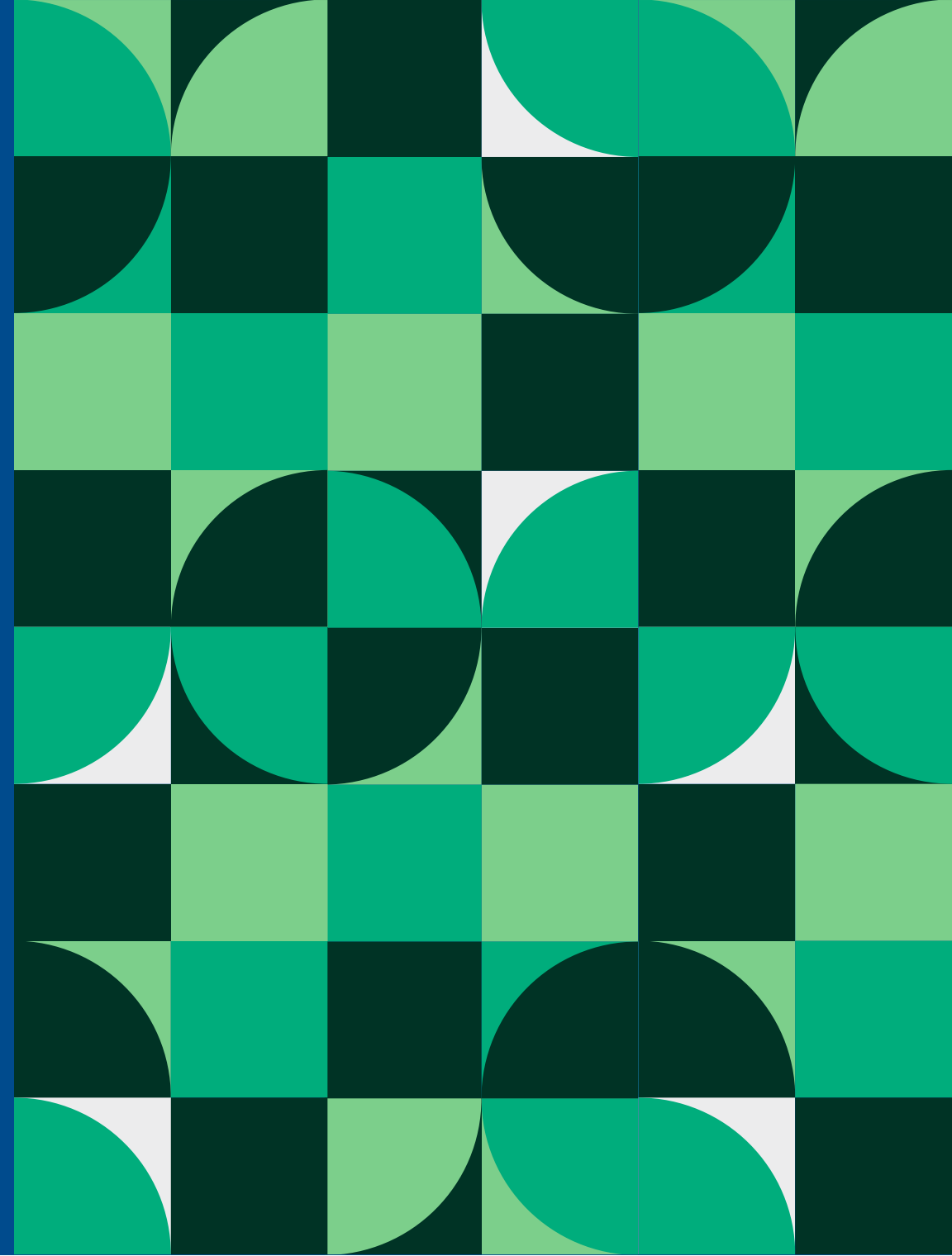




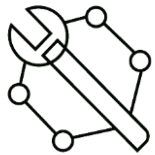
Flexlogger Overview

What Is FlexLogger?





A no-/low-code data acquisition software engineers use to build validation and verification test applications.



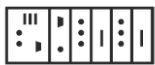
Configure Measurements

Set up your system in minutes by interactively selecting devices and measurement channels



Create Dashboards

Monitor and control tests with drag-and-drop visualization and interactive elements



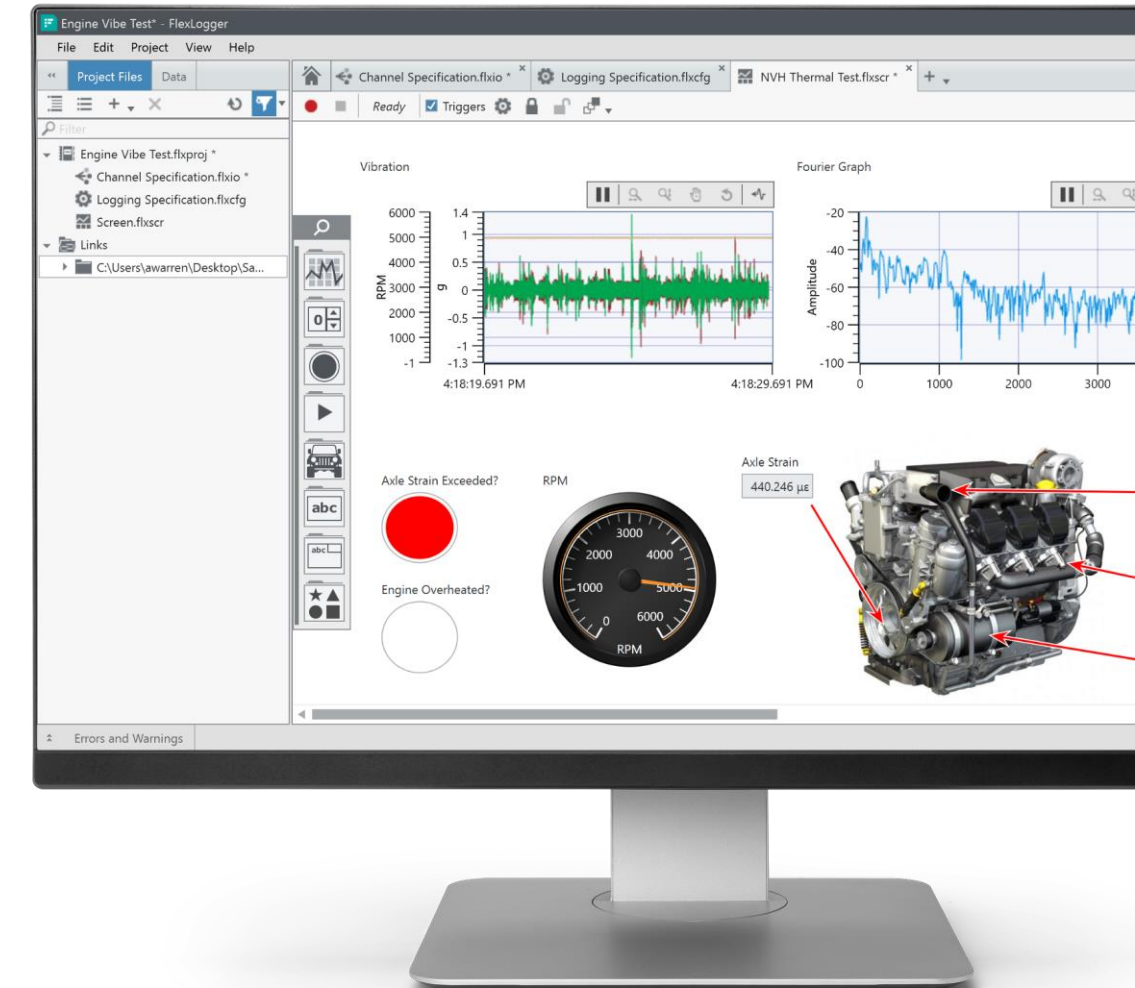
Store Results

Configure data storage preferences to automatically partition files and store to multiple locations



Automate Tests

Use events, alarms, logging triggers, and fully-featured APIs to automate execution of tests



