

TOPIC:

SAP ABAP Custom Workflow Creation and Make Copy of Standard Workflow.

Mandatory T-Codes to remember in workflows.

1. **SWO1** – create business object.
Make a copy of standard business object.
Delegate copy with standard business object to use custom over standard.
2. **PFTC** – create Workflow.
Create tasks to use in Workflow.
Activate Workflow standard or custom.
Edit Workflow using Workflow builder.
3. **SWDD** – Workflow builder.
4. **SWE2** – link the Workflow with their events standard or custom.
5. **SWELS** – activate / deactivate the trace for Workflow to check it's calling.
6. **SWEL** – check the trace results.
7. **SWIA** – Workflow report, used to check which Workflow called or having error, its state and all amount running Workflow.

Workflow Scenario:

When a PR is created or changed or cancelled a Workflow will call. We will maintain approvers in custom table with hierarchy level 1,2,3 and so on. The Workflow will send approval request to maintain users one by one.



Step 1:

1. Create a copy of pr business object BUS2105.
2. Go to T-Code **SWO1** and click on create button.
3. Fill the fields as given below. Enter the standard Workflow in first field and other will be custom choose by developer.
4. Hit enter or OK button to final the first step.

The screenshot shows the 'Business Object Builder: Initial Screen' in SAP. A dialog box titled 'Create Object Type' is open, displaying the following fields:

| Field | Value |
|-------------|-------------|
| Supertype | BUS2105 |
| Object Type | ZBUS2105 |
| Object name | ZBUS2105 |
| Name | ZBUS2105 |
| Description | PR Workflow |
| Program | ZBUS2105 |
| Application | * |

On the left side of the dialog, there are radio buttons for 'Object type' (selected) and 'Interface type'. A 'Display' button is also visible. The background shows the 'Business Object Repository' with a tree view on the left.

A Business Object is Created, Click on **SAVE** Button.

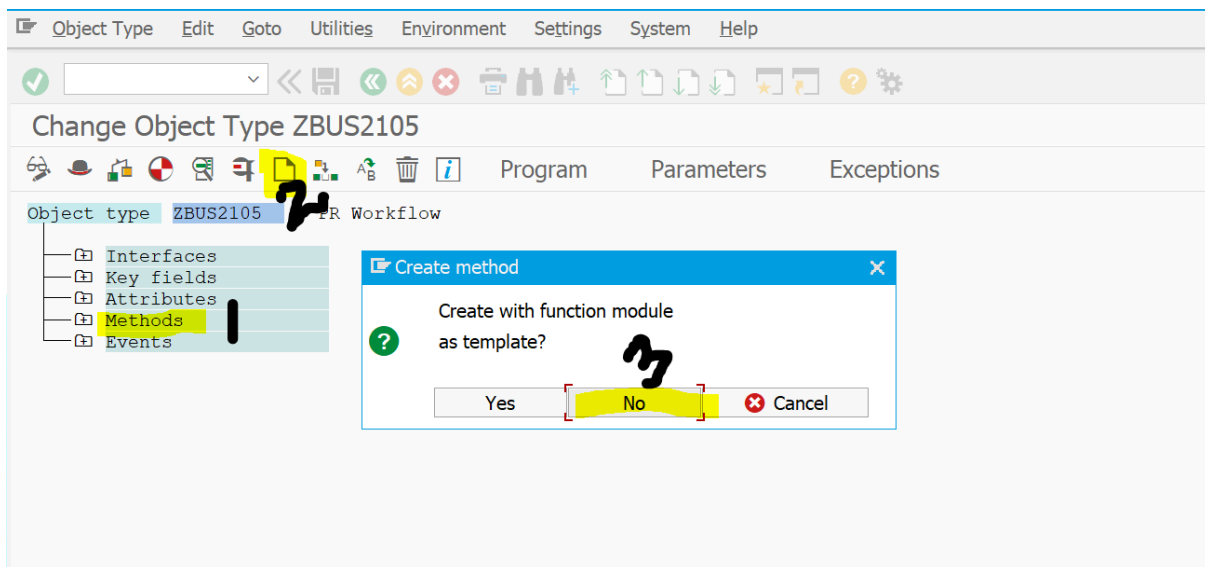
The screenshot shows the 'Change Object Type ZBUS2105' screen in SAP. The top menu bar includes 'Object Type', 'Edit', 'Goto', 'Utilities', 'Environment', 'Settings', 'System', and 'Help'. The toolbar contains various icons for navigation and editing. The main area displays the object type 'ZBUS2105' and its description 'PR Workflow'. A tree view on the left shows the object's structure:

- Object type ZBUS2105 PR Workflow
 - Interfaces
 - Key fields
 - Attributes
 - Methods
 - Events

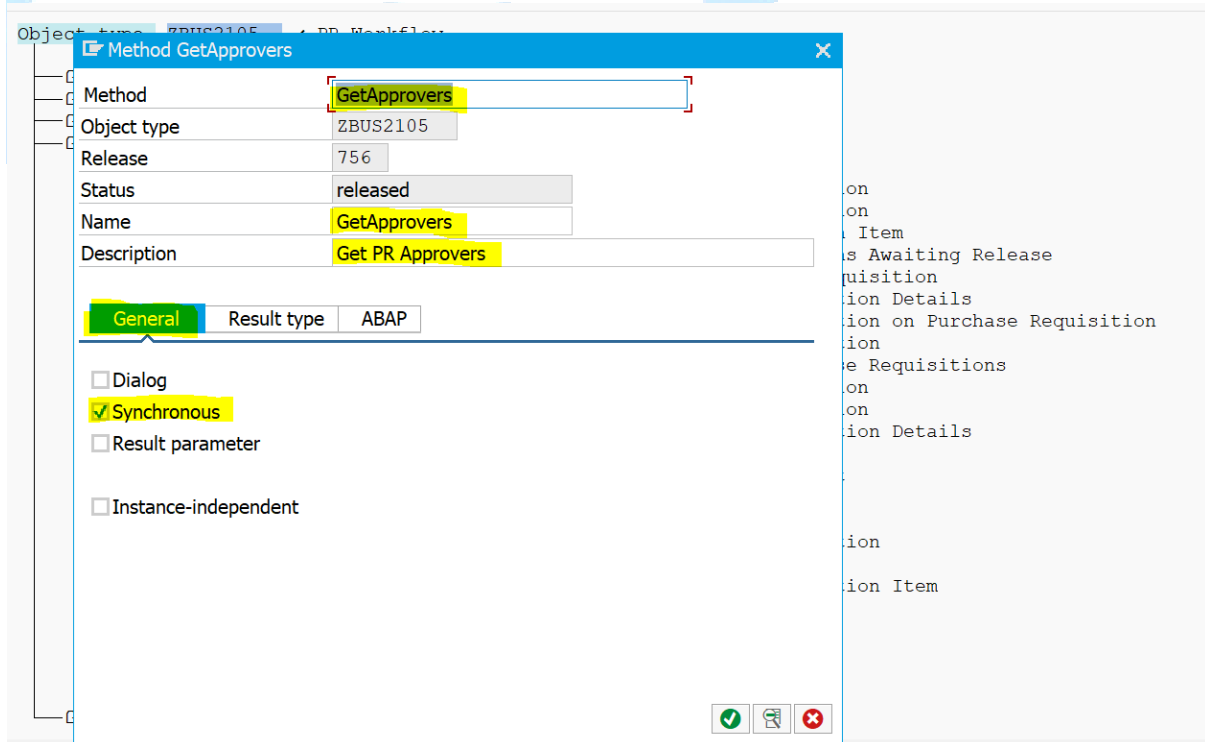
Step 2:

We will create method to get approvers from our custom table first.

1. Click on methods.
2. Click on create button and select no (we do not have already defined method so we will be creating here).



Give the method name and details like given below.



