

SAP BUSINESS TECHNOLOGY PLATFORM | EXTERNAL

Configuration Guide

Manage Purchase Order Approval and Creation using SAP
Build Process Automation or SAP Workflow Management

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Overview

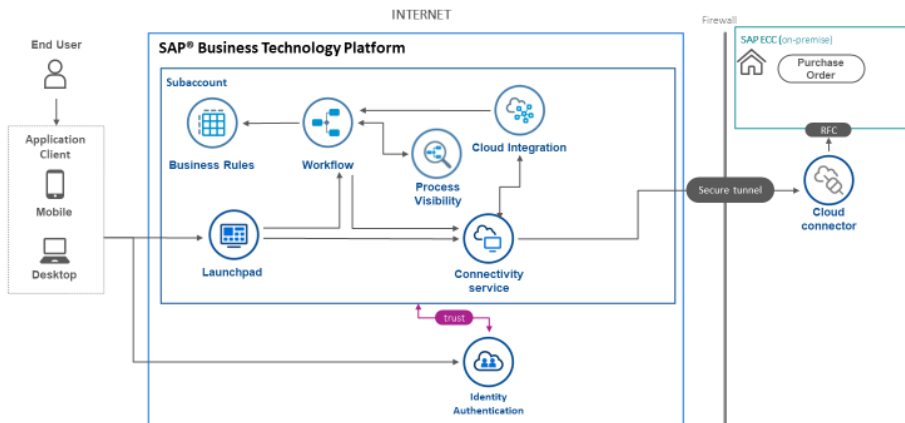
This document provides information about configuration steps to consume the workflow package **Manage Purchase Order Approval and Creation**. The main audience of this document are Procurement experts, Developers and Product Owners.

The **Manage Purchase Order Approval and Creation** content package enables SAP ECC customers to automate Purchase Order approval and creation process using SAP Build Process Automation or SAP Workflow Management without additional development in SAP ECC

Salient features of this content package are:

- Plug and Play with SAP ECC without additional development.
- Pre-configured process steps to create net new variants.
- New Process variants can be configured in a low-code, no-code approach.
- Add additional approvers before the Purchase orders are created in SAP ECC.
- Agent/approver determination using SAP Business Rules service or external service.
- Flexibility in defining approval process based on business conditions.
- Pre-built Integration content to call SAP ERP BAPIs from SAP Build Process Automation or SAP Workflow Management.
- Out-of-the-box visibility into key process performance indicators.

SAP ECC– Manage Purchase Order Approvals and Creation



Workflow Package Artifacts

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

Process

A process template is a set of business activities and tasks that, once completed, fulfills an organization goal. The **Manage Purchase Order Approval and Creation** package contains the following process template:

Approve and Create Purchase Order– Approve And Create Purchase Order in SAP ECC with a multi-level approval process. It includes three process steps for easy no-code/low-code configuration.

A business process can be broken down logically into smaller parts or steps. Each process step is a collection of activities to perform a specific task. For example, an approval process step can contain activities to determine the approvers, approval task, email notifications, and handle the approval result. **Table 1** represents the list of process steps/sub flows available to be used in **Manage Purchase Order Approval and Creation**.

Table 1. Process Steps

Process Steps	Cardinality	Detailed Description
Enrich Purchase Requisition	1..1	This step has activities to enrich the Purchase requisition document with details like Company code, Payment Terms, Inco Terms, Tax Code. This step also does the grouping of Purchase requisition line items based on the above attributes and also other attributes like Supplier, Purchasing Organization, Purchasing Group. The grouping will be done based on the meta information received from Business Rules or External Service for these attributes.
Approve Purchase Order Creation	0.. N	This step has activities to initiate and complete one level of approval for creation of Purchase orders. Based on the number of approval levels required, this step can be re-used multiple times. It is possible to rename the step to appropriate approval roles, for example, 'Approval by Cost Center Owner. The approver is determined based on the step input as well as the Purchase requisition properties using a business rule or determined from an external service. In case there are no approvers determined, then Process Administrator will be determined based on the business rule and an email notification will be sent to him. There will also be a user task assigned to the Process Administrator to assign the approver details manually or to fix the business rule or external service which determines the approvers and then do a Retry to initiate the Approval task. This is an optional step
Create Purchase Order	1..1	This step has activities which will allow to create Purchase orders based on the grouping determined for the Purchase requisition line items. As many numbers of groups determined, as many number of Purchase orders should be created. But due to some issue, if one or more of the Purchase order cannot be created, there will be an email notification sent to the Process Administrator regarding the error in the Purchase order creation and also a

