


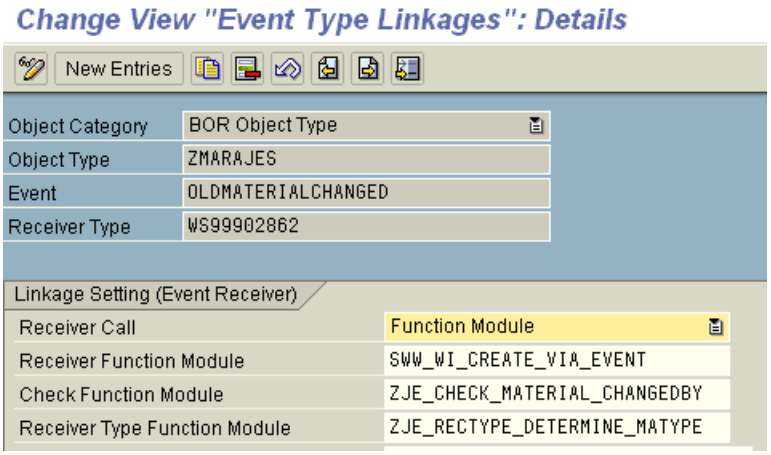
Create **a Receiver type function module** ZJE_RECTYPE_DETERMINE_MATYPE which determines the workflow to be started based on the material type of the triggering object. If the object attribute material type has the value FERT (finished) , the workflow WS80002876
Should be started, otherwise WS99902862.

```
 FUNCTION zje_rectype_determine_matype.
*"----------------------------------------------------------------------
*"*"Local interface:
*"  IMPORTING
*"     VALUE(OBJTYPE) LIKE  SWETYPECOU-OBJTYPE
*"     VALUE(OBJKEY) LIKE  SWEINSTCOU-OBJKEY
*"     VALUE(EVENT) LIKE  SWETYPECOU-EVENT
*"     VALUE(GENERIC_RECTYPE) LIKE  SWETYPECOU-RECTYPE
*"  EXPORTING
*"     REFERENCE(RECTYPE) LIKE  SWETYPECOU-RECTYPE
*"  TABLES
*"      EVENT_CONTAINER STRUCTURE  SWCONT
*"  EXCEPTIONS
*"      OBJECT_NOT_FOUND
*"----------------------------------------------------------------------
```

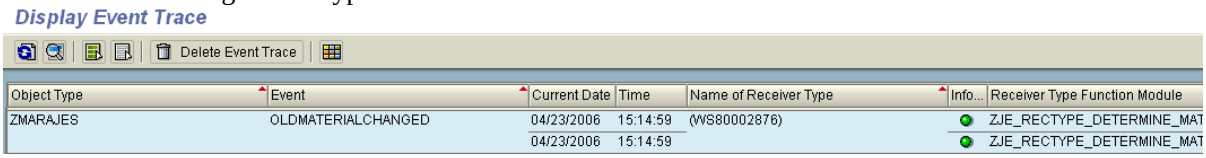
```
  INCLUDE <cntn01>.
* determine the recevier type(workflow)
  DATA: object TYPE swc_object.
  DATA: mtype TYPE mara-mtart.

* create a reference
  swc_create_object object objtype objkey.

  IF sy-subrc NE 0.
    RAISE object_not_found.
  ENDIF.

* check material type and determine the receiver type.

  swc_get_property object 'MaterialType' mtype.

  IF mtype EQ 'FERT'.
    rectype = 'WS80002876'.
  ELSE.
    rectype = 'WS99902862'.
  ENDIF.



ENDFUNCTION.
```

Change the type linkage table so that the workflow to be started is now determined by the receiver type function module for the event OldMaterialChanged of your object type “ZMARAJES’.

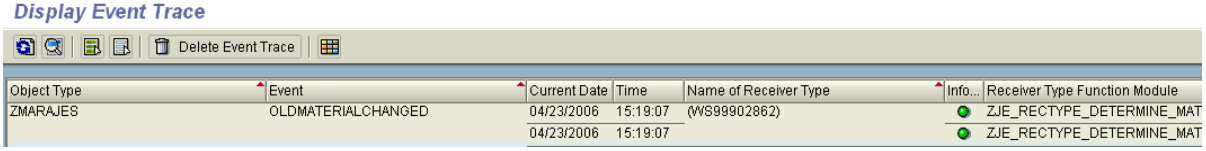




If the material changed is of type FERT.then workflow WS80002876 is determined.

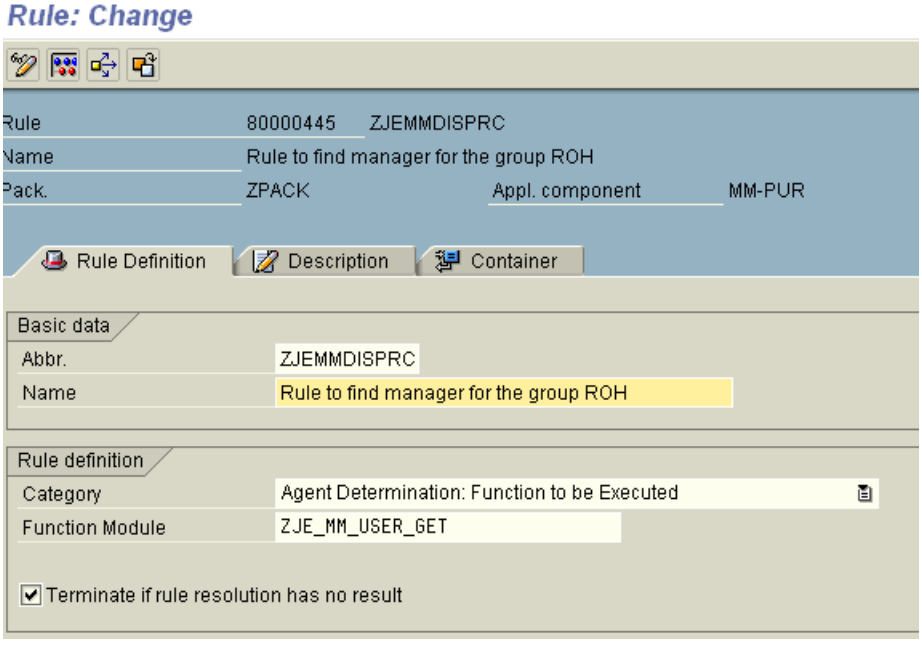


otherwise workflow WS99902862 is triggered.

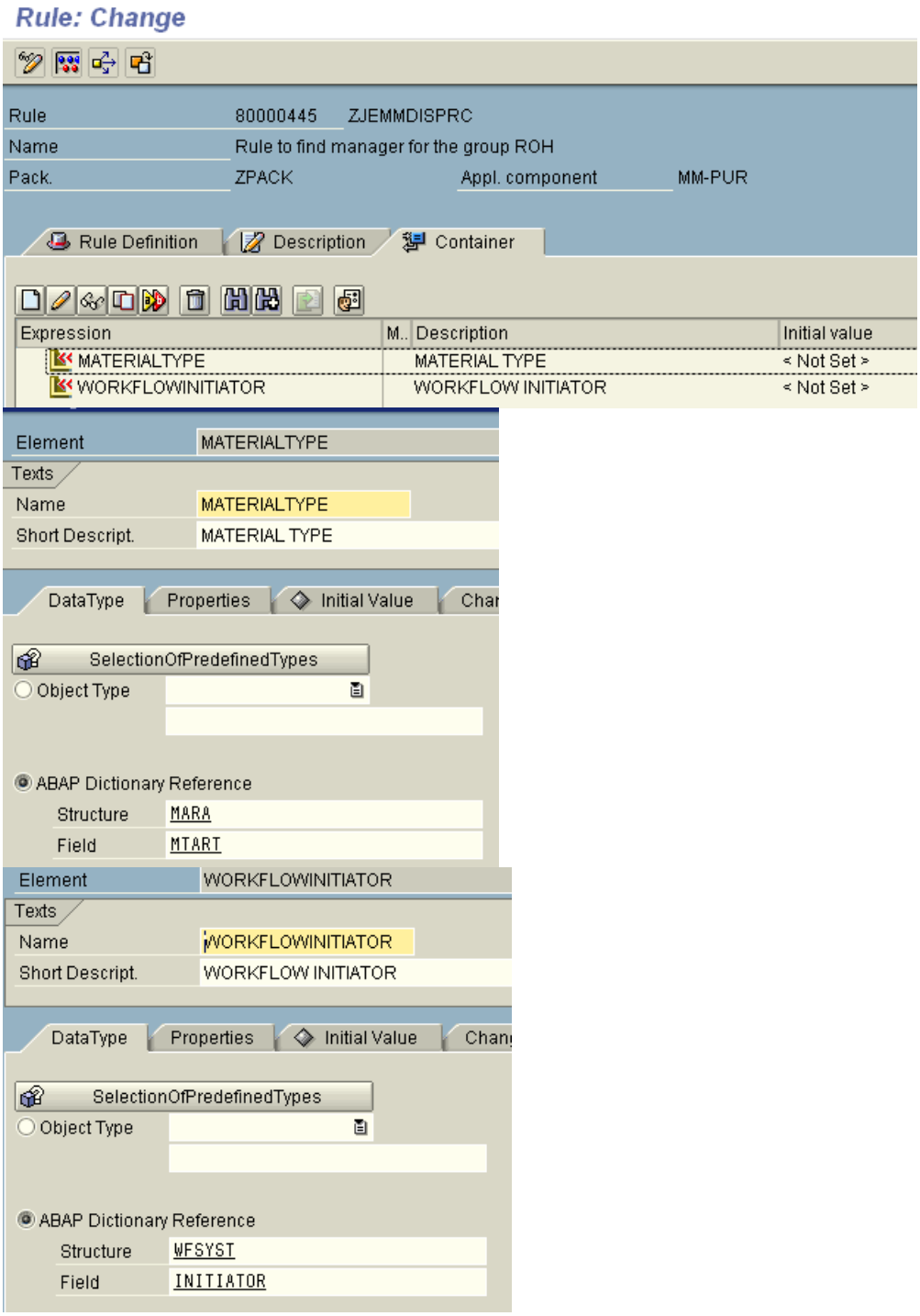


Rule Definition and Implementation

Create Rule definition 80000445.

