LOGIC PRO 8

Audio and Music Production





Mark Cousins
Russ Hepworth-Sawyer



Logie Pro 3

Audio and Music Production

Mark Cousins Russ Hepworth-Sawyer







SAN DIEGO • SAN FRANCISCO • SINGAPORE • SYDNEY • TOKYO





Focal Press is an imprint of Elsevier Linacre House, Jordan Hill, Oxford OX2 8DP, UK 30 Corporate Drive, Suite 400, Burlington, MA 01803, USA

First published 2008

Copyright © 2008 Mark Cousins and Russell Hepworth-Sawyer. Published by Elsevier Ltd. All rights reserved

The right of Mark Cousins and Russell Hepworth-Sawyer to be identified as the authors of this work have been asserted in accordance with the Copyright, Designs and Patents Act 1988

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means electronic, mechanical, photocopying, recording or otherwise without the prior written permission of the publisher

Permissions may be sought directly from Elsevier's Science & Technology Rights Department in Oxford, UK: phone (+44) (0) 1865 843830; fax (+44) (0) 1865 853333; email: permissions@elsevier.com. Alternatively you can submit your request online by visiting the Elsevier website at http://elsevier.com/locate/permissions, and selecting Obtaining permission to use Elsevier material

Notice

No responsibility is assumed by the publisher for any injury and/or damage to persons or property as a matter of products liability, negligence or otherwise, or from any use or operation of any methods, products, instructions or ideas contained in the material herein.

British Library Cataloguing-in-Publication Data

A catalogue record for this book is available from the British Library

Library of Congress Cataloging-in-Publication Data

A catalog record for this book is available from the Library of Congress

ISBN: 978-0-240-52047-6

For information on all Focal Press publications, visit our website at www.focalpress.com

Typeset by Charon Tec Ltd (A Macmillan Company), Chennai, India www.charontec.com

Printed and bound in Slovenia
08 09 10 11 10 9 8 7 6 5 4 3 2 1

Working together to grow libraries in developing countries

www.elsevier.com | www.bookaid.org | www.sabre.org

ELSEVIER

BOOK AID International

Sabre Foundation

About the Authors

Mark Cousins

Mark Cousins works as a composer, programmer and engineer (www.cousins-saunders.co.uk), as well as being senior writer for *Music Tech* Magazine. His professional work involves composing music for some of the world's largest production music companies – including Universal Publishing Production Music – with broadcaster credits including BBC1, BBC2, ITV, Channel 4, Five, BBC World and Sky One, among others. He has also had works performed by the Royal Philharmonic Orchestra, the East of England Orchestra, City of Prague Philharmonic Orchestra and the Brighton Festival Chorus, as well as having mixed several orchestral albums for BMG Zomba.

Mark has been an active contributor to *Music Tech* Magazine since issue one, responsible for the majority of cover features, as well as the magazine's regular Logic Pro coverage. As senior writer, he has also had a strong editorial input on the development of the magazine, helping it become one of the leading brands in its field.

Russ Hepworth-Sawyer

Russ Hepworth-Sawyer is a sound engineer and producer with over 13 years experience of all things audio and is a member of the Audio Engineering Society and the Music Producers Guild. Russ is currently Senior Lecturer of Music Production, Industry Partnerships Manager and Head of LCMselect at Leeds College of Music. Additionally, through MOTTOsound (www.mottosound.com) Russ works freelance in the industry as a mastering engineer, writer, educator and consultant. Russ has also contributed to Sound On Sound.

Acknowledgements

Mark's Acknowledgements

I would like to thank: my Mum and Dad for buying me a Casio CZ-3000 for my Christmas present in 1987 and starting the whole ball rolling; My wife, Hannah, and our two kids, Josie and Fred, for their support, patience, and amusement over the years, and for keeping me company in the studio from time to time; Russ, who has been a long-time and sincere friend – from our early days creating angst-ridden music, to the altogether more civilized task of writing a book! Neil Worley, for taking me on at *Music Tech* and showing me the hallowed profession of being a writer; Adam Saunders, for putting up with my lack of musical output for several months; and finally, Polly, Deb and Cath for looking after Fred in those final hectic few weeks!

