

SAP CLOUD PLATFORM | EXTERNAL

Live Process Content

Purchase Requisition Header 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 Header 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.
- Insight to Action – system and user triggered actions in process visibility.
- 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 all Line Items of a Purchase requisition in a flexible and transparent way. It provides flexibility in choosing process variants depending on attributes like Request date, Price, Document Type 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.
- Multiple approvers and approval tasks in a process step and determined dynamically.
- 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.
- All line Item will be released in SAP ERP for Purchase Order 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 1 represents the list of steps defined to use in Purchase Requisition Approval and Release 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.

Purchase Requisition Header Approval and Release

Validate, Approve and Release all Line Items. Agent determination strategy is determined using Business Rule and approvers are determined accordingly.

This Process has three steps. Please see the Table 1 for more details.

Table 1. Process Steps.

Process Steps	Cardinality	Detailed Description
Validate Header	0..1	Validate all line items based on a business rule <i>Validate Purchase Requisition Line Item</i> . 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 with description for all validation errors for all line items is created. Requestor can either rework and submit all line items for approval or delete all line items.
Approve Header	0.. N	Approval of Requisition Header (all Line Items data). 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 <i>Agent Determination Strategy</i> . The approvers are determined using a Business Rule or SAP ERP or external systems. An approval step can have multiple task owners or multiple tasks with multiple task owners. 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 Purchase Requisition in SAP ERP
Release Header	1..1	Release all Line Items 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 any line item, a task is created and assigned to

		responsible Procurement IT Administrator configured in the business rule <i>Determine Workflow Template for Header Approval</i> .
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A Process Step has properties, and these properties are configured while configuring a process variant. Please see Table 2 for more details.

Table 2. Process Step Properties.

Process Step	Properties	Detailed Description
Approve Header	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 decisions 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 3 for more details

Table 3. Process Attributes.

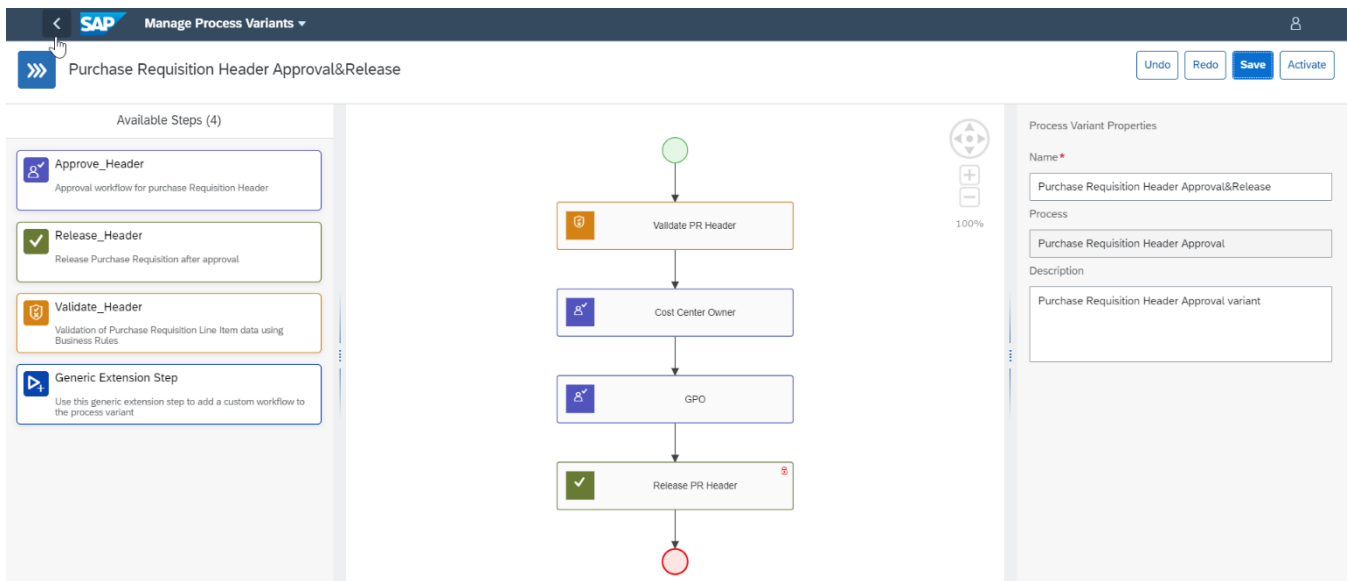
Process Attributes	Detailed Description
ID	Purchase Requisition ID
Name	Requestor Name
Price	Net Amount
Delivery Date	Delivery Date

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

Purchase Requisition Header Approval & Release

An example of a Purchase Request Header Approval Process Variant is given below. It is possible to configure multiple variants of this process.



