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Create and query an index with Amazon Kendra

In this tutorial, you learn how to use Amazon Kendra create a new index and query the index for results.

[Amazon Kendra](#) is a highly accurate and easy to use enterprise search service that's powered by machine learning. Amazon Kendra delivers powerful search capabilities to your websites and applications, so your end users can quickly find the information they need within the vast amount of content spread across your company.

Amazon Kendra lets you ask natural language questions in addition to simple keywords and get the answers you're looking for, whether that is a precise answer, an FAQ response, or an entire document. Amazon Kendra lets you easily add content from Amazon S3, Amazon RDS, Microsoft SharePoint Online, Salesforce into a centralized location.



3. Set up an FAQ data source

4. Query the index using the Console search

For this tutorial, you use Amazon.com help documents in HTML format as discovered by the Amazon Kendra data source connector.

About this Tutorial

Time 1 hour

Cost Less than \$1

Use Case Machine Learning

Products [Amazon Kendra](#)

Audience Developer

Level Beginner

Last Updated September 11, 2020

Step 1. Create an AWS Account

The cost of this tutorial is less than \$1.

Sign-up for AWS

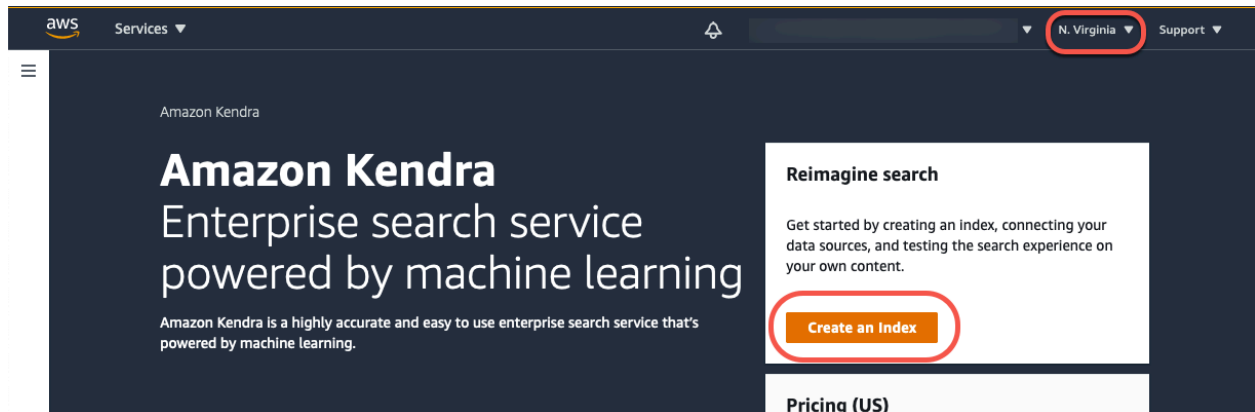
Already have an account? [Sign-in](#)

Step 2. Set up the Amazon Kendra index

Complete the following steps to set up the Amazon Kendra index. An index can contain documents that are indexed from a data source, documents that are added directly to the index, and FAQ documents. When you are active you can index your documents using the operation or using one of the supported connectors.



a. Sign in to the [Amazon Kendra console](#), and in the top right corner, verify your **AWS Region** is set to **N. Virginia**. Then, choose **Create an index**.



b. On the **Index details** page, fill the following fields and choose **Next**.

- **Index name:** hands-on-tutorial
- **Description:** Amazon Kendra tutorial.
- **IAM role:** Create a new role
- **Role name:** AmazonKendra-us-east-1-hands-on-tutorial



Index name

hands-on-tutorial

Maximum of 1000 alphanumeric characters. Can include hyphens (-), but not spaces.

Description - optional

Amazon Kendra tutorial.

Logging details [Info](#)

Amazon Kendra publishes error and alert logs to Amazon CloudWatch. A CloudWatch log group and corresponding log stream will be created on your behalf.

IAM role [Info](#)

Amazon Kendra requires permissions to access your CloudWatch log. Choose an existing IAM role or let us create a role for you.

❗

IAM roles used for data sources or FAQs can't be used for indexes. If you are unsure if an existing role is used for a data source or FAQ, select "Create a new role" to avoid an error.

