

SAP BUSINESS TECHNOLOGY PLATFORM | EXTERNAL

Content Guide

Invoice Approval Process

Sample Content for SAP Build Process Automation

Version: 1.0



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Version	Date	Description
1.0.	October 14th, 2024	Document created

INTRODUCTION

PURPOSE

Due to a fast-changing environment, the need for improving and redefining business processes and in an agile way is constantly growing. The demand for new processes and solutions or adjusting existing ones by the business is increasing while IT is often struggling to keep up with the rapidly evolving needs.

Processing of invoices is often still distributed across different people, tools and platforms. Since invoices are often received via PDFs or images, data needs to be extracted from those which is tedious work: a person needs to retrieve the data from the document and manually enter it into the target system. When it comes to processing many documents it becomes a huge challenge and requires a lot of time dedicated to this task. Also, manual matching is repetitive and error prone.

This sample content helps users to get started in automating a simple invoice approval process that includes the extraction of data from documents and approval steps required to approve the invoice.

DESCRIPTION

Included in this sample process is the following:

- Sample request form to start the invoice processing
- An automation (and respective data types) to extract the data from an invoice
- A decision to define who needs to approve the invoice
- An approval step to decide for approval or rejection of the invoice
- Confirmation and rejection forms to notify the requester about the decision

This sample content contains the following elements as key artifacts:

Type	Name
 Process	Get Invoice Details
 Form	Invoice Request Form
 Form	Invoice Approval Form
 Form	Invoice Approval Notification Form
 Form	Invoice Reject Notification Form
 Data Type	Approver
 Data Type	Invoice
 Automation	Extract Invoice Data

 Decision	Determine Approver
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REQUIRED PERMISSIONS

To fully use this content package, you need to have an active user entitled to use SAP Process Automation with the role **ProcessAutomationDeveloper**. For users that are only participating in testing and execution of this content, the role **ProcessAutomationParticipant** will be sufficient.

For more information about SAP Process Automation roles, see [Authorizations](#).

PREREQUISITES

- A desktop agent needs to be installed and setup. (see [documentation](#))
- For testing and running an automation, a Windows PC is required. If you are using a Mac, you will need to install the agent via a virtual desktop infrastructure (VDI).
- Download the [sample invoice document](#) to your local machine.

IMPORTANT NOTE

This sample content is based on a [discovery mission](#) which you can find in the discovery center. It is not meant for productive usage but to serve as quick start and inspiration for you as a user to modify it according to your own needs.

To use this sample content, you don't need any previous knowledge and understanding of SAP Process Automation and its possibilities.

SUPPORT

Note: Please be advised that since this content package is sample content only, there is no support available.

If you experience general issues with SAP Process Automation or its functionalities, we suggest you raise a request through the SAP Support Portal, using the component [BPI-PA].

CONFIGURATION AND MODIFICATIONS

Once you have added the content to your lobby, you will find the project in your project list. Before you can deploy and use it, you need to configure it to adjust it to your own needs. In order to modify and extend this content, you will need to add it as a template.

Access the Sample Process

The sample invoice approval process can be accessed from the **Application Development Lobby**. This lobby provides an overview of your available SAP Process Automation projects, whether created by you or those you are given access to.

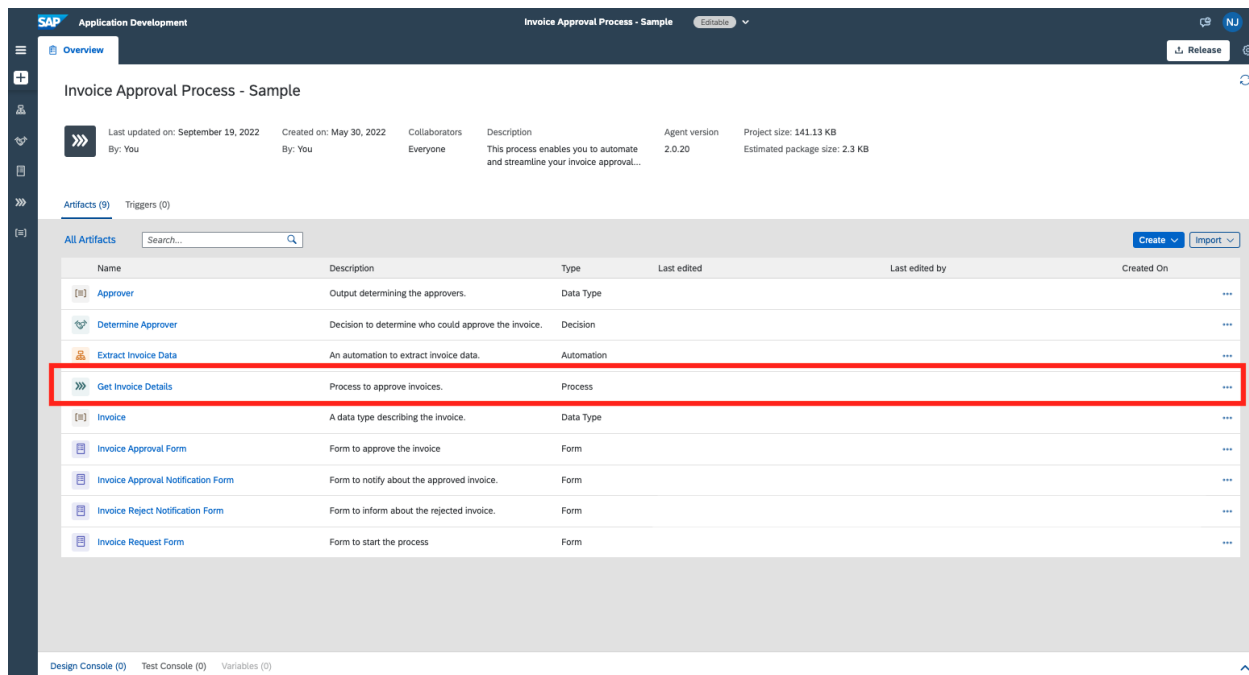
Click on the project named **Invoice Approval Process - Sample**:

Name	Versions	Type	Last Accessed	Members
Invoice Approval Process - Sample This process enables you to automate and streamline your invoice approval process. NOTE: There is a developer tutorial available for you to build this process.	1 Available Latest: 1.0.0	Business Process	Sep 19, 11:20 am	Everyone

Note: If you named your project differently at the time of creation from the Store, the project name will be different.

The sample project opens, displaying your **project overview** area. This area allows you to create new artifacts or view and configure existing artifacts. The existing artifacts can either be opened directly from your project overview area or through the **process builder** feature.

To view the process builder, click on the process artifact named **Get Invoice Details**:



This loads the process builder, displaying a visual overview of the existing process. You can now click on process artifacts, such as the request form, to further configure them.

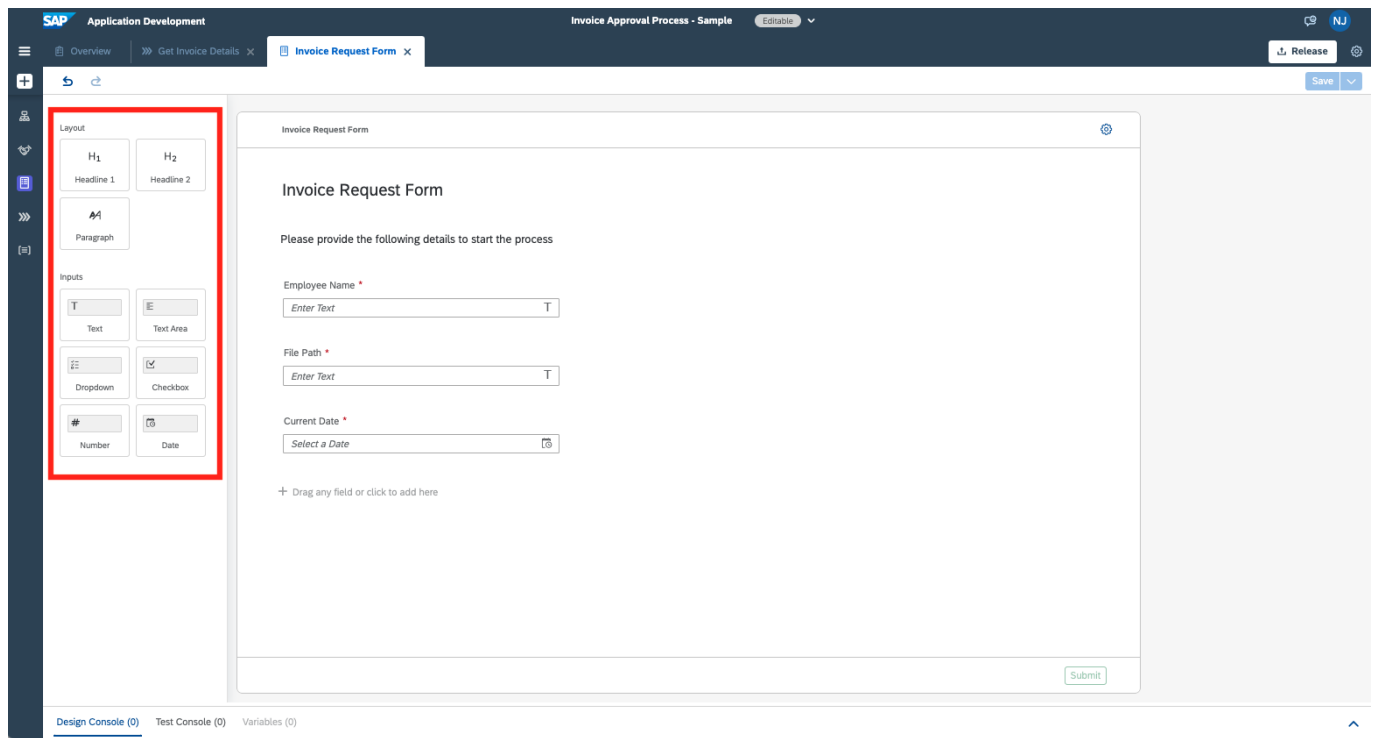
Configure the Request Form

This sample invoice approval process is initiated (or triggered) by someone submitting a request form. This request form captures data such as the requestor's personal details and the file path for the invoice the data is extracted from.

To configure the request form from the process builder, click on the three dots next to the element **Invoice Request Form** and choose 'Open Editor':

