

CONTENTS IN DETAIL

ACKNOWLEDGMENTS	xix
------------------------	------------

INTRODUCTION	xxi
---------------------	------------

What's in This Book?	xxii
Who Is This Book For?	xxiii

1

INKSCAPE AND THE WORLD	1
-------------------------------	----------

1.1 What Vector Graphics Is and Why It Matters	1
1.2 What Can You Do with Inkscape?	5
1.3 Sources of Inkscape Art	7
1.4 A Brief History of SVG	8
1.5 Inkscape and Its Competition	10
1.5.1 Adobe Illustrator	10
1.5.2 CorelDRAW	12
1.5.3 Xara	13
1.5.4 Online Editors	13
1.5.5 . . . and Inkscape	14
1.6 The Life of an Open Source Application	15

2

AN INKSCAPE PRIMER	17
---------------------------	-----------

2.1 Installing Inkscape	17
2.2 Inkscape's "Hello, World!"	19
2.3 Interface Overview	21
2.4 Panning and Zooming	24
2.5 Creating Objects	24
2.6 Selecting	27
2.7 Transforming	28
2.8 Styling	30
2.9 Saving and Exporting	31
2.10 A Final Example	32

3

SETTING UP AND MOVING AROUND	37
-------------------------------------	-----------

3.1 Preferences	37
3.1.1 Inkscape Preferences	38
3.1.2 Document Properties	39
3.2 Document Templates	40
3.3 Input Device Setup	41
3.4 Keyboard Setup	41
3.5 Page Setup	43
3.5.1 Default Unit	43

3.5.2	Page Size	43
3.5.3	Background	44
3.6	Instances, Documents, and Views	45
3.7	The Document Window	46
3.7.1	Window Geometry	47
3.8	Dialogs	48
3.9	Themes and Icons	49
3.10	Basic Zooming	50
3.11	The Zoom Tool	51
3.12	Panning	52
3.13	Canvas Orientation	53
3.14	Rendering Modes	53
3.14.1	Color Rendering	55

4

OBJECTS **57**

4.1	Object Properties	57
4.2	Coordinates and Units	59
4.3	Bounding Box	60
4.4	Z-Order	61
4.5	Copying, Cutting, Pasting	64
4.6	Duplicating and Stamping	64
4.7	Spray Tool	65
4.7.1	Tracing by Spraying	66
4.8	Groups	67
4.8.1	Ungrouping	68
4.8.2	Uses of Grouping	68
4.8.3	Groups and Z-Order	69
4.9	Layers	70
4.9.1	Layer Hierarchy	70
4.9.2	The Layer Menu	71
4.9.3	The Current Layer Indicator	72
4.9.4	The Layers Dialog	73
4.9.5	The Objects Dialog	74
4.10	The XML Editor	74
4.10.1	The Tree Pane	75
4.10.2	The Attributes Pane	76

5

SELECTING **77**

5.1	The Selection Cue	77
5.2	Selection and the Status Bar	78
5.3	Subselection	79
5.4	Selecting by Clicking: the Selector	80
5.5	Selecting by Clicking: Other Tools	81
5.6	Adding to a Selection	81
5.7	Selecting with the Rubber Band	81
5.8	Touch Selection	83

5.9	Selecting Objects from Underneath	83
5.9.1	Alt-click	84
5.9.2	Alt-scroll	84
5.10	Selecting in Groups	85
5.11	Selecting with Keyboard Shortcuts	86
5.12	Selecting by Properties	87
5.13	Selecting by Searching	87
5.14	Following Links	89
5.15	Deselecting and Inverting	89
5.16	Selection Miscellany	89

