

An Open HDF5-Based Format for Industrial Inspection Data with Experimental Integration of the Onion VFD for File Versioning

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The NDE File Format (.nde), developed by Evident, is an open, extensible data format tailored for the non-destructive evaluation (NDE) and testing (NDT) industry. Built upon the HDF5 container and augmented with JSON-based metadata, it offers a platform-independent solution for storing inspection data, primarily for ultrasonic modality. By adopting an open format, .nde files can be accessed and analyzed without proprietary software, promoting integration with third-party tools and advanced analytics platforms.

To address the challenges of data versioning and traceability inherent in NDT workflows, we explore the application of the Onion Virtual File Driver (VFD), introduced in HDF5 version 1.13.2. The Onion VFD enables in-file revision management by layering modifications atop the original dataset, allowing users to access and revert to previous versions without duplicating entire files. This approach ensures data integrity and auditability, essential for compliance with industry standards and regulations.

This presentation demonstrates how the integration of the .nde format with the Onion VFD addresses real-world data management challenges in industrial inspection environments. We discuss the technical implementation, benefits observed in data handling and version control, and potential implications for broader adoption in the NDT industry.

May we record your session?

Yes

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