Object type: ZBUS2105 - PR Workflow

Method GetApprovers

| | |
|-------------|------------------|
| Method | GetApprovers |
| Object type | ZBUS2105 |
| Release | 756 |
| Status | released |
| Name | GetApprovers |
| Description | Get PR Approvers |

General **Result type** **ABAP**

☐ ABAP Dictionary

Reference table:

Reference field:

Search Help:

☒ **Object type** Purchase requisition

☐ Multiline

on
on
Item
s Awaiting Release
quisition
ion Details
ion on Purchase Requisition
ion
e Requisitions
on
on
ion Details

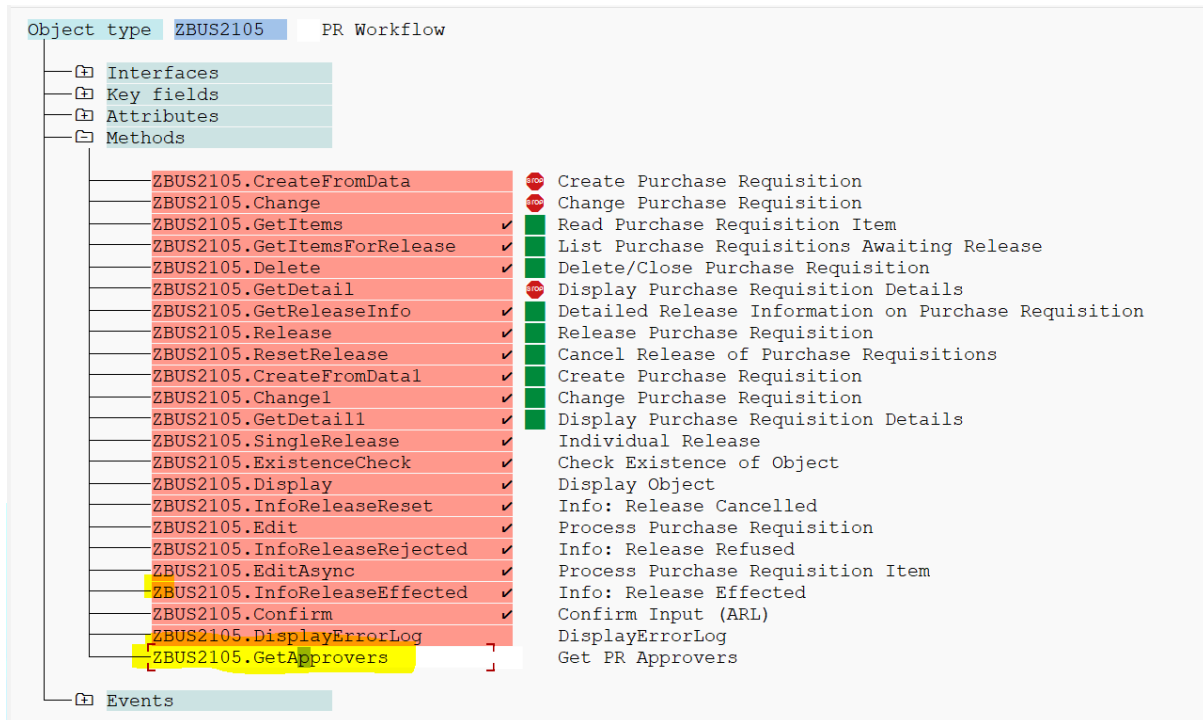
ion
ion Item

✓ ↺ ✗

Hit enter or OK button finalize step 2.

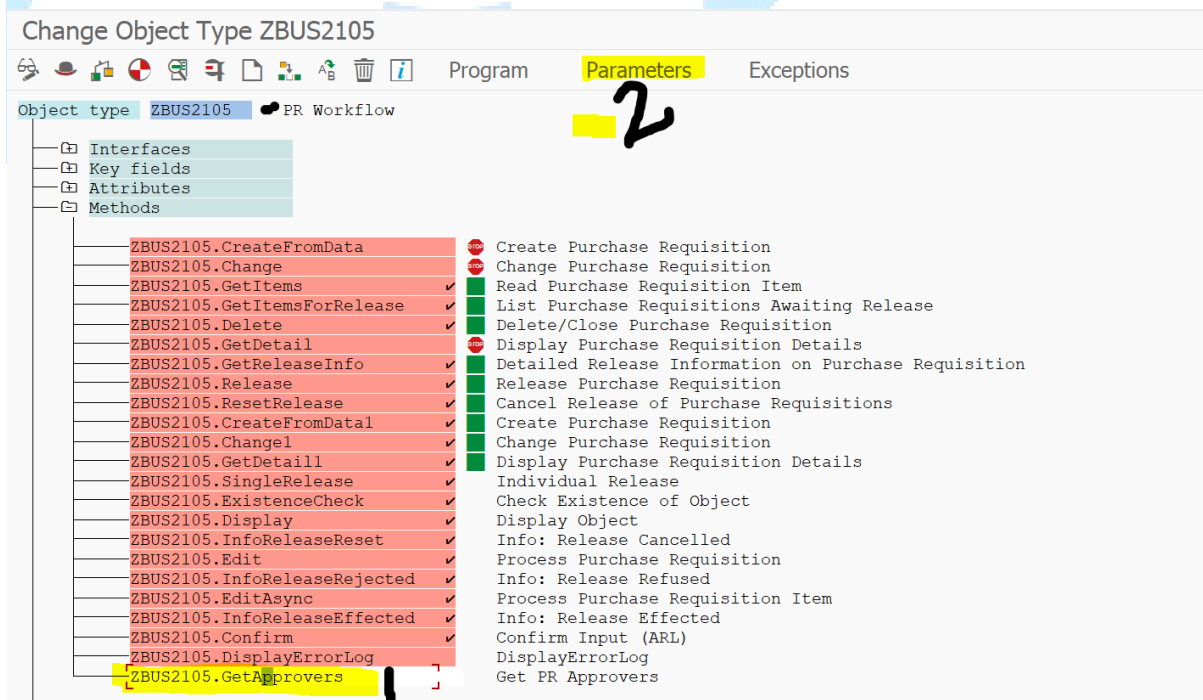
Step 3:

A new function is added.



Add the parameters for our function.

Click on function and click on parameters button as shown below.



Object Type ZBUS2105: Edit Parameters for Method GETAPPROVERS

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Other View

Program

Exceptions

| Overview | | | | | | |
|-----------|-----------|---------------|--------------------------|--------------------------|-------------------------------------|--------------------------|
| Parameter | Obj. Type | First Release | Imp. | Man. | Exp. | Key |
| Tab_agent | ZBUS2105 | 756 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Numb_appr | ZBUS2105 | 756 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Tab_agent (Table to get Approvers)

Object Type ZBUS2105: Edit Parameters for Method GETAPPROVERS

Other View Program Exceptions

Parameter Tab_agent

| | | | |
|-------------|-----------|-------------------------------------|--------------------------|
| Parameter | Tab_agent | Exp. | Key |
| Object type | ZBUS2105 | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Release | 756 | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Texts

| | |
|-------------|-----------|
| Name | Tab_agent |
| Description | Agents |

Parameter attributes

☐ Import ☐ Mandatory

☒ Export ☐ Supplied from Key

☒ Multiline

Data type reference

☒ ABAP Dictionary

| | |
|-----------------|----------|
| Reference table | SWHACTOR |
| Reference field | |

☐ Object type

Numb_appr (Number Of Approvers).

Object Type ZBUS2105: Edit Parameters for Method GETAPPROVERS

Other View Program Exceptions

Parameter Numb_appr

| | |
|-------------|-----------|
| Parameter | Numb_appr |
| Object type | ZBUS2105 |
| Release | 756 |

Texts

| | |
|-------------|--------------------|
| Name | Numb_appr |
| Description | Number of Approver |

Parameter attributes

| | |
|--|--|
| <input type="checkbox"/> Import | <input type="checkbox"/> Mandatory |
| <input checked="" type="checkbox"/> Export | <input type="checkbox"/> Supplied from Key |
| <input type="checkbox"/> Multiline | |

Data type reference

☒ ABAP Dictionary

| | |
|-----------------|-----------|
| Reference table | SWASTDTYP |
| Reference field | WFCOUNTER |

☐ Object type

| | |
|-------------------------------------|--------------------------|
| Exp. | Key |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> |

✓ ↺ ✗

Step 4:

Create Approvers Table to maintain approvers.

Fields and data type shown below.

Dictionary: Display Table

Transparent Table **ZWF_PR_APPROVERS** Active

Short Description: Approvers Table for Purchase Requisition

Attributes | Delivery and Maintenance | **Fields** | Input Help/Check | Currency/Quantity Fields | Indexes

| Field | Key | Init... | Data element | Data Type | Length | Deci... | Coordinate | Short Description |
|-----------|-------------------------------------|-------------------------------------|--------------|-----------|--------|---------|------------|-----------------------------------|
| MANDT | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | MANDT | CLNT | 3 | 0 | | 0 Client |
| APPR_EVEL | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | INT1 | INT1 | 3 | 0 | | 0 1 Byte Unsigned Integer |
| APPROVER | <input type="checkbox"/> | <input type="checkbox"/> | XUBNAME | CHAR | 12 | 0 | | 0 User Name in User Master Record |
| | | | | | | | | |
| | | | | | | | | |



Step 5:

Select method and click on program button same as we clicked on parameters button.

A pop up will appear select yes for predefined code of added parameters.

Enter the following code mentioned below.