		user task to say whether further Purchase order creation has to be continued by skipping this error or it should be stopped. Based on the decision from the Process Administrator , it will either proceed to create further Purchase orders or end the workflow.
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A process step can have customizable properties and they could influence the outcome of the process step. For example, the Approval step can be reused multiple times and based on the properties the approver is determined. Please see Table 2 for more details.

Table 2. Process Step Properties

Process Step	Properties	Detailed Description
Approve Purchase Order Creation	Approval Step	Based on the name of the approval step, the approver is determined using a business rule. Default value is CostCenterOwner, and it can be configured to any approval step name provided the same name is configured in the business rule.

The 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
purchaseRequisitionDocument	Specifies the Purchase requisition document.
purchasingOrg	Specifies the Purchasing Organization.
purchaseReqDate	Specifies the Purchase requisition date
documentType	Specifies the Purchase requisition document type.
purchaseOrders	Specifies the Purchase orders created from Purchase requisition line items.
overallApprovalStatus	Overall approval status for Purchase order creation.

Sample Context with Start Conditions:

```
{
  "PurchaseRequisition": {
    "DocumentId": "0010800418",
    "TotalNetValue": 1500,
    "DocumentType": "NB",
    "PurchasingOrganisation": "0001"
  },
  "History": [],
  "Status": {}
}
```

Sample Context without Start Conditions:

```
{  
  "PurchaseRequisition": {  
    "DocumentId": "0010800418"  
  },  
  "History": [],  
  "Status": {}  
}
```

Process Variants

A process variant consists of multiple process steps configured by a line of business expert. It is possible to create multiple variants of the same process. For example, if the total net amount of all the Purchase requisition line items is more than 1000 then there could be an approval process, or if the total net amount is less than 500 then it can be automatically approved, etc.

Please refer [help documentation](#) about how to import content packages and configure a process variant.

The screenshot displays a process configuration interface for a variant named "High Volume". The interface is divided into several sections:

- Top Bar:** Includes a "High Volume" header with a double arrow icon, and action buttons for "Undo", "Redo", "Save", and "Activate".
- Available Steps (3):** A list of process steps on the left side:
 - ApprovePurchaseOrderCreation:** ApprovePurchaseOrderCreation
 - CreatePurchaseOrder:** CreatePurchaseOrder
 - EnrichPurchaseRequisition:** Group Purchase Requisition Attributes
- Process Flow Diagram:** A central diagram showing a linear sequence of three steps:
 - Enrich Purchase Requisition:** The first step, highlighted in orange, with a lock icon.
 - Approve Purchase Order Creation:** The second step, highlighted in blue.
 - Create Purchase Order:** The third step, highlighted in green, with a lock icon.The flow starts with a green circle, ends with a red circle, and includes a zoom control set to 100%.
- Process Variant Properties:** A panel on the right for configuring the variant's start conditions:
 - Start Conditions:** A dropdown menu.
 - Only start the variant if all of the following conditions are met:** A section with a close icon (⊗).
 - Condition:** "Purchase Requisition Details.Total Net..." with a dropdown arrow.
 - Operator:** ">" with a dropdown arrow.
 - Value:** "1000" in a text input field.
 - Actions:** A "+" icon to add more conditions and a button labeled "Add Alternate Conditions".

