

Notes on

Arr Arrange process

Rec Record process

Mix Mix process

Wav waveform analysis and editing

Master table of contents

RECORDING/MIXING BOOKS	5
Modern Recording Techniques. Sixth Edition	5
"Z:\Aussie\Allbooks\My_Music\Rec\Huber, Runstein - Modern Recording Techniques - 2005.txt"	5
"Recording process master checklist [rec]" checklist	17
"Tagged documents (individual checklists)" list	18
"Signal chains: recording, playback, monitoring, metronome" diagrams	18
"My Guitar Rig" routing/reset structure	19
Mixing Secrets for the Small Studio	23
"Z:\Aussie\Allbooks\My_Music\Mix\Mike Senior-Mixing Secrets for the small studio.txt"	23
OUTBOARD GEAR MANUALS	31
Voodoo Lab® PEDAL POWER™ 2PLUS User's Manual	31
Tests	31
"Z:\Aussie\Software\Device Drivers\My_Music\1. Voodoo Lab - Pedal Power 2 Plus\pedal_power_2plus_manual.txt"	31
peterSON STROBE TUNERS. The Sound of Precision	32
Signal chain	32
Tests	32
"Z:\Aussie\Software\Device Drivers\My_Music\2. Peterson - Stomp Classic Pedal Tuner\StrobostompClassicManual_English.txt"	32
YERASOV RED SCORPION RS-1	34
Signal chain	34
Tests	34
"Z:\Aussie\Software\Device Drivers\My_Music\3. Yerasov - Red Scorpion RS-1\rs-1.txt"	34
Педаль PD-5	35
Signal chain	35
Tests	35
"Z:\Aussie\Software\Device Drivers\My_Music\4. Yerasov - PTERODRIVER PD-5\New Text Document.txt"	35
Eventide TIMEFACTOR User Guide	36
Signal chain	36
Tests	36
"Z:\Aussie\Software\Device Drivers\My_Music\5. Eventide - TimeFactor\TimeFactor Owner's Manual\141131.txt"	36
VIC FIRTH Headphones	40
Signal chain	40
Tests	40
"Z:\Aussie\Software\Device Drivers\My_Music\7. VIC FIRTH Headphones\New Text Document.txt"	40
YERASOVtm FOOTSWITCH model FS-20	41
"Z:\Aussie\Software\Device Drivers\My_Music\8. YERASOVtm FOOTSWITCH model FS-20\New Text Document.txt"	41
AUDIO INTERFACE MANUALS	43
Roland QUAD-CAPTURE USB 2.0 Audio Capture	43
Signal chain	43
Tests	43
"Z:\Aussie\Software\Device Drivers\My_Music\6. Roland - QUAD-CAPTURE USB 2.0 Audio Interface (UA-55)\QUAD-CAPTURE_e04_W.txt"	43
Flowchart	51
QUAD-CAPTURE Driver Readme.htm	52
Tests	52
"Z:\Aussie\Software\Device Drivers\My_Music\6. Roland - QUAD-CAPTURE USB 2.0 Audio Interface (UA-55)\Readme.txt"	52
AUDIO SOFTWARE BOOKS/MANUALS	55
Steinberg Cubase5. Запись и редактирование музыки	55
"Z:\Aussie\Allbooks\My_Music\Arr\Петелин Р.Ю., Петелин Ю.В. - Steinberg Cubase 5. Запись и редактирование музыки - 2010.txt"	55
CUBASE 5. Advanced Music Production System	64
"Z:\Aussie\Allbooks\My_Music\Cubase Portable 5.1.1 (bipper)\Manual.txt"	64
Cool Edit Pro Version 2 Users Guide	226
"Z:\Aussie\Allbooks\My_Music\Wav\coolpro2\coolpro2.txt"	226

Recording/mixing books

Modern Recording Techniques. Sixth Edition

DAVID MILES HUBER, ROBERT E. RUNSTEIN
THE MOST AUTHORITATIVE, COMPLETE, ACCURATE, AND UP-TO-DATE RECORDING GUIDE AVAILABLE!
Focal Press, 2005
673 pp.

cataloging header	detailed TOC	custom tags	embedded comments (notes)
-------------------	--------------	-------------	---------------------------

"Z:\Aussie\Allbooks\My_Music\Rec\Huber, Runstein - Modern Recording Techniques - 2005.txt"

Acknowledgements.....	18	
About the Authors.....	20	
Trademarks.....	21	
1 Introduction.....	22	
The Recording Studio.....	24	
The Control Room.....	27	
The Project Studio.....	29	
The Portable Studio.....	30	
Whatever Works for You.....	32	
Making the Project Studio Pay for Itself.....	32	
Live/On-Location Recording: A Different Animal.....	33	
Audio for Video and Film.....	34	
Multimedia.....	36	
The Web.....	37	
The People Who Make It All Happen.....	38	
The Artist.....	38	
Studio Musicians and Arrangers.....	38	
The Producer.....	39	
The Engineer.....	39	
Assistant Engineer.....	40	
Maintenance Engineer.....	40	
Mastering.....	40	
The DJ.....	41	
Studio Management.....	41	
Music Law.....	42	
Women in the Industry.....	42	
Behind the Scenes.....	42	
Career Development.....	44	
The Recording Process.....	45	Rec
Preparation.....	46	Rec
/* 600 "18 Studio Session Procedures"->Preparation */		
Recording.....	46	Rec
/* 423 "11 The Audio Production Console"->Recording 612 "18 Studio Session Procedures"->Recording */		
Overdubbing.....	48	Rec
/* 426 "11 The Audio Production Console"->Overdubbing 613 "18 Studio Session Procedures"->Overdubbing */		
Mixing Down.....	48	
Mastering.....	49	
Product Manufacture.....	50	
The Transducer.....	50	
2 Sound and Hearing.....	54	

The Basics of Sound.....	54
Waveform Characteristics.....	56
Amplitude.....	57
Frequency.....	58
Velocity.....	59
Wavelength.....	59
Reflection of Sound.....	59
Diffraction of Sound.....	61
Frequency Response.....	62
Phase.....	62
Do-It-Yourself Tutorial: Phase.....	64
Phase Shift.....	65
Harmonic Content.....	66
Do-It-Yourself Tutorial: Harmonics.....	67
Envelope.....	69
Loudness Levels: The Decibel (dB).....	72
Logarithmic Basics.....	73
The dB.....	74
Sound-Pressure Level.....	74
Voltage.....	76
Power.....	76
The Simple Heart of the Matter.....	76
The Ear.....	77
Threshold of Hearing.....	78
Threshold of Feeling.....	78
Threshold of Pain.....	78
Taking Care of Your Hearing.....	78
Psycho-acoustics.....	79
Auditory Perception.....	79
Beats.....	81
Do-It-Yourself Tutorial: Beats.....	81
Combination Tones.....	81
Masking.....	82
Do-It-Yourself Tutorial: Masking.....	82
Perception of Direction.....	83
Perception of Space.....	85
Direct Sound.....	85
Early Reflections.....	86
Reverberation.....	87
Doubling.....	87
3 Studio Acoustics and Design.....	88
Studio Types.....	89
The Professional Music Studio.....	89
The Audio-for-Visual Production Environment.....	90
The Project Studio.....	91
The Portable Studio.....	93
Primary Factors Governing Studio and Control Room Acoustics.....	94
Acoustic Isolation.....	94
Walls.....	97
Floors.....	99
Risers.....	101
Ceilings.....	102
Windows and Doors.....	104
Iso-Rooms and Iso-Booths.....	105
Noise Isolation within the Control Room.....	108
Partitions.....	109
Symmetry in Control Room Design.....	110
Frequency Balance.....	114
Reflections.....	115
Absorption.....	118
High-Frequency Absorption.....	121
Low-Frequency Absorption.....	122
The Quarter-Wavelength Trap.....	124
Pressure-Zone Trap.....	125

Functional Trap.....	125	
Reverberation.....	126	
Acoustic Echo Chambers.....	129	
Power- and Ground-Related Issues.....	130	
Grounding Guidelines.....	130	Rec
Balanced Power.....	132	
Power Conditioning.....	133	
A Few Helpful Hints.....	134	
4 Microphones: Design and Application.....	136	
The Microphone: An Introduction.....	136	
Microphone Design.....	137	
The Dynamic Microphone.....	137	
The Ribbon Microphone.....	138	
Recent Developments in Ribbon Technology.....	139	
The Condenser Microphone.....	140	
The Electret-Condenser Microphone.....	142	
Do-It-Yourself Tutorial: Mic Types.....	143	
Microphone Characteristics.....	143	
Directional Response.....	144	
Frequency Response.....	147	
Transient Response.....	149	
Output Characteristics.....	150	
Sensitivity Rating.....	150	
Equivalent Noise Rating.....	151	
Overload Characteristics.....	151	
Microphone Impedance.....	151	
Balanced/Unbalanced Lines.....	152	
Microphone Preamps.....	154	
Phantom Power.....	156	
Microphone Techniques.....	156	
Pickup Characteristics as a Function of Working Distance.....	157	
Distant Microphone Placement.....	157	
Close Microphone Placement.....	159	
Do-It-Yourself Tutorial: Close Miking.....	163	
Accent Microphone Placement.....	163	
Ambient Microphone Placement.....	164	
Do-It-Yourself Tutorial: Ambient Miking.....	164	
Stereo Miking Techniques.....	164	
Spaced Pair.....	165	
X/Y.....	165	
M/S.....	166	
Decca Tree.....	167	
Surround Miking Techniques.....	168	
Ambient Surround Mics.....	169	
Surround Decca Tree.....	169	
Recording Direct.....	169	Rec
/* 177 "4 Microphones: Design and Application"->Guitar->"Recording Direct" */		
Microphone Placement Techniques.....	172	
Brass Instruments.....	173	
Trumpet.....	173	
Trombone.....	174	
Tuba.....	174	
French Horn.....	175	
Guitar.....	175	Rec
Acoustic Guitar.....	175	
Miking Near the Sound Hole.....	175	
Surround Guitar Miking.....	176	
The Electric Guitar.....	176	Rec
Miking the Guitar Amp.....	177	Rec
Recording Direct.....	177	Rec
/* 169 "4 Microphones: Design and Application"->"Recording Direct" */		

The Electric Bass Guitar.....	178	Rec
Keyboard Instruments.....	178	Rec
Grand Piano.....	179	
Separation.....	180	
Upright Piano.....	180	
Electronic Keyboard Instruments.....	181	Rec
Percussion.....	182	Mix
Drum Set.....	183	Mix
Miking the Drum Set.....	183	Mix
Kick Drum.....	184	Mix
Snare Drum.....	186	Mix
Overheads.....	186	Mix
Rack-Toms.....	187	Mix
Floor-Tom.....	188	Mix
Hi-Hat.....	188	Mix
Tuned Percussion Instruments.....	189	
Congas and Hand Drums.....	189	
Xylophone, Vibraphone, and Marimba.....	190	
Stringed Instruments.....	190	
Violin and Viola.....	190	
Cello.....	191	
Double Bass.....	191	
Voice.....	191	
Woodwind Instruments.....	192	
Clarinet.....	193	
Flute.....	193	
Saxophone.....	194	
Harmonica.....	194	
Microphone Selection.....	196	
Shure SM-57.....	196	
Specifications.....	196	
Audix D2.....	197	
Specifications.....	197	
The Ball.....	197	
Specifications.....	198	
AKG D112.....	198	
Specifications.....	198	
Beyerdynamic M-160.....	199	
Specifications.....	200	
Royer Labs R-121.....	200	
Specifications.....	200	
AEA R84.....	201	
Neumann KM 180 Series.....	201	
Specifications.....	201	
AKG C3000B.....	202	
Specifications.....	203	
Marshal MXL 2001.....	203	
Specifications.....	203	
Neumann Solution-D Digital Mic.....	204	
Studio Projects LSD2 Stereo Mic.....	205	
Specifications.....	205	
5 The Analog Tape Recorder.....	208	
To 2-Inch or Not To 2-Inch?.....	209	
Magnetic Recording and Its Media.....	210	
The Professional Analog ATR.....	211	
The Tape Transport.....	211	
The Magnetic Tape Head.....	215	
Equalization.....	218	
Bias Current.....	218	
Recording Channels and Monitoring Modes.....	220	Rec
/* 437 "11 The Audio Production Console"->"The Professional Analog Console"->"Monitor Section"->"Direct Insertion Monitoring" */		
The Remote Control Unit and Autolocator.....	221	

To Punch or Not To Punch.....	222	Rec
/* 614 "18 Studio Session Procedures"->Overdubbing->Punching-In */		
MIDI Machine Control.....	223	
Tape, Tape Speed, and Head Configurations.....	224	
Print-Through.....	225	
Cleanliness.....	227	
Degaussing.....	227	
Head Alignment.....	227	
Electronic Calibration.....	229	
Playback Alignment.....	231	
Record Alignment.....	231	
Playback.....	232	
Record.....	232	
Backup and Archive Strategies.....	233	
Backing Up Your Project.....	233	
Archive Strategies.....	234	
6 Digital Audio Technology.....	236	
The Basics of Digital Audio.....	237	
Sampling.....	238	
The Nyquist Theorem.....	240	
Oversampling.....	244	
Quantization.....	244	
Signal-to-Error Ratio.....	245	
Dither.....	246	Mix
The Digital Recording/Reproduction Process.....	247	
The Recording Process.....	248	
The Reproduction Process.....	250	
Digital Audio Transmission.....	250	
AES/EBU.....	251	
S/PDIF.....	252	
SCMS.....	253	
MADI.....	253	
ADAT Lightpipe.....	254	
TDIF.....	254	
mLAN.....	254	
Signal Distribution.....	255	
What Is Jitter?.....	256	
Wordclock.....	258	
Digital Audio Recording Systems.....	259	
The Fixed-Head Digital Audio Recorder.....	260	
The DASH Format.....	260	
Error Correction.....	260	
DASH Recording Systems.....	261	
The Rotating-Head Digital Audio Recorder.....	262	
The Rotary Head.....	263	
Digital Audio Tape (DAT) System.....	263	
DAT Tape/Transport Format.....	264	
The Modular Digital Multitrack (MDM).....	265	
ADAT MDM Format.....	266	
DTRS MDM Format.....	267	
Third-Party Developments and Accessories for the MDM.....	268	
MiniDiscs.....	269	
Hard-Disk Recording.....	270	
Advantages of Hard-Disk Recording.....	270	
Hard-Disk Multitrack Recorders.....	271	
Hard-Disk and Flash Memory Portable Studios.....	271	
The Digital Audio Workstation.....	272	
Integration Now . . . Integration Forever!.....	273	
DAW Hardware.....	275	
The Desktop Computer.....	275	
The Laptop Computer.....	278	
System Interconnectivity.....	281	

USB.....	281	
FireWire.....	283	
Networking.....	283	
The Audio Interface.....	285	
Native Versus Non-Native Processing.....	287	Rec
Audio Driver Protocols.....	288	
Latency.....	288	Rec
DAW Controllers.....	289	
Soundfile Formats.....	291	Rec
/* 373 "8 Multimedia and the Web"->"Delivery Formats"->"Digital Audio" */		
Soundfile Sample Rates.....	292	Rec
Soundfile Bit Rates.....	293	Rec
Format Interchange and Compatibility.....	293	
DAW Software.....	294	
Soundfile Recording, Editing, Region Definition, and Placement.....	297	Rec
Do-It-Yourself Tutorial: Recording a Soundfile to Disk.....	297	Rec
Do-It-Yourself Tutorial: Copy and Paste.....	299	Mix
MIDI Sequencing and Scoring.....	300	
Real-Time, On-Screen Mixing.....	302	
DSP Effects.....	303	
DSP Plug-Ins.....	308	
Accelerator Cards.....	310	
Mixdown and Effects Automation.....	311	
Exporting a Mixdown to File.....	311	Rec
Support for Video and Picture Sync.....	312	
Systems Synchronization.....	313	
Audio, MIDI, and Sync Communications with Other Audio Programs.....	313	
Loop-Based Audio Editors.....	313	
Beat Slicing.....	315	
DJ Software.....	316	
Backup and Archive Strategies.....	316	
Session Documentation.....	318	Rec
7 MIDI and Electronic Music Technology.....	320	
MIDI Production Environments.....	321	
What's a MIDI?.....	323	
System Interconnections.....	324	
MIDI Cable and Port Connections.....	324	
USB and FireWire Connections.....	327	
mLAN Network Connections.....	328	
The MIDI Message.....	328	
MIDI Channels.....	329	
Channel Messages.....	330	
System Messages.....	332	
System-Exclusive Messages.....	332	
MIDI Machine Control.....	335	
The MIDI Interface.....	336	
The Multiport Interface.....	337	
Electronic Musical Instruments.....	338	
Inside the Toys.....	338	
Keyboards.....	340	
The Synthesizer.....	340	
Software Synthesis and Sample Resynthesis.....	341	
Sound Card Synths.....	342	
Samplers.....	343	
Software Samplers.....	345	
Sample Editing.....	346	
Sample Looping.....	347	Mix
Editors for Hardware Sampling Systems.....	348	
Distribution of Sampled Audio.....	350	
MIDI Sample-Dump Standard.....	350	
SCSI Sample Dump Formats.....	350	
SMDI.....	351	

Commercial and Personal Sample Libraries.....	351
Percussion.....	351
The Drum Machine.....	352
Alternative Percussion Voices.....	353
Performance Controllers.....	353
Keyboard Controllers.....	354
Percussion Controllers.....	354
Wind Controllers.....	355
MIDI Guitars.....	356
Sequencers.....	356
Integrated Sequencers.....	356
Software Sequencers.....	357
A Basic Intro to Sequencers.....	357
Recording.....	358
Editing.....	359
Playback.....	360
Other Software Sequencing Applications.....	360
Drum-Pattern Editor/Sequencers.....	361
Algorithmic Composition Programs.....	361
Patch Editors.....	362
Music-Printing Programs.....	363
Mixing in the MIDI Environment.....	365
Console Automation via MIDI.....	366
Effects Automation in MIDI Production.....	366
8 Multimedia and the Web.....	368
The Multimedia Environment.....	369
Delivery Media.....	370
The CD.....	370
The DVD.....	371
The Web.....	372
Delivery Formats.....	373
Digital Audio.....	373
/* 291 "6 Digital Audio Technology"->"Hard-Disk Recording"->"The Digital Audio Workstation"->"DAW Hardware"->"Soundfile Formats" */	
Uncompressed Sound File Formats.....	373 Rec
Compressed Codec Sound File Formats.....	374
Perceptual Coding.....	375
MP3.....	376 Rec
WMA.....	377
Ogg Vorbis.....	377
AAC.....	378
RealAudio.....	378
Tagged MetaData.....	379 Rec
MIDI.....	379
Standard MIDI Files.....	380
General MIDI.....	380
Graphics.....	382
Desktop Video.....	383
Multimedia and the Web in the ``Need for Speed'' Era.....	385
Thoughts on Being and Getting Heard in Cyberspace.....	386
Uploading to Stardom!.....	386
Copyright Protection: Wanna Get Paid?.....	387
Secure Digital Music Initiative.....	388
Internet Radio.....	389
The Virtual ``E-Dub''.....	389
On a Final Note.....	390
9 Synchronization.....	392
Synchronization between Transports.....	393
Time Code.....	393
Time Code Word.....	394
Do-It-Yourself Tutorial: SMPTE Time Code.....	395
User-Information Data.....	395
Sync Information Data.....	395

	Time Code Frame Standards.....	396	Rec
	LTC and VITC Time Code.....	397	
	Time Code Refreshment/Jam Sync.....	398	
	Synchronization Using SMPTE Time Code.....	399	
	SMPTE Offset Times.....	401	Rec
	Loops.....	401	Rec
	Distribution of SMPTE Signals.....	401	
	Time Code Levels.....	402	
	MIDI-Based Synchronization.....	402	
	MIDI Real-Time Messages.....	402	
	MIDI Time Code.....	403	
	MIDI Time Code Control Structure.....	404	
	MIDI Time Code Messages.....	404	
	SMPTE/MTC Conversion.....	405	
	Proprietary Synchronization Systems for Modular Digital Multitrack Recorders.....	405	
	Digital Audio's Need for a Stable Timing Reference.....	406	
	Video's Need for a Stable Timing Reference.....	406	
	Real-World Sync Applications for Using Time Code and MIDI Time Code.....	407	
	Master/Slave Relationship.....	407	
	Audio Recorders.....	408	
	VCRs.....	409	
	MDMs.....	409	
	Software Applications.....	409	
	Digital Audio Workstations.....	409	
	Routing Time Code to and from Your Computer.....	410	
	Keeping Out of Trouble.....	411	
10	Amplifiers.....	412	
	Amplification.....	412	
	The Operational Amplifier.....	415	
	Preamplifiers.....	416	Rec
	Equalizers.....	416	Mix
	Summing Amplifiers.....	417	
	Isolation Amplifiers.....	417	Rec
	Distribution Amplifiers.....	418	
	Impedance Amplifiers.....	418	
	Power Amplifiers.....	418	
	Voltage- and Digitally-Controlled Amplifiers.....	420	
11	The Audio Production Console.....	422	
	Recording.....	423	Rec
	/* 46 "1 Introduction"->"The Recording Process"->Recording		
	612 "18 Studio Session Procedures"->Recording */		
	Monitoring.....	425	Rec
	/* 435 "11 The Audio Production Console"->"The Professional Analog Console"->"Monitor Section"		
	518 14 Monitoring */		
	Overdubbing.....	426	Rec
	/* 48 "1 Introduction"->"The Recording Process"->Overdubbing		
	613 "18 Studio Session Procedures"->Overdubbing */		
	Mixdown.....	427	
	The Professional Analog Console.....	427	
	Channel Input.....	429	Rec
	Auxiliary Send Section.....	431	Rec
	Equalization.....	432	
	Insert Point.....	432	
	Dynamics Section.....	433	
	Monitor Section.....	435	Rec
	/* 425 "11 The Audio Production Console"->Monitoring		
	518 14 Monitoring */		

In-Line Monitoring.....	435	Rec
Separate Monitor Section.....	436	Rec
Direct Insertion Monitoring.....	437	Rec
/* 220 "5 The Analog Tape Recorder"->"Recording Channels and Monitoring Modes" */		
Output Fader.....	438	
Output Bus.....	439	Rec
Channel Assignment.....	440	
Master Output/Group Faders.....	441	
Monitor Level Section.....	442	Rec
Patch Bay.....	442	
Metering.....	444	Rec
/* 476 "12 Signal Processing"->"Dynamic Range"->Metering */		
Gain Level Optimization.....	445	Rec
Digital Console Technology.....	446	
Digital Hardware Consoles.....	446	
Central Control Panel.....	448	
Do-It-Yourself Tutorial: Channel Select.....	449	
Studio Interface.....	449	
DAW Software Mixers and Controllers.....	450	Rec
Console Automation.....	451	Mix
Console Automation in Action.....	452	
Grouping.....	454	
Automation Modes of Operation.....	454	
Write Mode.....	455	
Update Mode.....	455	
Level Matching.....	456	
Read Mode.....	456	
Drawn (Rubberband) Automation.....	457	
Other Automation Options.....	457	
MIDI-Based Automation.....	458	
Effects Automation via MIDI.....	458	
The Art of Mixing.....	459	
12 Signal Processing.....	460	
The Wonderful World of Analog, Digital, or Whatever.....	460	
Plug-Ins.....	462	
Inline vs. Side-Chain Processing.....	462	
Inline Routing.....	463	
Side-Chain Routing.....	464	
Equalization.....	465	
Peaking Filters.....	466	
Shelving Filters.....	468	
High-Pass and Low-Pass Filters.....	469	
Equalizer Types.....	470	
Applying Equalization.....	472	
EQ in Action!.....	473	Mix
Do-It-Yourself Tutorial: Equalization.....	474	
Dynamic Range.....	476	Rec
Metering.....	476	Rec
/* 444 "11 The Audio Production Console"->"The Professional Analog Console"->Metering */		
The VU Meter.....	478	Rec
The Averaging/Peak Meter.....	479	Rec
Dynamic Range Processors.....	480	Mix
Compression.....	481	Mix
Do-It-Yourself Tutorial: Compression.....	483	Mix
Multiband Compression.....	485	
Limiting.....	486	Mix
Do-It-Yourself Tutorial: Limiting.....	488	
Expansion.....	488	Mix
The Noise Gate.....	489	Mix

Time-Based Effects.....	490	
Delay.....	491	
Short-Term Delays.....	491	
Do-It-Yourself Tutorial: Delay.....	493	
Reverb.....	494	
Reverb Types.....	495	
Do-It-Yourself Tutorial: Reverb Types.....	496	
Impulse Response Reverb.....	496	
Pitch- and Time-Shift-Related Effects.....	496	
Pitch Shifting.....	497	
Pitch Shifting to the Rescue.....	497	
Time and Pitch Changes.....	499	
Psycho-Acoustic Enhancement.....	500	
Multiple-Effects Devices.....	500	
Dynamic Effects Automation and Editing via MIDI.....	502	
Dynamic Effects Automation within a DAW/Sequencer Environment.....	504	
13 Noise Reduction.....	506	Rec
Analog Noise Reduction.....	507	
Do It Yourself Tutorial: Analog Tape Modulation and Asperity Noise.....	508	
The Compansion Process.....	508	
The dbx Noise-Reduction System.....	509	
The Dolby Noise-Reduction System.....	510	
Single-Ended Noise-Reduction Process.....	512	
Noise Gates.....	512	
Digital Noise Reduction.....	513	
Fast Fourier Transform.....	513	
Do It Yourself Tutorial: FFT-Based Noise Reduction.....	514	
Digital Single-Ended Noise-Reduction Systems.....	515	
De-clicking and De-popping.....	516	
Dither.....	516	Mix
14 Monitoring.....	518	
/* 425 "11 The Audio Production Console"->Monitoring		
435 "11 The Audio Production Console"->"The Professional Analog Console"->"Monitor Section" */		
Speaker and Room Considerations.....	518	
Speaker Design.....	521	
Crossover Networks.....	522	
Powered vs. Passive Speaker Design.....	525	
Speaker Polarity.....	525	
Monitoring.....	527	
Monitor Volume.....	528	Rec
Monitoring Configurations.....	528	
Mono.....	528	
Stereo.....	529	
Surround Sound.....	530	
Monitor Level Control.....	531	
Spectral Reference.....	532	
Monitor Speaker Types.....	533	
Farfield Monitoring.....	534	
Nearfield Monitoring.....	535	
Small Speakers.....	538	
Headphones.....	538	Rec
Your Car.....	539	
Monitoring in the Studio.....	539	Rec
Headphones in the Studio.....	539	Rec
Speakers in the Studio.....	541	
Using Speakers During a Session.....	541	
15 Surround Sound.....	542	
Surround Sound: Past to the Present.....	543	
Stereo Comes to Television.....	544	
Theaters Hit Home.....	544	
Surround in the Not-Too-Distant Future.....	545	
Monitoring in 5.1 Surround.....	545	

5.1 Speaker Placement.....	546	
Practical Placement.....	547	
Active/Passive Monitors in Surround.....	548	
Surround Interfacing.....	549	
Surround Formats.....	550	
Dolby Pro Logic.....	551	
Pro Logic's Phase Compatibility.....	553	
3D Sound.....	554	
SRS.....	554	
Dolby Digital (AC3).....	555	
DVD-Audio.....	556	
DTS.....	557	
WMA9.....	558	
MP3 Surround.....	560	
Mixing in Surround.....	560	
Virtual Surround Mixers.....	560	
Mixing Philosophies.....	561	
Re-issuing Back Catalog Material.....	561	
16 Mastering.....	562	
The Mastering Process.....	563	
To Master or Not to Master—Was That the Question?.....	564	
Mastering the Details of a Project.....	565	
Sequencing: The Natural Order of Things.....	566	
Relative Volumes.....	566	
EQ.....	567	
Dynamics.....	568	
Multiband Dynamic Processing.....	568	
Noise Reduction.....	569	
FFT NR.....	569	
Single-Ended NR.....	570	
File Resolution.....	570	Mix
The Digital Audio Editor in the Mastering Process.....	571	
CD/DVD-A Mastering and Burning Software.....	573	
On a Final Note.....	573	
17 Product Manufacture.....	574	
Choosing the Right Facility and Manufacturer.....	575	
CD Manufacturing.....	576	
The Process.....	577	
CD Burning.....	581	
Rolling Your Own.....	584	
Burning Speeds.....	585	
CD Labeling.....	585	
CD and DVD Handling and Care.....	587	
DVD Burning.....	588	
Cassette Duplication.....	589	
Real-Time Duplication.....	589	
In-Cassette High-Speed Duplication.....	590	
High-Speed Duplication.....	591	
Vinyl Disc Manufacture.....	592	
Disc Cutting.....	592	
Disc-Cutting Lathe.....	593	
Cutting Head.....	594	
Pitch Control.....	595	
Recording Discs.....	596	
The Mastering Process.....	596	
Vinyl Disc Plating and Pressing.....	597	
Producing for the Web.....	597	
18 Studio Session Procedures.....	600	Rec
Preparation.....	600	Rec
/* 46 "1 Introduction"—>"The Recording Process"—>Preparation */		
What's a Producer and When Do you Need One?.....	601	
Long Before Going into the Studio.....	602	Rec

Before Going Into the Studio.....	603	Rec
Setting Up.....	605	Rec
Electric and Electronic Instruments.....	608	Rec
Drums.....	609	Mix
The Final Check.....	610	Rec
Recording.....	612	Rec
/* 46 "1 Introduction"->"The Recording Process"->Recording		
423 "11 The Audio Production Console"->Recording */		
Overdubbing.....	613	Rec
/* 48 "1 Introduction"->"The Recording Process"->Overdubbing		
426 "11 The Audio Production Console"->Overdubbing */		
Punching-In.....	614	Rec
/* 222 "5 The Analog Tape Recorder"->"To Punch or Not To Punch" */		
Bouncing Tracks.....	616	Mix
Mixdown.....	617	Mix
Sequence Editing.....	618	
Mastering.....	619	
Digital Sequence Editing.....	619	
Analog Sequence Editing.....	620	
Marketing and Sales.....	621	
A Final Word on Professionalism.....	622	
19 Yesterday, Today, and Tomorrow.....	624	
Yesterday.....	625	
Today.....	629	
1s and 0s.....	629	
The WWW.....	630	
Tomorrow.....	630	
Happy Trails.....	632	
Appendix A.....	634	Mix
DSP Basics.....	634	Mix
Addition.....	634	Mix
Multiplication.....	635	Mix
Delay.....	636	Mix
Do It Yourself Tutorial: Digital Delay.....	638	
Echo and Reverberation.....	638	Mix
The Real World of DSP Design.....	640	Mix
Appendix B: Tax Tips for Musicians.....	642	
A Business Of Your Own.....	642	
``But, Dude, I Gotta Eat.``.....	643	
Write-Offs.....	643	
Gear Lust = Tax Savings.....	644	
Home Sweet Home.....	645	
Self-Employment Tax.....	645	
Health Insurance.....	646	
Eat, Drink, And Be Merry.....	646	
Vehicular Deductions.....	646	
Feed The Nest Egg And Save, Too.....	646	
EOY Tax Tips.....	647	
Get Help From The IRS.....	647	
Final Word.....	647	
Author Bio.....	647	
Index.....	650	

"Recording process master checklist [rec]" checklist

Tags

- [Arr] Arrange process
- [Rec] Record process
- [Mix] Mix process
- [Wav] waveform analysis and editing

- define audio objects/channels/tracks/busses/stages/ports/(inputs/outputs, sources/targets, generators/loads)
 - [Arch] Cubase audio architecture/data flow
 - [IO] drivers/software audio connections/data flow

- interconnect and reset (recall) instrument/gear/software
 - [Set] general gear/software setup and teardown, power, non-audio connections, building power/control chains, configuring drivers/software, gear/software reset (recall), presets

- optimize pickup
 - [Pick] optimizing pickup: adjusting humbucker, choosing input, matching levels/impedances

- manage noise
 - noise by type: transient/lasting, tonal (hum, hiss)/random, low/radio frequency
 - noise by source: lines/connectors/outboard gear/pre's self-noise, mains, interference (mobile phone/fluorescent lights/ref/kettle/fan/radio reception/lightning), digital noise
 - clean/protect connectors, ground, shield
 - [NR] signal/noise management, removing noise from signal

- build signal chains for recording/input monitoring/playback/metronome
 - match levels/impedances (minimize signal loss, eliminate noise, preserve tone)
 - build gain/metering structures, optimize levels
 - measure and minimize latencies
 - [Cha] designing and building signal chains (Rec/Play/Mon/Cli), matching levels/impedances, routing, bypass
 - [Mon] input monitoring considerations, building Mon chain
 - [Lat] measuring and minimizing monitoring/recording/other latencies
 - [Cli] configuring metronome, building Cli chain
 - [Gain] designing gain structure
 - [Met] designing level metering structure
 - [Lev] measuring and optimizing levels

- document your configuration
 - [Doc] documenting configuration for future recall; also used for gear/software features overview, specifications and version information

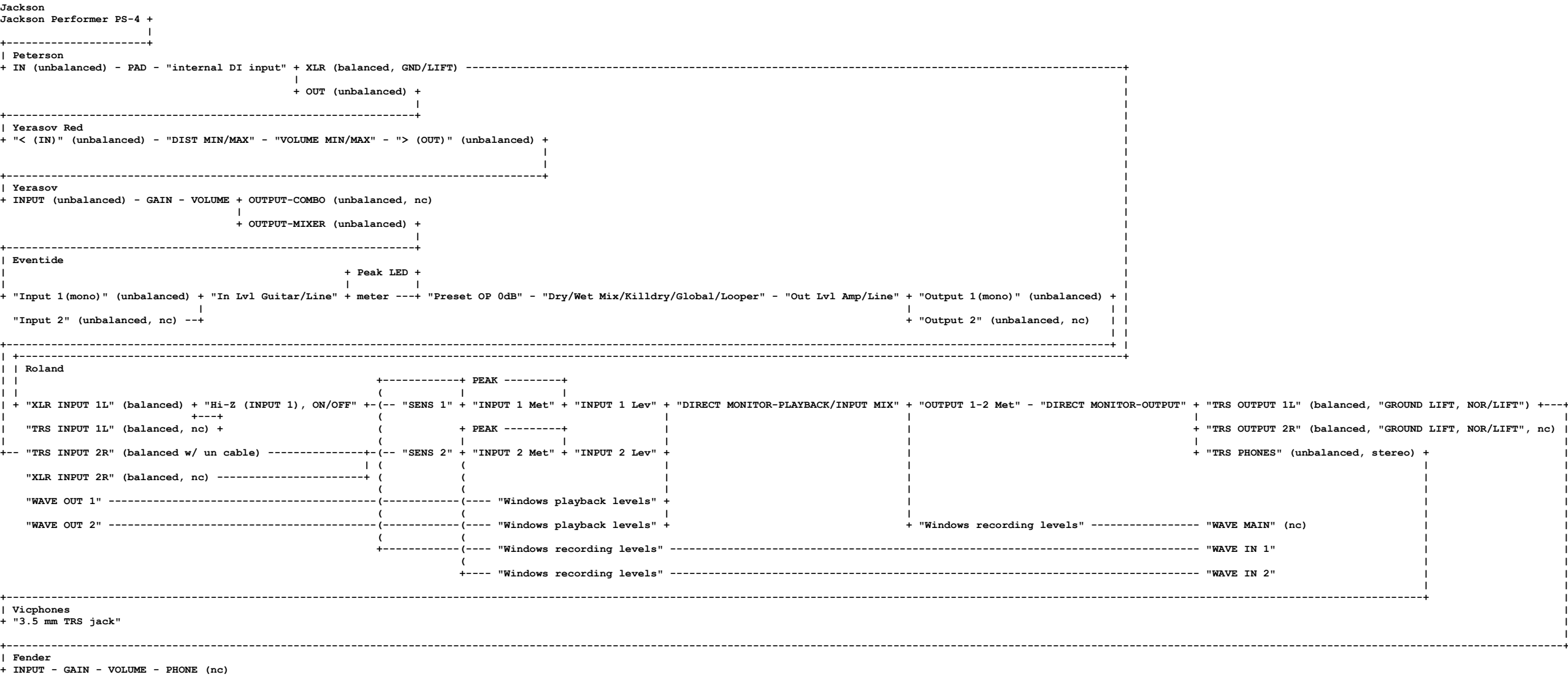
- develop session procedures to
 - tune-up/warm-up/rundown
 - record/overdub (linear/cycle)
 - punch in/out
 - double track
 - [Proc] recording session procedure

"Tagged documents (individual checklists)" list

```
Allbooks\My_Music\  
  Петелин Р.Ю., Петелин Ю.В. - Steinberg Cubase 5. Запись и редактирование музыки - 2010.txt  
  Huber, Runstein - Modern Recording Techniques - 2005.txt  
  Mike Senior-Mixing Secrets for the small studio.txt  
  Manual.txt  
  coolpro2.txt  
Software\Device Drivers\My_Music\  
  pedal_power_2plus_manual.txt  
  StrobostompClassicManual_English.txt  
  rs-1.txt  
  4. Yerasov - PTERODRIVER PD-5\New Text Document.txt  
  TimeFactor Owner's Manual\141131.txt  
  QUAD-CAPTURE_e04_W.txt  
  6. Roland - QUAD-CAPTURE USB 2.0 Audio Interface (UA-55)\Readme.txt  
  7. VIC FIRTH Headphones\New Text Document.txt  
  8. YERASOVtm FOOTSWITCH model FS-20\New Text Document.txt
```

"Signal chains: recording, playback, monitoring, metronome" diagrams

routing	gain/level controls	meters/indicators	line format (balanced/unbalanced)	ground lifts	nc (not connected) status
---------	---------------------	-------------------	-----------------------------------	--------------	---------------------------



"My Guitar Rig" routing/reset structure

- My Guitar Rig
 - signal chain: Jackson->Peterson->"Yerasov Red"->Yerasov->Eventide->Roland->Vicphones

->Roland
->Fender
 - ctrl chain: Footswitch->Eventide

Roland->ThinkPad
 - power chain: Voodoo->Peterson

->Yerasov Red
->Fender
 - Voodoo Lab® PEDAL POWER™ 2PLUS (Voodoo)
 - INTFs
 - 200 WATTS MAX
 - 220-240VAC
 - ACA 1
 - ACA 2 [Power, "Yerasov Red"->"DC 9V"]
 - ACA 3
 - ACA 4 [Power, Peterson->9V]
 - L6 5
 - L6 6 [Power, Fender->"DC 9V IN (200mA)"]
 - SAG 7
 - SAG 8
 - CTRLs
 - NORMAL 1/2/3/4/5/6/7/8 [**Reset**, ALL NORMAL]
 - SAG 7/8 [**Reset**, ALL MIN]
 - YERASOVtm FOOTSWITCH model FS-20 (Footswitch)
 - INTFs
 - TRS jack [Ctrl, Eventide->"Aux Switch"]
 - CTRLs
 - stomp switches
 - Channel 1/2
 - Reverb On/Off
 - Jackson Performer PS-4 (Jackson)
 - INTFs
 - bridge passive humbucker output, 8.5 kohm [Chain, Peterson->IN]
 - Peterson STOMPCLASSIC™ STROBOTUNER Model VSS-C (Peterson)
 - INTFs
 - 9V [Power, Voodoo->"ACA 4"]
 - BATTERY
 - USB
 - IN [Chain, Jackson->"bridge passive humbucker output, 8.5 kohm"]
 - OUT [Chain, "Yerasov Red"->"< (IN)"]
 - XLR [Chain, Roland->"XLR INPUT 1L"]
 - CTRLs
 - MODE MON/TB/DI [**Reset**, DI]
 - PAD 0dB/10dB/20dB [**Reset**, 0dB]
 - GND/LIFT [**Reset**, GND]
 - [**Reset**, To clear all user settings and return to the factory default values, press and hold down the P button for 3 seconds The word, def, will show briefly after which the tuner returns to factory default.]
 - buttons M/P/-/+
 - YERASOV RED SCORPION RS-1 (Yerasov Red)
 - INTFs
 - DC 9V [Power, Voodoo->"ACA 2"]
 - < (IN) [Chain, Peterson->OUT]
 - > (OUT) [Chain, Yerasov->"INPUT, 1 Mohm"]
 - CTRLs
 - stomp switch ON/OFF [**Reset**, OFF]
 - BRIGHT switch ON/OFF [**Reset**, ON]
 - knobs
 - VOLUME MIN/MAX [**Reset**, 12 o'clock]
 - TREBLE [**Reset**, MAX]
 - BASS [**Reset**, MIN]
 - LOW-CUT [**Reset**, MAX]
 - DIST MIN/MAX [**Reset**, 10 o'clock]

- Yerasov PTERODRIVER PD-5 (Yerasov)
 - INTFs
 - DC 12v
 - INPUT, 1 Mohm [Chain, "Yerasov Red"->"> (OUT)"]
 - OUTPUT-COMBO
 - OUTPUT-MIXER [Chain, Eventide->"Input 1(mono)"]
 - CTRLs
 - stomp switches
 - LO/HI [Reset, HI]
 - CLEAN/LEAD [Reset, LEAD]
 - knobs
 - GAIN
 - CLEAN [Reset, 12 o'clock]
 - LEAD [Reset, 9 o'clock]
 - EQ
 - BASS [Reset, 12 o'clock]
 - MIDDLE [Reset, 12 o'clock]
 - TREBLE [Reset, 12 o'clock]
 - VOLUME
 - CLEAN [Reset, 12 o'clock]
 - LEAD [Reset, 12 o'clock]
- Eventide TimeFactor (Eventide)
 - INTFs
 - 9 VDC 500 mA
 - USB
 - Expression Pedal
 - Aux Switch [Ctrl, Footswitch->"TRS jack"]
 - Input Impedance 500K ohms
 - Input 1(mono) [Chain, Yerasov->OUTPUT-MIXER]
 - Input 2
 - Output Impedance 470 ohms (Recommended Load Impedance 10K ohms or greater)
 - Output 1(mono) [Chain, Roland->"TRS INPUT 2R"]
 - Output 2
 - MIDI Out/Thru
 - MIDI In
 - CTRLs
 - In Lvl Guitar/Line [Reset, Line] To access the meter, make sure the TimeFactor is in PLAY Mode.
Press and hold both the Left and Right Footswitches.
 - Out Lvl Amp/Line [Reset, Line]
 - [Reset, Restoring Factory System Settings
To restore System settings, power up TimeFactor while simultaneously pressing the Right Footswitch and the Encoder until [CLEAR SETUP] is displayed.

Restoring Factory Presets and System Settings
CAUTION: This function will overwrite any Presets that you have saved.

To restore Factory Presets and all System settings, power up TimeFactor while simultaneously pressing the Middle Footswitch and the Encoder until [INITIALIZING] is displayed.]

- stomp switches
 - Active [Reset, ORANGE LED]
 - Repeat
 - Tap
- Encoder [Reset, DigitalDelay]
- Tempo [Reset, OFF]
- knobs
 - Dry/Wet Mix [Reset, WET: 50]
 - A/B Dly Mix [Reset, A10+B 0]
 - Dly Time A [Reset, A: 5mS]
 - Dly Time B [Reset, B: 0mS]
 - Fdbk A [Reset, FB-A: 30]
 - Fdbk B [Reset, FB-B: 0]
 - Xnob [Reset, XF:100mS]
 - Depth [Reset, DMOD: 0]
 - Speed [Reset, S:0.00Hz]

- Filter [Reset, FLT: 0]
 - Roland QUAD-CAPTURE USB 2.0 Audio Interface (Roland)
 - INTFs (0 dBu=0.775 Vrms)
 - USB [Ctrl, ThinkPad->USB]
 - COAXIAL IN 3/4
 - COAXIAL OUT 3/4
 - MIDI IN
 - MIDI OUT
 - XLR
 - Input Impedance 4.8 k ohms (balanced), Nominal Input Level -60 to -6 dBu
 - INPUT 1L, a.k.a. "INST 1 (Hi-Z)" (supports high impedance) [Chain, Peterson->XLR]
 - INPUT 2R
 - TRS
 - Input Impedance 15 k ohms (balanced), Nominal Input Level -50 to +4 dBu
 - INPUT 1L, a.k.a. "INST 1 (Hi-Z)" (supports high impedance)
 - INPUT 2R [Chain, Eventide->"Output 1(mono)"]
 - Output Impedance 2 k ohms (balanced), Nominal Output Level: +0 dBu (balanced)
 - OUTPUT 1L [Chain, Fender->INPUT]
 - OUTPUT 2R
 - Output Impedance 47 ohms (stereo)
 - PHONES [Chain, Vicphones->"3.5 mm TRS jack"]
 - CTRLs
 - switches
 - GROUND LIFT, NOR/LIFT [Reset, NOR]
 - PHANTOM, 48V/OFF [Reset, OFF]
 - Hi-Z (INPUT 1), ON/OFF [Reset, OFF]
 - pushbuttons
 - AUTO-SENS [Reset, OFF]
 - DIRECT MONITOR-MONO [Reset, ON]
 - knobs
 - SENS 1 [Reset, 9.0]
 - SENS 2 [Reset, 17.0]
 - DIRECT MONITOR-PLAYBACK/INPUT MIX [Reset, 12 o'clock]
 - DIRECT MONITOR-OUTPUT [Reset, mark 9]
- VIC FIRTH Headphones (Vicphones)
 - INTFs
 - 3.5 mm TRS jack [Chain, Roland->PHONES]
- Fender Mini Tone-Master FENDER MUSICAL INSTRUMENT (Fender)
 - INTFs
 - DC 9V IN (200mA) [Power, Voodoo->"L6 6"]
 - battery
 - INPUT [Chain, Roland->"OUTPUT 1L"]
 - PHONE
 - CTRLs
 - GAIN 0-10 [Reset, 0]
 - VOLUME 0-10 [Reset, 7]
 - TONE 0-10 [Reset, 5]
 - POWER OFF/ON [Reset, ON]
- Lenovo ThinkPad X200s (ThinkPad)
 - INTFs
 - USB [Ctrl, Roland->USB]
 - Windows
 - Sound->Playback: 1-2 QUAD-CAPTURE Default Device->Properties->Levels: 62% [Reset, 31]
 - Sound->Recording: 1-2 QUAD-CAPTURE Default Device->Properties
 - Listen->Listen to this device: uncheck
 - Levels: 100%
 - QUAD-CAPTURE Control Panel
 - PREAMP
 - AUTO SENS [Reset, OFF]
 - INPUT 1
 - LO-CUT [Reset, OFF]
 - PHASE [Reset, OFF]
 - SENS [Reset, 9.0]
 - INPUT 2

```
- LO-CUT [Reset, OFF]
- PHASE [Reset, OFF]
- SENS [Reset, 17.0]
- COMPRESSOR
  - INPUT 1
    - BYPASS [Reset, ON]
  - INPUT 2
    - BYPASS [Reset, ON]
- MIXER
  - INPUT 1 [Reset, 0.0]
  - INPUT 2 [Reset, 0.0]
  - COAX (3/4) [Reset, -INF]
```

Mixing Secrets for the Small Studio

Mike Senior
Focal Press, 2011
353 pp.

cataloging header	detailed TOC	plug-in lists
-------------------	--------------	---------------

"Z:\Aussie\Allbooks\My_Music\Mix\Mike Senior-Mixing Secrets for the small studio.txt"

Front Cover.....	Cover
Mixing Secrets for the Small Studio.....	i
Copyright Page.....	ii
Contents.....	v
Acknowledgments.....	vii
Introduction.....	ix
WHAT YOU'LL LEARN FROM THIS BOOK.....	ix
WHAT YOU WON'T LEARN.....	ix
WHAT YOU NEED TO KNOW ALREADY.....	ix
HOW TO USE THIS BOOK.....	x
PART 1. HEARING AND LISTENING.....	1
Chapter 1. Using Nearfield Monitors.....	3
1.1 Choosing Your Weapons.....	3
SURROUND MONITORING.....	4
Ported Speakers and Frequency Response.....	5
Killer Side Effects of Porting.....	6
Speaker Stands and Other Mounting Hardware.....	9
PASSIVE RADIATORS AND TRANSMISSION LINES.....	10
1.2 Positioning the Speakers.....	12
PHASE AND COMB FILTERING.....	13
Stereo Monitoring.....	15
SPEAKERS ON THEIR SIDES?.....	15
1.3 Dealing With Acoustic Reflections.....	16
USING A SUBWOOFER.....	18
Acoustic Foam in Moderation.....	18
Boundary Effects.....	20
WHAT ABOUT DIFFUSION?.....	21
1.4 Tackling Room Resonances.....	21
Understanding the Problem.....	21
Some Practical Remedies.....	24
Mineral-Fiber Bass Traps.....	24
CAN EQUALIZATION CORRECT THE EFFECTS OF ROOM MODES?.....	25
TOO MUCH BASS TRAPPING?.....	27
Limp-Mass Bass Traps.....	27
FLUTTER ECHO.....	28
1.5 When Is My Monitoring Good Enough?.....	28
Cut to the Chase.....	29
Chapter 2. Supplementary Monitoring.....	31
2.1 The Ghost of the Auratone 5C Super Sound Cube.....	32
Midrange Focus.....	33
Resistance to Acoustics and Comb-filtering Problems.....	34
Balance Judgments and Mono Compatibility.....	35
Is Mono Still Relevant?.....	38
Modern Auratone Substitutes.....	39
2.2 Headphones.....	41
WHAT, NO NS10S?!.....	42
2.3 Grotboxes.....	44
Cut to the Chase.....	45
Chapter 3. Low-End Damage Limitation.....	47
3.1 Coping With Cheap Ported Speakers.....	48
3.2 Averaging the Room.....	49
3.3 Spectrum Analysis and Metering.....	49

		Voxengo SPAN
3.4 Watch Those Cones!.....	51	Sonalksis FreeG
		Tischmeyer Technology TT Dynamic Range
3.5 Preemptive Strikes at the Low End.....	53	
Simplify the Problem, Simplify the Solution.....	53	
Cut to the Chase.....	54	
Chapter 4. From Subjective Impressions to Objective Results.....	57	
4.1 Fighting Your Own Ears.....	58	
Shock Tactics.....	58	
Breaks and Hearing Fatigue.....	59	
Monitoring Level.....	60	
A Jury of Your Peers.....	62	
4.2 The Art of Mix Referencing.....	64	
Choosing Your Material.....	64	
What Makes a Good Reference?.....	66	
DATA-COMPRESSED FORMATS.....	69	
Getting the Best out of Your References.....	69	
BEYOND MIXING: OTHER ADVANTAGES OF REFERENCE MATERIAL.....	71	
4.3 Everyone Needs A Safety Net.....	72	
Alternate Balances.....	73	
Vocal-out and Solo-out Mixes.....	74	
MASTER-BUSS PROCESSING.....	75	
Instrumentals and A Capellas.....	75	
Mix Stems.....	76	
Cut to the Chase.....	76	
PART 2. MIX PREPARATION.....	79	
Chapter 5. Essential Groundwork.....	81	
5.1 Starting Afresh.....	81	
5.2 Enhancing Navigation.....	82	
Organizing Your Tracks.....	82	
Colors and Symbols Speak Faster Than Words.....	83	
Dividing the Timeline.....	84	
5.3 Project Reconnaissance.....	84	
Spotting Trouble and Hidden Gems.....	84	
Multing.....	86	
5.4 Correction Time!.....	87	
Cut to the Chase.....	87	
Chapter 6. Timing and Tuning Adjustments.....	89	
6.1 Groove and Timing.....	90	
Timing: A Relative Perception.....	91	
Tightening the Timing.....	92	
WHEN NOTHING GROOVES.....	93	
6.2 Audio Editing Techniques For Timing Adjustment.....	94	
Camouflaging Your Edit Points.....	95	
The Role of Time-Stretching.....	97	
CHOOSING CROSSFADE TYPES.....	98	
Finishing Touches.....	98	
6.3 Tuning Adjustment.....	99	IK Multimedia Amplitube
		GVST GSnap
		Steinberg PitchCorrect
Choosing Your Targets.....	100	
The Right Tool for the Job.....	101	
Automated and Prescanning Pitch Correctors.....	102	
6.4 The Need For Speed.....	105	
Cut to the Chase.....	105	
Chapter 7. Comping and Arrangement.....	107	
7.1 Comping.....	107	
VOCAL COMPING: WHAT TO LISTEN FOR.....	110	
7.2 Breathing Life Into Your Arrangement.....	110	
Clear Out the Clutter.....	111	
CLASHING TIMBRES.....	111	
THE DROP CHORUS.....	113	
Adding Detail.....	114	
Cut To The Chase.....	115	

PART 3. BALANCE.....	117	
Chapter 8. Building the Raw Balance.....	119	
8.1 Order, Order!.....	119	
Start with the Most Important Section.....	119	
Start with the Most Important Instrument.....	121	
Time Is Money.....	124	
8.2 Simple Balancing Tasks.....	124	Brainworx's Bx_cleansweep Universal Audio's Cambridge Equalizer DDMF's Stereooerets Flux's Stereo Tool
High-Pass Filtering.....	125	
Panning Mono Recordings.....	126	
Setting the Levels.....	127	
SOME TRICKS FOR JUDGING FADER LEVELS.....	128	
Listen to Your Faders!.....	129	
Additional Considerations for Stereo Tracks.....	130	
8.3 More Complex Balancing Tasks.....	132	Betabugs Phasebug Voxengo's fully featured PHA979 Cockos ReaEQ's all-pass filter option [Sandford Phaser] [Littlelabs' IBP Workstation phase adjustment plug-in]
Multimiked Instruments.....	132	
Multimiked Ensembles: Preliminaries.....	133	
PHASE ROTATORS AND ALL-PASS FILTERS.....	135	
Building the Ensemble's Balance and Tone.....	136	
8.4 Case Study: Multitrack Drums.....	137	
Realistic Expectations.....	140	
Cut To The Chase.....	141	
Chapter 9. Compressing for a Reason.....	143	
9.1 Compression With Two Controls.....	143	Waves Renaissance Compressor Peak Reduction (Universal Audio LA3A) Input Gain (Steinberg's Cubase Vintage Compressor) Apple Logic's built-in compressor Jeroen Breebaart's PC-2 Tin Brooke Tales TLS3127LEA
The Many Faces of Threshold and Makeup Gain.....	144	
Which Tracks Need Compression?.....	146	
Getting Down to Processing: First Steps.....	148	
When Compression Is Not the Answer.....	150	
9.2 Refining Compression Settings.....	150	GVST's GMax Tin Brook Tales Pocket Limiter Kjaerhus Audio's Classic Master Limiter
Compression Ratio.....	151	
COMPRESSOR OR LIMITER?.....	153	
Compressors in Series.....	154	
SOFT-KNEE COMPRESSION.....	154	
Attack Time and Release Time: Why They Matter.....	155	
Drum Compression: Three Different Settings.....	156	
AUTOMATIC ATTACK AND RELEASE TIMES.....	156	
Side Effects of Time Settings.....	157	
LEVEL DETECTION: PEAK VERSUS AVERAGE.....	158	
9.3 Parallel Compression.....	158	
COMPRESSING LEAD VOCALS.....	159	
9.4 Back to the Balance.....	160	
Cut to the Chase.....	161	
Chapter 10. Beyond Compression.....	163	
10.1 Expansion and Gating.....	163	Apple Logic's Noise Gate plug-in
EXPANSION: PRE- OR POSTCOMPRESSION?.....	164	
Stop That Chattering!.....	164	
Parallel Processing and Range Control.....	165	
USING GATING TO RESHAPE DRUM ENVELOPES.....	166	
10.2 Transient Enhancers.....	166	Logic's Envelope Shaper plug-in SPL's software Transient Designer Flux's Bitter Sweet II

	Stillwell Audio's Transient Monster
	Voxengo's TransGainer
Threshold-Dependent Processing.....	166
Look Mum, No Threshold Control!.....	167
LOOKAHEAD AND LATENCY.....	167
10.3 Tempo-Driven Balancing.....	169
	U-he's Uhbik-T
	MOTU's Pattern Gate
Cut to the Chase.....	170
Chapter 11. Equalizing for a Reason.....	171
11.1 Frequency Masking and Balance.....	171
11.2 Basic Mix EQ Tools and Techniques.....	173
	Steinberg Cubase's built-in 31-band graphic EQ plug-in
	Schwa's Schope
	IK Multimedia T-RackS linear phase equalizer
Shelving Filter Basics.....	174
Balancing with Shelves.....	174
Adding in Peaking Filters.....	176
EQUALIZING BASS INSTRUMENTS.....	176
Some Applications of Notching.....	177
GRAPHIC EQ.....	178
Shift Your Listening Perspective.....	179
WHAT ORDER SHOULD I PUT EQ AND DYNAMICS PROCESSORS?.....	180
Good EQ Habits.....	181
EQ FOR LENGTH.....	181
LINEAR-PHASE EQ: PROS AND CONS.....	183
11.3 Equalizing Multimiked Recordings.....	184
Multimiked Instruments.....	185
TONAL EQ.....	185
EQ FOR DISTANCE.....	186
Multimiked Ensembles.....	187
11.4 The Limits of EQ.....	187
Cut to the Chase.....	188
Chapter 12. Beyond EQ.....	191
12.1 Distortion as a Mix Tool.....	191
	rectifier distortion (GVST's GRect)
	variable knee clipping (GVST's GClip)
	tape saturation (Jeroen Breebaart's Ferox)
	valve distortion (Silverspike's Ruby Tube)
	transformer distortion (Bootsy's Tessla SE)
MORE ADDED HARMONICS: HIGH-SPEED MODULATION EFFECTS.....	193
PITCH-SHIFTING FOR DENSITY.....	195
12.2 Low-end Enhancements.....	195
	Waves LoAir
	Apple Logic's bundled SubBass
Drum Triggering.....	196
Incorporating a MIDI Subsynth.....	197
COMB FILTERING AND RESONANCE AS TONAL TOOLS.....	199
12.3 Synth Pads.....	199
Cut to the Chase.....	200
Chapter 13. Frequency-Selective Dynamics.....	203
13.1 Frequency-domain Tweaks For Full-band Dynamics Processors....	203
	iZotope Ozone
	Flux Alchemist
	Steinberg Cubase's bundled Gate plugin
	DDMF's NYCompressor
Equalizing Parallel Processors.....	204
Refining Your Gating Action.....	205
Sibilance Reduction.....	206
Pumping and Breathing.....	207
13.2 Multiband Dynamics.....	208
DO-IT-YOURSELF MULTIBAND PROCESSING.....	209
DYNAMIC NOISE REDUCTION.....	211
13.3 Dynamic Equalizers.....	212
	112dB's Redline Equalizer
	Platinumears IQ4
	Sonnox Oxford Supresser
	Eiosis E2
DEDICATED DE-ESSERS.....	214
Cut To The Chase.....	216

Chapter 14. The Power of Side Chains.....	219	
DUCKING.....	221	
14.1 Keyed Multiband Dynamics.....	222	
Cut To The Chase.....	223	
Chapter 15. Toward Fluent Balancing.....	225	
SMALL IS BEAUTIFUL.....	226	
Cut To The Chase.....	227	
PART 4. SWEETENING TO TASTE.....	229	
Chapter 16. Mixing with Reverb.....	231	
16.1 Five Enhancements At Once.....	231	
16.2 Essential Reverb Controls and Setup.....	233	
REVERB DESIGNS: A BRIEF FIELD GUIDE.....	234	
16.3 Reverb For Blend.....	235	SSL's X-Verb
Picking a Preset.....	236	
Tone and Spread Adjustments.....	237	
Balancing Blend Reverb.....	239	
WHAT IF THERE'S TOO MUCH BLEND?.....	239	
BLENDING BY OTHER MEANS.....	242	
16.4 Reverb For Size.....	242	
Balancing Size Reverb.....	243	
SPECIAL EFFECT REVERBS.....	245	
16.5 Reverb For Tone.....	246	Voxengo OldSkoolVerb GSI TimeVerb Christian Knufinke's SIR2 convolution reverb plug-in
16.6 Reverb For Sustain.....	249	
GATED REVERB.....	250	
16.7 Reverb For Spread.....	250	
16.8 Juggling Reverb Enhancements.....	251	
UNMASKING WITH REVERB.....	251	
Cut To The Chase.....	252	
Chapter 17. Mixing with Delays.....	255	
17.1 Essential Delay Controls and Setup.....	255	Steinberg's Cubase ModMachine Interruptor's Bionic Delay
17.2 Using Delays in Stereo.....	258	
MULTITAP DELAY.....	259	
Cut To The Chase.....	259	
Chapter 18. Stereo Enhancements.....	261	
18.1 Arrangement Tweaks.....	261	
18.2 Adjusting Stereo Spread.....	262	Voxengo's MSED
18.3 Static Enhancements.....	264	
EQ-Based Widening.....	264	
Pitch Shifting.....	265	
A Classic Pitch-Shifted Delay Patch.....	266	
Haas Delays.....	267	
18.4 Modulated Enhancements.....	268	GSI's ORGANized trio GVST's GChorus Kjaerhus Audio's Classic Chorus [Mda's Leslie]
Auto-Panning and Rotary Speaker Emulation.....	268	
Dynamic Tone and Pitch Changes.....	269	
18.5 Choices, Choices.....	270	
Cut to the Chase.....	270	
Chapter 19. Buss Compression, Automation, and Endgame.....	273	
19.1 Buss Compression.....	273	
19.2 Loudness Matching for Referencing.....	276	Flux's Pure Compressor II iZotope Ozone
Basic Concepts of Loudness Maximization.....	277	
Suggested Processing Strategies.....	278	
19.3 Referencing Checklist.....	281	
19.4 Automation For Long-term Mix Dynamics.....	283	
BUSS EQ.....	284	
19.5 Detailed Rides.....	286	[GVST's GGain]
Intelligent Troubleshooting.....	287	
FIXING BAD COMPRESSION WITH AUTOMATION.....	288	

Perfecting the Mix Balance.....	288
Directing the Listener’s Attention.....	290
VOCAL RIDES.....	292
19.6 Nailing Down The Final Version.....	293
Effective Snagging.....	294
Revision Requests.....	296
Cut To The Chase.....	298
Chapter 20. Conclusion.....	303
Appendix 1. Who’s Who: Selected Discography.....	314
Abbiss, Jim.....	
Ainlay, Chuck.....	
Albini, Steve.....	
Araica, Marcella.....	
Avron, Neal.....	
Ballard, Glen.....	
Barresi, Joe.....	
Blake, Tchad.....	
Bottrell, Bill.....	
Bradfield, Andy.....	
Brauer, Michael.....	
Bush, Steve.....	
Caillat, Ken.....	
Castellon, Demacio.....	
Cherny, Ed.....	
Chiccarelli, Joe.....	
Churchyard, Steve.....	
Clearmountain, Bob.....	
Clink, Mike.....	
Costey, Rich.....	
Davis, Kevin “KD”.....	
De Vries, Marius.....	
DeCarlo, Lee.....	
Dorfsman, Neil.....	
Douglas, Jack.....	
Douglass, Jimmy.....	
Dresdow, Dylan “3D”.....	
Dudgeon, Gus.....	
Elevado, Russ.....	
Elmhirst, Tom.....	
Emerick, Geoff.....	
Endert, Mark.....	
Filipetti, Frank.....	
Finn, Jerry.....	
Flood.....	
Gabriel, Pascal.....	
Gass, Jon.....	
Gatica, Humberto.....	
Ghenea, Serban.....	
Glossop, Mick.....	
Godrich, Nigel.....	
Goldstein, Jason.....	
Guzauski, Mick.....	
Hodge, Steve.....	
Jean, Wyclef.....	
Johns, Andy.....	
Jones, Gareth.....	
Jones, Quincy.....	
Joshua, Jaycen.....	
Katz, Bob.....	
Killen, Kevin.....	
King, Jacquire.....	
Kramer, Eddie.....	
Lange, Robert John “Mutt”.....	
Lanois, Daniel.....	

Leckie, John.....

Lehning, Kyle.....

Letang, Renaud.....

Lipson, Steve.....

Lord-Alge, Chris.....

Lord-Alge, Tom.....

Malouf, Brian.....

Marasciullo, Fabian.....

Marroquin, Manny.....

Maserati, Tony.....

Massenburg, George.....

Moulder, Alan.....

Murphy, Shawn.....

Nichols, Roger.....

Niebank, Justin.....

Olsen, Keith.....

Orton, Robert.....

Padgham, Hugh.....

Panunzio, Thom.....

Parr, Steve.....

Parsons, Alan.....

Pensado, Dave "Hard Drive".....

Platt, Tony.....

Power, Steve.....

Premier, DJ.....

Price, Bill.....

Puig, Jack Joseph.....

Ramone, Phil.....

Ronson, Mark.....

Rosse, Eric.....

Scheiner, Elliot.....

Schilling, Eric.....

Schleicher, Clarke.....

Schmitt, Al.....

Seay, Ed.....

Serletic, Matt.....

Shipley, Mike.....

Shoemaker, Trina.....

Sides, Allen.....

Sigsworth, Guy.....

Smith, Don.....

Smith, Fraser T.....

Stavrou, Mike.....

Stent, Mark "Spike".....

Stone, Al.....

Swann, Darryl.....

Swedien, Bruce.....

Tan, Phil.....

Thomas, Chris.....

Townshend, Cenzo.....

Tsai, Serge.....

van der Saag, Jochem.....

Visconti, Tony.....

Wallace, Andy.....

Way, Dave.....

Worley, Paul.....

Wright, Toby.....

Youth.....

Zook, Joe.....

Appendix 2. Quote References.....321

Appendix 3. Picture Credits.....329

 Chapter 1.....329

 Chapter 2.....329

Index.....331

Outboard gear manuals

Voodoo Lab® PEDAL POWER™ 2PLUS User’s Manual

Digital Music Corporation, 1998-2010
13 pp.

Tests

- \$ measure residual noise
- \$ measure output voltages in different modes and voltage accuracy
- \$ power up Eventide
- \$

cataloging header	proposed tests	detailed TOC	custom tags
-------------------	----------------	--------------	-------------

"Z:\Aussie\Software\Device Drivers\My_Music\1. Voodoo Lab - Pedal Power 2 Plus\pedal_power_2plus_manual.txt"

Introduction.....	3	Doc	NR
Important:.....	3		
Unpacking.....	4		
System Unit Description.....	4	Doc	
About Pedal Boards.....	5		
Connections.....	6	Set	
Voltage Selector DIP Switches.....	7	Set	
Boss Pedals.....	7		
Line 6 Modeling Pedals.....	7		
TC Electronic Nova Pedals.....	8		
Eventide Pedals.....	8	Set	
SAG Output.....	8		
Voltage Doubler and Current Doubler Cables.....	8		
More About Cables.....	9		
Visit www.voodoolab.com/cables for more information.....	9		
Operation.....	9	Set	
Positive Ground Effects.....	10		
Reversed Polarity.....	10		
About Power Requirements.....	10		
Specifications.....	12	Doc	
Input:.....	12		
Outputs:.....	12		
Physical:.....	12		
Special:.....	12		
Warranty.....	13		
NORTH AMERICA ONLY.....	13		
OUTSIDE NORTH AMERICA.....	13		
How to Reach Us.....	13		

peterson STROBE TUNERS. The Sound of Precision

STOMPCLASSIC™ STROBOTUNER Model VSS-C
Owners Manual
Peterson, 2010
8 pp.

Signal chain

IN (unbalanced) - PAD - "internal DI input" + XLR (balanced, GND/LIFT)
|
+ OUT (unbalanced)

Nominal Input Level [dBu/Vrms]: unknown (instrument level)
Nominal Output Level [dBu/Vrms]: unknown (mic level)/unknown (instrument level)
Input Impedance [k ohms]: unknown
Output Impedance [ohms/k ohms]: unknown
Input gain control, range/resolution [dB]: 0dB/10dB/20dB loss
Output level control [dB]: None
Input level meter [dB]: None
Output level meter [dB]: None
True bypass: Yes

Tests

\$ all in-/outs: measure levels/impedances
\$ try ground lift feature; see how it affects hum
\$ test true bypass; see if there's any difference to signal
\$

cataloging header	signal chain	IO specs	proposed tests	detailed TOC	custom tags
-------------------	--------------	----------	----------------	--------------	-------------

"Z:\Aussie\Software\Device Drivers\My_Music\2. Peterson - Stomp Classic Pedal Tuner\StrobostompClassicManual_English.txt"

Owners Manual.....	1
Power.....	1 Set
Functions.....	1 Doc
Setting up the Stomp Classic.....	2
Mode 1 - 100%True Bypass.....	2
Mode 2 - Tuner Monitor.....	2
Mode 3 - Active DI.....	2 Set
Getting Started.....	2 Set
Reading the Virtual Strobe Display.....	2
Factory Default Settings.....	2 Set
Strobe Newbie?.....	3
Customizing your Classic Stomp.....	3
What is a Sweetener™?.....	3
Choosing a Preset Sweetener.....	3
Drop Tuning (Transposed Tuning).....	4
Changing Concert Pitch Reference.....	4
Factory Default Reset.....	5 Set
Presets.....	5
Creating Presets.....	5
Deleting Presets.....	6
Recalling Presets.....	6
String Number Display.....	6
Programmable Sweeteners.....	6
Active DI.....	6 Set Cha NR
Mounting the Stomp Classic on a Pedalboard.....	7
The Stomp Classic - Other Uses.....	7 Set Mon
Using the Stomp Classic as a DI.....	7 Set

Using the Stomp Classic as an intonation tool.....	7
Technical Specifications.....	8 Doc
Warranty.....	8

YERASOV RED SCORPION RS-1

Гитарный эффект DISTORTION
Руководство по эксплуатации
year unknown
8 pp.

Signal chain

"< (IN)" (unbalanced) - "DIST MIN/MAX" - "VOLUME MIN/MAX" - "> (OUT)" (unbalanced)

Nominal Input Level [dBu/Vrms]: unknown (instrument level)
Nominal Output Level [dBu/Vrms]: unknown (instrument level)
Input Impedance [k ohms]: 1 МОм
Output Impedance [ohms/k ohms]: unknown
Input gain control [dB]: DIST MIN/MAX
Output level control [dB]: VOLUME MIN/MAX
Input level meter [dB]: None
Output level meter [dB]: None
True bypass: Yes

Tests

\$ all in-/outs: measure levels/impedances
\$ test true bypass; see if there's any difference to signal
\$

cataloging header	signal chain	IO specs	proposed tests	detailed TOC	custom tags
-------------------	--------------	----------	----------------	--------------	-------------

"Z:\Aussie\Software\Device Drivers\My_Music\3. Yerasov - Red Scorpion RS-1\rs-1.txt"

МЕРЫ ПРЕДОСТОРОЖНОСТИ.....	2
ОБЩИЕ СВЕДЕНИЯ.....	2 Doc
ОРГАНЫ УПРАВЛЕНИЯ.....	3 Doc
ПОЛЯРНОСТЬ ПОДКЛЮЧАЕМОГО СЕТЕВОГО АДАПТЕРА.....	3
ИСПОЛЬЗОВАНИЕ ИЗДЕЛИЯ.....	4 Set Cha Gain Lev
ЗАМЕНА БАТАРЕИ.....	5 NR
ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ.....	5 Doc
КОМПЛЕКТ ПОСТАВКИ.....	6
ГАРАНТИЙНОЕ ОБСЛУЖИВАНИЕ.....	6

Педаль PD-5

Схема электрическая принципиальная
Разраб. Чистиков, 2007
1 pp.

Signal chain

INPUT (unbalanced) - GAIN - VOLUME + OUTPUT-COMBO (unbalanced, nc)
|
+ OUTPUT-MIXER (unbalanced)

Nominal Input Level [dBu/Vrms]: unknown (instrument level)
Nominal Output Level [dBu/Vrms]: unknown (instrument level)/ unknown (line level)
Input Impedance [k ohms]: 1 Mohm
Output Impedance [ohms/k ohms]: unknown
Input gain control [dB]: GAIN
Output level control [dB]: VOLUME
Input level meter [dB]: None
Output level meter [dB]: None
True bypass: No bypass whatsoever

Tests

\$ all in-/outs: measure levels/impedances
\$ find settings for flat frequency response, i.e. simulate bypass
\$

cataloging header	signal chain	IO specs	proposed tests	description
-------------------	--------------	----------	----------------	-------------

"Z:\Aussie\Software\Device Drivers\My_Music\4. Yerasov - PTERODRIVER PD-5\New Text Document.txt"

Гитарный напольный преамп PD-5 и PD-5(B) построен на 2-х лампах 12AX7 (ECC83S JJ аналог) и могут работать как в микшерный пульт так и в гитарный комбо, для чего предусмотрены кабинетулятор для микшера и два отдельных выхода.

С помощью двух кнопочных переключателей можно установить один из четырёх режимов работы: два варианта чистого звука и два - овердрайва.

И у чистого звука и у овердрайва имеются собственные регуляторы чувствительности и громкости и общий трёхполосный эквалайзер.

Модели комплектуются специальным сетевым адаптором DC12 вольт, из которых с помощью внутреннего преобразователя формируется оптимальное для звука анодное напряжение 350 вольт.

Конструктивно PD-5 и PD-5 выполнен в таком же круглом и массивном корпусе что и TM-1 и с такой же удобной трёхцветной индикацией режимов работы.

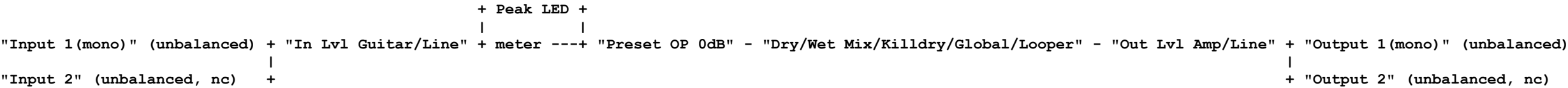
В комплект входит сетевой адаптер.

Базовая модель PD-5 имеет структуру звучания близкую к Engl Screamer. Структура звучания PD-5B основана на Bogner Sharp.

Eventide TIMEFACTOR User Guide

Eventide, 2014
57 pp.

