Pega AI Automated Email Processing and Classification System

1. Overview

This document outlines a Pega-based intelligent email processing solution that classifies emails, extracts relevant data, detects primary intent, and manages duplicates efficiently. The solution leverages Pega's AI-powered Natural Language Processing (NLP), case management, and integration capabilities to automate request handling.

Pega is an enterprise platform for AI-decisioning and workflow automation, helping businesses automate processes, build applications, and enhance customer engagement with a low-code approach.

2. Business Requirements & Functional Capabilities

2.1. Email Categorization & Context Interpretation

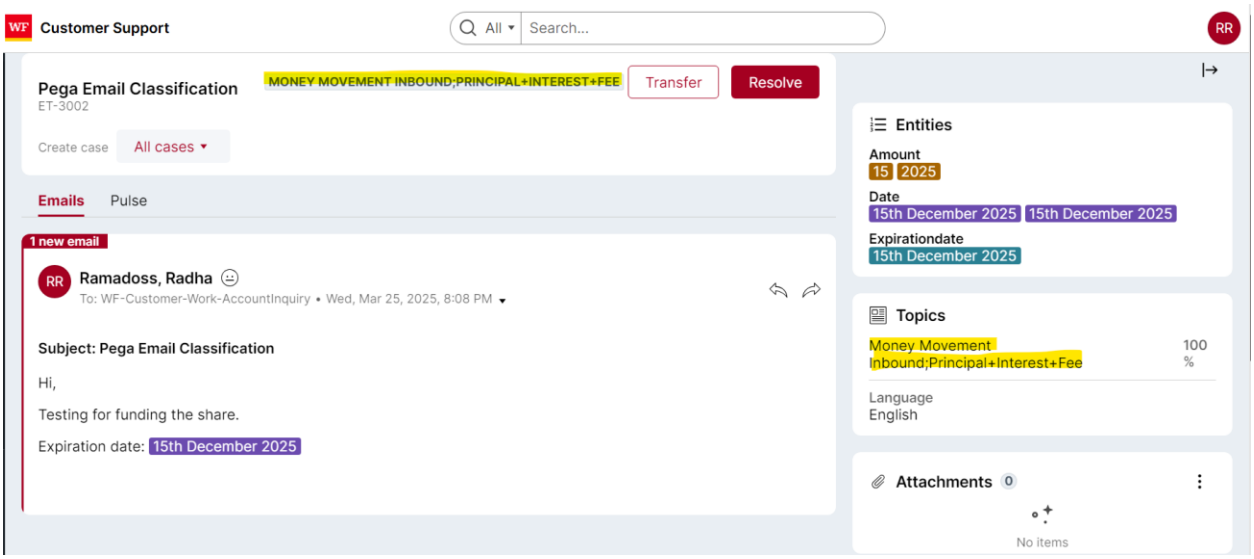
Implementation:

- **Approach:** PEGA AI-powered NLP-based text classification to analyze email content and attachments.
- **Predefined Categories:** Map emails to predefined Request Types and Sub Request Types based on intent based on historical data and business rules.
- **Sample Model Training Data:** Includes past email content categorized by request types to improve accuracy.

Example:

Email:

Pega Email Manager Portal for email triage



Request Type: Money Movement Inbound

Sub Request Type: Principal+Interest+Fee

Reasoning: The sender requests for funding the share

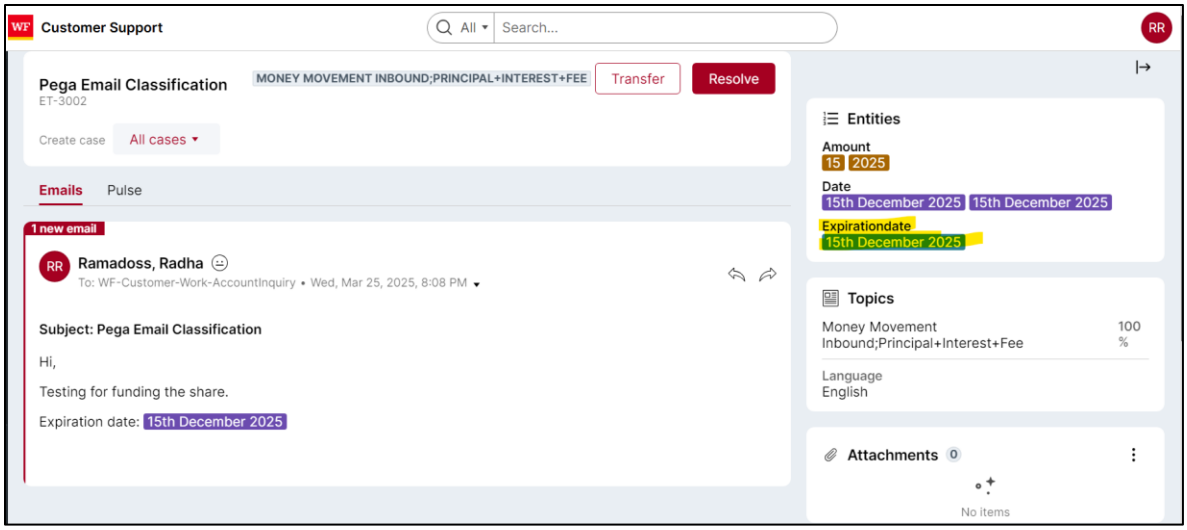
2.2. Context-Based Data Extraction

Implementation:

- **Email Body Extraction:** Uses **Pega Text Analyzer and AI models** to extract relevant fields data extraction such as **deal name, amount, expiration date**, etc
- **Attachment Processing:** Uses PEGA OCR and pattern recognition for extracting structured data.
- **Field Mapping:** Configuration-driven mapping of extracted values to PEGA case fields.

Example:

- **Email Body**



- **Extracted Fields:**

  Expiration Date: 15th December 2025

  - **Attachment (PDF/Excel/Word/Images):** Extracts numerical fields like amount, end date if not found in the email body.