Import Manage Purchase Order Approval and Creation and Configure Process Variants with SAP Build Process Automation

1. In the [SAP Build Process Automation Store](#), search for live process package Manage Purchase Order Approval and Creation and import the same. This content package has one process template and process variant(s) for that template.
2. In the Application Development [Lobby](#), click to open the package with name Manage Purchase Order Approval and Creation. This opens the package in a new tab/window.
3. Click the + icon next to the process template to create a new process variant.
4. Enter Name of the new Process Variant (ex, Two Step Approval).
5. Click the newly created Process Variant tile to save and activate the process variant.
6. The process variant has a default implementation with two steps and at least one level of approval.
7. It is possible to remove steps like “Approval for Manage Purchase Order Approval and Creation” from a process variant only if there are multiple approvals. Please note that whether a step is mandatory or optional, and how many a times any step can be used within a variant, are dependent on the constraints defined on the process steps.
8. Save and activate the variant. A successful activation will create a new workflow definition in the account that can be viewed in the [Monitor Processes and Workflows app](#).

Import Manage Purchase Order Approval and Creation Content and Configure Process Variants with SAP Workflow Management

1. Import content package Manage Purchase Order Approval and Creation. Please refer the standard help document about [how to import a content package](#). This content package has one process template and process variant(s) for that template are required.
2. To create a new variant of Manage Purchase Order Approval and Creation, open content package Manage Purchase Order Approval and Creation in Flexibility Cockpit and click on Process Variants tile.
3. Click New Process Variant.
4. Enter the Name for the new Process Variant and select “Approve and Create Purchase Order” as Process.
5. Click on Create button.
6. Click the newly created Process Variant tile to save and activate the process variant.
7. The Process Variant has three steps Enrich Purchase Requisition, Approve Purchase Order creation and Create Purchase Order.
8. Configure Step Property “Approval Step” for **Approve Purchase Order creation** step. Approval Step property is used to determine the Approver using the business rule Determine Approver.
9. It is possible to add additional Approval steps to a process variant. Drag and drop the **Approve Purchase Order creation** step where required and update the name Approval Step property.
10. Start Conditions can be configured at the variant level, for example, Purchase Requisition. Total Net Amount >= 1000 Purchase Requisition. Transaction Currency = USD. This variant will be triggered only if the start conditions are satisfied.
11. If required, at every process step, the step conditions can be configured. Only when the conditions are met, the step shall be executed.

12. Save and Activate the variant. A successful activation will create a new workflow definition in the account that can be viewed in the Monitor Workflows – Workflow Definition application in the Fiori Launchpad.
13. Update the Determine Approver Policy and include the Approval Step to the rule condition.

Add additional Approval Step to an existing Process Variant

It is possible to add additional approval steps, or even remove all approval process steps from the process .

1. Open content package Manage Purchase Order Approval and Creation in Flexibility Cockpit and click on Process Variants tile
2. Select the variant that you want to modify.
3. Drag and drop “**Approve Purchase Order creation**” as an additional step between the ‘Enrich Purchase Requisition and ‘Create Purchase Order’ steps.
4. Modify the step name in the properties pane.
5. Modify the Approval Step property as needed.
6. Save and Activate the new Process Variant.
7. Update the Determine Approver Policy to include the Approval Step to the rule.

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 Build Process Automation or SAP Workflow Management has business rules capabilities that enables customers to centrally manage all decisions. Please go through the [business rules capabilities](#) in SAP Build Process Automation or SAP Workflow Management.

Manage Purchase Order Approval and Creation enable customers to flexibly configure decisions to gain flexibility to

1. Determine Grouping Strategy
2. Determine Grouping Attributes.
3. Determine Approver Strategy.
4. Determine Approvers.
5. Determine Process Administrator

Determine Grouping Strategy

With this decision, it is possible to determine the strategy for grouping attributes of line items. It can be Business Rules or External Service

Rule Service Name: Determine Purchase Requisition Grouping Strategy

Input: Purchase Requisition Header (Structure data type)

ATTRIBUTE	TYPE	DESCRIPTION
Step Name	String	The step name is used to determine the approver

Total Net Value	Number	Sum of the total net value of all the Purchase Requisition Document line items
Purchasing Organisation	String	The purchasing organization is an organizational unit which procures articles and negotiates general purchase price conditions with vendors
Purchase Requisition Date	Date	The date on which Purchase requisition document was created
Document Type	String	Classifies types of Purchase requisition document that require different processing by the system.

