Introduction

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What is Amazon Kendra?  
Amazon Kendra is a highly accurate intelligent search service that enables your users to search  
unstructured data using natural language. It returns specific answers to questions, giving users an  
experience that's close to interacting with a human expert. It is highly scalable and capable of meeting  
performance demands, tightly integrated with other AWS services such as Amazon S3 and Amazon Lex,  
and offers enterprise-grade security.  
Amazon Kendra users can ask the following types of questions, or queries:  
• Factoid questions — Simple who, what, when, or where questions, such as Who is on duty today?or Where is the nearest service center to me? Factoid questions have fact-based answers that can be  
returned in the form of a single word or phrase. The precise answer, however, must be explicitly stated  
in the ingested text content.  
• Descriptive questions — Questions whose answer could be a sentence, passage, or an entire  
document. For example, How do I connect my Echo Plus to my network? or How do I get tax benefits forlower income families?.  
• Keyword searches — Questions where the intent and scope are not clear. For example, keynoteaddress. As 'address' can often have several meanings, Amazon Kendra can infer the user's intent  
behind the search query to return relevant information aligned with the user's intended meaning.  
Amazon Kendra uses deep learning models to handle this kind of query.

Benefits of Amazon Kendra  
Amazon Kendra has the following benefits:  
• Accuracy — Unlike traditional search services that use keyword searches where results are based on  
basic keyword matching and ranking, Amazon Kendra attempts to understand the content, the user  
context, and the question. Amazon Kendra searches across your data and goes beyond traditional  
search to return the most relevant word, snippet, or document for your query. Amazon Kendra uses  
machine learning to improve search results over time.  
• Simplicity — Amazon Kendra provides a console and API for managing the documents that you want  
to search. You can use a simple search API to integrate Amazon Kendra into your client applications,  
such as websites or mobile applications.  
• Connectivity — Amazon Kendra can connect to third-party data sources to provide search across  
documents managed in different environments.  
• User Access Control — Amazon Kendra delivers highly secure enterprise search for your search  
applications. Your search results reflect the security model of your organization. Customers are  
responsible for authenticating and authorizing users to gain access to their search application.

Amazon Kendra Developer Edition  
The Amazon Kendra Developer Edition provides all of the features of Amazon Kendra at a lower cost. It  
includes a free tier that provides 750 hours of use. The Developer Edition is ideal to explore how Amazon  
Kendra indexes your documents, to try out features, and to develop applications that use Amazon  
Kendra.  
The developer edition provides the following:  
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Amazon Kendra Enterprise Edition  
• Up to 5 indexes with up to 5 data sources each.  
• 10,000 documents or 3 GB of extracted text.  
• Approximately 4,000 queries per day or 0.05 queries per second.  
• Runs in 1 availability zone (AZ) – see Availability Zones (data centers in AWS regions)  
You should not use the Developer Edition for a production application. The Developer Edition doesn't  
provide any guarantees of latency or availability.

Amazon Kendra Enterprise Edition  
Use Amazon Kendra Enterprise Edition when you want to index your entire enterprise document library  
or for when your application is ready for use in a production environment.  
The enterprise edition provides the following:  
• Up to 5 indexes with up to 50 data sources each.  
• 100,000 documents or 30 GB of extracted text.  
• Approximately 8,000 queries per day or 0.1 queries per second.  
• Runs in 3 availability zones (AZ) – see Availability Zones (data centers in AWS regions)

Documents  
Amazon Kendra can index many types of documents. You can also associate attributes with documents  
to provide information such as the source URI and the author of a document.  
**Topics**• Types of documents (p. 5)  
• Document attributes (p. 6)  
Types of documents  
An index can include both structured and unstructured text:  
• Structured text  
• Frequently asked questions and answers  
• Unstructured text  
• HTML files  
• Microsoft PowerPoint presentations  
• Microsoft Word documents  
• Plain text documents  
• PDFs  
You can add documents directly to an index by calling the BatchPutDocument (p. 267) operation. You  
can also add documents from a data source. For information about adding files to a data source, see  
Adding documents from a data source (p. 75). For an example that shows how to add Microsoft Word  
documents directly to an index from an Amazon S3 bucket, see Adding documents from an Amazon S3  
bucket (p. 68).  
An index can contain multiple documents and multiple types of documents.  
HTML  
HTML format files. You add an HTML file to an index the same way that you add a plain text file.  
Plain text  
You can add plain text files to an index using the BatchPutDocument operation or from a data source.  
For an example of adding a plain text document directly to an index, see Adding documents with the  
API (p. 67).  
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Document attributes  
Microsoft Word document  
Microsoft Word format files can be added to an index as binary data, from an Amazon S3 bucket, or from  
an Amazon Kendra data source.  
Microsoft PowerPoint document  
Microsoft PowerPoint format files can be added to an index as binary data, from an Amazon S3 bucket,  
or from an Amazon Kendra data source.  
Portable document format (PDF)  
PDF format files can be added to an index either as binary data, from an Amazon S3 bucket, or from an  
Amazon Kendra data source.  
Frequently asked questions and answers  
Frequently asked question and answer format documents are used to answer questions such as *How tall  
is the Space Needle?* You can specify multiple questions that return the same answer. You specify the  
questions and answers in a comma-separated values (CSV) file stored in an Amazon S3 bucket.  
For an example, see Adding questions and answers directly to an index (p. 70).

