

Simplify Now! for NI CompactRIO - Ready to run application for data logging and controls



Take advantage of all the benefits of NI cRIO with unlimited customization



NI CompactRIO is a proven rugged platform for controls and data acquisition. Until now, customers needed to develop their own software in C++, LabVIEW or Python for even the simplest applications.

With Simplify Now! everyone can leverage their CompactRIO just minutes after receiving it! It is a great alternative to FlexLogger for customers requiring an application independent of a Windows based computer.

Customer Needs

01

Deploy a reliable solution quickly for headless operations.

02

Monitor processes and logging over extended time periods continuously or on specific events.

03

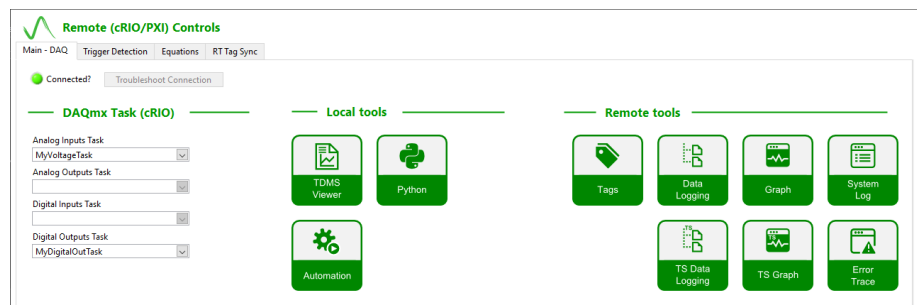
Report data in real-time and perform simple decisions and control.

Simplify Now! offers

Ready to run application for any 904x cRIO compatible with most NI C-Series modules through DAQmx.

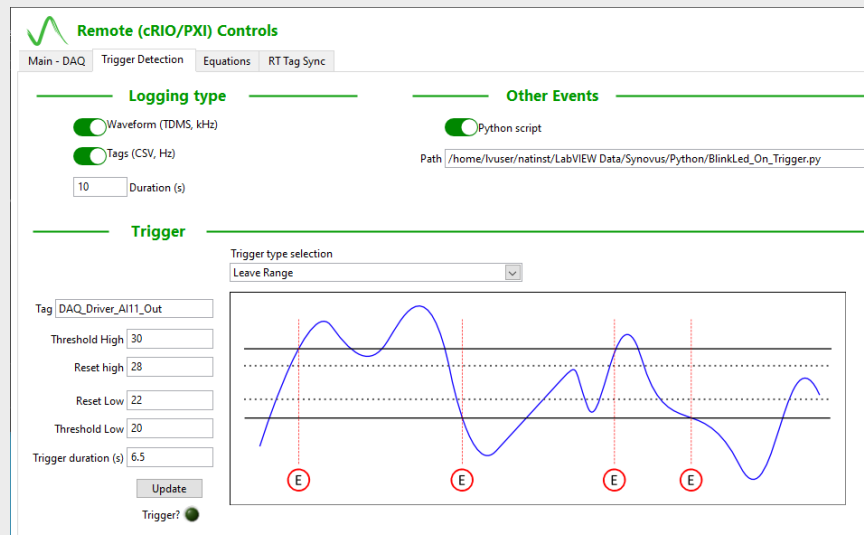
Multiple options for logging low speed and high-speed signals with simple and complex triggers.

3 different methods to run custom scripts at runtime, including Python.



Typical applications

- Headless datalogging with triggers
- Ongoing monitoring of structures and vehicles
- Synchronize logging and controls with traditional PLC based system
- Run applications for extended periods without Windows updates or interruptions
- Supervisory applications with notification via email and SMS



Configuration: Quickly define conditions to trigger logging

Simplify Now! for NI CompactRIO capabilities

Customers get reliability and scalability out of the box with our software. There is no need for in-house software development expertise nor investing significant time developing and troubleshooting your own application. Unlike solutions from other vendors, Simplify Now! can also control outputs and act as a test sequencer or a simple test executive.