Output: Purchase Requisition Grouping Strategy (Structure)

Validate Purchase Info Record attributes with various attributes.

ATTRIBUTE	TYPE	DESCRIPTION
Grouping Strategy	String	Strategy to determine grouping attributes which can be either of Business Rules or External Service

Rule Definition

Strategy to determine if the grouping attribute values come from Business Rules or from an External Service like a function module.

Where used

Step: Enrich Purchase Requisition

Determine Grouping Attributes

With this decision, it is possible to determine the meta information of the attributes which are relevant for grouping of line items in Purchase requisition document.

Rule Service Name: Determine Grouping Attributes

Input: Purchase Requisition Line Item (Structure data type)

ATTRIBUTE	TYPE	DESCRIPTION
Step Name	String	The step name is used to determine the approver
Total value	Number	Sum of the total net value of all the Purchase Requisition Document line items
Purchasing Organisation	String	The purchasing organization is an organizational unit which procures articles and negotiates general purchase price conditions with vendors

Purchase Date	Date	The date on which Purchase requisition document was created
Document Type	String	Classifies types of Purchase requisition document that require different processing by the system.
Purchasing Group	String	A purchasing group is a key for a buyer or group of buyers in SAP ERP. It is responsible for the procurement of a material or class of materials and is the principal channel for a company's dealings with its suppliers.
MaterialGroup	String	Each material record can further be grouped according to the same features together using material groups. The material group does not contain different levels or possible combinations of goods
Material	String	Material in SAP is a logical representation of certain goods or service that is an object of production, sales, purchasing, inventory management etc. It can be a car, a car part, gasoline, transportation service or consulting service, for example
SupplierId	String	The supplier is an individual or business entity, who is the source of products and services to the company
AccountAssignment	String	Account assignment is specification of the objects (e.g. cost center, sales order, project) that are charged in the case of a purchase order for a material that is intended for direct usage or consumption
Currency	String	Transaction currency

Output: Purchase Requisition Group (Structure)

Purchase Requisition attributes relevant for grouping to create a Purchase Order. Value of true represents that this attribute will be considered for grouping of line items and value of false represents that this attribute will not be considered for grouping of line items

ATTRIBUTE	TYPE	DESCRIPTION
SupplierId	Boolean	The supplier is an individual or business entity, who is the source of products and services to the company.
IncoTerms	Boolean	A codification of international rules for the interpretation of the commonly used terms in international trade. An international commercial term (Incoterm) defines the terms of sale and the passing of risks for import and export of merchandise.
PaymentTerms	Boolean	Terms of payment is used in SAP to determine the due date and discount calculation. Terms of payment is maintained in vendor master and customer master to default at invoice level however this can be changed at invoice level as well.

CompanyCode	Boolean	The company code is the central organizational unit of external accounting within the SAP System
TaxCode	Boolean	Tax codes are sequenced collections of one or more tax components that define the tax rates applied on line items and how to calculate the tax amount. Only one tax code can be applied on a line item
PurchasingOrg	Boolean	The purchasing organization is an organizational unit which procures articles and negotiates general purchase price conditions with vendors
PurchasingGroup	Boolean	A purchasing group is a key for a buyer or group of buyers in SAP ERP. It is responsible for the procurement of a material or class of materials and is the principal channel for a company's dealings with its suppliers.

Rule Definition

Purchase Requisition Attributes relevant for grouping to create Purchase orders are determined in this rule.