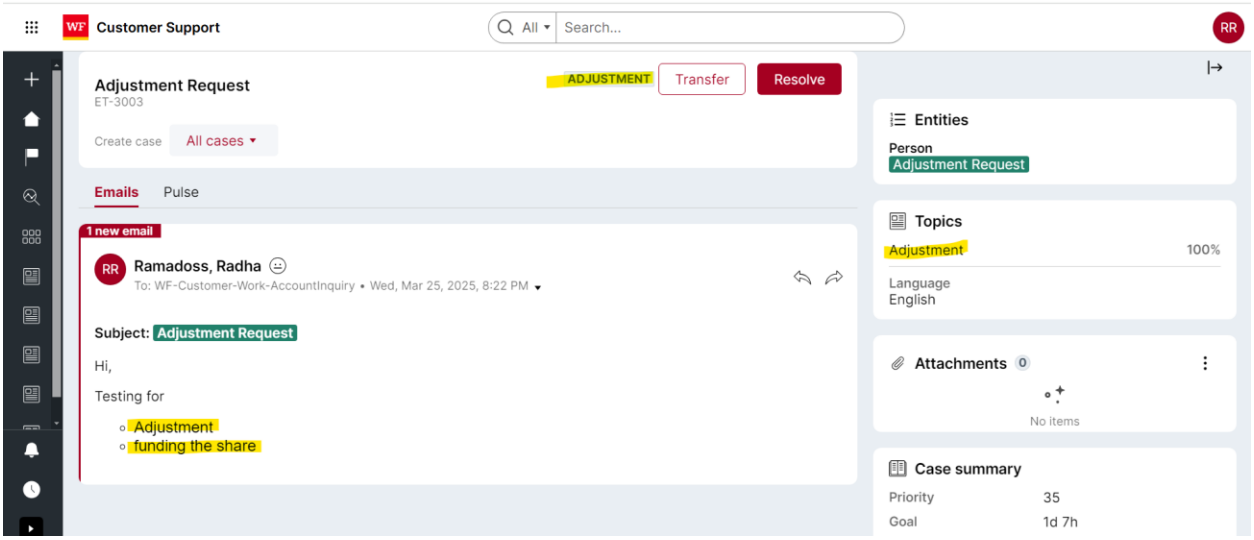
2.3. *Handling Multi-Request Emails & Primary Intent Detection*

Implementation:

- Multi-Intent Identification: NLP model flags multiple requests within an email.
- **Primary Request Determination**:
  Weightage assigned based on frequency and positioning of key phrases.
  Business rules applied to prioritize primary intent.

Example:

Email:



Request 1: Adjustment

Request 2: funding the share

Reasoning: The sender first asks for a adjustment, indicating it as their primary request.

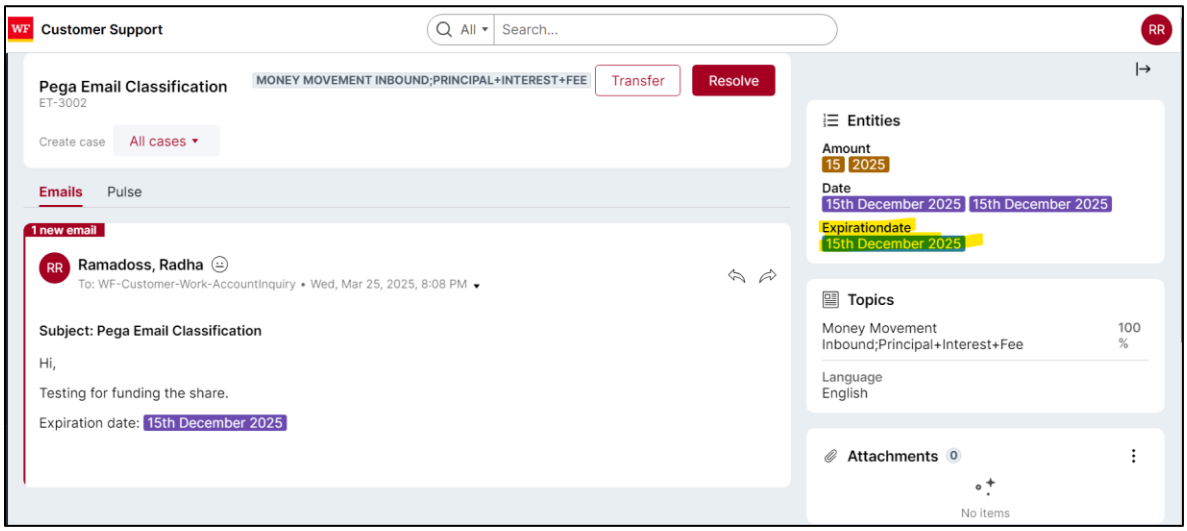
2.4. Priority-Based Extraction

Implementation:

- **Prioritize email body** for request classification before checking attachments.
- **Customizable extraction rules:**
  - Extract text-based details from emails first.
  - Fetch numerical values (e.g., deal amount) from **attachments if missing** from email content.

Example:

Email:



Extracts 15th December 2025 as the expiration date.

2.5. Duplicate Email Detection

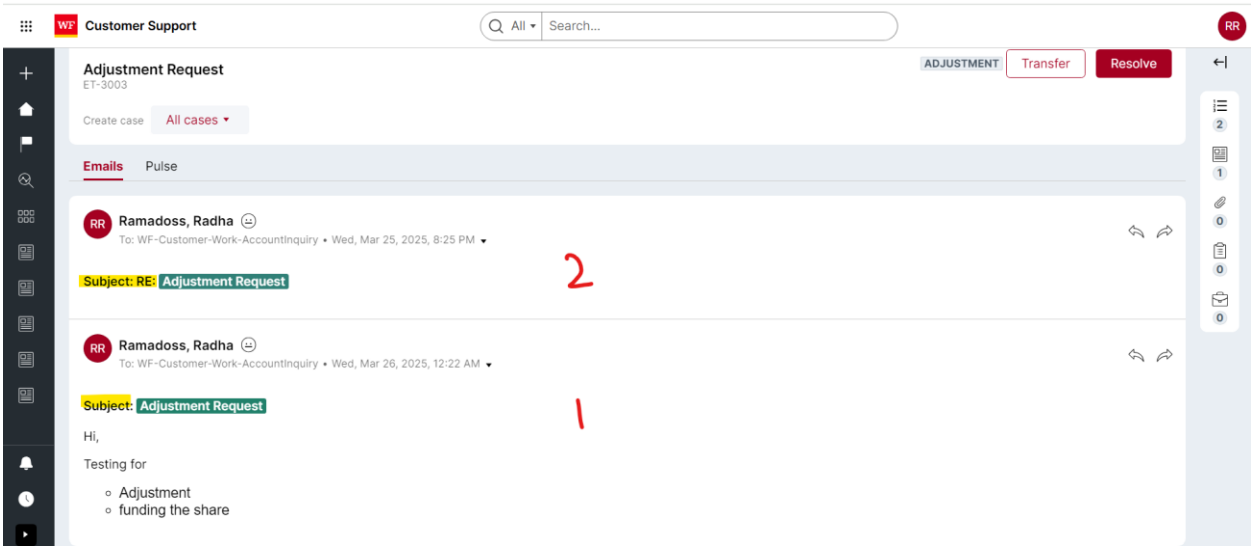
Implementation:

- Thread-based email tracking to identify duplicate emails.
- Detect identical emails by comparing:
    - Email subject and body similarity
    - Metadata like sender, timestamp, and request type
    - Thread history to check repeated messages
- Auto-merge duplicates to prevent redundant processing.