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

1. Import content package Purchase Requisition Header Approval and Release. Please refer the standard help document about [how to import a content package](#). This content package has a process template and a default process variant.
2. Create a new variant of Purchase Requisition Header Approval & Release. Open content package Purchase Requisition Header Approval and Release Process in Process Flexibility Cockpit and click Process Variants.
3. Click New Process Variant.
4. Enter Name of the new Process Variant and select Purchase Requisition Header Approval and Release as Process. Click Create button.
5. Select the newly created Process Variant tile to configure the process variant
6. The newly added Process Variant has a default implementation with three steps.
7. **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 Header steps.

Add new Process Steps to an existing Process Variant.

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

1. Select Process Variant Purchase Request Approval and Release
2. Drag and drop Approve Header 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. Purchase Requisition approval strategy.
2. Determine Process Variants for Purchase Requisition.
3. Validate Purchase Requisition Line Item data.
4. Agent determination Strategy.
5. Determine Approvers
6. Determine Process Administrators

Purchase Requisition Approval Strategy

Approval of Purchase Requisition at header level or line item level. An approval workflow variant is used based on the response.

Rule Project: Base Purchase Requisition Rules for SAP ERP

Rule Service Name: Purchase Requisition Approval Strategy

Input: Purchase Requisition Header (Structure data type)

ATTRIBUTE	TYPE	DESCRIPTION
Document Type	String	Purchase Requisition Document Type
Purchasing Organisation	String	Purchasing Organisation
Requisition Date	Date	Date of Purchase Requisition creation

Output Approval Strategy (Structure)

ATTRIBUTE	TYPE	DESCRIPTION
Approval Strategy	String	Line Item or Header

Rule Definition

Purchase Requisition Approval Strategy 53 x

General Information:
 Decision: Purchase Requisition Approval Strategy
 Status: Draft

Description:
 Approval strategy to use header level approval or line item approval

Decision Table Add Row ▾ Delete Row Copy Row Cut Row Paste Row ▾

If			Then
<input type="checkbox"/>	Purchase Requisition Header.Document Type	Purchase Requisition Header.Purchasing Organisation	Approval Strategy
<input type="checkbox"/>	= 'NB'	= '0002'	'LineItem'
<input type="checkbox"/>	= 'NB'	= '0001'	'LineItem'

Process: Purchase Requisition Header approval and Release

Step: Approve Purchase Requisition Header

Determine Process Variant

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

Rule Project: Base Purchase Requisition Rules for SAP ERP

Rule Service: Determine Workflow Template for Header Approval

Input: Purchase Requisition Header (Structure data type)

ATTRIBUTE	TYPE	DESCRIPTION
Requisition Date	Date	Purchase Requisition Date
Document Type	String	Purchase Requisition Document Type
Purchase Value	Number	Purchase Requisition Value
Purchasing Organization	String	Purchasing organization. The purchasing organization of the first line item in the requisition is used to determine the Process variant.
Step Name	String	Process Step Name

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.
IT Responsible Group Email	String	IT Responsible Group Email
IT Responsible Group Name	String	IT Responsible Group Name

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 PR Header Approval Workflow Template

[Details](#) Decision Table

Decision Table

Decision Table				Then		
Purchase Requisition Header...	Purchase Requisition Header....	Purchase Requisition Header....	Purchase Requisition Header...	Workflow Definition Id	IT Responsible Group Name	IT Responsible Group Email
= 'NB'	= '0001'	>= 100	IN ['Aug 1, 2020' .. 'Dec 31...'	prheaderapprovaldemo'	'ITSupport'	'ITSupprot@demo.com'
				prheaderapprovaldemo'	'ITSupport'	'ITSupprot@demo.com'

Where used

A workflow (Initialize Purchase Requisition Approval Process) definition is available with this content package to determine process variant.