Create a new role (Recommended)

Role name

Your role name will be prefixed with 'AmazonKendra-us-east-1-'.

AmazonKendra-us-east-1-hands-on-tutorial

Encryption [Info](#)

Amazon Kendra will encrypt your data with Amazon Kendra owned key by default. You can also choose to use an AWS KMS managed key.

☐ Use an AWS KMS managed encryption key

Tags (0) - optional [Info](#)

A tag is an administrative label that you assign to AWS resources to make it easier to manage them. Each tag consists of a key and an optional value. Use tags to search and filter your resources or track your AWS costs.

This resource has no tags

Add new tag

You can add up to 50 more tags.

Cancel

Next

c. On the **Provisioning editions** page, choose **Developer edition** and then choose



Provisioning editions

Amazon Kendra comes in two editions. Kendra Enterprise Edition provides a high-availability service for production workloads. Kendra Developer Edition is suited for building a proof-of-concept and experimentation; this edition is not recommended for production workloads.

☒ **Developer edition**

Provides 10,000 documents, supports up to 4,000 queries per day, and runs in 1 availability zone (AZ). Use this edition to test Amazon Kendra's capabilities and to build a proof-of-concept application in a development environment. The developer edition has fixed storage and query capacity.

☐ **Enterprise edition**

Provides 500,000 documents, supports up to 40,000 queries per day, and runs in 3 availability zones (AZ). Use this edition for your production applications. You can add storage and query units as needed.

For information on our free tier, document size limits, and total storage for each Kendra edition, please see our pricing page.

[Pricing information](#) 

Cancel

Create

The index creation process takes an average of 15 minutes, but may take up to 30 minutes.

Step 3. Update the IAM role

When you create an index, data source, or an FAQ, Amazon Kendra needs access to the AWS resources required to create the Amazon Kendra resource. While the index is being created, you can update the IAM role to allow it to read from Amazon S3. In a production environment, this step is where you can lock down access to only read specific buckets or files/objects.

Complete the following steps to update the IAM role to allow Amazon S3 access.

Note: For more information, see [IAM access roles for Amazon Kendra](#) in the Amazon Kendra documentation.

- Open the [IAM console](#) and in the left navigation pane, choose **Roles**. In the search box, type *hands-on-tutorial*. Select and choose the **AmazonKendra-us-east-1-hands-on-tutorial** role.



- Users
- Roles**
- Policies
- Identity providers
- Account settings

b. On the Summary page, choose **Attach policies**.

[Roles](#) > [AmazonKendra-us-east-1-hands-on-tutorial](#)

Delete role

Summary

Role ARN	arn:aws:iam:: <div></div> :role/service-role/AmazonKendra-us-east-1-hands-on-tutorial
Role description	AmazonKendra-us-east-1-hands-on-tutorial Edit
Instance Profile ARNs	<div></div>
Path	/service-role/
Creation time	2020-09-04 13:32 PDT
Last activity	Not accessed in the tracking period
Maximum session duration	1 hour Edit

Permissions

Trust relationships

Tags

Access Advisor

Revoke sessions

▼ Permissions policies (1 policy applied)

Attach policies

[Add inline policy](#)

Policy name	Policy type
<div>▶ AmazonKendra-us-east-1-hands-on-tutorial</div>	Managed policy

▶ Permissions boundary (not set)

c. On the **Attach permissions** page, in the search box, type *S3*, and select the **AmazonS3ReadOnlyAccess** policy. Choose **Attach policy**.



	Policy name	Type	Used as
<input type="checkbox"/>	AmazonDMSRedshiftS3Role	AWS managed	None
<input type="checkbox"/>	AmazonS3FullAccess	AWS managed	Permissions policy (1)
<input checked="" type="checkbox"/>	AmazonS3ReadOnlyAccess	AWS managed	None
<input type="checkbox"/>	QuickSightAccessForS3StorageManagementAnalyticsReadOnly	AWS managed	None

CancelAttach policy

On the **Summary** page, you should see two policies attached to the IAM role.

Roles > AmazonKendra-us-east-1-hands-on-tutorial

Summary

Delete role

Policy AmazonS3ReadOnlyAccess has been attached for the AmazonKendra-us-east-1-hands-on-tutorial.

