SoundSoap Pro™

Version 1.0

Software User's Guide

bïas

sound creative

INSTALL LICENSE AGREEMENT

This legal document is an agreement between you, the end user ("YOU" or "LICENSEE"), and BIAS, Inc. BY CLICKING "INSTALL" ON THE FOLLOWING DIALOG, YOU ARE AGREEING TO BECOME BOUND BY THE TERMS OF THIS AGREEMENT, WHICH INCLUDES THE SOFTWARE LICENSE AND THE SOFTWARE DISCLAIMER OF WARRANTY (collectively the "Agreement"). CLICK "QUIT" ON THE FOLLOWING DIALOG IF YOU DO NOT ACCEPT THE TERMS OF THIS AGREEMENT. THIS AGREEMENT CONSTITUTES THE COMPLETE AGREEMENT BETWEEN YOU AND BIAS, INC. IF YOU DO NOT AGREE TO THE TERMS OF THIS AGREEMENT, DO NOT USE OR REGISTER THE SOFTWARE AND PROMPTLY RETURN THE SOFTWARE AND THE OTHER MATERIALS (INCLUDING WRITTEN MATERIALS, BINDERS OR OTHER CONTAINERS) THAT ARE PART OF THIS PRODUCT TO THE PLACE WHERE YOU OBTAINED THEM FOR A FULL REFUND. YOUR USE OF THIS SOFTWARE SHALL CONSTITUTE ACCEPTANCE OF THIS AGREEMENT, AND ONCE YOU HAVE REGISTERED THE SOFTWARE YOU MAY NOT RETURN IT.

BIAS SOFTWARE LICENSE

1. GRANT OF LICENSE. In consideration of payment of the license fee, which is part of the price you paid for this product, BIAS, as Licensor, grants to you, LICENSEE, a nonexclusive license to use and display this copy of a BIAS software program (the "SOFTWARE") and accompanying user documentation ("DOCUMENTATION"). LICENSEE may install and use the SOFTWARE on only one COMPUTER at one time, and such SOFTWARE may be used by only one user at a time. BIAS reserves all rights not expressly granted to LICENSEE.

2. AUTHORIZATION KEY. You must register this SOFTWARE within 14 days of installation either online (http://www.bias-inc.com/support/register/), via fax (+1 707-782-1874), or phone (+1 707-782-1866). If the SOFTWARE has not been registered within 14 days of installation, it will cease to function until registered. Once registered, you cannot return the SOFTWARE.

3. OWNERSHIP OF SOFTWARE AND DOCUMENTATION. As LICENSEE, you own the media on which the SOFTWARE and DOCUMENTATION are originally or subsequently recorded or fixed, but BIAS retains title and ownership of the SOFTWARE and DOCUMENTATION and all subsequent copies of the SOFTWARE and DOCUMENTATION, regardless of the form or media on which the original and other copies may exist. This License is not a sale of the original SOFTWARE or any copy or sale of the original DOCUMENTATION.

4. COPY RESTRICTIONS. This SOFTWARE and the DOCUMENTATION are copyrighted. Unauthorized copying of the SOFTWARE, including SOFTWARE that has been modified, merged, or included with other software, or of the DOCUMENTATION is expressly forbidden. You may be held legally responsible for any copyright infringement that is caused or encouraged by your failure to abide by the terms of this License. Subject to these restrictions, and if the SOFTWARE is not copy-protected, you may make one (1) copy of the SOFTWARE solely for backup purposes. You must reproduce and include the copyright notice on the backup copy.

5. USE RESTRICTIONS. As the LICENSEE, you may physically transfer the SOFTWARE from one computer to another provided that the SOFTWARE is used on only one computer at a time. You may not electronically transfer the SOFTWARE from one computer to another over a network. You may not distribute copies of the SOFTWARE or the DOCUMENTATION to others. You may not modify, adapt, translate, reverse engineer, decompile, disassemble, or create derivative works based on the SOFTWARE. You may not modify, adapt, translate, or create derivative works based on the DOCUMENTATION without the prior written consent of BIAS.

6. TRANSFER RESTRICTIONS. This SOFTWARE is licensed only to you, LICENSEE, and may not be assigned or otherwise transferred to anyone, whether voluntary or by operation of law, without the prior writ-

ten consent of BIAS. Any authorized transferee of the SOFTWARE must agree to be bound by the terms and conditions of this Agreement, or the transfer shall be invalid. In no event may you transfer, assign, rent, lease, sell, or otherwise dispose of the SOFTWARE on a temporary or permanent basis except as expressly provided herein.

7. LICENSE TO U.S. GOVERNMENT. If LICENSEE is an agency or instrumentality of the United States Government, the SOFTWARE and DOCUMENTATION are "commercial computer software" and "commercial computer software documentation", and pursuant to FAR 12.212 or DFARS 227.7202, and their successors, as applicable, use, reproduction and disclosure of the Software and Documentation are governed by the terms of this Agreement.

8. TERMINATION. This License is effective until terminated. This License will terminate automatically without notice from BIAS if you fail to comply with any provision of this License. Upon termination you shall destroy the DOCUMENTATION and all copies of the SOFTWARE, including modified copies, if any.

9. UPDATE POLICY. BIAS may create, from time to time, updated versions of the SOFTWARE. At its option, BIAS will make such updates available to LICENSEE and transferees who have paid the update fee and returned the registration card to BIAS.

10. BIAS PRODUCT SUPPORT.

Unlimited Complimentary Self Help Options

If you have questions about installing or using your BIAS products, please check the manual or user guide first, you will find answers to most of your questions there. If you need further assistance, please check:

http://www.bias-inc.com/support.html

for frequently asked questions, an extensive database of related articles, troubleshooting tips, and more.

Limited Complimentary Technical Assistance

Ninety days of technical support assistance for up to three incidents is available with the initial purchase of Type 1 BIAS products (Peak, Deck, SoundSoap Pro).

Ninety days of technical support assistance for a single incident is available with the initial purchase of Type 2 BIAS products (Peak DV, Peak LE, Deck LE, SuperFreq, SoundSoap). Type 3 products (OEM versions) are excluded. Thirty days of technical support assistance for a single incident is available with the purchase of paid upgrades to Type 1 and Type 2 BIAS products. The support period begins when the product authorization code (PAC) is initially issued following the product registration. To receive e-mail or telephone technical support, you will need a valid serial number and must be registered for a current BIAS product. Please keep your original product serial number and PAC in a safe place as it will be required for support. For customers preferring e-mail assistance, please use the email form available on our web site at: http://www.bias-inc.com/support.html Or, email: support@bias-inc.com

For customers preferring telephone assistance, (connect and toll charges apply), please have your computer running and close by the phone and call us at:

+1-707-782-1865

(9AM-5PM Monday-Friday PST – excluding BIAS holidays)

Fee-based Technical Support Options

Fee-based Support is available for those customers whose support period has expired or for Type 3 (OEM version) customers. Please call:

+1-707-782-1865

(9AM-5PM Monday-Friday PST – excluding BIAS holidays)

For customers living outside of North America, please contact your local BIAS distributor, or contact BIAS directly. A list of BIAS distributors may be found at:

http://www.bias-inc.com/distributors.html

BIAS Support Policy and Hours

BIAS, Inc. support policy and hours are subject to change without notice.

Sales and Non-Technical Customer Service

For product information, sales, and other non-technical customer service, please email or call:

sales@bias-inc.com

US: 1-800-775-BIAS (2427)

International: +1-707-782-1866

(9AM-5PM Monday-Friday PST – excluding BIAS holidays)

No technical support is available at the numbers or email address above.

11. MISCELLANEOUS. This Agreement is governed by the law of the State of California.

DISCLAIMER OF WARRANTY AND LIMITED WARRANTY THE SOFTWARE AND DOCUMENTATION (INCLUDING INSTRUCTIONS FOR USE) ARE PROVIDED "AS IS" WITHOUT WARRANTIES OF ANY KIND. FURTHER, BIAS DOES NOT WARRANT, GUARANTEE, OR MAKE ANY REPRESENTATIONS REGARDING THE USE, OR THE RESULTS OF THE USE, OF THE SOFTWARE OR DOCUMENTATION IN TERMS OF CORRECTNESS, ACCURACY, RELIABILITY, CURRENTNESS, OR OTHER-WISE. THE ENTIRE RISK AS TO THE RESULTS AND PER-FORMANCE OF THE SOFTWARE IS ASSUMED BY YOU, AND NOT BIAS OR ITS DEALERS, DISTRIBUTORS, AGENTS, OR EMPLOYEES, YOU AGREE TO ASSUME THE ENTIRE COST OF ALL NECESSARY SERVICING, REPAIR, OR CORRECTION.

BIAS warrants to the original LICENSEE that the media upon which the SOFTWARE is recorded and the BIAS Key (USB dongle), if applicable, are free from defects in materials and workmanship under normal use and serv-ice for a period of ninety (90) days from the date of deliv-ery as evidenced by a copy of your receipt. Further, BIAS hereby limits the duration of any implied warranty(ies) on the media to the respective periods stated above. Some states do not allow limitations on duration of an implied warranty, so the above limitation may not apply to you.

BIAS' entire liability and your exclusive remedy as to the media shall be, at BIAS' option, either (a) return of the purchase price or (b) replacement of the media that does not meet BIAS' Limited Warranty and which is returned to BIAS with a copy of the receipt. If failure of the media has resulted from accident, abuse, or misap-plication, BIAS shall have no responsibility to replace the media or refund the purchase price. Any replacement media will be warranted for the remainder of the original warranty period or thirty (30) days, whichever is longer. THE ABOVE ARE THE ONLY WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MER-CHANTABILITY AND FITNESS FOR A PARTICULAR PUR-POSE, THAT ARE MADE BY BIAS CONCERNING THE BIAS PRODUCT. NO ORAL OR WRITTEN INFORMA-TION OR ADVICE GIVEN BY BIAS, ITS DEALERS, DIS-TRIBUTORS, AGENTS, OR EMPLOYEES SHALL CREATE A WARRANTY OR IN ANY WAY INCREASE THE SCOPE OF THIS WARRANTY, AND YOU MAY NOT RELY ON ANY SUCH INFORMATION OR ADVICE. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE. NEITHER BIAS NOR ANYONE ELSE WHO HAS BEEN INVOLVED IN THE CREATION, PRODUCTION, OR DELIVERY OF THIS PRODUCT SHALL BE LIABLE FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL, OR INCI-DENTAL DAMAGES (INCLUDING DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION, AND THE LIKE) ARISING SUCH DAMAGES. BECAUSE SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIA-BILITY FOR CONSEQUENTIAL OR INCIDENTAL DAM-AGES, THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

This Disclaimer of Warranty and Limited Warranty is gov-erned by the laws of the State of California.

Should you have any questions concerning this Agreement, or if you desire to contact BIAS for any rea-son, please contact in writing:

BIAS Customer Sales and Service
1370 Industrial Ave.
Suite A
Petaluma, CA 94952
USA

BIAS Product Support:

Unlimited Complimentary Self Help Options

If you have questions about installing or using your BIAS products, please check the manual or user guide first, you will find answers to most of your questions there. If you need further assistance, please check:

http://www.bias-inc.com/support.html

for frequently asked questions, an extensive database of related articles, troubleshooting tips, and more.

Limited Complimentary Technical Assistance

Ninety days of technical support assistance for up to three incidents is available with the initial purchase of Type 1 BIAS products (Peak, Deck, SoundSoap Pro). Ninety days of technical support assistance for a single incident is available with the initial purchase of Type 2 BIAS products (Peak DV, Peak LE, Deck LE, SuperFreq, SoundSoap). Type 3 products (OEM versions) are excluded. Thirty days of technical support assistance for a single incident is available with the purchase of paid upgrades to Type 1 and Type 2 BIAS products. The support period begins when the product authorization code (PAC) is initially issued following the product registration. To receive e-mail or telephone technical support, you will need a valid serial number and must be registered for a current BIAS product. Please keep your original product serial number and PAC in a safe place as it will be required for support. For customers preferring

e-mail assistance, please use the email form available on our web site at:

http://www.bias-inc.com/support.html

Or, email:

support@bias-inc.com

For customers preferring telephone assistance, (connect and toll charges apply), please have your computer running and close by the phone and call us at:

+1-707-782-1865

9AM-5PM Monday-Friday PST – excluding BIAS holidays

Fee-based Technical Support Options

Fee-based Support is available for those customers whose support period has expired or for Type 3 (OEM version) customers. Please call:

+1-707-782-1865

9AM-5PM Monday-Friday PST – excluding BIAS holidays

For customers living outside of North America, please contact your local BIAS distributor, or contact BIAS

directly. A list of BIAS distributors may be found at:

http://www.bias-inc.com/distributors.html

BIAS Support Policy and Hours

BIAS, Inc. support policy and hours are subject to change without notice.

Sales and Non-Technical Customer Service

For product information, sales, and other non-technical customer service, please email or call:

sales@bias-inc.com

US: 1-800-775-BIAS (2427)

International: +1-707-782-1866

9AM-5PM Monday-Friday PST – excluding BIAS holidays

No technical support is available at the numbers or email address above.

Contents

Chapter 1: Introducing SoundSoap Pro

Chapter 2: Installing & Authorizing SoundSoap Pro

Chapter 3: SoundSoap Pro User Interface & Controls

Chapter 4: Using SoundSoap Pro

Chapter 5: Hands-On Tutorial

Chapter 1:
Introducing SoundSoap Pro

SoundSoap Pro User's Guide

Chapter 1:
Introducing SoundSoap Pro

1

Welcome!

Thank you for purchasing BIAS SoundSoap Pro! SoundSoap Pro is a professional noise reduction plug-in for VST, RTAS, Audio Units, AudioSuite, and DirectX host applications. It features tools for removing Hum & Rumble, Click & Crackle, and Broadband Noise – and also includes a Noise Gate. SoundSoap Pro has been dubbed the "Universal Restoration Solution" as it contains all of these powerful noise reduction tools within a single interface – and it can be "plugged-into" virtually any host application that supports the aforementioned plug-in formats.

SoundSoap Pro shares some of the same technology that has made the original SoundSoap such a popular application/plug-in – tools such as the intelligent noise learning algorithm and Noise Only mode are also a part of SoundSoap Pro.

The original SoundSoap was designed by listening to feedback from digital video editors who wanted an easy, high-quality method to remove broadband noise from their video projects. When SoundSoap was released, professional audio editors gave it a warm welcome, but wished they could "get under the hood" and access all the various parameters that were pre-set. BIAS took this feedback from the pro audio crowd, and with the help of real-world restoration professionals,

developed SoundSoap Pro. The Pro edition adds the ultimate in parameter control – as well as new Click & Crackle removal tools, a global spectrogram, and many other visual feedback tools that help in the audio restoration process. This immense collection of controls required a totally different user interface – one that gives access to these many parameters, but in a logical and easy to use manner. SoundSoap Pro features a tab-based user interface, with a dedicated set of tools for specific noise types contained within each tab. These tabs are arranged to suggest an order of processing to the user – if this order is followed, optimal results may be achieved. There is no restriction however, on using these tools – individual tools may be toggled on or off, depending on the types of noise present in the digital media file at hand, and they may be used in any order desired. SoundSoap Pro also offers advanced preset control – the settings for all four tools are saved into a preset, but individual tool settings may be loaded at will.

Finally, SoundSoap Pro can be used within just about any host application supporting any of the four most popular native plug-in standards, on both Macintosh and Windows platforms. Users of Peak, Pro Tools, Logic, Cubase, Nuendo, Premiere, WaveLab, Sound Forge, and most other applications that support VST, RTAS, Audio Units, AudioSuite, or DirectX plug-ins may easily add

SoundSoap Pro's powerful noise reduction technology directly into their application of choice.

