Actian Zen Edge Server

Zero DBA, embeddable database for edge apps and smart devices

Key Benefits

Zero DBA, developer-configurable

SQL and NoSQL

Single API across most popular programming languages

Optimally handle JSON, BLOB, and time-series data with a single DB

Embed in local apps or client-server with multiple data tables and files each up to 64TB

Data portability across platforms and versions

Simple upgrades

Backward compatibility

Supported Platforms

Linux distributions on Raspbian (Ubuntu, Debian, Arch, etc.)

Windows 10 IoT Core Server

Raspberry Pi 2 or higher

Intel x86/x64 and ARM 32-bit/64-bit

30–40MB installed footprint

License Options

500-user developer kit

100, 250, and 1000-client packs for commercial deployment

Teach yourself Zen. Quickly and easily get up to speed on installing, configuring, and embedding next-generation Edge data management functionality.

Actian Zen Edge Server database focuses squarely on the needs of Mobile and IoT application developers, providing persistent local and distributed data across intelligent applications and smart devices at the edge. Develop and deploy on Intel or ARM standard or embedded platforms including Raspbian Windows IoT Core, or Standard Windows and Linux distributions (Ubuntu, Debian, Arch, etc.).

Zen Edge Server is a SQL/NoSQL, zero-DBA, embeddable, nano-footprint edge database for SIs, ISVs, and OEMs that need to embed a data management platform in their apps, from smart phones to PoS terminals to industrial IoT. With both relational and direct data access, auto timestamping for time-series data, self-tuning, reporting, data portability, exceptional reliability, easy upgrades, and backward compatibility, IoT and Edge solution developers can deliver applications at scale across a wide range of platforms.

SQL and NoSQL

Zen Edge Server offers SQL access for reporting and local transactions and NoSQL access for performance with local data processing and analytics support, providing the perfect combination of speed and flexibility. Developers can choose among several methods of direct access to data without going through a relational layer. This enables fast read and quick insert, update and delete performance alongside full ACID response on writes and ANSI SQL queries. Zen Edge Server supports SQL access via ODBC, JDBC, and ADO.Net and NoSQL access via the Btrieve and Btrieve 2 APIs.

Zero Database Administration

Set it and forget it. Edge computing in the world of consumer device and industrial IoT apps means no DBA. Zen Edge Server is built for non-IT environments, removing need for consultants or DBA supervision. Whether you elect to never touch your app or continually patch and redeploy it, Zen Edge Server won't break your app under any circumstances.

Data Portability

Zen Edge Server supports the same data types, including JSON and BLOB, and file formats as the rest of the Actian Zen product line, so accessing and moving data between an ARM device like Raspberry Pi and Windows or Linux requires none of the typical ETL overhead. Plus, data portability extends across all supported platforms and multiple versions of Actian Zen database products. Seamless portability greatly simplifies development, deployment and maintenance. No unsecured ETL work or other overhead, just copy data and go.

Backward Compatibility

Backward compatibility has long been a top priority for Actian Zen and earlier PSQL versions. Upgrading to the latest release is designed to be easy, with no need to migrate data, rewrite or recompile code, or even reinstall existing applications. Just keep moving smoothly from release to release with the same low-stress maintenance and possibilities for innovation by taking advantage of new functionality like time series data stamps and record count or JSON field parsing.

New Btrieve API

Java and C/C++ application developers can take advantage of the new version of the Btrieve 2 API, with the same access calls as the original but now including integrated auto timestamping for time-series data. Access the performance and flexibility of the Btrieve engine without the complexity. The Btrieve 2 API SDK also includes Simplified Wrapper and Interface Generator (SWIG) files for C#, Perl, PHP, and Python, giving developers in those languages Btrieve data access with a quicker learning curve.

A World of Use Cases

Zen Edge Server database is ready to handle real-world solutions currently being fielded on millions of Intel and ARM processors. Rather than collect and centralize data to decide whether to trigger action at a remote location, increasingly data is locally stored, undergoes low-latency processing and analysis, and is sent on for additional data management and analytics up the hierarchy within the edge or in the cloud as needed.

Zero Field Support, Multiplatform Embedded Database for Edge Applications

Developers, product designers, and OEMs need to be able to support multiple platforms with a single data management platform. Whether it's a Linux server app or an embedded app in a smart device, Zen Edge Server database can be used in branch offices, consumer-facing or hidden industrial apps, with a range of supporting resources, from an SoC to a field-based server. File systems or simple local SQL databases (for example, SQLite) are not powerful enough to support the range of devices or data sizes or to handle both transactional data and local analytical processing in client-server or peer-to-peer settings. Alternatively, the traditional databases or NoSQL platforms are incapable of limited configuration for a full range of embedded systems, do not embed into applications, require on-site support, and do not support OEM models. Most developers and designers create products across platforms and data management and file systems, which can slow design and coding through multiple APIs, adding ETL overhead for data conversion and maintenance and support nightmares. Zen Edge database runs on embedded systems, deploys on any Intel or ARM platform, including Windows, Linux, Windows IoT Core, Windows Nano Server, Android, and macOS.

Smart Devices for Consumer and Industrial IoT

Whether it's smart phones or smart tractors, or a network of sensors at a chemical processing plant, local apps are no longer operating as a "silo of things." Bespoke Historians and SQLite, for example, are designed for siloed applications, handling a single write stream with a few gigabytes. Increasingly, developers and designers need embedded DBs with CRUD capability for multiple, local applications, shared peer-to-peer with applications on other devices and gateways. Zen Edge Server database is designed to embed in a stand-alone application but can also act as a multithreaded server in client-server and peer-to-peer environments, supporting multiple data tables (each in its own file and up to 64TB), written concurrently from multiple downstream smart devices or upstream cloud analytics.

Intelligent Gateways, Complex Machines and Instrumentation

As the reach and sophistication of smart devices at the edge grows, mesh and hierarchical approaches to device control, management and governance will usher in a next generation of IoT. Intelligent gateways, smart devices, and complex machines will have their own internal networks to support local persistent data storage for downstream device data and metadata ingestion, data processing and packaging, transport protocol translation, security encryption, and many other functions. Zen Edge Server database is multithreaded, handling both downstream large device client data ingestion sets (concurrent writes) as well as large-scale reads out to Actian DataFlow and Avalanche as a cloud-based Big Data Analytics platform on Azure and Amazon.

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