Signal chain



Nominal Input Level [dBu/Vrms]: unknown (instrument-level/line-level)
Nominal Output Level [dBu/Vrms]: unknown (instrument-level/line-level)
Input Impedance [k ohms]: 500K ohms
Output Impedance [ohms/k ohms]: 470 ohms (Recommended Load Impedance 10K ohms or greater)
Input gain control, range/resolution [dB]: "In Lvl Guitar/Line" (, "Dry/Wet Mix/Killdry/Global/Looper")
Output level control, range/resolution [dB]: "Out Lvl Amp/Line", "Preset OP 0dB" (-20dB to +6dB in 1dB increments)
Input level meter [dB]: meter, "Peak LED"
Output level meter [dB]: None
True bypass: DSP/(Relay/True)/DSP+FX

Tests

\$ all in-/outs: measure levels/impedances in instrument- and line-level modes
\$ test bypass options
\$ test routing options: Stereo In/Stereo Out, Mono In/Stereo Out, Mono In/Mono Out, Mono In/Mono Out (Looper); also with the unit powered off
\$ find out relative positions (pre- and post-) of: "In Lvl Guitar/Line", meter, "Peak LED", "Dry/Wet Mix/Killdry/Global/Looper", "Preset OP 0dB"
\$ test "Dry/Wet Mix/Killdry/Global/Looper" behavior with Killdry OFF and ON
* Killdry mutes bypass
* Peak LED shows near clipping
\$

cataloging header	signal chain	IO specs	proposed tests	detailed TOC	custom tags
-------------------	--------------	----------	----------------	--------------	-------------

"Z:\Aussie\Software\Device Drivers\My_Music\5. Eventide - TimeFactor\TimeFactor Owner's Manual\141131.txt"

WARNING.....	1
Table of Contents.....	2
Introduction	5
A Few Words of Advice	5
Key Features	5 Doc
The Website	5
Overview	6 Doc
The Basics	6 Doc
The Effects.....	6
Controlling the Effects.....	6
Using the Footswitches.....	6
The Presets.....	7
The Banks.....	7
Play and Bank Footswitch Modes.....	7
Using Play Mode.....	7
Using Bank Mode.....	7
Changing Banks.....	8
TimeFactor Power Up.....	8 Cha
Twin Delays.....	8
Can Two Effects Be Used Simultaneously?.....	8 Cha
Connections	9 Cha
Typical Setups	9
Guitar > TimeFactor > Amp - Mono In/Mono Out.....	10
Guitar > TimeFactor > Amp 1/Amp2 - Mono or Stereo In/Stereo Out.....	11

Guitar > Amp Effects Send > TimeFactor > Amp Effects Return.....	12	Cha
Mixer Effects Send> TimeFactor > Mixer Effects Return.....	13	
Setting and Monitoring Levels.....	14	Lev
Setting Preset Output Level.....	14	Lev
Monitoring Input Level.....	14	Met NR
SpillOver.....	15	
Bypass	16	Set
DSP Bypass.....	16	
Relay Bypass/True Bypass.....	16	Cha
DSP+FX Bypass.....	16	
Selecting Bypass Type.....	16	
Mix Control	17	Gain
Mono/Stereo.....	17	Cha
Killdry - Send/Return Loop.....	17	
Global - Mix.....	18	
Peak LED	18	Met
The Effects	19	Doc
DigitalDelay.....	19	
VintageDelay.....	19	
TapeEcho.....	19	
ModDelay.....	19	
DuckedDelay.....	19	
BandDelay.....	19	
FilterPong.....	19	
MultiTap.....	19	
Reverse.....	19	
Looper.....	19	
Selecting Effects.....	19	
Control Knobs/Effect Parameters	20	
Dly Mix	21	
Mono Out (Output 1) - Typical for Guitar and Amp.....	21	
Stereo Out - Typical for Guitar and Two Amps or Mixing Console.....	21	
Dly Time A & Dly Time B	22	
Fdbk A & Fdbk B	22	2.0
DigitalDelay	22	
VintageDelay	22	
TapeEcho.....	22	
ModDelay	23	
DuckedDelay	23	
BandDelay	23	
FilterPong	23	
MultiTap	23	
Reverse	24	
Looper	25	2.0
Empty	25	
Recording	26	
Dubbing	26	
Playing	26	
Stopped	26	
Emptying the Loop.....	26	
Bank Mode	27	
Looper Control Knobs	27	
Mix:.....	27	Gain
Dly Mix/Loop Record-Length:.....	27	
Dly Time A / Loop Play-Start Point:.....	27	
Dly Time B / Loop Play-Length:.....	27	
Fdbk A / Loop Decay Rate:.....	27	
Fdbk B / Dubbing Mode:.....	27	
Xnob / Playback Mode:.....	28	
Depth / Varispeed Resolution:.....	28	
Speed / Varispeed:.....	28	
Filter:.....	29	
Tempo Mode and MIDICLK Sync	29	
MIDICLK Slave mode.....	29	

Empty.....	29
Recording.....	29
Dubbing.....	29
Playing.....	29
Stopped.....	29
Tempo Mode Footswitch Quantization.....	29
Empty.....	30
Recording.....	30
Dubbing.....	30
Playing.....	30
Stopped.....	30
Control Knob Tempo Mode Sync Features.....	30
Dly Time A / Loop Play-Start Point:.....	30
Dly Time B / Loop Play-Length:.....	30
Speed / Varispeed:.....	30
Catchup	31
Expression Pedal	32
The Footswitches - Play and Bank Mode	34
Play Mode	34
Active Footswitch.....	34
Repeat Footswitch.....	34
Tap Footswitch.....	34
Bank Mode	35
Loading Presets.....	35
Selecting Preset Banks.....	36
Active Banks.....	36
Tempo	36
Tempo ON/OFF	36
Tap Tempo	37
Adjusting Tempo & Tweaking Delays	37
Global - Tempo	37
Edited Preset Indication	37
Saving Presets	38
Naming Your Presets	38
Organizing Your Presets in Banks	39
Dumping (Backing-up) Presets and System Settings	39
Restoring Presets and System Settings	39
Auxiliary Switches	40
MIDI	40
System Mode	41
To Enter/Exit System Mode	41
System Mode Navigation	41
System Menu Tree	41
[BYPASS] - Select Bypass Mode	41 Cha
[BYP TYP] - Choose Bypass Type (DSP, DSP+FX, RLY).....	41 2.0
[KILLDRY] - Kill Dry Audio (ON, OFF).....	42
[AUX SW] - Program Auxiliary Switches	42 2.0
To Setup Parameter Destinations.....	42
To Setup the External Control Source.....	44
[MIDI] - MIDI Functions	45
[RCV CH] - Set the MIDI Receive Channel (OFF, OMNI, 1-16).....	45
[XMT CH] - Set the MIDI Transmit Channel (1, 2-16).....	45
[RCV CTL] - Receive Continuous Control Message.....	45 2.0
To Setup Parameter Destination.....	45
To Setup the External Control Source.....	46
[XMT CC] - Control knobs transmit MIDI Continuous Control.....	47
To Select the Control Source.....	47
To Assign the Control Source to a Destination.....	47
[RCV MAP] - Create a MIDI Program Change Receive Map.....	48
[XMT MAP] - Create a MIDI Program Change Transmit Map.....	48
[CTL XMT] - MIDI Continuous Controller Transmit Enable (ON, OFF).....	49
[PGM XMT] - MIDI Program Change Transmit Enable (ON, OFF).....	49
[SYS ID] - MIDI SysEx ID (1-16).....	49
[OUTPUT] - MIDI Transmit/Thru Select (XMT, THRU).....	49

[DUMP] - Dump Select (ALL, CURRENT, PRESETS, SYSTEM).....	49	
[CLK IN] - MIDI Input Clock Enable (ON, OFF).....	50	
[CLK OUT] - MIDI Output Clock Enable (ON, OFF).....	50	
[CLK FLT] - MIDI Clock Filter Enable (ON, OFF).....	50	
[GLOBAL] - Global Functions.....	50	
[MIX] - Enable Global Mix (ON, OFF).....	50	2.0 Gain
[TEMPO] - Enable Global Tempo (ON, OFF).....	50	2.0
[UTILITY] - Utility Functions	51	
[KNOBS] - Select how Knobs work (NORMAL, CATCHUP, LOCKED).....	51	
[SPILL] - Spillover Enable (ON, OFF).....	51	2.0
[BANKS] - Select the Number of Active Preset Banks (1-10).....	51	2.0
[PDLOCK] - Enable Expression Pedal Lock (ON, OFF).....	51	
[PDLCAL] - Auto-Calibrate Expression Pedal (ON, OFF).....	52	
[SER#] - Serial Number.....	52	
[SW VER] - Software Version.....	52	
H9 Control	53	
www.eventide.com/AudioDivision/Support/Stompboxes/h9.aspx.....	53	
Restoring Factory Settings/Software Updates	54	
Restoring Factory System Settings	54	Set
Restoring Factory Presets and System Settings	54	Set
Software Updates	54	
MIDI Implementation Chart	55	Doc
Specifications	56	Doc
Analog I/O.....	56	
Connectors.....	56	
Power Supply.....	56	
Dimensions.....	56	
Weight.....	56	
LIMITED WARRANTY	57	
What the warranty does and does not cover.....	57	
Who is covered under the warranty.....	57	
When the warranty becomes effective.....	57	
Who performs warranty work.....	57	
Shipping within the 50 United States.....	57	
Shipping outside the 50 United States.....	57	

VIC FIRTH Headphones

Stereo Isolation Headphones

Signal chain

"3.5 mm TRS jack" -

Nominal Input Level [dBu/Vrms]: unknown
Nominal Output Level [dBu/Vrms]: None
Input Impedance [k ohms]: unknown
Output Impedance [ohms/k ohms]: None
Input gain control [dB]: None
Output level control [dB]: None
Input level meter [dB]: None
Output level meter [dB]: None
True bypass: None

Tests

\$ measure input level/impedance
\$

cataloging header	signal chain	IO specs	proposed tests	description
-------------------	--------------	----------	----------------	-------------

"Z:\Aussie\Software\Device Drivers\My_Music\7. VIC FIRTH Headphones\New Text Document.txt"

These specially designed headphones drastically reduce the level of external sound reaching the musician's ears, offering valuable protection from potential damage. The SIH1 reduces overall noise levels by 24 decibels and features high quality stereo headphones. Unlike non-isolation headsets, where musicians typically crank the volume to very high and potentially damaging sound levels in order to hear the music clearly, the SIH1 reduces ambient noise from the instruments. This allows the musician to play along with the recorded music or monitor other performers in a live situation at comfortable and safe sound levels.

YERASOVtm FOOTSWITCH model FS-20

Ножной переключатель FOOTSWITCH FS-20

cataloging header	description
-------------------	-------------

"Z:\Aussie\Software\Device Drivers\My_Music\8. YERASOVtm FOOTSWITCH model FS-20\New Text Document.txt"

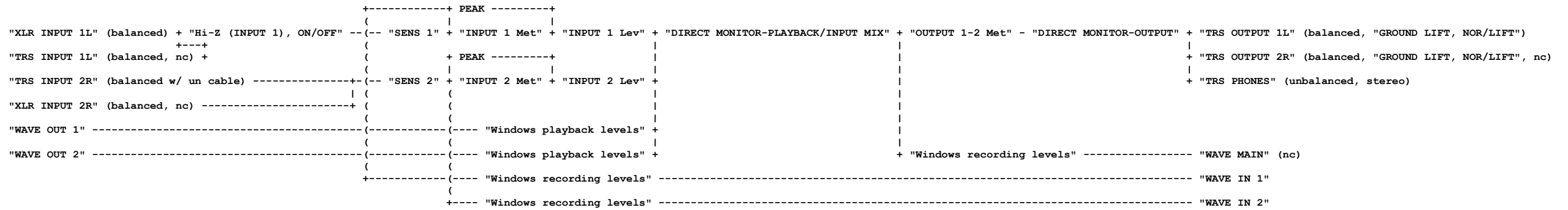
Предназначен для ножного управления комбо-усилителями GA-15R, GA-60R, а также другими изделиями, имеющими соответствующие гнезда. FS-20 позволяет переключать каналы или режимы работы (кнопка CHANNEL), а также включать и выключать ревербератор (кнопка REVERB). FS-20 подключают к управляемому устройству 3-х проводным кабелем с разъемом "стерео-джек" 6,3 мм (в комплекте).

Audio interface manuals

Roland QUAD-CAPTURE USB 2.0 Audio Capture

Owner's Manual
Roland, 2011
60 pp.

Signal chain



Nominal Input Level, range [dBu/Vrms]: -60 to -6 dBu (XLR)/-50 to +4 dBu (TRS)

Nominal Output Level [dBu/Vrms]: +0 dBu (OUTPUT 1-2)/unknown (PHONES)

Input Impedance [k ohms]: 4.8 k ohms (XLR)/15 k ohms (TRS), Hi-Z unknown

Output Impedance [ohms/k ohms]: 2 k ohms (OUTPUT 1-2)/47 ohms (PHONES)

Input gain control, range/resolution [dB]: "Hi-Z (INPUT 1), ON/OFF", AUTO-SENS, "SENS 1", "SENS 2" (0–54 dB, in steps of 1 dB /0.5 dB from control panel/)

Output level control [dB]: "INPUT 1 Lev", "INPUT 2 Lev", "DIRECT MONITOR-PLAYBACK/INPUT MIX", "DIRECT MONITOR-OUTPUT"

Input level meter [dB]: "INPUT 1 Met", "INPUT 2 Met", PEAK

Output level meter [dB]: "OUTPUT 1-2 Met"

True bypass: None

Tests

\$ all in-/outs: measure levels/impedances

\$ see if lifting ground helps with noise; does lifting the ground make a line unbalanced?

\$ determine PEAK indicator "Lights up when the input signal level is too high." behavior, see if it equals to control panel's CLIP indicator

- find out meter positions relative to their gain/level controls

x "OUTPUT 1-2 Met" is POST-"DIRECT MONITOR-PLAYBACK/INPUT MIX"

\$ learn more about Windows playback/recording level controls and meters

\$ find out notch value of "DIRECT MONITOR-PLAYBACK/INPUT MIX"

\$ test Windows monitoring function with slowed down CPU (is there an echo?)

\$

cataloging header	signal chain	IO specs	proposed tests	detailed TOC	custom tags	embedded comments (notes)
-------------------	--------------	----------	----------------	--------------	-------------	---------------------------

"Z:\Aussie\Software\Device Drivers\My Music\6. Roland - QUAD-CAPTURE USB 2.0 Audio Interface (UA-55)\QUAD-CAPTURE_e04_W.txt"

Flowchart: Using the QUAD-CAPTURE for Recording.....	2	Set
/* NULL */		
USING THE UNIT SAFELY.....	3	
ALWAYS OBSERVE THE FOLLOWING.....	3	
IMPORTANT NOTES.....	5	
Power Supply.....	5	
Placement.....	5	
Maintenance.....	5	
Repairs and Data.....	5	
Additional Precautions.....	6	
Handling CDs.....	6	

Contents.....	7	
Contents of the Package.....	8	
QUAD-CAPTURE.....	8	
Owner's Manual.....	8	
QUAD-CAPTURE Driver CD-ROM.....	8	
Cakewalk SONAR X1 LE DVD-ROM (Windows).....	8	
USB cable.....	8	
License agreement.....	9	
You'll need to provide the following items.....	9	
Panel Descriptions.....	10	Doc
Note.....	10	
Front Panel.....	10	
1. INPUT 1L jack, INPUT 2R jack (Combo input jacks).....	10	
2. [SENS 1L] knob, [SENS 2R] knob (Input sensitivity knobs).....	10	
3. Input level indicator.....	10	
<i>/* Indicates the input level of the audio signal.</i>		
<i>Indicates the value of the input sensitivity that is currently set if the AUTO-SENS setting (p. 26) is</i>		
<i>set to on and an audio signal is not input for a certain amount of time. */</i>		
4. PEAK indicator.....	11	
<i>/* Lights up when the input signal level is too high. */</i>		
5. [AUTO-SENS] button.....	11	
<i>/* The AUTO-SENS setting allows you to optimize the input level by analyzing the input audio signal</i>		
<i>(p.26). (Similar to CEP's Normalize?) */</i>		
6. USB indicator.....	11	
7. [MONO] button.....	11	
<i>/* Switches the monitoring of the input signals arriving at the INPUT 1L and INPUT 2R jacks between stereo</i>		
<i>and monaural. */</i>		
8. [MIX] knob.....	11	
<i>/* As you turn towards PLAYBACK the levels of inputs are lowered; towards INPUT, the output by the computer</i>		
<i>is lowered. */</i>		
9. [OUTPUT] knob.....	11	
10. PHONES jack.....	11	
Rear Panel.....	12	
11. USB connector.....	12	
12. MIDI OUT/IN connectors.....	12	
13. COAXIAL IN (3/4)/OUT (3/4) jacks.....	12	
14. OUTPUT 1L/2R jacks (balanced TRS type).....	12	
15. [GROUND LIFT] switch.....	13	NR
<i>/* Normally, this switch should be set to "NOR" (NORMAL).</i>		
<i>If you experience noise due to a ground loop, etc., you may be able to eliminate the noise by setting</i>		
<i>this to "LIFT," which disconnects the GND (SLEEVE) pin of the OUTPUT 1L/2R (balanced TRS type) jacks</i>		
<i>from ground. */</i>		
16. [PHANTOM] switch.....	13	
17. [Hi-Z (INPUT 1)] switch.....	13	
Driver Installation.....	14	
Note.....	14	
1. Start up the computer without the QUAD-CAPTURE connected.....	14	
2. Exit all applications that are running.....	14	
3. Insert the included CD-ROM into the CD-ROM drive.....	14	
4. Of the following, double-click the relevant file on the included CD-ROM to start the installer.....	14	
Windows.....	15	
5. When a confirmation screen regarding user account control appears, click [Yes] or [Continue].....	15	
6. When "The QUAD-CAPTURE Driver will be installed on your computer." appears, click [Next].....	15	
7. Click [Next] again.....	15	
8. When "Ready to install the driver." appears, connect the QUAD-CAPTURE to the computer using the USB cable.....	15	

Windows 7/Windows Vista.....	16
9. When "Installation has been completed." appears, click [Close].....	16
10. Open the "Control Panel," click [Hardware and Sound], and then click [Sound].....	16
11. Click the [Playback] tab, select the QUAD-CAPTURE's [1-2], and then click [Set Default].....	16 Set
/* Sound->Playback->"1-2 QUAD-CAPTURE"->Set Default */	
12. Click [OK].....	16
Windows XP.....	17
9. If a dialog box that asks whether you want to connect to Windows Update appears, select [No, not this time] and click [Next].....	17
10. Select [Install the software automatically (Recommended)] and click [Next].....	17
11. If the "Hardware Installation" dialog box appears, click [Continue Anyway] to proceed with the installation.....	17
12. When "Completing the Found New Hardware Wizard" appears, click [Finish].....	17
13. When "Installation has been completed." appears, click [Close].....	17
14. Open the "Control Panel," click [Sounds, Speech, and Audio Devices], and then click [Sounds and Audio Devices].....	17
15. Click the [Audio] tab and select [1-2 (QUAD-CAPTURE)].....	17
16. Click [OK].....	17
Mac OS X.....	18
5. When "Welcome to the QUAD-CAPTURE Driver installer" appears, click [Continue].....	18
6. If the screen for selecting the installation destination appears, select the startup disk and click [Continue].....	18
7. When the installation type appears, click [Install] or [Upgrade].....	18
8. Click [Continue Installation] in the next screen.....	18
9. When installation has finished, click [Restart] to restart the computer.....	18
10. After the computer restarts, connect the QUAD-CAPTURE to the computer using the USB cable.....	18
11. Open "System Preferences" and click [Sound].....	18
12. Click the [Output] tab and select [QUAD-CAPTURE].....	18
13. When you have finished making these settings, quit "System Preferences.".....	18
14. Open the [Applications] folder and then the [Utilities] folder, and then double-click [Audio MIDI Setup].	19
15. Open the MIDI device settings dialog box.....	19
16. Confirm that [QUAD-CAPTURE] appears in the "MIDI Studio" window or the "Audio MIDI Setup" dialog box.....	19
17. Click [Add Device].....	19
18. Click the added [new external device], and then click [Show Info].....	19
19. Enter "QUAD-CAPTURE" in the [Device Name] field, and then click [Apply].....	19
20. Using your mouse, drag and connect ▲/▼ (which represent the input/output ports of each device) of the [QUAD-CAPTURE] and added [QUAD-CAPTURE], so that they are connected as shown in the figure.....	20
21. Click [Test Setup].....	20
22. Click the QUAD-CAPTURE's ▼.....	20
23. Click [Test Setup] and complete the confirmation.....	20
24. Close the "MIDI Studio" window or the "Audio MIDI Setup" dialog box.....	20
Confirm that Sound can be Heard.....	21
1. Connect the headphones or amplified speakers as shown in the figure.....	21
2. Open the folder named [Sample] on the included CD-ROM, and copy the file "TTears" (.mp3) to the desktop..	21
3. Double-click the file "TTears" (.mp3) that has been copied to the desktop.....	21
4. Adjust the volume.....	22 Set Lev
/* Use the QUAD-CAPTURE's [OUTPUT] knob to adjust the volume. */	
Basic Use.....	23 Cha
Precautions Concerning the Use of DAW Software.....	23
Setup for Playback.....	23
Output Device Settings.....	24
Audio Output Device.....	24 IO
/* To play audio and MIDI data on your DAW software, select the QUAD-CAPTURE as the audio and MIDI output device. */	
MIDI Output Device.....	24
Setup for Recording.....	25
Adjusting the Input Level.....	25 Gain

```
/* Adjust input levels by using [SENS 1L] and [SENS 2R] knobs. */

Adjusting the Input Level Automatically.....26 Gain

/* The AUTO-SENS setting does not work for jacks that are not connected. Press [AUTO-SENS] button (blinks),
   play loudest (The input sensitivity is automatically adjusted so it matches the input level.),
   press [AUTO-SENS] button again (stops fast-blinking, and lights solidly; procedure completed.).
   To turn AUTO-SENS setting off: press [AUTO-SENS] button when it is lit or turn [SENS 1L]/[SENS 2R] knob */

1. Connect equipment to the INPUT 1L or INPUT 2R jack.....26
2. Press the [AUTO-SENS] button.....26
3. Play the loudest section of the song.....26
Input Device Settings.....27
Audio Input Device.....27 IO

/* To record audio and MIDI data on your DAW software, select the QUAD-CAPTURE as the audio and MIDI
   input device. */

MIDI Input Device.....27
Setting from the Control Panel.....28 Cha
Starting up the Control Panel.....28
Setting the Preamp.....29
Low cut.....29
Phase.....29
Input gain.....29 Gain

/* When setting the input gain from the control panel, the [AUTO-SENS] button lights up. (This indicates
   that the input gain value differs from the position of the [SENS 1L] or [SENS 2R] knob.) */

AUTO-SENS.....29 Gain

/* Switches the AUTO-SENS setting on/off. */

Setting the Compressor.....30
Gate.....30
Bypass.....30
Threshold.....30
Ratio.....30
Attack Time.....30
Release Time.....30
Gain.....30
Stereo Link.....30
Setting the Input Mixer.....31 Lev

/* Adjusting the monitor level does not affect the recording level. */

Setting the Sampling Rate.....31 Set

/* Updates automatically to match the rate of the audio data that is played, or the rate that your DAW software
   is set to when recording. You can also change manually (may also need to change the sampling rate of
   the DAW software). Cannot be changed during playback or recording, or when equipment is connected to the
   COAXIAL IN (3/4) jack. */

Selecting the Sound Output from the COAXIAL OUT (3/4) Jack.....32
1. From the "Device" menu, select [Device Settings].....32
2. From the "Digital Out" drop-down list, select the sound to be output.....32
Saving and Loading Your Settings.....32 Set

/* The following settings are saved: Preamp, Compressor, Direct mixer, DIGITAL OUT SELECTOR.
   Device->"Save settings"
   Device->"Load settings" */

Saving Settings.....32
1. From the "Device" menu, select [Save settings].....32
2. Specify the file in which the settings are to be saved.....32
```

Loading Settings.....	32
1. From the "Device" menu, select [Load settings].....	32
2. Specify the file that contains the settings you want to load.....	32
Initializing the Settings.....	33 Set
/* The QUAD-CAPTURE allows you to initialize each setting.	
Device->Initialize */	
1. From the "Device" menu, select [Initialize].....	33
2. Click [OK] to carry out the initialization, or click [Cancel] to cancel without initializing.....	33
Checking the Signal Flow.....	33 Cha Doc
/* You can check the signal flow by displaying a block diagram.	
Device->"Show the signal flow" */	
1. From the "Device" menu, select [Show the signal flow].....	33
Setting the Input from the COAXIAL IN (3/4) Jack.....	33
1. From the "Device" menu, select [Device settings].....	33
2. From the items in "Digital In," select "AUTO" or "OFF.".....	33
Changing the AUTO-SENS Setting Method.....	34 Gain
/* You can choose whether to have the AUTO-SENS setting (p. 26) finish automatically or manually, and you can set the maximum value for the recording level.	
Device->"Device settings"->AUTO-SENS: AUTO (The AUTO-SENS setting will finish automatically after there has been no input for approximately four seconds, after the [AUTO-SENS] button was pressed.) MANUAL (The AUTO-SENS setting will not finish until you press the [AUTO-SENS] button again.)	
AUTO-SENS Margin	
0 dBFS Clipping will occur if audio exceeds the recording level	
-6 dBFS (Default value) provides a good overall balance	
-12 dBFS recording level will be reduced */	
1. From the "Device" menu, select [Device settings].....	34
2. From the items in "AUTO-SENS," select "AUTO" or "MANUAL.".....	34
3. Using "AUTO-SENS Margin," you can change the maximum value of the recording level that is detected.....	34
Checking Synchronization with Other Digital Equipment.....	34
Checking the Driver Settings.....	35 Set
/* You can check or modify the driver settings. For details, refer to "Advanced Driver Settings" (p. 51).	
Driver->"Driver Settings" */	
Viewing the Control Panel in the Foreground.....	35
Checking the Version of the Control Panel.....	35 Doc
/* "About Driver & Control Panel" */	
1. Select the "About Driver & Control Panel" menu.....	35
Troubleshooting.....	36
Roland support website: http://www.roland.com/	36
Problems When Installing the Driver.....	36
Installer does not start.....	36
Cannot install.....	36
Warning or error appears during installation (Windows).....	36
Installer does not exit.....	36
"Found New Hardware Wizard" appears again after driver was installed (Windows XP).....	36
Numeral such as "2-" appears at the beginning of a device name (Windows).....	36
Problems When Using the QUAD-CAPTURE.....	37
Cannot select or use QUADCAPTURE device.....	37
Cannot change driver settings (Windows 7).....	37
No sound from computer's speakers.....	37
Sound played by your computer is inaudible or too soft.....	38
Insufficient volume from your guitar.....	38
Insufficient volume from your microphone.....	38
The volume level of the instrument connected to input connector is too low.....	39
Distorted sound from a device connected to the input jack.....	39
Sound is interrupted during playback or recording, sound drops out.....	39

Noise or distortion occurs elsewhere than in the playback from your computer.....40

Recorded sound is too loud or too soft.....40

Cannot play back or record.....41

Cannot change the sampling rate in Advanced Driver Settings or software.....42

Cannot play or record 24-bit audio data.....42

Problems with SONAR LE.....43

Cannot record or play back at 192 kHz.....43

Limitations When Using the 192 kHz Setting.....43 Doc

/ The COAXIAL IN (3/4)/OUT (3/4) jacks cannot be used.
The 3-4 port of the audio output device and the 3-4 port and MAIN port of the audio input device cannot be
used (no sound is input/output). */*

Changing Computer Settings to Avoid Problems.....44

/ Changing these computer settings can help you avoid the problems described in "Problems When Installing the
Driver" (p. 36) and "Problems When Using the QUAD-CAPTURE" (p. 37). */*

Driver Signing Options Setting (Windows XP).....44

1. Open the "Control Panel," click [Performance and Maintenance], and then click the [System] icon.....44

2. Click the [Hardware] tab, and then click [Driver Signing].....44

3. In the "Driver Signing Options" dialog box, select [Warn] or [Ignore], and then click [OK].....44

4. Click [OK] to close the "System Properties" dialog box.....44

5. Install the driver as described in "Driver Installation" (p. 14).....44

Power Management Settings.....45

/ If the sound is interrupted during a performance or if sounds are missing, you may be able to resolve
the problem by changing the computer's power management settings. */*

Windows 7/Windows Vista.....45 Set

/ "Select a power plan"->"High performance"->"Change plan settings"->"Change advanced power settings"->
"Hard disk"->"Turn off hard disk after": Never */*

1. Open the "Control Panel," click [System and Security] or [System and Maintenance], and then
click [Power Options].....45
2. When "Select a power plan" appears, select [High performance].....45
3. Click [Change plan settings] next to [High performance].....45
4. Click [Change advanced power settings].....45
5. In the [Advanced settings] tab of the "Power Options" control panel, click the [+] mark
next to "Hard disk," and then click the [+] mark next to "Turn off hard disk after.".....45
6. Click [Setting], click the down arrow, and then select [Never].....45
7. Click [OK] to close the "Power Options" window.....45
8. Close the "Edit plan settings" screen.....45

Windows XP.....45

1. Open the "Control Panel," click [Performance and Maintenance], and then click [Power Options]....45

2. Click the [Power Schemes] tab, and set "Power schemes" to [Always On].....45

3. Click [OK] to close "Power Options Properties.".....45

Mac OS X.....45

1. Open "System Preferences" and click [Energy Saver].....45

2. Click [Options].....45

3. Set "Processor Performance" to [Highest].....45

System "Performance" Settings (Windows).....46

/ If the sound is interrupted during a performance or if sounds are missing, you may be able to solve
the problem by changing the "Performance" setting of the system as described below. */*

Windows 7/Windows Vista.....46 Set

/ "System Properties"->Advanced->Performance->"Settings..."->Advanced->"Processor scheduling"->
"Adjust for best performance of Background services" */*

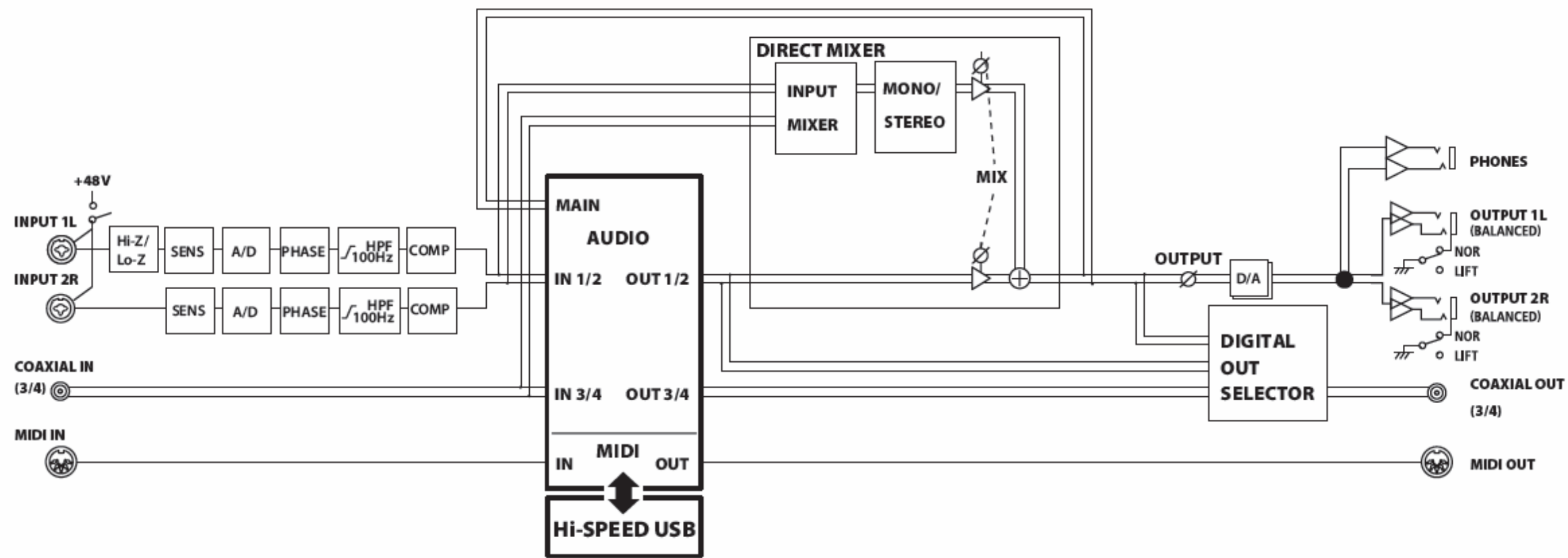
1. Open the "Control Panel," click [System and Security] or [System and Maintenance], and then
click [System].....46
2. Click [Advanced system settings] at the left.....46
3. When a User Account Control dialog box appears, click [Yes] or [Continue].....46
4. Click [Settings] in "Performance," and click the [Advanced] tab.....46

5. Select [Background services] and click [OK].....	46
6. Click [OK] to close "System Properties.".....	46
Windows XP.....	46
1. Open the "Control Panel," click [Performance and Maintenance], and click [System].....	46
2. Click the [Advanced] tab, and click [Settings] in "Performance.".....	46
3. Click the [Advanced] tab.....	46
4. Select [Background services], and click [OK].....	46
5. Click [OK] to close "System Properties.".....	46
Setting the System Volume.....	47
 <i>/* If the playback volume is too loud or too quiet, try adjusting the system volume. */</i>	
Windows 7.....	47 Set
 <i>/* Sound->Playback: 1-2 QUAD-CAPTURE Default Device->Properties->Levels */</i>	
1. Open the "Control Panel" and set the display mode to "Category.".....	47
2. Click [Hardware and Sound], and then click [Adjust system volume].....	47
3. After the volume mixer appears, select the QUAD-CAPTURE's [1-2 (QUAD-CAPTURE)] from the "Device" pull-down menu and adjust the volume.....	47
Windows Vista.....	47
1. Open the "Control Panel" and click [Hardware and Sound].....	47
2. Click [Adjust system volume] in "Sound.".....	47
3. After the volume mixer appears, select the QUAD-CAPTURE's [1-2] from the "Device" menu and adjust the volume.....	47
Windows XP.....	47
1. Open the "Control Panel," click [Sounds, Speech, and Audio Devices], and then click [Sounds and Audio Devices].....	47
2. Click the [Audio] tab.....	47
3. In the "Sound playback" area, make sure that [1-2 (QUAD-CAPTURE)] is selected as the "Default device," and click [Volume].....	47
4. When the volume control appears, adjust the "Wave" volume.....	47
Mac OS X.....	47
1. Open "System Preferences" and click [Sound].....	47
2. Click the [Output] tab.....	47
3. In the "Select a device for sound output" area, make sure that [QUAD-CAPTURE] is selected and use the "Output volume" slider to adjust the volume.....	47
Voice Communication Software Settings (Windows 7).....	48 Set
 <i>/* If you are using voice communication software, the volume of the audio device can be adjusted automatically to suit the conversation. Use the following procedure to disable automatic volume adjustment. Communications->"When Windows detects communications activity": "Do nothing" */</i>	
1. Open the "Control Panel," click [Hardware and Sound], and then click [Sound].....	48
2. In the [Communications] tab, set "When Windows detects communications activity" to [Do nothing].....	48
3. Click [OK] to close "Sound.".....	48
Monitoring Function Settings (Windows 7).....	48 Set
 <i>/* If the monitoring function of Windows is enabled, the input sound may be doubled (each sound is echoed) or feedback may be heard. Use the following procedure to disable the monitoring function of Windows. Sound->Recording: 1-2 QUAD-CAPTURE Default Device->Properties->Listen->Listen to this device: uncheck */</i>	
1. Open the "Control Panel," click [Hardware and Sound], and then click [Sound].....	48
2. In the "Recording" area, click the QUAD-CAPTURE's [1-2 (QUAD-CAPTURE)], and then click [Properties]...	48
3. Click the "Listen" tab and clear the [Listen to this device] check box.....	48
4. Click [OK] to close "Properties.".....	48
5. Click [OK] to close "Sound.".....	48
Reinstalling the Driver.....	49
1. Delete the QUAD-CAPTURE's driver.....	49
2. Install the driver again as described in "Driver Installation" (p. 14).....	49
Deleting the Driver.....	49
Windows.....	49
1. Start up the computer without the QUAD-CAPTURE connected.....	49
2. Log on to the computer with a user account that has administrator privileges.....	49

3. Insert the included CD-ROM into the computer's DVD-ROM drive.....	49
4. Double-click the [Uninstall] icon in the [WinDriver] folder on the included CD-ROM.....	49
5. When a confirmation screen regarding user account control appears, click [Yes] or [Continue].....	49
6. When "The installed QUAD-CAPTURE driver will be uninstalled." appears, click [OK].....	49
7. When "Uninstallation was completed." appears, click [OK] to restart the computer.....	49
Mac OS X.....	50
1. Start up the computer without the QUAD-CAPTURE connected.....	50
2. Insert the included CD-ROM into the computer's DVD-ROM drive.....	50
3. Double-click [Uninstaller] in the [MacDriver] folder on the included CD-ROM.....	50
4. When "This uninstalls QUAD-CAPTURE driver from this Mac." appears, click [Uninstall].....	50
5. When "Are you sure you want to uninstall the driver?" appears, click [OK].....	50
6. Enter the password and click [OK].....	50
7. When "Uninstallation is completed." appears, click [Restart] to restart the computer.....	50
Advanced Driver Settings.....	51
/* You can set the input and output audio buffer size and ASIO-related settings.	
When using Windows 7, driver settings cannot be changed while the monitoring function of Windows is enabled.	
Disable the monitoring function (p. 48).	
Driver->"Driver Settings"->	
"SAMPLE RATE" You can display the current sampling rate. To change the sampling rate, select a sampling rate from the menu. Cannot be changed during playback or recording, or when equipment is connected to the COAXIAL IN (3/4) jack.	
"Audio Buffer Size" You can adjust the input and output audio buffer size. Decrease the buffer size to decrease latency. Increase the buffer size if audio drops out. After adjusting the buffer size, make sure to restart all programs that are using the QUAD-CAPTURE. If using software that has an "audio device test" function, run the test function.	
"Use ASIO Direct Monitor" To use the ASIO Direct Monitor function of ASIO-compatible software, select this checkbox.	
"Match with the ASIO sample rate" You can match the Windows sound sampling rate (e.g., MME, DirectSound, or WASAPI) with the ASIO sampling rate. Select this check box when using an ASIO-compatible application concurrently with an application, such as Windows Media Player, that is compatible with Windows sound. */	
Windows.....	51
1. Exit all programs that are using the QUAD-CAPTURE.....	51
2. Open the "Control Panel" and set the display mode as follows.....	51
3. Double-click the [QUAD-CAPTURE] icon.....	51
4. From the "Driver" menu, select [Driver Settings].....	51
SAMPLE RATE.....	51
CLOCK.....	51
Audio Buffer Size.....	51
[Use Multichannel WDM Audio Port] check box (Windows XP).....	51
[Use ASIO Direct Monitor] check box.....	51
[Match with the ASIO sample rate] (Windows 7/Windows Vista).....	52
[Show "README"].....	52
Mac OS X.....	52
1. Open the [Applications] folder, and double-click the [QUAD-CAPTURE Control Panel] icon.....	52
2. From the [QUAD-CAPTURE Control Panel] menu, select [Driver Settings].....	52
SAMPLE RATE.....	52
CLOCK.....	52
Audio Buffer Size.....	52
Recording Margin.....	52
Recording Timing.....	52
Main Specifications.....	53
USB Audio Interface: Roland QUAD-CAPTURE UA-55.....	53
Number of Audio Record/Playback Channels.....	53
Signal Processing.....	53
Sampling Rate.....	53
Nominal Input Level.....	53
Nominal Output Level.....	53
Head Room.....	53
Input Impedance.....	53
Output Impedance.....	53
Frequency Response.....	53

Residual Noise Level.....	53
Dynamic Range.....	53
Connectors.....	54
Interface.....	54
Power Supply.....	54
Current Draw.....	54
Dimensions.....	54
Weight.....	54
Accessories.....	54
Index.....	55
For EU Countries.....	56
For China.....	56
For the USA.....	57
For EU Countries.....	57
For the USA.....	57
For Canada.....	57
For C.A. US (Proposition 65).....	57
Information.....	58
MEMO.....	59
Flowchart.....	60 Cha Doc

Flowchart



QUAD-CAPTURE Driver Readme.htm

Roland, 2011
unknown pp.

Tests

\$

cataloging header	proposed tests	detailed TOC (unnumbered)	custom tags	embedded comments (notes)
-------------------	----------------	---------------------------	-------------	---------------------------

"Z:\Aussie\Software\Device Drivers\My_Music\6. Roland - QUAD-CAPTURE USB 2.0 Audio Interface (UA-55)\Readme.txt"

Languages:
Contents

QUAD-CAPTURE Driver Ver.1.5.0 for Windows® 7 64-bit Edition / 32-bit Edition.....	
(Note).....	
About this driver.....	Doc
System requirements.....	
Operating System.....	
Computer.....	
Cautions and Limitations.....	Set
/* Audio clicks and pops may occur during playback or recording if you connect or disconnect other USB devices (such as USB memory) or turn another USB device on/off while using the QUAD-CAPTURE.	
In some cases, you may not obtain the expected level of performance if you're using a USB-connected hard disk at the same time as the QUAD-CAPTURE. Do not use a USB-connected hard disk as the storage destination for the audio that you're playing back or recording. */	
Installation.....	
Before you begin.....	Set
Input/output device settings for your application.....	
/* * Ensure that the QUAD-CAPTURE and the application are set to the same sampling frequency. If the sampling frequency settings do not match, error messages may be displayed and recording/playback errors may occur. */	
Audio input/output device.....	
/* * When running at 192 kHz, the audio configuration is 2-in/2-out. The remaining channels cannot be used and no sound will be heard.	
When using the QUAD-CAPTURE with an ASIO-compatible application, select "QUAD-CAPTURE" as the ASIO setting for your application.	
* To prevent an audio feedback loop or double monitoring, make settings on your application to turn monitoring off or use ASIO Direct Monitoring.	
* When using the QUAD-CAPTURE with ASIO, we recommend that you set your application so that it does not use the Microsoft GS Wavetable Synth. (In order to decrease the load, and for convenience when changing Audio Buffer Size of the driver.) */	
MIDI input/output device.....	
Settings when QUAD-CAPTURE is used with the Windows Media Player.....	
QUAD-CAPTURE Control Panel.....	
Starting up QUAD-CAPTURE Control Panel.....	
Using QUAD-CAPTURE Control Panel.....	Cha Gain Lev Set Doc
Setting the Preamp (PREAMP).....	
/* Adjusts the input gain over a range of 0-54 dB, in steps of 0.5 dB. */	
Setting the Compressor (COMPRESSOR).....	
Setting the Input Mixer (MIXER).....	
Setting the Sampling Rate (SAMPLE RATE).....	

Checking Synchronization with Other Digital Equipment (CLOCK).....	
Setting the Input from the COAXIAL IN (3/4) Jack.....	
Selecting the Sound Output from the COAXIAL OUT(3/4) Jack.....	
Changing the AUTO-SENS Setting Method.....	
Saving and Loading Your Settings.....	
Saving Settings.....	
Loading Settings.....	
Initializing the Settings.....	
Checking the Signal Flow.....	
Checking the Driver Settings.....	
Viewing the Control Panel in the Foreground.....	
Checking the Version of the Control Panel.....	
To change the settings.....	Set
To change or verify settings.....	
About the items in the Settings dialog box.....	Set Lat Mon Doc
SAMPLE RATE.....	
<i>/* * If you use an application with an audio equipment test function, after changing the sample rate, carry out a test. */</i>	
CLOCK.....	
Audio Buffer Size.....	
<i>/* You can adjust the audio input/output buffer size. (By default, this will be the sixth position from the left.) Decreasing the buffer size will shorten the latency and improve realtime performance, but might make it more likely that you will experience audio clicks and pops, depending on your computer's processing power and the song data load. Increasing the buffer size will lengthen the latency, but will make audio streaming more stable, and it will be less likely for audio clicks and pops to occur. In general, you'll probably want to decrease the buffer size for better realtime performance if you're playing a software synthesizer in real time, or if you're monitoring an audio input that's being passed through your DAW software. Conversely, you can increase the buffer size to prevent audio clicks and pops if you're recording or playing back song data that contains numerous tracks and presents a heavy processing load. By changing the buffer size as appropriate for your situation, you can obtain the right balance between realtime performance and audio streaming stability. * Note! If you use an application with an audio equipment test function, after changing the buffer size, carry out a test. */</i>	
ASIO Buffer Size.....	
<i>/* This is the buffer size that can be set by the ASIO application. */</i>	
"Use ASIO Direct Monitor" check box.....	
<i>/* Check this if you are using the ASIO Direct Monitor function with an ASIO-compatible application. */</i>	
"Reduce CPU load" check box.....	
<i>/* This reduces the load on the CPU when the ASIO buffer size is small. If you experience clicks or pops with a small buffer size, selecting this check box may help. * If you are still unable to play/record, or if you still experience clicks and pops, clear this check box and increase the Audio Buffer Size. * If you're using in WDM/KS mode, leave this check box cleared. */</i>	
"Match with the ASIO sample rate" check box.....	
"Restore Default Settings" button.....	
<i>/* Reverts back to the default settings. */</i>	
"Show README" button.....	
To reinstall.....	
To uninstall.....	
Troubleshooting.....	
Cannot install/uninstall the driver.....	
Are you logged onto Windows with the appropriate user rights?.....	

Cannot select/use the QUAD-CAPTURE device.....
Was the driver installed correctly?.....
Could the QUAD-CAPTURE be in use by other software?.....
Is the QUAD-CAPTURE WAVE/MIDI device name displayed?.....
Did the computer enter a Sleep mode while the QUAD-CAPTURE was connected?.....
Was the USB cable disconnected and reconnected while the QUAD-CAPTURE was being used?.....
On some computers, if the QUAD-CAPTURE is connected while Windows starts up, the driver will not.....
be loaded correctly, and it will not be possible to use the QUAD-CAPTURE via USB.....
Cannot change the sample rate from Driver Settings/Application.....
During playback or recording, the sample rate cannot be changed in the Driver Settings dialog box.....
Are you using another application?.....
When equipment is connected to the digital input jack, the sample rate cannot be changed.
Is the Windows Sound Control Panel open?.....
If the Windows monitoring function is enabled, the sample rate cannot be changed.....
The screen indicates "Device currently used by another application." and driver settings cannot be made.....
If the Windows monitoring function is enabled, it won't be possible to change the driver settings.....
No sound is heard; cannot playback or record.....
Was the driver installed correctly?.....
Could the QUAD-CAPTURE be in use by other software?.....
Did you make settings as described in "Before you begin" so that the QUAD-CAPTURE driver could be used?.....
Could you have entered Sleep mode during playback or recording?.....
During playback or recording, did you disconnect and reconnect the USB cable?.....
Try adjusting the audio buffer size of the driver.....
Is the "Reduce CPU load" checkbox selected?.....
Is a digital signal different from the sample rate selected in the currently-used application being input?..
Are you using a sample rate of 192 kHz?.....
Sound played by your computer is inaudible or too soft.....
Could you have turned down the volume of the device or application in the Volume Mixer?.....
Are you using voice communications software?.....
Part of the playback is wrong: e.g., notes are broken off prematurely, or some notes are lost.....
Try adjusting the audio buffer size of your software.....
Try adjusting the audio buffer size of the driver.....
Try updating the driver of your display adaptor.....
Windows Update / Microsoft Update.....
Check the power management settings.....
"Performance Options" settings of System Properties.....
Is a digital signal different from the sample rate selected in the currently-used application being input?..
Has the sample rate been changed?.....
Could the Windows monitoring function be enabled?.....
Audio clicks and pops occur in the playback or recording immediately after the system has started up,
or immediately after the computer has been woken from a Sleep state.....
Clicks or pops may occur in the sound if a LAN is operating.....
Playback or recording is interrupted, and then you cannot resume playback or recording.....
Was your computer experiencing a heavy processing load?.....

Audio software books/manuals

Steinberg Cubase5. Запись и редактирование музыки

Роман Петелин, Юрий Петелин
«БХВ-Петербург», 2010
896 с.

cataloging header	detailed TOC	custom tags	embedded comments (notes)
-------------------	--------------	-------------	---------------------------

"Z:\Aussie\Allbooks\My_Music\Arr\Петелин Р.Ю., Петелин Ю.В. - Steinberg Cubase 5. Запись и редактирование музыки - 2010.txt"

От авторов.....	1
Введение.....	9
Глава 1. Первое знакомство с программой.....	29
1.1. Типы MIDI-сообщений в Steinberg Cubase 5.....	30
1.1.1. Note – сообщение о нажатии MIDI-клавиши.....	31
1.1.2. Controller – сообщение о состоянии контроллера.....	32
1.1.3. Program Change – сообщение о смене MIDI-инструмента.....	33
1.1.4. Aftertouch и Poly Pressure – сообщения о силе давления на нажатые клавиши.....	35
1.1.5. Pitchband – управление регулятором тона.....	36
1.1.6. SysEx (System Exclusive) – привилегированные системные сообщения.....	36
1.2. MIDI-секвенсор. Дискретная шкала времени.....	36
1.3. Об аналого-цифровом и цифроаналоговом преобразовании звука.....	40
1.4. VST и VSTi.....	41
1.5. Представление музыкальной информации в Steinberg Cubase 5.....	44
1.5.1. Порты, шины, каналы, MIDI- и аудиотреки, части.....	44 Arr
/* NULL */	
1.5.2. Список сообщений.....	52
1.5.3. Отпечатки клавиш.....	54
1.5.4. Ноты.....	56
1.5.5. Сигналограммы. Управление их отображением.....	57
1.6. Выполнение основных операций в Steinberg Cubase 5.....	64
1.6.1. Загрузка файла проекта.....	64
1.6.2. Воспроизведение проекта.....	65
1.6.3. Создание нового проекта, закрытие проекта.....	66 Arr
/* File->New Project, More->Empty */	
1.6.4. Сохранение проекта. Форматы файлов.....	73 Arr
/* File->Save As, Arrange.cpr */	
1.6.5. Запись MIDI-трека.....	75
Локаторы.....	75
Музыкальное время в Steinberg Cubase 5.....	76
Первая попытка записи с MIDI-клавиатуры.....	77
1.6.6. Запись звуковых данных с внешнего источника.....	78
Создание аудиотрека.....	79 Arr
/* Project->Add Track->Audio, configuration->Mono Track Height->4 Rows */	
Выбор шин ввода и вывода.....	80 Arr
/* Input Routing, No Bus Output Routing, No Bus */	
Настройка уровня сигнала.....	81

1.6.7. Импортирование MIDI-файла.....	82
1.6.8. Перезапись звука MIDI-инструмента на аудиотрек.....	83
Подключен внешний аппаратный синтезатор.....	84
Подключен аппаратный синтезатор звуковой карты.....	84
Подключен виртуальный синтезатор.....	85
Глава 2. Подготовка программы к эффективной работе.....	87
2.1. Настройка параметров аудиоинтерфейса. Основные параметры звукового движка VST.....	88
2.2. Шины. Подключение внешних эффектов и синтезаторов. Студийный мониторинг.....	97
2.2.1. Конфигурирование входных и выходных шин.....	97
2.2.2. Подключение внешних аппаратных процессоров эффектов.....	101
2.2.3. Подключение внешних аппаратных синтезаторов.....	103
2.2.4. Конфигурирование шин мониторинга Studio.....	106
2.3. Мониторинг, дополнительные параметры звукового движка VST.....	111
2.4. Настройка метронома.....	119 Arr
 /* Transport->Metronome On Transport->Metronome Setup MIDI Click->Activate MIDI Click: uncheck Audio Click->Activate Audio Click, Sounds, Hi/Lo: "C:\Program Files\Sony\Vegas Pro 11.0\Script Menu\AddBeep.wav\beep.1.wav" */	
2.5. Синхронизация Cubase с внешними устройствами.....	122
2.6. Настройка Cubase на работу с внешними MIDI-устройствами (синтезаторами).....	127
2.7. Настройка MIDI-портов.....	133
2.8. Настройка Cubase на работу с внешними устройствами управления.....	136
2.9. Создание проекта и настройка его параметров.....	139 Arr
 /* File->New Project (Ctrl+N), More->Empty, "Prompt for project location", Continue "Z:\Aussie\My_Music\Yngwie Malmsteen - REH Video\02 - Segments from Compositions\03 - Example 15 Trilogy Suite (B harmonic minor)" "Make New Folder", Arrange File->Save (Ctrl+S), Arrange File->Open (Ctrl+O) File->Recent Projects (Alt+F, c) Window->Close All Project->Project Setup (Shift+S), copy from Vegas (SMPTE Non-Drop) Frame Rate: 29.97 fps Start: 00:00:00:18 Length: 00:01:03:15 Display Offset: Start Sample Rate: 44.100 kHz Record Format: 24 Bit Record File Type: Wave File File->Preferences (Alt+F, f) Record->Audio->Record-Audio-Broadcast Wave Description: "No Description" Author: "(C) Andrey Chislenko" Reference: achislen@gmail.com */	
Глава 3. Транспортная панель.....	147
3.1. Группа Main Transport.....	149
3.2. Группа Locators.....	152
3.3. Группа Master + Sync.....	154
3.4. Группы Record Mode, MIDI Activity и Audio Activity.....	155
3.5. Группы Jog/Scrub, Audio Level Control, Marker, Performance.....	156
3.6. Группа Virtual Keyboard.....	157
3.7. Пользовательская настройка транспортной панели.....	159
Глава 4. Работа в окне проекта.....	163
4.1. Браузер MediaBay, добавление треков в проект.....	166
4.2. Атрибуты MIDI-трека. Использование MIDI-эффектов и VST-инструментов.....	174
4.2.1. Атрибуты MIDI-трека, доступные из списка треков; редактирование их состава и расположения.....	175 Arr
 /* Project->Add Track->MIDI, count->5 Track Height->4 Rows Track Name(s): EDIROL Lead, EDIROL Pad, OP-X Lead, OP-X Pad, BFD2	

<i>Track Color(s): EDIROL->Color 10, OP-X->Color 9, BFD2->Color 3 */</i>	
4.2.2. Атрибуты и параметры MIDI-трека, доступные в панели инспектора; редактирование барабанной карты; применение MIDI-эффектов.....	179
Основная секция инспектора MIDI-трека.....	181 Arr
<i>/* Input routing->Not Connected (all tracks) Output routing: EDIROL->Hyper Canvas, OP-X->OP-X FREE, BFD2->BFD2 Channel->any (all tracks) BFD2, Drum Maps->GM Map */</i>	
Секция MIDI Modifiers.....	190
Секция MIDI Inserts - подключение MIDI-эффектов.....	193
Секция MIDI Sends.....	195
Секция MIDI Fader.....	196
Секция Notepad.....	197 Arr
<i>/* EDIROL->EDIROL High Quality Software Synthesizer Hyper Canvas VST Version 1.60 OP-X->SonicProjects OP-X Free BFD2->FXpansion BFD2 v2.3.0 build 38 32bit */</i>	
Секция User Panel.....	197
Секция Quick Controls.....	198
4.2.3. Пресеты MIDI-треков.....	200
4.3. Подключение VST-инструментов посредством окна VST Instruments.....	201 Arr
<i>/* Devices->VST Instruments (F11) Hyper Canvas, OP-X FREE, BFD2 (Hyper Canvas, Hyper Canvas 1, Hyper Canvas)->Track Color Selector->Color 10 (OP-X FREE, OP-X FREE, OP-X FREE)->Track Color Selector->Color 9 (BFD2, BFD2s01, BFD2)->Track Color Selector->Color 3 */</i>	
4.4. Атрибуты аудиотрека.....	210
4.4.1. Атрибуты аудиотрека, доступные в списке треков.....	210 Arr
<i>/* Project->Add Track->Audio, count->5, configuration->Mono Track Height->4 Rows Track Name(s): PS-4 Lead I, PS-4 Lead II, PS-4 Rhythm I, PS-4 Rhythm II, BB605 Track Color(s): PS-4->Color 7, BB605->Color 15 */</i>	
4.4.2. Атрибуты и параметры аудиотрека, доступные в панели инспектора; применение аудиоэффектов реального времени.....	212 Arr
<i>/* PS-4->Notepad->Jackson Performer PS-4 BB605->Notepad->Yamaha BB605 */</i>	
Основная секция инспектора аудиотрека. Немного о пространственном панорамировании.....	213 Arr
<i>/* Input routing->Left - Stereo In (all tracks) Output routing->Stereo Out (all tracks) */</i>	
Секция Inserts.....	216
Секции Equalizers и Equalizer Curve.....	217
Секция Sends, треки FX Channel.....	219
Использование боковой цепи (Side Chain).....	223
Секция Studio Sends.....	226
Секции Surround Pan и Channel.....	226
4.4.3. Пресеты аудиотреков.....	229
4.5. Инструментальные треки.....	229
4.6. Назначение и атрибуты групповых треков.....	232
4.7. Секция треков.....	234
4.7.1. Части (parts), первое знакомство.....	235 Arr
<i>/* NULL */</i>	

Создание MIDI-части.....	235	Arr
 /* (adjust horizontal zoom) Draw, (Snap On, Snap Type->Grid, Grid Type->Beat) */		
Рисование отпечатков MIDI-клавиш в окне Key Editor или непосредственно в окне проекта.....	236	
4.7.2. Шкала времени Ruler, трек Ruler Track, указатель текущей позиции, расширенные функции управления воспроизведением проекта и изменением масштаба отображения графических объектов секции треков.....	239	Arr
 /* Project->Add Track->Ruler Track Position->top level, first Track Color->Default Color Display Format->Seconds Snap Track Heights->check */		
4.7.3. Запись MIDI-данных и звука.....	247	
Подготовка MIDI-, инструментальных и аудиотреков к записи.....	247	
Способы переключения программы в режим записи.....	249	
Режимы записи, циклическая запись, регионы аудиосообщений.....	251	
4.7.4. Привязка графических объектов, первое знакомство с квантизацией.....	255	
4.7.5. Операции над частями и аудиосообщениями.....	257	
Выделение.....	257	
Удаление, отмена последней операции.....	259	
Перемещение.....	260	
Разрезание.....	261	
Склеивание, заполнение пауз.....	263	
Копирование.....	264	
Раскрашивание.....	265	Arr
 /* Color Tool->Default Color */		
Инструмент Range Selection.....	265	
Амплитудные огибающие аудиосообщений; пересечение аудиосообщений, функции Auto Fades и Auto Crossfades..	268	
Перемещение границ частей и аудиосообщений, алгоритм Time Stretch.....	278	
Мьютирование и блокирование частей и аудиосообщений.....	282	
4.7.6. Атрибуты объектов проекта, поле Event Infoline.....	283	Arr
 /* Name->Opening Run Description->Opening Run */		
4.8. Операции над треками.....	285	
4.9. Треки-контейнеры.....	286	Arr
 /* Project->Add Track->Folder Track Position->top level Track Height->2 Rows Track Name(s): MIDI, Audio Track Color->Default Color */		
4.10. Трек маркеров (Marker Track) и все, что с ним связано.....	291	Arr
 /* Project->Markers (Ctrl+M), Always On Top Add, Description->Legato Note Show->Cycle Markers, set locators, Add, Description->Chord Project->Add Track->Marker Track Position->before the track being marked Track Height->3 Rows Track Color->the color of the track being marked Draw, Erase, etc */		
4.11. Треки управления темпом и музыкальным размером (Tempo Track, Signature Track), инструмент Beat Calculator.	294	Arr
 /* Project->Tempo Track (Ctrl+T) Show Info (select tempo curve node), Value->125		

(select signature mark), Signature->4/4 */

4.12. Трек аранжировки (Arranger Track).....301 Arr

/* Project->Add Track->Arranger Track
Track Position->top level, after Ruler Track
Track Height->2 Rows
Track Color->Default Color
Draw
Name->Intro
(select all Arranger Events), Append Selected in Arranger Chain
Rename Chain->Straight-through
Open Arranger Editor, Activate Arranger Mode (double-click) */

4.13. Автоматизация.....309

4.13.1. Запись автоматизации.....309

4.13.2. Формирование и редактирование огибающих автоматизации.....314

4.13.3. Автоматизация MIDI-треков.....318

4.13.4. Автоматизация аудиотреков, аудиосообщений, групповых треков, треков каналов ReWire.....320

4.13.5. Автоматизация VST-инструментов и аудиозффектов, входных/выходных шин.....321

4.14. Панель инструментов окна проекта.....322

4.14.1. Режим сдерживания компенсации задержки Constrain Delay Compensation.....323

4.14.2. Функция "искривления времени" Time Warp.....324

4.15. Представление проекта в окне Browse Project.....325

Глава 5. Использование микшера.....329

5.1. Маршрутизация аудиопотоков.....330

5.2. Режимы отображения окна Mixer, общая панель, операции над модулями микшера, параметры индикаторов уровней сигналов.....333

5.3. Модули микшера.....340

5.3.1. Модуль аудиотрека.....340

5.3.2. Модули VSTi, группового трека, трека FX Channel.....348

5.3.3. Модули MIDI- и инструментального треков, особенности применения VST-инструментов.....349

5.4. Пространственное панорамирование.....350

5.5. Модули входных и выходных шин.....355

5.6. Особенности применения VST-плагинов.....357

5.7. Микшер мониторинга Control Room Mixer.....360

Глава 6. Подробно о работе с MIDI.....365

6.1. Подготовка к работе с MIDI-данными.....365

6.1.1. Выбор параметров отображения MIDI-сообщений.....366

6.1.2. Выбор опций записи, воспроизведения MIDI-сообщений и параметров функции Chas.....368

6.1.3. Выбор опций экспорта и импорта MIDI-файлов.....371

6.2. Работа в окне List Editor.....374

6.2.1. Назначение секций окна List Editor.....375

6.2.2. Инструменты окна List Editor. Редактирование сообщений.....379

Обзор инструментов окна List Editor.....379

Управление отображением сообщений.....382

Вставка новых сообщений.....384

6.2.3. Работа с сообщениями типа NRPN.....385

6.2.4. Работа с привилегированными системными сообщениями.....387

6.2.5. Редактирование нот с MIDI-клавиатуры.....391

6.2.6. Пошаговый ввод нот.....393

6.3. Работа в окне Key Edito.....394

6.3.1. Инструменты окна Key Editor.....395

6.3.2. Секция отпечатков клавиш.....402

6.3.3. Секция графического редактирования параметров MIDI-сообщений.....404

6.3.4. Режим редактирования Edit In-Place.....409

6.4. Работа в окне Drum Editor.....412

6.4.1. Особенности инструментов окна Drum Editor.....413

6.4.2. Редактирование партий ударных инструментов.....414

6.5. Работа в окне Logical Editor.....418

6.6. Применение квантизации.....427

6.6.1. Выбор параметров квантизации.....427

6.6.2. Суть различных алгоритмов квантизации.....430

6.7. Применение команд меню MIDI.....431

6.7.1. Команда Transpose – транспонирование выделенных MIDI-нот.....	432
6.7.2. Команда Merge MIDI in Loop – перезапись MIDI-сообщений с разных треков на один; применение MIDI-плагинов.....	434
6.7.3. Команда Freeze MIDI Modifiers – применение MIDI-преобразований реального времени.....	436
6.7.4. Команда Dissolve Part – распределение сообщений выделенной части по отдельным трекам.....	438
6.7.5. Команда Bounce Selection – объединение частей одного трека.....	440
6.7.6. Команда O-Note Conversion – преобразование номеров нот в соответствии с Drum Map.....	440
6.7.7. Команда Repeat Loop – размножение зацикленных фрагментов.....	441
6.8. Применение функций, доступных из подменю MIDI > Functions.....	442
6.8.1. Команда Delete Notes – удаление нот, имеющих заданные параметры.....	444
6.8.2. оманда Velocity – преобразование значений параметра Velocity сообщений Note On.....	446
6.8.3. Команда Extract MIDI Automation – конвертирование сообщений контроллеров непрерывного действия в данные автоматизации трека.....	447
6.9. Применение функции транспонирования.....	448 Arr
/* Project Root Key->B */	
6.10. Функция VST Expression. Применение сообщений об артикуляции.....	454
Глава 7. О работе с нотатором.....	467
7.1. Знакомство с окном Scores.....	468
7.2. Особенности инструментов окна Scores.....	471
7.3. Содержание меню Scores.....	475
7.4. Запись нот с помощью мыши.....	476
Глава 8. Работа с MIDI-плагинами.....	479
8.1. Arpache 5 – MIDI-арпеджиатор.....	483
8.2. Arpache SX – арпеджиатор с расширенными возможностями.....	492
8.3. Auto LFO – формирователь последовательности сообщений Control Change.....	495
8.4. Beat Designer – пошаговый секвенсор.....	497
8.5. Chorder – формирователь аккордов заданного типа.....	507
8.6. Compressor – компрессор значений параметра Velocity.....	516
8.7. Context Gate – настраиваемый фильтр MIDI-сообщений.....	518
8.8. Micro Tuner – корректор высоты звучания нот.....	520
8.9. MidiEcho – многократное повторение нот, имитация эха.....	525
8.10. MIDI Monitor – анализатор MIDI-сообщений.....	526
8.11. Step Designer – паттерновый секвенсор.....	528
Глава 9. Подробно об обработке аудиоданных.....	535
9.1. Окно Audio Part Editor : редактирование аудиосообщений в пределах части.....	536
9.2. Редактирование аудиосообщений с помощью окна Sample Editor.....	541
9.2.1. Редактирование аудиосообщений.....	544
9.2.2. Что такое деструктивное (разрушающее) редактирование?.....	546
9.2.3. Работа с регионами.....	547 Arr
/* Audio->Advanced->Event or Range as Region: "Region Names"->Opening Run, "Start Count"->1 */	
9.3. Функции инспектора.....	549
9.3.1. Работа с лупами.....	549
Подготовка лупов к использованию в режиме Musical Mode, секция Definition инспектора.....	552
Коррекция ритма лупа, секция AudioWarp инспектора.....	556
Работа с лупами в режиме Hitpoints.....	559
9.3.2. VariAudio – коррекция сольных партий инструментов/вокала.....	564
Редактирование сегментов.....	568
Коррекция высоты тона и изменение ритма.....	572
Экспорт информации в формат MIDI.....	576
9.3.3. Вспомогательные средства Range и Process.....	577
9.4. Применение встроенных обработок.....	580
9.4.1. Noise Gate.....	581
9.4.2. Pitch Shift.....	583
9.4.3. Stereo Flip.....	587
9.4.4. Time Stretch.....	588
9.5. Анализатор спектра аудиосигнала.....	589
9.6. Выявление тишины.....	594
9.7. История обработки и статистика аудиоданных. Функция Freeze Edits.....	596
9.8. Настройки Cubase, связанные с редактированием аудиосообщений и частей.....	597
9.9. Окно Pool, импорт звука и видео.....	600

Глава 10. Применение VST-плагинов.....	607
10.1. VST-плагины группы Delay.....	609
10.1.1. MonoDelay, PingPongDelay и StereoDelay - варианты дилэя.....	609
10.1.2. ModMachine - дилэй с модулируемыми параметрами.....	613
10.2. VST-плагины группы Distortion.....	615
10.2.1. DaTube - модель перегруженного лампового усилителя.....	616
10.2.2. Distortion - классический эффект дисторшн.....	616
10.2.3. AmpSimulator - упрощенная модель усилителя и акустической системы.....	617
10.2.4. SoftClipper - ограничитель амплитуды.....	618
10.3. VST-плагины группы Dynamics.....	619
10.3.1. Compressor - компрессор.....	623
10.3.2. DeEsser - деэсер.....	625
10.3.3. EnvelopeShaper - корректор фаз атаки и освобождения.....	625
10.3.4. Expander - экспандер.....	627
10.3.5. Gate - гейт.....	628
10.3.6. Limiter - лимитер.....	630
10.3.7. Maximizer - максимайзер.....	631
10.3.8. MIDI Gate - MIDI-гейт.....	632
10.3.9. MultibandCompressor - многополосный компрессор.....	633
10.3.10. VintageCompressor - "старинный" компрессор.....	635
10.3.11. VSTDynamics - комплексный прибор динамической обработки.....	636
10.4. VST-плагины группы EQ.....	638
10.4.1. GEQ-10, GEQ-30 - графические эквалайзеры.....	643
10.4.2. StudioEQ - четырехполосный параметрический эквалайзер.....	645
10.5. VST-плагины группы Filter.....	646
10.5.1. DualFilter - комбинация ФНЧ и ФВЧ.....	647
10.5.2. Nuendo EQ 2 и Q - параметрические эквалайзеры.....	648
10.5.3. StepFilter - фильтр с динамическим управлением.....	650
10.5.4. ToneBooster - одиночный фильтр.....	651
10.5.5. Tonic - универсальный псевдоаналоговый фильтр с динамическим управлением.....	652
10.5.6. WahWah - эффект "Вау-вау".....	655
10.6. VST-плагины группы Modulation.....	657
10.6.1. AutoPan - автоматический панораматор.....	657
10.6.2. Chorus и StudioChorus - имитаторы хора.....	658
10.6.3. Cloner - пятиголосный хорус.....	660
10.6.4. Flanger - флэнжер и регулятор ширины стереобазы. Эффекты, основанные на задержке сигнала.....	661
10.6.5. Metalizer - эффект "металлического" звучания.....	664
10.6.6. Phaser - фейзер и регулятор ширины стереобазы.....	665
10.6.7. RingModulator - кольцевой модулятор.....	666
10.6.8. Rotary - эффект вращающегося динамика.....	668
10.6.9. Tranceformer - эффект на основе кольцевой модуляции.....	670
10.6.10. Tremolo - амплитудное вибрато, тремоло.....	671
10.6.11. Vibrato - частотное вибрато.....	673
10.7. ST-плагины группы Other.....	674
10.7.1. Bitcrusher - имитатор изменения разрядности и частоты сэмплирования.....	674
10.7.2. Chopper - амплитудное вибрато.....	676
10.7.3. Octaver - формирователь субгармоник основного тона.....	677
10.7.4. Tuner - тюнер для настройки музыкальных инструментов.....	677
10.8. VST-плагины группы Restoration.....	678
10.8.1. Grungelizer - генератор помех.....	678
10.8.2. DeClicker - подавитель щелчков и треска.....	680
10.8.3. DeNoiser - подавитель шума.....	681
10.9. VST-плагины группы Reverb. Реверберация на основе линии задержки.....	683
10.9.1. Roomworks SE - упрощенная версия ревербератора, основанного на цифровой линии задержки.....	685
10.9.2. RoomWorks - классический ревербератор, основанный на цифровой линии задержки.....	686
10.9.3. REVerence - сверточный ревербератор. Импульсная характеристика и свертка.....	688
10.10. VST-плагины группы Spatial.....	695
10.11. VST-плагины группы Tools.....	697
10.11.1. MultiScope - многофункциональный анализатор свойств аудиосигнала.....	698
10.11.2. TestGenerator - генератор тестовых сигналов.....	701
10.12. VST-плагины, не включенные в группы.....	702
10.12.1. UV22HR - плагин для уменьшения искажений при снижении разрядности.....	702
10.12.2. Pitch Correct - плагин для коррекции высоты тона.....	703
Глава 11. Применение VST-инструментов (VSTi).....	709

11.1.	Ромплер HALion ONE.....	712
11.2.	Groove Agent ONE - виртуальная драм-машина-ромплер.....	717
11.3.	Monologue - одноголосный псевдоаналоговый синтезатор физического моделирования.....	729
11.3.1.	Осцилляторы (группы OSC 1 и OSC 2).....	730
11.3.2.	Модуль фильтров (группа FILTER).....	732
11.3.3.	Модули формирования огибающей (группы MOD ENV и AMP ENV).....	733
11.3.4.	Модуль низкочастотного генератора (группа LFO).....	733
11.3.5.	Координатное поле X/Y Pad.....	734
11.3.6.	Эффекты (группа FX).....	734
11.3.7.	Группа MASTER.....	735
11.4.	Embracer - surround-синтезатор.....	737
11.5.	Prologue - псевдоаналоговый субтрактивный синтезатор.....	741
11.5.1.	Основная область панели синтезатора Prologue.....	743
11.5.2.	Страница LFO - элементы управления низкочастотными генераторами.....	748
11.5.3.	Страница ENV - управление генераторами огибающей.....	749
11.5.4.	Страница EVENT - выбор управляющих функций MIDI-контроллеров.....	751
11.5.5.	Страница EFX - управление параметрами эффектов.....	751
11.6.	Spector - синтезатор на основе спектрального фильтра.....	754
11.7.	Mystic - синтезатор на основе гребенчатых фильтров.....	760
11.8.	LoopMash - интерактивный синтезатор лупов.....	765
Глава 12.	Использование приложений, поддерживающих протокол ReWire.....	771
12.1.	Подключение приложений ReWire к Cubase.....	772
12.1.1.	Подключение приложения Reason.....	773
12.1.2.	Подключение FL Studio.....	774
12.2.	Управление устройствами приложений ReWire по MIDI.....	775
12.3.	Особенности совместного применения Cubase SX и приложений ReWire.....	776
Глава 13.	Обзор команд главного меню.....	779
13.1.	Меню File - работа с файлами.....	779
13.1.1.	Обзор меню File.....	779 Arr
	/* New Project (Ctrl+N)	
	Open (Ctrl+O)	
	Save (Ctrl+S)	
	Import->Audio File, Video File, MIDI File (Alt+F, i, a)	
	Export->MIDI File, Audio Mixdown	
	Cleanup	
	Preferences (Alt+F, f)	
	Key Commands (Alt+F, k)	
	Recent Projects (Alt+F, c)	
	Quit (Ctrl+Q) */	
13.1.2.	Диалоговое окно Key Commands.....	782
13.2.	Меню Edit - редактирование.....	785
13.3.	Меню Project - работа с проектом.....	788 Arr
	/* Add Track->...	
	Remove Selected Tracks	
	Track Folding->Show All Used Automation, Hide All Automation	
	Pool (Ctrl+P)	
	Markers (Ctrl+M)	
	Tempo Track (Ctrl+T)	
	Browser (Ctrl+B)	
	Notepad (Alt+P, n)->Z:\Aussie\My_Music\Yngwie Malmsteen - REH Video\02 - Segments from Compositions\03 - Example 15 Trilogy Suite (B harmonic minor)	
	Project Setup (Shift+S) */	
13.4.	Меню Audio - работа с цифровым звуком.....	790
13.5.	Меню MIDI - работа с MIDI.....	793
13.6.	Меню Scores - опции нотатора.....	795
13.7.	Меню Media - работа с медиаданными и с пулом.....	795
13.8.	Меню Transport - управление воспроизведением, записью и синхронизацией.....	795 Arr
	/* Transport Panel (F2)	
	Locate Next/Previous Marker (Shift+N/B)	
	Locate Next/Previous Event (n/b)	

Metronome Setup	
Metronome On (c) */	
13.9. Меню Devices – конфигурирование устройств виртуальной студии.....	797
13.10. Меню Window – управление окнами.....	799
13.11. Меню Help – помощь и справочная информация.....	799
Глава 14. Сведение композиции.....	801
14.1. Применение аппаратных устройств.....	801
14.2. Общие принципы сведения в стерео.....	804
14.2.1. Обработка аудиотреков и треков VSTi.....	804
14.2.2. Панорамирование.....	806
14.2.3. Применение эффектов.....	807
14.3. Общие принципы сведения в формат 5.1.....	808
14.4. Работа с видео.....	811
14.5. Экспортирование сведенной композиции.....	814 Arr
/* Right Locator->0:01:03:15	
File->Export->Audio Mixdown	
Chappell Selection->Stereo Out	
Path->Use Project Audio Folder	
File Name->Trilogy Suite	
File Format->Wave File	
Insert Broadcast Wave Chunk->check, Edit:	
Originator: "(C) 2014 Andrey Chislenko"	
Description: "03 – Example 15 Trilogy Suite (B harmonic minor) by Yngwie Malmsteen"	
Reference: achislen@gmail.com	
Don't Use Wave Extensible Format->check	
Insert iXML Chunk->uncheck	
Sample Rate->44.100 kHz	
Bit Depth->16 Bit	
Close Dialog after Export->uncheck, Export	
File Format->MPEG 1 Layer 3 File	
Bit Rate->320 kBit	
Sample Rate->44.100 kHz	
High Quality Mode->check	
Insert ID3 Tag->check, Edit ID3 Tag:	
Title->Trilogy Suite	
Artist->Andrey Chislenko	
Album->No Album	
Track Number->1	
Year->2014	
Genre->Instrumental Rock	
Comment->by Yngwie Malmsteen	
Export */	
Закключение.....	821
Приложения.....	823
Приложение 1. Создание и редактирование виртуальных панелей и скриптов для управления MIDI-устройствами.....	825
П1.1. Описание логической структуры MIDI-устройства.....	826
П1.2. Создание простейшей панели.....	832
П1.3. Использование панели в проекте.....	840
П1.4. Управление параметрами MIDI-устройства посредством сообщений SysEx.....	841
П1.5. Редактирование пресетов для MIDI-устройства.....	846
П1.6. Сохранение панелей и скриптов.....	850
Приложение 2. Описание плагинов Generic Remote и Quick Controls.....	851
Литература.....	859
Предметный указатель.....	871
Обложка.....	883
Оглавление.....	887

CUBASE 5. Advanced Music Production System

Operation Manual
Steinberg, 2009
641 pp.

cataloging header	detailed TOC	tags	embedded comments (notes)
-------------------	--------------	------	---------------------------

"Z:\Aussie\Allbooks\My_Music\Cubase Portable 5.1.1 (bipper)\Manual.txt"

1	About this manual.....	11	
	Welcome!.....	12	
	About the program versions.....	12	
	Key command conventions.....	12	
2	VST Connections: Setting up input and output busses.....	13	"VST Connections" "setting up" "input busses" "output busses"
	About this chapter.....	14	

/* Cubase uses a system of input and output busses to transfer audio between the program and the audio hardware.

• Input busses let you route audio from the inputs on your audio hardware into the program. This means that when you record audio, you will always do this through one or several input busses.

• Output busses let you route audio from the program to the outputs on your audio hardware. When you play back audio, you will always do this through one or several output busses.

As you can see, the input and output busses are vital when you work with Cubase. This is why you find this chapter at the beginning of the Operation Manual – once you understand the bus system and know how to set up the busses properly, it will be easy to go on with recording, playing back, mixing and doing surround work (Cubase only). */

Setting up busses.....	14	"setting up" busses
Strategies.....	14	

/* In Cubase, you can create any number of busses. A number of surround formats are supported (Cubase only). In Cubase Studio, busses are in mono or stereo.

.. The bus configuration is saved with the project – therefore it is a good idea to add and set up the busses you need and save these in a template project (see “Save as Template” on page 457).

When you start working on new projects, you start from this template. That way you get your standard bus configuration without having to make new bus settings for each new project. If you need to work with different bus configurations in different projects, you can either create several different templates or store your configurations as presets (see “Other bus operations” on page 17). The templates can of course also contain other settings that you regularly use – sample rate, record format, a basic track layout, etc.