SoundSoap Pro is the perfect solution for removing unwanted hiss, room noise, rumble, electrical hum, click & crackle, and other background noise from almost any digital media file – including digital video (DV) soundtracks, PowerPoint and other presentation software soundtracks, Flash and other web-tool soundtracks, digital audio workstation tracks, cassette, vinyl, or other analog tape recordings that have been transferred to a computer, and other sources.

We're sure you'll find SoundSoap Pro to be a powerful and useful tool, allowing you to enhance the quality of your digital audio and video projects.

SoundSoap Pro Features:

- Powerful, professional noise reduction

- Convenience – includes VST, RTAS, Audio Units, AudioSuite, and DirectX format plug-ins

- Easy-to-use tab-based user interface with specific tools for various types of noise

- Launch Tab – Contains Getting Started information to help you quickly get up to speed with SoundSoap Pro's controls

Global Tools (available within each tool) include:

-Spectrogram

-Global Presets

-Noise Only mode

-Default View Checkbox

-Processing Bypass Buttons

-Automation (parameters automatable within compatible host applications)

-Numerical Value Entry

Hum & Rumble Reduction Tab:

-Hum Frequency Slider

-Q (Bandwidth) Slider

-Depth Slider

-Harmonics Slider

-Harmonics Tilt Knob

-Hum Meter

-Rumble Slider

Click & Crackle Tab:

-Sensitivity Slider

-Click Threshold Slider

-Crackle Threshold Slider

-Click Indicator

Broadband Tab:

-Threshold/Reduction View Slider

-Threshold Sliders

-Reduction Sliders

-Threshold/Reduction Lock Buttons (Slider Grouping)

-Meters

-Learn Noise Button

-Attack Knob

-Release Knob

-Attack Tilt Knob

-Release Tilt Knob

Noise Gate Tab:

-Attack Knob

-Release Knob

-Threshold Slider

-Reduction Depth Slider

-Visual Waveform Display

-Left, Right, & L+R Waveform Display Buttons

-Freeze Waveform Display Button

Who is SoundSoap Pro designed for?

SoundSoap Pro is designed for the demanding audio professional who requires high-quality noise reduction/removal, coupled with the convenience of using the editing environment of their choice. SoundSoap Pro uses advanced noise reduction technology and an innovative user interface to provide access to a wide array of controls – allowing incredible noise reduction in a mini-

mal amount of time, with minimal artifacts.

With access to virtually any imaginable noise reduction parameter, SoundSoap Pro offers powerful tools that are easy to use, and should allow anyone to achieve amazing results.

Minimum System Requirements

To use SoundSoap Pro on a Macintosh – you will need:

- G4 or G5 Macintosh computer (≥ 500mHz processor recommended)

- Mac OS X (v. 10.2 or later)

- Compatible RTAS, VST, AudioSuite, or Audio Units host application

To use SoundSoap Pro on a Windows PC – you will need:

- Pentium III or Pentium IV computer (≥ 800mHz processor recommended)

- Windows XP Home or Professional Edition

- Compatible RTAS, DirectX, AudioSuite, or VST host application

Both:

- 128 MB RAM (256 or more recommended)

- 20 MB available hard drive space

For the most up-to-date info, please visit:

http://www.bias-inc.com/soundsoappro/

About Your User's Guide

SoundSoap Pro is designed to be simple and intuitive. Your User's Guide is designed to help you set up and use SoundSoap Pro for noise reduction/removal as quickly as possible.

This User's Guide assumes that you are familiar with standard Macintosh and/or Windows operating techniques, including:

- Setting up, starting, and using your computer

- Choosing commands from menus

- Double-clicking, selecting, shift-selecting, and dragging with the mouse

- Opening, copying, saving, and deleting files

- Opening, closing, scrolling, moving, re-sizing, and selecting windows

If you don't know how to perform these tasks, please refer to the documentation that was included with your computer, and spend a little time learning about your operating system before going any further. This will make using SoundSoap Pro much easier and more enjoyable.

The chapters in your SoundSoap Pro User's Guide are arranged in the order in which you would typically perform tasks when the need arises to remove unwanted noise from your media.

- Chapter 1 introduces you to SoundSoap Pro and explains some of the requirements for using it

- Chapter 2 explains how to install, register, and authorize SoundSoap Pro

- Chapter 3 explains the various features in

SoundSoap Pro and how they are used to reduce/remove noise

- Chapter 4 demonstrates how to use SoundSoap Pro

- Chapter 5 contains a hands-on tutorial, with step-by-step directions on how to remove various types of noise from the included sample files

Look for important tips and notes whenever you see this exclamation mark

Help with SoundSoap Pro

SoundSoap Pro offers two types of help. The first type, appears in the Launch Area of the SoundSoap Pro interface. This type of help contains quick getting started tips. You can vary the amount of text shown at any time by clicking the "See More" button.

Clicking the See More button displays a larger Getting Started window

Clicking the See More button displays more of the Getting Started Tips, or more of the Launch Screen info (licensed user, serial number, etc)

The second, and more comprehensive type of help is the SoundSoap Pro User's Guide. A .pdf edition of this documentation is installed into:

~/Library/Documentation/BIAS/SoundSoap Pro/

on Macintosh systems, and into:

 C:/Program Files/BIAS/SoundSoap Pro

on Windows systems.

Clicking the Help ("?") Button will launch your web browser and take you to the BIAS Documentation page, where you can download additional tutorials on SoundSoap Pro, as they become available.

SoundSoap Pro's Help button

Conclusion

Now that you know a little about SoundSoap Pro, proceed to the next chapter to learn how to install and start using it.

SoundSoap Pro User's Guide

Chapter 2:
Installing & Authorizing SoundSoap Pro

Chapter 2:
Installing & Authorizing SoundSoap Pro

Installing SoundSoap Pro

SoundSoap Pro's installer software makes installation very easy.

Your complete SoundSoap Pro system consists of:

- CD-ROM Installer

- SoundSoap Pro serial number and Product Authorization Code (PAC) – the serial number appears on a registration card included in the package, and the Product Authorization Code is issued at the time of registration.

- The BIAS Key (a small hardware device that plugs into an available USB port on your computer system)

⚠ *Before you install SoundSoap Pro, please check the Minimum System Requirements on Page 15 of this User's Guide.*

To install SoundSoap Pro on a Macintosh:

1. Insert the SoundSoap Pro Installer CD-ROM in your CD-ROM drive, and double-click on the Install icon.

2. When the installer dialog appears, read the Read Me for late-breaking information concerning the Installer, as well as the Software License Agreement – then click Continue to proceed.

3. Click Install at the bottom right of this dialog.

4. After you have clicked Install, follow the on-screen instructions.

5. When the installation is complete, a message will appear indicating that the installation was successful – click Quit to quit the Installer.

⚠ *At the end of installation, the Installer program will instruct you to authorize the plug-in – this is described later in this chapter.*

What SoundSoap Pro Installs on Macintosh systems:

The files that SoundSoap Pro installs will depend on what types of host applications are used, and will vary from system to system. Please check the list of host types below for more information on the specific files that are installed, as well as where they are installed in your system.

VST Hosts: (Peak, Cubase SL/SX, Nuendo, etc.)

SoundSoap Pro automatically installs the VST format plug-in into the following directory:

/Macintosh HD/Library/Audio/Plug-Ins/VST/

Audio Units Hosts: (Peak, Logic, Digital Performer, etc.)

SoundSoap Pro automatically installs the Audio Units format plug-in into the following directory:

/Macintosh HD/Library/Audio/Plug-Ins/Components/

RTAS Hosts (Pro Tools):

SoundSoap Pro automatically installs the RTAS format plug-in into the following directory:

/Macintosh HD/Library/Application Support/Digidesign/Plug-Ins/

AudioSuite Hosts (Pro Tools, Avid):

SoundSoap Pro automatically installs the AudioSuite format plug-in into the following directory:

/Macintosh HD/Library/Application Support/Digidesign/Plug-Ins/

⚠️ *Check the documentation included with your host application for more information on where it expects plug-ins to reside in order to function properly.*

To install SoundSoap Pro on a Windows PC:

1. If you are using any virus-protection software, turn it off or temporarily remove it, and restart your computer.

2. Insert the SoundSoap Pro Installer CD-ROM in your CD-ROM drive. If the SoundSoap Pro Setup program does not automatically launch, double-click the Install SoundSoap Pro icon.

3. When the Welcome to the SoundSoap Pro Setup program window appears, click the Next button.

4. Read the Software License Agreement, and then click Yes to agree to the terms and continue with the SoundSoap Pro installation.

5. To install SoundSoap Pro into the default directory (recommended), click the Next button.

6. In the Setup Type dialog, choose the Typical option, and click the Next button.

7. In the Select Program Folder dialog, click the Next button to continue with installation.

8. In the Ready to Install dialog, click the Next button to continue with installation.

9. When you are finished installing, click Finish to exit the installer.

⚠️ *At the end of installation, the Installer program will instruct you to authorize the plug-in – this is described later in this chapter.*

What SoundSoap Pro Installs on Windows Systems:

The files that SoundSoap Pro installs will depend on what types of host programs are used, and will vary from system to system. Please check the list of host types below for more information on the specific files that are installed, as well as where they are installed in your system.

VST Hosts: (Cubase SL/SX, Nuendo, etc.)

SoundSoap Pro installs the VST format plug-in into the

VstPlugIns folder of your VST host program.

DirectX Hosts: (Sonar, Sound Forge, Vegas Video, etc.)

The DirectX format plug-in is automatically installed and entered into the registry.

RTAS Hosts (Pro Tools):

SoundSoap Pro automatically installs the RTAS format plug-in into:

/Program Files/Common/Digidesign/DAE/Plug-Ins/

AudioSuite Hosts (Pro Tools, Avid):

SoundSoap Pro automatically installs the AudioSuite format plug-in into:

/Program Files/Common/Digidesign/DAE/Plug-Ins/

Authorization

SoundSoap Pro must be authorized to work on your computer. The SoundSoap Pro authorization system consists of the following components:

- Serial number (located on the BIAS License Certificate)

- The BIAS Key (a small hardware device that plugs into an available USB port on your computer system)

- BIAS Key Panel (See page 24 for details)

- A Product Authorization Code – which is issued at the end of the registration process

The BIAS Key plugs into an available USB port on your system

⚠️ *You must register with BIAS in order to obtain your Product Authorization Code; SoundSoap Pro will not launch after the 14 day registration period unless you authorize it with your Serial Number and Product Authorization Code!*

The fastest and easiest way to register SoundSoap Pro – and receive your Product Authorization Code – is by accessing the BIAS registration system online, via the BIAS Key Panel.

The registration/authorization process provides the following services:

- It registers your software with BIAS – making you

eligible for technical support and product updates.

• It provides you with the Product Authorization Code you will need to authorize your BIAS key. Once the BIAS key is authorized, you may move it from one system to another, and use SoundSoap Pro on a different system. Keep in mind that each license of SoundSoap Pro may only be used on one computer system at a time.

⚠️ *You cannot use SoundSoap Pro without an authorized BIAS Key! If you plan to travel, or use SoundSoap Pro in mobile situations, don't forget to bring your key. Think of the BIAS Key as a "key" that lets you use SoundSoap Pro – much like the keys for your car or house!*

To authorize SoundSoap Pro:

⚠️ *If you are authorizing SoundSoap Pro immediately after installing, and have been guided automatically from the installer to the the BIAS Key Panel, please skip directly to Step 3.*

1. Insert the BIAS Key into an available USB port on your computer system – when the key is properly inserted and active, a red LED within the key will light up.

2a. On Macintosh systems, choose System Preferences from the Apple menu, then click the BIAS Key Panel icon in the Other section of the System Preferences window.

2b. On Windows systems, choose Settings from the Start menu, and Control Panel from the Settings submenu – in the Control Panel window, click the BIAS Key Panel icon.

3. In the BIAS Key Panel, select BIAS SoundSoap Pro

v1.0 in the section labeled "Step 1: Select a Product".

4. In the section labeled "Step 2: Submit your Serial Number" – enter your SoundSoap Pro serial number in the field labeled "Serial Number". (Your serial number is located on your registration card!)

5. Click the Submit button located to the right of the Serial Number field – this initiates a 14 day registration period.

⚠️ *During this 14 day registration period, SoundSoap Pro is fully functional – BIAS recommends registering immediately to ensure uninterrupted use.*

6. To register immediately, click the Register Now! button – this launches your web browser and takes you to the BIAS online registration form on the BIAS website.

⚠️ *If the computer on which you plan to use SoundSoap Pro is not connected to the internet, please skip to the next section, which describes other methods of registering SoundSoap Pro.*

7. You will be guided through the registration process on the BIAS website. When registration is complete, you will receive your Product Authorization Code – copy the entire code to the clipboard, so it's ready for the next step. Your Product Authorization Code will also be emailed to you.

8. Return to the BIAS Key Panel – In the section labeled "Step 3: Register and Submit your Product Authorization Code", click into the first text box, and

click the Paste from Clipboard button – your Product Authorization Code will be automatically entered.

If you copied your Product Authorization Code from the BIAS website – you can automatically paste it into the BIAS Key Panel.

9. Click the Submit button – the authorization process is now complete!

You will now be able to use SoundSoap Pro beyond the 14 day registration period.

The Product Status portion of the BIAS Key Panel should now list SoundSoap Pro as an "Activated" product. Now that the BIAS Key is also authorized, you may run SoundSoap Pro on a different computer system.

Important Notes Regarding Registration

Some users may not have access to the internet from the computer on which they plan to run SoundSoap Pro, or from any other computer. If either of these scenarios fit your situation, please take a moment to review the differences in the registration process when using another computer with internet access, or when faxing/mailing your registration card to BIAS.

In any of the scenarios presented below, you may begin to use SoundSoap Pro immediately by following these steps:

1. Insert the BIAS Key into an available USB port on your

computer system – when the key is properly inserted and active, a red LED within the key will light up.

2a. On Macintosh systems, choose System Preferences from the Apple menu, then click the BIAS Key Panel icon in the Other section of the System Preferences window.

2b. On Windows systems, choose Settings from the Start menu, and Control Panel from the Settings submenu – in the Control Panel window, click the BIAS Key Panel icon.

3. In the BIAS Key Panel, select BIAS SoundSoap Pro v1.0 in the section labeled "Step 1: Select a Product".

4. In the section labeled "Step 2: Submit your Serial Number" – enter your SoundSoap Pro serial number in the field labeled "Serial Number".

5. Click the Submit button located to the right of the Serial Number field – this initiates a 14 day registration period.

6. Register immediately – the sections below will guide you through the necessary steps if you do not have internet access on the computer on which SoundSoap Pro will be used.

If You Have Internet Access on Another Computer

If you have internet access on another computer, you can use it to visit the BIAS website to register SoundSoap Pro. The only differences in this method of registration are:

• You will need to manually enter your serial number and BIAS Key ID number into the registration form on the website.

• You will need to manually enter the Product

Authorization Code that is presented to you on the website into the BIAS Key Panel – on the system which will be used to run SoundSoap Pro.

To register SoundSoap Pro from another computer that is connected to the internet, please visit:

http://www.bias-inc.com/support/register/

⚠️ *Please note that if you visit the BIAS website from a different computer than the one you intend to use SoundSoap Pro with – or if you can only register via fax or mail – you will need to manually enter the BIAS Key ID number into the registration form on the BIAS website. The BIAS Key ID number appears in the BIAS Key Panel, when the key is inserted into a USB port on that system.*

Registering by FAX or Post

If you do not have internet access on any computer, you may also register by faxing or mailing your registration card to BIAS. Please keep in mind that you will need to authorize your BIAS Key within 14 days of installation to continue using SoundSoap Pro – BIAS recommends completing your registration card and faxing/mailing it immediately following installation.

The only differences in this method of registration are:

- You will need to write down your BIAS Key ID number on your registration card (along with your contact information, of course!)

