



# GO-LIVE DOCUMENTATION

For ESDC-OAS/Assist Me

VERSION 1

## Abstract

The goal of this document is to provide a complete overview of development  
for the ESDC OAS "Assist Me" product

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## Overview

This documentation provides a comprehensive overview of the development of the ESDC OAS “Assist Me” product, to guide both business teams and the technical teams to use, operate and maintain the Assist Me product.

Assist Me is a Generative-AI based assistance tool for case processing, trained on ESDC-approved knowledge articles using a fine-tuned GPT3.5 model with Retrieval-Augmented Generation(RAG), and integrated with services such as WalkMe and National Service Desk to provide high-quality, context-aware responses to support case agents in completing case management activities in Curam. Main features include:

- Chat functionality that allows for retrieval of query-relevant information from the existing database
- Embedded references feature that enables verification of information sources to build end-user trusts
- Feedback function that allows for continuous improvement and more timely end-user support

Assist Me is now planned to expand beyond a knowledge retrieval tool to become a direct gateway for end-to-end benefits delivery, including for notification broadcasts, support requests, and Case Agent training.

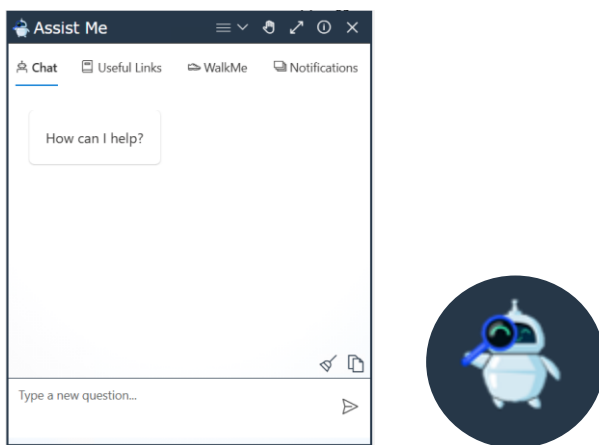


Figure 1. Assist Me User Interface

This documentation includes the Business Operations Guide and Technical Documentation. The [Business Operations Guide](#) provides non-technical stakeholders with step-by-step guidance to conduct operational activities such as initiating ad-hoc knowledge article ingestion, while the [Technical Documentation](#) offers a detailed description of system architecture, integration, access, configuration, and

maintenance to help the technical team troubleshoot issues that may arise in daily operations.

## Business Operations Guide

This section is intended to provide the business team with an overview of lists of business operations related to the Assist Me product and their respective processes.

### 1. Technical Issue Support – National Service Desk

Production Support (i.e. query error, server disconnect) is managed by the National Service Desk.

For any support needed, please log a ticket via [National Service Desk](#). If the issue persists, please contact the Assist Me team for further support.

### 2. BE Support – NEXO

This new tool provides tailored support specific to OAS processing agents. The gateway to Business Expertise and support, NEXO has replaced BERT for all OAS processing enquiries.

With NEXO, users can:

- ✓ Submit enquiries easily to obtain guidance and support
- ✓ Track and follow up on your requests in real-time
- ✓ Retain access to previous requests

### 3. Knowledge Articles Ingestion and Refresh

This section provides instructions on how to refresh knowledge articles via the business-friendly desktop file trigger (.bat file) and outlines the technical requirements for running the trigger file. Ensure that all the prerequisites are met before proceeding. If you have met all the prerequisites and are still not able to

trigger the article refresh, contact the tech support team and refer to Technical Documentation [section 3.2](#) to troubleshoot and trigger the refresh via the command line.

This article ingestion process only applies to ingesting KMT articles published on the ESDC KMT website.

### 3.1 Prerequisite

1. Request Developer Access and Azure Resource Access (see section [Access & Setup](#))
2. Install Python
3. Request and receive the trigger file from Assist Me team

### 3.2 Trigger the Ingestion Process

Refer to ADO BDC Wiki for detailed steps: [OAS AssistMe - Knowledge Base Update Tool - Overview](#)

## 4. Operational PROD Dashboard

The Assist Me Operational Dashboard is designed to provide business users with a one-stop shop to track and monitor the performance of Assist Me. The dashboard consists of 4 tabs, each with a number of pre-defined metrics to support quantitative and qualitative analysis, such as the number of queries over time, model response rate, user feedback, number of articles ingested and to-be-ingested in R1, R2/R3 releases.

To Access the PROD dashboard, go to: [OAS on BDM AssistMe User Feedback - Power BI](#). If you do not have access to the link, please reach out to Roxanne Grenier (roxanne.r.grenier@hrsdc-rhdcc.gc.ca)

The dashboard is currently manually refreshed by the Assist Me team each week, for any issue encountered or support needed, please contact the Assist Me team.

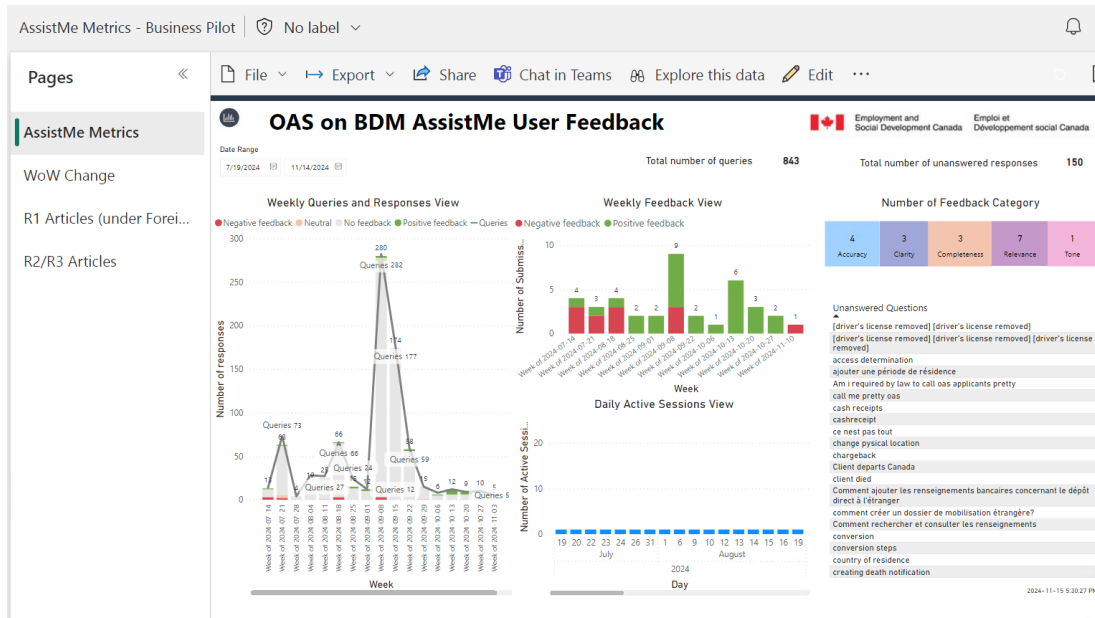


Figure 4.1 – Operational Dashboard – Assist Me Metrics

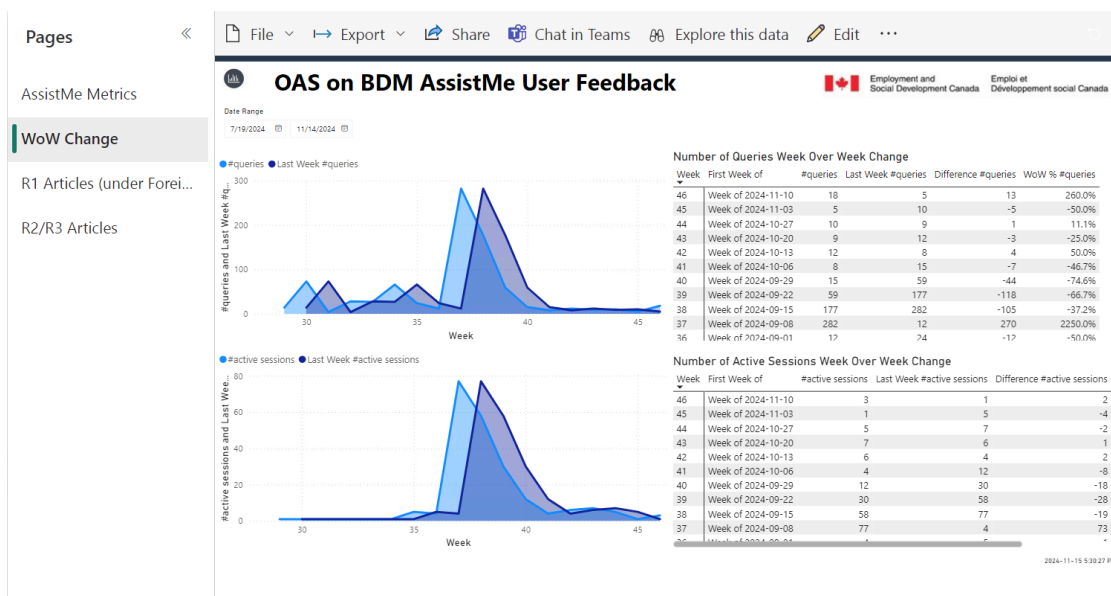


Figure 4.2 – Operational Dashboard – Week over Week Change

Pages	«	File	Export	Share	Chat in Teams	Explore this data	Edit	...
AssistMe Metrics								
WoW Change								
R1 Articles (under Forei...								
R2/R3 Articles								

KA number	Internal title	Published title
5172	01 KMT - Search a Person in Cúram (W)	Search a person in Cúram (Action)
5235	02 KMT - Register a Person in Cúram (W)	Register a Person in Cúram (Action)
5236	03 KMT - Modify a Person's Address in Cúram (W)	Modify a Person's Address in Cúram (Action)
5232	04 KMT - Foreign Engagement Case—Create, Access, Modify, Close in Cúram (W)	Foreign Engagement Case—Create, Access, Modify, Close in Cúram (Action)
5223	05 KMT - Foreign Application—Add, Access, Modify, and Delete in Cúram (W)	Foreign Application—Add, Access, Modify, and Delete in Cúram (Action)
5226	06 KMT - Foreign Creditable Period—Add, Access, Modify or Delete in Cúram (W)	Foreign Creditable Period—Add, Access, Modify or Delete in Cúram (Action)
5217	07 KMT - Canadian Residence Period—Add, Access, Modify or Delete (W)	Canadian Residence Period—Add, Access, Modify or Delete (Action)
5215	08 KMT - Perform Person Evidence Verification in Cúram (W)	Perform Person Evidence Verification in Cúram (Action)
5216	09 KMT - Access Person Evidence and Verification History in Cúram (W)	Access Person Evidence and Verification History in Cúram (Action)
5238	10 KMT - Manage a Person's Record in Cúram (W)	Manage a Person's Record in Cúram (Action)
5221	11 KMT - Liaison—Add, Modify, Access and Delete in Cúram (W)	Liaison—Add, Modify, Access and Delete in Cúram (Action)
5219	12 KMT - Change Identification Information (SIN, Names, Date of Birth) in Cúram (W)	Change Identification Information (SIN, Names, Date of Birth) in Cúram (Action)
5234	13 KMT - Register a Client and Create a Foreign Engagement Case in Cúram (W)	Register a Client and Create a Foreign Engagement Case in Cúram (Action)
5225	14 KMT - Third Party Contacts—Add, Access, Modify, and Delete in Cúram (Action) (EN) KA-05225	Third Party Contacts—Add, Access, Modify, and Delete in Cúram (Action)
5230	15 KMT - Register a Third Party Organization, Office, and Office Member in Cúram (Action) (EN) KA-05230	Register a Third Party Organization, Office, and Office Member in Cúram (Action)
5222	16 KMT - Adding Attachments to Cúram (W)	Adding Attachments to Cúram (Action)
5237	17818 KMT - Capture Communication—Process an Enquiry Related to a Person or a Foreign Engagement Case in Cúram (W)	Capture Communication—Process an Enquiry Related to a Person or a Foreign Engagement Case in Cúram (Action)
5229	19 KMT - Resolve Issues for Foreign Contribution and Canadian Residence Periods in Cúram (W)	Resolve Issues for Foreign Contribution and Canadian Residence Periods in Cúram (Action)
5231	20 KMT - Assigned Tasks—Search, Open, View, Edit, Forward, Defer, Create and Close in Cúram (EN) KA-05231	Assigned Tasks—Search, Open, View, Edit, Forward, Defer, Create and Close in Cúram (Action)
5242	21 KMT - Task Query—Add, Run and Modify (Action) (EN) KA-05242	Task Query—Add, Run and Modify (Action)
5247	>> KMT - Team Leader Tasks - View Tasks, Action Tasks, Forward Tasks	Workload Management—View Tasks, Action Tasks, Forward Tasks, Block and Unblock Task Allocations and Manage Work

Figure 4.3 – Operational Dashboard – R1 Articles

Pages	«	File	Export	Share	Chat in Teams	Explore this data	Edit	...
AssistMe Metrics								
WoW Change								
R1 Articles (under Forei...								
R2/R3 Articles								