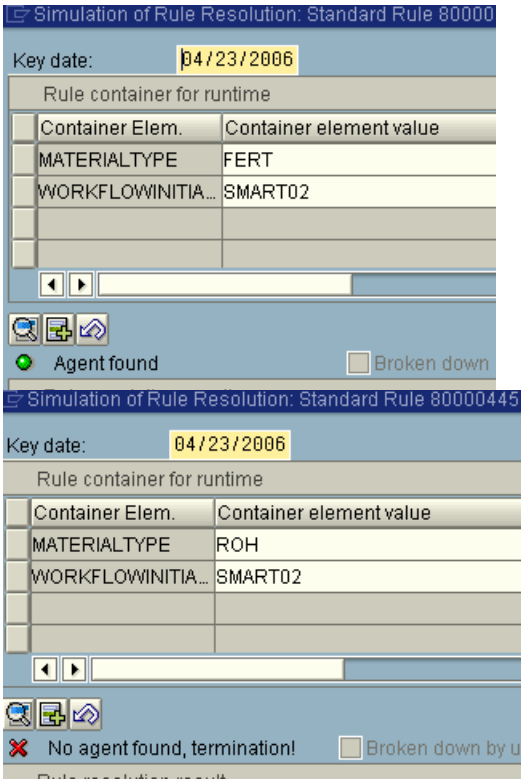


Use the flag Terminate if rule resolution has no result, if you want your workflow to stop with an error if the rule cannot find any selected agents . if you donot selct this flag and the rule fails task will be routed to all possible agents.



Create Rule Function module ZJE_MM_USER_GET. This function module determines the manager of the workflow initiator as the agent if the material type enetered is ROH(raw material). Otherwise , the initiator is returned.

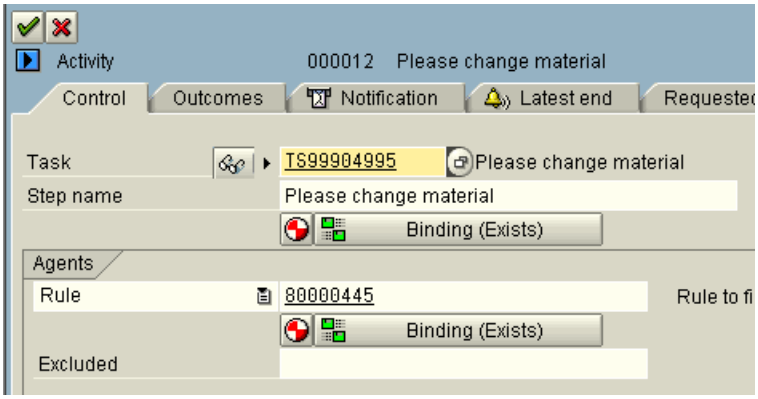
You can call the SWX_GET_MANAGER function module to determine the manager of the workflow initiator.This function module is a rule function module itself and expects to find data that it has to check in the AC_CONTAINER. Simulate your rule in Tx PFAC to see how it works at run time. Simulate is the excellent way to test your rule before adding it to your workflow.

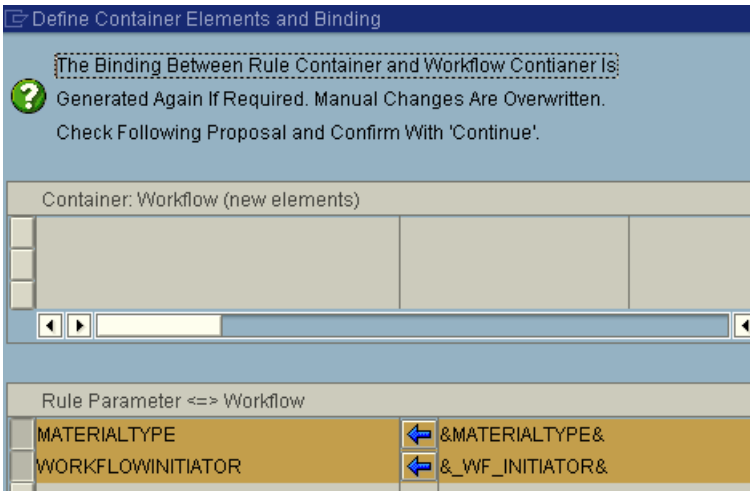



```
FUNCTION zje_mm_user_get.
*"----------------------------------------------------------------------
*"*"LOCAL INTERFACE:
*"  TABLES
*"      ACTOR_TAB STRUCTURE  SWHACTOR
*"      AC_CONTAINER STRUCTURE  SWCONT
*"  EXCEPTIONS
*"      NOBODY_FOUND
*"----------------------------------------------------------------------

  INCLUDE <cntn01>.

  DATA: material_type LIKE mara-mtart, “TYPE OF MATERIAL CHANGED
  wf_initiator LIKE swhactor, “WORKFLOW INITIATOR
  counter TYPE i.
  DATA user LIKE wf_initiator VALUE 'USSMART02'.
  REFRESH actor_tab.
  CLEAR actor_tab.


  swc_get_element  ac_container 'MATERIALTYPE' material_type.
  swc_get_element  ac_container 'WORKFLOWINITIATOR' wf_initiator.
  CASE material_type.
    WHEN 'ROH'. “GET MANAGER OF THE WORKFLOW INITIATOR FROM ROLE
      swc_set_element ac_container 'ORG_OBJECT' wf_initiator.

      CALL FUNCTION 'SWX_GET_MANAGER'
```

```
      TABLES
        actor_tab         = actor_tab
        ac_container      = ac_container
      EXCEPTIONS
        nobody_found      = 1
*   OTHERS            = 2
            .
     IF sy-subrc <> 0.
       RAISE nobody_found.
     ENDIF.
   WHEN OTHERS.

     IF sy-uname = wf_initiator+2(7).
       actor_tab = user.
     ENDIF.
     APPEND actor_tab.
  ENDCASE.

***CHECK IF WE HAVE FOUND ANY AGENTS AT ALL.
  DESCRIBE TABLE actor_tab LINES counter.
  IF counter = 0.
    RAISE nobody_found.
  ENDIF.



ENDFUNCTION.
```

Use the newly created rule for the agent assignment of the change step in your workflow.





Workflow Runtime System – Administrative Functions

Work Item Administration

All administrator function modules are checked with regard to authorization. Administrator function modules are used to process a work item in exceptional cases. The necessary authorization are required in the S_WF_WF_ADMIN authorization profile

- Ø Initiate waiting work items

When a waiting work item is initiated, its status changes from WAITING to READY. This function can be executed if deadline monitoring is not running due to background queue overloading or an error in the background system.

- Ø Release reserved work items

The status of a work item is changed from SELECTED OR STARTED TO READY again. You can use this function to display a work item that is blocked by an agent(absentee) to other recipients.

- Ø Restart a work item after errors

When you restart a work item after an error, the status of the work item changes from ERROR to STARTED And this might automatically execute the method.

- Ø Logically delete a work item.

Logical deletion changes the status of work item to CANCELLED

- Ø Sucessfully complete a work item explicitly

The workflow system administrator can change the status of a work item explicitly to COMPLETED but is then responsible for filling the work item container with the expected return parameters of the method

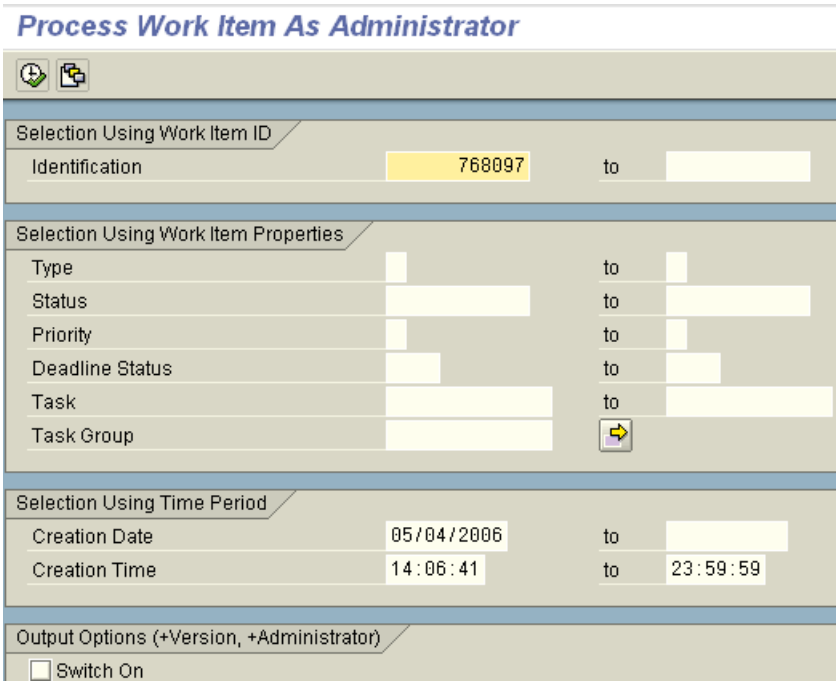
Work Item Statuses

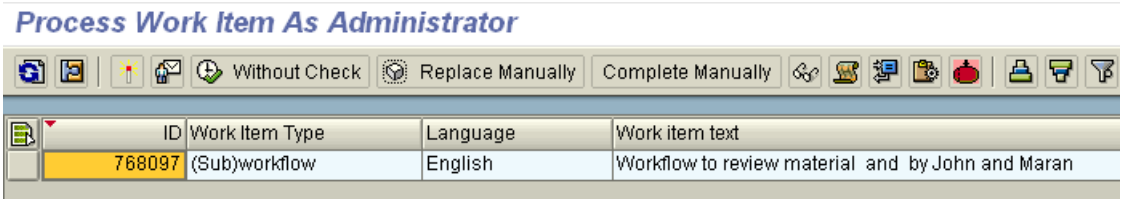
The most significant work Item Statuses are READY, SELECTED, COMMITED, COMPLETED

