

NASSCO UPGRADES PACP™ VERSION 8 EXCHANGE DATABASE TO SQLITE

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As part of its ongoing commitment to innovation and modernization, with PACP Version 8, NASSCO has transitioned the PACP / LACP™ / MACP™ Exchange Database from Microsoft Access to SQLite. This strategic upgrade reflects the evolving needs of software development and data management, offering improved portability, performance, and accessibility for both developers and end users.

WHY THE SHIFT TO SQLITE?

The previous MS Access-based Exchange Database served its purpose well, facilitating data exchange among NASSCO-certified PACP applications and allowing users to review inspection data directly. However, it posed limitations—particularly around licensing, platform dependency, and the need for Microsoft Access or bundled server components.

SQLite, by contrast, is a lightweight, royalty-free, and serverless database engine. Widely adopted across many industries—from mobile phone apps to automotive systems—it offers a more flexible and scalable solution for modern data exchange, especially in embedded and single-user environments.

FOR DEVELOPERS – KEY BENEFITS OF SQLITE

ARCHITECTURE AND SETUP

SQLite is a self-contained, serverless database stored in a single cross-platform file. This eliminates the need for traditional installation or configuration, making it ideal for seamless data exchange across diverse environments. Users can access SQLite

databases using free, open-source tools such as SQLite Studio, DB Browser for SQLite, or QGIS.

Advantage: While integration with external systems may still require technical setup, the database's zero-configuration setup and file-based architecture simplify deployment and cross-platform integration.

PORTABILITY AND CROSS-PLATFORM SUPPORT

Unlike MS Access, which is tightly integrated with the Windows ecosystem, SQLite databases function like standard files—easily copied, moved, or backed up across Windows, macOS, Linux, iOS, and Android.

Advantage: Universal compatibility supports broader use cases and development environments.

PERFORMANCE AND SCALABILITY

SQLite is optimized for speed and can handle larger datasets than MS Access in many scenarios. While not intended for high-concurrency enterprise systems, it is well-suited for NASSCO's needs and PACP applications. SQLite also supports spatial data through extensions like SpatiaLite, which opens the door for future and more comprehensive GIS integration—though this is not currently included in PACP Version 8.

Advantage: Enhanced performance and scalability for embedded and analytical applications, with spatial capabilities available via extensions.

DEVELOPER EXPERIENCE & INTEGRATION

Developers benefit from SQLite's simplicity and broad language support. It adheres to standard SQL syntax and integrates easily with popular programming languages such as Python, JavaScript, and C#. This contrasts with MS Access's GUI-based design and VBA scripting, which, while user-friendly, may lack flexibility for modern development workflows.

Advantage: Developer-friendly design supports modern coding practices and robust application development.

FOR END USERS – PACP VERSION 8: STREAMLINED AND UNIFIED

The Version 8 Exchange Database introduces several structural improvements:

- **Simplified Schema:** Domain tables have been removed, leaving only essential tables for data exchange.
- **Unified Database:** MACP data is now integrated with PACP and LACP, enabling a single database to support entire inspection programs or projects.
- **Enhanced Accessibility:** Free and open-source tools like SQLite Studio empower users to perform custom analyses and integrate inspection data with asset management systems, work order platforms, and business intelligence tools such as Tableau and Power BI, as well as GIS applications like ESRI's ArcGIS Pro and QGIS.
- **Ease of Use:** Using an application such as SQLite Studio, end users may view the NASSCO Exchange Database table structure, add their own queries and copy / paste data similarly to how they currently do in MS Access. This allows for a great deal of flexibility and overall ease of use by professionals and 3rd parties.

Advantage: A unified and simplified database structure improves usability and integration potential.

LOOKING AHEAD

While MS Access will continue to be supported for PACP Version 7, the transition to SQLite marks a significant step forward. SQLite's minimalist design, cross-platform compatibility, and developer and end-user-centric features align with the demands of modern software ecosystems. For NASSCO and its partners, this is not merely a change in technology—it is a strategic upgrade that enhances data integrity, accessibility, and future scalability.

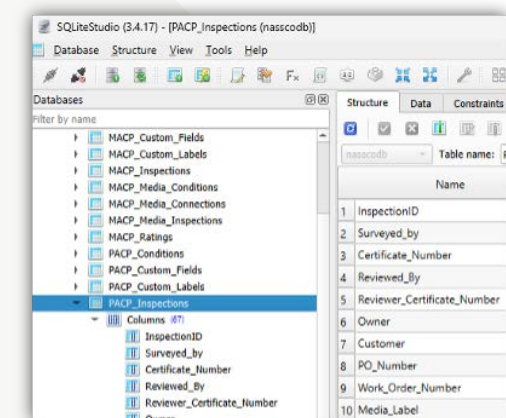


Figure 1- SQLite database table structure (SQLite Studio)

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