R2/R3 Ingested Articles 61				R2/R3 To-be-ingested Articles 28			
Reference	Knowledge Article Title	Status	Timeline	Reference	Knowledge Article Title	Status	
KMT49	Benefits from Another Country Evidence	Ingested	Sprint 21	KMT09	Manage Payment Destination - Nominees—Add and View in Cúram	Translation/Party	
KMT50	Enquiries - Capture, Edit, View, Delete, Escalate Cases in Cúram	Ingested	Sprint 21	KMT102	Foreign Creditable Period - Add, Access, Modify or Delete in Cúram	ESDC Review	
KMT92	Manage Interest and/or Penalties on Overpayments	Ingested	Sprint 21	KMT103	Review case record for mismatch validation	ESDC Review	
KMT46	OAS Recovery Tax	Ingested	Sprint 21	KMT104	Refer to Manage Display Rules	ESDC Review	
KMT54	Reassess Entitlement for Income Taxed Benefits	Ingested	Sprint 21	KMT103	Manage Duplicate Person Records in Cúram (Action) - new docs	Translation/Party	
KMT44	View Maximum Deduction Amount (MDA) & payment history	Ingested	Sprint 21	KMT51	Create a Write-off (Victim of Fraud)	KM Lead Review	
KMT72	View Payment Corrections or Overpayments	Ingested	Sprint 21	KMT52	Process a Notification of Death	ESDC Review	
KMT91	Workload management	Ingested	Sprint 21	KMT59	Create a manual overpayment on person deemed responsible for the debt (fraud or misrep.)	Not Started	
KMT60	Add and Modify Third-Party Direct Deposit Information	Ingested	Sprint 20	KMT61	Add and update case nominee	1-in Development	
KMT54	Add/Edit a decision	Ingested	Sprint 20	KMT62	Add/Modify a Case Nominee in order to end-date a Third Party Contact who is the client's Current nominee.	Not Started	
KMT71	Approve an underpayment task	Ingested	Sprint 20	KMT63	Correspondence - create, update, check status (R1 article update)	Approved, awaiting appn	
KMT81	Contact (Unverified Third-Party) - Create/modify	Ingested	Sprint 20	KMT64	Attachments - Add, view, modify, delete, move and search	Approved, awaiting appn	
KMT88	Introduction to client portal and how client actions impact the processing work flows	Ingested	Sprint 20	KMT65	Withdraw a reconsideration	To be deleted	
KMT74	Manage liability allocation	Ingested	Sprint 20	KMT66	Verify Cancelled Legacy Payments and expected outcomes	Incorporating Feedback	
KMT73	Manage Offsetting Process (Underpayment an Arrears against Interests and Penalties)	Ingested	Sprint 20	KMT66	Suspend recovery of an overpayment (deactivate a payment correction or manual overpayment case)	Not Started	
KMT77	Manage Person Profile (R1 article update)	Ingested	Sprint 20	KMT68	Monitor and Correct Bath Letter Processing	To be deleted	
KMT86	Process a priority payment (update delivery pattern and financial components)	Ingested	Sprint 20	KMT69	Download and Print letter and Manually Print Overized Letters	Not Started	
KMT79	Reverse a manual overpayment write-off or remission	Ingested	Sprint 20	KMT70	Create/Refile/Cancel an appeal case in ADHS	Approved, not ready in h	
KMT53	View Tax Slip information	Ingested	Sprint 18	KMT75	View recovery rate	1-in Development	
KMT45	Non-residential Tax correction	Ingested	Sprint 17	KMT76	Update overpayment cases	Not Started	
KMT47	Marital Relationship Evidence (including sub evidence)	Ingested	Sprint 16	KMT78	Allocate tasks with SSA Mapping	On Hold	
KMT30	Add ALW ALWS application form in curam	Ingested	Sprint 16	KMT80	Write-off Non-reversible deduction overpayment and convert overpayment of non-reversible deductions into Departmental Liability	To be deleted	
KMT21	ALW / ALWS Application Case—Download PDF, View, Authorize, Close and Reopen in Cúram	Ingested	Sprint 16	KMT82	View Year to Date Information	ESDC Review	
KMT27	Cases in Curam	Ingested	Sprint 16	KMT83	Enquiry - Capture/Cancel/View/Modify/Delete and Capturing enquiries from the reconsideration case	ESDC Review	
KMT40	CRA Income—View and Request New Income in Cúram	Ingested	Sprint 16	KMT85	View Cash Receipts Recovery of overpayment	Translation/Party	
KMT07	CRA Lifetime LHM—View, Add or Delete in Cúram	Ingested	Sprint 16	KMT87	Produce amended tax slips	On Hold	
KMT39	Create/Modify/Consent to Deduction and Payment Evidence	Ingested	Sprint 16	KMT90	Third-Party Contact - create/modify	Approved, 2nd compar	
KMT38	Create/Modify/Delete Benefit Cancellation Request Evidence	Ingested	Sprint 16	KMT93	Manage Penalties	Translation/Party	
KMT48	Eligibility and Entitlement Override Evidence	Ingested	Sprint 16				
KMT35	First entry into Canada Details Evidence	Ingested	Sprint 16				
KMT36	Incarceration Evidence	Ingested	Sprint 16				
KMT43	Manage Taxes in Cúram	Ingested	Sprint 16				
KMT41	Managing Addresses—Add, Edit and View in Cúram	Ingested	Sprint 16				

Figure 4.4 – Operational Dashboard – R2/R3 Articles

## 5. Future Enhancement

This section provides insights on the potential future enhancement opportunities. A full list of released features can be found in the user guide ([Assist Me R2-3 User Guide.pdf](#) [Assist Me R2-3 User Guide FR.pdf](#)).

## 5.1 UI Enhancement

To be designed by product owner of AssistMe. Please refer to the AssistMe post release roadmap for information.

## 5.2 Model Enhancement

Please refer to [section 3.3.4](#) under Technical Documentation for information on the model tuning details.

# Technical Documentation

This section is intended to provide the technical team with an overview of technical architecture and configurations, to ensure the technical team has sufficient knowledge to further develop and maintain the Assist Me product and troubleshoot technical issues that arise during daily operations.

## 1. System Understanding

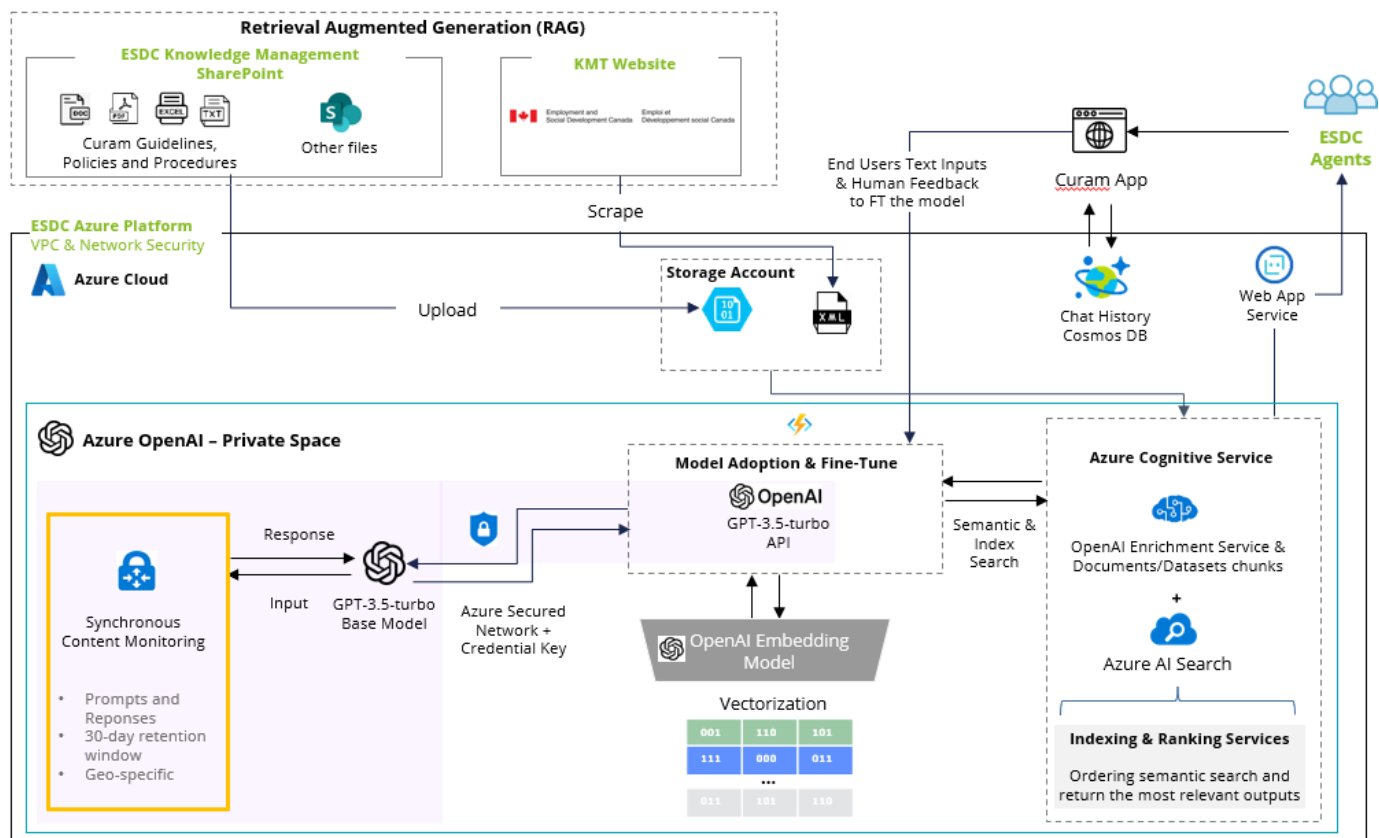


Figure 1 - Architecture Diagram



## 1.1 Backend

### 1.1.1 Azure resources

#### *app.py*

- **Purpose:** Central application file that configures essential settings and api behavior (using variables in .env for local or environment variables on service app) for the frontend, enabling or disabling features like authentication, debug, and chat history based on environment variables.
- **Frontend Settings:** Initializes settings like feedback(feedback\_enabled), and UI configurations such as title, logo, and other UI elements.
- **Core Tasks:** responsible for routing and coordinating calls to other modules regarding openai and cosmosdb i.e. openai\_client.py and cosmosdb\_client.py.

#### *openai\_client.py*

- **Purpose:** Handles the initialization and process of the Azure OpenAI client, which is essential for interacting with Azure OpenAI's models.
- **Key Features:**
  - Sets up the OpenAI endpoint.
  - Handles authentication using either API keys or Managed Identity Azure Active Directory (AAD) tokens.
  - Configures model deployment details for interacting with OpenAI models.

#### *cosmosdb\_client.py*

- **Purpose:** Initializes and configures the connection to Azure CosmosDB for storing and retrieving chat history and reactions.
- **Key Features:**
  - Checks if chat history is enabled.
  - Handles authentication via either a key or Azure Managed Identity.
  - Sets up CosmosDB containers for managing chat conversations through cosmosdb sdk

#### *data\_source\_config.py*

- **Purpose:** Configures the backend data sources based on the chosen provider, i.e. Azure Cognitive Search
- **Key Features:**
  - Supports data sources Azure Cognitive Search
  - Handles authentication for each data source using API keys, Managed Identities, or custom configurations.
  - Maps fields (content, title, URL, vector) from the data sources to the required structure for querying.
  - Sets up embedding dependencies when vector search is required.

### API endpoints

1. **Conversation Creation (/history/generate)**: This endpoint creates a new conversation or updates an existing one by storing user and assistant messages into CosmosDB. It also generates a conversation title using an AI model, based on the conversation messages.
2. **Conversation Update (/history/update)**: This endpoint updates an existing conversation by adding assistant and tool responses, ensuring both are properly stored.
3. **Message Feedback (/history/message\_feedback)**: Allows users to provide feedback on a specific message (e.g., whether it was helpful or not) and updates the CosmosDB entry accordingly.
4. **Delete Conversation (/history/delete)**: Deletes both the conversation and its messages from CosmosDB.
5. **List Conversations (/history/list)**: Returns a paginated list of conversations for a specific user, based on an offset. Note that this file is not actively being used as Assist Me does not store user-specific history.
6. **Rename Conversation (/history/rename)**: Allows renaming a conversation by updating the title in CosmosDB.
7. **Delete All Conversations (/history/delete\_all)**: Deletes all conversations and messages for the authenticated user.
8. **Clear Messages (/history/clear)**: Deletes all messages in a specific conversation while retaining the conversation itself.
9. **CosmosDB Health Check (/history/ensure)**: Ensures that the CosmosDB configuration is valid and the connection is working. It returns the status of CosmosDB setup.
10. **Generate Title**: A helper function to generate a title for conversations by summarizing messages using an Azure OpenAI model.

## 1.2 Front End

### 1.2.1 Technology

The frontend of the project is coded in typescript using react and fluentui (<https://developer.microsoft.com/en-us/fluentui#/controls/web/>).

The code is built as a fully functional webpage. As such, it starts with an index.html file as it's 'root'. We incorporate this page into Curam by bundling it. The following shows the hierarchy between the different components used:

### 1.2.2 DOM Tree

**index.html:**

*made of a <html><head><body> tags as expected. Makes a reference to 'id' which is where react code is injected during build.*

**versionSelection.tsx:**

*Serves the sole function of selecting between the 'release' and the 'beta' version. \*only release version tree is shown below, beta version is the same\**

**AssistMe.tsx:**

*Consist of the bot icon or the user interface window. This is where users interactions begins.*

**Navtab.tsx:** *Allows the users to access different tabs: chat, walkme, useful links & notifications.*

**Chatmenu.tsx:** *The top menu of the assistme UI. Allows user to select between*

**Chat.tsx:** *Contains the answers and the question inputs components. Many API calls are performed here to connect to the chatbot.*

**UsefullLink.tsx:** *List of articles and important links for users*

**WalkMe.tsx:** *List of walk me tutorials*

**Notification.tsx:** *List of active notifications*

The code is written in typescript (.tsx files). During code build, the javascript files (.js file) are compiled from the typescript files. All code modification should be done in the .tsx files

### 1.2.3 API

There is an [api.ts] file within the api folder which contains ALL api calls from the frontend. If you plan to add additional api calls, it should be done here and the necessary function exported to the component that needs it.

### 1.2.4 Folder Structure

▼ frontend

> node\_modules

> public

▼ src

> api

> beta

> main

▼ release

> assets

> AssistMe

▼ components

> Answer

> Chat

> ChatMenu

> Notification

> QuestionInput

> UsefulLinks

> WalkMe

> constants

> Tabs

> state

curam\_background.jpg

# index.css

JS index.js

TS index.tsx

# versioning.module.css

JS versionSelection.js

TS versionSelection.tsx

TS vite-env.d.ts

<> index.html

{ } package-lock.json

{ } package.json

📄 pom.xml

tsconfig.json

{ } tsconfig.node.json

TS vite.config.ts

📄 webpack.config.js

**node\_module:** node\_modules

**public :** contains index.html for frontend local

**src:** where all frontend code lives

**api:** contains api.ts for all api definition, model.ts for data structure

**beta:** a mirror of the release folder used to enable a beta versioning

**main:** where the bundle.js is outputted

**release:** primary folder for react components of official assistme

**assets:** contain required text files. All text displayed is defined here

**AssistMe:** the entry point of the actual app

**Components:** where the different components live

**Answer:** the bubble displayed in the chat

**Chat:** The chat container and necessary api calls to openai

**ChatMenu:** The top bar with icon buttons in the app

**Notification:** The notifications components and its tab

**QuestionInput:** The type here component

**UsefulLinks:** The tab component displaying links to users

**WalkMe:** The tab for WalkMe and displays WalkThrus

**constant:** xss data type

**Tabs:** The 'super' component managing tabs behavior

**state:** The react state definitions

curam\_background: if needed for showcasing solution

index.css: css propertie of index.tsx

index.js: auto generated from index.tsx

index.tsx: entry poin of the app

versioning.module.css : css properties of versioning

versionSelection.js : auto generated from versionSelection.tsx

versionSelection.tsx : component allowing beta versioning

vite-end.d.ts: vite config

index.html : the classic html file for a functional webpage

package-lock.json : dependencies

package.json : dependencies

pom.xml : to be removed

tsconfig.json : config file for typescript

tsconfig.node.json: config

vite.config.ts : config file for Vite

webpack.config.js : config file for Webpack, used during bundling

Figure 1.2.4 – Frontend Folder Structure

## 2. Access and Setup

### 2.1 Developer Account Access Setup

1. Iservice.prv
2. Fill out the questions with the following answers and click request:
  - a. Question 1: Developer
  - b. Question 2: My request relates to other admin account issues
  - c. Impact: High
  - d. Employees affected: 1
  - e. Text box: "Requesting a developer account"
3. Once requested, capture the service request number so it can be used in the next step (eg. 9666322)
4. Go to Collaborative Hub Automated Onboarding Services (CHAOS) (esdctpiusermanagementwa.azurewebsites.net) and open this website: <https://dialogue.spprod.service.gc.ca/grp/ITSecurity-SecuriteTI/Site/Exceptions.aspx>
5. Click on "Request"
6. Fill in the following information, then click submit:
  - a. Job Title: Developer
  - b. Manager email: Enter **tsegenet.tedla@hrsdc-rhdcc.gc.ca** as manager (or *sazzad.hossain@hrsdc-rhdcc.gc.ca* in the event that tsegenet.tedla@hrsdc-rhdcc.gc.ca is not available)
  - c. Branch/region: DGIIT-Innovation des solutions d'affaires / IITB-Business Solutions Innovation
  - d. SRMIS ticket: Copy the National Service Desk (NSD) reference number from the previous step. It is also provided in the email received from submitting the NSD request.
  - e. Privileged access: Yes
  - f. Computer Name: Search "machine name" in the Windows taskbar for View your PC Name.
  - g. Level: Developer (access for developer accounts)
  - h. IITB Support Group: IITB developer
  - i. Detailed rationale:
    - i. I am working on project: ESDC Curam Co-Pilot: AssistMe
    - ii. My company is: Deloitte
    - iii. My workstream is: Agent Co-Pilot
    - iv. My role is: Developer
    - v. I am a new developer for the BDM Curam application and require a developer account to install the necessary development software on my machine. I have reviewed the directives and guidelines and am aware of the IT Security risks and my responsibilities towards maintaining the integrity of our data and network.

