

# IBM Watson Health

IBM Social Program Management V8.0.0  
Deep Dive: Integration with IBM Watson Assistant

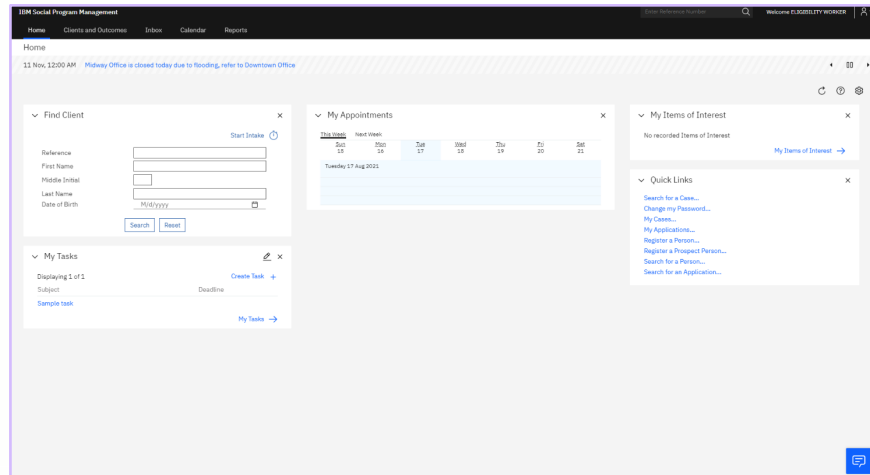


# Agenda

- Problem Background
- Solution Details
  - Business
  - Technical
- Where to Find More Information

# Problem Background

- Completing specific tasks can involve navigation through several screens.
- Experienced caseworkers know where they want to go.
- Less experienced caseworkers may find it difficult to know which page in the application they need to go to.
  - They rely on *How To* guides to work through more complex procedures.



# Solution – Secure Integration with IBM Watson Assistant

SPM V8.0.0 introduces support for integration with IBM Watson Assistant.

An AI virtual assistant can support caseworkers in the following ways:

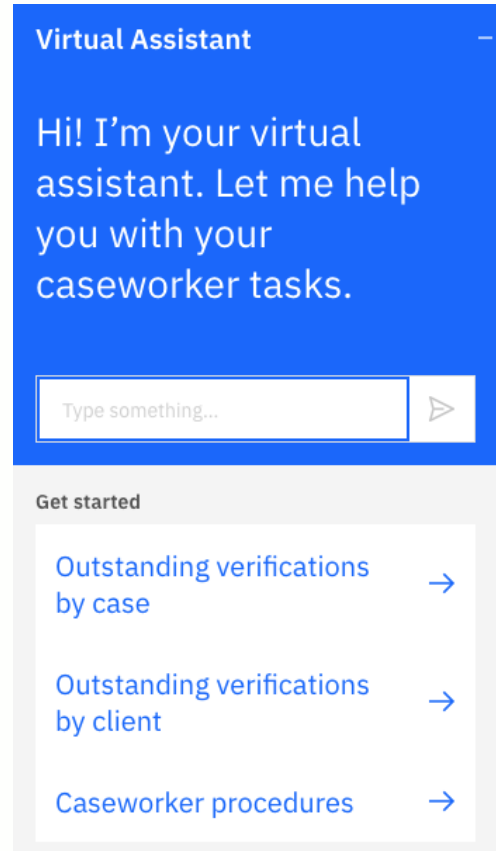
- Enable caseworkers to ask for assistance with case-specific queries
- Provide caseworkers with access to workflow procedures

An AI virtual assistant can improve caseworker productivity by:

- Providing support when needed, especially for inexperienced caseworkers
- Enabling caseworkers to search for process guidance and find specific information in fewer steps

A new repository provides sample content and guidance for a caseworker virtual assistant.