Reporting on Workflow Progress

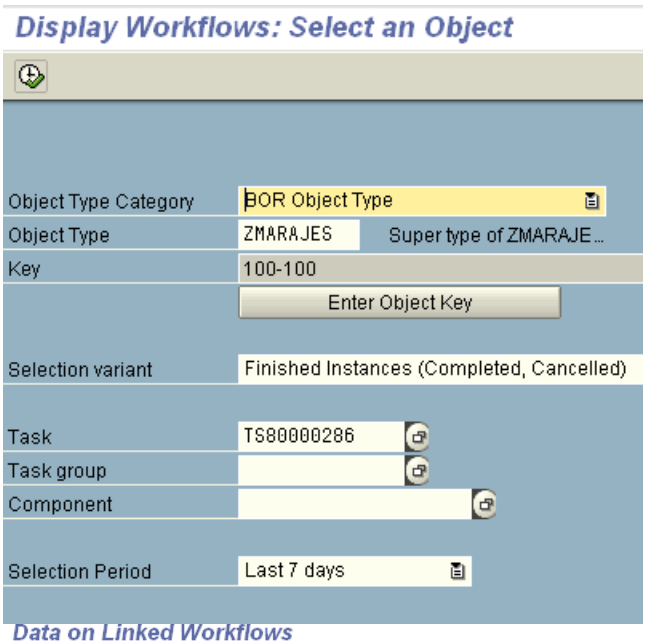
Finding Work Items

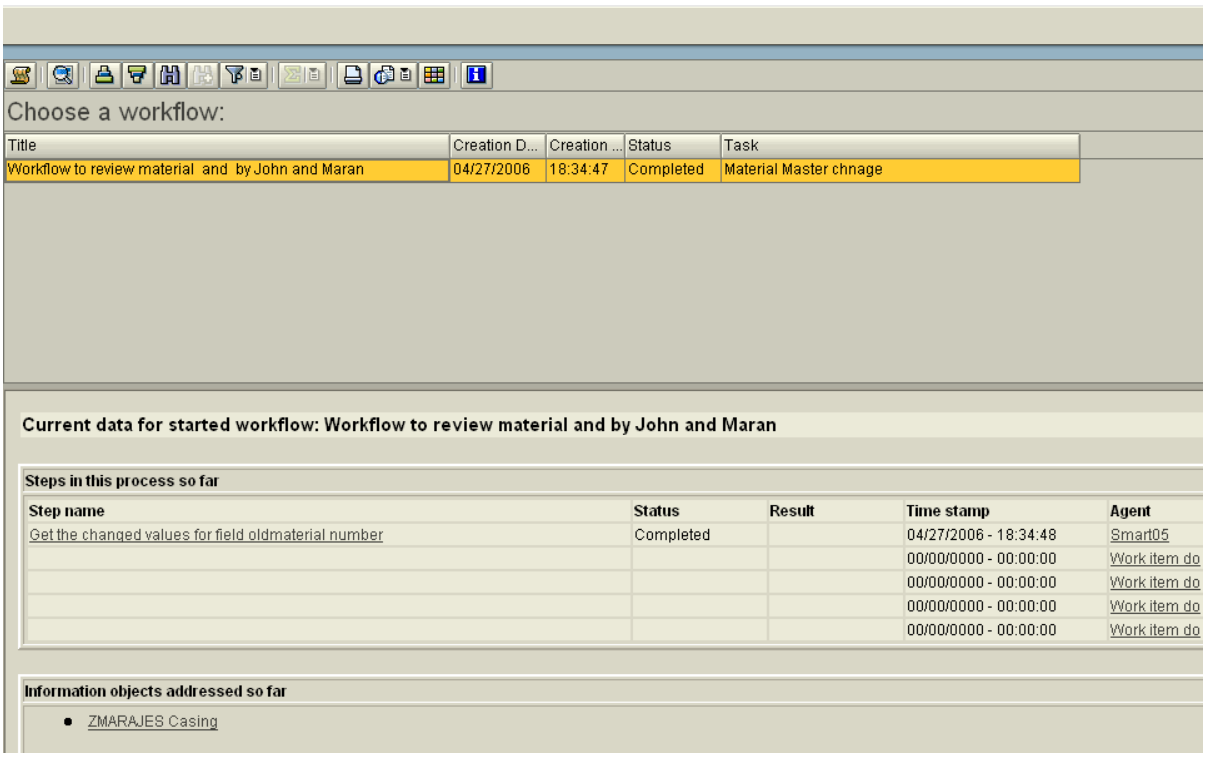
Selection Report for finding work item Tx SWI1 and processing work item as Administrator Tx SWIA



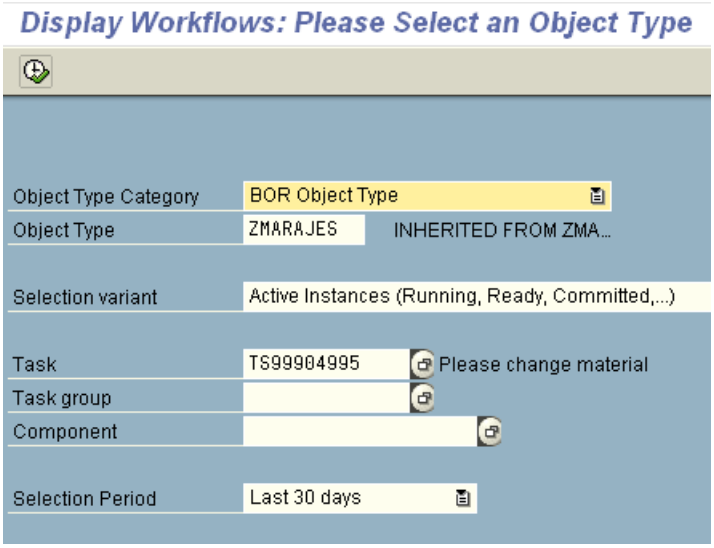


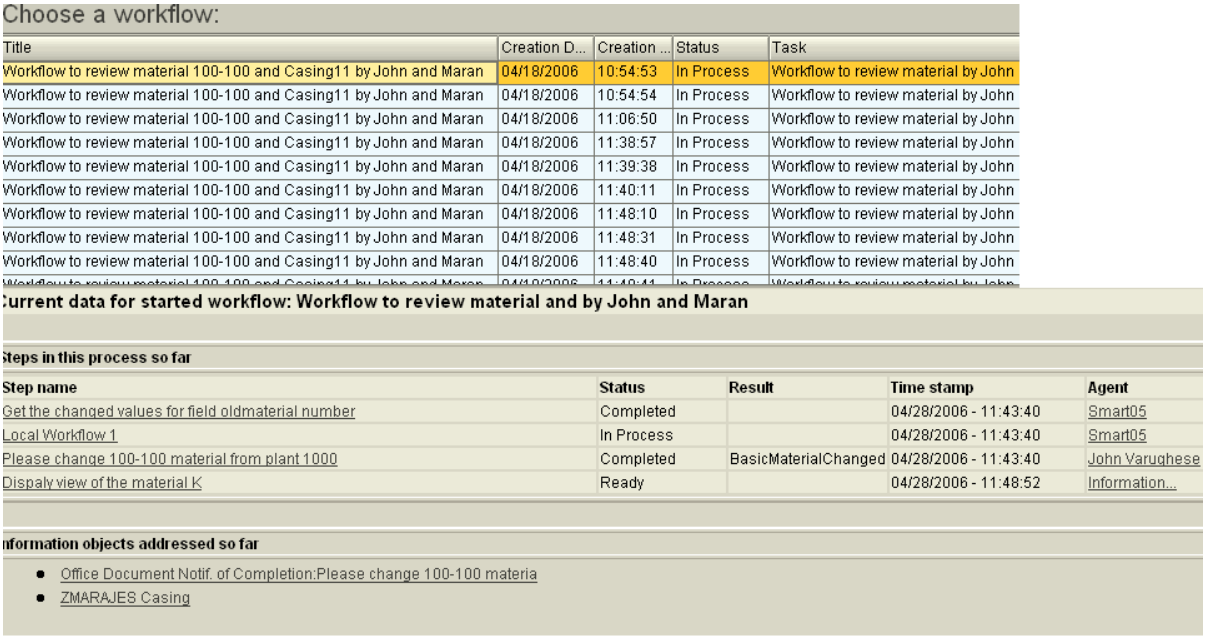
How to Find the current status of the workflow?
Tx SWI6 report shows all workflow instances linked to a particular object instance





Tx SWI14 report shows all work items and workflow instances for all object instances of a business object type.
Eg: Workflow related to all Material master Changes.





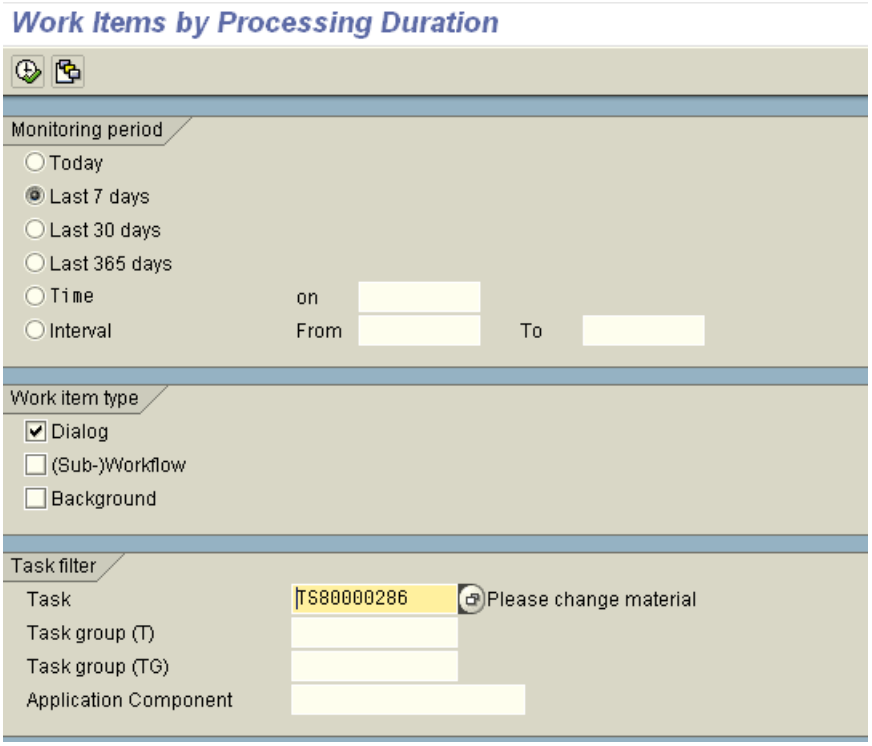
Reporting on Workflow Performance

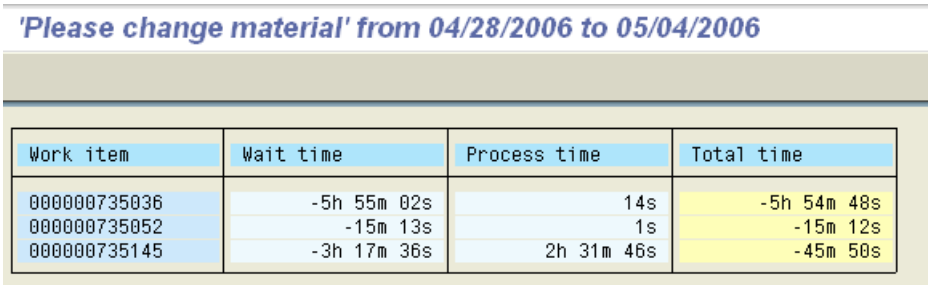
When you are reporting on workflow performance you need to look at both the frequency of workitems/workflow instances as well as the time taken to realistically assess the behaviour of the workflow over time.

Tx SWI2_DURA is the best standard report to give a consolidated view of 'Work item by processing Duration'.

