

## LabVIEW Intermediate II Course: Connectivity

### Overview

The LabVIEW Intermediate II course builds on the skills taught in LabVIEW Intermediate I. This course teaches you to identify the components of integrated systems and implement networking technologies for your applications. You learn how to extend your application functionality and reduce development time by leveraging the capabilities of other applications using connectivity technologies such as DLLs, ActiveX, and the Internet. The LabVIEW Intermediate I and II courses are part of a series of courses designed to substantially build your proficiency with LabVIEW and, if you are pursuing certification, help you prepare for exams.

**Duration** – Two Days

### Audience

- LabVIEW and NI Developer Suite users who need to maximize the performance of their LabVIEW application or extend the functionality by connecting to the network or other applications
- LabVIEW users pursuing the Certified LabVIEW Developer or Architect certification

### Prerequisites

- LabVIEW Intermediate I or equivalent experience

### NI Products Used During the Course

- LabVIEW Professional Development System Version 8

### REGISTRATION

Register online at [ni.com/china/training](http://ni.com/china/training) or call (800) 820-3622 ▪ Fax: 021-65556244  
[china.training@ni.com](mailto:china.training@ni.com)

Worldwide Contact Info: [ni.com/global](http://ni.com/global)

NI can also hold this class onsite at your facility.

**Ordering Information** 910721-01

### After attending this course you will be able to:

- Identify the components, benefits, and use cases of different network communication options
- Design applications using different networking technologies and architectures
- Programmatically control LabVIEW VIs and applications using VI Server
- Configure and implement shared variables in LabVIEW for networked solutions
- Share data between LabVIEW and other applications over a network
- Use LabVIEW with ActiveX and .NET
- Use event programming in LabVIEW
- Use DLLs with LabVIEW
- Use UDP and TCP/IP VIs to communicate with other applications locally and over a network

### Suggested Next Courses

- LabVIEW Advanced I: Architectures
- Data Acquisition and Signal Conditioning
- LabVIEW Instrument Control

### Recommended Certification

- Certified LabVIEW Developer Certification

## LabVIEW Intermediate II: Performance and Connectivity Course Outline

### Day 1

#### Calling Shared Libraries in LabVIEW

This lesson introduces how to use LabVIEW to call code written in other languages. You will learn how to use the Call Library Function Node to call Dynamic Link Libraries (DLL) on Windows. Topics include:

- Shared Library Overview
- Calling Shared Libraries

#### VI Server

VI Server is an object-oriented, platform-independent technology that provides programmatic access to LabVIEW VIs. This lesson describes how to access the VI Server through block diagrams, ActiveX technology, and the TCP protocol to communicate with VIs and other application instances so you can programmatically control VIs and LabVIEW. Topics include:

- What is VI Server?
- VI Server Programming Model
- VI Server Functions
- Remote Communication
- Dynamically Calling and Loading VIs

#### Calling Objects in LabVIEW

This lesson describes how to extend your application functionality by accessing other Windows applications using .NET and Active X technologies and event programming. Topics include:

- Calling Objects in LabVIEW using ActiveX
- Calling Objects in LabVIEW Using .NET

### Day 2

#### Broadcasting Data

Broadcasting data is a method of placing data onto a network location. This lesson describes using User Datagram Protocol (UDP) as a means for communicating short packets of data to one or more recipients on a network and implementing the broadcast model in LabVIEW.

Topics include:

- Broadcasting Data overview
- Implementing Broadcast Models

#### Serving Data to a Client Using TCP/IP

This lesson describes how to use TCP/IP to communicate and share data over single and interconnected networks. You learn to create diverse systems that share information using the Client/Server model of networked applications. Topics include:

- TCP/IP Overview
- Implementing the Client/Server Model

## Publishing Data to a Subscriber

This lesson describes using shared variables in LabVIEW to implement the publisher/subscriber communications model and share data between applications over the network. Topics include:

- Publisher/Subscriber Communication Model Overview
- Implementing the Publisher/Subscriber Communication Model