So, which type of busses do you need? This depends on your audio hardware, your general audio setup (e.g. surround speaker setup) and what kind of projects you work with. Here’s an example:

Let’s say you are using audio hardware with eight analog inputs and outputs and digital stereo connections (10 inputs and outputs all in all). Furthermore, you work with a surround setup in 5.1 format (Cubase only). Here’s a list of busses you may wish to add: */

Input busses.....	14	"input busses"
-------------------	----	----------------

/* • Most likely you need at least one stereo input bus assigned to an analog input pair. This would let you record stereo material. If you want to be able to record in stereo from other analog input pairs as well, you add stereo input busses for these, too.

• Although you can record mono tracks from one side of a stereo input, it may be a good idea to add a dedicated mono input bus. This could be assigned to an analog input to which you have connected a dedicated microphone pre-amp for example. Again, you can have several different mono busses.

• You probably want a dedicated stereo input bus assigned to the digital stereo input, for digital transfers.

*• Cubase only: If you want to transfer surround material directly to a surround track, e.g. from surround-configured location recording equipment, you need an input bus in that surround format – in this example, this would be a 5.1 input bus. */*

Output busses..... 14 "output busses"

/ • You probably want one or several stereo output busses for monitoring and listening to stereo mixes.*

• For digital transfers, you need a stereo bus assigned to the digital stereo output as well.

• Cubase only: You need a surround bus in the format of your speaker configuration (in this example, 5.1) assigned to the correct outputs (which in turn are connected to the correct speakers). You may want additional surround busses if you tend to work in different surround formats.

*! Different busses can use the same inputs/outputs on the audio hardware! For example, you may want a stereo output bus assigned to the same outputs as the front stereo channels in your surround bus – this makes it easy to listen to stereo mixes without having to reconnect your speakers. */*

Preparations..... 15

/ Before you set up busses, you should name the inputs and outputs on your audio hardware. For example, if you are using a 5.1 surround speaker setup, you should name the outputs according to which speaker they are connected to (Left, Right, Center and so on).*

The reason for this is compatibility – it makes it easier to transfer projects between different computers and setups. For example, if you move your project to another studio, the audio hardware may be of a different model. But if both you and the other studio owner have given your inputs and outputs names according to the surround setup (rather than names based on the audio hardware model), Cubase will automatically find the correct inputs and outputs for your busses and you will be able to play and record without having to change the settings.

Use the Device Setup dialog to assign names to the inputs and outputs of your audio hardware:

1. Open the Device Setup dialog from the Devices menu.

...

5. Click OK to close the Device Setup dialog.

.. If you open a project created on another computer and the port names do not match (or the port configuration is not the same – e.g. the project is created on a system with multi-channel i/o and you open it on a stereo in/out system), the Pending Connections dialog will appear.

*This allows you to manually re-route ports used in the project to ports available in your system. */*

Mac OS X only: Retrieving channel names..... 15 "channel names"

Mac OS X only: Port selection and activation..... 15 port

The VST Connections window..... 16 "VST Connections window"

/ You add and set up busses in the VST Connections window, opened from the Devices menu.*

This window contains the following tabs:

• The Inputs and Outputs tabs are for viewing input busses or output busses, respectively.

...

• The Studio tab (Cubase only) is where you enable and configure the Control Room. See the chapter "Control Room (Cubase only)" on page 135.

For the time being, we shall focus on how to set up input and output busses.

Depending on which tab you have selected, Inputs or Outputs, the window lists the current input or output busses, with the following columns:

Column Description

Bus Name Lists the busses. You can select busses and rename them by clicking on them in this column.

Speakers Indicates the speaker configuration (mono, stereo, surround formats) of each bus.

Audio Device This shows the currently selected ASIO driver.

Device Port When you have "opened" a bus (by clicking its + button in the Bus Name column) this column shows which physical inputs/outputs on your audio hardware are used by the bus.

*Click You can route the click to a specific output bus, regardless of the actual Control Room output, or indeed when the Control Room is disabled. */*

Adding a bus..... 16 bus

/ 1. Click the Inputs or Outputs tab depending on which you want to add.*

2. Click the Add Bus button.

A dialog appears.

3. Select the desired (channel) configuration.

The pop-up menu contains Mono and Stereo options as well as several surround formats (Cubase only). To select another surround format, use the "More..." submenu.

• Alternatively you can right-click in the VST Connections window and add a bus in the desired format directly from the context menu.

The new bus appears with the ports visible.

4. Click in the Device Port column to select an input/output port for a channel in the bus.

*The pop-up menu that appears lists the ports with the names you have assigned in the Device Setup dialog. Repeat this for all channels in the bus. */*

Adding a child bus (Cubase only)..... 16 "child bus"

/ A surround bus is essentially a set of mono channels - 6 channels in the case of the 5.1 format. If you have a mono track in the project, you can route it to a separate speaker channel in the bus (or route it to the parent surround bus and use the SurroundPanner to position it in the surround image). But what if you have a stereo track that you simply want to route to a stereo channel pair within the bus (Left and Right or Left Surround and Right Surround for example)? For this you need to create a child bus.*

1. Select the surround bus in the list and right-click on it.

A pop-up menu appears.

2. Select a channel configuration from the "Add Child Bus" submenu.

As you can see, you can create stereo child busses (routed to various speaker channel pairs in the surround bus) or other surround bus formats (with fewer channels than the "parent bus").

The child bus you created will be available for direct routing in the mixer. It is a part of the parent surround bus, which means there will be no separate channel strip for it.

*Although child busses are probably most useful in output busses, you can also create child busses within a surround input bus - for example if you want to record a stereo channel pair (e.g. front left-right) in the surround bus to a separate stereo track. */*

Setting the Main Mix bus (the default output bus)..... 17 setting "Main Mix bus" "default output bus"

/ The Main Mix is the output bus that each new channel in the mixer will be assigned to when it is created.*

Any of the output busses in the VST Connections window can be the default output bus. By right-clicking on the name of an output bus, you can set this bus as the Main Mix bus.

Setting the default output bus in the VST Connections window.

When creating new audio, group or FX channels in the mixer, they will automatically be routed to the default bus.

*! The default bus is indicated by an orange colored speaker icon next to its name in the VST Connections window. */*

Presets..... 17

/ On the Inputs and Outputs tabs, you will find a Presets menu. Here you can find three different types of presets:*

- A number of standard bus configurations.*
- Automatically created presets tailored to your specific hardware configuration.*

On each startup, Cubase will analyze the physical inputs and outputs provided by your audio hardware and create a number of hardwaredependent presets with the following possible configurations:

- one stereo bus*
- ...*
- Cubase only: various combinations of 5.1 and mono busses (if you have 6 or more inputs)*
- You can also save your own setups as presets.*

*To store the current configuration as a preset, click the Store "+" button and enter a name for the preset. You can then select the stored configuration directly from the Presets pop-up menu at any time. To remove a stored preset, select it and click the "-" button. */*

Other bus operations..... 17 "bus operations"

/ • To change the port assignment for a bus, you proceed as when you added it: Make sure the channels are visible (by clicking the "+" button next to the bus, or by clicking the "+ All" button at the top of the window) and click in the Device Port column to select ports.*

- To remove a bus you do not need, select it in the list, right-click and select "Remove Bus" from the pop-up menu, or press [Backspace]. */*

Using the busses..... 18 busses

/ This section describes briefly how to use the input and output busses you have created. For details refer to the chapters "Recording" on page 66 and "The mixer" on page 109. */*

Routing..... 18 routing

/ When you play back an audio track (or any other audio-related channel in the mixer - VST Instrument channels, ReWire channels, etc.), you route it to an output bus. In the same way, when you record on an audio track you select from which input bus the audio should be sent.*

- You can select input and output busses in the Inspector, using the Input and Output Routing pop-up menus.*
- You can also select busses in the Routing panel at the top of each channel strip in the mixer.*

.. If the Routing panel is not shown, click the Show Routing button in the extended common panel or open the Mixer context menu and select "Show Routing View" from the Window submenu (see "Normal vs. Extended channel strips" on page 112).

.. For audio-related channel types other than audio track channels (i.e. VST Instrument channels, ReWire channels, Group channels and FX channels), only the Output Routing pop-up menu is available.

- If you press [Shift]-[Alt]/[Option] and select an input or output bus in the Track list or the Mixer Routing View (Cubase only), it will be chosen for all selected channels.*

This makes it easy to quickly set several channels to use the same input or output. Similarly, if you press [Shift] and select a bus, the following selected channels will be set to use incrementing busses - the second selected channel will use the second bus,

the third will use the third bus and so on.

When selecting an input bus for a track you can only select busses that correspond to the track's channel configuration. Here are the details for input busses:

- *Mono tracks can be routed to mono input busses or individual channels within a stereo or surround input bus (Cubase only).*

...

- *Surround tracks can also be routed to output busses, provided that these have the same input configuration or will not lead to feedback.*

For output busses any assignment is possible.

! Assignments that will lead to feedback are not available in the pop-up menu. This is also indicated by a one-way symbol.

*To disconnect input or output bus assignments, select "No Bus" from the corresponding pop-up menu. */*

Viewing the busses in the mixer..... 19 busses mixer

/ In the mixer, busses are represented by input and output channels (shown in separate panes to the left and right in the window). You can show or hide these independently by clicking the Hide Input Channels and Hide Output Channels buttons in the common panel:*

.. In Cubase Studio, only the output busses are visible in the mixer!

*The input busses you have created in the VST Connections window are available for selection on the Input Routing pop-up menus, but you will not be able to make any specific mixer settings for the input busses. */*

Input channels (Cubase only)..... 19 "input channels"

/ The input channels are shown to the left in the mixer. As you can see, each input channel resembles a regular mixer channel strip.*

Here you can do the following:

- *Check and adjust the recording level using the Input Gain knobs and/or the level fader.*

See "Setting input levels" on page 71.

- *Change the phase of the input signal.*

This is done by clicking the Input Phase button next to the Input Gain control.

- *Add effects or EQ to the input bus.*

See "Recording with effects (Cubase only)" on page 78 for an example of how to add effects to your recording at the input bus stage.

*! The settings you make in the input channel strip will be a permanent part of the recorded audio file! */*

Output channels..... 19 "output channels"

/ The output channels are shown to the right in the mixer. Here you can do the following:*

- *Adjust the output level for the busses with the faders.*

- *Open the Channel Settings window to add effects or EQ.*

*These will affect the whole bus. Examples of effects you may want to add here include compressors, limiters and dithering. See the chapter "Audio effects" on page 150. */*

Setting up Group and FX channels..... 20 "setting up" "Group channels" "FX channels"

/ The Group/FX tab in the VST Connections window shows all Group channels and FX channels in your project. You can create new Group or FX channels by clicking the corresponding Add button. This is the same as creating Group channel tracks or FX channel*

tracks in the Project window (see "Using group channels" on page 127 and the chapter "Audio effects" on page 150).

However, the VST Connections window also allows you to create child busses for Group and FX channels (Cubase only). This is useful e.g. if you have Group or FX channels in surround format and want to route stereo channels to specific channel pairs in these.

To create a child bus for a Group channel or FX channel in surround format, proceed as follows:

- 1. Open the VST Connection window and select the Groups/FX tab.*
- 2. Select the Group or FX channel in the list and rightclick it.*
- 3. Select a channel configuration from the "Add Child Bus" submenu.*

*The child bus you created will be available for direct routing in the mixer. It is a part of the parent Group or FX channel, which means there will be no separate channel strip for it. */*

About monitoring..... 20 monitoring

/ By default, monitoring is done via the Control Room (see the chapter "Control Room (Cubase only)" on page 135). When the Control Room is disabled on the Studio tab of the VST Connections window, the Main Mix bus (see "Setting the Main Mix bus (the default output bus)" on page 17) will be used for monitoring.*

*□ In Cubase Studio, the Main Mix bus is always used for monitoring. */*

Setting the monitoring level..... 20 setting "monitoring level"

/ When you are using the Control Room for monitoring, this is set in the Control Room Mixer, see "The Control Room Mixer" on page 141. When you are monitoring via the Main Mix bus, you can adjust the monitoring level in the regular Project Mixer. */*

External instruments/effects (Cubase only)..... 20

/ Cubase supports the integration of external effect devices and external instruments, e.g. hardware synthesizers, into the sequencer signal flow.*

You can use the External Instruments tab and the External FX tab in the VST Connections window to define the necessary send and return ports and access the instruments/ effects through the VST Instruments window.

*! External instruments and effects are indicated by an "x" icon in the list next to their names in the respective pop-up menus. */*

Requirements.....	20
Connecting the external effect/instrument.....	20
Setting up external effects.....	21
How to use the external effect.....	21
Setting up external instruments.....	22
How to use the external instrument.....	23
About the Favorites buttons.....	23
About the "plug-in could not be found" message.....	23
Freezing external effects/instruments.....	24
3 The Project window.....	25
Background.....	26

/ The Project window is the main window in Cubase. This provides you with an overview of the project, allowing you to navigate and perform large scale editing. Each project has one Project window. */*

About tracks..... 26 tracks

/ The Project window is divided vertically into tracks, with a timeline running horizontally from left to right. The following track types are available:*

Track type Description

Audio For recording and playing back audio events and audio parts. Each audio track has a corresponding audio channel in the mixer. An audio track can have any number of automation tracks for automating mixer channel parameters, effect settings, etc.

Folder *Folder tracks function as containers for other tracks, making it easier to organize and manage the track structure. They also allow you to edit several tracks at the same time. See "Folder tracks" on page 53.*

FX Channel *FX channel tracks are used for adding send effects. Each FX channel can contain up to eight effect processors - by routing effect sends from an audio channel to an FX channel, you send audio from the audio channel to the effect(s) on the FX channel. Each FX channel has a corresponding channel strip in the mixer - in essence an effect return channel. See the chapter "Audio effects" on page 150. All FX channel tracks are automatically placed in a special FX channel folder in the Track list, for easy management. An FX channel can also have any number of automation tracks for automating mixer channel parameters, effect settings, etc.*

Group Channel *By routing several audio channels to a Group channel, you can submix them, apply the same effects to them, etc. (see "Using group channels" on page 127). A Group channel track contains no events as such, but displays settings and automation curves for the corresponding Group channel. Each Group channel track has a corresponding channel strip in the mixer. In the Project window, Group channels are organized as tracks in a special Group Tracks folder.*

Instrument *This allows you to create a track for a dedicated instrument, making e.g. VST instrument handling easier and more intuitive. Instrument tracks have a corresponding channel strip in the mixer. Each instrument track can have any number of automation tracks in the Project window. However, Volume and Pan are automated from within the mixer. It is possible to edit Instrument tracks directly in the Project window, using the Edit In-Place function (see "The In-Place Editor" on page 356). For more information on instrument tracks, see the chapter "VST Instruments and Instrument tracks" on page 169.*

MIDI *For recording and playing back MIDI parts. Each MIDI track has a corresponding MIDI channel strip in the mixer. It is possible to edit MIDI tracks directly in the Project window, using the Edit In-Place function (see "The In-Place Editor" on page 356). A MIDI track can have any number of automation tracks for automating mixer channel parameters, insert and send effect settings etc.*

Marker *The Marker track displays markers which can be moved and renamed directly in the Project window (see "Markers" on page 54). A project can have only one marker track.*

Arranger *The Arranger track is used for arranging your project, by marking out sections in the project and determining in which order they should be played back. See the chapter "The Arranger track" on page 96.*

Ruler (Cubase only) *Ruler tracks contain additional rulers, displaying the timeline from left to right. You can use any number of ruler tracks, each with a different display format if you wish. See "The ruler" on page 33 for more information about the ruler and the display formats.*

Signature *Time signature events can be added and edited on the signature track, or in the Tempo Track Editor window. A project can have only one signature track. See the chapter "Editing tempo and signature" on page 401 for details.*

Tempo *You can create tempo changes within a project using the tempo track. A project can have only one tempo track. See the chapter "Editing tempo and signature" on page 401 for details.*

Transpose *The Transpose track allows you to set global key changes. A project can have only one transpose track. See the chapter "The Transpose functions" on page 103.*

Video *For playing back video events. A project can have only one video track. */*

About parts and events..... 26 parts events

/ The tracks in the Project window contain parts and/or events. Events are the basic building blocks in Cubase. Different event types are handled differently in the Project window:*

- Video events and automation events (curve points) are always viewed and rearranged directly in the Project window.*
- MIDI events can always be found in MIDI parts, which are containers for one or more MIDI events. MIDI parts are rearranged and manipulated in the Project window. To edit the individual MIDI events in a part, you have to open the part in a MIDI editor (see "The MIDI editors" on page 337).*
- Audio events can be displayed and edited directly in the Project window, but you can also work with audio parts containing several events. This is useful if you have a number of events which you want to treat as one unit in the project. Audio parts also contain information about the time position in the project.*

*An audio event and an audio part */*

Audio handling..... 27 "audio handling"

/ When you work with audio files, it is crucial to understand how audio is handled in Cubase:*

When you edit or process audio in the Project window, you always work with an audio clip that is automatically created on import or during recording. This audio clip refers to an audio file on the hard disk that itself remains untouched. This means, that audio editing and processing is "non-destructive", in the sense that you can always undo changes or revert to the original versions.

An audio clip does not necessarily refer to just one original audio file! If you apply e.g. some processing to a specific section of an audio clip, this will create a new audio file containing only this section. The processing will then be applied to the new audio file only, leaving the original audio file unchanged. Finally, the audio clip is automatically adjusted, so that it refers both to the original file and to the new, processed file. During playback, the program will switch between the original file and the processed file at the correct positions. You will hear this as a single recording, with processing applied to one section only. This feature makes it possible to undo processing at a later stage, and to apply different processing to different audio clips that refer to the same original file.

An audio event is the object that you place on a time position in Cubase. If you make copies of an audio event and move them to different positions in the project, they will still all refer to the same audio clip. Furthermore, each audio event has an Offset value and a Length value. These determine at which positions in the clip the event will start and end, i.e. which section of the audio clip will be played back by the audio event. For example, if you resize the audio event, you will just change its start and/or end position in the audio clip – the clip itself will not be affected.

An audio region is a section within a clip with a length value, a start time, and a snap point. Audio regions are shown in the pool and are best created and edited in the Sample Editor.

*□ If you want to use one audio file in different contexts, or if you want to create several loops from one audio file, you should convert the corresponding regions of the audio clip to events and bounce them into separate audio files. This is necessary since different events that refer to the same clip access the same clip information. */*

Window Overview..... 28

/ Toolbar
Info line
Project overview
Ruler
Inspector
The Track list with various track types
The event display, showing audio parts and events, MIDI parts, automation, markers, etc. */*

The Track list..... 28

/ The Track list displays all the tracks used in a project. It contains name fields and settings for the tracks. Different track types have different controls in the Track list. To see all the controls you may have to resize the track in the Track list (see "Resizing tracks in the Track list" on page 35).*

- The Track list area for an audio track:*

Mute & Solo

Track name

Record Enable & Monitor

Automation Read/Write

Edit channel settings

Freeze Audio Track

Show/hide automation

Indicates whether effect sends, EQ or insert effects are activated for the track. Click to bypass.

Musical/Linear Time Base

Lock track

Lane Display Type

Track activity indicator

- The Track list area for an automation track (opened by clicking the Show/Hide Automation button on a track):

...

- The Track list area for a MIDI track:

...

*/

The Inspector..... 29

/ The area to the left of the Track list is called the Inspector. This shows additional controls and parameters for the track you have selected in the Track list. If several tracks are selected (see "Handling tracks" on page 38), the Inspector shows the setting for the first (topmost) selected track.*

To hide or show the Inspector, click the Inspector icon in the toolbar.

The Inspector icon

- For most track classes, the Inspector is divided into a number of sections, each containing different controls for the track. You can hide or show sections by clicking on their names.

Clicking the name for a hidden section brings it into view and hides the other sections. [Ctrl]/[Command]-clicking the section name allows you to hide or show a section without affecting the other sections. [Alt]/[Option]- clicking a section name shows or hides all sections in the Inspector.

- You can also use key commands to show different Inspector sections.

These are set up in the Key Commands dialog, see "Setting up key commands" on page 480.

.. Hiding a section does not affect its functionality. For example, if you have set up a track parameter or activated an effect, your settings will still be active even if you hide the respective Inspector section.

Which sections are available in the Inspector depends on the selected track.

.. Please note that not all Inspector tabs are shown by default. You can show/hide Inspector sections by rightclicking on an Inspector tab and activating/deactivating the desired option(s).

Make sure you right-click on an inspector tab and not on the empty area below the Inspector, as this will open the Quick context menu instead.

*The Inspector Setup context menu */*

Inspector sections..... 29

/ The Inspector contains the controls that can be found on the Track list, plus some additional buttons and parameters. In the table below, these additional settings and the different sections are listed. Which sections are available for which track type is described in the following sections.*

Parameter Description

Auto Fades Settings button Opens a dialog in which you can make separate Auto Fade settings for the audio track. See "Making Auto Fade settings for a separate track" on page 95.

Edit Channel settings Opens the Channel Settings window for the track, allowing you to view and adjust effect and EQ settings, etc. See "Using Channel Settings" on page 122.

Volume Use this to adjust the level for the track. Changing this setting will move the track's fader in the mixer window, and vice

versa. See "Setting volume in the mixer" on page 117 to learn more about setting levels.

Pan Use this to adjust the panning of the track. As with the Volume setting, this corresponds to the Pan setting in the mixer.

Delay This adjusts the playback timing of the audio track. Positive values delay the playback while negative values cause the track to play earlier. The values are set in milliseconds.

Input Routing This lets you specify which Input bus or MIDI input the track should use (see "Setting up busses" on page 14 for information about Input busses).

Output Routing Here you decide to which output the track should be routed. For audio tracks you select an output bus (see "Setting up busses" on page 14) or Group channel, for MIDI tracks you select a MIDI output and for Instrument tracks, you select the Instrument to which it is routed.

Inserts section Allows you to add insert effects to the track, see the chapters "Audio effects" on page 150 and "MIDI realtime parameters and effects" on page 305. The Edit button at the top of the section opens the control panels for the added insert effects.

Equalizers section Lets you adjust the EQs for the track. You can have up to four bands of EQ for each track, see "Making EQ settings" on page 123. The Edit button at the top of the section opens the Channel Settings window for the track.

Equalizer Curve section Lets you adjust the EQs for the track graphically, by clicking and dragging points in a curve display.

Sends section Allows you to route an audio track to one or several FX channels (up to eight), see the chapter "Audio effects" on page 150. For MIDI tracks, this is where you assign MIDI send effects. The Edit button at the top of the section opens the control panel for the first effect in each FX channel.

Studio Sends (Cubase only) The Studio Sends are used to route cue mixes to Control Room Studios. For a detailed description of Studios and Studio Sends, see the chapter "Control Room (Cubase only)" on page 135.

Surround Pan (Cubase only) When the SurroundPanner is used for a track, this is also available in the Inspector. For further information, see "Using the SurroundPanner" on page 184.

Channel section Shows a duplicate of the corresponding mixer channel strip. The channel overview strip to the left lets you activate and deactivate insert effects, EQs and sends.

Notepad section This is a standard text notepad, allowing you to jot down notes about the track. If you have entered any notes about a track, the icon next to the "Notepad" heading will light up to indicate this. Moving the pointer over the icon will display the Notepad text in a tooltip.

User Panel (Cubase only) Here you can display device panels, e.g. for external MIDI devices, audio track panels or VST insert effect panels. For information on how to create or import MIDI device and user panels, see the separate PDF document "MIDI Devices".

*Quick Controls Here you can configure quick controls, e.g. to use remote devices. See the chapter "Track Quick Controls" on page 295. */*

Audio tracks..... 30 "audio tracks"

/ For audio tracks, all settings and sections listed above are available. */*

Instrument tracks..... 30

MIDI tracks..... 30

Arranger track..... 30

Folder tracks..... 30

FX channel tracks..... 30 "FX channel tracks"

/ When an FX channel track is selected, the following controls and sections are available:*

- Edit button*
- Volume control*
- Pan control*

- *Output Routing pop-up menu*
- *Inserts section*
- *Equalizers section*
- *Equalizer Curve section*
- *Sends section*
- *Studio Sends section (Cubase only)*
- *Surround Pan section (Cubase only)*
- *Channel section*
- *Notepad section*

*FX channel tracks are automatically placed in a special folder, for easier management. When this folder track is selected, the Inspector shows the folder and the FX channels it contains. You can click one of the FX channels shown in the folder to have the Inspector show the settings for that FX channel - this way you don't have to "open" a folder track to access the settings for the FX channels in it. */*

Group channel tracks..... 31 "group channel tracks"

/ When a Group channel track is selected, the following controls and sections are available:*

- *Edit button*
- *Volume control*
- *Pan control*
- *Output Routing pop-up menu*
- *Inserts section*
- *Equalizers section*
- *Equalizer Curve section*
- *Sends section*
- *Studio Sends section (Cubase only)*
- *Surround Pan section (Cubase only)*
- *Channel section*
- *Notepad section*

*Just like FX channel tracks, all Group channel tracks are placed in a separate folder - when this is selected, the Inspector shows the folder and the Group channels it contains. You can click one of the Group channels shown in the folder to have the Inspector show the settings for that Group channel - this way, you don't have to "open" a folder track to access the settings for the Group channels in it. */*

Marker tracks.....	31
Ruler tracks (Cubase only).....	31
Transpose track.....	31
Signature track and tempo track.....	31
Video tracks.....	31
The toolbar.....	31
The info line.....	32 "info line"

/ The info line shows information about the currently selected event or part in the Project window. You can edit almost all values on the info line using regular value editing. Length and position values are displayed in the format currently selected for the ruler (see "The ruler" on page 33).*

- To hide or show the info line, click the Show Event Info Line button on the toolbar.*

The following elements can be selected for display and editing on the info line:

- Audio events*
- Audio parts*
- MIDI parts*
- Video events*
- Markers*
- Automation curve points*
- Transpose events*
- Arranger events */*

When several elements are selected..... 32

/ • If you have several elements selected, the info line will show information about the first item in the selection. The values will be shown in yellow to indicate that several elements are selected.*

- If you edit a value on the info line, the value change is applied to all selected elements, relatively to the current values.*

If you have two audio events selected and the first is one bar long and the other two bars long, the info line shows the length of the first event (one bar). If you now edit this value to 3 bars in the info line, the other event will be resized by the same amount – and will thus be 4 bars long.

- If you press [Ctrl]/[Command] and edit on the info line, the values will be absolute instead. In our example above, both events would be resized to 3 bars. Note that [Ctrl]/ [Command] is the default modifier key for this – you can change this in the Preferences (Editing-Tool Modifiers page, under the Info Line category). */*

Editing Transpose and Velocity for MIDI parts..... 32

Getting on-the-fly info with the Arrow tool..... 32

/ If the option "Select Tool: Show Extra Info" is activated in the Preferences (Editing-Tools page), a tooltip will be shown for the Arrow tool, displaying information depending on where you point it. For example, in the Project window event display, the tool will show the current pointer position and the name of the track and event you're pointing at. */*

The ruler..... 33

/ The ruler at the top of the event display shows the timeline. Initially, the Project window ruler uses the display format specified in the Project Setup dialog (see "The Project Setup dialog" on page 34), as do all other rulers and position displays in the project. However, you can select an independent display format for the ruler by clicking the arrow button to the right of it and selecting an option from the pop-up menu (you can also bring up this pop-up menu by right-clicking anywhere in the ruler).*

Option Positions and lengths displayed as

Bars+Beats Bars, beats, sixteenth notes and ticks. By default there are 120 ticks per sixteenth note but you can adjust this with the "MIDI Display Resolution" setting in the Preferences (MIDI page).

Seconds Hours, minutes, seconds and milliseconds.

Timecode This format displays hours, minutes, seconds and frames. The number of frames per second (fps) is set in the Project Setup dialog (see "The Project Setup dialog" on page 34). You can choose between 24, 25, 29.97 and 30fps or 29.97 and 30dfps ("drop frame").

Samples Samples.

User Hours, minutes, seconds and frames, with a user definable number of frames per second. You set the desired number of fps in the Preferences (Transport page).

Time Linear When this is selected, the ruler will be linear relative to time. This means that if there are tempo changes on the tempo track, the distance between the bars will vary in Bars+Beats mode.

Bars+Beats Linear When this is selected, the ruler will be linear relative to the meter position - bars and beats. This means that if there are tempo changes on the tempo track, there still will be the same distance between bars in Bars+Beats mode. If the ruler is set to a time-based mode, the distance between seconds will vary depending on the tempo changes.

- The selection you make here affects the ruler, the info line and tooltip position values (which appear when you drag an event in the Project window).*

You can also select independent formats for other rulers and position displays.

- To set the display format globally (for all windows), use the primary display format pop-up on the Transport panel, or hold down [Ctrl]/[Command] and select a display format in any ruler.*
- If you use the "Timecode" or "User" options and the option "Show Timecode Subframes" is activated in the Preferences (Transport page), the frames will also display subframes.*

*There are 80 subframes per frame. */*

Using multiple rulers - ruler tracks (Cubase only)..... 33

/ As described above, the Cubase Project window contains a main ruler at the top of the event display, displaying the timeline from left to right.*

If needed, you can have several rulers in the Project window, by adding ruler tracks to the project. Each ruler track contains an additional ruler.

- To add a ruler track, select "Add Track" from the Project menu and from the submenu that appears, select "Ruler".*

A ruler track showing an additional ruler is added to the Track list.

A ruler track set to the display format "Seconds"

You can add any number of ruler tracks to a project, and position them as needed by dragging them up or down in the Track list. Each of the rulers can show a separate display format:

- To select a display format for a ruler track, click on its name in the Track list and select an option from the popup menu.*

Note that ruler tracks are completely independent from the main event display ruler, as well as rulers and position displays in other windows. This means that:

- Each ruler track in a project can have its own display format.*
- Ruler tracks are not affected by the display format setting in the Project Setup dialog (see "The Project Setup dialog" on page 34).*
- Ruler tracks are not affected if you set the display format globally with the primary time display in the Transport panel.*

*□ Ruler tracks are affected by the option "Show Timecode Subframes" in the Preferences (Transport page, see above). */*

Operations..... 34
Creating a new project..... 34

/ You create a new project in the following way:*

- 1. Select "New Project" from the File menu.*

A dialog appears, listing a number of project templates, including any custom templates you may have created (see "Save as Template" on page 457).

2. Select a template (or "Empty") and click OK.

A file dialog appears, allowing you to specify a location for the project folder. This will contain all files related to the project.

3. Select an existing folder or create a new one. Then click OK.

A Project window opens. If you selected a template, the new project will be based on this template, and include the corresponding tracks, events and settings. */

The Project Setup dialog..... 34 "Project Setup dialog"

/* General settings for the project are made in the Project Setup dialog. This is opened by selecting "Project Setup..." from the Project menu.

.. If the "Run Setup on Create New Project" option is activated in the Preferences dialog (General page), the Project Setup dialog will open automatically when you create a new project.

The following settings are available in the Project Setup dialog:

Setting Description

Start The start time of the project. Allows you to have the project start at another time than zero. Also used for setting the sync start position when synchronizing Cubase to external devices (see "Setting up Cubase for external sync to timecode" on page 433). When you change this setting you will be asked whether you want to keep the project content at its timecode positions. "Yes" means that all events will stay at their original timecode positions - i.e. they will be moved in relation to the start of the project. "No" means that all events keep their position relative to the project start.

Length The length of the project.

Frame Rate Used when synchronizing Cubase with external equipment. If Cubase is slave, this value is automatically set to the frame rate of the incoming sync signal. If Cubase is the master, this determines the frame rate of the sent sync signal. See "Setting the Frame Rate" on page 430.

Display Format This is the global display format used for all rulers and position displays in the program, except ruler tracks (Cubase only, see "Ruler tracks (Cubase only)" on page 31). However, you can make independent display format selections for the individual rulers and displays if you like. For descriptions of the different display format options, see "The ruler" on page 33.

Display Offset Offsets the time positions displayed in the ruler etc., allowing you to compensate for the Start position setting. Typically, if you synchronize Cubase to an external source starting at a frame other than zero, you set the Start position to this value. However, if you still want the display in Cubase to start at zero, set the Display Offset to the same value.

Bar Offset This works just like "Display Offset" described above, in that it offsets the time positions in the ruler by a number of bars, allowing you to compensate for the Start position setting. The difference is that Bar Offset is only used when the "Bars+Beats" display format is selected (see "The ruler" on page 33).

Sample Rate The sample rate at which Cubase records and plays audio.

Record Format/File Type When you record audio in Cubase, the files that are created will be of this resolution and file type. See "Selecting a recording file format" on page 69.

Stereo Pan Law Decides whether panning should use power compensation or not (see "About the "Stereo Pan Law" setting (audio channels only)" on page 121).

! While most Project Setup settings can be changed at any time, you must select a sample rate once and for all when starting with a new project! All audio files must be of this sample rate to play back correctly. */

Zoom and view options.....	35
Resizing tracks in the Track list.....	35
The Enlarge Selected Track option.....	36
Zoom presets and Cycle markers.....	36 "Cycle markers"
The Zoom history.....	37

Adjusting how parts and events are shown..... 37 parts events

/ The Preferences on the File menu (the Cubase menu, under Mac OS X) contains several settings for customizing the display in the Project window. The Event Display page contains common settings for all track types:*

...

The Event Display-Audio page contains settings for audio events:

...

The Event Display-MIDI page contains settings for MIDI parts:

...

The Event Display-Video page contains settings for video events:

*... */*

Zooming and navigating in the overview line..... 38

Handling tracks..... 38 "handling tracks"

/ To add a track to the project, select "Add Track" from the Project menu and select a track type from the submenu that appears. The new track is added below the currently selected track in the Track list.*

- The items on the "Add Track" submenu are also available on the context menu.*

This is accessed by right-clicking in the Track list.

- If you select Audio, MIDI, Group Channel or Instrument from the Add Track submenu, a dialog opens, allowing you to insert several tracks in one go.*

Just enter the desired number of tracks in the value field.

- For audio and group channel tracks, the channel configuration - mono, stereo or a surround configuration (Cubase only) - can be set in the Configuration pop-up.*

- The Browse Sounds option in the Add Track dialog is described in the chapter "Working with Track Presets" on page 288.*

- In the Preferences (Editing-Project & Mixer page), you can find the option "Auto Track Color Mode".*

This offers you several options for automatically assigning colors to tracks that are added to the project.

Once you have created tracks, you can manipulate and rearrange them in various ways:

- To rename a track, double-click in the name field and type in a new name.*

If you hold down any modifier key when pressing [Return] to close the name field, all events on the track will get the name you entered.

- To select a track, click on it in the Track list.*

A selected track is indicated by a light gray color in the Track list.

It is possible to select several tracks by pressing [Ctrl]/[Command] and clicking on them. [Shift]-click to select a continuous range of tracks.

- To move a track, click and drag it up or down in the list.*

- To duplicate a track, complete with all contents and channel settings, right-click in the Track list and select "Duplicate tracks" from the context menu, or select "Duplicate tracks" from the Project menu.*

The duplicated track will appear below the original track.

- You can select a default color for a track by activating "Show Track Colors" above the Track list and selecting a color from the Color pop-up menu on the toolbar. This color will be used for all events on the track and will also be shown in the Mixer. You can override the default track color for individual events and parts by using the Color tool or the Color Selector pop-up menu. For more information, see "Applying track and event colors" on page 475. The option "Colorize Event Background" in the Preferences dialog (Event Display page) determines whether the backgrounds or waveforms of events will be colorized.

- To remove a track, right-click on it in the Track list and select "Remove Selected Tracks" from the context menu.

You can also remove multiple selected tracks, by selecting "Remove Selected Tracks" either from the context menu or from the Project menu. Furthermore, you can remove all tracks not containing any events by selecting "Remove Empty Tracks" from the Project menu.

- To change the track height of an individual track, click on its lower border in the Track list and drag up or down, see "Resizing tracks in the Track list" on page 35.

.. Note that you can also automatically enlarge the selected track, see "The Enlarge Selected Track option" on page 36. */

Disabling audio tracks..... 39 "disabling audio tracks"

/* Audio tracks can be disabled by selecting "Disable Track" from the Track list context menu. Disabling a track is similar to muting it (see "Muting events" on page 49), since a disabled track will not be played back. However, disabling a track not only "zeroes" the output volume from the track, but actually shuts down all disk activity for it. See "About track disable/enable" on page 63 for more information. */

Track folding..... 39

Dividing the Track list (Cubase only)..... 40

Switching between musical and linear time base..... 40 "musical time base" "linear time base"

/* Tracks can be either musical (tempo) or linear (time) based.

- On a track using linear time base, the events will be positioned on specific time positions - changing the playback tempo will not affect the time position of events.

- On a track using musical time base, the positions of events are represented as meter values (bars, beats, 1/16th notes and ticks, with 120 ticks per 1/16th note). If you change the playback tempo, the events will play back at an earlier or later time.

- In the Preferences (Editing page), you can find the option "Default Track Time Type" (Cubase only).

This allows you to specify the default track time type for new tracks (Audio, Group/FX, MIDI and Marker tracks). When you change this setting, all new tracks will use the selected time type. You can choose between "Musical", "Time Linear" and "Follow Transport Main Display". Selecting "Musical" will cause all added tracks to be set to musical time type. When you select "Time Linear", all new tracks will use linear time base. The third option uses the primary time format setting on the Transport panel. When this is set to "Bars+Beats", tracks with musical time base will be added. When this is set to any of the other options (Seconds, Timecode, Samples, etc.), all new tracks will use linear time base.

Whether to use musical or linear time base depends on the type of project and recording situation. You can always change this setting individually for each track, by clicking the musical/linear time base button in the Inspector or Track list. Musical time base is indicated by a note symbol, while linear time base is indicated by a clock symbol.

! Internally, events on musical time based tracks use the same high precision for positioning (64 bit floating point values) as linear time based events. However, switching between linear and musical time base results in a very small loss of precision (introduced by the mathematical operations used for scaling values in the two different formats). Therefore you should avoid switching repeatedly between the two modes.

For more information about tempo changes, see the chapter "Editing tempo and signature" on page 401. */

Adding events to a track..... 41 events track

/* There are a number of ways to add events to a track:

- By recording (see "Basic recording methods" on page 67).

- By dragging files and dropping them on the track at the desired position.

You can create events by dragging and dropping from the following locations:

- The desktop
- The MediaBay and its related windows (see the chapter "The MediaBay" on page 273)
- The Pool
- A library (a Pool file that is not attached to a project)
- The "Find media" dialog
- The Project window of another open project
- The Audio Part Editor of any open project
- The Sample Editor - press [Ctrl]/[Command] and drag to create an event of the current selection, or click in the left column of the region list and drag to create an event from a region.

While you drag the clip in the Project window, its position will be indicated by a marker line and a numerical position box. See also "Using drag and drop" on page 264.

- By selecting "Audio File..." or "Video File..." from the Import submenu on the File menu.

This opens a file dialog, allowing you to locate the file you wish to import. When you import a file this way, a clip is created for the file and an event that plays the whole clip is inserted on the selected track, at the position of the project cursor.

You can also import MIDI files by using the Import submenu, but this works in a slightly different way (see "Exporting and importing standard MIDI files" on page 464).

- By grabbing audio CD tracks and converting them to audio files (see "Importing audio CD tracks" on page 459).
- By importing only the audio portion of a video file and converting it to an audio file (see "Extracting audio from a video file" on page 450).
- By using Copy and Paste on the Edit menu.

This allows you to copy all kinds of events between projects. You can also copy events within the project, e.g. from the Sample Editor.

- By drawing.

Some types of events (markers and automation events) can be drawn directly into the Project window. For audio and MIDI tracks, you can draw parts (see "Creating parts" on page 42). */

Audio file import options..... 41 "audio file"

/* When you are importing audio files there are a number of options concerning how the files should be treated by Cubase:

- You can choose to copy the file into the audio folder of the project and have the project make reference to the copied file rather than the original file. This helps you keep your project "self-contained".
- You can choose to split stereo and multi-channel files into a number of mono files.
- Furthermore, you may want all files in the project to have the same sample rate and sample size (resolution).

The Preferences dialog (Editing-Audio page) contains a setting that lets you decide which options to use. Select one of the following options on the "On Import Audio Files" pop-up menu:

- Open Options Dialog

An Options dialog appears when you import, allowing you to select whether you want to copy the files to the Audio folder and/or convert them to the project settings. Please note the following:

- When importing a single file of a format other than the project settings, you can specify which properties (sample rate and/or

resolution) should be changed.

- When importing multiple files at the same time, you can select to convert the imported files automatically if necessary, i.e. if the sample rate is different than the project's or the resolution is lower than the project setting.

- Use Settings

No Options dialog will appear when you import. Instead, you can choose to make any of the options below the pop-up the standard action(s). Activate any number of the following options to have them performed automatically each time you import audio files:

Option Description

Copy Files to Working Directory If files are not already in the project's audio folder they are copied there before being imported.

Convert and Copy to Project If Needed If files are not already in the project's audio folder they are copied there before being imported. Furthermore, if the files have a different sample rate or a lower resolution than the project settings, they are automatically converted.

Split multichannel files If you import a multi-channel audio file (including twochannel stereo files), it will be split into a number of mono files - one for each channel - which are placed on separate, automatically created mono tracks. */

Creating parts..... 42 parts

/* Parts are containers for MIDI or audio events. If you record MIDI, a MIDI part is automatically created, containing the recorded events. You can also create empty audio or MIDI parts and later add events to them.

There are two ways to do this:

- Draw a part on a MIDI or audio track with the Pencil tool. You can also draw parts by pressing [Alt]/[Option] and using the Arrow tool.
- Double-click with the Arrow tool on a MIDI or audio track, between the left and right locator.

To add events to a MIDI part, you use the tools and functions in a MIDI editor (see "The Key Editor - Overview" on page 340). Adding events to audio parts is done in the Audio Part Editor (see "Window overview" on page 255) by pasting or by using drag and drop.

- You can also gather existing audio events into a part, by using the "Events to Part" function on the Audio menu.

This creates an audio part containing all selected audio events on the same track. To remove the part and make the events appear as independent objects on the track again, select the part and use the "Dissolve Part" function on the Audio menu. */

Auditioning audio parts and events..... 42 auditioning "audio parts" "audio events"

/* Audio parts and events can be auditioned in the Project window with the Play tool:

! When auditioning, audio will be routed directly to the Control Room (Cubase only), if the Control Room is activated. When the Control Room is deactivated, the audio will be routed to the default output bus, bypassing the audio channel's settings, effects and EQs. In Cubase Studio, the Main Mix bus is always used for monitoring.

1. Select the Play tool.

Note that the Play tool and the Scrub tool share the same tool button. If the tool icon on the toolbar doesn't show a speaker symbol, first click on the icon to select it, then click again and select "Play" from the pop-up menu.

2. Click where you want playback to start, and keep the mouse button pressed.

Only the track on which you click is played back, starting at the click position.

3. Release the mouse button to stop playback. */

Scrubbing..... 43 scrubbing

/* The Scrub tool allows you to locate positions in the audio by playing back, forwards or backwards, at any speed:

1. Select the Scrub tool.

Note that the Play tool and the Scrub tool share the same tool button. If the tool icon on the toolbar doesn't show a "scrub symbol", first click on the icon to select it, then click again and select "Scrub" from the pop-up menu.

2. Click at the desired position and keep the mouse button pressed.

The project cursor is moved to the position at which you click.

3. Drag to the left or right.

The project cursor follows the mouse pointer and the audio is played back. The speed and pitch of the playback depend on how fast you move the pointer.

You can adjust the responsiveness of the Scrub function in the Preferences (Transport-Scrub page).

□ It is also possible to "scrub" the whole project with the Jog wheel on the Transport panel (Cubase only). See "Project scrubbing - the Jog Wheel (Cubase only)" on page 63.

• Note that scrubbing can be quite a burden on your system. To avoid playback problems, you will find the "CPU Saving Scrub Mode" option in the Preferences (Transport- Scrub page).

When you activate this option, scrubbing will be less demanding on the processor. This can be very useful when scrubbing in a large project, where the "normal" scrub behavior leads to processing overloads. When "CPU Saving Scrub Mode" is activated, the effects are disabled for scrubbing and the resampling quality is lower. */

Editing parts and events..... 43 parts events

/* This section describes techniques for editing in the Project window. If not explicitly stated, all descriptions apply to both events and parts, even though we use the term "event" for convenience.

□ When you are using the tools for editing, you can in many cases get additional functions by pressing modifier keys (e.g. pressing [Alt]/[Option] and dragging with the Arrow tool creates a copy of the dragged event). On the following pages, the default modifier keys are described - you can customize these in the Preferences (Editing-Tool Modifiers page), see "Setting up tool modifier keys" on page 483. */

Selecting events..... 43 "selecting events"

/* Selecting events is done using any of the following methods:

- Use the Arrow tool.

The standard selection techniques apply.

- Use the Select submenu on the Edit menu.

The options are:

Option Description

All Selects all events in the Project window.

None Deselects all events.

Invert Inverts the selection - all selected events are deselected and all events that were not selected are selected instead.

In Loop Selects all events that are partly or wholly between the left and right locator.

From Start to Cursor Selects all events that begin to the left of the project cursor.

From Cursor to End Selects all events that end to the right of the project cursor.

Equal Pitch These are available in the MIDI Editors (see "Selecting notes" on page 346) and the Sample Editor (see "Using the

Select menu" on page 227).

Select Controllers in Note Range This is available in the MIDI Editors (see "Selecting controllers within the note range" on page 346).

All on Selected Tracks Selects all events on the selected track.

Select Event This is available in the Sample Editor (see "Window overview" on page 221).

Left/Right Selection Side to Cursor These two functions are only used for range selection editing (see "Creating a selection range" on page 51).

! Note that these functions work differently when the Range Selection tool is selected (see "Creating a selection range" on page 51).

- Select all events on a track by right-clicking on it in the Track list and selecting "Select All Events" from the context menu.

- You can also use the arrow keys on the computer keyboard to select the closest event to the left, right, above or below.

If you press [Shift] and use the arrow keys, the current selection will be kept, allowing you to select several events.

- If the option "Auto Select Events under Cursor" is activated in the Preferences (Editing page), all events on the selected track(s) that are "touched" by the project cursor are automatically selected.

This can be helpful when rearranging your project, since it allows you to select whole sections (on all tracks) by selecting all tracks and moving the project cursor.

- It is also possible to select ranges, regardless of the event and track boundaries.

This is done using the Range Selection tool (see "Range editing" on page 51).

- Note that in the Preferences (Editing page), you can find the option "Use Up/Down Navigation Commands for selecting Tracks only".

By default, tracks are selected with the up/down arrow keys on the computer keyboard. However, these are also used for selecting events (see above) which can lead to confusing results in some cases. Since track selection is a most vital operation in both editing and mixing, you have the option to use the navigation controls for track selection only. The following applies:

- When this option is deactivated and no event/part is selected in the Project window, the up/down arrow keys on the computer keyboard are used to step through the tracks in the Track list - just as you would expect this to work.

- When this option is deactivated and an event/part is selected in the Project window, the up/down arrow keys still step through the tracks in the Track list - but on the currently selected track, the first event/part will automatically be selected as well. If this is not the desired behavior, you have to activate "Use Up/Down Navigation Commands for selecting Tracks only".

- When this option is activated, the up/down arrow keys are only used to change the track selection - the current event/ part selection in the Project window will not be altered.

- Also in the Preferences (Editing-Tools page), you can find the Cross Hair Cursor options section. This allows you to display a cross hair cursor when working in the Project window and editors, facilitating navigation and editing, especially when arranging in large projects. You can set up the colors for the line and the mask of the cross hair cursor, and define its width. The cross hair cursor works as follows:

- When the Selection tool (or one of its subtools) is selected, the cross hair cursor appears when you start moving/copying a part/event, or when using the event trim handles.

- When the Pencil tool, the Scissors tool or any other tool that makes use of this function is selected, the cross hair cursor appears as soon as you move the mouse over the event display.

- The cross hair cursor is only available for tools where such a function is of any use. The Mute tool for example does not use a cross hair cursor, as you have to click directly on an event to mute it. */

Duplicating events..... 45
Using Cut, Copy and Paste..... 46
Renaming events..... 46 "renaming events"

/ By default, audio events show the name of their clip, but you can enter a separate descriptive name for separate events if you like. This is done by selecting the event and typing in a new name in the "Description" field in the info line.*

*• You can also give all events on a track the same name as the track by changing the track name, holding down a modifier key and pressing [Return]. See "Handling tracks" on page 38. */*

Splitting events..... 46
Gluing events together..... 46
Resizing events..... 46
Resizing events using time stretch..... 47
Sliding the contents of an event or part..... 48 "sliding the contents"

/ You can move the contents of an event or part without changing its position in the Project window. By default, this is done by pressing [Alt]/[Option]-[Shift], clicking in the event or part and dragging to the left or right.*

*! When sliding the contents of an audio event, you cannot slide past the start or end of the actual audio clip. If the event plays the whole clip, you cannot slide the audio at all. */*

Grouping Events..... 48 "grouping events"

/ Sometimes it is useful to treat several events as one unit. This can be done by grouping them: Select the events (on the same or different Tracks) and select "Group" from the Edit menu.*

Grouped events are indicated by a group icon in the right corner.

If you edit one of the grouped events in the Project window, all other events in the same group are affected too (if applicable).

Group editing operations include:

- Selecting events.*
- Moving and duplicating events.*
- Resizing events.*
- Adjusting fade-in and fade-out (audio events only, see "Creating fades" on page 89).*
- Splitting events (splitting one event will automatically split any other grouped events that are intersected by the split position).*
- Locking events.*
- Muting events (see below).*
- Deleting events. */*

Locking events..... 48 "locking events"

/ If you want to make sure you don't edit or move an event by accident, you can lock it. Locking can affect one (or any combination) of the following properties:*

Lock Options Description

Position If this is locked, the event cannot be moved.

Size If this is locked, the event cannot be resized.

Other If this is locked, all other editing of the event is disabled. This includes adjusting the fades and event volume, processing, etc.

- To specify which of these properties should be affected by the Lock function, use the "Lock Event Attributes" popup menu in*

the Preferences (Editing page).

- *To lock events, select them and select "Lock..." from the Edit menu.*

The events will be locked according to the options specified in the Preferences.

- *You can adjust the lock options for a locked event by selecting it and selecting "Lock..." from the Edit menu again.*

This opens a dialog in which you can activate or deactivate the desired lock options.

- *To unlock an event (turn off all lock options), select it and select "Unlock" from the Edit menu.*

- *It is also possible to lock a whole track, by clicking the padlock symbol in the Track list or in the Inspector.*

*This disables all editing of all events on the track. */*

Muting events..... 49 "muting events"

/ To mute individual events in the Project window, proceed as follows:*

- *To mute or unmute a single event, click on it with the Mute tool.*

- *To mute or unmute several events, select them - either by using the standard selection techniques, or by using one of the options on the Select submenu on the Edit menu - and click on one of the selected events with the Mute tool.*

All selected events will be muted.

- *You can also click in an empty area with the Mute tool and drag a selection rectangle around several events you want to mute or unmute, and then click on one of them with the Mute tool.*

- *You can mute events by selecting them and selecting "Mute" from the Edit menu.*

Similarly, you can unmute the selected events by selecting "Unmute" from the Edit menu.

- *You can also change the mute status of selected events on the info line.*

Muted events can be edited as usual (with the exception of adjusting fades), but are not played back.

Muted events are "grayed out".

- *You can also mute whole tracks by clicking the Mute ("M") button in the Track list, the Inspector or the mixer.*

Clicking the Solo ("S") button for a track mutes all other tracks. Note that there are two modes for the track solo function:

If the option "Enable Solo on Selected Track" is activated in the Preferences (Editing-Project & Mixer page) and you have soloed a track, selecting another track in the Track list will automatically solo that track instead - the solo state "moves" with the track selection.

*If the option isn't activated, the track you solo stays soloed, regardless of the selection. */*

Removing events..... 49 "removing events"

/ To remove an event from the Project window, use any of the following methods:*

- *Click on the event with the Eraser tool.*

Note that if you press [Alt]/[Option] while you click, all following events on the same track will be deleted, but not the event you clicked and all events before it.

- *Select the event(s) and press [Backspace], or select "Delete" from the Edit menu. */*

Creating new files from events..... 49 "creating new files from events"

/ An audio event plays a section of an audio clip, which in turn refers to one or more audio files on the hard disk.*

However, in some situations you may want to create a new file that consists only of the section played by the event. This is done with the function "Bounce Selection" on the Audio menu:

- 1. Select one or several audio events.*
- 2. Set up fade in, fade out and event volume (on the info line or using the volume handle) as desired.*

These settings will be applied to the new file. For details on fades and event volume, see "Creating fades" on page 89.

- 3. Select "Bounce Selection" from the Audio menu.*

You are asked whether you want to replace the selected event or not.

- If you click "Replace", a new file is created, containing only the audio in the original event. A clip for the new file is added to the Pool, and the original event is replaced by a new event playing the new clip.*
- If you click "No", a new file is created and a clip for the new file is added to the Pool.*

The original event is not replaced.

*You can also apply the Bounce Selection function to an audio part. In that case, the audio from all events in the part will be combined into a single audio file. If you choose "Replace" when asked, the part will be replaced with a single audio event playing a clip of the new file. */*

Editing in Lane Display mode..... 50 "Lane Display mode"

/ When you are recording in Stacked cycle recording mode, each take ends up on a separate lane on the track, see "Recording audio in Stacked mode" on page 77 and "Cycle Record mode: Stacked/Stacked 2 (No Mute)" on page 82. However, you can also select this lane mode manually for individual tracks, and use it when editing in the Project window. This makes it easier to view and handle overlapping events and parts. */*

Audio tracks..... 50 "audio tracks"

/ 1. In the Track list or in the Inspector for the selected track, click the Lane Display Type button and select "Lanes Fixed" from the pop-up menu.*

The audio track is divided vertically into two lanes. By default, all audio events end up in the first (top) lane.

- 2. Now you can move events or parts between lanes, either by dragging or by using the "To Front" commands on the Edit menu or the context menu (this will move the event on the lane that has playback priority).*

Note that if there are overlapping audio events, the audio on the lowest lane has playback priority - moving events between lanes affects what will be heard!

If the vertical zoom factor is sufficiently high, the sections that will be heard on playback are indicated in green.

- Note that there will always be an extra, empty lane at the bottom of the track - moving an event there always will add another lane.*

Depending on the number of lanes used, you may want to adjust the vertical zoom for the track - simply drag the track edges in the Track list.

- 3. After rearranging the overlapping events so that you hear what you want, you can select all events and select "Delete Overlaps" from the Advanced submenu on the Audio menu.*

This puts all events in the top lane and resizes events so that overlapping sections are removed.

- 4. To turn off Lanes mode, select "Lanes Off" from the Lane Display Type pop-up menu.*

*If you do this without using the "Delete Overlaps" function, all overlapping sections will be kept. However, the sections that were green will now be the sections visible ("on top") and thus the sections that will be heard. */*

MIDI tracks..... 50

/ 1. In the Track list or in the Inspector for the selected track, click the Lane Display Type button and select "Lanes Auto"*

or "Lanes Fixed".

- In Lanes Auto mode, extra lanes will automatically be added where necessary - if two MIDI parts overlap, they will automatically be put on separate lanes.
- In Lanes Fixed mode, you have to move MIDI parts between lanes manually (by dragging them or by using the "Move to Front/Back" commands on the Edit menu or context menu).

In this mode, there will always be an extra, empty lane at the bottom of the track - if you move a part there, another lane will be added and so on.

2. You can edit the overlapping parts as usual - by cutting, deleting or muting sections in the Project window or by opening them in a MIDI editor.

In an editor, parts on different lanes will be treated just like parts on different tracks - you can use the part list pop-up menu to select an active part for editing, etc.

Note that there is no playback priority between lanes on a MIDI track - all unmuted parts will be heard during playback.

3. To merge all overlapping parts into one, make sure the MIDI track is selected, position the left and right locator around the parts and select "Merge MIDI in Loop" from the MIDI menu.

In the dialog that appears, activate the Erase Destination option and click OK. This merges all unmuted MIDI between the locators to a single part.

4. To turn off Lanes mode, select "Lanes Off" from the Lane Display Type pop-up menu. */

Range editing.....	51
Creating a selection range.....	51
Adjusting the size of the selection range.....	51
Making selection ranges for several non-contiguous tracks.....	52
Moving and duplicating.....	52
Using Cut, Copy and Paste.....	52
Deleting selection ranges.....	52
Other functions.....	52
Region operations.....	53 "region operations"
/* Regions are sections within a clip, with various uses. While regions are perhaps best created and edited in the Sample Editor (see "Working with regions" on page 228), the following region functions are available in the Advanced submenu of the Audio menu:	
Function Description	
Event or Range as Region This function is available when one or several audio events or selection ranges are selected. It creates a region in the corresponding clip, with the start and end position of the region determined by the start and end position of the event or selection range within the clip.	
Events from Regions This function is available if you have selected an audio event whose clip contains regions within the boundaries of the event. The function will remove the original event and replace it with event(s) positioned and sized according to the Region(s). */	
Folder tracks.....	53
Handling folder tracks.....	53
Working with folder parts.....	53
Markers.....	54
Editing markers in the Marker window.....	54
Editing markers on the Marker track.....	55
Editing markers using key commands.....	55
Editing markers in the Project Browser.....	56
Options.....	56
The Snap function.....	56 "Snap function"
/* The Snap function helps you to find exact positions when editing in the Project window. It does this by restricting horizontal movement and positioning to certain positions. Operations affected by Snap include moving, copying, drawing, sizing, splitting,	

range selection, etc.

- *You turn Snap on or off by clicking the Snap icon in the toolbar.*

Snap activated.

When you are moving audio events with Snap activated, it isn't necessarily the beginning of the event that is used as Snap position reference. Instead, each audio event has a snap point, which you can set to a relevant position in the audio (such as a downbeat, etc.).

The snap point is preferably set in the Sample Editor since it allows for a higher degree of precision (see "Adjusting the snap point" on page 226). You can however also set the snap point directly in the Project window, in the following way:

- 1. Select an event.*
- 2. Place the project cursor at the desired position within the selected audio event.*
- 3. Pull down the Audio menu and select "Snap Point To Cursor".*

The snap point is set at the cursor position.

The snap point for an event is displayed as a blue line in the Project window.

Exactly how Snap works depends on which mode is selected on the Snap mode pop-up menu.

*The following sections describe the different Snap modes: */*

Grid.....	56
Grid Relative.....	56
Events.....	57
Shuffle.....	57
Magnetic Cursor.....	57
Grid + Cursor.....	57
Events + Cursor.....	57
Events + Grid + Cursor.....	57
Snap to Zero Crossing.....	57 "Snap to Zero Crossing"

/ When this option is activated on the toolbar or in the Preferences (Editing-Audio page), splitting and sizing of audio events is done at zero crossings (positions in the audio where the amplitude is zero). This helps you avoid pops and clicks which might otherwise be caused by sudden amplitude changes. */*

Autoscroll.....	57
Suspending autoscroll.....	57
4 Playback and the Transport panel.....	59 playback
Background.....	60

/ This chapter describes the various methods available for controlling Playback and Transport functions in Cubase. */*

The Transport panel.....	60
---------------------------------	-----------

/ Below you can find a brief description of each item on the Transport panel.*

The pictures below show the Transport panel with all controls visible (note that the Jog/Shuttle control is available in Cubase only). The Transport panel is divided into the following sections, from left to right.

*CPU load and Disk Cache meters
Activates Auto Quantize
Record mode pop-up menu
Cycle Record mode pop-up menu*

*Left locator
Punch In
Punch Out
Right locator
Pre-roll: value and on/off*


```

    Post-roll: value and on/off
    Nudge +/- 1 Frame
    Shuttle speed
    Jog Wheel

    Nudge position right/left
    Position slider
    Go to previous marker/project start
    Rewind
    Fast forward
    Go to next marker/ project end
    Cycle on/off
    Stop
    Play
    Record
    Primary Time Display
    Exchange time formats
    Secondary Time Display

    Metronome click on/off
    Tempo track on/off
    Synchronization on/off
    Precount on/off
    The tempo and time signature display
    Show Markers (opens Marker window)
    Jump to Marker

    MIDI In/Out activity (left/right)
    Clipping indicators
    Audio input/output activity
    Output Level Control

    .. Note that the Output Activity and Clipping indicator as well as the Output Level Control refer to the Control Room channel
    (Cubase only), if the Control Room is activated. If the Control Room is disabled, these controls refer to the Main Mix Output bus as
    defined on the Outputs tab in the VST Connections window. For information on the Control Room, see the chapter "Control Room
    (Cubase only)" on page 135. In Cubase Studio, the Main Mix bus is always used for monitoring.

    • The main Transport functions (Cycle/Stop/Play/Record) can also be shown on the toolbar.

    In addition, various play options are available on the Transport menu.*/

    Hiding and showing the Transport Panel..... 60
    About Pre-roll and Post-roll..... 61 Pre-roll Post-roll

        /* These items are described in the chapter "Recording", see "About Pre-roll and Post-roll" on page 84. */

    Changing the Transport panel setup..... 61
    The numeric keypad..... 61
    Operations..... 61
    Setting the project cursor position..... 61 setting "project cursor position"

        /* There are several ways to move the project cursor position:

        • By using Fast Forward and Rewind.

        • By using the Jog/Shuttle/Nudge control on the Transport panel (Cubase only - see "The Shuttle Speed control (Cubase only)"
        on page 63).

        • By dragging the project cursor in the lower part of the ruler.

        • By clicking in the ruler.

        Double-clicking in the ruler moves the cursor and starts/stops playback.
```

- If the option "Locate when Clicked in Empty Space" is activated in the Preferences (Transport page) you can click anywhere in an empty section of the Project window to move the cursor position.
- By changing the value in any of the position displays.
- By using the position slider above the transport buttons in the Transport panel.

The range of the slider relates to the Length setting in the Project Setup dialog. Hence, moving the slider all the way to the right will take you to the end of the project.

- By using markers (see "Markers" on page 54).
- By using playback options (see "Playback functions" on page 64).
- By using the Arranger function (see "The Arranger track" on page 96).
- By using functions on the Transport menu.

The following functions are available:

Function Description

Locate Selection/Locate Selection End Moves the project cursor to the beginning or end of the current selection. For this to be available, you must have selected one or more events or parts, or made a selection range.

Locate Next/Previous Marker This moves the project cursor to the closest marker to the right or left (see "Marker tracks" on page 31).

Locate Next/Previous Event This moves the project cursor forwards or backwards respectively, to the closest beginning or end of any event on the selected track(s).

.. If Snap is activated when dragging the project cursor, the Snap value is taken into account. This is helpful for finding exact positions quickly.

.. There are also numerous key commands available for moving the project cursor (in the Transport category in the Key Commands dialog).

For example, you can assign key commands to the "Step Bar" and "Step Back Bar" functions, allowing you to move the project cursor in steps of one bar, backwards and forwards. */

About the Transport panel display formats..... 62 "display format"

/* Primary time display (left) and secondary time display (right)

The time unit shown in the ruler can be independent from the time unit shown in the main time display on the Transport panel. This means that you can display timecode in the transport position display and bars and beats in the ruler, for example. In addition, there is a secondary time display to the right of the primary time display which is also independent, giving you three different time units shown at the same time (in the Project window, you can also create additional ruler tracks - see "Using multiple rulers - ruler tracks (Cubase only)" on page 33).

The following rules apply:

- If you change the time format of the primary time display on the Transport panel, the time format of the ruler will be changed as well.

This is the same as changing the display format in the Project Setup. Therefore, to have different display formats in the ruler and the main time display you should change the format in the ruler.

- The primary time display format is set on the pop-up menu to the right in the main position display.
- This setting also determines the time format displayed for the left and right locators on the Transport panel.
- The secondary time display is completely independent, and the display format is set on the pop-up menu to the right in the secondary time display.

*• You can swap time formats between the primary and secondary time displays by clicking the double arrow symbol between them. */*

The left and right locators..... 62 "left locator" "right locator"

/ The left and right locators are a pair of position markers used for specifying punch-in and punch-out positions during recording, and as boundaries for cycle playback and recording.*

.. When cycle mode is activated on the Transport panel, the area between the left and right locator will be repeated (cycled) on playback.

However, if the right locator is positioned before the left, this will work as a "jump" or "skip mode" - when the project cursor reaches the right locator it will immediately jump to the left locator position and continue playback from there.

There are several ways to set locator positions:

• To set the left locator, press [Ctrl]/[Command] and click at the desired position in the ruler.

Similarly, pressing [Alt]/[Option] and clicking in the ruler sets the right locator. You can also drag the locator "handles" directly in the ruler.

The locators are indicated by the "flags" in the ruler. The area between the locators is highlighted in the ruler and in the Project window (see "Appearance" on page 474). Note that if the right locator is before the left locator, the color of the ruler between the locators will change (from blue to red).

• Click and drag in the upper half of the ruler to "draw" a locator range.

If you click on an existing locator range, you can drag to move it.

• Pressing [Ctrl]/[Command] and pressing [1] or [2] on the numeric keypad sets the left or right locator to the project cursor position.

Similarly, you can press [1] or [2] on the numeric keypad (without [Ctrl]/ [Command]) to set the project cursor position to the left or right locator position. Note that these are default key commands - you can change these if you like.

• By creating cycle markers you can store any number of left and right locator positions, which can be recalled by simply double-clicking on the corresponding marker (see "Editing markers on the Marker track" on page 55).

• The "Locators to Selection" item on the Transport menu (default key command [P]) sets the locators to encompass the current selection.

This is available if you have selected one or several events or made a selection range.

• You can also adjust the locators numerically on the Transport panel.

*Clicking the L/R buttons in the locator section on the Transport panel will move the project cursor to the respective locator. If you press [Alt]/[Option] and click the L or R button, the corresponding locator will be set to the current project cursor position. */*

The Shuttle Speed control (Cubase only)..... 63 "Shuttle Speed control"

/ The shuttle speed control (the outer wheel on the Transport panel) allows you to play the project at any playback speed, forwards or backwards. This provides a quick way to locate or "cue" to any position in the project.*

• Turn the shuttle speed wheel to the right to start playback.

The further to the right you move the wheel, the faster the playback speed.

• If you turn the wheel to the left instead, the project will play backwards.

*Similarly, the playback speed depends on how far to the left you turn the wheel. */*

Project scrubbing - the Jog Wheel (Cubase only)..... 63 "project scrubbing" "Jog Wheel"

/ The middle wheel on the Transport panel serves as a jog wheel. By clicking and dragging it to the right or left you will move*

the playback position manually forwards or backwards - much like scrubbing on a tape deck. This helps you pinpoint exact locations in the project.

- Note that the jog wheel is an "endless rotary encoder" - you can turn it as many times as needed to move to the desired location.*

The faster you turn the wheel, the faster the playback speed.

- If you click the jog wheel during playback, playback will automatically stop. */*

The nudge position buttons (Cubase only)..... 63 nudge

/ The + and - buttons in the middle of the Shuttle/Jog section allow you to nudge the project cursor position one frame at a time to the right or left. */*

Options and Settings..... 63

The "Return to Start Position on Stop" preference..... 63 "Return to Start Position on Stop" preference

/ This setting is found on the Transport page in the Preferences (found on the File menu under Windows, or on the Cubase menu under Mac OS X).*

- If "Return to Start Position on Stop" is activated when you stop playback, the project cursor will automatically return to the position where recording or playback last started.*

- If "Return to Start Position on Stop" is deactivated, the project cursor will remain at the position where you stop playback.*

*Pressing Stop again will return the project cursor to the position where recording or playback last started. */*

About track disable/enable..... 63 "track disable/enable"

/ For audio tracks, the track context menu contains an item named "Disable Track". This shuts down all disk activity for the track, as opposed to using Mute, which merely turns down the output volume for a track. For example, if you often record "alternative takes" you can easily build up a large number of takes on different tracks. Even though these tracks are muted, they are actually still "playing back" from the hard disk during playback. This puts an unnecessary load on your disk system, so using "Disable Track" is recommended for such situations.*

- Select "Disable Track" for tracks that you want to keep in the project for later use but do not want to play back now.*

The track color changes to indicate that the track is disabled.

- Select "Enable Track" from the track context menu to re-enable disabled tracks. */*

Playback functions..... 64 "playback functions"

/ Apart from the standard transport controls on the Transport panel, you can also find a number of functions on the Transport menu that can be used to control playback. The items have the following functionality:*

Option Description

Post-roll from Selection Start/End Starts playback from the beginning or end of the currently selected range and stops after the time set in the Post-roll field on the Transport panel.

...

Loop Selection This activates playback from the start of the current selection and keeps starting over again when reaching the selection end.

! The functions listed above (except "Play until Next Marker") are only available if you have selected one or more events or made a selection range.

*□ In the Preferences dialog (Editing-Audio page) you will find the option "Treat Muted Audio Events like Deleted". When you activate this option, any events overlapped by a muted event will become audible. */*

About Chase..... 64

```
/* Chase is a function that makes sure your MIDI instruments sound as they should when you locate to a new position and start playback.
```

...

The Virtual Keyboard.....	65	
Options and settings.....	65	
5 Recording.....	66	recording
Background.....	67	

```
/* This chapter describes the various recording methods that you can use in Cubase. As it is possible to record both audio and MIDI tracks, both recording methods are covered in this chapter. */
```

Before you start..... 67

/ This chapter assumes that you are reasonably familiar with certain basic recording concepts, and that the following initial preparations have been made:*

- You have properly set up, connected and calibrated your audio hardware.
- You have opened a project and set the project setup parameters to your specifications.

Project setup parameters determine the record format, sample rate, project length etc. that affect the audio recordings you make during the course of the project. See "The Project Setup dialog" on page 34.

- *If you plan to record MIDI, your MIDI equipment should be set up and connected correctly. */*

Basic recording methods..... 67 "basic recording methods"

```

/* This section describes the general methods used for recording. However, there are additional preparations and procedures that
are specific to audio and MIDI recording respectively. Make sure to read these sections before you start recording (see "Audio
recording specifics" on page 69 and "MIDI recording specifics" on page 79). */

```

```
Record-enabling tracks..... 67 "record-enabling tracks"
```

/ Cubase can record on a single track or on several tracks (audio and/or MIDI) simultaneously. To make a track ready for recording, click the Record Enable button for the track in the Track list, in the Inspector or in the mixer. When activated, the buttons turn red, indicating record ready mode.*

Record Enable in the Inspector, Track list and mixer

.. If the option "Enable Record on Selected Track" is activated in the Preferences (Editing-Project & Mixer page), tracks are automatically record-enabled when you select them in the Track list.

.. You can set up key commands to record-enable all audio tracks simultaneously and to deactivate Record Enable for all audio tracks (Arm/Disarm all Audio Tracks). You will find these commands in the Key Commands dialog, in the Mixer category (see "Setting up key commands" on page 480).

.. The exact number of audio tracks you can record simultaneously depends on your computer CPU and hard disk performance.

*In the Preferences (VST page), you can find the option "Warn on Processing Overloads". When this is activated, a warning message will be displayed as soon as the CPU clip indicator (on the Transport panel) lights up during recording. */*

Manually activating recording..... 67 "manually activating recording"

```
/* You activate recording by clicking the Record button on the Transport panel or toolbar or by using the corresponding key command
(by default [*] on the numeric keypad).
```

Recording can be activated in Stop mode (from the current cursor position or from the left locator) or during playback:

- If you activate recording in Stop mode, and the option "Start Record at Left Locator" is activated on the Transport menu, recording will start from the left locator.

The pre-roll setting or the metronome count-in will be applied (see "About Pre-roll and Post-roll" on page 84).

- If you activate recording in Stop mode, and "Start Record at Left Locator" is deactivated, recording will start from the current project cursor position.

- If you activate recording during playback, Cubase will immediately enter Record mode and start recording from the current project cursor position.

This is known as "manual punch in". */

Activating recording in Sync mode..... 68

/* If you are synchronizing the Cubase transport to external equipment (Sync is activated on the Transport panel) and you activate recording, the program will go into "record ready" mode (the record button on the Transport panel will light up). In this case, recording will start when a valid timecode signal is received (or when you click the Play button). See the chapter "Synchronization" on page 427 for more information. */

Automatically activating recording..... 68 "automatically activating recording"

/* Cubase can automatically switch from playback to recording at a given position. This is known as "automatic punch in". A typical use for this would be if you need to replace a section of a recording, and want to listen to what is already recorded, up to the recording start position.

1. Set the left locator to the position where you want recording to start.

2. Activate the Punch In button on the Transport panel.

Punch In activated

3. Activate playback from some position before the left locator.

When the project cursor reaches the left locator, recording is automatically activated. */

Stopping recording..... 68 "stopping recording"

/* Again, this can be done automatically or manually:

- If you click the Stop button on the Transport panel (or use the corresponding key command, by default [0] on the numeric keypad), recording is deactivated and Cubase goes into Stop mode.

- If you click the Record button (or use the key command for recording, by default [*]), recording is deactivated but playback continues.

This is known as "manual punch out".

- If the Punch Out button is activated on the Transport panel, recording will be deactivated when the project cursor reaches the right locator.

This is known as "automatic punch out". By combining this with automatic punch in, you can set up a specific section to record – again very useful if you want to replace a certain part of a recording. See also "Stop after Automatic Punch Out" on page 84. Punch In and Out activated */

Cycle recording..... 68 "cycle recording"

/* Cubase can record and play back in a cycle – a loop. You specify where the cycle starts and ends by setting the left and right locators. When the cycle is active, the selected section is seamlessly repeated until you hit Stop or deactivate cycle mode.

- To activate cycle mode, click the cycle button on the Transport panel.

Cycle activated

- To record in cycle mode, you can start recording from the left locator, from before the locators or from within the cycle, in Stop mode or during playback.

As soon as the project cursor reaches the right locator, it will jump back to the left locator and continue recording a new lap.

- The results of cycle recording depend on the selected cycle record mode and are different for audio (see "Recording audio in

*cycle mode" on page 75) and MIDI (see "Recording MIDI in cycle mode" on page 81). */*

Audio pre-record..... 69 "audio pre-record"

/ This feature allows you to capture up to 1 minute of any incoming audio you play in Stop mode or during playback, "after the fact". This is possible because Cubase can capture audio input in buffer memory, even when not recording.*

Proceed as follows:

- 1. Open the Preferences (Record-Audio page).*
- 2. Specify a time (up to 60 seconds) in the "Audio Pre- Record Seconds" field.*

This activates the buffering of audio input, making Pre-Record possible.

- 3. Make sure an audio track is record-enabled and receives audio from the signal source.*
- 4. When you have played some audio material you want to capture (either in Stop mode or during playback), click the Record button.*
- 5. After a few seconds stop the recording.*

An audio event is created, starting at where the cursor position was when you activated recording. This means that if you were in stop mode, and the cursor was at the beginning of the project, you may have to move the event to the right in the next step. If you were playing along to a project you should leave the event where it is.

- 6. Select the Arrow tool and place the cursor on the bottom left edge of the event so that a double arrow appears, then click and drag to the left.*

Now the event is extended and the audio you played before activating record is inserted - this means that if you played along during playback, the captured notes will end up exactly where you played them in relation to the project.

*The recording was activated at the start of bar 9. This is indicated by a blue line in the audio event. */*

Audio recording specifics..... 69

Selecting a recording file format..... 69 "recording file format"

/ The format for recorded files is set in the Project Setup dialog on the Project menu. There are three settings: sample rate, record format (bit depth) and record file type. While the sample rate is set once and for all when you start working on a new project, the bit depth and file type can be changed at any time. */*

Record file type..... 69 "record file type"

/ The Record File Type setting determines which type of files will be created when you record:*

File type Description

Wave File Wave files have the extension ".wav" and are a common file format on the PC platform.

Wave 64 File (Cubase only) Wave 64 is a proprietary format developed by Sonic Foundry Inc. Audio-wise it is identical to the Wave format, but the internal file structure makes much larger file sizes possible. This is useful e.g. for long live recordings in surround format, where the audio files can become huge.

Broadcast Wave File In terms of audio content, the same as regular Wave files, but with embedded text strings for supplying additional information about the file (see below).

AIFF File Audio Interchange File Format, a standard defined by Apple Inc. AIFF files have the extension ".aif" and are used on most computer platforms. Like Broadcast Wave files, AIFF files can contain embedded text strings (see below).