Example:

Email 1: Adjustment Request

Email 2: Reply of the email 1

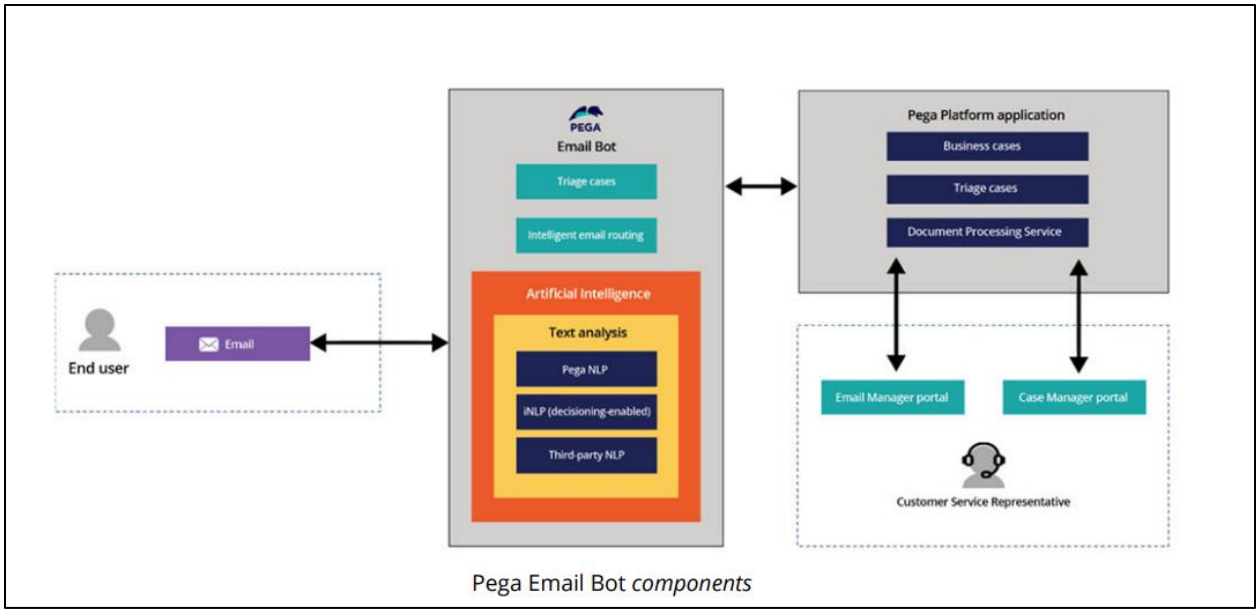


Result: The second email is marked as a duplicate and linked to the original case ET-3003 .

3. Solution Architecture

3.1. Pega Email bot

A pega developer creates an Email channel that represents the email bot, defines its behavior, and trains data for the system. Customer service representatives (CSRs) and managers then triage incoming emails in the Email Manager or Customer Manager portal, to address the reported issue or customer request. A pega channel administrator troubleshoots and updates the email bot so that the system runs efficiently and smoothly. The end users are the customers that interact with the email bot in a production environment, by sending emails to report problems or to ask for more information.



Pega Email Bot *components*

3.1.1. Triage case

An internal object that the email bot, a Pega Platform application, and CSRs use to track user issues and requests from an email during a triage Lifecycle. The email bot automatically creates a triage case for each received email. CSRs or managers can then advance the triage case through its Lifecycle. For example, a CSR can reply to users by email, send Pulse messages, spin off a related business case, or resolve the triage case after the reported issue is adequately addressed in the system.

3.1.2. Intelligent email routing

A key feature of an email bot that allows the system to instantly and intelligently react to user requests and automatically take action based on text analysis of received emails. For example, an email bot converts the content of received emails into a new triage case, and then adds the email to the appropriate work queue, creates a top-level business case, and sends an automatic reply to the customer. To perform intelligent email routing, a channel developer sets up routing conditions for the system.

3.1.3. Text analysis

The feature of an email bot that examines the content of emails by using natural language processing (NLP), adaptive analytics, and artificial intelligence to seamlessly interact with users. The email bot can detect the general subject matter of the email (topic), text that falls into a

general category (entities), sentiment, and language in the email by using text analysis. To perform text analysis, a data scientist configures a text prediction for the channel. A channel developer can also define text analyzers for the email bot, for example, Pega NLP.

3.1.4. Channel behavior

The built-in artificial intelligence and text analysis feature of an email bot that ensures that the system responds correctly and promptly to users by email. Channel developers define the channel behavior of an email bot by adding a conversation to a case type, adding suggested cases and responses, and configuring text analyzer settings. Channel developers can then continue to improve the channel behavior by testing routing conditions used in intelligent email routing, training sample data, and rebuilding the text analytics model

3.1.5. Email Manager and Case Manager portal

A portal in Pega Platform application that is available at run time to CSRs and managers, so that they can address issues reported by users quickly and more efficiently. CSRs use these portals to triage incoming emails from users that request information or report issues.