Connect FlexLogger



With **LabVIEW** to integrate custom measurements and control logic

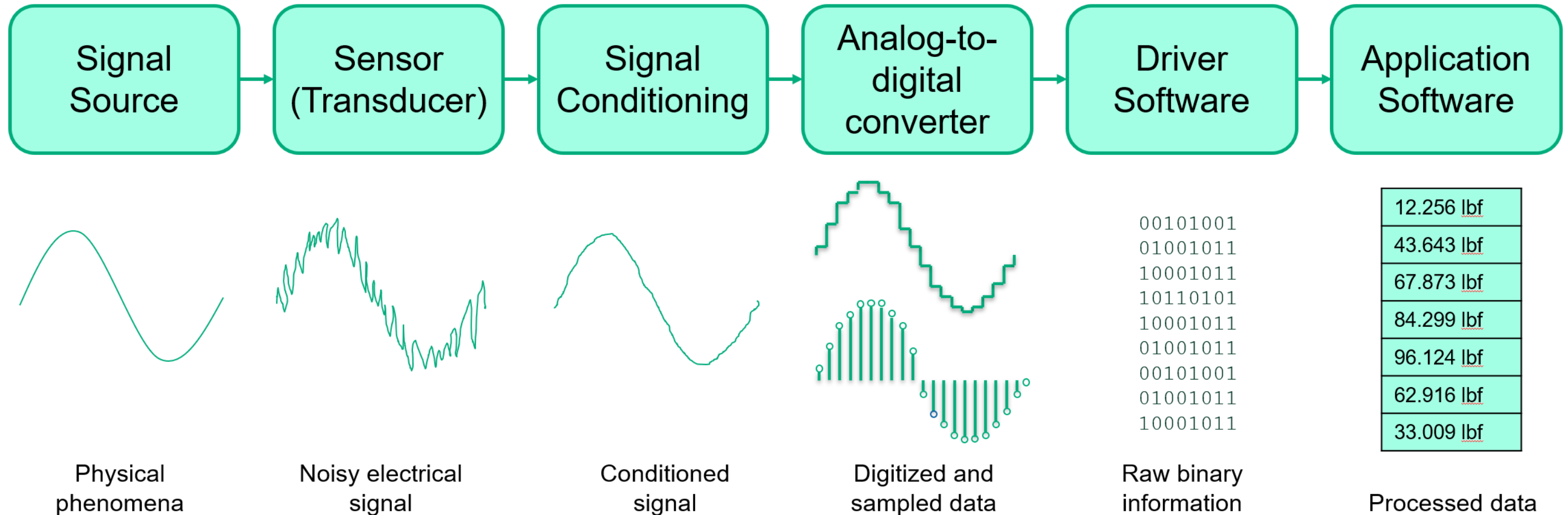


With **DIAdem** to quickly search, visualize, analyze, and generate reports on logged data



With **TestStand** to quickly build complex test sequences and generate reports

Data Acquisition Overview



FlexLogger User Workflow

Create **intuitive, extensible electromechanical test systems**. Connect teams, systems, and data.

Traditional Systems

are either

Too simple and closed off

Forcing users to make expensive trade-offs between hardware and software needs

or

Custom and complicated

Causing delays and distrust in data as users often “hack” in the functionality they need to meet deadlines

FlexLogger Systems

are

Simple *and* extensible

By creating a plug-in-based architecture, FlexLogger users get the benefits of an *out-of-the-box* measurement and test solution while maintaining the ability to extend and integrate any 3rd party hardware they may need for their tests.

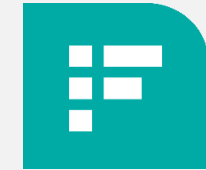
Run **interactive measurements** for quick validation, then **automate tests** to minimize downtime.

FlexLogger Editions



	FlexLogger Lite	FlexLogger Pro
User Value	Manual/Simple Validation	Automated/Enhanced Validation
Measure with nearly any NI DAQ device	✓	✓
Create monitoring dashboards	✓	✓
Log to standard formats (TDMS, CSV)	✓	✓
Visually inspect logged data (TDMS Viewer)	✓	✓
Develop and run custom measurement and control plugins		✓
Include additional measurements and visualizations (live calculations, CAN/LIN, etc)		✓
Automate measurement sequences with Python		✓
Automate response with alarms, events, and logging triggers		✓
Scale to multiple chassis		✓
Remotely monitor tests and manage data (SystemLink)		✓
Operator mode		✓
Technical support from NI		✓
Price (per node per year)	\$0	\$793

FlexLogger 24Q3, 24Q4, and 25Q1



New features include:

NI mioDAQ Support

- Support for mioDAQ devices: USB-6421, USB-6423, USB-6451, USB-6453
- New hardware support features include built-in CJC thermocouples and PFI trigger filters

LabVIEW Automation API

- LabVIEW API for automating FlexLogger tests
- Start/stop tests, fetch channel values, set output channel values, update data rates, open log files, update test properties, and more

TestStand Automation API

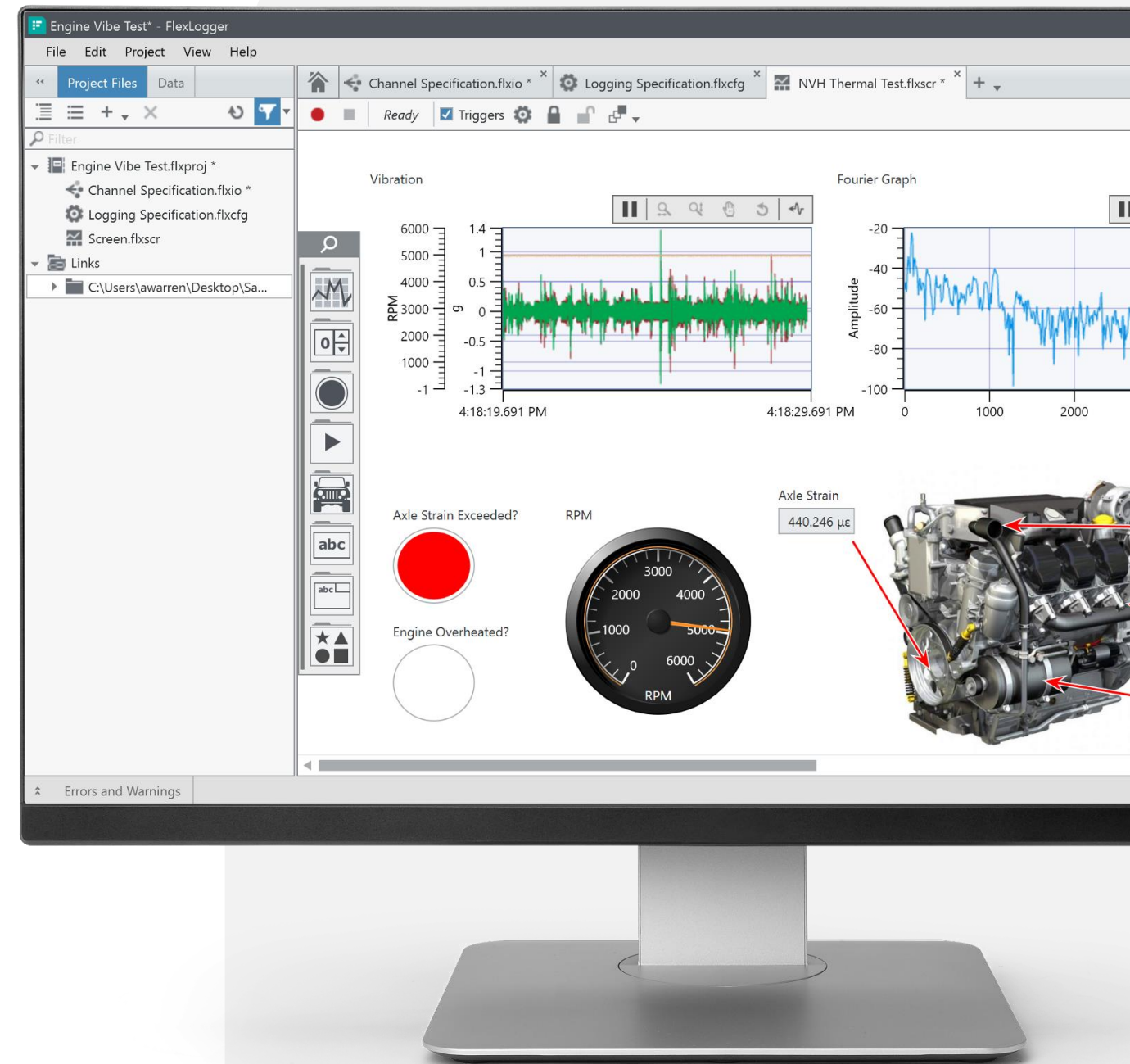
- TestStand API for automating FlexLogger tests via FlexLogger steps
- Similar functionalities to the LabVIEW API

Hardware Connections Using HWCU

- Configure hardware in Hardware Configuration Utility instead of NI MAX
- Delete simulated hardware configurations directly in FlexLogger without opening an additional program like NI MAX or HWCU

FlexLogger Community Plugins Repository

- Public GitHub repository containing common example plugins
- The repo is open source, and we encourage users to contribute and reuse plugins across the community (reducing the need for development)



FlexLogger™ Roadmap

Short-term product focus

Provide companion software to new and existing DAQ users

Leverage the power of LabVIEW and TestStand with the ease of FlexLogger for automated validation

Improve the experience of developing new custom measurements and lightweight control logic

Long-term product focus

Streamline the development, management, and deployment of custom measurement and lightweight control logic