- If you select Broadcast Wave File or AIFF format, you can specify Author, Description and Reference text strings that will be embedded in the recorded file.*

*This is done on the Record-Audio-Broadcast Wave page in the Preferences. */*

Record format (bit depth)..... 69 "record format"

/ The available options are 16 bit, 24 bit and 32 bit float.*

Use the following guidelines:

- Normally, select the record format according to the bit depth delivered by your audio hardware.*

For example, if your audio hardware has 20 bit A/D converters (inputs), you may want to record at 24 bit resolution to capture the full bit depth. On the other hand, if your hardware has 16 bit inputs, it is pointless to record with a higher bit depth - this will only make the audio files larger, with no difference in audio quality. The exception is if you record with effects - see "Recording with effects (Cubase only)" on page 78.

- The higher the bit depth, the larger the files and the more strain is put on the disk system.*

If this is an issue, you may want to lower the record format setting.

*! For further information on the options in the Project Setup dialog, see "The Project Setup dialog" on page 34. */*

Setting up the track..... 70 "setting up" track

Creating a track and selecting the channel configuration..... 70 "channel configuration"

/ Audio tracks can be configured as mono, stereo or surround tracks (Cubase only). This allows you to record or import a file containing multiple channels and treat it as one entity, with no need to split it up into several mono files etc. The signal path for an audio track maintains its channel configuration all the way from the input bus, via EQ, level and other mixer settings to the output bus.*

You specify the channel configuration for a track when you create it:

- 1. Select "Add Audio Track" from the Track list context menu or the Project menu (or, if an audio track is already selected, double-click in an empty area of the Track list).*

A dialog appears with a channel configuration pop-up menu.

- 2. Select the desired format from the pop-up menu. In Cubase Studio, you choose between mono and stereo. In Cubase, the most common formats are listed directly on the pop-up menu, with the remaining surround formats listed on the "More..." submenu. For a list of the available surround formats, see "Output bus configuration" on page 182.*

- The Browse item in this dialog allows you to browse your disk(s) for created Track Presets, which can be used as a basis (or template) for tracks.*

This is described in detail in the chapter "Working with Track Presets" on page 288.

- 3. Click OK.*

*A track appears, set to the specified channel configuration. In the mixer, a corresponding channel strip appears. You cannot change the channel configuration for a track. */*

Selecting an input bus for a track..... 70 "input bus" track

/ Here we assume that you have added and set up the required input busses (see "Setting up busses" on page 14). Before you record, you need to specify from which input bus the track should record. You can do this in the Inspector or in the mixer:*

- In the Inspector, you select an input bus on the Input Routing pop-up menu in the top section.*

As described in the section "The Inspector" on page 29, the Inspector shows the settings for the selected track. You show or hide the Inspector by clicking the "Show/Hide Inspector" button on the Project window toolbar.

- In the mixer, you select an input bus on the Input Routing pop-up menu at the top of the track's channel strip.*

*If this pop-up menu is not shown, you need to open the Mixer Routing View by clicking the "Show Routing" button in the extended Mixer common panel or by selecting "Show Routing View" from the Window submenu on the Mixer context menu. See "Configuring the mixer" on page 112 for more information about the mixer. */*

Recording from busses..... 71 "recording from busses"

/ You can also select an output bus, a group bus or an FX channel bus as an Input for your recording.*

Let's assume you want to create a downmix of separate tracks, e.g. bass drum, hihats, snare etc.

Proceed as follows:

- 1. Set up your separate tracks as desired and add a group track.*
- 2. For each of the drum tracks, open the Output Routing pop-up menu and select the Group track as output.*
- 3. Create a new audio track, open the Input Routing popup menu for it and select the Group track as input for this audio track.*
- 4. Record enable this audio track and start recording.*

Now, the output of the group track will be recorded on the new track and you will get a mix of your separate tracks.

Note that you can also select an FX channel as recording source. In this case, only the output of the FX channel will be recorded.

*For more information about the routing possibilities, see "Routing" on page 18. */*

Selecting a folder for the recorded audio files (Cubase only)... 71 "recorded audio files"

/ Each Cubase project has a project folder containing (among other things) an "Audio" folder. By default, this is where recorded audio files are stored. However, you can select record folders independently for each audio track if needed.*

Proceed as follows:

- 1. To select the same record folder for several audio tracks, select them by pressing [Shift] or [Ctrl]/[Command] and clicking on them in the Track list.*
- 2. Right-click in the Track list for one of the tracks to bring up the context menu.*
- 3. Select "Set Record Folder".*
- 4. Use the file dialog that appears to navigate to the desired folder (or create a new folder with the Create button).*

Tip: if you want to have separate folders for different types of material (speech, ambient sounds, music, etc.), you can create subfolders within the Project's "Audio" folder and assign different tracks to different subfolders. This way, all audio files will still reside within the project folder, which will make managing the Project easier.

- It is possible to have different tracks record to totally different locations, even on different disks. However, if you need to move or archive the project, there is a risk of missing some files. The solution is to use the "Prepare Archive" function in the Pool to gather all external files into the project folder first, see "Prepare Archive" on page 271. */*

Setting input levels..... 71 setting "input levels"

/ When recording digital sound, it is important to set the input levels correctly - loud enough to ensure low noise and high audio quality, but not so loud that clipping (digital distortion) occurs.*

Clipping typically occurs in the audio hardware when a too loud analog signal is converted to digital in the hardware's A/D converters.

- If you are using Cubase, it is also possible to get clipping when the signal from the input bus is written to a file on your hard disk.*

This is because in Cubase, you can make settings for the input bus, adding EQ, effects, etc. to the signal as it is being recorded. This may raise the level of the signal, causing clipping in the recorded audio file.

*The procedure for checking the signal level coming into the audio hardware is slightly different depending on whether you are using Cubase or Cubase Studio: */*

Cubase..... 71

/ In Cubase, you check the input level at the input channel. To check the level of the "unprocessed" signal coming into the audio hardware, you need to switch the level meters to "Meter Input". In this mode, the input channel level meters will show the level of the signal at the input of the bus, before any adjustments such as input gain, EQ, effects, level or pan:*

1. Right-click in the Mixer window.

The Mixer context menu appears.

2. Select the Global Meter Settings submenu and make sure "Meter Input" is activated.

3. Play back the audio and check the level meter for the input channel.

The signal should be as loud as possible without exceeding 0dB (the Clipping indicator for the input bus should not light up).

The Clipping indicator

4. If necessary, adjust the input level in one of the following ways:

- Adjust the output level of the sound source or external mixer.
- Use the audio hardware's own application program to set the input levels (if possible).

See the documentation for the audio hardware.

• If your audio hardware supports the ASIO Control Panel function, it may be possible to make input level settings. To open the ASIO control panel, open the Device Setup dialog via the Devices menu and, in the list to the left (below "VST Audio System"), select your audio card. When this is selected, you can open the Control Panel by clicking on the Control Panel button in the settings section to the right.

The next step is to check the level of the audio being written to a file on your hard disk. This is only necessary if you have made any adjustments to the input channel (level settings, EQ, insert effects, etc.).

Also note the following:

- If you record in 32 bit float format, the bit depth will not be reduced - which means there is no risk of clipping at this stage.

Also, this preserves the signal quality perfectly. Therefore, you should consider using 32 bit float format when you are recording with effects (see "Recording with effects (Cubase only)" on page 78).

- If you record in 16 or 24 bit format, the available headroom is lower, which means clipping can occur if the signal is too loud. To avoid this, set the signal level in the following way:

1. Bring up the mixer context menu, open and select Global Meter Settings "Meter Post-Fader".

2. Set up the input channel, by adding EQ and/or effects.

With some effects you may want to adjust the level of the signal going into the effect - use the Input Gain knob for this. Note that you need to press [Shift] or [Alt]/[Option] to adjust the Input Gain.

Adjusting the Input Gain.

3. Play back the audio and check the level meter of the input channel.

The signal should be reasonably loud but should not reach 0dB (the Clipping indicator for the input bus should not light up).

4. If necessary, use the input channel fader to adjust the signal level. */

Cubase Studio..... 72

/* In Cubase Studio, the input channels are not shown in the mixer. Instead, you need to check the level at the channel strip for the track on which you are recording:

1. Locate the channel strip for the track you're about to record on.

2. Activate monitoring for the channel by clicking the speaker button next to the fader.

When monitoring is activated, the meter shows the level of the incoming audio signal.

3. Play the audio source that you want to record and check the level meter for the channel.

4. Adjust the output level of your audio source so that the meters go reasonably high without reaching 0.0dB.

Check the numerical peak level indicator below the meter in the bus channel strip. To reset the peak level indicator, click on it.

.. You must adjust the output level of the audio source - you cannot use the faders in Cubase Studio to adjust the input level!

.. An alternative way of checking the input levels would be to use the control panel for your audio hardware (if it features input level meters). It may also be possible to adjust the input level in the control panel.

*See the documentation of your audio hardware for details. */*

Monitoring..... 73 monitoring

/ In this context, "monitoring" means listening to the input signal during recording. There are three fundamentally different ways to do this: via Cubase, externally (by listening to the signal before it reaches Cubase), or by using ASIO Direct Monitoring (which is a combination of both other methods - see below). */*

Monitoring via Cubase..... 73 "monitoring via Cubase"

/ If you monitor via Cubase, the input signal is mixed in with the audio playback. The advantage of this is that you can adjust the monitoring level and panning in the mixer, and add effects and EQ to the monitor signal just as during playback (using the track's channel strip - not the input bus!).*

The disadvantage of monitoring via Cubase is that the monitored signal will be delayed according to the latency value (which depends on your audio hardware and drivers). Therefore, monitoring via Cubase requires an audio hardware configuration with a low latency value. You can check the latency of your hardware in the Device Setup dialog (VST Audio System page).

□ If you are using plug-in effects with large inherent delays, the automatic delay compensation function in Cubase will increase the latency.

If this is a problem, you can use the Constrain Delay Compensation function while recording, see "Constrain Delay Compensation" on page 179.

When monitoring via Cubase, you can select one of four Auto Monitoring modes in the Preferences (VST page):

- Manual.*

This option allows you to turn input monitoring on or off by clicking the Monitor button in the Inspector, the Track list or in the mixer.

- While Record Enabled.*

With this option, you will hear the audio source connected to the channel input whenever the track is record enabled.

- While Record Running.*

This option switches to input monitoring only during recording.

- Tapemachine Style.*

This option emulates standard tapemachine behavior: input monitoring in Stop mode and during recording, but not during playback.

- Cubase only: In the Preferences (VST-Metering page) you can find the option "Map Input Bus Metering to Audio Track (in Direct Monitoring)".*

When Direct Monitoring is activated in the Device Setup dialog, this option allows you to map the input bus metering to monitor-enabled audio tracks. This gives you the opportunity to watch the input levels of your audio tracks when working in the Project window.

When Direct Monitoring is activated in the Device Setup dialog, this function works as follows:

- When "Map Input Bus Metering to Audio Track (in Direct Monitoring)" is activated, audio tracks show the metering signal from the input bus they are routed to as soon as the track is record-enabled.

Note that the tracks are mirroring the input bus signal, i.e. you will see the same signal in both places. When using mapped metering, any functions (e.g. trimming) you apply to the audio track are not reflected in its meters.

- When "Map Input Bus Metering to Audio Track (in Direct Monitoring)" is not activated, metering works as usual.
- In Cubase Studio, the audio tracks always show the input bus metering, see "Cubase Studio" on page 72. */

External monitoring..... 73 "external monitoring"

/* External monitoring (listening to the input signal before it goes into Cubase) requires some sort of external mixer for mixing the audio playback with the input signal. This can be a stand-alone physical mixer or a mixer application for your audio hardware, if this has a mode in which the input audio is sent back out again (usually called "Thru", "Direct Thru" or similar).

When using external monitoring, you cannot control the level of the monitor signal from within Cubase or add VST effects or EQ to the monitor signal. The latency value of the audio hardware configuration does not affect the monitor signal in this mode.

□ If you want to use external monitoring, you need to make sure that monitoring via Cubase is not activated as well.

Select the "Manual" monitoring mode in the Preferences (VST page) and do not activate the Monitor buttons. */

ASIO Direct Monitoring..... 74 "ASIO Direct Monitoring"

/* If your audio hardware is ASIO 2.0 compatible, it may support ASIO Direct Monitoring (this feature may also be available for audio hardware with Mac OS X drivers). In this mode, the actual monitoring is done in the audio hardware, by sending the input signal back out again. However, monitoring is controlled from Cubase. This means that the audio hardware's direct monitoring feature can be turned on or off automatically by Cubase, just as when using internal monitoring.

- To activate ASIO Direct Monitoring, open the Device Setup dialog on the Devices menu and activate the Direct Monitoring checkbox on the page for your audio hardware.

If the checkbox is grayed out, your audio hardware (or its driver) does not support ASIO Direct Monitoring. Consult the audio hardware manufacturer for details.

- When ASIO Direct Monitoring is activated, you can select a monitoring mode in the Preferences (VST page), as when monitoring via Cubase (see "Monitoring via Cubase" on page 73).

- Depending on the audio hardware, it may also be possible to adjust the monitoring level and panning from the mixer (including the Control Room section, but excluding the Talkback and External Return channels) by adjusting the volume faders, the input gain controls and the send levels for Control Room studios.

Consult the documentation of the audio hardware if in doubt.

- VST effects and EQ cannot be applied to the monitor signal in this mode, since the monitor signal does not pass through Cubase.
- Depending on the audio hardware, there may be special restrictions as to which audio outputs can be used for direct monitoring.

For details on the routing of the audio hardware, see its documentation.

The latency value of the audio hardware configuration does not affect the monitor signal when using ASIO Direct Monitoring.

When using Steinberg hardware (MR816 series) in combination with ASIO Direct Monitoring, monitoring will be virtually latency-free.

□ If you are using RME Audio Hammerfall DSP audio hardware, make sure that the pan law is set to -3dB in the card's preferences. */

Recording..... 74 recording

/* Recording is done using any of the general recording methods (see "Basic recording methods" on page 67). When you finish recording, an audio file is created in the Audio folder within the project folder. In the Pool, an audio clip is created for the audio file, and an audio event that plays the whole clip appears on the recording track. Finally, a waveform image is calculated for

the audio event. If the recording was very long, this may take a while.

□ *If the option "Create Audio Images During Record" is activated in the Preferences (Record-Audio page), the waveform image will be calculated and displayed during the actual recording process.*

*This realtime calculation uses some processing power - if your processor is slow or you are working on a CPU-intensive project, you should consider turning this option off. */*

Undoing recording..... 74 "undoing recording"

/ If you decide that you do not like what you just recorded, you can delete it by selecting Undo from the Edit menu. The following will happen:*

- The event(s) you just created will be removed from the Project window.*
- The audio clip(s) in the Pool will be moved to the Trash folder.*
- The recorded audio file(s) will not be removed from the hard disk.*

*However, since their corresponding clips are moved to the Trash folder, you can delete the files by opening the Pool and selecting "Empty Trash" from the Media menu, see "Deleting from the hard disk" on page 264. */*

Recording overlapping events..... 75 recording "overlapping events"

/ The basic rule for audio tracks is that each track can play back a single audio event at a time. This means that if two or more events are overlapping, only one of them will be heard at any given time.*

What happens when you record overlapping events (record in an area where there are already events on the track) depends on the Linear Record Mode setting on the Transport panel:

- In "Normal" or "Merge" mode, recording where something has already been recorded creates a new audio event that overlaps the previous one(s).*

When you record audio, there is no difference between "Normal" and "Merge" mode - the difference only applies to MIDI recording (see "About overlap and the Record Mode setting" on page 81).

- In "Replace" mode, existing events (or portions of events) that are overlapped by the new recording will be removed.*

*This means that if you record a section in the middle of a longer existing recording, the original event will be cut into two events with a gap for the new event. */*

Which event will be heard?..... 75

/ If two or more events are overlapping, you will only hear the events (or portions of events) that are actually visible. Overlapped (hidden) events or sections are not played back.*

- The functions "Move to Front" and "Move to Back" on the Edit menu (Move submenu, see "Moving events" on page 44) are useful for managing overlapping events, as is the "To Front" function (see below). */*

Recording audio in cycle mode..... 75 "recording audio" "cycle mode"

/ If you are recording audio in cycle mode, the result depends on two factors:*

- The "Cycle Record Mode" setting on the Transport panel.*
- The "Audio Cycle Record Mode" setting in the Preferences (Record-Audio page). */*

Cycle Record Modes on the Transport panel..... 75 "Cycle Record Modes"

/ There are five different modes on the Transport panel, but the first two modes only apply to MIDI recording. For audio cycle recording, the following applies:*

- If "Keep Last" is selected, the last complete "take" (the last completely recorded lap) is kept as an audio event.*

In reality, all laps you recorded are saved in one audio file divided into regions - one region for each take. You can easily

select a previous take for playback – this is done as when recording in “Create Regions” mode (see “Create Regions mode (Preferences)” on page 76).

- If “Stacked” is selected, each take will appear as an event on a separate “lane” on the track.*

This is useful when you want to view and edit the different takes and eventually combine them to one recording. In this mode, the Audio Cycle Record Mode preference does not matter. Stacked 2 (No Mute) is the same as Stacked, except that all the takes will be audible. See “Recording audio in Stacked mode” on page 77.

- If any of the other cycle recording modes is selected, the result depends entirely on the “Audio Cycle Record Mode” setting in the Preferences (Record-Audio page).*

*These options are described below. */*

Create Events mode (Preferences)..... 76 "Create Events mode" Preferences

/ When “Audio Cycle Record Mode” is set to “Create Events” in the Preferences (Record-Audio page), the following will happen when you record audio in cycle mode:*

- One continuous audio file is created during the entire recording process.*
- For each recorded lap of the cycle, one audio event is created.*

*The events will have the name of the audio file plus the text “Take *”, where “*” indicates the number of the take.*

- The last take (the last recorded lap) will be on top (and will thus be the one you hear when you activate playback).*

To select another take for playback, proceed as follows:

- 1. Holding [Alt]/[Option], right-click the event and select “To Front” on the context menu.*

Whether a right click opens the context menu or the toolbox is determined by the “Popup Toolbox on Right Click” option in the Preferences dialog (Editing-Tools page). Depending on this setting the context menu is opened by right-clicking or by right-clicking holding any modifier key.

The “To Front” submenu, listing all the other (obscured) events.

- 2. Select the desired take.*

The corresponding event is brought to front.

This method allows you to quickly combine the best parts of each take, in the following way:

- 1. Use the Scissors tool to split the events in several sections, one for each part of the take.*

For example, if you recorded four lines of vocals (in each take), you can split the events so that each line gets a separate event.

The events after splitting. Note that since the original take events overlap each other, clicking with the Scissors tool will split all takes at the same position.

- 2. For each section of the take, use the “To Front” function to bring the best take to the front.*

This way, you can quickly combine the best sections of each take, using the first vocal line from one take, the second line from another take, and so on.

*You can also compile a “perfect” take in the Audio Part Editor, see “Assembling a “perfect take”” on page 258. */*

Create Regions mode (Preferences)..... 76 "Create Regions mode" Preferences

/ When Audio Cycle Record Mode is set to “Create Regions” in the Preferences (Record-Audio page), the following will happen when you record audio in cycle mode:*

- One continuous audio file is created during the entire recording process.*

- The audio event in the Project window shows the name of the audio file plus the text "Take *" (with "*" being the number of the last completed cycle lap).

- If you play back the recorded event, you will only hear what was recorded during the last lap of the cycle recording.

The previous "takes" recorded in the cycle are still available, however.

- The audio clip is divided into regions (called takes), one for each lap of the cycle that was recorded.

If you locate the audio file you just recorded in the Pool, and click on the plus sign beside it, you can see the regions that have been created, one for each lap of the cycle that was completed during recording.

"Take" regions in the Pool window

To play back the different "takes", proceed as follows:

1. In the Project window, holding [Alt]/[Option], rightclick the event that was created during cycle recording.

Provided that the "Popup Toolbox on Right Click" option in the Preferences dialog (Editing-Tools page) is activated, this brings up the context menu.

2. Select the "Set To Region" menu item.

A submenu appears with the takes you recorded during cycle record.

3. Now you can select any of the takes from the submenu and it will replace the previous take event in the Project window.

Use this method to listen through the various takes. Select the best single take, or compile a "perfect" take by cutting out the best bits from each take and putting them together (see "Assembling a "perfect take"" on page 258). */

Create Events + Regions mode (Preferences)..... 77 "Create Events + Regions mode" Preferences

/* In this mode, both events and regions are created. If you work with the takes as events in this mode, you can edit the events freely (e.g. splitting them), see "Create Events mode (Preferences)" on page 76. However, in case you want to go back to the original takes, they are still available as regions (on the "Set To Region" submenu, in the Pool or in the Sample Editor). */

Recording audio in Stacked mode..... 77 "recording audio" "Stacked mode"

/* When you record audio in cycle mode and the "Stacked" Cycle Record Mode is selected on the Transport panel, the following happens:

- Each complete recorded cycle lap is turned into a separate audio event.

- The track is divided into "lanes", one for each cycle lap.

- The events are stacked above each other, each on a different lane.

This makes it easy to create a "perfect take" by combining the best parts from the different cycle laps:

1. Zoom in so you can work comfortably with the stacked events.

If you play back the recorded section, only the lowest (last) take will be heard.

2. To audition another take, either mute the lower take(s) with the Mute tool or move the takes between the lanes.

This can be done by dragging or by using the functions Move to Front/ Back on the context menu or the Edit menu.

3. Edit the takes so that only the parts you want to keep can be heard.

You can cut events with the Scissors tool, resize them, mute them or delete them.

The sections that will be heard are indicated in green.

4. When you are satisfied with the result, select all events on all lanes and select "Delete Overlaps" from the Advanced submenu

on the Audio menu.

This puts all events back on a single lane and resizes events so that overlapped sections are removed.

5. To turn off the lane display mode for the track, click the Lane Display Type button in the Track list and select "Lanes Off".

If the button is hidden, you can bring it to view in the Track Controls Settings dialog - see "Customizing track controls" on page 472.

The Lane Display Type button */

Recording with effects (Cubase only)..... 78 "recording with effects"

/* Normally you record the audio signals "dry" and add effects non-destructively during playback as described in the chapter "Audio effects" on page 150. However, Cubase also allows you to add effects (and/or EQ) directly while recording. This is done by adding insert effects and/ or making EQ settings for the input channel in the mixer.

□ This will make the effects become part of the audio file itself - you cannot change the effect settings after recording. */

About the record format..... 78 "record format"

/* When you record with effects, you should consider setting the record format (bit depth) to 32 Bit Float. This is done in the Project Setup dialog on the Project menu. Note that this is not required in any way - you can also record with effects in 24 or 16 Bit format.

However, there are two advantages to 32 Bit Float format:

- With 32 Bit Float recording, you do not risk clipping (digital distortion) in the recorded files.

This can of course be avoided with 24 or 16 Bit recording as well, but requires more care with the levels.

- Cubase processes audio internally in 32 Bit Float format - recording in the same format means the audio quality will be kept absolutely pristine.

The reason is that the effect processing in the input channel (as well as any level or EQ settings you make there) is done in 32 Bit Float format. If you record at 16 or 24 Bit, the audio will be converted to this lower resolution when it is written to file - with possible signal degradation as a result.

Note also that it does not matter at which actual resolution your audio hardware works. Even if the signal from the audio hardware is in 16 Bit resolution, the signal will be 32 Bit Float after the effects are added in the input channel. */

An example..... 78

MIDI recording specifics..... 79

Activating MIDI Thru..... 79 "MIDI Thru"

/* Normally, when working with MIDI, you will have MIDI Thru activated in Cubase, and Local Off selected in your MIDI Instrument(s). In this mode, everything you play during recording will be "echoed" back out again on the MIDI output and channel selected for the recording track.

1. Make sure the option "MIDI Thru Active" is activated in the Preferences (MIDI page).

2. Record enable the track(s) on which you want to record.

Now, incoming MIDI is "echoed" back out again for all record-enabled MIDI tracks.

.. If you just want to use the Thru function for a MIDI track without recording, activate the monitor button for the track instead.

This is useful e.g. if you want to try out different sounds or play a VST instrument in realtime without recording your playing. */

Setting MIDI channel, input and output..... 79

Setting the MIDI channel in the instrument..... 79

Naming MIDI ports in Cubase..... 79

Setting the MIDI input in the Inspector..... 79

Setting the MIDI channel and output..... 80

Selecting a sound..... 80

Recording..... 81

/ Recording MIDI is done according to the basic recording methods (see "Basic recording methods" on page 67). When you finish recording, a part containing MIDI events is created in the Project window. */*

About overlap and the Record Mode setting..... 81 overlap "Record Mode" setting

/ MIDI tracks are different from audio tracks when it comes to overlapping parts:*

.. All events in overlapping parts are always played back.

If you record several parts at the same locations (or move parts so that they overlap), you will hear the events in all parts on playback, even though some of the parts are obscured in the Project window.

When recording overlapping parts, the result depends on the Linear Record Mode setting on the Transport panel:

- If the record mode is set to "Normal", overdub recording works as with audio tracks, i.e. if you record again where something has already been recorded, you get a new part that overlaps the previous one(s).*

- If the record mode is set to "Merge", the overdubbed events are added to the existing part.*

- If the record mode is set to "Replace", the new recording replaces any existing events in the area on that track. */*

About punch in and out on MIDI tracks..... 81 "punch in" "punch out" "MIDI tracks"

/ Performing and setting up manual and automatic punch in/out recording for MIDI tracks is done in exactly the same way as for audio tracks. There is one thing to note, however:*

- Punching in and out on recordings with Pitchbend or controller data (modulation wheel, sustain pedal, volume etc.) may lead to strange effects (apparently hanging notes, constant vibrato etc.).*

*If this happens, you may need to use the Reset item on the MIDI menu (see "The Reset function" on page 83). */*

About the Automatic MIDI Record Quantize function..... 81

Recording MIDI in cycle mode..... 81 "recording MIDI" "cycle mode"

/ When you record MIDI in cycle mode, the result depends on which Cycle Record mode is selected on the Transport panel: */*

Cycle Record mode: Mix (MIDI)..... 81 "Cycle Record mode: Mix (MIDI)"

/ For each completed lap, everything you record is added to what was previously recorded in the same part. This is useful for building up rhythm patterns, for example. Record a hi-hat part on the first lap, the bass drum part on the second lap etc. */*

Cycle Record mode: Overwrite (MIDI)..... 81 "Cycle Record mode: Overwrite (MIDI)"

/ As soon as you play a MIDI note (or send any MIDI message), all MIDI you have recorded on previous laps is overwritten from that point on in the part. An example:*

- 1. You start recording in an eight bar cycle.*
- 2. The first take was not good enough - you start directly with a new take on the next cycle lap and overwrite the first take.*
- 3. After recording the second take you let the recording roll on and listen, without playing anything.*

You find that the take was good up until bar seven, for example.

- 4. On the next lap, you wait until bar seven and start playing.*

This way you will overwrite the last two bars only.

- 5. Make sure you stop playing before the next lap begins - otherwise you will overwrite the entire take. */*

Cycle Record mode: Keep Last..... 81 "Cycle Record mode: Keep Last"

/ Each completed lap replaces the previously recorded lap. Note the following:*

- The cycle lap must be completed – if you deactivate recording or press Stop before the cursor reaches the right locator, the previous take will be kept.
- If you do not play or input any MIDI during a lap, nothing happens (the previous take will be kept). */

Cycle Record mode: Stacked/Stacked 2 (No Mute)..... 82 "Cycle Record mode: Stacked/Stacked 2 (No Mute) "

/ In this mode, the following happens:*

- Each recorded cycle lap is turned into a separate MIDI part.
- The track is divided into “lanes”, one for each cycle lap.
- The parts are stacked above each other, each on a different lane.
- All takes but the last one are muted (Stacked).
- If Stacked 2 is selected, no muting takes place.

This makes it easy to create a “perfect take” by combining the best parts from the different cycle laps. You can edit the parts in the Project window (by cutting, resizing and deleting) or you can use a MIDI editor as in the following example:

1. Unmute the muted takes by clicking the parts with the Mute tool.
2. Select all takes (parts) and open them in the Key Editor for example.
3. Use the part list pop-up menu on the toolbar to select which part to edit.

See “Handling several parts” on page 339.

4. Remove or edit notes as desired.
5. When you are happy with the result, close the editor.
6. To turn it all into a single MIDI part (containing your “perfect take”), select all parts and select “Merge MIDI in Loop” from the MIDI menu.
7. In the dialog that appears, activate the Erase Destination option and click OK.

*The remaining events in the parts are merged together into a single part. */*

Recording different types of MIDI messages.....	82
Notes.....	82
Continuous messages.....	82
Program Change messages.....	82
System Exclusive messages.....	83
The Reset function.....	83
Retrospective Record.....	83 "Retrospective Record"

/ This feature allows you to capture any MIDI notes you play in Stop mode or during playback and turn them into a MIDI part “after the fact”. This is possible due to the fact that Cubase can capture MIDI input in buffer memory, even when not recording.*

Proceed as follows:

1. Enable the Retrospective Record option in the Preferences (Record-MIDI page).

This activates the buffering of MIDI input, making Retrospective Record possible.

2. Make sure a MIDI track is record-enabled.

3. When you have played some MIDI material you want to capture (either in Stop mode or during playback), select Retrospective Record from the Transport menu (or use the key command, by default [Shift]-Num[*]).

The content of the MIDI buffer (i.e. what you just played) is turned into a MIDI part on the record enabled track. The part will appear where the project cursor was when you started playing – this means that if you played along during playback, the captured notes will end up exactly where you played them in relation to the project.

- The Retrospective Record Buffer Size setting in the Preferences (Record-MIDI page) determines how much data can be captured.*
- */*

MIDI Preferences..... 83
MIDI page..... 83
Record-MIDI page..... 83

/ ...*

- MIDI Record Catch Range in ms When you record starting at the left locator, this setting helps you make sure the very start of the recording is included. A very annoying scenario is when you have recorded a perfect MIDI take, only to find out that the very first note was not included – because you started playing a little bit too early! If you raise the Record Catch Range, Cubase will catch the events played just before the recording start point, eliminating this problem.*

*... */*

Filtering MIDI..... 84
Options and Settings..... 84
Recording-related Transport Preferences..... 84

/ A couple of settings in the Preferences (Transport page) are relevant for recording. Set these according to your preferred method of work: */*

Deactivate Punch In on Stop..... 84 "Deactivate Punch In on Stop"

/ If this is activated, punch in on the Transport panel is automatically deactivated whenever you enter Stop mode. */*

Stop after Automatic Punch Out..... 84 "Stop after Automatic Punch Out"

/ If this is activated, playback will automatically stop after automatic punch out (when the project cursor reaches the right locator and punch out is activated on the Transport panel). If the post-roll value on the Transport panel is set to a value other than zero, playback will continue for the set time before stopping (see below). */*

About Pre-roll and Post-roll..... 84 Pre-roll Post-roll

/ The pre-roll and post-roll value fields (below the left/right locator fields) on the Transport panel have the following functionality:*

- By setting a pre-roll value, you instruct Cubase to “roll back” a short section whenever playback is activated.*

This applies whenever you start playback, but is perhaps most relevant when recording from the left locator (punch in activated on the Transport panel) as described below.

- By setting a post-roll value, you instruct Cubase to play back a short section after automatic punch out before stopping.*

This is only relevant when punch out is activated on the Transport panel and “Stop after Automatic Punch Out” is activated in the Preferences (Transport page).

- To turn pre-roll or post-roll on or off, click the corresponding button on the Transport panel (next to the pre/ post-roll value) or use the “Use Pre-roll” and “Use Postroll” options on the Transport menu.*

An example:

- 1. Set the locators to where you want to start and end recording.*
- 2. Activate Punch in and Punch out on the Transport panel.*
- 3. Activate the option “Stop after Automatic Punch Out” in the Preferences (Transport page).*
- 4. Set suitable pre-roll and post-roll times by clicking in the corresponding fields on the Transport panel and typing in time values.*

- 5. Activate pre-roll and post-roll by clicking the buttons next to the pre-roll and post-roll times so that they light up.
- 6. Activate recording.

The project cursor "rolls back" by the time specified in the pre-roll field and playback starts. When the cursor reaches the left locator, recording is automatically activated. When the cursor reaches the right locator, recording is deactivated, but playback continues for the time set in the post-roll field before stopping. */

Using the metronome..... 85 metronome

/* The metronome can output a click that can be used as a timing reference. The two parameters that govern the timing of the metronome are tempo and time signature, as set on the tempo track and signature track, or in the Tempo Track Editor (see "Editing the tempo curve" on page 404).

You can use the metronome for a click during recording and/or playback or for a precount (count-in) that will be heard when you start recording from Stop mode. Click and precount are activated separately:

- To activate the metronome, click the Click button on the Transport panel.

You can also activate the "Metronome On" option on the Transport menu or use the corresponding key command (by default [C]).

- To activate the precount, click the Precount button on the Transport panel.

You can also activate the "Precount On" option on the Transport menu or set up a key command for this. */

Metronome settings..... 85 metronome settings

/* You make settings for the metronome in the Metronome Setup dialog, opened from the Transport menu.

The metronome can use either an audio click played back via the audio hardware, send MIDI data to a connected device which will play back the click or do both.

The following metronome settings can be made in the dialog:

Metronome Options Description

Metronome in Record / Play Allows you to specify whether the metronome should be heard during playback, recording or both (when Click is activated on the Transport panel).

Use Count Base If this option is activated, a field appears to the right where you specify the "rhythm" of the metronome. Normally, the metronome plays one click per beat, but setting this to e.g. "1/8" gives you eighth notes - two clicks per beat. It is also possible to create unusual metronome rhythms such as triplets etc.

Precount Options Description

Precount Bars Sets the number of bars the metronome will count in before it starts recording if precount is activated on the Transport panel.

Use Time Signature at Record Start Time When this is activated, the precount will automatically use the time signature and tempo set at the position where you start recording.

Use Time Signature at Project Time When this is activated, the precount will be in the time signature set on the tempo track. Furthermore, any tempo changes on the tempo track during the precount will be applied.

Use Signature This lets you set a time signature for the precount. In this mode, tempo changes on the tempo track will not affect the precount.

MIDI Click Description

Activate MIDI Click Selects whether or not the metronome will sound via MIDI.

MIDI Port/Channel This is where you select a MIDI output and channel for the metronome click. Note that you can select a VST Instrument previously set up in the VST Instruments window from this menu, allowing you to use a VST Instrument sound for the

Metronome click.

Hi Note/Velocity Sets the MIDI note number and velocity value for the "high note" (the first beat in a bar).

Lo Note/Velocity Sets the MIDI note number and velocity for the "low notes" (the other beats).

Audio Click Description

Activate Audio Click Selects whether or not the metronome will sound via the audio hardware.

Beeps When this is selected, the audio clicks will be beeps generated by the program. Adjust the pitch and level of the beeps for the "Hi" (first) beat and "Lo" (other) beats using the sliders below.

*Sounds When this is selected, you can click in the "Sound" fields below to load any audio files for use as the "Hi" and "Lo" metronome sounds. The sliders set the level of the click. */*

Lock and Unlock Record..... 86 "Lock Record" "Unlock Record"

/ During recording it can happen that you accidentally deactivate the record mode, e.g. by pressing [Space]. In order to prevent this, you can set up a key commands for this in the Key Commands dialog. If you use the Lock Record key command, the Record button will turn gray and the record mode is locked until you use the Unlock Record key command or enter Stop mode.*

- If Lock Record is activated and you want to enter Stop mode (by clicking Stop or pressing [Space]), you will see a dialog in which you need to confirm that you want to stop recording. You can also use the Unlock Record key command first and then enter Stop mode as usual.*

- By default, no key commands are assigned to these functions. In the Key Commands dialog, you will find the corresponding key command entries in the Transport category (see the chapter "Key commands" on page 479 for more information on how to set up key commands).*

☐ *These key commands are especially useful when combined with other commands (e.g. with Record/Stop) using the macro functions. That way you will receive powerful macros that can greatly enhance your workflow.*

☐ *Note that an automatic punch-out at the right locator position that you may have set on the transport panel, will be ignored in Lock Record mode. */*

Remaining Record Time Display..... 86

/ The Remaining Record Time Display lets you see how much time you have left for recording. The available time depends on the current setup, for example, on the amount of tracks that are record-enabled, your project setup (e.g. the sample rate), and the amount of hard disk space available.*

You can show and hide the display by using the Remaining Record Time Display option on the Devices menu.

.. The remaining record time is also shown in the status bar below the Track list.

*! If you are storing your tracks on different drives (by using individual record folders), the time display refers to the medium with the least storage space available. */*

Recovery of audio recordings after system failure..... 87 "recovery of audio recordings"

/ Normally, when a computer crashes, all changes made to your current project since you last saved it will be lost. Usually, there is no quick and easy way to recover your work.*

With Cubase, when your system crashes while you are recording (because of a power cut or other mishap), you will find that your recording is still available, from the moment when you started recording to the time when your computer crashed.

When you experience a computer crash during a recording, simply relaunch the system and check the project record folder (by default this is the Audio subfolder inside the project folder). It should contain the audio file you were recording at the time of the crash.

! This feature does not constitute an "overall" guarantee by Steinberg. While the program itself was improved in such a way that audio recordings can be recovered after a system failure, it is always possible that a computer crash, power cut, etc. might have damaged another component of the computer, making it impossible to save or recover any of the data.

```
! Please do not try to actively bring about this kind of situation to test this feature. Although the internal program processes
have been improved to cope with such situations, Steinberg cannot guarantee that other parts of the computer are not damaged as a
consequence. */
```

6 Fades, crossfades and envelopes.....	88
Creating fades.....	89

```
/* There are two main types of fade-ins and fade-outs in audio events in Cubase: fades created by using the fade handles (see below)
and fades created by processing (see "Fades created by processing" on page 90). */
```

Fades created by using the fade handles..... 89

```
/* Selected audio events have blue handles in the upper left and right corners. These can be dragged to create a fadein or fade-out respectively.
```

Creating a fade-in. The fade is automatically reflected in the shape of the event's waveform, giving you a visual feedback of the result when you drag the fade handle.

Fades created with the handles are not applied to the audio clip as such but calculated in realtime during playback. This means that several events referring to the same audio clip can have different fade curves. It also means that having a huge number of fades may demand a lot of processor power.

...

Creating and adjusting fades with the Range Selection tool.....	90	
About the volume handle.....	90	"volume handle"

```
/* A selected audio event also has a blue handle in the top middle. This is the volume handle, and it provides a quick way of
changing the volume of an event, directly in the Project window. It is linked directly to the volume setting on the info line, that
is, dragging the volume handle also changes the value on the info line. */
```

```
Removing fades..... 90 "removing fades"
```

```
/* To remove the fades for an event, select the event and select "Remove Fades" from the Audio menu. You can also use the Range Selection tool to remove fades and crossfades within the selected range this way. */
```

Fades created by processing..... 90

/ If you have selected an audio event or a section of an audio event (using the Range Selection tool), you can apply a fade-in or fade-out to the selection by using the "Fade In" or "Fade Out" functions on the Process submenu on the Audio menu. These functions open the corresponding Fade dialog, allowing you to specify a fade curve.*

...

Fades created this way are applied to the audio clip rather than to the event. Please note the following:

...

The Fade dialogs.....	91
Curve Kind.....	91
Fade display.....	91
Curve shape buttons.....	91
Restore button.....	91
As Default button.....	91
Fade Length Value.....	91
Presets.....	91
Preview, Apply and Process.....	92
Creating crossfades.....	92

/ Overlapping audio material on the same track can be crossfaded, for smooth transitions or special effects. You create a crossfade by selecting two consecutive audio events and selecting the Crossfade command on the Audio menu (or by using the corresponding key command, by default [X]). The result depends on whether the two events overlap or not:*

- If the events overlap, a crossfade is created in the overlapping area.

The crossfade will be of the default shape - initially a linear, symmetric crossfade, but you can change this as described below.

• If the events do not overlap but are directly consecutive (lined up end-to-start, with no gap) it is still possible to crossfade them - provided that their respective audio clips overlap! In this case, the two events are resized so that they overlap, and a crossfade of the default length and shape is applied.

The default crossfade length and shape are set in the Crossfade dialog (see "Default buttons" on page 94).

An example:

The events themselves do not overlap, but their clips do. Therefore, the events can be resized so that they overlap, which is required for a crossfade to be created.

When you select the Crossfade function, the two events are resized so that they overlap, and a default crossfade is created in the overlapping section.

• If the events do not overlap, and cannot be resized enough to overlap, a crossfade cannot be created.

• Cubase only: You can specify the length of the crossfade using the Range Selection tool: make a selection range covering the desired crossfade area and use the Crossfade command.

The crossfade is applied in the selected range (provided that the events or their clips overlap, as described above). You can also make a selection range after creating the crossfade and use the function "Adjust fades to Range" on the Audio menu.

• Once you have created a crossfade, you can edit it by selecting one or both crossfaded events, and selecting "Crossfade" from the Audio menu again (or by doubleclicking in the crossfade zone).

*This opens the Crossfade dialog, see below. */*

Removing crossfades..... 93

/ To remove a crossfade, proceed as follows:*

• Select the events and select "Remove Fades" from the Audio menu.

You can also use the Range Selection tool: drag the Range Selection tool so that the selection encloses all the fades and crossfades you wish to remove, and select "Remove Fades" from the Audio menu.

*• You can also remove a crossfade by clicking and dragging it outside the track. */*

The Crossfade dialog..... 93

Fade Displays..... 93

Curve kind buttons..... 93

Curve shape buttons..... 93

Equal Power and Gain..... 93

Play buttons..... 93

Pre-roll and Post-roll..... 93

Length settings..... 94

Presets..... 94

Default buttons..... 94

Auto Fades and Crossfades..... 94 "auto fades" "auto crossfades"

/ Cubase features an Auto Fade function that can be set both globally, i.e. for the entire project, and separately for each audio track. The idea behind the Auto Fade function is to create smoother transitions between events by applying short (1-500ms) fade-ins and fade-outs.*

! As mentioned earlier, fades are calculated in realtime during playback. This means that the larger the number of audio tracks with Auto Fades activated in a project, the higher the demands on the processor.

*! Note that auto fades are not indicated by the fade lines! */*

Making global Auto Fade settings..... 94 global "Auto Fade settings"

/ 1. To make Auto Fades settings globally for the project, select "Auto Fades Settings..." from the Project menu.*

This opens the Auto Fades dialog for the project.

2. Use the checkboxes in the upper right corner to activate or deactivate Auto Fade In, Auto Fade Out and Auto Crossfades, respectively.

3. Use the Length value field to specify the length of the Auto Fade or Crossfade (1-500ms).

4. To adjust the shapes of Auto Fade In and Auto Fade Out, select the "Fades" tab and make settings as in the regular Fade dialogs.

5. To adjust the shape of the Auto Crossfade, select the "Crossfades" tab and make settings as in the regular Crossfade dialog.

6. If you want to use the settings you have made in future projects, click the "As Default" button.

The next time you create a new project, it will use these settings by default.

*7. Click OK to close the dialog. */*

Making Auto Fade settings for a separate track..... 95 "Auto Fade settings" track

/ By default, all audio tracks will use the settings you have made in the project's Auto Fades dialog. However, since Auto Fades use computing power, a better approach may be to turn Auto Fades off globally and activate them for individual tracks, as needed:*

1. Right-click the track in the Track list and select "Auto Fades Settings..." from the context menu (or select the track and click the "Auto Fades Settings" button in the Inspector).

The Auto Fades dialog for the track opens. This is identical to the project's Auto Fades dialog, with the addition of a "Use Project Settings" option.

2. Deactivate the "Use Project Settings" option.

Now, any settings you make will be applied to the track only.

*3. Set up the Auto Fades as desired and close the dialog. */*

Reverting to project settings..... 95 "reverting to project settings"

/ If you want a track to use the global Auto Fade settings, open the Auto Fades dialog for the track and activate the "Use Project Settings" checkbox. */*

Event Envelopes..... 95 "Event Envelopes"

/ An envelope is a volume curve for an audio event. It is similar to the realtime fades, but allows you to create volume changes within the event, not only at the start or end. To create an envelope for an audio event, proceed as follows:*

1. Zoom in on the event so that you can view its waveform properly.

2. Select the Pencil tool.

When you move the Pencil tool over an audio event, a small volume curve symbol is shown next to the tool.

3. To add an envelope point, click in the event with the Pencil tool.

A blue envelope curve and a curve point appear.

4. Drag the curve point to adjust the envelope shape. The waveform image reflects the volume curve.

- You can add as many curve points as you like.*

- To remove a curve point from the envelope, click on it and drag it outside the event.*

- The envelope curve is a part of the audio event - it will follow when you move or copy the event.*

After copying an event with an envelope, you can make independent adjustments to the envelopes in the original event and the copy.

.. It is also possible to apply an envelope to the audio clip using the Envelope function on the Process submenu on the Audio menu.

See "Envelope" on page 206.

*.. To remove an event envelope curve from a selected event, open the Audio menu and select the Remove Volume Curve option. */*

7 The Arranger track.....	96
Introduction.....	97
Setting up the Arranger track.....	97
Working with arranger events.....	98
Creating an Arranger chain.....	98
Editing the Arranger chain.....	99
Navigating.....	99
Managing Arranger chains.....	99
Flattening the Arranger chain.....	100
Flattening options.....	100
Live Mode.....	101
Arranging your music to video.....	102
8 The Transpose functions.....	103
Introduction.....	104
Transposing your music.....	104
Transposing an entire project with the Root Key.....	104
If the events already contain root key information.....	104
If the events do not contain root key information.....	105
Recording with a project root key.....	105
Changing the Root key of single events or parts.....	105
Transposing separate sections of a project using Transpose events...	106
Transposing individual parts or events using the info line.....	106 "info line"
Other functions.....	107
Indicate Transpositions.....	107
The Global Transpose setting.....	107
Locking the Transpose track.....	108
Muting transpose events.....	108
Keep Transpose in Octave Range.....	108
9 The mixer.....	109 mixer
About this chapter.....	110

/ This chapter contains detailed information about the elements used when mixing audio and MIDI, and the various ways you can configure the mixer.*

Some mixer-related features are not described in this chapter. These are the following:

- Setting up and using audio effects.*

See the chapter "Audio effects" on page 150.

- Setting up and using MIDI effects.*

See the chapter "MIDI realtime parameters and effects" on page 305.

- Surround Sound (Cubase only).*

See the chapter "Surround sound (Cubase only)" on page 180.

- Automation of all mixer parameters.*

See the chapter "Automation" on page 188.

- How to mix down several audio tracks (complete with automation and effects if you wish) to a single audio file.*

*See the chapter "Export Audio Mixdown" on page 419. */*

Overview.....	110
----------------------	------------

/ The mixer offers a common environment for controlling levels, pan, solo/mute status etc. for both audio and MIDI channels. */*

Opening the mixer.....110 mixer

/ The mixer can be opened in several ways:*

- By selecting Mixer from the Devices menu.*
- By clicking the Mixer icon on the toolbar.*
- By using a key command (by default [F3]).*
- By clicking the Mixer button in the Devices panel.*

*You open the Devices panel by selecting Show Panel from the Devices menu. */*

About the multiple mixer windows.....111 "multiple mixer windows"

/ You may have noticed that there are in fact several separate mixer items selectable from the Devices menu (in Cubase Studio there are two mixer items). These are not separate mixers, but rather separate views of the same mixer.*

- Each of the mixer windows can be configured to show any combination of channels, channel types, narrow and wide channel strips, etc. (how to do this is described later in this chapter).*

You can for example configure one mixer window to show MIDI channel strips, another to show input and output channels or another to show all audio-related channels.

- You can also save channel configurations as View sets (see "Channel view sets" on page 115), which are then accessible from all mixer windows.*

These features are very convenient when working with large projects. Considering the number of different channel types that can be shown in the mixer, they could even be described as necessary!

The use of multiple mixer windows combined with the ability to recall different mixer configurations enables you to focus on the task at hand and keep window scrolling down to a minimum.

*.. All options for configuring the mixer described in this chapter are identical for all mixer windows. */*

What channel types can be shown in the mixer?.....111 "channel types" mixer

/ The following track-based channel types are shown in the mixer:*

- Audio*
- MIDI*
- Effect return channels (referred to as FX channels in the Project window)*
- Group channels*
- Instrument track channels*

The order of audio, MIDI, instrument, group and effect return channel strips (from left to right) in the mixer corresponds to the Project window Track list (from the top down). If you reorder tracks of these types in the Track list, this will be mirrored in the mixer.

In addition to the above, the following channel types are also shown in the mixer:

- Activated ReWire channels (see the chapter "ReWire" on page 451).*
- VST Instrument channels (see the chapter "VST Instruments and Instrument tracks" on page 169).*

ReWire channels cannot be reordered and always appear to the right of other channels in the main mixer pane (see below). VST instrument (VSTi) channels can be reordered in the Track list which will in turn be mirrored in the mixer.

*The other track types are not shown in the mixer. */*

Input and output busses in the mixer.....111 "input busses" "output busses" mixer

/ Input and output busses are represented by input and output channels in the mixer. They appear in separate "panes" separated by movable dividers and with their own horizontal scrollbars, see "The input and output channels" on page 117.*

*.. In Cubase Studio, only the output channels are shown in the mixer (not input channels). */*

About multi-channel audio (Cubase only).....112 "multi-channel audio"

/ Cubase has full support for surround sound. Each audio channel and bus in the mixer can carry up to 6 speaker channels. This means that if you have an audio track configured for 5.1 surround sound, for example, it will have a single channel strip in the mixer, just like mono or stereo tracks, but its level meter will have six meter bars, one for each speaker channel.*

*Another thing to note is that the look of a channel strip differs slightly depending on how it is routed - mono or stereo tracks routed to a surround output bus will have a surround panner control instead of a regular pan control, for example. For further information on multi-channel audio, see the chapter "Surround sound (Cubase only)" on page 180. */*

Configuring the mixer.....112 configuring mixer

/ As mentioned earlier, the mixer window can be configured in various ways to suit your needs and to save screen space. Here follows a run through of the various view options (the following descriptions assume that you have an active project containing some tracks). */*

Normal vs. Extended channel strips.....112 "Normal channel strips" "Extended channel strips"

The common panel.....113

Selecting what to display in the extended channel strips.....113 "extended channel strips"

Selecting globally from the common panel.....113

Selecting for individual channels.....113 "individual channels"

Selecting what channel types to show/hide.....114 "channel types"

Showing/hiding individual channels (the "Can Hide" setting).....114 "individual channels"

About the Command Target.....115

Channel view sets.....115

Setting the width of channel strips.....115 "channel strips"

The audio-related channel strips.....116 "audio-related channel strips"

/ Channel Input/Output Routing*

The speaker configuration for the channel

Input Gain control (Cubase only)

Input Phase switch (Cubase only)

Level fader and meter

Pan control

Record Enable and Monitor buttons

Listen button (see the chapter "Control Room (Cubase only)" on page 135)

Insert/EQ/Send indicators and bypass buttons (see below)

Edit button (opens the Channel Settings window)

Channel automation controls

The common panel (see "The common panel" on page 113)

Opens the control panel for the VST Instrument.

Channel name

Narrow/Wide button

Channel View options pop-up

The Can Hide State for the channel

All audio-related channel types (audio, instrument track, input/output channels, group, effect return, VST Instrument and ReWire) basically have the same channel strip layout, with the following differences:

- Only audio track channels have an Input Routing pop-up menu.*
- Only audio and instrument track channels have a Monitor and Record Enable button.*
- Input/output channels do not have sends.*
- Instrument track and VST Instrument channels have an additional button for opening the instrument's control panel.*

- *Input channels (Cubase only) and output channels have clipping indicators. */*

About the Insert/EQ/Send indicators and bypass buttons.....116 "Insert/EQ/Send indicators" "bypass buttons"

/ The three indicator buttons in each audio channel strip have the following functionality:*

- *If an Insert or Send effect or an EQ module is activated for a channel, the corresponding button is lit.*

The effect indicators will be blue, the EQ indicator will be green.

- *If you click these buttons when lit, the corresponding EQ or effects section will be bypassed.*

*Bypass is indicated by yellow buttons. Clicking the button again deactivates bypass. */*

The MIDI channel strips.....117 "MIDI channel strips"

/ MIDI input pop-up
MIDI output pop-up
MIDI channel pop-up
This opens the control panel for a connected VST Instrument.
Input Transformer button
Level fader (MIDI volume)
Level (velocity) meter
Mute and Solo
Pan control
Monitor and Record Enable buttons
Insert/Send indicators and Bypass buttons
Edit button
Channel automation controls
Channel Narrow/Wide button
Can Hide State*

The MIDI channel strips allow you to control volume and pan in your MIDI instrument (provided that they are set up to receive the corresponding MIDI messages). The settings here are also available in the Inspector for MIDI tracks./*

The input and output channels.....117 "input channels" "output channels"

/ The Speaker configuration for the bus
Input gain (Cubase only)
Input Phase switch (Cubase only)
Bus volume fader
Bus level meter
Clipping indicator, see "Setting input levels" on page 71.
Mute, Solo and Listen buttons (only the Output bus features a Solo button)
Pan control (no Panner used for surround busses)
Inserts and EQ indicators and Bypass buttons
Edit button
Read/Write Automation*

The busses you set up in the VST Connections window are represented by input and output channels in the mixer. These are shown in separate "panes" (to the left and right of the regular channel strips, respectively), with their own dividers and horizontal scrollbars. The i/o channel strips are very similar to other audio channels and are identical for input and output channels (except that input channels do not have Solo buttons).

☐ *If you are using Cubase Studio, only output channels are shown in the mixer.*

The input channels (busses) you have set up in the VST Connections window are available for selection on the Input Routing pop-up menus but you cannot view them or make settings for them in the mixer.

- *For information on how to set up input and output busses, see the chapter "VST Connections: Setting up input and output busses" on page 13.*

- *How to route audio channels to busses is described in the section "Routing audio channels to busses" on page 127.*

• If the Control Room is disabled (see the chapter "Control Room (Cubase only)" on page 135), the Main Mix (the default output) bus is used for monitoring. For information about Monitoring, see "About monitoring" on page 20. In Cubase Studio, the Main Mix bus is always used for monitoring. */

Basic mixing procedures.....117 "basic mixing procedures"
Setting volume in the mixer.....117 "setting volume" mixer

/* In the mixer, each channel strip has a volume fader.

• For audio channels, the faders control the volume of the channels before they are routed (directly or via a group) channel to an output bus.

Each channel can in turn handle up to 6 speaker channels - see the chapter "Surround sound in Cubase" on page 181.

• An output channel fader determines the master output level of all audio channels routed to that output bus.

• MIDI channels handle fader volume changes in the mixer by sending out MIDI volume messages to the connected instrument(s).

Connected instruments must be set to respond to MIDI messages (such as MIDI volume in this case) for this to function properly.

• The fader settings are displayed numerically below the faders, in dB for audio channels and in the MIDI volume 0 to 127 value range for MIDI channels.

You can click in the fader value fields and enter a volume setting by typing.

• To make fine volume adjustments, hold down [Shift] when you move the faders.

• If you hold down [Ctrl]/[Command] and click on a fader, it will be reset to its default value, i.e. 0.0dB for audio channels, or MIDI volume 100 for MIDI channels.

This reset to default values works for most mixer parameters.

You can use the faders to set up a volume balance between the audio and MIDI channels and perform a manual mix by moving the faders and other controls while playing back. By using the Write function (see "Enabling and disabling the writing of automation data" on page 189), you can automate the levels and most mixer actions.

! It is also possible to create volume envelopes for separate events in the Project window or Audio Part Editor (see "Event Envelopes" on page 95) or to make static volume settings for an event on the info line or with the volume handle (see "About the volume handle" on page 90). */

About the level meters for audio channels.....118 "level meters for audio channels"

/* When playing back audio in Cubase, the level meters in the mixer show the level of each audio channel.

• Directly below the level meter is a small level readout - this shows the highest registered level in the signal.

Click this to reset the peak levels.

• Peak levels can also be shown as static horizontal lines in the meter, see "Changing the meter characteristics" on page 126.

If the peak level of the audio goes above 0dB, the numerical level indicator will show a positive value (i.e. a value above 0dB).

□ Cubase uses 32 bit floating point processing internally, so there is virtually limitless headroom - signals can go way beyond 0dB without clipping. Having higher levels than 0dB for individual audio channels is therefore not a problem in itself. The audio quality will not be degraded by this.

However, when many high level signals are mixed in an output bus, this may require that you lower the output channel level a lot (see below). Therefore it is good practice to keep the maximum levels for individual audio channels roughly around 0dB.

! When Direct Monitoring is used and the option "Map input bus metering to Audio track (in Direct Monitoring)" is activated in the Preferences (VST-Metering page), the level meters in the mixer will show the level of the input bus instead. */

About the level meters for input and output channels.....118 "level meters for input and output channels"

/ For the input and output channels, things are different. I/O channels have clipping indicators (input channels are only shown in Cubase).*

- *When you are recording, clipping can occur when the analog signal is converted to digital in the audio hardware.*

With Cubase, it is also possible to get clipping in the signal being recorded to disk (when 16 or 24 bit record format is used and you have adjusted the mixer settings for the input channel). For more information, see "Setting input levels" on page 71.

- *In the output busses, the floating point audio is converted to the resolution of the audio hardware. In the integer audio domain, the maximum level is 0dB - higher levels will cause the clipping indicator for each bus to light up.*

If the clipping indicators light up for a bus, this indicates actual clipping - digital distortion which should always be avoided.

*! If the clipping indicator lights up for an output channel, reset the indicator by clicking on it, and lower the level until the indicator does not light up. */*

Adjusting Input Gain (Cubase only).....119 adjusting "Input Gain"

/ Each audio channel and input/output channel features an Input Gain control. This controls the gain for the incoming signal, before EQ and effects.*

The Input Gain is not meant to be used as a volume control in the mixer, as it is not suited for continuous level adjustments during playback. It can, however, be used to cut or boost the gain in various circumstances:

- *To change the level of a signal before the effects section. The level going into certain effects can change the way the signal is affected. A compressor, for example, can be "driven" harder by raising the Input Gain.*

- *To boost the level of poorly recorded signals.*

*To change the Input Gain, you need to press [Shift] and adjust the control (to avoid accidental gain changes). If you press [Alt]/[Option], you can adjust the Input Gain with a fader. Alternatively, you can also enter the desired number in the value field. */*

Input Phase switch (Cubase only).....119 "Input Phase switch"

/ Each audio channel and input/output channel has an Input Phase switch, to the left of the Input Gain control. When activated, the phase polarity is inverted for the signal. Use this to correct for balanced lines and mics that are wired backwards, or mics that are "out of phase" due to their positioning.*

- *Phase polarity is important when mixing together two similar signals.*

*If the signals are "out of phase" with respect to one another, there will be some cancellation in the resulting audio, producing a hollow sound with less low frequency content. */*

Level meters for MIDI channels.....119 "level meters for MIDI channels"

/ The level meters for MIDI channels do not show actual volume levels. Instead, they indicate the velocity values of the notes played back on MIDI tracks. */*

MIDI tracks set to the same MIDI channel and output.....119

/ If you have several MIDI tracks set to the same MIDI channel (and routed to the same MIDI output), making volume and pan settings for one of these MIDI tracks/mixer channels will also affect all other mixer channels set to the same MIDI channel/output combination. */*

Using Solo and Mute.....119 Solo Mute

/ You can use the Mute and Solo buttons to silence one or several channels. The following applies:*

- *The Mute button silences the selected channel. Clicking the Mute button again unmutes the channel. Several channels can be muted simultaneously. A muted channel is indicated by a lit Mute button and also by the lit Global Mute indicator on the common panel.*

- *Clicking the Solo button for a channel mutes all other channels.*

A soloed channel is indicated by a lit Solo button, and also by the lit Global Solo indicator on the common panel. Click the Solo

button again to turn off Solo.

- *Several channels can be soloed at the same time.*

However, if you press [Ctrl]/[Command] and click the Solo button for a channel, any other soloed channels will automatically be un-soloed (i.e. this Solo mode is exclusive).

- *[Alt]/[Option]-clicking a Solo button activates "Solo Defeat" for that channel.*

In this mode the channel will not be muted if you solo another channel. To turn off Solo Defeat, [Alt]/[Option]-click the Solo button again.

- *You can un-mute or un-solo all channels by clicking the Mute or Solo indicator on the common panel. */*

Listen Mode (Cubase only).....120 "Listen Mode"

/ Clicking the Listen button for a channel routes that channel to the Control Room without interrupting the normal signal flow. The following applies:*

- *When the channel is set to after-fader (also referred to as post-fader), the signal being routed to the Control Room channel will come after the fader and pan controls of the Listen-enabled channel.*
- *When the Control Room channel is set to pre-fader, the signal will be routed from just before the fader.*

A Listen-enabled channel is indicated by a lit Listen button, and also by the lit Global Listen button on the common panel. Click the Listen button again to turn off Listen mode. You can also turn off Listen mode for all Listen-enabled tracks at the same time by clicking the Listen button on the common panel.

*For more information about the Listen functionality, see the chapter "Control Room (Cubase only)" on page 135. */*

Setting pan in the mixer.....120 setting pan mixer

/ The pan controls in the mixer are used to position a channel between the left and right side of the stereo spectrum. By default for stereo audio channels, pan controls the balance between the left and right channels. You can change this in the Preferences. By selecting one of the other pan modes (see below), you can set pan independently for the left and right channel.*

- *To make fine pan adjustments, hold down [Shift] when you move the pan control.*
- *To select the (default) center pan position, hold down [Ctrl]/[Command] and click on the pan control.*
- *For MIDI channels, the pan control sends out MIDI pan messages.*

The result depends on how your MIDI instrument is set to respond to pan - check your documentation for details.

☐ *The SurroundPanner is described in the section "Using the SurroundPanner" on page 184. */*

Panning Bypass.....120 "Panning Bypass"

/ You can bypass the panning for all track types except MIDI tracks. To do this, keep [Shift] and [Alt]/[Option] pressed and click on the pan setting for the respective channel in the mixer (on the fader panel or in the extended mixer view). The Panning Bypass state is reflected in all the different pan setting sections, e.g. if you bypass a channel in the mixer, this is automatically reflected in the Inspector for the respective track.*

When panning is bypassed for a channel, the following happens:

- *Mono channels will be panned center.*
- *Stereo channels will be panned left and right.*
- *Surround channels will be panned center.*

☐ *To deactivate Panning Bypass, simply press [Shift]- [Alt]/[Option] and click again. */*

About the three pan modes (Cubase only).....120 "three pan modes"

/ If you right-click in the pan control field for a (stereo) audio channel, you can select one of three pan modes:*

- Stereo Balance Panner controls the balance between the left and right channels.*

This is the default mode.

- If Stereo Dual Panner is selected, there will be two pan controls with the upper controlling pan for the left channel, and the lower controlling pan for the right channel.*

This allows you set pan independently for the left and right channels. Note that it is possible to reverse the left and right channels, i.e. the left channel can be panned to the right and vice versa. You can also "sum" two channels by setting them to the same pan position (i.e. mono) - note that this will increase the volume of the signal.

- If Stereo Combined Panner is selected, the left and right pan positions are shown as two lines with a blue/gray area between them.*

If you reverse the left and right channels, the area between the pan controls will be red instead of blue/gray.

In this mode, the left and right pan controls are linked, and can be moved left and right like a single pan control (keeping their relative distance).

- Stereo Combined mode also allows you set pan independently for the left and right channels. This is done by holding down [Alt]/[Option] and dragging the corresponding pan control.*

When moving combined pan controls so that the left or right pan control reaches its maximum pan value, it naturally cannot go any further. If you continue to move further in the same direction, only the other pan control will move, thus altering the set relative pan range until both channels are panned fully to one side. If you move the pan controls in the opposite direction without releasing the mouse, the previously set pan range will be restored.

☐ *The pan settings made with the Dual Panner are reflected in the Combined Panner and vice versa.*

☐ *You can specify the default pan mode for inserted audio tracks in the Preferences (VST page). */*

About the "Stereo Pan Law" setting (audio channels only).....121 "Stereo Pan Law" setting "audio channels"

/ In the Project Setup dialog there is a pop-up menu named "Stereo Pan Law", on which you can select one of several pan modes. This is related to the fact that without power compensation, the power of the sum of the left and right side will be higher (louder) if a channel is panned center than if it is panned left or right.*

*To remedy this, the Stereo Pan Law setting allows you to attenuate signals panned center, by -6, -4.5 or -3dB (default). Selecting the 0dB option effectively turns off constant- power panning. Experiment with the modes to see which fits best in a given situation. You can also select "Equal Power" on this pop-up menu, which means that the power of the signal will remain the same regardless of the pan setting. */*

Audio-specific procedures.....121

/ This section describes the options and basic procedures regarding audio channels in the mixer. */*

Options for the extended audio channel strip.....121 "extended audio channel strip"

/ When using the extended channel strip view options, the upper panel can be set to show different views for each audio channel strip. You can select what to display in the extended panel individually for each channel or globally for all channels (see "Selecting what to display in the extended channel strips" on page 113).*

The following views are possible:

- The 8 insert effect slots.*

The inserts can also be found in the Inspector and the Channel Settings window, see "Using Channel Settings" on page 122.

- The 8 sends, with pop-ups and send level value sliders.*

The sends can also be found in the Inspector and the Channel Settings window, see "Using Channel Settings" on page 122.

- You also have the option of displaying four sends at a time (the Sends 1-4 and 5-8 menu items).

These modes offer the additional benefit of displaying send levels as dB values.

□ There are no sends for Input/Output channels.

- The EQ section, either with value sliders ("EQs") or as numerical settings with a curve display ("EQs curve").

These two views have exactly the same controls but different graphic layouts. The EQ section is also available in the Channel Settings window. For EQ parameter descriptions, see "Making EQ settings" on page 123.

- The SurroundPanner section (where applicable).

If the channel is routed to a surround bus you can view a compact version of the SurroundPanner in the extended panel - double-click to open the full SurroundPanner panel.

- The "Meter" option shows large level meters in the extended panel.

These operate exactly like the regular meters.

• Cubase only: The User Panel option displays Device panels for the audio track, including panels for inserted VST effects, see "Audio tracks" on page 30. You can access User panels by clicking on the tab at the top of the User Panel display in the extended mixer.

For information on Device Panels, see the separate PDF document "MIDI Devices".

- Selecting the "Empty" option will display a blank panel in the extended strip.

• You can also select the "Overview" option - this shows a graphic overview of which insert effect slots, EQ modules and effects sends are activated for the channel.

You can click the indicators to turn the corresponding slot/EQ module/ send on or off.

□ If you have selected a parameter for the extended channel strip and then switch to "narrow" mode, only the channel overview and the Meter can be shown in the extended channel strip. When you switch back to "wide" mode, the parameter settings are displayed again. */

Using Channel Settings.....122 "Channel Settings"

/* For each audio channel strip in the mixer and in the Inspector and Track list for each audio track, there is an Edit button ("e").

Clicking this opens the VST Audio Channel Settings window. By default, this window contains:

- A section with eight insert effect slots (see "Audio effects" on page 150).
- Four EQ modules and an associated EQ curve display (see "Making EQ settings" on page 123).
- A section with eight sends (see "Audio effects" on page 150).
- A duplicate of the mixer channel strip (without the extended panel but with the input and output settings panel).

You can customize the Channel Settings window, by showing/hiding the different panels and/or by changing their order:

- To specify which panels should be shown/hidden, right-click in the Channel settings window, and activate/deactivate the respective options on the Customize View submenu on the context menu.
- To change the order of the panels, select "Setup..." on the Customize View pop-up menu and use the "Move up" and "Move Down" buttons.

For further information, see the chapter "Customizing" on page 468.

Every channel has its own channel settings window (although you can view each in the same window if you like - see below).

The Channel Settings window is used for the following operations:

- *Apply equalization, see "Making EQ settings" on page 123.*
- *Apply send effects, see "Audio effects" on page 150.*
- *Apply insert effects, see "Audio effects" on page 150.*
- *Copy channel settings and apply them to another channel, see "Copying settings between audio channels" on page 125.*

*! All channel settings are applied to both sides of a stereo channel. */*

Changing channels in the Channel Settings window.....123 channels "Channel Settings"

/ You can view any channel's settings from a single window.*

If the option "Sync Project and Mixer Selection" is activated in the Preferences (Editing-Project & Mixer page), this can be done "automatically":

- *Open the Channel Settings window for a track and position it so that you can see both the Project window and the Channel Settings window.*

Selecting a track in the Project window automatically selects the corresponding channel in the mixer (and vice versa). If a Channel Settings window is open, this will immediately switch to show the settings for the selected channel. This allows you to have a single Channel Settings window open in a convenient position on the screen, and use it for all your EQ and channel effect settings.

You can also select a channel manually (thereby changing what is shown in the open Channel Settings window). Proceed as follows:

- 1. Open the Channel Settings window for any channel.*
 - 2. Open the Choose Edit Channel pop-up menu by clicking the arrow button to the left of the channel number at the top of the Fader view.*
 - 3. Select a channel from the pop-up to show the settings for that channel in the open Channel Settings window.*
- *Alternatively, you can select a channel in the mixer by clicking its channel strip (make sure not to click on a control as this will change the respective parameter setting instead).*

This selects the channel, and the Channel Settings window is updated.

- *To open several Channel Settings windows at the same time, press [Alt]/[Option] and click the Edit buttons for the respective channels. */*

Making EQ settings.....123 EQ settings

/ Each audio channel in Cubase has a built-in parametric equalizer with up to four bands. There are several ways to view and adjust the EQs:*

- *By selecting one of the EQ display modes ("EQs" or "EQs Curve") for the extended channel strip in the mixer.*

These modes contain the same settings but present them in different ways:

In "EQs" mode, the top value slider controls the gain, the middle controls frequency and the lower sets the filter type and the Q parameter for each EQ band.

In "EQs Curve" mode, EQ settings are shown as a curve. Parameters are set by clicking on the value and adjusting with the fader that appears.

- *By selecting the "Equalizers" or "Equalizer Curve" tab in the Inspector.*

The "Equalizers" section is similar to the "EQs" mode in the extended mixer or the "Equalizers" section in the Channel Settings window, while the "Equalizer Curve" section shows a display in which you can "draw" an EQ curve. Setting EQ in the Inspector is only possible for track-based audio channels.

□ Note that by default, only the Equalizers tab is shown. To display the Equalizer Curve tab, right-click on an Inspector tab (not in the empty area below the Inspector) and activate the "Equalizer Curve" option.

- By using the Channel Settings window.

This offers both parameter sliders and a clickable curve display (the Equalizer + Curve pane) and also lets you store and recall EQ presets.

Below we describe how to set up EQ in the Channel Settings window, but the parameters are the same in the mixer and Inspector (apart from the presets and reset function, which are not available in the mixer).

The Equalizers + Curve pane in the Channel Settings window consists of four EQ modules with parameter sliders, an EQ curve display and some additional functions at the top. */

Using the parameter controls.....124

Using the curve display.....124

EQ bypass.....124 EQ bypass

/* Whenever one or several EQ modules are activated for a channel, the EQ button will light up in green in the mixer channel strip, Inspector (Equalizer and Channel sections), Track list and Channel Settings window (top right corner of the EQ section).

You can also bypass all EQ modules. This is useful, as it allows you to compare the sound with and without EQ. Proceed as follows:

- In the mixer, the Track list and in the Channel section in the Inspector, click the EQs state button so that it turns yellow.

To deactivate EQ Bypass, click the button again, so that it turns green again.

- In the Inspector (Equalizers tab) and in the Channel Settings window, click the Bypass button (next to the EQ button) so that it turns yellow.

Click again to deactivate EQ Bypass mode.

EQ bypass in the mixer, the Channel Settings window and the Inspector */

EQ reset.....125 EQ reset

/* On the Presets pop-up menu in the Channel Settings window and in the Inspector, you will find the Reset command. Select this to turn off all EQ modules and reset all EQ parameters to their default values. */

Using EQ presets.....125

EQ in the channel overview.....125

The option "Use Cubase 3 EQ settings as default".....125

Copying settings between audio channels.....125 "copying settings" "audio channels"

/* It is possible to copy all channel settings for an audio channel and paste them to one or several other channels. This applies to all audio-based channel types. For example, you can copy EQ settings from an audio track and apply these to a group or VST Instrument channel, if you want them to have the same sound.

Proceed as follows:

1. In the mixer, select the channel you want to copy settings from.
2. Click the "Copy First Selected Channel's Settings" button on the common panel.
3. Select the channel(s) you want to copy the settings to and click the "Paste Settings to Selected Channels" button (below the "Copy First Selected Channel Settings" button).

The settings are applied to the selected channel(s).

You can copy channel settings between different types of channels, but only those channels will be used for which corresponding settings are available in the target channel:

- For example, since input/output channels do not have send effects, copying from them will leave the Sends settings in the target channel unaffected.

- Also, in case of Surround Sound (Cubase only), for example, any Insert effects routed to surround speaker channels will be muted, when the settings are pasted to a mono or stereo channel. */

Initialize Channel and Reset Mixer.....126 "Initialize Channel" "Reset Mixer"

/ The Initialize Channel button can be found in the lower part of the Control Strip section in the Channel Settings window (if this section is not shown in the Channel Settings window, open the context menu and select "Control Strip" on the Customize View submenu). Initialize Channel resets the selected channel to the default settings.*

Similarly, the mixer common panel holds a Reset Mixer/ Reset Channels button - when you click this, you will be asked whether you want to reset all channels or just the selected channels.

The default settings are:

- All EQ, Insert and Send effect settings are deactivated and reset.
- Solo/Mute is deactivated.
- The fader is set to 0dB.
- Pan is set to center position. */

Changing the meter characteristics.....126 "meter characteristics"

/ In the Mixer context menu, opened by right-clicking anywhere on the mixer panel, there is a submenu named "Global Meter Settings". Here you can make settings for the preferred meter characteristics, with the following options:*

- If "Hold Peaks" is activated, the highest registered levels are "held" and are shown as static horizontal lines in the meter.

Note that you can turn this on or off by clicking in any audio level meter in the mixer.

- If "Hold Forever" is activated, the peak levels will be shown until meters are reset (by clicking the numerical peak display below the meter).

If "Hold Forever" is off, you can specify for how long the peak levels will be held with the parameter "Meters' Peak Hold Time" in the Preferences (VST-Metering page). The peak hold time can be between 500 and 30000ms.

- If "Meter Input" is activated, meters will show input levels for all audio channels and input/output channels.

Note that the input meters are post input gain (Cubase only).

- If "Meter Post-Fader" is activated, meters will show post-fader levels.

This is the default setting for channels in the mixer.

- In Cubase, there is also a "Meter Post-Panner" mode.

This is similar to "Meter Post-Fader", but the meters will reflect pan settings as well.

- If "Fast Release" is activated, the meters respond very quickly to level peaks. If "Fast Release" is deactivated, the meters respond more like standard meters.

*You can set the time it takes for the meters to "fall back" in the Preferences (VST-Metering page). */*

Using group channels.....127 "group channels"

/ You can route the outputs from multiple audio channels to a group. This enables you to control the channel levels using one fader, apply the same effects and equalization to all of them etc. To create a group channel, proceed as follows:*

1. Select Add Track from the Project menu and select "Group Channel" from the submenu that appears.
2. Select the desired channel configuration and click OK.

A group channel track is added to the Track list and a corresponding group channel strip is added to the mixer. By default the first

group channel strip is labeled "Group 1", but you can rename it just like any channel in the mixer.

3. Pull down the Output Routing pop-up for a channel you want to route to the group channel, and select the group channel.

The output of the audio channel is now redirected to the selected group.

4. Do the same for the other channels you wish to route to the group.

*! You can select a group channel as an Input for an audio track, e.g. to record a downmix of separate track outputs routed to a group (see "Recording from busses" on page 71). */*

Settings for group channels.....127 settings "group channels"

/ The group channel strips are (almost) identical to audio channel strips in the mixer. The descriptions of the mixer features earlier in this chapter apply to group channels as well. Some things to note:*

- You can route the output of a group to an audio channel (see "Recording from busses" on page 71), to an output bus or to another group.*

You cannot route a group to itself. Routing is done with the Output Routing pop-up menu in the Inspector (select the subtrack for the Group in the Track list) or in the Routing section at the top of each channel strip.

- There are no Input Routing pop-ups, Monitor buttons or Record Enable buttons for group channels.*

This is because inputs are never connected directly to a group.

- Solo functionality is automatically linked for channels routed to a group and the group channel itself.*

This means that if you solo a group channel, all channels routed to the group are automatically soloed as well. Similarly, soloing a channel routed to a group will automatically solo the group channel.

- Mute functionality depends on the setting "Group Channels: Mute Sources as well" in the Preferences (VST page). By default, when you mute a group channel no audio will pass through the group. However, other channels that are routed directly to that group channel will remain unmuted. If any of those channels have aux sends routed to other group channels, FX channels or output busses, those will still be heard.*

If the option "Group Channels: Mute Sources as well" is activated in the Preferences (VST page), muting a group channel will cause all other channels directly routed to it to be muted as well. Pressing mute again will unmute the group channel and all other channels directly routed to it. Channels that were muted prior to the group channel being muted will not remember their mute status and will be unmuted when the group channel is unmuted.