The request form editor opens, displaying the sample request form that allows the requester to provide details about the invoice request. This form is editable, meaning that you can edit existing information here or add and configure new fields if you want to collect additional information in your own request form.

To add additional layout and input fields to the form, drag and drop them from the side menu:

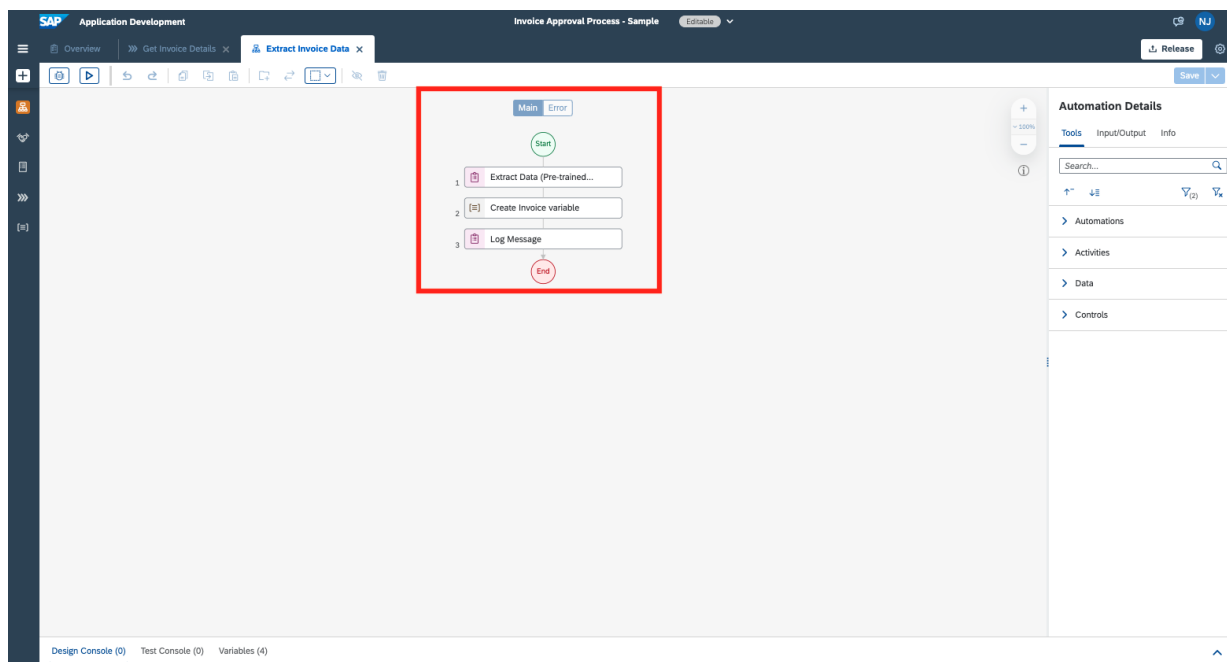


Configure the Automation

Returning to the process builder (click on the open tab), you'll see that the next step of the process is a **Extract Invoice Data** automation step. This step is automating the extraction of invoice data from a pdf file.

To configure the automation from the process builder, double click on **Extract Invoice Data**

The automation editor now loads, and you will see the three activities included in this automation: Extract Data (Pre-trained Model), Create Invoice variable and Log Message.



Extract Data (Pre-trained Model):

- This activity is using a pre-trained machine learning based model to extract information from an invoice. This activity will work for invoices that follow a common invoice format with the most common elements on it. If your invoices differ from that standard, you might want to choose the activity Extract Data (Template) instead. The discovery mission that this content is based on walks you through how this can be done. For reasons of simplicity, we chose to go ahead with the pre-trained model here instead of a template.