Where used

Step: Enrich Purchase Requisition

Approver Determination Strategy

This decision is used in the approval process step to determine the Approver strategy based on different attributes of the Purchase requisition document. Based on the business requirement approver can be determined by external service or by business rules. For example, if the Purchasing Organization is 0001, approver will be determined by 'Business Rules' and for other Purchasing Organizations, approver will be determined by External Service.

If the approver will have to be determined by External Service and not by Business Rules, then follow the steps as mentioned in the section **Determine Approvers from External Service**.

Input and output

Rule Service Name: Purchase Order Approval Strategy

Input: Purchase Requisition Header (Structure data type)

ATTRIBUTE	TYPE	DESCRIPTION
Step Name	String	The step name is used to determine the approver
Total Net Value	Number	Sum of the total net value of all the Purchase Requisition Document line items

Purchasing Organisation	String	The purchasing organization is an organizational unit which procures articles and negotiates general purchase price conditions with vendors
Purchase Requisition Date	Date	The date on which Purchase requisition document was created
Document Type	String	Classifies types of Purchase requisition document that require different processing by the system.

Output Purchase Order Approval Strategy (Structure)

ATTRIBUTE	TYPE	DESCRIPTION
Approval Strategy	String	Approval Determination strategy can either "Business Rule" or "External Service" depending on Purchase requisition details.

Rule Definition

Approver strategy of whether approvers are determined via Business rule configuration or external Service configuration are determined in this rule.

Where used

Step: **Approve Purchase Order creation**

Determine Process Administrator

This decision is used in the approval process step to determine the Process Administrator who must be notified and user task assigned to take a decision if no approvers are determined and there are errors in Purchase order creations. For example, if the Purchasing Organization is 0001, Process administrator will be, say 'Admin1' and for other Purchasing Organizations, Process administrator will be 'Admin2'.

Input and output

Rule Service Name: Determine Process Admin

Input: Purchase Requisition Header (Structure data type)

ATTRIBUTE	TYPE	DESCRIPTION
Step Name	String	The step name is used to determine the approver
Total Net Value	Number	Sum of the total net value of all the Purchase Requisition Document line items

Purchasing Organisation	String	The purchasing organization is an organizational unit which procures articles and negotiates general purchase price conditions with vendors
Purchase Requisition Date	Date	The date on which Purchase requisition document was created
Document Type	String	Classifies types of Purchase requisition document that require different processing by the system.

Output Process Administrator Details (Structure)

ATTRIBUTE	TYPE	DESCRIPTION
Admin User Id	String	User Id of the Process Administrator
Admin Email Id	String	Email Id of the Process Administrator
Admin Group	String	Group of Process Administrators

Rule Definition

Process Administrator(s) are determined based on the configuration in this rule.

Where used

Step: **Approve Purchase Order creation**

Approver Determination

This decision is used in the Approval process step to determine the potential approver(s) based on different Purchase Requisition attributes.

Input and output

Rule Service Name: Determine Approver

Input: Purchase Requisition Header (Structure data type)

ATTRIBUTE	TYPE	DESCRIPTION
Step Name	String	The step name is used to determine the approver
Total Net Value	Number	Sum of the total net value of all the Purchase Requisition Document line items
Purchasing Organisation	String	The purchasing organization is an organizational unit which procures articles and negotiates general purchase price conditions with vendors
Purchase Requisition Date	Date	The date on which Purchase requisition document was created
Document Type	String	Classifies types of Purchase requisition document that require different processing by the system.

Output

Approver Details (Structure)

ATTRIBUTE	TYPE	DESCRIPTION
User Group	String	A user group in SAP Business technology Platform who can approve a step in the process. You can provide either user group or user id or both.
Email	String	Email address of the approver to whom the task notification will be sent. You can add multiple email addresses using a comma separated value.
Due Duration Reference Event	String	Reference to an event in the workflow to determine the target of the user task
Due Duration	Number	The duration target by which the user task needs to be completed. Used along with the unit of time.
Unit of Time	String	Unit of time of due duration like minutes, hours, days, etc.
User Id	String	User ID of the individual approver. You can add multiple user ID using a comma separated value. You can provide either user group or user id or both.