4. Technical Implementation In Pega

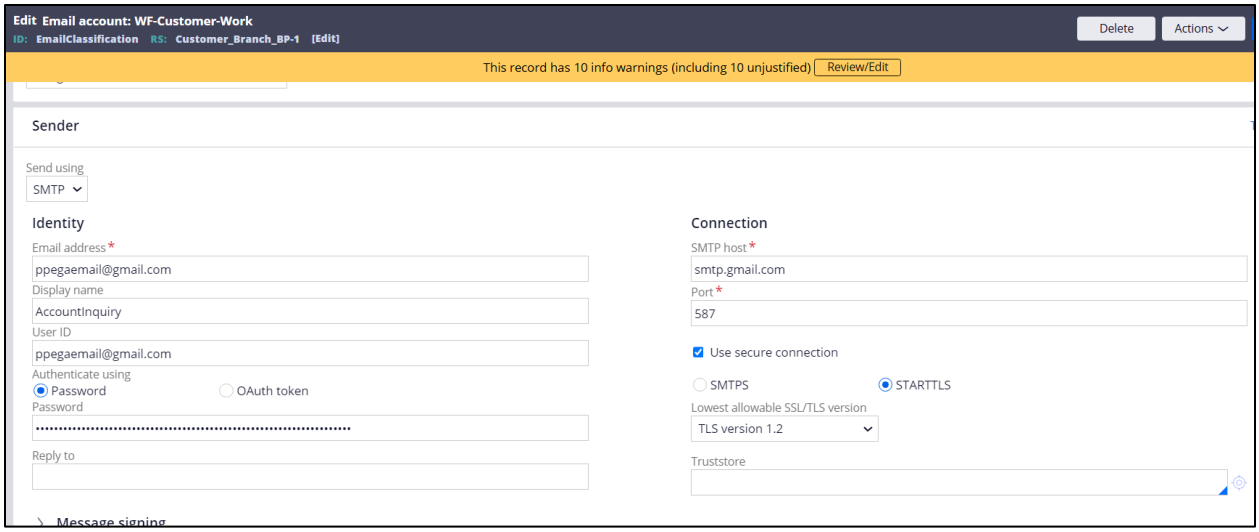
4.1. Email Account Setup

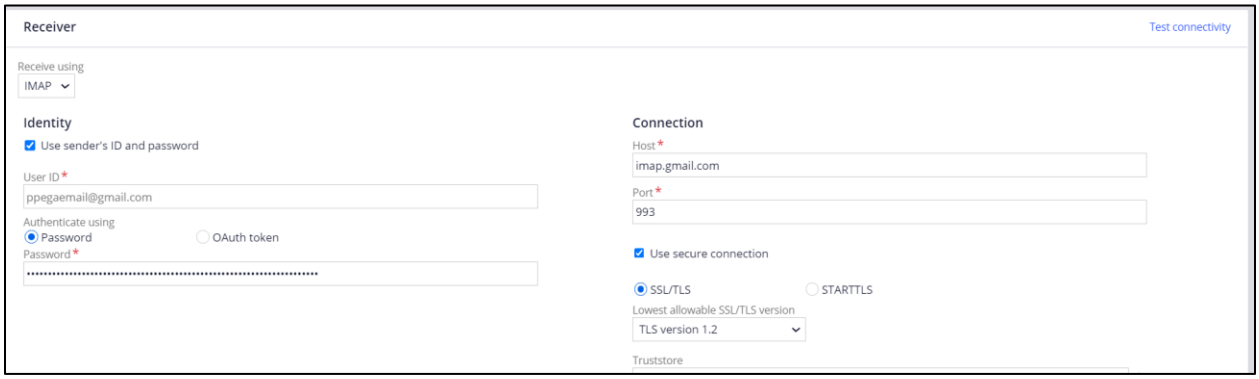
Email accounts hold the email server and connection details for email integrations in Pega Platform.

The **Sender** section of the Email account form contains the details for sending emails from Pega Platform, such as the email address of the account, the email address to which recipients can reply, and the server information for outgoing email connections.

The **Receiver** section of the Email account form contains the details for receiving emails to Pega Platform, such as the email address and server details that you want to use to receive email.

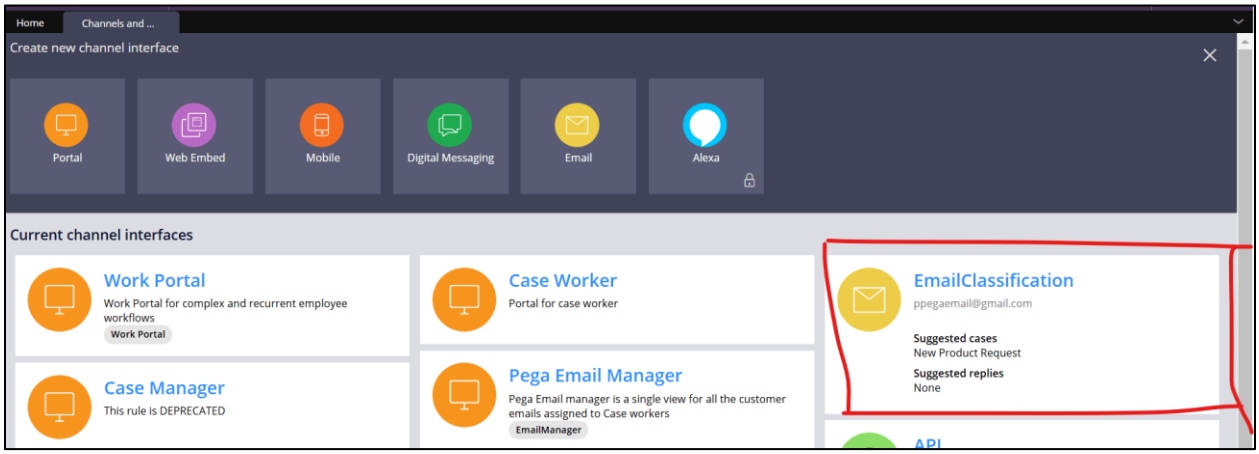
Pegaemail Pegaemail ppegaemail@gmail.com account is created and configured to send and receive emails.





4.2. *Email Channel Interface*

Email channel allows you to create an email interface for processing emails and creating cases, sending automated replies, and routing emails.

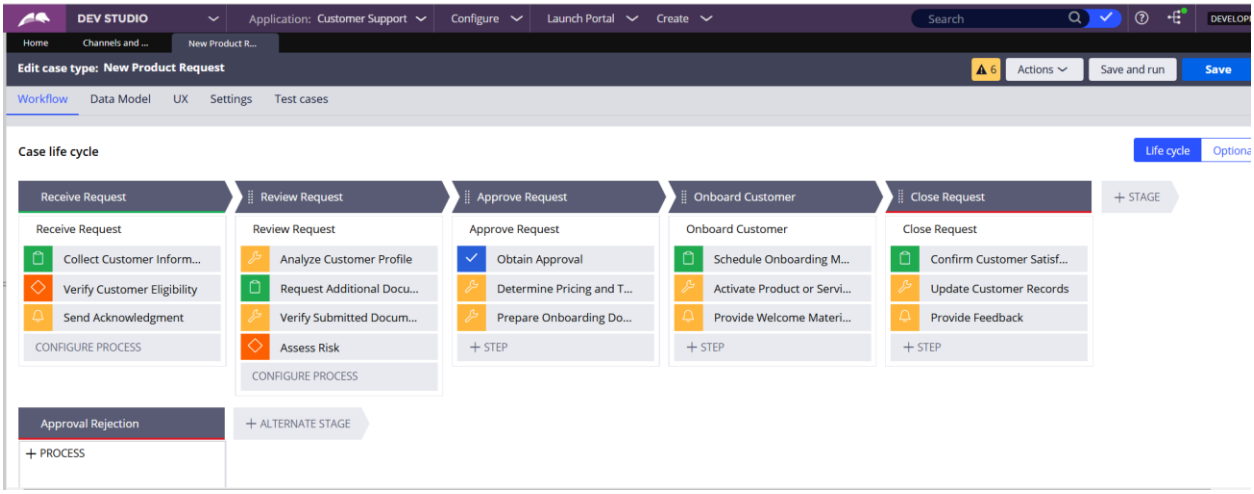


4.3. Case

A case is like an electronic folder that includes all the tasks, documents, and data needed to complete a desired outcome. A case can:

- Retrieve the information you need
- Drive the processes you want
- Manage escalations and urgency
- Detect changes
- Make decisions to achieve an outcome
- Track work at every step

