

SAP CLOUD PLATFORM | EXTERNAL

Live Process Content

Purchase Requisition Approval and Release in SAP ERP using SAP Cloud Platform Workflow Management

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Overview

This document provides information about configuration steps to consume the Live Process Package Purchase Requisition Approval and Release. The main audience of this document are Procurement experts, Developers and Product owners.

This content package enables SAP ERP customers to automate Purchase Request approval and release process using SAP Cloud Platform Workflow Management without additional development in SAP ERP. Salient features of this content package are

- Plug and Play with SAP ERP without additional development.
- Process steps are delivered to create net new variants.
- New Process variants can be configured in a low code no code approach.
- Agent determination using Business Rules or SAP ERP or external systems.
- Validation of Line item attributes using Business Rules.
- Process visibility and key process performance indicators out of the box.
- Business Rules to provide flexibility in determining workflow templates and approvers
- Integration content to call SAP ERP BAPIs from SAP Cloud Platform Workflow Management.

Purchase Requisition Approval and Release Process enable customers to automate approval and release of Line Items in a flexible and transparent way. It provides flexibility in choosing process variants depending on attributes like Request date, Price, Material Group, Document Type, Plant, Purchasing Group and Purchasing Organization etc. When a requestor creates a Purchase Request with line items in SAP ERP, pre-configured Process Variants are triggered in SAP Cloud Platform Workflow Management.

- Line Item data validated using Business Rules before approval.
- Approvers are determined using a Business Rule / external system.
- Approvers are notified via email.
- Approvers have two decision options (Approve, Reject), and based on the decision, the next approval step will be created or requested for a rework or delete the line item and terminate the approval process.
- Line Item released in SAP ERP for PO creation.

SAP Cloud Platform Workflow Management shall not be used to store or process sensitive personal data. This service can be used if you have a legal ground to process personal data.

Live Process Artifacts

Process content package

A process content package consists of process steps, process templates, process variants, decisions and process visibility models. Please refer [help documentation](#) about these artifacts

A business process consists of steps that could be executed independently. A process step consists of set of activities together add value to the business. All the activities involved in a process step are grouped and represented as a process step. Table 2 represents the list of steps defined to use in Capital Expenditure Approval process.

A process step is added to a process template with a constraint model. The constraint model defines the number of times a process step could occur in a new process variant.

There are two Process Template delivered in this content package.

1. **Start Line Item Approval Process** – Determining a Process Variant for each Line Item in the Purchase Requisition. The workflow template is determined using a Business Rule Determine Workflow Template. The Business Rule uses Request Date, Document Type, Value, Purchasing Organisation, Purchasing Group, Plant, Material Group and Currency to determine the Process Variant.
2. **Purchase Requisition Approval and Release** - Validate, Approve and Release Purchase Requisition Line Items. Agent determination strategy is determined using Business Rule and approvers are determined accordingly.

Start Line Item Approval Process

This Process get all the line items from SAP ERP and execute Business Rule **Determine Process Variant** to get the definition id of Process Variant. For each line item an instance of **Purchase Request Approve & Release** process will be created.

Please see Table 1 for more details.

Table 1. Process Steps.

Process Steps	Cardinality	Detailed Description
Start Line Item Approval	1..1	Start a Process Template for each Line Item based on a Business Rule Workflow Template for Line Item Approval .

Purchase Requisition Approval and Release

This Process has three steps. Please see the Table 2 for more details.

Table 2. Process Steps.

