

Surround

Channel

User Manual

McDOWELL SIGNAL PROCESSING, LLC

McDSP Channel G Surround Plug-In Manual

McDSP McDowell Signal Processing, LLC

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Special Thanks to:

- Gil 'G' Gowing, Jake Schaefer, Steve MacMillan
- Stephen Hart and the staff at Fantasy Studios
- Our beta sites, and
- Rob Barrett, Jr. our #1 customer

from the entire McDSP development team.

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Getting Started with Channel G Surround

Each McDSP plug-in is delivered inside an installer application, and uses the Interlok copy protection software to authorize each plug-in. This section describes how to install and authorize a McDSP plug-in. General system requirements are also described.

System Requirements

McDSP HD, Native, and LE plug-ins are compatible with Pro Tools[™] HD, HD Accel TDM systems, as well as Pro Tools[™] LE and Pro Tools[™] M-Powered host based systems. McDSP plug-ins support Mac OS 10.4.x (Tiger), 10.5.x (Leopard), Windows XP and Vista and require Pro Tools 7.x, 8.x or greater. McDSP plug-ins require an iLok USB Smart Key.

Configurations

McDSP plug-ins are available in TDM, RTAS, and AudioSuite configurations. See individual products for specific available configuration sets.

Applications

Pro Tools[™] 7.x, 8.x or higher is required for TDM, LE, and M-Powered systems. Additionally, a third party software application that supports the Digidesign TDM, RTAS, or AudioSuite plug-in standard may be supported. See http://www. digidesign.com/developers/plugin_info/ for more information.

McDSP plug-ins are compatible with the entire Pro Tools[™] 7 and 8 product line.

Hardware

McDSP plug-ins support any Digidesign or approved third party hardware supported in Pro Tools[™] 7.x and 8.x. This includes HD, HD Accel, 003, and Mbox host based systems. All McDSP HD plug-ins, except Synthesizer One, also support the Digidesign VENUE D-SHOW systems. See http://www.digidesign.com/ compato/ for more specific information.

The McDSP Mac versions are compatible with both Intel and PowerPC based computers. The McDSP Windows versions require an Intel Pentium 4 or greater processor.*

* McDSP Windows test machines are chosen to follow the Digidesign recommended systems guide, which currently is the Dell Precision™ Workstation 670 with 2.79 GHz Xeon processor. All products are guaranteed to run on that system. Older Intel processors (i.e. Pentium III and predecessors) and AMD processors are not officially supported, although some users have had limited success with newer AMD processors (i.e. Dual Opteron 1.79 GHZ, Athlon 64 2.20 GHz, and Athlon 64 XP 3700). None of the McDSP product line will work with Pro Tools™ 5.x. Also note that the McDSP Windows product line does not support MIX, although RTAS versions will work if they exist and the rest of your system (i.e. Pro Tools™ version and processor) is compatible.

Please visit mcdsp.com for the latest information about compatibility.

Installing the Channel G Surround Plug-In

Installation on Mac OS X

The Channel G Surround plug-in Package includes this manual, ReadMe and Release Notes, a folder of presets for the Channel G Surround plug-in, and the Channel G Surround plug-in. Two copies of the Channel G Surround Licensing Agreement are included - one in this pdf manual and a second as a separate text file. The Channel G Surround plug-in manual requires that Adobe Acrobat reader (or similar .pdf reader) is installed.

Both online and boxed version will come with a Channel G Surround installer that will automatically install the Channel G Surround plug-in and its presets on your system. The authorization of the Channel G Surround plug-in is still required after running the installer, and those steps are detailed in the following sections.

Installing the Channel G Surround plug-in and presets with the Installer:

The online version of the package has been prepared for Internet delivery, and is transmitted as a compressed file in zip format (.zip). In Mac OS X 10.4.x or 10.5.x, simply double click the *.zip file to unpack the installer. The boxed plug-in package purchased at your local dealer will be on CDROM. As with the online version, these 'physical' versions of the Channel G Surround plug-in package should be copied into a local folder on your system.

- Insert the McDSP 'HD Disk,' 'Native Disk,' or 'LE Disk' CDROM onto an available CDROM drive.
- Navigate to the Channel G Surround plug-in folder on the CDROM the installer application is contained therein.
- Run the Channel G Surround plug-in Installer application to install (copy) the Channel G Surround plug-in, presets, and documentation to a local folder on your system. The plug-in will be placed in the 'Plug-Ins' folder, and the presets will be placed in the 'Plug-Ins Settings' folder.
- If a previous version of the Channel G Surround plug-in (or other HD, Native, or LE version) was already in the plug-ins folder, it will automatically be updated (or replaced) by the installer.