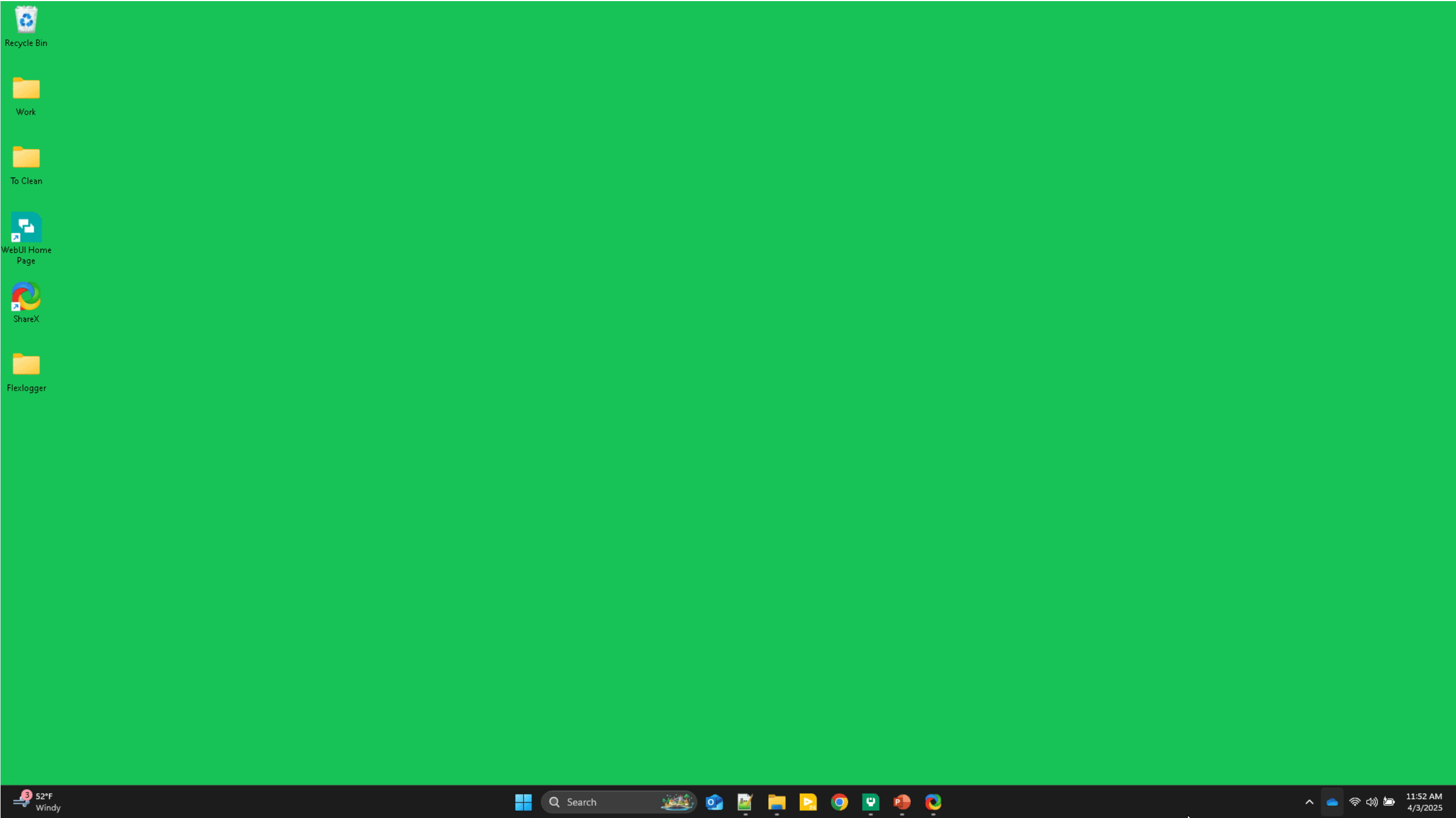
Simplify automated validation with built-in sequencing, alarms, events, logging triggers, and more

Expand and enhance core measurement configuration and monitoring capabilities

Capability	Status	2024	2025	2026+
Ecosystem Integration				
Free FlexLogger Lite edition for basic logging applications	Released	Q2		
Support for new USB multifunction DAQ devices (NI mioDAQ)	Released	Q3		
Simplified hardware connections via NI Hardware Configuration Utility	Released	Q4		
Support for NI mioDAQ functionalities like built-in CJC thermocouples, PFI trigger filters, and configurable digital voltage levels	In Development		✓	
Customization and Extensibility				
Public GitHub repository for FlexLogger plug-ins created by the Community *	Released		Q1	
Simplified plug-in development and debug experience through Measurement plug-ins (includes Python support) *	In Development		✓	
Enhanced CSV logging experience with additional customizations	Backlog			✓
Expanded calculation channels and out-of-the-box data analysis	Backlog			✓
Test Efficiency				
Decrease logging rates outside of events of interest to reduce disk space *	Released	Q2		
Improvements in project and application load performance	Released	Q3		
Automate FlexLogger tests with NI LabVIEW *	Released	Q4		
Automate FlexLogger tests with NI TestStand *	Released		Q1	
Import/export channel configurations from a spreadsheet *	Backlog		✓	
Additional conditions and methods for users to update the logging rate of their test *	Backlog		✓	
Additional conditions, actions, and notification methods for FlexLogger events *	Backlog			✓
Access additional hardware specifications and configuration settings directly in FlexLogger	Backlog			✓
Automate tests in FlexLogger with a simple, native sequencer *	Backlog			✓
Minimize time to measurement with the FlexLogger AI Assistant *	Backlog			✓
Security				
Security updates for third-party dependencies	In Development		✓	
Encrypt logged data and communications	Backlog			✓

Demo

Demo: Hardware Setup



Summary: Hardware Setup

- Hardware is automatically detected
- Hardware is automatically imported to Flexlogger

Demo: Configuring Analog Channels

Data Logging Project - FlexLogger

FileEditProjectViewHelp

My FlexLoggerDaniel Eaton

Project FilesData

No files available
Start logging to view files here.

Channel Specification *Logging Specification *Test Specification *Screen *

RUNTriggerAdd channels

Local System
USAUSLT-L6G09R7

cDAQ1 (Simulated)
NI cDAQ-9178 (8-Slot USB CompactDAQ Chassis)

On-Board CountersCounter (100 Hz)

	CHANNEL NAME	LIVE VALUE	DETAILS	ALARMS
CTR0			Not Configured	
CTR1			Not Configured	
CTR2			Not Configured	
CTR3			Not Configured	

1 NI 9236 (C Series Strain/Bridge Input Module, Simulated)Fast (1,000 Hz)

	CHANNEL NAME	LIVE VALUE	DETAILS	ALARMS
AI0			Not Configured	
AI1			Not Configured	
AI2			Not Configured	
AI3			Not Configured	
AI4			Not Configured	
AI5			Not Configured	
AI6			Not Configured	
AI7			Not Configured	

2 NI 9213 (C Series Temperature Input Module, Simulated)Slow (1 Hz)

	CHANNEL NAME	LIVE VALUE	DETAILS	ALARMS
AI0			Not Configured	
AI1			Not Configured	
AI2			Not Configured	
AI3			Not Configured	
AI4			Not Configured	
AI5			Not Configured	
AI6			Not Configured	
AI7			Not Configured	
AI8			Not Configured	
AI9			Not Configured	
AI10			Not Configured	
AI11			Not Configured	
AI12			Not Configured	
AI13			Not Configured	
AI14			Not Configured	
AI15			Not Configured	

Errors and Warnings

Summary: Configuring Analog Channels

- Configure; no programming required
- Many sensor types supported
- Multiple scaling and calibration options supported
- Multi-select channel configuration for easy configuration
- Copy & paste channel configurations for easy replication

Demo: Configuring Digital and Counter Channels

Data Logging Project* - FlexLogger

File Edit Project View Help

Project Files Data

Channel Specification * Logging Specification * Test Specification * Screen * +

RUN Ready Trigger Add channels

Filter

cDAQ1 (Simulated)
NI cDAQ-9178 (8-Slot USB CompactDAQ Chassis)

2 NI 9213 (C Series Temperature Input Module, Simulated) Slow (1 Hz)

	CHANNEL NAME	LIVE VALUE	DETAILS	ALARMS
AI11	cDAQ1Mod2/ai11	-138.332 °C	Temperature, K Type, -200 / 1,372 °C	
AI12	cDAQ1Mod2/ai12	-114.284 °C	Temperature, K Type, -200 / 1,372 °C	
AI13	cDAQ1Mod2/ai13	-116.685 °C	Temperature, K Type, -200 / 1,372 °C	
AI14	cDAQ1Mod2/ai14	-185.613 °C	Temperature, K Type, -200 / 1,372 °C	
AI15	cDAQ1Mod2/ai15	-1.33E+31 °C	Temperature, K Type, -200 / 1,372 °C	

3 NI 9472 (C Series Digital Module, Simulated)

	CHANNEL NAME	LIVE VALUE	DETAILS
LINE0			Not Configured
LINE1			Not Configured
LINE2			Not Configured
LINE3			Not Configured
LINE4			Not Configured
LINE5			Not Configured
LINE6			Not Configured
LINE7			Not Configured

4 NI 9263 (C Series Voltage Output Module, Simulated)

	CHANNEL NAME	LIVE VALUE	DETAILS
AO0	cDAQ1Mod4/ao0	0.00000 V	Voltage output, -10 / 10 V
AO1	cDAQ1Mod4/ao1	0.00000 V	Voltage output, -10 / 10 V
AO2	cDAQ1Mod4/ao2	0.00000 V	Voltage output, -10 / 10 V
AO3	cDAQ1Mod4/ao3	0.00000 V	Voltage output, -10 / 10 V

5 NI 9234 (C Series Sound and Vibration Input Module, Simulated) Fast (1,000 Hz)

	CHANNEL NAME	LIVE VALUE	DETAILS	ALARMS
AI0			Not Configured	
AI1			Not Configured	
AI2			Not Configured	
AI3			Not Configured	

6 NI 9215 (C Series Voltage Input Module, Simulated) Fast (1,000 Hz)

	CHANNEL NAME	LIVE VALUE	DETAILS	ALARMS
AI0	cDAQ1Mod6/ai0	-9.30159 V	Voltage, -10 / 10 V	
AI1	cDAQ1Mod6/ai1	-9.62661 V	Voltage, -10 / 10 V	
AI2	cDAQ1Mod6/ai2	-9.74228 V	Voltage, -10 / 10 V	
AI3	cDAQ1Mod6/ai3	-9.63882 V	Voltage, -10 / 10 V	

No files available
Start logging to view files here.