Process Steps	Cardinality	Detailed Description
Validate Line Item	0..1	Validate the Line item based on a business rule Validate

		Purchase Requisition Line Item. It is possible to add validation rules for Document Type, Material Group, Purchasing Organization, Purchasing Group, Price, Plant, Currency, Account Assignment and Requisition Date. The step can occur maximum once in a Process Variant. If the validation is failed, requestor will be informed and a task is assigned, Requestor can either rework and submit the line item for approval or delete the line item.
Approve Line Item	0.. N	Approval of Line Item. This step can occur multiple times in a process variant. It is possible to rename the step to appropriate approval roles. The agent determination strategy is based on a Business Rule Agent Determination. The approvers are determined from a Business Rule Determine Approver. When the approver rejects the request, Requestor will be informed, and a task is assigned to the requestor. Requestor can either rework, submit the request for approval or cancel the request and delete the line item in SAP ERP
Release Line Item	1..1	Release the Line Item after completion of all the configured approval steps. This step can occur only once, and it should be the last step in a process variant. If there is an error while releasing the line item, a task is created and assigned the procurement IT.

A Process Step has properties and these properties are configured while configuring a process variant. Please see Table 3 for more details.

Table 3. Process Step Properties.

Process Step	Properties	Detailed Description
Validate Line Item	Role	The role of the approver. This text is added to all the activities which are part of this step. This will be visible in Process Visibility.
	Step	The approval step name. The Step names are used in Decision which can be configured to determine the approvers.
Approve Line Item	Role	The role of the approver. This text is added to all the activities which are part of this step. This will be visible in Process Visibility.
	Step	The approval step name. The Step names are used in Decision which can be configured to determine the approvers.
Release Line Item	Role	The role of the approver. This text is added to all the activities which are part of this step. This will be visible in Process Visibility.
	Step	The approval step name. The Step names are used in Decision which can be configured to determine the approvers.

A Process has attributes and these attributes are available in Process Visibility to search approval process instances and to define process performance indicators. Please see Table 4 for more

details

Table 4. Process Attributes.

Process Attributes	Detailed Description
Request ID	Unique id of the request
Item Id	Purchase Request Line Item
Material ID	Material ID
Material Description	Material Description
Quantity	Quantity Ordered
Unit of Measure	Unity Of Measure
Price of Item	Price
Currency	Currency
Approval Status	Approval Status
Plant	Plant
Material Group	Material Group
Purchasing Group	Purchasing Group
Purchasing Organization	Purchasing Organization
Delivery Date	Delivery Date

Process Variants

A process variant consists of multiple process steps configured by a Line of business expert. It is possible to create multiple process variants depends on the number of approval steps. Please refer [help documentation](#) about how to import content packages and configure a process variant

Start Line Item Approval Process

An example of a Start Line Item Approval Process Variant is given below. It is mandatory to activate this variant.

The screenshot shows the SAP Manage Process Variants interface. At the top, there is a navigation bar with the SAP logo and the title 'Manage Process Variants'. Below this, the specific variant 'Start Line Item Approval Process' is selected, with buttons for 'Undo', 'Redo', 'Save', and 'Activate'. The main area is divided into three sections:

- Available Steps (1):** A list of available process steps. One step is visible: 'Start Line Item Approval' with a shopping cart icon. The description reads: 'Start Approval Process for each Line Item in a Purchase Requisition'.
- Diagram:** A flow diagram showing a central step 'Start Line Item Approval Workflow' with a shopping cart icon. It is connected to a green start circle above and a red end circle below. To the right of the diagram are navigation icons (directional arrows, zoom in, zoom out) and a '100%' zoom level indicator.
- Process Variant Properties:** A panel on the right containing:
 - Name:** Start Line Item Approval Process
 - Process:** Initialize Purchase Requisition Approval
 - Description:** Start approval workflow for each line item in a Purchase Requisition using Business Rule Workflow Template for Line Item Approval.

