AI...
Search... ⌘ K

- Getting Started
  - Expand menu
    - Projects and Deployments
    - Use a Template
    - Import Existing Project
    - Add a Domain
    - Buy a Domain
    - Transfer an Existing Domain
    - Collaborate
    - Next Steps
- Supported Frameworks
  - Expand menu
    - Full-stack
      - Expand menu
        - Next.js
        - SvelteKit
        - Nuxt
        - Remix
    - Frontends
      - Expand menu
        - Astro
        - Vite
        - React Router
        - Gatsby
        - Create React App
    - Backends
      - Expand menu
        - Nitro
        - Hono
    - All Frameworks
- Incremental Migration
- Production Checklist
- Guides

- Access
  - Expand menu
    - Account Management
    - Activity Log
    - Deployment Protection
      - Expand menu
        - Bypass Deployment Protection
          - Expand menu
            - Exceptions
            - OPTIONS Allowlist
            - Protection Bypass for Automation
            - Sharable Links
        - Protect Deployments
          - Expand menu
            - Password Protection
            - Trusted IPs
            - Vercel Authentication
    - Directory Sync
    - SAML SSO
    - Two-factor (2FA)
- AI
  - Expand menu
    - v0
    - AI SDK
    - Agents
    - AI Gatewaybeta
      - Expand menu
        - Models & Providers
        - Observability
        - Pricing
        - Provider Options
        - OpenAI-Compatible API
        - Authentication
        - BYOK
        - Community Frameworks
          - Expand menu
            - LangChain
            - Mastra
        - Model Variants
    - MCP
      - Expand menu
        - Deploy MCP servers
        - Vercel MCP serverbeta
          - Expand menu
            - Tools
    - Integrations
      - Expand menu
        - Adding a Provider
        - Adding a Model
        - xAI
        - Groq
        - fal
        - Deep Infra
        - ElevenLabs
        - LMNT
        - OpenAI

Copy page

# AI SDK

The AI SDK is the TypeScript toolkit designed to help developers build AI-powered applications with Next.js, Vue, Svelte, Node.js, and more. Integrating LLMs into applications is complicated and heavily dependent on the specific model provider you use.

The AI SDK abstracts away the differences between model providers, eliminates boilerplate code for building chatbots, and allows you to go beyond text output to generate rich, interactive components.

## Generating text

At the center of the AI SDK is AI SDK Core, which provides a unified API to call any LLM.

The following example shows how to generate text with the AI SDK using OpenAI's GPT-4o:

```
import { generateText } from 'ai';
import { openai } from '@ai-sdk/openai';

const { text } = await generateText({
  model: openai('gpt-4o'),
  prompt: 'Explain the concept of quantum entanglement.',
});
```

The unified interface means that you can easily switch between providers by changing just two lines of code. For example, to use Anthropic's Claude Sonnet 3.7:

```
import { generateText } from 'ai';
import { anthropic } from '@ai-sdk/anthropic';

const { text } = await generateText({
  model: anthropic('claude-3-7-sonnet-20250219'),
  prompt: 'How many people will live in the world in 2040?',
});
```

## Generating structured data

While text generation can be useful, you might want to generate structured JSON data. For example, you might want to extract information from text, classify data, or generate synthetic data. AI SDK Core provides two functions (`generateObject` and `streamObject`) to generate structured data, allowing you to constrain model outputs to a specific schema.

The following example shows how to generate a type-safe recipe that conforms to a zod schema:

```
import { generateObject } from 'ai';
import { openai } from '@ai-sdk/openai';
import { z } from 'zod';

const { object } = await generateObject({
  model: openai('gpt-4o'),
  schema: z.object({
    recipe: z.object({
      name: z.string(),
      ingredients: z.array(z.object({ name: z.string(), amount: z.string() })),
      steps: z.array(z.string()),
    }),
  }),
  prompt: 'Generate a lasagna recipe.',
});
```