Rulesets

To determine approvers two Rulesets are working sequentially. All Rulesets are Orchestration Rulesets. Rulesets are given below.

1. **Due Date Determination Policy:** Policy to determine the due date for each approval step of Purchase Requisition Header.

Rule Definition: Determine Task Due Date

2. **Approver Determination Policy:** Determine approver for each approval step in the process based on the conditions like purchasing organization, purchase date, document type, total net value of order.

Rule Definition: Determine Approvers

Where used

Step: **Approve Purchase Order creation**

Determine Approvers from External Service

To use an external service to determine the approvers for the user task, an integration flow has to be implemented in SAP Cloud Integration with the following input and output signatures.

API Attributes	Values
Path	https://<cloudintegrationruntimeurl>/comsapcontentdeterminePurchaseOrderApprover
HTTP Method	POST
Payload sent by workflow (sample data)	<pre>{ "Vocabulary": [{ "PurchaseRequisitionHeader": { "StepName": "CostCenterOwner", "DocumentType": "NB", "TotalNetValue": " 100.0000", "PurchaseDate": " 2021-07-22", "PurchasingOrganisation": "0001" } }] }</pre>

	<pre> }] } </pre>
Response Payload from integration flow	<p>Success (Status = 200): OK</p> <pre> { "Result": [{ "Approver": { "DueDurationReference": < "Task" OR "Workflow" >, "Email": <comma separated email ids>, "UnitOfTime": < "h" OR "m" OR "Y" OR "M" OR "D" >, "UserId": <comma separated User Ids>, "DueDuration": <Duration units (integer/number)>, "UserGroup" :<comma separated user-group ids> } }] } </pre> <p>Note: When Status is not 200, then it is considered a failed service call.</p>
Payload Type	Application / JSON

Determine Tax Code from External Service

To use an external service to determine the tax code, an integration flow has to be implemented in SAP Cloud Integration with the following input and output signatures.

API Attributes	Values
Path	https://<cloudintegrationruntimeurl>/ http/GetTaxCode
HTTP Method	POST
Payload sent by workflow (sample data)	<pre> { "DocumentId": "00000100009", "SupplierId": "SAL07", "Plant": "0001", </pre>

	<pre>"PurchasingOrganisation": "0001" }</pre>
Response Payload from integration flow	<p>Success (Status = 200): OK</p> <pre>"DATA": { "item": { "TaxCode": "0001" } }</pre> <p>Note: When Status is not 200, then it is considered a failed service call.</p>
Payload Type	Application / JSON

Process Visibility

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

Manage Purchase Order Approval and Creation process content package provide out of the box visibility on all the process variants in SAP Build Process Automation or SAP Workflow Management. Procurement expert or line of business expert will be able to enhance the visibility scenario.

Configure Visibility Scenarios in SAP Build Process Automation

1. Go to the Application Development Lobby.
2. Select Manage Purchase Order Approval and Creation Project.
3. Click to open **Manage Purchase Order Approval and Creation** scenario.
4. Click Activate button.

Please go through the [help documentation](#) on how to configure the visibility scenario.

Configure Visibility Scenarios in SAP Workflow Management

1. Go to Process Flexibility Cockpit.
2. Select **Manage Purchase Order Approval and Creation** tile.
3. Click Visibility Scenarios tile.
4. There is one process configured.

- a. Approve and Create Purchase Order:

Contains approval process events and context, sent by SAP Build Process Automation or SAP Workflow Management.