Purchase Request Approval Process Variant

An example of a Purchase Request Approval Process Variant is given below. It is possible to

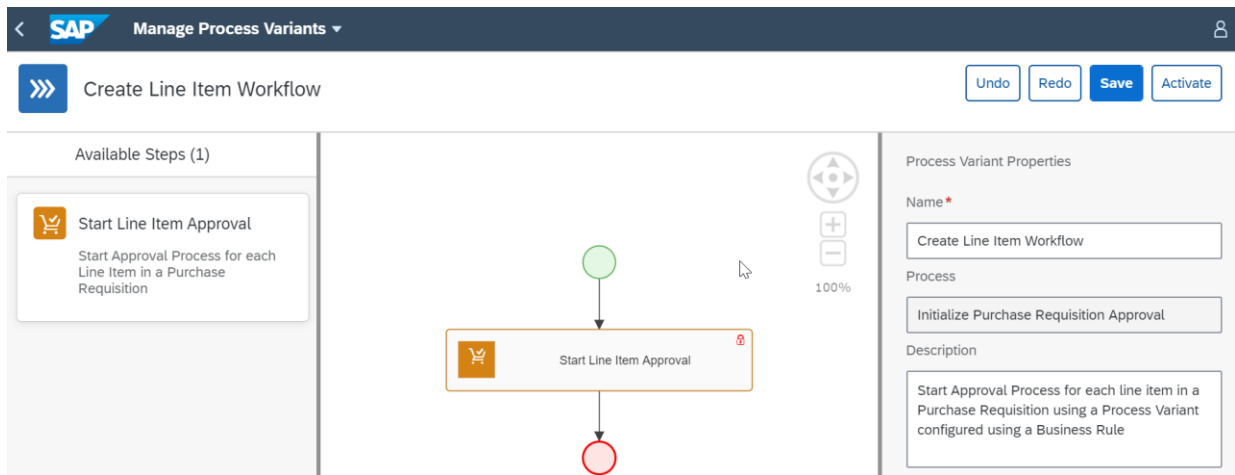
configure multiple variants of this process.

The screenshot shows the SAP Manage Process Variants interface for the 'Purchase Requisition Approval & Release' process. The interface is divided into three main sections:

- Available Steps (3):** A list of three steps that can be added to the process:
 - Approve Line Item:** Approval workflow for purchase Requisition Line Item.
 - Release Line Item:** Release Purchase Requisition Line Item after approval.
 - Validate Line Item:** Validation of Purchase Requisition Line Item data using Business Rules.
- Process Diagram:** A flowchart showing the sequence of steps: 'Validate Line Item' (orange box) → 'Approve Line Item' (blue box) → 'Release Line Item' (green box). The process starts with a green circle and ends with a red circle. A zoom level of 96% is indicated.
- Process Variant Properties:** A panel on the right containing:
 - Name:** 'Purchase Requisition Approval & Release'
 - Process:** 'Purchase Requisition Approval & Release'
 - Description:** 'Default Purchase Requisition Approval variant'

Import Purchase Requisition Approval and Release Process Content and Configure Process Variants

1. Import content package Purchase Requisition Approval and Release Process. Please refer the standard help document about [how to import a content package](#).
2. This content package has two process templates and a process variant for each template is required.
3. Create a new variant of Start Line Item Approval Process.
Open content package Purchase Requisition Approval and Release Process in Flexibility Cockpit and click Process Variants.
4. Click New Process Variant
5. Enter Name of the new Process Variant and select Initialize Purchase Requisition Approval as Process. Click Create button.
6. Click the newly created Process Variant tile to save and activate the process variant.
7. The Process Variant editor is opened with default variant. The default variant is enough, Click Save and Activate.



8. Create a new variant of Purchase Requisition Approval & Release Process. Open content package Purchase Requisition Approval and Release Process in Flexibility Cockpit and click Process Variants.
9. Click New Process Variant
10. Enter Name of the new Process Variant and select Purchase Requisition Approval & Release as Process. Click Create button.
11. Click the newly created Process Variant tile to configure the process variant
12. The newly added Process Variant has a default implementation with three steps.
13. Configure Step Properties -Validate Line Item.

The Step validate the attributes using a Business Rule. If the validation fails, there is a task assigned to the Requestor and requestor needs to update the Line Item data.

Role Name: Name of the Step

Step Name: Used to determine the task owners.

14. Configure Step Properties - Approve Line Item.

The Step determine the approver from a pre-configured Business Rule or external system.