## Using tools with the AI SDK

The AI SDK supports tool calling out of the box, allowing it to interact with external systems and perform discrete tasks. The following example shows how to use tool calling with the AI SDK:

```
import { generateText, tool } from 'ai';
import { openai } from '@ai-sdk/openai';

const { text } = await generateText({
  model: openai('gpt-4o'),
  prompt: 'What is the weather like today in San Francisco?',
  tools: {
    getWeather: tool({
      description: 'Get the weather in a location',
      parameters: z.object({
        location: z.string().describe('The location to get the weather for'),
      }),
      execute: async ({ location }) => ({
        location,
        temperature: 72 + Math.floor(Math.random() * 21) - 10,
      }),
    }),
  },
});
```

## Getting started with the AI SDK

The AI SDK is available as a package. To install it, run the following command:

pnpm yarn npm bun

```
pnpm i ai
```

See the AI SDK Getting Started guide for more information on how to get started with the AI SDK.

## More resources

- AI SDK documentation
- AI SDK examples
- AI SDK guides
- AI SDK templates

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Previous
v0
Next
Agents

Was this helpful?

On this page

Generating text
Generating structured data
Using tools with the AI SDK
Getting started with the AI SDK
More resources

- Perplexity
- Pinecone
- Replicate
- Together AI

- API
  - Expand menu
    - REST API
    - Vercel SDK
    - Build Output API
      - Expand menu
        - Build Output Configuration
        - Features
        - Vercel Primitives

- Build & Deploy
  - Expand menu
    - Builds
      - Expand menu
        - Build Features
        - Build Image
          - Expand menu
            - Build Image Installed Packages
        - Build Queues
        - Configuring a Build
        - Managing Builds
    - Deploy Hooks
    - Deployment Retention
    - Deployments
      - Expand menu
        - Environments
        - Generated URLs
        - Managing Deployments
        - Promoting Deployments
        - Troubleshoot Build Errors
        - Accessing Build Logs
        - Claim Deployments
        - Inspect OG Metadata
        - Preview Deployment Suffix
        - Sharing a Preview Deployment
    - Environment Variables
      - Expand menu
        - Framework Environment Variables
        - Managing Environment Variables
        - Reserved Environment Variables
        - Sensitive Environment Variables
        - Shared Environment Variables
        - System Environment Variables
    - Git Integrations
      - Expand menu
        - GitHub
        - Azure DevOps
        - Bitbucket
        - GitLab
    - Instant Rollback
    - Microfrontendsbeta
      - Expand menu
        - Getting Started
        - Local Development
        - Path Routing
        - Managing Microfrontends
          - Expand menu
            - Security
            - Using Vercel Toolbar
        - Testing & Troubleshooting
    - Monorepos
      - Expand menu
        - Turborepo
        - Remote Caching
        - Nx
        - Monorepos FAQ
    - Package Managers
    - Protected Git Scopes
    - Rolling Releases
    - Skew Protection
    - Webhooks
      - Expand menu
        - Webhooks API Reference

- CDN
  - Expand menu
    - Domains
      - Expand menu
        - Working with Domains
          - Expand menu

- Adding a Domain
- Adding a Domain to an Environment
- Assigning a Domain to a Git Branch
- Deploying & Redirecting Domains
- Removing a Domain
- Renewing a Domain
- Transferring Domains
- Viewing & Searching Domains

- Working with DNS
- Managing DNS Records
- Working with Nameservers
- Managing Nameservers
- Working with SSL
- Custom SSL Certificates
- Pre-Generate SSL Certificates
- Supported Domains
- Troubleshooting Domains

- Edge Network
  - Expand menu
    - Regions
    - Compression
    - Manage Usage
- Encryption
- Headers
  - Expand menu
    - Security Headers
    - Cache-Control Headers
    - Request Headers
    - Response Headers
- Image Optimization
  - Expand menu
    - Getting Started
    - Limits and Pricing
    - Managing Usage & Costs
    - Legacy Pricing
- Incremental Static Regeneration
  - Expand menu
    - Getting Started
    - Usage & Pricing
- Redirects
- Rewrites
- Vercel Cache

