What Is LabVIEW?

LabVIEW is systems engineering software for applications that require test, measurement, and control with rapid access to hardware and data insights.

Accelerate Engineering

LabVIEW offers a graphical programming approach that helps you visualize every aspect of your application, including hardware configuration, measurement data, and debugging. This visualization makes it simple to integrate measurement hardware from any vendor, represent complex logic on the diagram, develop data analysis algorithms, and design custom engineering user interfaces.

Seamlessly Integrate Your Hardware

Quickly integrate NI hardware and third-party devices together in one development environment to meet application needs.

Integrate Analysis and IP to Save Time

Gain insight faster by applying analysis and control using built-in functions or calling existing IP.

Visualize Data to Manage Your System

Develop user interfaces with a drag-and-drop approach to view data, make decisions, and manage deployed systems.

What Can You Do With LabVIEW 2020?

LabVIEW solves engineering challenges across a broad range of application areas. Explore the area below that most closely aligns to your application to learn more.

Measure Physical Systems With Sensors or Actuators

With LabVIEW and NI DAQ hardware, you can build a custom measurement solution to visualize and analyze real-world signals to make data-driven decisions.

Validate or Verify Electronic Designs

Using LabVIEW and NI or third-party hardware, you can automate the validation of your product to meet challenging time-to-market and performance requirements.

Develop Production Test Systems

Working with LabVIEW, you can create flexible test applications that control multiple instruments and design user interfaces to optimize your manufacturing test throughput and operational cost.

Design Smart Machines or Industrial Equipment

You can build industrial equipment and smart machines faster with LabVIEW. NI's embedded design platform combines a complete software stack, tightly integrated and customizable hardware, and a vibrant ecosystem of users and IP.

Software Benefits

Standard Service Program
Every purchase includes a renewable, one-year membership to the Standard Service Program (SSP) for software, which offers the following:
- Live phone and email technical support from local, degreed engineers
- Automatic version updates to LabVIEW and LabVIEW NXG
- 24/7 access to selected online training and virtual demonstrations
- Access to historical versions in case you need to share code with your team

Select Your LabVIEW Edition

Every Purchase of LabVIEW Includes LabVIEW 2020 and LabVIEW NXG
The selection you make gives you that edition of LabVIEW 2020 and the corresponding edition of LabVIEW NXG. Choose the edition that best meets your needs, or consider purchasing LabVIEW as part of one of our software suites.

LabVIEW Base Edition

- Recommended for desktop measurement applications
- Includes device drivers for NI hardware and third-party instruments
- Includes basic mathematics and signal processing

Purchase includes LabVIEW NXG Base Edition

LabVIEW Full Edition

- Recommended for performing inline advanced mathematics and signal processing
- Required for signal processing add-ons
- Required for real-time and FPGA hardware

Purchase includes LabVIEW NXG Full Edition

LabVIEW Professional Edition

- Recommended for applications requiring code validation
- Includes code and application deployment capabilities
- Includes software engineering add-ons

Purchase includes LabVIEW NXG Professional Edition

LabVIEW 2020 Editions

	LabVIEW Base	**LabVIEW Full**	**LabVIEW Professional**
Key differentiators	• Recommended for desktop measurement applications • Includes device drivers for NI hardware and third-party instruments • Includes basic mathematics and signal processing	• Recommended for inline advanced mathematics and signal processing • Required for signal processing add-ons • Required for real-time and FPGA hardware	• Recommended for applications requiring code validation • Includes code and application deployment capabilities • Includes multiple software engineering add-ons
Included LabVIEW NXG editions	LabVIEW NXG Base	LabVIEW NXG Full	LabVIEW NXG Professional
OS Support			
Windows	✓	✓	✓
Mac	-	✓	✓
Linux	-	✓	✓
Standard Service Program			
One year of technical support	✓	✓	✓
One year of software upgrades	✓	✓	✓
Access to 24/7 online training courses	✓	✓	✓
Subscription license available	✓	✓	✓

