



During the past five years, DSI has been heavily involved in constructing the diagnostic engineering stretch of the Great Digital Threadway. More than just a means to an end, our investment has unexpectedly resulted in our reimagining the roles of our tools in the greater universe of diagnostics and test.

eXpress, DSI’s flagship diagnostic engineering tool, was created with a dual purpose: 1) to generate responsible and accurate diagnostics for use in the field, and 2) to help engineers assess their designs’ diagnostic capabilities, providing not only metrics that verify that they have exercised due diligence, but also reports that identify areas in which a design can be improved to better support diagnostics.

Up until now, all pre-defined properties on elements that comprise an **eXpress** model existed to serve one of these two goals. This is information that should be readily available to engineers modeling in **eXpress**. If desired, additional data could be easily added to the model using attributes—user-defined fields that can be created for most model elements.

With the recent achievements in digital engineering, data from previously distant activities can now be easily shared simply by adding on- and off-ramps to the digital threadway—import, export and translation efforts that allow tools to share information, however unconnected the activities that produce it.

It is with this in mind that DSI has added new test implementation properties to the latest release of **eXpress** (version 7.5). These pre-defined properties store information about the measurements, stimuli, limits (pass/fail criteria) and resources associated with each test in the model. This data—although it may not be known to systems engineers at the time they are modeling—can later be imported from ATML or other sources created during the test definition process.

Once they are filled out in **eXpress**, these properties can be used to perform tasks that had been out-of-scope for previous diagnostic engineering efforts, such as optimizing test programs to make more efficient use of automatic test equipment. Test limits can be included in DiagML exports and then used by turnkey diagnostic software like DSI Workbench to interact dynamically with a test executive. And this is only scratching the surface—stay tuned for more news in the upcoming months.

As entrances and exits are added to the digital threadway, you can count on **eXpress** to take full advantage of these new shortcuts, getting you to your destination in record time.

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Latest Software Versions

• eXpress	7.5.0	8/22
• eXpress Design Viewer	2.1.0	6/22
• Run-Time Authoring Tool	6.1.0	8/22
• DSI Workbench	5.0.12	8/22
• STAGE	Act II, Scene 3	10/16

Back in the Saddle Again...

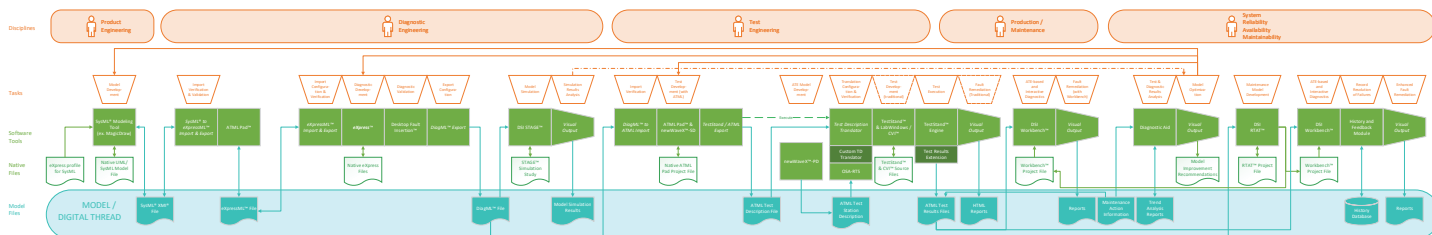
DSI is thrilled to be on the road again after two years of virtual travel and online conferencing. There's nothing quite like riding into town and meeting with friends—old and new—face to face.

RAMS 2022

- In January, DSI exhibited at the 2022 RAMS (Reliability and Maintainability Symposium) in Tucson, Arizona. This was DSI's first in-person conference in over two years.
- DSI's suite of diagnostic engineering tools supplement Reliability, Risk & Safety activities (FMECA, Fault Tree Analysis, Sneak Circuit Analysis) by introducing diagnostics into the equation. For many RAMS analysts, this was the first time they had contemplated assessing the risk of fielding less-than-perfect diagnostic strategies.
- DSI Workbench is a fully graphical diagnostic executive that allows diagnostics to be hosted on fielded systems, test equipment, and the workstations/tablets used for maintenance or production. At RAMS, it was deeply gratifying to see how easily users of Workbench were able to navigate the new tablet-friendly version of the tool using the 55-inch touchscreen that DSI brought to the conference.

AUTOTESTCON 2022

- During the **last week of August**, DSI will be participating in IEEE AUTOTESTCON 2022 in National Harbour, Maryland.
- In the exhibit hall, we will perform physical demos of the standards-based digital thread that was presented virtually last year. We will show how data from a digital design repository (such as Cameo or Capella) can be transferred between industry-leading diagnostic and test development tools—using only published and standardized data formats. The resulting test programs will be performed on a test station to diagnose a physical instance of the design, with DSI Workbench supplying guided troubleshooting as needed.
- At **1:30 pm on Tuesday, August 30th**, DSI senior engineer Eric Gould will participate on the AUTOTESTCON panel “Test and Diagnostic Standards in the Digital Thread”. Come and hear about the latest developments in Model-Based Diagnostic Engineering.