- j. Check the TERMS and AGREEMENT
- k. Firewall: No
- 7. Once ticket is closed, follow the steps mentioned below "Developer Software Setup" to setup developer software tools.
- 8. Once software has been setup, go to the [1 - Configure Repositories - Overview](#) page and follow all steps to configure BDM-OAS-Copilot and bdm-curam-foundation repositories.
- 9. Lastly, to set up Eclipse follow the steps listed on the [3 - Configure Eclipse - Overview](#) page.

## 2.2 Developer Software Setup

### STEP 1: Copy files from ESDC Common Drive to Local

ESDC Common Drive is: [U:\IITB-DGIIT\BDM-MVP\TP-PT\COMMON](#)

As per ESDC instructions:

- Copy the folder Workstation\_Setup\_BDM from the U:\IITB-DGIIT\BDM-MVP\TP-PT\COMMON to the C drive.
- Search for PowerShell in the Windows taskbar and click on the regular account.
- Navigate to the c:\Workstation\_Setup\_BDM folder.
- Execute the script: powershell -ExecutionPolicy Unrestricted -File .\1-Download.ps1
- If prompted to trust the script, proceed by selecting Y.
- Select the role (profile) associated with the developer.
- The tools (software) will be copied from U drive to the developer's local temp folder. The process will take approximately 2 hours depending on your region.
- Check to ensure no errors: Output in the script folder: 1984.log

### STEP 2: Install

 ***(You need a Developer Account, developer account has the format of: develop.firstname.lastname)***

As per ESDC instructions

- Navigate to: cd C:\Workstation\_Setup-BDM
- Execute the script as 'Administrator' (do a 'run as' to switch accounts): powershell -ExecutionPolicy Unrestricted -File .\2-Install.ps1
- If prompted to trust the script, proceed by selecting Y

### STEP 3: Configure the Repository

As per ESDC instructions

## STEP 4: Configure Workstation Security Credentials

[Collaborative Hub Automated Onboarding Services \(CHAOS\)  
\(esdctpiusermanagementwa.azurewebsites.net\)](https://esdctpiusermanagementwa.azurewebsites.net)

### *GIT Proxy*

The proxy must be configured to connect the local GIT to the Azure GIT repositories.

Open a command prompt and run the following commands:

```
git config --global credential.helper managergit config --global --add  
http.proxy http://proxy.prv:80git config --global --add https.proxy  
https://proxy.prv:443
```

### *NPM Proxy*

The proxy must be configured to connect the NPM repositories.

Open a command prompt and run the following commands:

```
npm config set proxy http://username:password@proxy.prv:80npm config  
set https-proxy http://username:password@proxy.prv:443
```



***Please note that when the developer changes password, this command will need to be repeated with the new password.***

## STEP 5: Set Up Personal Access Token (PAT)

The Personal Access Token (PAT) must be created and added to the local Credential Manager.

- Navigate to the Azure DevOps website, click on User Settings and then, Personal Access Tokens.
- Complete the following:
  - Name: **Developer Name**-VP-BD (replace Developer-Name with your own name)
  - Organization: VP-BD
  - Expiration: 1 year
  - Scopes: Full access

### Supplementary Info

Link to Azure DevOps: [Projects - Home \(azure.com\)](https://projects-01.azure.com/), use project BDC for Repos and for creating Personal Access Token.

- Copy the generated PAT in the clipboard.
- My token is (***please create your own***)



- Open the Credential Manager on the developer workstation by searching "credential manager" in the search box of the taskbar.
- From the Credential Manager, click Windows Credentials and then, click Add Generic Credential.
- Save the new credential with the Network address: git:https:VP-BD@dev.azure.com/VP-BD
- Username: Name of the Personal Access Token (**Developer Name-VP-BD**)
- Password: **generated PAT**

Create the **c:\dev\repositories** folder and navigate inside and clone the repository.

*Request from your team leader the repository urls to clone.*

Clone the BDC-OAS-Copilot and BDC Curam foundations repositories in the repositories folder.

In order to build & run the application locally, please make sure the version of your npm is at 10.7.0 and the version of your node.js should be 20.14.

## 2.3 Developer Azure Access Setup

1. There are 3 Azure resource groups for AssistMe:
  - a. **EsDBDMADF-OpenAI** is the resource group for **Development** environment.
  - b. **EsDEBDMAISbx02Rg** is the resource group for **Sandbox** environment.
  - c. **EsDEBDMAIProdRg** is the resource group for **PROD** environment.  
(need **Secret Clearance** to have access for non-ESDC)
2. Go to Azure DevOps and [create a TicketRest in BDC project](#) in the ICE area path.

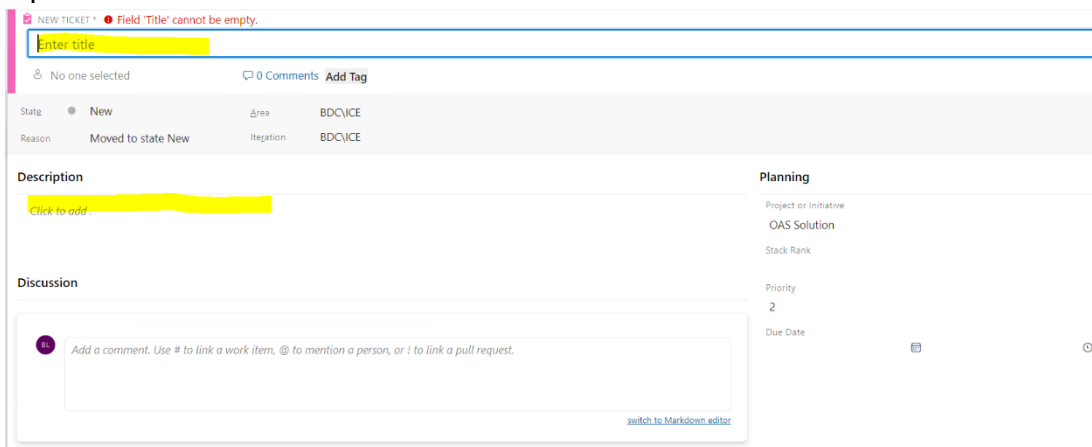


Figure 2.3 Access Request Ticket Raised to ICE Team

3. Fill in the "Title" and "Description" of the ticket
  - a. Title: Azure resource request for <name of the member>
  - b. Description: <@name of the member> is a new developer from the Assist Me team. Please provide access to **EsDBDMADF-OpenAI** and **EsDEBDMAISbx02Rg** to this member.
4. Escalate to [jeff.barnes@hrsdc-rhdcc.gc.ca](mailto:jeff.barnes@hrsdc-rhdcc.gc.ca) and [jamie.easter@hrsdc-rhdcc.gc.ca](mailto:jamie.easter@hrsdc-rhdcc.gc.ca) if ICE team encountered issues processing your request.
5. After access was granted, test your access by clicking [EsDBDMADF-OpenAI - Microsoft Azure](#), [EsDBDMADF-OpenAI - Microsoft Azure](#)
6. For accessing keys of all resources:
  - a. Go to the resource group
  - b. Choose the desired resource/service
  - c. Search "Key" in the search pane on the left side
  - d. Copy and paste the key to the necessary location (**Note:** keys shouldn't be saved in any documents, desktop, etc. Access only the Azure Portal for keys)

## 2.4 Frontend Development Environment

Once the develop account has been given and the dev tools installed, you can follow the next steps to set up a local frontend development environment. This is different from the next section: Back+Front Development Environment which are the steps to install a complete local environment. Frontend environment only applies to the UI part of this project.

1. Go to the repositories: BDC-OAS-Copilot [[https://dev.azure.com/VP-BD/BDC/\\_git/BDC-OAS-Copilot](https://dev.azure.com/VP-BD/BDC/_git/BDC-OAS-Copilot)]
2. Recommended to create the folder structure: dev/repositories
3. In CMD, navigate to repositories and clone the main branch: [git clone <url>]
4. Go into the frontend folder in CMD and run [npm install]
5. Finally, run [npm start]. This will open a webpage as localhost:3000 that contains only the UI
6. Possible issues are npm/nodeJS version, make sure they are the latest

## 2.5 Back+Front Development Environment

These are the steps to set up a local environment which includes a functional backend.

1. Make sure python is installed and clone the repo locally. (See step 2.4.1)
2. Retrieve a .env file from someone and copy into the local Assistme repository
3. Open a cmd in developer mode and go to the local repository of AssistMe
4. Into the repository, run [python -m venv env]
5. Cd into env/scripts and run [activate], you are now in the virtual environment
6. Cd ../.. back to main directory within the same cmd and run [start.cmd], this will activate the environment itself and open a browser window at localhost:8000

## 2.6 Local Curam Environment

It is recommended to request help from someone who's already performed this installation on their local from the ESDC side.

## 3. Operational Documentation

### 3.1 Common Issues

#### 3.1.1. Environment & Setup Issues

##### Environment Variables Not Set Correctly

- Check: Ensure .env file has the following required variables: e.g.
  - AZURE\_OPENAI\_RESOURCE
  - AZURE\_OPENAI\_MODEL
  - AZURE\_OPENAI\_KEY
- Resolution:
  - Ensure there are no typos or missing values compared with folks
  - Validate key names match exactly with what's expected.
  - Test connection to the Azure OpenAI resource via a local API call to confirm credentials.

##### Incorrect Model Selection

- Check: Ensure that AZURE\_OPENAI\_MODEL refers to a valid, deployed model (gpt-35-turbo, gpt-4).

#### 3.1.2. Deployment Issues

##### Azure Deployment Fails

- Check: Confirm the app deployment process via Azure Developer CLI or Azure Portal.
- Resolution:
  - Review the deployment logs for pipeline (BDM-OAS-Copilot-Scan) in ADO for specific errors.
  - Ensure all required services (OpenAI, Search Index, etc.) are active in the Azure Portal.
  - Verify correct ADO PAT and service principal credentials are being used.

##### Azure DevOps Pipeline Errors

- Check: Examine pipeline logs for failures during:
  - CodeQL Scanning: Look for errors in the code quality scan.
  - Dependency Scanning: Verify dependencies are up-to-date.
  - App Deployment: Ensure the az webapp up command runs without issues.
- Resolution:
  - Ensure service principal credentials (AzureServicePrincipalUsername, AzureServicePrincipalPassword, AzureTenantId) are correct.
  - Ensure PAT in ADO is correct
  - Fix any code quality or dependency issues before retrying the pipeline.

### 3.1.3. Chat Functionality Errors

#### Chat Responses Not Returning Properly

- Check: Ensure the correct OpenAI model and API key are being used.
- Resolution:
  - Test the API call to OpenAI manually from the backend.
  - Validate the temperature, max\_tokens, top\_p etc. values in app service parameter section for sensible defaults.

#### Integration with Data Sources Failing

- Check: If using OpenAI on Your Data, ensure data sources (Azure Search Index, CosmosDB, etc.) are correctly linked.
- Resolution:
  - Verify data indexing has been set up properly in the Azure Portal.
  - Ensure correct integration by testing connections between the web app and data source.
  - Test querying the data source outside of the app to confirm accessibility.

### 3.1.4. Backend & Local Issues

#### Backend Not Starting

- Check: Ensure the backend is running without errors when starting the app (start.cmd or via VSCode).
- Resolution:
  - Check for Python version compatibility issues.
  - Ensure all dependencies are installed properly using pip install -r requirements.txt.
  - Review logs for any startup-related errors and resolve them accordingly.

#### Local Development Not Working

- Check: If accessing <http://127.0.0.1:8000> fails:
  - Check network configurations (firewall, port conflicts).
  - Ensure no other apps are using port 8000.
- Resolution:
  - Restart the app and check for error messages.
  - Verify that the backend has been initialized with all the correct dependencies and settings.

### 3.1.5. Performance & Throttling Issues

#### Rate-Limiting or Timeout Errors

- Check: Look for any signs of API rate-limiting or request timeouts from Azure OpenAI services.
- Resolution:
  - Optimize the number of tokens (max\_tokens) and temperature to reduce load.

- Monitor the usage of your Azure OpenAI resource and adjust plan if necessary.
- Implement retry logic in your application to handle rate-limit scenarios gracefully.

### 3.1.6. Common Debugging Steps

- Logs: Always review both Azure Portal logs and local logs for specific error messages.
- Connection Tests: Test connections to external services (e.g., OpenAI, Search Index) independently to rule out connection issues.
- Configuration Validation: Ensure all necessary services, models, and keys are set up correctly in both .env and Azure configurations.

## 3.2 Knowledge Articles Ingestion and Refresh

### ADO BDC Wiki: [OAS AssistMe - Knowledge Base Update Tool - Overview](#)

This section provides instructions on how to refresh knowledge articles and outlines the technical requirements for setting up the environment. Ensure that all the prerequisites are met before proceeding.

The article ingestion process applies to the following sources:

- Additional\_data\_source.xml (for references of everything outside the KMT websites)
- knowledgebase.xml (scraped data in KMT websites)
- Other documents (if any)

***(For R1/R2/R3 release, we will only ingest articles from the KMT website.)***

### 3.2.1 Prerequisites

#### 1. Access Requirements:

- a. Team members performing the refresh must have access to:
  - i. Developer Account in ESDC (request in [srms-sigdi-iagent](#)), refer to [section 2.1](#) for details.
  - ii. The production storage (Azure Blob Storage) account key (go to the Azure Portal)
  - iii. The Azure Search Service (Azure AI Search) API key in production.
- b. The Knowledge Management Team (KMT) must receive a formal refresh request from authorized personnel.

#### 2. Environment Setup:

- a. The refresh script must be tested and confirmed to work in the sandbox environment before running in production.

### 3. Final Steps:

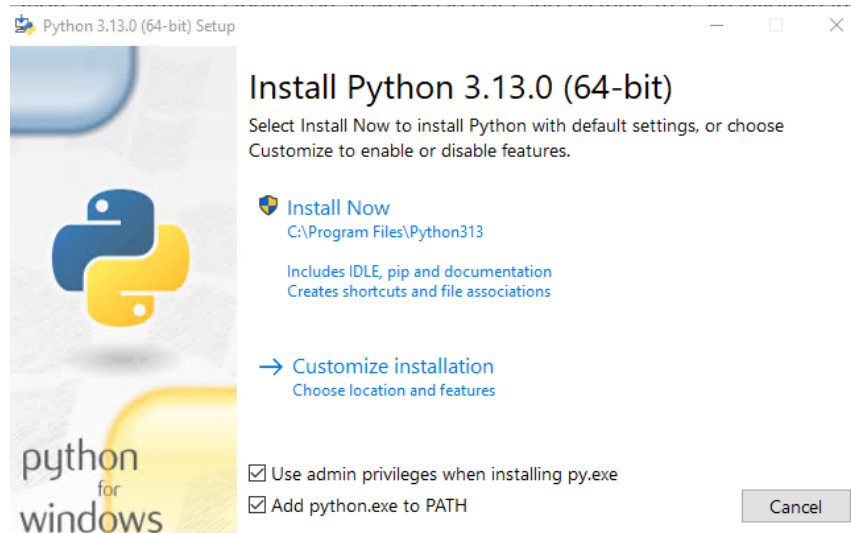
- a. After a successful refresh, reply to the original email request confirming the refresh was run and tested.