Role ARN

arn:aws:iam: role/service-role/AmazonKendra-us-east-1-hands-on-tutorial

Role description

AmazonKendra-us-east-1-hands-on-tutorial | Edit

Instance Profile ARNs

Path

/service-role/

Creation time

2020-09-04 13:32 PDT

Last activity

Not accessed in the tracking period

Maximum session duration

1 hour Edit

Permissions

Trust relationships

Tags

Access Advisor

Revoke sessions

Permissions policies (2 policies applied)

Attach policies

Add inline policy

Policy name	Policy type	
AmazonS3ReadOnlyAccess	AWS managed policy	x
AmazonKendra-us-east-1-hands-on-tutorial	Managed policy	x

d. Return to the [Amazon Kendra console](#) and wait for the status of your index from Step 2 to change from *Creating* to *Active* before continuing to the next step.



<input type="radio"/>	hands-on-tutorial	✔ Active	Sep 04, 2020, 1:33 PM PDT	Sep 04, 2020, 1:33 PM PDT	0
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Step 4. Configure an S3 connector to the data source

A data source is a location, such as an Amazon Simple Storage Service (Amazon S3) bucket, where you store the documents for indexing. Data sources can be automatically synchronized with an Amazon Kendra index so that new, updated, or deleted documents in the source repositories are included in searches. Connectors maintain document access rights and can be scheduled to automatically sync your index with your data source, so you're always securely searching through the most up to date content.

Complete the following steps to add a connector to the Amazon S3 bucket containing the Amazon.com help documents sample as a data source.

Note: For more information, see [Data sources](#) in the Amazon Kendra documentation.

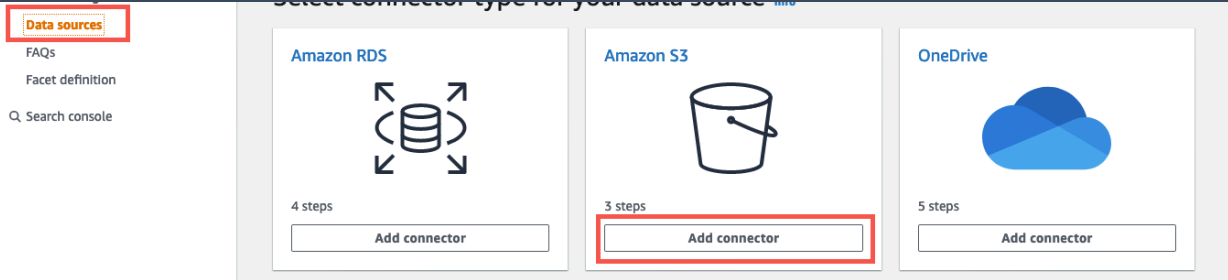
a. In the **Indexes** list, choose your **hands-on-tutorial**.

The screenshot shows the Amazon Kendra console interface. On the left is a navigation pane with 'Indexes' selected. The main panel displays the 'Indexes (1)' list. At the top right of the list are 'Actions' and 'Create index' buttons. Below the buttons is a search bar and a table with columns: Name, Status, Creation time, Last modified time, and Document count. The table contains one entry, 'hands-on-tutorial', which is highlighted with a red rectangular box. The status of this index is 'Active'.

Name	Status	Creation time	Last modified time	Document count
hands-on-tutorial	✔ Active	Sep 04, 2020, 1:33 PM PDT	Sep 04, 2020, 1:33 PM PDT	0

b. In the left navigation pane, under **Data management**, choose **Data sources**. Under connector type, in the **Amazon S3** box, choose **Add connector**.





c. On the **Define attributes** page, for **Data source name**, type *Amazon-com-help-pages* and choose **Next**.

Define attributes

Name data source

Data source name

Maximum of 1000 alphanumeric characters. Can include hyphens (-), but not spaces.

Description - *optional*

Tags (0) - *optional* [Info](#)

A tag is an administrative label that you assign to AWS resources to make it easier to manage them. Each tag consists of a key and an optional value. Use tags to search and filter your resources or track your AWS costs.

This resource has no tags

You can add up to 50 more tags.