Create Invoice variable:

- This activity creates variables needed for the information you want to extract from the document. In this sample we want to extract the Document Number, the Gross Amount and the Sender Name only. But you can flexibly extend this according to your needs.

Log Message:

- This activity makes sure that the information extracted from the invoice is logged and can be provided as output to be further consumed in the process.

Configuration: Extract Data (Pre-trained Model)

The **activity Extract Data (pre-trained Model)** can be configured in the right side panel which you can open by clicking on the respective step in the process diagram on the left. This sample automation is using the following configuration parameters:

The screenshot displays the SAP Application Development environment. On the left, a process diagram for 'Invoice Approval Process - Sample' is visible, with the 'Extract Data (Pre-trained Model)' activity highlighted by a red box. On the right, the configuration panel for this activity is shown, also outlined in red. The configuration includes the following parameters:

- Step name:** Extract Data (Pre-trained Model)
- Input Parameters:**
 - documentType:** Invoice
 - documentPath:** FilePath
 - filterSenderEnrichmentBy:** None
 - filterReceiverEnrichmentBy:** None
- Output Parameters:**
 - extractedData:** 1
- Throws:** InvalidArgument (lupa_core)

Input Parameters

- **documentType:** In this example we selected **Invoice** as document type. Alternative document types that are available for the pre-trained model are currently Payment Advices and Purchase Orders, that are not applicable in this scenario.
- **documentPath:** In this sample, the document path to the invoice data should be extracted from is

provided in the initial request form. To handover the information collected in the request form, an input parameter has been created which can be accessed under Automation Details (click on the Canvas and open the second tab in the right side panel).

- filterSender/Receiver Enrichment by: Here we have no selection in this example. You would use this information for filtering the sending or receiving entity.

Output Parameters:

- The output parameters of the **Extract Data** step are needed to capture the extracted data from the invoice. There is no need to change/modify this in this sample.

Configuration: Create Invoice variable

The **activity Create Invoice variable** can be configured in the right side panel which you can open by clicking on the respective step in the process diagram on the left. This sample automation is using the following configuration parameters:

The screenshot displays the SAP Application Development environment. On the left, a process diagram for 'Invoice Approval Process - Sample' is visible, with the 'Extract Data (Pre-trained...)' step highlighted by a red box. On the right, the 'Create Variable' configuration panel is open, also highlighted by a red box. The panel shows the following configuration:

- Step name:** Create Invoice variable
- Parameters:** List (unchecked)
- Input Parameters:**
 - value: Custom Data
 - DocumentNumber: 1 extractedData..value
 - GrossAmount: 1 extractedData..value
 - SenderName: 1 extractedData..value
- Output Parameters:**
 - 2 myinvoiceData

Input Parameters:

- Value: In this sample, we chose to create Custom Data since we want to customize which values we want to pass on to the process. In case you want to configure different values, you would need to add the desired fields to the **Invoice** data type. (see more information here) If you have done that, you can then open the expression editor for the respective fields by clicking on the pencil on the right. In the expression editor, you can extend the Variables section and under extractedData, you will find all available values from the header fields, line item details or enrichment that you can select.
- In this example, Document Number, Gross Amount and Sender Name are defined in the data type.

Output Parameters:

- The output parameters in our sample are the data received from the actual invoice which is named **myinvoiceData**. There is no need to change/modify this in this sample.

Configuration: Log message

The **activity Log message** can be configured in the right side panel which you can open by clicking on the respective step in the process diagram on the left. This sample automation is using the following configuration parameters:

The screenshot displays the SAP Application Development environment. The main workspace shows a process diagram with three steps: 'Extract Data (Pre-trained...)', 'Create Invoice variable', and 'Log Message'. The 'Log Message' step is selected, and its configuration panel is open on the right. The panel shows the step name 'Log Message' and the input parameter 'message' set to 'myinvoiceData'.

- Message: To be able to reuse the information retrieved from the automation, the invoice details need to be logged as the message here. That's why the message parameter is set to **myinvoiceData** from step 2.

To make sure your automation runs smoothly you can test it via the embedded testing option on the top left corner.

Important: Testing an automation will only work, if the [mentioned pre-requisites](#) are fulfilled. Please make sure the desktop agent is installed and configured for your current tenant and provide a valid file path where the sample invoice is stored. (e.g. C:\users\username\downloads\invoice.pdf)

If you have finalized the automation, make sure to save it and head back to the process (open tab: Get Invoice Details).