	LabVIEW Base	LabVIEW Full	LabVIEW Professional
Hardware Integration			
Acquiring data from NI hardware	✓	✓	✓
Acquiring data from third-party hardware	✓	✓	✓
Deploying to real-time hardware	-	Requires add-on[1]	Requires add-on[1]
Deploying to FPGA hardware	-	Requires add-on[1]	Requires add-on[1]
Programming Capabilities			
Native graphical programming	✓	✓	✓
Multithreaded code execution	✓	✓	✓
Code debugging	✓	✓	✓
Event-driven programming	✓	✓	✓
Object-oriented programming	✓	✓	✓
Mathematics			
Standard math functions	✓	✓	✓
Probability and statistics	✓	✓	✓
Linear algebra	-	✓	✓
Curve fitting	-	✓	✓
Differential equations	-	✓	✓
Interpolation and extrapolation	-	✓	✓
Calculus	-	✓	✓
Signal Processing and Control			
Signal measurements	-	✓	✓
Signal generation	-	✓	✓
PID and fuzzy logic	-	✓	✓
Signal conditioning and filtering	-	✓	✓
Windowing	-	✓	✓
Signal operations	-	✓	✓
Transforms	-	✓	✓
Wavelet analysis	-	Requires add-on[1]	Requires add-on[1]
Time series analysis	-	Requires add-on[1]	Requires add-on[1]
Vision analysis	Requires add-on[1]	Requires add-on[1]	Requires add-on[1]
Model-based control and simulation	-	Requires add-on[1]	Requires add-on[1]
Read, Write, Share Data			
Read and write to file	✓	✓	✓
Network communications	✓	✓	✓
Visualize and analyze image files	Requires add-on[1]	Requires add-on[1]	Requires add-on[1]
Web services	-		✓

	LabVIEW Base	LabVIEW Full	LabVIEW Professional
Report generation for Microsoft Office	Requires add-on[1]	Requires add-on[1]	✓
Database connectivity	Requires add-on[1]	Requires add-on[1]	✓
Software Engineering Tools			
Graphical diff and merge	-	-	✓
Dynamic code analysis	Requires add-on[1]	Requires add-on[1]	✓
Static code analysis	Requires add-on[1]	Requires add-on[1]	✓
Unit testing framework	Requires add-on[1]	Requires add-on[1]	✓
Software Interoperability and Code Integration			
Call DLLs and .NET assemblies	✓	✓	✓
Integrate text-based source code (C/C++, Python, and more)	✓	✓	✓
Call MATLAB® code	-	✓	✓
Code Deployment and Distribution			
Build executables	Requires add-on[1]	Requires add-on[1]	✓
Build shared libraries	Requires add-on[1]	Requires add-on[1]	✓
Build installers	Requires add-on[1]	Requires add-on[1]	✓
Control programs remotely through Internet	-	✓	✓
Create Web Applications	Requires add-on[1]	Requires add-on[1]	Requires add-on[1]

[1]Add-ons provide all functionality for a feature, but you must purchase them separately.

LabVIEW NXG Editions

	LabVIEW NXG Base	LabVIEW NXG Full	LabVIEW NXG Professional
Key differentiators	• Recommended for desktop measurement applications • Includes device drivers for NI hardware and third-party instruments • Includes basic mathematics and signal processing	• Recommended for performing inline advanced mathematics and signal processing • Includes LabVIEW NXG Base functionality	• Recommended for deploying applications • Includes LabVIEW NXG Full functionality
Included LabVIEW 2020 editions	LabVIEW 2020 Base	LabVIEW 2020 Full	LabVIEW 2020 Professional
OS Support			
Windows	✓	✓	✓
Mac	-	-	-
Linux	-	-	-

	LabVIEW NXG Base	LabVIEW NXG Full	LabVIEW NXG Professional
Standard Service Program			
One year of technical support	✓	✓	✓
One year of software upgrades	✓	✓	✓
Access to 24/7 online training courses	✓	✓	✓
Subscription license available	✓	-	-
Hardware Integration			
NI and third-party hardware auto-discovery and driver install	✓	✓	✓
In-product hardware configuration and documentation	✓	✓	✓
Visual system representation and configuration	✓	✓	✓
Acquiring data from NI hardware (data acquisition, electronic test and instrumentation, and wireless design and test)	✓	✓	✓
Acquiring data from third-party hardware	✓	✓	✓
Deploy to NI real-time hardware (PXI Controller with NI Linux Real-Time OS and cRIO with DAQmx)	-	Requires add-on[1]	Requires add-on[1]
Deploy to NI FPGA hardware (USRP RIO, FlexRIO, and cRIO with DAQmx)	-	Requires add-on[1]	Requires add-on[1]
Programming Environment			
Native graphical programming	✓	✓	✓
Multithreaded code execution	✓	✓	✓
Code debugging	✓	✓	✓
Event-driven programming	✓	✓	✓
Object-oriented programming	✓	✓	✓
Ability to view signals and configure hardware with measurement panel	✓	✓	✓
Data capture, viewing, and storage	✓	✓	✓
Ability to analyze data sets and visually adjust parameters with interactive panels	✓	✓	✓
Dynamic control of UI elements, VIs, and the environment	✓	✓	✓
In-product interactive learning and help	✓	✓	✓

