

Introducing the DSI Digital Modeling Bundle: Accelerating the Diagnostic Digital Thread

For more than four decades, diagnostic engineering has lived with a quiet truth: building a high-fidelity diagnostic model takes time. Even with **eXpress**'s extensive import capabilities and the flexibility of eXpressML as a standardized, XML-based source of truth, the work of transforming design artifacts into a fully realized diagnostic model has always required careful human craftsmanship. The results are worth it—accurate sustainment analysis, reliable test strategies, and a digital thread that can endure for decades—but the journey from “initial design data” to “diagnostic ready model” has remained a significant investment.

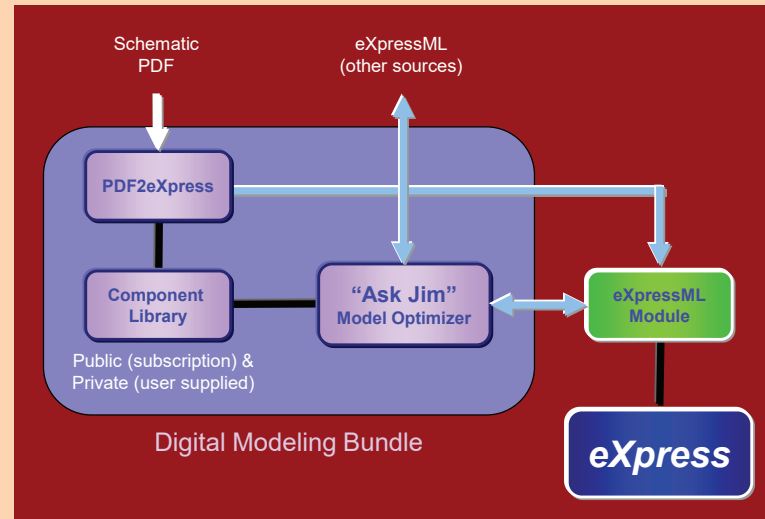
This year that changes.

DSI is proud to introduce the **Digital Modeling Bundle**, a trio of tightly-integrated modules designed to collapse modeling timelines, strengthen data consistency, and dramatically reduce the effort required to prepare models for the full spectrum of diagnostic engineering tasks. Together, these modules transform eXpressML from a powerful interoperability format into a true engine for rapid model creation, enhancement and optimization. This bundle includes:

1. PDF2eXpress — Turning Engineering Diagrams into Diagnostic Models

Every diagnostic model begins with topology: objects, ports, nets, flow directions, nomenclature, and the visual language of the design itself. Traditionally, this information has been extracted manually from schematics and diagrams—an exacting process that demands both precision and patience.

PDF2eXpress automates that first mile across multiple engineering disciplines.



eXpressML created by the Digital Modeling Bundle integrates not only with **eXpress**, but also with other tools that produce or utilize eXpressML data.

Whether your source arrives as CCA schematics, wiring diagrams, hydraulic schematics, pneumatic flow diagrams, or other PDF-based technical drawings, PDF2eXpress can scan the document and extract its structural content, including:

- Objects and connectivity
- Port positions and flow directions
- Nomenclature and attributes
- Symbol appearance and graphical conventions
- Metadata embedded in the PDF

Because the engine is format-agnostic, it can interpret electrical, mechanical, and fluid-system representations with equal fidelity—making it ideal for multi-domain platforms where diagnostic behavior spans electronics, electromechanical, hydraulics, pneumatics and wiring harnesses.

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Latest Software Versions

• eXpress	8.2.2	8/26
• eXpress Design Viewer	3.0.0	7/26
• Run-Time Authoring Tool	6.7.3	9/26
• DSI Workbench	5.5.2	9/26
• TestDRIVE	2.5.3	8/25
• STAGE	Act III, Scene 1	10/25

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In most cases, PDF2eXpress delivers 75-90% of a complete model before a modeler ever touches **eXpress**. The remaining work becomes refinement rather than reconstruction.

And because the output is eXpressML, the resulting model can immediately flow into downstream tools—into **eXpress** itself, into the “Ask Jim” Model Optimizer, or any other tool along your eXpressML-informed digital thread.

2. Component Library — Bringing Known Item Characteristics into the Digital Thread

Like all engineering disciplines, Diagnostic Engineering thrives on consistency. When components behave predictably—when their ports, flows, failure modes and functional dependencies are already known—modelers can focus on system behavior rather than reinventing familiar details.

The **Component Library** provides that consistency. More than just a collection of shapes, each component in the library can include:

- **Symbols** (region-mapped for status highlighting)
- **Port positions and flow directions**
- **Output function definitions**
- **Dependencies and object states**
- **Failure modes with relative percentages**
- **Failure rates and reliability data**
- **Common attributes**, such as part numbers

When used with PDF2eXpress, the library enriches the scanned topology with authoritative component details, replacing inferred behavior with known behavior. When used with “Ask Jim,” it allows existing eXpressML models—regardless of how they were created—to be upgraded with standardized component intelligence.

The result is a modeling ecosystem where every project benefits from the accumulated knowledge of prior designs.