Validate Purchase Requisition Line Item

Validate attributes of all line items in a purchase requisition. It is possible to include multiple validation as either simple text rules or decision tables.

Rule Project: Purchase Requisition Header Approval Rules SAP ERP

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	Total value of Line item
Purchasing Organization	String	Purchasing organization
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 multiple rules to validate attributes and include these rules into a ruleset delivered with this content package.

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 Header Approval and Release

Step: Validate Header.

Agent Determination

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

Rule Project: Purchase Requisition Header Approval Rules SAP ERP

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	Business Rule, SuccessFactors, SAP HCM, SAP ERP or 3 rd Party system. Possible values BusinessRules or External.

Rule Definition

Agent Determination Strategy

Details Text Rule

Name: ApproverDeterminationSystem
Label: Agent Determination Strategy
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.

Result: ApproverDeterminationFrom
Status: Active
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 Header Approval and Release

Step: Approve Header

Determine Header Approver

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

Rule Project: Purchase Requisition Header Approval Rules SAP ERP

Rule Service Name: Determine Header Approver

Input: Purchase Requisition Header (Structure data type)

ATTRIBUTE	TYPE	DESCRIPTION
Requisition Date	Date	Purchase Requisition Date
Document Type	String	Purchase Requisition Document Type
Purchase Value	Number	Purchase Requisition Value

Purchasing Organisation	String	Purchasing organisation
Step Name	String	Process Step Name

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.

 Determine PR Header Approver

Details Decision Table

Decision Table

Decision Table										
If				Then						
<input type="checkbox"/>	Purchase Requisit...	Purchase Requisit...	Purchase Requisit...	Purchase Requisit...	Task Duration in h...	Approver Name	Approver Group	Duration From	Auto Approval	Approver Email
<input type="checkbox"/>	'NB'	'0001'	> 500	'CostCenterOwn...	1	'User'	'ibpmdeveloper'	'Step'	false	'demo@sap.com'
<input type="checkbox"/>	'NB'	'0001'	<= 500	'CostCenterOwn...	1	'User'	'ibpmdeveloper'	'Step'	false	'demo@sap.com'
<input type="checkbox"/>	'NB'	'0001'	>= 501	'GPO'	1	'User'	'ibpmdeveloper'	'Step'	false	'demo@sap.com'
<input type="checkbox"/>	'NB'	'0001'	< 500	'GPO'	1	'User'	'ibpmdeveloper'	'Step'	false	'demo@sap.com'

Process: Purchase Requisition Header Approval and Release

Step: Approve Header

Determine Process Administrator

Determine process administrators of process instance based on status. This rule is used from a workflow used as part of insight to action capability in Process Visibility.

Rule Project: Base Purchase Requisition Rules for SAP ERP

Rule Service Name: Determine Process Administrator

Input: Process Status (Structure data type)

ATTRIBUTE	TYPE	DESCRIPTION
Sub Status	String	Status of an instance available in process visibility. Possible values Failed, Suspended, Risk and Overdue

Output: Process Administrator Details (Structure)

ATTRIBUTE	TYPE	DESCRIPTION
First Name	String	First name of the process administrator
Last Name	String	Last name of the process administrator.
Email	String	Email of the process administrator.

Rule Definition

Possible to use various operators to evaluate the conditions.

The screenshot shows the configuration page for a rule named 'Determine Process Administrators'. The rule is currently inactive and was created on Oct 5, 2020. Its description is: 'Determine Process Administrators to notify when an approval workflow instance is Failed, Suspended, Risk or Overdue.' The HR Policy is set to 'First Match'. Below the details is a 'Decision Table' with the following structure:

Decision Table	Then	Then	Then
If	First Name	Last Name	Email
= 'OVERDUE'			
= 'PROCESS_FAILED'			
= 'PROCESS_SUSPENDED'			
= 'THRESHOLD_VIOLATION'			

Process: Notify Procurement Administrator

Process Visibility

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

Purchase Requisition Header Approval and Release

Purchase Requisition Header 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 Header Approval and Release using SAP Cloud Platform Workflow Management
3. Click Visibility Scenarios and Select Purchase Request Header Approval and Release