- There may be a delay of several days before you receive your Product Authorization Code. While BIAS processes registration information within 24 hours of receipt – additional delays may occur due to varying postal delivery times, holidays, or weekends.

If you do not have internet access, please fax or mail your registration card to BIAS:

FAX: +1-707-782-1874   Attn: Registration

Post: BIAS Inc.
           Attn: Registration Dept.
           1370 Industrial Avenue
           Suite A
           Petaluma, CA 94952
           USA

When You Receive Your Product Authorization Code

Regardless of whether you're registering via another computer with internet access, or by fax or post, you will need to enter your Product Authorization Code into the BIAS Key Panel to finish the authorization process.

Assuming that you may have closed the BIAS Key Panel while waiting for your Product Authorization Code to be issued, please follow the steps below to finalize the authorization process.

To Enter Your Product Authorization Code:

1. Make sure the BIAS Key is inserted into an available USB port on your computer system – when the key is properly inserted and active, a red LED within the key will light up.

2a. On Macintosh systems, choose System Preferences from the Apple menu, then click the BIAS Key Panel icon in the Other section of the System Preferences window.

2b. On Windows systems, choose Settings from the Start menu, and Control Panel from the Settings submenu – in the Control Panel window, click the BIAS Key Panel icon.

3. In the BIAS Key Panel, select BIAS SoundSoap Pro

v1.0 in the section labeled "Step 1: Select a Product".

Make sure you have entered your serial number! If you entered your serial number before registering, SoundSoap Pro's status in the Product Status portion of the BIAS Key Panel should read "XX Days Remaining" – where XX may be anywhere from 14 days to 0 days.

---

4. In the section labeled "Step 3: Register and Submit your Product Authorization Code", click into the first text field, and enter the first five characters of your Product Authorization Code. Use the Tab Key to advance to the next text field, enter the next five characters, and so on.

5. When you have entered the entire Product Authorization Code, click the Submit button that appears to the right of the ten text fields – the authorization process is now complete!

The Product Status portion of the BIAS Key Panel should now list SoundSoap Pro as an "Activated" product. If you need to use SoundSoap Pro on another system, your BIAS Key is also authorized, so you may run SoundSoap Pro on a different computer system.

Conclusion

Now that you have installed, registered, and authorized SoundSoap Pro, proceed to the next chapter to learn several basic concepts and functions essential to using SoundSoap Pro.

Chapter 3:
SoundSoap Pro User Interface & Controls

Chapter 3:
SoundSoap Pro User Interface & Controls

Introduction

This chapter explains several key SoundSoap Pro concepts and functions.

A Brief Explanation of Noise Types

If you are using SoundSoap Pro, chances are you have run into some sort of undesirable noise in your digital media files — and need advanced signal processing tools to produce the best possible results. SoundSoap Pro offers many tools and precise control – allowing you to easily and effectively remove practically any type of unwanted audio signal — Clicks, Pops, Crackle, Hiss, Hum, Rumble, HVAC system noise, SMPTE timecode crosstalk noise, camera motor noise – and many other types of noise from a wide variety of digital audio and video media files. Such noise can be a big distraction from the desired audio signal, resulting in an unprofessional-sounding final product.

While SoundSoap Pro can do a great deal to reduce noise from a file, there may be situations in which the desired audio signal is lower than the level of noise, making it impossible to fully remove the noise. In cases like this, SoundSoap Pro may not entirely remove the noise, but

may be able to significantly reduce its presence. The types of noise that SoundSoap Pro is designed to reduce are outlined below:

Hum

The type of noise known as "hum" is typically composed of a fundamental frequency (such as 60 Hz) and its harmonics, and is often associated with audio equipment being used on faulty electrical circuits, or equipment that is not properly grounded.

Rumble

Rumble is a similar type of noise to Hum – but typically occurs at lower frequencies, usually around 40 Hz or below. Typical rumble would be the low frequency noise from phonograph turntables – often present in vinyl transfers. The rumble filter may also be effective in removing other types of low frequency noise.

Clicks/Crackles/Pops

This category of noise is generally identified by random abrupt transients in an audio signal. When examined closely in a waveform editor, these transients will usually appear as abrupt "spikes" within the overall meandering sine-wave type pattern of an audio waveform. Clicks and crackles are common in recordings of vinyl records, and pops are commonly encountered while performing Cut/Copy/Paste type edits on audio or video media, especially when the editing platform does not accurately make these edits at zero-crossings (sections of the audio signal with zero amplitude). Pops may also result from faulty electronic equipment, which can sometimes produce pops at regular intervals in an audio or video recording – or from clocking problems with digital transfers.

Broadband Noise

Broadband noise is any noise that is composed of a broad frequency spectrum. Tape hiss, room noise, air-conditioner noise (as well as noise from other types of appliances, lighting systems, etc.), buzzing, white noise, and pink noise, are common examples of "broadband" noise.

Getting Started with SoundSoap Pro

SoundSoap Pro is designed to be used as a plug-in within your favorite VST, Audio Units, DirectX, RTAS, or AudioSuite compatible host application, on Mac OS X or Windows XP. SoundSoap Pro was designed to provide professional-quality audio restoration, but also to be very simple to use, with maximum control over parameters that can reduce/remove the types of noise described in the previous section.

While SoundSoap Pro does offer some level of automated processing, and carefully adjusted default settings – it is important to understand what each control does, in order to make the best possible settings that address particular types of unwanted noise. The next section introduces the graphical user interface of SoundSoap Pro.

Take a few moments to familiarize yourself with the various knobs, buttons, sliders, and visual feedback tools, and then move on to the next section, for detailed descriptions on how they are used.

SoundSoap Pro Controls Explained

The SoundSoap Pro GUI (Graphical User Interface) was specifically developed to provide the ultimate in control over a large number of parameters – while still being intuitive to use. The interface contains many controls to reduce most types of broadband noise, hum, rumble, or clicks, crackles, and pops from most digital media files.

The interface is based around five individual tabs – each representing a tool that addresses a specific noise type. These tabs are, in order from left to right:

- Launch
- Hum & Rumble
- Click & Crackle
- Broadband
- Noise Gate

It is recommended to start from the left, and work your way right – that is, eliminate a low-frequency noise such as hum first – having removed this hum will produce better results in removing the transient clicks and crackles – which in turn will allow the Broadband Tool to better remove broadband noise – and so on.

It makes the most sense to leave tools inactive if they are not in use. For example, if hum or rumble is not a problem in the file you are restoring, disable the Hum & Rumble tool to preserve CPU power.

SoundSoap Pro's various controls are detailed below on a tab-by-tab basis, as they appear in the plug-in:

Global Controls (Available in all interface tabs):

While SoundSoap Pro offers several noise-specific tools, it also features tools that are "global" – meaning they can be accessed at any time, even when working between different noise reduction tools. For example, you may be fine-tuning Broadband noise reduction settings, and using the built-in spectrogram as a visual aid. Then, you may need to switch over to the Click & Crackle tool to make another adjustment. Since the Spectrogram operates globally, it is always in view, regardless of which tool is selected. What is particularly nice about the layout of the SoundSoap Pro interface, is that each tool's tab contains a thumbnail representation of the current settings within that tool. This makes it easy to work between various tools, while still monitoring the settings of each tool. Using the previous example of fine-tuning Broadband reduction settings and then switching to another tool – it's easy to keep an eye on what settings have been made in the Broadband reduction tab, without having to switch back to the Broadband Tool.

Below is a brief description of these "global" tools, and how they operate.

Default View Checkbox – A default view checkbox is available within each tool tab, allowing a particular tool to appear by default when SoundSoap Pro is instantiated.

The Default View checkbox allows setting a tool to always appear first when SoundSoap Pro is instantiated

SoundSoap Pro Preset Save Button – Saves a SoundSoap Pro preset – which saves the settings for all four tools.
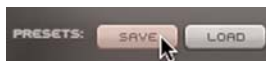
The SoundSoap Pro custom preset save button

SoundSoap Pro Preset Load Button – Recalls a previously stored SoundSoap Pro plug-in – with the option to load either a tool-specific preset, or one that reflects the overall state of the plug-in.


The SoundSoap Pro custom preset load button

⚠️ *SoundSoap Pro can use either its own form of advanced presets, which can load either the state of an individual tool, or the state of all the tools – or, it can use the usual host-provided presets available in each plug-in format.*

Host-Provided Preset Save Button – Saves a preset, of the host-provided variety (see alert above). Host provided presets only save a snapshot of the state of the entire plug-in.

Host-Provided Preset Load Button – Recalls a host-provided preset, which is a snapshot of the overall state of the SoundSoap Pro plug-in.

Load Preset   Save Preset
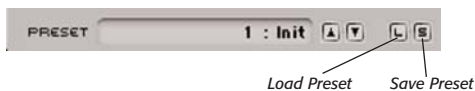
Host-Provided Preset Controls for the VST version of SoundSoap Pro, as shown within BIAS Peak – (these vary by plug-in format)

A/B/C/D Compare Buttons – The A/B comparison feature is common in audio plug-ins, and gives the ability to preview different settings before committing to them. Essentially, various tool settings are made and assigned to memory location "A" – another group of settings can then be assigned as "B" – and then clicking the A or B buttons in the interface instantly toggles between the two. As SoundSoap Pro is geared toward professional restoration – and offers many fine-tuning options – it features not just two comparison modes – but instead includes A/B/C/D comparisons. These four unique settings can be compared instantly, before committing to any file processing or saving presets. These memory locations are similar to saving and loading presets, but are instantaneous and temporary, and do not require selecting presets from a menu to load them. Only the active memory location may be saved within a preset for later recall.

A/B/C/D Compare snapshot assignment buttons

Help Button – Clicking the Help button launches your web browser, and takes you to the BIAS website's documentation page, where you can download various tutorials on SoundSoap Pro. The SoundSoap Pro User's Guide (in .pdf form) is installed into your system when you install SoundSoap Pro – see Chapter 2 for details on where the user's guide is installed on Mac or Windows systems.

The Help button

Noise Only Mode Button – The Noise Only button changes the audio output of SoundSoap Pro. When in Noise Only mode you hear what is being removed from the audio signal, based on the current settings. Noise Only is an essential feature, as it lets you verify that your settings are good, and that you are not removing any of the desired signal. If you're using Noise Only mode, and do hear any of the desired audio signal, you can continue to make adjustments until you are only removing noise.
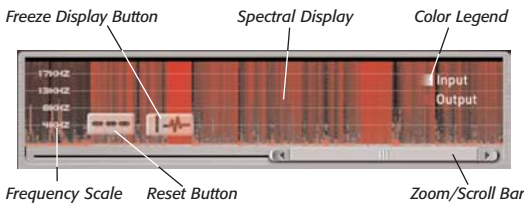

Noise Only mode allows you to hear just what's being removed from an audio signal

Spectrogram – SoundSoap Pro's spectrogram is another essential tool, providing visual feedback regarding the state of a media file being restored. It features an animated color display which scrolls from right to left as a file is played through SoundSoap Pro. White and red graphics appear in the spectrogram to represent the following:

White = Input (original audio signal being fed through SoundSoap Pro)

Red = Output (processed audio being output from SoundSoap Pro)

Freeze Display Button   *Spectral Display*   *Color Legend*

Frequency Scale   *Reset Button*   *Zoom/Scroll Bar*

The Spectrogram provides valuable visual feedback

Hovering your mouse over the display brings up a reset button, which clears any graphical data out of the spectrogram – as well as a Freeze Display button. The Freeze Display button temporarily stops the spectrographic display, and can also help conserve CPU power. In addition to this graphical display, the spectrogram contains a frequency scale – which varies between tools. The spectrogram provides valuable information about where in the frequency spectrum noise occurs in a given file, as well as what frequencies are being removed. Directly beneath the spectrogram is a horizontal slider, which is used for both scrolling backward and forward in time, as well as for increasing or decreasing the zoom level (precision) at which the spectrogram data is viewed.

⚠️ *When working in the Hum & Rumble tab, the spectrogram's frequency scale changes from 4Hz – 20kHz to 4Hz – 1kHz, so as to give greater display precision when analyzing and removing hum and rumble – which characteristically occur in the lower portion of the frequency spectrum.*

3

Tool Tabs/Tool State Thumbnails – The bottom portion of SoundSoap Pro contains the "tabs", each of which contains a specific noise reduction tool. Clicking a tab brings a specific set of parameters to the foreground. Each tab also contains a miniaturized graphical display (thumbnail) of the settings currently active within that tool. The tab based interface is an essential part of streamlining the way SoundSoap Pro operates. It allows many controls to be placed within a fairly small area, and also allows the state of any tool's primary settings to be monitored at any time – even when working with a different noise reduction tool. For example, if you're working in the Noise Gate tool, and need to know what your current settings are for the Broadband Release knob, you can simply glance at the Broadband thumbnail, and view its state, without having to leave the Noise Gate tab.

Each of SoundSoap Pro's Tabs contains a thumbnail representation of its tool settings, allowing you to easily monitor all settings at all times

You have now learned about SoundSoap Pro's Global Tools – please continue on to the next section to learn about the Launch Tab.

SoundSoap Pro User Interface: Launch Tab

A/B/C/D Compare Buttons

Preset Load Button

Help Button

Preset Save Button

Noise Only Mode Button

Default View Checkbox

Credits Screen

"See More" button

Getting Started With SoundSoap Pro:

SoundSoap Pro combines four powerful noise reduction and restoration tools all in a single plug-in. In the lower section of the SoundSoap Pro interface you will find 4 tabs — each representing one of 4 restoration tools. You will use these

Getting Started Tips

Recommended Processing Order

Launch Tab

Hum & Rumble Tab (with tool settings thumbnail)

Click & Crackle Tab (with tool settings thumbnail)

Broadband Tab (with tool settings thumbnail)

Noise Gate Tab (with tool settings thumbnail)

Launch Tab

Credits/Info Screen – This area of the Launch Tab contains product credits, and version number information.
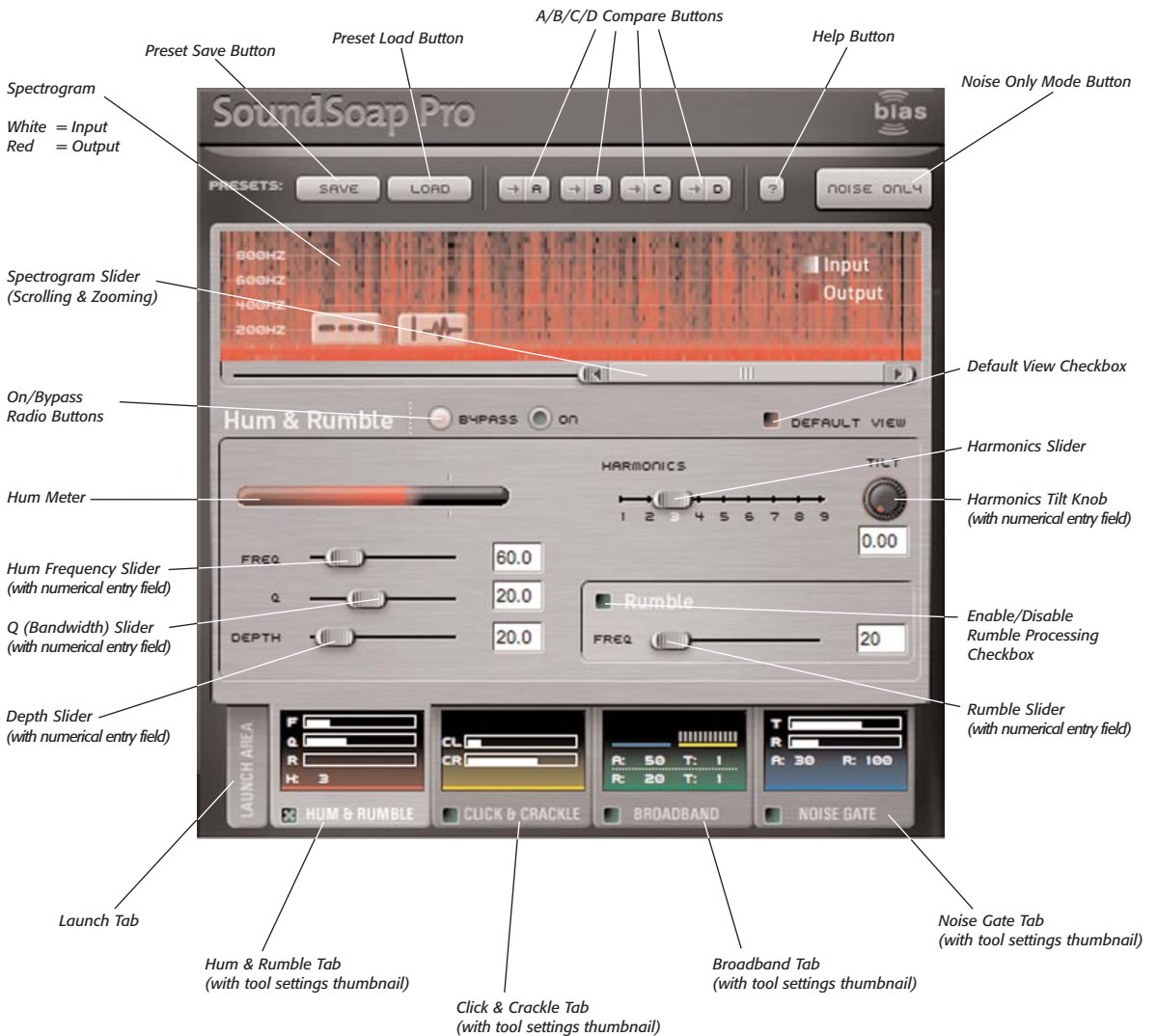

Use the Getting Started section of the Launch Tab to get going quickly – you can view more text by clicking the See More button

Getting Started Tips – The Getting Started Tips section of the Launch Tab contains useful information about how each tool works.

