

Google Cloud Skills Boost for Partners

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Integrate Vertex AI Search and Conversation into Voice and Chat Apps

Course · 5 hours 60% complete

[Course overview](#)

- Integrate Vertex AI Search and Conversation into Voice and Chat Apps
- [Build Vertex AI Search Apps using AI Applications](#)
 - Enable informed decision making with a conversational agent that uses generators and data stores
 - [Conversational Agents with Generative](#)

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Quick tip: Review the prerequisites before you run the lab

[Start Lab](#)

01:30:00

Build Vertex AI Search Apps using AI Applications

Lab 1 hour 30 minutes No cost Introductory

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This lab may incorporate AI tools to support your learning.

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Lab instructions and tasks —/100

GSP1152

Overview

Objectives

Setup and requirements

Task 1. Enable the Discovery Engine API for AI Applications

Task 2. Create and preview a website search app

Task 3. Create and preview a structured data search app

Task 4. Create and Preview an unstructured data search app

Congratulations!

Overview

Vertex AI Search brings together the power of deep information retrieval, state-of-the-art natural language processing, and the latest in large language processing to understand user intent and return the most relevant results for the user.

You can deploy Vertex AI Search applications from AI Applications within the Google Cloud Console.

In this lab you will learn how to create search applications based on:

- websites
- structured data
- unstructured data

You will then configure, visualize, and analyze the search results that are returned from the search app.

Objectives

In this lab, you will learn how to perform the following tasks:

- Index public website data, structured and unstructured data.
- Perform search on your indexed data.
- Configure the display of your search results.
- Integrate Vertex AI Search with your web application.

Setup and requirements

Before you click the Start Lab button

Read these instructions. Labs are timed and you cannot pause them. The timer, which starts when you click **Start Lab**, shows how long Google Cloud resources are made available to you.

This hands-on lab lets you do the lab activities in a real cloud environment, not in a simulation or demo environment. It does so by giving you new, temporary credentials you use to sign in and access Google Cloud for the duration of the lab.

To complete this lab, you need:

- Access to a standard internet browser (Chrome browser recommended).

Note: Use an Incognito (recommended) or private browser window to run this lab. This prevents conflicts between your personal account and the student account, which may cause extra charges incurred to your personal account.

- Time to complete the lab—remember, once you start, you cannot pause a lab.

Note: Use only the student account for this lab. If you use a different Google Cloud account, you may incur charges to that account.

How to start your lab and sign in to the Google Cloud console

1. Click the **Start Lab** button. If you need to pay for the lab, a dialog opens for you to select your payment method. On the left is the Lab Details pane with the following:

- The Open Google Cloud console button
- Time remaining
- The temporary credentials that you must use for this lab

2. Click **Open Google Cloud console** (or right-click and select **Open Link in Incognito Window** if you are running the Chrome browser).

The lab spins up resources, and then opens another tab that shows the Sign in page.

Tip: Arrange the tabs in separate windows, side-by-side.

Note: If you see the **Choose an account** dialog, click **Use Another Account**.

3. If necessary, copy the **Username** below and paste it into the **Sign in** dialog.

You can also find the Username in the Lab Details pane.

4. Click **Next**.

5. Copy the **Password** below and paste it into the **Welcome** dialog.

You can also find the Password in the Lab Details pane.

6. Click **Next**.

Important: You must use the credentials the lab provides you. Do not use your Google Cloud account credentials.

Note: Using your own Google Cloud account for this lab may incur extra charges.

7. Click through the subsequent pages:

- Accept the terms and conditions.
- Do not add recovery options or two-factor authentication (because this is a temporary account).

After a few moments, the Google Cloud console opens in this tab.

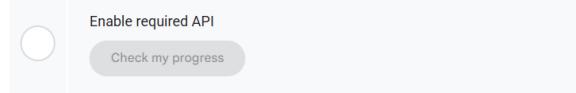
Note: To access Google Cloud products and services, click the **Navigation menu** or type the service or product name in the **Search** field.



Task 1. Enable the Discovery Engine API for AI Applications

1. Navigate to **AI Applications** by searching for it at the top of the Cloud Console.

Click *Check my progress* to verify the objective.



Task 2. Create and preview a website search app

A website search app makes it easier for users to find the information they are looking for on your website.

1. After you enable AI Applications, you will be taken to a **Create App** page to create your first app.

2. On the **Search for your website** card, click **Create**.

3. Leave the checkboxes checked, and for **App name** enter:

4. For **Company Name**, enter:

5. Click **Continue**.

6. On the Create a data store for your app page, click **+CREATE DATA STORE**.

8. Leave **Advanced website indexing** unchecked, and under the **Specify URL patterns to index** header, include the following URL pattern:

9. Click **Continue**.

10. On the Configure your data store page, in the **Data store name** field, enter:

Click **CREATE**.