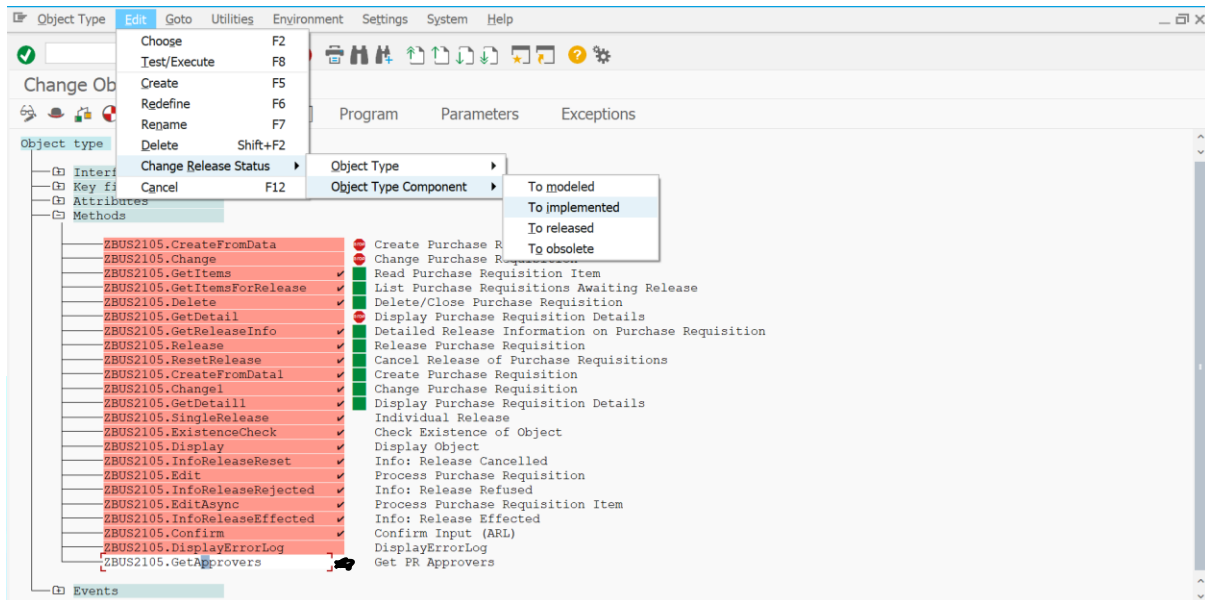
Object Type ZBUS2105 Change

69 15 100 100 Pattern Pretty Printer Text Elements

```
13  END_DATA OBJECT. " Do not change.. DATA is generated
14
15  BEGIN_METHOD GETAPPROVERS_CHANGING_CONTAINER.
16  DATA: TAB_AGENT LIKE SWHACTOR OCCURS 0,
17         NUMB_APPR TYPE SWASTDTYP-WFCOUNTER,
18         WA_AGENT LIKE LINE OF TAB_AGENT.
19
20
21  DATA: IT_MAPPER TYPE TABLE OF ZWF_PR_APPROVERS,
22         LWA_MAPPER TYPE ZWF_PR_APPROVERS.
23
24  SELECT * FROM ZWF_PR_APPROVERS INTO CORRESPONDING FIELDS OF TABLE IT_MAPPER.
25  SORT IT_MAPPER ASCENDING BY APPR_EVEL.
26
27  LOOP AT IT_MAPPER INTO LWA_MAPPER.
28
29      CLEAR: WA_AGENT.
30
31      WA_AGENT-OTYPE = 'US'.
32      WA_AGENT-OBJID = LWA_MAPPER-APPROVER.
33
34      APPEND WA_AGENT TO TAB_AGENT.
35
36  ENDLOOP.
37
38  DESCRIBE TABLE IT_MAPPER LINES NUMB_APPR.
39
40  SWC_SET_TABLE CONTAINER 'Tab_agent' TAB_AGENT.
41  SWC_SET_ELEMENT CONTAINER 'Numb_appr' NUMB_APPR.
```

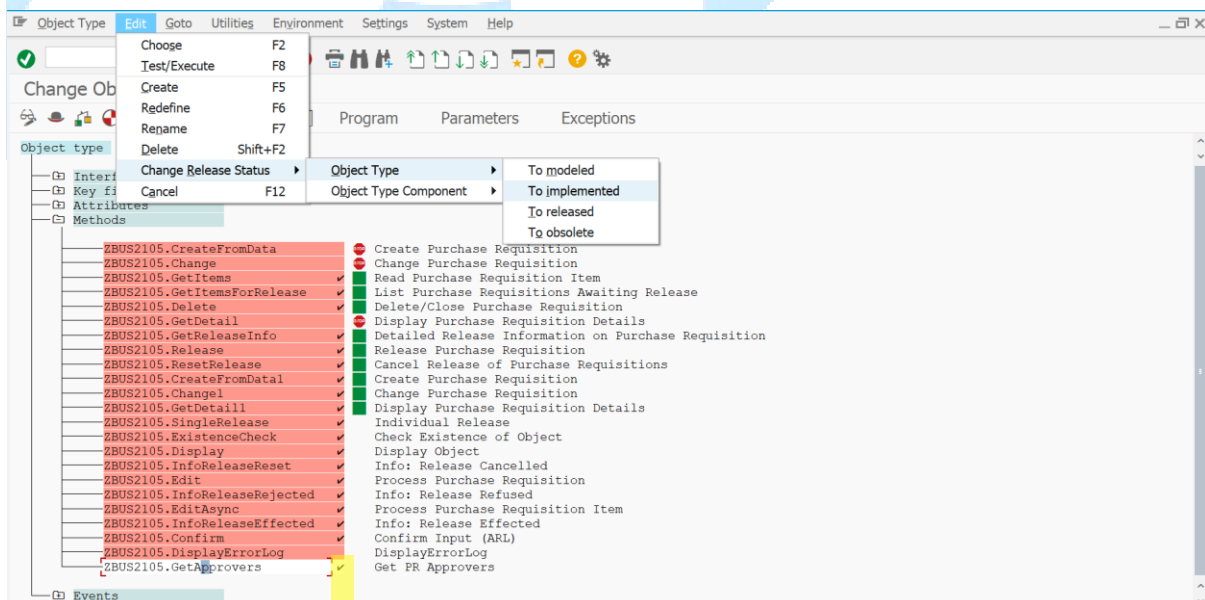
Step 6:

1. Go to edit.
2. Select change release status.
3. Select object type component to make function available for use in Workflow.
4. Select Implemented.



After that repeat same step and now select released.

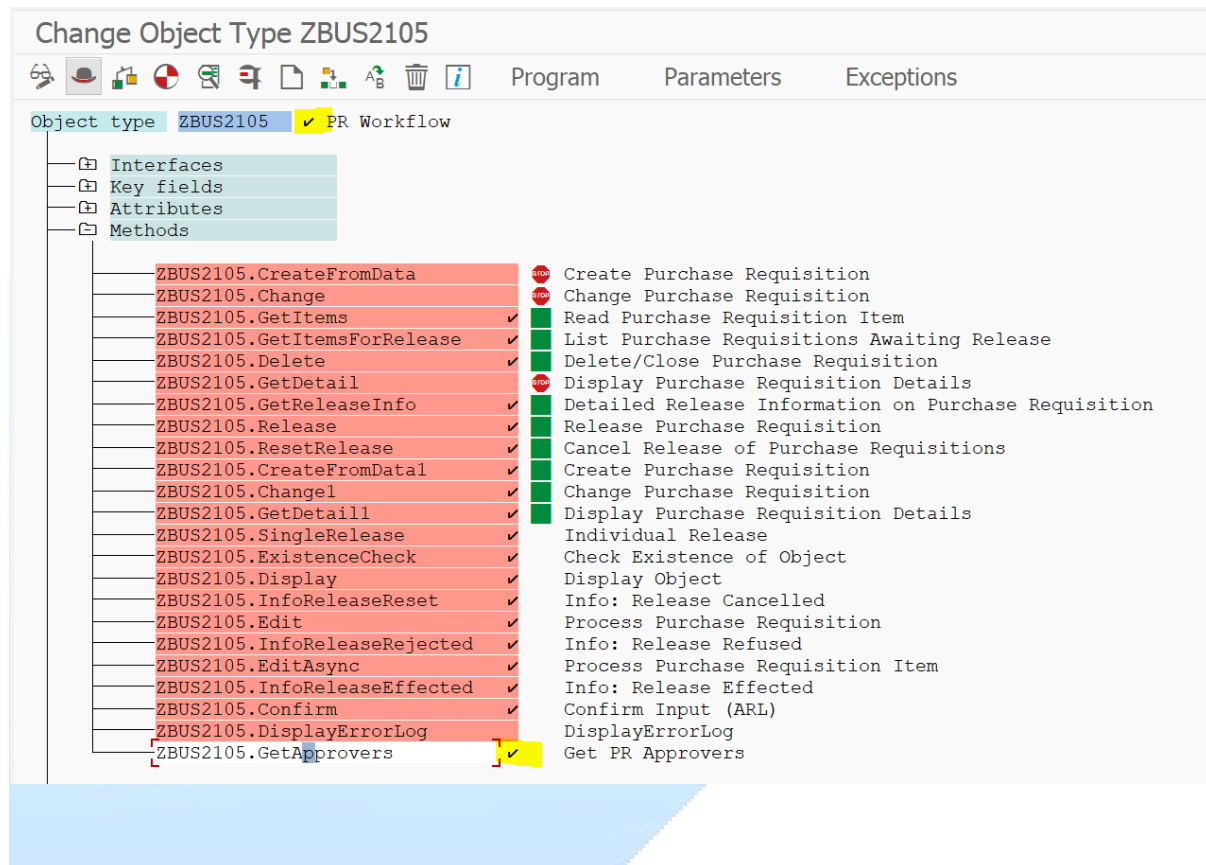
Tick will appear near function name that show function is now available for use.