! The option "Group Channels: Mute Sources as well" does not affect how mute automation is written. Writing mute automation on a group channel only affects the group channel and not channels routed to it. When writing the automation, you will see the other channels being muted when this option is activated. However, upon playback, only the group channel will respond to the automation.

*One application of group channels is to use them as "effect racks" - see the chapter "Audio effects" on page 150. */*

About output busses.....127 "output busses"

/ Cubase uses a system of input and output busses which are set up using the VST Connections dialog. This is described in the chapter "VST Connections: Setting up input and output busses" on page 13.*

*Output busses let you route audio from the program to the outputs on your audio hardware. */*

Routing audio channels to busses.....127 routing "audio channels" busses

/ To route the output of an audio channel to one of the active busses, proceed as follows:*

1. Open the mixer.

2. Make sure the routing panel is visible - see "Normal vs. Extended channel strips" on page 112.

3. Pull down the Output Routing pop-up menu at the top of the channel strip and select one of the busses.

This pop-up menu contains the output busses configured in the VST Connections window, as well as available group channels (provided

that the busses and groups are compatible with the speaker configuration for the channel - see "Routing" on page 18).

You can also make routing settings in the Inspector.

*For details on routing surround channels (Cubase only), see "Surround in the mixer" on page 182. */*

Viewing the output busses in the mixer.....128 "output busses" mixer

/ Output busses are shown as output channels in a separate pane to the right in the mixer. You show or hide this pane by clicking the Hide Output Channels button in the mixer's common panel.*

Each output channel resembles a regular audio channel strip. Here you can do the following:

- Adjust master levels for all configured output busses using the level faders.*
- Adjust input gain and input phase of the output busses (Cubase only).*
- Add effects or EQ to the output channels (see the chapter "Audio effects" on page 150). */*

MIDI-specific procedures.....128

Selecting what to show in the extended MIDI channel strip.....128

Using Channel Settings.....128

Utilities.....129

Link/Unlink channels.....129 "link channels" "unlink channels"

/ This function is used to "link" selected channels in the mixer so that any change applied to one channel will be mirrored by all channels in that group. You can link as many channels as you like, and you can also create as many groups of linked channels as you like. To link channels in the mixer, proceed as follows:*

1. Press [Ctrl]/[Command] and click on all the channels you want to link.

[Shift]-clicking allows you to select a continuous range of channels.

2. Right-click somewhere on the gray mixer panel.

The Mixer context menu appears.

3. Select "Link Channels" from the context menu.

- To unlink channels, select one of the linked channels and select "Unlink Channels" from the Mixer context menu.*

The channels are unlinked. Note that you do not have to select all the channels that are linked, only one of them.

.. It is not possible to remove individual channels from Link status.

*To make individual settings to a linked channel, press [Alt]/[Option] when changing the setting. */*

What will be linked?.....129

/ The following rules apply for linked channels:*

- Only level, mute, solo, select, monitor and record enable will be linked between channels.*

Effect/EQ/pan/input and output routing settings are not linked.

- Any individual channel settings you have made before linking will remain until you alter the same setting for any of the linked channels.*

For example, if you link three channels, and one of them was muted at the time you applied the Link Channel function, this channel will remain muted after linking. However, if you mute another channel all linked channels will be muted. Thus, the individual setting for one channel is lost as soon as you change the same parameter setting for any of the linked channels.

- Fader levels will be "ganged".*

The relative level offset between channels will be kept if you move a linked channel fader.

The three channels shown are linked. Pulling down one fader changes the levels for all three channels, but keeps the relative level mix.

- *By pressing [Alt]/[Option], you can make individual settings and changes for channels that are linked.*

☐ *Linked channels have individual automation tracks.*

*These are completely independent, and are not affected by the Link function. */*

The Window submenu.....130

Saving mixer settings.....130 "mixer settings"

/ It is possible to save complete mixer settings for all or all selected audio-related channels in the mixer. These can later be loaded into any project. Channel settings are saved as mixer settings files. These have the file extension ".vmx".*

Right-clicking somewhere in the mixer panel or in the Channel Settings window brings up the context menu where the following Save options can be found:

- *"Save Selected Channels" will save all channel settings for the selected channels.*

Input/output routings are not saved.

- *"Save All Mixer Settings" saves all channel settings for all channels.*

When you select any of the above options, a standard file dialog opens where you can select a name and storage location on your disk for the file.

*! Saving mixer settings does not apply to MIDI channels in the mixer - only audio-related channels (group, audio, instrument, effect return, VSTi and Re- Wire) are saved with this function! */*

Loading mixer settings.....130 "mixer settings"

Loading Selected Channels.....130

/ To load mixer settings saved for selected channels, proceed as follows:*

1. Select the same number of channels in the new project to match the number of channels you saved settings for in the previous project.

For example, if you saved settings for six channels, select six channels in the mixer.

- *Mixer settings will be applied in the same order as they were in the mixer.*

Thus, if you save settings from channels 4, 6 and 8 and apply these settings to channels 1, 2 and 3, the settings saved for channel 4 would be applied to channel 1, the settings saved for channel 6 to channel 2 and so on.

2. Right-click the mixer panel to open the context menu, and select "Load Selected Channels".

A standard file dialog appears, where you can locate the saved file.

3. Select the file and click "Open".

The channel settings are applied to the selected channels.

! Loading mixer settings does not apply to MIDI channels in the mixer - only audio-related channels (group, audio, instrument, effect return, VSTi and ReWire) are saved and can be loaded with this function!

*! If you choose to apply mixer settings to fewer channels than you saved, the order of the saved channels in the mixer applies - i.e. the saved channels that are "left over" and not applied will be the channels with the highest channel numbers (or furthest to the right in the mixer). */*

Loading All Mixer Settings.....131 "mixer settings"

/ Selecting "Load All Mixer Settings" from the context menu allows you to open a saved mixer settings file, and have the*

stored settings applied to all channels for which there is information included in the file. All channels, output settings, VST Instruments, sends and "master" effects will be affected.

*□ Please note that if the saved mixer settings were for 24 channels, for example, and the mixer you apply it to currently contains 16 channels, only the settings for channels 1 to 16 will be applied - this function will not automatically add channels. */*

About the VST Performance window.....131 "VST Performance window"

/ The VST Performance window is opened from the Devices menu. The window shows two meter displays: The ASIO meter, which indicates CPU load, and the Disk meter, which shows the hard disk transfer rate. It is recommended that you check this from time to time, or keep it always open. Even if you have been able to activate a number of audio channels in the project without getting any warning, you may run into performance problems when adding EQ or effects.*

• The ASIO meter (at the top) shows the ASIO time usage, i.e. the time required to complete the current processing tasks. The more tracks, effects, EQ etc. you use in your project, the longer processing will take, and the longer the ASIO meter will show activity.

If the red Overload indicator lights up, you need to decrease the number of EQ modules, active effects and/or audio channels playing back simultaneously.

• The lower bar graph shows the hard disk transfer load. If the red overload indicator lights up, the hard disk is not supplying data fast enough to the computer. You may need to reduce the number of tracks playing back by using the Disable Track function (see "About track disable/ enable" on page 63). If this does not help, you need a faster hard disk. Note that the overload indicator may occasionally blink, e.g. when you locate during playback. This does not indicate a problem, but happens because the program needs a moment for all channels to load data for the new playback position.

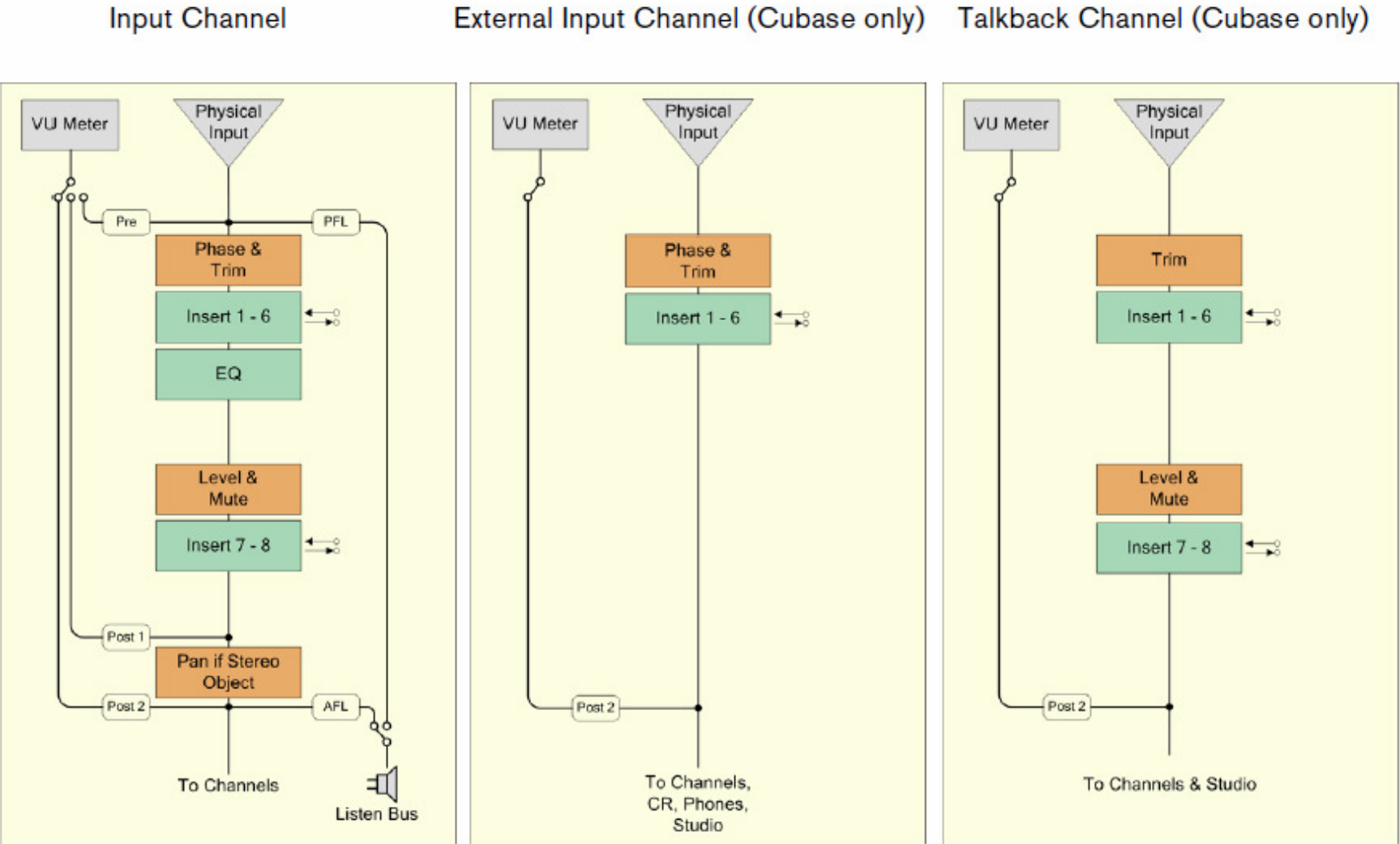
*.. The ASIO and Disk load meters can also be shown on the Transport panel (as "Performance") and on the Project window toolbar (as "Performance Meter"). There they are shown as two miniature vertical meters (by default at the left side of the panel/toolbar). */*

VST Mixer Diagrams.....132 "VST Mixer Diagrams"

/ ! Note that the AFL/PFL Listen Bus architecture is available only in Cubase. */*

Input Objects.....132 "Input Objects"

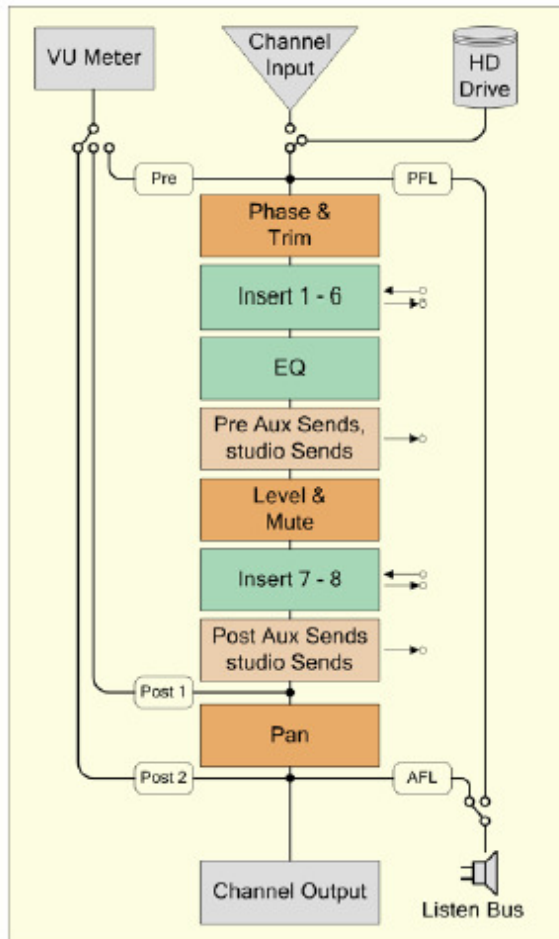
/ Input Channel
External Input Channel (Cubase only)
Talkback Channel (Cubase only) */*



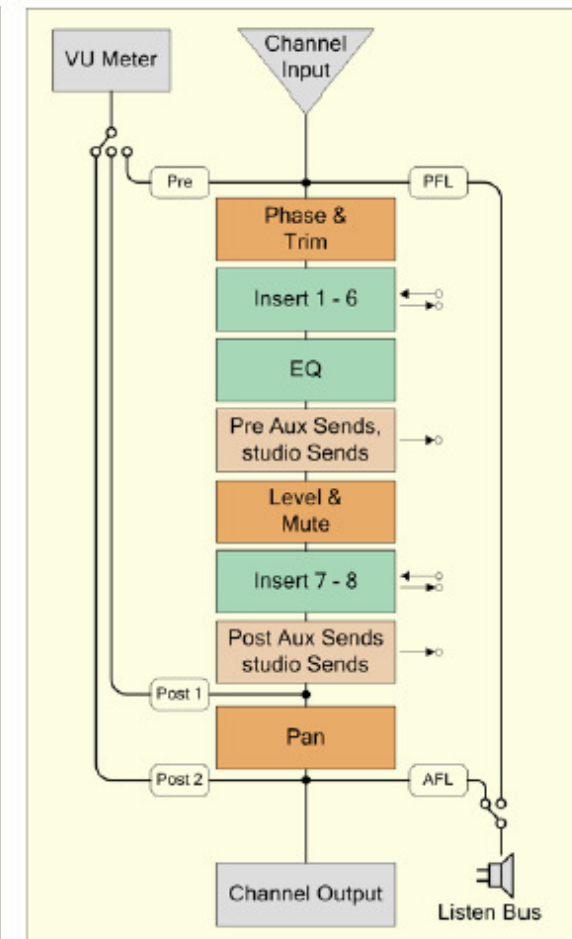
Channel Objects.....132 "Channel Objects"

```
/* Audio Channel  
ReWire Channel  
VSTi Channel  
External Instrument (Cubase only) */
```

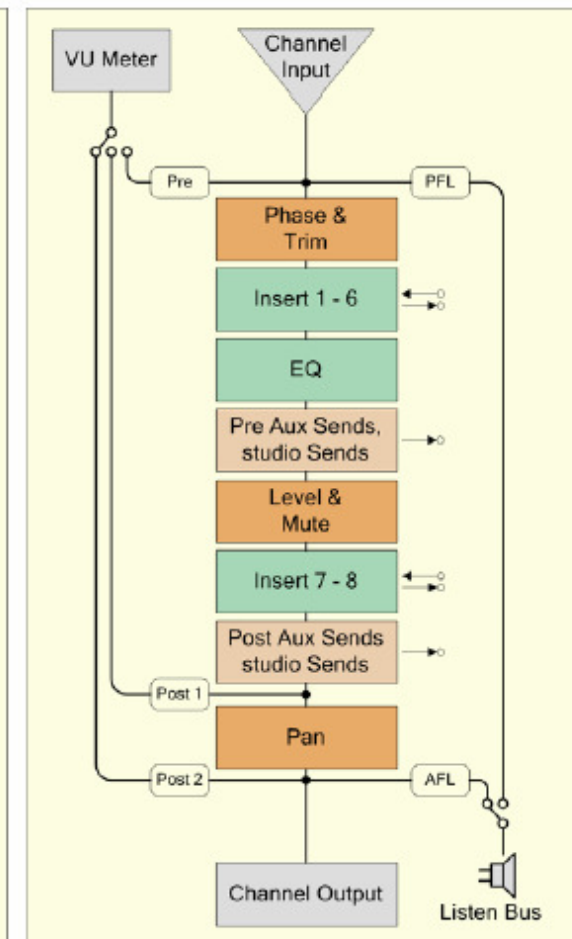
Audio Channel



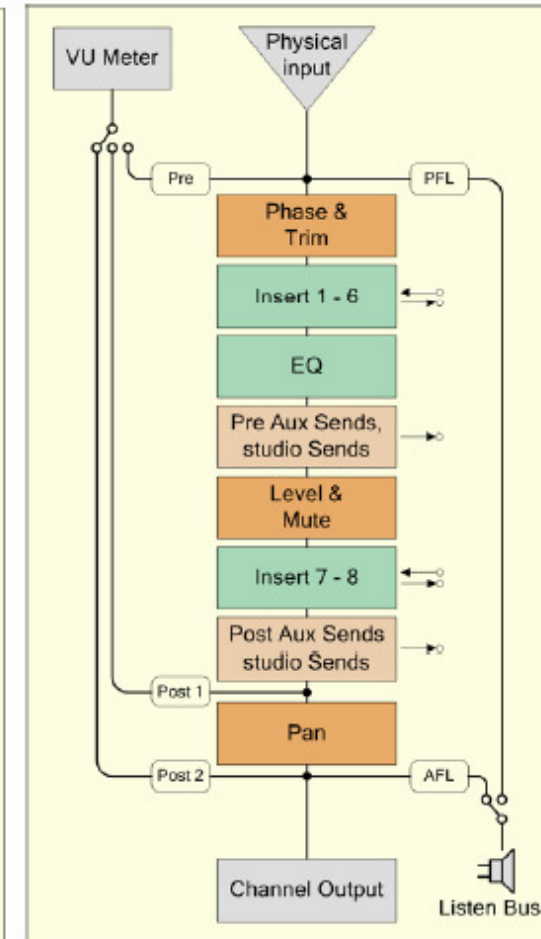
ReWire Channel



VSTi Channel

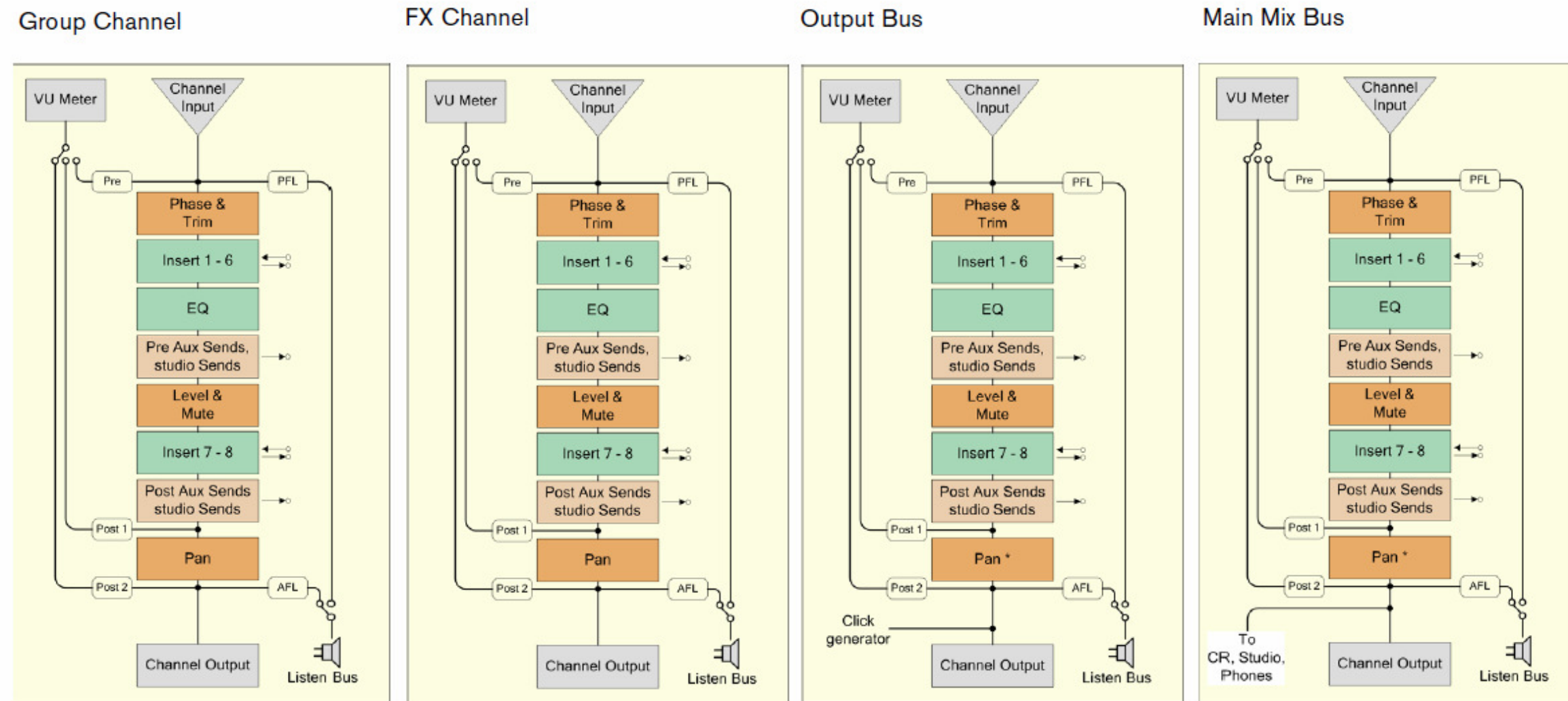


External Instrument (Cubase only)



Summing Objects.....133 "Summing Objects"

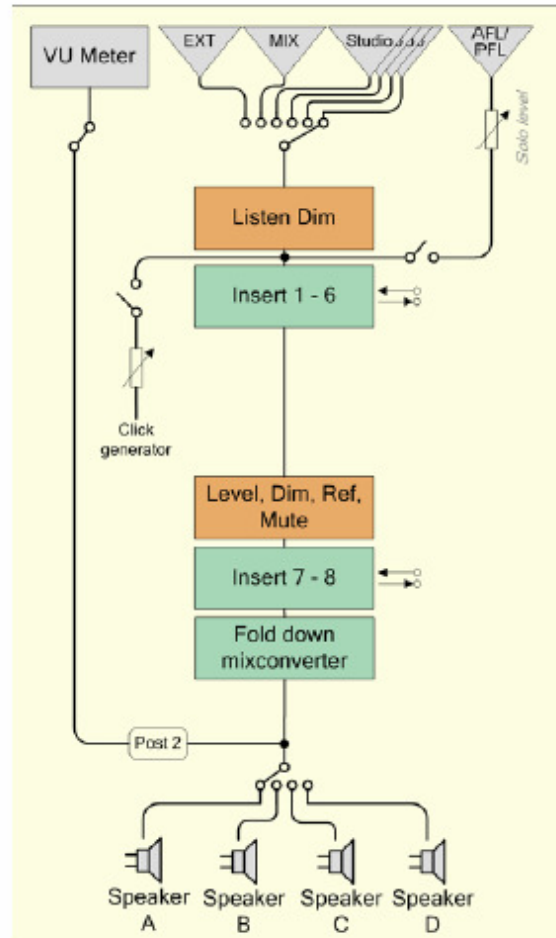
```
/* Group Channel
FX Channel
Output Bus
Main Mix Bus */
```



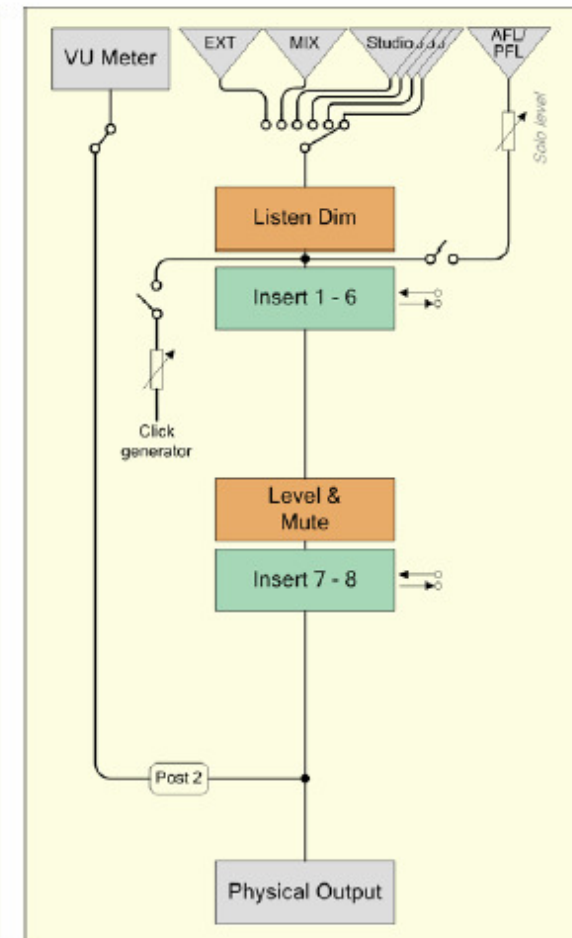
Control Room Objects (Cubase only)133 "Control Room Objects"

```
/* Control Room Channel
Phones Channel
Studio Channel
Monitor */
```

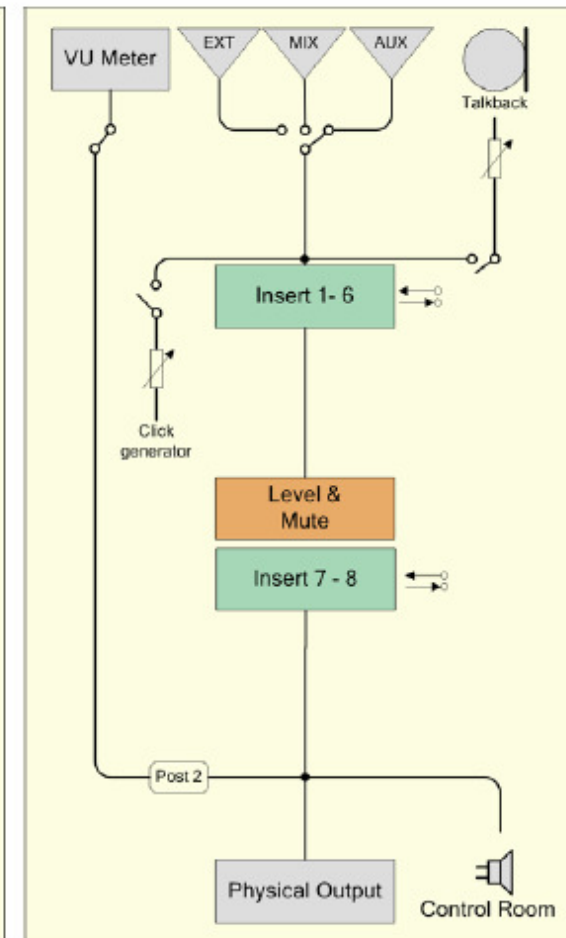
Control Room Channel



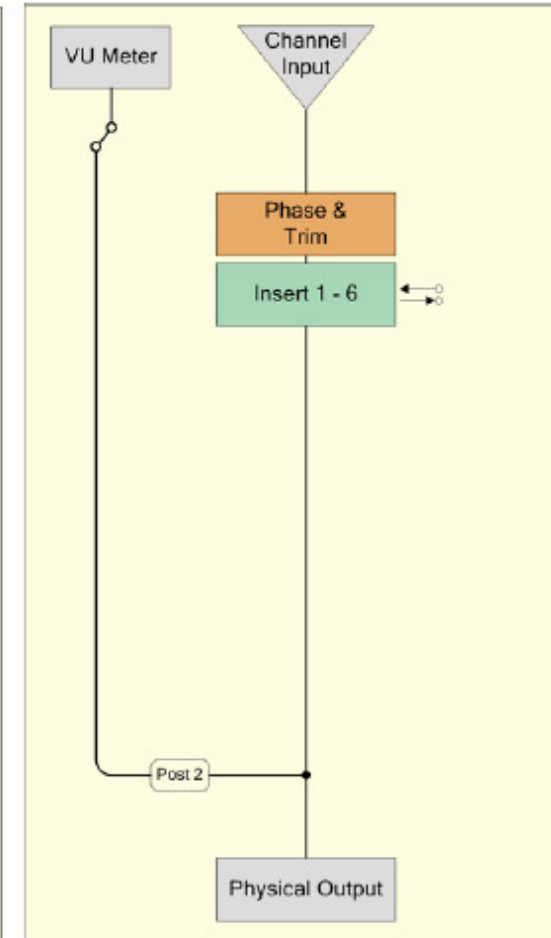
Phones Channel



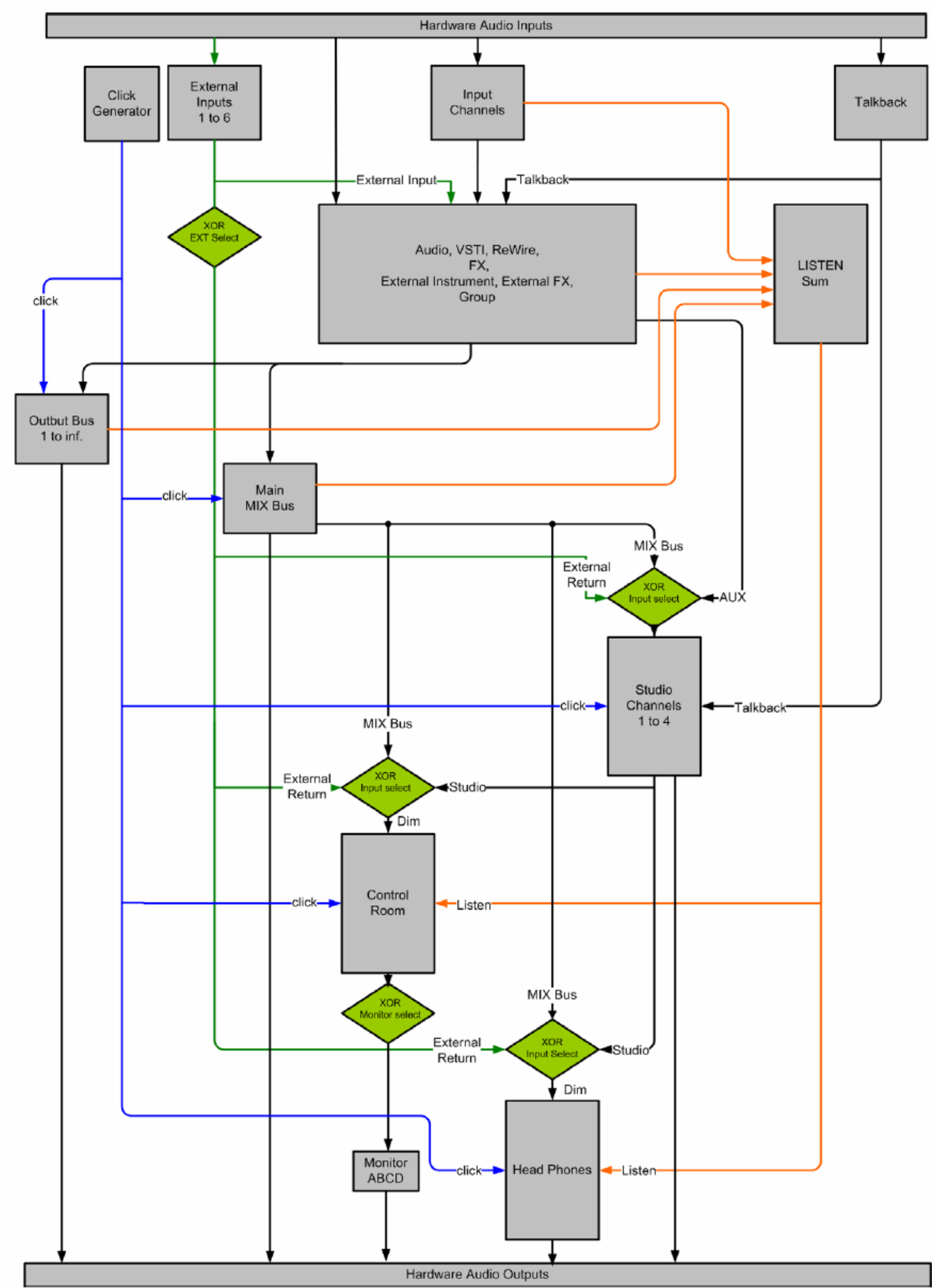
Studio Channel



Monitor



Overall (Cubase only)134 Overall "VST Mixer Diagrams"



10 Control Room (Cubase only).....135 "Control Room"
 Background.....136
 Large console Monitoring sections.....136 "Monitoring sections"

/ In traditional analog studios, the audio console maintained control over every audio signal in the studio, including the control room monitors, headphone systems, external 2-track tape machines and communications such as the talkback system.*

The console itself provided a means of creating multiple cue mixes for performers in the studio. Using available aux sends, the engineer could create multiple cue mixes for the various performers, each one having a unique mix tailored for that person or group of performers.

With the advent of the DAW, many of the functions of the console started being performed inside the audio software, allowing for more flexibility and instant recall of any setting. In many studios, the console sat idle except for adjusting the playback level of the speakers, switching to monitor external devices and routing signals to headphones and other cue mix playback systems.

*Smaller hardware units have been made to replace the monitoring section using a simple volume knob with speaker and input switches. Some even include a talkback system and headphone amplifiers. */*

Surround sound.....136

/ With more and more surround recording and mixing being performed in the DAW environment, the needs of the monitoring section have become magnified. Surround speaker setups must be able to work with smaller, stereo speakers and even mono speaker systems. Switching back and forth between them can become quite complicated. Also, the ability to perform downmixes of multi-channel audio is needed on a regular basis for many audio professionals. */*

Virtual Control room - The concept.....136 "Virtual Control room"

/ The concept behind creating the Control Room features in Cubase was to divide the studio environment into the performing area (studio) and the engineer/producer area (control room) common to traditional studios. Previously, an analog console or some method of speaker control and monitor routing was necessary to provide this functionality to the DAW environment.*

*With its Control Room Mixer and Control Room Overview features, Cubase provides all the functionality of the analog console's monitoring section, along with many more features, in a virtual, VST-based audio environment where flexibility and instant recall are expected. */*

Control Room features.....136 "Control Room"

/ The following features are available for the Control Room Mixer:*

- Support for up to four sets of monitors with various speaker configurations from mono up to 6.0 Music or Cine speaker systems.*
- Dedicated Headphone output.*
- Support for up to four discrete cue mix outputs called "Studios".*
- Dedicated Talkback channel with flexible routing and automatic record defeat.*
- Support for up to six external inputs with configurations up to 6.0 surround.*
- Click track routing and level control to all Control Room outputs.*
- Flexible Listen Bus options with the Listen Dim setting that allows Listen-enabled tracks to be heard in context with the whole mix.*
- Listen Bus Enabling on both Control Room and Headphone outputs.*
- User-definable downmix settings using the MixConvert plug-in for all speaker configurations.*
- Individual speaker soloing for all speaker configurations.*
- Multiple inserts on each Control Room channel for metering and surround de-coding among other possibilities.*
- Monitor Dim function with adjustable level.*
- User-defined Calibrated Monitor level for post-production mixing in a calibrated environment.*

- Adjustable Input Gain and Input Phase on all external inputs and Speaker outputs.
- Full-sized meters on every Control Room channel.
- Support for up to four aux sends (Studio Sends) for creation of discrete cue mixes for performers. Each Studio output has its own cue mix.
- The ability to disable the Control Room Section when working with an external monitoring solution or console. */

Control Room operations.....137 "Control Room"

/ In traditional analog studios, the control room section of the console contained the most used set of controls in the whole studio. Often, the studio monitor level had all the markings rubbed off from so much use.*

The need to constantly be able to switch monitoring sources, adjust the volume of monitors and route various cue mixes and other sources to headphone systems is the norm in most sessions. Meeting the needs of several performers in the studio plus a producer and the engineer becomes a constant task that requires flexibility and ease of operation. Communication between everyone must be flawlessly clear without intruding on the creativity of performers.

*With all this in mind, the Cubase Control Room Mixer is designed to fill those needs with a simple yet highly flexible solution. The virtual mixing environment of VST is the ideal solution to the varied needs of a control room matrix. With a virtual mixer, a high degree of customization and precise settings are possible with the ability to completely recall these settings at any time. */*

Configuring the Control Room.....137 configuring "Control Room"

/ The Control Room features are configured in several locations within Cubase.*

- The VST Connections window has a tab labelled "Studio" in which the hardware inputs and output are defined for the Control Room channels.
- On the Devices menu you will find the Control Room Overview that gives you a visual overview of the Control Room channels and signal flow.
- On the Devices menu you will find the Control Room Mixer which allows operation of the Control Room features.
- In the Preferences dialog (VST-Control Room page) you will find some general Control Room settings. */

VST Connections - Studio tab.....137 "VST Connections"

/ The Studio tab of the VST Connections window is where you configure the inputs and outputs for the Control Room Mixer. For more information, see the chapter "VST Connections: Setting up input and output busses" on page 13. By default, one stereo Monitor channel is created after installing Cubase. */*

Control Room channels.....137 "Control Room" channels

/ There are five types of channels that you can create, each defining either an input or output of the Control Room Mixer. As more channels are created, the Control Room Mixer expands to display controls for each channel.*

- Monitors

Each Monitor channel is a set of outputs that are connected to monitor speakers in the Control Room. Each Monitor can be configured for a mono, stereo or up to 6.0 surround speaker configuration. Up to four Monitors can be created, each with a different speaker configuration.

- Phones

The Phones channel is used by the engineer in the control room for checking cue mixes and as another option for listening to the mix or external inputs on a pair of headphones. It is not intended for cue mixes that performers use while recording. Only one stereo Headphone channel is available.

- Studios

Studio channels are intended for sending cue mixes to performers in the studio during recording. They have talkback and click functions and can monitor the main mix, external inputs or a dedicated cue mix. Up to four Studios can be created allowing four

discrete cue mixes for performers.

- *External inputs*

External inputs are for monitoring external devices such as CD players, multi-channel recorders or any other audio source. Up to six external inputs can be created with various configurations from mono up to 6.0 surround.

- *Talkback*

The Talkback is a mono input used for a communications system between the control room and performers in the studio. Only one mono Talkback channel is available.

Control Room channels cannot share hardware inputs or outputs with external FX or external instruments, as defined in the VST Connections window (see "Connecting the external effect/instrument" on page 20). As you create connections for each channel, only those device ports that have not been used for external FX or instruments will be available.

A great deal of confusion can result if outputs and Monitor channels share the same device ports. As a starting point, set all the outputs to "Not Assigned" while the Control Room is set up.

*! The Control Room Mixer is designed to display information and controls only for the channels you have defined in the VST Connections dialog. For example, if you have not defined any Studio channels, they will not appear in the Control Room Mixer. The Control Room Overview displays all the possible channels but only highlights the ones that have been defined. To see all available controls in the Control Room Mixer, start by creating the maximum amount of channels on the Studio tab of the VST Connections window. */*

Creating a Control Room channel.....138 "Control Room" channel

/ To create a new channel, open the the Studio tab of the VST Connections window and click on the Add Channel button. A pop-up menu lists all available channel types along with how many of each type are available. Select the type of channel you wish to create. For most channel types a dialog opens, allowing you to choose the configuration of the channel (stereo, 5.1, etc.).*

The Studio tab of the VST Connections window showing several Control Room channels

After clicking OK, the new channel will appear in the VST Connections window. For each audio path an audio device must be selected. You can assign device ports to channels in the same fashion as assigning any VST connection.

! Note that the port assignments for all Control Room channels except Monitor channels are exclusive, meaning that you cannot assign the same device port to an input or output and a Control Room channel at the same time.

*! Monitor channels, however, can share device ports with each other as well as inputs and outputs. This can be helpful if you use the same speakers as a stereo pair and also as the left and right channels of a surround speaker configuration. Switching between monitors that share device ports will be seamless, providing any downmix of multi-channel audio to stereo if needed. Only one monitor set can be active at a time. */*

Monitors.....138

/ Create a Monitor channel for every set of speakers in your studio. A typical post-production studio could have one set of 5.1 surround speakers, another stereo set of speakers and even a single, mono speaker for checking balances for mono broadcast. The Control Room Mixer will allow you to switch speakers easily. Each set of Monitors can have its own custom downmix settings, input gain and input phase adjustments. */*

Phones.....138

/ Create a Phones channel if you intend to listen to headphones in the control room. The Phones channel is not intended for use by performers in the studio. It is designed for the engineer to quickly listen to any source in the studio, including the four cue mixes, as a reference.*

*! The Phones channel is stereo only. */*

Studios.....138

/ Create a Studio channel for each cue mix you wish to create for performers in the studio. For example, if you have two available headphone amplifiers for performers to use, create two Studio channels, one for each headphone mix. There are four available Studio channels.*

! Studio channels can either be mono or stereo./*

External inputs.....139

/ Create external input channels for every playback device you wish to be able to monitor in the Control Room. There are six available external inputs with channel configurations from mono up to 6.0 surround. Use external inputs to quickly listen to CD players, master recorders, or other workstations.*

*! If you select external inputs as input source of an audio channel, you can record them. In this case, you will not need to assign the device ports to the input channel (see "Routing" on page 18). */*

Talkback.....139

/ Create a Talkback channel if you have a microphone in the control room available for communication with performers in the studio. The Talkback channel can be routed to each Studio channel with variable levels in order to optimize communications between the control room and performers. It is mono only.*

Additionally, the Talkback is available as a possible input source for audio tracks. You can record from the Talkback just like any other input.

*! Inserts are available on the Talkback and all other Control Room channels. A compressor/limiter can be inserted on the Talkback channel to ensure that erratic levels do not bother performers and clear communication with everyone is possible. */*

Disabling the Control Room.....139 disabling "Control Room"

/ Once you have created all the channels for your studio configuration, the Control Room functions are available for use. If you need to use Cubase without the Control Room functions, you can simply press the Disable Control Room button on the Studio tab of the VST Connections window. Any channels you have created are saved and when you enable the Control Room again, that configuration is reloaded.*

*You can also create presets for the Control Room configuration in the same manner as for inputs and outputs, see "Other bus operations" on page 17. */*

Outputs - Main Mix.....139 outputs "Main Mix"

/ For the Control Room to function correctly, the Main Mix on the Outputs tab must be assigned to the set of outputs that actually contains your final mix signal. If you only have one output bus, it will be the Main Mix by default.*

If you have more than one output bus defined, you can choose another bus as Main Mix by right-clicking on the name of the output and selecting "Set 'Out' as Main Mix". The Main Mix is marked by a small speaker icon to the left of its name.

Selecting an output bus as Main Mix in the VST Connections window.

*Outputs other than the Main Mix are not routed through the Control Room Mixer. They can, however, share the device ports of Monitor channels in the Control Room. */*

Output click enabling.....139 "output click"

/ There may be a situation when you want the click to be routed always to a specific output bus, regardless of the actual Control Room settings, or indeed when the Control Room is disabled. In these cases, enable the click on specific outputs using the Click column on the Outputs tab in the VST Connections window.*

The Output tab showing the Main Mix and a second stereo output that is click enabled.

! The click will only be heard in outputs that are assigned to device ports. Be aware that the click can also be routed to device ports using the Control Room features.

! Sharing audio device ports between outputs and Control Room channels can cause confusing behavior and possible overload of those ports without any indication from Cubase. It is advisable to disconnect all outputs from all device ports when first configuring the Control Room.

*! Be aware that some audio interfaces allow very flexible routing within the hardware itself. Certain routing configurations could cause overloads and possible damage to speaker equipment. Consult the hardware documentation for further information. */*

The Control Room Overview.....140 "Control Room"

/ You can access the Control Room Overview from the Devices menu. The Control Room Overview is designed to display the current configuration of the Control Room. The window shows all possible channels, with active channels highlighted once they have been created in the VST Connections window. Channels that are grayed out have not been defined in the VST Connections window.*

The Control Room Overview allows you to see the signal flow through the Control Room Mixer. All the routing functions of the Control Room Mixer are duplicated in the Overview.

*Open the Control Room Mixer and the Control Room Overview windows side by side. As you operate the controls in the Mixer you will see the various pale green squares light up in the Overview, indicating changes in signal flow. You can also click the squares in the Overview and watch the controls in the Mixer reflect the changes in signal flow. */*

The Control Room Mixer.....141 "Control Room Mixer"

/ The Control Room Mixer is where you access all the features of the Control Room. The Control Room Mixer can be resized to accommodate more channels and to display more controls.*

It has a variety of controls, some that are similar to the Project Mixer and some that are unique to Control Room operations. The following diagrams show every control, followed by a brief description of what each control does.

1. Input Phase

Each external input and Monitor speaker output has an Input Phase reversal switch. When lit, all audio paths within the channel have their phase reversed.

2. Input Gain

Each external input, Monitor speaker output and the Talkback input has an Input Gain control. When an external input or Monitor becomes active, the Gain settings are recalled.

3. Channel inserts

Each channel in the Control Room Mixer has inserts available. While most channels have six pre-fader and two post-fader inserts, the external inputs and Monitors only have six pre-fader inserts.

4. Channel configuration

This displays the current configuration of audio paths in the channel, e.g. Stereo, or 5.1.

5. Channel labels

This displays the name of the channel as defined in the VST Connections window.

6. Expansion controls

There are several arrow buttons that open and close various panels of the Control Room Mixer. By default, all extended panels are hidden.

7. Control Room and Headphone input selectors

These buttons allow the selection of various input sources for the Control Room and Headphone channels. The choices are External Input, Main Mix, or any one of the four Studio channels.

8. Use Reference Level

When you click this button, the Control Room Level is set to the reference level set in the Preferences, e.g. a level for calibrated mixing environments such as film dubbing stages. Press [Alt]/[Option] and click on this button to set the Preferences reference level setting to the current Control Room level.

9. Show Meters/Inserts button

This allows you to switch between the display of Meters and Inserts for the extended Mixer view.

10. Listen Bus AFL/PFL

This button determines whether the source signals sent to the Listen bus are pre-fader (PFL) or post-fader (AFL).

11. Listen Activate/Deactivate All Listen

When lit, this indicates that one or more channels in the Project Mixer are Listen enabled. Clicking this button deactivates Listen for all channels.

12. Listen DIM Level

This gain control adjusts the volume of the Main Mix when channels have been put in Listen mode. This allows you to keep Listen enabled channels in context with the Main Mix. If the Listen DIM is set to minus infinity, Listen enabled channels will be heard by themselves. Any other setting leaves the Main Mix at a lower level.

13. DIM Signal

This turns the Control Room level down by a preset amount (the default setting is -30dB). This allows a quick reduction in monitor volume without disturbing the current monitor level. Clicking on the DIM button again returns the monitor level to the previous setting.

14. Activate Talkback

Click the TALK button to turn on the Talkback system, allowing communication between the control room and performers in the studio. There are two modes of operation: momentary mode used by clicking and holding the Talk button, and latch mode where clicking once turns the Talkback on until you click it again to turn it off.

15. Talkback DIM Level

When the Talkback is enabled, this control allows you to determine how much the output of all the channels in the Control Room Mixer is reduced. This prevents unwanted feedback. If the Talkback DIM level is set to 0dB, no change will occur in the Control Room channels.

16. Cycle Downmix Preset Selection

The Control Room allows four different Speaker downmix settings for auditioning with various speaker configurations. Clicking this button cycles through the four downmix presets. Various icons appear to show which preset is active.

17. Cycle Monitor Selection

Pressing this button changes the Monitor selection to the next available set. As Monitors are changed, so are the downmix presets, Monitor inserts, Input Gain and Input Phase controls associated with that Monitor set.

18. Listen Enable for Output

This turns on Listen bus functions for either the Control Room or Headphone output. If this is not enabled, the Listen bus will not be routed to that channel.

19. Listen Level for Output

This level adjustment determines how loud Listen bus signals are when routed to the Control Room or Headphone output. Clicking on the number pops up a fader control for adjustment.

20. Studio input selectors

For Studio Channels, the input choices are External Input, Aux (from Studio Sends) or Main Mix.

21. Activate channel buttons

These buttons turn each channel's output on or off. When lit, the channel is on.

22. Channel labels

These labels reflect the names created in the VST Connections window.

23. Talkback amount to Studio

This pop-up fader controls the amount of Talkback signal fed to the output of each Studio.

24. Talkback Enable to Studio

In order for Talkback signals to be routed to a Studio, this button must be lit. Clicking on it turns it on or off. When Talkback Enable is deactivated, the Talkback DIM setting has no effect on this output.

25. Metronome Level and Pan

The Level and Pan controls determine how the Metronome will be heard in each channel. These controls are independent for each channel.

26. Activate Metronome Click

This determines whether click signals are sent to each channel. When lit, click signals will be heard in that output.

27. Channel Level control

This is the main volume for each Control Room output. These faders do not affect recording input levels or the Main Mix level for exporting mixdowns.

28. External input switching

There are six available external inputs. These buttons determine which external input is currently being used. The names for each external input are displayed here as they were created in the VST Connections window.

29. Signal Presence Indicators

In the Preferences dialog, there is an option to display these Signal Presence Indicators as a substitute for the full size meters.

The Monitor controls in the Control Room Mixer

30. Individual speaker Solos

Each speaker icon is a solo button for that channel. [Shift]-clicking a speaker will solo all the speakers in that row (front or rear). [Ctrl]/[Command]- clicking on a speaker that is already soloed will mute that speaker and solo all other channels.

31. LFE Solo

The plus icon solos the LFE channel.

32. Solo Front Channels

This button solos all front speakers.

33. Solo Left and Right Channels

This button solos the left and right channels.

34. Solo Rear Channels

This solos all rear channels.

35. Cancel Speaker Solo

This button defeats all speaker solos, resetting them to normal playback.

36. Listen to Solo Channels on Center Monitor

When this button is enabled, all speakers that are soloed will be heard in the center channel if there is one in the configuration. If not (as with stereo) the soloed channel will be heard equally in both left and right speakers.

37. Listen to Rear Channels on Front Monitors

This button solos the rear channels and routes them to the front speakers.

38. Open MixConvert Settings

Clicking on this tab opens the MixConvert plug-in used to downmix multi-channel signals for monitoring.

39. Downmix labels

This area displays the names of the four downmix presets. You can click on a name to change it. A "?" appears when there is no preset defined for that downmix.

40. Downmix Preset Selection

With these buttons you can select the downmix preset for the current Monitor.

41. Monitor labels

This area displays the names of the four possible Monitors. The names are created in the VST Connections window when you define a Monitor channel.

42. Monitor selection

*With these buttons you can select the current Monitor set. Each Monitor has its own settings including downmix preset, solo enables, inserts, input gain and input phase. These settings are automatically recalled when a Monitor is selected. */*

Configuring the Control Room Mixer.....143 configuring "Control Room Mixer"

/ In order to display more controls in the Control Room Mixer, the small arrows at the lower left and right corners can be clicked to open or close the extended speaker controls on the right ("Right Strip") and the External Input and Talkback controls on the left ("Left Strip").*

The arrow in the upper right corner of the Control Room Mixer extends the Mixer vertically to display meters and inserts ("extended view"). A second arrow appears above the inserts and meter display. Extending the Mixer using this arrow exposes the Input Gain and Input Phase controls, the channel configuration and the name of each channel ("routing view").

The different Control Room Mixer panels are handled in the same way as the Project Mixer panels, see "Configuring the mixer" on page 112.

*! You can also use the Window submenu on the Control Room Mixer context menu to show/hide the different panels, just as in the Project Mixer. */*

Control Room inserts and meters.....144 "Control Room inserts" "Control Room meters"

/ In the extended view of the Control Room Mixer the meters are visible. They function the same way as the ones in the Project Mixer.*

When you click on the Show Meters/Inserts button to the right of the meters/inserts display, the view changes to show inserts instead of meters. Alternatively, these can also be displayed by deactivating the Show Meters option on the Window submenu of the Control Room Mixer context menu.

Each Control Room channel has a set of inserts configured as six pre-fader and two post-fader inserts. External inputs and Monitor channels only have the six pre-fader inserts.

The extended view with the Show Inserts/Meters button highlighted

If you do not wish to see full sized meters but still want some indication of signal activity, activate the option "Signal Presence Indicators" in the Preferences (VST-Control Room page). They will be displayed next to the input selection buttons and indicates signal presence for all inputs.

*Control Room Mixer channels with active Signal Presence indicators */*

Inserts for external inputs.....144

/ Each external input has its own set of six inserts. By clicking the button next to the name of an external input at the left of the Mixer window the inserts associated with that channel are displayed in the extended view. */*

Inserts for the Talkback channel.....144

/ The Talkback channel has a separate set of eight inserts. In order to view and adjust them, the Talkback must be enabled via the TALK button located in the bottom right section of the Control Room Mixer. Click once on the TALK button to activate the Talkback system. The inserts for external inputs are now replaced with the Talkback inserts. Once the Talkback is disabled, the view reverts to external input inserts.*

*! You can easily identify the inserts for the Talkback since they have six pre-fader and two post-fader inserts while the external inputs only have six pre-fader inserts. If the Control Room Mixer is fully expanded, the name displayed at the very top of the Mixer will reflect which channel is currently in the extended view. */*

Monitor Inserts.....144

/ Each Monitor channel has a set of six inserts. These inserts are all post Control Room fader level and are most useful for surround decoding or brickwall limiting to protect sensitive monitor speakers.*

Each set of monitors has its own Input Phase and Input Gain settings available in the top section of the extended Control Room Mixer. In addition, there are speaker solo icons along with various soloing modes and speaker routing options in the Speaker Solo panel.

The Speaker Solo panel

.. Use the speaker solos to test your multi-channel speaker system and ensure that the proper channels are routed to each speaker.

Just below the configuration display, all settings for automatic downmixing of multi-channel sources are shown. There are four downmix presets. Some will automatically be configured for the sets of monitors you have defined. Each preset is adjustable with the MixConvert plug-in, which you access by clicking the small arrow icon above the Downmix Presets section.

The Downmix Presets section

*! Automatic configuration of the downmix settings follows a logical path. For example, if you have defined one set of 5.1 monitors and another set of stereo monitors, Cubase will create a 5.1 to stereo downmix preset and another downmix to mono. You can modify all the settings for each downmix preset using the MixConvert plug-in. */*

The Main Mix and the Control Room channel.....145 "Main Mix" "Control Room channel"

/ The channel configuration of the "Main Mix" (the default output) determines what the channel configuration of the Control Room channel will be. Switching between a project that has a stereo Main Mix to a project that has a 5.1 Main Mix will cause the Control Room channel in the Control Room Mixer to change from a stereo to a 5.1 configuration.*

The Main Mix configuration also determines the layout of the Speaker Solo panel. If the Main Mix is stereo, there will only be a left and right speaker in the solo panel.

Any external input that has more channels than the Main Mix will not be heard correctly when routed to the Control Room channel. Only the channels available will be heard.

*□ If a 5.1 external input is routed to a stereo Control Room channel, only the left and right channels will be heard even if a 5.1 Monitor is selected. Only two channels can be routed through a stereo Control Room channel. You could use an instance of MixConvert on the external input's inserts to downmix the material to stereo in order to hear it. */*

Suggested settings.....145 settings

/ With all the versatility that the Control Room provides there are also opportunities for confusion when first setting up the Control Room. The following list contains suggestions that could help to quickly set up the Control Room to get started for recording and mixing.*

- If you do not have a master recording device and only use the Export Mixdown function to create finished mix files, set your Main Mix output to "Not Assigned". This eliminates many confusing errors and unpredictable behavior since outputs and Control Room Monitors can share hardware outputs. The Main Mix is automatically routed to the Control Room channel and will not be affected.*
- Create one stereo Monitor to familiarize yourself with the Control Room level controls, DIM settings, the Listen Bus and other monitoring features. Once you have become acquainted with some of these functions, create additional Monitors for every set of speakers you intend to use.*
- Use the inserts on Monitor channels for surround decoding and bass management plug-ins among other things.*
- Use the inserts on the Control Room channel for metering and spectral analysis plug-ins. All solos including the Listen Bus will come through the Control Room channel allowing analysis of individual sounds.*
- A brickwall limiter in the last insert of the Control Room channel can prevent accidental overloads and damage to speaker systems.*
- Use the inserts for the Talkback channel to control the dynamics of the talkback microphone. This will help protect performers' hearing and ensure that everyone can be heard over the talkback microphone.*
- Use the Gain settings on the external inputs to level balance CD players and other sources to the Main Mix level for A/B comparisons.*
- Use the Gain settings on each Monitor to level balance all your monitor systems. Switching between sets of speakers will result in the same playback volume.*
- Use the calibrated Control Room level for film or DVD mixing. Set this level to the proper speaker volume as determined by the mixing standard you choose to follow. */*

Control Room preferences.....146 "Control Room" preferences

/ There are several preferences for the Control Room Mixer. These are found in the Preferences dialog (VST-Control Room page).*

The Control Room Preferences

Most of these preferences deal with what options are visible in the Control Room Mixer. This allows you to customize the layout of the Mixer and only have the controls visible that you use the most.

The other preferences have the following functionality:

- Show Control Room Volume in Transport Panel*

This option makes the small fader at the right-hand side of the Transport Panel control the Control Room level. When this option is not activated (or the Control Room is disabled), that fader controls the level of the Main Mix bus.

- Disable Talkback during Recording*

When activated, this option will turn off the Talkback channel when the transport enters record mode. It is advisable to set the Talkback DIM to 0dB when using this feature so as not to radically change the mix level when punching in and out of record mode.

- *Use Phones Channel as Preview Channel*

When activated, the Headphone output will be used for Preview options such as import preview, scrubbing, offline process preview and certain Sample Editor operations. Note that when using the Headphones output for preview, the Control Room channel will no longer output preview audio.

- *Dim Studio during Talkback*

When this option is enabled, the cue mix heard in a Studio will be dimmed (by the amount set in the Talkback Dim Level field (below the TALK button) for as long as the Talkback channel is used. When disabled, the cue mix level remains the same during Talkback.

- *Reference Level*

This setting determines the Control Room level used when the Reference Level button is activated.

- *Main Dim Volume*

*This is the amount of gain reduction applied to the Control Room channel when the DIM button is activated. */*

Studios and Studio Sends.....146 Studios "Studio Sends"

/ Studio Sends are displayed in the Cubase Project Mixer and the Inspector. Each Studio Send is intended for the creation of a discrete cue mix for performers to listen to during recording. Studio Sends are essentially stereo aux sends that are routed to Studio outputs in the Control Room Mixer. There are up to four Studios and Studio Sends available. */*

Configuring Studio Sends.....146 configuring "Studio Sends"

/ Studio Sends only become active when a Studio channel has been created in the VST Connections window. Otherwise they remain grayed out. For every Studio defined in the VST Connections, every channel in the Project Mixer has an additional aux send with level, pan and pre/postfader selection. This aux send is used to create a mix for a performer to listen to while recording.*

- *In the Project Mixer, the Studio Sends are accessed by choosing the Studio Sends option from the View options pop-up menu in each channel or by clicking the star icon ("Show Studio Sends") on the common panel of the extended Project Mixer.*

The Studio Sends view in the Project Mixer

- *In the Inspector, a Studio Sends tab can be found. This displays all Studio Sends for the selected track.*

Please note that not all Inspector sections are available by default. To show/hide a section, right-click on an Inspector section and select/deselect the corresponding option on the context menu.

The Studio Sends tab in the Inspector

Each Studio can have a unique name in order to help identify what it is being used for. For example, the four Studios could be named:

- *Vocalist Mix*
- *Guitarist Mix*
- *Bassist Mix*
- *Drummer's Mix*

*The name of each Studio is displayed in the Control Room Mixer. To hear the Studio Sends mix in the Studio output, the input selector for each Studio must be set to "Aux". */*

Setting up a Studio cue mix.....147 "setting up" "Studio cue mix"

/ The Studio Sends are very flexible. There are several ways to create a cue mix for each Studio in a very fast and efficient manner. Simple "more me" mixes and more complex discrete mixes are easily accommodated by the Studio Sends. */*

Using fader and pan settings from the Project Mixer.....147 "fader settings" "pan settings" "Project Mixer"

/ You can create a cue mix from the fader and pan levels already used in the Project Mixer and then alter them to meet the needs of an individual performer. You can do this with any single channel or group of channels at any time. To copy fader and pan information from the main mix, proceed as follows:*

- 1. In the Project Mixer, select all the channels that you wish to copy settings from.*

The following operations affect only selected channels.

- 2. In the Control Room Mixer, right-click anywhere in a Studio Channel's mixer strip to open the context menu that has the Studio's name as a submenu.*

This submenu contains all the Studio Send functions for that Studio. If you open the context menu outside of a Studio mixer strip, the submenu will be for All Studios.

The Control Room Mixer's context menu

- 3. Choose the "Use Current Mix Levels" option to copy the fader levels on the selected tracks to the Studio Sends.*

This option sets all Studio Send levels for the selected tracks to the same level as the main channel fader. It also changes the Studio Send status to pre-fader so that changes in the main mix do not affect the Studio Sends.

- 4. Choose the "Use Current Pan Settings" option to copy pan information from the main mix to the Studio Sends on selected tracks.*

Studio Sends are either mono or stereo. If the Send is mono, the pan setting will still be copied. However, the output of the Studio Send will be a sum of the left and right channels.

- 5. Choose the "Enable Studio Sends" option to activate the Sends on selected channels.*

By default, Studio Sends are not enabled even when level and pan information is copied to them. You must enable them in order to hear the Studio cue mix.

*By copying the level and pan information from the main mix to the Studio Sends, a rough balance can be created in a matter of moments. Next, you may alter the level and pan settings on any channel's Studio Sends to change the mix to meet the performer's needs. This may require increasing the volume of the performer herself. This is often referred to as a "more me" mix. */*

Adjusting the overall Studio Send level.....148 "overall Studio Send level"

/ Levels in the main mix are often optimized for the loudest signal level possible without clipping. However, when you are creating a "more me" mix, you may find that there is not enough headroom available in the Studio Send to turn up channels without clipping becoming a possibility.*

Fortunately, the Studio Sends have an option to adjust multiple send levels at the same time, allowing you to keep the blend intact while lowering the overall volume to make room for "more me" signals.

Once you have created a Studio Send mix, proceed as follows to adjust their relative levels.

- 1. Select all the channels you wish to modify.*

Only selected channels are affected by the context menu commands.

- 2. Right-click anywhere in the Studio mixer strip on the Control Room Mixer to open the context menu for that Studio.*

You may also use the context menu outside of the Studio strip to adjust all four Studio Sends on the selected channels at the same time.

- 3. Choose the "Change Studio Sends Level" option from the Studio submenu.*

This will bring up a gain window with a checkbox that reads "Relative Mode". Make sure this is activated if you want to adjust already existing levels.

- 4. Either use the up and down arrow buttons or click on the numeric readout to open a pop-up fader and adjust the gain as necessary.*

The level of all selected Studio Sends will be adjusted by the amount shown here. For example, if the amount reads -3dB, then each Studio Send level is reduced by 3dB.

5. Click OK to change the level.

It is possible to view these changes as they occur if you have the Project Mixer open and the extended view set to show the Studio Sends.

! If you deactivate the "Relative Mode" option, all Studio Sends will be set to the same absolute level. While the dialog window is still open, you may check the "Relative Mode" box again and reload the previous relative levels. Only when you click OK, will the level settings be made permanent. Choosing Cancel returns all Send levels to their previous settings. */

Using Studio Sends from outputs.....148 "Studio Sends" outputs

/* Each output also has Studio Sends. Studio Sends from the Main Mix output can be used to route the main mix instantly to the Studio output.

Any level changes made to the main mix are reflected in the signal sent by the Studio Send. Setting the level lower than 0dB can leave headroom for "more me" signals in the Studio channel output. */

Post-Fader Studio Sends.....148 "Post-Fader Studio Sends"

/* It is also possible to use the Studio Sends as post-fader aux sends. This is another way for the cue mix to follow changes made to the Main Mix. The Reset function is very helpful in this regard.

To reset the Studio Sends to the post-fader default level of -6dB, proceed as follows:

1. Select all the channels you wish to reset.

Studio Send commands only work on selected channels.

2. In the Studio Channel mixer strip right-click to open the context menu. In the Studio submenu, select the "Reset Studio Sends" command.

If you open the context menu in other areas of the Control Room Mixer besides the Studio mixer strips, the context menu commands will affect all Studios at the same time.

3. Selecting the "Reset Studio Sends" option changes the Send level of all selected channels to -6dB and sets the signal source to post-fader.

The -6dB level is designed to allow for headroom for "more me" signals in the Studio outputs.

Once all Studio Sends have been set to -6dB, post-fader, any changes to the main mix will also change the Studio mix. For "more me" channels, simply turn up the level on that channel or even set the signal to pre-fader for absolute control. */

Studio Send cue mix summary.....149 "Studio Send cue mix"

/* Using various combinations of the above techniques should allow you to create complex discrete cue mixes for performers in very little time. Modifications to these mixes can occur in the Project Mixer or the Inspector, giving you the most accessibility for quick changes.

To familiarize yourself with how the Studio Sends work, open the extended Project Mixer and set the view to the Studio Sends. Follow the above examples and watch how the Studio Sends react to various commands. This should help you get a feel for how they function and increase the workflow productivity of recording sessions. */

Direct Monitoring and latency.....149 "Direct Monitoring" latency

/* The Control Room and Studio Sends functions use the internal processing power of the host computer system for all routing and processing, which means they are subject to the computer's latency.

When recording with several performers at once, a system capable of running at very low ASIO buffer settings will be necessary to take full advantage of all the Studio Send features.

Studio Sends are not capable of controlling the Direct Monitoring features of various audio hardware interfaces. This means that unless the internal latency of the system is very low (128 samples or less), monitoring of record-enabled tracks through the Studio Sends will have some delay that could affect performers during recording.

*In the situation where internal latency is too much for record monitoring, it is advisable to use the Studio Sends for monitoring of tracks that have already been recorded and use normal Direct Monitoring for tracks currently being recorded. */*

11 Audio effects.....150
About this chapter.....151

/ Cubase comes with a number of effect plug-ins included. This chapter contains general details about how to assign, use and organize effect plug-ins. The effects and their parameters are described in the separate manual "Plug-in Reference".*

*! This chapter describes audio effects, i.e. effects that are used to process audio, group, VST Instrument and ReWire channels. */*

Overview.....151
About VST 3.....151
VST Preset management.....151
Smart plug-in processing.....151
About side-chain inputs.....152
About plug-in delay compensation.....152 "plug-in delay compensation"

/ A plug-in effect may have some inherent delay or latency. This means that it takes a brief time for the plug-in to process the audio fed into it - as a result, the output audio will be slightly delayed. This especially applies to dynamics processors featuring "look-ahead" functionality.*

Cubase provides full plug-in delay compensation throughout the entire audio path. All plug-in delays are compensated for, maintaining the sync and timing of all audio channels.

Normally, you do not have to make any settings for this. However, VST3 dynamics plug-ins with look-ahead functionality have a "Live" button, allowing you to disengage the look-ahead to minimize latency, if they are to be used during realtime recording (see the separate manual "Plug-in Reference").

*You can also constrain the delay compensation, which is useful to avoid latency when recording audio or playing a VST Instrument in real time. See "Constrain Delay Compensation" on page 179. */*

About tempo sync.....152
Insert effects.....152
Background.....152
Routing an audio channel or bus through insert effects.....153
Deactivating vs. bypassing.....153
Insert effects in the channel overview.....154
Using mono or stereo effects with a surround channel (Cubase only)..154
Operations.....155
Adding insert effects to busses.....155
Dithering.....155
When should I use dithering?.....155
Applying dithering.....156
Using group channels for insert effects.....156
Freezing (rendering) insert effects for a track.....156
Unfreezing.....157
Send effects.....157
Background.....157
Setting up send effects.....157
Adding an FX channel track.....157
Adding and setting up effects.....158
Making settings for the sends.....159
Bypassing the sends.....160
Setting pan for the sends (Cubase only).....160
FX channels and the Solo Defeat function.....161
Using the Side-Chain input.....161
Creating a Ducking delay.....162
Triggering a compressor using side-chain signals.....162
Side-chain and Modulation.....163
About drag&drop.....163
Using external effects (Cubase only).....163
Editing effects.....163
Effect presets.....164

Selecting effect presets.....	164
The Browser sections.....	164
Saving effect presets.....	164
About earlier VST effect presets.....	165
Importing and converting FXB/FXP files.....	165
Saving insert effect combinations.....	166
Extracting insert effect settings from track presets.....	166
Installing and managing effect plug-ins.....	166
Installing additional VST plug-ins.....	166
Installing VST 3 plug-ins under Mac OS X.....	166
Installing VST 2.x plug-ins under Mac OS X.....	167
Installing VST 3 plug-ins under Windows.....	167
Installing VST 2 plug-ins under Windows.....	167
Organizing VST 2 plug-ins.....	167
About the effects from previous Cubase versions.....	167
The Plug-in Information window.....	167
Managing and selecting VST plug-ins.....	168
Update button.....	168
VST 2.x Plug-in Paths button.....	168
About the "shared" plug-ins folder (Windows and VST 2.x only)...	168
Exporting plug-in information files.....	168
12 VST Instruments and Instrument tracks.....	169
Introduction.....	170
<p>/* VST Instruments are software synthesizers (or other sound sources) that are contained within Cubase. They are played internally via MIDI. You can add effects or EQ to VST Instruments, just as with audio tracks.</p> <p>Some VST Instruments are included with Cubase, others can be purchased separately from Steinberg and other manufacturers.</p> <p>.. This chapter describes the general procedures for setting up and using VST Instruments.</p> <p>.. Depending on the VST version the instrument is compatible with, an icon may be displayed in front of the instrument name, see "About VST 3" on page 151.</p> <p>The included VST Instruments and their parameters are described in the separate PDF document "Plug-in Reference". */</p>	
VST Instrument channels vs. instrument tracks.....	170
VST Instrument channels.....	170
The VST Instruments window.....	171
Instrument tracks.....	172
Adding Instrument tracks.....	172
Properties.....	172
Restrictions.....	173
Import and export options.....	173
Importing MIDI loops.....	173
Exporting MIDI loops.....	173
Exporting instrument tracks as MIDI file.....	174
What do I need? Instrument channel or Instrument track?.....	174
Instrument Freeze.....	174
Performing the freeze.....	174
Unfreezing.....	175
VST instruments and processor load.....	175
Using presets for VSTi configuration.....	175
About track presets and VST presets.....	175
Browsing for sounds.....	176
Using the Presets browser.....	176
Using the "Browse Sounds" dialog.....	177
Selecting VST Instrument presets.....	177
Saving VST Instrument presets.....	177
Extracting sounds from Track Presets.....	178
About earlier VST Instrument presets.....	178
Importing and converting FXB/FXP files.....	178
About latency.....	178 latency

/ Depending on your audio hardware and its ASIO driver, the latency (the time it takes for the instrument to produce a sound when you press a key on your MIDI controller) may simply be too high to allow comfortable realtime VST Instrument playback from a keyboard.*

If this is the case, a workaround is to play and record your parts with another MIDI sound source selected, and then switch to the VST Instrument for playback.

.. You can check the latency for your audio hardware in the Device Setup dialog (VST Audio System page).

*The input and output latency values are shown below the ASIO Driver pop-up menu. For live VST Instrument playing, these values should ideally be a few milliseconds (although the limit for "comfortable" live playing is a matter of personal taste). */*

Constrain Delay Compensation.....179 "Constrain Delay Compensation"

/ Cubase features full delay compensation throughout the entire audio path. This means that any delay inherent in the VST plug-ins you use will automatically be compensated for during playback, so that all channels are kept in perfect sync (see "About plug-in delay compensation" on page 152).*

However, when you play a VST Instrument in realtime or record live audio (with monitoring through Cubase activated), this delay compensation may sometimes result in added latency. To avoid this, you can activate the Constrain Delay Compensation button on the Project window toolbar. This function tries to minimize the latency effects of the delay compensation, while maintaining the sound of the mix as far as possible.

- In the Preferences dialog (VST page) you will find a setting called Delay Compensation Threshold. Only plug-ins with a delay higher than this setting will be affected by the Constrain Delay Compensation function.*
- VST plug-ins (with higher delay than the threshold value) which are activated for VST Instrument channels, audio track channels that are record enabled, group channels and output channels will be turned off when you activate Constrain Delay Compensation.*
- VST plug-ins activated for FX channels are not turned off but their delay is disregarded by the program (delay compensation is turned off).*

*After recording or using a VST Instrument with Constrain Delay Compensation, you should turn off the function to restore full delay compensation. */*

External instruments (Cubase only).....179
13 Surround sound (Cubase only).....180
Background.....181
What is Surround sound?.....181

/ Surround is a common name for various techniques for positioning audio in reference to the listener. Whereas regular stereo is limited to left/right positioning, within a relatively narrow field, surround sound opens possibilities of positioning an audio source anywhere around the listener.*

Surround sound comes in many flavors, from the ill-fated Quadraphonic format for vinyl discs launched in the 70's, to today's more successful incarnations.

The differences between the formats are in two areas:

- The number and configuration of speakers.*

This varies from two speakers up to 6.

- The intended final coding format.*

This depends on the media the audio will be "stored" on: film, broadcast video or DVD, for example.

*Surround sound is a large topic, there are entire books and regular publications devoted to the subject. This chapter will not provide an in-depth introduction to surround sound as such. Instead it will concentrate on the specific implementation in Cubase. */*

Surround sound in Cubase.....181

/ Cubase has integrated surround sound features with support for several formats. This support goes all the way through the audio path - all audio channels and busses can handle multiple speaker channel configurations (up to 6 channels). A channel in the mixer can either carry complete surround mixes, or an individual speaker channel which is part of a surround setup.*

- *Audio channels can be routed freely to surround channels.*
- *The SurroundPanner function in the mixer allows you to graphically position channels in the surround field. This plugins is described in detail in the section "Using the Surround- Panner" on page 184.*
- *Cubase is ready for surround specific plug-ins, that is plug-ins with multi-channel support specifically designed for surround sound mixing tasks (the included "Mix6to2" plug-in is an example of this). Due to their multi-channel support, plug-ins conforming to the VST 3 standard will work well in a surround configuration, even if the are note specifically designed for surround. The plug-ins that are included with Cubase are described in the separate pdf document "Plug-in Reference".*
- *You configure Cubase for surround by defining input and output busses in the desired surround format, and specifying which audio inputs and outputs should be used for the different channels in the busses. This is done in the VST Connections window. */*

Encoding.....181

/ The result of a surround mix in Cubase is either the multichannel audio sent from the surround output bus to your surround speaker setup, or (if you use the Export audio feature) audio file(s) on your hard disk. Exported surround mixes can either be split (one mono file per speaker channel) or interleaved (a single file containing all the surround channels).*

Getting from this step to the final product (surround sound on DVD, etc.) requires special software and possibly hardware. This equipment will encode the signal into the desired format, possibly compress the audio and store it on the final media.

*Exactly what type of software and/or hardware you need depends on what kind of format you are mixing for and is not dependent on Cubase in any way. */*

The VST Connections window.....181 "VST Connections window"

/ In this window you can add input and output busses. There is a complete selection of common surround configurations available, as well as standard mono or stereo busses.*

The Bus Name column contains the currently configured busses as they will appear in the Input and Output Routing pop-ups in the mixer.