You've now learned a bit about the Launch Tab, the next section describes SoundSoap Pro's Hum & Rumble Tool.

SoundSoap Pro User Interface: Hum & Rumble Tab

Preset Save Button

Preset Load Button

A/B/C/D Compare Buttons

Help Button

Noise Only Mode Button

Spectrogram

White = Input
Red = Output

Spectrogram Slider
(Scrolling & Zooming)

On/Bypass
Radio Buttons

Hum Meter

Hum Frequency Slider
(with numerical entry field)

Q (Bandwidth) Slider
(with numerical entry field)

Depth Slider
(with numerical entry field)

Default View Checkbox

Harmonics Slider

Harmonics Tilt Knob
(with numerical entry field)

Enable/Disable
Rumble Processing
Checkbox

Rumble Slider
(with numerical entry field)

Launch Tab

Hum & Rumble Tab
(with tool settings thumbnail)

Click & Crackle Tab
(with tool settings thumbnail)

Broadband Tab
(with tool settings thumbnail)

Noise Gate Tab
(with tool settings thumbnail)

Hum & Rumble Tab

On/Bypass Radio Buttons/Checkbox – These controls allow the Hum & Rumble tool to be turned on or off, while other tools remain active. These controls are useful as they allow this tool to simply be turned off when not required – and are also useful for comparing the difference between having the Hum & Rumble tool on or off.

On/Bypass Radio Buttons   *On/Bypass Checkbox*
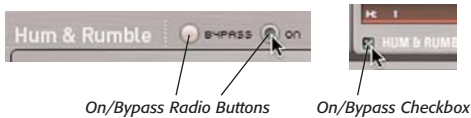
Hum & Rumble Tools may be turned on or bypassed using the radio buttons in the tool area, or with a checkbox in the tab

Hum Meter – SoundSoap Pro's Hum Meter is another visual feedback tool, which along with your ears, is a useful tool for helping to locate the fundamental frequency causing a particular hum. Typically, most hums occur at either 50Hz or 60Hz – however, there may be cases in which they occur at other frequencies. The Hum Meter works in conjunction with the Hum Frequency Slider. To find the fundamental frequency causing a hum, simply sweep the Hum Frequency Slider while listening to a media file containing hum. As you get closer and closer to the fundamental frequency, the Hum Meter's reading intensifies. When you see the strongest reading in the Hum Meter, you've found the fundamental frequency responsible for causing the hum, and can then use other Hum & Rumble controls to adjust how much the hum is reduced.

The Hum Meter provides visual feedback that helps identify the frequency causing a hum

Hum Frequency Slider – The Hum Frequency Slider allows you to reduce a specific frequency, and has a range of 20Hz – 200Hz. Moving this slider determines the fundamental frequency that will be targeted (a specific value may also be entered by typing a value in the numerical entry field). If the frequency causing a hum is unknown, the Hum Frequency Slider may be swept as the noisy media file is played, and the Hum Meter, located directly above the Hum Frequency Slider, will register activity as you approach the offending fundamental frequency. The setting that gives the strongest reading in the Hum Meter is the frequency (or very close to it) causing the hum problem.

Parameters can be adjusted with a slider, by entering a numerical value, or using the Up/Down Arrow keys on your keyboard

> ⚠ *When typing in values or using the Up/Down Arrow keys to adjust values in a numerical field, be sure to press the Return or Enter key on your keyboard.*

Q (Bandwidth) Slider – The Q Slider determines the bandwidth of the notch filter being applied to a particular frequency. The range of the Q slider is from 10 to 50 – A larger Q value affects only a very narrow frequency range, and a smaller value affects a wider frequency range. Hum will vary depending on the source – a very narrow Q (higher value) will eliminate only the frequency set with the Hum Frequency Slider, and will do very little to frequencies that are very close, either higher or lower. On the other hand, a wider Q (smaller value), will still affect the same fundamental frequency, but will also affect some of the surrounding frequencies. Ideally, the narrowest Q (largest value) possible should be used, so as to affect just the offending frequency. If the Hum Meter shows a strong reading, but some hum is still audi-

ble, it's best to experiment with the Q value setting, as well as the Depth and Harmonics Sliders.

Q (bandwidth) values can be adjusted with a slider, or by entering a numerical value

Depth Slider – The depth slider controls the amount of audio being cut out by the notch filter responsible for eliminating hum, and is directly related to both the Q Slider and Hum Frequency Slider. The Depth slider has a range of 0dB (no audio being cut out) to 50 dB of reduction. The Depth setting cuts the most amount of audio at the fundamental frequency, as determined by the Hum Frequency Slider, and affects the surrounding frequencies proportionally, depending on the Q value that is used.

Notch filter depth can be adjusted with a slider, or by entering a numerical value

Harmonics Slider – The Harmonics Slider designates how many harmonics of the fundamental frequency should be removed in either direction from the fundamental frequency. The range of harmonics that can be removed is 1 – 9, always as integers, never as fractions. When dealing with hum, there is always a fundamental frequency, and commonly there are harmonics at other frequencies, due to resonance. Harmonics typically will have similar characteristics to the hum found at the center frequency, but will be proportionally lower in amplitude. For example, a 60Hz hum may have harmonics at higher frequencies, such as 120Hz, 180Hz, 240Hz, and so on. Assuming the fundamental frequency is 60Hz, a setting of "3" on the Harmonics Slider would also remove the hum that occurs at 120Hz and at 180Hz.

SoundSoap Pro can eliminate up to 9 harmonics of the fundamental frequency

Harmonics Tilt Knob – The Harmonics Tilt Knob allows you to fine-tune the relationship between how much of the fundamental frequency is cut, and how much of the signal is cut at each harmonic.

It is common for a hum that occurs at a certain harmonic of the fundamental frequency to have a lower amplitude than the hum at the fundamental frequency. The Harmonics Tilt Knob controls the relationship between the depth of each successive notch filter created by the Harmonics slider. With a value of "0.00", each additional notch created by raising the value of the Harmonics slider cuts at the same value as the notch placed at the fundamental frequency.

The Harmonics Tilt Knob allows fine-tuning of harmonic reduction

For example, if the Hum Depth slider is set to cut by 20dB, and the Harmonics Tilt Knob is set to "0.00", each additional notch created by increasing the value of the Harmonics slider will also cut each harmonic by 20dB. However, if the Hum Depth slider is set to cut by 20dB, and the Harmonics Tilt Knob is set to "0.50", then each successive notch created by increasing the value of the Harmonics slider will cut at half the depth of the previous notch.

Rumble Reduction Slider – The Rumble Reduction Slider focuses on very low frequency noise, commonly known as "rumble". Rumbles typically occur around 40Hz or below, and SoundSoap Pro's Rumble reduction tool has a range of 20Hz – 100Hz. The Rumble reduction tool is a high-pass filter (it lets high frequencies pass through, while blocking low frequencies), with a slope of 12dB and a Q value of .5.
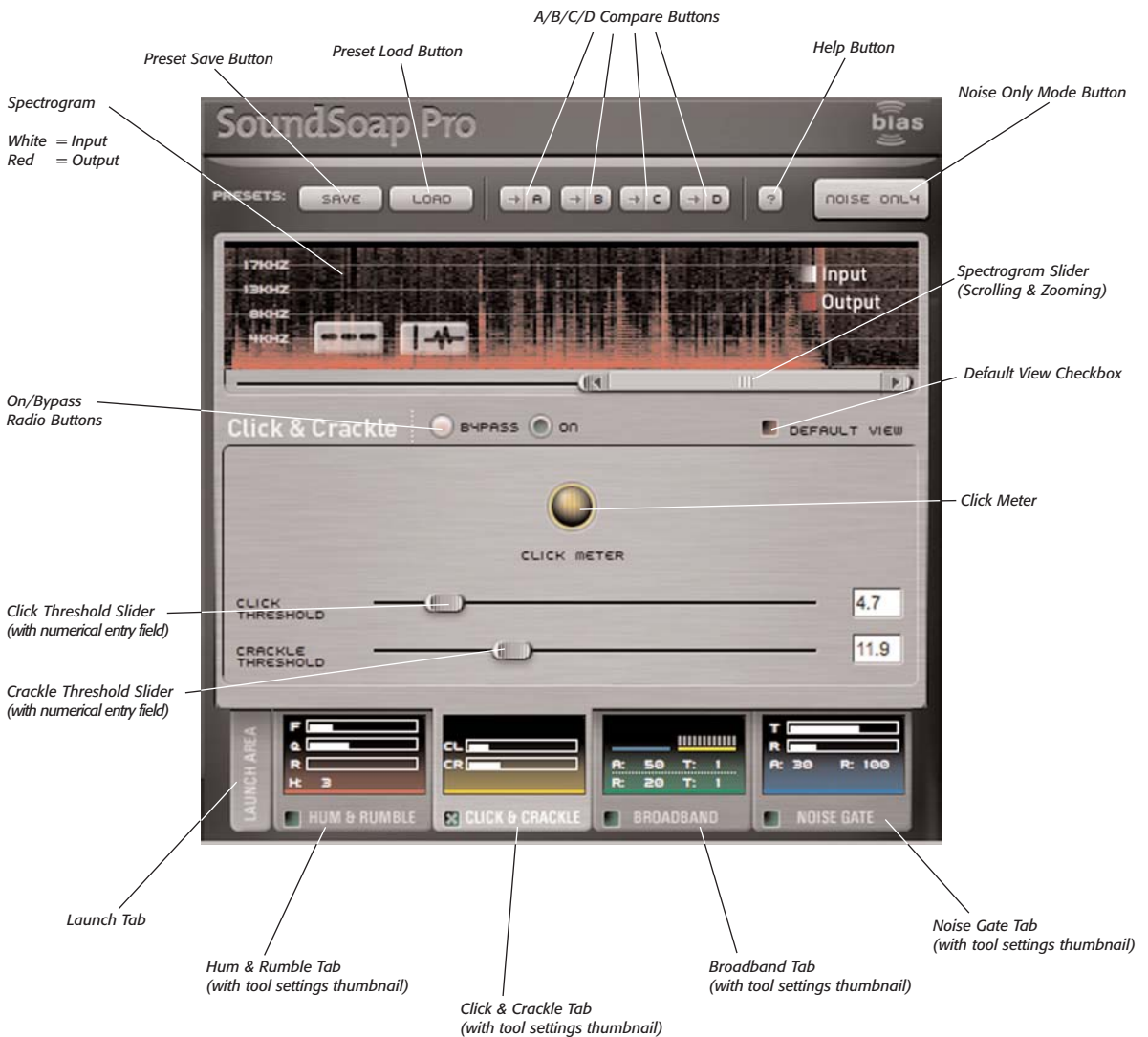

Separate Rumble reduction control is available for very low frequency noise

Global Tools – As with all the other tool tabs, SoundSoap Pro's global tools may be accessed from within the Hum & Rumble tab. These global tools include Preset Buttons, A/B/C/D Compare Buttons, Help Button, Noise Only Mode Button, Spectrogram, and the ability to monitor other tool settings with the Tool Tabs/Tool State Thumbnails. These tools are described in more detail at the beginning of this section.

That concludes the overview of the Hum & Rumble Tool – the next section covers Click & Crackle reduction with SoundSoap Pro.

3

SoundSoap Pro User Interface:
Click & Crackle Tab

A/B/C/D Compare Buttons

Preset Save Button

Preset Load Button

Help Button

Noise Only Mode Button

Spectrogram

White = Input
Red = Output

Spectrogram Slider
(Scrolling & Zooming)

Default View Checkbox

On/Bypass
Radio Buttons

Click Meter

Click Threshold Slider
(with numerical entry field)

Crackle Threshold Slider
(with numerical entry field)

Launch Tab

Hum & Rumble Tab
(with tool settings thumbnail)

Click & Crackle Tab
(with tool settings thumbnail)

Broadband Tab
(with tool settings thumbnail)

Noise Gate Tab
(with tool settings thumbnail)

Click & Crackle Tab

On/Bypass Radio Buttons/Checkbox – These controls allow the Click & Crackle tool to be disabled, or bypassed, while other tools remain active. This control allows the tool to simply be turned off when not required, to save CPU power for other tasks. It is also useful for comparing the difference between having the Click & Crackle tools on or off.

On/Bypass Radio Buttons   On/Bypass Checkbox
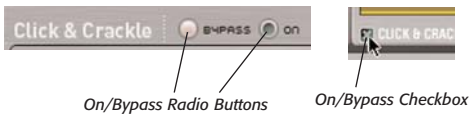
Click & Crackle Tools may be turned on or bypassed using the radio buttons in the tool area, or with a checkbox in the tab

Click Threshold Slider – The Click Threshold slider dictates how bad clicks must be to be detected and removed. The range of the Click Threshold slider is 1.00dB – 25.00dB. When clicks are present in the media file being restored, if they fall below the threshold value, they remain unaltered – if they're above the threshold, they are removed. The general rule with the Click Threshold slider is, moving it to the left will remove more clicks, and moving it to the right removes fewer clicks.

The Click Threshold slider allows fine-tuning click reduction

Crackle Threshold Slider – The Crackle Threshold slider dictates how bad crackle must be to be detected and removed. The range of the Crackle Threshold slider is 12.0dB – 25.0dB. When crackle is present in the media file being restored, if it falls below the threshold value, it remains unaltered – if it's above the threshold, it's removed. The general rule with the Crackle Threshold slider is, moving it to the left will remove more crackle, and moving it to the right removes less crackle.