Same steps follow as above.

1. Click on edit -> change release state -> object type -> To be implemented.
2. Click on edit -> change release state -> object type -> To Released.
3. Click generate button a Red and White circled button near check button.
4. Save the Business Object.

Due to this step a tick will appear near Business Object Name. That will make available the business object to use in Workflow.

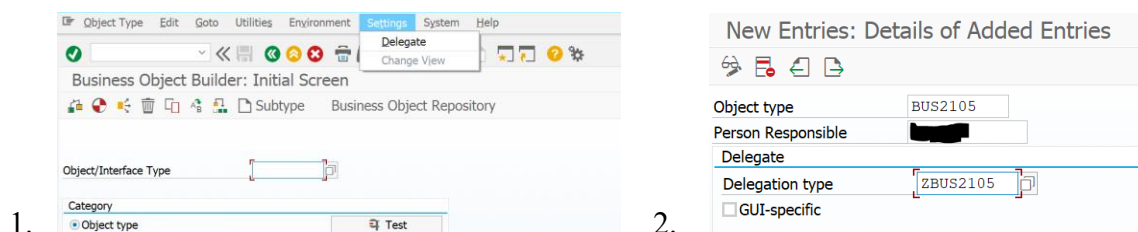


Now we can see **Tick** near Business Object name and Function Name.

If you can see It's Perfect.

Important Step:

Click on Delegate and add information and save.



Step 7:

1. Create workflow.
2. Go to t-code PFTC.
3. Select workflow template in task type and click create button.

Task: Maintain

Task type: Workflow Template

Task:

Name:

Give the details as given below and click on save button or **CLTR+F3**.

Now the workflow is created.

Workflow Pattern: Change

Workflow Pattern: 90000327 ZPR_WF

Name: ZPR_WF

Package: ZIFT_ALI

Applic. Component:

Basic data | Description | Container | Triggering events | SAPphone

Name:

Abbr.: ZPR_WF

Name: ZPR_WF

Release status: Not defined

Work Item Text

Work item text: Workflow Started for PR &BUS2105.NUMBER& Initiated By %UNAME% on %...

Workflow Definition

Workflow definition: ☒ Workflow Builder

Go to container tab and create a parameter with the name of business object (you can use any name, but type will be same).

Workflow Pattern: Change

Workflow Pattern 90000327 ZPR_WF
Name ZPR_WF
Package ZIFT_ALI Applic. Component

Basic data Description **Container** Triggering events SAPphone

Change Container Element

Element BUS2105

Texts
Name BUS2105
Short Descript. BUSINESS OBJECT

D. Type Properties Initial Valu Change Data

SelectionOfPredefinedTypes
☒ Object Type BOR Object Type
BUS2105 Purchase requisition

☐ ABAP Dict. Reference
Structure
Field

☐ ABAP Dict. Data Type

In properties check Import and Export.

Workflow Pattern 90000327
Name ZPR_WF
Package ZIFT_ALI

Basic data Description

Expression M. D
> Ad Hoc Objects
> Attachments
> Workflow Initiator
> Priority
> Grouping Character
> Workflow
> Workflow Version
> Predecessor
> BUS2105

Change Container Element

Element BUS2105

Texts
Name BUS2105
Short Descript. BUSINESS OBJECT

D. Type **Properties** Initial Valu Change Data

Parameter Settings
☒ Import ☐ Mandatory
☒ Export

Element Is
☐ Multiline
☐ Transient (value is not saved at runtime)

Step 8:

1. Go to triggering Tab.
2. Select Object Category as BOR Object Type.
3. Object Type BUS2105.
4. Event (Select for which you want to trigger your Workflow).

Note: These Step can be done by SWE2.

(To active Standard Workflow, You will just do this step by PFTC or SWE2)

Workflow Pattern: Change

Workflow Pattern 90000327 ZPR_WF
 Name ZPR_WF
 Package ZIFT_ALI Applic. Component

Basic data Description Container Triggering events SAPphone





Standard events

| Binding... | Object Category | Object Type | Event | Name |
|-------------------------------------|-------------------------------------|-------------|---------------------|-------------------------------|
| <input checked="" type="checkbox"/> | BOR Object Type | BUS2105 | CANCELED | Purchase requisition Canc... |
| <input checked="" type="checkbox"/> | BOR Object Type | BUS2105 | REJECTED | Purchase requisition Relea... |
| <input checked="" type="checkbox"/> | BOR Object Type | BUS2105 | RELEASESTEP_CREATED | Purchase requisition Relea... |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Click save button and click on Workflow Builder.

You can go to workflow builder by SWDD.

Workflow Pattern: Change

| | | |
|------------------|----------|-------------------|
| Workflow Pattern | 90000327 | ZPR_WF |
| Name | ZPR_WF | |
| Package | ZIFT_ALI | Applic. Component |

Basic data | Description | Container | Triggering events | SAPphone

Name

Abbr.