- Collaboration
  - Expand menu
    - Comments
      - Expand menu
        - Enabling Comments
        - Using Comments
        - Managing Comments
        - Integrations
    - Draft Mode
    - Edit Mode
    - Feature Flags
      - Expand menu
        - Flags Explorer
          - Expand menu
            - Getting Started
            - Reference
            - Pricing
        - Flags SDK
        - With Runtime Logs
        - With Vercel Platform
        - With Web Analytics
    - Toolbar
      - Expand menu
        - Add to Environments
          - Expand menu
            - Add to Localhost
            - Add to Production
        - Managing Toolbar
        - Browser Extensions
        - Accessibility Audit Tool
        - Interaction Timing Tool
        - Layout Shift Tool
- Compute
  - Expand menu
    - Fluid Compute
      - Expand menu
        - Pricing
    - Functions
      - Expand menu
        - Getting Started

- Streaming
- Runtimes
  - Expand menu
    - Node.js
      - Expand menu
        - Advanced Node.js Usage
        - Supported Node.js versions
    - Python
    - Go RuntimeGo
    - Ruby
    - Wasm
    - Edge Runtime
- Configuring Functions
  - Expand menu
    - Duration
    - Memory
    - Runtime
    - Region
    - Advanced Configuration
- API Reference
  - Expand menu
    - `@vercel/functions`
- Logs
- Limits
- Concurrency Scaling

- Data Cache
- Routing Middleware
  - Expand menu
    - Getting Started
    - API
- Cron Jobs
  - Expand menu
    - Getting Started
    - Managing Cron Jobs
    - Usage & Pricing
- OG Image Generation
  - Expand menu
    - `@vercel/og`
    - Examples
- Sandbox
  - Expand menu
    - Examples
    - Pricing and Limits

- Multi-tenant
  - Expand menu
    - Domain Management
    - Limits
- Observability
  - Expand menu
    - Overview
      - Expand menu
        - Insights
        - Observability Plus
    - Logs
      - Expand menu
        - Runtime
    - OpenTelemetry
    - Session Tracing
    - Query
      - Expand menu
        - Query Reference
        - Monitoring
          - Expand menu
            - Getting Started
            - Monitoring Reference
            - Limits and Pricing
    - Notebooks
    - Speed Insights
      - Expand menu
        - Getting Started
        - Using Speed Insights
        - Metrics
        - Privacy
        - `@vercel/speed-insights`
        - Limits and Pricing
        - Troubleshooting
        - Migrating from Legacy
    - Log Drains
      - Expand menu
        - Configure Log Drains
        - Correlate Logs and Traces
        - Log Drains Reference
    - Web Analytics
      - Expand menu
        - Getting Started
        - Using Web Analytics
        - Filtering
        - Custom Events
        - Redacting Sensitive Data
        - Privacy

- @vercel/analytics
- Pricing
- Troubleshooting
- Manage & Optimize

- Platform
  - Expand menu
  - Dashboard
    - Expand menu
    - Navigating the Dashboard
    - Support Center
    - Using the Command Menu
  - Notifications
  - Projects
    - Expand menu
    - Managing projects
    - Project Dashboard
    - Transferring a project
  - Project Configuration
    - Expand menu
    - General Settings
    - Project Settings
    - Git Configuration
    - Git Settings
    - Global Configuration
    - Security settings
  - Product Changes
  - Checks
    - Expand menu
    - Checks API
    - Checks Reference
  - CLI
    - Expand menu
    - Deploying from CLI
    - Project Linking
    - Telemetry
    - Global Options
    - vercel alias
    - vercel bisect
    - vercel blob
    - vercel build
    - vercel cache
    - vercel certs
    - vercel deploy
    - vercel dev
    - vercel dns
    - vercel domains
    - vercel env
    - vercel git
    - vercel help
    - vercel init
    - vercel inspect
    - vercel install
    - vercel integration
    - vercel integration-resource
    - vercel link
    - vercel list
    - vercel login
    - vercel logout
    - vercel logs
    - vercel project
    - vercel promote
    - vercel pull
    - vercel redeploy
    - vercel remove
    - vercel rollback
    - vercel rolling-release
    - vercel switch
    - vercel teams
    - vercel telemetry
    - vercel whoami
  - Glossary
  - Integrations
    - Expand menu
    - Extend Vercel
      - Expand menu
      - Add a Connectable Account
      - Add a Native Integration
      - Permissions and Access
    - Integrate with Vercel
      - Expand menu
      - Native integration concepts
      - Create a Native Integration
      - Deployment integration actions
      - Native Integration Flows
      - Native Integrations REST API
      - Integration Approval Checklist
      - Integration Image