3. “Ask Jim” Model Optimizer — Expert Modeling Practices, Applied Automatically

Even with topology and component data in place, diagnostic engineering requires a layer of modeling expertise that cannot be scraped from schematics or reliability tables. Test definitions, class structures, FPGA functional descriptions, failure-mode-to-function mappings, and signal definitions for Sneak Path Analysis—these are areas where human modelers typically invest the most time.

The **“Ask Jim” Model Optimizer** brings DSI’s own modeling expertise directly into the digital thread.

Codified from the practices of diagnostic-modeling expert Jim Fritts, “Ask Jim” analyzes an eXpressML model and helps bridge the gap between the imported topology and the design details required for diagnostic engineering. It not only helps new adopters of **eXpress** build strong models from day one, but also helps experienced users accelerate their workflows while maintaining consistency across teams and projects.

For organizations scaling diagnostic engineering, “Ask Jim” becomes a true **force multiplier**.

A Digital Thread Without AI Requirements — With AI-Ready Extensions

All three modules in the Digital Modeling Bundle run entirely on local systems. No AI access is required, making them suitable for organizations with strict security or procurement constraints, and they are delivered via subscription so they can be updated periodically.

DSI is also planning for two optional, AI-informed extensions:

- **Raster Scan Engine** — enabling PDF2eXpress to interpret rasterized schematics and even photographs of drawings using a local AI model.
- **“Ask Jim” Learning Module** — allowing organizations to train the optimizer using their own completed models, capturing internal modeling conventions, style guides, and component-specific behaviors. This optional extension will require access to a commercial LLM of the user’s choice.

These additions ensure that the Digital Modeling Bundle can evolve alongside the industry’s growing appetite for AI-assisted engineering—without forcing AI adoption where it isn’t permitted.

A New Era for Diagnostic Model Creation

The Digital Modeling Bundle represents a shift in how diagnostic models are built. Instead of starting from scratch, modelers can begin with rich, structured data extracted from schematics, enhanced with authoritative component intelligence, and refined using expert modeling practices.

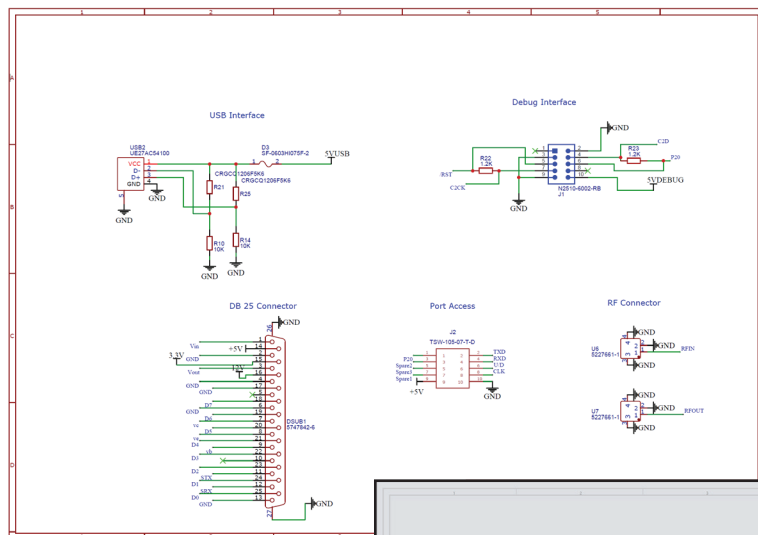
The result is simple:

Better models, built faster, with greater consistency.

As sustainment programs increasingly rely on digital thread continuity, the ability to generate diagnostic-ready models quickly and reliably becomes not just a convenience, but a strategic advantage. With the Digital Modeling Bundle, DSI is delivering that advantage directly into the hands of engineers, analysts and sustainment teams.

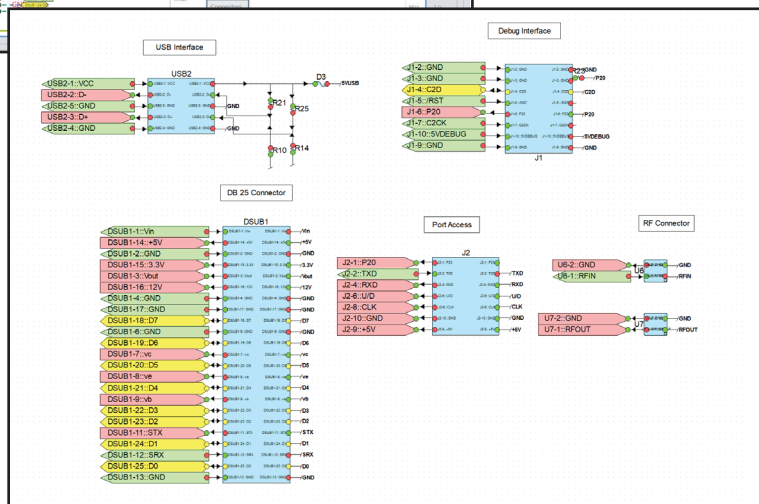
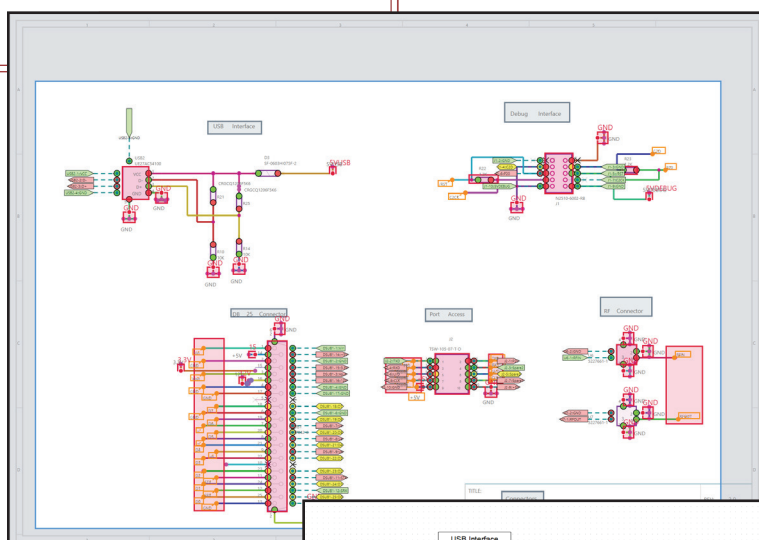
PDF2eXpress — A Sneak Peek