Step Name property is used to determine the Approver using the business rule Determine Approver.

It is possible to add additional Approval steps to a process variant. Drag and drop the Approval step between the steps. It is mandatory that these approval steps should be between Validation and Release Line Item steps.

15. Configure Step Properties - Validate Line Item.

Add new Process Steps to an existing Process Variant.

The default variant of the process has Validate, Approve and Release steps. A Purchase Requisition Approval & Release process variant can have only one Validate or Release Steps. But multiple Approval Steps can be added.

1. Select Process Variant Purchase Request Approval and Release
2. Drag and drop Approve Line Item as an additional approval step between the steps. The

newly added step name can be modified either directly on the activity or in the Name field in properties window.

3. Save and Activate the new Process Variant. Successful activation of the process variant will generate a new workflow definition and deploy to the subaccount.

Decisions & Policies

Decisions allow to encapsulate the business logic from core applications and supports the reuse of business rules across different business processes. Decisions enable customers to adopt changes in processes without changing the underlying workflows or application logic. SAP Cloud Platform Workflow Management has Decision management capabilities enable customers to centrally manage all decisions. Please go through the [Decision Management capabilities](#) in SAP Workflow Management.

Purchase Requisition Approval and Release process enable customers to flexibly configure decisions to gain flexibility to

1. Determine Process Variants for Purchase Requisition Line Items
2. Agent determination Strategy.
3. Determine Approvers
4. Validate Purchase Requisition Line Item data.

Determine Process Variant

It is possible to configure different Process Variant for each Purchase Requisition Line Item using conditions modeled using the attributes of the Line Item.

Rule Service: Determine Process Variant

Input: Purchase Requisition Line Item (Structure data type)


ATTRIBUTE	TYPE	DESCRIPTION
Requisition Date	Date	Purchase Requisition Date
Document Type	String	Purchase Requisition Document Type
Total Value	Number	Price of Line item
Purchasing Organisation	String	Purchasing organisation
Material Group	String	Material Group
Purchasing Group	String	Purchasing Group
Plant	String	Plant
Step Name	String	Process Step Name
Accounts Assignment Category	String	Account Assignment Category
Currency	String	Currency of Line Item

Output: Process Step (String)

ATTRIBUTE	TYPE	DESCRIPTION
Workflow Definition Id	String	A preconfigured Workflow Definition Id. The value of workflow definition id will be available in Monitor Workflows-Workflow definitions application after activation of a Process Variant of type Purchase Requisition Approval and Release.

Rule Definition

Determine Workflow Template is defined as a Decision Table. It is possible to modify the decision table by keeping the above input, output interface stable.

 Determine Workflow Template

Details [Decision Table](#)

if								Then
Item.Requisiti...	Item.Docume...	Item.Total value	Item.Purchasi...	Item.Purchasi...	Item.Plant	Item.Material ...	Item.Currency	Workflow Defi...
IN ['May 3...	= 'NB'	<= 500	= '0001'				= 'USD'	'purchase_r...
IN ['May 3...	= 'NB'	<= 500	= '0001'				= 'CH'	'purchase_r...
IN ['May 3...	= 'NB'	<= 500	= '0001'				= 'EUR'	'purchase_r...
IN ['May 3...	= 'NB'	> 500	= '0001'	= '001'			= 'EUR'	'purchase_r...
IN ['May 3...	= 'NB'	IN (500 .. 1...	= '0001'					'highvaluea...
								'purchase_r...

Where used

Process: Start Line Item Approval Process

Step: Start Line Item Approval

Validate Purchase Requisition Line Item

Validate attributes of a Line Item. It is possible to include multiple validation as either simple text rules or decision tables.

