

LabWindows™/CVI Basics II: Development

Overview

A follow-up to the LabWindows™/CVI Basics I course, the LabWindows/CVI Basics II course is ideal for new and intermediate users. After attending the course, you can design powerful multithreaded applications that use Internet communication, DLLs, and ActiveX. You will learn how to create powerful user interfaces using active menus, canvas controls, and toolbars. You will be able to take full advantage of the PC with your application by learning how to program a multithreaded application.

Duration

Two (2) Days

Audience

- New and intermediate LabWindows/CVI users
- LabWindows/CVI Basics I attendees
- Users and technical managers evaluating LabWindows/CVI in purchasing decisions

Prerequisites

- LabWindows/CVI Basics I course or equivalent knowledge

NI Products Used During the Course

- LabWindows/CVI

After attending this course, you will be able to:

- Create elaborate user interfaces with toolbars and menus
- Use ActiveX within the LabWindows/CVI environment
- Compile your modules as DLLs so they can be used with other applications
- Use LabWindows/CVI to access DLLs
- Develop efficient multithreaded applications
- Use advanced development tools to display memory and browse your source code
- Develop applications that can communicate with the Internet
- Decrease development time using debugging features

Registration

Register online at ni.com/training or call (800)433-3488 Fax: (512)683-9300
info@ni.com

Outside North America, contact your local NI Office.
Worldwide Contact Info: ni.com/global

Part Number

910512-xx
-01 NI Corporate or Branch
-11Regional
-21 Onsite (at your facility)

Suggested Next Courses

- Instrument Driver Development Course (for developing IVI-compliant instrument drivers)

LabWindows™/CVI Basics II: Development

Day 1

Review of Basics I Concepts

This short lesson reviews the concepts learned in the LabWindows/CVI Basics I course. Topics include:

- Operation of Callback Function Model in LabWindows/CVI
- How LabWindows/CVI performs messaging
- Structure of instrument drivers and using them

User Interface Programming

This lesson describes how to use the advanced graphical user interface features that are in LabWindows/CVI. You will be introduced to the user interface features and use the features in hands-on exercises. You will learn how easy it is to use LabWindows/CVI to create very complex, professional looking user interfaces. Topics include:

- Customizing menus with the menu editor
- Controlling complex menus using the programming model
- Building complex user interfaces that use toolbars
- Using canvases to present complex information
- Applications that use tables and tab controls
- Displaying complex multi-dimensional data in an intensity graph
- Using a tree control to display hierarchical data

Day 2

Interapplication Communication and ActiveX Automation

This lesson describes how to use LabWindows/CVI to control other Windows applications using ActiveX, and how to communicate through DataSocket. You also learn how to use TCP/IP to perform inter-application communication. Topics include:

- ActiveX technologies
- Using LabWindows/CVI as an automation client to control external applications
- Creating ActiveX servers all within the LabWindows/CVI environment
- Building applications that can present data over the network with DataSocket
- Using TCP/IP for complex Internet communication

Code Modularity and Compatibility

This lesson describes techniques to create and use Dynamic Link Libraries (DLLs). Topics include:

- Developing code that is modular and reusable
- Compiling your modules as a DLL so other applications can take advantage of your development
- How to easily debug your DLLs
- Tips and techniques for linking in a LabWindows/CVI DLLs with other compilers

Additional Topics

This lesson teaches advanced programming techniques in LabWindows/CVI. You will learn how to create a multithreaded application, and use thread safe queues to safely pass data between threads. You will also learn about powerful debugging features to further decrease your development time and costs. Topics include:

- Building efficient multithreaded applications
- How LabWindows/CVI uses threads
- Using Thread Safe Queues to safely transport information between threads
- How to protect critical sections in your threads
- Advanced development features in LabWindows/CVI to display memory and browse your source code
- Interaction of LabWindows/CVI with other National Instruments products