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# Production-ready billion scale vector database — Elasticsearch

Elasticsearch's <u>open source</u> vector database offers an efficient way to create, store, and search vector embeddings.

Combine text search and <u>vector</u>

<u>search</u> for hybrid retrieval, resulting in the best of both capabilities for greater relevance and accuracy.

Start free trial

Discover the latest innovations that make Elasticsearch and Lucene the top choice for vector databases.

### Read blog $\longrightarrow$

Learn to use Elasticsearch as a vector database for embeddings, powering search and building use cases like retrieval augmented generation (RAG), summarization, and Q&A.

#### Discover more on Search Labs →

Elastic is the first to offer better binary quantization (BBQ), an optimization for vector databases with faster, more accurate vector search and 95% memory reduction.

Learn more about BBQ  $\longrightarrow$ 

Elasticsearch — the most widely deployed vector database

Copy to try locally in two minutes

curl -fsSL https://elastic.co/start-local | sh



Read docs ->

Deploy for production

Start free cloud trial

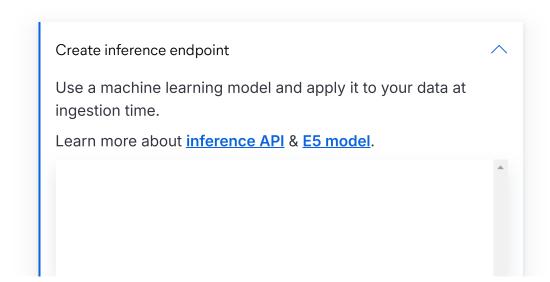
Or, download on-prem

## A vector database is your starting point...

You need more than a vector database for a great search experience. Elasticsearch offers multiple retrieval types, flexible machine learning models, and advanced search features like aggregations, filtering, and auto-complete.

Run in the **cloud**, **serverless**, on-prem, or air gapped.

Read Elasticsearch Relevance Engine docs ->



```
"num_allocations": 1,
      "num_threads": 1,
      "model_id": ".multilingual-e5-small"
Generate embeddings
Index embeddings
Search embeddings
Use filters and faceting to refine search
Combine retrieval methods with hybrid search
Apply document-level security and compliance authorization
```

#### **VECTOR DATABASE INTEGRATIONS**















Why use a vector database?

Try it using the Al Playground →

Search across intent and augmented all your data: contextual generation text, vector, workloads for meaning beyond image, audio, GenAl search text matching. video, geo, or experiences unstructured using vector and Try hands-on data. hybrid learning → techniques. Field **ChatGPT** and mapping types  $\longrightarrow$ private data →

# Vector database superset

Choose a vector database based on the vector search experience you want to build.

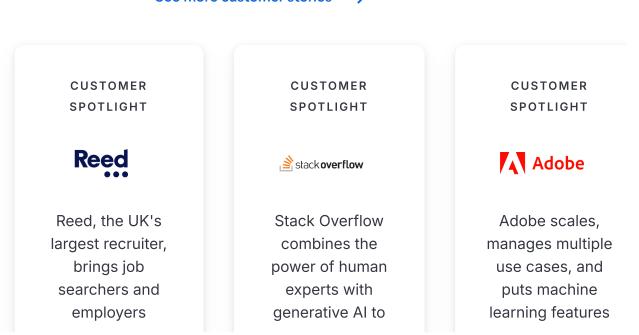
Some vector databases	Elasticsearch
Embeddings	~
Store embeddings	
full support	full support (free)

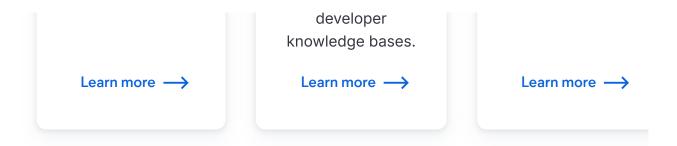
some support full support (p		full support (paid)
		^
Machine	learning	^
Search ex	xperience tools	^
Elastic to	ols	^

## Elasticsearch—in action

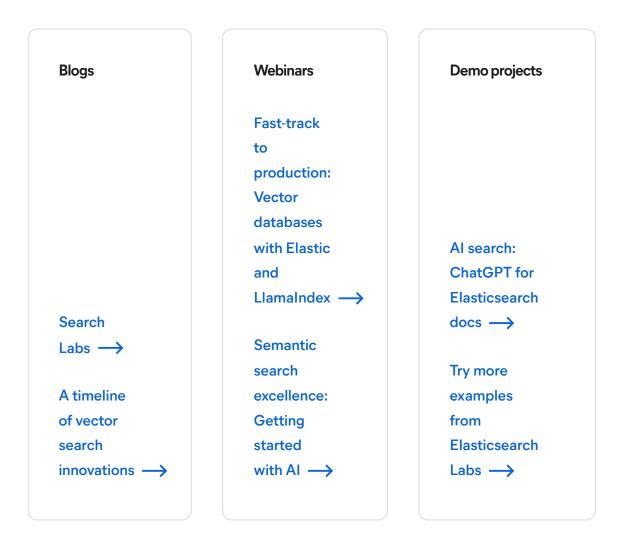
See how organizations are building AI search applications to improve customer experience and help users find exactly what they're looking for.

See more customer stories ->





## Get started implementing vector search



Frequently asked questions

numerical representations of data objects, also known as vector embeddings. It uses vector embeddings for multi-modal search across a massive data set of structured, unstructured, and semistructured data, such as images, text, videos and audio. Vector databases are built to manage vector embeddings and therefore offer a complete solution for data management.

What are vector embeddings?	^
What are the benefits of a vector database?	^
Is Elasticsearch a vector database?	^
Why choose Elastic as your vector database?	^

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