

RELEASE NOTES

LabWindows™/CVI™

Version 2012

These release notes introduce LabWindows™/CVI™ 2012. Refer to this document for system requirements, installation and activation instructions, and information about new features in LabWindows/CVI.

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LabWindows/CVI System Requirements

To run LabWindows/CVI, you must have the following:

- Personal computer using a Pentium 4/M or equivalent processor
- Microsoft operating systems:
 - Windows 7 (32-bit and 64-bit), including Starter Edition
 - Windows Vista Service Pack 1 (32-bit and 64-bit)
 - Windows XP Service Pack 3
 - Windows Server 2008 R2 Service Pack 1 (64-bit)
 - Windows Server 2003 R2 Service Pack 2 (32-bit)



Note LabWindows/CVI supports only R2 editions of Windows Server.

- 1024 × 768 resolution (or higher) video adapter
- Minimum of 256 MB of RAM, 1 GB recommended
- 1.4 GB free hard disk space for full installation, which includes the Interface to Win32 Application Programmatic Interface (API); additional space needed for National Instruments Device Drivers and for the Microsoft .NET Framework 4.0
- Microsoft-compatible mouse

Installing LabWindows/CVI

The LabWindows/CVI Platform DVD includes LabWindows/CVI and the following modules and toolkits.

Modules

- Real-Time Module
- Vision Development Module

Toolkits

- Real-Time Execution Trace Toolkit
- SQL Toolkit
- Signal Processing Toolkit
- PID Toolkit
- Execution Profiler Toolkit
- ECU Measurement and Calibration Toolkit
- Automotive Diagnostic Command Set

If you purchased any of these modules or toolkits, you can install them using the LabWindows/CVI Platform DVD. If you want to evaluate any of these modules or toolkits before purchasing them, you can install these add-ons from the LabWindows/CVI Platform

DVD and evaluate them for 30 days. After an initial 7 day period, you can register on ni.com for access to the remainder of the evaluation period.



Note The Execution Profiler Toolkit does not require a separate license if you have a LabWindows/CVI Full Development System license. If you have the LabWindows/CVI Base Package, you can install the Execution Profiler Toolkit for evaluation.

Before Installation

Keep the following points in mind before you install LabWindows/CVI:

- If you already have a different version of LabWindows/CVI installed on your computer, be sure to install version 2012 in a different directory. If you want to install to an existing directory, uninstall the other version before installing LabWindows/CVI 2012.
- You must have administrator privileges to install LabWindows/CVI.

Running the Installation

Complete the following steps to install LabWindows/CVI.



Caution Installing LabWindows/CVI 2012 replaces any previous version of the LabWindows/CVI Run-Time Engine with the LabWindows/CVI 2012 Run-Time Engine. To restore the previous Run-Time Engine, uninstall LabWindows/CVI 2012, the LabWindows/CVI 2012 Run-Time Engine, and any previous versions of LabWindows/CVI and the LabWindows/CVI Run-Time Engine on the computer. Then reinstall the LabWindows/CVI version you want to use, along with any additional National Instruments software you might have installed.

1. Insert the LabWindows/CVI media into the disk drive. If the media does not run automatically, open Windows Explorer, right-click the disk drive icon, and select **AutoPlay**.
2. On installation startup, the National Instruments LabWindows/CVI 2012 screen appears. Click **Install LabWindows/CVI, Modules, and Toolkits**.
3. Continue to follow the instructions on the screen.



Note If you have a serial number for the product you want to install, enter the number during installation when you are prompted. You also can activate the product after installation. For more information about finding serial numbers, refer to ni.com/info and enter `SerialNumbers_en` as the Info Code.

Each product on the LabWindows/CVI Platform DVD has a different serial number, with the possible exception of the LabWindows/CVI Execution Profiler Toolkit. Refer to the [Execution Profiler Integration](#) section in this document for more information.