The Crackle Threshold slider allows fine-tuning crackle reduction

Click Meter – The Click meter is another of SoundSoap Pro's visual feedback tools. It illuminates in red to indicate that a click is being repaired.
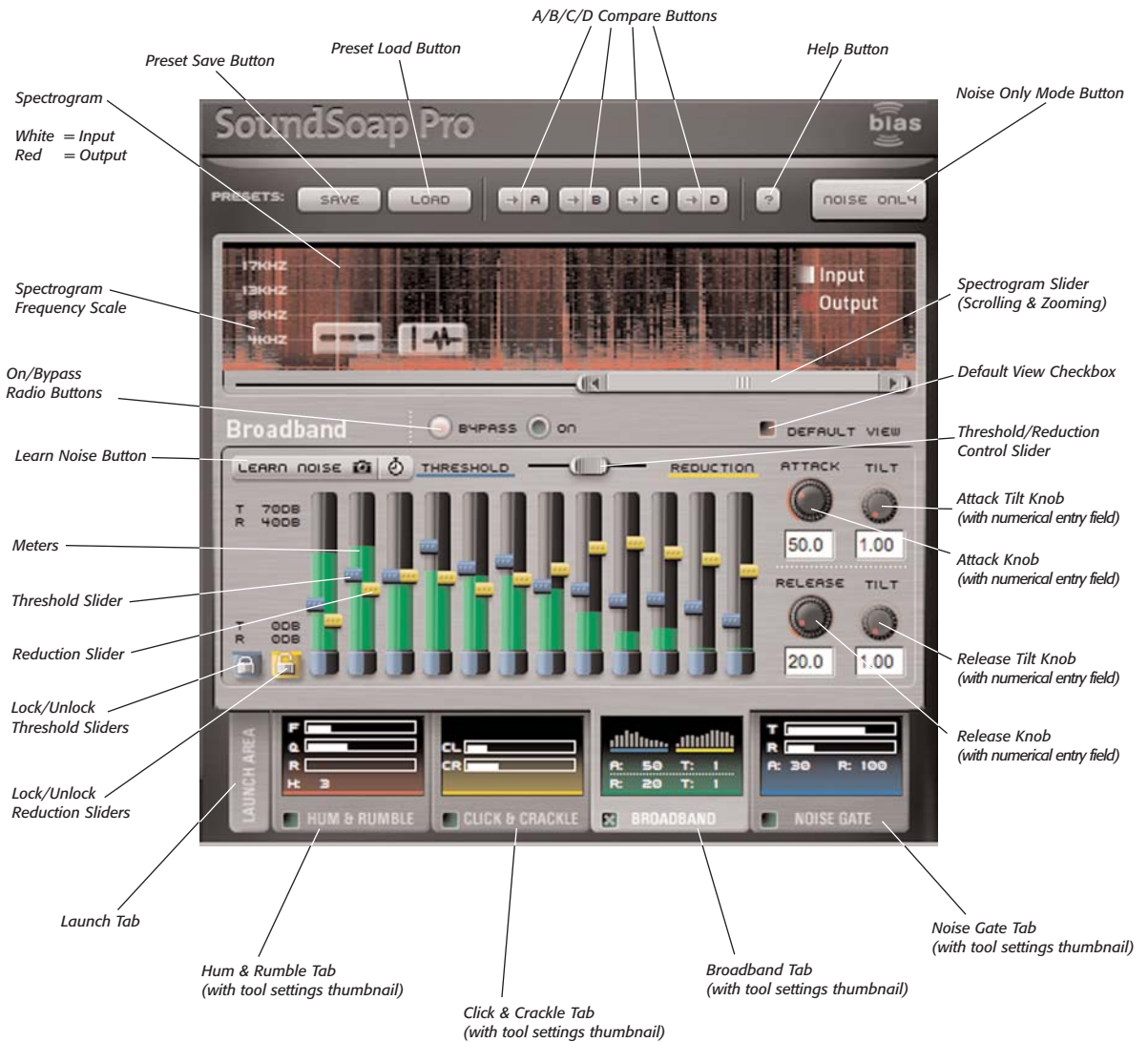

The Click Meter – When settings detect click & crackle, the meter lights up, as in the picture on the right

Global Tools – As with all the other tool tabs, SoundSoap Pro's global tools may be accessed from within the Click & Crackle tab. These global tools include Preset Buttons, A/B/C/D Compare Buttons, Help Button, Noise Only Mode Button, Spectrogram, and ability to monitor other tool settings with the Tool Tabs/Tool State Thumbnails. These tools are described in more detail at the beginning of this section.

Congratulations! You've now learned about SoundSoap Pro's Click & Crackle Tools – the next section discusses the Broadband Tool...

3

SoundSoap Pro User Interface: Broadband Tab

Preset Save Button

Preset Load Button

A/B/C/D Compare Buttons

Help Button

Noise Only Mode Button

Spectrogram

White = Input
Red = Output

Spectrogram Frequency Scale

Spectrogram Slider (Scrolling & Zooming)

On/Bypass Radio Buttons

Default View Checkbox

Learn Noise Button

Threshold/Reduction Control Slider

Meters

Attack Tilt Knob (with numerical entry field)

Threshold Slider

Attack Knob (with numerical entry field)

Reduction Slider

Lock/Unlock Threshold Sliders

Release Tilt Knob (with numerical entry field)

Lock/Unlock Reduction Sliders

Release Knob (with numerical entry field)

Launch Tab

Noise Gate Tab (with tool settings thumbnail)

Hum & Rumble Tab (with tool settings thumbnail)

Broadband Tab (with tool settings thumbnail)

Click & Crackle Tab (with tool settings thumbnail)

Broadband Tab

On/Bypass Radio Buttons/Checkbox – These controls allow the Broadband tool to be disabled, or bypassed, while other tools remain active. This control allows the tool to simply be turned off when not required, to save CPU power for other tasks. It is also useful for comparing the difference between having the Broadband tool on or off.

On/Bypass Radio Buttons   On/Bypass Checkbox
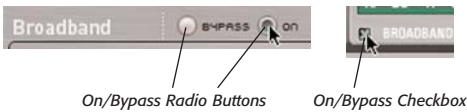
Broadband Tools may be turned on or bypassed using the radio buttons in the tool area, or with a checkbox in the tab

Learn Noise Button – The Learn Noise button is used to automatically "learn" a profile of frequencies responsible for causing a particular type of Broadband noise. There are two modes of operation available with the Learn Noise button. The first mode, called "Snapshot Mode", (identified by a camera icon) works by depressing the button and initiating audio playback within the host application. SoundSoap Pro analyzes the minimum amount of audio (from the current playhead position) needed to accurately create a noise profile, and then automatically snaps the 12 Threshold sliders to the appropriate positions to reduce/remove the unwanted broadband noise. The second mode is a timed Learn Noise mode. To use this mode, one would click the portion of the Learn Noise button with the clock icon, and then initiate playback. SoundSoap Pro continues to analyze audio (beginning from the original playhead position) that is played until the clock icon is clicked a second time. At this time, the 12 Threshold sliders are snapped into the appropriate position to reduce/remove the Broadband noise present, based on the average noise profile learned over the duration indicated by the user.

Snapshot Mode   Timed Mode

Meters – The 12 meters in the Broadband Tool indicate the level of audio contained within each frequency range. The meters on the left-most side of the interface indicate low frequency ranges, while the meters on the right-most side of the interface indicate high frequency ranges – with meters between these two extremes indicating the midrange frequencies between the two. The actual frequency range of each band is not fixed – it depends on the learned noise profile.
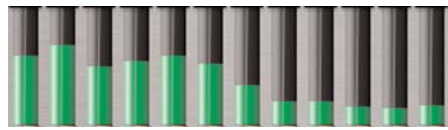
The meters indicate audio level in each frequency band, and help in fine-tuning settings for individual bands

Threshold/Reduction View Slider – This horizontal slider allows viewing either just the Threshold sliders – just the Reduction sliders – or can be positioned so that both Threshold and Reduction sliders can be viewed and adjusted at the same time. By default, the Threshold/Reduction Control slider is set to the center position, so that both Reduction and Threshold sliders are visible and adjustable.

The Threshold/Reduction Control slider allows viewing just Threshold sliders, just Reduction sliders, or a percentage of both simultaneously

Reduction Sliders – The Reduction sliders control the amount of noise reduction being applied to a particular frequency range. Reduction sliders can be used in a number of ways – they may all be locked together and moved simultaneously by moving a single slider – or they may be temporarily unlocked, moved to different relative positions, and then locked back together and moved uniformly at their respective positions. In addition, they can all be unlocked and moved independently of each other – or, some sliders may be locked together, while others

remain unlocked and can be moved independently. By default, the Reduction sliders are set to a value of –15dB, and have an overall range of 0dB to -40dB.

Reduction sliders may be moved in groups or independently

Threshold Sliders – The Threshold sliders set the level that the signal must exceed for processing to be enabled in each frequency range. The sliders default to being locked together, so moving one slider will move the other sliders of the same type (reduction or threshold) and retain their relative positions. Individual sliders may be fine-tuned by unlocking them and moving them independently. You can optionally choose to lock any number of sliders together so they can be adjusted in unison. By default, the Threshold sliders are set to a value of 0dB, and have an overall range of 0dB to –70 dB.

Threshold sliders may be moved in groups or independently

Lock/Unlock Reduction Sliders Button – This control either locks or unlocks all the Reduction sliders so that they may be moved independently of one another – or moved as a group, each in its relative position. In addition to the master Lock/Unlock button, each individual slider has its own Lock/Unlock control positioned at its base. These controls allow the locking or unlocking of each frequency band's Reduction slider, without having to unlock all the sliders simultaneously. By default, all the Reduction sliders are locked together.

Above: All Reduction sliders locked together – they move together
Below: All Reduction sliders unlocked – they now move independently

Lock/Unlock Threshold Sliders Button – This control either locks or unlocks all the Threshold sliders so that they may be moved independently of one another – or moved as a group, each in its relative position. In addition to the master Lock/Unlock button, each individual slider has its own Lock/Unlock control positioned at its base. These controls allow the locking or unlocking of each frequency band's Threshold slider, without having to unlock all the sliders simultaneously. By default, all the Threshold sliders are locked together.

Above: All Threshold sliders locked together – they move together
Below: All Threshold sliders unlocked – they now move independently

Attack Knob – The Attack knob sets the attack time in milliseconds for each frequency band. By default, the Attack value is set to 75 milliseconds.

The Attack knob controls how fast broadband noise reduction is turned on

Release Knob – The Release knob sets the release time in milliseconds for each frequency band. By default, the Release value is set to 100 milliseconds.

The Release knob controls how fast broadband noise reduction is turned off

Attack Tilt Knob – The Attack Tilt knob adjusts the ratio of Attack between the low frequency bands and the high frequency bands. By default, the Attack Tilt knob's value is set to 1.0.

The Attack Tilt knob varies the ratio of Attack values between low and high frequency bands

For example, if the Attack Knob's value is set to 50 ms, and the Attack Tilt knob is set to "1.0", then the Attack time for the lowest frequency band will be 50 ms, as will be the Attack time for all other frequency bands. If however, the Attack Tilt knob is set to "2.0", then the Attack time for the lowest frequency band remains at 50 ms, but the Attack time for the highest frequency band will be 25 ms – or, a 2:1 ratio between the lowest and highest frequency bands. In this case, moving to the right from the lowest frequency band to the highest, each successive band will have a proportionally lower attack value. Essentially, the Attack Tilt knob simply varies the ratio of Attack time between the lowest and highest frequency bands, and sets the Attack time of any midrange frequencies to a proportional value in between.

Release Tilt Knob – The Release Tilt knob adjusts the ratio of Release between the low frequency bands and the high frequency bands. By default, the Release Tilt knob's value is set to 1.0.
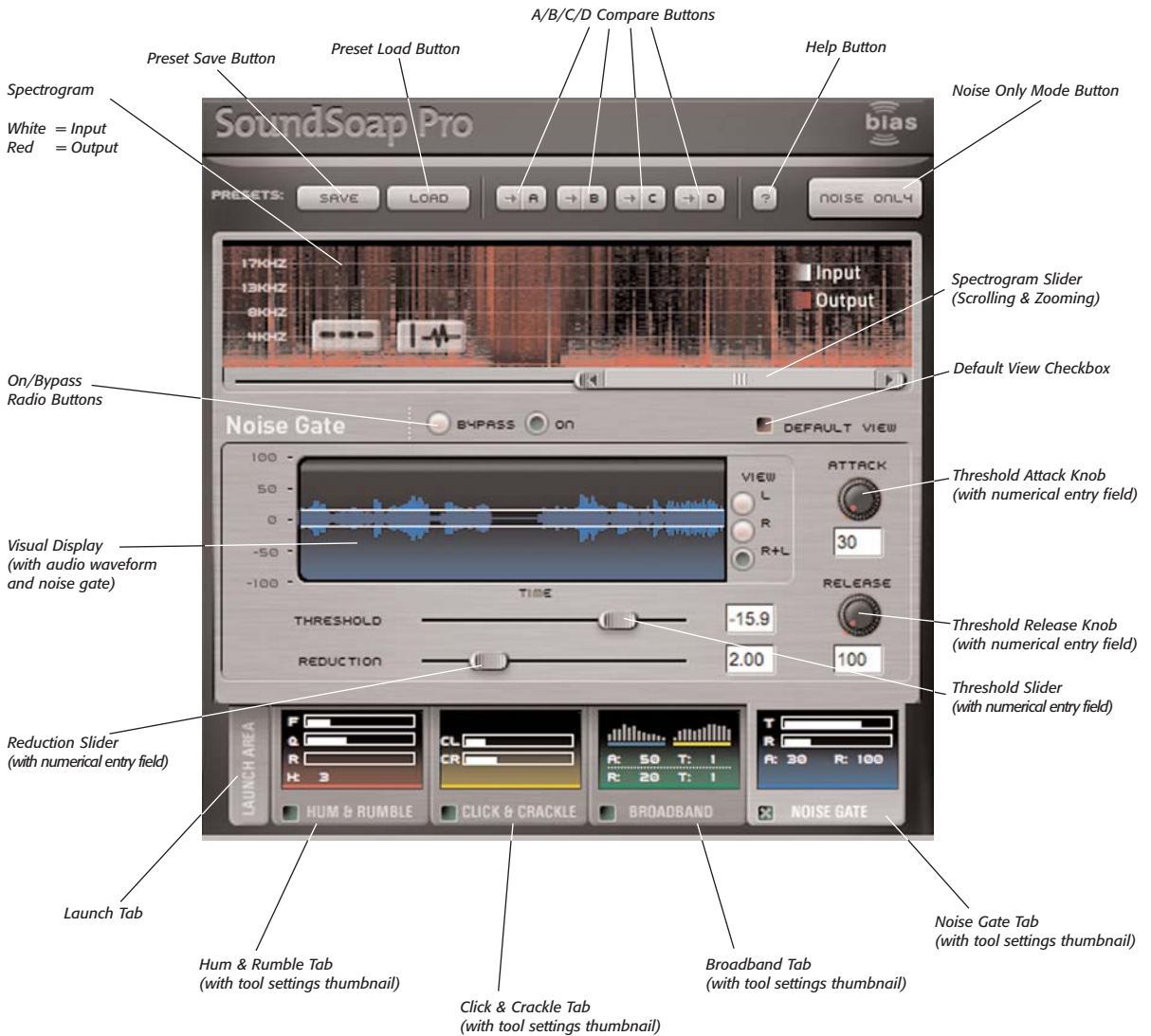

The Release Tilt knob varies the ratio of Release values between low and high frequency bands

For example, if the Release Knob's value is set to 50 ms, and the Release Tilt knob is set to "1.0", then the Release time for the lowest frequency band will be 50 ms, as will be the Release time for all other frequency bands. If however, the Release Tilt knob is set to "2.0", then the Release time for the lowest fre-

quency band remains at 50 ms, but the Release time for the highest frequency band will be 25 ms – or, a 2:1 ratio between the lowest and highest frequency bands. In this case, moving to the right from the lowest frequency band to the highest, each successive band will have a proportionally lower release value. Essentially, the Release Tilt knob simply varies the ratio of Release time between the lowest and highest frequency bands, and sets the Release time of any midrange frequencies to a proportional value in between.

