

Table of Contents

Foreword	Page 10
Introduction	Page 11
About the book	Page 11
About the author	Page 11
Contact information	Page 11
Chapter 1: What is FireMonkey?	Page 12
Chapter 2: How to use the FireMonkey components	Page 13
<u>Section 1: Getting Started</u>	Page 13
<u>Section 2: New FireMonkey project</u>	Page 15
FireMonkey desktop application (Multi Device Application)	Page 15
Using the Multi Device Designer (Fire UI)	Page 17
Form inheritance with the Multi Device Designer	Page 20
Reverting to inherited settings	Page 21
Creating a platform-specific event handler with the Multi-Device Designer	Page 22
<u>Section 3: A first FMX-program (analog clock)</u>	Page 23
<u>Section 4: Selected FireMonkey components</u>	Page 29
TButton (with Trimming)	Page 29
TEdit (without PasswordChar)	Page 29
TExpander	Page 30
TForm (furthermore with caption)	Page 30
TFrame	Page 30
TPanel	Page 30
TRectangle	Page 31
TCheckbox, TRadioButton (IsChecked)	

.....	Page 31
TGroupBox mit TRadioButtons	Page 31
.....	Page 31
TSwitch	Page 31
.....	Page 32
TImage	Page 32
.....	Page 33
TImageControl	Page 33
.....	Page 33
TImageViewer	Page 33
.....	Page 33
TImageViewer (to use with Livebindings Designer)	Page 33
.....	Page 37
TLabel (new property FontColor)	Page 37
.....	Page 37
TPathLabel	Page 37
.....	Page 37
TPath	Page 37
.....	Page 38
TImageList (not available - but compensation possible)	Page 38
.....	Page 41
TListBox (no TCheckListbox, but ShowCheckboxes)	Page 41
.....	Page 51
All Components (except the form)	Page 51
.....	Page 51
Several Components (Properties with additional type-qualifying)	Page 51
.....	Page 51
TMenuItem (without ImageIndex)	Page 51
.....	Page 52
TMainMenu (Handling MAC Menus)	Page 52
.....	Page 53
TMemo (CaretPosition, no Modified, FindNext-replacement)	Page 53
.....	Page 60
TDropTarget (how drag & drop works in FireMonkey)	Page 60
.....	Page 62
TRichEdit (not available - but possible for replacement via 3rd-party)	Page 62
.....	Page 62
TPageControl (Not available - but replacement available)	Page 62
.....	Page 62
TStringGrid (works different)	Page 62
.....	Page 67
TGrid (Image and other elements in the Grid)	Page 67
.....	Page 68
TStringGrid-alternative (TMSFMXGrid)	Page 68
.....	Page 68
THeader (not sections, but items)	Page 68
.....	Page 68
THeaderControl (is not available under FireMonkey)	Page 68
.....	Page 68

TProgressBar (not "position" but value)	Page 68
TTabControl (no Ownerdraw)	Page 69
TTrackbar (helpful property "tracking")	Page 69
TSpeedButton (without Bitmap)	Page 69
TStatusbar (a way to compensate the missing "Panels")	Page 69
MessageDlg (e.g. not directly usable with mtWarning)	Page 69
<u>Section 5: The FireMonkey Style-Designer</u>	Page 70
a) Using the Styles Editor	Page 70
b) Styles in FireMonkey - an overview	Page 73
c) How to convert VCL Styles to FireMonkey Styles	Page 76
d) Using FireMonkey Styles	Page 77
e) Understanding FireMonkey-Styles	Page 78
Chapter 3: Tips and tricks for Cross-Platform Development	Page 81
<u>Section 1: starting other programs</u>	Page 81
<u>Section 2: Get the program directory and program data directory</u>	Page 82
<u>Section 3: Catch to the program passed start-up parameters</u>	Page 85
<u>Section 4: "Hello World" - Multilingual programs and new markets</u>	Page 89
<u>Section 5: Apply sandboxing and Entitlements properly</u>	Page 93
<u>Section 6: Using MAC APIs (POSIX, CORE and Cocoa) in Delphi</u>	Page 97
Chapter 4: Requirements for Cross-Platform Development	Page 102
<u>Section 1: Setting up Windows PC and MAC PC</u>	Page 102
<u>Section 2: Enabling MAC OSX Platform</u>	Page 105
<u>Section 3: Provisioning and deployment (MAC)</u>	Page 109
1. Submission to the APPLE App Store	Page 110
2. How to create a .dmg file for distribution outside the Apple App Store	