4. If you select **Device Drivers** in the **Features** panel, the LabWindows/CVI installer prompts you to insert the National Instruments Device Drivers media after you install LabWindows/CVI and any selected modules and toolkits. Follow the instructions on the screen to install the device drivers.
5. To activate a National Instruments product, refer to the *Activating LabWindows/CVI* section of this document.

Activating LabWindows/CVI

If you did not enter a serial number during installation, click **Activate Products** in the License Status dialog box to launch the NI Activation Wizard.

Once you choose your activation method and launch the NI Activation Wizard, follow the instructions on the screen to activate LabWindows/CVI. For more information about activation, refer to the *Activating Your Software* topic in the *LabWindows/CVI Help*.



Note If you are unable to activate LabWindows/CVI, refer to the web page at ni.com/activate.

What's New in LabWindows/CVI?

This section includes information about changes and enhancements in LabWindows/CVI 2012.



Note The Real-Time features require the LabWindows/CVI 2012 Real-Time Module.

Binding Executables and DLLs to Side-by-Side Run-Time Engines

Typically, the LabWindows/CVI Shared Run-Time Engine (RTE) is appropriate for most applications built in LabWindows/CVI. However, on occasion you might want to isolate your LabWindows/CVI application from upgrades or downgrades to the LabWindows/CVI Run-Time Engine.

You can isolate a LabWindows/CVI application from upgrades or downgrades to the LabWindows/CVI Run-Time Engine by binding an executable or DLL to a specific, side-by-side version of the LabWindows/CVI Run-Time Engine. Use the **Runtime engine binding** option in the Target Settings dialog box to bind an executable or DLL to the side-by-side Run-Time Engine.



Note The LabWindows/CVI Side-by-Side Run-Time Engine is available on Windows only.

Refer to the *Programmer Reference»Creating and Distributing Release Executables and DLLs»LabWindows/CVI Run-Time Engine»Side-by-Side Run-Time Engine* book in the *LabWindows/CVI Help* for more information about side-by-side Run-Time Engines in LabWindows/CVI.

Common Item Dialog for Windows Operating Systems

LabWindows/CVI supports the Common Item Dialog on Windows Vista and later. Use the following new functions to display and configure the Common Item Dialog:

- `FileSelectPopupEx`
- `DirSelectPopupEx`
- `MultiFileSelectPopupEx`

If you run an application using these functions on Windows XP or earlier, the functions display the older Common File Dialog.

The following functions are updated to take into account differences between the Common Item Dialog and the Common File Dialog.

- `AddToFilePopupDirHistory`
- `GetFilePopupDirHistory`
- `ClearFilePopupDirHistory`

Tooltips in User Interface Controls

You can display and configure tooltips for user interface controls. To interact with tooltips programmatically, use the following attributes:

- `ATTR_TOOLTIP_TEXT` (controls)
- `ATTR_TOOLTIP_TEXT_LENGTH` (controls)
- `ATTR_DISABLE_CTRL_TOOLTIP`
- `ATTR_TOOLTIP_DELAY`

You also can create and edit tooltips in the Attribute Browser. Edit the **Tooltip Text**, **Tooltip Delay**, and **Disable Control Tooltip** items in the Attribute Browser.

64-Bit Enhancements

LabWindows/CVI 2012 introduces the following enhancements for 64-bit programming.

64-Bit .NET Assemblies and 64-Bit Support for the LabWindows/CVI .NET Library

You can generate wrappers for 64-bit .NET assemblies using the Create LabWindows/CVI .NET Controller dialog box. The **Processor Architecture** column of the dialog box displays the target platform of the assembly.

The .NET Library supports calling 64-bit assemblies.

64-Bit Support in the User Interface Editor

You can specify `intptr_t` and `uintptr_t` data types in the User Interface Editor. LabWindows/CVI assumes controls of these data types are 64-bit in the User Interface Editor; at run-time, the control is 32-bit or 64-bit depending on the bitness of the application.