- Querying case data, such as outstanding verifications
- Caseworker procedures, such as how to capture a change in income or address



# Scenario 1 – Querying Case Data



**David**

Caseworker,  
Income Support  
Work Queue-Based



**Maria**

Citizen, Client  
In receipt of  
Income Support

David gets a call from Maria, asking which documents need to be provided for her change in circumstance.

He uses the virtual assistant to quickly answer Maria's question without having to navigate away from what he is doing.

# Scenario 1 Demo – Querying Case Data



**David**  
Caseworker,  
Income Support  
Work Queue-Based

David receives the call from Maria, querying the outstanding verifications for her income support application.



**Maria**  
Citizen, Client  
In receipt of  
Income Support

David launches the virtual assistant and sees the Home page and options for getting started.



**Virtual Assistant**

Hi! I'm your virtual assistant. Let me help you with your caseworker tasks.

**Get started**

- [Outstanding verifications by case](#) →
- [Outstanding verifications by client](#) →
- [Caseworker procedures](#) →

# Scenario 1 Demo – Querying Case Data



**David**

Caseworker,  
Income Support  
Work Queue-Based



**Maria**

Citizen, Client  
In receipt of  
Income Support

David then asks Maria  
for her case number and  
types this into the virtual  
assistant.



Virtual Assistant

Hi! I'm your virtual assistant. Let me help you with your caseworker tasks.

case 260

## Get started

[Outstanding verifications by case](#) →

[Outstanding verifications by client](#) →

[Caseworker procedures](#) →

# Scenario 1 Demo – Querying Case Data



**David**  
Caseworker,  
Income Support  
Work Queue-Based



**Maria**  
Citizen, Client  
In receipt of  
Income Support

David confirms this is  
the right case



Virtual Assistant

case 260

Here's what I found.

**Case 260**  
**Status:** Open  
**Primary Client:** Maria Hernandez  
**Reference Number:** 30000002  
**Phone:** 654 654 65454564  
**Date of Birth:** 1985-01-01  
**Address:** 300, Main Road Kings Street  
Utah, Utah, Utah, 10002 United States

[See the case](#)

Is this the right case?

Yes, it's the right case

No, it's not the right case

Type something...



# Scenario 1 Demo – Querying Case Data



**David**  
Caseworker,  
Income Support  
Work Queue-Based



**Maria**  
Citizen, Client  
In receipt of  
Income Support

Lists the outstanding verifications and eligible documents to verify evidence.

The **Help** button can be pressed at any time for guidance on using the virtual assistant.

Virtual Assistant

Yes, it's the right case

I found **8 outstanding verifications** on case 260

**Shelter Expense (1)**  
**Eligible Documents** Rent Receipt, Landlord Statement, Mortgage Payment Statement/Receipt, Tax Statement/Receipt

**Participant** Maria Hernandez  
**Related Evidence** The household incurs \$300.00 Monthly for Rent  
**Due Date**

**Citizenship (3)**  
**Eligible Documents** Birth Certificate, Hospital/doctor records established at the time of birth, Certificates of Citizenship or Naturalization, U.S. Passport, Report of birth abroad of a U.S.

Type something...

# Scenario 1 Demo – Querying Case Data



**David**  
Caseworker,  
Income Support  
Work Queue-Based



**Maria**  
Citizen, Client  
In receipt of  
Income Support

Selecting these options takes you to these pages.

David has the information he needs to assist Maria with her query.

The screenshot shows a chat interface titled "Virtual Assistant". The main content area displays case information for "Medical Expense (1)" for participant "Maria Hernandez". The information includes "Eligible Documents" (Bills or receipts, Statement from Provider, Pharmacy printouts, Insurance Policy Statements, Medicare EOB), "Related Evidence" (Incurs \$500.00 Monthly for Cost of Care Expenses from Medical Provider), and "Due Date". Below this information, two blue links are highlighted with a green box: "See outstanding verifications for case 260" and "See notes for case 260". At the bottom of the chat, there are two buttons: "Try another case" and "Start again". A text input field contains the message "I've got what I need thanks", which is also highlighted with a green box. A blue question mark icon is visible to the right of the input field. The bottom of the screen shows a text input field with the placeholder "Type something..." and a send button.