Russ' Acknowledgements

I would like to thank: my wife Jackie and son Tom for putting up with my absenteeism during the writing of this book – thank you!; My Mum, Jo ("Hi Mum"); My parents-in-law Ann and John for all their help; Mark for entering into yet another crazy project with me and for being the Logic Guru and top chap he is!; Max Wilson for his endless support and forcing me to move to Logic in the first place... thanks boss!; Jenn Chubb for her support and excellent work at LCMselect; Olivia Flenley for the use of her song 'RISM' within the screenshots of some of my chapters; Jon Miller for the use of his animation file, wherever you are!; Iain Hodge and Peter Cook at London College of Music; and my colleagues and students at Leeds College of Music.

Both authors would like to thank Gorden Keppel from Apple for taking the time to technically check our words, and Catharine Steers for her support and hard work throughout the writing of this book.

About the au	thors	xii
Acknowledge	ments	xiii
Chapter 1	The Logic concept	3
	1.1 Introduction	3
	1.2 A brief history of Logic Pro 8	4
	1.3 Why choose Logic Pro 8?	6
	Knowledgebases	
	Studio v. Express: the many flavours of Logic	5
	Installing Logic Studio	- 7
Chapter 2	Logic's interface	11
-	2.1 Introduction	11
	2.2 What Logic can record	11
	2.3 The Arrange window	12
	2.4 Editor areas – Mixer, Sample Editor, Piano Roll, Score and Hyper Editor	14
	2.5 Media and Lists area	17
	2.6 Inspector area (keyboard shortcut – I)	19
	2.7 Transport and Toolbar	21
	2.8 Tools, local menus and contextual menus	22
	2.9 Adjusting how you view the arrangement: zooming in and out	24
	Knowledgebase	
	What is a Region?	13
Chapter 3	Getting connected	27
	3.1 Introduction	27
	3.2 The studio environment	27
	3.3 USB devices	31
	3.4 FireWire devices	33

3.5	PCI Express and ExpressCard	37
3.6	Audio communication and drivers	38
3.7	Control surfaces	44
3.8	Digidesign hardware and integration with Logic	48
3.9	Distributed audio processing and external DSP solutions	50
Knov	vledgebases	
	Latency and Monitoring	39
	Audio in the Audio MIDI Setup	43
	ReWire Connectivity	51
Walk	through	
	Setting Up Aggregate Audio Devices	52
Chapter 4 Star	ting a project	55
4.1	Introduction	55
4.2	Assets and projects	55
4.3	Working with tracks	58
4.4	An introduction to the Audio Mixer	60
4.5	Using the transport and timeline	63
4.6	Your first recording	65
4.7	Overdubs and punching-in and -out	67
4.8	Creating further tracks and track sorting	70
4.9	The Audio Bin and importing	71
4.10	Working with Apple Loops	73
4.11	Improving what the artist hears – headphone mixes	77
-4.12	Monitoring through effects	80
Knov	vledgebases	
	What are assets?	57
	More about the Metronome	66
	Importing REX2 files	74
Chapter 5 Aud	io regions and editing	83
5.1	Introduction	83
5.2	Editing on the Arrange area	83

5.3	Regions: repeating, looping, aliasing and cloning	91
5.4	The Inspector	93
5.5	The locators and cutting/inserting time	94
5.6	Strip Silence	96
5.7	Quick Swipe Comping	98
5.8	Tempo-based editing	101
5.9	Editing multiple tracks	106
5.10	Region management	111
5.11	The Sample Editor	114
5.12	The Audio Bins	118
5.13	Making Apple Loops	121
Walk	throughs	
	Grouping Multiple Drum Tracks	110
	Editing Across Multiple Drum Tracks	123
Chapter 6 MID	l sequencing and instrument plug-ins	127
6.1	Introduction	127
6.2	MIDI concepts	127
6.3	Creating instrument tracks	128
6.4	Instantiating virtual instruments and the Library feature	129
6.5	Working with external MIDI instruments	135
6.6	Making a MIDI recording	140
6.7	Editing and arranging MIDI regions	143
6.8	Region parameters: quantizing and beyond	145
6.9	The MIDI Thru function	148
6.10	Extended region parameters	149
6.11	Normalizing sequence parameters	150
6.12	MIDI editing in Logic	150
6.13	The Piano Roll	151
6.14	Typical editing scenarios in the Piano Roll	153
6.15	Quantizing inside the Piano Roll editor	159
6.16	Working with controller data using Hyper Draw	160