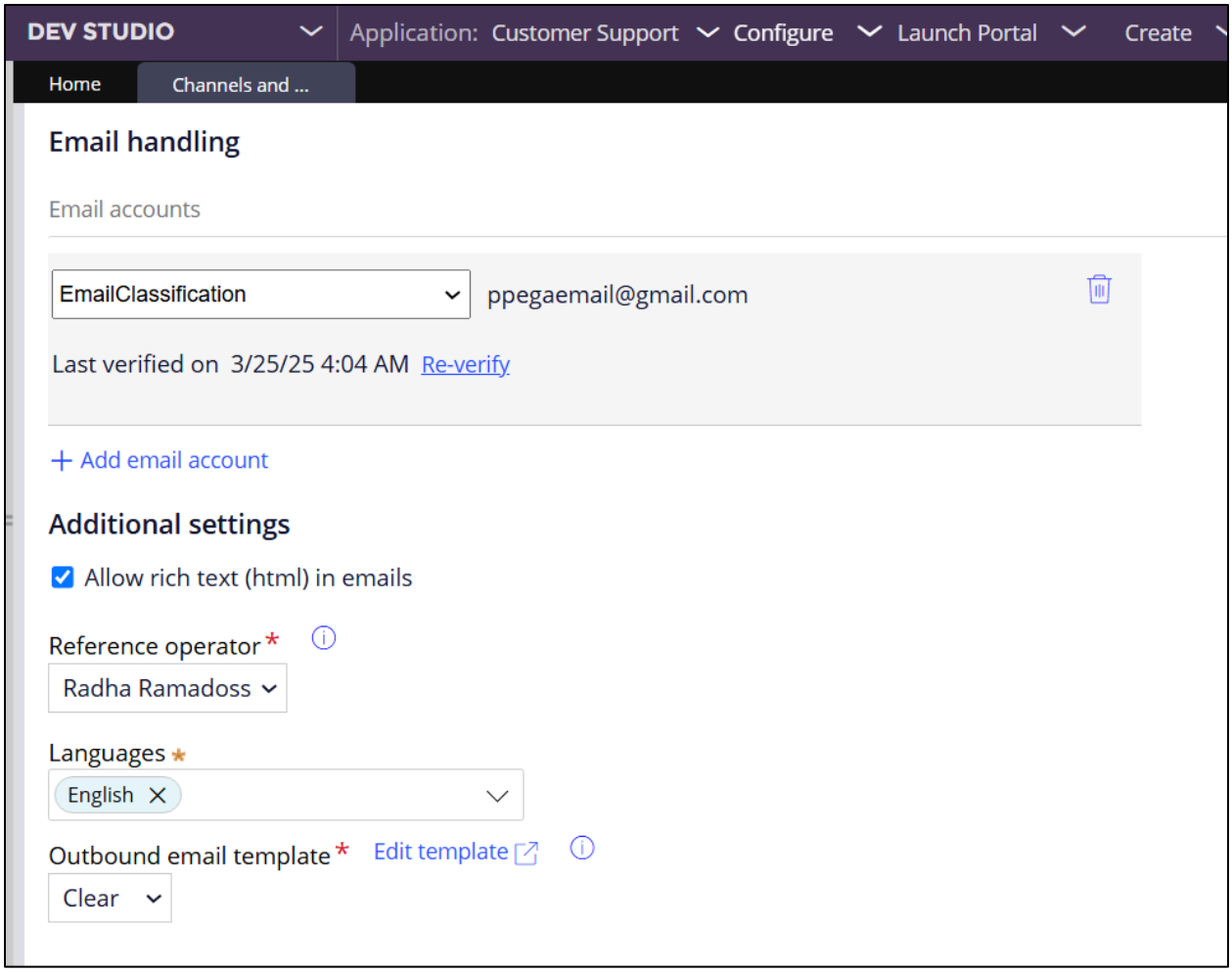
Case Product Request can be created once the email triage is completed.



4.4. Defining Email Channel Behavior

4.4.1. Configure the email account in which the email will be received

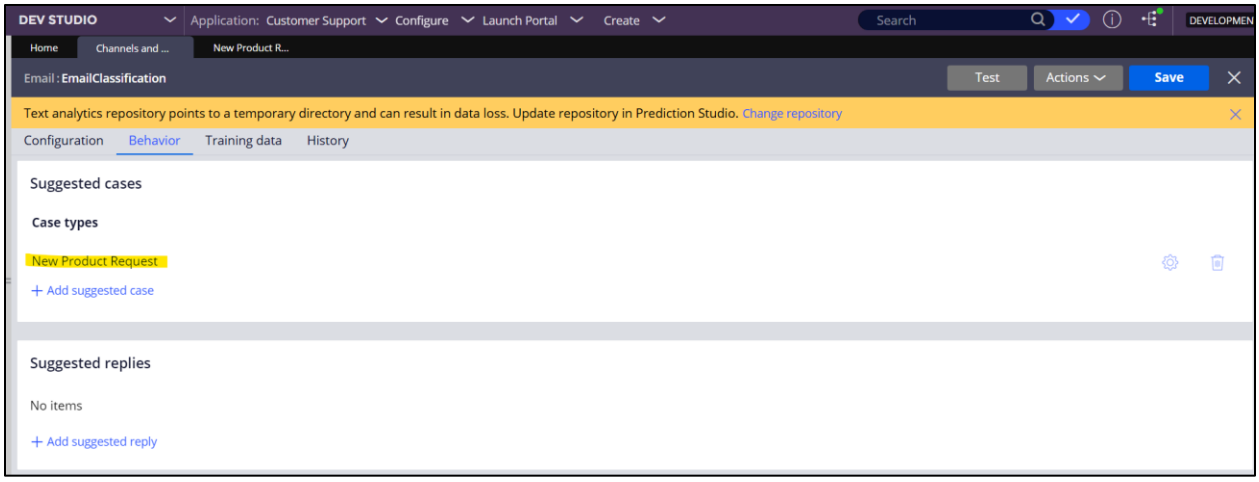
EmailClassification email account is configured



4.4.2. Adding suggested case for email channel

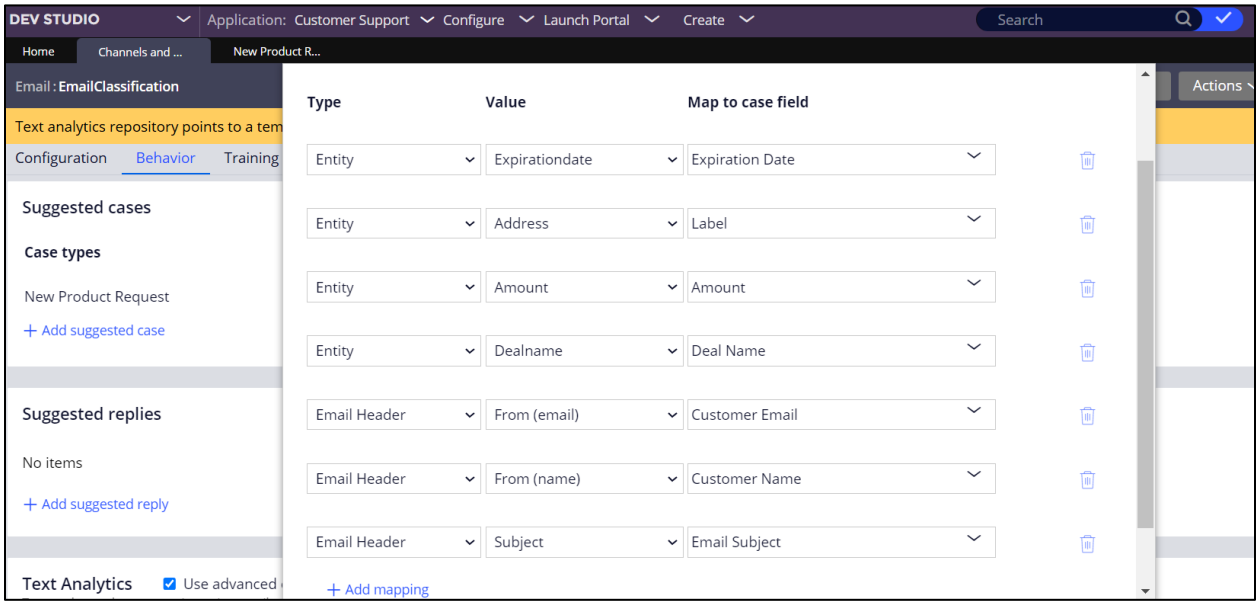
Specify suggested business cases for your Pega Email Bot to provide meaningful automatic responses to emails. Based on text analysis of a received email, the email bot uses the suggested case as the detected subject matter, to match a response to the email. As a result, CSRs can react to user inquiries more quickly and efficiently, improving overall user satisfaction.