# Scenario 1 Demo – Querying Case Data



**David**  
Caseworker,  
Income Support  
Work Queue-Based



**Maria**  
Citizen, Client  
In receipt of  
Income Support

Virtual assistant ends  
the chat once David  
confirms he has what  
he needs.



**Virtual Assistant**

Medical Provider  
**Due Date**

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[See outstanding verifications for case 260](#)

[See notes for case 260](#)

Try another case   Start again

I've got what I need thanks

I've got what I need thanks

Great to chat to you,  
If you need anything else let me know.  
talk soon!

Type something...

# Scenario 2 – Caseworker Procedures



**David**

Caseworker,  
Income Support  
Work Queue-Based

David is new to the agency and unfamiliar with the steps needed to add new income evidence for a client.

He refers to a job aid via the virtual assistant to help him understand what is needed.

# Scenario 2 Demo – Caseworker Procedures



**David**

Caseworker,  
Income Support  
Work Queue-Based

David selects the **Caseworker procedures** option.



Virtual Assistant

Hi! I'm your virtual assistant. Let me help you with your caseworker tasks.

Get started

- Outstanding verifications by case →
- Outstanding verifications by client →
- Caseworker procedures** →

# Scenario 2 Demo – Caseworker Procedures



**David**

Caseworker,  
Income Support  
Work Queue-Based

David selects the **Adding evidence** option.



David selects the **Income** option.



A screenshot of a chat interface titled 'Virtual Assistant'. The chat history shows a message from the user: 'Caseworker procedures'. The assistant responds: 'You can ask me about caseworker procedures, for example, how to add new income or address evidence for a client. If at any stage you want to start again click on the question mark below. Type a question or select an option.' Below this, there are four buttons: 'Adding evidence' (highlighted with a green box), 'Editing evidence', 'Verifying evidence', and 'Processing incoming evidence'. A second user message says 'Adding evidence'. The assistant asks 'What type of evidence do you want to add?' and shows two buttons: 'Income' (highlighted with a green box) and 'Address'. At the bottom, there is a text input field with 'Type something...' and a send button. A small blue question mark icon is visible in the bottom right corner of the chat area.

# Scenario 2 Demo – Caseworker Procedures



**David**

Caseworker,  
Income Support  
Work Queue-Based

Virtual assistant provides  
a step-by-step guide to  
add income evidence.



### Virtual Assistant

Complete these steps to add income evidence.

1. Go to the Dashboard page in the evidence workspace.
2. Select to create **Income** evidence.
3. Enter the values for the new income evidence.
4. Select **Save**.
5. Select **Apply Changes** from the action menu in the evidence workspace.

After you add your evidence you may need to verify it, or if the client is a member of other cases the evidence may have been shared to other cases that you manage and may require manual review and processing.

If you want to see all Job Aids in relation to caseworker procedure and processes, see [caseworker job aids](#)

Verifying evidence

Processing incoming evidence

Caseworker procedures Start again

Type something...

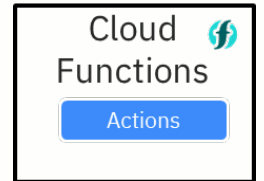
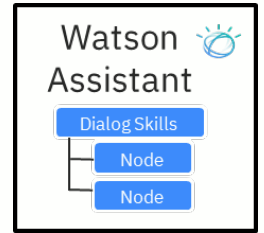