Rule Service Name: Validate Line Item

Input: Purchase Requisition Line Item (Structure data type)

ATTRIBUTE	TYPE	DESCRIPTION
Requisition Date	Date	Purchase Requisition Date
Document Type	String	Purchase Requisition Document Type
Total Value	Number	Price of Line item
Purchasing Organisation	String	Purchasing organisation
Material Group	String	Material Group

Purchasing Group	String	Purchasing Group
Plant	String	Plant
Step Name	String	Process Step Name
Accounts Assignment Category	String	Account Assignment Category
Currency	String	Currency of Line Item

Output: Validation Result (Table)

Validate line item attributes with various attributes. Include all Rules in Rule Set **Purchase Request Line Item Validation**.

ATTRIBUTE	TYPE	DESCRIPTION
Line Item Attribute	String	Purchase Request Line Item Attribute name for e.g.: Purchasing Organisation
Validation Description	String	Validation Description
Validation Success	Boolean	Validation result True – Successful False - Failed

Rule Definition

Validate attributes in an orchestration rule. It is possible to add all attributes in the input structure in the validation rule as a single rule or multiple rules.



Validate Purchasing Organisation

Details **Text Rule**

Item.Purchasing Organisation = "

Then

UPDATE(Result.Attribute of a Line item , 'PurchasingOrganisation')

UPDATE(Result.Description of validation , 'Purchasing Organisatoin Missing ')

UPDATE(Result.Result of validation , false)

APPEND(Validation Result , Result)

Where used

Process: Purchase Requisition approval and Release

Step: Validate Line Item.

Agent Determination

System to be used for determining organisational hierarchy. A Business rule can be configured or an external system like SuccessFactors or SAP HCM or 3rd Party system using an interface provided by the workflow model.

Input and output

Rule Service Name: ApproverDeterminationSystem


Input: WorkflowStep (Structure data type)

ATTRIBUTE	TYPE	DESCRIPTION
Process Step	String	Process Step

Output ApproverDeterminationFrom (Structure)

ATTRIBUTE	TYPE	DESCRIPTION
Strategy	String	BusinessRule, SuccessFactors, SAP HCM, SAP ERP or 3 rd Party system.

Rule Definition

 Agent Determination Strategy

[Details](#) [Text Rule](#)

Name: ApproverDeterminationSystem Result: ApproverDeterminationFrom
 Label: Agent Determination Strategy Status: Active
 Description: An approver of a step can be determined based on a Rule or External System like SAP SuccessFactors, SAP HCM or third party systems. Created On: May 28, 2020

Text Rule

Text Rule

- ▼ If

Process Step.Approval step name = 'Manager'

Then

Strategy: 'BusinessRules'
- ▼ Else If (1)

Process Step.Approval step name = 'GPO'

Then

Strategy: 'External'
- ▼ Else

Strategy: 'BusinessRules'

Process: Purchase Requisition approval and Release
 Step: Approve Line Item

Determine Approver

Determine the approvers / owners of a task including the deadline and decide if there is an auto approval possible.

Rule Service Name: Determine Approver

Input: Purchase Requisition Line Item (Structure data type)

ATTRIBUTE	TYPE	DESCRIPTION
Requisition Date	Date	Purchase Requisition Date
Document Type	String	Purchase Requisition Document Type
Total Value	Number	Price of Line item
Purchasing Organisation	String	Purchasing organisation
Material Group	String	Material Group
Purchasing Group	String	Purchasing Group
Plant	String	Plant
Step Name	String	Process Step Name
Accounts Assignment Category	String	Account Assignment Category
Currency	String	Currency of Line Item

Output: Approver (Structure)

Approver names, groups, email id, completion deadline and auto approval.

ATTRIBUTE	TYPE	DESCRIPTION
Approver Name	String	Approver Names, Comma Separated Names
Approver Email	String	Email Ids of Approvers, comma separated.
Approver Group	String	Approver Group
Task Duration	Number	Number of hours planned to complete the task
Duration From	String	Task duration calculated from beginning of a Process Step or immediately before the actual Task.
Auto Approval	Boolean	Approver required or not.

Rule Definition

Possible to use various operators to evaluate the conditions.