6

TRANSFORMING

91

6.1	The Selector: Moving	92
6.2	The Selector: Scaling	93
6.3	The Selector: Rotating and Skewing	94
6.4	The Fixed Point	96
6.5	Transforming with Keyboard Shortcuts	97
6.5.1	Moving	97
6.5.2	Scaling	98
6.5.3	Rotating and Flipping	99
6.6	Transforming with Numbers: X, Y, W, and H	100
6.7	The Transform Dialog	101
6.7.1	The Move Tab	101
6.7.2	The Scale Tab	102
6.7.3	The Rotate Tab	103
6.7.4	The Skew Tab	104
6.7.5	The Matrix Tab	105
6.8	Pasting Sizes	105
6.9	The Measure Tool	106
6.9.1	Hovering	106
6.9.2	Dragging	107
6.9.3	Measuring and Constraining Angles	107
6.9.4	Measuring Segments	107
6.9.5	Phantom Measurements	109
6.9.6	Creating Measurement Objects	109
6.10	Transforming with the Tweak Tool	111
6.11	What Transformations Affect	113

7

SNAPPING AND ARRANGING

115

7.1	Guides	115
7.1.1	Guide Anchor	116
7.1.2	The Guideline Dialog	117
7.1.3	Document Properties for Guides	118
7.1.4	Guides from Objects	119
7.2	Grids	120
7.2.1	Grid Options	121

7.3 Snapping	122
7.3.1 The Snap Controls Bar	123
7.3.2 Snapping Preferences	126
7.4 Aligning	128
7.4.1 Aligning by Handles	130
7.5 Distributing	131
7.5.1 Exchanging Places	132
7.5.2 Randomizing and Unclumping	133
7.5.3 Removing Overlaps	135
7.5.4 Arranging Objects	135

8

STYLE: COLOR AND OPACITY

139

8.1 Style Properties and Selectors	140
8.2 Paint	141
8.3 Opacity	144
8.4 Color Models	145
8.4.1 RGB	145
8.4.2 CMYK and CMS	146
8.4.3 HSL and HSV	147
8.5 The Palette	147
8.5.1 Editing Palettes	149
8.6 The Selected Style Indicator: Paint Commands	149
8.7 The Selected Style Indicator: Color Gestures	150
8.8 The Dropper Tool	152
8.8.1 Sampling	152
8.8.2 Assigning	153
8.8.3 Opacity	153
8.9 Color Tweaking	154
8.9.1 Color Paint	154
8.9.2 Color Jitter	155
8.9.3 Channels	156
8.9.4 Usage Notes	156
8.10 Color Extensions and Filters	157
8.10.1 Color Extensions	157
8.10.2 Color Filters	157

9

STYLE: STROKE AND MARKERS

159

9.1 Stroke Width	160
9.1.1 Stroke Width in Multiple Objects	161
9.2 Join	161
9.3 Caps	163
9.4 Dash Patterns	164
9.5 Markers	166
9.5.1 Mid Markers and Nodes	168
9.5.2 Coloring Markers	170
9.5.3 Creating New Markers	171
9.5.4 Advanced Markers	172
9.6 Rendering Order	172

10 GRADIENTS, MESHES, AND PATTERNS 175

- 10.1 Creating Gradients 176
 - 10.1.1 Linear Gradients 177
 - 10.1.2 Elliptic Gradients 178
- 10.2 Gradient Definition 179
 - 10.2.1 Sharing Gradient Definitions 180
- 10.3 Gradient Repeat 180
- 10.4 Gradient Handles 181
 - 10.4.1 Selecting 181
 - 10.4.2 Painting Gradient Stops 182
 - 10.4.3 Moving, Merging, and Snapping 183
- 10.5 Multistage Gradients 184
 - 10.5.1 Creating Middle Stops 184
 - 10.5.2 Moving Middle Stops 185
- 10.6 Gradient Tips and Examples 186
- 10.7 Mesh Gradients 188
 - 10.7.1 When to Use Mesh Gradients? 189
 - 10.7.2 Creating a Mesh 190
 - 10.7.3 Shaping a Mesh 191
 - 10.7.4 Subdividing a Mesh 192
 - 10.7.5 Coloring Mesh Nodes 194
- 10.8 Patterns 195
 - 10.8.1 Creating Patterns 195
 - 10.8.2 Editing Patterns 196
 - 10.8.3 Patterns in Art 197
 - 10.8.4 Stock Patterns 197
 - 10.8.5 Hatches 198
- 10.9 The Paint Servers Dialog 198