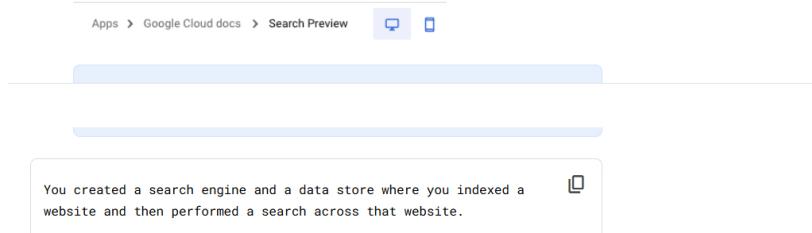
11. On the data store page, make sure **Google Cloud Docs Website Content** is selected, and then click **Create**.

Click *Check my progress* to verify the objective.

brief break here before you can use the search app.

Preview the website search app

12. In the side panel, select **Preview**.
13. In the search bar at the top of the Preview window, enter Document AI and press **Enter**.
14. Click the view icons to switch between mobile view and desktop view.



Task 3. Create and preview a structured data search app

Structured data can be used to make website content more visible to search engines. A structured data search app improves the discoverability of website content and provides users with a more relevant search experience.

1. Click the **AI Applications** logo to navigate back to the **Apps** page.

3. On the **Create App** page, find the **Custom search** card and click **Create**.

4. Leave the checkboxes checked, and for **App name** enter:

A screenshot of a text input field containing the text "Movie Database Search". To the right of the input field is a small "Edit" icon.

5. For **Company Name**, enter:

A screenshot of a text input field containing the text "Movie Searchers". To the right of the input field is a small "Edit" icon.

6. Click **Continue**.

7. On the **Data store** for your app page, click **+CREATE DATA STORE**.

8. Find the **Cloud Storage** card and click **Select**.

9. Select the **Structured data (JSONL)** radio option.

the import type and enter the following value.

A screenshot of a text input field containing the URL "cloud-samples-data/gen-app-builder/search/kaggle_movies/movie_metadata.ndjson". To the right of the input field is a small "Edit" icon.

This Cloud Storage bucket contains an NDJSON-formatted dataset of movies made available by [Kaggle](#).

11. Click **Continue**.

12. On the **Review schema and assign key properties** page, review the columns available for each field and then click **Continue**.

13. On the Configure your data store page, in the **Data store name** field, enter:

A screenshot of a text input field containing the text "Structured Movie Data". To the right of the input field is a small "Edit" icon.

Click **CREATE**.

15. On the left-hand navigation menu or your app, select the **Data** page.

16. Select the **Activity** tab.

Note: Please wait until the documents import before proceeding. This process may take several minutes to complete.

Upon success you will see the **Status** column change to **Succeeded** as shown in the image below:

The screenshot shows the 'Activity' tab interface. At the top, there's a header with 'Activity' and a 'Filter' button. Below the header is a table with three columns: 'Status', 'Detail', and 'Items succeeded'. Under 'Status', there's a green checkmark icon next to 'Import completed'. In the 'Detail' column, it says 'No errors'. In the 'Items succeeded' column, it shows the number '45,437'. Below the table, there's a note: 'All items imported successfully. Total items imported: 45,437'.

18. Click the **Schema** tab to see the auto-generated schema for your dataset. Notice that for auto-generated schemas, all fields are retrievable, indexable, facetable and searchable.

The screenshot shows the 'Schema' tab interface. At the top, there are five filter buttons: 'Dimension', 'Retrievable', 'Indexable', 'Dynamic Facetable', and 'Searchable'. Below the filters, there's a note: 'Note: Click on the image to zoom further.'.

Preview the Movies search app and configure the search results display

19. In the navigation menu, click **Preview** to test the search app.

20. In the search bar, enter:



Then press **Enter** to view the results.

Notice that the full schema is returned. Often times you will not need to display all of the items returned by the full schema. To customize the values to display, AI Applications allows you to configure only the values you want to display. You will see how this is achieved in the next steps.

21. In the left-hand navigation panel, click **Configurations**.

22. Open the **Configure fields in results** dropdown and map fields in your data store to the attributes to be displayed in search results:

Key	Value
Title	title
Thumbnail	poster_path
URL	homepage
Tex 1	tagline
Tex 2	release_date

Click *Check my progress* to verify the objective.

A screenshot of a modal window titled 'Create a structured data search app'. It contains a large circular button and a smaller button labeled 'Check my progress'.

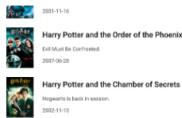
24. Back on the **Preview** page, enter the following in the search bar:



Press **Enter** to view the search results.