Re-installing the Channel G Surround plug-in presets manually:

In you wish to restore the factory default presets, it may be useful to know how to manually re-install only the presets.

- Go to the 'Plug-in Settings' folder:
- Root->Library->Application Support->Digidesign->Plug-in Settings
- If Pro Tools[™] has not already done so for you, create a folder called 'G Surround'.
- Place a copy of the folder from the Channel G Surround plug-in package called 'Presets' into the 'G Surround' folder. The presets are now viewable (after restarting Pro Tools™) from the settings popup menu from the Channel G Surround plug-in.

Note it may be necessary to re-start Pro Tools™ in order for the newly added 'Presets' folder to be viewable from the Settings popup inside the Channel G Surround plug-in window toolbar.

Installation on Windows XP and Vista

The Channel G Surround plug-in Package includes this manual, ReadMe and Release Notes, a folder of presets for the Channel G Surround plug-in, and the Channel G Surround plug-in. Two copies of the Channel G Surround Licensing Agreement are included - one in this pdf manual and a second as a separate text file. The Channel G Surround manual requires that Adobe Acrobat reader (or similar .pdf reader) is installed.

Both online and boxed version will come with a Channel G Surround installer that will automatically install the Channel G Surround plug-in and its presets on your system. The authorization of the Channel G Surround plug-in is still required after running the installer, and those steps are detailed in the following sections.

Installing the Channel G Surround plug-in and presets with the Installer:

The Channel G Surround plug-in package purchased at your local dealer will be on CDROM and contain a Windows self extracting executable (.exe) similar to the online Channel G Surround plug-in package prepared for Internet delivery. Both the boxed and online versions the Channel G Surround plug-in executable file will automatically install the plug-in and its presets on your system. Double click the file to launch the installer which will install the Channel G Surround plug-in, presets, and documentation. At any time after installation, you may access the documentation from the Windows 'Start Menu' under the 'McDSP' group.

Authorization of the Channel G Surround plug-in is still required after running the installer, and those steps are detailed in the following sections. Note that after installing new versions of the PACE iLok drivers with the Channel G Surround plug-in installer, you will be prompted by the Channel G Surround plug-in installer to reboot your system. If you are not prompted by the installer, there is no need to reboot.

- Insert the McDSP 'HD Disk,' 'Native Disk,' or 'LE Disk' CDROM onto an available CDROM drive.
- Navigate to the Channel G Surround plug-in folder on the CDROM the installer application is contained therein.
- Run the Channel G Surround plug-in Installer application to install the Channel G Surround plug-in, presets, and documentation to a local folder on your system. The plug-in will be placed in the 'Plug-Ins' folder, and the presets will be placed in the 'Plug-Ins Settings' folder.
- If a previous version of the Channel G Surround plug-in (or other HD, Native,

or LE version) was already in the plug-ins folder, it will automatically be updated (or replaced) by the installer.

Re-installing the Channel G Surround plug-in presets manually:

In you wish to restore the factory default presets, it may be useful to know how to manually re-install only the presets.

- Go to the Plug-In Settings folder:
- C:\Program Files\Common Files\Digidesign\DAE\Plug-In Settings\
- If Pro Tools[™] has not already done so for you, create a folder called 'G Surround'.
- Place a copy of the folder from the Channel G Surround plug-in package called 'Presets' into the 'G Surround' folder. The presets are now viewable (after restarting Pro Tools™) from the settings popup menu from the Channel G Surround plug-in.

Note it may be necessary to re-start Pro Tools™ in order for the newly added 'Presets' folder to be viewable from the Settings popup inside the Channel G Surround plug-in window toolbar.

Installation on VENUE D-SHOW systems

The Channel G Surround plug-in Package for VENUE D-SHOW systems includes presets for the Channel G Surround plug-in and the Channel G Surround plugin. The Channel G Surround Licensing Agreement is displayed when installing the product on D-SHOW. The pdf manual can be obtained by running the Mac OS X or Windows XP/Vista version of the Channel G Surround Pro Tools plug-in installer on any available computer.

Both online and boxed versions will come with a VENUE compatible installer that will automatically install the Channel G Surround plug-in and its presets on your system. The authorization of the Channel G Surround plug-in is still required after running the installer, and those steps are detailed in the following sections.

Note that all McDSP HD plug-ins, except Synthesizer One support the Digidesign VENUE D-SHOW system.