## 3.2.2 Environment Setup Instructions

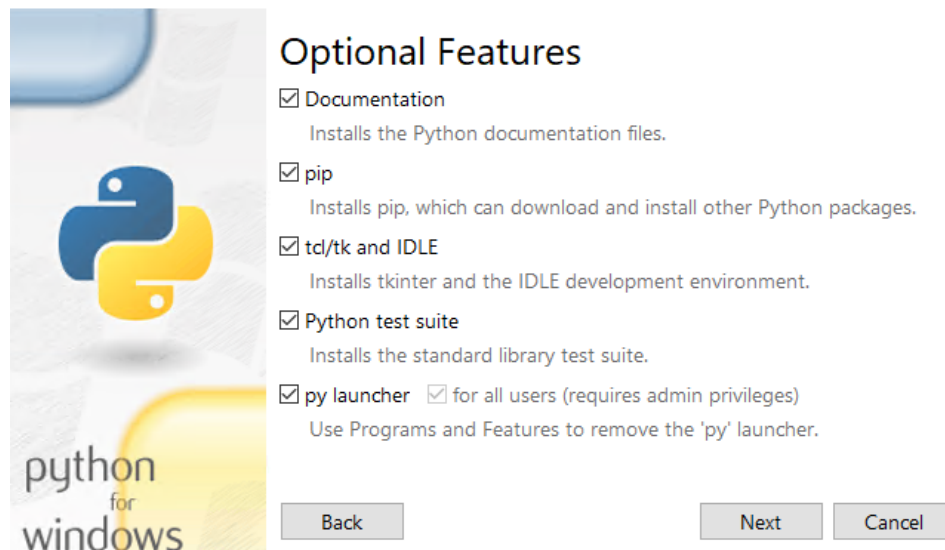
Please also consult [OAS AssistMe - Knowledge Base Update Tool - Overview](#)

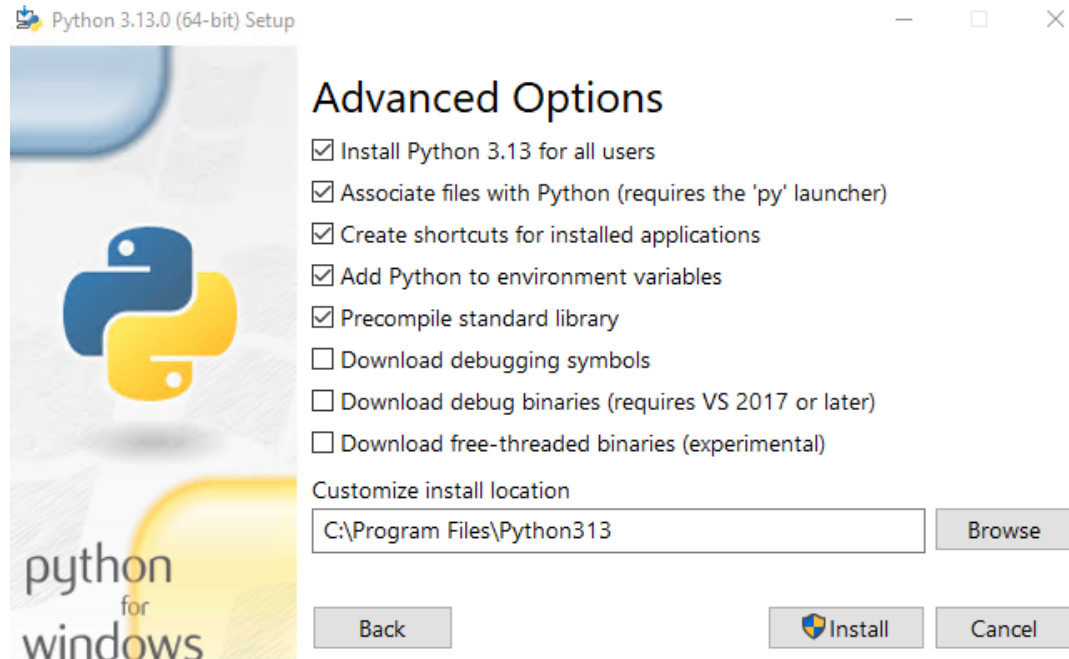
### Software Requirements (Python)

- a. Install Python. The script requires Python 3.8+.
- b. Check both checkboxes at the bottom and click on "Customize installation"



- c. Check all boxes





d. To verify Python is installed, run:

Bash

Python --version

### Proxy requirements

Proxy can be turned off from Windows Settings

#### Manual proxy setup

Use a proxy server for Ethernet or WiFi connections. These settings don't apply to VPN connections.

Use a proxy server

☐ Off

Address

ftp=proxy.prv;http=prv

Port

Use the proxy server except for addresses that start with the following entries. Use semicolons (;) to separate entries.

10.\*;hrdc-drhc.net;\*.prv;\*.decimal.prv;  
\*.dmz;\*.intra.dev;\*.mrz.dev;\*.wpaz.dev;

☒ Don't use the proxy server for local (intranet) addresses

Save

If proxy is on, add these to the "Manual proxy setup" and Save



`;*search.windows.net;*blob.core.windows.net`

## Manual proxy setup

Use a proxy server for Ethernet or WiFi connections. These settings don't apply to VPN connections.

Use a proxy server



Address

ftp=proxy.prv:80;http=pr

Port

Use the proxy server except for addresses that start with the following entries. Use semicolons (;) to separate entries.

\*.search.windows.net;  
\*.blob.core.windows.net;



Don't use the proxy server for local (intranet) addresses

Save

### Azure Access Requirements

- The user running the tool needs to have the Contributor access to Search Service and Storage Account of the desired resource group.
- There are 3 resource groups in AssistMe:
  - Dev environment (for Development): [EsDBDMADF-OpenAI - Microsoft Azure](#)
  - Sandbox environment (for Business Testing): [EsDEBDMAISbx02Rg - Microsoft Azure](#)
  - Prod environment (released for all users): [My Dashboard - Microsoft Azure](#) **(access only for limited developers)**
- After getting the Contributor access, go to the Azure Portal to access keys of Search Service and Storage account of desired resource groups.

### Update tool config files with Azure keys

**Note: the tool must be tested and confirmed to work in the Dev/Sandbox environment before running in Prod**

1. Grab the Azure Search Service Primary Admin key and update the `search_api_key` variable under the `rerun_indexer.py` file with the value:  
(Choose one that suits you)
  - Dev environment: [esdbmadfsearch1ss](#)
  - Sandbox environment: [esdebdmaisbx02ss1 - Microsoft Azure](#)
2. Grab the Azure Storage Account Access key and update the `account_key` variable in the `get_all_xmls.py` file with the value:
  - Dev environment: [esdbmadfstorage1st](#)
  - Sandbox environment: [esdebdmaisbx02st1 - Microsoft Azure](#)
3. Make sure your **storage account, containers, search service** and **indexers** are correct with the corresponding resources in `get_all_xmls.py` and `rerun_indexer.py` (for example, if you run in Dev, make sure the Search Service, its indexers, and Storage Account, its containers are in Dev)

*ChromeDriver 131.0.6778.85*

[chromedriver.zip](#)

**Note:** Chrome will be automatically updated, so need to download the updated ChromeDriver

- Check your Chrome Browser version (3 dots -> Help -> About Google Chrome)
- Download the compatible version of [ChromeDriver](#)
- Replace or add the ChromeDriver to the [Tool zip file](#) above

### 3.2.3 Steps to Refresh the Knowledge Articles

Please also consult [OAS AssistMe - Knowledge Base Update Tool - Overview](#)

1. Checkout the Main Branch

- a. Remote: [https://dev.azure.com/VP-BD/BDC/\\_git/BDC-OAS-Copilot](https://dev.azure.com/VP-BD/BDC/_git/BDC-OAS-Copilot)
- b. Command:

```
bash
git checkout main
```

2. Navigate to the App Service Directory

**For R1:**

```
bash
cd BDC-OAS-Copilot/logicapp/app_service
```

**For R2/R3:**

```
bash
cd BDC-OAS-Copilot/logicapp/r2r3
```

3. Activate the Virtual Environment

c. **Windows:**

```
bash
.\env\Scripts\activate
```

d. **MacOS/Linux:**

```
bash
source env/bin/activate
```

4. Update the Key and Run the Indexer Script

Ensure the API key in rerun\_indexer.py is up-to-date.

5. Update the Key and Run the XML Script

Ensure the API key in get\_all\_xmls.py is up-to-date.

6. Run run.bat to Install Required Packages

```
bash
run.bat
```

7. Final Confirmation

After running the script successfully in the sandbox, proceed with production refresh.

Notify the KMT team by replying to the original request email, confirming the refresh is complete.

## 3.3 Modelling

### 3.3.1 Introduction

#### Brief overview of the project

The OAS project is prepared for potential obstacles in user adoption, drawing on insights from Release 1, and has pinpointed new needs to improve the agent experience, including access to contextual information from Cúram, and assistance with “how to” queries via knowledge articles, user guides, and product documentation.

The OAS Agent Co-Pilot is a solution designed to address these requirements with its intuitive, user-friendly interface. Information from all Release 1 knowledge articles, sourced from ESDC Knowledge Management SharePoint, is ingested and able to deliver and condense information on OAS guidelines and policies, offer guidance on Cúram functionalities and processes.

#### Brief overview of the initial model

The model used for the co-pilot is gpt4-1106-oveview, which features improved instruction following, reproducible outputs, parallel function calling, etc. It returns a maximum of 4,096 output tokens. The context window is 128k tokens. *(It was decided to change to model gpt35-turbo. Please refer to [section 3.3.6](#))*

#### Purpose of fine-tuning

Language models are trained on a diverse ranged of text from the internet, which may not adequately cover specialized domains like Old Age Security (OAS) policies. Fine-tuning allows the model to better understand the language, terminology, and nuances specific to this domain.

By fine-tuning, the model can generate text that is more relevant and tailored to the needs of ESDC agents. This ensures that the information provided by the model is accurate and aligned with the context of OAS.

Fine-tuning enables the model to learn patterns and structures present in target domain, leading to improved performance on tasks such as answering questions, summarizing documents, or generating policy-related steps.

OAS policies and procedures may contain specialized terminology, legal language. Fine-tuning helps the model adapt its language generation capabilities to match the

style and tone typically used in communications within the domain, thereby improving communication clarity and effectiveness.

### 3.3.2 Data preparation

1. Gather relevant articles, guidelines, policies, sample questions and answers from the business users.
2. Clean the raw data to remove any irrelevant or duplicate content. This may involve removing metadata, headers, footers, and other non-textual elements.
3. Upload the acquired data to a blob container in Azure Blob Storage. Ensuring the data is organized and structured appropriately within the container to facilitate efficient importing into Azure AI Search
4. Use Azure AI Search to import the data from the blob container to create the search index. Configure the import settings to ensure that the data is processed and indexed correctly within Azure AI Search.

By leveraging features in Azure AI Search, we can effectively enhance the dataset and improve the search experience for ESDC agents without the need for explicit data augmentation.

### 3.3.3 Model Configuration

For the fine-tuning process, specific modifications or adjustments were made to tailor the GPT-4 model to the domain of OAS knowledgebase handled by ESDC agents.

However, the primary modification made to the model configuration was adjusting the temperature parameter during text generation.

Temperature is a parameter that affects the creativity and randomness of the responses it generates. Lowest temperature: When set to 0, the model produces the most deterministic and conservative responses, resulting in highly predictable output. Highest temperature: When set to 1, the model becomes more explorative and creative in its responses, leading to a wider range of potential outputs with increased diversity and unpredictability. Increasing the value, such as 0.7, increases randomness and yielding more varied responses, while decreasing it, say to 0.2, produces more focused and specific results. We considered a lower setting because it is preferable for the context of the project like generating legal texts. Through experiments, setting the temperature to 0.3 indicates most outputs that match criteria for the evaluation.

### 3.3.4 Model Explanation

Gpt 4/gpt 3.5 is pre-trained model. We can tailor it by:

1. Fine-tune for task specific
  - a. (Deloitte) Add documents, data, context → you are teaching it new patterns, styles and domain-specific information.
  - b. (Azure default) Hyperparameters: number of epochs, batch size, learning rate, ...
    - i. **Limitations:**
      1. Not available in Canada
      2. Data for supervised fine-tuning: needs thousands of examples (standard queries and responses)
      3. High upfront cost and hosting your-own-custom-model cost
2. (Deloitte) Fine-tune inference process:
  - a. Hyperparameters:
    - i. Temperature: controls randomness in the response
    - ii. Lower temperature: more factual and deterministic (good for policies and rules)
      1. AssistMe: 0.3
    - iii. Top-p: controls how the AI selects words when generating a response.
      1. AssistMe: 1.0 (allows for more variety)

### 3.3.5 Fine-tuning Process

3. Loading the pre-trained GPT-4 model:
  - a. In Azure OpenAI Studio, access the pre-trained GPT-4 model.
  - b. Select the desired model configuration.
  - c. Load the pre-trained model into the Azure OpenAI Studio environment to prepare for further adjustments and experimentation.
4. Setting up the experiment:
  - a. Create a new project in Azure OpenAI Studio to organize the process.
  - b. Configure the experiment settings, including data sources uploaded to Azure Blob Storage and any specific parameters, such as top-P, top-K, temperature, ...
5. Adjusting the parameters:
  - a. Use the Azure OpenAI Studio interface to adjust parameters for text generation.
  - b. Experiment with different combination of parameters values to observe their effects on generated text's diversity and coherence.
  - c. Iterate on the parameter settings based on the desired characteristics of the generated text, such as conservativeness or creativity.
6. Monitor and evaluation:
  - a. Utilize the evaluation metrics to track performance of the model during experimentation.
  - b. Monitor metrics such as relevance, coherence, clarity to the domain.



- v. **5. Highly relevant;** the response directly addressed the question or topic without any unrelated information.
- b. **Accuracy:** *Did the response accurately address the question or topic you asked about?*
  - i. **1. Completely inaccurate;** the response contained numerous factual errors.
  - ii. **2. Mostly inaccurate;** the response had several factual mistakes.
  - iii. **3. Somewhat accurate;** the response was correct in some aspects but still contained errors.
  - iv. **4. Mostly accurate;** the response contained minor inaccuracies.
  - v. **5. Completely accurate;** the response was factually correct in all aspects.
- c. **Completeness:** *Did you get all the information you needed from the response?*
  - i. **1. Very incomplete;** the response left out critical information and did not answer the question.
  - ii. **2. Somewhat incomplete;** the response provided some information but was missing key details.
  - iii. **3. Moderately complete;** the response answered the question but lacked some finer details or depth
  - iv. **4. Mostly complete;** the response provided a thorough answer with nearly all necessary details.
  - v. **5. Fully complete;** the response was comprehensive and included all information needed to fully answer the question.
- d. **Clarity:** *Was the response easy to understand?*
  - i. **1. Very unclear;** the response was confusing and difficult to understand.
  - ii. **2. Somewhat unclear;** parts of the response were hard to follow or interpret.
  - iii. **3. Moderately clear;** the response was understandable but could be clearer.
  - iv. **4. Mostly clear;** the response was clear with minor ambiguities.
  - v. **5. Extremely clear;** the response was easy to understand and left no room for confusion.
- e. **Tone:** *Was the tone of the response appropriate for your question?*
  - i. **1. Highly inappropriate;** the tone was offensive or completely unsuitable for the context.
  - ii. **2. Mostly inappropriate;** the tone was somewhat off-putting or not quite suitable for the conversation.
  - iii. **3. Neutral;** the tone was neither particularly appropriate nor inappropriate, or it was difficult to discern.
  - iv. **4. Mostly appropriate;** the tone was generally suitable for the conversation with minor lapses.



- v. **5. Completely appropriate;** the tone was perfectly suited to the context of the conversation and the user's needs.

