



IBM OpenPages with Watson

OpenPages Watson Assistant Accelerator with Discovery Search Skill

In a [previous blog posting](#), I provided instructions on creating a simple Watson Assistant (WA) dialogue and integrating the instance into your OpenPages 8.2 environment. In this posting, I explain how you can expand on that dialogue to query documents or webpages in response to a user's questions using Watson Discovery. This enables an administrator to incorporate internal policy documents, user guides, or web pages into WA through Watson Discovery. The example provided in this document, as with the previous blog posting, can be created and tested at no cost to the user.

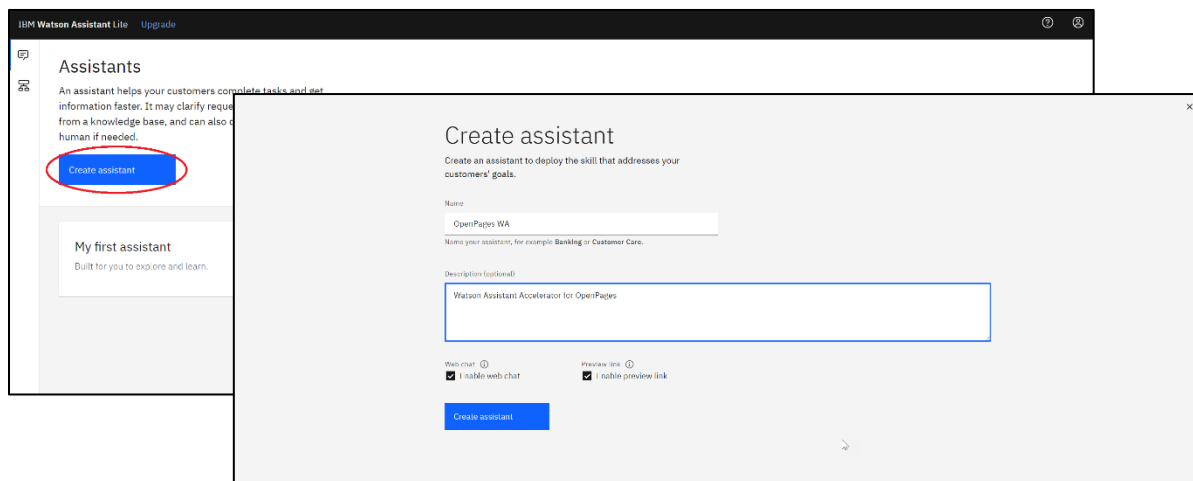
The preconfigured WA instance has been set up to respond to three different queries from users. When asked by a user how to create a particular object, WA will respond with a link to the Creation View for the object requested. When asked by a user where he or she can find a particular object, including finding objects filtered by an out-of-the-box public filter, WA will respond with a link to the Grid View with the relevant filter applied. Lastly, an example use case has been included that provides a user with guidance on evaluating risk impact factors and allows the user to select one of four options to obtain more information. If WA does not recognize a request from the user submitting a query from one of the aforementioned dialog nodes, it will query a set of documents to search when responding to the request. Using this publication as a starting point, OpenPages administrators have a framework from which to build their own dialogs for use cases most applicable within their organizations.

Configuring IBM Watson Assistant is an iterative process. As you work with it, you can improve and expand the skills. To learn more about how you can utilize Watson Assistant, visit <https://cloud.ibm.com/docs/assistant?topic=assistant-getting-started>.

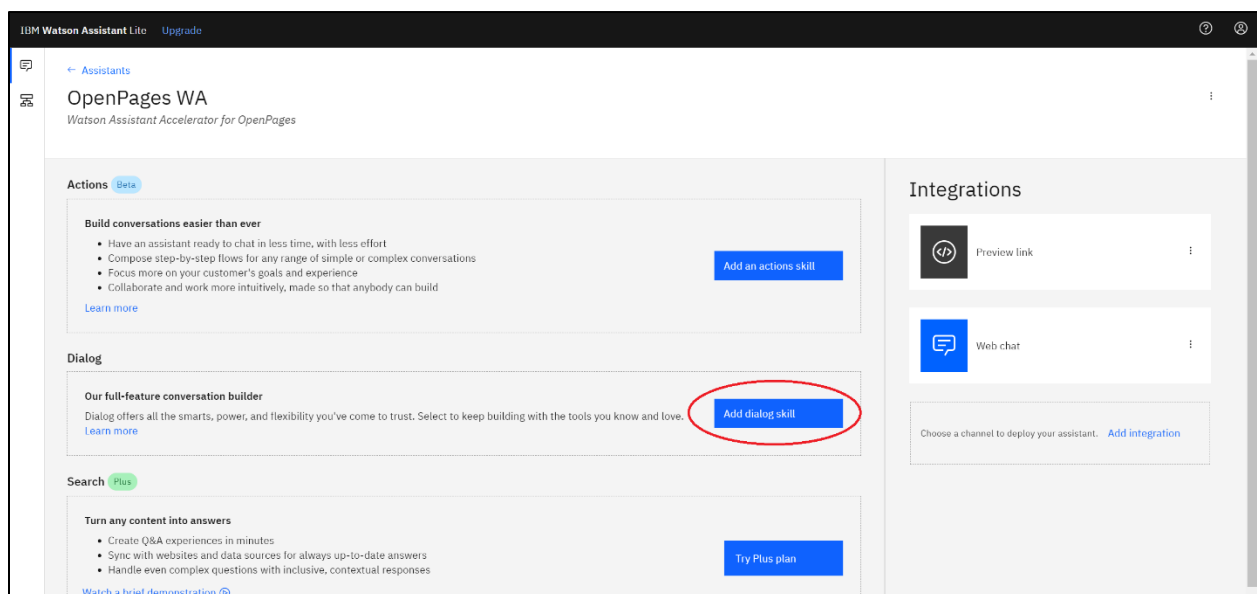
Steps to set up the OpenPages Watson Assistant Accelerator with Discovery Dialog

1. Set up a Watson Assistant instance on your IBM Cloud account. For more information on setting up a Watson Assistant instance or a IBM Cloud account, see <https://cloud.ibm.com/docs/assistant?topic=assistant-getting-started>. A user can set up a free Watson Assistant – Plus Trial plan for the purposes of using the OpenPages Watson Assistant Accelerator with the Discovery search skill.

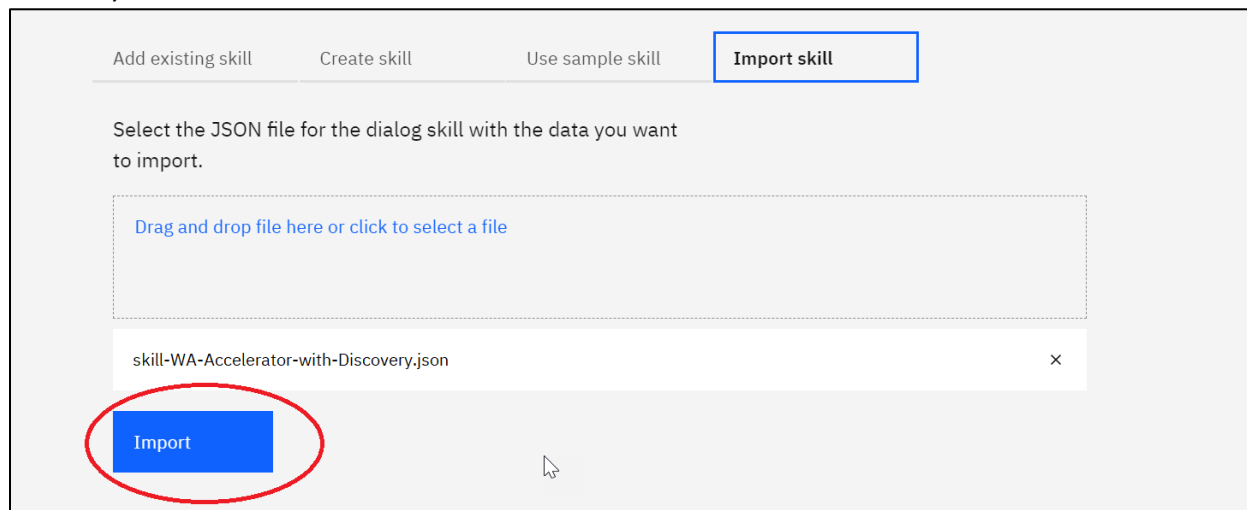
2. Create a new assistant by clicking on **Create assistant**.



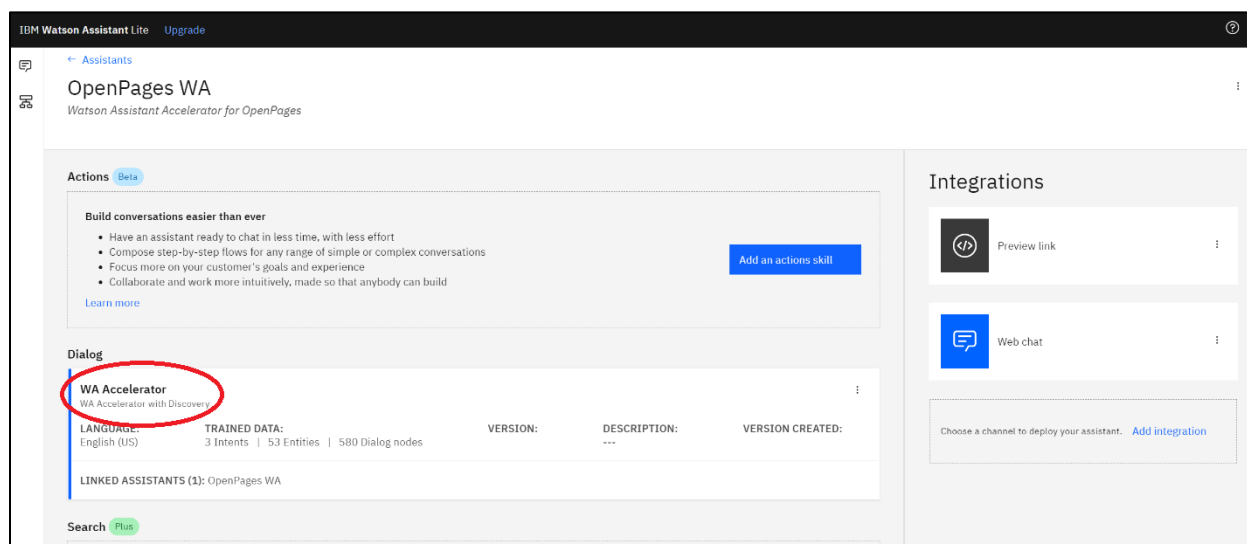
3. Click **Add dialog skill**



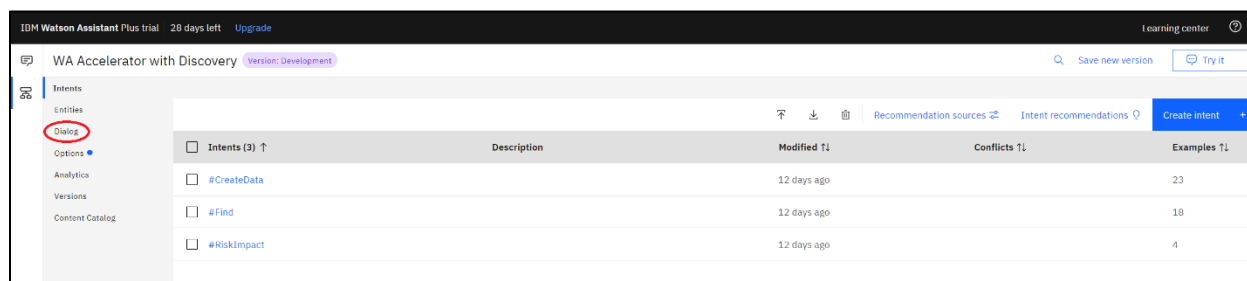
4. Click the **Import skill** Tab and click **Import** to import the JSON file title “skill-WA-Accelerator-with-Discovery”.



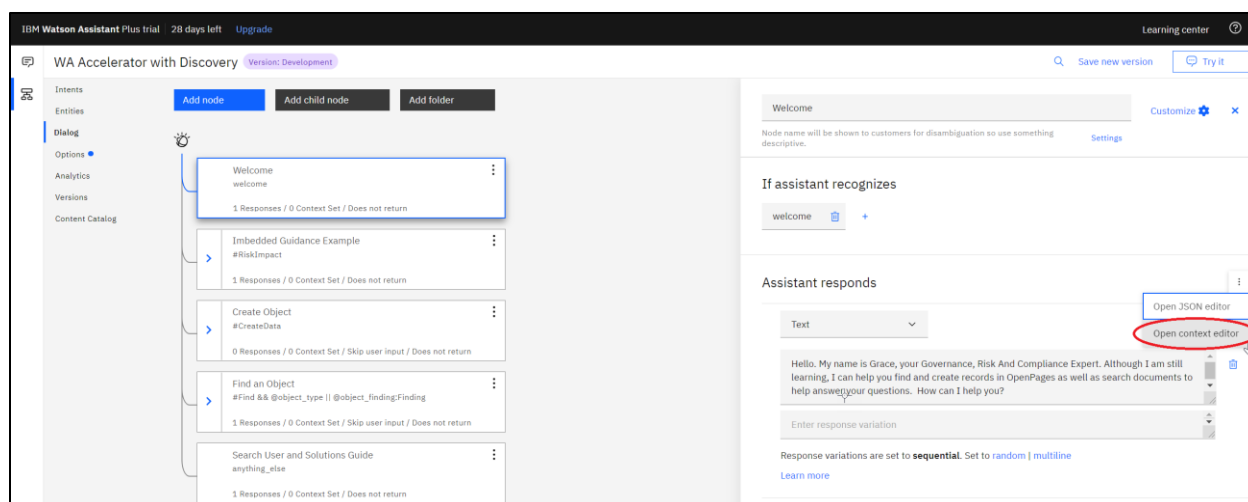
5. The Dialog skill is now linked to the Assistant. Click on the Dialog skill.