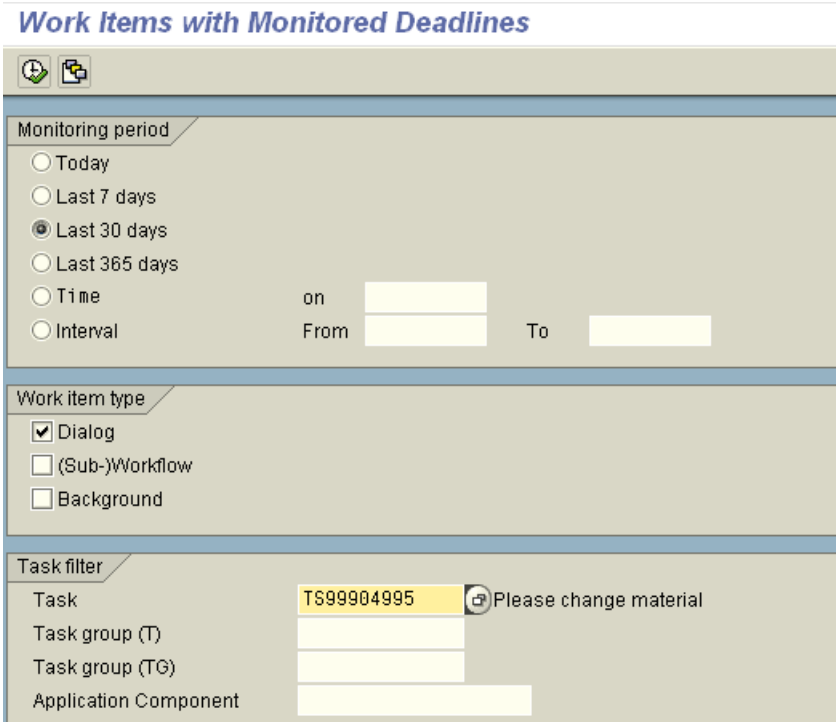
You can swithch mode to show the wait time that is wasted time, processing time or total time.

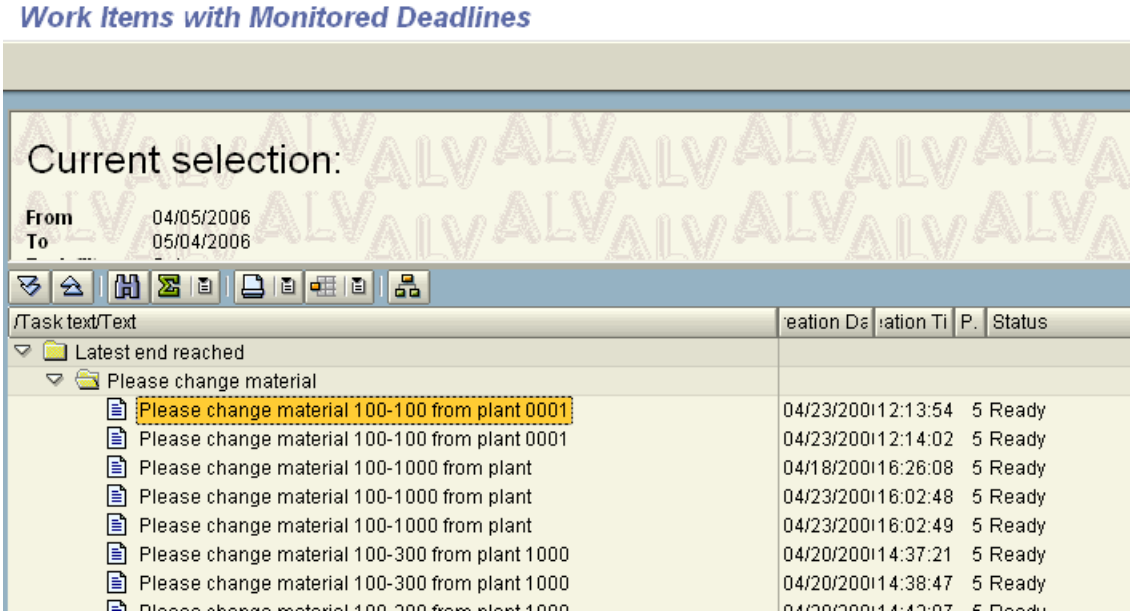
For Eg if most work items were completed in seconds and but a few work items took several days, you need to look at the work item, find who was the agent and discuss with them why the task took so long.



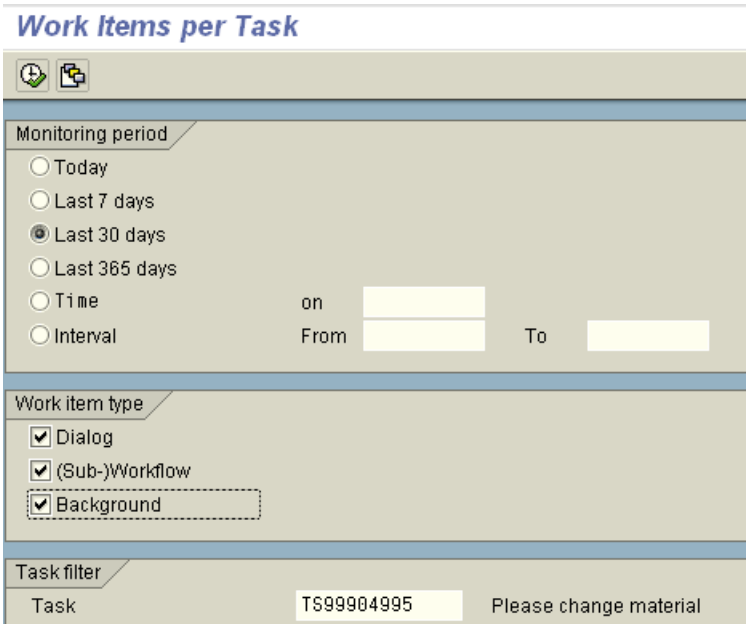


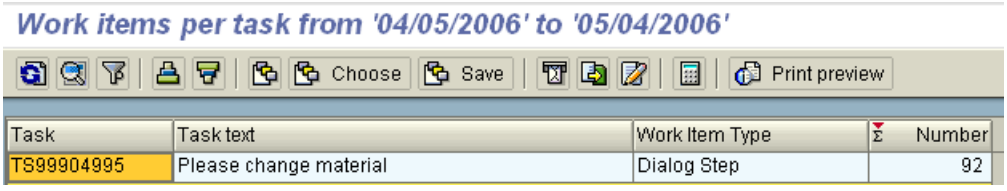
If you have Deadlines in your work items, detailed analyses can be made, by using the standard report Tx SWI2_DEAD 'Work items with monitored dead lines'. This report shows work items that are subject to dead line monitoring. This report shows whether deadlines are being met or exceeded, all missed deadlines are shown, whether or not work item has now been completed.





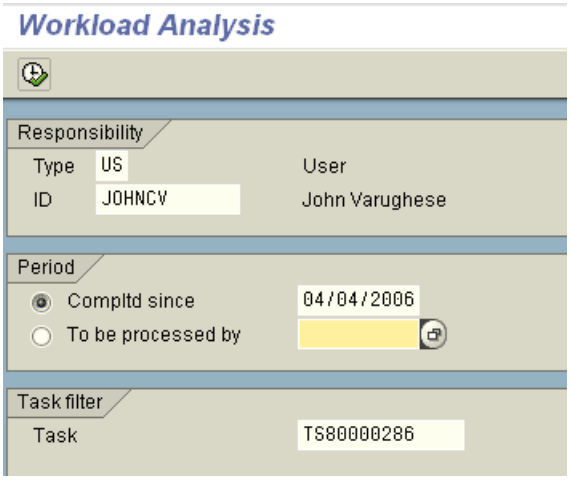
If you want to know the number of work items processed per period, Use report Tx SWI2_FREQ 'Work item by task'.This report shows the number of work items created in a specified period.





Reporting on Agent Behaviour

Reporting Tx SWI5 'workload analysis' shows what the agent has been processing over a given time period, and future workload, that is what they currently have in their inbox that has not yet been processed.



Completed work items by agent and task

Statistics

Evaluation period: 04/04/2006 to 05/04/2006
Responsibility: USJOHNCV
User John Varughese

Org. unit	Agent	Task	Date	Work item text	Processing time
	JOHNCV	TS80000286	04/28/2006	Please change 100-100 material from plant 1000	-15m 12s
	JOHNCV	TS80000286	04/28/2006	Please change 100-100 material from plant 1000	-5h 54m 48s
	JOHNCV	TS80000286	04/28/2006	Please change 100-100 material from plant 1000	-45m 50s

To determine the future workload select the option 'to be processed by'. The selection produces a list of work items that must be processed by the members of the organizational object by the date entered.

Workload for USER JOHN VARUGHESE

Work items to be processed
8 Not reserved by an agent
8 TS80000286 Please change material

Work item	To be processed from	To be processed by	Status
000000735264	04/28/2006 23:36:52	04/28/2006 17:38:52	Ready
000000735272	04/28/2006 23:36:57	04/28/2006 17:38:57	Ready
000000735277	04/28/2006 23:36:58	04/28/2006 17:38:58	Ready
000000735284	04/28/2006 23:37:02	04/28/2006 17:39:02	Ready
000000735289	04/28/2006 23:37:02	04/28/2006 17:39:02	Ready
000000766605	05/03/2006 02:12:03	05/02/2006 20:14:03	Ready
000000766610	05/03/2006 02:12:11	05/02/2006 20:14:11	Ready
000000768100	05/04/2006 15:05:55	05/04/2006 15:07:55	Ready

Error Resolution

There are three parts for any error resolution process:

1. 1. Diagnosing the problem.
2. 2. Fixing the problem
3. 3. Preventing the problem from happening again.

A Considerable number of tools are provided to help you diagnose errors.

http://sapgenie.com/workflow/debugging.htm
Transaction SWUD
SWUD is the diagnosis transaction. This will guide you through the fault finding process. The check-list order is determined dynamically according to:
a) your workflow definition and b) the statistics of the most common mistakes made when creating/activating a workflow.
The testbed, provides a launchpad for tests to ensure that your workflow definition is rugged enough for the production environment. It also allows you to access the tasks, subflows, object types, delegated object types and agent assignments directly, without going through the workflow builder first. (Foreground tasks with no agent assignment are marked in red from release 4.5 onwards). This list is also useful as a catalogue of the components of workflow for documentation or transport purposes.
Click on the "info" icon to read a description of the test being performed.

Any workflow accessed through this transaction is added to the last-used list. The workflow can be recalled at a later date by clicking on the reuse icon in the left-hand column of the last-used list.
The next section describes the transactions called from SWUD. Experts may find it easier calling them directly.

Secondary Diagnosis Transactions

- Transaction SWU3: Verify Workflow Customizing.

  In this transaction the most important basic customizing for workflow is checked. If you find any errors here, read the documentation for the error. If your system is BBP or CRM, see note 60801.
- Transaction SWEL: Event Log.

  Note: Before you can use the event log, you must make sure it is activated. You check this in transaction SWELS. If you are not sure whether or not it is active, just deactivate and activate the event log once.