Cancel

Next



Configure settings

Configure S3 connector [Info](#)

Enter the data source location

Locate the S3 bucket where your data is stored

s3://serverless-analytics

Browse S3

Metadata files prefix folder location - *optional* [Info](#)

Locate the meta data files prefix


meta/

Browse S3

☐ Select decryption key

IAM role [Info](#)

Amazon Kendra requires permissions for other services to create this data source. Choose an existing IAM role or let us create a role for you.

 IAM roles used for indexes or FAQs can't be used for data sources. If you are unsure if an existing role is used for an index or FAQ, select "Create a new role" to avoid an error.

AmazonKendra-us-east-1-hands-on-tutorial ▼

► Additional configuration - *optional*

Add patterns to include or exclude documents from your index.

e. In the **Additional configuration** section, for **Include patterns**, type *amazon-help/documents/* and choose **Add**.



are relative to the data source location S3 bucket. You can have a combined total of 100 patterns.

Include patterns

Exclude patterns

Specify the include patterns by defining a path to include.

Path

amazon-help/documents/

Add

f. In the **Set sync run schedule** section, for **Frequency**, choose **Run on demand** and then choose **Next**.

Set sync run schedule [Info](#)

Tell Amazon Kendra how often it should sync this data source. You can check the health of your sync jobs in the data source details page once the data source is created.

Frequency

Select how often you want your data source to sync.

Run on demand

Cancel

Next

g. Review the configuration details and then choose **Create**.



Data source bucket s3://serverless-analytics	Metadata prefix -	IAM role ARN arn:aws:iam::[redacted]:role/service-role/AmazonKendra-us-east-1-hands-on-tutorial
▼ Additional configuration Include and exclude documents from indexing.		
Include patterns amazon-help/documents/	Exclude patterns No exclude patterns defined	
Schedule		
Sync run schedule (UTC) Run on demand		
Cancel		Create

h. On the **Data source details** page, choose **Sync now**.

The S3 connector starts crawling and indexing the content it has permission to access through the assigned IAM role.

You successfully created the following data source: 'Amazon-com-help-pages'. Sync it now to index your content for searching. [Sync now](#)

[Amazon Kendra](#) > [Indexes](#) > [hands-on-tutorial](#) > [Data sources](#) > Amazon-com-help-pages

Amazon-com-help-pages [Info](#)

[Sync now](#) [Stop sync](#) [Actions](#) ▼

Data source details

Name Amazon-com-help-pages	Status 🟢 Active	Last sync status -	Current sync state Idle
Description -	Type S3	Last sync time -	Next scheduled sync -
Data source ID [redacted]	IAM role ARN arn:aws:iam::[redacted]:role/service-role/AmazonKendra-us-east-1-hands-on-tutorial		

Amazon Kendra > Indexes > hands-on-tutorial > Data sources

Data sources (1) Info

Sync now Stop sync Actions Add data source

Search data sources by Name, Source, or Data source state

	Name	Source	Data source state	Last sync time	Last sync status	Current sync
<input type="radio"/>	Amazon-com-help-pages	S3	Active	Sep 04, 2020, 2:00 PM PDT	Succeeded	Idle

Step 5. Add an FAQ

For this step, you upload an FAQ to provide Kendra with direct answers to commonly asked questions. Amazon Kendra finds the closest question to the search query and returns the corresponding answer.

Complete the following steps to add an FAQ using the sample *amazon-help-faqs*.

Note: For more information, see [Amazon Kendra Features](#).

- a. In the left navigation pane of the Amazon Kendra console, choose **FAQs**, then choose **Add FAQ**.

Amazon Kendra

Indexes

hands-on-tutorial

▼ Data management

Data sources

FAQs

Facet definition

Search console

Sync started successfully at Sep 04, 2020, 1:55 PM PDT.
Amazon Kendra is syncing the following data source: 'Amazon-com-help-pages'. It can take from a few minutes to a few hours. Syncing is a two-step process. First documents are crawled to determine the ones to index. Then the selected documents are indexed. Sync speeds are limited by factors such as remote repository throughput and throttling, network bandwidth, and the size of documents.

Amazon Kendra > Indexes > hands-on-tutorial > FAQs

FAQs (0) Info

Delete Add FAQ

Search FAQs

Name	Status	Creation time	Last Modified
------	--------	---------------	---------------

You have no FAQs

Upload commonly asked questions and answers from your data set to improve search results for your end users.