11 SHAPES 199

- 11.1 Shape Tools 200
 - 11.1.1 Shape Parameters 201
 - 11.1.2 The Style of New Shapes 201
- 11.2 Rectangles 202
 - 11.2.1 Sizing 203
 - 11.2.2 Rounding 204
- 11.3 3D Boxes 205
 - 11.3.1 Why Use 3D Boxes? 206
 - 11.3.2 Drawing 207
 - 11.3.3 Perspective and Vanishing Points 207
 - 11.3.4 Handles 209
 - 11.3.5 Styling 211
- 11.4 Ellipses 212
 - 11.4.1 Drawing 213
 - 11.4.2 Handles 214
- 11.5 Stars and Polygons 215
 - 11.5.1 Drawing 216
 - 11.5.2 Handles 216

11.5.3 Rounding	217
11.5.4 Randomizing	218
11.6 Spirals	220

12

EDITING PATHS

223

12.1 The Anatomy of a Path	224
12.1.1 Subpaths	224
12.1.2 Filling Paths	225
12.1.3 Stroking Paths	226
12.1.4 Bézier Curves	227
12.2 Boolean Operations	228
12.2.1 Union	228
12.2.2 Difference	229
12.2.3 Intersection	229
12.2.4 Exclusion	230
12.2.5 Division	230
12.2.6 Cut Path	230
12.3 Simplifying	231
12.4 Offsetting	232
12.5 The Node Tool	233
12.5.1 Path Display	234
12.5.2 Selecting Nodes	235
12.5.3 Deleting and Creating Nodes	236
12.5.4 Joining and Breaking	238
12.5.5 Node Types	239
12.5.6 Moving Handles	241
12.5.7 Moving Nodes	242
12.6 Path Tweaking	246
12.6.1 Width and Force	247
12.6.2 Fidelity	247
12.6.3 Push Mode	247
12.6.4 Shrink/Grow Mode	248
12.6.5 Attract/Repel Mode	249
12.6.6 Roughen Mode	250

13

PATH EFFECTS

251

13.1 How Path Effects Work	251
13.2 Managing Path Effects	253
13.2.1 The Path Effect Editor Dialog	254
13.3 A Guide to Inkscape Path Effects	256
13.3.1 Stroke Shaping Effects	257
13.3.2 Path-Bending Effects	259
13.3.3 Deformation Effects	263
13.3.4 Artistic Effects	264
13.3.5 Repeaters and Fractals	270
13.3.6 VonKoch	273
13.3.7 Splines	274
13.3.8 Path Utilities	277

13.3.9	Subpath Manipulations	279
13.3.10	Boolean Operations	281
13.3.11	Offset	281
13.3.12	Power Clip and Power Mask	282
13.3.13	Dashed Stroke	283
13.3.14	Helper Effects	283
13.3.15	Geometric Constructions	284
13.4	Path Extensions	286
13.4.1	The Generate from Path Submenu	286
13.4.2	The Modify Path Submenu	288
13.4.3	Visualize Path Submenu	291

14

DRAWING

293

14.1	The Pen and Pencil Tools	294
14.1.1	The Pen Tool	295
14.1.2	The Pencil Tool	297
14.1.3	Style	299
14.1.4	Drawing modes	299
14.1.5	Stroke Shapes	300
14.2	The Calligraphic Pen Tool	302
14.2.1	Width	303
14.2.2	Angle	305
14.2.3	Caps	305
14.2.4	Tremor, Wiggle, and Mass	306
14.2.5	Calligraphic Presets	306
14.2.6	Adding and Subtracting	307
14.2.7	Tracking a Guide Path	307
14.3	The Paint Bucket Tool	309
14.3.1	Filling Techniques	310
14.3.2	Filling by Channel	311
14.3.3	Threshold	311
14.3.4	Growing and Shrinking	311
14.3.5	Closing Gaps	312
14.3.6	Style	312
14.4	Eraser Tool	312
14.5	Connector Tool	314