Here are a few advance screenshots from PDF2eXpress—straight from the developer's desk. This exciting new tool, the first module in the DSI Digital Modeling Bundle, is scheduled for release in mid-November 2026, with a pre-release copy available for download approximately one month earlier.



The picture at left shows a single page of a multi-sheet schematic, viewed in Adobe Acrobat.

Below is a screen capture of that same sheet of the schematic after it has been scanned by PDF2eXpress. In addition to identifying the objects and nets, PDF2eXpress has determined the flow direction of the various ports.

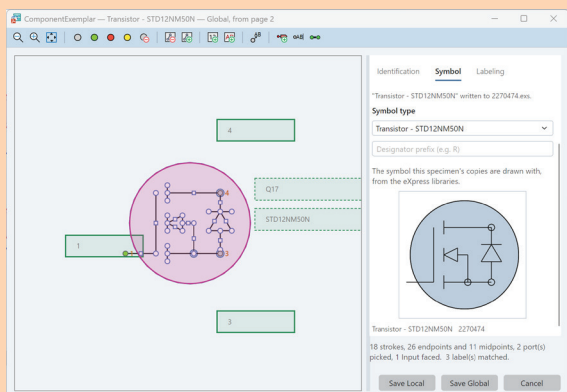


In the third picture (at right), we see how this portion of the design looks after it has been imported into **eXpress**. Note that not only the connecting nets, but also the necessary I/O flags were automatically added to the eXpressML model exported from PDF2eXpress.

Subscribers to the Digital Modeling Bundle receive all three modules for the price of those currently released when their annual (or biennial) subscription begins—meaning early adopters get **all three modules for the price of one** in their first installment. The three modules will be released at three-month intervals, so act quickly to lock in your bargain pricing.

New Feature Alert: Importing eXpress Symbols via eXpressML

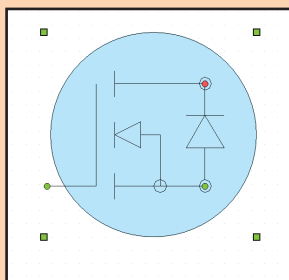
With **eXpress 8.3**, object symbols can now be imported and exported via eXpressML. Designed to work in conjunction with PDF2eXpress, exact replicas of symbols that appear in a design drawing can be easily brought into **eXpress**.



The picture above shows a transistor symbol viewed in the PDF2eXpress symbol editor.

Here is how that same symbol looks in **eXpress**.

Symbols can be imported from any source by including an EMF representation of that symbol in an eXpressML document.



Recent Software Releases



eXpress Version 8.2.2

New Mutually-Exclusive Failures Chart



RTAT Version 6.7.3

Support for Embedded & SQLite Databases



DSI Workbench Version 5.5.2

Support for Embedded & SQLite Databases



STAGE Act III, Scene 1

Now with Mission Phases

Coming Up...

- **eXpress 8.3**
- **PDF2eXpress**
- **STAGE Act III, Scene 2**
- **Component Library**
- **"Ask Jim" Model Optimizer**

Training Course Schedule

Course Number	Prerequisite	Description	Dates	Location	POC
CE-373	none	Continuing Education: Predefined and Custom Charts in FMECA Plus	September 15, 2026 One 90-minute session	Virtual: Webex	info@dsiintl.com
TLS-100	2 hours home study prior to first session (video)	System Diagnostics Concepts and Applications Basic Modeling & Introduction to Testing	Starting October 5, 2026 Eight 4-hour sessions (Mon-Thu for 2 weeks)	Virtual: Webex In Person: Anaheim Hills, California	info@dsiintl.com
CE-374	none	Continuing Education: Importing eXpress Models from PDF Files	October 27, 2026 One 30-minute session	Virtual: Webex	info@dsiintl.com

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