Add FAQ

- IAM role: AmazonKendra-us-east-1-hands-on-tutorial

Amazon Kendra > Indexes > hands-on-tutorial > FAQs > Add FAQ

Add FAQ

Define FAQ project [Info](#)

FAQ name

Maximum of 100 alphanumeric characters. Can include hyphens (-), but not spaces.

Description - optional

FAQ settings [Info](#)

Amazon Kendra accepts .csv files formatted with each row beginning with a question followed by its answer.

Question	Answer	URL (optional)
How do I connect to wifi	Go to your wifi settings and select Connect	http://www.it.doc/wifi-2019.pdf
Where do I submit my vacation time off?	Visit the HR portal and select Employee Tin	http://www.hr.docs/vacay-pol-2019.pdf
What is the policy for bringing dogs to wor	Dogs are allowed but must be authorized b	http://www.policy.docs/dogs.doc
What is the policy for bringing dogs to wor	Managers must approve your dog in advanc	http://www.manager.docs/dogs/pdf

S3

Upload file from an S3 bucket

[Browse S3](#)

IAM role [Info](#)

Amazon Kendra requires permissions to access your S3 bucket and KMS keys for decryption (if applicable). Choose an existing IAM role or let us create a role for you.

ⓘ IAM roles used for data sources or indexes can't be used for FAQs. If you are unsure if an existing role is used for an index or data source, select "Create a new role" to avoid an error.

Tags (0) - optional [Info](#)

A tag is an administrative label that you assign to AWS resources to make it easier to manage them. Each tag consists of a key and an optional value. Use tags to search and filter your resources or track your AWS costs.

This resource has no tags

[Add new tag](#)

You can add up to 50 more tags.

[Cancel](#) [Add](#)

You should see the new FAQ and a message, *You successfully created the following help-faqs'.*



Search FAQs					< 1 >		⚙	
	Name	▼	Status	▼	Creation time	▼	Last Modified	▼
<input type="radio"/>	amazon-help-faqs		✓ Active		Sep 04, 2020, 2:05 PM PDT		Sep 04, 2020, 2:05 PM PDT	

Step 6. Query the index

Now you can use the text search console to query your newly created index. This is just one of many ways you can query your index. When you search your index, Amazon Kendra uses all of the information that you provided to return the most accurate answer and relevant documents to your search query.

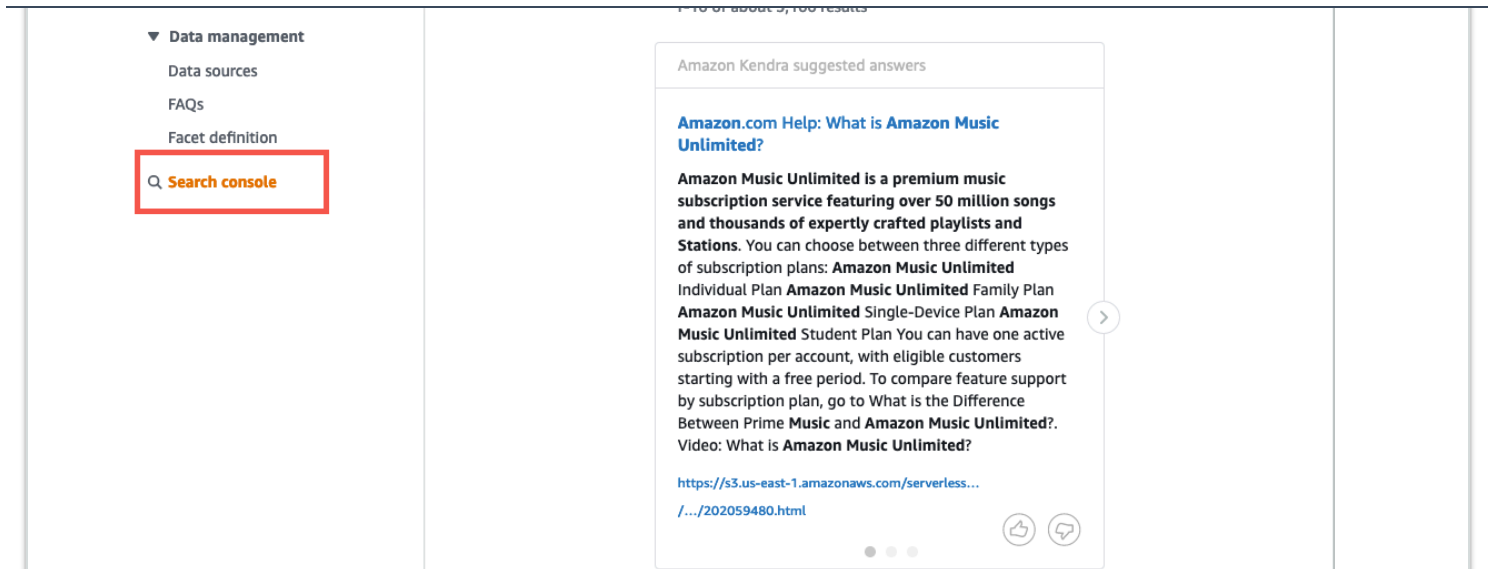
Complete the following steps to query your newly created index.