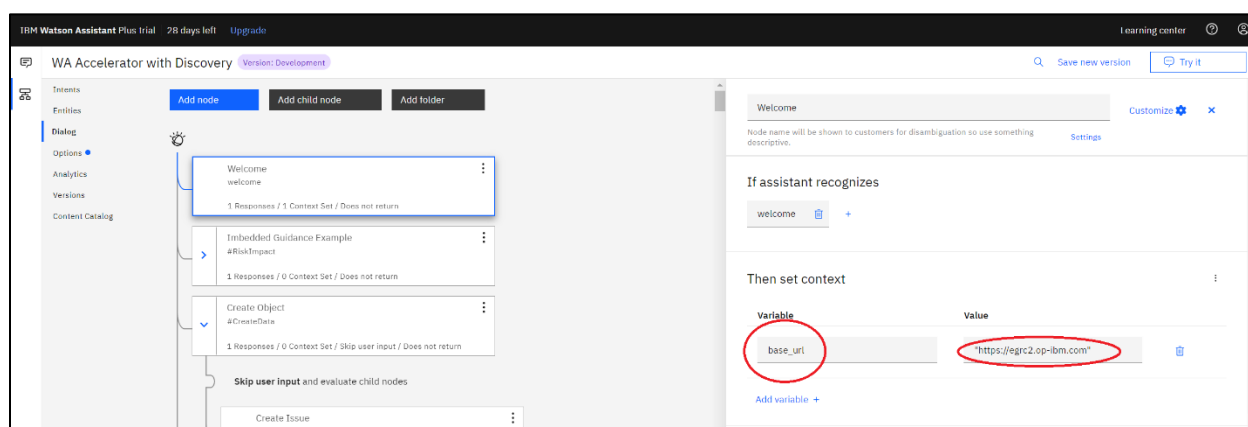
6. Next you need to define your base URL within the dialog. Click on **Dialog**.



7. Click on the **Welcome** node. Select **Open context editor** from the menu selection

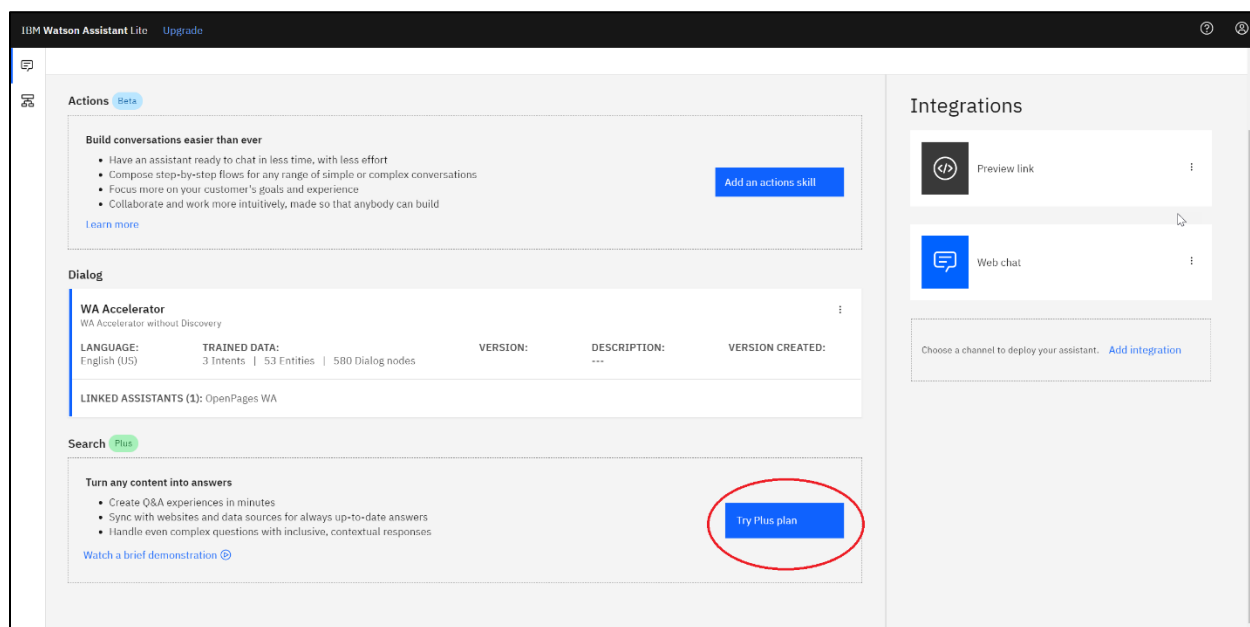


8. Input **base_url** under **Variable** and your URL for your OpenPages environment under **Value**. This will pass your base URL through the dialog to return links within your environment for creating and finding objects. The example below is input with the OpenPages Beta environment as an example.

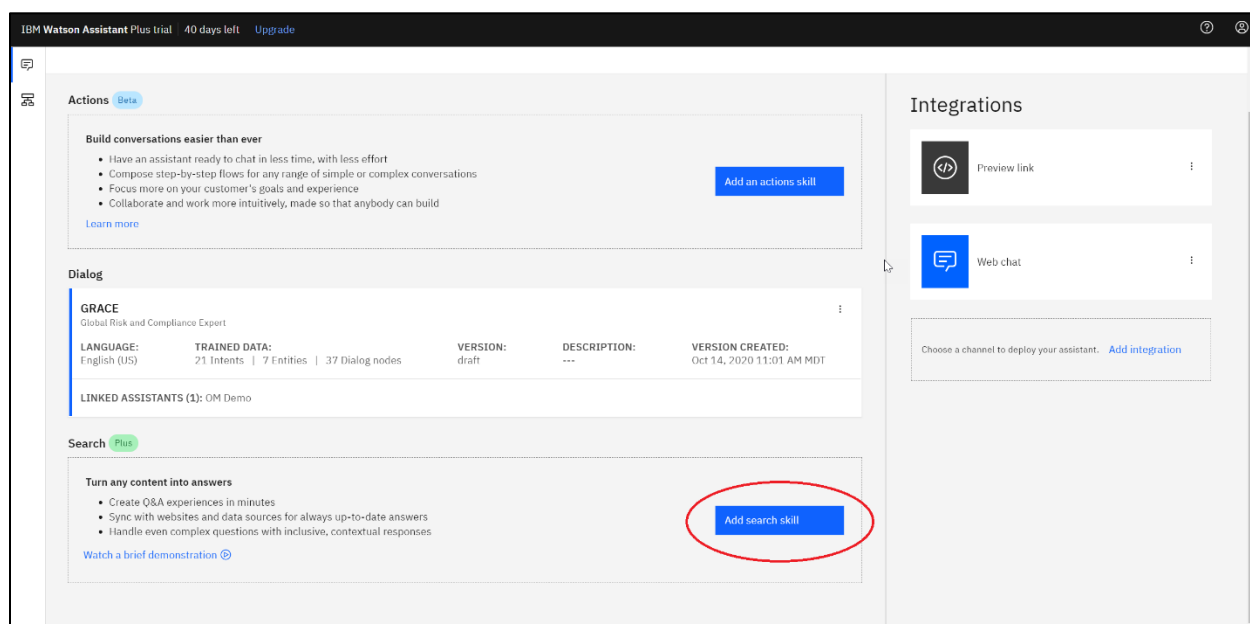


Steps to add search skill set to Watson Assistant

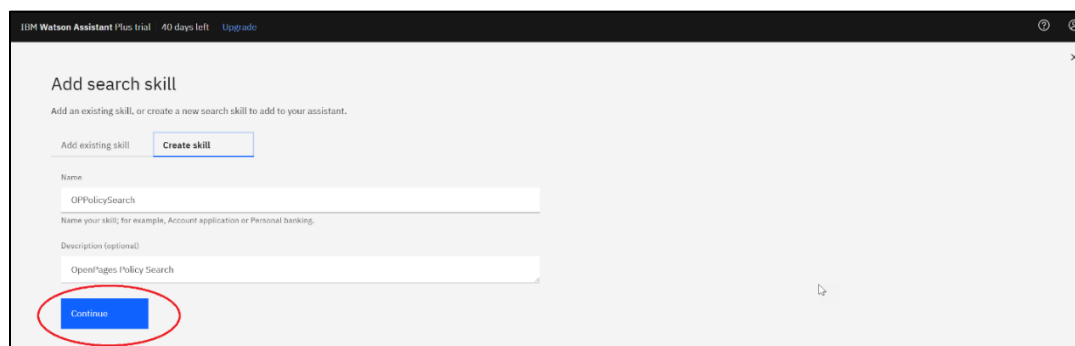
1. Adding Watson Discovery search skill. Click **Try Plus plan** to gain access to add Watson Discovery to Watson Assistant. A prompt will display enabling the user to start a free trial of Watson Assistant Plus, which enables an integration with Watson Discovery.



2. Click **Add search skill**



3. Click **Create skill** to create a new search skill, Name the search skill, and click **Continue**. Existing search skills already created in Watson Assistant will appear under **Add existing skill**.



IBM Watson Assistant Plus trial 40 days left Upgrade

Add search skill

Add an existing skill, or create a new search skill to add to your assistant.

[Add existing skill](#) **Create skill**

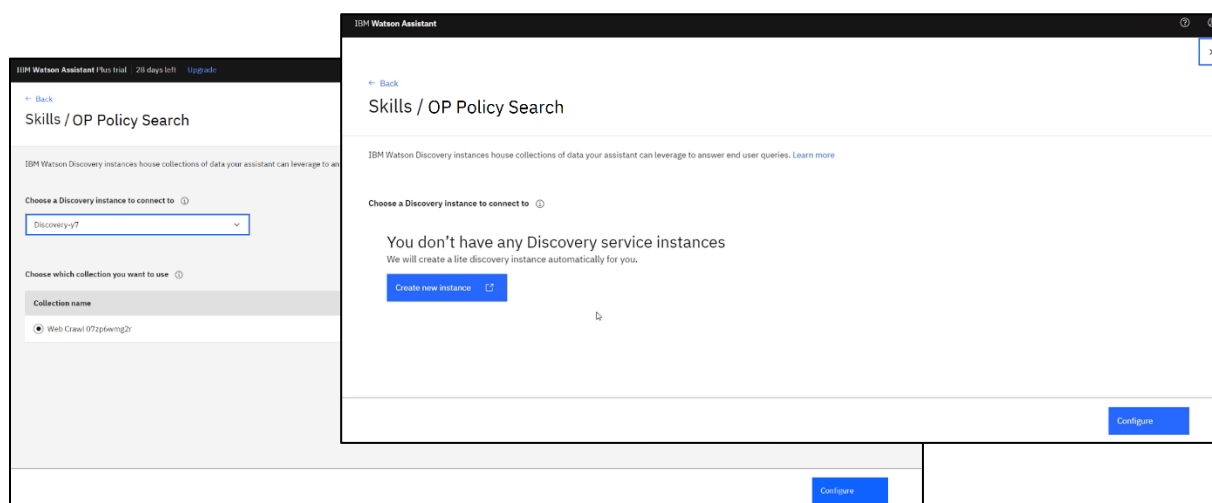
Name
OPPolicySearch

Name your skill, for example, Account application or Personal banking.

Description (optional)
OpenPages Policy Search

Continue

4. Next, the user is prompted to select an instance of Discovery to connect to. If the user does not have an existing instance of Discovery, then the user can create a free instance of Watson Discovery from Watson Assistant. Click **Configure**, when connecting to an existing Discovery instance or **Create new collection** to create a new instance.



IBM Watson Assistant Plus trial 20 days left Upgrade

Skills / OP Policy Search

IBM Watson Discovery instances house collections of data your assistant can leverage to answer end user queries. [Learn more](#)

Choose a Discovery instance to connect to ⓘ

Discovery-y7

Choose which collection you want to use ⓘ

Collection name

Web Crawl 072g6wmg2r

Configure

← Back

Skills / OP Policy Search

IBM Watson Discovery instances house collections of data your assistant can leverage to answer end user queries. [Learn more](#)

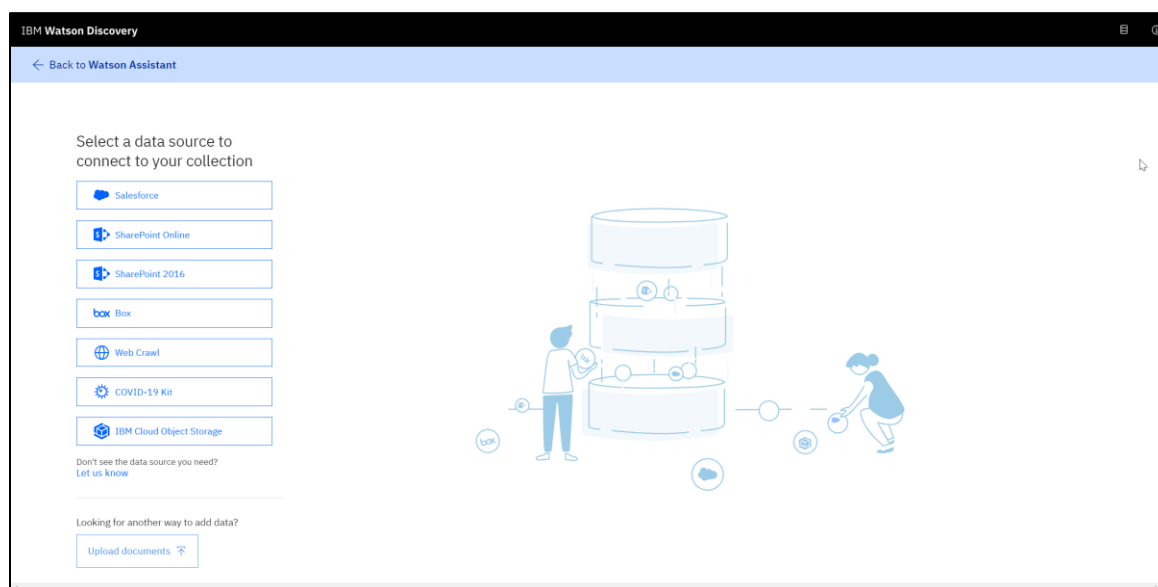
Choose a Discovery instance to connect to ⓘ

You don't have any Discovery service instances
We will create a lite discovery instance automatically for you.