# Technical Solution

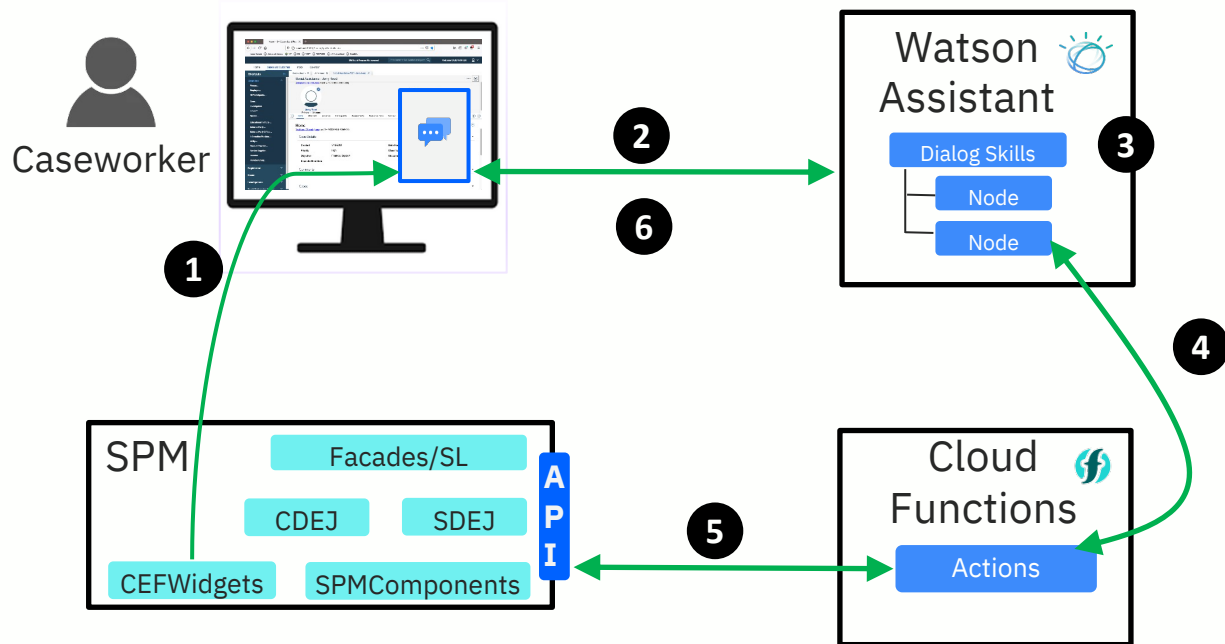


# Overview

- The Cúram SPM Caseworker Assistant uses IBM Watson Assistant and IBM Cloud Functions.
- IBM Watson Assistant
  - AI-powered virtual agent that provides a dialog between the assistant and users
    - Intent - a purpose or goal that is expressed in a user's input
    - Dialog Skill - a container for all the artifacts that define a conversation flow
    - Node - thread of dialog between the assistant and the user
  - The assistant recognizes the *intent* in the input and chooses the correct dialog to respond to it.
- IBM Cloud Functions
  - Function-as-a-Service (FaaS) platform
  - Create stateless code snippets, called actions, that perform one specific task
- How do they work together?
  - Dialog skills contain a webhook. The webhook triggers an IBM Cloud Function action when a REST API call to SPM to retrieve data is required.