	6.17	Hyper Draw in the arrange area	163
	6.18	Going further: the Piano Roll's edit and functions menus	163
	6.19	Intelligent selection: the edit menu	165
		Functions: quick-and-easy note modifications	166
		Step-time sequencing	169
		The Hyper editor	170
		Score editor	173
	6.24	Event List	173
	Кпои	vledgebases	
		What is MIDI?	129
		EXS24 virtual memory and disk streaming	157
		Using multi-output instruments	168
		Demixing	171
		EXS24 data management	176
	Plug-	in focus	
		EVP88	131
		EVB3	136
		EVD6	142
		ES E, ES P and ES M	147
		EXS24 Main Interface	152
Chapter 7	Crea	tive sound design	179
	7.1	Introduction	179
	7.2	Logic's synthesizers	179
	7.3	Understanding the ES2	181
	7.4	Working with oscillators	185
	7.5	Filters, amplifiers and modulation	189
	7.6	Global parameters and output effects	194
	7.7	EFM1 and frequency modulation (FM) synthesis	195
	7.8	Component modelling: Sculpture	200
	7.9	Objects	201
	7.10	The string	204

	7.11	Waveshapers and beyond	206
	7.12	Modulation and morphing	209
	7.13	Creative sampling	213
	7.14	The EXS24 instrument editor	215
	7.15	Creating a new instrument and importing samples	217
	7.16	Changing zone properties	219
	7.17	Working with the EXS24's groups	223
	7.18	Editing EXS24 instruments using the front panel	225
	7.19	Ultrabeat	229
	Кпои	vledgebases	
		Waveshapes	 183
		Oscillator Sync	186
		Filter Types	189
		Vector Synthesis	192
		ES2 Filter Routing	196
		Wavetable Synthesis	199
		Recycle Files and the EXS24	216
Chapter 8	Mixi	ng in Logic	233
	8.1	Introduction	233
	8.2	Channel strips: understanding your virtual console	233
	8.3	Organizing your mixer: what you do and don't see	241
	8.4	Folders and the mixer	244
	8.5	Beginning a mix	247
	8.6	Adding send effects	251
	8.7	Combined processing using aux channels	254
	8.8	Using groups	256
	8.9	Working with channel strip settings	260
	8.10	Automation: the basics	260
	8.11	Track-based versus region-based	261
	8.12	Automation modes	263
	8.13	Viewing and editing automation	266
	8.14	The automation menu options	271

	Plug-In boxouts	
	Distortion Effects	235
	To Gate or Not To Gate That is the Question.	239
	Helpers Handy Little Plug-Ins	246
	Compressor	249
	Channel EQ	252
	Convolution Reverb and Space Designer	255
	PlatinumVerb	262
	Using Delay	265
	Vocal Processing	268
	Knowledgebases	
	Clipping Faders: Good or Bad?	242
	Parallel Compression	258
	Saving CPU: Freezing and More	270
	Compression Circuit Types	272
	Walkthrough	
	Adding Compression	273
	Logic tips	
	Plug-In Delay Compensation (PDC)	275
Chapter 9	Mastering in Logic	277
	9.1 Introduction	277
	9.2 Different approaches to mastering	277
	9.3 Bounce to Disk	279
	9.4 Audio mastering in Logic	282
	9.5 Editing fades	283
	9.6 Exporting and burning	285
	9.7 Mastering in WaveBurner	288
	9.8 Processing and editing	290
	9.9 Dithering, bouncing and burning	291
	Knowledgebases	
	Pre-Mastering	280
	Dithering	281
	POW-r	299

	Plug-in focus	
	Linear-Phase EQ	283
	Multipressor and Multiband compression	287
	Limiting	290
	Other mastering tools	292
	Walkthroughs	
	Editing and assembling a CD in WaveBurner	295
	Audio mastering and CD burning	297
Chapter	10 Logic and multimedia production	301
	10.1 Introduction	<i>~</i> 301
	10.2 Managing movies	301
	10.3 Global Tracks	305
	10.4 Synchronizing logic	314
	10.5 Score editing and music preparation	317
	10.6 Surround sound in logic	323
	10.7 Delivery formats	330
	Knowledgebase	
	Surround Sound Plug-Ins	328
Chapter	11 Optimizing Logic	335
	11.1 Introduction	335
	11.2 Templates	335
	11.3 Screensets and windows	336
	11.4 Key commands	342
	11.5 The Environment	344
	11.6 Input/Output (I/O labels)	360
	11.7 Nodes and distributed audio processing	361
	Walkthrough	
	Adding new MIDI devices to the Environment	353
Index		365

Logic Pro 8



The Logic concept

1.1 Introduction

It's hard to imagine a more complete system for music and audio production than Logic Pro 8: multitrack recording and editing, a full suite of virtual instruments and effects, and a seamless workflow that takes you from the beginning of your project right through to the delivery of the final production master. Yet, with such a complete system comes the daunting task of understanding how the elements of Logic Pro 8 knit together to produce a professional-sounding result. For example, where do you begin to start writing music or making a recording in Logic? What are the virtual instruments and plug-ins used by the professionals to create release-quality output? And how can you transform those poorly performed band recordings into a polished CD?