*VST Connections showing the Outputs page. The "5.1 Out" bus is unfolded, displaying the individual speaker channels, with their physical output ports displayed in the Device Port column to the right. */*

Surround in the mixer.....182 mixer

/ Surround sound is supported throughout every stage of the signal path in the Cubase mixer, from input to output bus. Each bus or audio channel can carry up to 6 surround speaker channels.*

*In the output channel section of the mixer you can control the master levels for configured busses. The level meter for a bus (or channel in the mixer) that carries multiple surround channels will show multiple level bars, one for each speaker channel in the surround configuration. */*

Operations.....182

Setting up the surround configuration.....182

Output bus configuration.....182

Child busses.....183 "Child busses"

/ Essentially a child bus is a bus within a (wider) bus. Typically you may want stereo child busses within your surround bus - this allows you to route stereo tracks directly to a stereo speaker pair within the surround bus. You may also want to add child busses in other surround formats (with fewer channels than the "parent bus").*

*Once you have created a surround bus, you can add one or several child busses to it by right-clicking the bus and selecting "Add Child Bus", see "Adding a child bus (Cubase only)" on page 16. */*

Input bus configuration.....183

Routing channels directly to surround channels.....183

/ If you want to place an audio source in one separate speaker channel only, you can route it directly to that speaker channel. This is useful for pre-mixed material or multi-channel recordings that do not require panning.*

1. *Open the mixer and locate the channel you wish to route.*

2. From the Output Routing pop-up menu, select the corresponding surround speaker channel.
- If a stereo audio channel is routed directly to a speaker channel, the left/right channels will be mixed to mono.

The pan control for the audio channel governs the balance between the left and right channel in the resulting mono mix. Center pan will produce a mix of equal proportion. */

Routing channels using child busses.....183 "child busses"

/ Child busses provide a way to route stereo (or multi-channel) audio channels to specific speaker channels in a surround configuration.*

The most obvious application of a child bus is when you wish to add a stereo channel to two specific left/right surround speaker channels.

*If you have added a child bus within a surround bus (see "Adding a child bus (Cubase only)" on page 16), it appears as a submenu item within the surround bus on the Output Routing pop-up menu. Select this to route a stereo audio channel directly to that stereo speaker pair in the surround bus. */*

Using the SurroundPanner.....184

The SurroundPanner controls.....184

 Mode - Standard/Position/Angle.....185

 Speakers.....185

 Positioning and levels.....185

 The LFE encoder (all modes).....186

 Mono/Stereo pop-up (All Modes).....186

 Additional parameters (Standard mode).....186

 Additional parameters (Position and Angle mode).....186

 Automation.....186

Exporting a Surround mix.....187

Using effects in surround configurations.....187

 Applying a surround-aware plug-in.....187

 Using a stereo plug-in in a surround configuration.....187

14 Automation.....188

 Introduction.....189

/ In essence, automation means finding and recording, for each and every moment of your project, the right values for a particular mixer parameter. When you create your final mix, you will not have to worry about having to adjust this particular parameter control yourself - Cubase will do it for you.*

Cubase provides very powerful and yet intuitive automation of virtually every mixer and effect parameter.

*The following sections provide detailed descriptions of the Cubase automation features. */*

Enabling and disabling the writing of automation data.....189

 Creating automation data.....189

What can be automated?.....190

/ You can automate virtually every parameter in the Cubase mixer.*

- To find out which parameters can be automated for a particular track, click in the Parameter display of the automation track to open a pop-up menu. Select "More..." to open the Add Parameter dialog.

This dialog lists all automatable parameters for a particular track type. It is described in detail in the section "Assigning a parameter to an automation track" on page 197.

The following actions CANNOT be automated, even though they are features of the Cubase mixer:

- Changing the input phase (Cubase only)
- Changing of routing settings
- Inserting a plug-in
- Moving of plug-ins to different insert slots
- Copying insert settings
- Changing the stereo panner mode

• *Changing Control Room settings (Cubase only) */*

The Automation panel.....191

Automation modes.....191

General punch-out conditions.....191 "General punch-out conditions"

/ The current automation pass will always punch-out as soon as one of the following conditions is met, independent of which automation mode is selected:*

- If you Disable Write*
- If you Stop playback*
- If you activate Fast Forward/Rewind*
- If the project cursor reaches the right locator in Cycle mode.*
- If you click in the ruler to move the project cursor (note that this function is user-definable - it can be controlled via the Automation panel, see "Allow Continue Writing after Transport Jump" on page 196). */*

Touch.....192

Auto-Latch.....192

Cross-Over.....192

Trim.....193

The Read/Write buttons in the Mode section.....193

Automation performance utilities.....193

Trim.....193

The Suspend options.....194

Suspending Write.....194

Suspending Read.....194

The Show options.....194

The Settings section.....195

The Functions pop-up menu.....195

Delete All Automation in Project.....195

Delete Automation of Selected Tracks.....195

Delete Automation in Range.....195

Global options.....195

Return Time.....195

Reduction Level.....195

The Options pop-up menu.....196

Show Data on Tracks.....196

Allow Continue Writing after Transport Jump.....196

Hints and further options.....196

Automation key commands.....196

About linking and automation.....196

About automation undo.....196

Automation track operations.....196

About automation tracks.....196

Opening automation tracks.....197

Assigning a parameter to an automation track.....197

Removing automation tracks.....198

Showing/hiding automation tracks.....198

Showing only used automation tracks.....198

Muting automation tracks.....199

The "Automation follows Events" setting.....199

Recording plug-in automation.....199

Dragging and dropping of insert plug-ins.....199

Working with automation curves.....199

About automation curves.....199

About the static value line.....200

Editing automation events.....200

Drawing automation events.....200

Using the various modes of the Line tool to draw automation curves.....200

Selecting automation events.....201

Removing automation events.....201

Editing automation events.....201

Editing automation events in the Project Browser.....201

MIDI Controller automation.....202

 Merging automation data.....202

 MIDI Controller Automation Setup settings.....202

15 Audio processing and functions.....204

 Background.....205

/ Audio processing in Cubase can be called "non-destructive", in the sense that you can always undo changes or revert to the original versions. This is possible because processing affects audio clips rather than the actual audio files, and because audio clips can refer to more than one audio file. This is how it works:*

1. If you process an event or a selection range, a new audio file is created in the Edits folder, within your project folder.

This new file contains the processed audio, while the original file is unaffected.

2. The processed section of the audio clip (the section corresponding to the event or selection range) then refers to the new, processed audio file.

The other sections of the clip will still refer to the original file.

• Since all edits are available as separate files, it is possible to undo any processing, at any point and in any order! This is done in the Offline Process History dialog, see "The Offline Process History dialog" on page 214.

*• Furthermore, the original, unprocessed audio file can still be used by other clips in the project, by other projects or by other applications. */*

Audio processing.....205

 Common settings and features.....206

 The "More..." button.....206

 The Preview, Process and Cancel buttons.....206

 Pre/Post-Crossfade.....206

 Envelope.....206

 Curve Kind buttons.....206

 Envelope display.....206

 Presets.....206

 Fade In and Fade Out.....206

 Gain.....207

 Gain.....207

 Clipping detection text.....207

 Pre- and Post-Crossfade.....207

 Merge Clipboard.....207

 Sources mix.....207

 Pre- and Post-Crossfade.....207

 Noise Gate.....207

 Threshold.....207

 Attack Time.....207

 Min. Opening Time.....207

 Release Time.....207

 Linked Channels.....208

 Dry/Wet mix.....208

 Pre- and Post-Crossfade.....208

 Normalize.....208

 Maximum.....208

 Pre- and Post-Crossfade.....208

 Phase Reverse.....208

 Phase Reverse on.....208

 Pre- and Post-Crossfade.....208

 Pitch Shift.....208

 Keyboard display.....208

 Pitch Shift settings.....209

 Volume/Amplitude.....209

 Multi Shift.....209

 Listen Key/Chord button.....209

 Pitch Shift Base.....209

 Pitch Shift Mode.....209

Formant Mode.....	209
Time Correction.....	209
Using envelope based Pitch Shift.....	209
Envelope display.....	210
Curve Kind.....	210
Range.....	210
Transpose and Fine Tune.....	210
Pitch Shift Mode.....	210
Example.....	210
Remove DC Offset.....	211
Resample.....	211
Reverse.....	211
Silence.....	211
Stereo Flip.....	211
Mode.....	211
Time Stretch.....	212
Define Bars section.....	212
Original Length section.....	212
Resulting Length section.....	212
Seconds Range section.....	212
Time Stretch Ratio section.....	212
Algorithm section.....	213
Applying plug-ins (Cubase only).....	213
About stereo and mono.....	213
The process plug-in dialog.....	213
Wet mix/Dry mix.....	213
Tail.....	214
Pre/Post-Crossfade.....	214
Preview button.....	214
Process button.....	214
Cancel button.....	214
The Offline Process History dialog.....	214

/ If you want to remove or modify some or all processing from a clip, this can be done in the Offline Process History dialog. Processing that can be modified in the Offline Process History dialog includes the functions on the Process menu, any applied plug-in effects (Cubase only), and Sample Editor operations such as Cut, Paste, Delete and drawing with the Pencil tool.*

□ Due to the clip-file relationship (see "Background" on page 205), it is even possible to modify or remove some processing "in the middle" of the Process History, while keeping later processing! This feature depends on the type of processing performed (see "Restrictions" on page 215).

Proceed as follows:

- 1. Select the clip in the Pool or one of its events in the Project window.*

You can see which clips have been processed by checking the Status column in the Pool - the waveform symbol indicates that processing or effects have been applied to the clip (see "About the Status column symbols" on page 262).

- 2. Select "Offline Process History..." from the Audio menu.*

The Offline Process History dialog appears.

The left part of the dialog contains a list of all processing you have added to the clip, with the most recent operations at the bottom of the list. The "Start" and "Length" columns indicate which section of the clip was affected by each operation. The "Status" column indicates if the operation can be modified or undone.

- 3. Locate the operation you want to edit and select it by clicking on it in the list.*

- To modify the settings of the selected processing, click the "Modify" button.*

This opens the dialog for the processing function or applied effect, allowing you to change the settings. This works just as when you applied the processing or effect the first time.

- To replace the selected operation with another processing function or effect, select the desired function from the pop-up menu*

and click the "Replace By" button. If the selected function has settings, a dialog will appear as usual. The original operation will then be removed and the new processing will be inserted in the Offline Process History.

- To remove the selected operation, click the "Remove" button.*

The processing is removed from the clip.

- To undo the selected operation and remove the processing from the clip click the "Deactivate" button.*

The processing is removed from the clip, but the operation remains in the list. To redo the operation and apply the processing again, click the button, now renamed to "Activate", again.

*4. Click "Close" to close the dialog. */*

Restrictions.....215

/ • If there are no settings for the processing function, you cannot modify it.*

- If you have applied processing that changes the length of the clip (such as Cut, Insert or Time Stretch), you can only remove this if it is the most recent processing in the Offline Process History (at the bottom of the list in the dialog). If an operation cannot be removed or modified, this is indicated by an icon in the "Status" column. Also, the corresponding buttons will be grayed out. */*

Freeze Edits.....215

/ The Freeze Edits function on the Audio menu allows you to make all processing and applied effects permanent for a clip:*

- 1. Select the clip in the Pool or one of its events in the Project window.*
- 2. Select "Freeze Edits..." from the Audio menu.*

- If there is only one edit version of the clip (no other clips refer to the same audio file), the following dialog will appear:*

If you select "Replace", all edits will be applied to the original audio file (the one listed in the clip's Path column in the Pool). If you select "New File", the Freeze Edits operation will create a new file in the Audio folder within the project folder (leaving the original audio file unaffected).

- If the selected clip (or the clip played by the selected event) has several edit versions (i.e. there are other clips referring to the same audio file), the following alert will appear:*

As you can see, you do not have the option to Replace the original audio file in this case. This is because that audio file is used by other clips. Select "New File" to have a new file created in the Audio folder within the project folder.

*! After a Freeze Edits, the clip refers to a new, single audio file. If you open the Offline Process History dialog for the clip, the list will be empty. */*

Detect Silence.....216

The Spectrum Analyzer (Cubase only).....217

Statistics (Cubase only).....218

16 The Sample Editor.....219 "Sample Editor"

Background.....220

/ The Sample Editor allows you to view and manipulate audio by cutting and pasting, removing or drawing audio data, processing or applying effects (see "Audio processing and functions" on page 204). This editing can be called "nondestructive": The actual file (if created or imported from outside the project) will remain untouched and using the Offline Process History you can undo modifications or revert to the original settings at any time (see "The Offline Process History dialog" on page 214).*

The Sample Editor also contains most of the AudioWarp related functions, i.e. the realtime time stretching and pitch shifting functions in Cubase. These can be used to match the tempo of any audio loop to the project tempo (see "AudioWarp: Tempo matching audio" on page 231).

The VariAudio features allow you to edit monophonic vocal recordings in pitch and time, as easily as editing MIDI in the Key Editor. In these realtime pitch modifications the transitions will be kept so that the sound will remain natural. The pitch detection and correction is "non-destructive", i.e. you can always undo modifications or revert to the original versions. See "VariAudio (Cubase only)" on page 243.

Another special feature of the Sample Editor is hitpoint detection. Hitpoints allow you to create "slices", which are useful, for example, if you want to change the tempo without affecting the pitch (see "Working with hitpoints and slices" on page 234).
*/

Opening the Sample Editor.....220 "Sample Editor"

/ You open the Sample Editor by double-clicking an audio event in the Project window or the Audio Part Editor, or by double-clicking an audio clip in the Pool. You can have more than one Sample Editor window open at the same time.*

- Note that double-clicking an audio part in the Project window will open the Audio Part Editor, even if the part only contains a single audio event.*

This is described in a separate chapter, see "The Audio Part Editor" on page 254./*

Window overview.....221

The Elements menu.....221

/ If you hold [Alt]/[Option] and right-click in the Sample Editor to bring up the context menu, you will find a submenu called "Elements". By activating or deactivating options on this submenu, you specify what is shown in the editor window. Some of these options are also available as icons on the toolbar.*

*.. Provided that the "Popup Toolbox on Right Click" option in the Preferences dialog (Editing-Tools page) is activated, a right-click holding a modifier key brings up the context menu. */*

The toolbar.....221

/ The toolbar contains the following tools:*

*Solo Editor
Acoustic Feedback
The Sample Editor tools
Audition, Loop & Volume controls*

*Show Inspector
Show Info
Show Audio event
Show regions
Autoscroll
Suspend Autoscroll when editing
Snap on/off
Snap to Zero Crossing
Musical Mode*

To the right of the tools the estimated length of your audio file is displayed in bars and beats (PPQ) together with the estimated tempo and the time signature. If you want to use Musical mode, you should always verify if the length in bars corresponds to the audio file you imported. If necessary, listen to your audio and enter the correct bar length. The Algorithm pop-up allows you to select an algorithm for the realtime time stretching (see "Selecting an algorithm for the flattening (Cubase only)" on page 241).

- You can customize the toolbar by right-clicking it and using the context menu to hide or show items.*
- Selecting Setup from the context menu allows you to rearrange sections on the toolbar, store toolbar presets, etc. See "Using the Setup options" on page 471. */*

The info line.....222 "info line"

/ If you activate the Show Info button on the toolbar, the info line will show information about the edited audio clip:*

*Audio format and length
Global Transpose status*

*Realtime status
Selected display format (for info line and ruler)
Number of edits made to the clip*

Zoom factor

*Current selection range
Pitch and deviation
Original pitch and deviation*

*Initially, length and position values are displayed in the format specified in the Project Setup dialog. The info line can be customized, see "The Setup dialogs" on page 471. */*

The Sample Editor Inspector.....222

/ To the left in the Sample Editor, you will find the Sample Editor Inspector. It contains all the tools and functions for working in the Sample Editor.*

*For more information on the handling of the various Inspector tabs, see the section "The Inspector" on page 29. */*

The Definition tab.....222

/ The Definition tab will help you to adjust the audio grid and define the musical context of your audio. This is useful, if you have an audio loop or audio file that you want to match to the project tempo, see "AudioWarp: Tempo matching audio" on page 231. */*

The AudioWarp tab.....222

/ Disable Warp Changes*

The AudioWarp tab lets you perform timing settings for your audio. This includes setting a quantize resolution for the audio, applying swing and manually changing the rhythm of the audio by dragging beats to time positions in the grid (see "Free Warp" on page 238).

*! If you activate the Disable Warp Changes button (see above), any warp modifications you have made will be disabled, allowing you to compare the modified with the original sound of your audio. However, the display will not change. The timestretch implemented by the Musical mode will not be disabled by this. Disable Warp Changes is deactivated when you close the Sample Editor and will not be recalled on reopening it. */*

The VariAudio tab (Cubase only).....223

/ Disable Pitch Changes*

On this tab you can edit single notes of your audio file and change their pitch and/or timing, in a way that is similar to the editing of MIDI notes (see "Understanding the waveform display in VariAudio" on page 243). Furthermore, you can extract MIDI from your audio (see "Functions - Extract MIDI..." on page 252).

*! If you activate the Disable Pitch Changes button (see above), any pitch modifications you have made will be disabled, allowing you to compare the modified with the original sound of your audio. However, the display will not change. Disable Pitch Changes is deactivated when you close the Sample Editor and will not be recalled on reopening it. */*

The Hitpoints tab.....223

/ On this tab, the transients or hitpoints of the audio can be marked and edited (see "Working with hitpoints and slices" on page 234). Hitpoints allow you to slice your audio, and to create groove quantize maps from your audio. You can also create markers, regions and events using hitpoints. */*

The Range tab.....223

/ On this tab you will find functions for working with ranges and selections (see "Making selections" on page 227). */*

The Process tab.....223

/ This tab regroups the most important audio editing commands from the Audio and Edit menus. For further information on the Select Process and Select Plug-in pop-up menus, see the chapter "Audio processing and functions" on page 204. */*

The thumbnail display.....223

/ Event Start
Event End*

Snap Point
Selection range
Blue rectangle

The thumbnail display provides an overview of the whole clip. The section currently shown in the main waveform display of the Sample Editor is indicated by a blue rectangle in the thumbnail, while the current selection range is shown in light blue. If the "Show Audio Event" button is activated in the toolbar, event start/end and snap point will also be shown in the thumbnail display.

- You can move the blue rectangle in the thumbnail to view other sections of the clip.

Click in the lower half of the rectangle and drag to the left or right to move it.

- You can resize the blue rectangle (by dragging its left or right edge) to zoom in or out, horizontally.
- You can define a new viewing area by clicking in the upper half of the overview and dragging a rectangle.*/

The ruler.....224

/* The Sample Editor ruler is located between the thumbnail and the waveform displays. The ruler is explained in detail in the section "The ruler" on page 33. */

The waveform display and the level scale.....224 "waveform display" "level scale"

/* The waveform display shows the waveform image of the edited audio clip according to the wave image style set in the Preferences (Event Display-Audio page), see "Adjusting how parts and events are shown" on page 37. To the left of the waveform display a level scale can be shown, indicating the amplitude of the audio.

- When the level scale is shown, you can select whether the level should be shown as a percentage or in dB.

This is done by right-clicking the level scale and selecting an option from the context menu. This also allows you to hide the level scale.

- To display the level scale after hiding it, right-click to bring up the context menu and activate Level Scale on the Elements submenu.

- This submenu also allows you to select whether you want the zero axis and/or the half level axis indicated in the waveform display.

Zero axis

Half level axis */

General Operations.....224

Zooming.....224

/* Zooming in the Sample Editor is done according to the standard zoom procedures, with the following special notes:

- The vertical zoom slider changes the vertical scale relative to the height of the editor window, in a way similar to the waveform zooming in the Project window (see "Zoom and view options" on page 35).

The vertical zoom will also be affected if the Preference "Zoom Tool Standard Mode" (Editing-Tools page) is deactivated and you drag a rectangle with the Zoom tool.

- The following options relevant to the Sample Editor are available on the Zoom submenu (on the Edit menu and the context menu):

Option Description

Zoom In Zooms in one step, centering on the position cursor.

Zoom Out Zooms out one step, centering on the position cursor.

Zoom Full Zooms out so that the whole clip is visible in the editor.

Zoom to Selection Zooms in so that the current selection fills the editor display.

Zoom to Selection (Horiz.) Zooms in horizontally so that the current selection fills the editor display.

Zoom to Event Zooms in so that the editor shows the section of the clip corresponding to the edited audio event. This is not available if you opened the Sample Editor from the Pool (in which case the whole clip is opened for editing, not an event).

Zoom In/Out Vertical This is the same as using the vertical zoom slider (see above).

• *On the VariAudio tab (see "VariAudio (Cubase only)" on page 243) you can also zoom by holding down [Alt]/[Option] while drawing a selection rectangle around the segments that you want to be zoomed on. You can zoom out by holding down [Alt]/[Option] and clicking in an empty area of the waveform.*

• *You can also zoom by resizing the rectangle in the thumbnail display.*

See "The thumbnail display" on page 223.

• *The current zoom setting is shown in the info line, as a "samples per screen pixel" value.*

• *Note that you can zoom in horizontally to a scale of less than one sample per pixel!*

This is required for drawing with the Pencil tool (see "Drawing in the Sample Editor" on page 230).

• *If you have zoomed in to one sample per pixel or less, the appearance of the samples depends on the option "Interpolate Audio Images" in the Preferences (Event Display- Audio page).*

*If the option is deactivated, single sample values are drawn as "steps". If the option is activated, they are interpolated to a "curve" form. */*

Auditioning.....225 auditioning

/ While you can use the regular play commands to play back audio when the Sample Editor is open, it is often useful to listen to the edited material only.*

☐ *Cubase only: When auditioning, audio will be routed to the Control Room (if the Control Room is activated) or to the Main Mix (the default output bus). In Cubase Studio, the Main Mix bus is always used for all auditioning. For information about routing, see the chapter "VST Connections: Setting up input and output busses" on page 13.*

☐ *You can adjust the auditioning level with the miniature level fader on the toolbar. */*

Using key commands.....225

/ If you activate the "Playback Toggle triggers Local Preview" option in the Preferences (Transport page), you can start/ stop auditioning by pressing [Space]. This is the same as clicking the Audition icon on the toolbar. */*

Using the Audition icon.....225 "Audition icon"

/ Clicking the Audition icon on the toolbar plays back the edited audio, according to the following rules:*

- *If you have made a selection, this selection will be played back.*
- *If there is no selection, but the option "Show Event" is activated (see "Show audio event" on page 230), the section of the clip corresponding to the event will be played back.*
- *If there is no selection, and "Show Event" is deactivated, playback will start at the cursor position (if the cursor is outside the display, the whole clip will be played back).*
- *If the Audition Loop icon is activated, playback will continue repeatedly until you deactivate the Audition Loop icon. Otherwise, the section will be played back once.*

☐ *Note that there is a separate Play button for auditioning regions. See "Auditioning regions" on page 229. */*

Using the Speaker tool.....225 "Speaker tool"

/ If you click somewhere in the waveform display with the Speaker ("Play") tool and keep the mouse button pressed, the clip will be played back from the position at which you clicked. Playback will continue until you release the mouse button. */*

Using Acoustic Feedback.....225 "Acoustic Feedback"

/ See "Listening to your modifications" on page 252. */*

Scrubbing.....226 scrubbing

/ The Scrub tool allows you to locate positions in the audio by playing back, forwards or backwards, at any speed:*

1. Select the Scrub tool.

2. Click in the waveform display and keep the mouse button pressed.

The project cursor is moved to the position at which you click.

3. Drag to the left or right.

The project cursor follows the mouse pointer and the audio is played back. The speed and pitch of the playback depends on how fast you move the pointer.

• You can adjust the response of the Scrub tool with the Scrub Response (Speed) setting in the Preferences (Transport-Scrub page).

*You will also find a separate Scrub Volume setting on this page. */*

Adjusting the snap point.....226 "snap point"

/ The snap point is a marker within an audio event (or clip, see below). This is used as a reference position when you are moving events with snap activated, so that the snap point is "magnetic" to whatever snap positions you have selected.*

By default, the snap point is set at the beginning of the audio event, but often it is useful to move the snap point to a "relevant" position in the event, such as a downbeat, etc.

1. Activate the "Show Audio Event" option on the toolbar, so that the event is displayed in the editor.

2. Scroll so that the event is visible, and locate the "S" flag in the event.

If you haven't adjusted this previously, it will be located at the beginning of the event.

3. Click on the "S" flag and drag it to the desired position.

When you drag the snap point, a tooltip shows its current position (in the format selected on the Sample Editor ruler).

• Cubase only: If the Scrub tool is selected when you move the snap point, you will hear the audio while dragging (just like when scrubbing).

This makes it easier to find the correct position.

You can also adjust the snap point by setting the project cursor:

1. Place the cursor at the desired position (intersecting the event).

You may want to do this by scrubbing, to spot the right position exactly.

2. Holding [Alt]/[Option], right-click to open the context menu and select "Snap Point To Cursor" from the Audio submenu.

Provided that the "Popup Toolbox on Right Click" option in the Preferences dialog (Editing-Tools page) is activated, a right-click holding a modifier key brings up the context menu.

The snap point will be set to the position of the cursor. This method can also be used in the Project window and the Audio Part Editor.

! When you set the grid start in the Definition tab, the snap point will be moved to the grid start (see "Manually adjusting grid and tempo" on page 232).

- *It is also possible to define a snap point for a clip (for which there is no event yet).*

To open a clip in the Sample Editor, double-click it in the Pool. After having set the snap point using the procedure described above, you can insert the clip into the project from the Pool or the Sample Editor, taking the snap point position into account.

*! Events and clips can have different snap points. If you open a clip from the pool you can edit the clip snap point. If you open a clip from within the project window, you can edit the event snap point. The clip snap serves as a template for the event snap point and does not affect snapping. */*

Making selections.....227 "making selections"

/ To select an audio section in the Sample Editor, you click and drag with the Range Selection tool.*

A selected range

- *If Snap to Zero Crossing is activated on the toolbar, the start and end of the selection will always be at zero crossings (see "Snap" on page 230).*
- *You can resize the selection by dragging its left and right edge or by [Shift]-clicking.*
- *The current selection is indicated in the corresponding fields in the Range tab of the Sample Editor Inspector. You can fine-tune the selection by changing these values numerically.*

*Note that the values are relative to the start of the clip, rather than to the project timeline. */*

Using the Select menu.....227 "Select menu"

/ In the Select menu in the Range tab and in the Select submenu of the Edit menu you can find the following options:*

Function Description

Select All Selects the whole clip.

Select None Selects no audio (the selection length is set to "0").

Select in Loop Selects all audio between the left and right locator.

Select Event Selects the audio that is included in the edited event only. This is not available if you opened the Sample Editor from the Pool (in which case the whole clip is opened for editing, not an event).

Locators to Selection (Range tab only) Sets the locators to encompass the current selection. This is available if you have selected one or several events or made a selection range.

Locate Selection (Range tab only) Moves the project cursor to the beginning or end of the current selection. For this to be available, you must have selected one or more events or parts, or made a selection range.

Loop Selection (Range tab only) This activates playback from the start of the current selection and keeps starting over again when reaching the selection end.

From Start to Cursor (Edit menu only) Selects all audio between the clip start and the project cursor.

From Cursor to End (Edit menu only) Selects all audio between the project cursor and the end of the clip. For this to work, the project cursor must be within the clip boundaries.

Edit Pitch This function requires that one or several notes are already selected. The Edit Pitch options select all notes of this part that have the same pitch as the currently selected note/s (in any octave or in the current octave).

Left Selection Side to Cursor (Edit menu only) Moves the left side of the current selection range to the project cursor position. For this to work, the cursor must be within the clip boundaries.

*Right Selection Side to Cursor (Edit menu only) Moves the right side of the current selection range to the project cursor position (or the end of the clip, if the cursor is to the right of the clip). */*

Editing selection ranges.....227 "selection ranges"

/ Selections in the Sample Editor can be processed in several ways. Please note the following:*

- If you attempt to edit an event that is a shared copy (i.e. the event refers to a clip that is used by other events in the project), you are asked whether you want to create a new version of the clip.*

Select "New Version" if you want the editing to affect the selected event only. Select "Continue" if you want the editing to affect all shared copies. Note: If you activate the option "Do not show this message again" in the dialog, any further editing you do will conform to the selected method ("Continue" or "New Version"). You can change this setting at any time with the "On Processing Shared Clips" pop-up menu in the Preferences (Editing-Audio page).

- Any changes to the clip will appear in the Offline Process History, making it possible to undo them at a later point (see "The Offline Process History dialog" on page 214). */*

Cut, Copy and Paste.....228

/ The Cut, Copy and Paste commands (on the Edit menu in the Process tab of the Sample Editor Inspector or in the main Edit menu) work according to the following rules:*

- Selecting Copy copies the selection to the clipboard.*
- Selecting Cut removes the selection from the clip and moves it to the clipboard.*

The section to the right of the selection is moved to the left to fill the gap.

- Selecting Paste copies the data on the clipboard into the clip.*

If there is a selection in the editor, this will be replaced by the pasted data. If there is no selection, the pasted data will be inserted starting at the selection line. The section to the right of the line will be moved to make room for the pasted material.

*The pasted data will be inserted at the selection line. */*

Delete.....228 delete "selection ranges"

/ Selecting Delete (on the Edit menu in the Process tab of the Sample Editor Inspector or in the main Edit menu or by pressing [Backspace]) removes the selection from the clip. The section to the right of the selection is moved to the left to fill out the gap. */*

Insert Silence.....228

/ Selecting "Insert Silence" (on the Edit menu in the Process tab of the Sample Editor Inspector or in the Range submenu of the main Edit menu) will insert a silent section with the same length as the current selection, at the selection start.*

- The selection will not be replaced, but moved to the right to make room.*

*If you want to replace the selection, use the "Silence" function instead (see "Silence" on page 211). */*

Processing.....228

/ The Processing features (on the Select Process menu in the Process tab of the Sample Editor Inspector or in the Process submenu on the Audio menu) can be applied to selections in the Sample Editor, as can the effects (on the Select Plug-in menu in the Process tab of the Sample Editor Inspector or in the Plug-ins submenu on the Audio menu). See the chapter "Audio processing and functions" on page 204. */*

Creating a new event from the selection using drag&drop.....228 "creating a new event"

/ You can create a new event that plays only the selected range, using the following method:*

- 1. Make a selection range.*
- 2. Press [Ctrl]/[Command] and drag the selection range to the desired audio track in the Project window. */*

Creating a new clip or audio file from the selection.....228 "creating a new clip or audio file"

/ You can extract a selection from an event and either create a new clip or a new audio file, in the following way:*

1. Make a selection range.
 2. Holding [Alt]/[Option], right-click to open the context menu and select "Bounce Selection" from the Audio submenu.
- Provided that the "Popup Toolbox on Right Click" option in the Preferences dialog (Editing-Tools page) is activated, a right-click holding a modifier key brings up the context menu.
- A new clip is created and added to the Pool, and another Sample Editor window will open with the new clip. The new clip will refer to the same audio file as the original clip, but will only contain the audio corresponding to the selection range. */

Working with regions.....228 regions

/* Regions are sections within a clip. One of the main uses for regions is Cycle recording, in which the different "takes" are stored as regions (see "Recording audio in cycle mode" on page 75). You can also use this feature for marking important sections in the audio clip. Regions can be dragged into the Project window from the Sample Editor or the Pool to create new audio events. From the Pool, you can also export a region to disk as a new audio file.

Regions are best created, edited and managed in the Sample Editor. */

Creating a region.....229 "creating a region"

- /* 1. Select the range that you want to convert into a region.
2. Click the "Show Regions" button on the toolbar, or activate the "Regions" option on the Elements submenu of the context menu.
- The regions list is displayed to the right in the Sample Editor window.
3. Click the Add Region button above the Regions list (or select "Event or Range as Region" from the Advanced submenu of the Audio menu).
- A region is created, corresponding to the selected range.
4. To name the region, double-click on it in the list and enter a new name.
- Regions can be renamed at any time, using this procedure.
- When a region is selected in the Regions list, it is instantly displayed and selected in the Sample Editor. */

Creating regions from Hitpoints.....229 "creating regions" Hitpoints

/* If your audio event contains calculated hitpoints, you can choose to automatically create regions from hitpoints. This can be useful to isolate recorded sounds. For further information on hitpoints, see "Working with hitpoints and slices" on page 234. */

Editing regions.....229

- /* The region selected in the list is displayed in gray in the waveform display and thumbnail.
- There are two ways to edit the start and end position of a region:
- Click and drag its start and end handles in the waveform display (with any tool).
- When you move the pointer over the handles, it will automatically change to an arrow pointer to indicate that you can drag the handles.
- Edit the Start and End positions numerically in the Regions list.
- The positions are shown in the display format selected for the ruler and info line, but are relative to the start of the audio clip, rather than the project timeline. */

Auditioning regions.....229 auditioning regions

/* You can listen to a region by selecting it in the list and clicking the Play Region button (above the list). The region will play back once or repeatedly, depending on whether the Loop icon on the toolbar is activated or not. */

Making selections from regions.....229 "making selections"

/ If you select a region in the list and click the Select Region button above, the corresponding section of the audio clip is selected (as if you had selected it with the Range Selection tool). This is useful if you want to apply processing to the region only.*

- Note that you can also double-click a region in the Pool to have its audio clip opened in the Sample Editor with the area of the region automatically selected. */*

Creating new events from regions.....229 "creating new events"

/ You can create new audio events from regions, using drag&drop:*

- 1. Click in the region's leftmost column in the list and keep the mouse button pressed.*
- 2. Drag the region to the desired position in the project and release the mouse button.*

A new event is created.

- You can also use the function "Events from Regions" from the Advanced submenu of the Audio menu for this (see "Region operations" on page 53). */*

Removing regions.....230 "removing regions"

/ To remove a region from a clip, select it in the list and click the Remove Region button above the list. */*

Exporting regions as audio files.....230 "exporting regions" "audio files"

/ If you create a region in the Sample Editor, the region can be exported to disk as a new audio file. This is done from the Pool, see "Exporting regions as audio files" on page 269. */*

Drawing in the Sample Editor.....230

/ It is possible to edit the audio clip at sample level by drawing with the Pencil tool. This can be useful if you need to manually edit out a spike or click, etc.*

- 1. Zoom in to a zoom value lower than 1.*

This means that there is more than one screen pixel per sample.

- 2. Select the Pencil tool.*
- 3. Click and draw at the desired position in the waveform display.*

When you release the mouse button, the edited section is automatically selected.

*! Any modifications created by drawing will appear in the Offline Process History, making it possible to undo them at a later stage (see "The Offline Process History dialog" on page 214). */*

Options and settings.....230

Show audio event.....230 "audio event"

/ ! This is only available if you opened the Sample Editor by double-clicking an audio event in the Project window or the Audio Part Editor and not, if you opened the audio event from within the Pool.*

When the Show Audio Event button is activated on the toolbar (or the option "Audio Event" is activated on the Elements submenu of the context menu), the section corresponding to the edited event is highlighted in the waveform display and Thumbnail. The sections of the audio clip not belonging to the event are shown with a dark gray background.

- In this mode, you can adjust the start and end of the event in the clip by dragging the event handles in the waveform display.*

*When you move the pointer over the event handles (no matter what tool may be selected), it takes on the shape of an arrow, to indicate that you can click and drag. */*

Snap.....230 Snap

/ Snap activated.*

The Snap function helps you to find exact positions when editing in the Sample Editor. It does this by restricting horizontal movement and positioning to certain grid positions. You turn Snap on or off by clicking the Snap button in the Sample Editor toolbar. This setting affects:

- Range operations*
- VariAudio modifications*
- AudioWarp modifications*

*This setting affects only the Sample Editor, and is independent of the Snap setting in the Project window toolbar or other editors. */*

Snap to Zero Crossing.....230 "Snap to Zero Crossing"

/ Snap to Zero Crossing activated.*

This setting is linked to the Snap to Zero Crossing setting in the Project window, see the section "Snap to Zero Crossing" on page 57.

*□ If hitpoints have been calculated, these will also be taken into account when snapping to zero crossings. */*

Autoscroll.....231

/ Autoscroll and Suspend Autoscroll when Editing activated.*

When this option is activated in the Sample Editor toolbar, the waveform display will scroll during playback, keeping the project cursor visible in the editor.

*This setting is independent of the Autoscroll setting in the Project window toolbar or other editors. You can find more information on this function in the section "Autoscroll" on page 57. */*

AudioWarp: Tempo matching audio.....231

/ AudioWarp is the generic name for the realtime time stretching and pitch shifting functions in Cubase. The main AudioWarp features are tempo-matching audio loops to the project tempo and matching up an audio clip with fluctuating tempo to a fixed tempo.*

If you want to tempo-match an audio loop to the project tempo, you will normally work with loops with straight beats. In this case you will only need to activate the Musical mode on the toolbar.

The Musical mode is one of the key AudioWarp features. It allows you to lock audio clips to the project tempo by using realtime time stretching. This is very useful if you want to use loops in your project and do not want to worry too much about timing.

When Musical mode is activated, audio events will adapt to any tempo changes in Cubase, just like MIDI events. However, using this function should not be confused with quantizing: the timing, i.e. the rhythmic feeling will be maintained.

You can activate Musical mode in the AudioWarp tab, in the Definition tab and in the toolbar.

It is also possible to activate/deactivate Musical mode from within the Pool by clicking the corresponding checkbox in the Musical mode column.

When you have correctly set a tempo or length for an audio clip, this information is saved with the project. This allows you to import files into the project with Musical mode already activated. The tempo (if set) is also saved when exporting files.

! Cubase supports ACID® loops. These loops are standard audio files but with embedded tempo/length information. When ACID® files are imported into Cubase, Musical mode is automatically activated and the loops will adapt to the tempo set in the project.

Proceed as follows to tempo match an audio loop to the project tempo:

- 1. Import your loop into the project and double-click it to open it in the Sample Editor.*
- 2. Activate the Musical mode in the toolbar.*

Your loop will automatically be adapted to the project tempo.

*As you can see, it is very easy to adapt audio loops to the project tempo. If you want to use an audio file with unknown tempo instead, or if the beat of your loop is not straight, further adjustments could be necessary. These are described in the following section. */*

Manually adjusting grid and tempo.....232

Selecting an algorithm for realtime playback.....234

Working with hitpoints and slices.....234

/ Hitpoint detection is a special feature of the Sample Editor. It detects attack transients in an audio file and then adds a type of marker, i.e. a "hitpoint", at each transient. These hitpoints allow you to create "slices", where each slice ideally represents each individual sound or "beat" in a loop (drum or other rhythmic loops work best with this feature). When you have successfully sliced the audio file, you can do a number of useful things with it:*

- Change the tempo without affecting the pitch.*
- Extract the timing (a groove map) from a drum loop. This can then be applied to quantize other events.*
- Replace individual sounds in a drum loop.*
- Edit the actual playing in the drum loop without affecting the basic feel.*
- Extract sounds from loops.*

You can further edit these slices in the Audio Part Editor. For example you can:

- Remove or mute slices.*
- Change the loop by reordering, replacing or quantizing slices.*
- Apply processing or effects to individual slices.*
- Create new files from individual slices using the "Bounce Selection" function on the Audio menu.*
- Realtime transpose and stretch slices.*
- Edit slice envelopes.*

□ The term "loop" is used throughout this section. Loop in this context usually means an audio file with a musical time base, i.e. the length of the loop represents a certain number of bars and/or beats at a certain tempo. Playing the loop back at the right tempo in a cycle set to the correct length will produce a continuous loop without gaps.

! When a selection range is defined, hitpoints will only be detected within this range.

*! Hitpoints will only be displayed in the waveform if the Hitpoints tab is open. */*

Using hitpoints.....235

/ The main functionality of using hitpoints to slice up a loop is to make a loop fit the tempo of a song, or alternatively to create a situation that allows the song tempo to be changed while retaining the timing of a rhythmic audio loop, just like when using MIDI files. */*

Which audio files can be used?.....235

Calculating hitpoints and slicing a loop.....235

Setting hitpoints manually.....236

Match-quantizing audio.....237

Creating groove quantize maps.....237

Other hitpoint functions.....238

/ On the Hitpoints tab of the Sample Editor Inspector and on the various submenus of the Audio menu, you will also find the following functions: */*

Create Markers.....238

Create Regions.....238 "Create Regions"

/ If your audio event contains calculated hitpoints, you can click the Create Regions button on the Hitpoints tab to automatically create regions from hitpoints. This can be useful to isolate recorded sounds, in order to upload them, e.g. to HALion either as velocity or keyzones.*

*When you make a selection, regions will only be calculated from the hitpoints that are contained in the selection. */*

Create Events.....238 "Create Events"

/ When you wish to create separate events according to the hitpoints for a file, you can click on the Create Events button in the Hitpoints tab. This means that you do not have to make the same considerations as when slicing for tempo changes. You can use any method you like to set hitpoints.*

- The slices created will appear in the Project window as separate events. */*

Close Gaps.....238

Free Warp.....238

/ The Free Warp tool allows you to create Warp tabs. Warp tabs are a kind of marker or anchor that can be attached to musically relevant time positions in an audio event, for example the first beat of every bar. Warp tabs can be dragged to the corresponding time positions in the project, and the audio will be stretched accordingly.*

A typical application of warp tabs is to use them to synchronize audio to video.

! If the AudioWarp tab is open, warp tabs will be displayed in the waveform and if the VariAudio tab is open, they will be displayed in the ruler.

You can also use warp tabs for further tweaking after having activated Musical mode.

*! When you deactivate the Musical mode, select another Quantize value or move the Swing slider, all your warp modifications will be lost. */*

Using the Free warp tool.....239

/ Warp tabs are created using the Free Warp tool on the AudioWarp tab of the Sample Editor, but can also be created from hitpoints (see "Creating warp tabs from hitpoints" on page 241). In this example, we will show how a file with slightly varying tempo can be locked to a steady tempo by using warp tabs.*

*... */*

Editing warp tabs.....240

Moving the destination of existing warp tabs.....240

Moving the insert position of existing warp tabs.....241

Bypassing warp tabs.....241

Deleting warp tabs.....241

Resetting warp modifications.....241

Creating warp tabs from hitpoints.....241

Flattening the realtime processing.....241

/ You can "flatten" the realtime processing at any time. This can be done to serve two purposes; to reduce the CPU load and to optimize the sound quality of the processing. The flatten function takes the following into account:*

- Warp modifications (see "Free Warp" on page 238 and "Warping segments" on page 250), even when Bypass is activated. After the flattening, your Warp tabs will be lost. However, you can undo this function as usual.*
- VariAudio pitch modifications (see "Changing the pitch" on page 247), even when Bypass is activated. In this case, the Realtime algorithm (Solo preset) will be used. After the flattening, your VariAudio data will be lost. However, you can undo this operation.*
- Event transpose (see "Transposing individual parts or events using the info line" on page 106).*
- Select the audio event(s) you wish to process and select "Flatten" from the Realtime Processing submenu of the Audio menu.*

You should also use this function before applying any offline processing. When the flatten processing is applied, a copy of the

*original file is automatically created in the Pool so that the original audio clip remains intact. */*

Selecting an algorithm for the flattening (Cubase only).....241
Unstretching audio files.....242

/ By selecting "Unstretch Audio" from the Realtime Processing submenu of the Audio menu, all realtime time stretching (by sizing or by warp tabs) is removed.*

□ Note that realtime transpose (in the info line) and Musical mode will not be removed by this.

Whether the "Unstretch Audio" menu item is available depends on whether the time stretching was applied at the event or clip level:

- If you sized an audio event in the Project window using "Sizing Applies Time Stretch" (see "Resizing events using time stretch" on page 47), you can undo the time stretching by selecting the event in the Project window and then applying "Unstretch Audio".*

This will remove all time stretching and warp tabs.

- When you have entered a tempo and/or length in the toolbar, this information is saved for the source clip and all events that use it.*

*These changes will not be undone using "Unstretch Audio". */*

VariAudio (Cubase only).....243

/ □ Before you continue, make sure you read the tutorial in the Getting Started manual.*

With the AudioWarp features, editing audio in the time domain has become significantly easier. However, editing pitch was limited to having just one single numeric "transpose" value per event or part.

With cutting-edge technology Cubase finally turns the dreams of musicians and producers into reality: editing vocal lines in the Sample Editor has become just as seamless and quick as if editing MIDI notes in the renowned Key Editor. This is the new VariAudio feature that offers completely integrated vocal editing and pitch alteration of individual notes in monophonic vocal recordings and can solve intonation and timing problems with only a few mouse clicks.

And how does it work? First, the vocal line is analyzed and split into segments shown as graphic representation of the notes sung. After the detection process is complete, the recognized notes can be modified entirely "non-destructive" so that any modifications to the audio material can be undone or reverted to the state of the original file.

VariAudio was developed and optimized specifically to be used with monophonic vocal recordings. Though the detection and stretching of notes of other monophonic audio recordings, such as those of a saxophone, may work well, the quality of the end result depends greatly on the generic condition and structure of the recording's texture. The following sections explain the exciting functionality of VariAudio in which we only refer to monophonic vocal material.

VariAudio allows you to change your audio on the vertical axis (see "Changing the pitch" on page 247) and on the horizontal axis (see "Warping segments" on page 250).

*□ If you load projects with VariAudio files in Cubase Studio, the original files will be played back and your VariAudio modifications will be ignored. If you want to hear your modifications in Cubase Studio, you will have to bounce the audio files that have been edited with the Cubase VariAudio features. */*

Understanding the waveform display in VariAudio.....	243	"waveform display"
Applying editing, offline processes and VariAudio.....	245	
Segments mode.....	245	
Changing the note start or end point.....	246	
Cutting a segment.....	246	
Gluing a segment.....	246	
Moving a segment horizontally.....	247	
Deleting segments.....	247	
Saving the segmentation.....	247	
Pitch & Warp mode.....	247	
Changing the pitch.....	247	
Pitch Quantize.....	248	

	Tilting the micro-pitch curve.....	248
	Straighten Pitch.....	249
	MIDI Input.....	249
	Warping segments.....	250
	Editing Warp tabs.....	251
	Reset.....	252
	Listening to your modifications.....	252 "Acoustic Feedback"
 <i>/* You can listen to the results of your modifications using the following methods:</i>		
 <i>• By activating Acoustic Feedback on the toolbar.</i>		
 <i>The segments will be played back when you adjust the pitch or while nudging, navigating and selecting segments. This way you can easily audition your modifications while editing.</i>		
 <i>• By using the Play tool on the toolbar.</i>		
 <i>• By using the Audition and the Audition Loop tool on the toolbar.</i>		
 <i>• By using cycle playback in the Project window.</i>		
 <i>If you want to compare the original to the modified audio (i.e. hear the audio without pitch or warp modifications), you have the following possibilities:</i>		
 <i>• You can disable your pitch modifications by activating the Disable Pitch Changes button in the VariAudio tab or by setting up and using the "VariAudio: Disable Pitching" key command in the Key Commands dialog, Sample Editor category (see "Key commands" on page 479).</i>		
 <i>• You can disable your warp modifications by activating the Disable Warp Changes button in the AudioWarp tab or by setting up and using the "Disable Warping" key command in the Key Commands dialog, Sample Editor category (see "Key commands" on page 479).</i>		
<i>*/</i>		
	Functions - Extract MIDI.....	252
17 The Audio Part Editor.....	254 "Audio Part Editor"	
Background.....	255	
 <i>/* The Audio Part Editor allows you to view and edit the events inside audio parts. Essentially, this is the same type of editing that you do in the Project window, which means that this chapter contains a lot of references to the chapter "The Project window" on page 25.</i>		
 <i>Audio parts are created in the Project window in one of the following ways:</i>		
 <i>• By selecting one or several audio events on the same track, and selecting "Events to Part" from the Audio menu.</i>		
 <i>• By gluing together two or more audio events on the same track with the Glue Tube tool.</i>		
 <i>• By drawing an empty part with the Pencil tool.</i>		
 <i>• By double-clicking between the left and right locator on an audio track.</i>		
 <i>With the last two methods, an empty part is created. You can then add events to the part by pasting, or by using drag and drop from the Pool. */</i>		
	Opening the Audio Part Editor.....	255 "Audio Part Editor"
 <i>/* You open the Audio Part Editor by selecting one or more audio part(s) in the Project window and double-clicking on any one of them (or using the Edit-Open key command, by default [Ctrl]/[Command]-[E]). The Audio Part Editor can display several parts at once, and you can also have more than one Audio Part Editor open at the same time.</i>		
 <i>□ Double-clicking on an audio event in the Project window will open the Sample Editor (see "Opening the Sample Editor" on page 220). */</i>		
	Window overview.....	255
	The toolbar.....	255

/ The tools, settings and icons on the toolbar have the same functionality as in the Project window, with the following differences:*

- A Solo button (see "Auditioning" on page 257).*
- Separate tools for auditioning (Speaker) and scrubbing (see "Scrubbing" on page 257).*
- No Line, Glue Tube or Color tools.*
- Play and Loop icons and an Audition Volume control (see "Auditioning" on page 257).*
- Independent Track Loop settings (see "The independent track loop function" on page 257).*
- Part List controls for handling several parts: activating parts for editing, restricting editing to active parts only and showing part borders (see "Handling several parts" on page 258).*

□ You can customize the toolbar by hiding or reordering its items.

*See "Using the Setup options" on page 471. */*

The ruler and info line.....255 "info line"

/ These have the same functionality and appearance as their counterparts in the Project window.*

- You can select a separate display format for the Audio Part Editor ruler by clicking on the arrow button on the right and selecting an option from the pop-up menu.*

*For a list of the available formats, see "The ruler" on page 33. */*

About lanes.....256 lanes

/ If you make the editor window larger, this will reveal additional space below the edited events. This is because an audio part is divided vertically in lanes.*

Lanes

Lanes can make it easier to work with several audio events in a part:

In the upper figure it is unnecessarily hard to discern, select and edit the separate events. In the lower figure, some of the events have been moved to another lower lane, making selection and editing much easier.

- To move an event to another lane without accidentally moving it horizontally, press [Ctrl]/[Command] and drag it up or down.*

*This is the default modifier key for this - you can adjust this in the Preferences if you like. */*

Overlapping events.....256 "overlapping events"

/ Only one event per track can be played back at the same time! This means that if you have overlapping events (on the same lane or different lanes) these will cut each other off, according to the following rules:*

- For events on the same lane, the ones that are on top (visible) will be played.*

To move overlapping events to the front or back, use the Move to Front and Move to Back functions on the Edit menu.

- For events on different lanes, the event on the lowest lane gets playback priority.*

The overlapping sections of the upper event will not be played since the event on the lower lane has playback priority!

Imagine the following situation: You have two overlapping audio events, with the top event audible during playback. What happens when you mute the audible event?

- By default, you will not hear the overlapped event when muting an event that has playback priority over another event.*

This default behavior ensures that you do not suddenly hear audio events that previously were not part of your mix.

- In the Preferences dialog (Editing-Audio page) you will find the option "Treat Muted Audio Events like Deleted". When you activate this option, any events overlapped by a muted event will become audible. */

Operations.....257

/* ! Zooming, selecting and editing in the Audio Part Editor are done just as in the Project window (see "Operations" on page 34).

- Note that if a part is a shared copy (i.e. you have previously copied the part by [Alt]/[Option]-[Shift] and dragging), any editing you perform will affect all shared copies of this part.

To indicate that it is a shared copy, its name is displayed in italics and a symbol is displayed in the lower right corner of the part in the Project window. */

Auditioning.....257 auditioning

/* There are three ways to listen to the events in the Audio Part Editor: */

By using the Speaker tool.....257 "Speaker tool"

/* If you click somewhere in the editor's event display with the Speaker tool and keep the mouse button pressed, the part will be played back from the position where you clicked. Playback will continue until you release the mouse button. */

By using the Audition icon.....257 "Audition icon"

/* The Audition and Audition Loop icons.

Clicking the Audition icon on the toolbar plays back the edited audio, according to the following rules:

- If you have selected events in the part, only the section between the first and last selected event will be played back.
- If you have made a range selection, only this section will be played back.
- If there is no selection, the whole part will be played back. If the project cursor is within the part, playback starts from the current cursor position. If the cursor is outside the part, playback starts from the beginning of the part.
- If the Audition Loop icon is activated, playback will continue until you deactivate the Audition icon. Otherwise, the section will be played back once.
- When auditioning with the Speaker tool or Audition icon, audio will be routed directly to the Control Room (Cubase only) or to the Main Mix (the default output bus) if the Control Room is disabled. In Cubase Studio, the Main Mix bus is always used for auditioning. */

By using regular playback.....257 "regular playback"

/* You can of course use the regular playback controls while in the Audio Part Editor. Furthermore, if you activate the Solo Editor button on the toolbar, only the events in the edited part will be played back. */

The independent track loop function.....257 "independent track loop function"

/* The independent track loop is a sort of "mini-cycle", affecting only the edited part. When the loop is activated, the events in the parts that are within the loop will be repeated continuously and completely independent - other events (on other tracks) are played back as usual. The only "interaction" between the loop and the "regular playback" is that the loop starts every time the cycle starts over again.

To set up the independent track loop, proceed as follows:

1. Turn on the loop by clicking the Independent Track Loop button on the toolbar.

If it is not visible, right-click the toolbar and add the Independent Track Loop Settings section - see "Using the Setup options" on page 471.

When the loop is activated, the cycle is not shown in the editor's ruler. Now you need to specify the length of the loop:

2. [Ctrl]/[Command]-click in the ruler to set the start and [Alt]/[Option]-click to set the end of the loop.

You can also edit the loop start and end positions numerically in the fields next to the Loop button.

The loop is indicated in purple in the ruler.

□ The events will be looped as long as the Loop button is activated and the Audio Part Editor window is open. */

Scrubbing.....257 scrubbing

/* In the Audio Part Editor, the Scrub tool has a separate icon on the toolbar. Apart from that, scrubbing works exactly as in the Project window (see "Scrubbing" on page 43). */

Handling several parts.....258 "handling several parts"

/* When you open the Audio Part Editor with several parts selected - all on the same track or on different tracks - they might not all "fit" in the editor window, which can make it hard to get an overview of the different parts when editing.

Therefore, the toolbar features a few functions to make working with multiple parts easier and more comprehensive:

- The Part List menu lists all parts that were selected when you opened the editor, and lets you select which part should be active for editing.

When you select a part from the list, it is automatically made active and centered in the display.

□ Note that it is also possible to activate a part by clicking on it with the Arrow tool.

- The button "Edit Active Part Only" lets you restrict editing operations to the active part only.

If you for example select "All" from the Select submenu on the Edit menu with this option activated, all events in the active part will be selected but not the events in other parts.

"Edit Active Part Only" activated on the toolbar.

- You can zoom in on an active part so that it fills the screen by selecting "Zoom to Event" from the Zoom submenu on the Edit menu.

• The button "Show Part Borders" can be used if you want to see clearly defined borders for the active part. When this is activated, all parts except the active one are grayed out, making the borders easily discernible. There are also two "markers" in the ruler with the name of the active part, marking its beginning and end. These can be moved freely to change the part borders.

"Show Part Borders" activated on the toolbar.

- It is possible to cycle between parts, making them active using key commands.

In the Key Commands dialog - Edit category, there are two functions: "Activate Next Part" and "Activate Previous Part". If you assign key commands to these, you can use them to cycle between parts. See "Setting up key commands" on page 480 for instructions on how to set up key commands. */

Common methods.....258

Assembling a "perfect take".....258 "perfect take"

/* When you record audio in Cycle mode, either an event or a region (or both) is created for each recorded lap (see "Recording audio in cycle mode" on page 75). These events and regions are named "Take X", where "X" is the number of the take. You can create a perfect take by putting together sections of the different takes in the Audio Part Editor.

□ The procedure below will not work if you recorded with "Keep Last" mode selected on the Transport panel.

In that case, only the last take will be kept on the track (although the previous takes will be available as regions in the Pool).

First, you have to create an audio part from the takes. This procedure is slightly different depending on whether you choose to create events or regions. */

Creating an audio part from events.....258 "creating an audio part"

/ 1. In the Project window, use the Object Selection tool to draw a rectangle around the recorded events.*

This is necessary, since clicking on the event may just select the event on top (the last take). If in doubt, check the info line - the info text should be yellow.

2. Pull down the Audio menu and select "Events to Part".

The events are converted to an audio part.

*• Note that the events cycle record mode also makes it easy to combine different takes in the Project window - see "Create Events mode (Preferences)" on page 76. */*

Creating an audio part from regions.....259 "creating an audio part"

/ 1. In the Project window, select the event you recorded in Cycle mode.*

After recording, this will play the last take.

2. Pull down the Audio menu and select "Events to Part".

You are asked whether you want to "Create part using regions".

3. Click "Regions".

*The regions are converted to an audio part. */*

Assembling a take.....259 take

/ 1. Double-click the part to open the Audio Part Editor.*

Now, the different takes will be placed on different lanes, with the last take at the bottom.

2. Use the tools to cut out pieces of the takes and assemble the final result.

This can include splitting with the Scissors tool, resizing events with the Arrow tool or deleting with the Eraser tool.

• Remember that the events on the lowest lane have playback priority.

Use the Audition icon to audition the result.

3. Close the Audio Part Editor.

*You have now assembled a "perfect take"! */*

Options and Settings.....259 settings

/ The following options and settings are available in the Audio Part Editor:*

• Snap

You can specify an independent Snap mode (and snap value for the Grid mode) in the editor. The functionality is exactly the same as in the Project window.

• Autoscroll

When Autoscroll is activated on the toolbar, the window will scroll during playback, keeping the project cursor visible in the editor. This setting can be activated or deactivated individually for each window.

• Snap to Zero Crossing

*When this option is activated, all audio edits are done at zero crossings (positions in the audio where the amplitude is zero). This helps you avoid pops and clicks which might otherwise be caused by sudden amplitude changes. */*

18 The Pool.....260 Pool
Background.....261

/ Every time you record on an audio track, a file is created on your hard disk. A reference to this file - a clip - is also added to the Pool. Two general rules apply to the Pool:*

- All audio and video clips that belong to a project are listed in the Pool.*
- There is a separate Pool for every project.*

The way the Pool displays folders and their contents is similar to the way the Mac OS X Finder and the Windows Explorer display folders and lists of files.

*In the Pool you can, among other things, perform the following operations: */*

Operations that affect files on disk.....261 "files on disk"

/ • Importing clips (audio files can automatically be copied and/or converted)*

- Converting file formats.*
- Renaming clips (this will also rename the referenced files on disk) and regions*
- Deleting clips*
- Preparing file archives for backup*
- Minimizing files */*

Operations that only affect clips.....261 clips

/ • Copying clips*

- Auditioning clips*
- Organizing clips*
- Applying audio processing to clips*
- Saving or importing complete Pool files */*

Opening the Pool.....261 Pool

/ You can open the Pool in any of the following ways:*

- By clicking the Open Pool button on the Project window toolbar.*
- By selecting "Pool" on the Project menu or "Open Pool Window" on the Media menu.*
- By using a key command (by default [Ctrl]/[Command]- [P] - note that using this key command a second time will close the Pool again).*

The content of the Pool is divided into three main folders:

- The Audio folder*

This contains all audio clips and regions currently in the project.

- The Video folder*

This contains all video clips currently in the project.

- The Trash folder*

Unused clips can be moved into the Trash folder for later permanent removal from the hard disk.

*These folders cannot be renamed or deleted from the Pool, but any number of subfolders can be added (see "Organizing clips and folders" on page 270). */*

Window overview.....261

/ Toolbar
Audio folder
Video folder
Trash folder
Audio clip
Region
Waveform image */*

Toolbar overview.....261

/ Show Info button
Audition, Audition Loop, and Volume controls
View/Attributes pop-up
Open/Close all folders
Import and Search buttons
Project Folder path
Pool Record Folder path */*

The info line.....262 "info line"

/ Click the "Show Info" button on the toolbar to show or hide the info line at the bottom of the Pool window. It shows the following information:*

*Number of audio files in the Pool
Number of audio files in use
Total size of all audio files in the Pool
Number of files in the Pool that are not in the project folder (e.g. video files) */*

How clips and regions are displayed in the Pool.....262 clips regions Pool

/ • Audio clips are represented by a waveform icon followed by the clip name.*

• Audio regions are represented by a region icon followed by the region name.

*• Video clips are represented by a camera icon followed by the clip name. */*

The Pool window columns.....262

/ Various information about the clips and regions can be viewed in the Pool window columns. The columns contain the following information:*

Column Description

Media This column contains the Audio, Video and Trash folders. If the folders are opened, the clip or region names are shown and can be edited. This column is always shown.

Used This column displays the number of times a clip is used in the project. If there is no entry in this column, the corresponding clip is not used.

Status This column displays various icons that relate to the current Pool and clip status. See "About the Status column symbols" on page 262 for a description of the icons.

Musical Mode The checkbox in this column allows you to activate or deactivate Musical Mode. If the Tempo column (see below) displays "???", you have to enter the correct tempo before you can activate Musical Mode.

Tempo This shows the tempo of audio files, if available. If no tempo has been specified, the column displays "???".

Sign. This is the time signature, e.g. "4/4".

Key This is the root key, if one was specified for the file.

Info This column shows the following information for audio clips: The sample rate, bit resolution, number of channels and the length in seconds. For regions, it displays start and end times in frames, and for video clips the frame rate, number of frames, and length

in seconds.

Type This column shows the file format of the clip.

Date This column shows the date and time when the audio file was last changed.

Origin Time This column shows the original start position where a clip was recorded in the project. As this value can be used as a basis for the option "Insert into Project" in the Media or context menu (and other functions), you can change it if the Origin Time value is independent (i.e. not for regions). This can either be done by editing the value in the column, or by selecting the corresponding clip in the Pool, moving the project cursor to the new desired position and selecting "Update Origin" from the Audio menu.

Image This column displays waveform images of audio clips or regions.

Path This column shows the path to the location of a clip on the hard disk.

*Reel Name If you have imported an OMF file (see "Exporting and importing OMF files (Cubase only)" on page 462), it may include this attribute, which is then shown in this column. The Reel Name describes the "physical" reel or tape from which the media was originally captured. */*

About the Status column symbols.....262

/ The Status column can display various symbols that relate to the clips status. The following symbols can be shown:*

Symbol Description

Record This indicates the current Pool Record folder (see "Changing the Pool Record folder" on page 269).

Waveform This symbol is shown if a clip has been processed.

? The question mark indicates that a clip is referenced in the project but missing from the Pool (see "About missing files" on page 266).

X This indicates that the clip file is external, i.e. located outside the current Audio folder for the project.

*R This indicates that the clip has been recorded in the currently open version of the project. This is useful for finding recently recorded clips quickly. */*

Sorting the Pool contents.....263 "Pool contents"

/ You can sort the clips in the Pool by name, date etc. This is done by clicking on the corresponding column heading. Clicking again on the same heading switches between ascending and descending sort order.*

*The arrow indicates the sort column and sort order. */*

Customizing the view.....263

/ • You can specify which of the columns are shown or hidden by opening the View/Attributes pop-up menu on the toolbar and selecting/deselecting items.*

• You can rearrange the order of the columns by clicking on a column heading and dragging the column to the left or right.

The mouse pointer changes to a hand when you place it on the column heading.

• The width of a column can also be adjusted by placing the pointer between two column headers and dragging left or right.

*The pointer changes to a divider when you place it between two column headers. */*

Operations.....263

/ □ Most of the Pool-related main menu functions are also available on the Pool context menu (opened by right-clicking in the Pool window).*/*

Renaming clips or regions in the Pool.....263 "renaming clips" "renaming regions" Pool

/ To rename a clip or a region in the Pool, select it and click on the existing name, type in a new name and press [Return].*

.. This will also rename the referenced files on disk!

*! Renaming a clip in the Pool is much preferred to renaming it outside Cubase (for example on the computer desktop). This way, Cubase already "knows" about the change, and will not lose track of the clip the next time you open the project. See "About missing files" on page 266 for details about lost files. */*

Duplicating clips in the Pool.....263

/ To duplicate a clip, proceed as follows:*

- 1. Select the clip you wish to copy.*
- 2. Select "New Version" on the Media menu.*

A new version of the clip appears in the same Pool folder, with the same name but with a "version number" after it, to indicate that the new clip is a duplicate. The first copy made of a clip will get the version number "2" and so on. Regions within a clip are copied too, but keep their name.

*! Duplicating a clip does not create a new file on disk, but a new edit version of the clip (referring to the same audio file). */*

Inserting clips into a project.....263 "inserting clips into a project"

/ To insert a clip into a project, you can either use the Insert commands on the Media menu or use drag and drop. */*

Using menu commands.....263

/ Proceed as follows:*

- 1. Select the clip(s) you want to insert into the project.*
- 2. Pull down the Media menu and select an "Insert into Project" option.*

"At Cursor" will insert the clip(s) at the current project cursor position. "At Origin" will insert the clip(s) at their Origin Time position(s).

- Note that the clip will be positioned so that its snap point is aligned with the selected insert position.*

You can also open the Sample Editor for a clip by double-clicking it, and perform the insert operation from there. This way you can set the snap point before inserting a clip.

- 3. The clip is inserted on the selected track or on a new audio track.*

*If several tracks are selected, the clip will be inserted on the first selected track. */*

Using drag and drop.....264

/ When using drag and drop to insert clips into the Project window, please note the following:*

- Snap is taken into account if activated.*
- While you drag the clip in the Project window, its position is indicated by a marker line and a numerical position box.*

Note that these indicate the position of the snap point in the clip. For example, if you drop the clip at the position 10.00, this will be where the snap point ends up. See "Adjusting the snap point" on page 226 for information on how to set the snap point.

Snap point

- If you position the clip in an empty area in the event display (i.e. below existing tracks), a new track is created for the inserted event. */*

Deleting clips.....264 "deleting clips"
Removing clips from the Pool.....264

/ To remove a clip from the Pool without deleting it from the hard disk, proceed as follows:*

1. Select the clip(s) and select "Delete" from the Edit menu (or press [Backspace] or [Delete]).

A prompt asks whether you want to move the clip to the Trash or remove it from the Pool.

• If you try to delete a clip that is used by one or more events, the program will ask you whether to remove these events from the project.

If you cancel, neither the clip nor the associated events are deleted.

2. In the window that appears, select "Remove from Pool".

*The clip is no longer associated with the project, but still exists on the hard disk and can be used in other projects, etc. This operation can be undone. */*

Deleting from the hard disk.....264

/ To delete a file permanently from the hard disk, it must first be moved to the Trash folder:*

1. Follow the instructions for deleting clips above, but click the Trash button instead of the Remove from Pool button.

Alternatively, you can drag and drop clips into the Trash folder.

2. On the Media menu, select "Empty Trash".

A warning message is displayed.

3. Click "Erase" to delete the file on the hard disk permanently.

This operation cannot be undone!

! Before you permanently delete audio files from the hard disk, make sure that they are not used by another project!

*□ To retrieve a clip or region from the Trash folder, drag it back into an Audio or Video folder. */*

Removing unused clips.....264

/ This function finds all clips in the Pool that are not used in the project. You can then decide whether to move them to the Trash folder (from where they can be permanently deleted) or to remove them from the Pool:*

1. Select "Remove Unused Media" on the Media or context menu.

A message appears asking you whether you want to move the file to the Trash or to remove it from the Pool.

*2. Make your selection. */*

Removing regions.....265

/ To remove a region from the Pool, select it and select "Delete" from the Edit menu (or press [Backspace] or [Delete]).*

*□ For regions there is no alert if the region is used in the project! */*

Locating events and clips.....265 "locating events" "locating clips"

Locating events via clips in the Pool.....265

/ If you want to find out which events in the project refer to a particular clip in the Pool, proceed as follows:*

1. Select one or more clips in the Pool.

2. Select "Select in Project" on the Media menu.

*All events that refer to the selected clip(s) are now selected in the Project window. */*

Locating clips via events in the Project window.....265

/ If you want to find the clips events in the Project window, proceed as follows:*

- 1. Select one or more events in the Project window.*
- 2. Pull down the Audio menu and select "Find Selected in Pool".*

*The corresponding clip(s) are located and highlighted in the Pool. */*

Searching for audio files.....265

/ The search functions can help you locate audio files in the Pool, on your hard disk or on other media. This works much like the regular file search, but with a couple of extra features:*

- 1. Click the Search button in the toolbar.*

A search pane appears at the bottom of the window, displaying the search functions.

The search pane in the Pool

By default, the search parameters available in the search pane are "Name" and "Location". For using other filter criteria, see "Extended Search functionality" on page 265.

- 2. Specify the name of the file(s) to search for in the Name field.*

You can use partial names or wildcards (). Note that only audio files of the supported formats will be found.*

- 3. Use the Location pop-up menu to specify where to search.*

The pop-up menu will list all your local drives and removable media.

• If you want to limit the search to certain folders, choose "Select Search Path" and select the desired folder in the dialog that appears.

The search will include the selected folder and all subfolders. Note also that folders you have recently selected using the "Select Search Path" function will appear on the pop-up menu, allowing you to quickly select them again.

- 4. Click the Search button.*

The search is started and the Search button is labeled Stop - click this to cancel the search if needed.

When the search is finished, the files found are listed to the right.

• To audition a file, select it in the list and use the playback controls to the left (Play, Stop, Pause and Loop).

If Auto Play is activated, selected files will automatically be played back.

• To import a file into the Pool, double-click on it in the list or select it and click the Import button.

- 5. To close the search pane, click the Search button in the toolbar again. */*

Extended Search functionality.....265

/ Apart from the search criterion Name, additional search filters are available. The Extended Search options allows for a very detailed search, helping you to master even the largest sound database.*

To use them, proceed as follows:

- 1. Click the Search button on the toolbar.*

The Search pane is displayed in the lower part of the Pool window.

- 2. Move the mouse pointer over the "Name" text to the right of the name field and click on the arrow that appears.*

Move the mouse pointer over the "Name" text to the right of the name field and click...

...to show the Extended Search pop-up menu.

3. The Extended Search pop-up menu opens.

It contains six options determining which search criterion is displayed above the Location field (Name, Size, Bitsize, Channels, Sample Rate or Date), as well as the Add Filter and Presets submenus.

The search criteria have the following parameters:

- Name: partial names or wildcards (*)
- Size: Less than, More than, Equal, Between (two values), in seconds, minutes, hours and bytes
- Bitsize (resolution): 8, 16, 32, 64
- Channels: Mono, Stereo and from 3 to 16
- Sample Rate: various values, choose "Other" for free setting
- Date: various search ranges

4. Select one of the search criteria in the pop-up menu to change the search option above the Location pop-up menu.

5. If you want to display more search options, select the desired element from the "Add filter" submenu.

This allows you, for example, to add the Size or the Sample Rate parameters to the already displayed Name and Location parameters.

- You can save presets of your search filter settings. To do this, click Save Preset on the Presets submenu and enter a name for the preset.

Existing presets can be found at the bottom of the list. To remove a preset, click on the preset to activate it, then select Remove Preset. */

The Find Media window.....266

/* Alternatively to the search pane in the Pool, you can open a stand-alone Find Media window by selecting the "Search Media..." option from the Media or context menu (also available from the Project window). This offers the same functionality as the search pane.

- To insert a clip or region directly into the project from the Find Media window, select it in the list and choose one of the "Insert into Project" options from the Media menu.

The options are described in the section "Inserting clips into a project" on page 263. */

About missing files.....266

/* When you open a project, the Resolve Missing Files dialog (see below) may open, warning you that one or more files are "missing". If you click Close, the project will open anyway, without the missing files. In the Pool, you can check which files are considered missing. This is indicated by a question mark in the Status column.

A file is considered missing under one of the following conditions:

- The file has been moved or renamed outside the program since the last time you worked with the project, and you ignored the Resolve Missing Files dialog when you opened the project for the current session.
- You have moved or renamed the file outside the program during the current session.
- You have moved or renamed the folder in which the missing files are located. */

Locate missing files.....267

/* 1. Select "Find Missing Files" from the Media or context menu.

The Resolve Missing Files dialog opens.

2. Decide if you want the program to try to find the file for you (Search), if you want to do it yourself (Locate) or if you want to specify in which directory the program should search for the file (Folder).

- If you select Locate, a file dialog opens, allowing you to locate the file manually.

Select the file and click "Open".

- If you select Folder, a dialog opens to let you specify the directory in which the missing file can be found.

This might be the preferred method if you have renamed or moved the folder containing the missing file, but the file still has the same name. Once you select the correct folder, the program finds the file and you can close the dialog.

- If you select Search, a dialog opens to let you specify which folder or disk should be scanned by the program.

Click the Search Folder button, select a directory or a disk and click the Start button. If found, select the file from the list and click "Accept". Afterwards Cubase tries to map all other missing files automatically. */

Reconstructing missing edit files.....267

/* If a missing file cannot be found (e.g. if you have accidentally deleted it from the hard disk), it will normally be indicated with a question mark in the Status column in the Pool. However, if the missing file is an edit file (a file created when you process audio, stored in the Edits folder within the project folder), it may be possible for the program to reconstruct it by recreating the editing to the original audio file.

Proceed as follows:

1. Open the Pool and locate the clip(s) for which files are missing.
2. Check the Status column - if it says "Reconstructible", the file can be reconstructed by Cubase.
3. Select the reconstructible clips and select "Reconstruct" from the Media menu.

The editing is performed and the edit files are recreated. */

Removing missing files from the Pool.....267

/* If the Pool contains audio files that cannot be found or reconstructed, you may want to remove these. For this, select "Remove Missing Files" from the Media or context menu. This will remove all missing files from the Pool as well as the corresponding events from the Project window. */

Auditioning clips in the Pool.....267 auditioning clips Pool

/* There are three ways to audition clips in the Pool:

- By using key commands.

If you activate the "Playback Toggle triggers Local Preview" option in the Preferences (Transport page), you can use [Space] to audition. This is the same as clicking the Audition icon on the toolbar.

- By selecting a clip and activating the Audition button.

The whole clip will play back, unless you stop playback by clicking the Audition button again.

- By clicking somewhere in the waveform image for a clip.

The clip will play from the position in the waveform you click until the end of the clip, unless you stop playback by clicking the Audition button, or by clicking anywhere else in the Pool window.

Click in the waveform image to audition a clip.

The audio is routed directly to the Control Room, if activated (Cubase only). When the Control Room is deactivated, the audio is routed to the Main Mix (the default output) bus, bypassing the audio channel's settings, effects and EQs. In Cubase Studio, the Main Mix bus is always used for auditioning.

□ You can adjust the auditioning level with the miniature level fader on the toolbar. This does not affect the regular playback level.

If you have activated the Audition Loop button before you audition, the following will happen:

- When you click the Audition button to audition a clip, the clip is repeated indefinitely until you stop playback by clicking the Audition or Audition Loop button again.

- When you click in the waveform image to audition, the section from the point you clicked to the end of the clip is repeated indefinitely until you stop playback. */

Opening clips in the Sample Editor.....268 "opening clips" "Sample Editor"

/* The Sample Editor allows you to perform detailed editing on the clip (see "The Sample Editor" on page 219). You can open clips in the Sample Editor directly from the Pool in the following ways:

- If you double-click a clip waveform icon or a clip name in the Media column, the clip opens in the Sample Editor.
- If you double-click a region in the Pool, its clip opens in the Sample Editor with the region selected.

One practical use for this is to set a snap point for a clip (see "Adjusting the snap point" on page 226). When you later insert the clip from the Pool into the project, you can have it be properly aligned according to the set snap point. */

About the Import Medium dialog.....268 "Import Medium dialog"

/* The Import Medium dialog lets you import files directly into the Pool. It is opened from the Media or context menu or using the Import button in the Pool window.

This is a standard file dialog, where you can navigate to other folders, audition files, etc. The following audio file formats can be imported:

- Wave (Normal or Broadcast, see "Broadcast Wave files" on page 424)
- AIFF and AIFC (Compressed AIFF)
- REX or REX 2 (see "Importing ReCycle files" on page 461)
- Dolby Digital AC3 file (ac3 - if you have the Steinberg Dolby Digital Encoder installed in your system) - Cubase only
- DTS file (dts - if you have the Steinberg DTS Encoder installed in your system) - Cubase only
- SD2 (Sound Designer II)
- MPEG Layer 2 and Layer 3 (mp2 and mp3 files - see "Importing compressed audio files" on page 461)
- Ogg Vorbis (ogg files - see "Importing compressed audio files" on page 461)
- Windows Media Audio (Windows - see "Importing compressed audio files" on page 461)
- Wave 64 (w64 files - Cubase only)

They may have the following characteristics:

- Stereo or mono
- Any sample rate (although files with another sample rate than the one used in the project will play back at the wrong speed and pitch - see below).
- 8, 16, 24 bit or 32 bit float resolution

The following videos formats can also be imported:

- AVI (Audio Video Interleaved)
- MOV and QT (QuickTime)
- WMV (Windows only)
- DV (Mac OS X only)
- MPEG 1 and 2 video files

! For video files to be played back correctly, the right codecs have to be installed.

□ It is also possible to use the commands on the Import submenu on the File menu to import audio or video files into the Pool.

When you select a file in the Import Medium dialog and click Open, the Import Options dialog opens:

It contains the following options:

- Copy File to Working Directory

Activate this if you want a copy of the file to be made in the Audio folder of the project, and have the clip refer to this copy. If the option is off, the clip will refer to the original file in the original location (and will thus be marked as "external" in the Pool - see "About the Status column symbols" on page 262).