  WARNING: An activated event log can lead to bad performance, and must not be activated constantly in a productive system.
- Transaction SWE2: Event type linkage

  A workflow is usually started or triggered by an EVENT so it is important to make sure that an event occurrs. In the event log you can see the event and its business object type. If an event has been successfully created, it is important to check if there is a receiver type for this event. The receiver type is the workflow that has been triggered by the event. The coupling between an event and the receiver can be maintained in trans. SWE2.
- Transaction SWU0: Event simulation

  If you have found NO receiver type in the event log, then you should check transaction SWU0, Simulate Events. In this transaction you can simulate an event. The system will check all workflows that could be triggered by the event and tells you whether or not they were triggered. Information is displayed for the workflows that were not triggered successfully.
- Transaction SWI1: Work item list

  If a workflow was been correctly triggered and started at least one WORK ITEM should be created. You can view the work items in transaction SWI1, Work Item Selection. The easiest way for the selection is just to go into this transaction after you have checked the event log. By default all the work items of the last hour will be displayed. You will find in this transaction the work item number, the status of the work item and the workflow task that has created the work item. Furthermore, (in the technical workitem display) you can have a look at the container by selecting a work item and using the menu GOTO -> CONTAINER. To display the work item details double click on the item. From the details you can see the selected/ possible/excluded agents for this work item by using the menu GOTO -> AGENT -> SELECTED/POSSIBLE/EXCLUDED AGENTS.

  When the status of the work item shows an error you should have a look at the workflow log using the menu EDIT -> DISPLAY WORKFLOW LOG. Here you can see errors that have occurred.
- Transaction PFTC/SWDD: Task editor/Workflow Builder

  If you want to have a look at the definition of the workflow you can use transaction PFTC, Maintain Tasks. The button WORKFLOW BUILDER brings you to a graphical display of the workflow structure which is fairly easy to read and understand. On the tabstrip TRIGGERING EVENTS you can check if the triggering is activated or not and deactivate/activate it by clicking on the icon in front of the event.
- Transaction OOCU: Customizing overview

  To check if the relevant tasks are activated and users are assigned, you can use transaction OOCU; Task Customizing Overview. In this transaction all the tasks are sorted by the application components and are thus easy to find. Note that if you have almost no entries in this transaction, you should execute the report RS_APPL_REFRESH in transaction SE38.
- Transaction SWUE/SWUS: Event/workflow trigger

  If you have activated a user exit, e.g. for the role determination, and you have problems with that, you most probably have to debug the workflow. This can be done using the transaction SWUS or SWUE.

  With SWUE you can create an event. After you entered object type and event you have to fill the event parameters and the key for a specific object. If you want to debug the workflow you have to set

the flag TRIGGER RECIEVER FM SYNCHR. If you have set a break point in your user exit or in any other function module of the workflow the system will stop at this break point and you can start analyzing.

The second possibility to debug a workflow is to use the transaction SWUS, the workflow test environment. In this transaction you have to enter the workflow task and fill the input data. Please use the F4-help to fill the input data. Here again you have to set a break point in your user exit or in any other function module of the workflow and then the system will stop there.

Summary of the manual alternative to SWUD

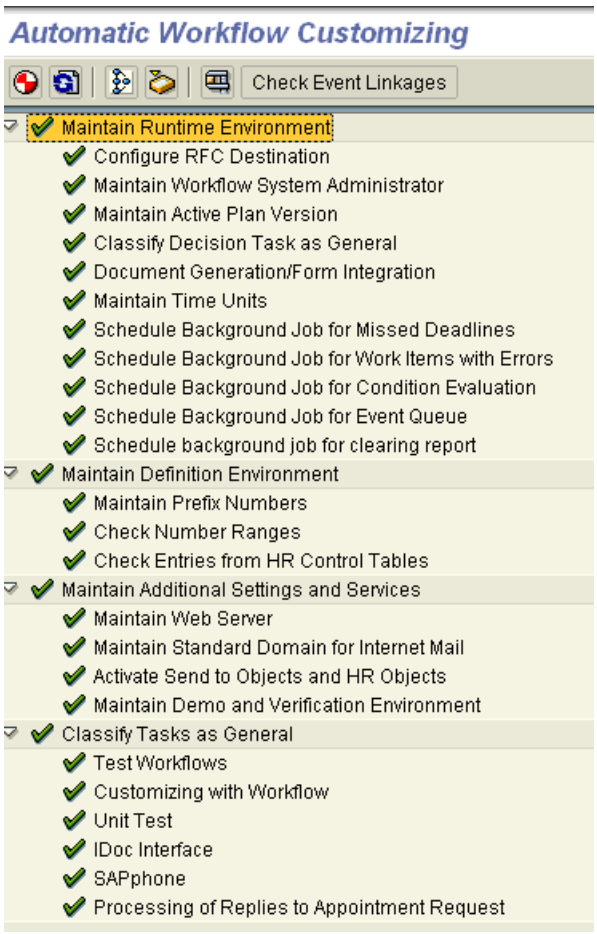
Now that you have a better understanding of how to use these transactions, you can follow the steps below to quickly analyze your workflow problems:

1. Go to transaction SWU3 and check if everything is okay. If it is not, please fix it before you proceed.
2. Go to transaction SWEL and check if an event is created. If not, check in transaction SWELS if the event log is activated.
   - If you see an event but no workflow is triggered, proceed with step 3.
   - If you see an event and a workflow is triggered, but the status of the triggering shows an error, proceed with step 3.
   - If you see an event and a workflow is triggered and there is no error, proceed with step 4.
   - If the event log is activated and you do not get any event, open up a message using the component of the application to which the business object type belongs. From release 20C for creation of shopping carts the architecture of workflows changed and no events are visible!
3. Go to transaction SWU0 and simulate the event. Is the workflow that you expect to be triggered visible in the simulation?
   - If it is not, then check the workflow definition in PFTC. The event must be defined as triggering event.
   - If it is, but the event linkage is not activated, go to transaction OOCU and activated it.
   - If it is visible, but it is not activated, go to transaction PFTC and activate it.
4. 4. Go to transaction SWI1. Search for the work item that belongs to the workflow. Check the status of the work item.

General Techniques for Resolving Runtime Errors

Basic Settings for error Monitoring

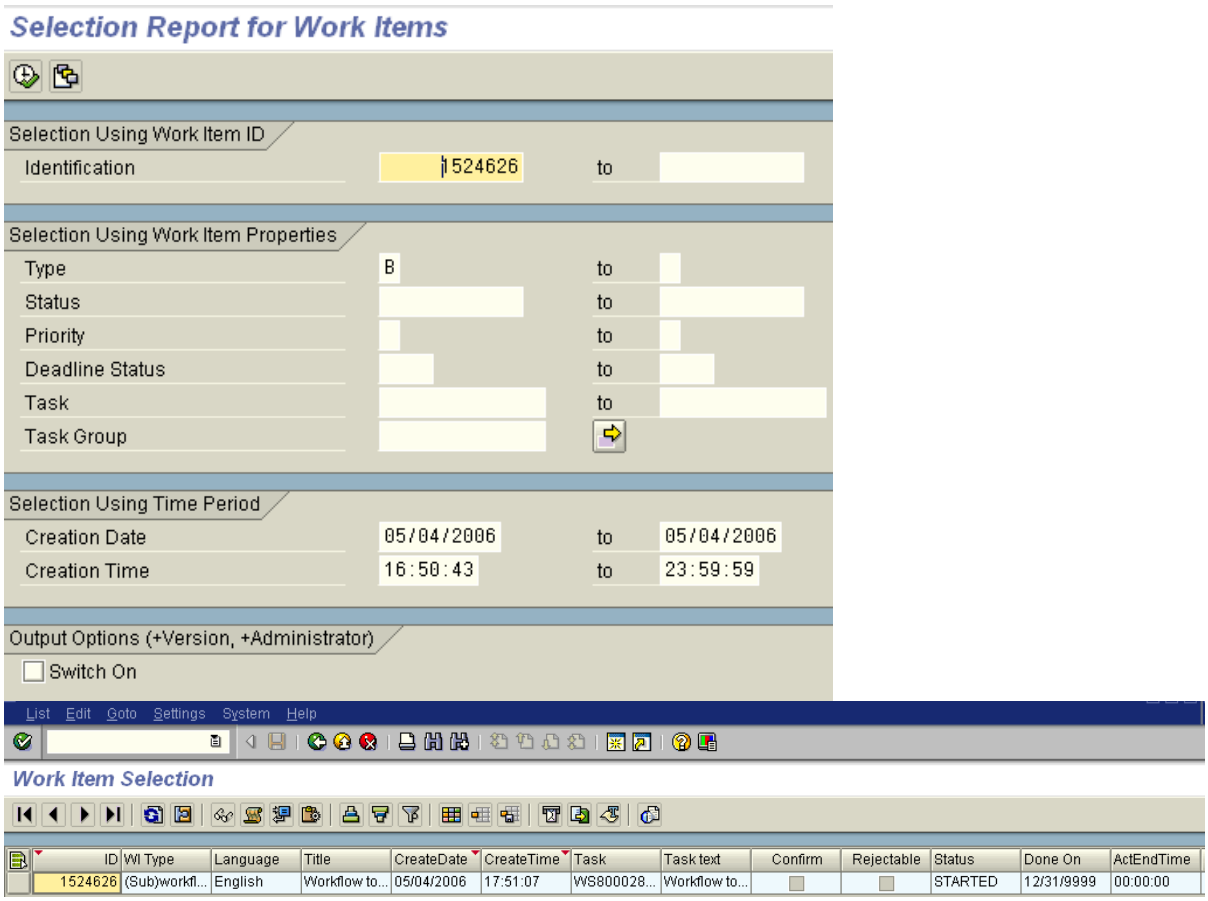
There are few workflow runtime environment settings that are particularly important for runtime error monitoring Tx SWU3.



Here the most important configuration setting determines who is a workflow administrator so that erroneous work items can be proactively dispatched to the administrator's inbox.If you are a workflow administrator , you must check your inbox regularly.

Finding and fixing work items

The best report for reviewing the status of workflows is the work item selection report Tx SWI1.It lets you select and display work items of all types according to various criteria. In particular you can use this function for lost work items that do not appear in the expected inbox. This report can be useful if you want to examine background workitems (enter work item type B) to check that they all are completing promptly.



Once you have found the workitem this report gives you the option for fixing work items in trouble, under EDIT -> work item.

"Restart after Error/Execute without check"

With these you can execute a work item, if work item is in error use 'Restart after Error'.If the work item has no valid agent and you still need to execute it, use 'Execute without check'.

"Complete Manually"

With these you can complete a work item with out re-executing it.

"Replace Manually"

With these you can unreserve a work item that is reserved by a particular agent.That is you can allow all recipients to see the work item in their inboxes.

Working with the Workflow Log

At Runtime, a workflow has its own work item (of type F) that represents the workflow instance.The best way to look at the workflow instance is via the workflow log.

The workflow log formats all the information created or collected during the execution of the business process. The Standard View is intended for agents and process owners who wants to get an overview of the steps processed so far.

If you want to see the complete log switch to technical view of the log.The technical view shows technical control information and therefore aimed particularly at worflow administrators.

The workflow log contains the following tab pages.

Workflow chronicle(What was processed when?)

This shows a hierarchichal display of all steps in the workflow that have been processed so far or are currently able to be processed.