15

TEXT

317

15.1	Basic Editing	317
15.1.1	Selecting	318
15.2	Types of Text Objects	319
15.2.1	Regular Text	319
15.2.2	Text-in-a-Shape	320
15.2.3	Flowed Text	322
15.2.4	Text on a Path	322
15.3	Styling Text	323
15.3.1	Non-Text Style Properties	324
15.3.2	Fonts and Variants	324

15.3.3	Font Size	326
15.4	Text Layout	326
15.4.1	Writing Mode and Orientation	326
15.4.2	Alignment	327
15.4.3	Subscript and Superscript	328
15.4.4	Kerning	328
15.4.5	Letter, Word, and Line Spacing	330
15.4.6	Ligatures	331
15.4.7	Special Characters	331
15.5	Converting Text to Path	333
15.6	Spellcheck	333
15.7	Text Extensions	334
15.8	Creating Fonts	335

16

CLONES AND SYMBOLS 337

16.1	Creating a Clone	338
16.2	Transforming Clones	339
16.3	Styling Clones	340
16.4	Chaining Clones	341
16.5	Unlinking and Relinking Clones	342
16.6	Tiling Clones	343
16.6.1	Size and Bounding Box	343
16.6.2	Symmetry	345
16.6.3	Shift, Scale, and Rotation	347
16.6.4	Blur and Opacity	348
16.6.5	Color	349
16.6.6	Tracing	349
16.7	The Symbols Dialog	351

17

FILTERS 353

17.1	Blur	354
17.1.1	Blur and Transformations	356
17.1.2	Tweaking for Blur	357
17.2	Blend Modes	357
17.3	Filter Management	359
17.3.1	Editing the Filter Area	360
17.4	Preset Filters	360
17.4.1	The Bevels Submenu	362
17.4.2	The Blurs Submenu	363
17.4.3	The Bumps Submenu	363
17.4.4	The Color Submenu	364
17.4.5	The Distort Submenu	364
17.4.6	The Fill and Transparency Submenu	364
17.4.7	The Image Effects Submenu	365
17.4.8	The Image Paint and Draw Submenu	365
17.4.9	The Materials Submenu	365
17.4.10	The Morphology Submenu	366
17.4.11	The Non-Realistic 3D Shaders Submenu	366

17.4.12	The Overlays Submenu	366
17.4.13	The Pixel Tools Submenu	366
17.4.14	The Protrusions and Ridges Submenus	367
17.4.15	The Scatter and Shadows and Glows Submenus	367
17.4.16	The Textures Submenu	367
17.5	The Filter Editor Dialog	368
17.5.1	The Filters List	368
17.5.2	The Stack of Primitives	369
17.5.3	Parameters of a Primitive	370
17.5.4	The Filter Area	373
17.6	Filter Rendering Options	374
17.7	Exporting Filters to PS and PDF	376

18

BITMAPS

377

18.1	Bitmap as Object	377
18.2	Bitmap Import Options	378
18.2.1	Linking vs. Embedding	379
18.2.2	Size on Import	380
18.2.3	Rendering Options	381
18.3	Clipping and Masking	382
18.3.1	Clipping	382
18.3.2	Masking	382
18.3.3	Bitmap as Pattern	383
18.4	Retouching and Patching	384
18.5	Tracing	385
18.5.1	Manual Tracing	385
18.5.2	The Trace Bitmap Dialog	386
18.6	Bitmap Export	392
18.6.1	The Export PNG Image Dialog	392
18.6.2	Exporting via the Command Line	396
18.6.3	Icon Preview	396
18.6.4	Make a Bitmap Copy	397
18.7	Bitmap Filters and Extensions	397
18.8	Color Management	399
18.8.1	ICC Color Profiles	400
18.8.2	Screen Proofing	400
18.8.3	Separating and Embedding	401

19

EXTENSIONS

403

19.1	Working with Extensions	404
19.2	A Guide to Inkscape Extensions	404
19.2.1	The Render Submenu	406
19.3	Extensions Architecture	408
19.4	Creating an Extension	410
19.4.1	The .inx File	410
19.4.2	The inkex Base Classes	411
19.4.3	The makeinitial.py File	412
19.4.4	Deploying and Testing	414