Support for File Sizes Larger than 2 GB

You can use the following LabWindows/CVI functions to work with files larger than 2 GB:

- `fgetpos`
- `fsetpos`
- `FileExists`
- `GetFileInfo`
- `GetFileSize`
- `SetFilePtr`



Note LabWindows/CVI does not support 64-bit file sizes in 32-bit applications.

Updated Advanced Analysis Library Functions

LabWindows/CVI 2012 includes more than 100 new functions in the Advanced Analysis Library. The following list describes some of the tasks performed by the new functions.

- Functions for generating patterns of values, including `GammaNoise`, `RiffleArray`, and `HaltonSeq`. You can find these functions in the Signal Generation class.
- Functions for applying windows to signals containing an array of `NIComplexNumber` values, such as `CxTriWin`, `CxBkmanWin`, and `CxHanWin`. You can find these functions in the Complex Windows class.
- Functions for finding the two-dimensional convolution and correlation of arrays of `NIComplexNumber` values, such as `CxCorrelate2D` and `CxConvolve2D`. You can find these functions in the Time Domain Analysis class.
- Functions for filtering arrays of `NIComplexNumber` values using Bessel, Butterworth, Chebyshev, Elliptic, and Inverse Chebyshev filters, such as `CxBssl_LPF`, `CxBw_HPF`, and `CxElp_BSF`. You can find these functions in the IIR Digital Filters and FIR Digital Filters classes.
- Functions for calculating the power spectrum and cross power spectrum of arrays of `NIComplexNumber` values, such as `CxSpectrum` and `CxCrossSpectrum`. You can find these functions in the Frequency Domain Analysis class.

Execution Profiler Integration

Install the LabWindows/CVI Execution Profiler Toolkit from the LabWindows/CVI Platform DVD and activate the toolkit using the Full Development System activation code. Visit ni.com to purchase the Execution Profiler Toolkit for use with the LabWindows/CVI Base Package.

Support for Functions in Real-Time Applications (Real-Time)

You can use the following functions from the Utility Library in your real-time applications:

- `GetSystemDate`
- `SetSystemDate`
- `GetSystemTime`
- `SetSystemTime`

You can use functions from the following Tools Library instrument drivers in your real-time applications:

- Reading/Writing .ini-Style Files (`inifile.fp`)
- Regular Expressions (`regexpr.fp`)
- Programmer's Toolbox (`toolbox.fp`)

Refer to the *Creating Real-Time Applications»Configuring an RT Application»Using LabWindows/CVI Libraries in RT Applications* topic in the *LabWindows/CVI Real-Time Module Help* for more information about specific functions that are supported.

Additional LabWindows/CVI Enhancements

LabWindows/CVI 2012 includes the following additional enhancements. Refer to the *LabWindows/CVI Help* for more information about these features.

Functions

The following functions are new for LabWindows/CVI 2012.

Advanced Analysis Library

Refer to the [Updated Advanced Analysis Library Functions](#) section for more information about Advanced Analysis Library functions.

User Interface Library

- `DirSelectPopupEx`
- `FileSelectPopupEx`
- `GetActiveLegendItem`
- `GetRealFontTypefaceName`
- `GetRealFontTypefaceNameLength`
- `GetRingItemAttribute`
- `GetTableCellRingItemAttribute`
- `GetTreeCellRingItemAttribute`
- `MultiFileSelectPopupEx`
- `SetRingItemAttribute`
- `SetTableCellRingItemAttribute`
- `SetTreeCellRingItemAttribute`

The behavior of the following functions depends on the version of Windows on which your program is running:

- `AddToFilePopupDirHistory`
- `ClearFilePopupDirHistory`
- `GetFilePopupDirHistory`

Network Variable Library

- `CNVDeleteFolder`
- `CNVFolderExists`
- `CNVGetFolders`
- `CNVNewFolder`

Real-Time Utility Library (Real-Time)

- `GetLedState`
- `GetSwitchState`
- `SetLedState`
- `TraceSetThreadName`

LabWindows/CVI ActiveX Server Interface

- `GetProjectRunTimeBinding`
- `SetProjectRunTimeBinding`
- `OpenWorkspaceWindow`