Note: For more information, see [Searching indexes](#) in the Amazon Kendra documentation.

- In the left navigation pane of the **Amazon Kendra console**, choose **Search console**. In the search box, type your first query: *What is Amazon music unlimited?*

At the top of the results, you can see an Amazon Kendra returned result.





▼ Data management

- Data sources
- FAQs
- Facet definition
- Search console**

1-10 of about 3,100 results

Amazon Kendra suggested answers

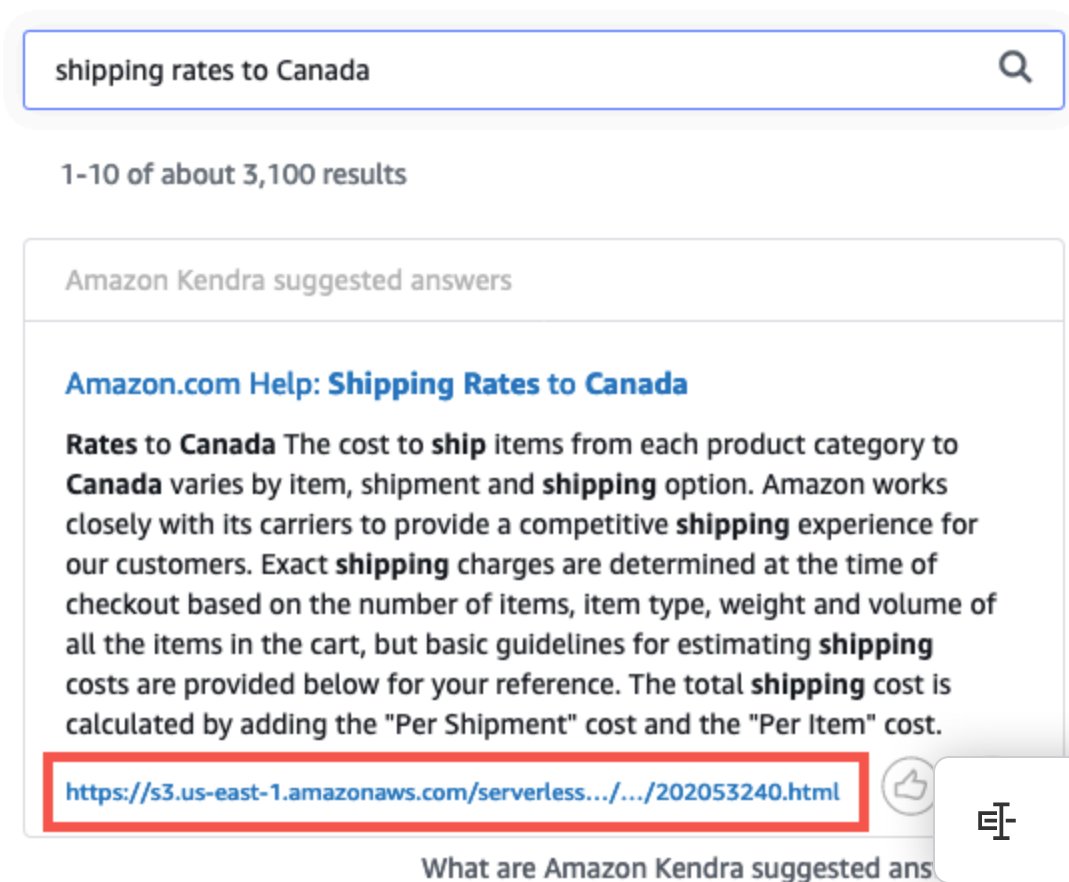
Amazon.com Help: What is Amazon Music Unlimited?