.....	Page 113
3. How to create your own setup package with the Application Developer ID / Installer	Page 115
.....	Page 116
a) Hot to request a Developer ID certificate and an Application Developer Installer ID	Page 118
.....	Page 116
b) Working with the code-signing tool and Package Maker	Page 118
.....	Page 122
Chapter 5: Cross-Platform development with Linux	Page 122
.....	Page 123
<u>Section 1: Setting up Windows and Linux-PC</u>	Page 127
.....	Page 129
<u>Section 2: Enabling the Linux-Platform</u>	Page 130
.....	Page 132
<u>Section 3: Provisioning and deployment (Linux)</u>	Page 132
.....	Page 139
<u>Section 4: A first Linux-Console-Application</u>	Page 141
.....	Page 132
<u>Section 5: Linux-Server-Console-Application and Client-Application</u>	Page 139
.....	Page 141
<u>Section 6: Create an Application as Service (Daemon)</u>	Page 141
.....	Page 141
<u>Section 7: Delphi units for Linux</u>	Page 144
.....	Page 144
Chapter 6: Working with Graphics in FireMonkey	Page 144
.....	Page 144
1. FireMonkey TBitmap versus Windows TBitmap	Page 144
.....	Page 144
2. TBitmapData instead of ScanLine for bitmap manipulation	Page 145
.....	Page 145
3. How to change the alpha channel of a TBitmap	Page 146
.....	Page 147
4. How to draw on the canvas of a bitmap	Page 147
.....	Page 150
5. How to turn graphics, flip, invert or color to gray	Page 151
.....	Page 151
6. How to draw a bitmap scaled	Page 151
.....	Page 151
Chapter 7: 3D-Programming	Page 151
.....	Page 151
<u>Section 1: Overview</u>	Page 151
.....	Page 151
1. 3D-Objects	Page 151
.....	Page 151
2. Cameras	Page 151
.....	Page 151
3. Screen Projections	Page 151
.....	Page 151

4. Rotations	Page 152
5. Light	Page 152
6. Materials	Page 154
<u>Section 2: The 3D Coordinate System</u>	Page 156
<u>Section 3: 3D-Application "Atomic Model"</u>	Page 160
<u>Section 4: 3D-Application "Solar Model"</u>	Page 165
Chapter 8: Animations, Transitions and Effects	Page 168
Chapter 9: Sending and receiving messages with the TMessageManager	Page 172
<u>Section 1: Simple Messaging-Demo</u>	Page 173
<u>Section 2: Enhanced Messaging-Demo</u>	Page 175
Chapter 10: Useful third-party components for FireMonkey	Page 179
1. TMS-Components	Page 179
2. Report-generator: FastReport FMX	Page 180
3. RemObjects-Application Framework (Hydra)	Page 181
4. Other components	Page 181
Chapter 11 How to - tips & tricks for FMX	Page 182
R1 ... Get the display resolution?	Page 182
R2 ... Check whether the Escape, Ctrl or Alt key is pressed	Page 182
R3 ... Use folder names under Windows and MAC properly	Page 184
R4 ... Use search-mask for "all files" in Windows and MAC OS X properly	Page 186
R5 ... Avoid looping symlink folders (Alias)	Page 186
R6 ... In which situations file symlinks functions play a role otherwise	Page 187
R7 ... Determine the control under the mouse position	Page 188
R8 ... Find out on which MAC OS X operating system the program is running	Page 188
R9 ... Get the current user name in Mac OS X / Linux / Windows	

