

Preface

This LiveLesson is designed to expose you to all the key concepts, design-time steps, and coding techniques required to write applications that use Windows Workflow Foundation (WF) for implementing complex business process logic. It consists of 20 lessons of recorded video instruction that will lead you through performing the development tasks you need to know how to do to effectively use WF.

The LiveLesson format is especially relevant for a technology like WF, because developing WF workflows is mostly done through interactive actions in the Visual Studio designer. Trying to capture those actions in text is possible, but you can learn the steps much faster by seeing them done in the Visual Studio environment by an instructor. Along with the demonstrations in the video, I explain the steps, why they are needed, what variations are available, and what is going on behind the scenes.

Basically, through the LiveLesson videos, you get a compact training course that you can take with you anywhere.

LiveLesson Structure

Each LiveLesson follows the same basic structure. It starts with a brief video introduction describing the objectives of the lesson. It then transitions to a screen capture of my workstation, leading you through the steps required to perform and understand the objectives. Finally, it finishes with another brief video summarizing what was covered in the lesson.

Because WF is a new technology, the first two lessons deviate from this format. They are conceptual and presented through a combination of slides and instructor discussion to get you up to speed on some of the most important concepts about WF as a technology before you dive into the steps to start building applications with it.

The pace of the lessons is intentionally fast. Because the video delivery mechanism makes it easy for you to back up and review portions of the video, I tried to pack as much information into the lessons as possible. That means I don't spend any time after presenting lines of code or designer interaction steps to let you soak in what you just saw; I just move quickly to the next step. Of course, you can pause the video at these points and replay a section if you'd like to review the material.

Code Samples

The DVD contains all the completed code samples used in Lessons 6–20. Up through Lesson 5, no full samples were developed, so no code is included for those lessons.

Who Should Use This Product

The content of this video is designed for experienced .NET developers and architects who are new to Windows Workflow Foundation (WF) as a technology. I expect that you have had some exposure to the purpose of WF, have an idea of what it is for and how to get your hands on it, and are ready to start developing applications using the technology. However, I cover all the basics of WF, so I don't expect you to have any deep experience employing the technology. As a result, you could say this LiveLesson is a broad introductory course in WF for intermediate to advanced .NET developers.

LiveLesson Outline

The following are the 20 lessons in this LiveLesson.

- **Lesson 1, Windows Workflow Foundation Overview**, introduces the key concepts behind WF, including the tools you need, workflow types, the kinds of activities in the Base Activity Library, and the design process of WF applications.
- **Lesson 2, WF Architecture and Services**, covers the architecture and services in WF, as well as the dependency properties.
- **Lesson 3, Visual Studio 2005 Project and Item Templates**, describes the project types and project items that you can add for developing workflows and workflow applications.
- **Lesson 4, Sequential Workflow Basics**, introduces the basics of defining sequential workflows, including the designer experience for workflows in general.
- **Lesson 5, State Machine Workflow Basics**, covers the basics of defining state machine workflows, including `State`, `EventDriven`, `StateInitialization`, `StateFinalization`, and `SetState` activities.
- **Lesson 6, Base Activities 1**, shows how to use the `Code`, `IfElse`, and `While` activities.
- **Lesson 7, Base Activities 2**, demonstrates how to use the `Delay`, `Sequence`, `Parallel`, and `InvokeWorkflow` activities.
- **Lesson 8, Base Activities 3**, illustrates how to use the `Listen`, `ConditionedActivityGroup`, `Replicator`, and `Policy` activities.
- **Lesson 9, Integrating WF into Applications**, shows how to create the workflow runtime in the host application; how to create, start, and retrieve workflows; and how to handle workflow lifecycle events in the host.
- **Lesson 10, Enabling Persistence and Tracking**, discusses how to create persistence and tracking databases and how to add the persistence and tracking services, and then shows the effect of persistence on execution.
- **Lesson 11, Passing Parameters into and out of a Workflow**, covers how to pass input parameters when starting a workflow, and how to get output parameters when a workflow completes.

- **Lesson 12, Calling into a Running Workflow from the Host Application**, shows how to use the `HandleExternalEvent` activity to accept calls from the host application into the workflow.
- **Lesson 13, Calling from a Workflow into the Host Application**, demonstrates how to use the `CallExternalMethod` activity to make method calls into a host application object.
- **Lesson 14, Web Service Calls out from a Workflow**, illustrates how to use the `InvokeWebService` activity to make Web service calls out of a workflow.
- **Lesson 15, Web Service Calls into a Workflow**, shows how to expose `WebServiceInput` and `WebServiceOutput` activities within the workflow as Web service methods that can be called by external applications. This includes how to hook things up in the workflow, as well as what you need in the host ASP.NET Web site.
- **Lesson 16, Exception Handling**, covers how to define fault-handling scopes to handle exceptions, as well as how to throw exceptions with the `Throw` activity.
- **Lesson 17, Using Transactions in Workflows**, demonstrates how to include atomic and long-running transactions in your workflows using the `TransactionScope` and `CompensatableTransactionScope` activities respectively, as well as how to define compensation handling for long-running transactions.
- **Lesson 18, Handling Events in Workflows**, describes how to handle events asynchronously from normal sequential workflow processing using the `EventHandlingScope` activity.
- **Lesson 19, Developing Custom Composite Activities**, illustrates how to implement custom container activities to encapsulate other child activities or to implement custom control flow. It also covers how to create dependency properties for data binding.
- **Lesson 20, Developing Custom Simple Activities**, shows how to implement custom simple activities, including custom design-time behavior and appearance of your activity.

Playing the DVD

If your Windows system is configured with AutoPlay on, the video will automatically start when you insert the DVD into your drive. However, if AutoPlay is off, you will need to insert the DVD into the drive, launch Windows Explorer, navigate to the root folder of the DVD, and double-click on the file called “Start_livelesson.exe.”

LiveLessons DVD System Requirements

Operating system: Windows 98, 2000, XP, or Vista. Multimedia: DVD drive, 1024 × 768 or higher display, and sound card with speakers. Computer: 500MHz or higher, 128MB RAM or more.