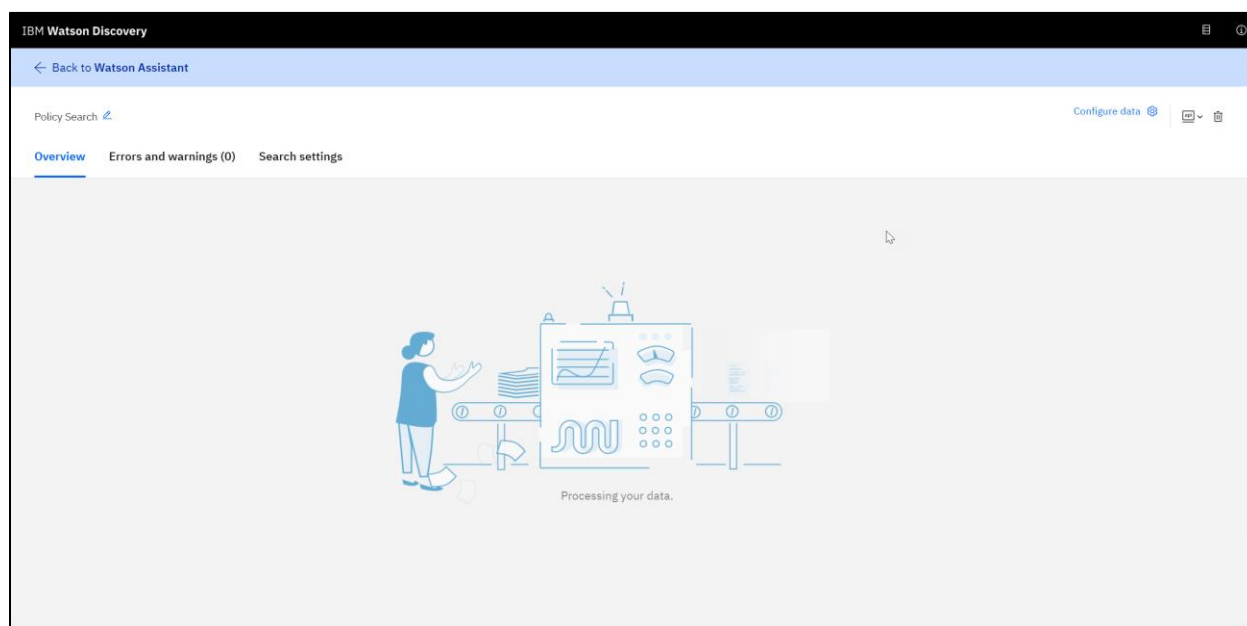
Create new instance

Configure

5. Within Discovery, you have several options for ingesting content. Discovery can crawl from the following data sources: Box, Salesforce, Microsoft SharePoint Online, Microsoft SharePoint 2016 On-Premise, web crawl, and IBM Cloud Object Storage. A user can also upload documents into Discovery. More information on connecting to data sources and the document types that can be ingested can be found [here](#). If you do not have a readily available document or URL to test, try using the OpenPages 8.2 User Guide located [here](#).



6. After identifying the documents that will be ingested and indexed into Discovery, the documents will be processed. Processing can take several minutes.



7. After the documents have been ingested, click **Configure data**.

The screenshot shows the IBM Watson Discovery 'Configure data' page. At the top, a blue banner states 'You've connected 2 of 2 data sources!' with a 'Finish setup in Watson Assistant' button. Below this, the 'Configure data' button is circled in red. The main content area is divided into several sections: 'Overview' (showing 1 document, 1 failed), 'Errors and warnings (2)', 'Search settings', 'Identified 1 field from your data' (text), 'Added 4 enrichments to your data' (Entity Extraction, Sentiment Analysis, Concept Tagging, Category Classification), and 'Now you're ready to query!' (Top entities, Documents containing 'Business continuity planning', Entities of type 'Company').

8. On this screen (the Smart Document Understanding editor), identify the fields of the documents you have ingested. After identifying fields on the page of a document, click **Submit page**. Discovery learns from the selections made to identify other fields within your ingested documents.

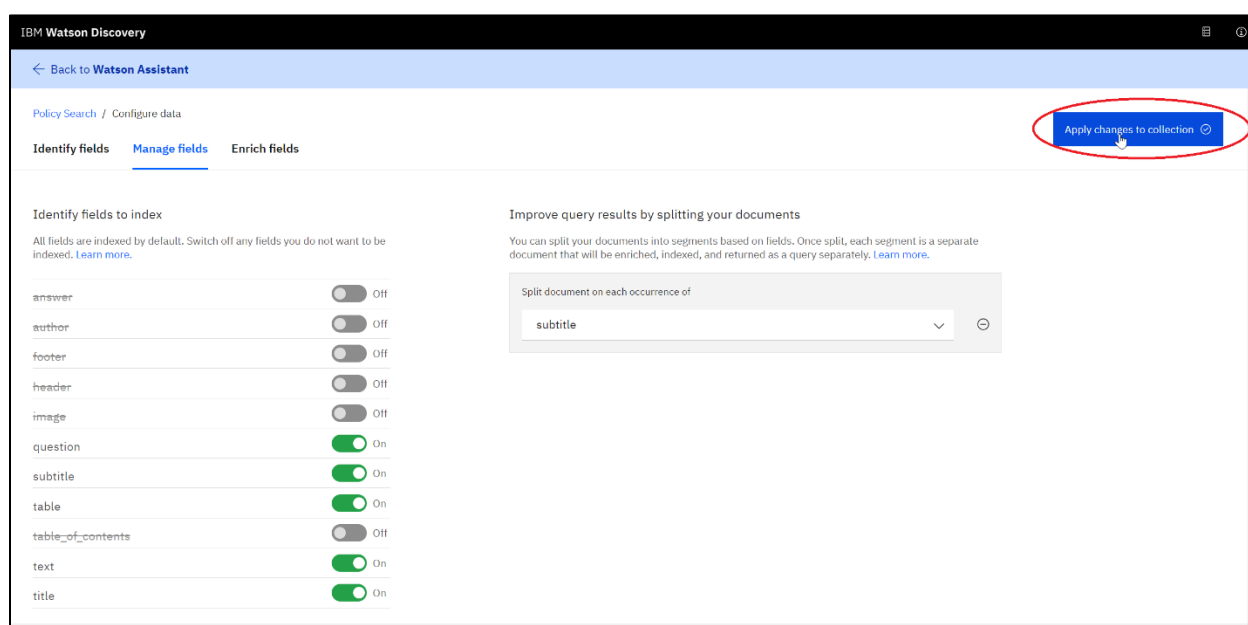
The screenshot shows the IBM Watson Discovery 'Smart Document Understanding editor'. The main area displays a document page with highlighted text. On the right, a sidebar titled 'Field labels' lists various document elements for identification: answer, author, footer, header, question, subtitle, table_of_contents, text, title, image, and table. The 'Submit page' button at the bottom right is circled in red.

Discovery has a 50,000 character limit for indexing and processing the documents; therefore, it is important to identify the subtitle of documents (or another chosen field) in order to separate large documents into more manageable components for Discovery.

More information on Smart Document Understanding can be found [here](#).

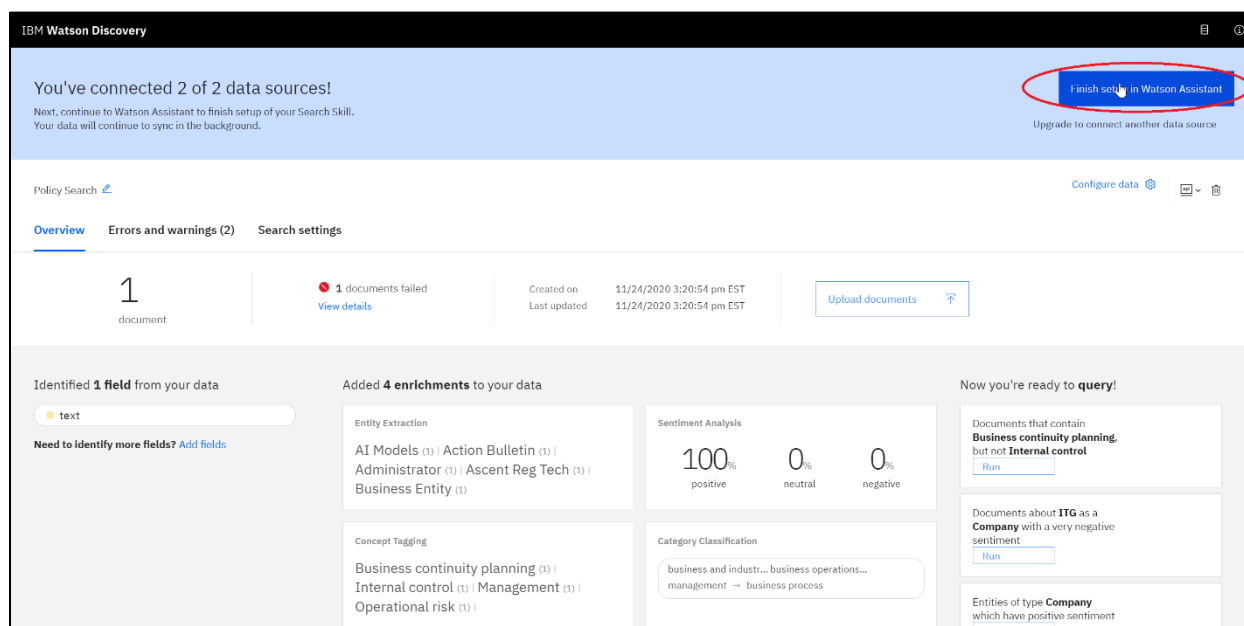
9. As you move through your documents labeling fields, you will notice that Discovery's accuracy with field label identification continually improves. When you are satisfied with Discovery's accuracy in field label identification, click on the **Manage fields** Tab.

From this screen, you can split documents by the subtitle field or another designated field, if your documents exceed the 50,000 character limit. From this screen, you can also remove fields that you do not wish to index. Click on **Apply changes to collection** when finished.

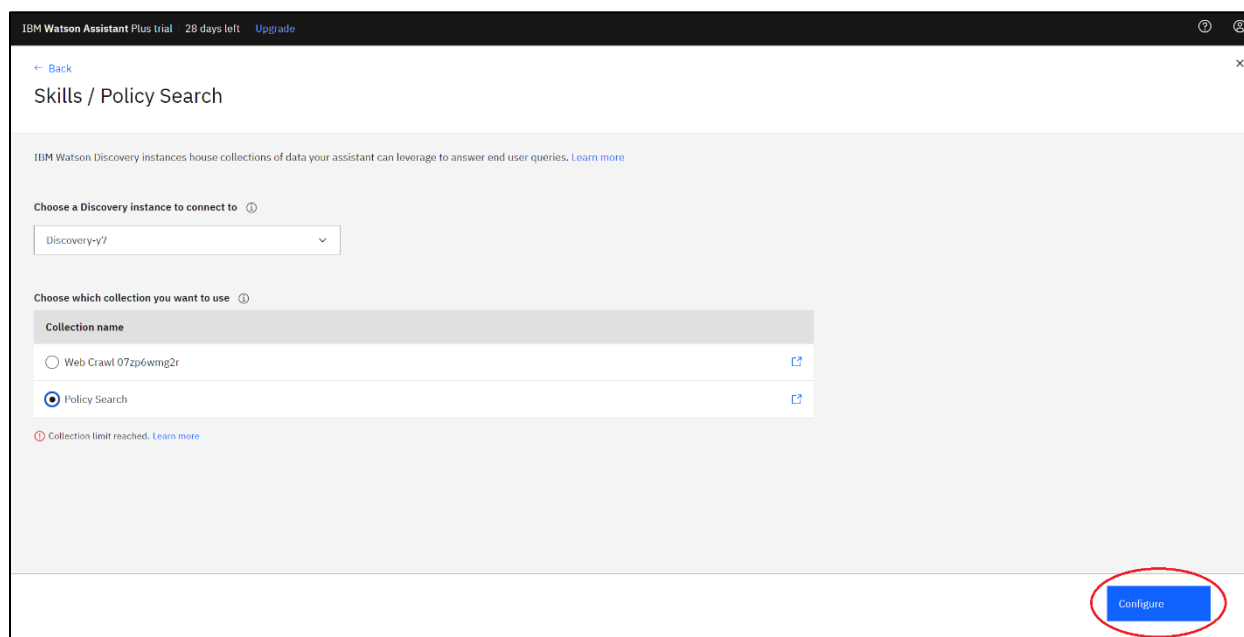


After applying the changes to the collection, the next instance when the documents are loaded or when the next sync to the data occurs, the documents will be indexed according to the training you provided in the Smart Document Understanding editor and the selections made on the **Manage fields** tab.

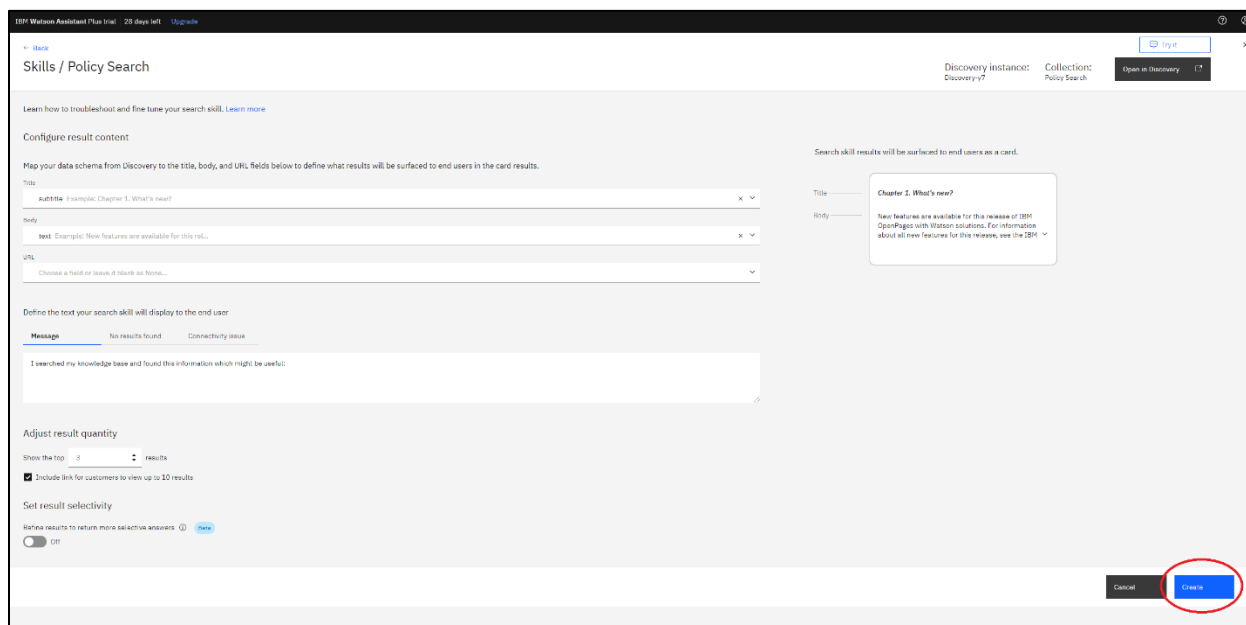
10. After submitting the changes to the collection and syncing or re-importing the documents into Discovery, click **Finish set up in Watson Assistant**.



11. After being taken back into the Watson Assistant instance, ensure the collection you just created is selected and click **Configure**.



12. Input the fields you want to display from the indexing performed in Discovery within Watson Assistant. Input the message you want to display within Watson Assistant when searching within the documents ingested into Discovery. Click **Create** in the bottom righthand corner of the screen to save the Search Skill.



IBM Watson Assistant (Plan trial: 29 days left) Upgrade

Skills / Policy Search

Discovery instance: Discovery-7 Collection: Policy Search Open in Discovery

Learn how to troubleshoot and fine tune your search skill. [Learn more](#)

Configure result content

Map your data schema from Discovery to the title, body, and URL fields below to define what results will be surfaced to end users in the card results.

Title:

Subtitle:

Body:

URL:

Search skill results will be surfaced to end users as a card.

Title: Chapter 1. What's new?