.....	Page 190
R10 ... Send files as an attachment of an e-mail with the system mail program	Page 190
.....	Page 192
R11 ... Provide the user with help-files under Win & MAC	Page 192
.....	Page 194
R12 ... Drag and drop text from external source (eg browser) to a TEdit box	Page 194
.....	Page 195
R13 ... Store additional information in standard objects	Page 195
.....	Page 195
R14 ... Using ActiveControl	Page 195
.....	Page 196
R15 ... Replace OnDrawItem event of the ListBox from VCL with the OnPainting event of the TListBoxItems	Page 196
.....	Page 197
R16 ... Load Bitmap from resource file (for retina display)	Page 197
.....	Page 199
R17 ... Swap items in a listbox	Page 199
.....	Page 200
R18 ... Swap items in a Listbox via Drag & Drop	Page 200
.....	Page 200
R19 ... Using FMX functions in a VCL application via DLL	Page 200
.....	Page 206
R20 ... Draw text in TGrid right or centered	Page 206
.....	Page 208
R21 ... Draw text in TStringGrid right or centered	Page 208
.....	Page 209
R22 ... Working with the "visible" property of controls	Page 209
.....	Page 209
R23 ... Prevent unintended shortening of TLabel text	Page 209
.....	Page 210
R24 ... How to show a pop-up menu at a special position	Page 210
.....	Page 211
R25 ... Determine the document directory	Page 211
.....	Page 211
R26 ... Improve the font quality (especially on Windows)	Page 211
.....	Page 211
R27 ... Select a folder with a dialog	Page 211
.....	Page 212
R28 ... Let a column in a string grid occupy the remaining space	Page 212
.....	Page 213
R29 ... Create missing components with Frames	Page 213
.....	Page 217
R30... Moving controls at runtime in the form	Page 217
.....	Page 220
Chapter 12: Outlook	Page 220
.....	Page 221
Index	Page 221
.....	Page 221

Index

3 -----

3D-Programming, 151
3rd party MAC Developer Application, 110
3rd party Mac Developer Installer, 110

A -----

ActiveControl, 195
Add ListBoxItem, 42
Add Platform, 105
AIClient, 31
All files, 186
Allowdrag, 200
Alpha-channel, 144; 145
Ambient, 154
App Store, 93
Apple Developer ID, 111
AppleShowAllFiles, 83
Application Loader, 111
Application.ProcessMessages, 57
AutoSize, 209
AutoTranslate, 91

B -----

BeginScene, 146
BeginUpdate, 199
Bindable Members, 34
Bitmap Style Designer, 77
BitmapScale, 34
Bitmap-Style Designer, 73
Blank Application, 16

C -----

CaretPosition, 53
CertificateSigningRequest, 117
Certificate, 115
CFRelease, 100
CFRetain, 100
CFString, 99
CFStringCreateWithCharactersNoCopy, 99
CFUserNotificationDisplayAlert, 99
CheckSpelling, 54
ClBlack, 51
ClRed, 51
CIColorName, 51
ClearEdit, 44
Clipboard, 53

COCOA, 97
Codesign, 118
ColCount, 68
ControlType, 29
CopyToClipboard, 53
COREAPI, 98
Custom Style, 70
CutToClipBoard, 53

D -----
DefaultManager, 172
DefaultRowHeight, 68
DeleteChildren, 215
Deployment, 109
DesignVisible, 209
Developer Application ID, 115
Developer ID Installer, 115
Developer ID Intermediate Certificate, 117
DevExpress, 181
Diffuse, 154
Direct2D, 211
Disk Image from Folder, 113
Disk Utility, 113
DisplayCount, 182
Drag and drop of text, 195
DrawBitmap, 150
DrawCellRight, 207
DriveDelim, 184