Global Tools – As with all the other tool tabs, SoundSoap Pro's global tools may be accessed from within the Broadband tab. These global tools include Preset Buttons, A/B/C/D Compare Buttons, Help Button, Noise Only Mode Button, Spectrogram, and the ability to monitor other tool settings with the Tool Tabs/Tool State Thumbnails. These tools are described in more detail at the beginning of this section.

You've now learned about SoundSoap Pro's Broadband Tool – the next section goes over the Noise Gate Tool, which can be used to eliminate any residual noise leftover after using the previously mentioned tools.

3

SoundSoap Pro User Interface: Noise Gate Tab

Preset Save Button

Preset Load Button

A/B/C/D Compare Buttons

Help Button

Spectrogram

White = Input
Red = Output

Noise Only Mode Button

Spectrogram Slider
(Scrolling & Zooming)

On/Bypass
Radio Buttons

Default View Checkbox

Threshold Attack Knob
(with numerical entry field)

Visual Display
(with audio waveform
and noise gate)

Threshold Release Knob
(with numerical entry field)

Threshold Slider
(with numerical entry field)

Reduction Slider
(with numerical entry field)

Launch Tab

Hum & Rumble Tab
(with tool settings thumbnail)

Click & Crackle Tab
(with tool settings thumbnail)

Broadband Tab
(with tool settings thumbnail)

Noise Gate Tab
(with tool settings thumbnail)

Noise Gate Tab

On/Bypass Radio Buttons/Checkbox – These controls allow the Noise Gate tool to be disabled, or bypassed, while other tools remain active. This control is useful as it allows the tool to simply be turned off when not required, to save CPU power for other tasks. It is also useful for comparing the difference between having the Noise Gate tool on or off.

On/Bypass Radio Buttons   *On/Bypass Checkbox*
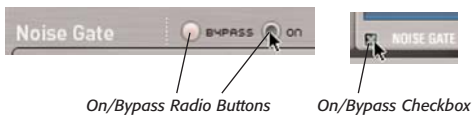
Noise Gate Tools may be turned on or bypassed using the radio buttons in the tool area, or with a checkbox in the tab

Visual Display – The Noise Gate's visual display shows the audio waveform being processed, as well as the noise gate's threshold indicators. Options for viewing the waveform include displaying just the left or right channels, or adding the left and right channels together – displaying the overall audio signal between the two channels as a single audio waveform. In addition, there is a Freeze button that appears when the mouse cursor is placed over the visual display. Clicking the button temporarily pauses waveform scrolling, and clicking the button when the waveform is paused starts it scrolling again.

"Noise Gate" Threshold Indicators

Freeze Waveform Button   *Waveform View Selection Radio Buttons*
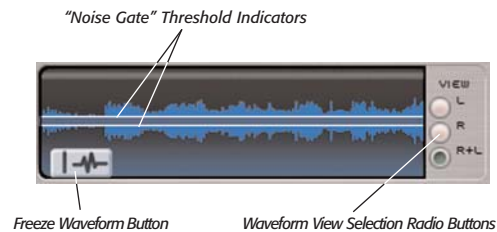
Various elements of the Noise Gate's visual display

Threshold Slider – The Threshold slider determines the audio level required for the Noise Gate to open. The threshold level is also represented by a pair of white, par-allel horizontal lines, which appear over the audio wave-form in the visual display. By default, the Noise Gate Threshold slider is set to a value of 20dB, and has a range of 0dB to –60dB.

The Noise Gate's Threshold can be adjusted with a slider, or by enter-ing a numerical value

Reduction Slider – This slider provides a proportional amount of noise reduction, based on the settings of the Noise Gate's Threshold Slider. A lower setting in the Depth slider provides a lower ratio between the thresh-old level to the amount of noise reduction, whereas a higher setting increases this ratio. By default, the Noise Gate's Depth slider is set to a value of 2.00, and has a range of 1.00 to 5.00.

The Noise Gate's Depth can be adjusted with a slider, or by entering a numerical value

Threshold Attack Knob – The Threshold Attack knob determines how quickly the Noise Gate opens. By default, the Attack value is set to 30 milliseconds, and has a range of 10 milliseconds to 500 milliseconds.

The Noise Gate's Attack can be adjusted with a knob, or by entering a number

Threshold Release Knob – The Threshold Release knob determines how quickly the Noise Gate closes. By default, the Release value is set to 100 milliseconds, and has a range of 50 milliseconds to 1000 milliseconds.

The Noise Gate's Release can be adjusted with a knob, or by entering a number

Congratulations! You've now learned about all of SoundSoap Pro's powerful noise reduction tools. Please continue on the the next chapter, which gives step-by-step directions on how to use SoundSoap Pro.

Chapter 4:
Using SoundSoap Pro

Chapter 4:
Using SoundSoap Pro

Introduction

This chapter will cover the basic operation of SoundSoap Pro, using BIAS Peak as a host application. For more specific details on how to remove certain types of noise, please refer to Chapter 5 – a hands-on tutorial, which covers removing various types of noise from various types of audio material, and focuses on sample files included on your installer CD-ROM.

Tips for Noise Reduction

SoundSoap Pro can be used in a variety of ways, but by observing the following tips, you will get the best results in the least amount of time.

Evaluating the Noise Content

SoundSoap Pro contains many different tools for removing/reducing noise. In some situations, you may wish to use all the tools at the same time, and in others, you may only need to use a single noise reduction tool to remove/reduce a very specific kind of noise. Each of the noise reduction tools is contained within one of the

interface "tabs" – each tab contains a checkbox to enable or disable processing. If the file you are trying to clean up does not contain Hum & Rumble, for example, it's a good idea to uncheck the box in the Hum & Rumble Tab to conserve your CPU's processing power. By default, all tools are turned off.

Sampling Noise (Broadband)

Often, the noisy media that you encounter will have areas where there is just the undesired noise present, and none of the audio signal that should be kept. A simple but very common example would be video footage of an interview. This situation would contain spoken word, interspersed with silence (or what should be silence, except for the undesired noise). In cases such as this, the "silent" areas will contain the same noise that gets in the way of us hearing the voice of the person being interviewed. These silent sections of the file allow us to sample just the noise itself, essentially telling SoundSoap Pro what to remove from the entire file. The end result is that the undesired noise is reduced equally in all parts of the file, making the desired audio signal much cleaner. In other cases, there may not be an area present in your media that contains just the undesired noise. In media

that contains the desired audio and undesired noise throughout the entire length of the file, it is often best to first experiment and learn the noise profile in different parts of the file to get the best noise reduction results. This can be done by clicking the Learn Noise button in various parts of the file as it plays, or by positioning the playhead cursor in your host application at a specific location, clicking the Learn Noise button, and starting playback. When you find the settings that work best, you can then apply (or render them), to the entire file. If in this process it seems that different settings would work best for different parts of the file, consult the next section. If your host application supports looping playback of a designated section of audio, this is another technique that can be invaluable. For example, you might be trying to remove background noise from a dialog track that has two people speaking back and forth, and there are only very short sections of ambient noise between their words. By setting up a very short loop between passages of dialogue, you can have SoundSoap Pro armed to "Learn Noise" as audio playback repeats within this short loop a number of times.

Constant Noise v. Changing Noise

Constant Noise

Noisy media can be categorized into two basic groups – that which has a constant noise level and type, and that which has varying levels and types of noise throughout. Each category of media can be cleaned best by using a slightly different approach to noise reduction. Media with a constant noise level and type of noise is generally the easiest to clean, and is typically found in recordings of audio cassettes, or in cases where there is a constant hum present, due to using equipment that is plugged in to poorly grounded electrical circuits. Media that falls

into this category can be cleaned by making the appropriate settings within the various noise reduction tools – once the ideal settings are found, the entire audio file may be processed with these settings.

Changing Noise

Noise in media may vary over time – for example, a video clip's soundtrack may contain air conditioning noise that varies in intensity throughout the clip, due to the camera being moved around the room while taping a subject. In a recording of an old LP, there may be more digitized scratches on one side of the LP than the other. In a live recording, an electrical hum may vary because of the changing settings on an instrument, or because of other equipment that is turned on or off during the recording session.

In cases like this, it is best to apply noise reduction with different settings for the different levels of noise that occur in the various sections. To reduce noise by varying degrees in different sections of the same audio document, it's possible to select specific "target" areas, apply noise reduction with certain settings, and then move on to each area of the clip, targeting the specific noise that occurs in each. If your host application supports automation of plug-in parameters, you may wish to first experiment with SoundSoap Pro parameter settings that work best for each section of your file, and create automation values that will dynamically change settings to best clean each section.

If your host application does not support plug-in parameter automation, but does support the use of reference markers and/or regions, you may want to "mark up" a file into sections that contain different levels of noise or different noise types. This is a good strategy for isolating and processing areas of the file with a certain level and

kind of noise, and then moving on to another section and processing it with different noise reduction settings more suitable for its level and noise type.

The techniques described above will generally yield the best results, as one noise reduction setting alone may not be suitable for the different levels and/or kinds of noise that occur over the course of the entire file.

Using SoundSoap Pro (with BIAS Peak 4 as a Host Application)

Most of the steps here will translate directly into working with SoundSoap Pro in other host applications – though it is normal for the operation to vary slightly depending on the plug-in implementation in each host application.

It is recommended that you consult the documentation provided with your host application of choice for details on how to use VST, RTAS, AudioSuite, Audio Unit, or DirectX plug-ins – SoundSoap Pro will work in a similar fashion to other plug-ins in the same format, and the steps below will guide you through how it can be used to reduce/remove unwanted noise.

> ⚠️ *To use SoundSoap Pro with BIAS Peak, you will need to be running either Peak Express, Peak LE, Peak DV, or Peak (version 3.2 or later) and have already installed SoundSoap Pro on to your Macintosh – running Mac OS X (v10.2 or later).*

Cleaning Noisy Media Files with SoundSoap Pro

The first step in reducing noise is to open a noisy media file in Peak, then open the SoundSoap Pro plug-in. The following steps will guide you through your first attempts at noise reduction.

To Eliminate Hum:

1. Launch Peak.

2. Open a noisy file.

3. Audition this file in Peak, to get an idea of the hum that needs to be cleaned up.

> ⚠️ *In a real-world situation, you may not have all the various noise types in every file you wish to process. A very important part of using SoundSoap Pro is to evaluate the types of noise contained in your media files. For example, if a file that needs to be cleaned contains only broadband noise, you can simply leave the Hum & Rumble, Click & Crackle, and Noise Gate tabs inactive. This allows you to focus just on the noise type that is in the file, and also allows your CPU's processing power to be used for other tasks.*

4. From the Plug-Ins menu, choose Insert 1>VST>SoundSoap Pro – the SoundSoap Pro interface appears.

> ⚠️ *To use the Audio Units version of SoundSoap Pro rather than the VST version, choose Insert 1>Audio Units>BIAS>SoundSoap Pro – the following steps are the same for both versions.*

5. Click on the Hum & Rumble Tab – this brings the Hum & Rumble tool to the foreground

4

6. Confirm that this tool is turned on – click the On radio button, or check the checkbox in the Hum & Rumble Tab.

7. Start playback of the file by pressing the Space Bar

8. As the file plays, sweep the Hum Frequency Slider slowly back and forth and look for activity in the Hum Meter. When you see activity in the Hum Meter, try to fine-tune the Frequency Slider's position so as to get the strongest reading in the Hum Meter. If you know the exact frequency at which the hum occurs, you may also type this value in the numeric value field to the right of the Hum Frequency slider – press the Return or Enter Key.

9. Once you have determined the fundamental frequency at which the hum occurs, use the Depth slider to create a notch filter to cut the audio signal's strength at this frequency.
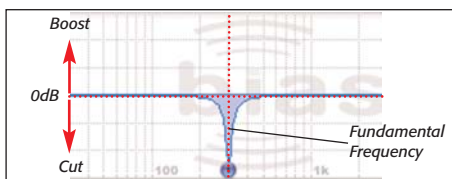
The BIAS Freq EQ illustrates what SoundSoap Pro is doing behind the scenes – The Depth Slider creates a notch filter, which cuts out certain frequency ranges

10. Use the Q slider to adjust the bandwidth of the notch filter – a smaller Q value results in a wider notch, with more of the frequencies surrounding the fundamental frequency being affected – a larger Q value creates a narrower notch, and affects fewer of the frequencies around the fundamental frequency. Ideally, you'll want to use the largest Q value (narrowest notch) that effectively eliminates the hum, so as to avoid unnecessarily removing frequencies that do not contain hum.
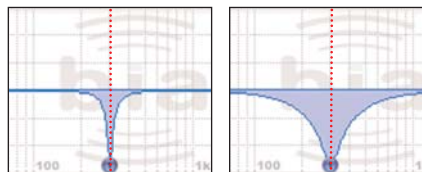
The BIAS Freq EQ illustrates the effect of different Q values – a high Q value (left) creates a narrow notch filter, and affects fewer surrounding frequencies – a low Q value (right) creates a wide notch filter, and affects more of the surrounding frequencies

11. If you still hear a hum after setting the Hum Frequency slider, depth, and Q sliders, you can use the Harmonics slider to eliminate additional harmonics of the fundamental frequency.

12. If the hum reduction controls do not make a difference in reducing the hum, perhaps this "hum" is a rumble – or perhaps has a broadband noise component to it. You may wish to enable the Rumble slider and make adjustments to affect the lower frequencies that cause rumble, and also experiment with using the Broadband Tool in conjunction with the Hum & Rumble tool.

> *Using the Spectrogram as a visual aid can help determine where in the frequency spectrum certain kinds of noise occur.*

> *A good technique for confirming your noise reduction settings is to switch SoundSoap Pro into "Noise Only" listening mode. In Noise Only mode, you will hear just the noise being removed with the current noise reduction settings. If you hear any of the audio that should be kept in the file, adjust the parameters until you only hear the undesired noise.*

The steps above outline the basic operation of the Hum & Rumble tool – for more details on other parameters not mentioned here, please refer to the Hum & Rumble

section in Chapter 3: SoundSoap Pro User Interface & Controls. For hands-on examples of how to use these additional parameters, please refer to Chapter 5, and be sure to copy the tutorial files from your installer CD-ROM.

To Eliminate Click & Crackle:

⚠ *At this point, you're either trying to eliminate click & crackle from the same file in which hum was eliminated in the previous section, or you're opening a different file that contains click & crackle – if you're working with the same file, ignore steps 1 and 2.*

1. Launch Peak.

2. Open a file that contains click & crackle.

3. Audition this file in Peak, to get an idea of the noise that needs to be cleaned up.

4. Click on the Click & Crackle Tab – this brings the Click & Crackle tool to the foreground

5. Confirm that this tool is turned on – click the On radio button, or check the checkbox in the Click & Crackle.

6. Adjust the Click Threshold slider – moving it toward the left reduces more clicks and moving it to the right reduces fewer clicks.

7. Adjust the Crackle Threshold slider – moving it toward the left reduces more crackle and moving it to the right reduces less crackle.

⚠ *The Click Meter gives valuable visual feedback – whenever the Click Meter lights up, it indicates that your current settings are effectively eliminating Click or Crackle.*

⚠ *A good technique for confirming your noise reduction settings is to switch SoundSoap Pro into "Noise Only" listening mode. In Noise Only mode, you will hear just the noise being removed with the current noise reduction settings. If you hear any of the audio that should be kept in the file, adjust the parameters until you only hear the undesired noise.*

4

The steps above outline the basic operation of the Click & Crackle tool – for more details on other parameters not mentioned here, please refer to the Click & Crackle section in Chapter 3: SoundSoap Pro User Interface & Controls. For hands-on examples of how to use these additional parameters, please refer to Chapter 5, and be sure to copy the tutorial files from your installer CD-ROM.