Errors and Warnings

Summary: Configuring Digital and Counter Channels

- Built in counters need a digital module front end (e.g. 9401)
- Dedicated counter modules for additional counters (up to 64)
- Many sensors supported
- Same copy / paste & multichannel configuration options

Demo: Configuring Sample Times

Data Logging Project - FlexLogger

FileEditProjectViewHelp

My FlexLoggerDaniel Eaton

<<Project FilesData

RUN

Ready

Trigger

Add channels

Filter

cDAQ1 (Simulated)

Ni cDAQ-9178 (8-Slot USB CompactDAQ Chassis)

On-Board Counters

Counter (100 Hz)

	CHANNEL NAME	LIVE VALUE	DETAILS	ALARMS
CTR3			Not Configured	

1

Ni 9236 (C Series Strain/Bridge Input Module, Simulated)

Fast (1,000 Hz)

	CHANNEL NAME	LIVE VALUE	DETAILS	ALARMS
Ai0	cDAQ1Mod1/ai0	-0.03560 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	
Ai1	cDAQ1Mod1/ai1	-0.04006 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	
Ai2	cDAQ1Mod1/ai2	-0.04283 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	
Ai3	cDAQ1Mod1/ai3	-0.04595 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	
Ai4	cDAQ1Mod1/ai4	-0.04680 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	
Ai5	cDAQ1Mod1/ai5	-0.04790 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	
Ai6	cDAQ1Mod1/ai6	-0.05141 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	
Ai7	cDAQ1Mod1/ai7	-0.05280 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	

2

Ni 9213 (C Series Temperature Input Module, Simulated)

Slow (1 Hz)

	CHANNEL NAME	LIVE VALUE	DETAILS	ALARMS
Ai0	cDAQ1Mod2/ai0	202.994 °C	Temperature, K Type, -200 / 1,372 °C	
Ai1	cDAQ1Mod2/ai1	117.204 °C	Temperature, K Type, -200 / 1,372 °C	
Ai2	cDAQ1Mod2/ai2	59.7226 °C	Temperature, K Type, -200 / 1,372 °C	
Ai3	cDAQ1Mod2/ai3	45.7106 °C	Temperature, K Type, -200 / 1,372 °C	
Ai4	cDAQ1Mod2/ai4	13.2540 °C	Temperature, K Type, -200 / 1,372 °C	
Ai5	cDAQ1Mod2/ai5	-31.5979 °C	Temperature, K Type, -200 / 1,372 °C	
Ai6	cDAQ1Mod2/ai6	-70.1284 °C	Temperature, K Type, -200 / 1,372 °C	
Ai7	cDAQ1Mod2/ai7	-70.6150 °C	Temperature, K Type, -200 / 1,372 °C	
Ai8	cDAQ1Mod2/ai8	-103.217 °C	Temperature, K Type, -200 / 1,372 °C	
Ai9	cDAQ1Mod2/ai9	-105.115 °C	Temperature, K Type, -200 / 1,372 °C	
Ai10	cDAQ1Mod2/ai10	-99.7176 °C	Temperature, K Type, -200 / 1,372 °C	
Ai11	cDAQ1Mod2/ai11	-77.9887 °C	Temperature, K Type, -200 / 1,372 °C	
Ai12	cDAQ1Mod2/ai12	-58.7235 °C	Temperature, K Type, -200 / 1,372 °C	
Ai13	cDAQ1Mod2/ai13	-77.3753 °C	Temperature, K Type, -200 / 1,372 °C	
Ai14	cDAQ1Mod2/ai14	-45.4557 °C	Temperature, K Type, -200 / 1,372 °C	
Ai15	cDAQ1Mod2/ai15	-1.33E+31 °C	Temperature, K Type, -200 / 1,372 °C	

3

Ni 9472 (C Series Digital Module, Simulated)

	CHANNEL NAME	LIVE VALUE	DETAILS
LINE0			Not Configured
LINE1			Not Configured
LINE2			Not Configured

No files available
Start logging to view files here.

Errors and Warnings

Summary: Configuring Sample Times

- Three available rates for analog input tasks
 - Automatically synchronized with delta sigma modules
 - Actual value shown
- Separate rates for digital and counter acquisition

Demo: Configuring Additional Channels

Data Logging Project - FlexLogger

FileEditProjectViewHelp

<<Project FilesData

Home

Channel Specification ×

Logging Specification ×

Test Specification ×

Screen ×

+ ▾

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▶ RUN

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Ready

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Trigger

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Add channels ▾

↺

👁

Filter

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🔧

No files available
Start logging to view files here.

Local System
USAUSLT-L6G09R7

cDAQ1 (Simulated)
Ni cDAQ-9178 (8-Slot USB CompactDAQ Chassis)

On-Board Counters

Counter (100 Hz) ▾ ☰

	CHANNEL NAME	LIVE VALUE	DETAILS	ALARMS
CTR0			Not Configured	
CTR1			Not Configured	
CTR2			Not Configured	
CTR3			Not Configured	

1 ▾ 🌐 NI 9236 (C Series Strain/Bridge Input Module, Simulated)

Actual rate: 10,240 Hz Fast (10,000 Hz) ▾ ☰

	CHANNEL NAME	LIVE VALUE	DETAILS	ALARMS
A10	cDAQ1Mod1/ai0	-0.05270 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	
A11	cDAQ1Mod1/ai1	-0.05090 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	
A12	cDAQ1Mod1/ai2	-0.04993 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	
A13	cDAQ1Mod1/ai3	-0.04642 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	
A14	cDAQ1Mod1/ai4	-0.04640 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	
A15	cDAQ1Mod1/ai5	-0.04370 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	
A16	cDAQ1Mod1/ai6	-0.03913 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	
A17	cDAQ1Mod1/ai7	-0.03626 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	

2 ▾ 🌡 NI 9213 (C Series Temperature Input Module, Simulated)

Slow (1 Hz) ▾ ☰

	CHANNEL NAME	LIVE VALUE	DETAILS	ALARMS
A10	cDAQ1Mod2/ai0	1,275.91 °C	Temperature, K Type, -200 / 1,372 °C	
A11	cDAQ1Mod2/ai1	1,239.52 °C	Temperature, K Type, -200 / 1,372 °C	
A12	cDAQ1Mod2/ai2	1,200.16 °C	Temperature, K Type, -200 / 1,372 °C	
A13	cDAQ1Mod2/ai3	1,144.29 °C	Temperature, K Type, -200 / 1,372 °C	
A14	cDAQ1Mod2/ai4	1,107.06 °C	Temperature, K Type, -200 / 1,372 °C	
A15	cDAQ1Mod2/ai5	1,079.13 °C	Temperature, K Type, -200 / 1,372 °C	
A16	cDAQ1Mod2/ai6	987.721 °C	Temperature, K Type, -200 / 1,372 °C	
A17	cDAQ1Mod2/ai7	973.054 °C	Temperature, K Type, -200 / 1,372 °C	
A18	cDAQ1Mod2/ai8	915.239 °C	Temperature, K Type, -200 / 1,372 °C	
A19	cDAQ1Mod2/ai9	828.802 °C	Temperature, K Type, -200 / 1,372 °C	
A110	cDAQ1Mod2/ai10	772.101 °C	Temperature, K Type, -200 / 1,372 °C	
A111	cDAQ1Mod2/ai11	689.787 °C	Temperature, K Type, -200 / 1,372 °C	
A112	cDAQ1Mod2/ai12	638.864 °C	Temperature, K Type, -200 / 1,372 °C	
A113	cDAQ1Mod2/ai13	571.204 °C	Temperature, K Type, -200 / 1,372 °C	
A114	cDAQ1Mod2/ai14	509.922 °C	Temperature, K Type, -200 / 1,372 °C	
A115	cDAQ1Mod2/ai15	-1.33E+31 °C	Temperature, K Type, -200 / 1,372 °C	

Errors and Warnings

Summary: Configuring Additional Channels

- Ability to create additional calculated channels
- Calculated channels can use DAQ or other calculated channels