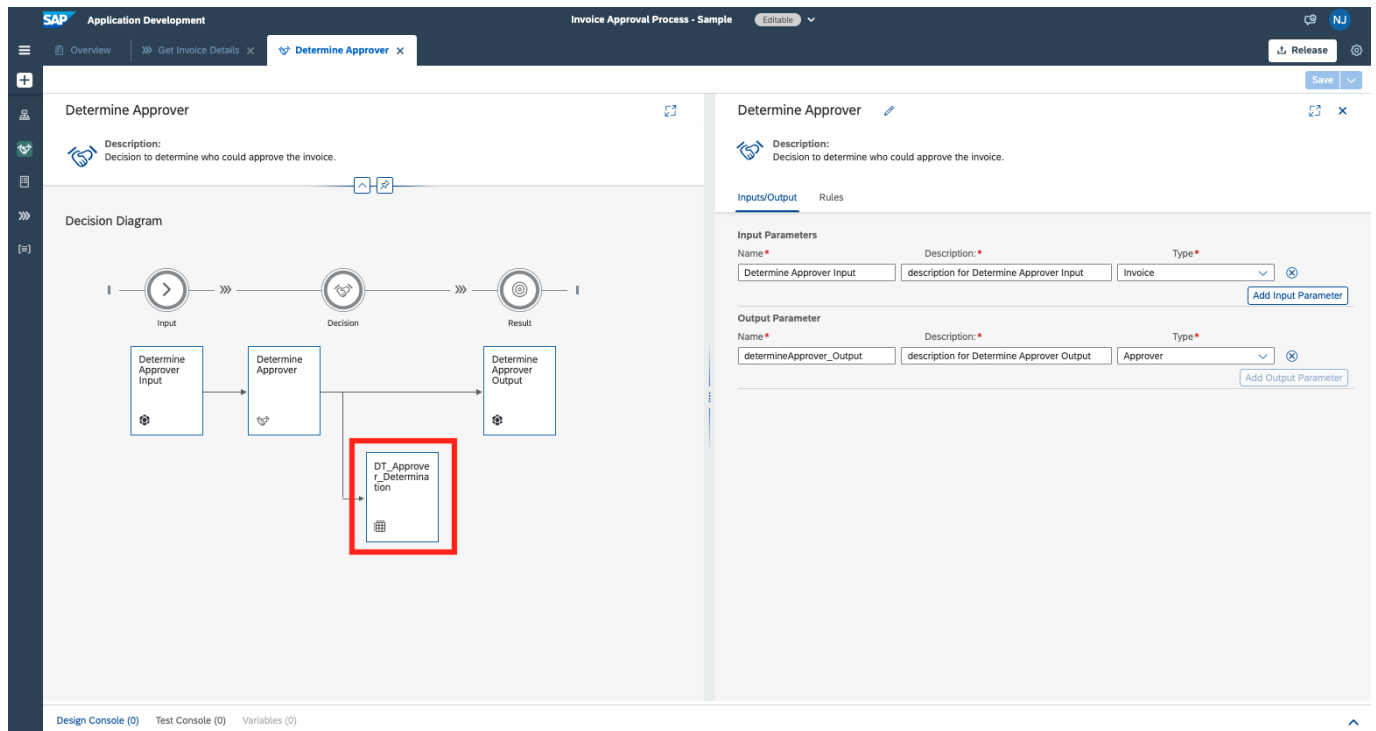
Configure the Decision

Returning to the process builder, you'll see that a **decision** has been added to the process.

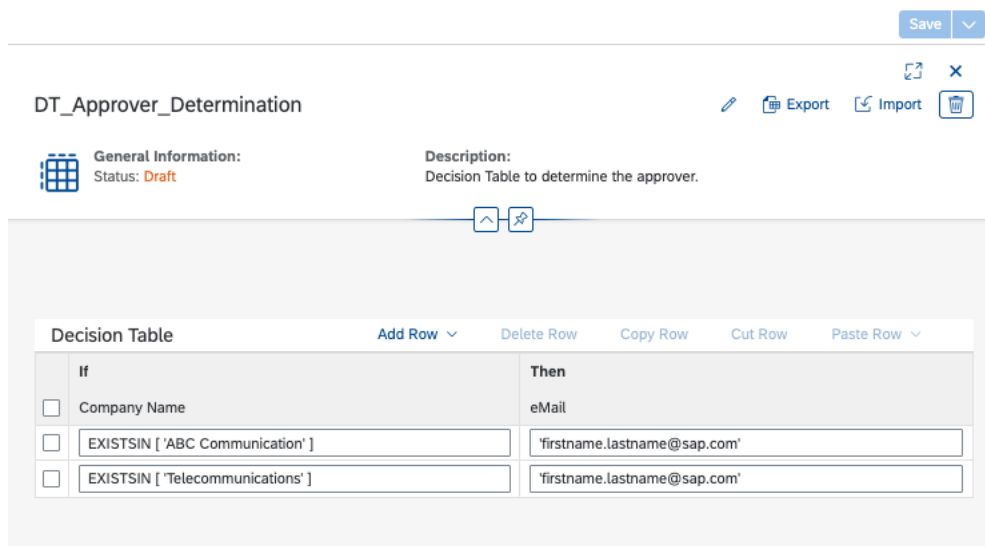
Decisions help you to determine who is responsible for approving submitted requests and sends them the task in their inbox accordingly.