- *Convert to Project section*

Here you can choose to convert the sample rate (if the sample rate is different than the one set for the project) or the sample size, i.e. resolution (if the sample size is lower than the record format used in the project). The options are only available if necessary. Note that if you are importing several audio files at once, the Import Options dialog will instead contain a "Convert and Copy to Project if needed" checkbox. When this is activated, the imported files will be converted only if the sample rate is different or the sample size is lower than the project's.

- *Split channels/Split multi-channel files*

If this is activated, stereo and multi-channel files are split into a corresponding number of mono files - one for each channel - and these will be imported into the Pool. Note that if you use this option, the imported files will always be copied to the Audio folder of the project, as described above.

- *Do not Ask again*

If this is activated, files will always be imported according to the settings you have made, without this dialog appearing. This can be reset in the Preferences (Editing-Audio page).

☐ *You can always convert files later by using the Convert Files (see "Convert Files" on page 272) or Conform Files (see "Conform Files" on page 272) options. */*

About the Import Audio CD dialog.....269

/ You can import tracks (or sections of tracks) from an audio CD directly into the Pool by using the "Import Audio CD..." function on the Media menu. This opens a dialog in which you can specify which tracks should be copied from the CD, converted to audio files and added to the Pool.*

*For details about the Import from Audio CD dialog, see "Importing audio CD tracks" on page 459. */*

Exporting regions as audio files.....269 "exporting regions" "audio files"

/ If you have created regions within an audio clip (see "Working with regions" on page 228), these can be exported as separate audio files. To create a new audio file from a region, proceed as follows:*

- 1. In the Pool, select the region you wish to export.*
- 2. On the Audio menu, select "Bounce Selection".*

A browser dialog opens.

- 3. Select the folder in which you want the new file to be created.*

A new audio file is created in the specified folder. The file will have the name of the region and will automatically be added to the Pool.

☐ *If you have two clips that refer to the same audio file (different "versions" of clips, e.g. created with the "Convert to Real Copy" function), you can use the Bounce Selection function to create a new, separate file for the copied clip.*

*Select the clip, select Bounce Selection and enter a location and name for the new file. */*

Changing the Pool Record folder.....269

/ The Pool Record folder*

All audio clips that you record in the project will end up in the Pool Record folder. The Pool Record folder is indicated by the text "Record" in the Status column and by a red dot on the folder itself. By default, this is the main Audio folder. You can, however, at any time create a new Audio subfolder and designate this as your Pool Record folder.

To do this, proceed as follows:

1. Select the Audio folder or any audio clip.

You cannot designate the Video folder (or any of its subfolders) as the Pool Record folder.

2. Select "Create Folder" on the Media or context menu.

A new empty subfolder named "New Folder" appears in the Pool.

3. Select the new folder and rename it as desired.

4. Select "Set Pool Record Folder" on the Media or context menu, or click in the Status column of the new folder.

*The new folder now becomes the Pool Record folder, and any audio recorded in the project will be saved in this folder. */*

Organizing clips and folders.....270

/ If you accumulate a large number of clips in the Pool, it may sometimes be difficult to quickly find specific items. In such cases, organizing clips in new subfolders with suitable names that reflect the content can be a solution. For example, you could put all sound effects in one folder, all lead vocals in another, etc. Proceed as follows:*

1. Select the type of folder, audio or video, for which you want to create a subfolder.

You cannot put audio clips in a video folder and vice versa.

2. Select "Create Folder" on the Media or context menu.

A new empty subfolder named "New Folder" appears in the Pool.

3. Rename the folder as desired.

4. Drag and drop the clips you wish to move to the new folder.

*5. Repeat steps 1-4 as necessary. */*

Applying processing to clips in the Pool.....270

/ You can apply audio processing to clips from within the Pool in the same way as to events in the Project window. Simply select the clip(s) and choose a processing method from the Audio menu. To find out more about audio processing, see the chapter "Audio processing and functions" on page 204. */*

Undoing processing.....270

/ If you have applied processing to a clip, in the Project window, the Sample Editor, or in the Pool, this is indicated by the red and gray waveform symbol in the Status column. This processing can always be undone using the Offline Process History, see "The Offline Process History dialog" on page 214. */*

Freeze Edits.....270

/ You can use the Freeze Edits function to create a new file with processing applied or to replace the original with a processed version, see "Freeze Edits" on page 215. */*

Minimize File.....270

/ The option "Minimize File" on the Media or context menu allows you shrink the audio files according to the size of the audio clips referenced in a project. The files produced using this option only contain the audio file portions actually used in the project. This can significantly reduce the size of the project, if large portions of the audio files are unused. Therefore, the option is useful for archiving purposes after you have completed a project.*

☐ *This operation will permanently alter the selected audio files in the Pool. This cannot be undone!*

If this is not what you want, you can use the option "Back up Project" on the File menu instead, see "Back up Project" on page 458. This function also has the option of minimizing files, but copies all files into a new folder, leaving the original project untouched.

Proceed as follows:

- 1. Select the file(s) you wish to minimize.*
- 2. Select "Minimize File" on the Media menu.*

An alert appears, informing you that the entire Edit History will be cleared. Click Minimize to proceed or Cancel to stop the process.

- 3. After the minimizing is finished, another alert appears, because the file references in the stored project have become invalid. Click Save Now to save the updated project or click Later to proceed with the unsaved project.*

*Only the audio portions actually used in the project remain in the corresponding audio file(s) in the Pool Record folder. */*

Prepare Archive.....271

/ The option "Prepare Archive" on the Media menu is useful if you want to archive a project. It verifies that every clip referenced in the project is located in the same folder, and takes actions if that is not the case:*

- Any files that are located outside the current project folder will be copied into it.*

Please note that audio files residing within the project folder will not be copied to the audio folder. You will therefore have to copy them there manually before backing up the audio folder or save them separately during backup, see below.

- If any processing has been applied, you will be asked whether you want to Freeze Edits.*

If you do this, you do not have to archive the Edits folder. Everything belonging to the project will be contained in the project file and the Audio folder.

Once you have performed a Prepare Archive, you can copy the project file, the Audio folder and any other audio material you saved in the project folder to a different location, e.g. a backup disk.

It is not necessary to archive the Images folder, since these Images can be recreated by Cubase. You may also find a file with the extension ".csh" in the project folder. This contains image information for edited clips and other data that can be recreated, so it can safely be deleted.

*! Video clips are always referenced and not stored in the project folder. */*

Importing and exporting Pool files (Cubase only).....271 "importing pool files" "exporting Pool files"

/ You can import or export a Pool as a separate file (file extension ".npl"), by using the "Import Pool" and "Export Pool" options on the Media or context menu.*

When you import a Pool file, the file references in it are "added" to the current Pool.

☐ *Since the audio and video files are only referenced but not saved in the Pool file, the Pool import is only useful if you have access to all referenced files (which preferably should have the same file paths as when the Pool was saved).*

*You can also save and open libraries. These are standalone Pool files that are not associated with a project. */*

Working with libraries (Cubase only).....271

/ You can use libraries to store sound effects, loops, video clips, etc., and transfer media from a library into a project by using drag and drop. The following library functions are available on the File menu: */*

New Library.....271

/ Creates a new library. Just as when creating new projects, you will be asked to specify a project folder for the new library (in which media files will be stored). The library will show up as a separate Pool window in Cubase. */*

Open Library.....271

/ Opens a file dialog for opening a saved library file. */*

Save Library.....271

/ Opens a file dialog for saving the library file (file extension ".npl"). */*

Convert Files.....272

/ Selecting the option "Convert Files" on the Media or context menu opens the Convert Options dialog which operates on selected files. Use the pop-up menus to specify which audio file attributes you want to keep and which you want to convert. The available settings are:*

- Sample Rate
Keep as is, or convert to a sample rate between 8.000 and 96.000 kHz.*
- Sample Width
Keep the sample width (resolution) as is, or convert to 16 Bit, 24 Bit or 32 Bit Float.*
- Channels
Keep as is, or convert the file to Mono or Stereo Interleaved.*
- File Format
Keep as is, or convert to Wave, AIFF, Wave 64 or Broadcast Wave format. */*

Options.....272

/ When you convert a file, you can use the Options pop-up to set one of the following options regarding what to do with the new file:*

Option Description

New Files Creates a copy of the file in the audio folder and converts this new file according to the chosen attributes. The new file is added to the Pool, but all clip references will still point to the original, unconverted file.

Replace Files Converts the original file without changing clip references. The references are however saved with the next save action.

*New + Replace in Pool Creates a new copy with the chosen attributes, replaces the original file with the new one in the Pool and redirects the current clip references from the original file to the new file. This is the option to select if you want your audio clips to refer to the converted file, but still want to keep the original file on disk (e.g. if the file is used in other projects).
/

Conform Files.....272

/ By using this command, you will change all selected files that have different file attributes than what is specified for the project, to conform to this standard.*

Proceed as follows:

- 1. Select the clips in the Pool.*
- 2. Select "Conform Files" on the Media menu.*

A dialog opens allowing you to choose between keeping or replacing the original unconverted files in the Pool.

The following applies:

- Clip/event references in the pool are always redirected to the conformed files.*
- If any "keep" option is selected, original files remain in the Project's Audio folder and new files are created.*
- If you select the "Replace" option, files in the Pool and in the Project's Audio folder are replaced. */*

Extract Audio from Video File.....272

/ This Media menu item allows you to extract the audio from a video file on disk. It automatically generates a new audio clip that will appear in the Pool Record folder. The resulting clip will have the following properties:*

- It will get the same file format and sample rate/width as in the current project.
- It will get the same name as the video file.

□ This function is not available for .mpeg video files. */

19 The MediaBay.....273

 Introduction.....274

/ One of the biggest challenges in typical computer-based music production environments is how to manage the evergrowing number of plug-ins, instruments, presets, etc. from multiple sources. With VST Sound, Cubase offers a comprehensive system to organize sounds and sound-related files, with the powerful MediaBay at its core. */*

What is VST Sound?.....274

/ With version 4.5, Steinberg introduced VST Sound, a new version of the Media Management System that is directly integrated into VST3 and that has now replaced the Sound- Frame concept. VST Sound allows direct integration into the MediaBay to third party manufacturers of plug-ins and instruments, and encompasses all formats and file types previously supported by SoundFrame such as audio loops, VSTi presets, video, MIDI files and track presets.*

VST Sound in Cubase links the following features:

- The MediaBay
The MediaBay is a universal Media Management System providing different views that allow you to find and tag media files, quickly import media files into projects and more.
- VST Sound Loops
In Cubase, you can add meta data for category, style, character and other information to audio and MIDI loops, thus converting them into VST Sound loops that can easily be managed with the MediaBay.
- VST3 Presets
Cubase makes use of VST presets as an additional way to apply sounds to instrument tracks and effects to audio tracks (see "Previewing MIDI, instrument and VST presets independently of tracks" on page 293). Plug-in parameters can be saved as VST presets, and you can also generate VST presets (i.e. sounds) from VST2 Instruments.
- Track presets
Track presets are a combination of track settings, effects and mixer settings that can be applied to new tracks of various types. So right from the start, you can set up your tracks for a specific sound (see the chapter "Working with Track Presets" on page 288).
- VST Instruments
The VST Instruments included with Cubase are the best way to experience VST Sound out of the box. They provide more than 1000 sounds that can be searched, sorted and previewed conveniently (see the chapter "VST Instruments and Instrument tracks" on page 169.

The VST Sound features can easily be recognized by the VST Sound symbol.

*The VST Sound symbol */*

What is the MediaBay?.....274

/ Modern music production involves having to deal with a multitude of media files, such as audio, MIDI and video files.*

Cubase features a powerful media file management database that allows you to control all your media files from within your sequencer program, similar to what you can do in the Windows Explorer or Mac OS Finder. This may involve several different tasks:

- You can browse the folders of your file system to view folders and files.
- You can define searches to find specific files and filter the search results.
- You can organize your files in a folder structure.
- You can use the tagging features to assign your files to specific categories, and use these categories as the basis for your searches. */

Which file formats are supported?.....274

/ The following media file formats are supported by the Media Management System:*

- *Audio: .wav, .w64, .aiff, .aifc, .rex, .rx2, .mp3, .mp2, .ogg, .sd2, .wma (Windows only)*
- *MIDI: .mid and .midiloop*
- *Video: .avi, .mov, .qt, .mpg, .mpeg, .wmv (Windows only)*
- *Track Presets: .trackpreset*
These are templates for audio tracks, MIDI tracks and instrument tracks. Track Presets are described in detail in the chapter "Working with Track Presets" on page 288.
- *VST Presets: .vstpreset*
VST presets are files containing all parameter settings for a particular VST plug-in. VST preset files are described in detail in the section "Previewing MIDI, instrument and VST presets independently of tracks" on page 293.
- *Pattern banks: .patternbank* *Pattern banks contain drum patterns created with the MIDI plug-in "Beat Designer", see "Previewing pattern banks" on page 284.*
- *Project files (from Cubase, Nuendo, Sequel): .cpr, .npr, .steinberg-project*

☐ *When the option "Show file extensions" is activated in the Preferences dialog (MediaBay page), file name extensions (e.g. .wav or .cpr) will be displayed in the MediaBay. */*

Accessing the Media Management System.....275

/ The Media Management System in Cubase can be accessed via three different preconfigured views: the Media- Bay, the Loop Browser and the Sound Browser.*

To access these, pull down the Media menu and select "Open MediaBay", "Open Loop Browser" or "Open Sound Browser" (or use the respective key commands).

Which of these views to use depends entirely on your working environment, and you may find that you want to change the default setup to better meet your requirements.

- *By default, the MediaBay is configured to show all window sections and display all file types.*

If you want to work on media files of various types, if you have to move files to different locations using the Browser section, or if you want to perform other general file management tasks, the MediaBay is probably the best view configuration.

- *The Loop Browser is configured to show audio files and MIDI loops.*

Use this if your focus is on working with loops.

- *The Sound Browser is focussed on track preset and VST preset files.*

Use this if you want to work with the available presets.

Whenever you read about the "MediaBay" in this manual, please remember the following:

☐ *The MediaBay is only one of the three preconfigured views of the Media Management System. Since all controls are visible in the MediaBay window per default, we will refer to this view throughout this manual when describing functions. However, the editing methods performed in the MediaBay can also be applied in the Loop Browser and the Sound Browser. */*

Key commands.....275

/ Many of the MediaBay functions can be performed using key commands. These can be found in the Key commands dialog (Media category). For details on setting up and using key commands, see the chapter "Key commands" on page 479. */*

Navigation.....275

/ You can use the [Tab] key on your computer keyboard to move the focus between the different sections of the MediaBay window. Use*

the arrow keys to navigate to different folders, files or tags.

*Note that the field that has the focus in the Filter section of the Viewer is shown in light blue. */*

Window overview.....	276	
The info line.....	276	"info line"
MediaBay sections.....	276	
Browsing for media files.....	276	
The VST Sound node.....	277	
Scanning operations.....	277	
Scanning indicator.....	277	
Deep Results.....	277	
Rescan on Select.....	278	
Refresh.....	278	
Folder operations.....	278	
Browse Selection Presets.....	279	
Finding files in the Viewer section.....	279	
Filtering the Viewer display.....	280	
Defining searches for specific files.....	280	
Performing a Details search (Cubase only).....	280	
Performing a Category search.....	281	
Further options for Category searches.....	282	
Performing a context menu search.....	282	
Additional Viewer operations.....	282	
Previewing files in the Scope section.....	283	
Previewing audio files.....	283	
Previewing MIDI files.....	283	
Previewing MIDI loops.....	283	
Previewing track and instrument presets.....	283	
Previewing pattern banks.....	284	
The Tag Editor (Cubase only).....	284	
Managing the tag lists.....	284	
Displaying tags in the Tag Editor.....	285	
Displaying tags in the Viewer.....	285	
Editing tags in the Tag Editor.....	285	
Defining user tags.....	286	
Tagging media files.....	286	
Tagging multiple files simultaneously.....	287	
Tagging write-protected files.....	287	
20 Working with Track Presets.....	288	
Introduction.....	289	
Types of track presets.....	289	
Audio track presets.....	289	
Instrument track presets.....	289	
MIDI track presets.....	289	
Multi track presets.....	290	
VST (Instrument) presets.....	290	
Pattern Banks.....	290	
Applying track presets.....	290	
Applying track or VST presets via drag and drop.....	290	
Applying track or VST presets in the Inspector or the context menu of the track.....	291	
Applying a multi track preset.....	291	
Reloading track or VST presets.....	291	
Applying Inserts and EQ settings from track presets.....	291	
Extracting sound from an instrument track or VST preset.....	292	
Creating a track preset.....	292	
Creating tracks from track presets or VST presets.....	293	
Using drag and drop.....	293	
Using the Browse Sounds dialog.....	293	
Using the Add Track function.....	293	
Previewing MIDI, instrument and VST presets independently of tracks.....	293	
Via standard MIDI input.....	293	
Using a MIDI file.....	294	

21	Track Quick Controls.....	295
	Introduction.....	296
	Setting up the Quick Controls tab.....	296
	Assigning parameters to quick controls.....	296
	Editing the quick control slots.....	296
	Options and settings.....	296
	Setting up quick controls on an external remote controller.....	297
	Quick controls and automatable parameters.....	298
22	Remote controlling Cubase.....	299
	Introduction.....	300
	Setting Up.....	300
	Connecting the remote device.....	300
	Selecting a remote device.....	300
	Operations.....	301
	Global options for remote controllers.....	301
	Writing automation using remote controls.....	301
	Assigning remote key commands.....	302
	A note about remote controlling MIDI tracks.....	302
	Accessing user panel parameters via remote control devices (Cubase only).....	302
	The Generic Remote device.....	302
	Importing and exporting remote setups.....	304
	Track Quick Controls.....	304
	Apple Remote (Macintosh only).....	304
23	MIDI realtime parameters and effects.....	305
	Introduction.....	306
	The Inspector - General handling.....	306
	The Inspector sections.....	306
	Basic track settings.....	306
	VST Expression section.....	307
	MIDI Modifiers.....	307
	Transpose.....	308
	Velocity Shift.....	308
	Velocity Compression.....	308
	Length Compression.....	308
	Random.....	308
	Range.....	309
	MIDI Fader section.....	309
	Notepad section.....	309
	VST Instrument section.....	310
	User Panel section (Cubase only).....	310
	Quick Controls section.....	310
	MIDI effects.....	310
	What are MIDI effects?.....	310
	Insert and send effects.....	310
	MIDI Inserts section.....	311
	MIDI Sends section.....	311
	About presets.....	312
	Applying a MIDI insert effect - an example.....	312
	Managing plug-ins.....	313
24	Using MIDI devices.....	314
	Background.....	315
	MIDI devices - general settings and patch handling.....	315
	About Program Change and Bank Select.....	315
	Opening the MIDI Device Manager.....	315
	Cubase:.....	315
	Cubase Studio:.....	316
	Defining a new MIDI device.....	316
	Cubase:.....	316
	Cubase Studio:.....	316
	Installing a preset MIDI device.....	317
	About Patch Banks.....	317
	Limitations.....	318
	Selecting a patch for an installed device.....	318

Renaming patches in a device.....	318
Patch Structure.....	318
Create Bank.....	319
New Folder.....	319
New Preset.....	319
Add Multiple Presets.....	319
Other editing functions.....	320
About Device panels (Cubase only).....	320
Basic concept.....	320
Device panels in the program.....	320
Opening a device setup.....	320
Showing panels in the Inspector.....	321
Showing panels in the Mixer.....	322
Automating device parameters.....	322
About Studio Connections (Cubase only).....	323 "Studio Connections"
 /* Studio Connections is the name of an initiative led by Steinberg and Yamaha. The initiative intends to create industry standards for totally integrated system environments using software and hardware products.	
 First implementation stage of the Studio Connections open standard is the integration and support of Yamaha's Studio Manager 2 (SM2) and Total Recall for compatible hardware devices.	
 For further information about Studio Connections, please visit the website http://www.studioconnections.org .	
 If you have an SM2 component installed, there is an additional menu item on the Devices menu. */	
Total Recall.....	324 "Total Recall"
 /* Total Recall means that you can save and recall all settings of your hardware and software products by opening one integrated file in a DAW such as Cubase or Nuendo. Also you will have instant and organized access to hardware editors.	
 When you load a project or switch to another active project that contains SM2 data, the Total Recall Synchronization dialog appears:	
 This dialog can also be opened any time from the Studio Manager's Synchronize menu. Click OK for the Dump to start. */	
Virtual MIDI Devices.....	324
25 MIDI processing and quantizing.....	325
Introduction.....	326
MIDI functions vs. MIDI modifiers.....	326
What is affected by the MIDI functions?.....	326
The Quantizing functions.....	326
What is quantizing?.....	326
Setting up quantize on the toolbar.....	327
Setting up quantize in the Quantize Setup dialog.....	327
The Grid and Type pop-ups.....	327
Swing.....	327
Tuplet.....	327
Magnetic Area.....	328
Presets.....	328
Apply and Auto.....	328
The Non Quantize setting.....	328
The Random Quantize setting.....	328
The Iterative Strength setting.....	328
The Move Controller setting.....	328
Applying quantize.....	328
The Auto Quantize function.....	329
Iterative Quantize.....	329
Advanced Quantize functions.....	329
Quantize Lengths.....	329
Quantize Ends.....	329
Undo Quantize.....	329
Freeze Quantize.....	330
Part to Groove.....	330
Transpose.....	330

Semitones.....	330	
Scale Correction.....	330	
Keep Notes in Range.....	330	
OK and Cancel.....	330	
Making your settings permanent.....	331	
Freeze MIDI Modifiers.....	331	
Merge MIDI in Loop.....	331	
Applying effects to a single part.....	331	
Dissolve Part.....	332	
Dissolving parts into separate channels.....	332	
Dissolving parts into separate pitches.....	333	
Dissolving to sublanes.....	333	
Bounce Selection.....	333	"Bounce Selection"
 <i>/* With this function, you can combine MIDI parts on several lanes to a single MIDI part. This can be used to reassemble a drum part that you dissolved onto several lanes for editing, see above. Simply select the MIDI parts on the different lanes that you want to combine and select "Bounce Selection" on the MIDI menu.</i>		
 <i>During the bounce process, any muted parts will be removed. If transpose and velocity values were specified for the parts, these are taken into account as well. */</i>		
Repeat Loop.....	333	
Other MIDI functions.....	333	
Legato.....	333	
Fixed Lengths.....	334	
Delete Doubles.....	334	
Delete Controllers.....	334	
Delete Continuous Controllers.....	334	
Delete Notes.....	334	
Minimum Length.....	334	
Minimum Velocity.....	334	
Remove when under.....	334	
OK and Cancel.....	335	
Restrict Polyphony.....	335	
Pedals to Note Length.....	335	
Delete Overlaps (mono).....	335	
Delete Overlaps (poly).....	335	
Velocity.....	335	
Add/Subtract.....	335	
Compress/Expand.....	335	
Limit.....	335	
Fixed Velocity.....	335	
Thin Out Data.....	335	
Extract MIDI Automation.....	336	
Reverse.....	336	
Merge Tempo from Tapping.....	336	
26 The MIDI editors.....	337	
Introduction.....	338	
Opening a MIDI editor.....	338	
Handling several parts.....	339	"handling several parts"
The Key Editor - Overview.....	340	
The toolbar.....	340	
The info line.....	340	"info line"
The ruler.....	340	
The note display.....	341	
The chord recognition function.....	341	
The controller display.....	341	
Key Editor operations.....	342	
Zooming.....	342	
Using the Trim tool.....	342	
Playing back.....	343	
Solo button.....	343	
Autoscroll.....	343	
The independent track loop.....	343	

Acoustic Feedback.....	344	
Snap.....	344	
Coloring notes and events.....	344	
Creating and editing notes.....	344	
Drawing notes with the Pencil tool.....	344	
Drawing notes with the Line tool.....	345	
Setting velocity values.....	345	
Selecting notes.....	346	
Toggle selections.....	346	
Selecting controllers within the note range.....	346	
Moving and transposing notes.....	347	
Duplicating and repeating notes.....	347	
Using cut and paste.....	347	
Resizing notes.....	348	
Splitting notes.....	348	
Gluing notes.....	348	
Muting notes.....	348	
Deleting notes.....	348	
Editing on the info line.....	348	"info line"
How the Key Editor handles drum maps.....	349	
How the Key Editor handles Expression maps.....	349	
Editing notes via MIDI.....	349	
Step input.....	350	
Editing in the controller display.....	351	
About controller lanes.....	351	
Selecting the event type.....	351	
Controller lane presets.....	352	
Editing velocity values.....	352	
Editing articulations.....	353	
Adding and editing events in the controller display.....	353	
Moving and copying events.....	354	
Using cut, copy and paste.....	354	
Deleting events in the controller display.....	355	
Editing continuous controllers on the controller lane.....	355	
Adding and editing Poly Pressure events.....	355	
The In-Place Editor.....	356	
Working with Parts.....	357	
The Drum Editor - Overview.....	358	
The toolbar and info line.....	358	"info line"
The drum sound list.....	358	
The note display.....	359	
Drum map and name pop-up menus.....	359	
Controller display.....	359	
Drum Editor operations.....	359	
Creating and editing notes.....	359	
Setting velocity values.....	360	
Selecting notes.....	360	
Moving, duplicating or repeating notes.....	360	
Muting notes and drum sounds.....	360	
Deleting notes.....	360	
Other editing methods.....	360	
Working with drum maps.....	361	
Background.....	361	
Drum map settings.....	361	
About Pitch, I-note and O-note.....	362	
I-notes (input notes).....	362	
O-notes (output notes).....	362	
Usage.....	362	
The channel and output settings.....	362	
Managing drum maps.....	363	
Selecting a drum map for a track.....	363	
The Drum Map Setup dialog.....	363	
O-Note Conversion.....	364	
Use Head Pairs and Edit in Scores.....	364	

Using drum name lists.....	364	
The List Editor - Overview.....	365	
The toolbar.....	365	
The list.....	365	
The event display.....	365	
The value display.....	365	
List Editor operations.....	365	
Customizing the view.....	365	
Setting the display format.....	366	"display format"
Zooming.....	366	
Inserting events.....	366	
Editing in the list.....	366	
Editing in the event display.....	367	
Filtering.....	367	
Masking.....	367	
Editing in the value display.....	368	
Working with System Exclusive messages.....	368	
Bulk dumps.....	369	
Recording a bulk dump in Cubase.....	369	
Transmitting a bulk dump back to a device.....	369	
Some advice.....	369	
Recording System Exclusive parameter changes.....	370	
Editing System Exclusive messages.....	370	
Selecting and viewing values.....	370	
Editing a value.....	371	
Adding and deleting bytes.....	371	
Importing and exporting data.....	371	
27 VST Expression.....	372	
Introduction.....	373	
About articulations.....	373	
Articulations and MIDI.....	373	
Expression Maps.....	373	
VST Expression in Cubase.....	374	
An example.....	374	
Loading Expression Maps.....	374	
Loading Expression Maps that are part of presets.....	374	
Expression Maps that were saved separately.....	375	
Articulations in the Project window.....	375	
Articulations in the Score Editor.....	375	
Articulations in the Key, Drum, and In-Place Editors.....	375	
Editing on the controller lane.....	376	
Editing on the info line.....	376	"info line"
Articulations in the List Editor.....	377	
Creating and editing Expression Maps.....	377	
Creating an Expression Map.....	377	
Adding sound slots.....	377	
Output Mapping.....	378	
Editing Articulations.....	378	
Groups.....	378	
Remote Key Settings.....	379	
Latch Mode.....	379	
Root Note.....	379	
Set Remote Keys.....	379	
Saving your settings.....	379	
28 The Logical Editor, Transformer and Input Transformer.....	380	
Introduction.....	381	
About the Transformer MIDI effect.....	381	
About the Input Transformer.....	381	
About the Project Logical Editor.....	381	
Opening the Logical Editor.....	381	
Window overview.....	382	
Setting up filter conditions.....	382	
General procedure.....	382	
Conditions.....	383	

Searching for elements at certain positions (Logical Editor only)...	383
Searching for notes of certain lengths (Logical Editor only).....	383
Searching for Value 1 or Value 2.....	384
Searching for note pitch or velocity.....	384
Searching for controllers.....	384
Searching for MIDI channels.....	384
Searching for element types.....	385
Searching for properties.....	385
Searching for event contexts.....	385
Combining multiple condition lines.....	385
The bool column.....	385
Using brackets.....	386
Selecting a function.....	386
Delete.....	386
Transform.....	386
Insert.....	386
Insert Exclusive.....	386
Copy (Logical Editor only).....	387
Extract (Logical Editor only).....	387
Select (Logical Editor only).....	387
Specifying actions.....	387
Action Target.....	387
Operation.....	387
Add.....	387
Subtract.....	387
Multiply by.....	387
Divide by.....	387
Round by.....	387
Set Random Values between.....	388
Set Relative Random Values between.....	388
Set to fixed value.....	388
Add Length (Logical Editor only).....	388
Transpose to Scale.....	388
Use Value 2.....	388
Use Value 1.....	388
Mirror.....	388
Linear Change in Loop Range (Logical Editor only).....	388
Relative Change in Loop Range (Logical Editor only).....	388
Applying the defined actions.....	389
Working with presets.....	389
Storing your own settings as a preset.....	389
Organizing and sharing presets.....	389
The Input Transformer.....	389
Opening the Input Transformer.....	390
Handling the four modules.....	390
The Function pop-up menu.....	390
Setting up filtering and actions.....	390
29 The Project Logical Editor.....	391
Introduction.....	392
Opening the Project Logical Editor.....	392
Window overview.....	392
Setting up filter conditions.....	393
General procedure.....	393
Searching for Media types.....	393
Searching for Container types.....	394
Combining Media Type and Container Type.....	394
Searching for Names.....	394
Searching for elements at certain positions.....	395
Searching for elements of certain lengths.....	396
Searching for properties.....	396
Combining multiple condition lines.....	396
The bool column.....	396
Using brackets.....	397
Specifying actions.....	397

Action Target.....	397
Position.....	397
Length.....	398
Track Operation.....	398
Name.....	398
Trim.....	398
Set Color.....	398
Selecting a function.....	399
Delete.....	399
Transform.....	399
Select.....	399
Applying Macros.....	399
Applying the defined actions.....	399
Working with presets.....	399
Storing your own settings as a preset.....	399
Organizing and sharing presets.....	400
Setting up key commands for your presets.....	400
30 Editing tempo and signature.....	401
Background.....	402

/ Whenever you create a new project, Cubase will automatically set the tempo and time signature for this project. The tempo and signature settings can be displayed in two ways: either on dedicated tracks in the Project window, or in the Tempo Track Editor. */*

Tempo modes.....	402
A note about tempo-based audio tracks.....	402 "tempo-based audio tracks"

/ For tempo-based tracks, the start position of audio events on the timeline depends on the current tempo setting. However, it is important to realize that the actual audio ("within" the events) will play back as recorded, regardless of any tempo changes you make. Therefore, it is good practice to make the proper tempo and time signature settings before you start recording tempo-based audio.*

□ To make an already recorded audio track follow the tempo changes, you can use the Sample Editor, see the chapter "The Sample Editor" on page 219.

How well this works depends on the character of the audio recordings, since the hitpoint detection feature works best with fairly rhythmical material.

□ To adapt the tempo track to time-based material, you can use the Time Warp tool, see "The Time Warp tool" on page 408.

*This allows you to adjust the tempo track so that tempo-based material (e.g. positions in music) coincides with time-based material (e.g. positions in narration, video, etc.). */*

Tempo and signature display.....	402
About the tempo and signature tracks.....	403
About the Tempo Track Editor.....	403
The toolbar.....	403
Editing tempo and signature.....	404
Editing the tempo curve.....	404
Adding tempo curve points.....	404
Selecting tempo curve points.....	404
Editing tempo curve points.....	404
Adjusting the curve type.....	405
Removing tempo curve points.....	405
Recording tempo changes.....	405
Setting the fixed tempo.....	405
Adding and editing time signature events.....	405
Exporting and importing tempo tracks.....	405
Process Tempo (Cubase only).....	406
The Process Bars dialog (Cubase only).....	406
The Beat Calculator.....	407
Calculating the tempo of a recording.....	407
Using Tap Tempo.....	407
Merge Tempo From Tapping.....	408
The Time Warp tool.....	408

/ The Time Warp tool lets you adjust the tempo track so that "musical time-based" material (positions related to the tempo) matches "linear time-based" material (positions in time). Some typical applications:*

- When you have recorded music (audio or MIDI) without tempo reference or metronome click, the Time Warp tool can be used for creating a tempo map that fits the recording (allowing you to rearrange or add other material).
- When you are creating music for a movie and want to match certain positions in the video with certain positions in the music.

The Time Warp tool makes use of the fact that tracks can be based on time positions (linear time base) or positions related to tempo (musical time base), see "Switching between musical and linear time base" on page 40 for a description of these modes. */

Basic procedure.....	408	
Rules.....	409	
Viewing and adjusting tempo events.....	409	
Using the Time Warp tool in the Project window.....	409	
Matching a musical score to video.....	410	
About snapping.....	411	
Using the Time Warp tool in an audio editor.....	411	
Making a tempo map for a "free" recording.....	411	
Matching to hitpoints.....	412	
Using the Time Warp tool in a MIDI editor.....	412	
31 The Project Browser.....	413	"Project Browser"
Window Overview.....	414	

```
/* Project Structure list. This is where you navigate through the project.
```

Time Format (display format) pop-up menu

Add pop-up menu and Add button for creating new parts, events and regions.

Filter pop-up menu, used for MIDI editing

Event display. This is where you view and edit parts, events and regions.

The Project Browser window provides a list based representation of the project. This allows you to view and edit all events on all tracks by using regular value editing in a list. */

Opening the Project Browser.....414

```
/* You open the Project Browser by selecting "Browser" from the Project menu. The Browser window can be open while you are
working in other windows; any changes made in the Project window or an editor are immediately reflected in the Project Browser and
vice versa. */
```

Navigating in the Browser.....414

```
/* You use the Project Browser much like you use the Windows Explorer and Mac OS X Finder for browsing folders on your hard disk:
```

- Click on an item in the Project Structure list to select it for viewing.

The contents of the item are shown in the event display.

In this figure, the parts on a MIDI track are displayed.

- Items with hierarchical substructures can be folded out by clicking the plus symbols or the "closed folder" symbols in the Project Structure list.

When the substructure of an item is revealed, a minus symbol or an "open folder" symbol is shown instead - click this to hide the substructure.

- To reveal or hide all substructures in the Project Structure list, use the buttons "(+) All" and "(-) All" above the list.
- The actual editing is done in the event display, using regular value editing techniques.

*There is one exception: You can rename items in the Project Structure list by clicking on their names and typing. */*

Customizing the view.....414

/ You can drag the divider between the Project Structure list and the event display to make one of them wider and the other narrower. Furthermore, the event display can be customized in the following ways:*

- You can change the order of the columns by dragging the column headings to the left or right.*
- You can resize columns by dragging the dividers between the column headings.*
- To select a display format for all position and length values, use the Time Format pop-up menu.*
- You can sort events in the display by columns, by clicking the column heading.*

*For example, if you want to sort events by their start positions, click that column heading. An arrow appears in the column heading, indicating that events are sorted by that column. The direction of the arrow indicates whether the events are sorted in ascending or descending order. To change the direction, click the column heading again. */*

Importing files via the MediaBay.....415 "Importing files"

/ You can also import audio, video and MIDI files into the Project Browser via the MediaBay using drag and drop.*

□ You can only import into existing tracks. This means, for example, that a video track has to exist in the Project window prior to importing a video file in the Project Browser.

*For more information about the MediaBay, see "The Media- Bay" on page 273. */*

About the Sync Selection option.....415 "Sync Selection"

/ If the "Sync Selection" checkbox is activated (on the Project Browser toolbar), selecting an event in the Project window automatically selects it in the Project Browser, and vice versa. This makes it easy to locate events in the two windows. */*

Editing tracks.....415

Editing audio tracks.....415 "audio tracks"

/ Audio tracks can have two "subitems": Track Data and Automation.*

- The Automation item corresponds to the Automation track in the Project window, and contains the track's automation events (see "Editing Automation tracks" on page 417).*
- The Track Data item corresponds to the actual audio track in the Project window. It contains audio events and/or audio parts, which in turn can contain audio events.*

Note that if you have not performed any automation or opened an automation track, the Browser will only contain the audio data.

*Audio track
Track Data subitem of the audio track
Audio part
Automation track
Audio part*

*The following parameters are available for the different items: */*

The list columns for audio events.....415 "audio events"

/ Parameter Description*

Name Allows you to change the name of the event. Doubleclicking on the waveform image beside it opens the event in the Sample Editor.

File The name of the audio file referenced by the event's audio clip.

Start The start position of the event. If the event belongs to an audio part, you cannot move it outside the part.

End The end position of the event.

Snap The absolute position of the event's snap point. Note that adjusting this value will not change the position of the snap point within the event - instead it is another way of moving the event!

Length The length of the event.

Offset This determines "where in the audio clip" the event starts. Adjusting this value is the same as sliding the contents of the event in the Project window (see "Sliding the contents of an event or part" on page 48). You can only specify positive Offset values, since the event cannot start before the start of the clip. Likewise, it cannot end after the end of the clip. If the event already plays the whole clip, the Offset cannot be adjusted at all.

Volume The volume of the event, as set with the Volume handle or on the info line in the Project Window.

Fade In *Fade Out* The length of the fade-in and fade-out areas respectively. If you use these settings to add a fade (where there previously was none), a linear fade will be created. If you adjust the length of an existing fade, the previous fade shape will be maintained.

Mute Click in this column to mute or unmute the event.

Image Displays a waveform image of the event inside a gray box corresponding to the clip. The image is scaled according to the width of the column. */

The list columns for audio parts.....416 "audio parts"

/ Parameter Description*

Name The name of the part. Double-clicking on the part symbol beside it opens the part in the Audio Part Editor.

Start The start position of the part. Editing this value is the same as moving the part in the Project window.

End The end position of the part. Editing this value is the same as resizing the part in the Project window.

Length The length of the part. Editing this value is the same as resizing the part in the Project window.

Offset This adjusts the start position of the events within the part. Adjusting this value is the same as sliding the contents of the part in the Project window (see "Sliding the contents of an event or part" on page 48). Setting a positive Offset value is the same as sliding the contents to the left, while a negative Offset corresponds to sliding the contents to the right.

Mute Click in this column to mute or unmute the part. */

Creating audio parts.....416 "Creating audio parts"

/ When the "Audio" item of an audio track is selected in the Project Structure list, you can create empty audio parts on the track by clicking the Add button on the toolbar. This will insert a part between the left and right locator. */*

Editing MIDI tracks.....416

The list columns for MIDI events.....416

The list columns for MIDI parts.....416

Filtering MIDI events.....417

Creating MIDI parts.....417

Creating MIDI events.....417

Editing Automation tracks.....417

Editing the Video track.....417

Editing the Marker track.....418

Editing the tempo track.....418

Editing time signatures.....418

Deleting events.....418 "Deleting events"

/ The procedure for deleting events is the same for all different track types:*

1. Click on an event (or a part) in the Event display to select it.

2. Select Delete from the Edit menu or press [Delete] or [Backspace].

*! Note that you cannot delete the first Tempo event or the first Time Signature event. */*

32 Export Audio Mixdown.....419 "Export Audio Mixdown"
Introduction.....420

/ The Export Audio Mixdown function in Cubase allows you to mix down audio from the program to files on your hard disk, in a number of formats. In the Channel Selection section, you can choose which channels (or busses) to export. By activating the "Channel Batch Export" option you can choose to mix down several channels at once. For each channel, an individual file will be created.*

The following channel types are available:

- *Output channels*

For example, if you have set up a stereo mix with tracks routed to a stereo output bus, mixing down that output bus would give you a mixdown file containing the whole mix. Similarly, you can mix down a complete surround bus, either to a single multi-channel file or to one file per surround channel (by activating the Split Channels option).

- *Audio track channels (Cubase only)*

This will mix down the channels for the tracks, complete with insert effects, EQ, etc. This can be useful for turning a number of events into a single file, or to convert tracks with insert effects into audio files (that are less CPU-intensive). Simply export the track and re-import the file into the project.

- *Any kind of audio-related mixer channel (Cubase only)*

This includes VST Instrument channels, instrument tracks, effect return channels (FX Channel tracks), Group channels and ReWire channels. There are many uses for this - for example, you can mix down an effect return track or turn individual ReWire channels into audio files.

Please note the following:

- *The Export Audio Mixdown function mixes down the area between the left and right locators.*
- *When you mix down, you get what you hear - mutes, mixer settings and insert effects are taken into account. Note though that you will only include the sound of the channels you select for mixdown.*
- *MIDI tracks are not included in the mixdown!*

To make a complete mixdown containing both MIDI and audio, you first need to record all your MIDI music onto audio tracks (by connecting the outputs of your MIDI instruments to your audio inputs and recording, as with any other sound source).

- *Cubase only: You can also export selected tracks - this is a different function that does not create an audio mixdown.*

*Rather, this is a way to transfer complete tracks (including clips and events) from one project to another. See "Exporting and importing tracks (Cubase only)" on page 466. */*

Mixing down to audio files.....420 "audio files"

/ 1. Set up the left and right locators to encompass the section you want to mix down.*

2. Set up your tracks, so that they play back the way you want.

This includes muting unwanted tracks or parts, making manual mixer settings and/or activating the R (Read) automation buttons for some or all mixer channels.

3. Pull down the File menu and select "Audio Mixdown..." from the Export submenu.

The Export Audio Mixdown dialog appears.

The available settings and options differ depending on the selected file format (see "The available file formats" on page 422).

4. In the Channel Selection section to the left, select the channel(s) you want to mix down. The list contains all output and audio-related channels available in the project (see "About the Channel Selection section" on page 421).

Activate the Channel Batch Export option if you want to mixdown several channels at once.

5. In the File Location section at the top you can specify a name (or prefix in case of channel batch exports) and path for the mixdown files.

To the right of the File Name/Prefix and the Path fields you will find two pop-up menus with a number of options:

Naming Options pop-up menu:

- Select "Set to Project Name" to use the project name for the export file.
- Activate the "Auto Update Name" option (so that a checkmark is displayed before it) to add a number to the specified file name every time you click the Export button.

Path Options pop-up menu:

- Select "Choose..." to open a dialog in which you can browse for a path and enter a file name.

The file name will automatically be shown in the File Name/Prefix field.

- Select an entry from the Recent Paths section to reuse a path specified for a previous export.

This section is only shown after an export has been completed. With the "Clear Recent Paths" option you can delete all entries from the Recent Paths section.

- Activate the option "Use Project Audio Folder" to save the mixdown file in the project's Audio folder.

6. Choose an entry from the File Format pop-up menu.

7. Activate the Split Channels option if you want to export all sub-channels of a multi-channel bus as mono files, or activate "Mono Export" if you want to export a channel as a single mono file.

☐ "Mono Export" is not available if "Channel Batch Export" is activated.

8. Make additional settings for the file to be created. This includes selecting sample rate, bit depth, etc. The available options depend on the selected file format - see "The available file formats" on page 422.

9. If you want to automatically import the resulting audio files back into Cubase, activate any of the checkboxes in the "Import into project" section.

If you activate the Pool checkbox, a clip referring to the file will appear in the Pool. Activating the Audio Track checkbox as well will create an audio event that plays the clip, and place it on a new audio track, starting at the left locator. If you activate the Create New Project option, a new project is created that contains one audio track for each of the exported channels. Note that if this is activated, the Pool and Audio Track options will be disabled.

☐ The Create New Project option is only available if you have selected an uncompressed file format and the Use Project Audio Folder option is deactivated.

10. If you activate Realtime Export, the export will happen in realtime, i.e. the process will take the same time as regular playback.

Some VST plug-ins, external instruments and effects require this in order to have enough time to update correctly during the mixdown - consult the plug-in manufacturers if uncertain.

- Cubase only: When Realtime Export is activated, the exported audio will be played back via the Control Room.

The Audition Volume fader allows you to adjust the Control Room volume. Note that if the Control Room is deactivated and for channel batch exports, there will be no Audition Volume fader in the dialog.

- Depending on the CPU and disk speed of your computer, it may not be possible to export all channels simultaneously if Realtime Export is activated. If an error occurs during the realtime export, the program will automatically stop the process, reduce the number of channels and start again. Afterwards the next batch of files is exported. This is repeated as often as needed to export all selected channels.

Due to this splitting of the export process in "runs", the realtime export might take longer than the actual playback would.

11. If you activate Update Display, the meters will be updated during the export process.

This allows you to check for clipping, for example.

12. Click *Export*.

A dialog with a progress bar is displayed while the audio file or files are being created. If you change your mind during the file creation, you can click the Abort button to cancel the operation.

- *If the option "Close dialog after export" is activated, the dialog will be closed.*
- *If you have activated any of the "Import into project" options, the file or files will be imported back into the same or a new project.*

*When playing back the re-imported file in the same Cubase project, remember to mute the original tracks so that you really hear the correct file. */*

About the Channel Selection section.....421 "Channel Selection section"

/ The Channel Selection section shows all output and audio- related channels available in the project. These channels are organized in a hierarchical structure that allows you to easily identify and select the channels you want to export. The different channel types are listed below each other, with channels of the same type being grouped in a node (e.g. Instrument Tracks).*

- *You can activate/deactivate channels by clicking on the checkboxes in front of the channel names.*
- *If Channel Batch Export is activated, you can also activate/ deactivate all channels of the same type by clicking on the checkbox in front of the channel type entry.*
- *If Channel Batch Export is activated, you can select/deselect several channels in one go using the [Shift] and/or [Ctrl]/[Command] modifiers and then clicking on any of the checkboxes for the highlighted channels.*

Note that this toggles the activation status of a channel, i.e. all selected channels that were previously activated will be deactivated and viceversa.

- *If your project contains a large number of channels, it might get difficult to find the desired channels in the Channel Selection section. To remedy this, and to simplify the process of selecting several channels, you can filter the display. Simply type in the desired text (e.g. "voc" to show all tracks containing vocals) in the Filter field below the tree view. */*

About the Import Options dialog.....422 "Import Options dialog"

/ If you activate any of the options in the Import into project section, the Import Options dialog will open for each exported channel when the export is complete. For a detailed description of the options in this dialog see "About the Import Medium dialog" on page 268. */*

File naming conventions.....422

/ The exported files on the hard disk are being named according to the following convention:*

<file name> - <track #> - <channel type> - <track/ channel name>.<file extension>

This could, for example, result in the following file names:

*"mixdown - 3 - Audio - Elec Guitar.wav" or "surround mix - Output - 5.1 Out 03 (LFE).aiff" for a surround channel. */*

The available file formats.....422 "file formats"

/ The following pages describe the different export file formats, as well as their options and settings.*

- *AIFF files (see "AIFF files" on page 422).*
- *AIFC files (see "AIFC files" on page 423).*
- *Wave files (see "Wave files" on page 424).*
- *Wave 64 files (Cubase only, see "Wave 64 files (Cubase only)" on page 424).*
- *Broadcast Wave files (see "Broadcast Wave files" on page 424).*
- *MP3 files (Cubase only, see "MPEG 1 Layer 3 files (Cubase only)" on page 424).*
- *Ogg Vorbis files (see "Ogg Vorbis files" on page 424).*
- *Windows Media Audio Pro files (Windows only, see "Windows Media Audio Pro files (Windows only)" on page 425).*

□ Most of the settings described below for AIFF files are available for all file types. Where this is not the case, you will find additional information in the corresponding section. */

MP3 Export (Cubase Studio only).....422 "MP3 Export"

/ This version of Cubase provides a function for exporting your audio mixdown as mp3 files. This function is limited to 20 trial encodings or a trial period of 30 days from the installation date (whichever ends first). After this period, the function will be disabled until you purchase the mp3 encoder for Cubase.*

- *When the mp3 format is selected, and you click the Export button, a window opens showing you how many trial encodings you have left. You can upgrade to an unlimited mp3 export function by clicking the "Go to Online Shop" button in the dialog.*

*This will take you to Steinberg's online shop where you can purchase the upgrade. Note that a working internet connection is required. */*

AIFF files.....422

/ AIFF stands for Audio Interchange File Format, a standard defined by Apple Inc. AIFF files have the extension ".aif" and are used on most computer platforms.*

For AIFF files the following options are available:

Option Description

File Name In this field you can enter a name for the mixdown file.

Naming options pop-up menu This allows you to define how your project should be named. If you select "Set to Project Name" the project name will be used for the export file. If you activate the "Auto Update Name" option a number will be added to the specified file name every time you click the Export button.

Path Here you can specify a path where you want the mixdown to be saved.

Path options pop-up menu This allows you to specify where the file should be saved. If you select "Choose..." a file dialog will open and the file name will automatically be shown in the File Name/Prefix field. If you already have exported a file, the Recent Paths section will be shown where you can choose to reuse a previous path. If you activate "Use Project Audio Folder", the mixdown file will be saved in the project's Audio folder.

Insert Broadcast Wave Chunk This allows you to include information about the date and time of creation, a timecode position (allowing you to insert exported audio at the correct position in other projects, etc.) along with author, description and reference text strings in the exported file. Some applications may not be able to handle files with embedded info - if you get problems using the file in another application, deactivate the option and re-export.

Edit button By clicking this button the "Broadcast Wave Chunk" dialog opens where you can enter additional information that will be embedded in the exported files. Note that in the Preferences (Record-Audio-Broadcast Wave page) you can enter default text strings for author, description and reference that will automatically be displayed in the "Broadcast Wave Chunk" dialog.

Don't Use Wave Extensible Format (Wave files only) The Wave Extensible format contains additional metadata, such as the speaker configuration. It is an extension to the normal Wave format that some applications may not be able to handle. If you get problems using the Wave file in another application, activate this option and re-export.

Insert iXML chunk This allows you to include additional project-based or sound metadata (e.g. scene and take information) in the exported file. Some applications may not be able to handle files with embedded info - if you get problems using the file in another application, deactivate the option and re-export.

Sample Rate (only uncompressed file formats) This setting determines the frequency range of the exported audio - the lower the sample rate, the lower the highest audible frequency in the audio. In most cases, you should select the sample rate set for the project, since a lower sample rate will degrade the audio quality (mainly reducing the high frequency content) and a higher sample rate will only increase the file size, without adding to audio quality. Also consider the future usage of the file - if you e.g. plan to import the file into another application, you should select a sample rate supported by that application. If you are making a mixdown for CD burning, you should select 44.100 kHz, since this is the sample rate used on audio CDs.

Bit Depth (only uncompressed file formats) Allows you to select 8, 16, 24 bit or 32 bit (float) files. If the file is an "intermediate mixdown" that you plan to reimport and continue working on in Cubase, we recommend that you select the 32 bit (float) option. 32 bit (float) is a very high resolution (the same resolution as used internally for audio processing in Cubase),

and the audio files will be twice the size of 16 bit files. If you are making a mixdown for CD burning, you should use the 16 bit option, as CD audio is always 16 bit. In this case, we recommend that you activate the UV- 22HR dithering plug-in (see the separate PDF document "Plug-in Reference" for details). This reduces the effects of quantization noise and artifacts from being introduced when converting the audio down to 16 bit. 8 bit resolution should only be used if required, since it will result in limited audio quality. 8 bit audio may be suitable in some multimedia applications, etc.

Realtime Export If you activate this option, the export will happen in realtime, i.e. the process will generally take the same time as regular playback. Some VST plug-ins, external instruments and effects require this in order to have enough time to update correctly during the mixdown - consult the plug-in documentation. Cubase only: When Realtime Export is activated, the exported audio will be played back via the Control Room.

Update Display If you activate this option, the meters will be updated during the export process. This allows you to check for clipping, for example.

Mono Export (only for singlechannel export) If you activate this option, the exported audio is mixed down to mono.

Split Channels Activate this option if you want to export all sub-channels of a multi-channel output bus as mono files.

Pool Activate this option if you want to import the resulting audio file automatically back into the Pool. A clip referring to the file will appear in the Pool. If this option is activated, the Import Options dialog appears on export. For a description of the available settings, see "About the Import Medium dialog" on page 268.

Audio Track If you activate this option, an audio event that plays the clip will be created and placed on a new audio track, starting at the left locator. Furthermore, the Import Options dialog appears on export. For a description of the available settings, see "About the Import Medium dialog" on page 268.

Create New Project (uncompressed file formats only) Activate this option if you want to automatically create a new project that contains one audio track for each exported channel. The tracks will have the corresponding mixdown file as audio event. The track names will be identical with the export channel names. Note that the new project will be the active project.

Close dialog after export If this option is activated, the dialog will be closed after the export, otherwise it will be left open.

Audition Volume fader (only for single-channel export) Cubase only: During a Realtime Export, this fader is displayed in the progress dialog after you clicked the Export button. It allows you to adjust the Control Room volume. Note that this fader is only available if the Control Room is activated. */

AIFC files.....423

/* AIFC stands for Audio Interchange File Format Compressed, a standard defined by Apple Inc. These files support compression ratios as high as 6:1 and contain tags in the header. AIFC files have the extension ".aifc" and are used on most computer platforms.

AIFC files support the same options as AIFF files. */

Wave files.....424 "Wave files"

/* Wave files have the extension ".wav" and are the most common file format on the PC platform. Wave files support the same options as AIFF files. */

Wave 64 files (Cubase only).....424

/* Wave 64 is a proprietary format developed by Sonic Foundry Inc. In terms of audio quality, Wave 64 files are identical to standard wave files, but in the file headers Wave 64 files use 64-bit values for addressing where wave files use 32-bit values. The consequence of this is that Wave 64 files can be considerably larger than standard Wave files. Wave 64 is therefore a good file format choice for really long recordings (file sizes over 2GB), e.g. live surround recordings. Wave 64 files have the extension ".w64".

Wave 64 files support the same options as AIFF files. */

Broadcast Wave files.....424 "Broadcast Wave files"

/* Concerning audio, Broadcast Wave files are the same as regular Wave or Wave 64 files, but without compression. To create a Broadcast Wave file, select either Wave or Wave 64 as the file format and activate the Insert Broadcast Wave Chunk option. Click Edit if you wish to edit the chunk information, otherwise the defaults as specified in the Preferences (Record-Audio-Broadcast Wave page) will be used. Broadcast Wave files have the extension ".wav".

Broadcast Wave files support the same options as AIFF files. */

MPEG 1 Layer 3 files (Cubase only).....424 "MPEG 1 Layer 3 files"

/* MPEG 1 Layer 3 files have the extension ".mp3". By use of advanced audio compression algorithms, mp3 files can be made very small, yet maintaining good audio quality. Apart from the Sample Rate and Bit Depth options, MPEG 1 Layer 3 files support the same settings as AIFF files in the sections File Location, Audio Engine Output and Import into project. The File Format settings are different, though.

For MPEG 1 Layer 3 files the following options are available in the File Format section:

Option Description

Bit Rate fader By moving this fader, you can select a bit rate for the mp3 file. As a rule, the higher the bit rate, the better the audio quality and the larger the file. For stereo audio, 128kBit/s is often considered to result in "good" audio quality.

Sample Rate pop-up On this pop-up menu you can select a Sample Rate for the mp3 file.

High Quality Mode option When this is activated, the encoder will use a different resampling mode, which can give better results depending on your settings. In this mode, you cannot specify the Sample Rate, but only the Bit Rate for the mp3 file.

Insert ID3 Tag option This allows you to include ID3 Tag information in the exported file.

Edit ID3 Tag button When you click this, the ID3 Tag dialog opens, in which you can enter information about the file. This additional information will be embedded as text strings in the file, and can be displayed by most mp3 playback applications. */

Ogg Vorbis files.....424

/* Ogg Vorbis is an open source, patent-free audio encoding and streaming technology, offering compressed audio files (extension ".ogg") of small size, but with comparatively high audio quality.

Apart from the Sample Rate and Bit Depth options, Ogg Vorbis files support the same settings as AIFF files in the sections File Location, Audio Engine Output and Import into project.

In the File Format section you will find only one setting: the Quality fader. The Ogg Vorbis encoder uses variable bit rate encoding, and the Quality setting determines between which limits the bit rate will vary. Generally speaking, the higher the Quality setting, the higher the sound quality but also the larger the files. */

Other file formats.....424

/* Steinberg also offers optional Dolby Digital (AC3) and DTS encoders for export directly to AC3 or DTS format (Cubase only). Please go to www.steinberg.net for more information. */

Windows Media Audio Pro files (Windows only).....425

/* This is a continuation of the Windows Media Audio format developed by Microsoft Inc. Due to the advanced audio codecs and lossless compression used, WMA Pro files can be decreased in size with no loss of audio quality. Furthermore, WMA Pro features the possibility of mixing down to 5.1 surround sound. The files have the extension ".wma".

... */

General tab.....425

Advanced tab.....425

Media tab.....426

33 Synchronization.....427

Background.....428

What is synchronization?.....428

/* Synchronization is said to exist when you make two pieces of equipment agree on time or tempo and position info. You can establish synchronization between Cubase and a number of other types of devices, including tape recorders and video decks, but also MIDI devices that "play back", such as other sequencers, drum machines, "workstation sequencers", etc.

When you set up a synchronization system, you must decide which unit is the master. All other devices are then slaved to this unit, which means they will adjust their playback speed to the master's.

*! For a description of the VST System Link feature (with which you can synchronize separate computers running Cubase or Nuendo for example), see "Working with VST System Link" on page 438. */*

Cubase as slave.....428

/ When a synchronization signal is coming in to Cubase, from another device, this device is the master and Cubase is the slave. Cubase will adjust its playback to the other device. */*

Cubase as master.....428

/ When you set up Cubase to transmit synchronization information to other devices, Cubase is the master and the other devices are the slaves; they will adjust their playback to Cubase. */*

Cubase - both master and slave.....428

/ Cubase is a very capable synchronization device. It can operate as both master and slave at the same time. For example, Cubase might be slaved to a tape recorder transmitting timecode, while at the same time transmitting MIDI Clock to a drum machine, acting as a master for that. */*

Synchronization signals.....428

Timecode (SMPTE, EBU, MTC, VITC, etc.).....428

Format recommendations for timecode - without ASIO Positioning

Protocol.....428

Format recommendations for timecode - with ASIO Positioning

Protocol.....428

MIDI Clock.....429

Word Clock.....429

Synchronizing the transport vs. synchronizing audio.....429

How timing is handled in a non-synchronized system.....429

Synchronizing Cubase's playback.....429 playback

What happens with the digital audio?.....429

Resolving to word clock.....429

Using timecode without word clock.....430

Making basic settings and connections.....430

Setting the Frame Rate.....430

Making connections.....431

Synchronization settings.....431

Internal Timecode.....431

Synchronizing other Equipment to Cubase.....431

Transmitting MIDI Clock.....431

Send MIDI Clock in Stop Mode.....432

Transmitting MIDI Timecode.....432

Setting Up.....432

MIDI Timecode.....433

Setting up Cubase for external sync to timecode.....433

The Sync indicator.....433

ASIO Audio Device.....434

About the ASIO Positioning Protocol (APP).....434

Hardware and software requirements for APP.....434

Setting up the audio card for external synchronization.....434

The Sync indicator.....435

VST System Link.....435

Machine Control.....436

About sync and machine control.....436

MIDI Machine Control (MMC).....436

Cubase as MMC slave (Cubase only).....437

Sync Options.....437

Lock Frames.....437

Drop Out Frames.....437

Inhibit Restart.....437

Working with VST System Link.....438

```
/* VST System Link is a network system for digital audio that allows you to have several computers working together in one large system. Unlike conventional networks it does not require Ethernet cards, hubs, or CAT-5 cables; instead it uses the kind of digital audio hardware and cables you probably already possess in your studio.
```

VST System Link has been designed to be simple to set up and operate, yet give enormous flexibility and performance gains in use. It is capable of linking computers in a "ring" network (the System Link signal is passed from one machine to the next, and eventually returns to the first machine). VST System Link can send its networking signal over any type of digital audio cable, including S/PDIF, ADAT, TDIF, or AES, as long as each computer in the system is equipped with a suitable ASIO compatible audio interface.

Linking up two or more computers gives you vast possibilities:

- Dedicate one computer to running VST instruments while recording audio tracks on another.
- If you need lots of audio tracks, you may simply add tracks on another computer.
- You could have one computer serve as a "virtual effect rack", running CPU-intensive send effect plug-ins only.

*Since you can use VST System Link to connect different VST System Link applications on different platforms, you can take advantage of effect plug-ins and VST instruments that are specific to certain programs or platforms. */*

```
/* Cubase plays back video films in a number of formats.
```

Under Windows, video playback can be done using one of three playback engines: Video for Windows, DirectShow or QuickTime 7.1. This ensures compatibility with as wide a range of video files as possible. The following file formats are supported: AVI, Windows Media Video (Cubase only: you can also import files in Windows Media Video Pro format), QuickTime and MPEG.

Under Mac OS X, QuickTime is always used as playback engine. QuickTime supports the following video file formats: AVI, MPEG, QuickTime and DV.

There are two ways to play back video:

- Without any special hardware.

See "Playing back video without any hardware" on page 447.

- *Using video hardware that, for example, connects to an external monitor.*

*See "Playing back video file using video hardware" on page 448. */*

Before you start.....	446
Have you selected the right playback engine? (Windows only).....	446
About the QuickTime video playback engine.....	446
Video quality in QuickTime.....	447
Video playback preferences.....	447
Playing back a video file.....	447
Playing back video without any hardware.....	447
Playing back video file using video hardware.....	448
Operations.....	448
Importing a video file.....	448
Video import preferences.....	448
Advantage of thumbnail cache files.....	448
Generating thumbnail cache files during video import.....	449
Generating thumbnail cache files from within the Pool.....	449 Pool
Editing a video file.....	449
Extracting audio from a video file.....	450
Replacing the audio in a video file.....	450
35 ReWire.....	451
Introduction.....	452

/ ReWire and ReWire2 are special protocols for streaming audio between two computer applications. Developed by Propellerhead Software and Steinberg, ReWire provides the following possibilities and features:*

- *Realtime streaming of up to 64 separate audio channels (256 with ReWire2), at full bandwidth, from the "synthesizer application" into the "mixer application".*

In this case, the "mixer application" is of course Cubase. An example of a "synthesizer application" is Propellerhead Software's Reason.

- *Automatic, sample accurate synchronization between the audio in the two programs.*
- *The possibility to have the two programs share one audio card and take advantage of multiple outputs on that card.*
- *Linked transport controls that allow you to play, rewind, etc., either from Cubase or from the synthesizer application (provided it has some kind of transport functionality).*
- *Automatic audio mixing functions of separate channels as required.*

In the case of Reason, for example, this allows you to have separate mixer channels for the different devices.

- *Additionally, ReWire2 offers the possibility to route MIDI tracks in Cubase to the other application, for full MIDI control.*

For each ReWire2 compatible device, a number of extra MIDI outputs will be made available in Cubase. In the case of Reason, this allows you to route different MIDI tracks in Cubase to different devices in Reason, with Cubase serving as the main MIDI sequencer.

- *The overall load on your system is much reduced, compared to when using the programs together in the conventional way. */*

Launching and quitting.....	452
Launching for normal use with ReWire.....	452
Quitting a ReWire session.....	452
Launching both programs without using ReWire.....	452
Activating ReWire channels.....	453
Using the transport and tempo controls.....	453
Basic transport controls.....	453
Loop settings.....	453
Tempo settings.....	453
How the ReWire channels are handled in Cubase.....	454
Routing MIDI via ReWire2.....	454
Considerations and limitations.....	454
Sample rates.....	454

ASIO drivers.....454

36 File handling.....455

Working with Projects.....456

New Project.....456

/ The New Project command on the File menu allows you to create a new project, either as an empty project or based on a template:*

1. Select New Project from the File menu.

The templates list is displayed. When you install Cubase, templates for various purposes are included, but you can also create your own (see "Save as Template" on page 457).

2. Select a template from the list or select "Empty".

A file dialog opens, allowing you to specify a folder for the new project.

3. Select an existing project folder or create a new folder and click OK.

*A new, untitled project is created. */*

Open.....456

/ The Open command on the File menu is used for opening saved project files. Project files created with Cubase (file extension ".cpr"), Nuendo (file extension ".npr") and Sequel (extension ".steinberg-project") can be opened. Note that program-specific settings which cannot be applied in Cubase will be ignored.*

1. Select "Open..." from the File menu.

A file dialog opens, allowing you to select a project.

2. Click Open.

The project opens in the Project window.

• Several projects can be open at the same time.

This is extremely useful if you want to copy parts or entire sections from one project to another.

3. If a project is already opened, opening another project brings up a warning.

• Click "No" to open the other project inactive.

This significantly reduces load times, especially for large projects.

• Click Activate to open and activate the new project.

The active project is indicated by the blue Activate Project button in the upper left corner of the Project window. To activate a different project, simply click its Activate Project button.

An active project

• You can also open project files by selecting an entry from the "Recent Projects" submenu on the File menu.

This submenu lists the projects you have recently worked with, with the most recent one at the top of the list.

• You can also set Cubase to automatically open a project when you launch the program (see "Startup Options" on page 458).

*• You can drag projects from the MediaBay into the Cubase application window (not into an existing Project window) to open them.
/

About the "Pending Connections" dialogs.....456

/ If you open a Cubase project created on a different system (other audio hardware), the program tries to find matching audio inputs and outputs for the i/o busses (this is one of the reasons why you should use descriptive, generic names for your input and*

output ports - see "Preparations" on page 15).

*If the program cannot resolve all audio/MIDI inputs and outputs used in the project, a Pending Connections dialog will open. This allows you to manually re-route any ports specified in the project to ports available in your system. */*

Close.....456

/ The Close command on the File menu closes the active window. If a Project window is active, selecting this closes the corresponding project.*

- If the project contains unsaved changes, you are asked whether you want to save it before closing.*

*If you select "Don't Save" and have recorded or created new audio files since saving, you get the choice to delete or keep these. */*

Save and Save As.....457

/ The commands Save and Save As allow you to save the active project as a project file (file extension ".cpr"). The Save command stores the project under its current name and location, while Save As allows you to rename and/or relocate the file. If a project has not been saved yet or if it has not been changed since it was last saved, only Save As is available.*

*! Generally, we recommend that you save project files in their project folders, to keep the projects as manageable as possible. */*

A word about file extensions.....457

/ Under Windows, file types are indicated by three letter file name extensions (such as *.cpr for Cubase project files).*

*Under Mac OS X, it is not necessary to use file name extensions, since the file types are stored internally in the files. However, if you want your Cubase projects to be compatible with both platforms, you should make sure the option "Use File Extension in File Dialog" is activated in the Preferences (General page). When this is activated, the proper file name extension is automatically added when you save a file. */*

Save New Version.....457

/ This function is only available as a key command, by default [Ctrl]/[Command]-[Alt]/[Option]-[S]. When you use this function, an identical, new project file is being created and activated.*

The new file will get the same name as the original project, but with an incremental number attached. For example, if your project is called "My Project", you will get new versions called "My Project-01", "My Project-02", and so on.

*Save New Version is useful if you are experimenting with edits and arrangements and want to be able to go back to a previous version at any time. The newest versions are always listed on the Recent Projects submenu on the File menu for instant access. */*

Save as Template.....457

/ This function allows you to save the current project as a template. When you create a new project, the available templates are listed, allowing you to base the new project on a template.*

Proceed as follows:

1. Set up a project.

2. Select "Save As Template..." from the File menu and save the project template under the desired name.

- Templates can contain clips and events just like regular projects.*

If this is not what you want, make sure to remove all clips from the Pool before you save the project as a template.

Templates are always stored in the Templates folder.

*On a Windows system, it is located at \Documents and Settings\<user name>\Application data\Steinberg\Cubase 5\templates. On a Mac system, it is located inside / Users/<user name>/Library/Preferences/Cubase 5/. */*

Setting up a default template.....457

/ If you always want the same default project to open when you launch Cubase, you can save a default template. Proceed as follows:*

- 1. Set up a project.*
- 2. Select "Save As Template..." from the File menu and save the project template with the name "default".*
- 3. Open the Preferences dialog and select the General page.*
- 4. Open the "On Startup" pop-up and select "Open 'Default' Template".*

*The next time you launch Cubase, the default template will automatically be opened. For details on the other Startup options, see "Startup Options" on page 458. */*

Back up Project.....458

/ This function is very useful if you want to move or backup your project.*

- 1. Select "Back up Project..." from the File menu.*

A file dialog opens in which you can choose an existing empty folder or create a new folder to save the project.

- 2. Click OK.*

The "Back up Project Options" dialog opens.

This dialog contains the following options

Option Description

Project Name Enter a project name if you want to change it from the default (the current name of the project).

Keep Current Project Active When this option is activated, the current project will still be the active project after clicking OK. If you wish to switch to the new backup project instead, you need to deactivate this option.

Minimize Audio Files If this is activated, only the audio file portions that are actually used in the project will be included. This can significantly reduce the size of the project folder (if you are using small sections of large files), but it also means you cannot use other portions of the audio files if you continue working with the project in its new folder.

Freeze Edits This will perform a Freeze Edits operation, making all processing and applied effects permanent to each clip in the Pool, see "Freeze Edits" on page 215.

Remove Unused Files When this is activated, only files in the Pool that are actually used in the project will be stored in the new folder.

Do Not Back up Video When this is activated, any video clips on the video track or in the pool of the current project will not be included in the backup project.

- 3. Make the desired settings.*

- 4. Click OK.*

*A copy of the project is saved in the new folder. The original project is not affected. */*

Auto Save.....458

/ If you activate the Auto Save option in the Preferences (General page), Cubase will automatically save backup copies of all open projects with unsaved changes.*

These backup copies are named "<project name>- xx.bak", where xx is an incremental number. Unsaved projects are backed up in a similar way as "UntitledXxx. bak", with X being the incremental number for unsaved projects. All backup files are saved in the project folder.

- Use the "Auto Save Interval" setting to specify the time intervals in which a backup copy will be created.*

- Use the "Maximum Backup Files" option to specify how many backup files will be created with the Auto Save function.

When the maximum number of backup files is reached, the existing files will be overwritten (starting with the oldest file).

□ With this option only the project files themselves will be backed up. If you want to include the files from the Pool and save your project in a different location, you need to use the "Back up Project" function. */

Startup Options.....458

/* The "On Startup" pop-up menu in the Preferences (General page) allows you to specify what should happen each time you launch Cubase.

The following options are available:

Option Description

Do Nothing Cubase launches without opening a project.

Open Last Project The last saved project is opened on launch.

Open 'Default' Template The default template is opened, see "Setting up a default template" on page 457.

Show Open Dialog The Open dialog opens on launch, allowing you to manually locate and open the desired project.

Show Template Dialog The Template dialog opens on launch, allowing you to create a new project from one of the templates.

Show Open Options Dialog The Open Document Options dialog opens on launch, see below. It allows you to make a different choice each time you launch Cubase. */

Cubase Open Document Options dialog.....459

/* This dialog will open in two cases:

- If you launch Cubase with the option "Show Open Options Dialog" selected on the "On Startup" pop-up menu in the Preferences (General page).
- If you hold down [Ctrl]/[Command] while launching Cubase.

The Open Document Options Dialog

The dialog lists your recently used projects.

- To open a project, select it and click the "Open Selection" button.
- To open another project not listed here, click the "Open Other..." button.

A file dialog opens that allows you to look for the desired file on your disk.

- To create a new project, click the "New Project" button. */

Revert.....459

/* If you select "Revert" from the File menu, you will be asked whether you really want to revert to the last saved version of the project. If you click "Revert", all changes you have made since saving will be discarded.

If you have recorded or created new audio files since saving, you will be asked whether you want to delete or keep these. */

Importing audio.....459 "Importing audio"

/* In Cubase audio can be imported in a variety of different formats. For example, you can import tracks from audio CDs, or import audio files saved in different formats (compressed and uncompressed).

For information on audio file import preferences, please see "Audio file import options" on page 41. For information on how to import audio files into the Pool and import options, see "About the Import Medium dialog" on page 268. */

Importing audio CD tracks.....459
Importing Audio from Video files.....461
Importing ReCycle files.....461

/ ReCycle by Propellerhead Software is a program designed especially for working with sampled loops. By "slicing" a loop and making separate samples of each beat, ReCycle makes it possible to match the tempo of a loop and edit the loop as if it was built of individual sounds. Cubase can import two file types created by ReCycle:*

- REX files (export file format of the first versions of ReCycle, extension ".rex").*
- REX 2 files (file format of ReCycle 2.0 and later, extension ".rx2").*

! For this to work, the REX Shared Library needs to be installed on your system. If this is not the case, you will find the corresponding installer on the installation DVD (in the "Additional Content\Installer Data" folder).

*... */*

Importing compressed audio files.....461

/ Cubase can import (and export, see "Mixing down to audio files" on page 420) several common audio compression formats. The procedure is the same as when importing any non-compressed audio file, with one important thing to note:*

- When you import a compressed audio file, Cubase creates a copy of the file and converts this to Wave format (Windows) or AIFF format (Mac OS X) before importing it. The original compressed file will not be used in the project. The imported file is placed in the designated project Audio folder.*

! The resulting Wave/AIFF file will be several times larger than the original compressed file.

*The following file types are supported: */*

MPEG audio files.....462

/ MPEG, which stands for Moving Picture Experts Group, is the name of a family of standards used for encoding audio- visual information (e.g. movies, video, music) in a digital compressed format.*

Cubase can read two types of audio MPEG files: MPEG Layer 2 (.mp2) and MPEG Layer 3 (*.mp3). Currently, mp3 is the most common of these formats, while the mp2 format is mostly used in broadcast applications. */*

Ogg Vorbis files.....462

/ Ogg Vorbis is an open and patent-free format that offers very small audio files maintaining comparatively high audio quality. Ogg Vorbis files have the extension ".ogg". */*

Windows Media Audio files (Windows only).....462

Exporting and importing OMF files (Cubase only).....462

/ Open Media Framework Interchange (OMFI) is a platform independent file format intended for the transfer of digital media between different applications. Cubase can import and export OMF files (file extension ".omf"), allowing you to use Cubase in conjunction with other audio and video applications. */*

Exporting OMF files.....462

Importing OMF files.....463

Exporting and importing standard MIDI files.....464

/ Cubase can import and export Standard MIDI Files, which makes it possible to transfer MIDI material to and from virtually any MIDI application on any platform. When you import and export MIDI files, you can also specify whether certain settings associated with the tracks should be included in the files (automation tracks, volume and pan settings, etc.). */*

Exporting MIDI files.....464

Importing MIDI files.....465

Exporting and importing MIDI loops.....465

/ Cubase allows you to import MIDI loops (file extension ".midiloop") and to save instrument parts as MIDI loops. MIDI loops are handy, as they contain not only MIDI notes and controllers, but also the associated VST instrument and instrument track preset settings.*

*How to import and export MIDI loops is described in detail in the chapter "VST Instruments and Instrument tracks" on page 169.
/

Exporting and importing tracks (Cubase only).....466

/ You can export Cubase tracks (Audio, FX, Group, Instrument, MIDI and Video) as track archives for import into other Cubase (or Nuendo) projects. All the information associated with the tracks will be exported (mixer channel settings, automation tracks, parts and events, etc.). If you select the option "Copy" (see below), a separate "media" folder will be created, containing copies of all referenced audio files.*

□ Project-specific settings (such as tempo) are not part of the exported track archives.

*□ For creating track presets from tracks, see "Working with Track Presets" on page 288. */*

Exporting tracks as track archives.....466

/ 1. Select the tracks you wish to export.*

2. Pull down the File menu, open the Export submenu and choose "Selected Tracks...".

3. You are prompted to choose between two options:

- Click Copy to include copies of the media files in the export.*

*A file dialog opens in which you can choose an existing empty folder or create a new folder for saving the track archive (as *.xml file) and its media subfolder, which will contain any associated audio or video files.*

- Click Reference to include merely a reference to the files in the export.*

*A file dialog opens in which you can choose an existing folder for saving the track archive (as single *.xml file).*

*4. Click OK to save the track archive. */*

Importing tracks from a track archive.....466

/ The Import Track Archive function lets you import tracks exported from another Cubase (or Nuendo) project.*

□ Note that the sample rates of the active project and the track archive have to match. If necessary, you have to convert the sample rate, see below.

1. Pull down the File menu, open the Import submenu and select "Track Archive...".

2. In the file dialog that opens, select the XML file and click Open.

The Import Options dialog opens.

In the Project Settings area, you can see a comparison between the settings of the track archive and the active project.

3. Click in the Import column on the left to select the desired track(s) or click "Select all Tracks".

A checkmark is shown for all selected tracks.

4. Choose which media files to use:

- Select "Use Media Files From Archive" if you want to import the track without copying the media files into your project folder.*
- Select "Copy Media To Project Folder" if you want to import the media files into your project folder.*

For the option "Perform Sample Rate Conversion", see below.