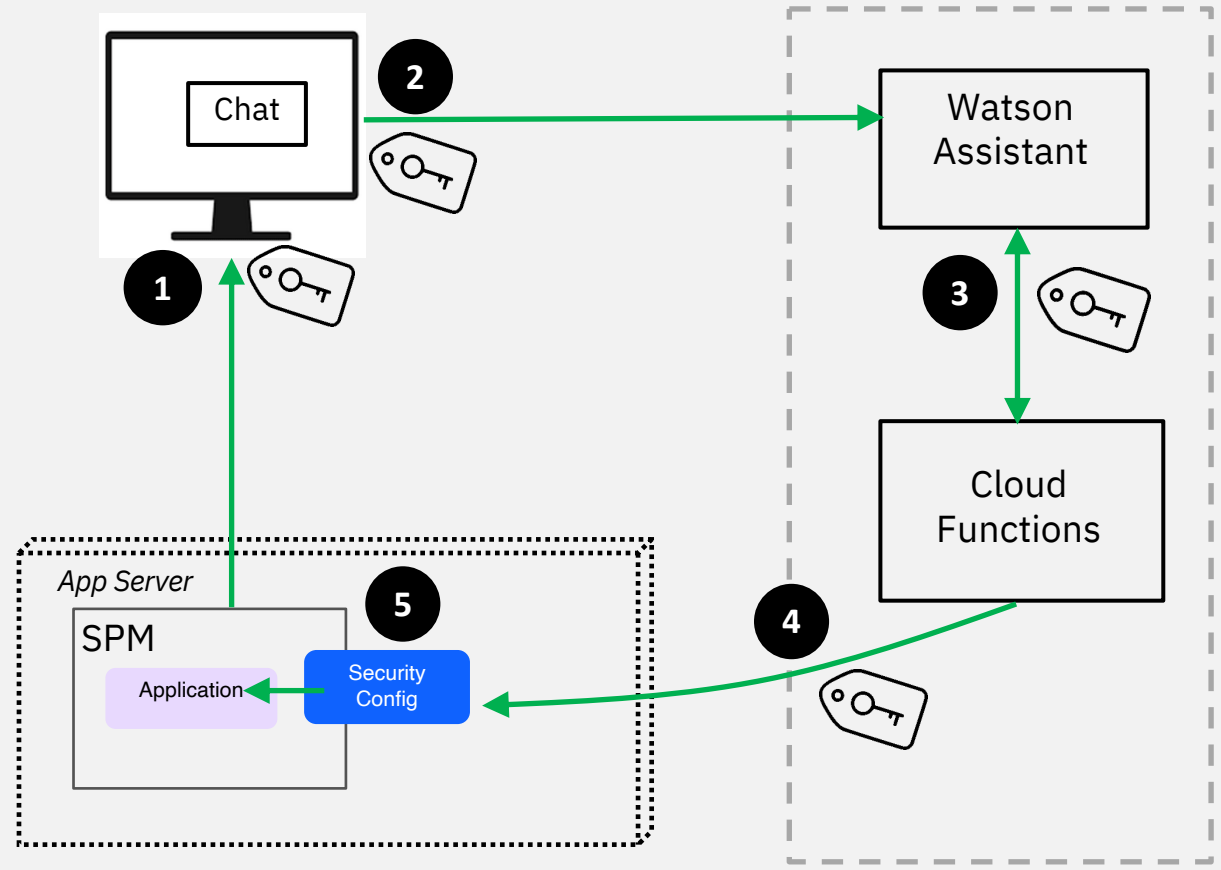
# Architecture and Operation




1. Chat widget is embedded in all SPM pages.
2. The widget points to an instance of Watson Assistant and provides input.
3. Watson Assistant chooses the dialog to respond to the input.
4. The Dialog Node calls a Cloud Function.
5. Cloud Function makes API calls to SPM to retrieve data.
6. Data from response is returned in conversation in widget.

# Security

1. SPM generates secure JWT token.
2. Chat passes token to Watson Assistant.
3. WA passes it in call to Cloud Function.
4. Cloud Function includes it in API request.
5. SPM can get caller identity to authorize access to data.



 SPM generates a JWT which is passed through the flow.