Decisions are configured by creating a decision table based on process metadata, with similar (but more enhanced) IF and THEN rules applied to the process.

To view and modify the existing decision table, double click on the **decision**. And then click on **DT_Approver_Determination**:



In this example, the decision table is as follows:



Decision Table	
If	Then
Company Name	eMail
EXISTSIN ['ABC Communication']	firstname.lastname@sap.com
EXISTSIN ['Telecommunications']	firstname.lastname@sap.com

This decision is configured to send invoice approvals for certain companies to dedicated individuals that are responsible for the respective supplier. To configure and test this process correctly, you will need to adjust the company names (ABC Communication and Telecommunications in this sample) as well as the email addresses to your own needs. For testing with our provided sample invoice, you can leave the company ABC Communication name but should maintain the email addresses to match existing users in

your tenant.

You can add further rules by clicking **Add Row** and then entering the appropriate information. Please make sure to save the decision after any modification you have made.

Returning to the process builder, you can then configure the **Input** and **Outputs** for this decision in the right side panel by selecting the decision step. Again, this is based on the metadata collected during the process. Please keep in mind to adjust this data mapping accordingly if you modified this content package

Configure the Approval Form

Returning to the process builder again, you'll see that the path for the process after the approver has determined with the decision is an **Invoice Approval Form**. This approval is managed via the responsible person's inbox, appearing as a task for them to review and action.

The information that is shared with the approver is configured by creating an approval form. This approval form can be copied from the request form, ensuring that relevant basic information from the request form is shared from requestor to the approver as in this case, the employee's name.

To configure the approval form from the process builder, double click on **Invoice Approval Form**

The approval form editor now loads, with a similar layout and input fields available as in the invoice request form. In addition, there are also the new fields providing information extracted from that invoice. Here, most of the fields are set to 'Read Only' (identified by a lock icon) so that the approver can't modify the content during the approval. You will also notice the approve and reject button at the bottom right of the page that indicate you that this form is an approval form.

You can extend or modify this form by flexibly adding new field elements via drag and drop if required as you already know it from the invoice request form.

The screenshot displays the SAP Application Development environment for configuring an 'Invoice Approval Form'. The main workspace shows the form layout with the following elements:

- Layout Panel (Left):** Contains controls for Headline (H1, H2), Paragraph, Text, Text Area, Dropdown, Checkbox, Number, and Date.
- Form Canvas (Center):**
 - Invoice Approval** title.
 - Invoice Details:**
 - Company Name: Prepopulated Field (Read Only).
 - Invoice Number: Prepopulated Field (Read Only).
 - Gross Amount: Prepopulated Field (Read Only).
 - Employee Name: Prepopulated Field (Read Only).
 - Drag and drop area: '+ Drag any field or click to add here'.
 - Bottom right buttons: **Approve** and **Reject**.
- Right Panel (Metadata):**
 - Form Name:** Invoice Approval Form.
 - Description:** Form to approve the invoice.
 - Reference ID: 2715024.

The bottom status bar shows 'Design Console (0)', 'Test Console (0)', and 'Variables (0)'.

Returning to the process builder, you can now edit your approval settings by clicking on **Invoice Approval Form**, opening the side panel

General Settings – These allow you to configure how the approval tasks are displayed in an inbox and to which users or groups of users should receive them.

Recipients – In this case, the recipient are identified via the decision **Determine Approvers** which is indicated by the email field coming from the decision step. If you're running this process on your own and want to test it, make sure your own email address is maintained in the **decision**. Alternatively, you can select the field 'Process Started By' here. This allows you to submit and approve your own requests. This option can also be used if you want to select the requester as the recipient.

Alternatively, you could select the output from the decision (the determined approver) or another field in the process or you could type an email address of the designated recipient.

Configure the Confirmation / Rejection Mail Tasks

This invoice approval process is then configured to send or rejection messages to your MyInbox.

Much like with the request and approval forms, these messages are created using the form editor. As such, you have the same layout, input fields, and settings available.

To configure either message, double click on **Invoice Approval Notification** or **Invoice Reject Notification** to open the form editor

And to configure the message settings, click once on either **Invoice Approval Notification** or **Invoice Reject Notification** to open the side panel

Important: You will need to adjust the recipients of all form and approval steps according to your needs to be able to test and run the process successfully.

Configure the Process Flow

When using the process builder, you can also add new steps, change the layout of the existing steps, and edit the process flow.

Important: Removing a step does not delete the content but only removes the step from the process diagram.