5. Click OK.

*The tracks are imported, complete with all contents and settings. */*

Sample rate conversion on track archive import.....466

/ A track archive may contain media files with a sample rate that is different from the sample rate of your currently active project. You can see the sample rate difference in the Project Settings area.*

- To convert the sample rate of a track archive to the sample rate used in the active project on import, select the option "Copy Media To Project Folder" and then "Perform Sample Rate Conversion".*

*□ Unconverted files with another sample rate than the one used in the project will play back at the wrong speed and pitch. */*

Other Import/Export functions.....467

/ • For exporting scores, see "Exporting" on page 504.*

- For exporting and importing tempo tracks, see "Exporting and importing tempo tracks" on page 405. */*

Cleanup.....467 Cleanup

/ The Cleanup function on the File menu helps you to save hard disk space by locating and - if you like - deleting unused audio files in the project folders on your disk.*

1. Select "Cleanup..." from the File menu.

If there are any open projects, an alert shows. Clicking "Close" closes all open projects and brings up the dialog "Cleanup Cubase Project Folders".

2. To restrict the Cleanup function to a certain folder, click the "Search Folder" button and select the folder.

The default setting is that the Cleanup function is applied to all folders on all hard disks. You should only select a specific folder if you are certain it does not contain audio files used in other projects (outside the folder), see below. You can reset the function to search all folders by opening the "Search Folder" dialog again and clicking "Cancel".

3. Click the Start button.

Cubase will now scan the selected folder (or all hard disks) for Cubase project folders and check for audio and image files (in the Audio, Edits and Images subfolders) that are not used by any project. The found files are listed in the dialog.

4. When the scan is complete, you can select files by clicking in the list.

Use [Ctrl]/[Command]-click to select several files, and [Shift]-click to select a range of files. You can also click the Select All button to select all files in the list.

In the following situations, the Cleanup function will list files that are not unused:

- If you have moved or renamed files or folders (without updating the project files to use the new paths), there is no way for Cubase to know that these files are used in a project.*
- If you perform the Cleanup function on a folder in which there are audio files belonging to other projects (outside the folder), these files will be considered "unused".*

- Also, make sure you do not delete any files used in other applications, or files that you generally want to keep!*

However, you can always safely delete image files since these can be reconstructed by the program, if necessary.

5. Delete any files you do not want to keep by selecting them and clicking Delete.

*6. Close the dialog by clicking the Close button. */*

37 Customizing.....468

Background.....469

/ The user can customize the appearance and functionality of Cubase in various ways.*

User configurable items described in this chapter are:

- *Workspaces*

By storing different window combinations as workspaces, you can quickly switch between different working modes - see "Workspaces" on page 469.

- *Setup dialogs*

Several parts of the user interface (toolbars, Transport panel, Inspector, info lines and Channel Settings windows) provide a Setup dialog, where you can configure which items of the respective window area or panel are to be shown or hidden and where they should be located - see "Using the Setup options" on page 471.

- *Track list*

The controls shown in the Track list can be set for each track type - see "Customizing track controls" on page 472.

- *Preference presets (Cubase only)*

You can save and recall preference settings as preference presets - see "About preference presets (Cubase only)" on page 473.

- *Appearance*

The general look of the program can be adjusted - see "Appearance" on page 474.

- *Track and event colors*

You can adjust which colors should be used - see "Applying track and event colors" on page 475.

*This chapter also contains a section describing where your preferences and settings are stored (see "Where are the settings stored?" on page 478), to help you transfer your customized settings to another computer. */*

Workspaces.....469

/ A configuration of Cubase windows is called a "workspace". A workspace stores the size, position and content of all windows, allowing you to quickly switch between different working modes via the menu or by using key commands. For example, you may want as large a Project window as possible when you are editing, whereas you may want the Mixer and effect windows open during mixdown. Workspaces are listed and managed on the Workspaces submenu on the Windows menu. */*

Editing the active workspace.....469

/ There is always one workspace active, even if you have not saved any. To make changes to the active workspace, you simply set up the windows as desired - including opening, closing, moving and sizing windows, and adjusting zoom and track height. The changes are automatically stored for the active workspace.*

- *To keep a workspace from being accidentally changed, select "Lock Active Workspace" from the Workspaces submenu.*

*A locked workspace will keep its original window settings. You may change the current window layout on the screen, but the next time you select the workspace again, the originally stored layout is recalled. */*

Creating a new workspace.....470

/ 1. Pull down the Window menu and open the Workspaces submenu.*

2. Select "New Workspace".

3. In the dialog that opens, enter a name for the workspace.

4. Click OK.

The workspace is stored and will appear on the submenu. It is now the active workspace.

5. Set up the windows you want to include in the new workspace.

*This may include opening, moving and sizing windows, and adjusting zoom and track height. */*

Activating a workspace.....470

/ 1. Pull down the Window menu and open the Workspaces submenu.*

2. Select a workspace from the list on the submenu.

The windows are closed, opened, moved and/or resized according to the stored workspace.

- *You can also activate up to nine workspaces using key commands.*

*This is set up under the Workspaces category in the Key Commands dialog. */*

Organizing workspaces and presets.....470

/ If you select "Organize..." from the Workspaces submenu, the Organize Workspaces dialog opens:*

The list to the left shows the workspaces in the active project, while the list to the right shows the workspace presets. While workspaces are stored with each project, workspace presets can be stored globally, allowing you to set up a number of workspaces for use in any project. Workspace presets store the position and size of the main windows only - project-specific windows are not included.

- *In the Workspaces list to the left, you can rename workspaces (by double-clicking and typing) and lock or unlock them.*
- *The arrow buttons between the two lists allow you to copy the selected workspace to a workspace preset, or vice versa.*
- *The buttons below each list let you add, remove or activate workspaces or presets.*

You can also activate a workspace or a preset by double-clicking in its number column.

- *Normally, when you use key commands to activate workspaces, they relate to the order in the workspace list, e.g. the key command for "Workspace 1" selects the first workspace on the list and so on. However, if you activate the Use IDs checkbox, you can enter a number (1-9) in the ID column for each workspace.*

This number will be used as reference when you are using key commands, so that the key command for "Workspace 1" recalls the workspace with ID 1.

- *Workspace presets are not only saved globally, but also included in the project. If you open a project on a different system, by default the global presets stored on this system are shown in the list to the right. To see the presets included in your project, activate the Show Project Presets checkbox.*
- *Activate the Auto Instantiate Presets checkbox to convert all global workspace presets automatically into workspaces when you create a new project or open a project.*
- *To close the dialog, click the OK button.*

*Note that you can continue working in other windows with the Organize Workspaces dialog open. */*

Using the Setup options.....471

/ You can customize the appearance of the following elements:*

- *Transport panel*
- *Info line*
- *Channel Settings window*
- *Toolbars*
- *Inspector */*

The setup context menus.....471

The Setup dialogs.....471

Customizing track controls.....472

/ For each track type you can configure which track controls should be shown in the Track list. You can also specify the order of controls and group controls so that they are always shown adjacent to each other. This is done using the Track Controls Settings dialog. */*

Opening the Track Controls Settings dialog.....472

Setting the track type.....472

Removing, adding and moving track controls.....472

Grouping track controls.....472

About Wrap Controls.....473

About the Length column.....	473
Resetting Track list settings.....	473
Saving presets.....	473
About preference presets (Cubase only).....	473 "preference presets"

/ In the Preferences dialog it is possible to save complete or partial preference settings as presets. This lets you recall settings quickly and easily. */*

Saving a preference preset.....473

/ When you have made your preferences settings, proceed as follows to save all settings as a preset:*

1. Make sure that the "Store marked preferences only" option is not activated.

This is because this option is used for saving partial settings (see below), as opposed to complete settings.

2. Click the Store button in the lower left section of the Preferences dialog.

A dialog opens, allowing you to type in a name for the preset.

3. Click OK to save the preset.

*Your saved settings are now available from the Preference Presets pop-up menu. */*

Loading a preference preset.....473

/ To load a saved preference preset, simply select a preset from the Preference Presets pop-up menu. The preset is applied immediately. */*

Saving partial preferences settings.....474

/ It is also possible to save partial preferences settings. This is useful when you have made settings that only relate to a certain project or situation, for example. When you apply a saved partial preference preset, you only change the saved settings. All other preferences will be left unchanged.*

When you have made your specific preferences settings, proceed as follows to save the partial settings as a preset:

1. Activate "Store marked preferences only".

A new "Store" column is added to the Preferences list.

2. Click in the Store column of the Preferences items you wish to save.

Note that if you activate a Preferences page that contains subpages, these will also be activated. If this is not what you want, simply deactivated the subpages.

3. Click the Store button in the lower left section of the Preferences dialog.

A dialog opens, asking you to type in a name for the preset. It is a good idea to choose a descriptive name for a partial preference preset, preferably relating to the saved settings (for example "Editing-Controls").

4. Click OK to save.

*Your saved settings are now available from the Preference Presets pop-up menu. */*

Appearance.....	474
Cubase Studio.....	474
Cubase.....	474
General.....	474

/ The controls on the General page affect the appearance of the windows that surround the controls and workspaces in Cubase.*

- Saturation determines how rich the background colors are, from gray to blue.*
- Brightness lightens or darkens the background.*
- Button Brightness can be used to separately lighten or darken the buttons. */*

Meters.....475

/ The coloring of meters in Cubase can be controlled in sophisticated ways. Multiple colors can help to visually indicate what levels are being reached, e.g. in a channel of the VST Mixer. To do this, the meter on the Appearances- Meters page has color handles that allow you to define what color the meter will have at a given signal level.*

The Appearances-Meters page in the Preferences dialog

*... */*

Work Area.....475

/ The work areas in Cubase are those places where the actual data are displayed such as the project window event display. In these areas, there are items such as vertical and horizontal grid lines that can be altered in intensity by the controls found on this page. */*

Applying track and event colors.....475

/ You can use color scheming for easier overview of tracks and events in the Project window. Applying colors is divided into two areas; track and event colors.*

- A track color is shown and can be edited in the Inspector, the Track list, and the corresponding channel in the Mixer. It is furthermore displayed in all parts and events for the track in the event display.*

Track colors can be switched on and off globally.

- Event colors are shown for parts and events in the event display and are independent from the track colors.*

.. An applied event color "overrides" the track color, if both are used.

*The color palette can be customized, see "The Event Colors dialog" on page 477. */*

Track colors.....475

Applying track colors manually.....475

/ To activate track colors, proceed as follows:*

- 1. Click the Show/Hide Track Colors button at the top of the Track list.*

This brings up the Track Color Selector in the Inspector, the Track list and in the Mixer.

- 2. To bring up the color palette, click the Track Color Selector.*

Click the arrow in the track name title bar or...

...click the color strip in the Track list.

In the Mixer, click the Channel Color Selector below the channel name.

- 3. Select a color from the color bar.*

*The track color is now applied to the Inspector title palette and the Track list as well as the channel strips in the Mixer and any parts and events on the selected track. */*

Applying track colors automatically.....476

/ In the Preferences (Editing-Project & Mixer page), you can find the option "Auto Track Color Mode".*

This offers you several options for automatically assigning colors to tracks that are added to the project.

Option Effect

Use Default Event Color The default color (gray) is assigned.

Use Previous Track Color Uses the color of the track above the new one (i.e. the track that is selected when you add a new track).

Use Previous Track Color +1 Uses the color next to the color of the track above the new one (+1 refers to the color number in the palette).

Use Last Applied Color The last manually assigned color is used.

*Use Random Track Color Track colors are assigned randomly. */*

Coloring parts and events.....476

/ There are two ways to color parts and events in the Project window: */*

Using the color selector.....476

- /* 1. Select the desired parts or events.*
- 2. Choose a color from the Color Selector in the toolbar. */*

Using the Color tool.....476

- /* 1. On the toolbar, select the Color tool.*
- 2. Click the small strip below it to bring up the color palette.*
- 3. Select a color.*
- 4. Click on a part/event to assign the color.*

The color is applied to all selected parts/events and overrides the track color (if used).

- If you press [Ctrl]/[Command] and click on a part/event with the Color tool, the color palette is displayed and you can choose the desired color for an event.*
- If you press [Alt]/[Option], the Color tool cursor becomes a pipette, which can be used to select a color by clicking on a part/event. */*

Customizing the event background.....477

/ On the Event Display page in the Preferences dialog, you can find the option "Colorize Event Background".*

This option affects the display of events in the Project window.

- When this is activated, the events and parts in the event display will have the selected background color.*
- When this is deactivated, the event "content", e.g. MIDI events and audio waveforms, are displayed in the selected color and the event background is gray. */*

The Event Colors dialog.....477

/ You can open the Event Colors dialog in two ways:*

- Double-click the small strip below the Color tool.*
- Open the Color pop-up menu on the toolbar and select "Select Colors...".*

In the Event Colors dialog, you can fully customize the color palette, apart from the default color (gray).

*Insert New Color
Remove Selected Color
Increase/decrease intensity for all colors
Increase/decrease brightness for all colors
Use Default Set
This Set As Default Set*

To add new colors to the color palette, proceed as follows:

1. Click the Insert New Color button in the Event Colors section to add a new color.

A new color icon and color name are added to the Event Colors section.

2. Click the color field next to the name field to activate the new color for editing.

3. In the Standard Colors section, select the standard color. You can modify the selected color as follows:

- Drag the cursor to another point in the color circle.
- Move the handle in the color meter.
- Enter the values for red, green and blue and hue, saturation and luminosity manually.

4. Click the Apply button in the Standard Colors section.

The color setting is applied to the selected color field in the Event Colors section.

You can edit every existing event color in the same way.

- To delete an event color item, select it and click the "Remove Selected Color" button in the Event Colors section.
- To increase or decrease the intensity and the brightness of all colors, use the corresponding buttons in the Event Colors section.
- To save the current set as default, click the button "This Set As Default Set" in the Event Colors section. You can then click the button "Use Default Set" to the right to apply the default set.
- To return to the standard setting of the palette in Cubase, click Reset. */

Where are the settings stored?.....478 "Where are the settings stored?"

/* As you have seen, there are a large number of ways in which you can customize Cubase. While some of the settings you make are stored with each project, others are stored in separate preference files.

If you need to transfer your projects to another computer (e.g. in another studio), you can bring all your settings along by copying the desired preference files and installing them on the other computer.

□ It is a good idea to make a backup copy of your preference files once you have set things up the way you want!

This way, if another Cubase user wants to use his or her personal settings when working on your computer, you can restore your own preferences afterwards.

- Under Windows, preference files are stored in the folder "\\Documents and Settings\\<user name>\\Application Data\\Steinberg\\Cubase 5\\".

If you run the 64 bit version of Cubase, this folder is called "Cubase 64bit". On the Start menu, you will find a shortcut to this folder for easy access.

- Under Mac OS X, preference files are stored in the folder "/Library/Preferences/Cubase 5/" under your home directory.

The full path would be: "/Users/<user name>/Library/Preferences/ Cubase 5/".

- The RAMpresets.xml file, which contains various presets settings (see below), is saved when exiting the program.
- Program functions (e.g. crossfade) or configurations (e.g. panels) not used in the project will not be stored.

Below, the preferences that are not saved in the default preferences folder (see above) are listed:

Setting Stored in

Mixer (or channel) settings saved in the last active folder as *.vmx file (VST Mixer settings)

Color setup saved with the project

Mixer view preset saved with the project

Workspaces saved with the project

Crossfade presets Application folder\Presets\RAMPresets.xml

Device setup files Application folder\Device Maps (as *.xml file)

Drum maps Application folder\DrumMaps (as *.drm file)

EQ presets Application folder\Presets\VstEqPresets.pxml

Track presets (user-defined, for all programs) Win: \Documents and Settings\<user name>\Application Data\Steinberg\Track Presets
Mac: /Users/<user name>/Library/Application Support/ Steinberg/Track Presets/ (in the subfolders \Audio, \Instrument, \Midi, \Multi)
as *.trackpreset file

VST3 presets (user-defined, for all programs) Win: \Common files\VST3 Presets\<company>\ <plug-in name> Mac: /Users/<user
name>/Library/Audio/Presets/ <company>/<plug-in name> as *.vstpreset file

VST3 presets (public, for all programs) Win: \Documents and Settings\VST3 Presets\<company>\< plug-in name> Mac:
/Library/Audio/Presets/<company>/<plug-in name> as *.vstpreset file */

38 Key commands.....479

Introduction.....480

/ Most of the main menus in Cubase have key command shortcuts for certain items on the menus. In addition, there are numerous other Cubase functions that can be performed via key commands. These are all default settings. If you want, you can customize existing key commands to your liking, and also add commands for menu items and functions that have no key command assigned.*

*! You can also assign tool modifier keys, i.e. keys that change the behavior of various tools when pressed. This is done in the Preferences dialog - see "Setting up tool modifier keys" on page 483. */*

How are key commands settings saved?.....480 "How are key commands settings saved?"

/ Every time you edit or add any key command assignment, this is stored as a global Cubase preference - not as part of a project. Hence, if you edit or add a key command assignment, any subsequent projects that you create or open will use these modified settings. However, the default settings can be restored at any time by clicking the Reset All button in the Key Commands dialog.*

In addition, you can save key commands settings as a "key commands file", which is stored separately and can be imported into any project. This way you can quickly and easily recall customized settings, when moving projects between different computers, for example. The settings are saved in an .xml file on the hard disk.

*How to save key commands settings is described in the section "About key commands presets" on page 482. */*

Setting up key commands.....480

/ The following is a description of how you set up key commands and save them as presets for easy access. Key commands settings are accessed and edited in the Key Commands dialog. */*

Adding or modifying a key command.....480

/ In the Key Commands dialog you will find all main menu items and a large number of other functions, arranged in a hierarchical way similar to the Windows Explorer and Mac OS Finder. The function categories are represented by a number of folders, each containing various menu items and functions. When you open a category folder by clicking the plus sign beside it, the items and functions it contains are displayed with the currently assigned key commands.*

To add a key command, proceed as follows:

1. Pull down the File menu and select "Key Commands...".

The Key Commands dialog appears.

2. In the Commands list on the left, choose a category.

3. Click the plus sign to open the category folder and display the items it contains.

Note that you can also click the "global" plus and minus signs in the top left corner to open and close all category folders at once.

4. In the list, select the item to which you want to assign a key command.

Already assigned key commands are shown in the Keys column as well as in the Keys section in the top right corner.

Key commands are displayed here.

5. Alternatively, you can use the search function in the dialog to find the desired item.

For a description of how to use the search function, see below.

6. When you have found and selected the desired item, click in the "Type in Key" field and enter a new key command.

You can choose any single key or a combination of one or several modifier keys ([Alt]/[Option], [Ctrl]/[Command], [Shift]) plus any key. Just press the keys you want to use.

7. If the key command you entered is already assigned to another item or function, this is displayed below the "Type in Key" field.

You can either ignore this and proceed to assign the key command to the new function instead, or you can select another key command.

8. Click the Assign button above the field.

The new key command appears in the Keys List.

! If the key command you enter is already assigned to another function, you will get a warning message asking if you really want to reassign the command to the new function.

9. Click OK to exit the dialog.

□ You can set up several different key commands for the same function. Adding a key command to a function that already has another key command will not replace the key command previously defined for the function. If you wish to remove a key command, see below. */

Searching for key commands.....481

/* If you want to know which key command is assigned to a certain function in the program, you can use the Search function in the Key Commands dialog:

1. Click in the search text field at the top left of the dialog and type in the function for which you want to know the key command.

This is a standard word search function, so you should type the command as it is spelled in the program. Partial words can be used; to search for all quantize related commands, type "Quantize", "Quant", etc.

2. Click the Search button (the magnifying glass icon).

The search is conducted and the first matching command is selected and displayed in the Commands list below. The Keys column and the Keys list show the assigned key commands, if any.

3. To search for more commands containing the word(s) you entered, click the Search button again.

4. When you are done, click OK to close the dialog. */

Removing a key command.....481

/* To remove a key command, proceed as follows:

1. Use the list of categories and commands to select the item or function for which you wish to remove a key command.

The key command is shown in the Keys column and the Keys list.

2. Select the key command in the Keys list and click the Delete button (the trash icon).

You are asked whether you really want to remove the key command.

3. Click Remove to remove the selected key command.

*4. Click OK to close the dialog. */*

Setting up macros.....481

/ A macro is a combination of several functions or commands to be performed in one go. For example, you could select all events on the selected audio track, remove DC offset, normalize the events and duplicate them, all with a single command.*

Macros are set up in the Key Commands dialog as follows:

1. Click the Show Macros button.

The macro settings are shown in the lower part of the dialog. To hide these from view, click the button (now renamed Hide Macros) again.

2. Click New Macro.

A new, unnamed macro appears in the Macros list. Name it by typing the desired name. You can rename a macro at any time by selecting it in the list and typing in a new name.

3. Make sure the macro is selected, and use the categories and commands in the upper half of the dialog to select the first command you want to include in the macro.

4. Click Add Command.

The selected command appears in the list of commands in the Macros section.

5. Repeat the procedure to add more commands to the macro.

Note that commands are added after the currently selected command in the list. This allows you to insert commands "in the middle" of an existing macro.

A macro with three commands

- To remove a command from the macro, select it in the Macros list and click Delete.*
- Similarly, to remove an entire macro, select it in the Macros list and click Delete.*

After you have closed the Key Commands dialog, all macros you have created appear at the bottom of the Edit menu in the Macros submenu, available for instant selection.

*You can also assign key commands to macros. All macros you have created appear in the upper section of the Key Commands dialog under the Macros category – just select a macro and assign a key command as with any other function. */*

About key commands presets.....482 "key commands presets"

/ As mentioned above, any changes made to the key commands (and macros) are automatically stored as a Cubase preference. However, it is also possible to store key commands settings separately. This way, you can store any number of different key command settings as presets for instant recall. */*

Saving key commands presets.....482

/ Proceed as follows:*

1. Set up the key commands and macros to your liking.

When setting up key commands, remember to click "Assign" to make the changes.

2. Click the Save button next to the Presets pop-up menu.

A dialog appears, allowing you to type in a name for the preset.

3. Click OK to save the preset.

Your saved key commands settings are now available on the Presets pop-up menu. */

Loading key command presets.....482

/* To load a key command preset, simply select it from the Presets pop-up menu.

.. Note that this operation may replace existing key commands!

The key command settings you load will replace the current key command settings for the same functions (if any). If you have macros of the same name as those stored in the preset you load, these will be replaced too. If you want to be able to revert to your current settings again, make sure to save them first, as described above! */

Loading earlier key commands settings.....482

/* If you have saved key commands settings with an earlier program version, it is possible to use them in Cubase 5, by using the "Import Key Command File" function, which lets you load and apply saved key commands or macros:

1. Open the Key Commands dialog.

2. Click the "Import Key Command File" button to the right of the Presets pop-up menu.

A standard file dialog opens.

3. In the file dialog, use the "Files of type" pop-up menu to specify if you want to import a key commands file (".key") or a macro commands file (extension ".mac").

When you have imported an older file, you might want to save it as a preset (see above) to be able to access it from the Presets pop-up menu in the future.

4. Navigate to the file you want to import and click "Open".

The file is imported.

5. Click OK to exit the Key Commands dialog and apply the imported settings.

The settings in the loaded key commands or macros file now replace the current settings. */

About the "Reset" and "Reset All" functions.....483 Reset "Reset All"

/* These two buttons in the Key Commands dialog will both restore the default settings. The following rules apply:

- "Reset" will restore the default key command setting for the function selected in the Commands list.
- "Reset All" will restore the default key commands for all commands.

! Note that the "Reset All" operation will cause any changes made to the default key commands to be lost! If you want to be able to revert to these settings again, make sure to save them first! */

Setting up tool modifier keys.....483

/* A tool modifier key is a key you can press to get an alternate function when using a tool. For example, clicking and dragging an event with the Arrow tool normally moves it – holding down a modifier key (by default [Alt]/[Option]) will copy it instead.

The default assignments for tool modifier keys can be found in the Preferences (Editing-Tool Modifiers page). Here, you can also edit them:

1. Open the Preferences dialog and select the Editing- Tool Modifiers page.

2. Select an option in the Categories list, and locate the action for which you want to edit the modifier key.

For example, the "Copy" action mentioned above resides in the category "Drag & Drop".

3. Select the action in the Action list.

4. Hold down the desired modifier key(s) and click the Assign button.

The current modifier keys for the action are replaced. If the modifier keys you pressed are already assigned to another tool, you will be asked whether you want to overwrite them. If you do, this will leave the other tool without any modifier keys assigned.

*5. When you're done, click OK to apply the changes and close the dialog. */*

The default key commands.....484

/ Below, the default key commands are listed according to category.*

! When the Virtual Keyboard is displayed, the usual key commands are blocked because they are reserved for the Virtual Keyboard. The only exceptions are: [Ctrl]/ [Command]-[S] (Save), Num [] (Start/Stop Record), [Space] (Start/Stop Playback), Num [1] (Jump to left locator), [Delete] or [Backspace] (Delete), Num [/] (Cycle on/off), [F2] (Show/Hide Transport panel), and [Alt]/[Option]-[K] (Show/Hide Virtual Keyboard).*

• As described in the section "Key command conventions" on page 12, modifier keys are written as: [Win modifier key]/[Mac modifier key].

*For example, "[Ctrl]/[Command]-[N]" in the list below means "press [Ctrl] under Windows or [Command] under Mac OS X, then press [N]". */*

Audio category.....	484
Automation category.....	484
Devices category.....	484
Edit category.....	484
Editors category.....	485
File category.....	485
Media category.....	485
MIDI category.....	485
Navigate category.....	485
Nudge category.....	485
Project category.....	485
Tool category.....	486
Transport category.....	486
Workspace category.....	486
Zoom category.....	486

Cool Edit Pro Version 2 Users Guide

Syntrillium, 2002
unknown pp.

cataloging header	detailed TOC (unnumbered)	custom tags
-------------------	---------------------------	-------------

"Z:\Aussie\Allbooks\My_Music\Wav\coolpro2\coolpro2.txt"

Welcome to Cool Edit Pro.....	Wav
Quick Reference.....	
Navigating the Edit View Screen.....	Wav
Navigating the Multitrack View Screen.....	
Keyboard and Mouse Shortcuts.....	
Edit View main screen.....	Wav
Multitrack View main screen.....	
Multitrack Editing.....	
Effects Functions.....	
Settings and Options.....	
Common Questions.....	
MIDI Triggering.....	
SMPTE Synchronization.....	
Supported File Formats.....	
Glossary.....	
Getting Started.....	
Cool Edit Pro Demo FAQ.....	
Are there any limitations in the demo version?.....	
Why is the program still acting like a demo version even though I paid for it?.....	
I made a mistake when I first entered my registration info, but I now have the correct information	
How do I enter it now?.....	
Purchasing Cool Edit Pro.....	
Purchase Methods.....	
On a CD.....	
As a downloadable version which can be turned into a full edition through registration.....	
Cool Edit Pro Overview.....	Wav
A Partial List of Cool Edit Pro’s Features:.....	
Multitrack editing and mixing.....	
Unmatched wave editing power.....	
More than 40 DSP effects, mastering and analysis tools, and audio restoration features.....	
Real-Time effects and equalization.....	
The ability to organize tracks into busses.....	
Support for more than a dozen distinct file formats.....	
Built-in CD ripping.....	
Friendly, customizable interface.....	
Powerful loop-based song creation.....	
Noise, Tone, and DTMF Tone generation.....	
32-bit sample resolution support and full 32-bit internal processing.....	
Scripting and Batch-Processing capability.....	
“Phrase” recognition (auto cue generation).....	
Cue and Play List.....	
Scientific filters, text export capability, and file-statistics.....	
Waveform and Spectral View options.....	
Multitrack SMPTE/MTC Master, MIDI and video support.....	
What's New In Cool Edit Pro 2.....	
Major New Stuff.....	
Real-time Effects.....	
Track Effects Racks.....	
Busses.....	
Real-time EQ.....	
CD Ripping.....	
File Looping In Multitrack View.....	
Mixers Window.....	

MIDI Playback Support.....	
Video Playback And Saving.....	
SMPTE/MTC Master Capability.....	
General.....	
New Customizable Interface.....	
Organizer Window.....	
Gradient Level Meters.....	
Group Waveform Normalize.....	
New Effects.....	
Improved Keyboard Shortcuts.....	
Faster Editing.....	
Edit View.....	
Wave Display Right-Click Menu.....	
Wave Properties.....	
Phase Analysis.....	
Easier Batch Conversion.....	
Multitrack View.....	
More Tracks.....	
More Envelopes.....	
Block Edge Dragging.....	
Multitrack Session Information.....	
Frequency Band Splitter.....	
Built-in Metronome.....	
Vertical Portion Bar.....	
US-428 Support.....	
Changes.....	
Envelope Editing.....	
Multitrack Insertion.....	
Multitrack View Master Volume.....	
Splice/Split.....	
Cool Edit Pro's Working Philosophy.....	Wav
Use of files.....	
Real time preview.....	
Multitrack.....	
Session Files.....	
Getting to Know Cool Edit Pro and its Main Screens.....	Wav (More about...)
Multitrack Editing.....	
Some important notes for optimizing multitack performance.....	
Getting audio into the multitrack environment.....	
Organizer Window.....	
Insert Menu.....	
Recording in the multitrack environment.....	
Multitrack editing techniques.....	
Looping.....	
Loop Creation.....	
Loop Use in Sessions.....	
Punch In.....	
Multiple Takes.....	
Split.....	
Snapping.....	
Volume and Pan control.....	
Track Volume Control.....	
Track Pan Control.....	
Envelope Editing.....	
Show Pan Envelopes.....	
Show Volume Envelopes.....	
Show Wet/Dry Mix Envelopes.....	
Show FX Parameter Envelopes.....	
Other important elements.....	
Mix Gauge.....	
Track Control.....	
Terms.....	
Image.....	
Mixing.....	

Session.....	
Waveform Block.....	
Destructive Editing.....	
Non-destructive Editing.....	
Notes and important shortcuts.....	
Notes on the background mixing process.....	
Optimizing multitrack performance.....	
Multitrack recording and full-duplex.....	
Important Shortcuts.....	
The Cool Edit Pro Bus Is Coming Down The (Multi)Tracks In Real-Time.....	
What's A Bus?.....	
Assigning Tracks To A Bus.....	
What's A Real-Time Effect?.....	
Assigning A Real-Time Effect To A Track.....	
The Organizer Window Way.....	
The Track Controls Way.....	
Do Appearances Matter?.....	
How to Use Cool Edit Pro Help.....	Wav
Toolbar.....	
Hide/Show.....	
Back.....	
Print.....	
Options.....	
Glossary.....	
Navigation Pane.....	
Contents.....	
Index.....	
Search.....	
Favorites.....	
Viewer Pane.....	
Menu Reference.....	
Glossary.....	
Breadcrumbs and Conventions.....	
Links and Related Topics.....	
Printing Multiple Topics.....	
Contacting Syntrillium Software.....	
Phone 9 A.M. - 4 P.M. (Arizona time).....	
E-mail.....	
Fax.....	
Web.....	
Navigating Cool Edit Pro.....	
Navigating the Edit View Screen.....	Wav
Navigating the Multitrack View Screen.....	
Menu Reference.....	
Edit View menus.....	
File.....	
New.....	Wav
Sample Rate.....	
Channels.....	
Resolution.....	
8-bit.....	
16-bit.....	
32-bit.....	
Open.....	Wav
Recent Folders.....	
Look In.....	
File Name.....	
Files of Type.....	
Don't ask for further details.....	
Show File Information.....	
Auto Play.....	
Open As.....	
Open Append.....	
Extract Audio from Video.....	

Revert to Saved.....	Wav
Extract Audio from CD.....	
Device.....	
Source Selection.....	
Track.....	
Time.....	
Interface Options.....	
Read Method.....	
CD Speed.....	
Buffer Size.....	
Swap Byte Order.....	
Swap Channels.....	
Spin Up Before Extraction.....	
Error Correction.....	
Close.....	Wav
Close All (Waves and Session).....	
Close Only Non-Session Waveforms.....	
Save.....	Wav
Save As.....	Wav
Recent Folders.....	
Save In.....	
File Name.....	
Save as Type.....	
Exporting to MP3 Format.....	
Save extra non-audio information.....	
Options.....	
Save Copy As.....	
Save Selection.....	Wav
Save All.....	
Batch File Convert.....	
1. Files.....	
2. Resample.....	
3. New Format.....	
4. Destination.....	
Flush Virtual File.....	Wav
Free Up Space in Temp Files.....	
Edit View.....	Wav
Waveform.....	
Undo History.....	
Lower Hard Drive Reserves.....	
Total Available Space.....	
Cancel Last Operation.....	
Multitrack View.....	
MRU File List.....	
Edit View.....	
Multitrack View.....	
Exit.....	
Edit View.....	Wav
Multitrack View.....	
Edit.....	
Undo.....	Wav
About Undo.....	
Enable Undo/Redo.....	Wav
Repeat Last Command.....	
Set Current Clipboard.....	Wav
Copy.....	Wav
Cut.....	Wav
Paste.....	Wav
Paste to New.....	
Mix Paste.....	Wav
Volume.....	
Invert.....	
Lock Left/Right.....	
Insert.....	

Overlap.....	
Replace.....	
Modulate.....	
Crossfade.....	
From Clipboard n.....	
From Windows Clipboard.....	
From File.....	
Loop Paste.....	
Copy to New.....	Wav
Insert in Multitrack.....	
Insert Play List Multitrack.....	
Select Entire Wave.....	Wav
Delete Selection.....	Wav
Delete Silence.....	Wav
"Silence" is defined as.....	
"Audio" is defined as.....	
Find Levels.....	
Mark Deletions in Cue List.....	
Limit Continuous Silence to.....	
Scan for Silence Now.....	
Trim	Wav
Zero Crossings.....	Wav
To use Zero Crossings:.....	
Find Beats.....	
To use Find Beats:.....	
Auto-Cue.....	
Adjust Selection to Phrase:.....	
Find Phrases and Mark:.....	
Auto-Cue Settings...:.....	
Audio will be considered "silence" when.....	
Audio will be considered as valid when.....	
Find Levels.....	
Trim Digital Silence:.....	
Snapping.....	Wav
Snap to Cues.....	
Snap to Ruler (Coarse).....	
Snap to Ruler (Fine).....	
Snap to Frames (Always).....	
Add Snap to Zero Crossings.....	
Group Waveform Normalize.....	
1. Choose Files Tab.....	
2. Analyze Loudness Tab.....	
Eq-Loud.....	
Loud.....	
Max.....	
Avg.....	
% Clip.....	
Reset.....	
3. Normalize Tab.....	
Normalization.....	
Normalize to Average Level of Source Files.....	
Normalize to a Level of.....	
Use Equal Loudness Contour	
Out of Band Peaks.....	
No Limiting (Clip).....	
Use Limiting.....	
Advanced.....	
Run Normalize.....	
Adjust Sample Rate.....	Wav
Sample Rate.....	
About Sample Rates.....	
Channels.....	
Resolution.....	
Convert Sample Type.....	Wav

Sample Rate Conversion Presets.....	
Sample Rate.....	
Low/High Quality.....	
Pre/Post Filter.....	
Channels.....	
Resolution.....	
Dither.....	
Enable Dithering.....	
Dither Depth (bits).....	
Noise Shaping.....	
View.....	
Multitrack View.....	
Waveform View.....	Wav
Spectral View.....	Wav
Show Organizer Window.....	
Show Cue List.....	Wav
What are Cues?.....	
Creating Cues and Ranges.....	
Cue Handle Context Menu.....	
Go To Cue List.....	
Change Cue Type.....	
Make Range.....	
Make Point.....	
Delete	
Basic.....	
Beat.....	
Track.....	
Index.....	
Column Bar.....	
Edit Cue Info Button.....	
Auto-Play.....	
Add.....	
Del.....	
Merge.....	
Batch.....	
Set Amount of Silence.....	
Save to Files.....	
Filename Prefix.....	
Destination Folder.....	
Output Format.....	
Show Play List.....	
Show Cue List.....	
Insert Cue(s).....	
Remove.....	
Loops.....	
Play.....	
Autocue.....	
Move Up.....	
Move Down.....	
Show Transport Buttons.....	Wav
Show Zoom Buttons.....	Wav
Show Time Window.....	Wav
Show Sel/View Controls.....	Wav
Show Level Meters.....	Wav
Show a PlaceKeeper.....	
Display Time Format.....	Wav
Edit View.....	
Multitrack View.....	
Decimal(mm:ss:ddd).....	
Compact Disc 75 fps.....	
SMPTE 30 fps.....	
SMPTE Drop (29.97 fps).....	
SMPTE 29.97 fps.....	
SMPTE 25 fps (EBU).....	

SMPTE 24 fps (Film).....	
Samples.....	
Bars and Beats.....	
Custom (XX frames/sec).....	
Edit Tempo.....	
Extract from Selection.....	
Extract.....	
Offset.....	
Tempo.....	
Define Custom Frames.....	
Vertical Scale Format.....	Wav
Sample values.....	
Normalized Values.....	
Percentage.....	
Decibels.....	
Toolbars.....	
Status Bar.....	Wav
Wave Properties.....	
Text Fields Tab.....	
Standard RIFF.....	
Display Title.....	
Original Artist.....	
Name.....	
Genre.....	
Key Words.....	
Digitization Source.....	
Original Medium.....	
Engineers.....	
Digitizer.....	
Source Supplier.....	
Copyright.....	
Software Package.....	
Creation Date.....	
Fill Fields Automatically.....	
Comments.....	
Subject.....	
Radio Industry.....	
Description.....	
Advertiser.....	
Outcut.....	
Start Date.....	
End Date.....	
Intro Time (ms/begin).....	
Sec Tone (ms/end).....	
Producer.....	
Talent.....	
Category.....	
Agency.....	
Account Executive.....	
Creation Date.....	
Fill Fields Automatically.....	
Comments.....	
Copy.....	
MP3 (ID3 Tag).....	
Song Title.....	
Artist.....	
Album Name.....	
Genre.....	
Year.....	
Fill * fields automatically.....	
Comments.....	
Track Number.....	
Loop Info Tab.....	
Source Waveform Information.....	

Loop.....	
One Shot.....	
Number of Beats.....	
Tempo.....	
Key.....	
Tempo Matching Stretch Method.....	
Fixed Length.....	
Time-Scale Stretch.....	
Resample.....	
Beat Splice.....	
EBU Extensions Tab.....	
Description.....	
Originator.....	
Originator Reference.....	
Origination Date (yyyy-mm-dd).....	
Origination Time (hh:mm:ss).....	
Time Reference (since midnight).....	
Coding History.....	
Sampler Tab.....	
Target Manufacture ID.....	
Target Product Code.....	
Sample Period.....	
Note.....	
Fine Tune.....	
Find using Analysis.....	
SMPTE Format.....	
SMPTE Offset.....	
Sampler Loops.....	
Misc Tab.....	
File Info Tab.....	Wav
Effects.....	
Invert.....	Wav
Reverse.....	
Silence.....	Wav
Amplitude.....	
Amplify.....	Wav
Presets.....	
Preview.....	
Channel Mixer.....	
New Left Channel.....	
New Right Channel.....	
Invert.....	
Presets.....	
Preview.....	
Dynamics Processing.....	
Graphic Tab.....	
Graph.....	
Splines.....	
Flat.....	
Invert.....	
Traditional Tab.....	
Attack/Release Tab.....	
Gain Processor.....	
Output Gain.....	
Attack Time.....	
Release Time.....	
Joint Channels.....	
Level Detector.....	
Input Gain.....	
Attack Time.....	
Release Time.....	
Peak/RMS.....	
Lookahead Time.....	
Band Limiting Tab.....	

Low Cutoff.....	
High Cutoff.....	
Create Envelope Only.....	
Presets.....	
Preview.....	
Envelope.....	
Graph.....	
Spline Curves.....	
Flat.....	
Amplification.....	
Presets.....	
Preview.....	
Hard Limiting.....	
Limit Max Amplitude to.....	
Boost Input by.....	
Look Ahead Time.....	
Release Time.....	
Link Left & Right.....	
Gather Statistics Now.....	
Preview.....	
Normalize.....	Wav
Normalize to.....	
Decibels Format.....	
Normalize L/R Equally.....	
DC Bias Adjust.....	
Pan/Expand.....	
Center Channel Pan.....	
Stereo Expand.....	
Spline Curves.....	
Flat.....	
Presets.....	
Preview.....	
Automated.....	
Stereo Field Rotate.....	
Rotation.....	
Spline Curves.....	
Invert Left/Right.....	
Flat.....	
Range.....	
Loop Graph.....	
Presets.....	
Preview.....	
Automated.....	
Delay Effects.....	
Chorus.....	
Chorus Characteristics.....	
Thickness.....	
Max Delay.....	
Delay Rate.....	
Feedback.....	
Spread.....	
Vibrato Depth.....	
Vibrato Rate.....	
Stereo Chorus Mode.....	
Average Left & Right.....	
Add Binaural Cues.....	
Narrow Field/Wide Field Slider.....	
Output.....	
Dry Out.....	
Wet Out.....	
Presets.....	
Highest Quality (but slow).....	
Preview.....	
Delay.....	

- Delay.....
- Mixing.....
- Invert.....
- Presets.....
- Preview.....
- Dynamic Delay.....
 - Original - Delayed Slider.....
 - Invert.....
 - Delay Graph.....
 - Spline Curves.....
 - Feedback Graph.....
 - Loop Graphs.....
 - Stereo Curve Difference.....
 - Automated.....
- Echo.....
 - Echo Characteristics:.....
 - Decay.....
 - Delay.....
 - Initial echo volume.....
 - Lock Left/Right.....
 - Echo Bounce.....
 - Successive Echo Equalization.....
 - Continue echo beyond selection.....
 - Presets.....
 - Preview.....
- Echo Chamber.....
 - Room Size (feet).....
 - Intensity.....
 - Echoes.....
 - Damping Factors.....
 - Signal and Microphone Placement (feet).....
 - Source Signal.....
 - Microphone Placement.....
 - Mix Left/Right Into Single Source.....
 - Damping Frequency.....
 - Presets.....
 - Preview.....
- Flanger.....
 - Original - Delayed Slider.....
 - Initial Mix Delay.....
 - Final Mix Delay.....
 - Stereo Phasing.....
 - Feedback.....
 - Mode.....
 - Inverted.....
 - Special EFX.....
 - Sinusoidal.....
 - Rate.....
 - Presets.....
 - Preview.....
- Full Reverb.....
 - General Reverb Tab.....
 - Total Length.....
 - Attack Time.....
 - Diffusion.....
 - Perception.....
 - Set Reverb based on Early Reflection Room Size.....
 - Early Reflections Tab.....
 - Room Size.....
 - Dimension.....
 - Left/Right Location.....
 - High Pass Cutoff.....
 - Set Reverb Based on Early Reflection Room Size.....
 - Coloration Tab.....

Amplitude Sliders.....	
Frequency Sliders (Low Shelf/Mid Band/High Shelf).....	
Q Box.....	
MS Box.....	
Mixing Section.....	
Original Signal (dry).....	
Early Reflections.....	
Reverb (wet).....	
Include Direct.....	
Combine Source Left and Right.....	
Presets.....	
Preview.....	
Multitap Delay.....	
Delay Units.....	
Delay Settings.....	
Offset.....	
Delay.....	
Feedback.....	
Allpass Feedback.....	
Low-Cut/High-Cut Filters.....	
Cutoff.....	
Boost.....	
Channel Buttons.....	
Presets.....	
Preview.....	
QuickVerb.....	
Room Size.....	
Decay.....	
Diffusion.....	
High Cutoff Frequency.....	
Low Cutoff Frequency.....	
Mixing.....	
Presets.....	
Preview.....	
Reverb.....	
Total Reverb Length.....	
Attack Time.....	
High Frequency Absorption Time.....	
Perception.....	
Mixing.....	
Original Signal (dry).....	
Reverb (wet).....	
Combine Source Left and Right.....	
Presets.....	
Preview.....	
Sweeping Phaser.....	
Filter Characteristics.....	
Sweep Gain.....	
Center Frequency.....	
Depth.....	
Resonance.....	
Sweeping Rate.....	
Stereo Phase Difference.....	
Sweep Modes.....	
Filter Type.....	
Master Gain.....	
Presets.....	
Preview.....	
DirectX.....	Wav
Filters.....	
Dynamic EQ.....	
Frequency Tab.....	
Gain Tab.....	
Q (bandwidth) Tab.....	

- Spline Curves.....
- Flat.....
- Filter Type.....
- Loop Graphs.....
- Presets.....
- Preview.....
- Automated.....
- FFT Filter.....
- Passive/Logarithmic Buttons.....
- View Initial Filter Graph/View Final.....
- Log Scale.....
- Spline Curves.....
- Flat.....
- Min/Max.....
- FFT Size.....
- Windowing Function.....
- Lock to Constant Filter.....
- Morph.....
- Precision Factor.....
- Transition Curve.....
- Flat.....
- Graph response at point.....
- Presets.....
- Preview.....
- Graphic Equalizer.....
- Bands.....
- Reset All to Zero.....
- Band.....
- Gain.....
- Graph Actual Response.....
- Accuracy.....
- Range.....
- Master Gain.....
- Presets.....
- Preview.....
- Graphic Phase Shifter.....
- Splines.....
- +/-360° Range.....
- Log Frequency Scale.....
- FFT Size.....
- Channel.....
- Flat.....
- Preview.....
- Notch Filter.....
- Tones to Notch.....
- Fix Attenuations to:.....
- Notch Width.....
- Presets.....
- Preview.....
- Parametric Equalizer.....
- Graph.....
- Low Shelf.....
- Low Shelf Cutoff.....
- High Shelf.....
- High Shelf Cutoff.....
- Intermediate Bands.....
- Width.....
- Constant Width/Constant Q.....
- Master Gain.....
- Presets.....
- Preview.....
- Quick Filter.....
- Initial Settings.....
- Final Settings.....

- Lock to these settings only.....
- Equalizer Bands.....
- Master Gain.....
- Lock L/R:.....
- Presets.....
- Preview.....
- Scientific Filters.....
 - Low Pass.....
 - High Pass.....
 - Band Pass.....
 - Band Stop.....
 - Cutoff.....
 - High Cutoff.....
 - Order.....
 - Transition Bandwith.....
 - High Width.....
 - Pass Ripple/Actual Ripple.....
 - Stop Attn.....
 - Master Gain.....
 - Presets.....
 - Preview.....
- Noise Reduction.....
 - Click/Pop Eliminator.....
 - Detection Graph.....
 - Auto Find All Levels.....
 - Sensitivity.....
 - Discrimination.....
 - Find Threshold Levels Only.....
 - Max, Avg, and Min Threshold.....
 - Detect.....
 - Reject.....
 - Second Level Verification.....
 - Pulse Train Verification.....
 - Link Channels.....
 - Smooth Light Crackle.....
 - Detect Big Pops.....
 - Multiple Pass.....
 - Correction.....
 - FFT Size.....
 - Pop Oversamples.....
 - Run Size.....
 - Fill Single Click Now.....
 - Previously Corrected/Rejected.....
 - Presets.....
 - Clip Restoration.....
 - Input Attenuation.....
 - Overhead.....
 - Minimum Run Size.....
 - FFT Size.....
 - Clipping Statistics.....
 - Gather Statistics Now.....
 - Presets.....
 - Hiss Reduction.....
 - Graph Area.....
 - Viewing Left/Right.....
 - Get Noise Floor.....
 - Drag Points.....
 - Reset (Hi, Med, Low).....
 - Noise Floor Adjust.....
 - FFT Size.....
 - Precision Factor.....
 - Transition Width.....
 - Spectral Decay Rate.....
 - Reduce Hiss By.....

- Remove Hiss/Keep Only Hiss.....
- Presets.....
- Preview.....
- Noise Reduction.....
 - View Left/Right.....
 - Noise Profile Plot.....
 - Load Profile.....
 - Save Profile.....
 - Get Profile from Selection.....
 - Snapshots in profile.....
 - Reduction Graph.....
 - Log Scale.....
 - Live Update.....
 - Noise Reduction Level.....
 - Noise Reduction Settings.....
 - FFT Size.....
 - Remove Noise/Keep Only Noise:.....
 - Reduce by.....
 - Precision Factor.....
 - Smoothing Amount.....
 - Transition Width.....
 - Preview.....
- Special.....
 - Brainwave Synchronizer.....
 - Frequency Graph.....
 - Smooth Wave.....
 - Spline Curves.....
 - Flat.....
 - Low/High Settings.....
 - Frequency.....
 - Intensity.....
 - Centering.....
 - Convolution.....
 - Create Custom Impulse.....
 - Load.....
 - Save.....
 - Clear.....
 - Mono/Stereo.....
 - Highlighted Selection.....
 - Bandpassed Echoes.....
 - Minimum.....
 - Maximum.....
 - FIR Size.....
 - Add to Impulse.....
 - Add Sel.....
 - Add Echo.....
 - Delay.....
 - Left.....
 - Right.....
 - Global Settings.....
 - Volume.....
 - Shift.....
 - View Settings.....
 - Left.....
 - Right.....
 - View Both.....
 - Normalized View.....
 - Preview.....
 - Distortion.....
 - Positive/Negative Tabs.....
 - Copy from Positive.....
 - Symmetric.....
 - Distortion Graph.....
 - Spline Curves.....

	Presets.....	
	Preview.....	
Music.....		
	Song Title.....	
	New Song.....	
	Notes.....	
	Chord Type.....	
	Staff.....	
	Listen.....	
	Tempo.....	
	Key.....	
	Octave.....	
	Constant Duration.....	
	Exact Tune.....	
Time/Pitch.....		
Doppler Shifter.....		
	Path Type.....	
	Straight Line Options.....	
	Starting Distance Away.....	
	Velocity.....	
	Coming From.....	
	Passes in front by.....	
	Passes on right by.....	
	Circular Options.....	
	Radius.....	
	Velocity.....	
	Starting Angle.....	
	Center in front by.....	
	Center on right by.....	
	Adjust Volume based on Distance.....	
	Adjust Volume based on Direction.....	
	Quality Level.....	
	Presets.....	
	Preview.....	
Pitch Bender.....		
	Pitch Graph.....	
	Spline.....	
	Flat.....	
	Zero Ends.....	
	Quality Level.....	
	Range.....	
	Length Report.....	
	Presets.....	
	Preview.....	
Stretch.....		
	Constant Stretch/Gliding Stretch Tabs.....	
	Initial/Final Sliders.....	
	Ratio/Length Boxes.....	
	Transpose.....	
	Precision.....	
	Stretching Mode.....	
	Time Stretch (preserves pitch).....	
	Pitch Shift (preserves tempo).....	
	Resample.....	
	Pitch and Time settings.....	
	Splicing Frequency.....	
	Overlapping.....	
	Choose Appropriate Defaults.....	
	Presets.....	
	Preview.....	
Refresh Effects List.....		Wav
Generate.....		
	Silence.....	Wav
	DTMF Signals.....	

Dial String.....	
Tone Time.....	
Break Time.....	
Pause Time.....	
Pause Character.....	
DTMF Signals.....	
MF Signals (CCITT R1).....	
Custom.....	
Amplitude.....	
Twist.....	
Reset to DTMF.....	
Presets.....	
Preview.....	
Noise.....	Wav
Color.....	
Brown.....	
Pink.....	
White.....	
Style.....	
Spatial Stereo.....	
Independent Channels.....	
Mono.....	
Inverse.....	
Intensity.....	
Duration.....	
Tones.....	Wav
Initial Settings.....	
Final Settings.....	
Lock to these settings only.....	
Copy from Initial Settings.....	
Base Frequency.....	
Modulate By.....	
Modulation Frequency.....	
Frequency Components.....	
dB Volume.....	
Phasing.....	
Start Phase.....	
Phase Difference.....	
Change Rate.....	
DC Offset.....	
Flavor.....	
Duration.....	
Source Modulation.....	
Modulate.....	
Demodulate.....	
Overlap (mix).....	
Presets.....	
Preview.....	
Analyze.....	
Show Frequency Analysis.....	Wav
Linear View.....	
Hold.....	
Status Areas.....	
Options.....	
Lines.....	
Area (Left on top).....	
Area (Right on top).....	
Bars (Left on top).....	
Bars (Right on top).....	
Scan.....	
Advanced.....	
FFT Size.....	
FFT Window Type.....	
Reference.....	

Copy to Clipboard.....	
Zooming (Frequency Ruler).....	
Zooming (Amplitude Ruler).....	
Show Phase Analysis.....	
Normalize.....	
M-S Button.....	
Samples.....	
Statistics.....	Wav
General Tab.....	
Minimum Sample Value.....	
Maximum Sample Value.....	
Peak Amplitude.....	
Possibly Clipped Samples.....	
DC Offset.....	
Minimum RMS Power.....	
Maximum RMS Power.....	
Average RMS Power.....	
Total RMS Power.....	
Actual Bit Depth.....	
Copy Data to Clipboard.....	
Histogram Tab.....	
Left/Right Buttons.....	
RMS Settings.....	
0dB = FS Sine Wave.....	
0dB = FS Square Wave.....	
Account for DC.....	
Window Width.....	
Recalculate RMS.....	
Favorites.....	
Edit Favorites.....	
New.....	
Edit.....	
Delete.....	
Up.....	
Down.....	
Name.....	
Save.....	
Cancel.....	
Press new shortcut key.....	
Clear.....	
Function Tab.....	
Cool Edit Effect.....	
Edit Settings.....	
Copy From Last.....	
Use Current Settings.....	
Show Dialog.....	
Script Tab.....	
Script Collection File.....	
Script.....	
Pause at Dialogs.....	
Tool Tab.....	
Help Tab.....	
Options.....	
Loop Mode.....	
Edit View.....	
Multitrack View.....	
Timed Record.....	
Maximum Recording Time.....	
No Time Limit.....	
Recording Length.....	
Start Recording.....	
Right Away.....	
Time/Date.....	
Monitor Record Level.....	Wav

Show Levels on Play and Record.....	Wav
MIDI Trigger Enable.....	
Synchronize Cursor Across Windows.....	Wav
Window Recording Mixer.....	Wav
Start Default Windows CD Player.....	
Scripts & Batch Processing.....	
Script Collections.....	
Scripts List.....	
Open/New Collection.....	
Run Script.....	
Batch Run.....	
Source Files.....	
Add Files.....	
Remove.....	
Destination Folder.....	
Output Filename Template.....	
Output Format.....	
Change Options.....	
Output Format.....	
Change Options.....	
Scan List.....	
Disable Undo.....	
Overwrite Existing Files.....	
Open Raw PCM As.....	
Begin.....	
Pause at Dialogs.....	
Alert when complete.....	
Execute Relative to Cursor.....	
Edit Script File.....	
Title.....	
Record.....	
Add to Collection.....	
Clear.....	
Stop Current Script.....	
Description.....	
Script Type.....	
Settings.....	
General Tab.....	Wav
Show Tip of the Day.....	
Use Shiny Look.....	
Auto-play on command-line load.....	
Live update during record.....	
Auto-scroll during Play and Record.....	
Upon a manual scroll/zoom/selection change:.....	
Custom Time Code Display.....	
Restore Default Window Layouts.....	
Ctrl key allows dockable windows to dock.....	
Mouse Wheel.....	
Mouse Cursor Over Display.....	
Edit View Right Clicks.....	
Popup Menu.....	
Extend Selection.....	
Default Selection Range.....	
View.....	
Entire Wave.....	
Highlight after Paste.....	
System Tab.....	Wav
Play/Record Buffer.....	
Wave Cache.....	
Use System's Cache.....	
Preview Buffer.....	
Temporary Folders.....	
Temp Folder.....	
Secondary Temp.....	

Undo.....	
Enable Undo.....	
Levels (minimum).....	
Purge Undo.....	
Delete clipboard files on exit.....	
Force complete flush before saving.....	
Colors Tab.....	
Color Scheme Presets.....	
Save As.....	
Delete.....	
Waveform Tab.....	
Selection.....	
Transparency.....	
Invert.....	
Spectral Tab.....	
Spectrum.....	
Reverse Direction.....	
Gamma.....	
Selection.....	
Transparency.....	
Invert.....	
Controls Tab.....	
Segmented Progress Bar.....	
White Progress Background.....	
Dockable Windows.....	
Use system 3D color.....	
Used darkened system 3D color.....	
Use specified 3D color.....	
Display Tab.....	Wav
Spectral Display.....	
Windowing Function.....	
Resolution.....	
Window Width.....	
Plot Style.....	
Logarithmic Energy Plot.....	
Linear Energy Plot.....	
Waveform Display.....	
Show Cue and Range Lines.....	
Show Grid Lines.....	
Show Center Lines.....	
Show Boundary Lines.....	
Peak Files.....	
Peaks Cache.....	
Save Peak Cache Files.....	
Rebuild Wave Display Now.....	
Data Tab.....	Wav
Auto-convert all data to 32-bit upon opening.....	
Interpret 32-bit PCM .wav files as 16.8 float (compatibility with old Cool Edit format).....	
Dither Transform Results (increases dynamic range).....	
Use Symmetric Dithering.....	
Smooth Delete and Cut Boundaries.....	
Smooth all edit boundaries by crossfading.....	
Auto-convert settings for Paste.....	
Downsampling quality level.....	
Pre-Filter.....	
Upsampling quality level.....	
Post-Filter.....	
Dither amount for saving 32-bit data to 16-bit files.....	
Allow for partially processed data after canceling effect.....	
Multitrack Tab.....	
Play/Record.....	
Playback Buffer Size.....	
Playback Buffers.....	
Recording Buffer Size.....	

Recording Buffers.....	
Background Mixing Priority Level.....	
Open Order.....	
Start Order.....	
Mixdowns.....	
Merging.....	
Delete old takes after merging.....	
Crossfade Time.....	
Defaults.....	
Track Record.....	
Pre-Mixing.....	
Panning Mode.....	
L/R Cut (log).....	
Equal-power Sine.....	
Auto Zero Cross Edits.....	
Smooth auto-scrolling during playback.....	
Correct for Drift in Recordings.....	
Correct for Start Sync in Recordings.....	
Save locked track files after closing sessions (for faster session loads).....	
SMPTE Tab.....	
Lead Time.....	
Stopping Time.....	
Lag Time.....	
Slack.....	
Clock Drift Correction Time.....	
Reposition playback cursor when shuttling.....	
Full re-sync when shuttling.....	
Device Properties.....	
Wave Out Tab.....	Wav
Order.....	
Use this device in Edit View.....	
Limit Playback to:.....	
Send 32-bit audio as:.....	
Enable Dithering:.....	
bits.....	
p.d.f.....	
Shaping.....	
Wave In Tab.....	Wav
Order.....	
Use this device in Edit View.....	
Get 32-bit Audio using:.....	
Multitrack Latency.....	
Adjust to zero-DC when recording.....	
MIDI Out Tab.....	
Order.....	
MIDI In Tab.....	
Order.....	
Ext. Controller Tab.....	
Device Order.....	
Playback Devices Tab.....	Wav
Unused Playback Devices.....	
Use>>.....	
<<Remove.....	
Move Up.....	
Move Down.....	
Use in EV.....	
Properties.....	
Recording Devices Tab.....	Wav
Unused Record Devices.....	
Use>>.....	
<<Remove.....	
Move Up.....	
Move Down.....	
Use in EV.....	

Properties.....	
MIDI Output Devices Tab.....	
Unused MIDI Out Devices.....	
Use>>.....	
<<Remove.....	
Move Up.....	
Move Down.....	
Use in EV.....	
Properties.....	
MIDI Input Devices Tab.....	
Unused Playback Devices.....	
Use>>.....	
<<Remove.....	
Move Up.....	
Move Down.....	
Use in EV.....	
Properties.....	
Shortcuts (Keyboard & MIDI Triggers).....	Wav
Window.....	Wav
Help.....	
Contents.....	
Overview.....	
Search for Help On.....	
Quick Reference.....	
Technical Support.....	
Online Resources*.....	
Check for Updates*.....	
Download Loops*.....	
Tip of the Day.....	
Buy Now.....	
About Cool Edit Pro.....	Wav
Multitrack View menus.....	
File.....	
New Session.....	
Sample Rate.....	
Open Session.....	
Recent Folders.....	
Look in.....	
File name.....	
Files of type.....	
Show File Information.....	
Append to Session.....	
Close Session.....	
Close Session and Its Waveforms.....	
Close Only Non-Session Waveforms.....	
Open Waveform.....	
Save Session.....	
Save Session As.....	
Recent Folders.....	
Look in.....	
File name.....	
Files of type.....	
Save copies of all associated files.....	
Options.....	
Save Mixdown As.....	
Recent Folders.....	
Save in.....	
File name.....	
Save as type.....	
Save extra non-audio information.....	
Options.....	
Save Mixdown To Video As.....	
Save All.....	
Default Session.....	

- Free Up Space in Temp Files.....
- Edit View.....
- Waveform.....
- Undo History.....
- Lower Hard Drive Reserves.....
- Total Available Space.....
- Cancel Last Operation.....
- Multitrack View.....
- MRU List.....
- Edit View.....
- Multitrack View.....
- Exit.....
- Edit View.....
- Multitrack View.....
- Edit.....
- Undo.....
- Edit Waveform... (Wave Block Only).....
- Loop Properties... (Wave Block Only).....
- Allow Multiple Takes (Wave Block Only).....
- Take History (Wave Block Only).....
- Take List.....
- Merge This Take.....
- Delete This Take.....
- Adjust Wave Volume... (Wave Block Only).....
- Adjust Wave Pan... (Wave Block Only).....
- Wave Block Properties... (Wave Block Only).....
- Volume.....
- Pan.....
- Filename/Path.....
- Time Offset.....
- Hue.....
- Mute.....
- Lock in Time.....
- Lock for Play Only.....
- Transpose (MIDI Block Only).....
- Set Tempo (MIDI Block Only).....
- Zoom in/ Zoom out (MIDI Block Only).....
- Active Track (MIDI Block Only).....
- Set Controller 7 (MIDI Block Only).....
- Mixdown to File.....
- All Waves.....
- Selected Waves.....
- All Waves (Mono).....
- Selected Waves (Mono).....
- Mix Down to Track N (Bounce).....
- All Waves.....
- Selected Waves.....
- All Waves (Mono).....
- Selected Waves (Mono).....
- Group Blocks.....
- Group Color.....
- Block Color.....
- Punch In.....
- Crossfade.....
- Loop Duplicate.....
- Repetitions.....
- Spacing.....
- No gaps - continuous looping.....
- Evenly Spaced.....
- Tutorial:.....
- Convert to Unique Copy.....
- Tutorial:.....
- Mute Blocks.....
- LockIn Time.....

- Lock for Play Only.....
- Split.....
- Merge/Rejoin Split.....
- Align Left.....
- Align Right.....
- Adjust Boundaries.....
- Trim.....
- Cut.....
- Full.....
- Remove Blocks.....
- Destroy Blocks (remove and close).....
- Select All Blocks.....
- Select All Blocks in Track N.....
- Insert /Delete Time.....
 - Insert.....
 - Delete Selected Time.....
- Group Waveform Normalize.....
- Snapping.....
 - Snap to Cues.....
 - Snap to Ruler (Fine).....
 - Snap to Ruler (Coarse).....
 - Snap to Blocks.....
 - Snap to Loop Endpoints.....
 - Snap to Frames Always.....
- Refresh Now.....
- Check For Hidden Blocks.....
- View.....
 - Edit Waveform View.....
 - Show Pan Envelopes.....
 - Show Volume Envelopes.....
 - Show Wet/Dry Mix Envelopes.....
 - Show FX Parameter Envelopes.....
 - Show Tempo Envelopes.....
 - Enable Envelope Editing.....
 - Enable Block Edge Dragging.....
 - Show Session Properties.....
 - Tempo
 - Bars/Beats
 - Key
 - Time
 - Advanced
 - Metronome
 - Show Mixers Window.....
 - Tracks Mixer Tab.....
 - View Display Buttons.....
 - Out:.....
 - Bus:.....
 - FX:.....
 - EQ:.....
 - Pan:.....
 - M/S:.....
 - Out 1 Button.....
 - Wave Tab.....
 - Devices.....
 - Busses.....
 - New.....
 - MIDI Tab.....
 - Same for All Tracks.....
 - Properties.....
 - Bus Properties.....
 - Friendly Name.....
 - Output Device.....
 - Installed Real-Time Effects.....
 - Current Effects Rack.....

- Properties.....
- Presets.....
- Wet/Dry Fields.....
- FX/No FX Buttons.....
- Lock Button.....
- Equalization Fields.....
- Pan Controls.....
- Mute/Solo Buttons.....
- Track Faders.....
- Portion Bar.....
- Bus Mixer Tab.....
 - Out.....
 - Config.....
 - Pan Controls.....
 - Mute/Solo Buttons.....
 - Bus Faders.....
- Show Track EQ Window.....
 - Track Tabs.....
 - Max View.....
 - Expand/Collapse.....
 - Graph.....
 - Q Values.....
 - Band Buttons.....
 - Frequency Sliders.....
 - Amplitude Sliders.....
- Show Track Properties.....
 - Track Tabs.....
 - Max View.....
 - Volume Slider.....
 - Title.....
 - Output.....
 - Record.....
 - Channel.....
 - Bit Rate.....
 - Effects.....
 - Lock.....
 - Bus.....
 - EQ.....
 - Record.....
 - Solo.....
 - Mute.....
- Show Organizer Window.....
 - Edit View text.....
- Show Cue List.....
- Show Transport Buttons.....
- Show Zoom Buttons.....
- Show Time Window.....
- Show Sel/View Controls.....
- Show Level Meters.....
- Show Load Meter.....
- Show Video Window.....
- Show a Placekeeper.....
- Display Time Format.....
 - Edit View.....
 - Multitrack View.....
 - Edit Tempo.....
 - Extract from Selection.....
 - Extract.....
 - Offset.....
 - Tempo.....
 - Define Custom Frames.....
- Toolbars.....
- Status Bar.....
- Advanced Session Properties.....

- General Tab.....
 - Session Start Time Offset.....
 - Key for Voiced Loops.....
- Mixing Tab.....
 - Pre-Mixing.....
 - Panning.....
 - L/R Cut Logarithmic.....
 - Equal-power Sinusoidal.....
 - Set As Default.....
- Tempo Tab.....
 - Tempo.....
 - Beats/minute.....
 - Beats/bar.....
 - Ticks/beat.....
 - Offset.....
 - Cursor At.....
 - Reset 1:1 to Cursor.....
 - Song Start.....
- Metronome Tab.....
 - Enable Metronome.....
 - Sound Set.....
 - Volume
 - Signature
 - Custom.....
 - Name.....
 - Pattern.....
 - Beats/Bar.....
 - Pattern.....
- Notes Tab.....
- Insert.....
 - Empty Wave.....
 - In Current Track.....
 - In Current Track (Mono).....
 - In all Record-Armed Tracks.....
 - Wave from File.....
 - Midi from File.....
 - Video from File.....
 - Audio from Video File.....
 - Currently Open Waveform List.....
 - File/Cue List.....
- Effects.....
 - Envelope Follower.....
 - Analysis Wave.....
 - Process Wave.....
 - Output To.....
 - Gain Processor.....
 - Output Gain.....
 - Attack Time.....
 - Release Time.....
 - Joint Channels.....
 - Level Detector.....
 - Input Gain.....
 - Attack Time.....
 - Release Time.....
 - Peak/RMS.....
 - Low Cutoff.....
 - High Cutoff.....
 - Lookahead Time.....
 - Graph.....
 - Splines.....
 - Flat.....
 - Invert.....
 - Presets.....
- Frequency Band Splitter.....

	Bands.....	
	Crossovers.....	
	Output Waves.....	
	FIR Filter Size.....	
	Presets.....	
	Vocoder.....	
	Control Wave.....	
	Process Wave.....	
	Output To.....	
	FFT Size.....	
	Overlays.....	
	Interval Size.....	
	Window Width.....	
	Vocal Crossslover.....	
	Resynthesis Window.....	
	Affect Level.....	
	Amplification.....	
Options.....	Loop Mode.....	
	Edit View.....	
	Multitrack View.....	
	Monitor Record Level(s).....	
	Show Levels on Play and Record.....	
	MIDI Trigger Enable.....	
	Midi Panic Button.....	
	Synchronize Blocks with Edit View.....	
	SMPTE Slave Enable.....	
	SMPTE Master Enable.....	
	SMPTE Start Offset.....	
	Sample Accurate Sync.....	
	Pause Background Mixing.....	
	Metronome.....	
	Windows Recording Mixer.....	
	Settings.....	
	Device Properties.....	
	Shortcuts (Keyboard & MIDI Triggers).....	
Help.....	Contents.....	
	Search for Help On.....	
	Quick Reference.....	
	Multitrack Editing.....	
	Technical Support.....	
	Online Resources*.....	
	Check for Updates*.....	
	Download Loops*.....	
	Tip of the Day.....	
	Buy Now.....	
	About Cool Edit Pro.....	
How To.....	To add ambiance to a mono signal.....	
	To adjust record and playback levels.....	Wav
	To assign record and playback devices to tracks.....	
	To Batch Process files.....	
	To capture a loop.....	
	To create non-destructive arrangements using the Play List.....	
	To create a script.....	
	To use non-real-time effects nondestructively in Multitrack View.....	
	To use the Loop Duplicate function to create time delay effects.....	
	To convert between file formats.....	Wav
	To do mono to stereo conversion.....	Wav
	To do multi-band compression.....	
	To export to the MP3 format.....	
	Loop Creation and Basic Looping Techniques.....	
	Using and Optimizing Loops in Your Sessions.....	

Changing stretch/key properties of individual loops within a session:.....	
To record from a CD (Analog Method).....	
To Record from a CD (Digital Method).....	
To restore clipped audio while retaining the amplitude.....	
To set up MIDI and Wave devices.....	Wav
To spatially locate a sound.....	
To use Noise Reduction.....	
To use Punch In.....	
Troubleshooting.....	
Answers to common questions.....	Wav
Why does Cool Edit Pro create files with the extension ".pk" alongside my audio files?.....	
Why can't I record in Multitrack View, but I can in Edit View?.....	
Some menu items are unavailable ("grayed out") in the menus and toolbar. What's wrong?.....	
How can I save files in TrueSpeech® format?.....	
Can Cool Edit Pro convert files, either singly or in batches?.....	
I keep running out memory. How can I free up more RAM?.....	
I can't record in Cool Edit Pro. When I try, I get a flat line, and no sound when I play. What's wrong?.....	
When I record (or play), I hear skipping and dropouts. What can I do to eliminate this?.....	
Why do my 16-bit files sound more like 8-bit files?.....	
Why does it take forever to apply effects like the FFT Filter, and to use Spectral View?.....	
Why does it take so long to save files in Microsoft ADPCM format?.....	
Why doesn't Cool Edit Pro seem to know the format of my .wav files?.....	
Why do I hear repeating or stuttering sounds on playback?.....	
Why do I hear crackling noises when I enable the "auto-scroll" feature?.....	
Why aren't my Cues saved when I save a waveform?.....	
Why don't my Keyboard Shortcuts sometimes work?.....	
System Information.....	Wav
Technical Support.....	
Web Site Support.....	
E-mail Support.....	
Phone Support.....	
MIDI/SMPTE.....	
What are MIDI and SMPTE?.....	
MIDI Triggering.....	
To setup MIDI triggering:.....	
SMPTE Master Enable.....	
SMPTE Synchronization.....	
To setup SMPTE sync:.....	
Reference.....	
Glossary.....	
Keyboard Shortcuts.....	
File Menu Shortcuts.....	
Edit Menu Shortcuts.....	
Scroll/Select Shortcuts.....	
View Menu Shortcuts.....	
Analyze Menu Shortcuts.....	
Options Menu Shortcuts.....	
Transport Shortcuts.....	
Help Menu Shortcuts.....	
Mousing Around in Cool Edit Pro Mouse Commands and Shortcuts.....	
Program-Wide Mouse Commands and Shortcuts.....	
Selecting Data.....	
Zooming and Viewing.....	
Docked Windows.....	
Time Ruler.....	
Toolbars.....	
Cues.....	
Level Meters.....	
Status Bar.....	
Edit View-Specific Mouse Commands and Shortcuts	
Selecting Data.....	
Wave Display Context Menu.....	
Edit Sample Directly.....	
Amplitude Ruler.....	

Multitrack View-Specific Mouse Commands and Shortcuts	
Selecting and Moving Blocks.....	
Zooming.....	
Track Ruler.....	
Context Menus.....	
Track Controls.....	
Mix Gauge.....	
Intellipoint? Mouse-Specific Commands.....	
Edit View.....	
Multitrack View.....	
Wave File Formats Supported by Cool Edit Pro.....	
64-bit Doubles (RAW) (.dbl).....	
8-bit signed (.SAM).....	
A/mu-Law Wave (.WAV).....	
Options.....	
A-Law 8-bit.....	
mu-Law 8-bit.....	
ACM Waveform (.WAV).....	
Options.....	
Name	
Save As.....	
Format	
Attributes	
Write as RAW Data.....	
Amiga IFF-8SVX (.IFF, .SVX) (*.*).....	
Options.....	
Data Formatted As 8-bit Signed.....	
Data Formatted As 4-bit Fibonacci Delta Encoded.....	
Dithering from 16-bit.....	
Apple AIFF (.AIF, .SND).....	
ASCII Text Data (.TXT).....	Wav
Options.....	
Include Format Header.....	
Normalized Data.....	
Cool Edit Loop (.CEL).....	
Options.....	
Creative Sound Blaster (.VOC).....	
Options.....	
Old Style.....	
New Style.....	
Dialogic ADPCM (.VOX).....	
DiamondWare Digitized (.DWD).....	
DVI/IMA ADPCM (.WAV).....	
Options.....	
2 bits/sample, 8:1.....	
3 bits/sample, 5.3:1.....	
4 bits/sample, 4:1.....	
5 bits/sample, 3.2:1.....	
Microsoft ADPCM (.WAV).....	
Options.....	
Single Pass.....	
Multiple Pass.....	
Block Size.....	
mp3PRO (.mp3).....	
Options.....	
VBR (Variable Bitrate).....	
CBR (Constant Bitrate).....	
MP3.....	
mp3PRO.....	
Convert to Mono.....	
Advanced/Simple.....	
Maximum Bandwidth.....	
CBR Bitrate.....	
Sample Rate.....	

Low Complexity Stereo.....	
Codec.....	
Allow Mid-Side Joint Stereo (for mid bitrates).....	
Allow Intensity Joint Stereo (for low bitrates).....	
Allow Narrowing of Stereo Image.....	
Set 'Private' Bit.....	
Set 'Copyright' Bit.....	
Set 'Original' Bit.....	
Padding.....	
Write CRC Checksums.....	
Presets.....	
Next/Sun (.AU, .SND).....	
Options.....	
mu-Law 8-bit.....	
A-Law 8-bit.....	
G.721 ADPCM 4-bit.....	
Linear PCM.....	
SampleVision (.SMP).....	
Windows PCM (.WAV).....	Wav
Options.....	
32-bit 24.0 float (type 1 - 24-bit).....	
32-bit 16.8 float (type 1 - 32-bit).....	
32-bit 0.24 normalized float (type 3 - 32-bit).....	
24-bit pack int (type 1 - 24-bit).....	
24-bit packed int (type 1 - 20-bit).....	
32-bit int (type 1 - 32-bit).....	
Enable Dithering.....	
PCM Raw Data (.PCM) (*.*).....	
Options.....	
Data Formatted As 16-bit PCM (LSB, MSB).....	
Data Formatted As 16-bit PCM (MSB, LSB).....	
Data Formatted As 8-bit mu-Law Compressed.....	
Data Formatted As 8-bit A-Law Compressed.....	
Create .DAT header on save.....	
Appendix.....	
DirectX Plug-Ins.....	Wav
Technical notes.....	Wav
Note 1: Drive space.....	
Note 2: Temporary files.....	
Note 3: The background mixing process.....	
Note 4: Optimizing multitrack performance.....	
Too many tracks playing at once and not enough hard drive bandwidth to handle them.....	
Too many real-time track effects or bus effects and not enough CPU power to handle them.....	
Outputting to too many devices at once and not enough hard drive bandwidth to handle them.....	
Note 5: Multitrack recording and full-duplex.....	
Note 6: Settings and Temp directories.....	
Note 7: Working at the 32-bit level.....	
Note 8: File Formats.....	
Note 9 Some notes on Noise Reduction.....	
Note 10: Using SMPTE drop format.....	
Note 11: Video Card Driver Compatibility.....	
Technical Bibliography.....	Wav
Cool Edit Pro APIs.....	
Using Cakewalk Pro Audio/Sonar.....	
Using the Microsoft ACM.....	