## 5.2 Present the Result

Some examples to compare between zero-shot response and fine-tuned response:

No	Questions	Zero Shot Response	Fine-Tuned Response
1	A task was forwarded to me, where can I see it?	According to the provided documents, if a task was forwarded to you in Cúram, you must first use the "Available Tasks" link to search for the forwarded task. Once you add or reserve the forwarded task to your work tasks, it will be available to view under "My Open Tasks" ^1^ ^2^.	<p>If a task has been forwarded to you in Cúram, you can view it by following these steps:</p> <ol style="list-style-type: none"> <li>1. "Log into Cúram": When you log in, the application opens to the Home tab ^1^.</li> <li>2. "Navigate to Available Tasks": The task that has been forwarded to you will display in your "Available Tasks" if it has been assigned to you specifically ^1^.</li> <li>3. "Check My Tasks": You may also find the task under "My Tasks" on the Home screen, which typically consists of a number of pods such as My Tasks, Quick Links, etc. ^1^.</li> <li>4. "Task Query": You can use the Task Query action to add, run, and modify task queries if you need to search for the task ^2^.</li> <li>5. "Workload Management": Use the Workload Management actions to view tasks, assign tasks, forward tasks, block and unblock task allocations, and manage work queue subscriptions in Cúram ^2^.</li> </ol> <p>By following these steps, you should be able to locate and view the task that has been forwarded to you within the Cúram system.</p>

Figure 5.2.1 - Response comparison Q1

2	What action triggers an automatic task creation?	<p>An automatic task is triggered in Cúram when certain actions occur. For example, an automatic task will be generated when an attachment is added to a foreign application record using specific Document Types such as "Foreign Benefit Application" or "Foreign Benefit Application – Additional Documents." Additionally, tasks are automatically created when an attachment is added to the Foreign Engagement Case or the Person record using Document Types like "BESS or BESS – Additional Documents," "Incoming Liaison – Non-Medical or Medical," "Consent to Communicate," "Authorization to Communicate," "Correspondence," "Power</p> <p>Moreover, the Communication Status of correspondence being manually changed to "Returned," "Misdirected," or "Void" will also trigger the creation of an automatic task. Similarly, recording an inbound communication using Types such as "Enquiry - Address Change," "Enquiry - Canadian Benefits - Requires Attention," "Enquiry - Foreign Benefits - Requires Attention," "Enquiry - Other," "Enquiry – Processing Status," "Interim Application – Request," "Ministerial Enquiry," or "MP Enquiry" will result in an automatic task. "1" "2".</p> <p>It is important to note that while some tasks close automatically when an outgoing liaison is attached to the foreign application, others need to be manually closed. "1".</p>	<p>An automatic task in Cúram is triggered when:</p> <ol style="list-style-type: none"> <li>1. An attachment is added to a foreign application record using one of the following Document Types: <ul style="list-style-type: none"> <li>- Foreign Benefit Application</li> <li>- Foreign Benefit Application – Additional Documents</li> </ul> <p>Note: Foreign Benefit Application tasks close automatically when an outgoing liaison is attached to the foreign application. "1".</p> </li> <li>2. An attachment is added to the Foreign Engagement Case or the Person record using one of the following Document Types: <ul style="list-style-type: none"> <li>- BESS or BESS – Additional Documents</li> <li>- Incoming Liaison – Non-Medical or Medical</li> <li>- Consent to Communicate</li> <li>- Authorization to Communicate</li> <li>- Correspondence</li> <li>- Power of Attorney</li> <li>- Trustee</li> </ul> <p>Note: These tasks need to be manually closed. "1".</p> </li> <li>3. The Communication Status of correspondence is manually changed to one of the following: <ul style="list-style-type: none"> <li>- Returned</li> <li>- Misdirected</li> <li>- Void</li> </ul> <p>Note: All the tasks need to be manually closed. "1".</p> </li> <li>4. An inbound communication is recorded using one of the following Types: <ul style="list-style-type: none"> <li>- Enquiry - Address Change</li> <li>- Enquiry - Canadian Benefits - Requires Attention</li> <li>- Enquiry - Foreign Benefits - Requires Attention</li> <li>- Enquiry - Other</li> <li>- Enquiry – Processing Status</li> <li>- Interim Application – Request</li> <li>- Ministerial Enquiry or MP Enquiry</li> </ul> <p>Note: All the tasks need to be manually closed. "1".</p> </li> </ol>
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Figure 5.2.2 - Response comparison Q2

3	Why does it say my task is deferred and how do I restart it?	<p>Your task is marked as "Deferred" in Cúram because it has been reserved by a team member for completion at a later date. This typically happens if you are waiting for a client's missing information and cannot proceed with the open task at the current time. All deferred tasks are listed under "My</p> <p>To work on a deferred task, you must manually restart the deferred task to change its status to open, which will allow you to continue working on it. "1" "2".</p>	<p>In Cúram, a task is marked as "deferred" when you are waiting for a client's missing information and cannot proceed with the open task at the current time. To work on a deferred task, you must manually restart the deferred task to open it. "1".</p> <p>To restart a deferred task in Cúram, follow these steps:</p> <ol style="list-style-type: none"> <li>1. Navigate to the "Reserved Tasks" tab if you are a Team Leader, or "My Deferred Tasks" if you are a processing team member, to find your list of deferred tasks.</li> <li>2. Select the task you wish to restart.</li> <li>3. Manually change the status of the task from "Deferred" to "Open" to reactivate it and continue working on it.</li> </ol> <p>Please note that the specific steps to change the task status may vary slightly depending on the version of Cúram you are using. If you encounter any issues or need further assistance, it may be helpful to consult the system documentation or reach out to a system administrator.</p>
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Figure 5.2.3 - Response comparison Q3

We have experimented responses with different temperatures ranged from 0.2 to 0.7. Here is the overall score based on the evaluation:

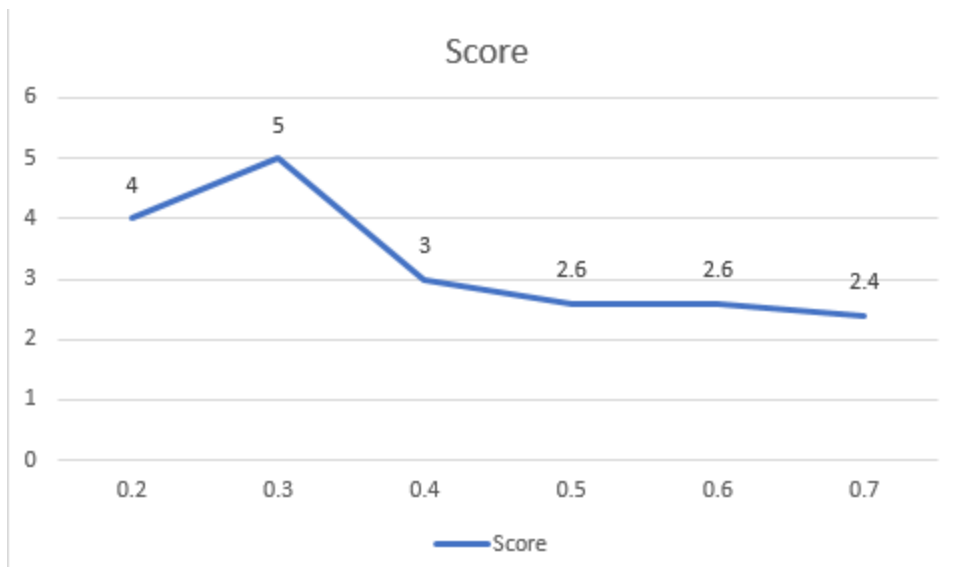


Figure 5.2.4 - Change of overall evaluation score by temperatures

### 3.3.8 Change in Model

We have compared the same questions with gpt-35-turbo and here is the result summary:

Table 3.3.7 - Population: 10 questions

	GPT4	GPT3.5
Average evaluation score	4.78/5	4.88/5
Average time to generate response	14s	4.6s
Total cost	\$2.69	\$0.086

Some advantages of using GPT3.5:

- High in capacity (Capacity is the maximum number of tokens it can process in a single interaction. GPT3.5 has 300k, while GPT4 has 80k)
- Low latency (Latency relates to the context window size. Context window refers to the length of preceding text the model considers to predict for the next token in the output. GPT3.5 has a 16k context window, it means that it only looks back 16k tokens to make its prediction for the next output. However, GPT4 has a 128k context window. It will take more time to look

back, hence, take more time to generate responses than GPT3.5. In our case, users will mainly ask questions from knowledgebase. The focus will just be summary and words grabbing abilities from the ingested data, so it doesn't need many predictions)

## 3.4 Merge Strategy

### 3.4.1 Steps

1. Open the window's command line interface (cmd)
2. Go to [frontend] folder within project
3. Check file [package.json], make sure 'build' command is set to "tsc && vite build && webpack"
4. In the terminal, execute [npm run build]
5. Execute [npm start] to make sure the code has been built correctly in the local environment
6. Go back one folder up into [bds-oas-copilot/] folder and execute [git add .] (the dot means you're adding ALL files modified files within current directory)
7. Execute [git commit -m "insert description here"]
8. Execute [git push origin]
  - a. If the branch has been pushed to the repository before, move to step 9
  - b. If not, you will get an error message requiring you to use a different command, copy paste the proposed command and execute it
9. Go to the git repository into the branch you just pushed
10. Increment the version in azure-pipelines.yml file.
11. Create a new pull request to the main branch

### 3.4.2 Branching

New branches should follow the naming standard: "feature/name\_of\_branch"

## 3.5 Deployment

The deployment process is generally straightforward, although it depends on what you are publishing. The code needs to be bundled and uploaded to the appropriate blob storage. Whatever deployment is being performed, always merge first! (3.4 Merge Strategy)

Purpose	Steps to do
Is it a frontend change?	Do 3.5.3
Is it a backend change? - only environment variable? - new backend feature?	Do 3.5.2 Do 3.5.4

### 3.5.1 Curam Integration

AssistMe is integrated into Curam by API. Using Dojo framework and the url in AppController.jsx :

```
AppController.jsx
179 if (flag) {
180   </jsp:scriptlet>
181
182
183   <script type="text/javascript">
184     require([
185       "dojo/request/script",
186       "dojo/dom-construct",
187       "dojo/domReady!",
188     ], function(scriptRequest, domConstruct) {
189       var assistmeDiv = domConstruct.create("div", {
190         id: "root"
191       });
192     });
193     // Append the new div to the main body element
194     domConstruct.place(assistmeDiv, document.body);
195
196     scriptRequest.get("https://esdbmadfappservice1as.azurewebsites.net/bundle", { handleAs: "javascript", headers: {"X-Requested-With": null} }).then(function() {
197       // Script has been successfully loaded
198       console.log("Script bundle loaded successfully");
199
200     }, function(error) {
201       // Handle error
202       console.error("Error loading script assistme bundle:", error);
203     });
204   });
205   </script>
206 }
```

This is where the API url is placed. In Curam, it can be modified as it was set up also in the Curam Property.

The screenshot shows the 'Property Administration' page in the Curam system. The 'Search Criteria' section has 'Name' set to 'assistme' and 'Category' set to 'Application - Custom application parameters'. The 'Properties (Number of Items: 1)' table shows a single entry with the following details:

Name	Value	Description	Category
curam.ca.gc.bdm.assistme.url	https://esdbm...	AssistMe URL	Application - Custom application parameters

Buttons for 'New', 'Publish', 'Refresh', and 'Print' are visible at the top right. A red asterisk indicates a required field. The 'Edit Value' link is present next to the property entry.

A sysadmin can modify this value as needed if it points to the wrong environment.

### 3.5.2 Backend Integration

As AssistMe is fetched from the service app by API, the service app environment variables have to be configured accordingly. This does include some images.

Name	Value
AUTH_ENABLED	Show value
AZURE_BLOB_BUNDLE	assistme.bundle.js
AZURE_BLOB_EXCEL_ARTICLES	Show value
AZURE_BLOB_IMG_BETAICON	Show value
AZURE_BLOB_IMG_MAINICON	Show value
AZURE_BLOB_IMG_MENUICON	Show value
AZURE_BLOB_JSON_LINK	Show value
AZURE_BLOB_NOTIFICATIONS_JSON	Show value

These variables all make reference to the same blob storage : assistme-bundle

**assistme-bundle** Container

Authentication method: Access key (Switch to Microsoft Entra user account)  
Location: assistme-bundle

Search blobs by prefix (case-sensitive)

Add filter

Name	Modified	Access tier	Archive status
3193369725e0bd2a8bd4fa4c5620e929.svg	10/9/2024, 12:30:23 ...	Hot (Inferred)	
57574741b240128c7eface64bf60d037.png	10/9/2024, 12:30:23 ...	Hot (Inferred)	
9296618d3aaca8b1caaff3b70a6642bc.png	10/9/2024, 12:30:23 ...	Hot (Inferred)	
assistme.bundle.js	2/11/2025, 2:48:55 PM	Hot (Inferred)	
assistme.bundle.js.LICENSE.txt	10/9/2024, 12:30:23 ...	Hot (Inferred)	
edcd9b53ad22eed7b33ec01e4b018304.png	11/25/2024, 4:26:13 ...	Hot (Inferred)	
f42f9a40d4f55b0e487f3e9e2bdee3f0.png	10/9/2024, 12:30:23 ...	Hot (Inferred)	

The alphanumeric png files are the necessary images needed in AssistMe. The names are constant during the bundling process and there are no need to change them. If one is changed, you will need to update the corresponding name in the environment variables.

### 3.5.3 Creating and updating the bundle

- Ensure that the URL for both assistme API and WalkMe API are correct relative to the environment it will be deployed to. In `api.ts`, check that the urls are correct. In `index.tsx`, check that the Walkme URL is correct
- In the command line, go to the frontend folder of the repositories and run `[npm run build]`. This will create a `bundle.js` in `frontend/src/main/resources/dist`. It will also create other files, these are mentioned in more detail in the previous section.
- Go into the azure portal and get into the storage container `[assistme-bundle]` in the correct environment, delete the old bundle and upload the new one.

**assistme-bundle** ...

Container

Search

Upload Change access level Refresh Delete Change tier Acquire lease Break lease

**Authentication method:** Access key ([Switch to Microsoft Entra user account](#))

**Location:** assistme-bundle

Search blobs by prefix (case-sensitive)

Add filter

Name	Modified	Access tier	Archive status
3193369725e0bd2a8bd4fa4c5620e929.svg	10/9/2024, 12:30:23 ...	Hot (Inferred)	
57574741b240128c7eface64bf60d037.png	10/9/2024, 12:30:23 ...	Hot (Inferred)	
9296618d3aaca8b1caaff3b70a6642bc.png	10/9/2024, 12:30:23 ...	Hot (Inferred)	
assistme.bundle.js	2/11/2025, 2:48:55 PM	Hot (Inferred)	
assistme.bundle.js.LICENSE.txt	10/9/2024, 12:30:23 ...	Hot (Inferred)	
edcd9b53ad22eed7b33ec01e4b018304.png	11/25/2024, 4:26:13 ...	Hot (Inferred)	
f42f9a40d4f55b0e487f3e9e2bdee3f0.png	10/9/2024, 12:30:23 ...	Hot (Inferred)	

- Log into curam and validate that :
  - AssistMe is visible
  - URLs for both backend assistme and walkme are correct
  - Chatbot answers questions
  - Citations are generated and accessible
  - Both French and English version are functional
  - WalkMe walkthrus list is generated
  - Useful List data is retrieved
  - Notifications data is retrieved
  - NSD link goes to the correct webpage
  - Thumbs up/down

### 3.5.4 Syncing repo to service apps

- Run build first <https://dev.azure.com/VP-BD/BDC/build?definitionId=3042>
- Take tag from the pipeline at step : [Set build tag]
- It looks like this : 3.copilot.200.main.489534
- Then take the tag run deploy [Pipelines - Runs for Copilot-Deploy-EsDEBDMAISbx02](#) by setting the tag in the run config.