Map your Process Data

To transfer data from one step to another, you need to define, from which process step the data should come for every field that should show values from a previous step.

In the side panel of every step that can receive or pass on data, you find tabs for 'Input' and Output' next to 'General' in the top of the right side panel. Let's have a look at the data mapping of the **Invoice Approval Form Step**.

All fields that are shown under 'Input' in the respective process step are available fields that can be mapped to information collected during previous steps. In this example, the review form should show the processor all information collected from the requestor. That's why you will see that respective fields are mapped to information coming from the **Invoice Request Form** as well as the **Extract Invoice Data** automation step.

If you click in the respective field, you will be able to see a list of all available process content elements that you can use to be shown in the selected process step. These can come from previous steps or from process meta data.

If input fields are empty in this mapping view, it means that they will appear as empty in the request form. This is the case if the information needs to be filled by the processor of the current step and has not been collected in previous process steps.

Fields that are marked as 'Read only' fields in the form editor must be mapped and are highlighted as mandatory in the mapping view.

Important: You can only map information from fields with the same type. E.g. you would not be able to map a field of type 'Text' to a field of type 'Number'. In this case, the respective fields will appear as greyed out in the selection menu.

If you switch to the 'Outputs' tab in the right side panel, you will see a list of all information that have been newly collected or generated in the respective process step. These will then be available for mapping of the following process steps.

Release and Deploy your Process

After configuring your process, it's time to publish, test and run it. To run a process you must first release and deploy it.

Release - This locks the version of your process, meaning that no further edits can be made to that version. At this stage, the process can't be run and isn't available to participants yet.

To release a version of your process, first ensure that the status is listed as 'Editable'. Then click 'Release':

Invoice Approval Process - Sample

Last updated on: September 19, 2022
By: You

Created on: May 30, 2022
By: You

Collaborators: Everyone

Description: This process enables you to automate and streamline your invoice approval...

Agent version: 2.0.20

Project size: 141.13 KB
Estimated package size: 2.3 KB

Artifacts (9) Triggers (0)

All Artifacts Search...

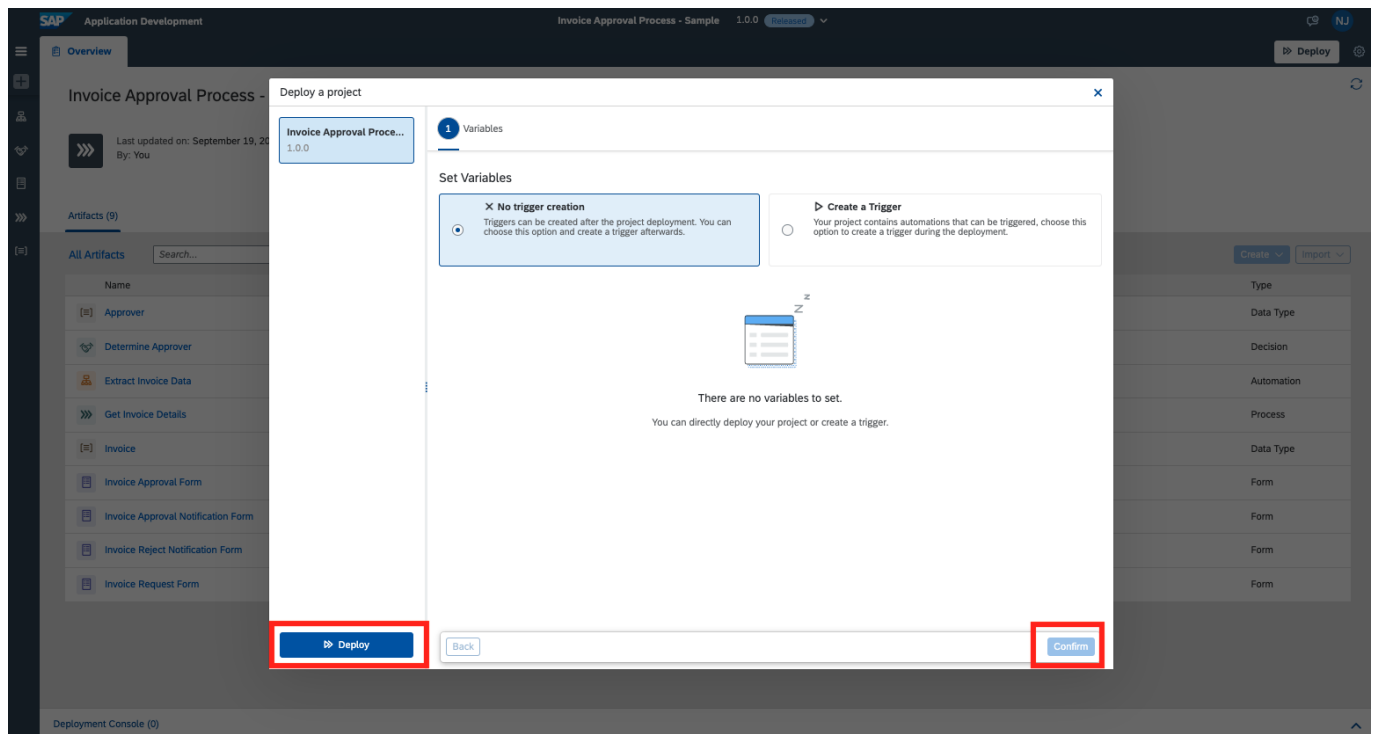
Name	Description	Type	Last edited	Last edited by	Created On
Approver	Output determining the approvers.	Data Type			
Determine Approver	Decision to determine who could approve the invoice.	Decision			
Extract Invoice Data	An automation to extract invoice data.	Automation			
Get Invoice Details	Process to approve invoices.	Process			
Invoice	A data type describing the invoice.	Data Type			
Invoice Approval Form	Form to approve the invoice	Form			
Invoice Approval Notification Form	Form to notify about the approved invoice.	Form			
Invoice Reject Notification Form	Form to inform about the rejected invoice.	Form			
Invoice Request Form	Form to start the process	Form			