Programmer's Toolbox (toolbox.fp)

- `GetAnnotationAttributeLimited`
- `GetCtrlAttributeLimited`
- `GetCtrlValLimited`
- `GetLabelFromIndexLimited`
- `GetMenuBarAttributeLimited`
- `GetPanelAttributeLimited`
- `GetTableCellAttributeLimited`
- `GetTableCellRingValueFromIndexLimited`
- `GetTableCellValLimited`
- `GetTableColumnAttributeLimited`
- `GetTableRowAttributeLimited`
- `GetTabPageAttributeLimited`
- `GetTreeCellAttributeLimited`
- `GetTreeColumnAttributeLimited`
- `GetTreeItemAttributeLimited`

- `GetValueFromIndexLimited`
- `ListFindItemInRange`

Reading/Writing .ini-Style Files Control

- `Ini_SetAddQuotesToStrings`
- `Ini_SetMaxValueLineLength`

Attributes

The following attributes are new in LabWindows/CVI 2012.

User Interface

- `ATTR_ANTI_ALIASING_RESOLUTION`
- `ATTR_BOLD` (ring items)
- `ATTR_COLUMN_VISIBLE` (tables)
- `ATTR_CURSOR_SNAPPING_PLOT`
- `ATTR_DIMMED` (ring items)
- `ATTR_DISABLE_CTRL_TOOLTIP`
- `ATTR_ENABLE_ANTI_ALIASING`
- `ATTR_ENABLE_DRAG_DROP_COPY`
- `ATTR_PLOT_TYPE`
- `ATTR_PRINT_CHARACTER_SET`
- `ATTR_ROW_VISIBLE`
- `ATTR_TEXT_BOLD` (System Pop-Ups)
- `ATTR_TEXT_CHARACTER_SET` (System Pop-Ups)
- `ATTR_TEXT_FONT` (System Pop-Ups)
- `ATTR_TEXT_FONT_NAME_LENGTH` (System Pop-Ups)
- `ATTR_TEXT_ITALIC` (System Pop-Ups)
- `ATTR_TEXT_POINT_SIZE` (System Pop-Ups)
- `ATTR_TEXT_STRIKEOUT` (System Pop-Ups)
- `ATTR_TEXT_UNDERLINE` (System Pop-Ups)
- `ATTR_TOOLTIP_TEXT` (controls)
- `ATTR_TOOLTIP_TEXT_LENGTH` (controls)
- `ATTR_TOOLTIP_DELAY`
- `ATTR_VISIBLE` (ring items)

Progress Bar

- `ATTR_PROGRESSBAR_SYNC_TO_TASKBAR`

Combo Box

- `ATTR_COMBO_TEXT_CHARSET`

Events

The following events are new in LabWindows/CVI 2012:

- `EVENT_DROP_COPY`
- `EVENT_PANEL_MAXIMIZE`
- `EVENT_PANEL_MINIMIZE`
- `EVENT_PANEL_RESTORE`
- `EVENT_VAL_COERCED`

Menus and Context Menu Changes

- The context menu of the User Interface Browser contains items to generate and view control and panel callbacks.
- Select **Explore Directory** when you right-click tabs of source, header, user interface, and function tree files within the Window Confinement Region.
- The Help menu includes **Check for Updates**, which you can use to determine whether important LabWindows/CVI updates are available to install.

Dialog Box Changes

- The following dialog boxes and windows are sizable:
 - The Batch Build dialog box
 - The Help Editor for the Function Panel Editor
 - The function panel help window for non-HTML help
- All font selection dialog boxes throughout the LabWindows/CVI environment include a **Character Set** option.
- The **Drivers & Components** tab of the Edit Installer dialog box includes an option to store NI product installers on your local computer so that you are not prompted for installer media when you build a distribution. This option is called **Cache all future NI software installations**.