## 3.6 Manage “Useful Links” Tab

The “Useful Links” tab contains a list of external links to allow users easy access to additional resources. The list itself lives in the storage account and is fetched by api anytime the tab is viewed. Thus, it can be updated as long as the format is followed.

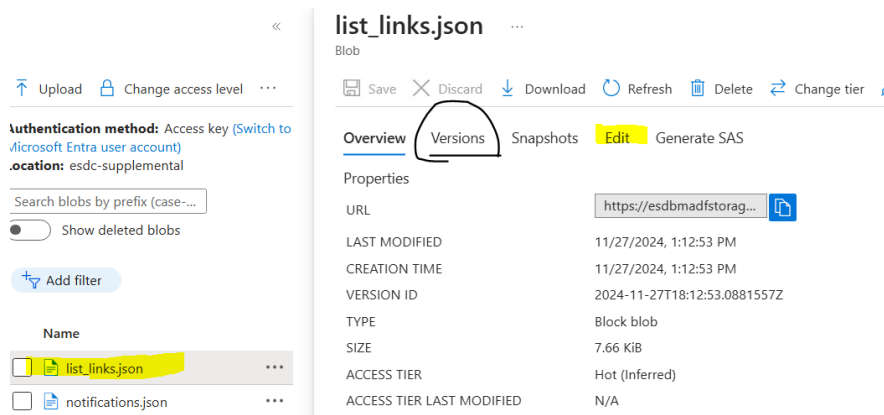
### Updating the links:

1. The file ‘list\_links.json’ can be retrieved from the storage account in container “esdc-supplemental”.
2. Make the modification necessary to the file while respecting the existing format as shown below:
  - a. The json format consist of a high level ‘Partition’ field and a ‘Data’ field. There is exactly one ‘Partition’ per category which correspond to a number. That is, if you add links to an existing category, make sure you are in the correct Partition, otherwise it will lead to category duplication during the rendering. The ‘Data’ field is a list of french and english information : [title, url, category].

```
{
  "Partition": 1,
  "Data": [
    {
      "Category_EN": "Acts and Regulations",
      "Category_FR": "Lois et règlements",
      "Title_EN": "OAS Act",
      "Title_FR": "Acte OAS",
      "Url_EN": "https://laws-lois.justice.gc.ca/eng/acts/O-9/",
      "Url_FR": "https://laws-lois.justice.gc.ca/fra/lois/o-9/"
    },
    {
      "Category_EN": "Acts and Regulations",
      "Category_FR": "Lois et règlements",
      "Title_EN": "OAS Regulations",
      "Title_FR": "Regulation d'OAS",
      "Url_EN": "https://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,_c._1246/page-1.html",
      "Url_FR": "https://laws-lois.justice.gc.ca/fra/reglements/C.R.C._%2C_ch._1246/page-1.html"
    }
  ]
},
{
  "Partition": 2,
  "Data": [
    {
      "Category_EN": "Call Centre",
      "Category_FR": "Centre d'appels",
      "Title_EN": "ADMS",
      "Title_FR": "SGPA",
      "Url_EN": "http://adms-sgpa.prv/login-connecter.aspx?GoCTemplateCulture=en-CA",
      "Url_FR": "http://adms-sgpa.prv/login-connecter.aspx?GoCTemplateCulture=fr-CA"
    },
    {
      "Category_EN": "Call Centre",
      "Category_FR": "Centre d'appels".
    }
  ]
}
```

- b. Append to an existing partition or create a new one the french and english Data.
3. The recommended way of modifying is to click the ‘Edit’ button. This will also save a copy in version history of the changes.

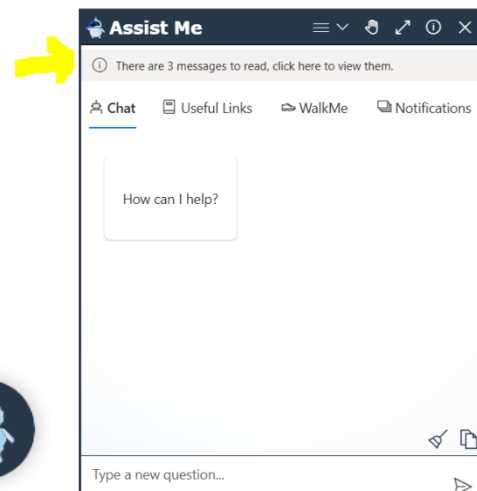




### 3.7 Manage Notification Broadcast Functionality

The "Notification" feature allows administrators to broadcast messages in French and English to end-users. Upon logging into Curam, the AssistMe button in the bottom right will display a red badge icon with the count of unread messages. Users then open AssistMe, and there will be a bar near the top showing the count of unread messages. Users can click this bar to read the latest message. Users can mark a message as read, which will proceed to the next message, until there are no more messages to read.

All active notifications will be displayed in the 'Notifications' tab regardless of their read status. Allowing users to review active notifications.



#### Updating message content

Updating the notifications is very similar to the Useful Link update:

1. The file 'notifications.json' can be retrieved from the storage account. Within container "esdc-supplemental".
2. Make the modification necessary to the file while respecting the existing format as shown below:
  - a. The json format consist of two primary components: Message Title & Message. These are duplicated for french for and supplemented by 2 activate\_date\_start/end for a total of 6 components per notification. Please note that line breaks can be denoted by "\\n" in message body.
  - b. Moreover, a notification can had a list of urls. (Fig. 3.7) Make sure the links and the titles are in the same order. This is optional, if no links is provided, none will be shown.

```

{
  "message_title_fr": "Notification Test for Live Demo",
  "message_content_fr": "Bienvenue dans cette demonstration d'Aidez-Moi",
  "message_title_en": "Welcome Message for Live Demo",
  "message_content_en": "Welcome to this demonstration of AssistMe",
  "active_date_start": "2025-01-01",
  "active_date_end": "2025-04-30"
},
{
  "message_title_fr": "Bienvenue à AssistMe",
  "message_content_fr": "Bienvenue à la démonstration en direct d'AssistMe.",
  "message_title_en": "Welcome to AssistMe",
  "message_content_en": "Welcome to the live demonstration of AssistMe.",
  "active_date_start": "2025-01-01",
  "active_date_end": "2025-04-30",
  "message_url_en": ["https://kmt-ogc.service.gc.ca/en/", "www.google.ca"],
  "message_url_fr": ["https://kmt-ogc.service.gc.ca/fr/", "www.google.ca"],
  "message_url_title_en": ["click here", "click there"],
  "message_url_title_fr": ["cliquez ici", "cliquez là"]
}

```

Figure 3.7 – json format in storage account

3. As for useful\_links, click on “Edit” button in Azure to make your edits. This will save a version history.

\*Note that there is an active\_date\_start & active\_date\_end which define the activation window of the notifications. A message outside of this window will not be displayed.

### Notes on notification read state

- The "read" state of each message is stored based on the title message content. This means that if you update the content of a message in the backend, it will be considered read unless the title is also changed, and will re-display to the user. **Titles should be unique.**
- The "read" state of messages are stored in cookies. This means it will not persist across different computers - rather, it will persist only in the active browser. As well, if a user clears their cookies (or has some scheduled task that does this automatically), the read state of all messages will be reset. It is intended for all notifications to remain in the notification.json file, hence the notification active dates data have been added to allow for a complete history of notifications to be kept while only displaying active ones to the users

## 3.8 WalkMe Integration

### [Walkme Demo - WalkMe™ - Digital Adoption Platform](#)

WalkMe is a third-party software that creates interactive tutorials called 'WalkThrus'. It was a ESDC requirements that we integrate WalkMe software within AssistMe to make it a 'one stop shop'.

### Integration

WalkMe need to inject into the page a snippet script tag as below.

Snippet

Environment

Production

Test

Copy and paste the following code on to every page for which you want to enable WalkMe. The snippet must go between the <head> and </head> tags of a page.

```
<script type="text/javascript">(function() {var walkme = document.createElement('script'); walkme.type = 'text/javascript'; walkme.async = true; walkme.src = 'https://cdn.walkme.com/users/f2e7bcf52106472795e62cfc74efad81/test/walkme_f2e7bcf52106472795e62cfc74efad81_https.js'; var s = document.getElementsByTagName('script')[0]; s.parentNode.insertBefore(walkme, s); window._walkmeConfig = {smartLoad:true; }});</script>
```

Copy Code

Done

Figure 3.8.1 – WalkMe integration snippet

The most important part of this snippet is the 3<sup>rd</sup> line that defines a CDN javascript. This is the WalkMe code which upon injection into curam will go fetch additional data from WalkMe server and generate a launcher with all the tutorials.

In AssistMe code, this snippet was modified and added into index.tsx file:

```
//Insert walkme code into page
useEffect( () => {
  var walkme = document.createElement('script');
  walkme.type = 'text/javascript';
  walkme.async = true;
  walkme.src = 'https://cdn-ca1.walkmedap.com/users/5c02903d8a3247e69d8e9f1e85902b32/walkme_5c02903d8a3247e69d8e9f1e85902b32_https.
  var s = document.getElementsByTagName('script')[0];

  try{
    // @ts-ignore
    s.parentNode.insertBefore(walkme, s);
    // @ts-ignore
    window._walkmeConfig = {smartLoad:true};
  }
  catch{
    console.log('walkme not available');
  }
}, []);
```

Figure 3.8.2 – WalkMe integration snippet in AssistMe code

Once WalkMe snippet has been integrated, the next step is to display the WalkThrus. This is done using the WalkMe API

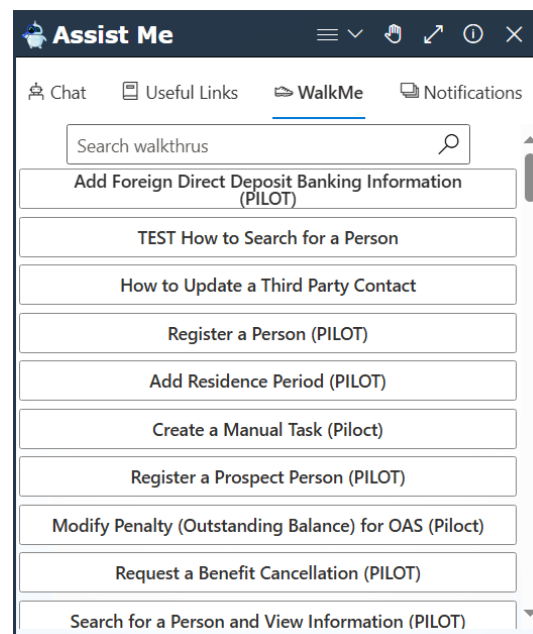
(<https://developer.walkme.com/reference/overview> )

The [window.\_walkmeInternals] function returns 'true' if walkme has been integrated successfully. Then one can use [WalkMeAPI] methods to fetch walkthrus [ walkthrus = WalkMeAPI.getFlows() ] as a list. And to launch a walkthrus : [ WalkMeAPI.startFlowById(FlowId, stepNodeId) ]

I recommend looking at the official WalkMe documentation before doing anything with Walkme.

All WalkMe code and functionalities reside in the [WalkMe] subfolder under [Components].

Additionally, languages can be changed using the API [ WalkMeAPI.changeLanguage('language-short-name')], doc found here : (<https://developer.walkme.com/reference/multilanguage-support> )



### 3.9 Curam User Role

The following list includes all 16 user roles who would see assistme in Curam upload log in.

Table 3.9 – Curam security user role name and description

Security Role Name	Description
<b>OASCommon Manager</b>	<p>This role provides staff READ ONLY access to all clients/participants, foreign benefits, old age security benefits for international operations as well as domestic, and supervisor privileges for managing tasks. When accessing foreign benefit cases (Foreign Engagement Case type) this role does not have any access limitations based on the SSA Country.</p> <p>The role is intended for leadership staff who do not need to make updates in the system.</p> <p>The following job roles can be granted access to this role.</p> <p>Processing (BISB): Service Manager (PM 05)</p> <p>Business Expertise (BISB): Business Expertise Senior Consultant (PM 05)</p> <p>Business Expertise (BISB): Business Expertise Manager (PM 05)</p> <p>NHQ BISB: Executive Director, Centre of Expertise</p> <p>NHQ BISB: Director General, Program and Services Oversight</p> <p>Operations Call Center: Service Manager (PM 05)</p>

	NHQ Call Center: Senior Program Advisor (PM 05) NHQ Call Center: Program Consultant (PM-04)
<b>OASDomestic Manager</b>	<p>This role provides staff READ ONLY access to all clients/participants, foreign benefits, old age security benefits for international operations as well as domestic, and supervisor privileges for managing tasks. When accessing foreign benefit cases (Foreign Engagement Case type) this role has limited read access which is further restricted based on the SSA Country.</p> <p>The role is intended for leadership staff who do not need to make updates in the system.</p> <p>The following job roles can be granted access to this role.</p> <p>Processing (BISB): Service Manager (PM 05)</p>
<b>OASCommonS upervisor</b>	<p>This role provides staff READ AND WRITE access to all clients/participants, foreign benefits, old age security benefits for international operations as well as domestic, and supervisor privileges for managing tasks. When accessing foreign benefit cases (Foreign Engagement Case type) this role does not have any access limitations based on the SSA Country. This role does not have read/write access to incarceration details and any incarceration related correspondences.</p> <p>The role is intended for supervisor staff who need to monitor and manage tasks as supervisors as well as work with clients/cases (similar to respective benefit officers) when required.</p> <p>The following job roles can be granted access to this role.</p> <p>Processing (BISB): Team Lead (PM 03) NHQ BISB: Manager NHQ (PM 06) NHQ BISB: Senior Program Advisor (PM05) NHQ BISB: Program Consultant (PM-04) NHQ BISB: Program Advisor (PM03)</p>
<b>OASDomestic Supervisor</b>	<p>This role provides staff READ AND WRITE access to all clients/participants, foreign benefits, old age security benefits for international operations as well as domestic, and supervisor privileges for managing tasks. When accessing foreign benefit cases (Foreign Engagement Case type) this role has limited read access which is further restricted based on the SSA Country. This role does not have write access to foreign benefit cases (Foreign Engagement Case type). Also, this role does not have read/write access to incarceration details and any incarceration related correspondences.</p> <p>The role is intended for supervisor staff who need to monitor and manage tasks as supervisors as well as work with clients/cases (similar to respective benefit officers) when required.</p> <p>The following job roles can be granted access to this role.</p> <p>Processing (BISB): Team Lead (PM 03)</p>