Design Console (0) Test Console (0) Variables (0)

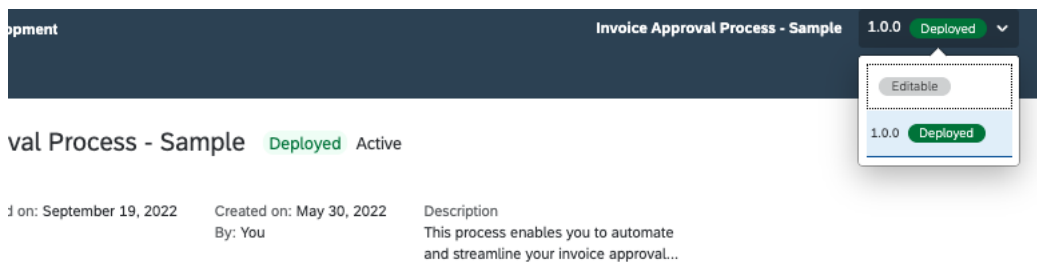
If this is the first time you've released the process, a version labeled 1.0.0 is released automatically. For subsequent releases, you're prompted to select a version type before the process is released.

Deploy – This takes a released version of a process and enables it to be actively run and monitored. A deployed version of this investment approval process unlocks the request form, allowing participants to submit requests and the approvers to view items in their inbox.

To deploy a released version of your process, first ensure that the status is listed as 'Released'. The click 'Deploy':



Your deployed process can now be accessed from the version dropdown:



Test and Run your Process

To test and run a deployed version of this sample invoice approval process, you need to submit a request form. This request form can be either accessed directly or via an SAP Launchpad tile.

To access the relevant links from the process builder, open the process artifact **Get Invoice Details** and click on the **trigger form (invoice request form)** to retrieve the links from the side panel:

In this example we access the request form directly, opening the form link in a browser. Alternatively, your process can be setup as a tile in the Fiori Launchpad by your IT admin.

Invoice Request Form

Please provide the following details to start the process

Employee Name *

File Path *

Current Date *

And then submit a request according to the path you want to test.

Once you have successfully submitted the request, you can return to your lobby and open your testing inbox via the icon in the top right corner.

SAP Application Development

Lobby Store Monitor Settings

Quick Start

Create a Process Create a Form Create an Automation Browse Content

All Projects (15)

Search by Project name & description

Name	Versions	Type	Last Accessed	Members
Invoice Approval Process - Sample This process enables you to automate and streamline your invoice approval process. NOTE: There is a developer tutorial available for...	1 Available Latest: 1.0.0	Business Process	Sep 19, 2:31 pm	Everyone

If you configured the process accordingly and selected yourself as recipient of the next steps (or 'Process started by'), you should now see the request in your inbox which you can process, approve, or reject to finalize this request instance.

Important: To test and execute the end-to-end scenario, you need to make sure an automation desktop agent is registered and available that can pick up the automation job to extract information from the invoice data. If you face any issues, any participant that has the role ProcessAdmin assigned will be able to get details in the Monitor tab you can access from the lobby.

FURTHER MODIFICATIONS

This sample content can be flexibly extended and modified. You can use all available skills in SAP

Process Automation to do so. (Eg. add business rules to determine the approver based on a certain business logic, add an automation or an action to post collected information to an SAP system).

| We recommend you to check out our [help documentation](#) or visit [SAP Process Automation @ SAP Community](#) to learn more about the different possibilities in SAP Process Automation.