Here case New product request is configured.



4.4.3. *Mapping Entities to Suggested case properties*

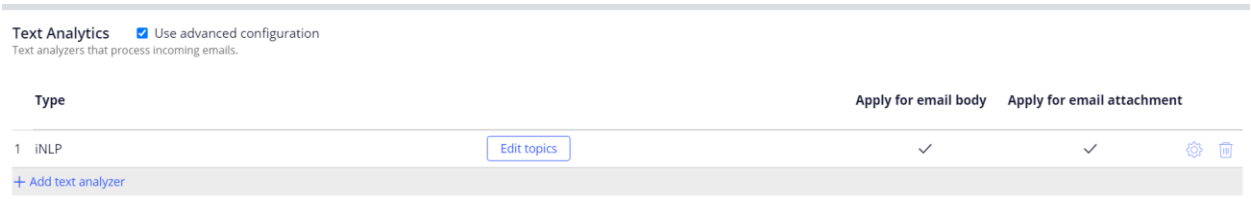
Automatically transfer detected entities from emails, including image-scanned attachments, to service case properties. By mapping entities to service case properties, you ensure that email triage cases contain comprehensive information, reducing the time CSRs spend responding to and resolving customer issues.

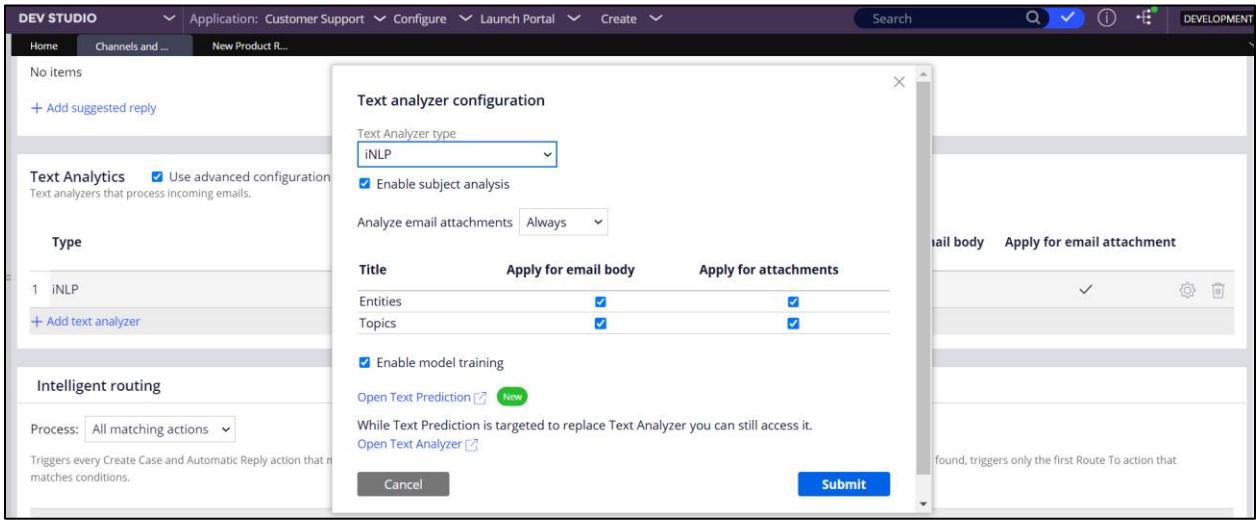


4.4.4. *Enable Text Analytics*

To detect entities present in the subject of an email, enable subject analysis for Pega Email Bot. With subject analysis, a text analyzer scans the subject field of an email for topics and entities

you can automatically analyze the email body and content of files that are attached to email to detect entities during email triage. Your email bot uses these entities and other information detected in text analysis in intelligent email routing, determining the best action





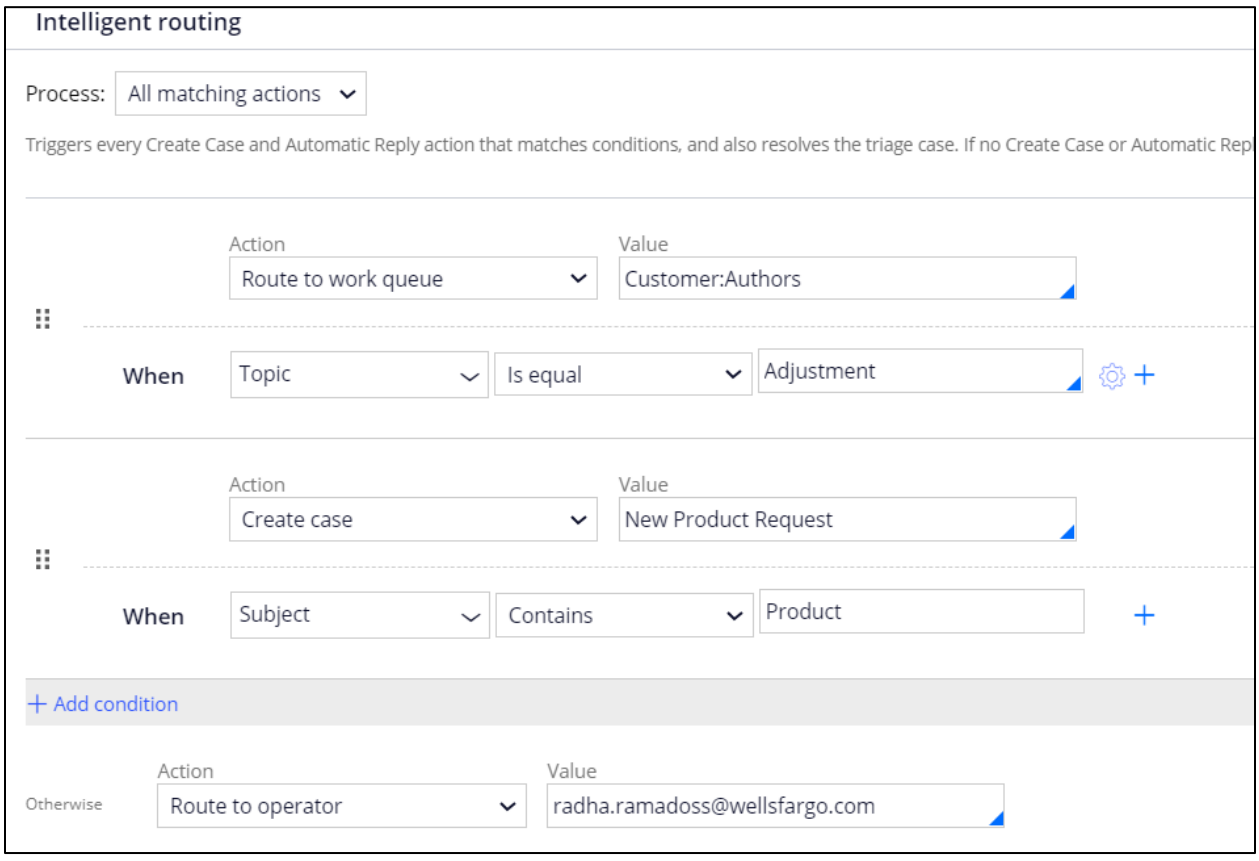
4.4.5. Defining Topics (Intent)

Define topics so that the system determines the correct email subject by analyzing email content through natural language processing (NLP) and adaptive analytics text analysis models. Defined topics help the email bot detect and organize suggested responses and suggested cases in the system.