Body: New features are available for this release of IBM OpenPages with Watson solutions. For information about all new features for this release, see the IBM...

Define the text your search skill will display to the end user

Message: No results found Connectivity issue

I searched my knowledge base and found this information which might be useful:

Adjust result quantity

Show the top: 3 results

☒ Include link for customers to view up to 10 results

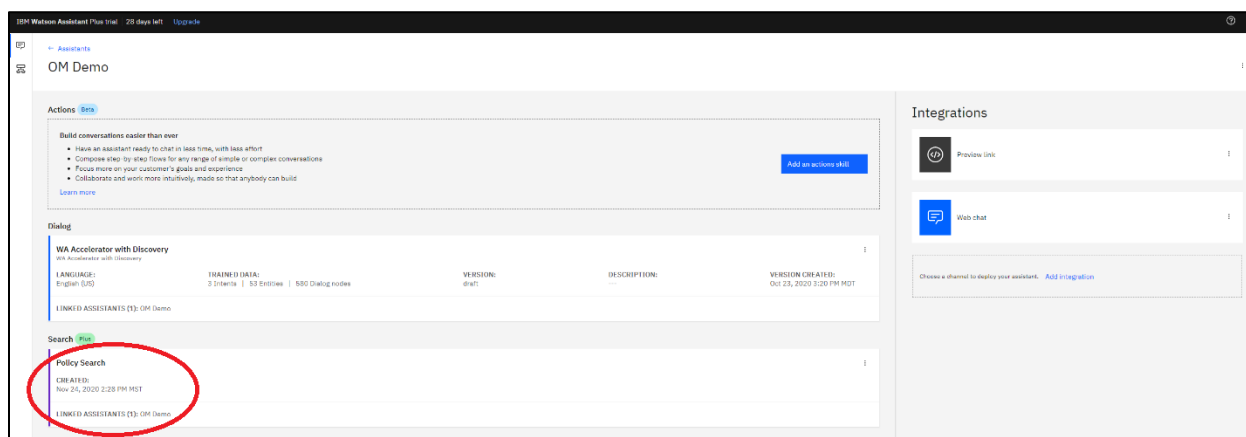
Set result selectivity

Refine results to return more selective answers. [Help](#)

☐ Off

Cancel Create

13. The search skill has been added to Watson Assistant. To make changes to the text displayed in Watson Assistant related to the search skill or to query the documents indexed by Watson Discovery, click on the search skill.



IBM Watson Assistant (Plan trial: 29 days left) Upgrade

OM Demo

Actions [See](#)

Build conversations easier than ever

- Place an assistant ready to chat in less time, with less effort
- Compose step-by-step flows for any range of simple or complex conversations
- Focus more on your customer's goals and experience
- Collaborate and work more intuitively, made so that anybody can build

[Learn more](#) [Add an action skill](#)

Dialog

WA Accelerator with Discovery

LANGUAGE: English (US) TRAINED DATA: 3 Entities | 13 Entities | 100 Dialog nodes VERSION: draft VERSION CREATED: Oct 23, 2020 3:20 PM MST

LINKED ASSISTANTS (1): OM Demo

Search [See](#)

Policy Search

CREATED: Nov 24, 2020 2:28 PM MST

LINKED ASSISTANTS (1): OM Demo

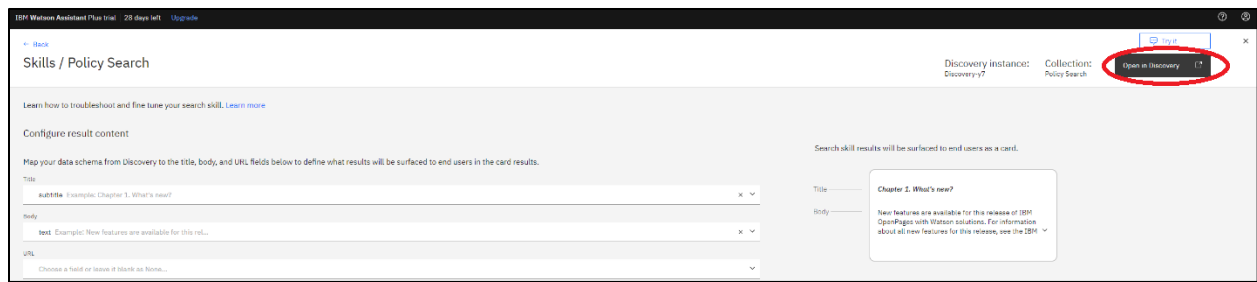
Integrations

Preview link

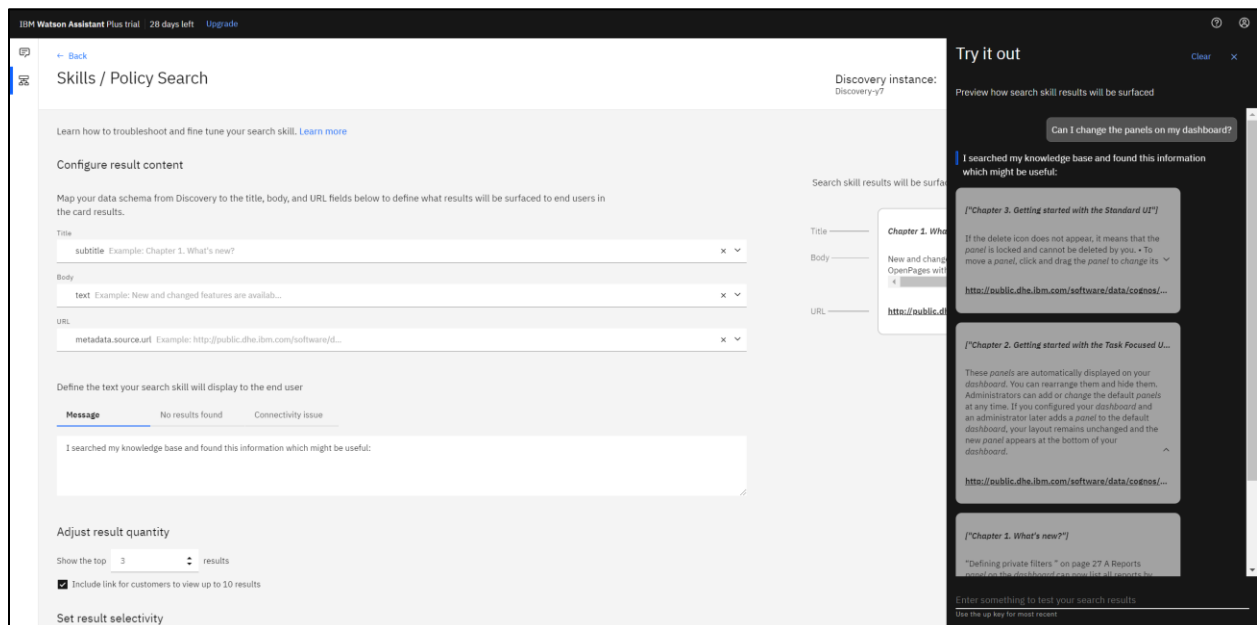
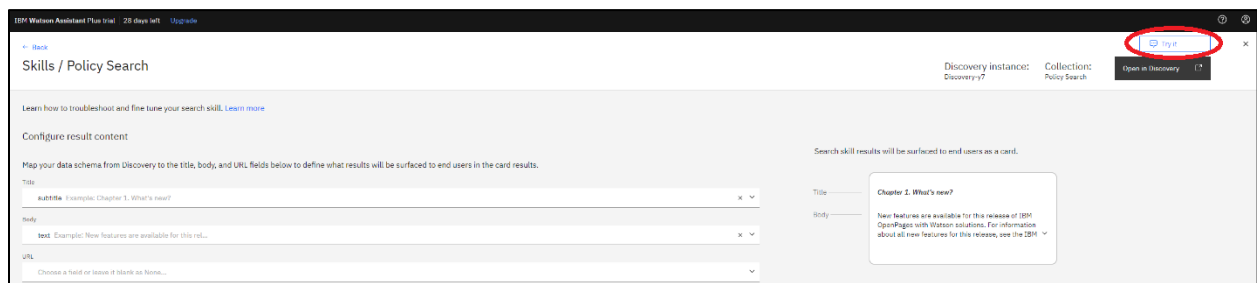
Web chat

Choose a channel to deploy your assistant. [Add integration](#)

14. From this screen, you can access your Discovery instance by clicking **Open in Discovery**.

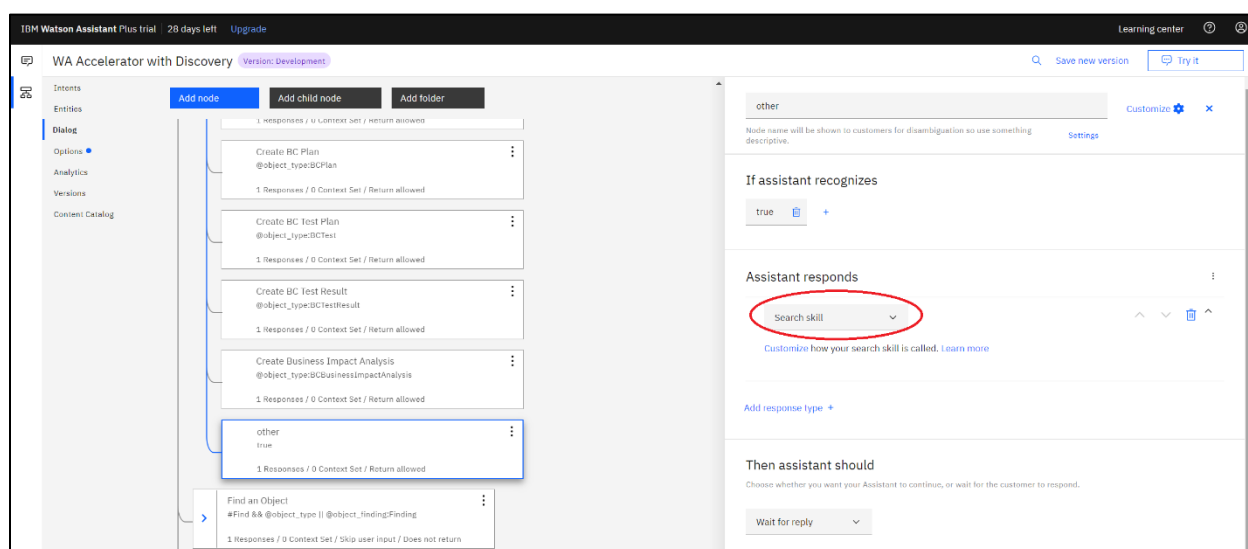
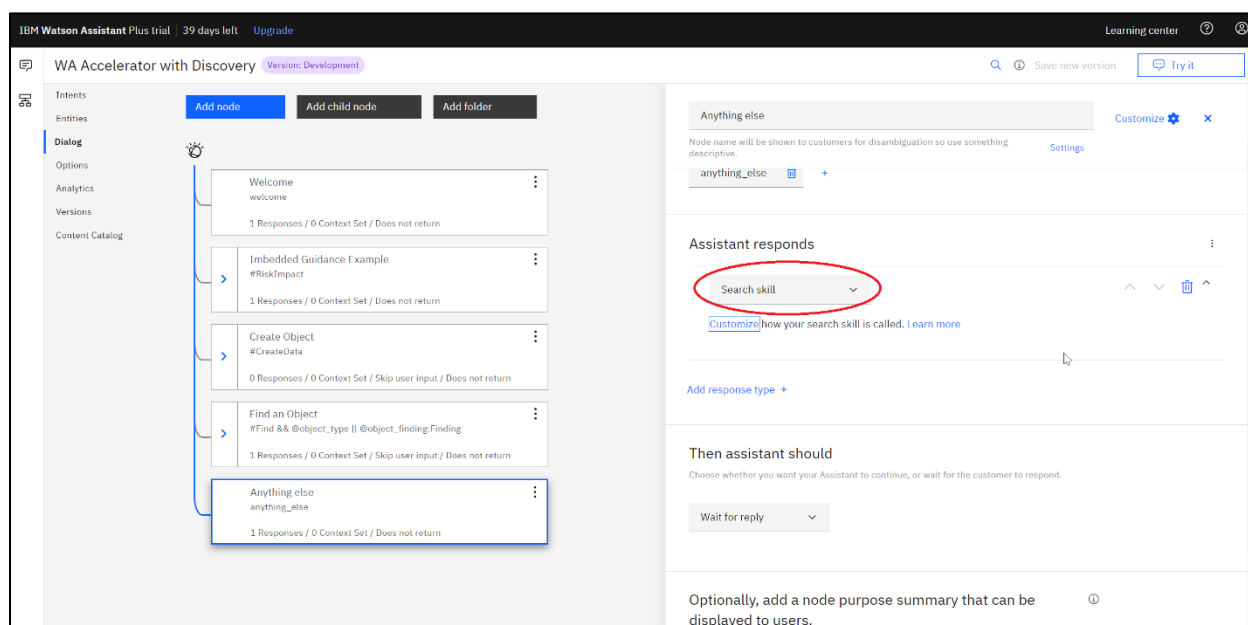


Also, from this screen click **Try it** to test queries against the documents you ingested into Discovery.



If you are not satisfied with the results from your testing, after completing the remaining steps for integrating Watson Assistant into OpenPages, review the **Improving Relevance of Results from Queries within Watson Discovery** section further below.

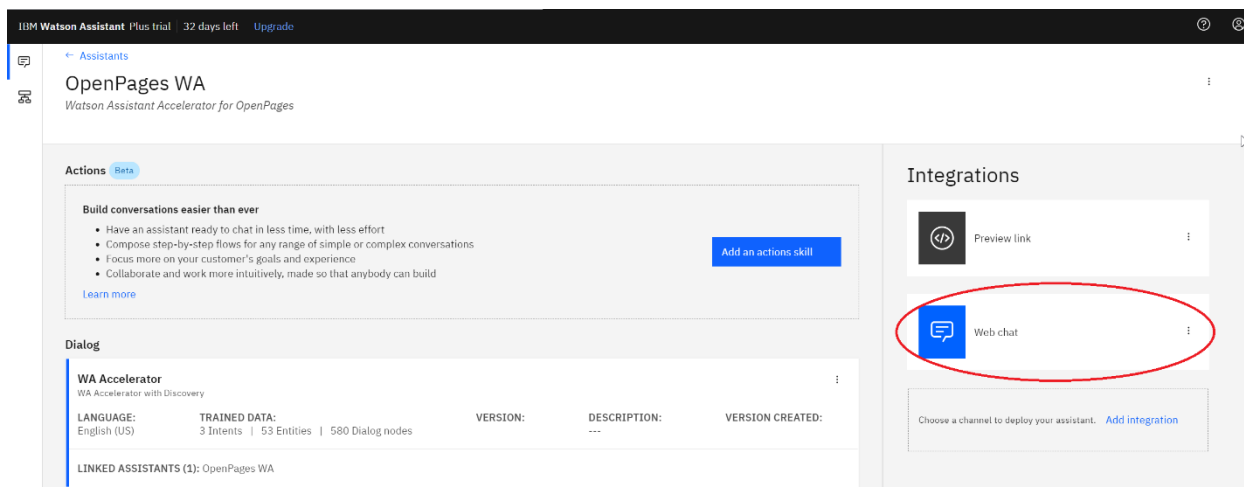
15. Within your Watson Assistant Dialog, click on the **Anything Else** node and verify that Search skill is selected. This will enable Watson Assistant to perform a query using the documents ingested into Discovery in instances when it does not recognize one of the three intents provided. In instances when a user submits a request for information into Watson Assistant and the intent of the request is not recognized as involving a request for guidance on risk impact, creating an object, or finding an object in OpenPages, then Watson Assistant will submit the request as a query to the documents ingested into Discovery and return relevant results to the user, if any relevant results are found. Similarly, click on the **Other** child node under Create Object node to verify that WA will respond with the search skill.