Workflow agents(who processed what?)

This shows the agents involved in the workflow up to now

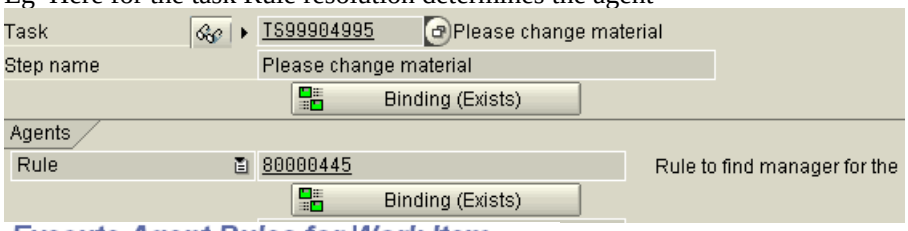
Workflow objects(What was processed?)

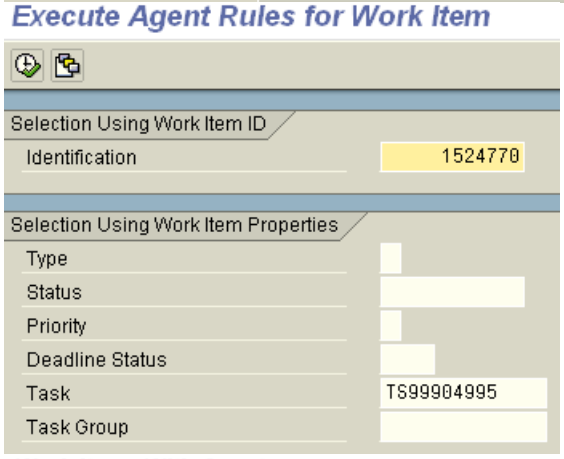
This shows objects related to the workflow, what objects were created and processed, and how.

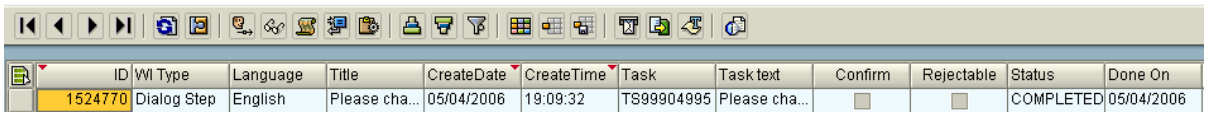
Resolving Agent Determination errors

Tx SWI1_RULE 'execute rules for work items'

Eg Here for the task Rule resolution determines the agent

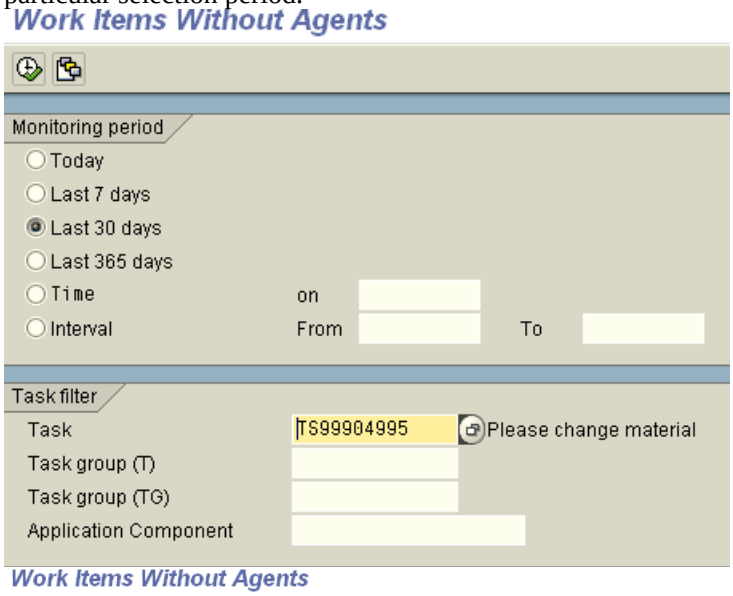


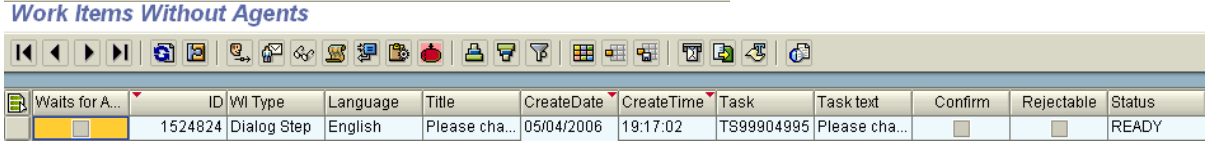




Work Item with out Agents

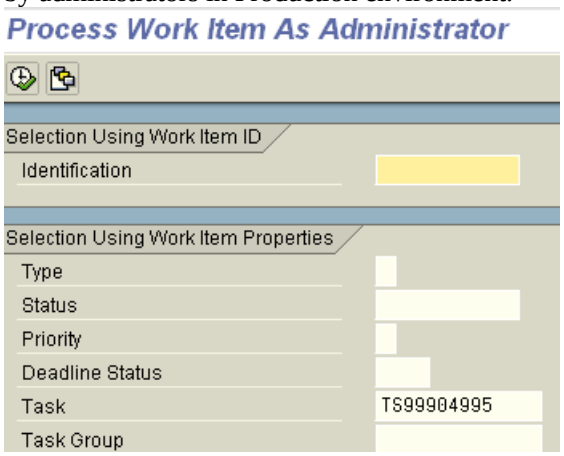
Tx SWI2_ADM1 report finds all work items that have no agent at all that is orphaned work item for a particular selection period.



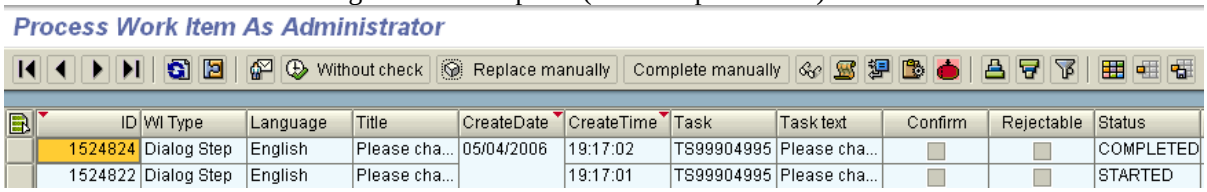


Execute work item with out Agent Check

Tx SWIA enables you to execute work items for which you are not a possible agent. This tool is used only by administrators in Production environment.

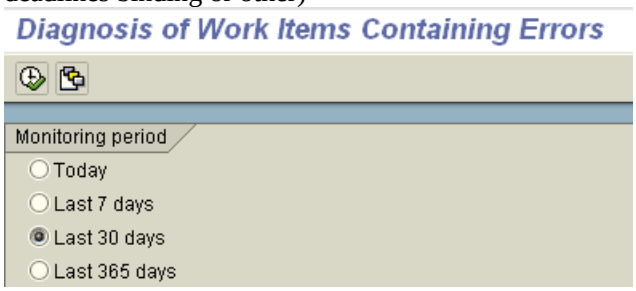


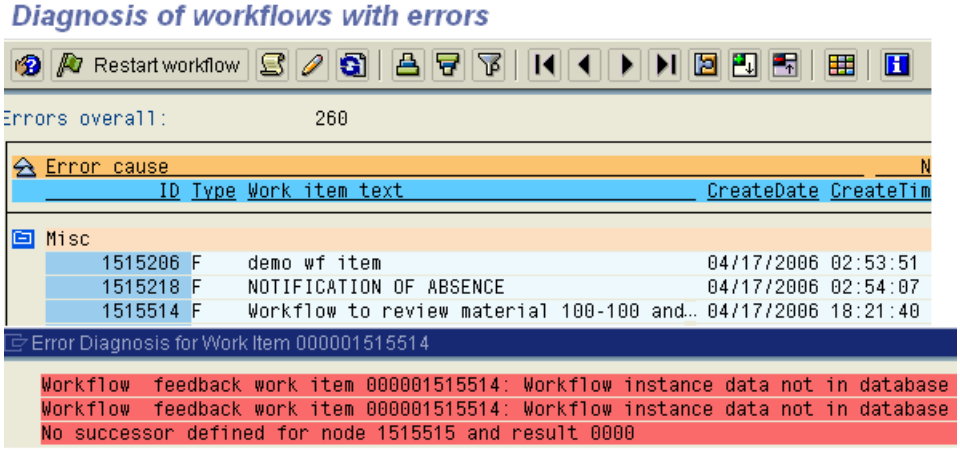
Using the work item selection, you can select the necessary work items and then execute them, complete them or make them available again to the recipients(that is replace them)



Diagnosis of workflow with errors

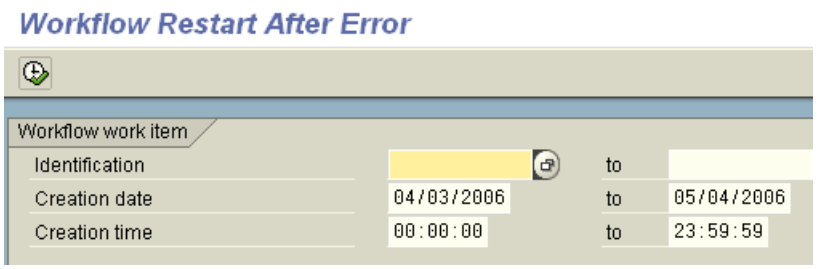
Tx SWI2_DIAG report displays all workflows with errors and group them according to error cause(agent deadlines binding or other)

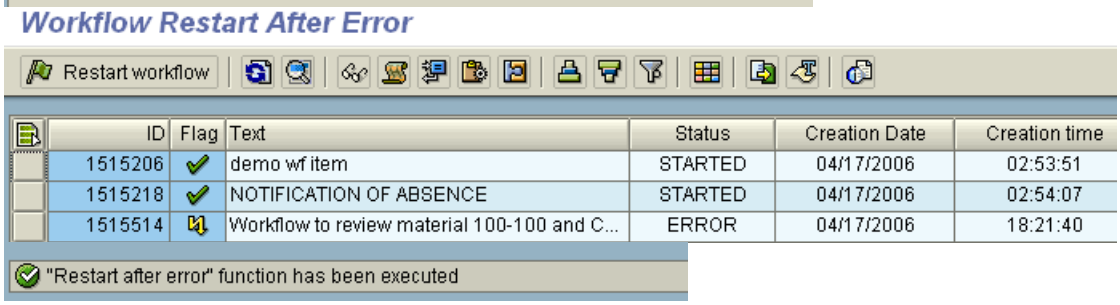




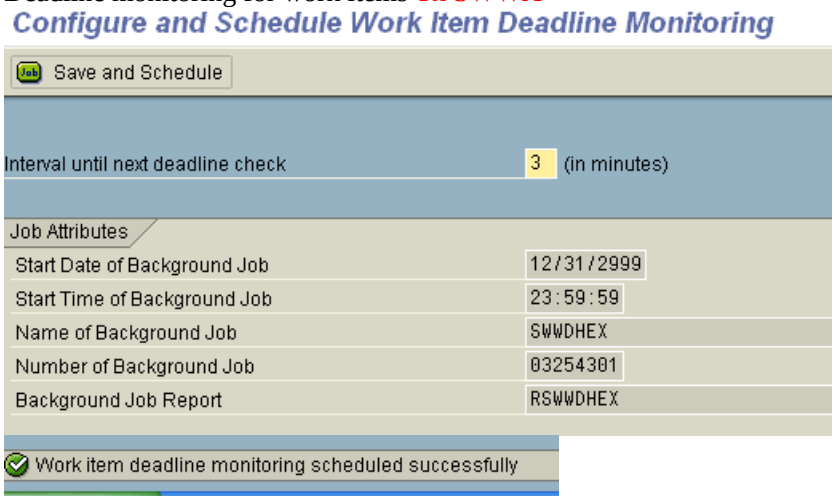
Workflow Restart after errors

Tx SWPR can be used to display a list of workflows with errors for a particular selection period and then restart them.This allows you to perform a mass restart of workflow.