Supports up to 64 inputs and outputs channels on C-Series modules

Supports distributed acquisition and controls with cDAQ 9189

Records data in format compatible with Diadem, Matlab, Excel, Python and more

Easily integrates NI DAQmx, NI XNET and SCPI devices in the application

Send data to your SystemLink server in real-time

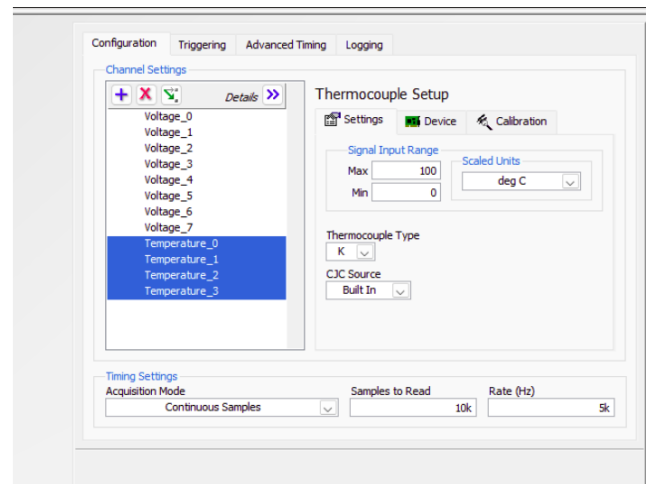
Easy configuration

Simplify Now! takes advantage of NI's DAQmx drivers to dynamically configure channels and scaling. Channels are abstracted in the software (AI00..AI31, AO00..AO07, etc.) so users can change the modules and simply create a new task to continue using the same application.

Run-time flexibility

Synovus designed Simplify Now! to offer the maximum amount of flexibility. Almost everything can be controlled or monitored from Python scripts running alongside the application directly on the CompactRIO. In minutes, customers can:

- Execute simple sequences with smart transitions
- Stream data to their favorite IoT platform
- Add closed-loop control to their processes
- Monitor for specific conditions and send emails
- Analyze logged data on disk as soon as acquisition finishes



Configuration: Leverage NI DAQmx for inputs/outputs.

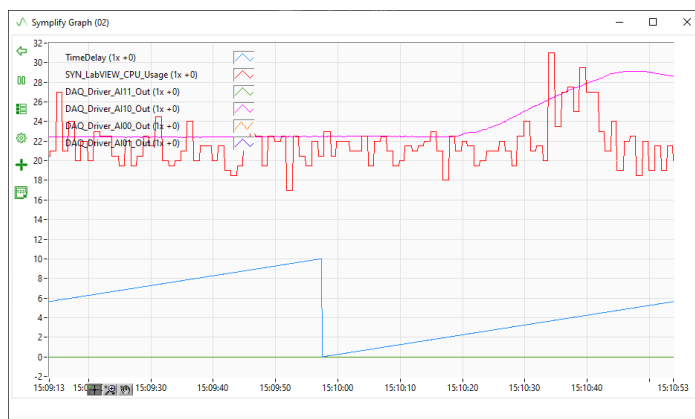
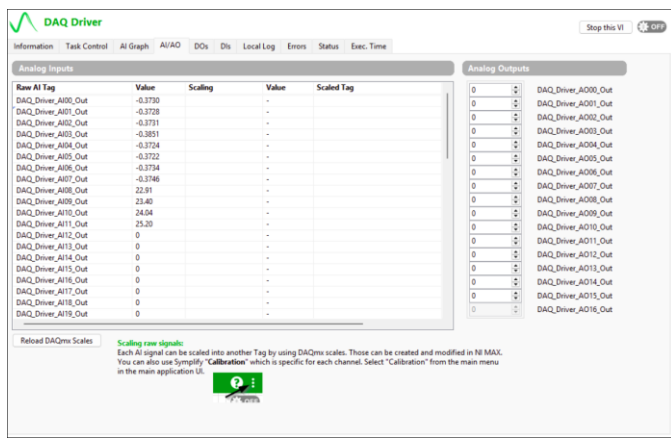
```
34
35 # Create a Remote Interface instance
36 SY = SimplifyRemoteInterface.SimplifyRemoteInterface()
37
38 # Request to Abort all the script operation
39 i_Abort_Test_Request = 0
40
41 #Define Waveform
42 Num_of_Samples = 800000
43 dt = 0.00001
44 amplitude = 20
45 offset = 80
46
47 # FFT Plot Image Folder
48 fft_plot_folder = "C:\\Users\\LabVIEW\\Documents\\LabVIEW Data\\"
49
50 def read_tdms_file(file_path, channel_name):
51     tdms_file = TdmsFile.read(file_path)
52     group = tdms_file.groups()[0]
53     channel = group[channel_name]
54     return channel.time_track(), channel.data
55
```

Python: Simple integration for endless possibilities

Interactive monitoring and configuration

Simplify Now! Running on the CompactRIO can be configured and monitored from a Windows PC application. All the parameters are stored locally on the cRIO but user interfaces on the computer let the user change settings and look at the data in real time on graphs.

Our built-in viewers let you explore weeks of data in minutes—up to 100x faster than Excel. When it's time to report, export what you need and finish in your preferred tools.