The output results have been formatted according to the fields you configured and should look similar to the results pictured below.

A screenshot of the search results page. The search bar at the top has 'Harry Potter' typed in. Below the search bar, there's a navigation bar with 'AI Applications', 'App overview', 'Data', and 'Preview'. The main area shows a single result card for 'Harry Potter'.



Integration

In this section you will review available methods of integrating configured search capabilities into your web or server based applications.

Web

25. In the left-hand side panel, click **Integration**. Notice at the top of the resulting page that you are on the **Widget** tab with code to embed your search app in web-based integrations.

Here you could select the authorization type used to allow users to interact with the search widget. Select **JWT** or **OAuth Based** or **Public Access** depending on

backend. See [Add a widget with an authorization token](#) for more details.

You can also restrict the widget's usage to specific domains specified in the **Add allowed domains for the widget** list.

26. Next, click on the **API** tab.

Here you can enter a search query and see the API call that could be used to query your app.

Task 4. Create and Preview an unstructured data search app

Unstructured data is data that does not have a predefined format. This type of data can be difficult to search within using traditional search engines. An unstructured data

1. Click the **AI Applications** logo to navigate back to the **Apps** page.
2. Click **+CREATE APP**.
3. On the **Create App** page, find the card for **Custom search** and click **Create**.
4. Once again, leave the checkboxes checked. Enter the following for **App name**:

A screenshot of a text input field containing the text 'Alphabet Investor PDF Search'. To the right of the input field is a small square icon with a delete symbol.

5. For **Company Name** enter:

A screenshot of a text input field containing the text 'Alphabet Investors'. To the right of the input field is a small square icon with a delete symbol.

Then click **Continue**.

6. On the **Data Stores** page for your app, click **+CREATE DATA STORE**.

8. For the data type, select **Unstructured documents (PDF, HTML, TXT and more)**.

9. Under the header **Select a folder or a file you want to import**, select the **Folder** type and enter the following value:

A screenshot of a text input field containing the text 'cloud-samples-data/gen-app-builder/search/alphabet-investor-pdfs'. To the right of the input field is a small square icon with a delete symbol.

Then click **Continue**.

This Cloud Storage bucket contains earnings report PDFs from the [Alphabet investor site](#).

10. On the **Configure your data store** page, in the **Data store name** field, enter:

Unstructured PDF Data



11. Click the **Document Processing Options** dropdown to see the parser options.
12. Select the **Layout Parser** for Vertex AI Search to identify content elements like text blocks, tables, lists, and structural elements such as titles and headings and use them to define the organization and hierarchy of a document.
13. Click **CREATE**.
14. On the **Data Stores** page for your app, ensure the **Unstructured PDF Data** data store is selected and click **CREATE**.
15. From the left-hand navigation menu, click **Data**, then click on the **Activity** tab.

When the import process is finished, you will see `Import completed` in the **Status** column.

Note: It may take 5-10 minutes to index all of the unstructured data found in the PDF documents. You can complete the progress check below, then take a break for a few minutes to allow it to complete before completing the steps to see the query in action.

Preview the Alphabet Investor PDFs search app

17. In the navigation menu, click **Preview** to test the search app.
18. In the search bar, enter `Google revenue in 2008`, and then press **Enter** to search the PDFs.

Notice the summary as well as the results. Below is an example of search results for the query provided.

The screenshot shows a search interface with the following details:

- URL: Apps > Alphabet Investor PDFs > Search Preview
- Search Bar: Google revenue in 2008
- Summary: "Google reported revenues of \$5.54 billion for the quarter ended 2008."
- Text: "Generative AI is experimental"
- Result Preview:
 - [1] https://storage.cloud.google.com/cloud-samples-data/gen-a...
2008Q3_earnings_google.pdf
In the third quarter of 2008, TAC totaled \$1.50 billion, or 28% of advertising revenues. Google reports operating income, net income, and earnings per share ...
 - [2] https://storage.cloud.google.com/cloud-samples-data/gen-a...
2008Q2_earnings_google.pdf
The following table presents our revenues, by revenue source, for the periods presented (in thousands, unaudited): 2007 2008 2007 2008 Advertising revenues: ...
 - [3] https://storage.cloud.google.com/cloud-samples-data/gen-a...
- Text: "Click *Check my progress* to verify the objective."
- Buttons:
 - Create an unstructured data search app
 - Check my progress

Congratulations!

You learned how to create Vertex AI Search apps using different types of data stores. You configured the display of the search results. You also viewed the code to embed your search app in a web application and viewed an example query to call your app via an API call.

Next steps

- Learn more about Vertex AI on the [Google Cloud Tech YouTube channel](#).

Google Cloud training and certification

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Fallbacks