Amazon Music Unlimited is a premium music subscription service featuring over 50 million songs and thousands of expertly crafted playlists and Stations. You can choose between three different types of subscription plans: Amazon Music Unlimited Individual Plan Amazon Music Unlimited Family Plan Amazon Music Unlimited Single-Device Plan Amazon Music Unlimited Student Plan You can have one active subscription per account, with eligible customers starting with a free period. To compare feature support by subscription plan, go to What is the Difference Between Prime Music and Amazon Music Unlimited?. Video: What is Amazon Music Unlimited?

<https://s3.us-east-1.amazonaws.com/serverless.../.../202059480.html>

b. Next, type another query: *shipping rates to Canada*

You can see another result returned by Amazon Kendra.



shipping rates to Canada

1-10 of about 3,100 results

Amazon Kendra suggested answers

Amazon.com Help: Shipping Rates to Canada

Rates to Canada The cost to **ship** items from each product category to **Canada** varies by item, shipment and **shipping** option. Amazon works closely with its carriers to provide a competitive **shipping** experience for our customers. Exact **shipping** charges are determined at the time of checkout based on the number of items, item type, weight and volume of all the items in the cart, but basic guidelines for estimating **shipping** costs are provided below for your reference. The total **shipping** cost is calculated by adding the "Per Shipment" cost and the "Per Item" cost.

<https://s3.us-east-1.amazonaws.com/serverless.../.../202053240.html>

What are Amazon Kendra suggested answers

In the results, you can see the Amazon Kendra recommended answer reported from the indexed documents along with a new answer from the FAQ data source.

How do I sign up for the Amazon Prime free Trial?



1-10 of about 3,100 results

Amazon Kendra suggested answers

Amazon.com Help: Sign Up for the Amazon Prime Free Trial

Payment options such as an **Amazon.com** Corporate Line of Credit, checking accounts, pre-paid credit cards, or gift cards cannot be used. To **sign up for the Amazon Prime free trial: Go to Amazon Prime Free Trial. Click Start your free trial. Follow the on-screen instructions if prompted.** You'll be enrolled in the **free trial** of **Amazon Prime** and have access to **FREE** Two Day shipping, **Prime** Video, **Prime** Music, and access to the Kindle Owners' Lending Library.

<https://s3.us-east-1.amazonaws.com/serverless.../.../201910190.html>



What are Amazon Kendra suggested answers? [Info](#)

Frequently asked questions

How do I sign up for the Amazon Prime free Trial?



What are frequently asked questions? [Info](#)

Step 7. Clean up

In this step, you terminate the resources you used in this lab.

Important: Terminating resources that are not actively being used reduces costs and terminating your resources will result in charges to your account.



Not

2. In the left navigation pane, choose **Indexes**.
3. Choose the **hands-on-tutorial** index and then choose **Actions, Delete**.
4. Type **Delete** to confirm.

Delete the IAM role and policy:

1. Open the [IAM Console](#).
2. In the left navigation pane, choose **Roles**.
3. In the search box, type *hands-on-tutorial*.
4. Select the **AmazonKendra-us-east-1-hands-on-tutorial** role and then choose **Delete role**.
5. Choose **Yes, delete**
6. In the left navigation pane, choose **Policies**.
7. In the search box, type *hands-on-tutorial*.
8. Select the **AmazonKendra-us-east-1-hands-on-tutorial** policy and then choose **Policy actions, Delete**.
9. Choose **Delete**.



Recommended next steps

Learn more

Learn more about Amazon Kendra by reading the [Amazon Kendra Developer Guide](#).

Read more about Amazon Kendra features

See the [Amazon Kendra Features page](#) for more information.

Explore other machine learning services tutorials

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