

Product-wide, unified data storage and management with Inaris DB

TARA Systems



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The flexible In-RAM database for embedded applications

Inaris DB is a flexible and lean high-performance embedded In-RAM database. It is used to store, manage and filter various kinds of data in embedded devices. For example, in the Consumer Electronics (CE) environment, Inaris DB is used for typical CE applications, such as storing TV channel listings, Electronic Program Guide (EPG) data and meta data for images, music and video. Inaris DB enables a unified data management, thus reducing the development complexity and improving software structure and maintainability.

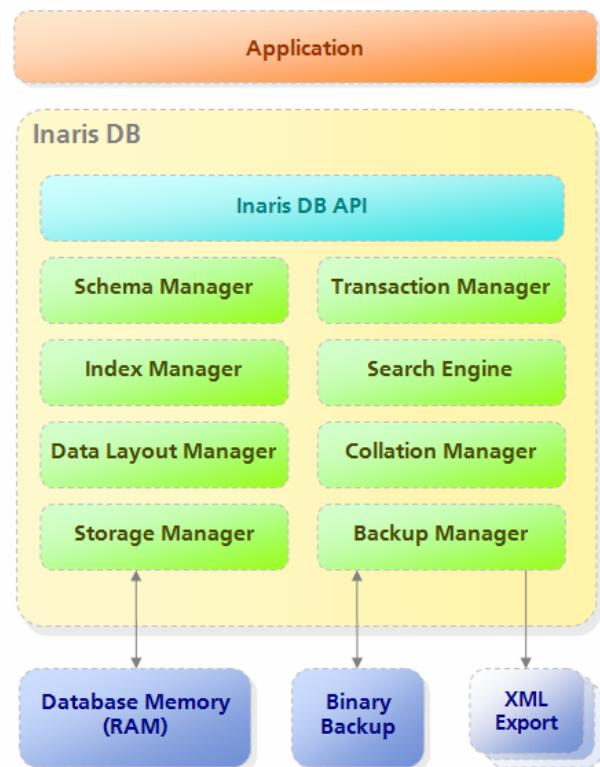
For scenarios, where simple list-based data storage is not flexible enough, but PC technologies like SQL exceed the available resources, Inaris DB provides the right balance. Inaris DB is used for unified data storage in millions of products in the market, like Set Top Boxes, HDTV sets or car entertainment systems.

Key Benefits

- Unified data management: Inaris DB stores and manages all kind of data within a device, for example meta data and archive lists in media players, EPG data and recording lists in PVR devices, or measured data in industrial automation devices. These different kinds of data are stored in a unified way via unified interfaces. Thereby software structure is improved and a solid data management is established, ready for future extensions of product features.
- Small footprint and fast performance: Inaris DB is suited for embedded systems with limited RAM. Bounded memory in combination with automatic "out-of-memory" handling avoids data overflow during runtime. With fast inserting and filtering Inaris DB is tailored for real time requirements, e.g. for incoming EPG data or measured data.

- Fast and Intelligent Filtering: Users expect fast response, when browsing through stored data, e.g. their media archive with images and music meta data. Inaris DB offers a filter language and a fast search engine that deliver results promptly. Intelligent collation management allows language specific sorting of text data, according to the user's expectations (e.g. German "ä" can be sorted like "ae").
- Easy Data Presentation (GUI): If stored data should be presented on screen, "Inaris Data Binding" offers a very efficient and easy way to achieve this. It connects the Inaris DB to TARA Systems' GUI tool "Embedded Wizard", enables easy access to data tables, rows and columns and thereby facilitates presentation of database content within a GUI. With Inaris

Inaris DB Schematics



„Excellence in Embedded CE Software“

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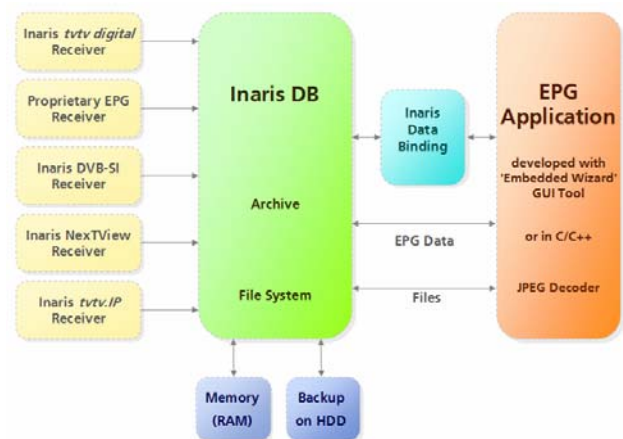
Data Binding, the GUI can be prototyped on PC with real data to verify look & feel.

- According to TARA's modular approach, Inaris DB additionally offers a well documented C API, for access without "Embedded Wizard".
- Highly tested: For every Inaris DB release intensive automatic tests are run, with hundreds of test cases, to ensure a high product quality and stability.
- Market proven: Inaris DB is running on more than 20 different chipsets of all major semiconductor manufacturers and is used inside millions of embedded devices in the market.
- Future-proof roadmap: The highly portable Inaris DB enables manufactures, to keep their Inaris based data management solution when moving to new embedded platforms without significant adaptation effort. TARA Systems' roadmap regarding new technologies, like e.g. UPnP device interconnection, guarantees a seamless migration to next generation products.
- Support for design and integration: To guarantee optimal application within customer products, TARA Systems offers architectural consulting during the project start and hands-on support during integration.

Technical Details

- Relational data model with extended, complex data types, e.g. arrays & statements
- High performance DB engine, suited for common real time requirements
- RAM-based DB with scalable, bounded runtime memory
- Back-up to persistent storage (HDD, FLASH)
- XML export of stored data
- Concurrent DB access for multitasking environment
- Free definition of schemas, including tables, columns and indexes
- Filter language and optimized search algorithms for complex search requests with fast response
- Collation management for intelligent language specific sorting of text data
- Unicode support for international markets

- Own "date-time" data type with support for local time and daylight saving
- File system included, e.g. for image data in Electronic Program Guides.
- Complemented by detailed specifications and API
- Reference application as starting point for customer developments
- Small footprint: Code size ~ 100 Kbytes (Reference: ST20 core)



Application example: Inaris DB is used for storage of EPG data, programme and archive lists as part of TARA's Inaris EPG solution.

Supported Chipsets & Platforms

AMD: Xilleon 2xx. Fujitsu: SmartMPEG. IBM: PowerPC. Micronas: MDEx, VGC. NXP: PNx8550. STMicroelectronics STi5514 - STi5518, STi510x, STi7100. Toshiba: TC90400. Zoran: SupraTV.

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