

# Zen – Embedded Database for the Intelligent Edge

Meeting diverse application needs in a secure, scalable platform

Embedded databases are popular with developers for several reasons: simplicity, portability, faster performance, offline functionality, and easier application distribution. These benefits are crucial because embedded databases serve a wide range of applications, each with its own data models, operating environments, and application-specific needs. The Zen Embedded database products are designed to address this diversity by offering flexibility and adaptability, ensuring they can meet the unique demands of your applications no matter where they are deployed.

## Action Zen

The Zen database products, described in Figure 1, includes three solutions for developers of mobile, Internet of Things (IoT), edge, and hybrid enterprise applications. They support a variety of hardware architectures, operating environments, networks, communications interfaces, and languages. In addition, these solutions provide persistent local and distributed data across intelligent applications deployed in data centers, branches, and remote-field environments.

Add-on packages for auditing, replication, and multi-instance synchronization, which comes bundled with Zen Enterprise, further support networks of branch offices and remote workers and mobile and IoT devices connected to gateways.

## Single, Scalable Data Management Platform

The Zen database products are built with a single, modular architecture (see Figure 2) that scales from a core set of libraries capable of single-user client data management to a full-fledged, enterprise-grade server. Solutions are capable of supporting thousands of users on multicore, VM cloud environments or in Docker containers with Kubernetes orchestration and Helm chart deployment configuration.

## Features to Power Your Growth

Zen Embedded Database makes it easy for partners, including independent software vendors, original equipment manufacturers, and system integrators, as well as businesses to build in-house applications. It's effortless to incorporate value-added features and functionality such as personalization, multi-channel context, decision support, hybrid cloud deployment, provisioning, security, and governance. With relational and direct data access for structured data, JSON, BLOB, and time-series data, developers can support more use cases. Zero database administration, self-tuning, data portability, exceptional reliability, easy upgrades, and backward compatibility allows developers to deliver applications at scale.



### Key Benefits

- Zero DBA, developer-friendly database
- NoSQL and SQL versatility
- Flexibility to embed or bundle with applications
- On-demand or real-time, built-in data sync
- Hybrid deployment options
- Transactional, JSON, BLOB, and time-series support

	Zen Core	Zen Edge	Zen Enterprise
Purpose	Embed in applications on mobile and IoT devices	Embed in edge gateways and complex machinery	Embed/bundle with enterprise resource planning and other complex on-premises applications
Deployment	Bundled with application on device	Client-server or with device	Database server
Footprint	< 7MB	50MB	175MB

Figure 1: Zen Products Meet Application Developer Needs

## Best of SQL and NoSQL

Zen databases offer SQL and NoSQL versatility. SQL access supports reporting, queries, and local transactions. This enables fast read and quick insert, update, and delete performance alongside full ACID compliance on writes and queries. Zen offers NoSQL access for data-intensive application performance and analytics leveraging popular programming languages.

## Data Portability

All Zen databases support the same data types and file formats and prior PSQL versions, so no extract, transform, load (ETL) is required to access and move data between any operating environment or version of Zen or PSQL database products. Seamless portability from device to cloud simplifies development, deployment, and maintenance – just copy data and go.

## Backward Compatibility

A top priority for Zen and earlier PSQL versions has long been backward compatibility. Upgrading to the latest release is easy, with no need to migrate data, rewrite or recompile code, or reinstall existing applications. Just keep moving smoothly from release to release with the same low-stress maintenance and possibilities for innovation.



Figure 2: Single Architecture. Multi-Model. Multi-platform



## Why Zen Is the Best Option

Alternatives don't address many embedded database management challenges. File systems and simple local SQL databases such as SQLite are not powerful enough to support the range of devices and data sizes required for embedded data management. These options also can't handle transactional and local analytical processing in client-server and peer-to-peer settings. Traditional databases and NoSQL platforms need extensive configuration across a wide range of embedded systems and do not embed into applications. In addition, they require on-site support, and do not support OEM models. Solutions developed in-house use multiple APIs that can slow design and coding, add ETL overhead for data conversion, and require significant maintenance and support.

Businesses that demand simplicity, performance, resource efficiency and simplified distribution depend on Actian Zen. Zen databases run on virtually all platforms and operating environments and can be called from most popular programming languages.

Request a free demo or visit  
<https://www.actian.com/databases/zen> to learn more.

## About Actian

Actian makes data easy. We deliver cloud, hybrid cloud, and on-premises data solutions that simplify how people connect, manage, and analyze data. We transform business by enabling customers to make confident, data-driven decisions that accelerate their organization's growth. Our data platform integrates seamlessly, performs reliably, and delivers at industry-leading speeds. Learn more about Actian, a division of HCLSoftware: [www.actian.com](http://www.actian.com).