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

Purchase Request Header Approval and Release (Purchase_Request_Header_Approval) Save Activate

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

»» Purchase Requisition Header Approval
 ID: purchaserequisitionheaderapproval

✎ + 🗑️ 📄

▾ Events +

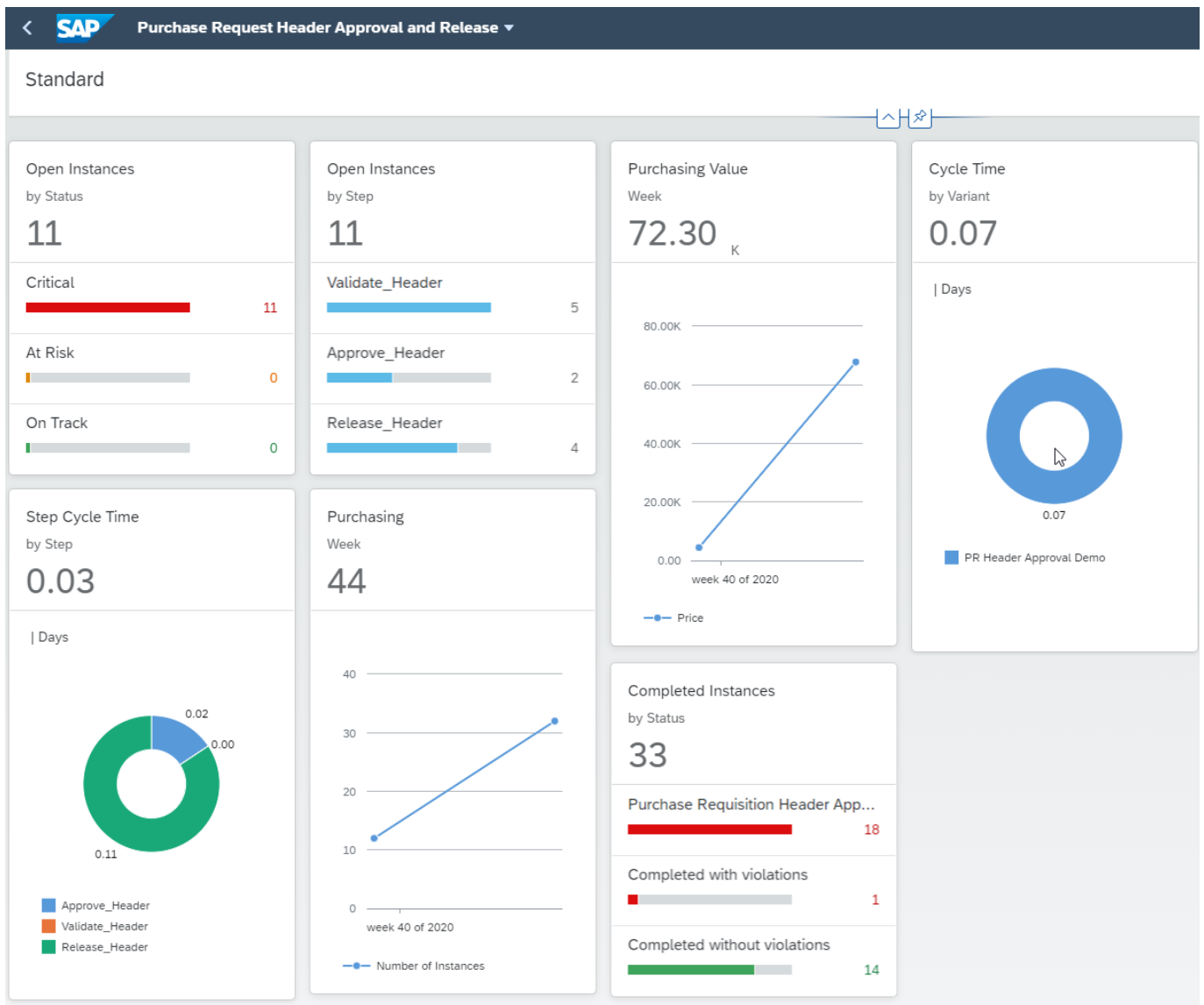
Event Name	✎
Purchase Requisition Header Approval Completed	✎
Purchase Requisition Header Approval Failed	✎
Purchase Requisition Header Approval Cancelled	✎
Purchase Requisition Header Approval Suspended	✎
Purchase Requisition Header Approval Resumed	✎

▾ Context +

Name	ID	Path	Data Type	Description	✎
Request Id	ID	ID	String		✎
Requestor Name	Name	Name	String		✎
Price	Price	Price	Double		✎
Document Id	Document	Document	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.