Name

Release status

Work Item Text

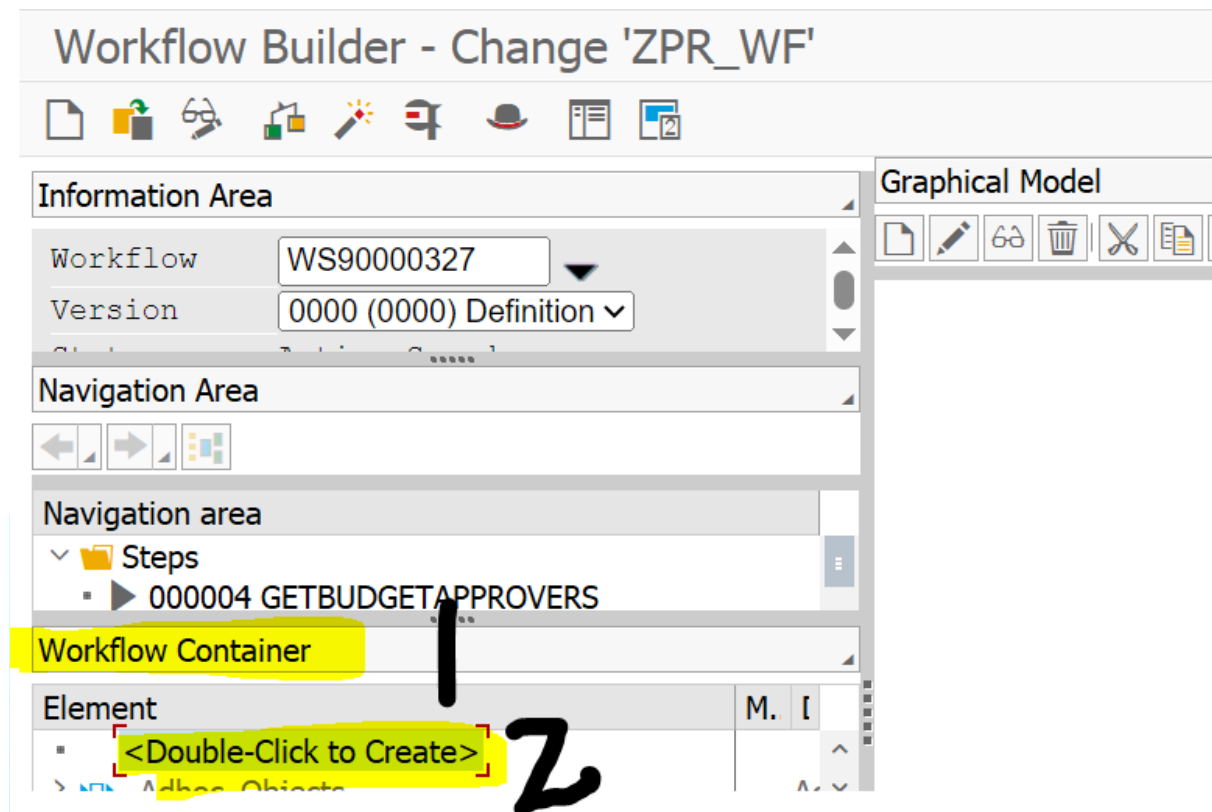
Work item text

Workflow Definition

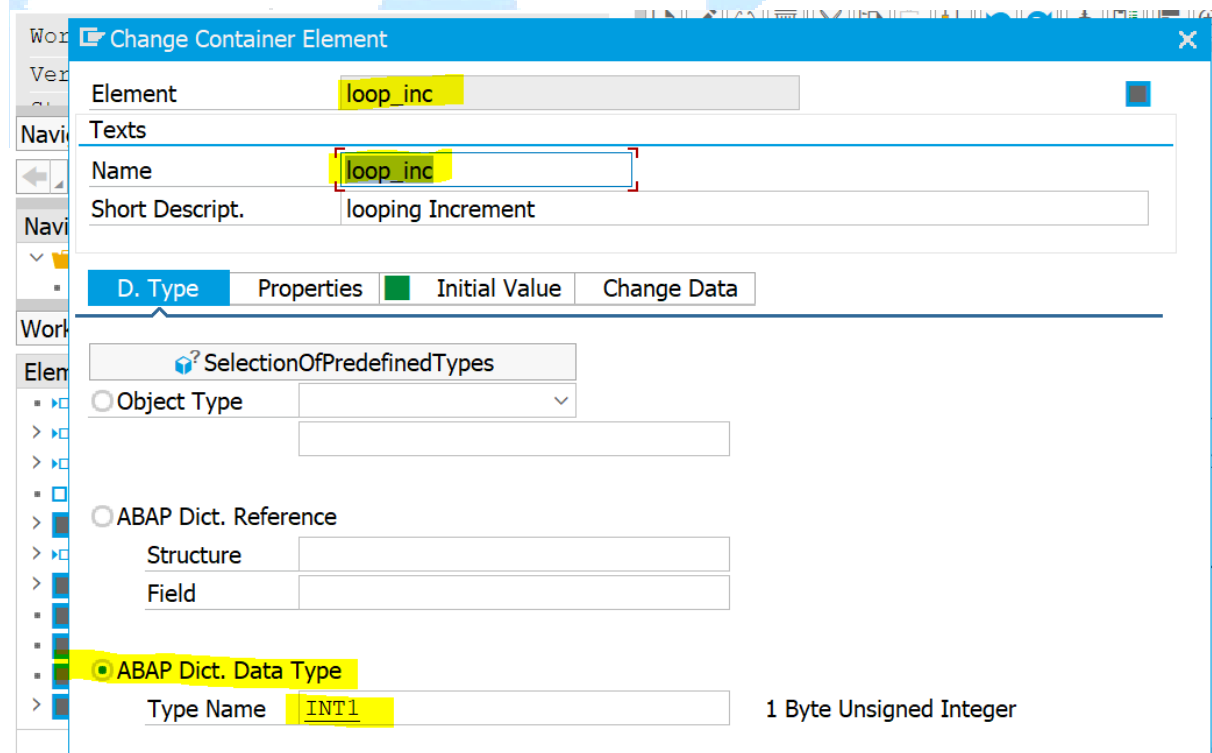
☒ Workflow definition  Workflow Builder

Here we must create some variables for loop and conditions.

Select workflow container and double click to create variable.



Create first variable for loop increment as given below.



By following same steps create another variable Rejected to check that approver has rejected the PR.

The screenshot shows the 'Change Container Element' dialog box. The 'Element' field is set to 'Rejected'. Under the 'Texts' tab, the 'Name' and 'Short Descript.' fields are both set to 'Rejected'. The 'D. Type' tab is selected, showing 'SelectionOfPredefinedTypes'. Under this type, the 'Object Type' radio button is selected. The 'ABAP Dict. Data Type' radio button is also selected, with the 'Type Name' set to 'CHAR1' and the 'Single-Character Flag' checked.

By following same steps create another variable decision Note to make any decision on base of condition.

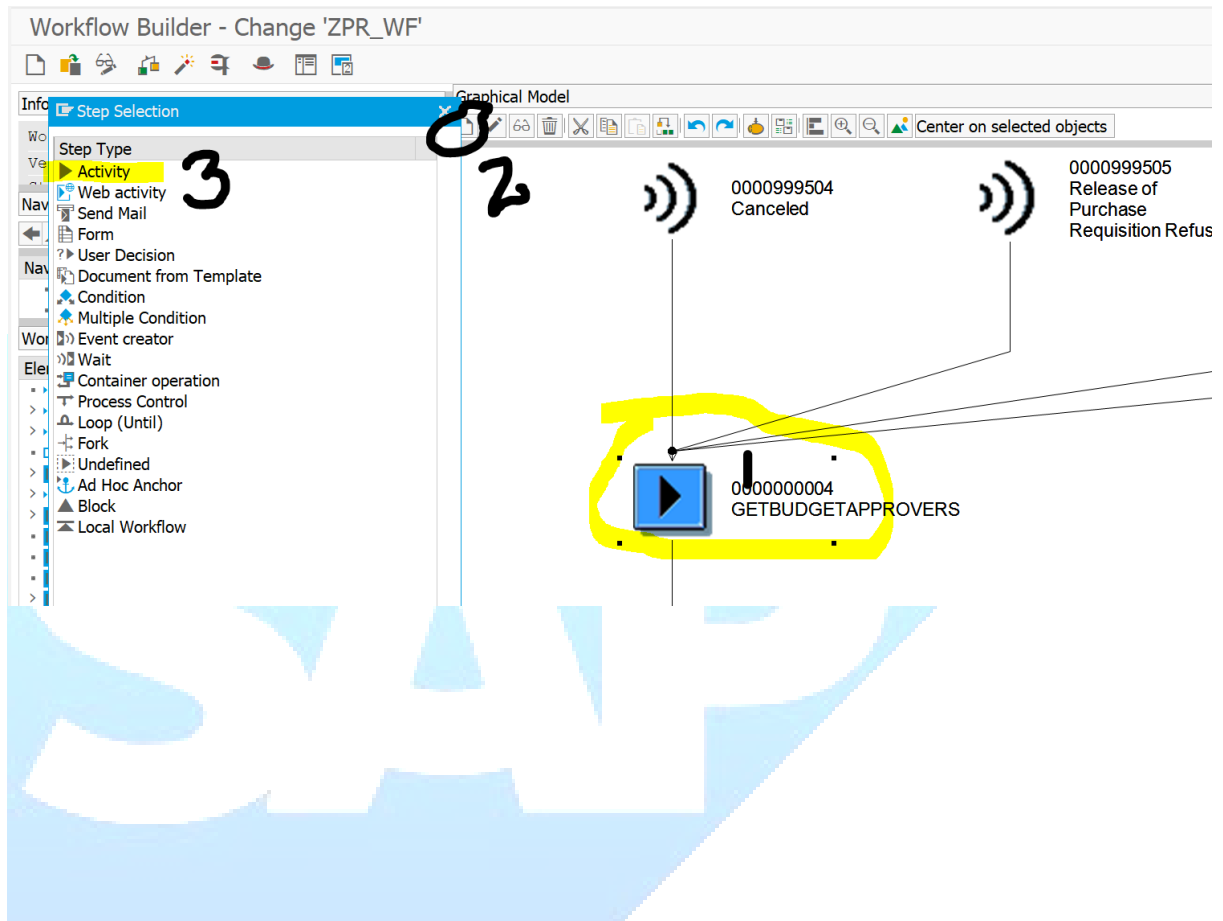
The screenshot shows the 'Change Container Element' dialog box. The 'Element' field is set to 'Decision_Note'. Under the 'Texts' tab, the 'Name' and 'Short Descript.' fields are both set to 'Decision_Note'. The 'D. Type' tab is selected, showing 'SelectionOfPredefinedTypes'. Under this type, the 'Object Type' radio button is selected, with the 'BOR Object Type' dropdown set to 'SOFM' and the 'Office Document' checkbox checked. The 'ABAP Dict. Reference' and 'ABAP Dict. Data Type' radio buttons are unselected.