Document attributes  
A document has attributes associated with it. Attributes of a document are the properties of a document  
or what is contained within the structure of a document. For example, each of your documents might  
contain title, body text, and author. You can also add your own custom attributes of your documents.  
Custom attributes are attributes that you specify for your own needs. For example, if your index searches  
tax documents, you might specify a custom attribute for the type of tax document such as W-2, 1099,  
and so on.  
Before you can use a document attribute in a query, it must be mapped to a database field. For example,  
the title attribute can be mapped to the field \_document\_title. For more information, see Index  
fields (p. 4).  
You can use document attributes to filter responses and to make faceted search suggestions. For  
example, you can filter a response to only return a specific version of a document, or you can filter  
searches to only return 1099 tax documents that match the search term. For more information, see  
Filtering queries (p. 120).  
You can also use document attributes to manually tune the query response. For example, you can choose  
to increase the importance of the title field to increase the weight that Amazon Kendra assigns to the  
field when determining which documents to return in the response. For more information, see Tuning  
search relevance (p. 152).  
Before you can add an attribute, you must create an index field to map the attribute to. You create index  
fields using the console or by using the UpdateIndex (p. 400) operation.  
If you are adding a document directly to an index, you specify the attributes in the Document (p. 458)  
input parameter to the the section called “BatchPutDocument” (p. 267) operation. You specify the  
custom attribute values in a DocumentAttribute (p. 460) object array. If you are using a data source, the  
method that you use to add the document attributes depends on the data source. For more information,  
see Creating custom document attributes (p. 110).  
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Data sources

Data sources  
A *data source* is a location, such as an Amazon Simple Storage Service (Amazon S3) bucket, where you  
store the documents for indexing. You can automatically synchronize data sources with an Amazon  
Kendra index so that new, updated, or deleted documents in the data source are also added, updated, or  
deleted in the index for searching on.  
Supported data sources are:  
• Amazon S3 buckets  
• Confluence instances  
• Google Workspace Drives  
• Amazon RDS for MySQL and Amazon RDS for PostgreSQL databases  
• Confluence cloud and Confluence server  
• Custom data sources  
• Microsoft OneDrive for Business  
• Microsoft SharePoint  
• Salesforce sites  
• ServiceNow instances  
• Amazon Kendra web crawler  
Supported document formats are: plain text, Microsoft Word, Microsoft PowerPoint, HTML, and PDF. For  
more information, s

Queries  
To get answers, users query an index. Users can use natural language in their queries. The response  
contains information, such as the title, a text excerpt, and the location of documents in the index that  
provide the best answer.  
Amazon Kendra uses all of the information that you provide about your documents, not just the contents  
of the documents, to determine whether a document is relevant to the query. For example, if your index  
contains information about when documents were last updated, you can tell Amazon Kendra to assign a  
higher relevance to documents that were updated more recently.  
A query can also contain criteria for how to filter the response so that Amazon Kendra returns only  
documents that satisfy the filter criteria. For example, if you created an index field called *department*,  
you can filter the response so that only documents with the department field set to *legal* are returned.  
For more information, see Filtering queries (p. 120).  
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Tags  
You can influence the results of a query by tuning the relevance of individual fields in the index. Tuning  
changes the importance of a field on the results. For example, if you raise the importance of documents  
with the category *new*, documents with this category are more likely to be included in the response. For  
more information, see Tuning search relevance (p. 152).  
For more information about using queries, see Searching indexes (p. 117).  
Tags  
Manage your indexes, data sources, and FAQs by assigning metadata to them with *tags*. Use tags  
to categorize your Amazon Kendra resources in various ways, for example, by purpose, owner, or  
application, or any combination. Each tag consists of a *key* and a *value*, both of which you define.  
Tags help you to:  
• Identify and organize your AWS resources. Many AWS services support tagging, so you can assign the  
same tag to resources in different services to indicate that the resources are related. For example, you  
can tag an index and the Amazon Lex bot that uses it with the same tag.  
• Allocate costs. You activate tags on the AWS Billing and Cost Management dashboard. AWS uses tags  
to categorize your costs and deliver a monthly cost allocation report to you. For more information, see  
Cost Allocation and Tagging in *About AWS Billing and Cost Management*.  
• Control access to your resources. You can use tags in AWS Identity and Access Management (IAM)  
polices that control access to Amazon Kendra resources. You can attach these policies to an IAM role  
or user to enable tag-based access control. For more information, see Authorization based on Amazon  
Kendra tags (p. 194).  
You can create and manage tags using the AWS Management Console, the AWS Command Line Interface  
(AWS CLI), or the Amazon Kendra API

Controlling access to documents in an index  
Amazon Kendra supports token-based user access control using the following token types:  
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Using OpenID  
• Open ID  
• JWT with a shared secret  
• JWT with a public key  
• JSON  
Amazon Kendra delivers highly secure enterprise search for your search applications. Your search results  
reflect the security model of your organization. Customers are responsible for authenticating and  
authorizing users to gain access to their search application. At search time, the Kendra service filters  
search results based on user ID provided by the customer’s search application, and document ACLs  
collected by the Kendra connectors during crawl/indexing time. The search results return URLs pointing  
back to the original document repositories plus short excerpts. Access to the full document is still  
enforced by the original repository.

Adding questions and answers directly to an index  
You can add questions and answers (FAQs) directly to your index using the console or the  
CreateFaq (p. 282) operation. You put the data for the FAQ in a file that you store in an Amazon Simple  
Storage Service (Amazon S3) bucket. You can use comma-separated values (.csv) files or JSON files as  
input for your FAQ, as follows:  
• Basic .csv – A .csv file where each line contains a question, answer, and an optional URL with more  
information about the answer.  
• Custom .csv – A .csv file that contains questions, answers, and a header that defines custom attributes  
that you can use to facet, display, or sort FAQ responses. You can also define access control attributes  
to limit the FAQ response to certain users and groups.  
• JSON – A JSON file that contains questions, answers, and, optionally, custom and access control  
attributes. You can define attributes to facet, display. and sort FAQ responses, or access control  
attributes that limit the FAQ response to certain users and groups.