Deadline monitoring for work items Tx SWWA



Work Item Rule monitoring Report RSWWICOND

If conditions are defined for the work item start or work item end for steps in the work flow, these conditions must be regularly checked.

Continue workflow after system crash Tx SWPC.

You can use this report to select and continue workflows that have had the status STARTED for longer than a day.This means workflow that have come to the halt after system errors can be continued.

Day in the life of a Workflow Administrator

1. 1. Who should be the workflow administrator?

Workflow administration usually involves both technical activities and business activities, so it makes sense to have both technical and business personnel as administrators.

2. 2. Who makes the business decisions in the event of failure?

Workflows are business processes in action, how does the business interact with the workflow administrator if the workflow fails.

3. 3. Crisis response

When the workflow fails, the business process fails. What does the workflow administrator do in the event of such a crisis.

4. 4. Day-to-Day monitoring

Even when everything is running smoothly, there are still a few things for the workflow administrator to do. Following 'Healthy checks' should be carried out at least once a day.

Regularly check in your inbox for workflow errors. The error monitoring job (SWWERRE) will report severe errors such as event linkage errors, binding errors, and rule resolution errors directly to your inbox. This way you can fix a problem before the agents notice it.

Execute the error overview report (Diagnosis of workflow with errors, Tx SWI2_DIAG) to see what errors, if any, are outstanding
Check that the error monitoring job (SWWERRE) is running correctly.

Archiving Program for Work Items

The archiving program RSWWARCA reads work items for archiving and writes them into an archive. The deletion program RSWWARCD deletes these work items from the database.
You can specify whether or not the deletion program is to be started within Customizing for the archiving object WORKITEM .
The archiving program offers various selection parameters with which you can select which work items are to be archived. The selection parameters are:

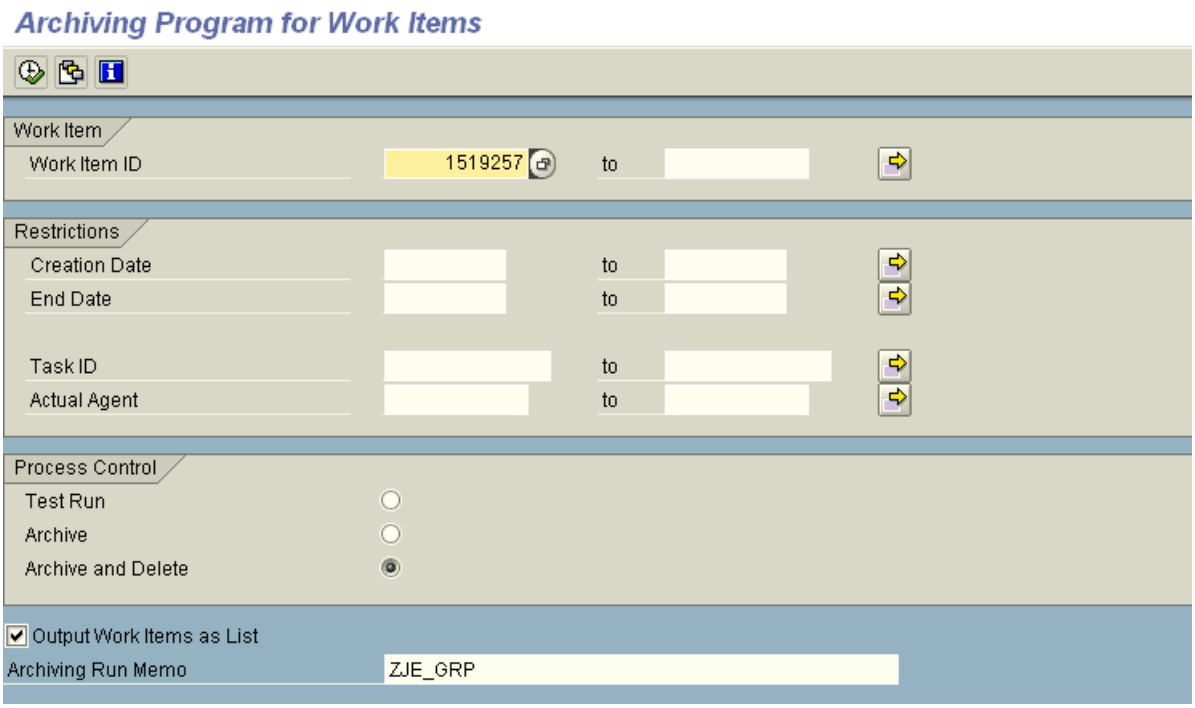
- Work item ID
- Task ID
- Actual agent of work item
- Creation date of work item
- End date of work item

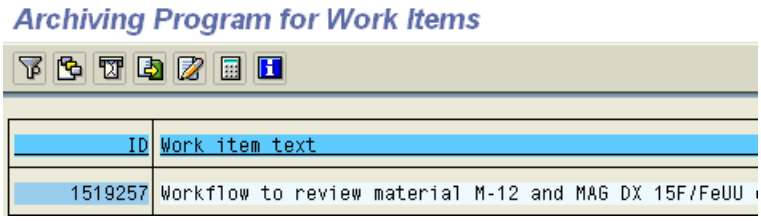
The archiving program compiles the list of work items defined with the selection criteria, and passes it to the function module SWW_WI_LIST_ARCHIVE. The latter then archives the intermediate documents using the function modules and FORM routines from the function group SWWX in conjunction with the FORM routines from the Archive Development Kit (ADK).
Only work items with an end status (COMPLETED or CANCELLED) can be archived. In addition, archiving can only be initiated for work items that are not dependent on other work items ("top-level work items"). This ensures that work items that are still being processed are not archived.
Work items dependent on the selected work items are also archived automatically (for example work items that are part of a workflow). This recursion is performed internally by the FORM routine READ_WORKITEM_DATA_FROM_DB.
If you set the indicator Output work items as list, the selected work items are output in a list.
Otherwise, you are only informed of the number of work items selected.

Archiving Work Items

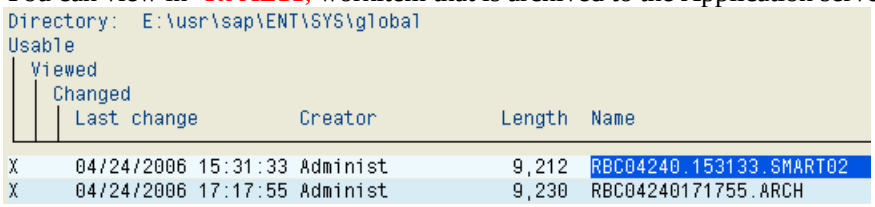
Archive the workitems using the work item id.
Display the workitem after you archive them.

Call the SAP data archiving using report RSWWARCA or using Tx SWW_SARA.



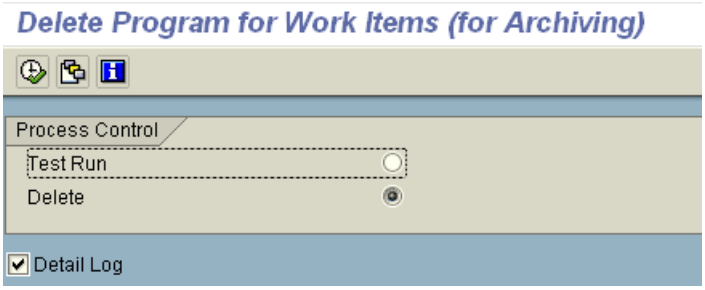


You can view in Tx AL11, workitem that is archived to the Application server.

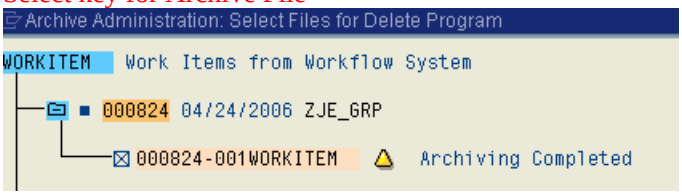


Deleting Archived Work Items

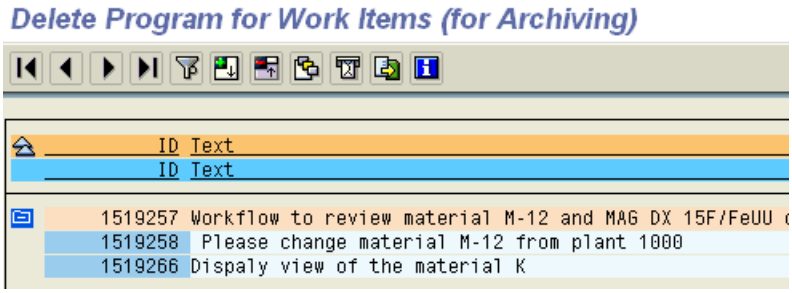
Call the SAP data deletion using report RSWWARCD or using Tx SWW_SARA.



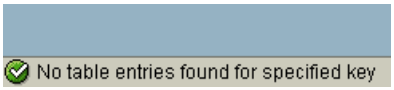
Select key for Archive File



Continue.