Demo: Make a GUI

Data Logging Project - FlexLogger

File Edit Project View Help

Project Files Data

Channel Specification * Logging Specification * Test Specification * Screen +

RUN Ready Trigger Add channels Filter

Local System

USASULT-L6G09R7

Calculated Channels

	CHANNEL NAME	LIVE VALUE	DETAILS	ALARMS
FILTER	cDAQ1Mod6/ai0_Filter	3.81606 V	Filter of cDAQ1Mod6/ai0. Lowpass, cutoff: 1 Hz.	
F(X)	Formula	14.3418	Formula: 'cDAQ1Mod6/ai0' + 10	
X>Y	Formula_1	High	Formula: 'Formula' > 10	
INT	cDAQ1Mod6/ai0_Integral	-29.5993	Integral of cDAQ1Mod6/ai0.	
MEAN	cDAQ1Mod6/ai0_Mean	1.96364 V	Mean of cDAQ1Mod6/ai0. Actual block size: 1 s.	
RMS	cDAQ1Mod6/ai0_RMS	1.65256 V	RMS of cDAQ1Mod6/ai0. Actual block size: 1 s.	

cDAQ1 (Simulated)

NI cDAQ-9178 (8-Slot USB CompactDAQ Chassis)

On-Board Counters

Counter (100 Hz)

- NI 9236 (C Series Strain/Bridge Input Module, Simulated) 0.02950 ε | 0.02512 ε | 0.02297 ε | 0.01599 ε | 0.01093 ε | 0.00609 ε | 0.00195 ε | -0.00356 ε Actual rate: 10,240 Hz Fast (10,000 Hz)
- NI 9213 (C Series Temperature Input Module, Simulated) 699.656 °C | 836.783 °C | 877.802 °C | 931.616 °C | 996.924 °C | 1,066.09 °C | 1,082.97 °C | 1,145.50 °C | 1,223.81 °C | 1,266.91 °C | 1,283.43 °C | 1,329.27 °C | 1,314.50 °C Slow (1 Hz)
- NI 9472 (C Series Digital Module, Simulated)
- NI 9263 (C Series Voltage Output Module, Simulated)
- NI 9234 (C Series Sound and Vibration Input Module, Simulated) 0.68811 g | 1.11115 g | 1.63003 g | 1.92955 g Actual rate: 10,240 Hz Fast (10,000 Hz)
- NI 9215 (C Series Voltage Input Module, Simulated) Actual rate: 10,240 Hz Fast (10,000 Hz)

	CHANNEL NAME	LIVE VALUE	DETAILS	ALARMS
AIO	cDAQ1Mod6/ai0	4.34180 V	Voltage, -10 / 10 V	
AI1	cDAQ1Mod6/ai1	5.13680 V	Voltage, -10 / 10 V	
AI2	cDAQ1Mod6/ai2	6.11093 V	Voltage, -10 / 10 V	
AI3	cDAQ1Mod6/ai3	6.41917 V	Voltage, -10 / 10 V	

- NI 9401 (C Series Digital Module, Simulated) High | High | High | Low | Low | High | High | Low Digital (10 Hz)
- NI 9361 (C Series Counter Digital Input Module, Simulated) 0.00000 Hz | 0.00000 Hz | 0.00000 Hz | 0.00000 Hz | 0.00000 Hz | 0.00000 Hz | 0.00000 Hz | 0.00000 Hz Counter (100 Hz)

No files available
Start logging to view files here.

Errors and Warnings

Summary: Make a GUI

- Create graphical interfaces in tool (no programming)
- Link to DAQ, calculated channels, other EXEs, or events
- Build any number of screens (not shown)

Demo: Create and Run a Log Spec

Project Files

Data

No files available

Start logging to view files here.

Channel Specification

Logging Specification

Test Specification

Screen

RUN

Ready

Trigger

Add channels

Filter

Local System

USAUSLT-L6G09R7

Calculated Channels

	CHANNEL NAME	LIVE VALUE	DETAILS	ALARMS
FILTER	cDAQ1Mod6/ai0_Filter	9.46253 V	Filter of cDAQ1Mod6/ai0. Lowpass, cutoff: 1 Hz.	
INT	cDAQ1Mod6/ai0_Integral	9.57433	Integral of cDAQ1Mod6/ai0.	
MEAN	cDAQ1Mod6/ai0_Mean	9.45959 V	Mean of cDAQ1Mod6/ai0. Actual block size: 1 s.	
RMS	cDAQ1Mod6/ai0_RMS	9.46394 V	RMS of cDAQ1Mod6/ai0. Actual block size: 1 s.	
F(X)	Formula	19.4649	Formula: 'cDAQ1Mod6/ai0' + 10	
X>Y	Formula_1	High	Formula: 'Formula' > 10	

cDAQ1 (Simulated)

NI cDAQ-9178 (8-Slot USB CompactDAQ Chassis)

On-Board Counters

Counter (100 Hz)

	CHANNEL NAME	LIVE VALUE	DETAILS	ALARMS
CTR0			Not Configured	
CTR1			Not Configured	
CTR2			Not Configured	
CTR3			Not Configured	

1

NI 9236 (C Series Strain/Bridge Input Module, Simulated)

Actual rate: 10,240 Hz

Fast (10,000 Hz)

	CHANNEL NAME	LIVE VALUE	DETAILS	ALARMS
AI0	cDAQ1Mod1/ai0	-0.03953 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	
AI1	cDAQ1Mod1/ai1	-0.04223 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	
AI2	cDAQ1Mod1/ai2	-0.04506 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	
AI3	cDAQ1Mod1/ai3	-0.04945 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	
AI4	cDAQ1Mod1/ai4	-0.05159 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	
AI5	cDAQ1Mod1/ai5	-0.05105 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	
AI6	cDAQ1Mod1/ai6	-0.05416 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	
AI7	cDAQ1Mod1/ai7	-0.05399 ε	Strain, Quarter bridge, -0.05553 / 0.06247 ε	

2

NI 9213 (C Series Temperature Input Module, Simulated)

Slow (1 Hz)

	CHANNEL NAME	LIVE VALUE	DETAILS	ALARMS
AI0	cDAQ1Mod2/ai0	1,006.96 °C	Temperature, K Type, -200 / 1,372 °C	
AI1	cDAQ1Mod2/ai1	873.511 °C	Temperature, K Type, -200 / 1,372 °C	
AI2	cDAQ1Mod2/ai2	837.992 °C	Temperature, K Type, -200 / 1,372 °C	
AI3	cDAQ1Mod2/ai3	788.439 °C	Temperature, K Type, -200 / 1,372 °C	
AI4	cDAQ1Mod2/ai4	712.227 °C	Temperature, K Type, -200 / 1,372 °C	
AI5	cDAQ1Mod2/ai5	649.018 °C	Temperature, K Type, -200 / 1,372 °C	
AI6	cDAQ1Mod2/ai6	581.892 °C	Temperature, K Type, -200 / 1,372 °C	

Errors and Warnings

Summary: Create and Run a Log Spec

- Configure log file:
 - Name
 - Location
 - Start / stop trigger
 - “Black Box” recording before trigger
 - File segmentation
 - Meta data (with prompt option)
- Run the log, get your data, and review!
- Again, no programming required

Demo: Review Log Files

LogFile_2025-04-03-20-57-47.tdms
4/3/2025 8:57:47 PM

TDMS logging

Base path
C:\Users\deaton\Documents\FlexLogger\data

File name
LogFile_{Year}-{Month}-{Day}-{Hour}-{Minute}-{Second}.tdms
Preview: LogFile_2025-04-07-11-59-56.tdms

Description

Logging options

Back up file

Backup path
C:\Users\deaton\Documents\FlexLogger\data\backups

Segment into multiple files

Based on
File size (MB)

Create new file when the file exceeds
100

Export automatically to CSV file format when logging completes

File will be saved to specified TDMS logging » Base path directory.

CSV file data rate
100 Hz

Preferences...

Test properties

The following properties will be stored on every logged TDMS file under the test properties group

Property name	Property value	Prompt on start
Operator	deaton	<input checked="" type="checkbox"/>
DUT		<input checked="" type="checkbox"/>
Test Location		<input checked="" type="checkbox"/>