E -----
Emissive, 154
EndScene, 146
EndUpdate, 199
Entitlement List, 94
Event handler, 22

F -----
Fast Reports, 180
FaSymlink, 186
Fillelipse, 146
Fillrect, 146
Filltext, 146
FindNext-Replacement, 54
FindReplaceDemo, 54
FindStyleResource, 25
FireMonkey bitmap, 144
Fliphorizontal, 147
FlipVertical, 147
FMX.SpellChecker, 54

FocusedLink, 74; 76
FollowLink, 187
FontColor, 37
FormKeyDown, 30
Frames, 30
FullScreen, 30

G -----

Gatekeeper, 115
GetHomepath, 190
Gethostname, 97
Glyph, 69
Gnostice, 180
GridGetvalue, 67

H -----

HasFormat, 53
Help Workshop, 192
HighSpeed, 150
HorzAlign, 206
HotLink, 74
Hydra, 181

I -----

ICL, 179
ImageEn, 181
ImgByFilter, 147
Invert an image, 147
IsASymlinkfile, 188
IsChecked, 31; 52
IsControlKeyPressed, 183
IsPressed, 29
IsShiftKeyPressed, 183
ITC-Mobile, 111
Items, 41
Items.Exchange, 199
IwPlace, 33

K -----

Keychain Access, 110
KeyEvent, 30

L -----

Language, 193
ListItems, 41
ListStyle, 41
LiveBindings-Expert, 35
Lshorizontal, 41
LunaStyle, 78

Lybcgunwind.1.0.dlyb, 109

M -----

MAC OS platform, 17
MAC, 102
MacApi.Appkit.pas, 100
MacApi.CoreFoundation.pas, 98
MacOS, 109
MAP, 145
MaRead, 145; 145
MaReadWrite, 145; 145
MarshaledAString, 81
Mask, 186
Master View, 18
Master, 18
MaterialBackSource, 154
MaterialShaftSource, 154
MaWrite, 145
MCL, 179
Menu, 52
MessageDlg, 69
Mirror a graphic, 147
MouseScaling, 33
MouseTracking, 33
Multi-Device Application, 15
Multi-Device-Designer, 17
Multi-monitor systems, 210
MultiResBitmap, 32
MultiScreenCopy, 150

N -----

New markets, 89
NormalLink, 74
NSApplicationDelegate, 85
NSHost, 97
NSObject, 100
NSObjectClass, 100
NSString, 100
NSStringClass, 100
NSWorkspace, 100

O -----

ObjectAtPoint, 188
Occupy the free space in the grid, 212
OnChange, 53
OnChangeTracking, 53
OnCreateCustomEditor, 66
OnDragDrop, 200
OnDrawColumnBackground, 65

OnDrawColumnCell, 64; 65
OnDrawColumnHeader, 65
OnDrawItem", 44
OnDrawTab, 69
OneDrive, 179
OnFocusChanged, 195
OnGetImageIndex, 68
OnPaint, 45
OnPainting, 45
OnViewPortPositionChanged, 66
OS X Desktop, 20
OwnerDraw, 44

P -----

Package Maker, 119
PaperSketch, 201
ParamStr, 82
PAServer, 102
PAServer19.0.pkg, 102
PasteFromClipboard, 53
PathDelim, 184
PathSep, 184
PixelFormat, 144
PlatformDefault, 22
PlatformService, 53
Pop-up menu, 210
POSIX, 97
PressedLink, 74
Program directory, 82
Projection, 151
Provisioning, 110

Q -----

Quality of the fonts, 211

R -----

REDO, 57
Resource, 78
Resources and Images, 198
Retina display, 197
Revert to Inherited, 21
Rotate an image, 147
Rotate, 147
RotationAngle, 25
RotationCenter, 157
RowCount, 64