<b>OASDomestic SupervisorIncarceration</b>	<p>This role provides staff READ AND WRITE access to all clients/participants, foreign benefits, old age security benefits for international operations as well as domestic, and supervisor privileges for managing tasks. When accessing foreign benefit cases (Foreign Engagement Case type) this role has limited read access which is further restricted based on the SSA Country. This role does not have write access to foreign benefit cases (Foreign Engagement Case type). This role has read/write access to incarceration details and any incarceration related correspondences.</p> <p>The role is intended for supervisor staff handling incarceration details who need to monitor and manage tasks as supervisors as well as work with clients/cases (similar to respective benefit officers) when required.</p> <p>The following job roles can be granted access to this role. Processing (BISB): Team Lead (PM 03)</p>
<b>OASCommon BenefitOfficer</b>	<p>This role provides staff READ AND WRITE access to all clients/participants, foreign benefits, and old age security benefits for international operations as well as domestic. When accessing foreign benefit cases (Foreign Engagement Case type) this role does not have any access limitations based on the SSA Country. This role does not have read/write access to incarceration details and any incarceration related correspondences.</p> <p>The role is intended for caseworker staff who need to work with clients/cases.</p> <p>The following job roles can be granted access to this role. IO-Processing (BISB): Service Canada Benefit Officer (PM 02) IO-Processing (BISB): Program Service Officer (PM 01) Business Expertise (BISB): Business Expertise Advisor (PM 03) Business Expertise (BISB): Business Expertise Consultant (PM 04)</p>
<b>OASDomestic BenefitOfficer</b>	<p>This role provides staff READ AND WRITE access to all clients/participants, foreign benefits, and old age security benefits for international operations as well as domestic. When accessing foreign benefit cases (Foreign Engagement Case type) this role has limited read access which is further restricted based on the SSA Country. This role does not have write access to foreign benefit cases (Foreign Engagement Case type). Also, this role does not have read/write access to incarceration details and any incarceration related correspondences.</p> <p>The role is intended for caseworker staff who need to work with clients/cases.</p> <p>The following job roles can be granted access to this role. Processing (BISB): Service Canada Benefit Officer (PM 02) Processing (BISB): Program Service Officer (PM 01)</p>

<b>OASDomestic BenefitOfficer Incarceration</b>	<p>This role provides staff READ AND WRITE access to all clients/participants, foreign benefits, and old age security benefits for international operations as well as domestic. When accessing foreign benefit cases (Foreign Engagement Case type) this role has limited read access which is further restricted based on the SSA Country. This role does not have write access to foreign benefit cases (Foreign Engagement Case type). This role has read/write access to incarceration details and any incarceration related correspondences.</p> <p>The role is intended for caseworker staff who need to work with clients/cases.</p> <p>The following job roles can be granted access to this role.</p> <p>Processing (BISB): Service Canada Benefit Officer (PM 02)</p> <p>Business Expertise (BISB): Business Expertise Advisor (PM 03)</p>
<b>OASCommonS upportClerk</b>	<p>This role provides staff READ AND WRITE access to clients/participants, foreign benefits, and old age security benefits for international operations as well as domestic. When accessing foreign benefit cases (Foreign Engagement Case type) this role does not have any access limitations based on the SSA Country. This role does not have read/write access to incarceration details and any incarceration related correspondences.</p> <p>The role is intended for BISB CR04 staff who need to work with clients/cases but have limited access as per DOA.</p> <p>The following job roles can be granted access to this role.</p> <p>Processing (BISB): Program Support Clerk (CR 04)</p>
<b>OASDomestic SupportClerk</b>	<p>This role provides staff READ AND WRITE access to clients/participants, foreign benefits, and old age security benefits for international operations as well as domestic. When accessing foreign benefit cases (Foreign Engagement Case type) this role has limited read access which is further restricted based on the SSA Country. This role does not have write access to foreign benefit cases (Foreign Engagement Case type). Also, this role does not have read/write access to incarceration details and any incarceration related correspondences.</p> <p>The role is intended for BISB CR04 staff who need to work with clients/cases but have limited access as per DOA.</p> <p>The following job roles can be granted access to this role.</p> <p>Processing (BISB): Program Support Clerk (CR 04)</p>
<b>OASCommonS upervisorSup port</b>	<p>This role provides staff READ AND WRITE access to clients/participants, foreign benefits, old age security benefits for international operations as well as domestic, and limited supervisor privileges for managing tasks. When accessing foreign benefit cases (Foreign Engagement Case type) this role does not have any access limitations based on the SSA Country. This role does not have read/write access to incarceration details and any incarceration related correspondences.</p> <p>The role is intended for BISB CR03 staff who need to work with</p>

	<p>clients/cases but have limited access as per DOA and also support supervisors in managing tasks.</p> <p>The following job roles can be granted access to this role.</p> <p>Processing (BISB): Support Clerk (CR 03)</p>
<b>OASCommonCSBTeamLead</b>	<p>This role provides staff READ AND WRITE access to all clients/participants, foreign benefits, old age security benefits for international operations as well as domestic, and supervisor privileges for managing tasks. When accessing foreign benefit cases (Foreign Engagement Case type) this role does not have any access limitations based on the SSA Country. However, this role has limited read access (due to training and DOA) and limited write access (inquiries) to foreign benefit cases (Foreign Engagement Case type). This role does not have read/write access to incarceration details and any incarceration related correspondences.</p> <p>The role is intended for supervisor staff who need to monitor and manage tasks as supervisors as well as work with clients/cases (similar to respective CSB Representative) when required.</p> <p>The following job roles can be granted access to this role.</p> <p>CSB - SC Center (In Person) :Team Lead (PM 03)</p>
<b>OASCommonCSBBusinessExpertise</b>	<p>This role provides staff READ access to all clients/participants, foreign benefits, and old age security benefits for international operations as well as domestic. Also, this role provides LIMITED WRITE access to supervisor privileges for managing tasks. When accessing foreign benefit cases (Foreign Engagement Case type) this role does not have any access limitations based on the SSA Country. However, this role has limited read access (due to training and DOA) and NO write access (tasks and inquiries) to foreign benefit cases (Foreign Engagement Case type). This role does not have read/write access to incarceration details and any incarceration related correspondences.</p> <p>The role is intended for business expertise staff who need to assist the team on clients/cases as well as monitor and manage tasks as supervisors.</p> <p>The following job roles can be granted access to this role.</p> <p>CSB Business Expertise: Business Expertise Consultant (PM04)</p> <p>CSB Business Expertise: Business Expertise Advisor (PM03)</p>
<b>OASDomesticISBSupervisor</b>	<p>This role provides staff READ AND WRITE access to all clients/participants, foreign benefits, old age security benefits for international operations as well as domestic, and supervisor privileges for managing tasks. When accessing foreign benefit cases (Foreign Engagement Case type) this role has limited read access which is further restricted based on the SSA Country. This role does not have write access to foreign benefit cases (Foreign Engagement Case type). Also, this role does not have read/write access to incarceration details and any incarceration related correspondences.</p>



	<p>The role is intended for supervisor staff who need to monitor and manage tasks as supervisors as well as work with clients/cases (similar to respective investigators/officers) when required.</p> <p>The following job roles can be granted access to this role.</p> <p>ISB Region: Team Lead (PM 03)</p> <p>NHQ (ISB): Senior Program Advisor (PM05)</p> <p>ISB Region: Senior Program Advisor (PM05)</p> <p>ISB Region: Business Expertise Advisor (PM03)</p>
<b>OASDomestic ISBInvestigator or</b>	<p>This role provides staff READ AND WRITE access to all clients/participants, foreign benefits, and old age security benefits for international operations as well as domestic. When accessing foreign benefit cases (Foreign Engagement Case type) this role has limited read access which is further restricted based on the SSA Country. This role does not have write access to foreign benefit cases (Foreign Engagement Case type). Also, this role does not have read/write access to incarceration details and any incarceration related correspondences.</p> <p>The role is intended for caseworker staff who need to work with clients/cases.</p> <p>The following job roles can be granted access to this role.</p> <p>ISB Region: Senior Integrity Services Officer (PM03)</p> <p>ISB Region: Integrity Services Investigator (PM 02)</p>
<b>OASDomestic ISBSupervisor rSupportClerk</b>	<p>This role provides staff READ AND WRITE access to clients/participants, foreign benefits, old age security benefits for international operations as well as domestic, and limited supervisor privileges for managing tasks. When accessing foreign benefit cases (Foreign Engagement Case type) this role has limited read access which is further restricted based on the SSA Country. This role does not have write access to foreign benefit cases (Foreign Engagement Case type). Also, this role does not have read/write access to incarceration details and any incarceration related correspondences.</p> <p>The role is intended for ISB CR04 staff who need to work with clients/cases but have limited access as per DOA and also support supervisors in managing tasks.</p> <p>The following job roles can be granted access to this role.</p> <p>ISB Region: Program Support Clerk (CR 04)</p>

### 3.10 Version Control

In order to keep a frontend version control, it is possible to rename the bundle as :  
 asssitme.bundle.X.Y.Z.js. Whenever a new feature is developed, steps 3.5.3 can be  
 run and supplemented with changing the bundle name in the environment variables  
 of steps 3.5.2

Thus, old version of the bundle is kept and can be rolled back by changing the name in the environment variable.

## 4. Operational Dashboard

Operational Dashboard is scheduled for weekly manual refresh in Sandbox and PROD environment every Friday.

### 4.1 Prerequisite

1. Download PowerBI desktop through NSD
2. Request Contributor access for the following Azure resources:
  - a. Azure Cosmo DB of PROD  
<https://esdebdmaiprodc1.documents.azure.com:443/>
3. To Access the PROD dashboard, go to: [OAS on BDM AssistMe User Feedback - Power BI](#). If you do not have access to the link, please reach out to Roxanne Grenier (roxanne.r.grenier@hrsdc-rhdcc.gc.ca)

### 4.2 Understand the queries

#### Query 1: Cosmo DB

- Type = if [Document.type] = "message" and [Document.role]= "user" then "User Question"
  - else if [Document.type] = "message" and [Document.role]= "assistant" then "Chatbot Response"
  - else if [Document.type] = "message" and [Document.role] = "tool" then "Back-end"
  - else ""
- Types of feedbacks: Positive feedbacks, negative feedbacks, test, no feedback
- Merge join with "**Unanswered responses**" on Document.id (Left-outer join) (to know which ones are unanswered that are taken from "Unanswered responses")
- Index the table
- Modelling + add new columns to find the nearest "Unanswered" questions: (this step is the same with Query: Unanswered Questions)

```
NearestUserIndex =  
VAR CurrentConversationID = [Document.conversationId]  
VAR CurrentIndex = [Index]  
VAR IsUnanswered = [Unanswered] = "Unanswered"  
RETURN  
IF(  
    IsUnanswered,  
    MAXX(  
        [Unanswered],  
        [Index]  
    )  
)
```

```

    FILTER(
        'CosmoDB',
        'CosmoDB'[Document.conversationId] = CurrentConversationID &&
        'CosmoDB'[Document.role] = "user" &&
        'CosmoDB'[Index] < CurrentIndex
    ),
    'CosmoDB'[Index]
),
BLANK()
)

NearestUserContent =
VAR CurrentConversationID = [Document.conversationId]
VAR NearestUserIndex = [NearestUserIndex]
RETURN
IF(
    NOT(ISBLANK(NearestUserIndex)),
    LOOKUPVALUE('CosmoDB'[Document.content], 'CosmoDB'[Document.conversationId],
CurrentConversationID, 'CosmoDB'[Index], NearestUserIndex),
    BLANK()
)

```

### Query 2: Questions

- Filter only questions (document.type = message, document.role = user)

### Query 3: Responses

- Dictionary:
  - Feedback :
    - Positive
    - Accuracy, tone, Comments : abc
    - Clarity, Comments : def
    - Completeness, Tone, Comments : abcd
- Filter only responses (document.type = message, document.role = assistant)
- Add some custom columns :
  - To separate Feedback about Metrics and Comments
    - Feedback about Metrics:
      - Positive
      - Accuracy, tone
      - Clarity
      - Completeness, Tone
    - Comments:
      - Blank
      - Abc
      - Def
      - Abcd

- After we have Feedback about Metrics, we separate into 5 other columns to count the metrics:
  - Accuracy: When it contains Accuracy, 1, else 0
  - Clarity: When it contains Clarity, 1, else 0
  - Completeness: When it contains Completeness, 1, else 0
  - Relevance: When it contains Relevance, 1, else 0
  - Tone: When it contains Tone, 1, else 0

### Query: Unanswered Responses

- Filter only responses
- Mark all responses that contain as Unanswered (TO BE UPDATED MANUALLY, NEED TO BE MONITORED). The list now includes:
  - I am unable to
  - I couldn't find
  - I specialize in
  - I'm here
  - I'm sorry
  - Je suis désolé
  - I can only help
  - I cannot provide
  - I do not have
  - Je ne peux pas fournir
  - I cannot take
  - Not found in the retrieved data
  - Not available in the retrieved data
  - The retriever documents do not contain
  - I cannot find
  - Out-of-domain
- Now we have the conversation\_id, id that contains unanswered questions, we marked them as "Unanswered"

### Query: Unanswered Questions

- Duplicate query "Cosmo DB"
- Filter rows that are not "null"
- Add a conditional column called "Role Sort Order" to sort the order of the role in backend (1 interaction will start from user → tool → assistant)
  - If the document.role = "user" then mark as "1"
  - If the document.role = "tool" then mark as "2"
  - If the document.role = "assistant" then mark as "3"
  - Else, mark as "4"
- Sort by document.createdAt, then by document.conversationId, then by "Role Sort Order" then add index so we will have all interactions by timestamp.

### Query: Clicks

This query is to see the clicks related to: Chatmenu, Citation, Walk-me, Useful link

- Filter rows that have document.role = "user" and document.type = "message":
- First, we need to differentiate click and user question

```
if [Document.type] = "message" and [Document.role]= "user" and
Text.Contains(Text.Lower([Document.content]), "i clicked a citation") then
"Citation Click"
```

```
else if [Document.type] = "message" and [Document.role]= "user" and
Text.Contains(Text.Lower([Document.content]), "i clicked chatmenu") then "Chat
Menu Click"
```

```
else if [Document.type] = "message" and [Document.role]= "user" and
Text.Contains(Text.Lower([Document.content]), "i clicked walkthrus") then
"Walk-me Click"
```

```
else if [Document.type] = "message" and [Document.role]= "user" and
(
    Text.Contains(Text.Lower([Document.content]), "i clicked useful link")
    or Text.Contains(Text.Lower([Document.content]), "i clicked user guide")
    or Text.Contains(Text.Lower([Document.content]), "i clicked guide
d'utilisateur")
    or Text.Contains(Text.Lower([Document.content]), "i clicked user cheat
sheet")
    or Text.Contains(Text.Lower([Document.content]), "i clicked fiche synthèse
de l'utilisateur")
    or Text.Contains(Text.Lower([Document.content]), "i clicked kmt")
    or Text.Contains(Text.Lower([Document.content]), "i clicked ogs")
    or Text.Contains(Text.Lower([Document.content]), "i clicked itrds")
    or Text.Contains(Text.Lower([Document.content]), "i clicked serti")
    or Text.Contains(Text.Lower([Document.content]), "i clicked ptdr")
    or Text.Contains(Text.Lower([Document.content]), "i clicked dns")
    or Text.Contains(Text.Lower([Document.content]), "i clicked electronic
forms")
    or Text.Contains(Text.Lower([Document.content]), "i clicked formulaires
electroniques")
    or Text.Contains(Text.Lower([Document.content]), "i clicked mail management
cpp and oas")
    or Text.Contains(Text.Lower([Document.content]), "i clicked gestion du
courier cpp et oas")
    or Text.Contains(Text.Lower([Document.content]), "i clicked oas act")
    or Text.Contains(Text.Lower([Document.content]), "i clicked acte oas")
    or Text.Contains(Text.Lower([Document.content]), "i clicked oas
regulations")
    or Text.Contains(Text.Lower([Document.content]), "i clicked regulation
d'oas")
    or Text.Contains(Text.Lower([Document.content]), "i clicked adms")
    or Text.Contains(Text.Lower([Document.content]), "i clicked sgpa")
    or Text.Contains(Text.Lower([Document.content]), "i clicked crt")
)
```

```

    or Text.Contains(Text.Lower([Document.content]), "i clicked orc")
    or Text.Contains(Text.Lower([Document.content]), "i clicked impact")
    or Text.Contains(Text.Lower([Document.content]), "i clicked canada post
abbreviation")
    or Text.Contains(Text.Lower([Document.content]), "i clicked abbreviation
poste canada")
    or Text.Contains(Text.Lower([Document.content]), "i clicked nexo")
    or Text.Contains(Text.Lower([Document.content]), "i clicked nsd")
    or Text.Contains(Text.Lower([Document.content]), "i clicked isn")
) then "Useful Links Click"

```

```

else if [Document.type] = "message" and [Document.role]= "user" and not
Text.Contains([Document.content], "I clicked") then "User Question"

```

else ""

- Now we have a column with values:

User Question

Useful Links Click

Walk-me Click

Chat Menu Click

Citation Click

- The click will be in the form:

"I click ....; ..."

