



Informatica®

Informatica® Cloud Application Integration  
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# Loan Processing with GenAI

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# Preface

Use *Loan Processing with GenAI* to learn how to evaluate a loan request and approve or reject it based on the applicant's credit score. The recipe is based on REST and SOAP APIs and you use an HTTP request to call the process.

## CHAPTER 1

# Introduction to Loan Processing with GenAI recipe

The Loan Processing with GenAI recipe is based on REST and SOAP APIs.

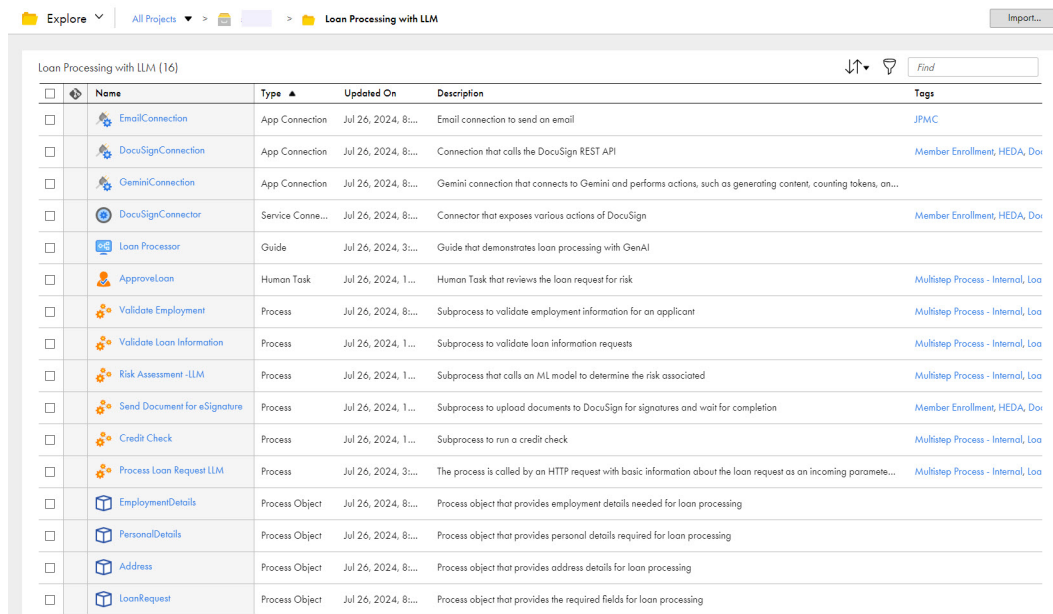
The process is called by an HTTP request with basic information about the loan request as an incoming parameter. The process performs initial verification by validating the loan information. After successful validation, the process sends an email for application submission, generates a loan ID, and verifies employment details and income. The process then performs a credit check to assess any risk by calling the LLM and summarizing the application. If the credit score of the applicant is more than 600, the loan gets automatically approved and an approval email is sent to the applicant with the document for an e-signature. Otherwise, an email is sent to the applicant stating that the loan application is under review. Simultaneously, an email is sent to the reviewer to review the loan request. Based on the reviewer's decision, if the loan is approved, an approval email is sent to the applicant with the document for an e-signature. Otherwise, a loan rejection email is sent.

# CHAPTER 2

## Loan Processing with GenAI recipe contents

The Loan Processing with GenAI recipe contains app connections, process objects, processes, a human task, a service connector, and a guide.

The following image shows the assets that the Loan Processing with GenAI recipe package contains:



## Loan Processing with GenAI recipe assets

The following table lists the assets that the Loan Processing with GenAI recipe package contains:

Asset Name	Asset Type	Description
EmploymentDetails	Process object	Provides employment details for loan processing.
PersonalDetails	Process object	Provides personal details for loan processing.