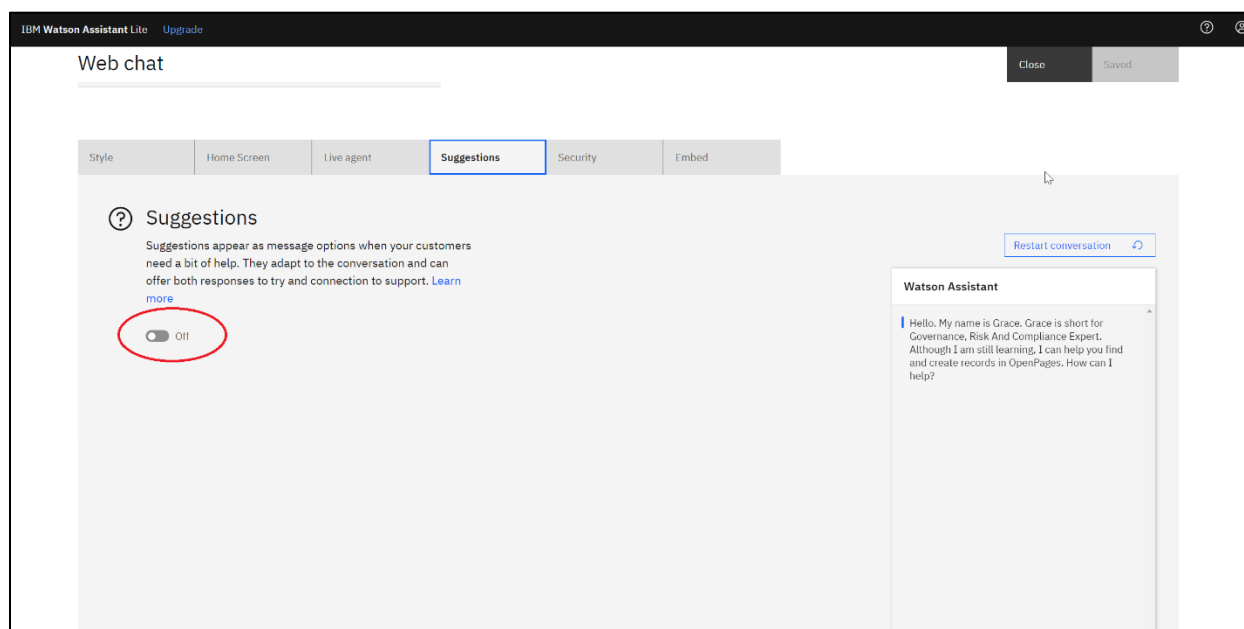
The Watson Assistant instance is now able to query Discovery and return results.

Integration with OpenPages

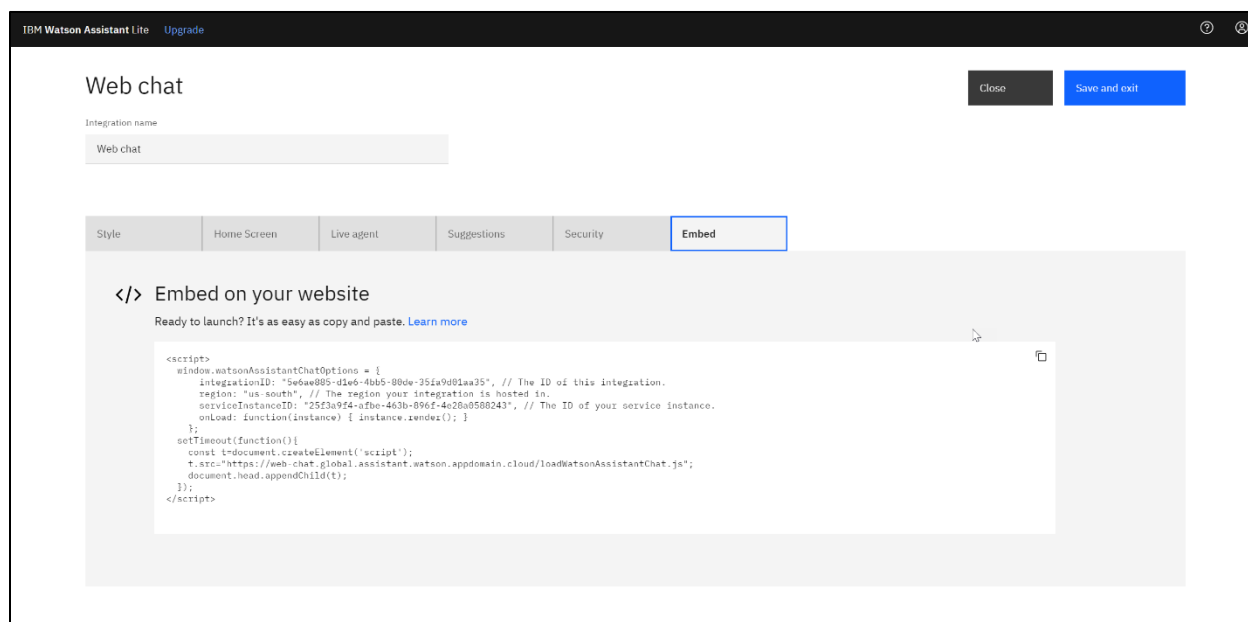
1. To integrate Watson Assistant to OpenPages, go to the Watson Assistant instance, and click on **Web chat**.



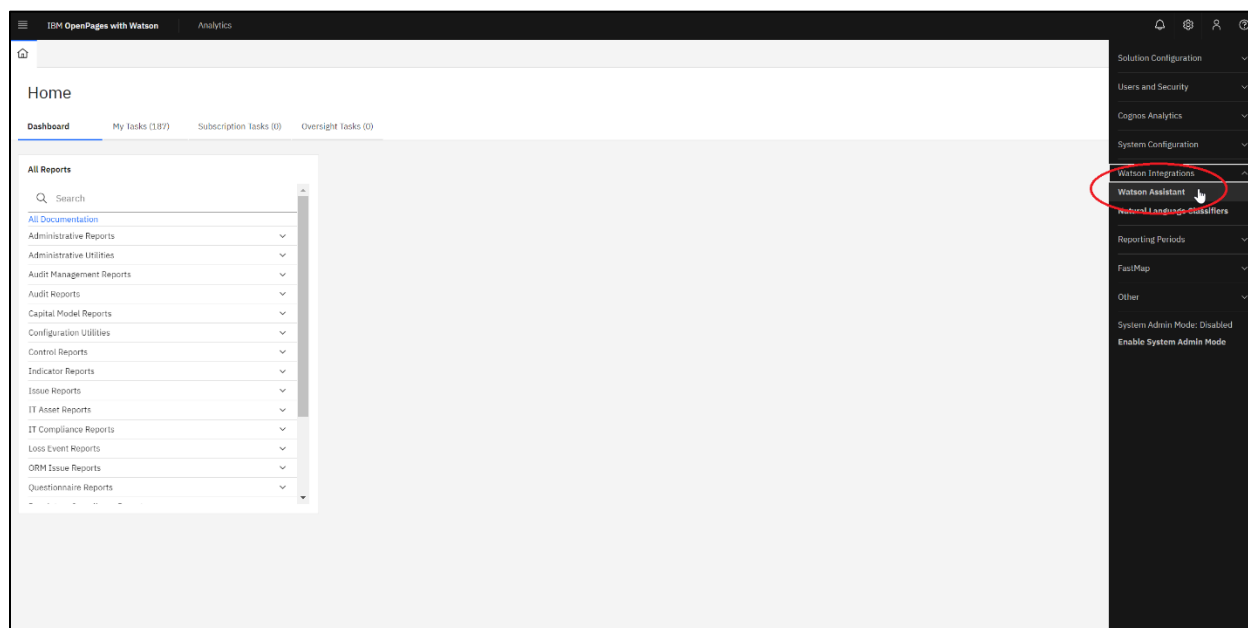
2. Remove Suggestions



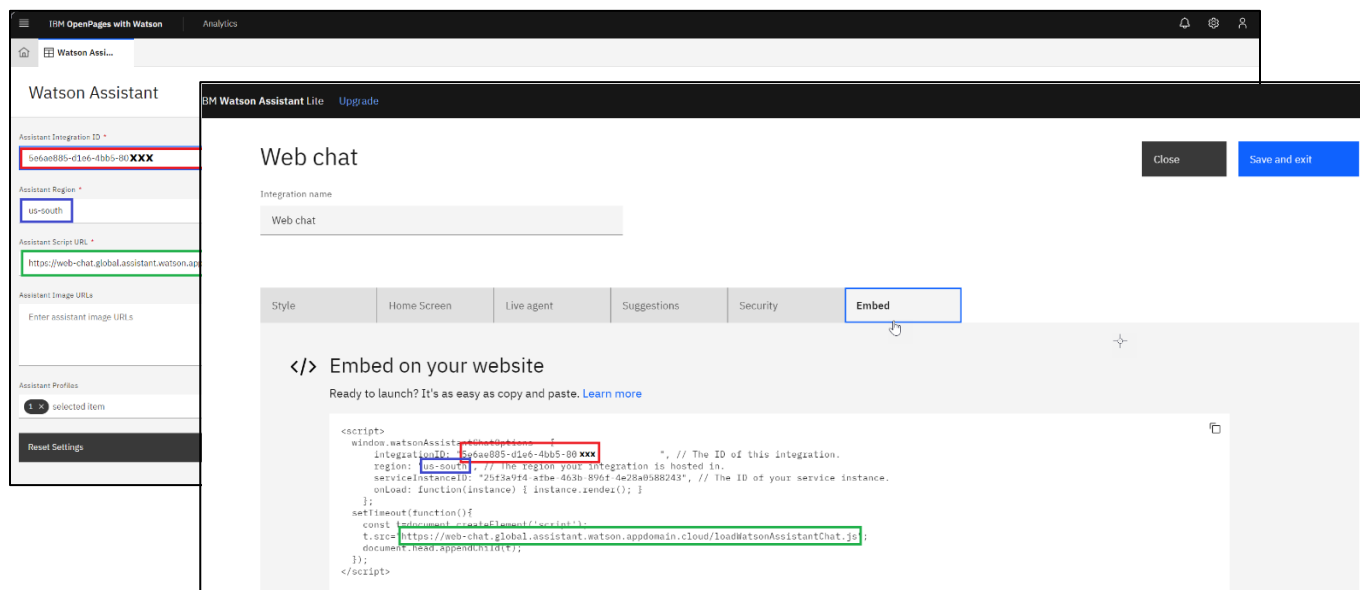
3. Access the **Embed** Tab



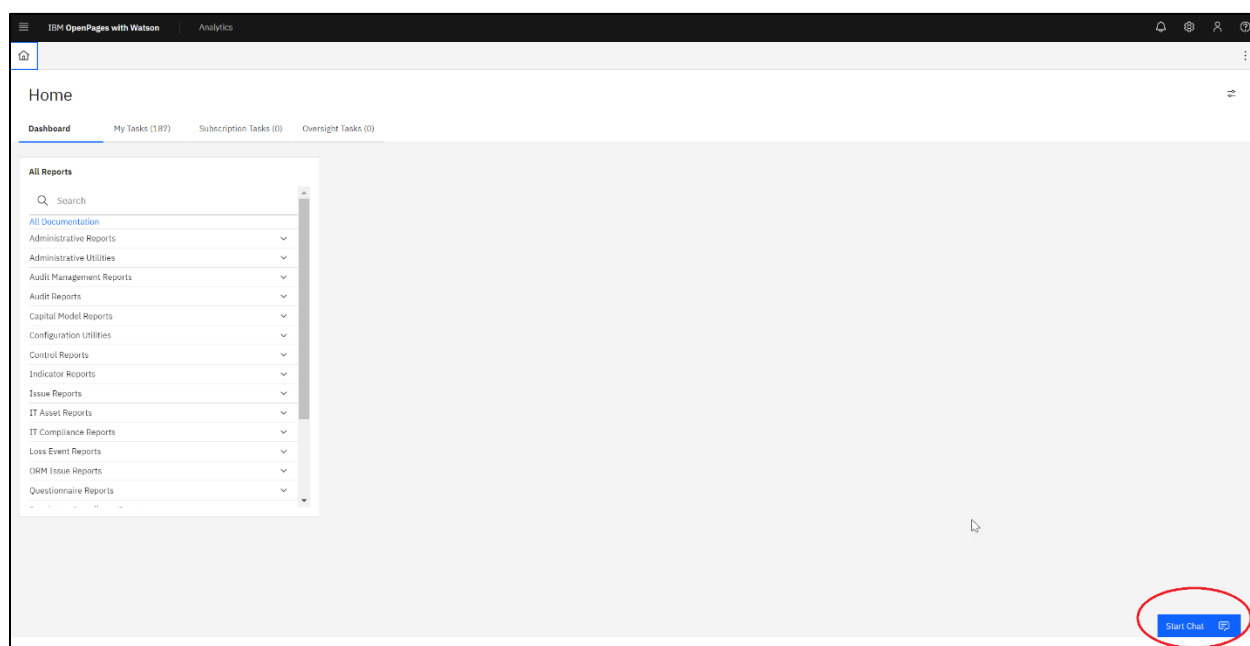
4. Log-in to OpenPages and access the Watson Assistant configuration page. If the Watson Assistant Integration selection is not available on the drop down, your user account will need to be granted permission to your user account's role template. Add the SOX > Administration > User Interfaces > Watson Assistant UI application permission to role templates that are allowed to access IBM Watson Assistant .



5. Input the Assistant Integration ID, Assistant Region, and Assistant Script URL fields as indicated in the screenshots below. In the 8.2.0.1 release of OpenPages, the user can copy and paste the entire script into OpenPages. Select the Profiles that will have access to Watson Assistant. Click **Submit** in OpenPages and **Save and exit** in the Watson Assistant instance.