Step 9:

It's time to start designing Workflow.

Add first activity to get approvers.

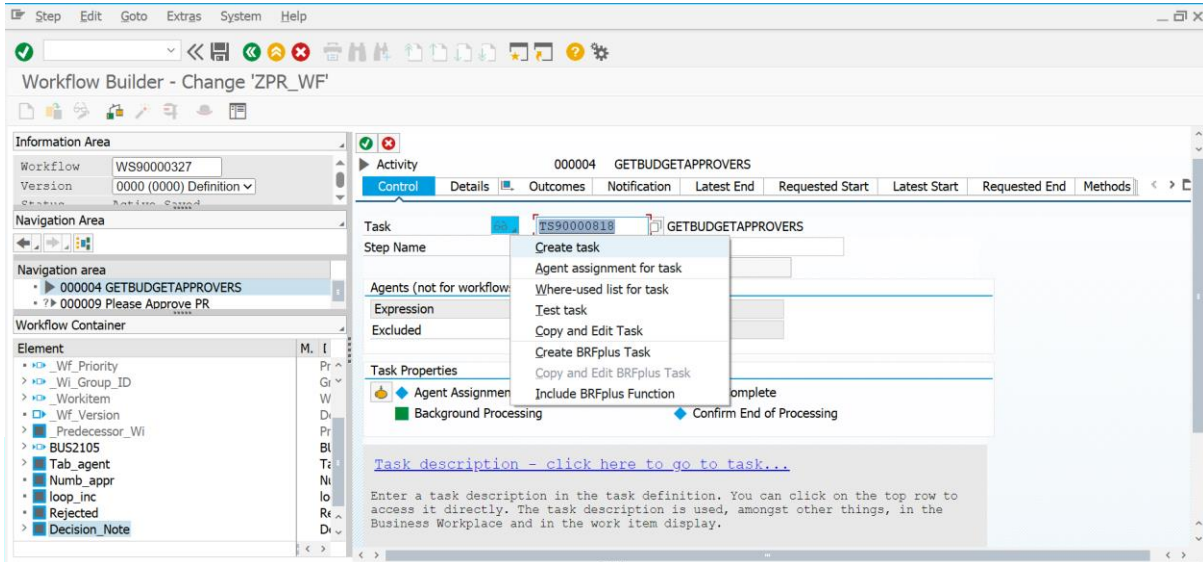
Click on select circle area point 1 and click on create button point 2 and select Activity point 3.



Step 10:

Here we need to create Task.

Click on little arrow button near Task and select Create Task.



Give the following details as given below.

Note if your Business Object is generated successfully, you will be able to find your custom created function in Business Object.

Standard Task: Display

Standard task: 90000818 ZGETPRAPPR
 Name: GETBUDGETAPPROVERS
 Package: ZIFT_ALI Applic. Component: _____

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

Name

Abbr.: ZGETPRAPPR
 Name: GETBUDGETAPPROVERS
 Release status: Not defined

Work Item Text

Work item text: Get Approvers of Purchase Requisition

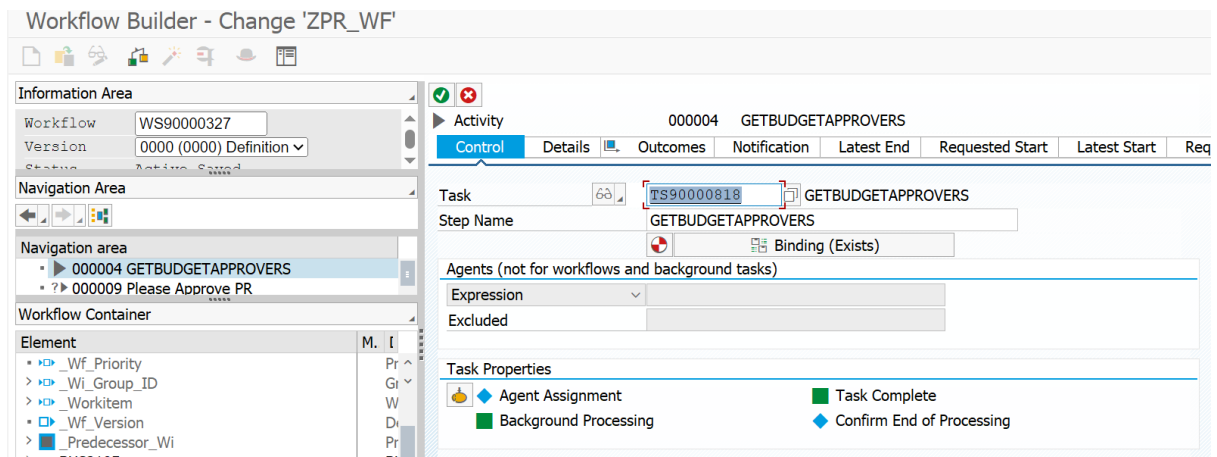
Object method

Object Category: BOR Object Type
 Object Type: BUS2105 Purchase requisition
 Method: GETAPPROVERS GetApprovers
☒ Synchronous object method
☐ Object method with dialog

Execution

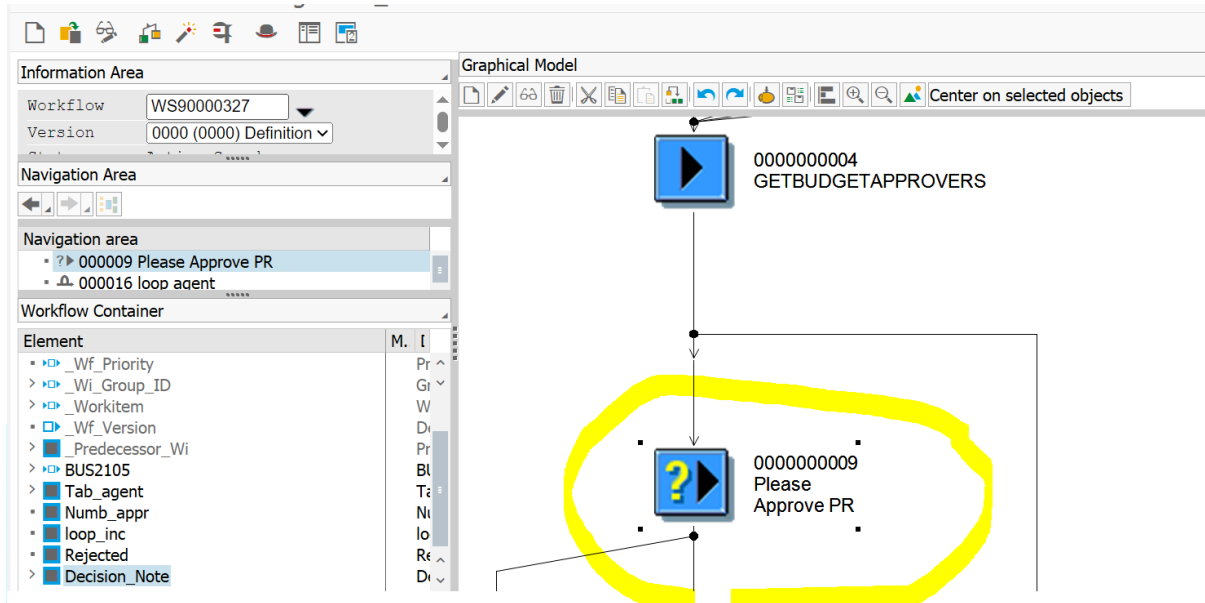
☒ Background processing ☐ Executable with SAPforms
☐ Confirm end of processing

Task has been created and added.



Now we have to add another step in Workflow.

1. To add this, click on circled area and click on create button just down the Graphical Model text.
2. Select user decision from pop up.



Add the following details given below and save the Workflow.