So, let's be clear from the start, this book isn't just another instruction manual for Logic Pro 8. Instead, we've taken a process-driven approach that appraises, understands, and explores the features of Logic Pro 8 in a way that matches the structure and order of the production process. More than just a technical description of the functions of Logic Pro 8, therefore, we'll look at how the varied elements of Logic Pro 8 relate to the demands of audio and music production. With all but a few exceptions, most of the chapters focus on a specific part of the production process – whether it's initial track laying, sound design, or mastering your finished mixes to produce the final CD – highlighting the relevant parts of the application that guarantee a professional-sounding audio product. We'll also look at techniques that go beyond the scope of the manual – practices like parallel compression, for example, that many engineers use and abuse on a daily basis.

If you're starting off from scratch, it's easy to be overwhelmed by the sheer size and complexity of an application like Logic Pro 8. However, it isn't essential to know the entirety of the application to start producing music. Get to know the components that are most relevant to your way of working and build from there – use plenty of presets, Apple Loops, and so on, to get you kick started – and then enjoy the process of exploring each element that little bit further. Ultimately, Logic Pro 8 is tool that will grow with your experience – a system

that will surprise at every turn and open up new possibilities whenever you want to explore the software further. With this book, you'll at least have a reference to aid you in that process, but don't be afraid to experiment to find out how Logic Pro 8 best fits into your unique creative process!



Logic Pro 8 includes an impressive array of features, but understanding how they integrate into the production process might not be immediately apparent.

1.2 A brief history of Logic Pro 8

Like the other "old-timers" of computer-based audio production – including Cubase and Pro Tools – Logic Pro 8 is an application with a rich and long heritage in the industry. Born from the ashes of C-Lab's Notator and Creator in 1993, Notator Logic (as it was then called) was an attempt to create a visual, region-based production environment for MIDI sequencing. Building blocks, or regions of MIDI data – used to control hardware synthesizers and samplers – could be arranged on the computer screen, with a clear visual representation of the structure of the arrangement. What was unique about Logic, though, was that the application was completely configurable – users could create virtual presentations of their studio, known as an environment, for example, or combine different editor windows in a completely configurable user interface.

Knowledgebase 1

Studio v. Express: the many flavours of Logic

So as to match your precise production needs and available budget, Logic is available in two principle versions – Logic Studio and Logic Express. As you'd expect, Logic Studio is the more complete package: with a range of ancillary applications including MainStage, WaveBurner, Soundtrack Pro 2, and Compressor – as well as wealth of sound content in the form of Apple Loops, EXS24 instruments, and so on. The main component, though, is the Logic Pro 8 application itself, which is the centrepiece of any music or audio production-based activity on the Mac. In effect, the additional applications build on Logic Pro 8's core functionality – with MainStage, for example, allowing you to take Logic Pro 8's instruments and effects on the road, while Soundtrack Pro 2 allows you to better integrate your work with professionals working in film and TV post-production.

Logic Express 8, on the other hand, is a more cost-effective introduction to world of music production in Logic. Although Logic Express 8 lacks the ancillary applications and full sound content of the complete Logic Studio, it does provide a feature set almost identical to that of Logic Pro 8. On the whole, the omitted features largely relate to professional applications – using TDM/DAE, for example, distributed audio processing, or surround sound mixing. The list of available plug-ins, so important to "in the box" audio production, is almost identical, with the possible exception of a few instruments like Sculpture and the EVP88, alongside the Space Designer and Delay Designer audio plug-ins.

In writing the book, therefore, we concentrated on the main features and processes applicable to both Logic Pro 8 and Logic Express 8 (henceforth referred to simply as "Logic"). Where appropriate, we have referred to some of Logic Pro 8's extra features – like 5.1 surround sound mixing, or WaveBurner – but in most cases, a Logic Express user will be able to achieve much of what this book details.