# Responsibilities

## Product

### SPM



- Chat window embedded
- JWT support for secure chat
- Domain APIs for data retrieval

### Sample content



- Sample Watson Assistant Dialog Skills
- Sample Cloud Functions (Actions) for API calls
- Supporting Documentation

## Services

### Watson Assistant Content



- Additions/modifications of Dialog Skills and supporting APIs
- Content creation (FAQs, procedures)

### Watson Assistant Delivery



- Deployment model
- Non-functional testing
- AI training (intent recommendations)

# Prerequisites

- SPM version 8.0.0 or higher
- You must setup the following on the IBM Cloud site to use IBM Cloud Services:
  1. An IBM Cloud account
  2. An instance of an IBM Watson Assistant service
  3. Access to IBM Cloud Functions
- Decide how you want to deploy your IBM Watson Assistant and IBM Cloud Functions instances.
  - Deploy an IBM Watson Assistant and IBM Cloud Functions instance on the IBM public cloud.
  - Deploy IBM Watson Assistant and IBM Cloud Functions on your private cloud or data center by using IBM Red Hat OpenShift and IBM Cloud Pak for Data.
- The SPM Chatbot Runbook describes the deployment options.

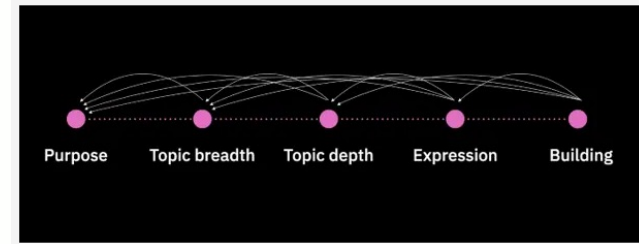
# Configuring Watson Assistant Settings

- Log in to SPM as a system administrator and perform the following steps:
  1. Select **System Configurations > Shortcuts > Application Data**.
  2. Select the **Watson Assistant Configuration** category and click **Search**.
  3. To update the properties, select ... > **Edit Value** to update the value and click **Save**.
  4. Click **Publish** to publish your changes.

Name	Value	Description
> curam.watson.assistant.accepted.application.codes	DefaultApp	Specifies the application code(s) for the user workspaces you want the web chat to be displayed. You can specify multiple workspaces using a comma separated list e.g. DefaultApp,CustomApp where the web chat will show for the users associated with the DefaultApp and CustomApp application codes. It is not case sensitive.
> curam.watson.assistant.enabled	false	Set to true to enable the Watson Assistant web chat widget to be displayed in the workspace.
> curam.watson.assistant.integration.id		The integration ID of your web chat integration.
> curam.watson.assistant.issuer	spm	The issuer represents the issuer of the JWT (JSON Web Tokens).
> curam.watson.assistant.region		Which data center your integration was created in (for example, us-south).
> curam.watson.assistant.service.instance.id		The service instance ID of the assistant hosting your web chat integration.

# Designing a Virtual Assistant

- A useful chatbot needs to listen, understand, act, and learn to meet the users' desired outcomes.
- The steps to achieve this are as follows:
  - Define the purpose of the chatbot by identifying the user problem that you are trying to solve.
  - Define the topic breadth by determining what you want the chatbot to be able to discuss with the user.
  - Delineate the topic depth by defining the level of detail that you want the chatbot to cover.
  - Specify the expressions that define the personality of your chatbot.
  - Build the chatbot by mapping the flows and content of the chatbot within the conversation architecture.
- This is an iterative process.



# Where to Find More Information – Caseworker Assistant

- IBM Documentation
  - *Integrating Social Program Management with other applications - Integrating with Watson Assistant*
    - Configuring Watson Assistant settings
    - Generating the JWT keystore and certificates
    - Configuring the application servers for JWT
    - Getting started with your virtual assistant
- GitHub
  - Sample content to integrate SPM with IBM Watson Assistant
    - <https://github.com/IBM/spm-chatbot>
  - *IBM Cúram Social Program Management Virtual Assistant Cookbook*
    - <https://ibm.github.io/spm-chatbot/>



# Where to Find More Information – Watson Assistant

- Documentation
  - IBM Watson Assistant on <https://cloud.ibm.com/docs>
  - *Connect Watson Assistant with Wikipedia API via Cloud Functions & Webhooks* on <https://developer.ibm.com>
  
- Training and badges
  - Build Your Own Chatbot - Level 1
  - Watson Assistant Foundations
  - Watson Assistant Methodology





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