EmailClassification.xlsx

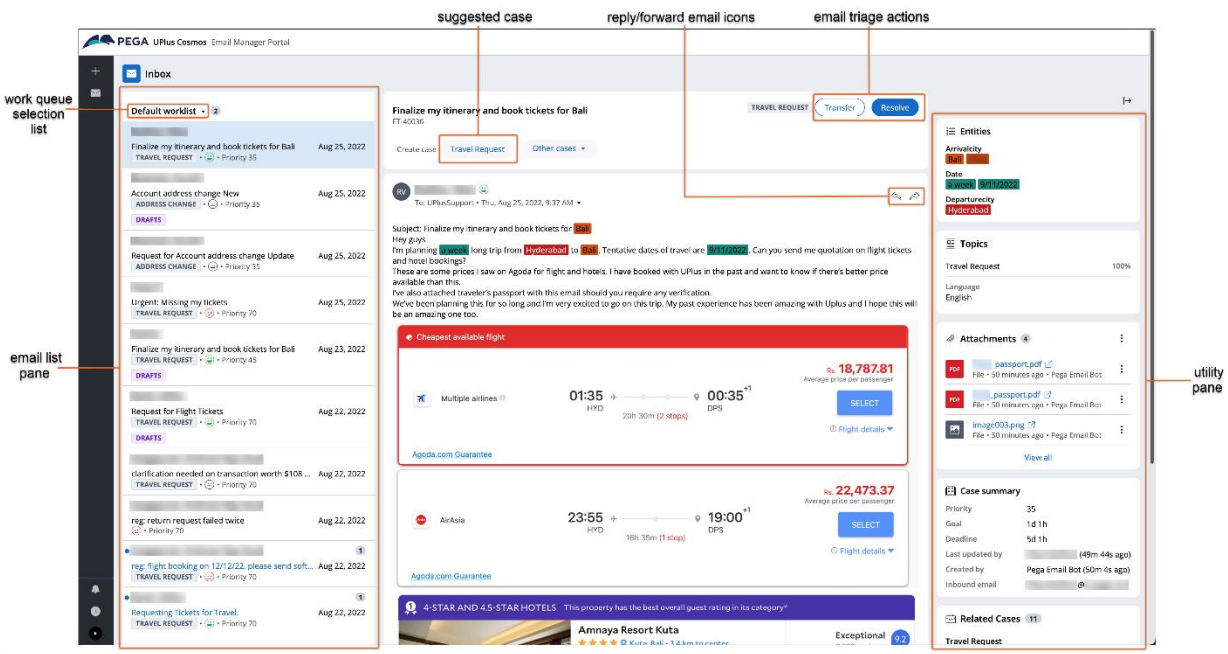
4.4.6. Configuring Intelligent Routing

By creating conditions for intelligent email routing, the system can automatically convert email content to a new interaction case for a user, add the email to a work queue, create a top-level case in an application, or send an automatic reply. For example, when you configure intelligent email routing to detect a credit card issue in the email subject and a customer email about a problem with their credit card transaction arrives, the email bot routes the email to the correct operator and creates a top-level case to help track the issue in the system.



4.5. Triaging incoming emails

By manually triaging emails for the Pega Email Bot, CSRs and other operators, for example, managers, can work through multiple emails in the context of their application to address and resolve customer issues faster and more efficiently. Case workers triage emails in the Case Manager, Case Worker, or Email Manager portal. For example, if a customer emails a request for a car insurance quote, a CSR can immediately spin off a business case related to the car insurance topic, forward the email to the company's financial adviser, and reply to the customer by email, before resolving the triage case.



The Email Manager Portal for Constellation offers important features that help CSRs and other stakeholders respond to customer inquiries:

- The email list pane.
- The search field, if configured.
- The email threads for an email triage case.
- The suggested cases for an email triage case.
- The create case window from which CSRs can assign a case.
- The email composer from which CSRs can:
    - Reply and forward emails.
    - Save email drafts.
    - View suggested replies.

- The **Pulse** tab from which CSRs can send Pulse messages.
- The utility pane from which CSRs can:
    - View the email header information.
    - View email triage case summary.
    - Map entities.
    - Manage file attachments.
    - View related cases.

4.6. Service REST to send the API Response

New rest service is created.

Method: GET

End Point URl: https://nwxzeufv.pegace.net/prweb/api/AuthEmailService/v1/cases/**{id}**

id is dynamic – pass the email triage case ID received in the email response.

Example in email the ID received is ET-3003. Then pass the value for id as below.

“**WORK-CHANNEL-TRIAGE ET-3003”**

Re_ Adjustment Request.msg

Response:

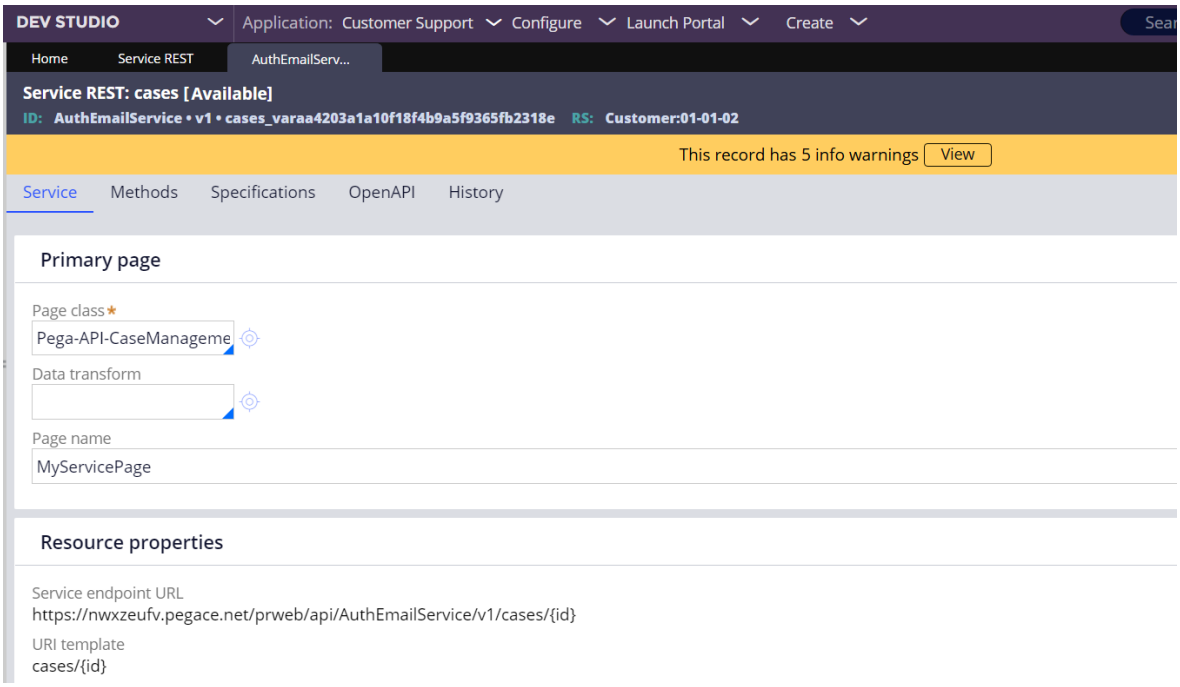
In the response we can see the pyEntities, pyConfidenceScore and pyRoutingTopic