To Eliminate Broadband Noise:

⚠ *At this point, you're either trying to eliminate broadband noise from the same file in which hum and click & crackle were eliminated in the previous two sections, or you're opening a different file that contains broadband noise – if you're working with the same file, ignore steps 1 and 2.*

1. Launch Peak.

2. Open a file that contains broadband noise.

3. Audition this file in Peak, to get an idea of the broadband noise that needs to be cleaned up.

4. Click on the Broadband Tab – this brings the Broadband tool to the foreground

5. Confirm that this tool is turned on – click the On radio button, or check the checkbox in the Broadband Tab.

6. Try to locate a part of the file that contains just the noise you're trying to eliminate.

7. Click the Learn Noise button. (Using Snapshot mode learns noise from wherever the playhead cursor is located in the waveform, and requires just a fraction of a second to learn – using Timed mode, you must click the Learn Noise button s second time to stop learning). Snapshot mode is indicated by a camera icon – Timed mode is indicated by a stopwatch.
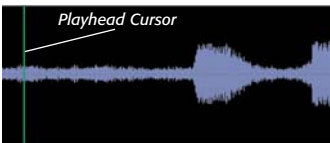
A good place to start "learning" noise – notice the playhead cursor is placed at the beginning of a section that contains just noise
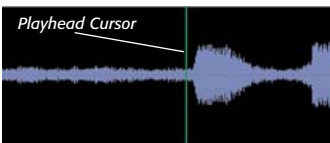
A bad place to start "learning" noise – in this case, as soon as playback starts, SoundSoap Pro would be attempting to learn the noise within a section of audio that contains the material we're trying to preserve
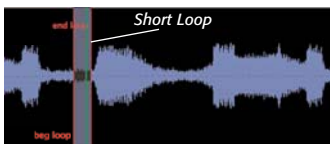
In this case, there's only a very short section of the noise by itself, so we create a very short loop, and learn noise within the loop – as it repeats a few times, SoundSoap Pro is given enough duration of noisy audio to determine the noise profile

⚠ *If no such area is available, try to find a very short section that can be looped. SoundSoap Pro needs approximately half a second of this noisy area to "learn" the noise – so, creating a short loop, enabling the Learn Noise button, and then playing this short loop a number of times will "add up" the duration of audio contained in the loop until SoundSoap Pro has reached the minimum amount of audio playback it needs to establish a profile of the frequencies that make up the broadband noise.*

8. Start playback by pressing the Space bar – SoundSoap Pro learns the noise profile, and turns on Broadband noise reduction automatically – notice that the blue Threshold sliders have snapped into what should be a good starting point for reducing the type of noise present.

9. Adjust the yellow Reduction sliders until you no longer hear the broadband noise. By default, the Reduction sliders are locked together, and moving a single slider will move the others at the same time.

⚠ *A good technique for confirming your noise reduction settings is to switch SoundSoap Pro into "Noise Only" listening mode. In Noise Only mode, you will hear just the noise being removed with the current noise reduction settings. If you hear any of the audio that should be kept in the file, adjust the parameters until you only hear the undesired noise.*

SoundSoap Pro's Threshold and Reduction sliders may also be ungrouped, and moved independently. This is an extremely useful feature that allows you to customize

exactly how much noise reduction is being applied in different parts of the frequency spectrum. By taking advantage of this you can more effectively reduce noise in particular frequency bands, while leaving others untouched. This results in the cleanest possible signal, and avoids introducing audible artifacts.

The steps above outline the basic operation of the Broadband tool – for more details on other parameters not mentioned here, please refer to the Broadband section in Chapter 3: SoundSoap Pro User Interface & Controls. For hands-on examples of how to use these additional parameters, please refer to Chapter 5, and be sure to copy the tutorial files from your installer CD-ROM.

To Eliminate Residual Noise with the Noise Gate:

If you've used the Hum & Rumble, Click & Crackle, and Broadband tools, chances are there's little if any residual noise left in your media file. If noise is still present, and your content has areas of what should be silence, this is a perfect opportunity to use the Noise Gate to eliminate the remaining noise.

> ⚠️ *At this point, you're either trying to eliminate any residual noise from the same file in which hum and click & crackle were eliminated in the previous two sections, or you're opening a different file that contains broadband noise – if you're working with the same file, ignore steps 1 and 2.*

1. Launch Peak.

2. Open a file that contains noise.

3. Audition this file in Peak, to get an idea of the noise that needs to be cleaned up.

4. Click on the Noise Gate Tab – this brings the Noise Gate tool to the foreground

5. Confirm that this tool is turned on – click the On radio button, or check the checkbox in the Noise Gate Tab.

6. Adjust the Threshold slider – moving it to the left lowers the threshold (more noise can pass through), and moving it to the right raises the threshold (only audio above this threshold will pass through the gate).

7. Adjust the Depth slider – moving it to the left lowers the amount of reduction, and moving it to the right increases the amount of reduction.

> ⚠️ *A good technique for confirming your noise reduction settings is to switch SoundSoap Pro into "Noise Only" listening mode. In Noise Only mode, you will hear just the noise being removed with the current noise reduction settings. If you hear any of the audio that should be kept in the file, adjust the parameters until you only hear the undesired noise.*

Applying SoundSoap Pro Settings

The steps below outline how to apply SoundSoap Pro settings to a media file in Peak – if you are using SoundSoap Pro in another host application, please check that host's documentation for information on how to apply/render plug-in settings to files.

To Apply SoundSoap Pro Settings to a Media File in Peak:

1. Make desired settings

2. Select the range of audio you wish to apply the current noise reduction settings to – if no selection is made, the entire file will be processed.

3. Choose "Bounce" from the Plug-Ins menu

⚠️ *Be sure to disable SoundSoap Pro after "bouncing" in Peak. If you leave SoundSoap Pro active, you will hear the processed file being played through SoundSoap Pro in realtime, giving the effect of twice the amount of noise reduction. For your convenience, Peak presents a dialog box after bouncing, with options to turn plug-ins off, or to leave them active if you need to process additional files. If you would like to save your current settings, be sure to save a preset first!*

Using Presets

SoundSoap Pro allows custom presets to be saved and recalled – this is particularly useful for saving parameter configurations that effectively reduce noise types that users may encounter on a regular basis. For instance, if a commonly used recording enviroment always introduces a particular kind of noise, creating a preset makes it much faster and easier to eliminate this noise from recorded material.

SoundSoap Pro features advanced presets, offering numerous advantages over conventional host-based presets. When a preset is saved, all parameter settings are saved. However, when a preset is recalled, or loaded, users may choose to load all the parameter settings within that preset – or, they may choose to load individual tool settings.

The usual host-provided presets for each plug-in format are also supported, though these will not include the ability to load individual tool settings. BIAS recommends using SoundSoap Pro's advanced presets rather than host-provided presets.

To Save a SoundSoap Pro Preset:

1. Configure noise reduction parameters as desired.

2. Click the Save Preset button.

3. Name your preset and choose a save location.
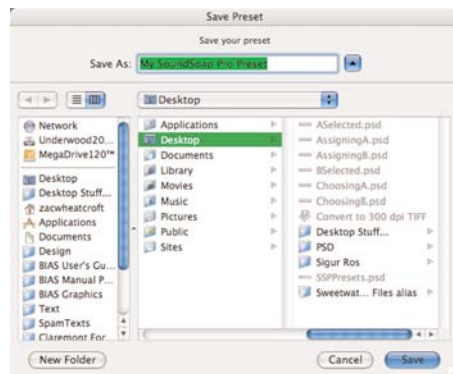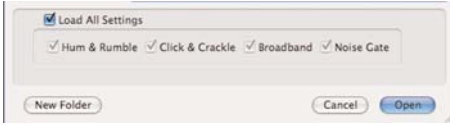

4. Click the Save button.

To Load a SoundSoap Pro Preset:

1. Click the Load Preset button.

2. Navigate to the directory where you have saved your SoundSoap Pro presets – choose (highlight) the desired preset.

---

3. Click the Open button – SoundSoap Pro loads the preset, and sets all parameters to the value reflected in the preset.

To Load Individual Tool Settings from a Preset:

1. Click the Load Preset button.

2. Navigate to the directory where you have saved your SoundSoap Pro presets – choose (highlight) the desired preset.

3. Uncheck the Load All Settings checkbox, as well as those for tools which you do not wish to load parameters – by default, all the tool's checkboxes are checked, so as to load all parameter settings within a preset.
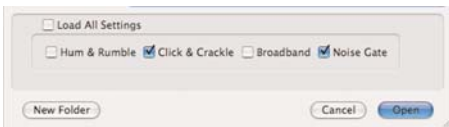
4. Click the Open button – SoundSoap Pro loads only the parameters for tools that had their checkboxes checked. All selected tool parameters are set to the values reflected in the preset – tools that do not have parameters loaded are set to their default values.

Using A/B/C/D Comparisons ("Snapshots")

In addition to user-definable presets, SoundSoap Pro also features A/B/C/D comparisons. This feature allows temporary snapshots of tool settings to be made, and is useful for quickly toggling between different parameter settings, especially when deciding what parameter settings will work best for removing the unwanted noise at hand.

A/B/C/D snapshots are temporary – if you want to use one of these snapshots in the future, in another noise reduction session, you will want to save a preset instead.

To Set a Snapshot (A):

1. Configure noise reduction settings as desired.

2. Click the Assign Snapshot A button.

To Set a Second Snapshot (B):

1. Configure noise reduction settings as desired – with settings slightly different than those used for Snapshot A.

2. Click the Assign Snapshot B button.

To Compare Snapshot A and Snapshot B:

1. Click the Recall Snapshot A button – parameters "snap" into the memorized positions.

2. Click the Recall Snapshot B button – parameters now "snap" into the positions memorized when

you assigned snapshot B.

The currently active Snapshot is indicated by a red border around the active Snapshot's Assign and Recall buttons.

The process for loading additional snapshots is similar – just apply the directions above to the Assign and Recall buttons for Snapshots C & D.

Conclusion

The steps above outline the basic operation of SoundSoap Pro – for hands-on examples of how to use these additional parameters, please refer to Chapter 5, and be sure to copy the tutorial files from your installer CD-ROM.

Chapter 5:
Hands-On Tutorial

Chapter 5:
Hands-On Tutorial

Introduction

This tutorial will guide you through the noise reduction process with SoundSoap Pro, using the included media files. These files contain a variety of different types of noise, on a variety of different types of audio. Following along with the examples should help in learning how to use SoundSoap Pro.

The included examples focus on using SoundSoap Pro – and assume that you are familiar with how to use your host application. If you need help using your host application, please consult the documentation that was included with it. This will make learning how to use SoundSoap Pro much easier.

Regardless of what host application you are using, this tutorial should give you a good idea how SoundSoap Pro is used.

___

Lesson 1: Removing Tape Hiss from a Vocal

This example will teach you the basics of cleaning up tape hiss.

To Remove Tape Hiss:

1. Launch your host application.

2. Locate the folder called "SoundSoap Pro Tutorial Files", and open "Vocal_with_Tape_Hiss.wav".

Vocal_with_Tape_Hiss.wav

3. Play this file to get an idea of the noise (tape hiss) that we're trying to remove.

4. Open SoundSoap Pro in your host application.

5. Click on the Broadband Tab, and then check the On/Bypass checkbox – this enables just this tool.

Since this file only contains tape hiss, we can use a single noise reduction tool to clean it. Each of SoundSoap Pro's various tools can be used independently.

6. Position your host application's playhead cursor a few seconds before the vocal starts.

Start Learning Noise here

Vocal starts here
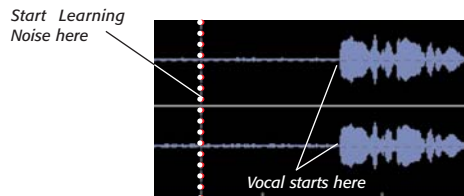
Ideally, you will want to "Learn Noise" in an area that contains just the undesired noise.

5

7. Click the Learn Noise button in the Broadband Tool.

8. Initiate playback in your host application.

Within a second, SoundSoap Pro's Learn Noise algorithm detects the frequencies that make up the tape hiss, and broadband noise reduction begins automatically.

Notice that the blue Threshold sliders have "snapped" into new positions – this is what SoundSoap Pro has determined to be a good starting point for removing the tape hiss in this file.

Blue = Threshold   *Yellow = Reduction*
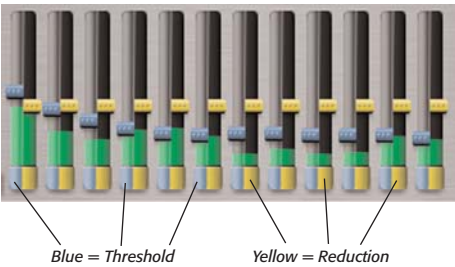
Notice that the blue Threshold sliders have "snapped" into a position that represents the noise profile of the unwanted tape hiss

You should hear a dramatic reduction in the tape hiss with this automatic setting. To fine-tune your results, continue with the steps below.

9. Set up your host application to loop the vocal repeatedly, with a few seconds of silence before and after the vocal.
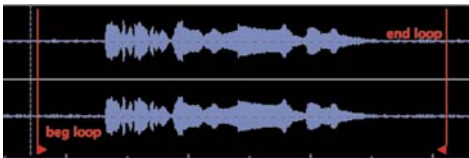
Looping a section while making adjustments helps in fine-tuning your results

10. Click the Noise Only Button.

11. Adjust the Attack knob to 80ms.

12. Adjust the Release knob to 45ms.

After "learning", it's a good idea to take into consideration the type of audio material you're working with, and make adjustments to the attack & release values. Since the audio in this example is a vocal, it changes level relatively slowly from low signal level to high signal level. We adjusted the Attack and Release knobs to higher values than the default settings, so that as broadband noise reduction is activated, it occurs in proportion with dynamic changes in the audio material we wish to preserve. If working with other types of audio, such as a drum recording for example, you would want to use lower Attack & Release values, as a drum hit goes from a low signal level to a high signal level in a much shorter time. By ajdusting these values to suit the audio material you're working with, you will end up with better noise reduction results and minimize the occurence of unwanted artifacts. By making these adjustments in Noise Only mode, we're able to hear if any of the desired audio material is being removed. The goal in Noise Only mode is to hear *only* the undesired noise, and none of the audio signal we wish to preserve.

13. Click the Noise Only Button again to go back into normal listening mode.


14. Another way to fine-tune your settings is adjust the Reduction sliders – to do this, unlock the yellow Reduction sliders.

⚠️ *The ability to unlock noise reduction sliders allows SoundSoap Pro to apply variable amounts of noise reduction to different parts of the frequency spectrum. In this example, we unlock the reduction sliders, so we can apply more noise reduction at the higher end of the spectrum where most of the tape hiss occurs.*

15. Move the Reduction sliders into the positions shown below.
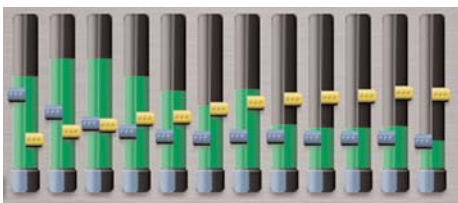
Here, we unlocked the Reduction sliders to be able to move them independently – the setting above illustrates less noise reduction in the frequency ranges where the vocal occurs, and more noise reduction in the higher frequency bands, where most of the tape hiss occurs.

16. Lock the Reduction sliders back together.

17. Click the Noise Only Button to hear the noise being removed.

18. Move the locked Reduction sliders up and down until you find the best setting for eliminating the tape hiss and none of the vocal. When in noise only mode, the goal is to hear only the tape hiss we're trying to remove.