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

Access Process Workspace in SAP Build Process Automation

1. The process visibility scenario can be accessed using SAP Launchpad Service. Refer to the help document for [creating UI applications on central SAP Fiori Launchpad](#) for SAP Build Process Automation.
2. Once you have added the applications process Visibility Scenario Instances (with app ID com.sap.spa.pv.instances) and Visibility Scenario Dashboard (with app ID com.sap.spa.pv.ovp), follow the below steps to add a tile to access the Manage Purchase Order Approval and Creation dashboard.
 - a. Navigate into “Visibility Scenario Dashboard”.
 - b. On the screen that opens, choose Create a Local Copy.
 - c. To use custom texts, choose Edit and adapt the texts in the General section.
 - d. You can use a custom title, description, and subtitle for the tile.
 - e. Choose the Navigation tab.
 - f. Under the Intent section, ensure that the value in the Action tab is unique for every application.
 - g. Under the Parameters section, provide the following:

Parameter Name	Parameter Value
Name	scenariold
Default Value	com.sap.content.ecc.POCreation
Required	Toggle to Yes

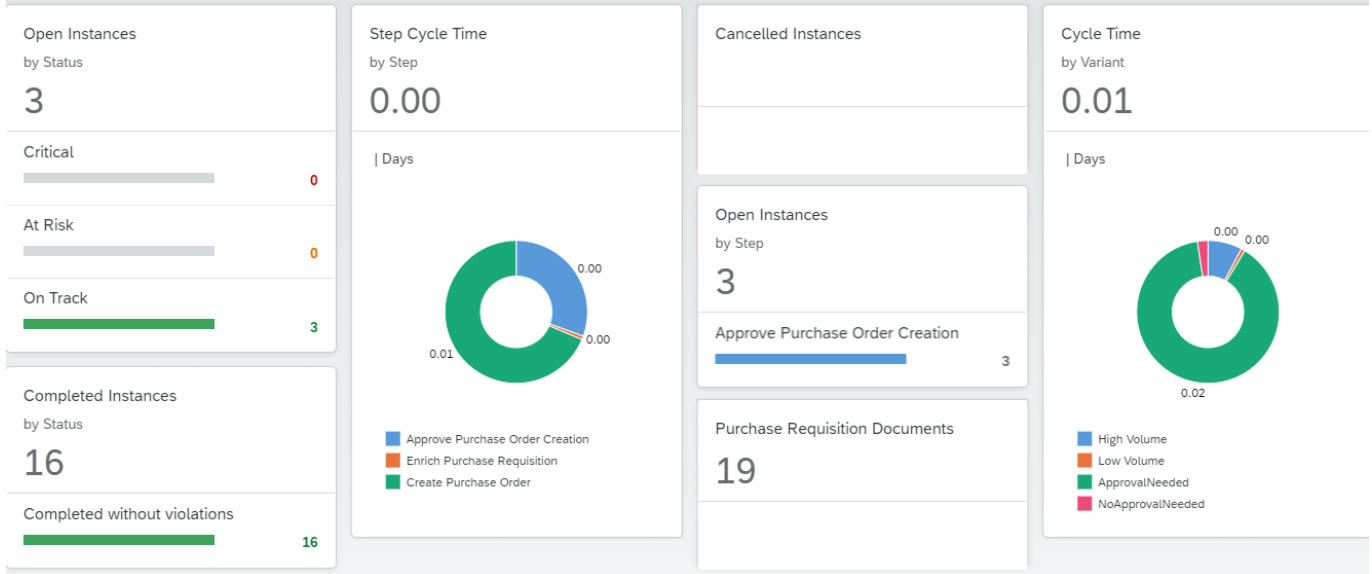
- h. Choose Save.
 - i. Assign the local copy to a group and make sure that they’re visible to users. For more information, see [Assign Apps to a Group and to a Catalog](#) and [Assign Content to a Role](#).
3. Once created, select app that corresponds to “Manage Purchase Order Approval and Creation”.
 4. User will see the process visibility dashboard.

Access Process Workspace in SAP Workflow Management

1. Go to Process Flexibility Cockpit
2. Select **Manage Purchase Order Approval and Creation**
3. Click Live Process Insights Manage Purchase Order Approval and Creation
4. User will see the below detailed process visibility screen.

Standard

Not Filtered



Please go through [help documentation](#) on how to access process workspace.