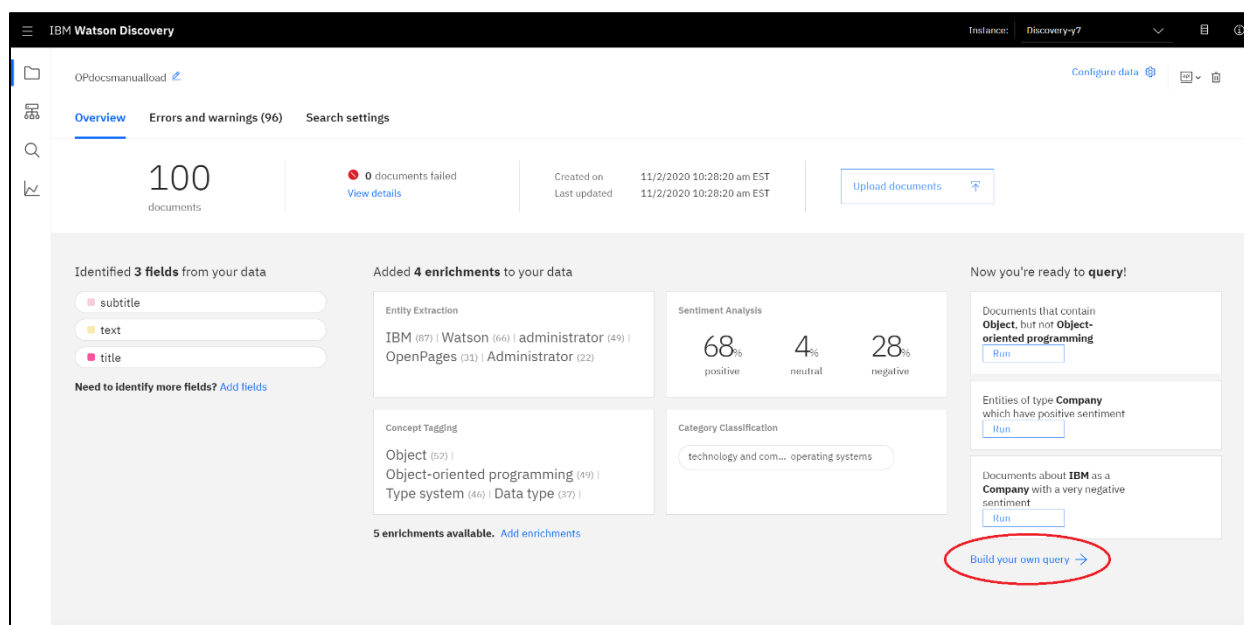
6. Log out of OpenPages. Log back into OpenPages with a user account under a Profile with access to the Watson Assistant. The Watson Assistant chat icon will be present in the lower righthand corner of the screen. Click **Start Chat** to begin interacting with Watson Assistant.



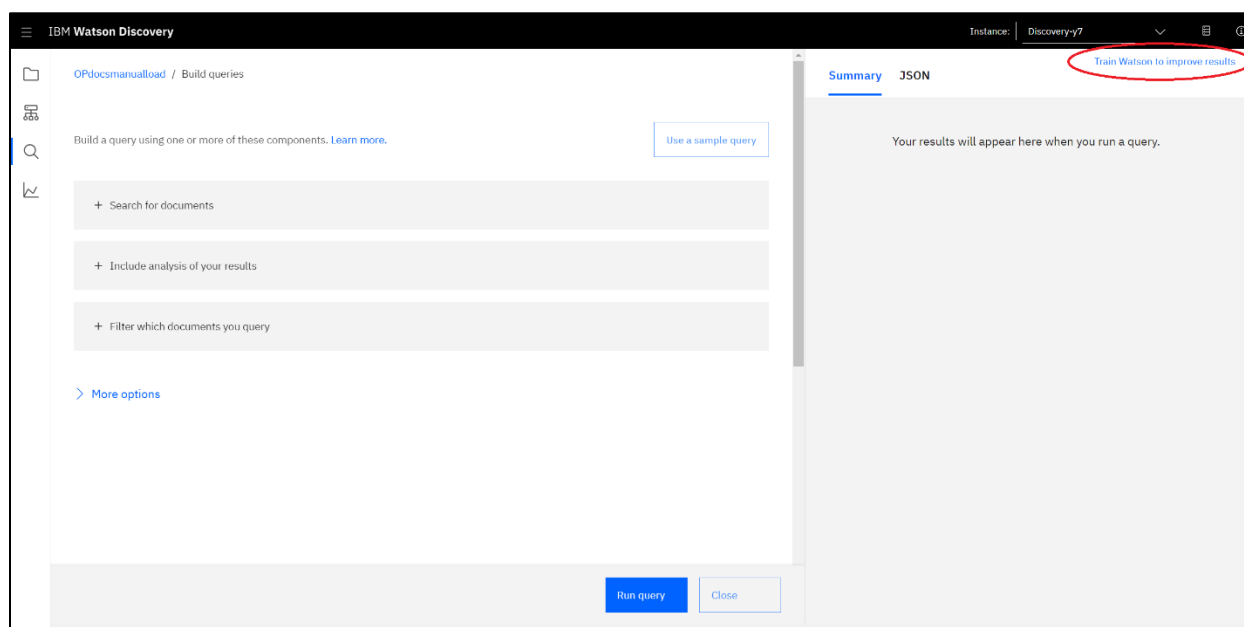
Improving Relevance of Results from Queries within Watson Discovery

This section provides step-by-step instructions on how to train Watson Discovery through the user interface in order to return more accurate results from queries. More information on this topic may be located [here](#). To find information on training Discovery through its API, click [here](#).

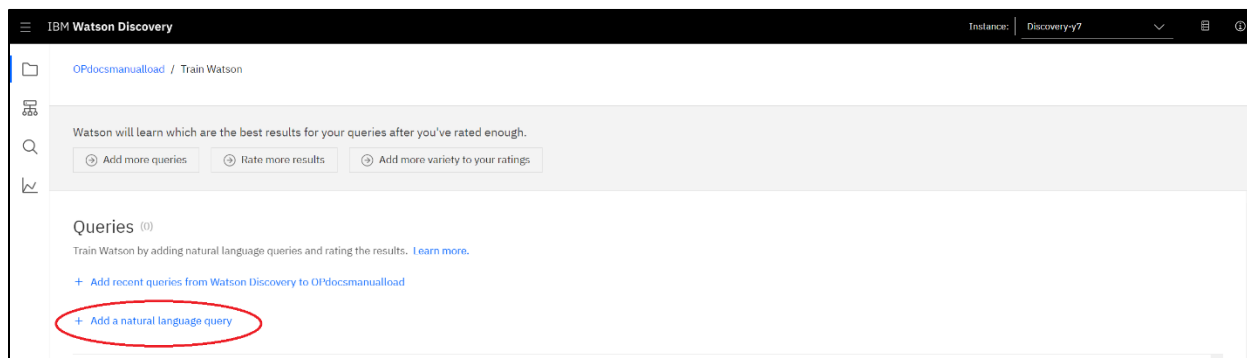
1. To start the training process, access the collection with Discovery, then click **Build your own query**.



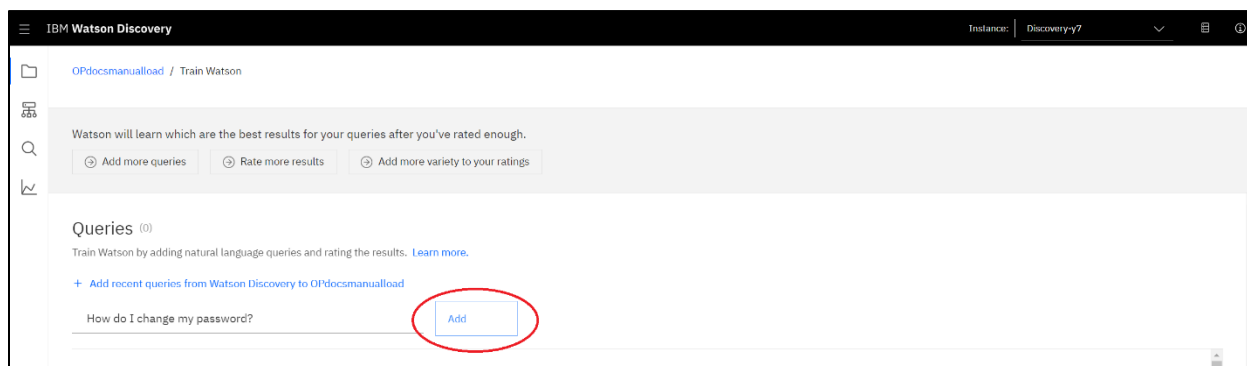
2. On the next screen click **Train Watson to improve results**.



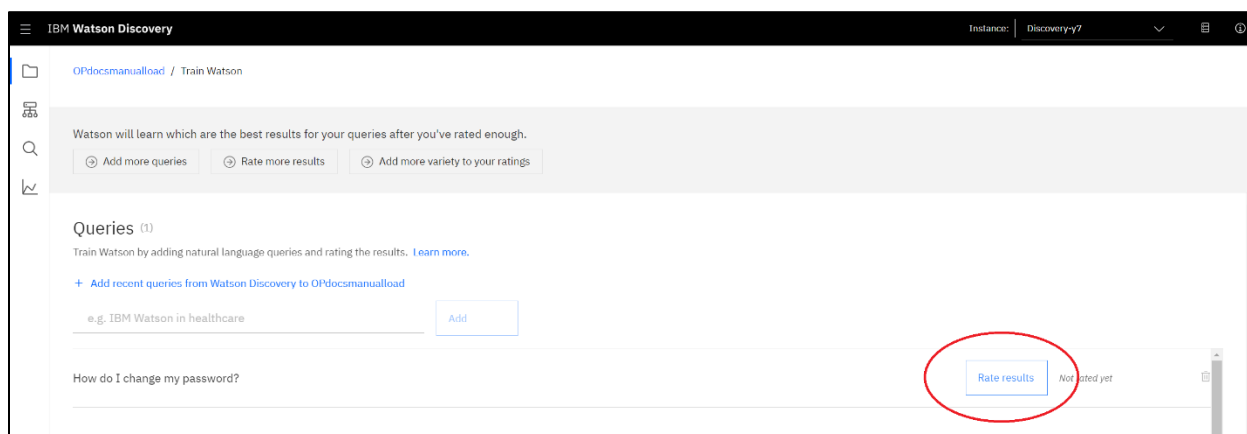
3. On this screen, you can add queries to train Discovery. Click on **Add a natural language query**.



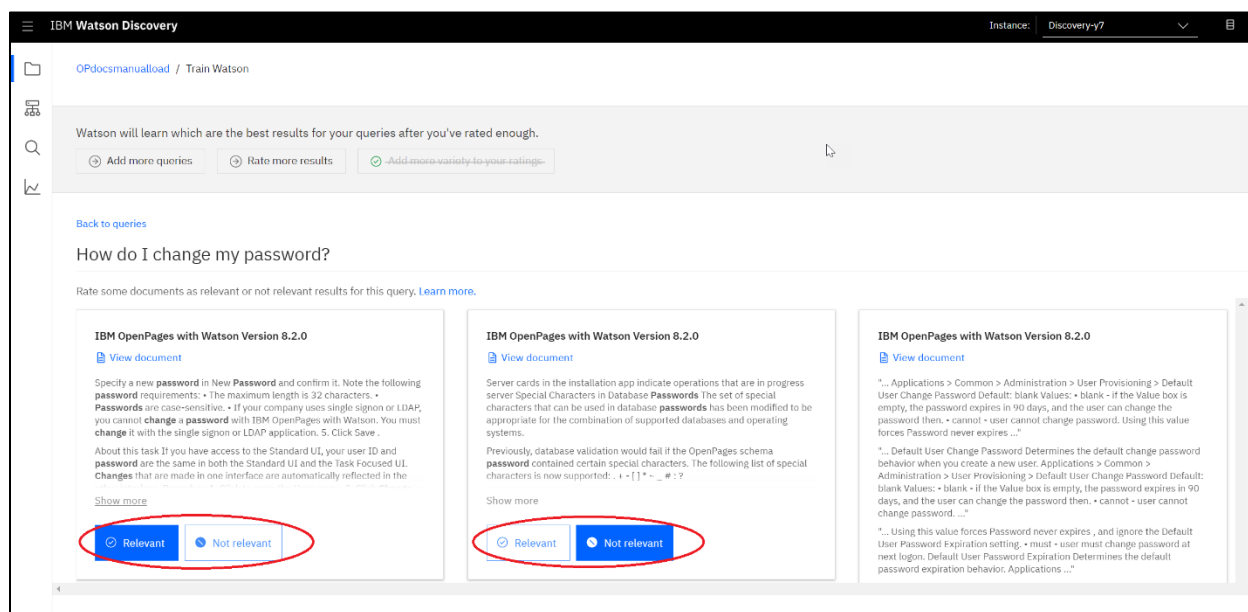
4. Type in your query and select **Add**.



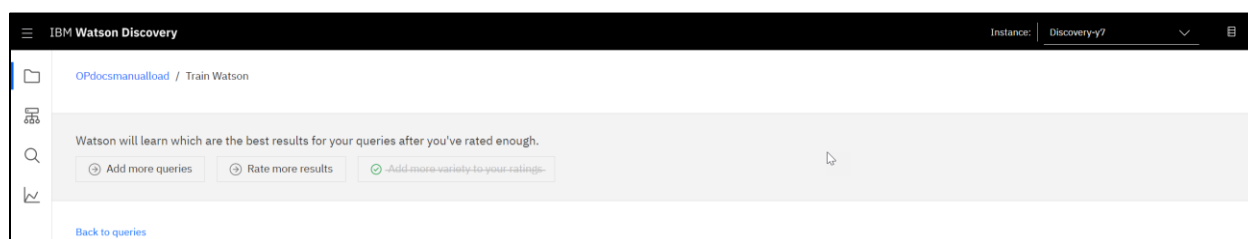
5. After the query has been added, click **Rate results**.



6. On this screen, Discovery will return results from the indexed documents for you to rate as **Relevant** or **Not relevant**. Review the document extracts and select whether the return extract is relevant to the query. It is not necessary to make a relevancy determination on all extracts returned from the query; however, accuracy should improve as more selections are made. To learn more about improving result relevancy, click [here](#).