Asset Name	Asset Type	Description
Address	Process object	Provides address details for loan processing.
LoanRequest	Process object	Provides the required fields for loan processing.
DocuSignConnector	Service connector	Provides various actions to perform on DocuSign.
EmailConnection	App connection	Email connection that is used to send emails.
DocuSignConnection	App connection	Calls the DocuSign REST API.
GeminiConnection	App connection	Connects to Gemini and performs actions, such as generating content, counting tokens, and listing models.
ApproveLoan	Human task	Reviews the loan request for risk. To work with this step, you must have the human task feature enabled for your organization. For more information, see <i>Design</i> .
Validate Employment	Process	Subprocess to validate employment information for an applicant.
Validate Loan Information	Process	Subprocess to validate loan information requests.
Risk Assessment -LLM	Process	Subprocess that calls an ML model to determine the associated risk.
Send Document for eSignature	Process	Subprocess to upload documents to DocuSign for signatures and wait for completion.
Credit Check	Process	Subprocess to run a credit check. The credit score is set to 600, by default. If the applicant's credit score is more than 600, the loan is approved automatically. Otherwise, it goes to the reviewer for approval. You can update the logic to get the credit history and credit score in real-time by using credit unions such as Equifax and TransUnion as needed and modify the rules on when the loan should be approved or needs review.
Process Loan Request LLM	Process	The process is called by an HTTP request with basic information about the loan request as an incoming parameter. The process performs initial verification by validating the loan information. After successful validation, the process sends an email for application submission, generates a loan ID, and verifies employment details and income. The process then performs a credit check to assess any risk by calling the LLM and summarizing the application. If the credit score of the applicant is more than 600, the loan gets automatically approved and an approval email is sent to the applicant with the document for an e-signature. Otherwise, an email is sent to the applicant stating that the loan application is under review. Simultaneously, an email is sent to the reviewer to review the loan request. Based on the reviewer's decision, if the loan is approved, an approval email is sent to the applicant with the document for an e-signature. Otherwise, a loan rejection email is sent.
Loan Processor	Guide	Demonstrates loan processing with GenAI.



## CHAPTER 3

# Using the Loan Processing with GenAI recipe

To use the Loan Processing with GenAI recipe, you must perform the following steps manually:

- Step 1: Copy and access the recipe
- Step 2: Publish the DocuSignConnector connector
- Step 3: Configure and publish the Email connection
- Step 4: Configure and publish the DocuSign connection
- Step 5: Configure and publish the Gemini Connection
- Step 6: Configure and publish the processes
- Step 7: Invoke the process

## Copying and accessing the recipe

To copy and access the recipe content, perform the following steps:

1. Open the **Loan Processing with GenAI** recipe and click **Use**.
2. Select the location where you want to copy the recipe, and then click **Continue**.
3. In the **Copying the recipe** dialog box, click **OK**.

It might take some time for the recipe to get copied. You will receive a notification when the recipe is ready for use.

4. After the recipe is copied, click **Explore** to access the recipe content.

- Navigate to the project or folder where you copied the recipe or enter the recipe name in the **Find** box. All the assets in the recipe are displayed as shown in the following image:

The screenshot shows a project explorer window titled 'Loan Processing with LLM (16)'. It contains a table of assets with the following columns: Name, Type, Updated On, Description, and Tags. The assets listed are:

Name	Type	Updated On	Description	Tags
EmailConnection	App Connection	Jul 26, 2024, 8:...	Email connection to send an email	JPMC
DocuSignConnection	App Connection	Jul 26, 2024, 8:...	Connection that calls the DocuSign REST API	Member Enrollment, HEDA, Do
GeminiConnection	App Connection	Jul 26, 2024, 8:...	Gemini connection that connects to Gemini and performs actions, such as generating content, counting tokens, an...	
DocuSignConnector	Service Conne...	Jul 26, 2024, 8:...	Connector that exposes various actions of DocuSign	Member Enrollment, HEDA, Do
Loan Processor	Guide	Jul 26, 2024, 3:...	Guide that demonstrates loan processing with GenAI	
ApproveLoan	Human Task	Jul 26, 2024, 1:...	Human Task that reviews the loan request for risk	Multistep Process - Internal, Loa
Validate Employment	Process	Jul 26, 2024, 8:...	Subprocess to validate employment information for an applicant	Multistep Process - Internal, Loa
Validate Loan Information	Process	Jul 26, 2024, 1:...	Subprocess to validate loan information requests	Multistep Process - Internal, Loa
Risk Assessment -LLM	Process	Jul 26, 2024, 1:...	Subprocess that calls an ML model to determine the risk associated	Multistep Process - Internal, Loa
Send Document for eSignature	Process	Jul 26, 2024, 1:...	Subprocess to upload documents to DocuSign for signatures and wait for completion	Member Enrollment, HEDA, Do
Credit Check	Process	Jul 26, 2024, 1:...	Subprocess to run a credit check	Multistep Process - Internal, Loa
Process Loan Request LLM	Process	Jul 26, 2024, 3:...	The process is called by an HTTP request with basic information about the loan request as an incoming paramete...	Multistep Process - Internal, Loa
EmploymentDetails	Process Object	Jul 26, 2024, 8:...	Process object that provides employment details needed for loan processing	
PersonalDetails	Process Object	Jul 26, 2024, 8:...	Process object that provides personal details required for loan processing	
Address	Process Object	Jul 26, 2024, 8:...	Process object that provides address details for loan processing	
LoanRequest	Process Object	Jul 26, 2024, 8:...	Process object that provides the required fields for loan processing	

## Publishing the DocuSignConnector connector

To publish the **DocuSignConnector** connector, open the **DocuSignConnector** service connector and click **Publish**.

## Configuring and publishing the Email connection

To configure and publish the Email connection, perform the following steps:

- Open the **EmailConnection** connection.
- From the **Type** list, select **IICS Cloud Application Integration Email Service (Licensed for use)**.
- From the **Run On** list, select **Cloud Server or any Secure Agent**.

4. From the **Authentication Type** list, select **Password** or **OAuth** as needed. Based on the authentication type selected, perform one of the following steps:

- For **Password** authentication, enter values for the following properties in the **Connection Properties** section:

Property	Description
Authentication	Select <b>Enable</b> . Email Connector authenticates the user name and password that you enter in the email connection properties.
User Name	User name to log in to the email server. The user name is either the account name or the email address that is used to send the email with the synchronization results. For example: <code>notifyme@mydomain.com</code>
Password	Password for the email address. Set an API key for your email account. For information about creating an API key, see <a href="#">Create API credentials</a> .
Security	Select <b>SSL</b> for the Email connection to use the SSL protocol.

Configure the following common properties on the connection creation page:

Property	Description
Host	Email server's DNS name, such as <code>mail.mydomain.com</code> , or an IP address, such as <code>192.168.1.1</code> .
Port	Port for communication between the Process Server and the email server. Default is <b>25</b> .

The following image shows the **EmailConnection** connection detail page with the authentication type set to **Password**:

**Authentication:**Authentication Type: 

Name	Value	Description
Authentication *	Enable	Select Enable or Disable depending on the email server authentication support.
User Name		The user name associated with the email server.
Password		The password associated with the user name.
Security *	None	Select a security protocol to use.
Connection Timeout	30000	The connection timeout in milliseconds. The default is 30000 milliseconds.

**Connection Properties:**

Name	Value	Description
Host *	smtp.officeapps	The DNS name or IP address of the email server.
Port *	587	The port number to use for communications with the email server.
Test Email Address	test@officeapps.com	The email address that receives test mails from this connection.
From Email Address	test@officeapps.com	The email address that appears in the From field for emails sent from this connection.