pyEntities – Entity data mapping details

pyRoutingTopic – The intent of the email

pyConfidenceScore – AI model Confidence score of each intent

EmailClassificationResponseJSON.json



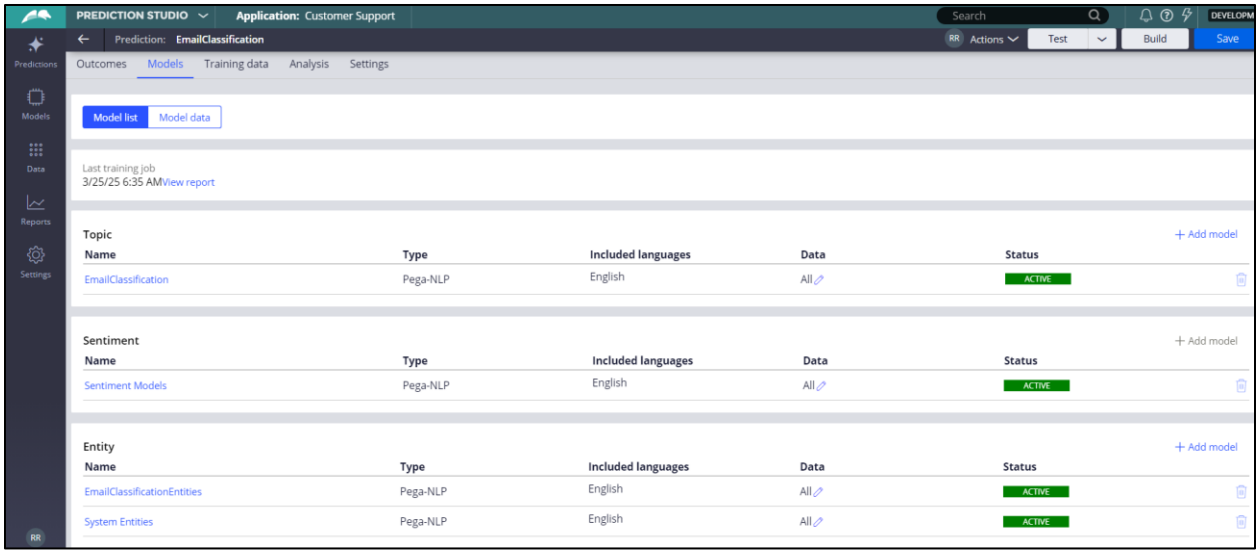
5. Benefits

- Automated Email Processing → Reduces manual effort in request classification.
- Faster Request Handling → Intelligent routing based on extracted details.
- Improved Accuracy → AI-driven classification ensures precise categorization.
- Reduced Redundant Work → Duplicate detection eliminates redundant processing.

6. Next Step

AI Model Training: Improve NLP accuracy with historical email data

Below is the EmailClassification Prediction Model created, which can be trained.



7. Conclusion

This Pega AI Automated Email Processing and Classification System solution enables automated, intelligent email processing for efficient request handling, reducing operational risk and improving response times.

8. Application Access

- Login into link https://nwxzeufv.pegace.net/prweb/PRAuth/app
  Login details: GateKeeper / work4pega#
- Send email to ppegaemail@gmail.com
- In the portal email triage cases will be created for each incoming email under my work navigation
- Service Rest details (refer to section 4.6)
  End Point URl:
  https://nwxzeufv.pegace.net/prweb/api/AuthEmailService/v1/cases/**{id}**

  id is dynamic – pass the email triage case ID received in the email response.
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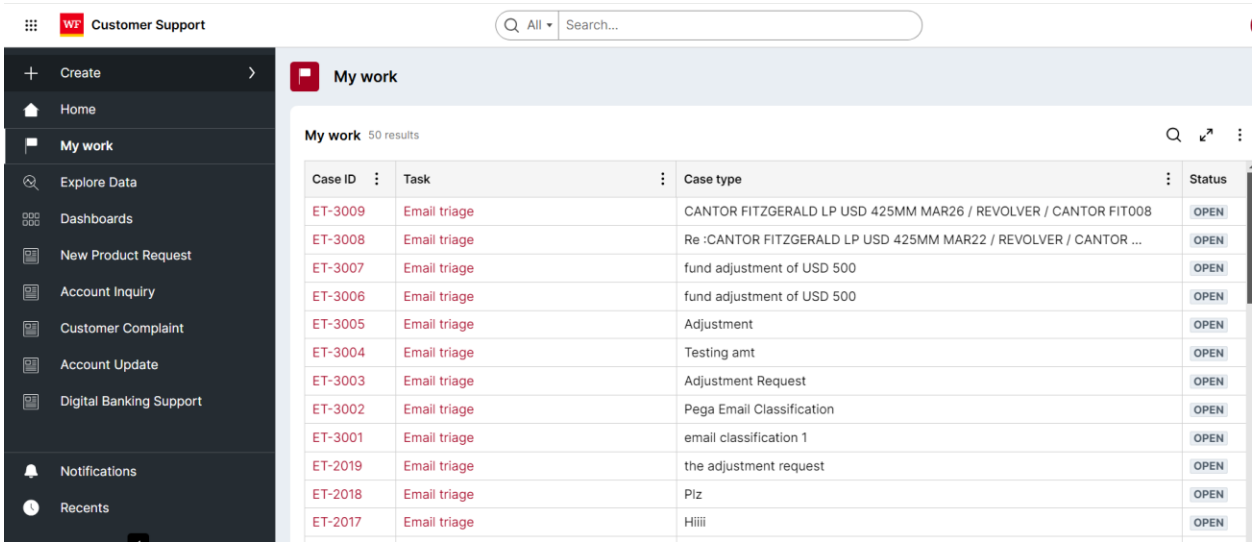

9. Reference

Pega pdn - https://community.pega.com/