So split by delimiter ";" to have the stats of the clicks

#### Query: Date Time Refresh

- DateTime.LocalNow()
- This one is to store refresh date of the dashboard

## 4.3 Refresh the dashboard

### Step 1

1. Click "Refresh"
2. If the dashboard was never refreshed in your laptop before, a pop-up window will show up. Enter the following:
  - a. Enter URL: <https://esdebdmaiprocd1.documents.azure.com:443/>
  - b. Database (optional): db\_conversation\_history
  - c. Collection (optional): conversations

### 3. Click "OK"

## Step 2

We need to check manually if there are any new forms of unanswered responses that are generated rather than the list in [Query: Unanswered Responses](#).

1. Go to Query: Unanswered Responses in PowerBI file
2. Click on the step that is above the step "TO BE UPDATED MANUALLY"

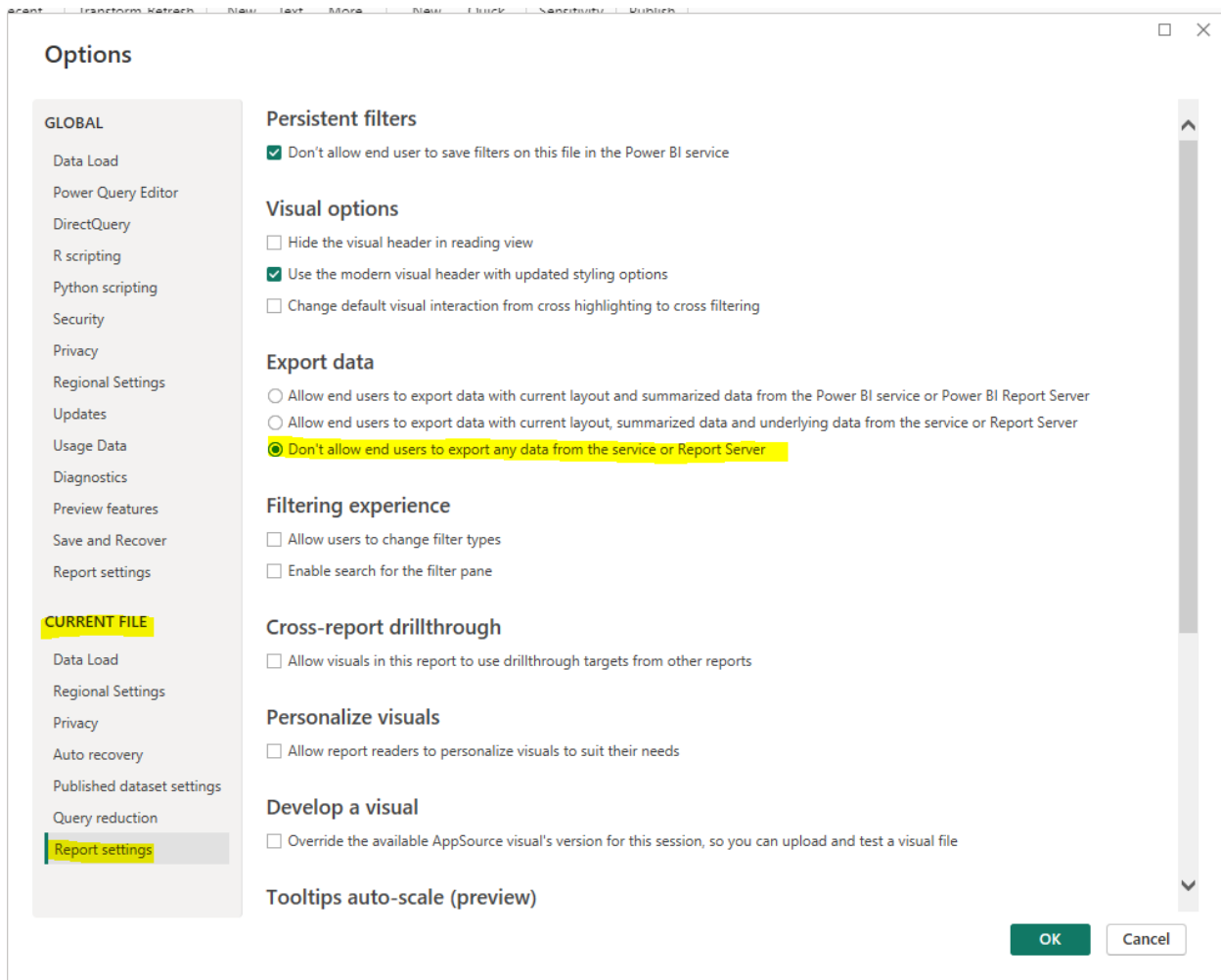
3. We can paste Document.content to an Excel sheet to check if there are any new forms of answered responses that are generated.
4. If yes, click the icon at step "TO BE UPDATED MANUALLY" to add the new condition.

OR → Document.content → contains → <enter new form if any>

### 5. Close and Apply

## 4.4 Publish securely the PROD .pbi file to [NCR-ESDC-BDM-OAS Workspace](#)

After refreshing the dashboard, make sure you choose "Don't allow end users to export any data from the service or Report Server" to protect the data before publishing to the workspace.



1. Go to the workspace [Power BI](#)
2. Go to folder **Metrics – Prod Data**
3. Click Upload → Browse → choose the saved .pbi file
4. Click Open
5. Click “Replace it” to replace the current file in the workspace
6. Done

#### 4.5 Export data from the dashboard

1. Go to the last page called “Extract”



## 2. Click 3 dots → Export data

The screenshot shows a Power BI interface with a table of document data. A context menu is open over the table, with 'Export data' highlighted. The table has columns: Week of, Document.createdAt, Document.userid, Document.type, Document.role, and Document.content. The data includes rows for 'Week of 2024-08-25' and 'Week of 2024-08-26'.

Week of	Document.createdAt	Document.userid	Document.type	Document.role	Document.content
Week of 2024-08-25	27/08/2024 6:36:48 PM	1536en-USMozilla/5.0(Windows NT10.0;Win64x64)AppleWebKit/537.36(KHTML,likeGecko)Chrome/128.0.0.0Safari/537.36Edg/128.0.0.0864-736253	86f3bb0d-b451-442b-b032-a0578cd032d8	message	assistant
Week of 2024-08-26	28/08/2024 7:52:48 PM	1536en-USMozilla/5.0(Windows NT10.0;Win64x64)AppleWebKit/537.36(KHTML,likeGecko)Chrome/128.0.0.0Safari/537.36Edg/128.0.0.0864-627445	eca8169e-d319-4d68-bd2e-cc9999e612a7	message	user
Week of 2024-08-26	28/08/2024 7:52:58 PM	1536en-USMozilla/5.0(Windows NT10.0;Win64x64)AppleWebKit/537.36(KHTML,likeGecko)Chrome/128.0.0.0Safari/537.36Edg/128.0.0.0864-627445	eca8169e-d319-4d68-bd2e-cc9999e612a7	message	tool

## 3. Save to a desired location

## 4. The file will be saved as .csv

## 5. **NOTE:** If you cannot click on 3 dots at step (2):

- Go to File → Options and settings → Options
- In "Current File" part, click Report Settings
- In "Export data" part, choose the 1<sup>st</sup> option "Allow end users to export data with current layout and summarized data from the Power BI or

## Power BI Report Server

### Options

#### GLOBAL

Data Load  
Power Query Editor  
DirectQuery  
R scripting  
Python scripting  
Security  
Privacy  
Regional Settings  
Updates  
Usage Data  
Diagnostics  
Preview features  
Save and Recover  
Report settings

#### CURRENT FILE

Data Load  
Regional Settings  
Privacy  
Auto recovery  
Published dataset settings  
Query reduction  
Report settings

#### Persistent filters

☒ Don't allow end user to save filters on this file in the Power BI service

#### Visual options

☐ Hide the visual header in reading view  
☒ Use the modern visual header with updated styling options  
☐ Change default visual interaction from cross highlighting to cross filtering

#### Export data

☒ Allow end users to export data with current layout and summarized data from the Power BI service or Power BI Report Server  
☐ Allow end users to export data with current layout, summarized data and underlying data from the service or Report Server  
☐ Don't allow end users to export any data from the service or Report Server

#### Filtering experience

☐ Allow users to change filter types  
☐ Enable search for the filter pane

#### Cross-report drillthrough

☐ Allow visuals in this report to use drillthrough targets from other reports

#### Personalize visuals

☐ Allow report readers to personalize visuals to suit their needs

#### Develop a visual

☐ Override the available AppSource visual's version for this session, so you can upload and test a visual file

#### Tooltips auto-scale (preview)

OK

Cancel

6. Once done, make sure to choose the 3<sup>rd</sup> option **“Don’t allow end users to export any data from the service or Report Server”**

The screenshot shows the 'Options' dialog box in Power BI. The left sidebar is divided into 'GLOBAL' and 'CURRENT FILE' sections. Under 'CURRENT FILE', 'Report settings' is selected. The main area shows several settings:

- Persistent filters:** ☒ Don't allow end user to save filters on this file in the Power BI service
- Visual options:**
  - ☐ Hide the visual header in reading view
  - ☒ Use the modern visual header with updated styling options
  - ☐ Change default visual interaction from cross highlighting to cross filtering
- Export data:**
  - ☐ Allow end users to export data with current layout and summarized data from the Power BI service or Power BI Report Server
  - ☐ Allow end users to export data with current layout, summarized data and underlying data from the service or Report Server
  - ☒ Don't allow end users to export any data from the service or Report Server
- Filtering experience:**
  - ☐ Allow users to change filter types
  - ☐ Enable search for the filter pane
- Cross-report drillthrough:**
  - ☐ Allow visuals in this report to use drillthrough targets from other reports
- Personalize visuals:**
  - ☐ Allow report readers to personalize visuals to suit their needs
- Develop a visual:**
  - ☐ Override the available AppSource visual's version for this session, so you can upload and test a visual file
- Tooltips auto-scale (preview):**

At the bottom right, there are 'OK' and 'Cancel' buttons.

7. Save the .pbi file

## 5. Release Checklist

This section includes a list of steps to be completed before release.

Table 1. Release Checklist

Phase	Step	Items	Skillset Required
Readiness	CORS and Backend Setup	Ask for CORS URL from Curam team	Business
		Add AssistMe production backend URL in Curam property table	Curam Team
		Add [R2] URL to CORS in production Azure service	Developer
		Ensure AssistMe backend is setup and CORS URL for Curam is whitelisted on AssistMe backend side	Developer
		Run backend deployment pipeline to merge changes from DEV to PROD	Curam
	User Roles and Access	Confirm list of PROD Curam user roles that should have access to AssistMe	Business
		Grant the access to Curam user roles	Curam Team
	Development and Testing	AssistMe frontend development is completed and tested	Developer
		Confirm AssistMe backend services is tested and ready (backend includes Azure + Cosmos DB)	Developer
		Verify the most recent version of AssistMe contains all the required features	Developer & Business
	Issue Identification and Resolution	Identify and fix all accessibility issues	Developer
		Identify and fix all UI alignment issues	Developer
	Backup and	Back up AssistMe version for Rollback	Developer

	Environment Setup	Set environment variable for service app to Azure production	Developer
	Communication and Scheduling	Confirm on-call schedule for rehearsal, production deployment and post-deployment hypercare	Business
		Confirm the first notification after go-live	Business
Release	Build and Deploy	Build AssistMe bundle with the latest version and confirm version number	Developer
		Deploy AssistMe to PROD - drop AssistMe frontend code bundle to Azure storage container	Developer
		Run Curam deployment pipeline	Curam Team
Post Release	Verification	Verify in PROD that all AssistMe features are released to PROD, including backend service and frontend	Developer & Business

## Contact Information

This section includes a list of go-live related contacts from different supporting teams and emails to connect with them for assistance.

*Table 1. Contact Information*

Contact Name	Contact Email	Organization	Relation to Project
Martin Croker	<a href="mailto:martin.croker@servicecanada.gc.ca">martin.croker@servicecanada.gc.ca</a>	ESDC	Product Owner
Guillaume Lefebvre	<a href="mailto:guillaume.x.lefebvre@servicecanada.gc.ca">guillaume.x.lefebvre@servicecanada.gc.ca</a>	ESDC	Product Owner
Saika Sharmeen	<a href="mailto:saika.sharmeen@hrsdc-rhdcc.gc.ca">saika.sharmeen@hrsdc-rhdcc.gc.ca</a>	ESDC	AssistMe Curam Owner

Noman Siddiqui	<a href="mailto:noman.siddiqui@hrsdc-rhdcc.gc.ca">noman.siddiqui@hrsdc-rhdcc.gc.ca</a>	Accenture	AssistMe Pipeline Owner
Sazzad Hossain	<a href="mailto:sazzad.hossain@hrsdc-rhdcc.gc.ca">sazzad.hossain@hrsdc-rhdcc.gc.ca</a>	ESDC	AssistMe Curam Owner
Mahesh Hadimani	<a href="mailto:mahesh.hadimani@d2sol.com">mahesh.hadimani@d2sol.com</a>	D2Sol	Curam SME
Sandeep Maheshwari	<a href="mailto:sandeep.maheshwari@hrsdc-rhdcc.gc.ca">sandeep.maheshwari@hrsdc-rhdcc.gc.ca</a>	Avanade	AssistMe Pipeline Owner
Rituraj Mishra	<a href="mailto:rituraj.mishra@hrsdc-rhdcc.gc.ca">rituraj.mishra@hrsdc-rhdcc.gc.ca</a>	Accenture	Infrastructure
Vladi Goodman	<a href="mailto:vladi.goodman@avanade.com">vladi.goodman@avanade.com</a>	Avanade	Infrastructure
Rehal Sukhdev	<a href="mailto:sukhdev.s.rehal@avanade.com">sukhdev.s.rehal@avanade.com</a>	Avanade	Infrastructure
Tyler Crowder	<a href="mailto:tyler.crowder@orangutech.com">tyler.crowder@orangutech.com</a>	Orangutech	WalkMe service provider
Toma Papuc	<a href="mailto:toma.papuc@orangutech.com">toma.papuc@orangutech.com</a>	Orangutech	WalkMe service provider
Suresh Kumar Ramu	<a href="mailto:surkramu@merative.com">surkramu@merative.com</a>	Curam	Curam Consultant
Usama Nass	<a href="mailto:unass@deloitte.ca">unass@deloitte.ca</a>	Deloitte	WalkMe Integrator
Akash Patel	<a href="mailto:akaspatel@deloitte.ca">akaspatel@deloitte.ca</a>	Deloitte	WalkMe Integrator
Bessie Li	<a href="mailto:besli@deloitte.ca">besli@deloitte.ca</a>	Deloitte	Development Owner
Marc Lockhead	<a href="mailto:mlockhead@deloitte.ca">mlockhead@deloitte.ca</a>	Deloitte	Development Owner
Rain Wu	<a href="mailto:rawu@deloitte.ca">rawu@deloitte.ca</a>	Deloitte	Development Owner