S -----

Sandboxing, 93

- ScanLine, 144
- ScreenDisplays, 182
- ScreenService, 199
- SDK, 105
- SelectDirectory, 211
- SetPixelFormat, 144
- SetStyleFromFile, 78
- Shader filter, 147
- SharedWorkspace, 101
- ShowCheckBoxes, 41
- ShowFullScreenIcon, 30
- ShowHeader, 63
- ShowHint, 29
- Specular, 154
- Spellchecking, 54
- Start another program, 81
- Startup parameter, 88
- StayPressed, 29
- StoreInForm, 92
- StretchDraw, 150
- StringColumn, 63
- Style, 73
- StyledSettings, 31; 37; 73
- StyleElements, 73
- StyleLookup, 31
- StyleName, 31
- SubscribeToMessage, 174
- SupportsPlatformService, 54
- Swap two items, 199
- System.UITypes, 51

T -----

- TabControlStyle, 69
- TabItemStyle, 69
- TaCenter, 65
- TagFloat, 195
- TagObject, 195
- TagString, 195
- Tagstring, 197
- TAlignLayout, 31; 51
- TAlphaColorRec, 51
- TAlphaColors, 51
- TBitmap, 144
- TBitmapAnimation, 171
- TBitmapData, 144
- TBitmapLink, 74
- TBitmapLinks, 74
- TBitmapListAnimation, 171
- TButton, 29

TButtonStyleObject, 74; 80
TCalendar, 30
TCategoryPanel, 30
TCheckListBox, 41
TColorAnimation, 170
TColorAnimations,, 76
TColorkeyAnimation, 171
TControl3D, 78
TDirectory.Exists, 187
TDragOperation, 194; 60
TDropTarget, 60
TEdit, 30
TExpander, 30
TextSettings, 37
Texture, 154
TFile.exists, 187
TFile.GetAttributes, 187
TForm, 30
TGlueEffect, 76
TGlyphColumn, 68
TGradientAnimation, 170
TGroupBox, 31
THeaderItems, 68
TImage, 32
TImageColumns, 67
TImageControl, 33
TImageViewer, 33; 33
TInsertOption, 57
TLabel, 37
TLang, 89; 89
TLight, 152
TLightMaterialsource, 152
TListBox, 41
TMapAccess, 145
TMaterialBook, 154
TMemo, 51
TMenuItem, 51
TMessageManager, 172
TMS Pack for FireMonkey, 179
TMSFMXGrid, 68
TMSFMXNativeMacPDFLib, 180
TMSFMXNativeNSView, 180
TMsgDlgType, 69
TOSVersion, 189
TPanel, 30
TPath, 211
TPath.GetMoviesPath, 211
TPath.GetPicturesPath, 211
TPathAnimation, 171

TPlatformServices, 54
TPlotGrid, 215
TProgressBar, 68
TRadioButton, 31
TRectangle, 76
TRectAnimation, 171
TRichEdit, 62
TRichView, 181
Trimming, 209; 29
TScreen, 182
TSpeedButton, 69
TStatusbar, 69
TStringColumn, 63
TStringGrid, 62
TStyleManager, 78
TSwitch, 31
TTabControl, 62; 69
TTabItem, 69
TtCharacter", 29
TTextAlign, 65
TTMSFMXGrid, 179
TTMSFMXGridExcellIO, 179
TTMSFMXGridPDFIO, 179
TTMSFMXGridRTFIO, 179
TTMSFMXRichEditor, 179; 62
TTMSFMXRichEditorEditToolbar, 179
TTMSFMXRichEditorFormatToolbar, 179
TtNone", 29
TTrackbar, 69
TtWord",, 29
Two-letter language code, 90

U -----

UNMAP, 145
UsingDesignCamera, 151

V -----

ValuesAsColor, 148
ValuesAsFloat, 148
ValuesAsPoint, 148
ValuesAsTexture, 148

W -----

Windows PC, 102
WordWrap, 31
WorkAreaRect, 182
WWDR Intermediate Certificate, 117