Name: DetermineApprover
 Label: Determine Approver of an Approval Step
 Description: Determine Approver of an approval step.
 Hit Policy: First Match

Result: LineItemApprover
 Status: Active
 Created On: May 28, 2020

Decision Table

If							Then					
Item.Purchasing Gr...	Item.Purchasing Org...	Item.Document Type =	Item.Plant =	Item.Material Group =	Item.Approval Step ...	Item.Total value	Approver Name	Approver Group	Approver Email	Task Duration in hours	Duration From	Auto Approval
'002'	'0001'	'NB'	'0001'	'01'	'Manager'	'<= 500'		'ibpmdeveloper'		1.0	'Step'	false
'001'	'0001'	'NB'	'0001'	'01'	'Manager'	'>= 500'		'ibpmdeveloper'		1	'Step'	false
'001'	'0001'	'NB'	'0001'	'01'	'VicePresident'	'>= 1000'		'ibpmdeveloper'		48	'Task'	false
'001'	'0001'	'NB'	'0001'	'01'	'GPO'	'>= 500'		'ibpmdeveloper'		1	'Step'	false
					'Approver'			'ibpmdeveloper'		1	'Step'	false

Process: Purchase Requisition approval and Release

Step: Validate Line Item, Approve Line Item, Release Line Item

Process Visibility

Process visibility enable Process Owners and Process Operators to gain real time visibility on processes and key process performance indicators. Process visibility capability in SAP Cloud Platform Workflow Management enable customers gain out of the box process visibility into their deployed processes. Please refer [help documentation](#) for more details.

Purchase Request Approval and Release

Purchase Request Approval and Release Process content package provide out of the box visibility on all the deployed process variants in SAP Cloud Platform Workflow Management. A process owner or line of business expert will be able to enhance the visibility scenario.

Configure Visibility Scenarios

1. Go to Process Flexibility Cockpit
2. Select Purchase Requisition Approval and Release using SAP Cloud Platform Workflow Management
3. Click Visibility Scenarios and Select Purchase Request Approval and Release

Please go through [help documentation](#) how to model a visibility scenario.

Purchase Request Approval and Release (Purchase_Request_Approval_and_Re) Save Activate

General **Processes** Correlation Phases State Status ▾ Attributes Actions Performance Indicators

» Purchase Requisition Approval & Release
ID: purchase_requisition_approval

Events

Event Name	
Purchase Requisition Approval & Release Completed	✎
Purchase Requisition Approval & Release Failed	✎
Purchase Requisition Approval & Release Cancelled	✎
Purchase Requisition Approval & Release Suspended	✎
Purchase Requisition Approval & Release Resumed	✎

Context

Name	ID	Path	Data Type	
Request ID	ID	ID	String	✎
Requestor Name	Name	Name	String	✎
Item Id	ItemNumber	ItemNumber	String	✎
Material ID	MaterialID	MaterialID	String	✎
Material Description	Description	Description	String	✎
Quantity	Qty	Qty	Double	✎
Unit Of Measure	UOM	UOM	String	✎
Price of Item	ItemPrice	ItemPrice	Double	✎
Currency	Curr	Curr	String	✎
Approval Status	Status	Status	String	✎
Plant	Plnt	Plnt	String	✎
Material Group	MaterialGroup	MaterialGroup	String	✎
Purchasing Group	PurchasingGroup	PurchasingGroup	String	✎
Purchasing Organisation	PurchasingOrganisation	PurchasingOrganisation	String	✎
Delivery Date	DeliveryDate	DeliveryDate	Date	✎
Variant	variantName	variantName	String	✎
Variant ID	variantId	variantId	String	✎

Access Process Workspace

1. Go to Process Flexibility Cockpit
 4. Select Purchase Requisition Approval and Release using SAP Cloud Platform Workflow Management
 2. Click Live Process Insights Purchase Request Approval and Release
- Please go through [help documentation](#) how to access process workspace.