Monitoring: Validate setup with readings in real-time

Visualization: Available from PC at runtime and saved on disk

Technical specifications

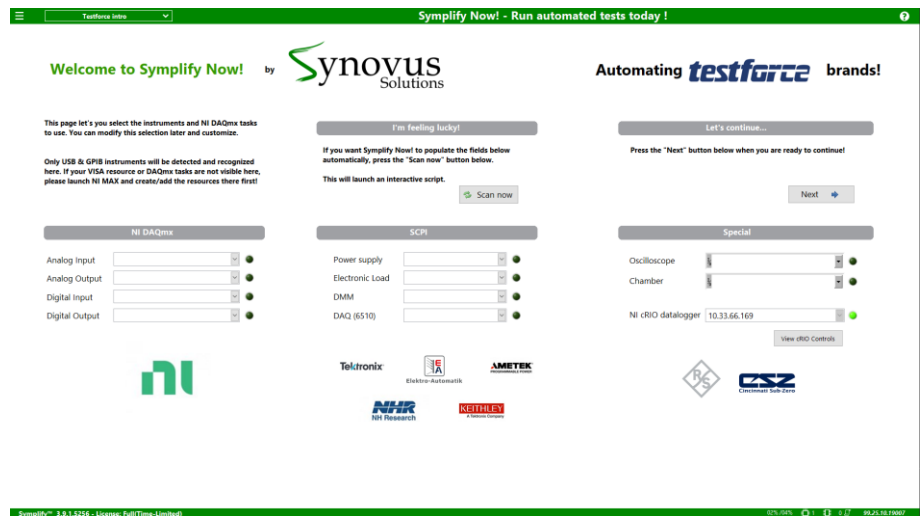
Typical software capabilities	(on NI cRIO 9049)
Maximum number of channels	64 inputs and outputs channels
Maximum acquisition rate	1 MS/s/ch (4 channels), 50ks/s/ch (32 channels)
Maximum control rate	10Hz
Low speed datalogger	Text files, 20Hz on 100 variables, up to 2 separate loggers
High speed datalogger	TDMS, 50ks/s/ch on 32 channels, up to 2 separate loggers
Trigger configuration	Single variable, Low /High / Enter / Leave
Python integration	Multiple scripts supported, up to 100 lines / second, TCP/IP communication with Simplify Now! executable.
Source code LabVIEW version	2023 Q3 (NI subscription required to modify and recompile code)
Modules supported	92xy, 93xy, 94xy (NI DAQmx), 986x (NI-XNET)
Storage options	SD card, USB, external drives, internal memory

NI hardware with Synovus's software

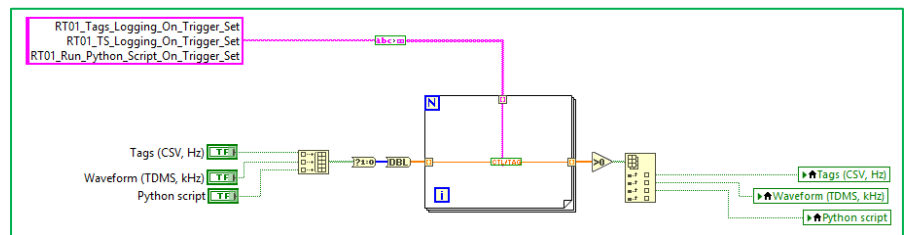
Simplify Now! is ready to deploy on NI CompactRIO and offers an alternative to NI Flexlogger for headless applications.

From basic datalogging to more complex closed loop controls, Simplify Now! offer the capabilities to meet your testing needs today and expand in the future.

Reach out to your Testforce account manager (testforce.com) to request more information and evaluate this groundbreaking solution. Customers outside of the US and Canada can reach out directly to Synovus Solutions (info@synovus.ca) .



Proven: The CompactRIO application uses the same code as the PC version.



Flexible: Customers can modify most of the source code.

Key features

- Record data up to 1MS/s
- Powered by LabVIEW and Python
- gRPC connectivity for controls and monitoring
- Open-source drivers and UI
- Compatible with NI XNET, SCPI instruments, NI DAQmx, Modbus TCP and many more instruments

Remote (cRIO/PXI) Controls

Main - DAQ Trigger Detection Equations RT Tag Sync

Equations (on Remote target) 10.33.66.169:8000 ("RT01")

Name	Equation	Enabled?	Valid?	Status	Output
Example 01 - basic	Default_Tag = Default_Tag + 0.001	1	1	Active	
Example 02 - Sawtooth	TimeDelay = (TimeDelay + 0.01) * (1 - floor(TimeDelay/10))	1	1	Active	
Example 03 - Detect threshold	FormulaThreshold = (log(7-TimeDelay) + 1) / 2	1	1	Active	
Trigger display	DAQ_Driver_DO00_Out = TRIGGER_00_Status_Out	1	1	Active	
Trigger Armed?	DAQ_Driver_DO03_Out = TRIGGER_00_In_Hysteresis_Range_Out	1	1	Active	

Refresh Table Update

Configurable: There are many ways to customize logging and controls.

Contact us today or visit Synovus.ca to learn more



Authorized distributor: **testforce**