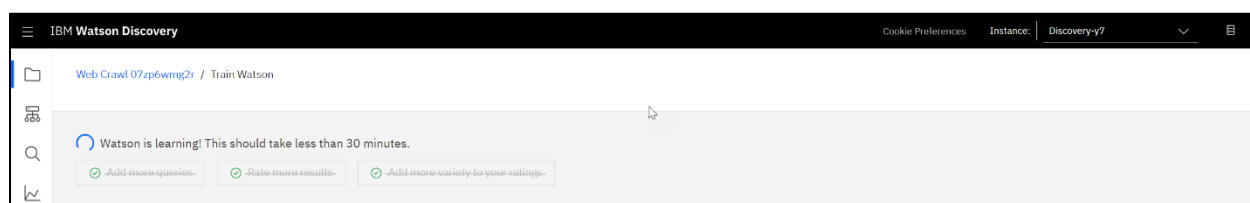
7. As you add and rate the relevancy of queries, Discovery will provide notice of the progress you are making with your training data. Unlike with the Smart Document Understanding editor, a complete training set is required prior to the initiation of training. Training requires a minimum of 49 unique training queries. For more information on training data requirements, click [here](#).



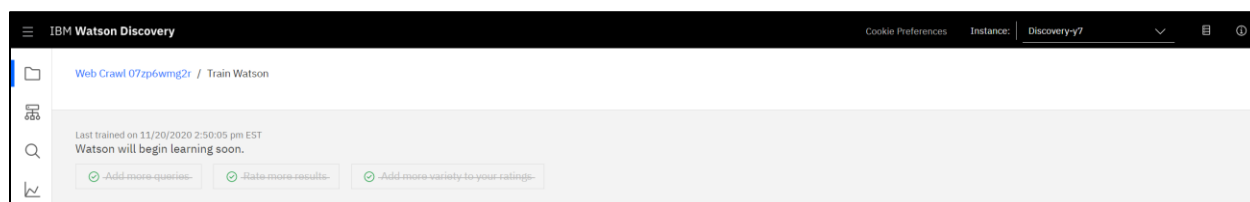
After Watson has been provided a minimal training set, a notification is provided that Watson is ready to use the training set, as shown below:



When training is in process, the notification will appear as follows:



After training has completed, a time stamp will indicate the last instance when training occurred. After initial training is complete, changes to queries, relevancy determinations, or the addition of additional queries will add to Watson's learning.



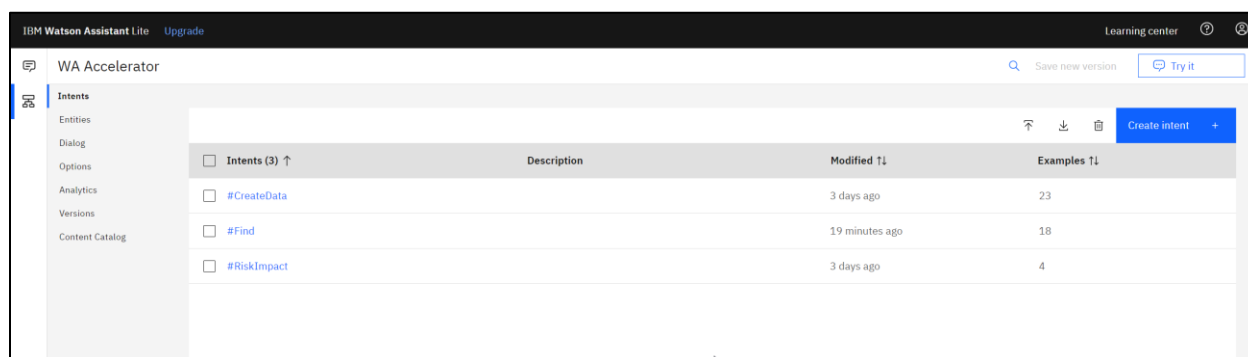
8. Query the data within Discovery, Watson Assistant, or OpenPages to verify the relevancy of the returned results. For more information on ways to improve search results, click [here](#).

Explanation of the OpenPages Watson Assistant Accelerator with Discovery

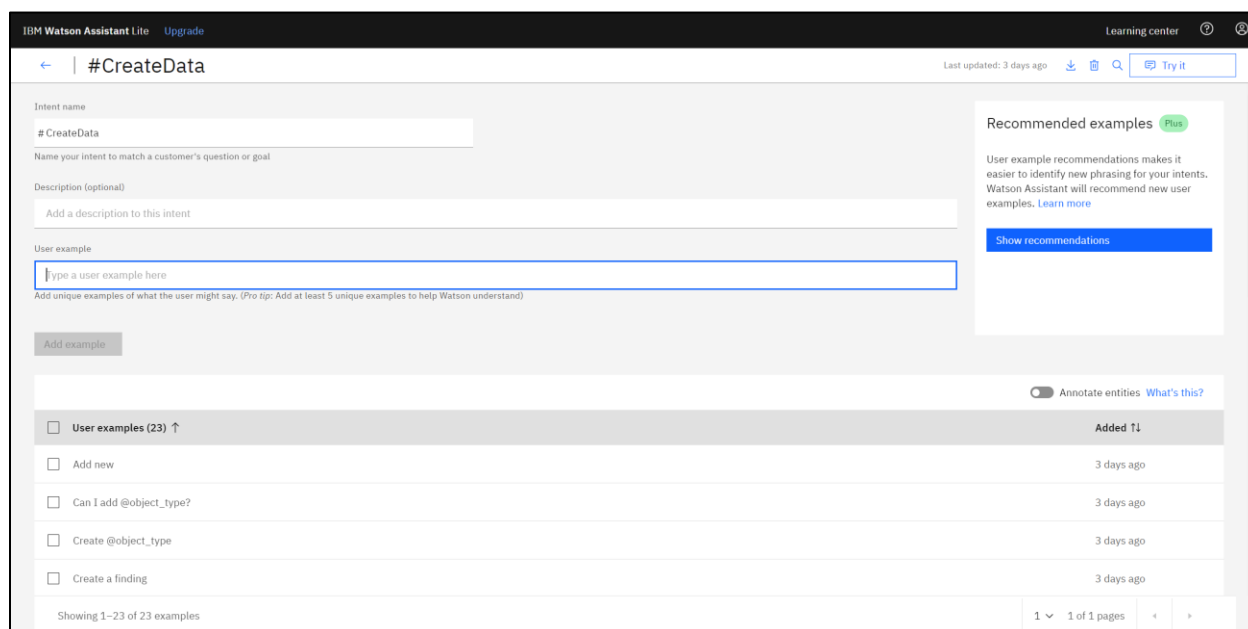
Intents

Intents are the purposes or goals expressed in the user's input, such as answering a question. By recognizing the intent expressed by a user's input, Watson Assistant can choose the correct dialog flow for responding to it.

The OpenPages Watson Assistant Accelerator consists of three intents. The #CreateData intent is used to identify when a user wants to create an object. The #Find intent is used to identify when a user is searching for an object. Lastly, the #RiskImpact intent has been provided as an example of how guidance can be imbedded within a Watson Assistant dialog. This intent is used to identify when a user is looking for guidance on the factors for assessing the impact of a risk.



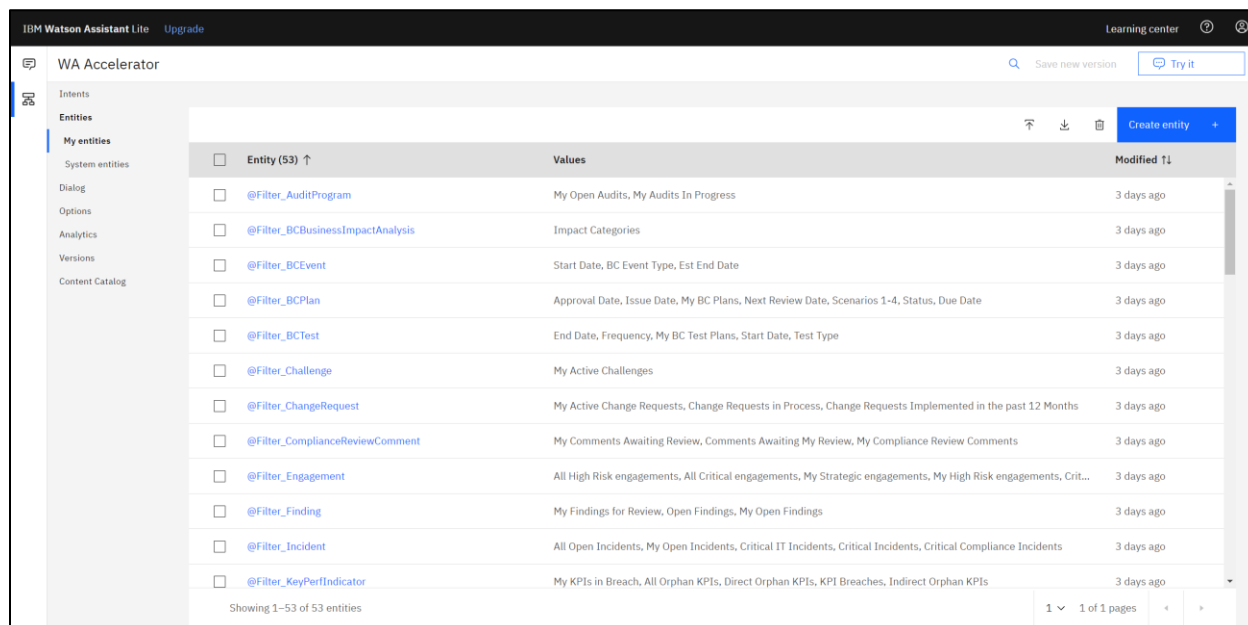
Upon clicking on an Intent, the user can add or remove examples to assist in training Watson Assistant on the intent as seen below.



To learn more about creating Intents, visit <https://cloud.ibm.com/docs/assistant?topic=assistant-intents>.

Entities

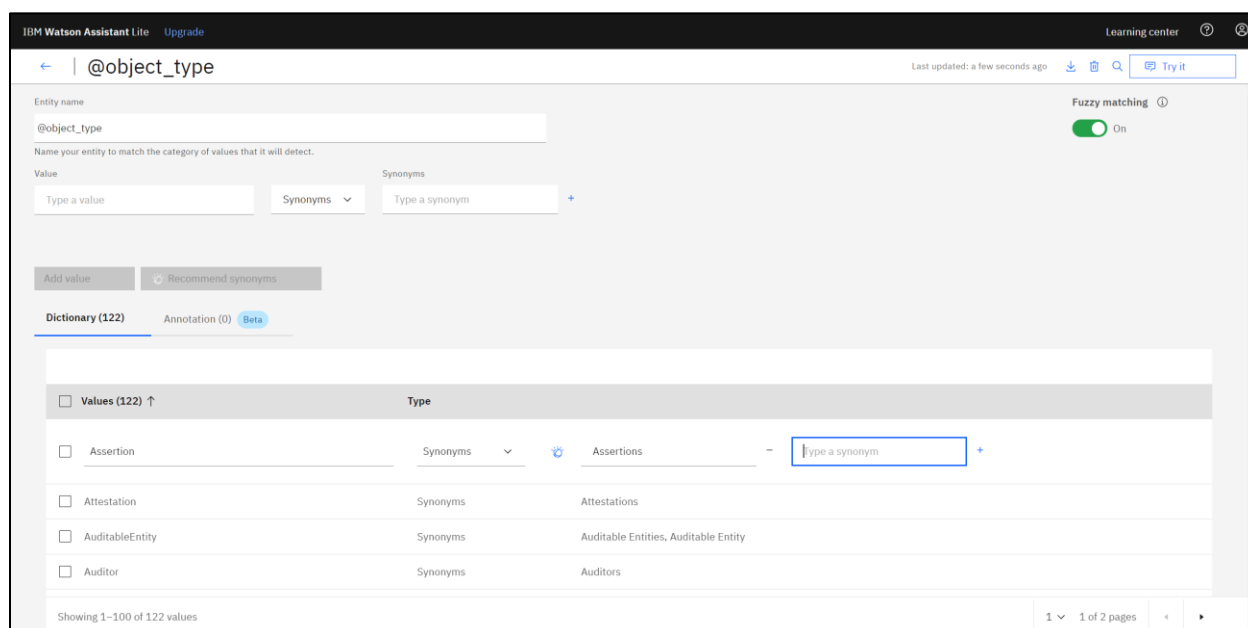
Entities represent information in the user input that is relevant to the user's purpose. The entities provided in the OpenPages Watson Assistant Accelerator include out-of-the-box objects, public filters for each object, and impacts types related to factors for assessing the impact of a risk.



Entity (53) ↑	Values	Modified ↑
<input type="checkbox"/> @Filter_AuditProgram	My Open Audits, My Audits In Progress	3 days ago
<input type="checkbox"/> @Filter_BCBusinessImpactAnalysis	Impact Categories	3 days ago
<input type="checkbox"/> @Filter_BCEvent	Start Date, BC Event Type, Est End Date	3 days ago
<input type="checkbox"/> @Filter_BCPlan	Approval Date, Issue Date, My BC Plans, Next Review Date, Scenarios 1-4, Status, Due Date	3 days ago
<input type="checkbox"/> @Filter_BCTest	End Date, Frequency, My BC Test Plans, Start Date, Test Type	3 days ago
<input type="checkbox"/> @Filter_Challenge	My Active Challenges	3 days ago
<input type="checkbox"/> @Filter_ChangeRequest	My Active Change Requests, Change Requests in Process, Change Requests Implemented in the past 12 Months	3 days ago
<input type="checkbox"/> @Filter_ComplianceReviewComment	My Comments Awaiting Review, Comments Awaiting My Review, My Compliance Review Comments	3 days ago
<input type="checkbox"/> @Filter_Engagement	All High Risk engagements, All Critical engagements, My Strategic engagements, My High Risk engagements, Crit...	3 days ago
<input type="checkbox"/> @Filter_Finding	My Findings for Review, Open Findings, My Open Findings	3 days ago
<input type="checkbox"/> @Filter_Incident	All Open Incidents, My Open Incidents, Critical IT Incidents, Critical Incidents, Critical Compliance Incidents	3 days ago
<input type="checkbox"/> @Filter_KeyPerfIndicator	My KPIs in Breach, All Orphan KPIs, Direct Orphan KPIs, KPI Breaches, Indirect Orphan KPIs	3 days ago

Showing 1–53 of 53 entities

Clicking on an entity enables a user to add values and synonyms for existing values.



Entity name: @object_type

Name your entity to match the category of values that it will detect.