Workflow Builder - Change 'ZPR_WF'

Information Area: Workflow: WS90000327, Version: 0000 (0000) Definition

Navigation Area: 000009 Please Approve PR

Workflow Container: Element: _Wf_Priority, _Wi_Group_ID, _Workitem, _Wf_Version, _Predecessor_Wi, BUS2105, Tab_agent, Numb_appr, loop_inc, Rejected, Decision_Note

User Decision: 000009 Please Approve PR

Decision Details:

Title: Please Release PR

Parameter 1: &BUS2105.NUMBER& Parameter 2: Parameter 3: Parameter 4:

Agents: Expression: &TAB_AGENT[&loop_inc&] Excluded: Tab_agent

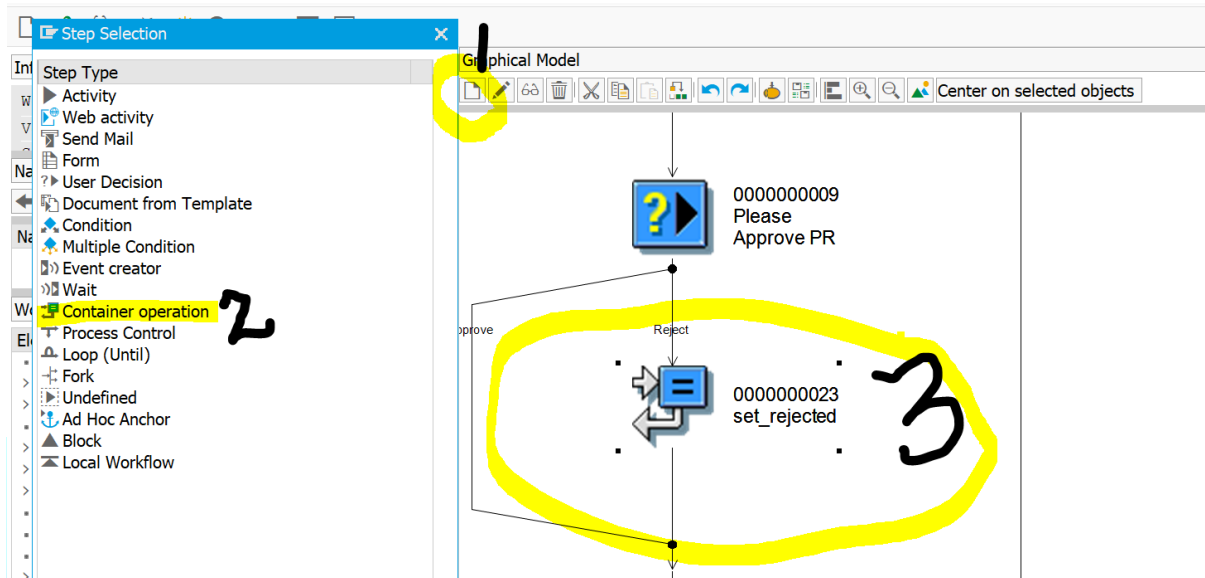
Decision Options:

| Decision Texts | Outcome Name | Justification |
|----------------|--------------|---------------|
| Approve | Approve | |
| Reject | Reject | |

Step 11:

Now we have to handle rejected case.

Select the circled area point 3 and click on create button point 1 and select Container Operation.



Add the following details given below.

Rejected = 'X'.

It will pass X to Rejected Variable to confirm that user has rejected the PR.

| Information Area | |
|------------------|------------------------|
| Workflow | WS90000327 |
| Version | 0000 (0000) Definition |
| Status | Active Saved |

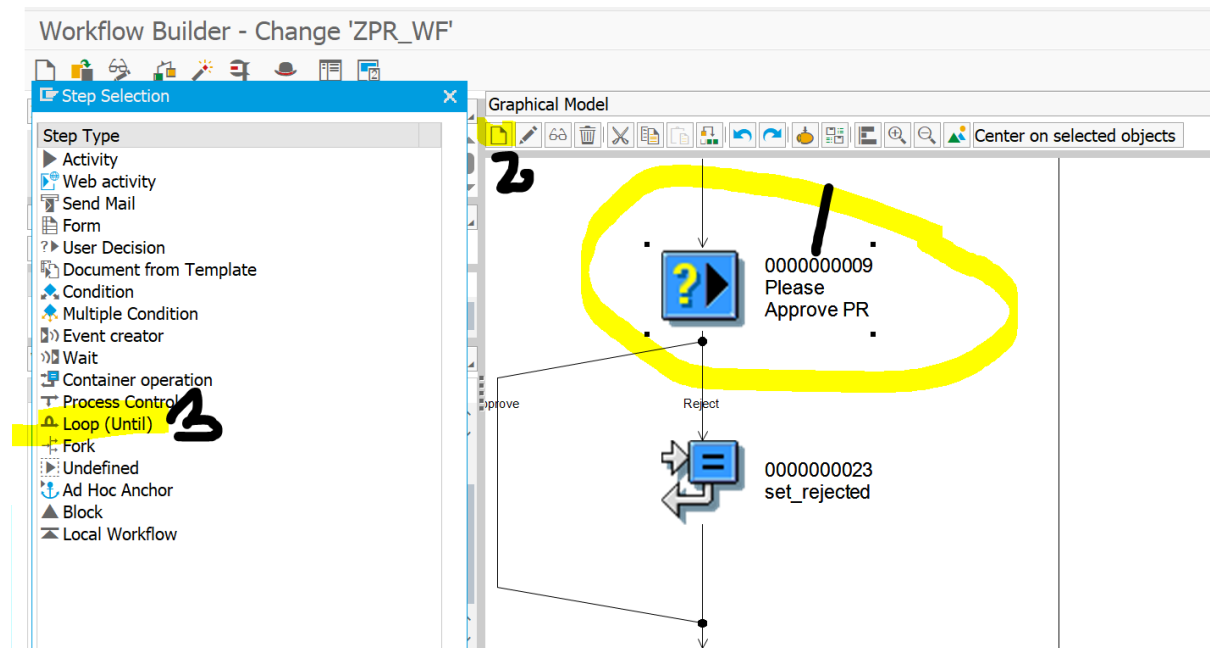
| Navigation Area | |
|--|--|
| Navigation area | |
| <ul style="list-style-type: none"> 000023 set_rejected 000027 loop increment | |

| Workflow Container | |
|--------------------|-------|
| Element | M. I. |
| Wf_Priority | Pr |
| Wf_Group_ID | Gr |
| Wf_Workitem | W |
| Wf_Version | Dr |
| Predecessor_Wf | Pr |
| BUS2105 | Bl |
| Tab_agent | Tr |
| Numb_appr | Ni |

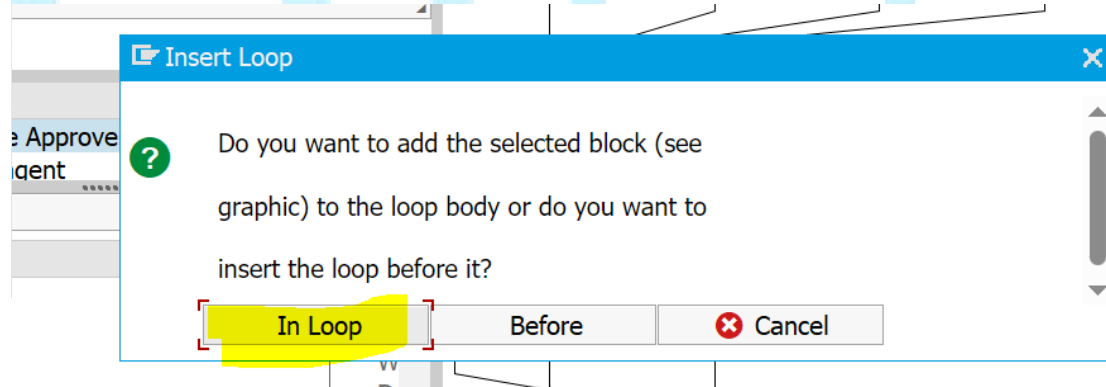
| Container operation 000023 set_rejected | |
|---|--|
| Control Properties Change Data | |
| Step Name | set_rejected |
| Outcome name | set_rejected |
| ✓ Step not in workflow log | |
| Operation | |
| Result Element | Rejected Rejected |
| Assignment | = Assign (contents of table are deleted first) |
| Expression | 'X' |
| Operator | Assignment |
| Expression | |

Step 12:

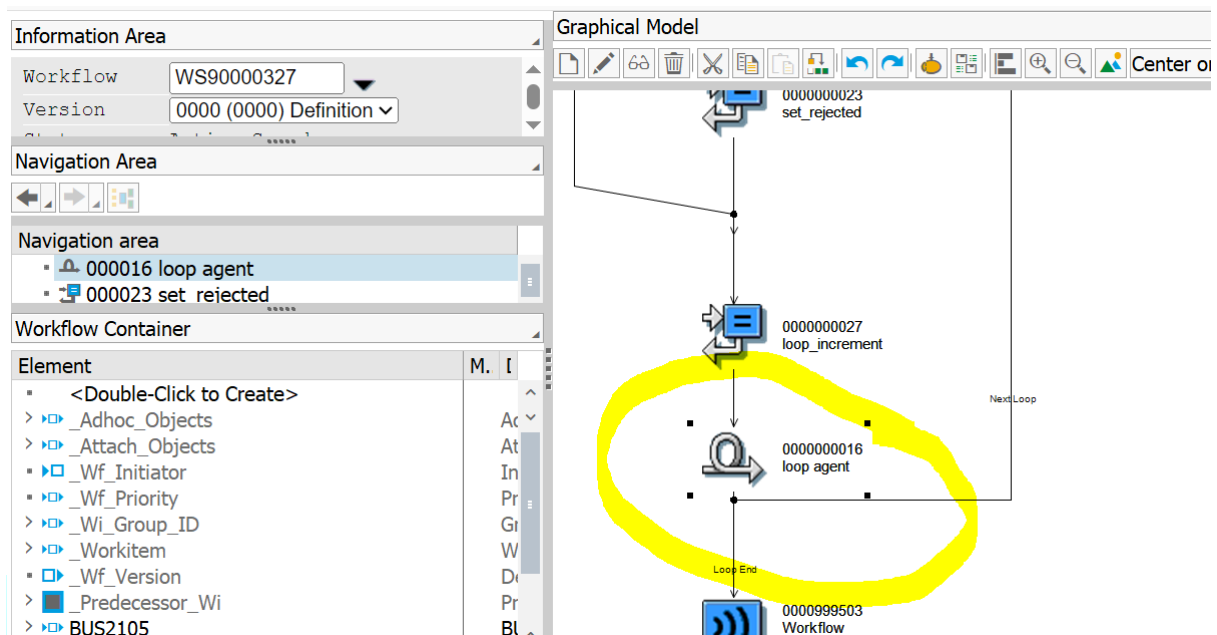
Select use decision activity and click on create button and select Loop (Until).



This Popup will appear, Select In Loop to add user decision in Loop area.



Double click on selected activity.



Now click on tick area to add condition of loop termination.

The screenshot shows the 'Workflow Builder - Change 'ZPR_WF'' window. The 'Information Area' is the same as the previous screenshot. The 'Navigation Area' lists '000016 loop agent' and '000023 set rejected'. The 'Workflow Container' shows the same tree structure. The 'Condition' tab is selected, showing the 'Step Name' as 'loop agent' and the 'Condition' as '&LOOP_INC& > &NUMB_APPR&' or '&REJECTED& = X'. A yellow checkmark is visible next to the condition.

Add the following condition as given below.

It will terminate the loop when given condition will meet.

Change Condition

| Operators | Logic | Expression 1 | Description |
|-----------|-------|--------------|--|
| = | EX | > | Attachments of Workflow Instance |
| < | NX | > | Initiator of Workflow Instance |
| > | CE | > | Priority of Workflow Instance |
| < | NE | > | Grouping Characteristic for Workflow Instances |
| [x] | | > | Workflow Instance |
| | | > | Workflow Instance |
| | | > | Definition Version of this Workflow Instance |
| | | > | Previous Work Item |
| | | > | BUSINESS OBJECT |
| | | > | Tab_agent |
| | | > | Numb_appr |
| | | > | loop_inc |
| | | > | Rejected |
| | | > | Decision_Note |

Condition

| Not | L | Express. 1 | Op... | R | Express. 2 | And/Or |
|-----|---|------------|-------|---|------------|--------|
| | | &LOOP_INC | > | | &NUMB_APPR | OR |
| | | &REJECTED | = | | X | |

Add the last 2 lines given below.

Condition

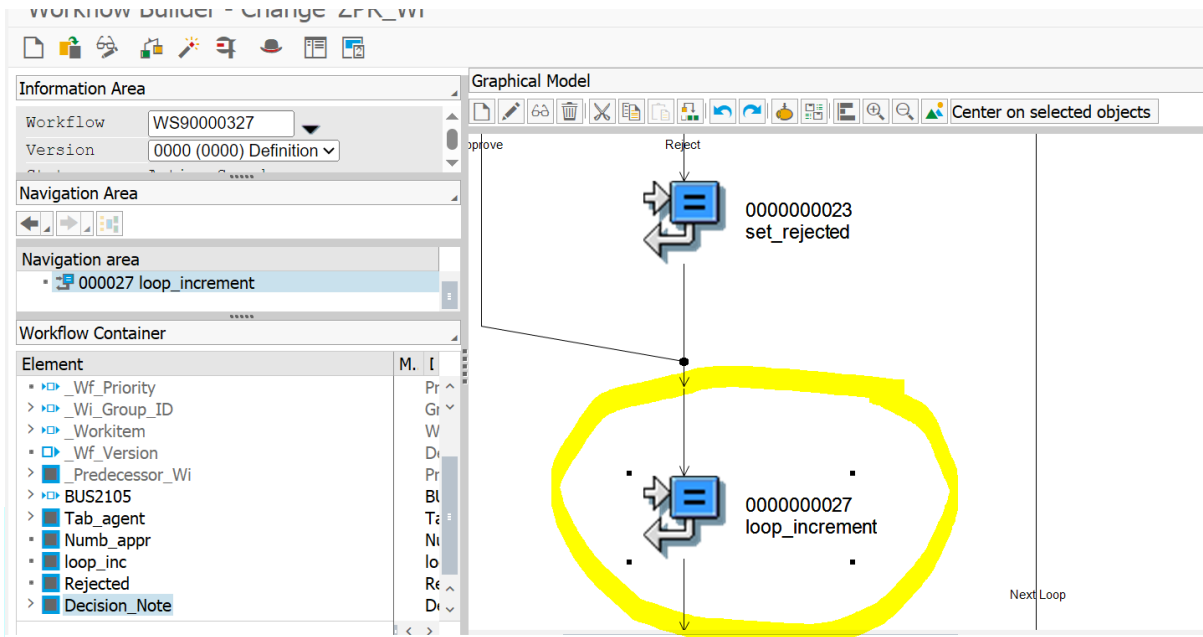
| Not | L | Express. 1 | Op... | R | Express. 2 | And/Or |
|-----|---|------------|-------|---|------------|--------|
| | | &LOOP_INC | > | | &NUMB_APPR | OR |
| | | &REJECTED | = | | X | |

Outcomes

| O.. Outbox | Name |
|-----------------------|-----------|
| True (Loop End) | Loop End |
| False (New Loop Pass) | Next Loop |

Step 13:

After the Approver Activity add another container operation by following last activity.



Give the details given below.

Loop_inc = loop_inc + 1.

It will make an increment of 1 on every loop.

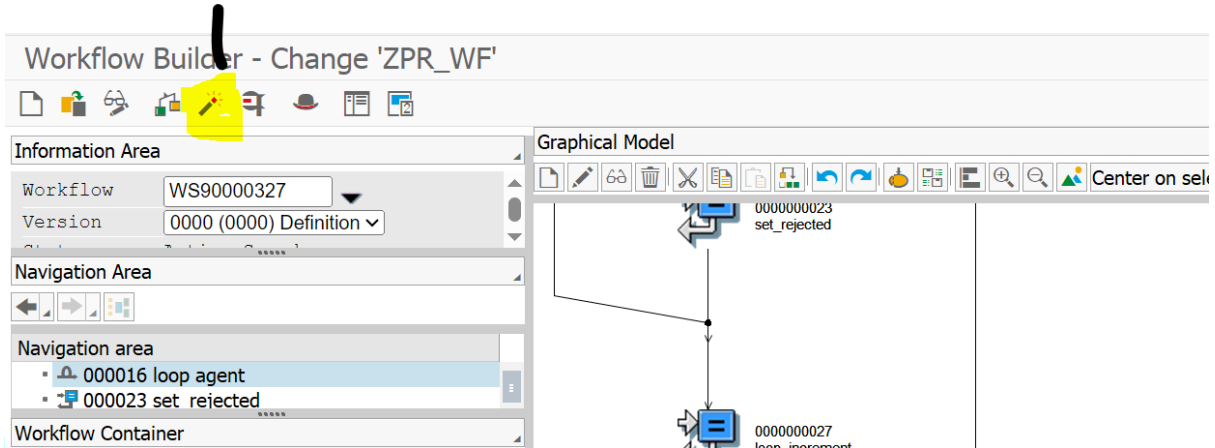
The screenshot shows the 'Properties' pane for the 'loop_increment' container operation. The 'Control' tab is selected. The 'Step Name' is 'loop_increment'. The 'Outcome name' is 'loop_increment'. The 'Operation' section shows the following details:

| Result Element | loop_inc | looping Increment |
|----------------|------------|--|
| Assignment | = | Assign (contents of table are deleted first) |
| Expression | &LOOP_INC& | looping Increment |
| Operator | + (Add) | |
| Expression | 1 | |

Step 14:

Now Workflow Creation is Final.

Now activate the workflow.



To check the workflow execution.

Click on Run button point 2.

Select business object BUS2105.

Give the PR Number and hit execute button.

Further results you can check by SWELS and SWEL T-Code by tracing and SWIA Report.

