

Adam Nathan

WPF 4.5

UNLEASHED



SAMS

Some Praise for the First Edition of *Windows® Presentation Foundation Unleashed*

“The Nathan book is brilliant—you’ll love it. Publishers, take note: I’d sure be buying a heck of a lot more technical books if more of them were like this one.”

—**Jeff Atwood, codinghorror.com, cofounder of Stack Overflow**

“*Windows Presentation Foundation Unleashed* is a must-have book for anyone interested in learning and using WPF. Buy it, read it, and keep it close to your computer.”

—**Josh Smith, Microsoft MVP**

“As we built the feature team that delivered the new WPF presentation layer for Visual Studio 2010, *Windows Presentation Foundation Unleashed* quickly became our must-read WPF reference book of choice, over and above other books on WPF and indeed internal documentation. Highly recommended for any developer wanting to learn how to make the most of WPF.”

—**James Bartlett, senior lead program manager, Microsoft Visual Studio**

“I’ve bought nearly all available WPF books, but the only one that’s still on my desk is *Windows Presentation Foundation Unleashed*. It not only covers all WPF aspects, but it does it in the right, concise way so that reading it was a real pleasure.”

—**Corrado Cavalli, Codeworks**

“*Windows Presentation Foundation Unleashed* is the most insightful WPF book there is. Don’t be misled by its size; this book has the best introduction and deepest insights. This is the must-read for anyone getting started or wanting to get the most out of WPF.”

—**Jaime Rodriguez, Microsoft client evangelist for Windows, WPF, Silverlight, and Windows Phone**

“I found *Windows Presentation Foundation Unleashed* to be an excellent and thorough introduction and guide to programming WPF. It is clearly written, easily understood, and yet still deep enough to get a good understanding of how WPF works and how to use it. Not a simple feat to accomplish! I heartily recommend it to all the students who take DevelopMentor’s WPF course! Anyone serious about doing WPF work should have a copy in their library.”

—**Mark Smith, DevelopMentor instructor, author of DevelopMentor’s Essential WPF course**

“I have read *Windows Presentation Foundation Unleashed* from cover to cover and have found it to be really the most comprehensive material on WPF. I can’t think of even a single instance when I have not been able to find the solution (or a pointer to one) every time that I have picked up the book to figure out the intricacies of WPF.”

—**Durgesh Nayak, team leader, Axis Technical Group**

“*Windows Presentation Foundation Unleashed* is the book that made WPF make so much sense for me. Without Adam’s work, WPF would still be a mystery to me and my team. The enthusiasm for WPF is evident from the offset and it really rubs off on the reader.”

—**Peter O’Hanlon, managing director, Lifestyle Computing Ltd**

“Adam Nathan’s *Windows Presentation Foundation Unleashed* must surely be considered one of the seminal books on WPF. It has everything you need to help you get to grips with the learning cliff that is WPF. It certainly taught me loads, and even now, after several years of full-time WPF development, *Windows Presentation Foundation Unleashed* is never far from my hand.”

—**Sacha Barber, Microsoft MVP, CodeProject MVP, author of many WPF articles**

“Of all the books published about WPF, there are only three that I recommend. *Windows Presentation Foundation Unleashed* is my primary recommendation to developers looking to get up to speed quickly with WPF.”

—**Mike Brown, Microsoft MVP, Client App Development, and president of KharaSoft, Inc.**

WPF 4.5 Unleashed

Table of Contents

Table of Contents

Introduction

Who Should Read This Book?

Software Requirements

Code Examples

How This Book Is Organized

Conventions Used in This Book

Part I: Background

1 Why WPF?

A Look at the Past

Enter WPF

The Evolution of WPF

Summary

2 XAML Demystified

XAML Defined

Elements and Attributes

Namespaces

Property Elements

Type Converters

Markup Extensions

Children of Object Elements

Mixing XAML with Procedural Code

XAML2009

XAML Keywords

Summary

Table of Contents

3 WPF Fundamentals

- A Tour of the Class Hierarchy
- Logical and Visual Trees
- Dependency Properties
- Summary

Part II: Building a WPF Application

4 Sizing, Positioning, and Transforming Elements

- Controlling Size
- Controlling Position
- Applying Transforms
- Summary

5 Layout with Panels

- Canvas
- StackPanel
- WrapPanel
- DockPanel
- Grid
- Primitive Panels
- Handling Content Overflow
- Putting It All Together: Creating a Visual StudioLike Collapsible, Dockable, Resizable Pane
- Summary

6 Input Events: Keyboard, Mouse, Stylus, and Touch

- Routed Events
- Keyboard Events
- Mouse Events
- Stylus Events
- Touch Events
- Commands
- Summary

Table of Contents

7 Structuring and Deploying an Application

- Standard Desktop Applications
- Navigation-Based Desktop Applications
- Gadget-Style Applications
- XAML Browser Applications
- Loose XAML Pages
- Summary

8 Exploiting Windows Desktop Features

- Jump Lists
- Taskbar Item Customizations
- Aero Glass
- TaskDialog
- Summary

Part III: Controls

9 Content Controls

- Buttons
- Simple Containers
- Containers with Headers
- Summary

10 Items Controls

- Common Functionality
- Selectors
- Menus
- Other Items Controls
- Summary

11 Images, Text, and Other Controls

- The Image Control
- Text and Ink Controls
- Documents
- Range Controls

Table of Contents

Calendar Controls

Summary

Part IV: Features for Professional Developers

12 Resources

Binary Resources

Logical Resources

Summary

13 Data Binding

Introducing the Binding Object

Controlling Rendering

Customizing the View of a Collection

Data Providers

Advanced Topics

Putting It All Together: The Pure-XAML Twitter Client

Summary

14 Styles, Templates, Skins, and Themes

Styles

Templates

Skins

Themes

Summary

Part V: Rich Media

15 2D Graphics

Drawings

Visuals

Shapes

Brushes

Effects

Improving Rendering Performance

Summary

Table of Contents

16 3D Graphics

- Getting Started with 3D Graphics
- Cameras and Coordinate Systems
- Transform3D
- Model3D
- Visual3D
- Viewport3D
- 2D and 3D Coordinate System Transformation
- Summary

17 Animation

- Animations in Procedural Code
- Animations in XAML
- Keyframe Animations
- Easing Functions
- Animations and the Visual State Manager
- Summary

18 Audio, Video, and Speech

- Audio
- Video
- Speech
- Summary

Part VI: Advanced Topics

19 Interoperability with Non-WPF Technologies

- Embedding Win32 Controls in WPF Applications
- Embedding WPF Controls in Win32 Applications
- Embedding Windows Forms Controls in WPF Applications
- Embedding WPF Controls in Windows Forms Applications
- Mixing DirectX Content with WPF Content
- Embedding ActiveX Controls in WPF Applications
- Summary

Table of Contents

20 User Controls and Custom Controls

Creating a User Control

Creating a Custom Control

Summary

21 Layout with Custom Panels

Communication Between Parents and Children

Creating a SimpleCanvas

Creating a SimpleStackPanel

Creating an OverlapPanel

Creating a FanCanvas

Summary

22 Toast Notifications

Prerequisites

Sending a Toast Notification

Toast Templates

Notification Events

Scheduled Notifications

Summary

A: Fun with XAML Readers and Writers

Overview

The Node Loop

Reading XAML

Writing to Live Objects

Writing to XML

XamlServices

Index