Insight to Actions

Actions in process visibility enable business users or system to trigger workflows based on various status of a process instance. These workflows trigger specific actions like email notification, restart an approval process or release a line item. System triggered actions are configured using a technical user and user triggered actions are using the process visibility user context.

1. Go to Configure Visibility Scenarios
2. Select Purchase Requisition Header Approval and Release
3. Select Actions tab

Please refer [help documentation](#) for more details.

Action Name: Notify Process Administrator

Type: System

A system triggered action when the approval workflow status changes to Failed, Suspended,

Overdue or Threshold violation. The action will trigger a workflow to determine the Process Administrators and send an email notification. Process Administrators are determined using the rule Determine process administrator.

Properties

PROPERTY NAME	PROPERTY VALUE
ID	NotifyProcessAdministrator
Type	Trigger SAP Cloud Platform Workflow
Sentiment	Neutral
Trigger Type	System
Destination	WorkflowActions
Workflow Definition ID	NotifyAdmin
Start context	{ "Instanceld": "{WorkflowInstanceld}", "ID": "{ID}", "SubStatus": "{SC_SubStatus}" }

Conditions

ATTRIBUTE	OPERATOR	VALUE
SubStatus	Equal to	Process Failed
SubStatus	Equal to	Process Suspended
SubStatus	Equal to	Threshold Violation
SubStatus	Equal to	Overdue

Action Name: Restart Approval Process

Type: User

A business user can restart the approval process, when the current approval process status changed to Failed, Suspended, Overdue or Threshold violation.

Properties

PROPERTY NAME	PROPERTY VALUE
ID	Restart_Approval_Process
Type	Trigger SAP Cloud Platform Workflow
Sentiment	Neutral
Trigger Type	User
Destination	WorkflowActions
Workflow Definition ID	RestartApprovalProcess
Start context	{ "Instanceld": "{WorkflowInstanceld}", "ID": "{ID}" }

Conditions

ATTRIBUTE	OPERATOR	VALUE
SubStatus	Equal to	Process Failed
SubStatus	Equal to	Process Suspended
SubStatus	Equal to	Threshold Violation
SubStatus	Equal to	Overdue

Action Name: Release

Type: User

A business user can release a line item in SAP ERP, when the current approval process status changed to Failed, Suspended, Overdue or Threshold violation.

Properties

PROPERTY NAME	PROPERTY VALUE
ID	Release_Header
Type	Trigger SAP Cloud Platform Workflow
Sentiment	Positive
Trigger Type	User
Destination	WorkflowActions
Workflow Definition ID	ReleaseLineitem
Start context	{ "InstanceId":"{WorkflowInstanceId}", "DocumentId":"{ID}" }

Conditions

ATTRIBUTE	OPERATOR	VALUE
SubStatus	Equal to	Process Failed
SubStatus	Equal to	Process Suspended
SubStatus	Equal to	Threshold Violation
SubStatus	Equal to	Overdue

Action Name: Delete

Type: User

A business user can delete a line item in SAP ERP, when the current approval process status changed to Failed, Suspended, Overdue or Threshold violation.

Properties

PROPERTY NAME	PROPERTY VALUE
ID	Delete_Line_Item
Type	Trigger SAP Cloud Platform Workflow
Sentiment	Negative
Trigger Type	User
Destination	WorkflowActions
Workflow Definition ID	CancelAndDeleteLineItem
Start context	{ "InstanceId": "{WorkflowInstanceId}", "ID": "{ID}" }

Conditions

ATTRIBUTE	OPERATOR	VALUE
SubStatus	Equal to	Process Failed
SubStatus	Equal to	Process Suspended
SubStatus	Equal to	Overdue
SubStatus	Equal to	Overdue