- For **OAuth** authentication, enter values for the following properties in the **Connection Properties** section:

Property	Description
Authorization URL	Enter the OAuth authorization URL for the email service that is used to authorize the user request. For example: <code>https://login.microsoftonline.com/xxxxxx-xxxx-xxxx-xxxx-xxxxxxxxx/oauth2/v2.0/authorize</code>
Token Request URL	Enter the OAuth token request URL that handles token requests. For example: <code>https://login.microsoftonline.com/xxxxxx-xxxx-xxxx-xxxx-xxxxxxxxx/oauth2/v2.0/token</code> The refresh token expires in 90 days. The user must authenticate again and publish the connection before the token expires.
Client ID	Specify the identifier value from the OAuth provider.
Client Secret	Enter the client secret to connect to the email application.
Scope	Specify the scope. The scope in OAuth authentication limits an application's access to a user's account. You can select multiple scopes for a single client. To enter multiple scopes, separate each value with a space. For a Microsoft Outlook email account, enter the following scope: <code>https://outlook.office.com/SMTP.Send offline_access</code>

Configure the following common properties on the connection creation page:

Property	Description
Host	Email server's DNS name, such as <code>mail.mydomain.com</code> , or an IP address, such as <code>192.168.1.1</code> .
Port	Port for communication between the Process Server and the email server. Default is <b>25</b> .

The following image shows the **EmailConnection** connection detail page with the authentication type set to **OAuth**:

**Authentication:**

Authentication Type:

Name	Value	Description
Authorization URL *	<input type="text"/>	Enter the OAuth authorization URL for the email service.
Token Request URL *	<input type="text"/>	Enter the OAuth token request URL.
Client ID *	<input type="text"/>	Specify the identifier value from the OAuth provider.
Client Secret *	<input type="text"/>	Enter the client secret to connect to the email application.
Scope *	<input type="text"/>	Specify the scope. To enter multiple scopes, separate each value with a space.
Authorization Status	Not yet authorized.	Indicates the current status and the last time that authorization was completed.
Authorize Access	<input type="button" value="Authorize"/>	Click to initiate the authorization workflow using OAuth.

**Connection Properties:**

Name	Value	Description
Host *	<input type="text"/>	The DNS name or IP address of the email server.
Port *	587	The port number to use for communications with the email server.
Test Email Address	<input type="text"/>	The email address that receives test mails from this connection.
From Email Address	<input type="text"/>	The email address that appears in the From field for emails sent from this connection.

5. Save, test, and publish the connection.

## Configuring and publishing the DocuSign connection

To configure and publish the DocuSign connection, perform the following steps:

1. Open the **DocuSignConnection** connection.
2. From the **Type** list, select **DocuSignConnector** from the recipe assets folder.
3. From the **Run On** list, select **Cloud Server or any Secure Agent**.

4. In the **Connection Properties** section, enter values for the following properties:

Property	Description
AccountID	DocuSign account ID.
Username	User name to log in to the DocuSign account.
Password	Password to log in to the DocuSign account.
APIkey	Authenticates DocuSign connection requests.
BaseURL	URL to access the APIs in DocuSign.

5. Save, test, and publish the connection.

## Configuring and publishing the Gemini connection

To configure and publish the Gemini connection, perform the following steps:

1. Open the **GeminiConnection** connection.
2. From the **Type** list, select **Gemini**.
3. From the **Run On** list, select **Cloud Server or any Secure Agent**.
4. In the **Connection Properties** section, enter the API key in the **API\_Key** property. The **API\_Key** property authenticates Gemini connection requests.
5. Save, test, and publish the connection.

## Configuring and publishing the processes

To configure and publish the processes, perform the following steps:

1. Open the following processes in the order specified below:
    - a. Validate Employment
    - b. Validate Loan Information
    - c. Risk Assessment -LLM
    - d. Send Document for eSignature
    - e. Credit Check
    - f. Process Loan Request LLM process
  2. Save and publish all the processes.
- To save time, you can directly publish the parent **Process Loan Request LLM** process. All the subprocesses will be published automatically.