Add property

Logging trigger

Trigger conditions

Start

Start logging at channel rate when...
Channel value change

Channel (Required)
cDAQ1Mod6/ai0

Value change (Required)
Rises above value

Value

Stop

Stop logging at channel rate when...
Test stop

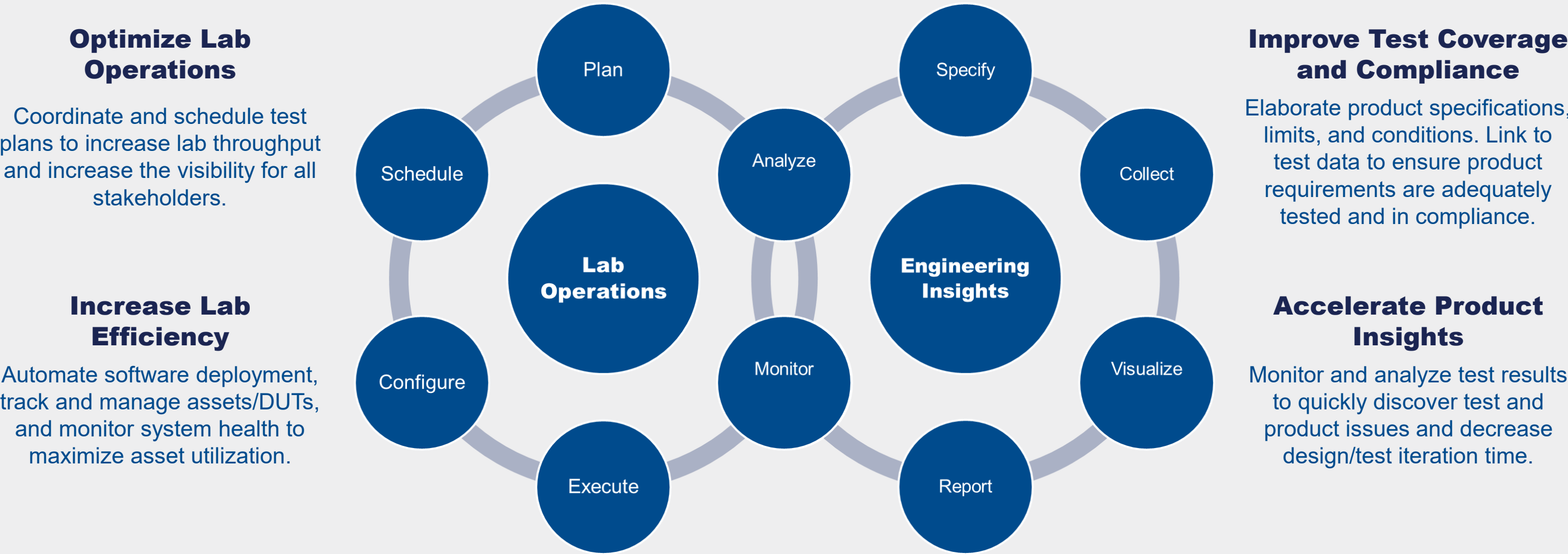
Errors and Warnings

Summary: Review Log Files

- Quickly review large data sets
- Run additional post processing routines

SystemLink Targeted Outcomes

Streamline lab operations & amplify engineering insights



SystemLink Architecture Fundamentals

Standards-Based

Developed with industry-leading technologies, IP best practices

Scalable

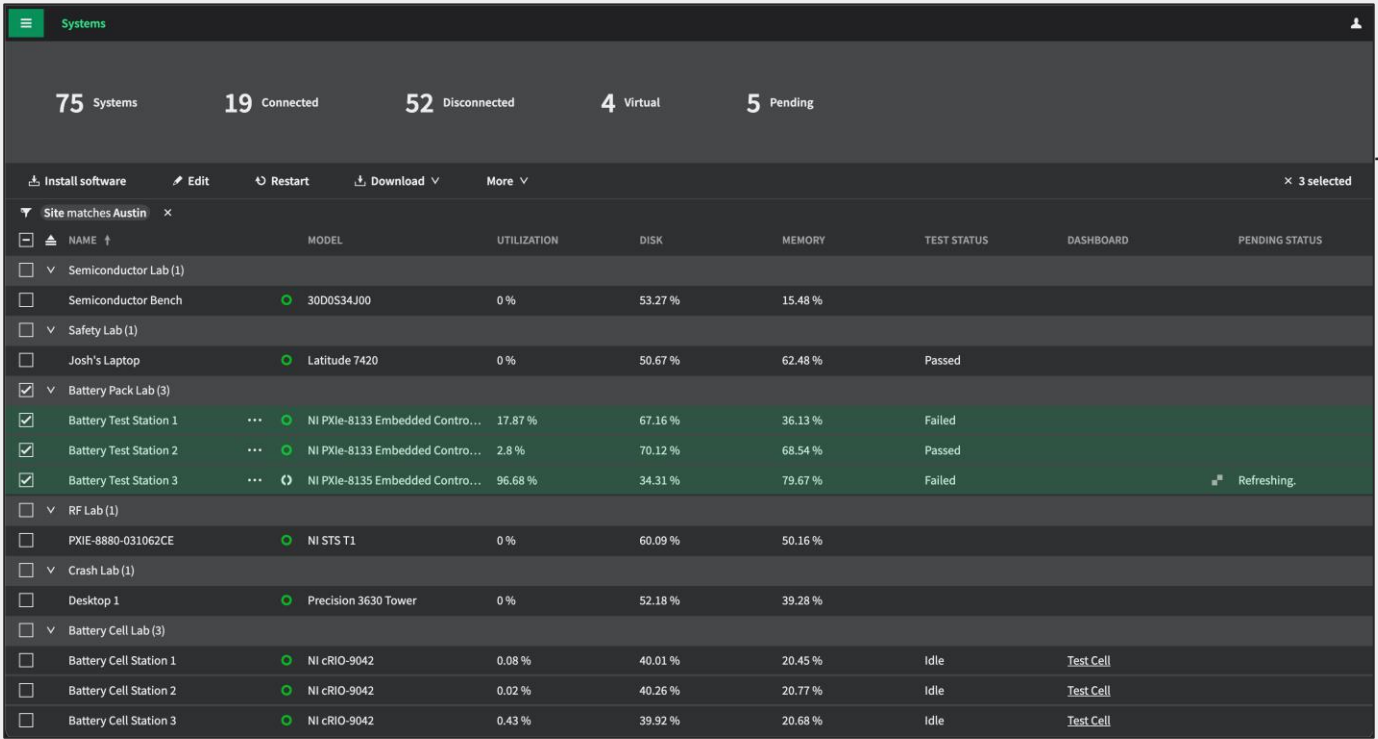
Megabytes to Petabytes of data from 1000s of data sources

Extensible

Config-based dashboards, plug-in applications, open APIs, partners

Secure

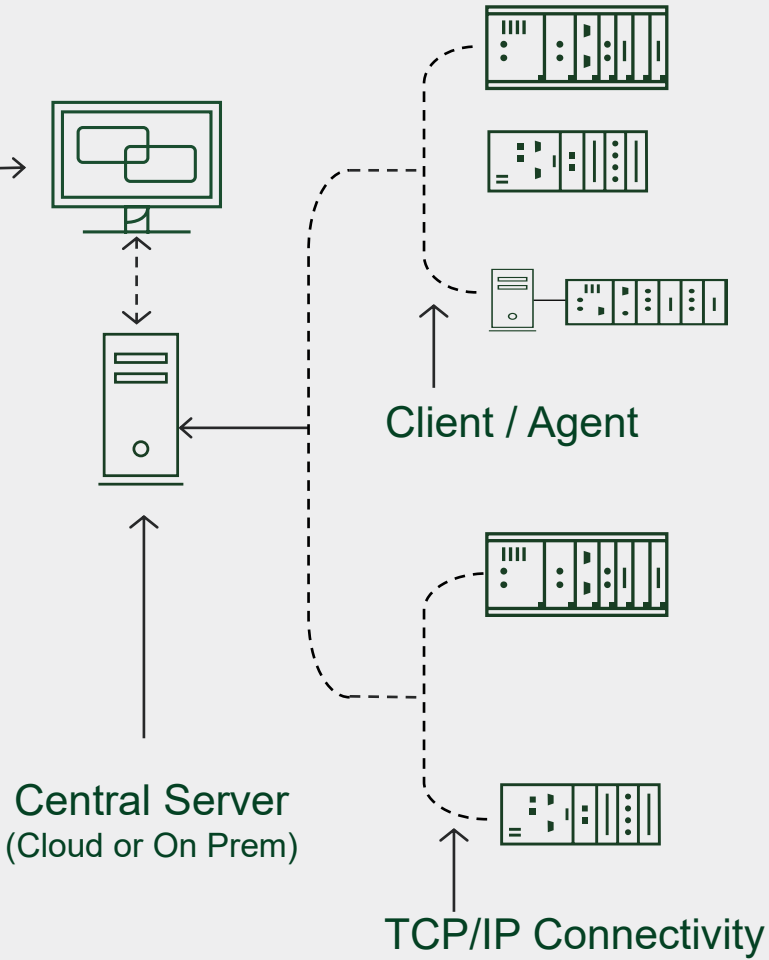
HTTPS / TLS data encryption; authentication & access control



The screenshot shows the 'Systems' page in the SystemLink web application. At the top, there are summary statistics: 75 Systems, 19 Connected, 52 Disconnected, 4 Virtual, and 5 Pending. Below this is a toolbar with actions like 'Install software', 'Edit', 'Restart', 'Download', and 'More'. A table lists various systems with columns for NAME, MODEL, UTILIZATION, DISK, MEMORY, TEST STATUS, DASHBOARD, and PENDING STATUS. The table is filtered by 'Site matches Austin'. The systems listed include Semiconductor Lab, Safety Lab, Josh's Laptop, Battery Pack Lab, RF Lab, Crash Lab, and Battery Cell Lab.