Value: Type a value

Synonyms: Type a synonym

Buttons: Add value, Recommend synonyms

Dictionary (122) | Annotation (0) | Beta

Values (122) ↑	Type
<input type="checkbox"/> Assertion	Synonyms: <input type="text"/> Type a synonym
<input type="checkbox"/> Attestation	Synonyms: Attestations
<input type="checkbox"/> AuditableEntity	Synonyms: Auditable Entities, Auditable Entity
<input type="checkbox"/> Auditor	Synonyms: Auditors

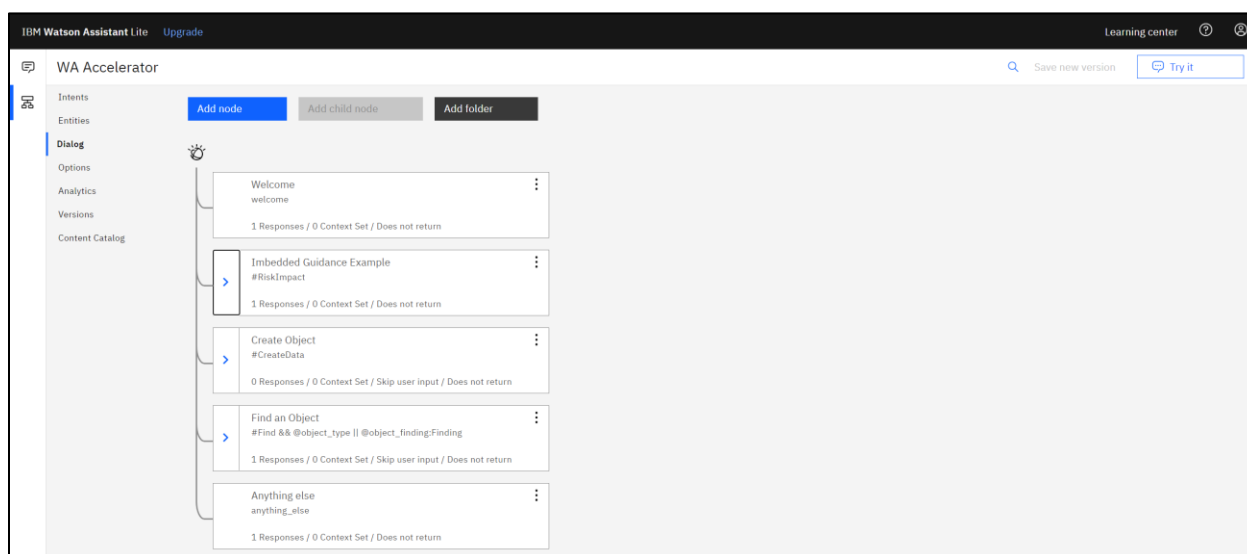
Showing 1–100 of 122 values

To learn more about Entities, visit <https://cloud.ibm.com/docs/assistant?topic=assistant-entities>.

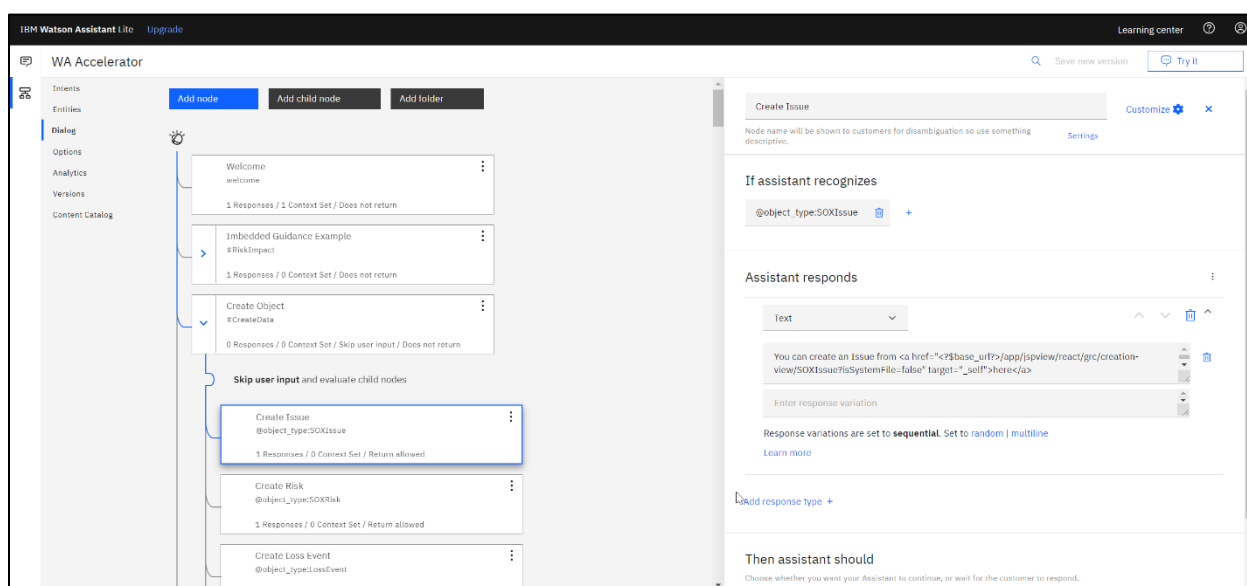
Dialogs

The dialog uses the intents that are identified in the user's input, plus context from the application, to interact with the user and ultimately provide a useful response. The OpenPages Watson Assistant Accelerator with Discovery provides five nodes within the dialog. The five nodes provide the following:

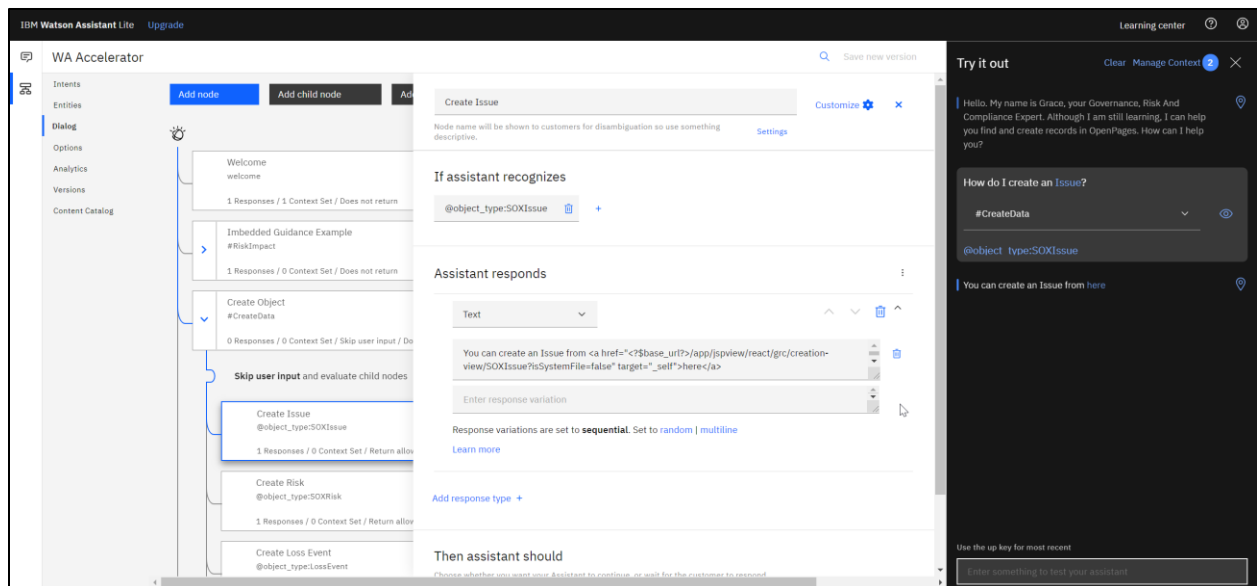
- 1) a welcome message,
- 2) an example of imbedded guidance for explaining factors for assessing risk impact,
- 3) a link to a Creation View when a user indicates an intent to create a record,
- 4) a link to the Grid View filtered by a public filter when a user indicates an intent to view particular objects,
- 5) a search of documents indexed in Watson Discovery when the user's query does not satisfy any of the previously listed dialog nodes.



Dialog nodes can be modified by clicking on the nodes.



Dialogs can be tested by clicking on “Try it” in the upper right-hand corner of the screen.



To learn more about Dialogs, visit <https://cloud.ibm.com/docs/assistant?topic=assistant-dialog-build>.

Frequently Asked Questions

1. How can I improve the accuracy of the understanding of user interactions with the OpenPages Watson Assistant Accelerator with Discovery?

- The OpenPages Watson Assistant Accelerator with Discovery includes all out-of-the-box objects for all solutions. Remove unused objects not utilized in your environment from the values provided in the @object_type entity within your Watson Assistant instance.
- The OP Watson Assistant Accelerator with Discovery includes all out-of-the-box public filters. Remove unused filters not utilized in your environment.
- Add synonyms for different phrasing of requests to access public filters in the @Filter entities.
- Add additional examples for different ways of phrasing intents.

2. How do I include an object that has been relabeled in OpenPages?

- All objects are listed by object name within the object_type entity, except for the Finding object. Find the object name in the OpenPages Watson Assistant Accelerator and change the value to your label within your environment and add additional synonyms as needed. Go to the **Find an Object** dialog node for the object that has been changed and modify to match the re-named entity. Go to the **Create Object** dialog node for the object that has been changed and modify to match the re-named entity. After making the changes, test WA by clicking on the **Try it** button and verify that that the re-labeled entity is recognized.

3. Can I perform bulk changes within the Watson Assistant instance?

- Yes. Excel import and export functionality is available for Intents and Entities. Bulk changes to the Dialog is possible through an export and import of the JSON file.

4. Why is the Finding object treated differently from all other objects?

- The Finding object's name is closely related to terms, such as "find," used to search for an object as part of the #Find intent. By separating the object and restricting the fuzzy matching capabilities of Watson for this entity, more consistent search results are possible.

5. How does this version of the Watson Assistant dialog differ from the previous posting?

- No new intents or entities were added to the dialog. The dialog provided in this publication and the previous posting is similar except for the last child node titled **Other** under the **Create Object** node and the last node titled **Anything else**. Previously, the child node **Other** provided a message to users directing them to a URL when the create intent was recognized, but not the object. With the dialog provided in this posting, the user's query is directed to Watson Discovery to search the collection of

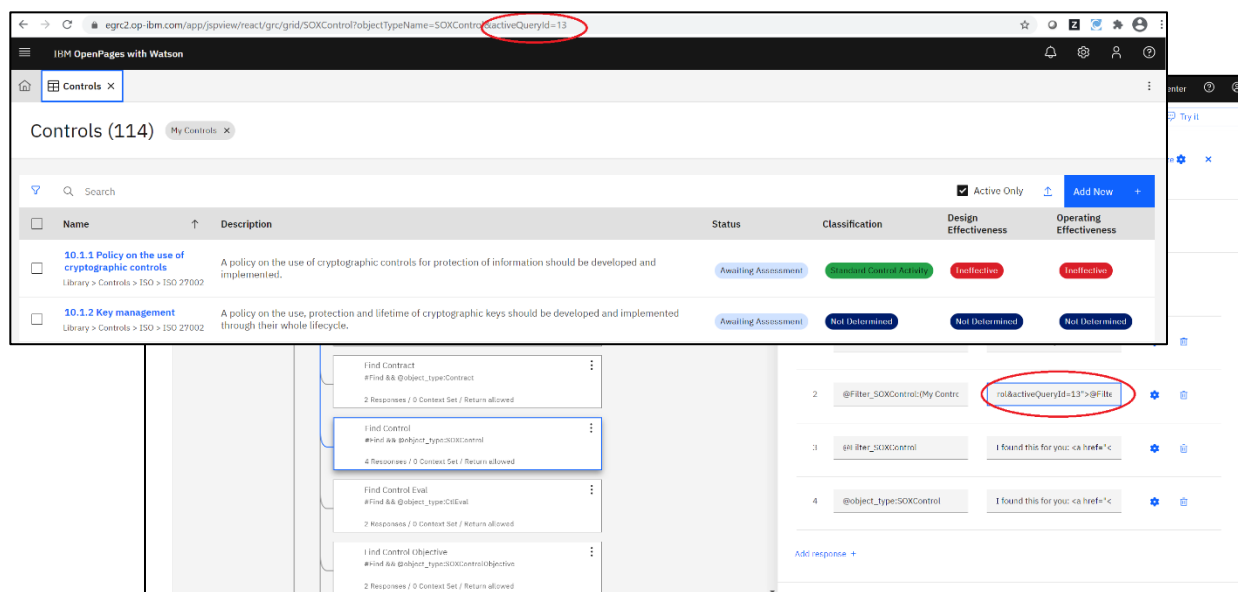
documents selected for ingestion. Similarly, the **Anything else** node previously provided users a message to rephrase the question and then a link to OpenPages documentation when the user's intent was again not recognized. Now, in these instances the user's query is directed to a search through the selected Watson Discovery instance. Additionally, the welcome message was updated to indicate that a search of documents would occur in response to user queries.

6. What other features are available within Watson Discovery when indexing documents?

- This document is intended to provide the basic instructions for integrating a Watson Assistance instance with a Watson Discovery search into OpenPages. There are many features within Watson Discovery not covered in this document. Discovery enables users to upload a synonym list to expand submitted queries, a list of stop words filtered out of queries, field enrichments (including category classification, concept tagging, entity extraction, keyword extraction, relationship extraction, sentiment analysis, semantic role extraction, and emotion analysis), and usage monitoring. To learn more about Discovery, visit <https://cloud.ibm.com/docs/discovery>.

7. Why are the links provided in Watson Assistant broken or display a Grid View unrelated to the requested information?

- The links provided in Watson Assistant reference URLs associated to the OOB public filters available in 8.2. If the public filters have been deleted or modified from the out-of-the-box public filters, then the QueryId provided in the URL will need to be updated within the dialog. The QueryId can be modified in the JSON file or through the Watson Assistant UI.



The screenshot shows the IBM OpenPages with Watson interface. The top navigation bar includes a search bar and a 'Controls' tab. Below the navigation bar, there is a table titled 'Controls (114)' with columns for Name, Description, Status, Classification, Design Effectiveness, and Operating Effectiveness. The table lists two controls: '10.1.1 Policy on the use of cryptographic controls' and '10.1.2 Key management'. The '10.1.1 Policy on the use of cryptographic controls' row is highlighted. Below the table, there is a dialog box with a list of controls. The dialog box has a search bar and a list of controls. The first control in the list is 'Find Contract' with a description 'Find all @object_type:Contract'. The second control is 'Find Control' with a description 'Find all @object_type:SOXControl'. The third control is 'Find Control Eval' with a description 'Find all @object_type:SOXControlEval'. The fourth control is 'Find Control Objective' with a description 'Find all @object_type:SOXControlObjective'. The 'Find Control' control is selected. To the right of the dialog box, there is a search bar and a list of results. The first result is '@Filter_SOXControl:My Controls' with a description 'Find all @object_type:SOXControl'. The second result is '@Filter_SOXControl:My Controls' with a description 'Find all @object_type:SOXControl'. The third result is '@Filter_SOXControl:My Controls' with a description 'Find all @object_type:SOXControl'. The fourth result is '@Filter_SOXControl:My Controls' with a description 'Find all @object_type:SOXControl'. The '@Filter_SOXControl:My Controls' result is selected.

Note: this can be used with IBM OpenPages with Watson version 8.2 or higher.