# Invoking the Process Loan Request LLM process

To invoke the Process Loan Request LLM process, you can use one of the following options:

## Guide

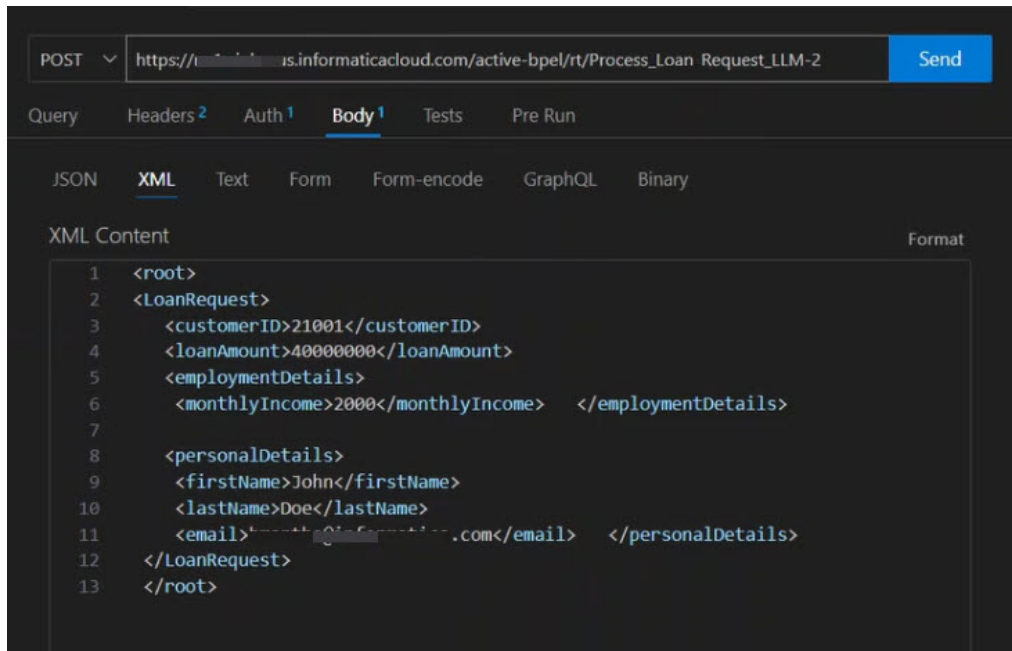
Pass input using a guide. For information, see [“Publishing and running the guide” on page 16](#).

## REST or SOAP API endpoints

Pass input through REST or SOAP API endpoints in any API client such as cURL, Postman, SOAP UI, or through any programming language.

For example:

1. Open Postman.
2. Select the HTTP verb as POST and specify the generated REST service URL and payload as shown in the following image:



3. Enter the user account details on the **Authorization** tab.
4. Click **Send**.

## Run Using

Pass input in JSON or XML format through the **Run Using** option of the process.

1. Open the **Process Loan Request LLM** process and click **Actions > Run Using**.
2. Click **New Input**, enter a name for the process input, and click **Save**.  
The payload is populated in the **Process Input** section.
3. From the **Encoding** list, select **JSON** or **XML** based on the format that you want to work with.
4. Enter the values for the process object fields in the payload.
5. Validate, save, and run the process.

## Publishing and running the guide

To publish and run the guide, perform the following steps:

1. Open the **Loan Processor** guide.
2. On the **Start** tab of the Start step, ensure that the **Run As** field is set to **Current User**.
3. Save and publish the guide.
4. On the **Actions** menu, click **Run**. Alternatively, you can copy the execution URL from the **Properties Details** dialog box to run the guide.
5. On the **Instructions** page, enter information related to personal details, employment details, and loan details, and attach an identity proof. The LLM uses this information to perform initial verification.
6. Click **Submit Loan Request**.
7. On the next screen, the load ID and loan status appear.
8. Click **Continue**.
9. Click **Done**.

You can also use the embed code to embed the guide into an HTML document of a third-party application.

**Note:** If you encounter any issues loading the guide, check whether you are using the default guide theme.