Guidelines
- Requirements for listing an Integration
- Upgrade an Integration
- CMS Integrations
Expand menu
- Agility CMS
- ButterCMS
- Contentful
- DatoCMS
- Formspree
- Makeswift
- Sanity
- Sitecore
- Ecommerce Integrations
Expand menu
- BigCommerce
- Shopify
- Sign in with Vercel
- Building Integrations with Vercel REST API
- External Platforms
Expand menu
- Kubernetes

Limits
Expand menu
- Fair use Guidelines

- Pricing
Expand menu

Plans
Expand menu
- Hobby Plan
- Pro Plan
Expand menu
- Pro Plan Trial
- Billing FAQ
- Enterprise Plan
Expand menu
- Billing FAQ

Pricing
Expand menu
- Regional Pricing
Expand menu
- Cape Town, South Africa
- Cleveland, USA
- Dubai, UAE
- Dublin, Ireland
- Frankfurt, Germany
- Hong Kong
- London, UK
- Mumbai, India
- Osaka, Japan
- Paris, France
- Portland, USA
- San Francisco, USA
- São Paulo, Brazil
- Seoul, South Korea
- Singapore
- Stockholm, Sweden
- Sydney, Australia
- Tokyo, Japan
- Washington, D.C., USA
- Manage and Optimize Usage
- Calculating Usage of Resources
- Billing & Invoices
- Legacy Metrics

Spend Management

- Security
Expand menu

Overview
Expand menu
- Security & Compliance Measures
- Shared Responsibility Model
- PCI DSS iframe Integration
- Reverse Proxy Servers and Vercel
- Access Control

Audit Logs
Firewall
Expand menu
- Firewall Concepts
- DDoS Mitigation
- Attack Challenge Mode
- Web Application Firewall
Expand menu

- Custom Rules
- Rate Limiting
- Rule Configuration
- System Bypass Rules
- Rate Limiting SDK
- IP Blocking
- Managed Rulesets
- Examples
- Usage & Pricing

- Firewall API
- Firewall Observability

- Bot Management
- BotID

Expand menu

- Get Started with BotID
- Handling Verified Bots
- Advanced BotID Configuration
- Form Submissions
- Local Development Behavior

- OIDC

Expand menu

- AWS
- Azure
- Connect your API
- Google Cloud Platform
- OIDC Reference

- RBAC

Expand menu

- Access Roles

Expand menu

- Project Level Roles
- Team Level Roles

- Access Groups
- Managing Team Members

- Secure Compute
- Two-factor Enforcement

- Storage

Expand menu

- Blob

Expand menu

- Server Uploads
- Client Uploads
- Using the SDK
- Pricing
- Security
- Examples

- Edge Config

Expand menu

- Getting Started
- Using Edge Config
- Edge Configs & REST API
- Edge Configs & Dashboard
- Edge Config SDK
- Limits & Pricing
- Integrations

Expand menu

- DevCycle
- Hypertune
- LaunchDarkly
- Split
- Statsig

Products

AI

Enterprise

Fluid Compute

Next.js

Observability

Previews

Rendering

Security

Turbo

v0

Resources

Community

Docs

Guides

Help

Integrations

Pricing

Resources

Solution Partners

Startups

Templates

Company

About

Blog

Careers

Changelog

Events

Contact Us

Customers

Partners

Shipped

Privacy Policy

Legal

Social

GitHub

LinkedIn

Twitter

YouTube

All systems normal

Select a display theme:

system

light

dark