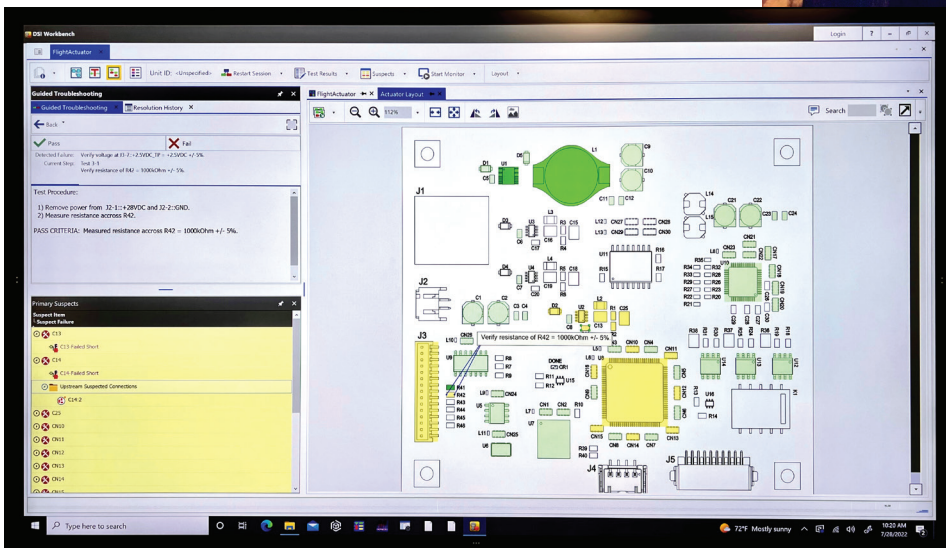
At AUTOTESTCON, the DSI exhibition booth will host a demonstration of a standards-based digital thread for Model-Based Diagnostic Engineering (MBDE). Come and see design data depart from its digital homestead (Cameo or Capella) and run a thrilling gauntlet of diagnostic and test engineering tools on the ATML trail until it reaches its new home on the ATE range.

...Riding the Range Once More



In January 2022, the DSI traveling road show pulled into Tucson, Arizona

Craig De Paul looking positively presidential as he mans DSI's exhibition booth at the 2022 Reliability and Maintainability Symposium



The Belle of the Ball was the 55-inch touchscreen monitor used to demonstrate automated and guided troubleshooting in DSI Workbench

Continuing Education Archive

Course #	Category	Description
CE-306	eXpress Modeling	Functional Nomenclature
CE-312	eXpress Modeling	Design States in eXpress
CE-317	Diagnostic Features	Hybrid Modeling in eXpress
CE-314	Diagnostic Analysis	Fault Detection
CE-315	Diagnostic Analysis	Fault Isolation
CE-316	Diagnostic Analysis	Fault Resolution
CE-318	Diagnostic Analysis	Critical Failures (Part 1)
CE-302	Diagnostic Validation	Desktop Fault Insertion
CE-320	Diagnostic Validation	Debugging Diagnostic Strategies
CE-303	FMECA Analysis	Criticality-Related Calculations
CE-304	FMECA Analysis	Efficient FMECA Development
CE-305	FMECA Analysis	Risk Priority Numbers
CE-309	FMECA Analysis	Mission Phases in eXpress
CE-270	Sneak Path Analysis	Full Training Course (3 videos)
CE-319	Reliability, Risk & Safety Analyses	Critical Failures (Part 2)
CE-301	STAGE Simulations	Diagnostic False Alarms
CE-311	Run-Time Diagnostics (DSI Workbench)	ATE/BIT Integration
CE-313	Run-Time Diagnostics (DSI Workbench)	Test Entry Details
CE-307	Interoperability & Digital Integration	Exporting eXpressML
CE-308	Interoperability & Digital Integration	Importing eXpressML
CE-310	Interoperability & Digital Integration	eXpress Automation

July 28th marks the one-year anniversary of DSI’s Continuing Education program—a series of free, 90-minute classes held online every 2-3 weeks. For users with an ISDD Training subscription, past classes can be revisited by watching the videos stored in the Continuing Education Archive on the DSI Web Site (see the list above). All **eXpress** users can view the video of the most recent course by logging in to the DSI Web Site and navigating to the Presentations & Demos folder of their User Dashboard.

Training Course Schedule

Course Number	Prerequisite	Course Description	Dates	Location	POC
TLS-100	2 hours home study prior to first session (video)	System Diagnostics Concepts and Applications Basic Modeling & Introduction to Testing Introduction to Testing & Analysis	Starting September 26, 2022 Eight 4-hour sessions (Mon-Thu for 2 weeks)	Virtual: Webex In Person: Orange, CA	info@dsiintl.com
TLS-100	2 hours home study prior to first session (video)	System Diagnostics Concepts and Applications Basic Modeling & Introduction to Testing Introduction to Testing & Analysis	Starting December 5, 2022 Eight 4-hour sessions (Mon-Thu for 2 weeks)	Virtual: Webex In Person: Orange, CA	info@dsiintl.com

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