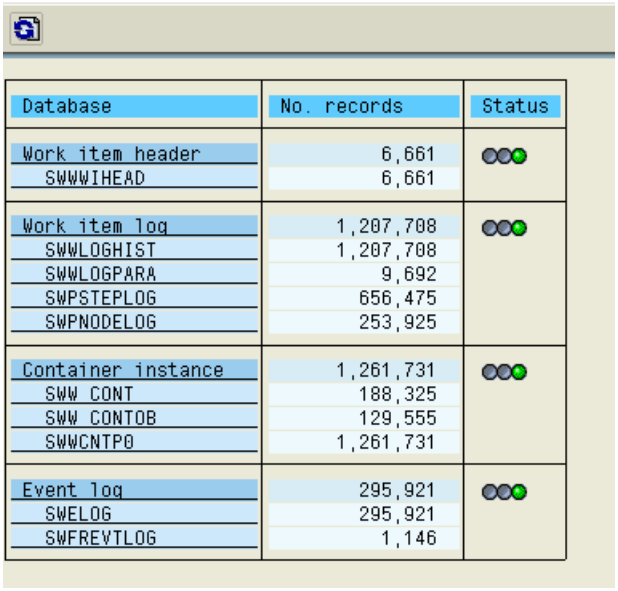


Now check the Header Table for All Work Item Types in the table SWWWIHEAD with the workitem id. Entry will not exist.



You can use RSWIWADO report to determine the necessity to archive or delete work items.

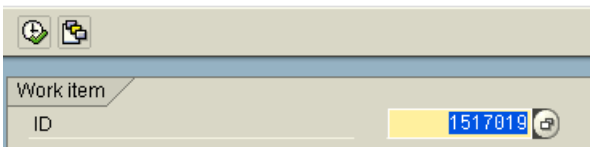
Watchdog for runtime tables



Database	No. records	Status
Work item header	6,661	
SWWWIHEAD	6,661	
Work item log	1,207,708	
SWWLOGHIST	1,207,708	
SWWLOGPARA	9,692	
SWPSTEPLOG	656,475	
SWPNODELOG	253,925	
Container instance	1,261,731	
SWW_CONT	188,325	
SWW_CONTOB	129,555	
SWWCNTP0	1,261,731	
Event log	295,921	
SWELOG	295,921	
SWFREVTLOG	1,146	

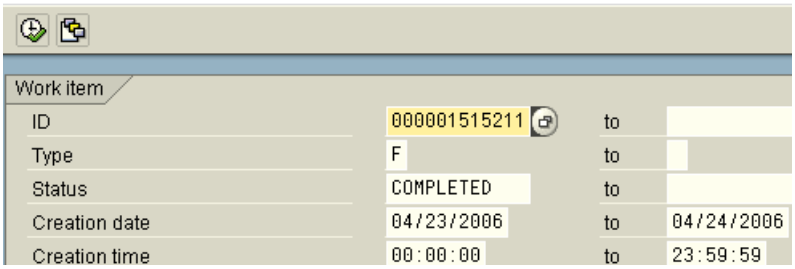
You can use RSWWHIDE Report if you want to delete only the workflow log..

Delete Work Item History



You can use RSWWWIDE Report or Tx SWWL to delete the work items from the inbox.

Delete Work Item



For security Reasons , Archived work items can be read but not reloaded
You can use RSWWARCR report to read the archived work items but not reload.

Troubleshooting – Starting a workflow

Workflow does not start

Check the customizing settings transaction SWU3
Check the event trace for initiator Tx SWEL
Check the event linkage Tx SWE2 & SWEC
Check the trfc log under initiator's login
Check the workflow definition active version

Troubleshooting – work item cannot be found

Work item is not in business workplace

Check whether the work item was created correctly
Search for the work item using the work item selection Tx SWI1
Check the agent assignment using the task profile and the step definition Tx OOCU
Check the rule definition and / or the rule function module Tx PFAC

Troubleshooting – work item not in End status

Work item cannot be completed

Check the workflow log (application or temporary error)
If a background job, check using RSWWERRE report
Check whether workflow system administrator has received a mail
If a asynchronous step, check the event instance linkage.
Initiate the test execution
Check the container contents

Work Item manager API

How to start a workflow via the work item manager API.

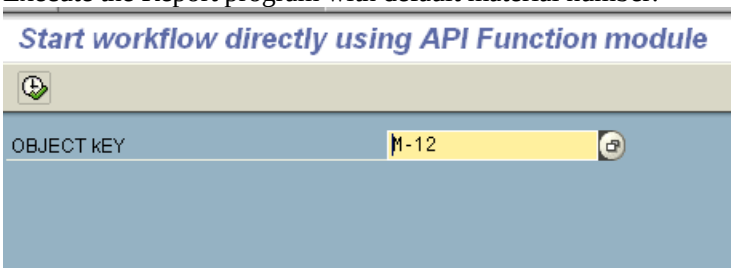
Rather than using an event, you want to use the API of the workitem manager to start a workflow directly (For performance reasons)

Create a report program that starts your workflow by calling the API function module SWW_WI_CREATE_SIMPLE.

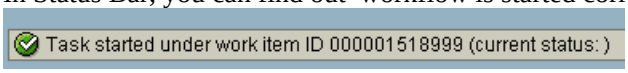
```
*&---------------------------------------------------------------------*
*& Report  ZJESTART                                                    *
*&                                                                     *
*&---------------------------------------------------------------------*
*&                                                                     *
*&                                                                     *
*&---------------------------------------------------------------------*

REPORT  ZJESTART                        .
INCLUDE <CNTN01>.
parameter : objkey like mara-matnr default 'M-12'.
data: task like swwvpublic-wi_rh_task value 'WS80002876'.
DATA: WI_ID LIKE swwvpublic-WI_ID,
OBJECT TYPE SWC_OBJECT,
AGENTS LIKE SWHACTOR OCCURS 0 WITH HEADER LINE,
WI_CONTAINER LIKE SWCONT OCCURS 0 WITH HEADER LINE.
```

```
*SET THE IMPORT PARAMETER FOR THE WORKFLOW ZJECHGMMCC WS80002876

*FIRST CREATE OBJECT REFERENCE (RUNTIME HANDLE)
SWC_CREATE_OBJECT OBJECT 'ZMARAJES' OBJKEY.

*SECOND WRITE REFERENCE TO WORK ITEM CONTAINER USING PARAMETER DEF
SWC_SET_ELEMENT WI_CONTAINER 'MATERIAL' OBJECT.

*THIRD CONVERT REFERENCES IN CONTAINER FROM RUNTIME HANDLE TO PERSISTENT
OBJECT REFERENCE.
SWC_CONTAINER_TO_PERSISTENT WI_CONTAINER.

*START THE WORKFLOW VIA FUNCTION MODULE API

CALL FUNCTION 'SWW_WI_START_SIMPLE'
  EXPORTING
*   CREATOR                     = ' '
*   PRIORITY                    = NO_PRIO
    TASK                        = TASK
*   CALLED_IN_BACKGROUND        = ' '
*   DEADLINE_DATA               = ' '
*   NO_DEADLINE_PARAMETERS      = ' '
 IMPORTING
  WI_ID                         = WI_ID
*   WI_HEADER                   =
*   RETURN                      =
*   WI_RESULT                   =
*   SWF_RETURN                  =
  TABLES
    AGENTS                      = AGENTS “Not needed here
*   DEADLINE_AGENTS             =
*   DESIRED_END_AGENTS          =
*   LATEST_START_AGENTS         =
*   EXCLUDED_AGENTS             =
*   NOTIFICATION_AGENTS         =
*   SECONDARY_METHODS           =
   WI_CONTAINER                 =  WI_CONTAINER
* CHANGING
*   WI_CONTAINER_HANDLE         =
 EXCEPTIONS
   ID_NOT_CREATED               = 1
  READ_FAILED                   = 2
   IMMEDIATE_START_NOT_POSSIBLE = 3
   EXECUTION_FAILED             = 4
   INVALID_STATUS               = 5
  OTHERS                        = 6
        .
IF SY-SUBRC <> 0.                                   “Error Message
MESSAGE ID SY-MSGID TYPE SY-MSGTY NUMBER SY-MSGNO
       WITH SY-MSGV1 SY-MSGV2 SY-MSGV3 SY-MSGV4.
       ELSE.                                        “Success Message
       MESSAGE ID 'WZ' TYPE 'S' NUMBER '703' WITH WI_ID.
ENDIF.
```

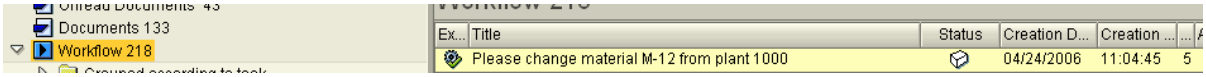
Execute the Report program with default material number.



In Status Bar, you can find out workflow is started correctly or not.



Go to SBWP to view the workitem.



Create a report program that lists all non-terminated workflow instances started more than a week ago.

```
*&---------------------------------------------------------------------*
*& Report  ZJEWEEK_LIST                                                *
*&                                                                     *
*&---------------------------------------------------------------------*
*&                                                                     *
*&                                                                     *
*&---------------------------------------------------------------------*

REPORT  ZJEWEEK_LIST LINE-SIZE 512                          .

INCLUDE RSWWINCL.
TABLES:Z00VHEACON. "PUBLIC VIEW ON WORK ITEM HEADER DATA
*PARAMETERS: TASK LIKE SWWWIHEAD-WI_RH_TASK,
PARAMETERS: TASK LIKE SWWVPUBLIC-WI_RH_TASK,
DAYS_AGO LIKE SWWWIHEAD-RETRY_CNT DEFAULT '07'.
DATA: CAND_WIS LIKE Z00VHEACON OCCURS 0 WITH HEADER LINE.
DATA:START_DATE LIKE SY-DATUM.


WRITE:/ 'LISTS OF WORKFLOWS STARTED LONGER THAN ', DAYS_AGO, 'DAYS_AGO:'

.
*DETERMINE START DATE FOR CANDIDATE WORKFLOWS
START_DATE = SY-DATUM - DAYS_AGO.

*SEARCH LIST OF CANDIDATE WORKFLOWS

IF TASK NE SPACE.   "SEARCH FOR A SPECIFIC TASK
  SELECT * FROM Z00VHEACON INTO TABLE CAND_WIS
  WHERE WI_RH_TASK EQ TASK AND
```

```
      WI_CD <= START_DATE AND
      WI_CHCKWI EQ SPACE AND        "TOP LEVEL WORFLOWS ONLY
      ( WI_STAT NE WI_STATUS_COMPLETED AND
       WI_STAT NE WI_STATUS_CANCELLED ).

ELSE.     "SEARCH FOR A SPECIFIC TASK

  SELECT * FROM Z00VHEACON INTO TABLE CAND_WIS
  WHERE WI_RH_TASK EQ TASK AND
  WI_CD <= START_DATE AND WI_CHCKWI EQ SPACE AND "TOP LEVEL WORKFLOWS ONLY
   ( WI_STAT NE WI_STATUS_COMPLETED AND
  WI_STAT NE WI_STATUS_CANCELLED ).
ENDIF.

*DISPLAY RESULT LIST

LOOP AT CAND_WIS.

  WRITE:/ CAND_WIS-WI_ID, CAND_WIS-WI_RH_TASK, CAND_WIS-WI_STAT,
  CAND_WIS-WI_CD, CAND_WIS-VALUE.
ENDLOOP.
```