	LabVIEW NXG Base	LabVIEW NXG Full	LabVIEW NXG Professional
Unified search for quick access to relevant examples and learning	✓	✓	✓
Ability to develop web-based applications	Requires add-on[1]	Requires add-on[1]	Requires add-on[1]
Mathematics			
Standard math functions	✓	✓	✓
Probability and statistics	✓	✓	✓
Linear algebra	-	✓	✓
Curve fitting	-	✓	✓
Differential equations	-	✓	✓
Interpolation and extrapolation	-	✓	✓
Calculus	-	✓	✓
Signal Processing and Control			
Signal measurements	-	✓	✓
Signal generation	-	✓	✓
PID and fuzzy logic	-	✓	✓
Signal conditioning and filtering	-	✓	✓
Windowing	-	✓	✓
Signal operations	-	✓	✓
Transforms	-	✓	✓
Vision analysis	Requires add-on[1]	Requires add-on[1]	Requires add-on[1]
Read, Write, Share Data			
Read and write to file	✓	✓	✓
Create and write to Microsoft Word and Excel reports	-	✓	✓
Visualize and analyze image files	Requires add-on[1]	Requires add-on[1]	Requires add-on[1]
Database connectivity	-	-	✓
Data Communications			
TCP/IP, UDP APIs	✓	✓	✓
Network Streams API	✓	✓	✓
Queues	✓	✓	✓
Programmatic Shared Variable API migration	✓	✓	✓
HTTP API	✓	✓	✓
Software Interoperability and Code Integration			
Open DAQExpress project files	✓	✓	✓
Call Python code	✓	✓	✓

	LabVIEW NXG Base	LabVIEW NXG Full	LabVIEW NXG Professional
Call C DLLs	✓	✓	✓
Integrate in-line C code	✓	✓	✓
Call registered .NET assemblies	✓	✓	✓
Interface with your basic math, linear algebra, and statistic code running in MATLAB®	✓	✓	✓
Code Deployment and Distribution			
Build desktop applications (EXEs)	Requires add-on[1]	Requires add-on[1]	✓
Create source libraries	Requires add-on[1]	Requires add-on[1]	✓
Package management–based software distribution	Requires add-on[1]	Requires add-on[1]	✓
Software Engineering Tools	✓	✓	✓
Graphical diff	✓	✓	✓
Unit testing framework	Requires add-on[1]	Requires add-on[1]	Requires add-on[1]

[1]Add-ons provide all functionality for a feature, but you must purchase them separately.

Part Number Table

Description	Part Number
LABVIEW Full Development System	776670-35
LabVIEW Full Development System, All Languages. Includes Standard Service for Software, with Media	776670-35WM
LABVIEW Base Development System, Windows	776671-35
LabVIEW Base Development System, Windows, all Languages, with Media	776671-35WM
LABVIEW Professional Development System	776678-35
LabVIEW Professional Development System, Windows, All Languages, with Media	776678-35WM
LABVIEW Full Development System, Macos	776690-35
LabVIEW Full Development System, macOS, Includes Standard Service for Software, with Media	776690-35WM
LABVIEW Pro Development System, Macos	776698-35
LabVIEW Pro Development System, macOS, Includes Standard Service for Software, with Media	776698-35WM
LABVIEW Full DEV System for LINUX	777756-35
LabVIEW Full Development System for Linux, Includes Standard Service for Software, with Media	777756-35WM
LABVIEW Professional DEV System, LINUX	778249-35
LabVIEW Professional Development System for Linux, Includes Standard Service for Software with Media	778249-35WM
LV 2015 SP1, Pro Development System for Linux, Replacement Media	782387N-03
LABVIEW Base Development System	784503-35

[777756-35WM](#)   [776671-35](#)   [776671-35WM](#)   [782387N-03](#)

776670-35WM   776670-35   776678-35   776678-35WM   776678-35..

776698-35   778249-35   778249-35WM   776690-35   777756-35