	NAME	MODEL	UTILIZATION	DISK	MEMORY	TEST STATUS	DASHBOARD	PENDING STATUS
	Semiconductor Lab (1)							
	Semiconductor Bench	30D0S34J00	0 %	53.27 %	15.48 %			
	Safety Lab (1)							
	Josh's Laptop	Latitude 7420	0 %	50.67 %	62.48 %	Passed		
	Battery Pack Lab (3)							
	Battery Test Station 1	NI PXIe-8133 Embedded Contro...	17.87 %	67.16 %	36.13 %	Failed		
	Battery Test Station 2	NI PXIe-8133 Embedded Contro...	2.8 %	70.12 %	68.54 %	Passed		
	Battery Test Station 3	NI PXIe-8135 Embedded Contro...	96.68 %	34.31 %	79.67 %	Failed		Refreshing
	RF Lab (1)							
	PXIe-8880-031062CE	NI STS T1	0 %	60.09 %	50.16 %			
	Crash Lab (1)							
	Desktop 1	Precision 3630 Tower	0 %	52.18 %	39.28 %			
	Battery Cell Lab (3)							
	Battery Cell Station 1	NI cRIO-9042	0.08 %	40.01 %	20.45 %	Idle	Test Cell	
	Battery Cell Station 2	NI cRIO-9042	0.02 %	40.26 %	20.77 %	Idle	Test Cell	
	Battery Cell Station 3	NI cRIO-9042	0.43 %	39.92 %	20.68 %	Idle	Test Cell	

Web Application



Systems

75 Systems

19 Connected

52 Disconnected

Install software

Edit

Restart

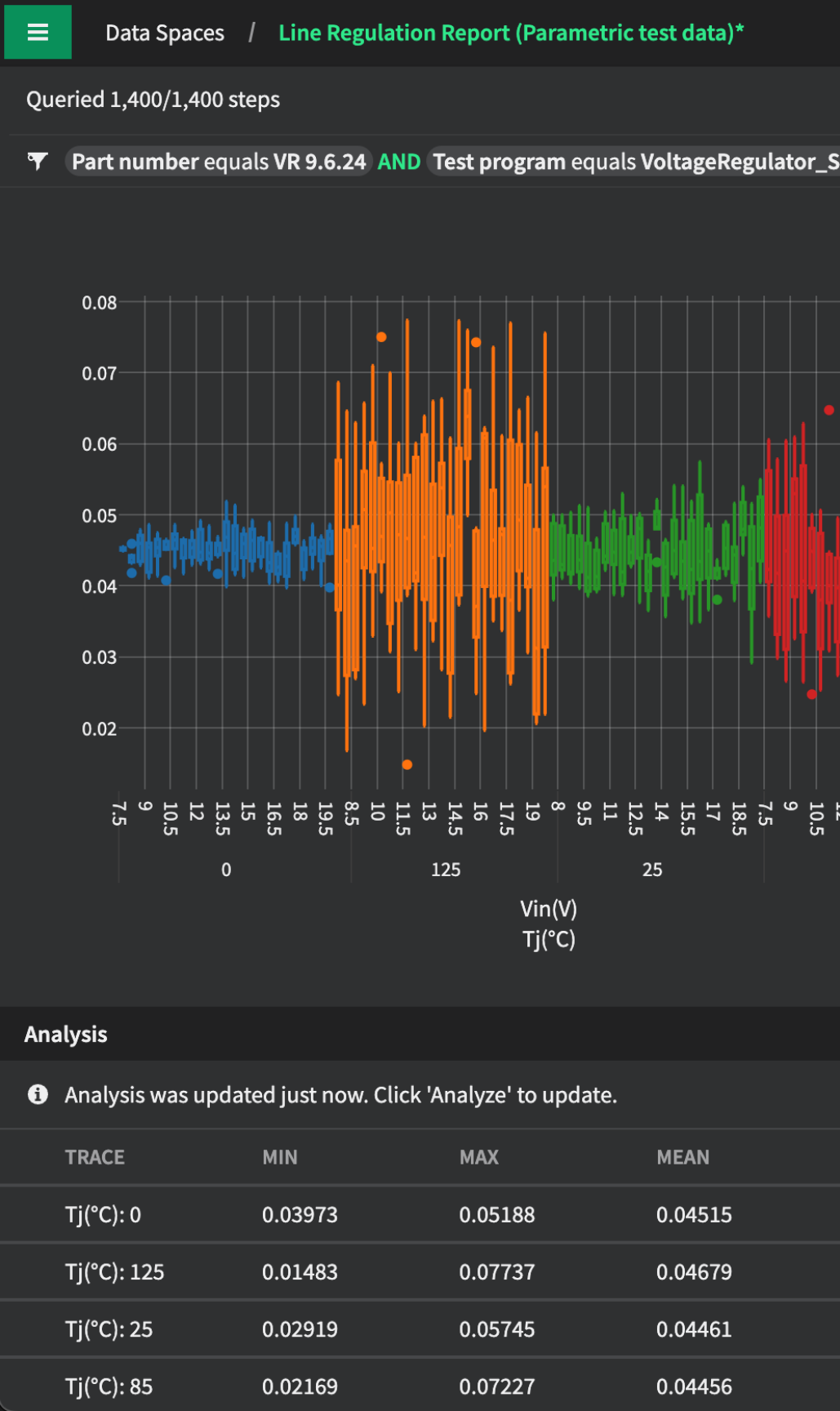
Download

Site matches Austin

	NAME		MODEL	UTILIZATION
<div></div>	Semiconductor Lab (1)			
<div></div>	Semiconductor Bench	<div></div>	30D0S34J00	0 %
<div></div>	Safety Lab (1)			
<div></div>	Josh's Laptop	<div></div>	Latitude 7420	0 %
<div></div>	Battery Pack Lab (3)			
<div></div>	Battery Test Station 1	<div></div>	NI PXIe-8133 Embedd...	17.87 %
<div></div>	Battery Test Station 2	<div></div>	NI PXIe-8133 Embedd...	2.8 %
<div></div>	Battery Test Station 3	<div></div>	NI PXIe-8135 Embedd...	96.68 %
<div></div>	RF Lab (1)			
<div></div>	PXIE-8880-031062CE	<div></div>	NI STS T1	0 %
<div></div>	Crash Lab (1)			
<div></div>	Desktop 1	<div></div>	Precision 3630 Tower	0 %
<div></div>	Battery Cell Lab (3)			
<div></div>	Battery Cell Station 1	<div></div>	NI cRIO-9042	0.08 %
<div></div>	Battery Cell Station 2	<div></div>	NI cRIO-9042	0.02 %
<div></div>	Battery Cell Station 3	<div></div>	NI cRIO-9042	0.43 %
<div></div>	ADG (1)			
<div></div>	ateccgen2_host	<div></div>	NI PXIe-8880	

Increase Lab Efficiency

- Mass deploy NI and test software for your entire fleet from a central web interface
- Monitor test systems and assets health with alarms and notifications as well as customizable dashboards
- Manage and track the assets calibration status, calibration history, and location history
- Track utilization for DUTs, assets, systems, and the entire lab



Accelerate Product Insights

- Collect, store and view test results, files, parametric and waveform data from LabVIEW, TestStand, FlexLogger and 3rd party test software
- Quickly search and filter data to analyze past results and gain additional insights
- View waveform and parametric measurement data from a web-based user interface
 - Plot and group measurement data across different conditions
 - View distributions using box and violin plots as well as histograms

Products / CWUU 18650 (B0CG1KL3RC)

Name

CWUU 18650

Family

Battery Cell

Results

Files

Specs

Test Plans

DUTs

Create test plan

Showing 41 of 41 most recently updated test plans

NAME

STATE

Power test

Scheduled

Battery inspection

Pending a

Battery inspection

Scheduled

Battery inspection

In progres

Energy efficiency test

Scheduled

Energy efficiency test

Scheduled

Power test

Scheduled

Fast Charge Test

Scheduled

Dynamic test cycle

Scheduled

Battery inspection

Pending a

Battery inspection

Pending a

Battery inspection

In progres

Battery inspection

Scheduled

Battery inspection

Pending a

Continuous current limitations

Scheduled

Battery inspection

In progres

Schedule

Showing 20 of 20 test plans. Showing 72 systems, sorted in alphabetical order.

Today

<

>

February 2025

▼

Month

▼

Systems

20 Thu

21 Fri

22 Sat

23 Sun

24 Mon

25 Tue

26 Wed

27 Thu

Battery Cell Station 1

Power test (860764)
CWUU 18650 (B0CG1KL3RC)
Feb 20, 2025, 12:00 AM - Feb 22, 2025, 12:00 AM

Battery Cell Station 2

Energy efficiency test (905854)
CWUU 18650 (B0CG1KL3RC)
Feb 23, 2025, 9:00 PM - Feb 28, 2025, 9:00 AM

Battery Cell Station 3

Dynamic test cycle (905864)
CWUU 18650 (B0CG1KL3RC)
Feb 23, 2025, 11:30 AM - Feb 27, 2025, 12:30 PM

Battery Test Station 1

Battery inspection (805...
TSM Sample (TSM 1.2)
Feb 20, 2025, 12:00 AM - Feb 21...
Fast Charge Test (905901)
CWUU 18650 (B0CG1KL3RC)
Feb 21, 2025, 7:00 PM - Feb 24, 2025, 1:30 PM

Battery Test Station 2

Battery inspect...
CWUU 18650 (B0CG1...
Feb 21, 2025, 12:00 ...
Energy efficiency test (905893)
CWUU 18650 (B0CG1KL3RC)
Feb 22, 2025, 1:15 AM - Feb 28, 2025, 12:00 PM

Battery Test Station 3

Power test (905918)
CWUU 18650 (B0CG1KL3RC)
Feb 21, 2025, 12:30 PM - Feb 23, 2025, 9:00 PM
Battery inspection (734435)
NX 74205 Defiant (NX 74205 1)
Feb 23, 2025, 11:15 PM - Feb 26, 2025, 12:15 AM
Battery inspection (4175...
CWUU 18650 (B0CG1KL3RC)
Feb 26, 2025, 10:00 AM - Mar 1...