19. Click the Noise Only Button again to go back into the normal listening mode.

20. Listen to the cleaned file – the tape hiss has been removed, leaving only the desired vocal!

21. Bounce/Apply/Render the SoundSoap Pro plug-in to the vocal track – the process is complete!

⚠️ *If you are not familiar with applying effects plug-ins to audio files within your host application, please consult the documentation that was included with it – applying SoundSoap Pro's noise reduction tools will be similar to processing audio with other plug-ins.*

5

Lesson 2: Removing Clicks, Crackles, and Hiss from a Vinyl Recording

This example will teach you the basics of removing clicks, crackles, and needle hiss from recordings of LPs, 78s, etc.

To Remove Click and Crackle:

1. Launch your host application.

2. Locate the folder called "SoundSoap Pro Tutorial Files" and open "Guitar_from_Vinyl.wav".

3. Play this file to get an idea of the noise that we're trying to remove. You should notice clicks, crackles, and a bit of hiss.

4. Open SoundSoap Pro in your host application.

5. Click on the Click & Crackle Tab and then check the On/Bypass checkbox

Since this file only contains clicks, crackles, and needle hiss, we can use just two tools to clean it.

> ⚠️ *When files contain multiple noise types, it is recommended to use the required tools in order from left to right – in this case, first we'll remove the clicks and crackles using the Click & Crackle tool, then we'll enable the Broadband tool to reduce the needle hiss.*

6. Set up your host application to loop the file repeatedly, allowing continuous audio playback as you listen and make adjustments.

7. Move the Click Threshold slider and the Crackle Threshold sliders all the way to the right – in this position, processing is minimized.

8. Slowly move the Click Threshold slider to the left until you no longer hear any clicks.

9. Now, slowly move the Crackle Threshold slider to the left until you no longer hear any crackles.
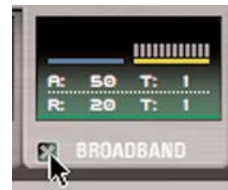

10. Click the Noise Only button to hear what is currently being removed.

11. Click the Noise Only button again to return to normal listening mode – if you are happy with your results, continue on to the next step.
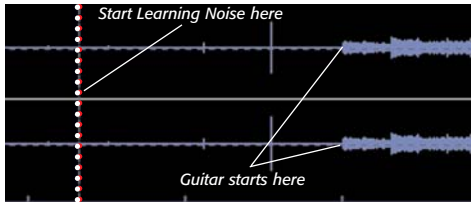

12. Click on the Broadband Tab and check the On/Bypass checkbox

Since this file also contains needle hiss, we can use this additional tool to clean the additional type of noise.

13. In your host application, position the playhead cursor in the area a few seconds before the guitar starts.

Start Learning Noise here

Guitar starts here

14. Click the Broadband Tool's Learn Noise button.

15. Initiate playback in your host application – the noise profile is learned and the blue Threshold sliders snap into position.

16. Leave the yellow Reduction sliders locked together and lower them all slightly.
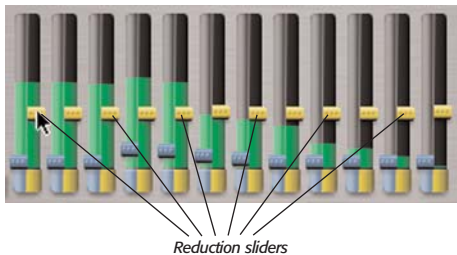
Reduction sliders

In this example, we leave the Reduction sliders locked together, and reduce broadband noise reduction equally across the entire frequency spectrum

⚠ *To fine-tune broadband noise reduction further, you can use the additional broadband tuning steps discussed in Lesson 1 – including adjusting Attack & Release values and independently adjusting Broadband noise reduction values in each part of the frequency spectrum.*

17. Click the Noise Only button to hear what is being removed by the Click & Crackle and Broadband Tools.

18. Click the Noise Only button again to return to normal listening mode.

If you are satisfied with your results, bounce/apply/render the SoundSoap Pro plug-in to this file – or, continue fine-tuning your Click & Crack and Broadband settings, using Noise Only mode to monitor what is being removed.

Lesson 3: Removing 60Hz Hum and Background Noise from a Video Clip

This example will teach you how to use SoundSoap Pro's Hum & Rumble and Broadband Tools to remove a 60Hz hum, some unwanted background noise, as well as how to use the Noise Gate Tool to clean up any residual noise between sections of dialogue.

⚠ *An audio-only version of this clip is also included for use in host applications that may not support opening and playing QuickTime movies – the audio only file is called "Dialogue_with_Hum.wav".*

To Remove Hum & Rumble:

1. Launch your host application.

2. Locate the folder called "SoundSoap Pro Tutorial Files" and open "Dialogue_with_Hum.mov".

3. Play this file to get an idea of the noise (60Hz hum and background noise) that we're trying to remove.

4. Open SoundSoap Pro in your host application.

5. Click on the Hum & Rumble Tab and check the On/Bypass checkbox – this enables just this tool.

6. In your host application, initiate playback from the beginning of the file.

By default, SoundSoap Pro's Hum Frequency slider is set to 60Hz, so you should immediately hear a dramatic reduction in the amount of hum in the audio. To fine-tune your hum reduction settings, continue to the next steps.

Notice that at a setting of 60Hz, the Hum Meter gets a nice strong reading.

7. Adjust the Q slider to a value of 40 and adjust the Depth Slider to a value of 25 dB.

The easiest way to decide on settings for the Hum Tool's Q and Depth sliders is to keep the noisy audio playing – perhaps in loop mode – and start with the Depth slider set to 0. Slowly move the Depth slider to the right and use the lowest possible setting that effectively eliminates the hum. To adjust the Q value, start with the Q slider all the way to the right – in this position, the notch filter being created is as narrow as possible and eliminates the fewest frequencies that surround the fundamental frequency causing the hum – 60Hz in this case. As the noisy audio plays, move the slider slowly to the left, until you hear the best results. Use the highest Q value setting that eliminates hum without removing the audio you wish to preserve.

8. In the Rumble filter section, check the On/Bypass checkbox to enable this filter, and use the slider to set the value to 25.

The reason we're also using the Rumble filter in this example is that after adjusting the hum reduction parameters, a very low frequency component of this hum is still audible. By adding the Rumble filter to the noise reduction process, we can eliminate noise occuring at a lower frequency than what is typically considered "Hum". To get an ideal setting with the Rumble filter, first enable it by checking its On/Bypass checkbox. With the Rumble slider at its lowest setting – all the way to the left – slowly begin to move it to the right as audio plays. As soon as the low frequency rumble becomes inaudible, stop moving the slider – this is the optimum setting.

⚠️ *Note that you may also click within any numerical field next to one of the control sliders mentioned above and type in an exact value – or, you may click into one of these fields and use the Up/Down Arrow keys on your keyboard for nudging these values by small increments. If you use either of these methods, be sure to press the Return/Enter key on your keyboard to exit the numerical field!*

9.   Click the Noise Only button to hear what is currently being removed.

10.   Click the Noise Only button again to return to normal listening mode.

These settings should remove all the unwanted low frequency hum and rumble, but should not affect the dialogue. To remove the unwanted background noise, continue on to the next few steps.

11.   Click on the Broadband Tab and check the On/Bypass checkbox – this enables the tool. The Hum & Rumble Tool should remain active.
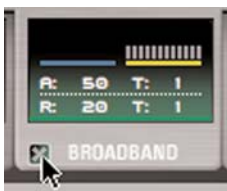
12.   Set up your host application so it loops the entire file.

13.   Position the playhead cursor at the beginning of the file.

14.   Click the Learn Noise button and initiate playback in your host application.

15.   SoundSoap Pro "learns" the noise, and snaps its blue Threshold sliders to values it has determined to be a good starting point for reducing the current background noise. There should be a dramatic reduction to the unwanted background noise with this automatic setting.

16.   Click only the Unlock button for the Threshold slider on the lowest frequency band.
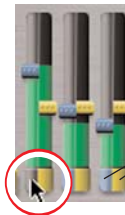
Single band lock/unlock buttons

Since we only need to unlock the Threshold slider for the lowest frequency band, use the unlock button *only* for that single slider.
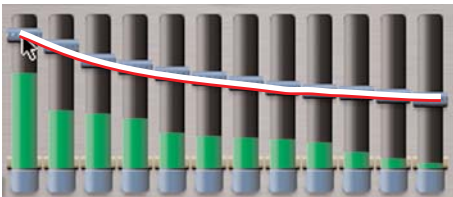
17.   Move this slider into the position shown below.
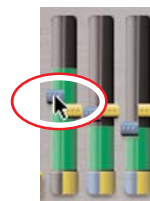
The reason we only unlock the Threshold slider for the lowest frequeny band is that there can be occasions when the automatically learned noise profile may need to be slightly adjusted. The example below shows the automatically learned profile (with the Reduction sliders rotated out of the way using the Threshold/Reduction View Slider):
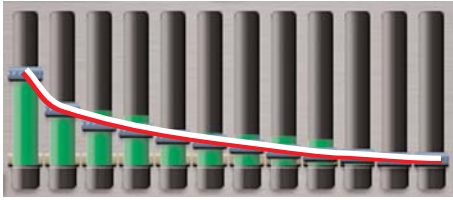
By lowering just the lowest band, we create a smoother overall noise profile, which can often result in better sounding broadband noise reduction results – note the difference of the noise profile:
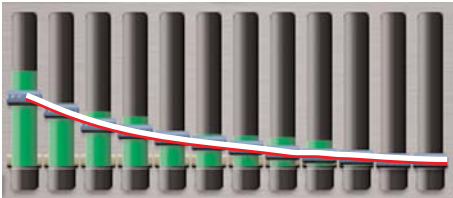
Finally, we locked all the Threshold sliders back together – this way, should we need to fine-tune the overall threshold level across all the frequency bands, we can maintain the same noise profile – note the positions of all Threshold sliders have changed, but their relative positions remain the same:
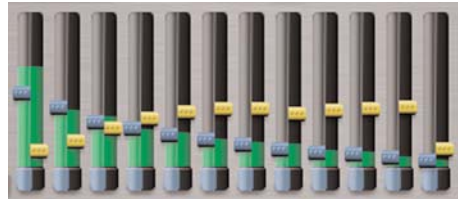

18. Lock the lowest frequency band's Threshold slider back together with all other Threshold sliders.

19. Unlock all Reduction sliders.

20. Move Reduction sliders into the positions shown below:

Unlocking all the Reduction sliders allows us to fine-tune exactly how much noise reduction is being applied in different parts of the frequency spectrum. Moving each Reduction slider while looping audio playback allows you to hear how it affects noise reduction within each frequency band. As you make adjustments to each band, use the lowest possible noise reduction setting that effectively eliminates the broadband noise (the unwanted "background" noise). This ensures that more of the desired content is left intact.

21. Audition the file to hear your results so far.

22. Now, click the Noise Only button and audition the file – you should hear only the unwanted noise being removed by the Hum & Rumble and Broadband Tools. If any of the audio we're trying to preserve is still audible in Noise Only mode, we can adjust the Attack & Release knob values.

23. Adjust the Attack, Release, and Tilt knobs to the positions/values shown below:

24. Click the Noise Only button again to return to normal listening mode.

25. Audition the file to hear your results with the additional Attack, Release, and Tilt settings.

The reasons for making the adjustments in the previous steps are:

Attack & Release – The audio material we're trying to preserve is a person's voice, which changes level relatively slowly from low signal level to high signal level (Slow Attack). We adjusted the Attack and Release knobs to higher values than the default settings, so that as broadband noise reduction is activated, it occurs in proportion with dynamic changes in the audio material we wish to preserve. If working with music, we would likely have used much lower Attack & Release values, as musical notes played on many instruments have faster Attack & Release times of their own. By adjusting these values to suit the audio material you're working with, you will end up with better noise reduction results, and minimize the occurence of unwanted artifacts. In general, when making adjustments to the Attack & Release values, consider the audio material you're working with – for audio with a slow attack, use a higher Attack setting (slower), and for audio with a fast attack, use a lower Attack setting (faster).

Tilt – The Tilt controls vary the Attack or Release times of broadband noise reduction that are applied over the entire frequency spectrum. With an Attack setting of 80ms, and an Attack Tilt setting of 3.00, we created proportional attack times across the frequency spectrum. With these settings, we would be applying an 80ms attack value to the lowest frequency band; and a 26.7ms attack time to the highest frequency band; with each band between the two receiving an incremental setting. The Release Tilt control is set in a similar way – with the current settings, (Release: 30ms/Release Tilt: 3.00) the lowest band operates with an attack value of 30ms; the highest band at 10ms; with each band between them being set to some incremental value.

In general, when working with audio that has a wide dynamic range, use higher tilt values – when working with audio with lower dynamic range, use lower values. The best results are obtained by considering the type of audio material you're trying to preserve, and toggling back and forth between regular listening mode and Noise Only mode, making adjustments that maximize noise reduction, and minimize artifacts and removal of the audio content we're trying to preserve.

---

26. Click the Noise Only button to monitor your progress so far, with the Hum & Rumble and Broadband Tools activated.

27. Click the Noise Only button again to return to normal listening mode.

At this point, the file should sound much better than the original, now that all the low-frequency hum & rumble

has been removed, and the background noise has been greatly reduced.

However, there is a bit of noise left over after our fine-tuning. Rather than use stronger settings in the Broadband Tool – which in some circumstances can add undesired artifacts or remove a bit of the audio we're trying to preserve – we'll add the Noise Gate Tool to the end of our chain of noise reduction processing, and apply a very light Noise Gate setting, which will remove (gate) the remaining noise in the pauses between dialogue.

28. Click on the Noise Gate Tab, and check the On/Bypass checkbox – enabling this tool, while the Hum & Rumble and Broadband Tools remain activated.

29. Adjust the Noise Gate's Threshold slider to a value of -22.5 dB.

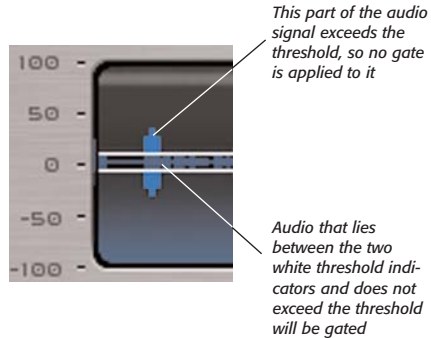30. Adjust the Reduction slider to a value of 2.00

By setting the Threshold to a fairly low value of –22.5dB, we're effectively telling SoundSoap Pro to *only* close the gate on parts of the audio signal that do not exceed –22.5dB. In other words, the sections of audio between passages of dialogue.

When the audio level does exceed the –22.5dB threshold level, the gate is open. Therefore, in the passages of dialogue, which *do* exceed –22.5dB, the audio is unaffected, so the dialogue comes through clearly, at its original level.

The Reduction control is directly related to the Threshold control – for any audio that falls *below* –22.5dB, the Reduction slider determines how much the gate closes, and thus, to what degree the original audio's level is cut – remember, this is only applied to those quieter sections between passages of dialogue that fall below the Threshold level.

The Noise Gate Tool's display helps to visualize this concept:

This part of the audio signal exceeds the threshold, so no gate is applied to it

Audio that lies between the two white threshold indicators and does not exceed the threshold will be gated

31. Adjust the Attack and Release knobs to the settings shown below:

> ⚠️ *In the Noise Gate Tool, the Attack and Release values control how fast the gate closes and opens. When the gate closes, it cuts the level of any audio with a level that lies below the threshold, and when it opens, it allows audio which exceeds the threshold to pass through without affecting its original signal level.*

32. Click the Noise Only button to hear your results after adding the Noise Gate into the signal processing chain.

33. Click the Noise Only button again to return to normal listening mode.

If you are satisfied with the results, bounce/apply/render the current SoundSoap Pro settings to the movie file – the process is complete!

Conclusion

You have now learned the fundamentals of using BIAS SoundSoap Pro to remove a variety of different types of noise from different types of audio material. We hope you enjoy using SoundSoap Pro, and find it to be useful in your audio processing toolkit!