Additional Features

- In the Project Tree, copy files between projects in a workspace by pressing <Ctrl> and dragging and dropping a file from one project to another.
- Set the scroll bar size for tree, table, list box, and text box controls and panels to any value between 8 and 32,767.
- Create and configure network variable folders using the new functions in the Folder Functions class in the Network Variable Library. You also can specify folders and subfolders in the **parentPath** parameter of functions such as `CNVNewVariable` and `CNVSetVariableAttribute`.
- In the Project Tree, library files in a project are grouped under a Library Files folder.
- Enable anti-aliasing for canvas controls. To enable anti-aliasing for canvas controls, set the `ATTR_ENABLE_ANTI_ALIASING` attribute to 1.
- The caret blink rate in LabWindows/CVI matches the caret blink rate you set for your OS.

- Use the **Prototype Tooltip Help Font** option in the Environment Font Preferences dialog box to specify the font for tooltips you add to your code using documentation tags for source code.
- Set the `useLegacyDotNetLibrary` configuration option to True to use components in your project that are not compatible with the Microsoft .NET Framework 4.0 and later.
- LabWindows/CVI includes a new custom control, the flexible radio button group (`toolslib\custctrl\radioBtnGrp.fp`). Use the new control instead of the existing radio button group (`toolslib\custctrl\radioGroup.fp`) if you want to specify the amount of spacing between the radio button group options.
- In the Source window, you can select a non-western character set that is not dependent on the character set of your OS.
- In previous versions of LabWindows/CVI, the number of undo actions in the Help Editor was limited to 30. Now, the number of undo actions depends on the amount of heap memory available on your system.
- Use the LabWindows/CVI Application Wizard and the LabWindows/CVI Conversion Wizard with Microsoft Visual Studio 2010.

LabWindows/CVI Resources

How do I get started?

Read the *Getting Started with LabWindows/CVI* manual, which provides a tutorial for learning basic LabWindows/CVI program development techniques.

Are there known issues or late-breaking information?

Refer to the *LabWindows/CVI Readme*, which you can access from **Start»All Programs»National Instruments»LabWindows CVI 2012»LabWindows CVI 2012 Readme**. The readme file contains information about known issues.

Where can I find reference information?

The *LabWindows/CVI Help* contains complete reference information. The help file includes the following sections:

- *Using LabWindows/CVI* describes the LabWindows/CVI development environment and features.
- *Library Reference* provides information about functions you can call in LabWindows/CVI.
- *Programmer Reference* provides information to help you develop applications.
- *Tools Library* provides information about the LabWindows/CVI Toolslib controls.
- *LabWindows/CVI Real-Time Module Help* includes an introduction to the LabWindows/CVI Real-Time Module, programming considerations for RT applications, and function reference information for the LabWindows/CVI Real-Time Utility Library. You must have the LabWindows/CVI Real-Time Module installed to view this help file.

Use the **Search** tab in the *LabWindows/CVI Help* to quickly locate specific information. For information about how to use the search functionality, refer to the *Using Help»Searching Help* topic of the *LabWindows/CVI Help*.

Where can I find examples?

Find examples with the NI Example Finder, which you can access by selecting **Help»Find Examples**.

LabWindows/CVI example programs are located in the following location on Windows 7/Vista/Server 2008: C:\Users\Public\Documents\National Instruments\CVI2012\samples. On Windows XP/Server 2003, example programs are located in the following location: C:\Documents and Settings\All Users\Documents\National Instruments\CVI2012\samples.

Is there a list of LabWindows/CVI documentation?

The *Guide to LabWindows/CVI Documentation* topic describes documentation available for new users and upgrade users. In addition, this topic provides links to LabWindows/CVI documentation, including manuals and web resources. You can access the *Guide to LabWindows/CVI Documentation* topic through the *LabWindows/CVI Help*.

Where else can I go for LabWindows/CVI information?

Visit the LabWindows/CVI Web site and NI Developer Zone at ni.com for the most up-to-date information about LabWindows/CVI.

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