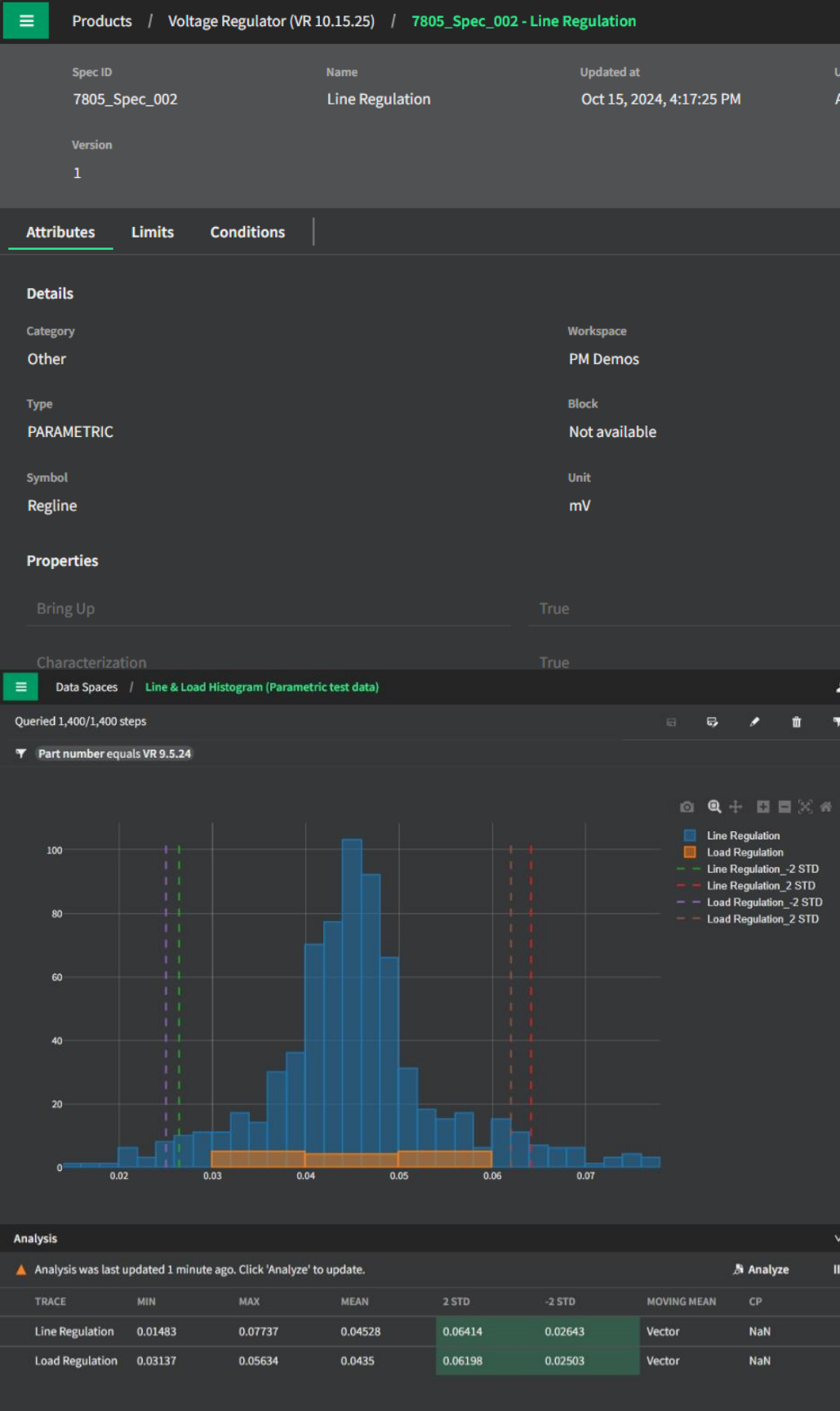
Battery Test Station 4

Battery inspection (...
CWUU 18650 (B0CG1KL3RC)
Feb 25, 2025, 3:30 PM - Fe...

Optimize Lab Operations

- Plan and schedule systems, assets, and DUTs to be used for testing
- Define customizable test parameters and custom actions that can be integrated with both NI and 3rd party systems
- Define, manage, schedule, deploy, remotely start, and monitor tests
- Monitor test execution and measurements in real-time and get immediate updates as test result data is available

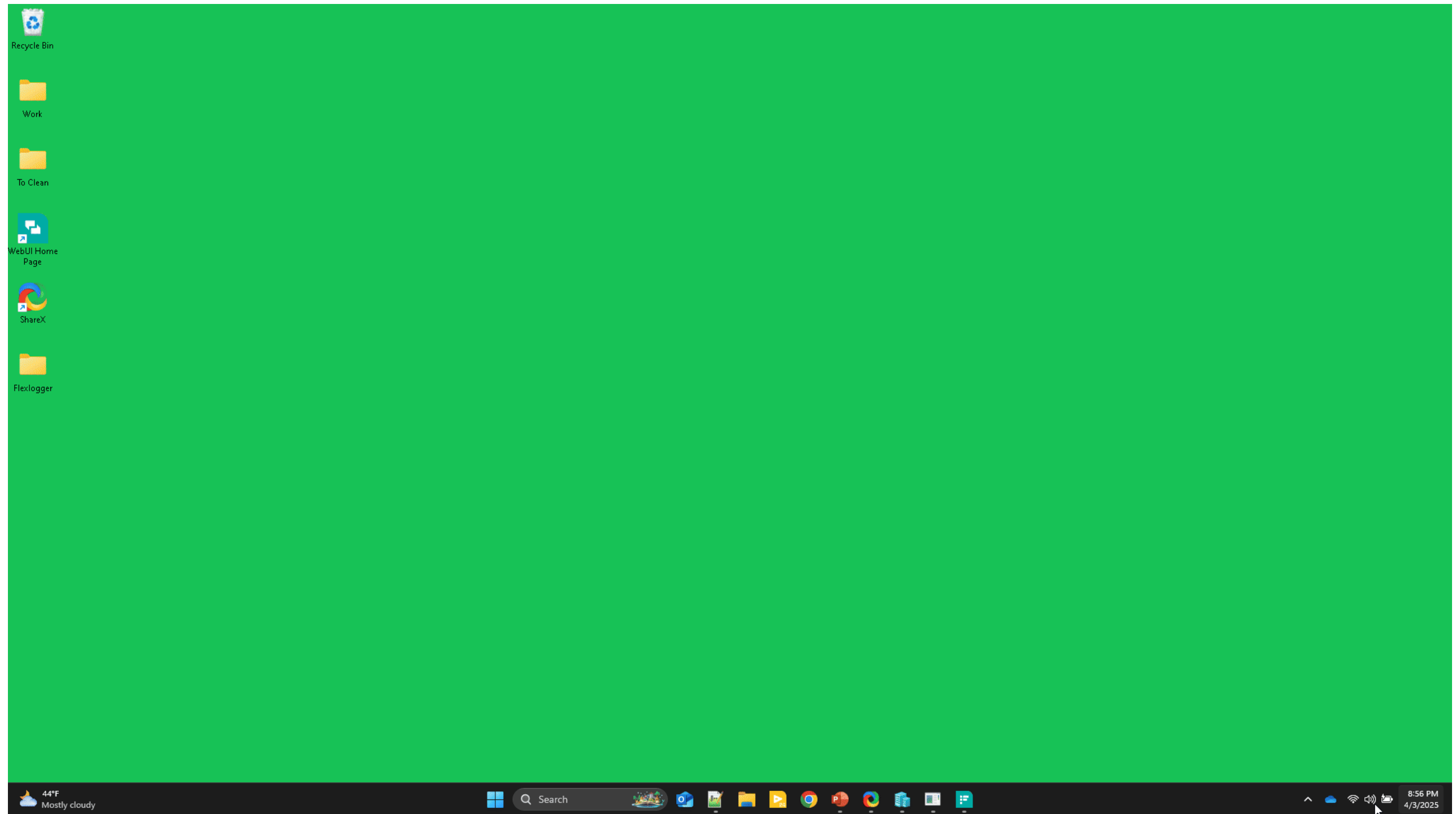
38



Improve Test Coverage and Compliance

- Import and store product specifications in a central repository with a web UI
- Map specs to measurement data stored in SystemLink parametric and waveform stores.
- Compute compliance and coverage using Specifications + Test Data
 - Compliance: Did the product behavior match specifications?
 - Coverage: Did I test enough unique DUTs to be confident moving to production?
- Customize specification compliance statistics and measurement analysis

Demo: SystemLink Integration



Summary: SystemLink Integration

- Share slow speed tags to SystemLink
- Within SystemLink, use tags for:
 - Web based GUIs
 - Alarming
 - Analysis
- Automatically upload data files to SystemLink
- Within SystemLink, use data files for:
 - Post process analysis using Python / Jupyter Notebooks
 - Web based GUIs
 - Downloading to local machine
 - Data management