20

TUTORIAL: DESIGNING A BUSINESS CARD 415

20.1 Design 1: Simple Graphics	416
20.1.1 Choosing Fonts	416
20.1.2 Layout	417
20.2 Design 2: Artistic Drawing	418
20.2.1 Layout	419
20.2.2 Texture and Color	419
20.3 Export and Printing	420
20.3.1 Using Device Colors	421
20.3.2 Tiled Output	421

21

TUTORIAL: CREATING AN ANIMATION 423

21.1 Creating the Template	423
21.2 Creating the Character	424
21.3 Tweening	425
21.4 Compositing	426
21.5 Exporting	426
21.6 Freehand Drawing	427
21.7 Adding Text	428
21.8 Adding Color	430

22

TUTORIAL: DRAWING A 3D-CORRECT CARTOON 431

22.1 The Room	432
22.2 The Furniture	433
22.3 People	434
22.4 Sketching and Coloring	435

23

TUTORIAL: ARTISTIC DRAWING 437

23.1 The First Sketch	437
23.2 Inking	439
23.3 Tweaking	440
23.4 Coloring and Smoothing	440
23.5 Drawing Hair	441

24

TUTORIAL: TECHNICAL DRAWING 443

24.1 Setting Up the Grid	443
24.2 Making the Box	444
24.3 Rounding Corners	445
24.4 Making the Top Cylinder	447
24.5 Making the Cutout	448

25

TUTORIAL: THE ROSE

451

25.1 Treatment 1: Engraving	454
25.2 Treatment 2: Tessellation	456
25.3 Treatment 3: A Field of Cubes	457
25.4 Treatment 4: Photorealistic Drawing	460
25.5 Treatment 5: Map	461
25.6 Treatment 6: Spruced-Up Photo	462

26

TUTORIAL: ARTWORK FOR A GAME

465

26.1 BotP: Ice Rink	466
26.2 BotP: Inkscape as a Level Editor	466
26.2.1 Pucks	467
26.2.2 Obstacles	467
26.2.3 Shrinking the File	469
26.3 BotP: The Pucks	469
26.4 BotP: Splash Animation	470
26.5 Batonic: An Iconic Character	470

A

AN SVG PRIMER

473

A.1 A Quick Introduction to XML	473
A.2 Vocabularies and Namespaces	475
A.3 Root	477
A.4 Defs, View, and Metadata	478
A.5 Layers and Groups	479
A.6 Coordinates and Units	480
A.7 Transformations	481
A.8 Style	482
A.9 Linking	483
A.10 Object Types	484
A.11 Inkscape's SVG Extensions	484

B

IMPORT AND EXPORT

487

B.1 Save vs. Export	487
B.2 SVG Variants	488
B.3 PDF	488
B.3.1 Import	489
B.3.2 Export	491
B.4 PostScript and EPS	492
B.4.1 Import	492
B.4.2 Export	492
B.5 AI	493
B.6 CorelDRAW	493

B.7 WMF, EMF, and EMF+	494
B.8 XAML	494
B.9 WPG	494
B.10 VSD	494
B.11 DXF and HPGL (Export)	494
B.12 ODG	494
B.13 POV	494
B.14 LaTeX (Export)	495
B.15 Bitmap Formats (Import/Export)	495
B.16 Printing	495

C

THE COMMAND LINE 497

C.1 Command Line Executable	498
C.2 Getting Help	498
C.3 Opening Documents	499
C.4 Export	499
C.4.1 Export Area	500
C.4.2 Export Size and Resolution	501
C.4.3 Export Background (PNG Only)	501
C.4.4 Color Mode (PNG Only)	502
C.4.5 Export Hints (PNG Only)	502
C.4.6 Vector Export Options	502
C.5 Querying	503
C.6 Actions	504
C.6.1 Example: Changing CSS Property	504
C.6.2 Shell Mode	505

INDEX 507

COLOR ILLUSTRATIONS following page 336