Installing the Channel G Surround plug-in and presets on VENUE with the 'HD Disk':

The boxed Channel G Surround plug-in package purchased at your local dealer will contain a CDROM titled 'HD Disk' that is specially formatted to work with your VENUE console. The VENUE installers are also available online as a compressed zip file download, however you will have to take additional steps to create your own VENUE installer CD-R, see additional instructions below before proceeding with these instructions. Both the boxed and online versions of the Channel G Surround installer are the same and will install both the plug-in and its presets on your system.

Note that after installing new versions of the PACE iLok drivers with the Channel G Surround plug-in installer, you will need to reboot your system. You will not be prompted to reboot, and if you don't you may see an error message saying "TPkd driver required, and a reboot. Please reboot or reinstall the software.' If you see this message, simply reboot the console and try again.

- Insert the McDSP 'HD Disk' CDROM onto the CD drive. Note that neither the McDSP 'Native Disk' nor the 'LE Disk' contains VENUE compatible installers.
- Ensure your system is in 'CONFIG' mode, you cannot install plug-ins in 'SHOW' mode.
- Navigate to the 'OPTIONS' page and then select the 'PLUG-INS' tab.
- You should now see the Channel G Surround plug-in available on the left hand side.

- Select the Channel G Surround plug-in and select 'INSTALL.'
- If a previous version of the Channel G Surround plug-in was already installed, it will be updated by the installer.

Important note for FilterBank HD and CompressorBank HD on VENUE D-SHOW consoles: The first time you instantiate either of these plugins, a dialog box will appear asking you to choose a user interface preference. Choose the Knobs interfaces, as some of the Slider interfaces are too large for the VENUE display.

Creating a VENUE D-SHOW Installer CD-R from the online zip file:

If you do not have a boxed copy of Channel G Surround with the included 'HD Disk' CDROM, you can still obtain a copy of the VENUE compatible installers from the www.mcdsp.com website. Once you have located and downloaded the latest VENUE compatible installers from the McDSP website, you will have to take several additional steps to create a VENUE compatible Installer CD-R. For your convenience, all VENUE compatible products are located in the same downloadable zip file, so you will only have to create one CD-R to install all compatible McDSP products.

- Unzip the downloaded file and locate the folder named "TDM Plug-Ins" inside the unpacked folder.
- Using any CD-R burning application, burn this folder and its contents to an ISO format CD-R. It is recommended that you use a brand new CD-R for this, and do not rewrite an older CD-R.
- Once you have burned this folder to a CD-R, you should see it at the root level of the disk (i.e. "D:\TDM Plug-Ins"). Important: If the "TDM Plug-Ins" folder is not located at the root level of the CD-R or has been renamed, the VENUE console may not properly recognize the installer disk.
- At this point, you can follow the 'HD Disk' installation instructions above to complete the installation.

Authorizing your McDSP Plug-Ins

Authorizing with a pre-programmed iLok Smart Key

McDSP bundles such as the Emerald Pack come with a pre-programmed iLok Smart Key. Simply insert the iLok into any available USB port on your computer. The iLok's indicator light will illuminate when the iLok has a proper connection. The Plug-Ins included in the bundle require no further



authorization steps. As with any iLok on your system it is recommended that your iLok be registered and synchronized with iLok.com

Authorizing with an iLok License Card

All McDSP Plug-Ins require that a valid authorization is present on your iLok USB Smart Key. McDSP Plug-ins that are purchased individually provide this authorization on a plastic License Card (about the size of a credit card), with a small punch-out iLok License Chip. After being separated from the License Card,



this iLok License Chip is to be inserted into the 'key slot' of the iLok USB Smart Key in order to transfer the authorization from the License Card to the iLok USB Smart Key. Note that each License Card holds ONE Plug-In authorization. The following instructions detail this process

Important Note: The Authorization Wizard will prompt the user to register their iLok USB Smart Key at iLok.com. iLok.com is a service offered by PACE Anti-Piracy, Inc. and this step is recommended but NOT REQUIRED by McDSP to complete the authorization of the Plug-In. If you choose to register your iLok USB Smart Key at iLok.com, care must be taken to record your ilok.com account information (i.e. write down your User ID and Password in a safe place). If your iLok.com account information is lost, the iLok cannot be registered to another account and unfortunately there is nothing McDSP can do to help you. See iLok. com for more details about the benefits of using PACE's iLok.com service.

Note: Images in this section are for illustration only, the actual product and screens will be the name of the product you are authorizing.

Authorizing a McDSP Plug-In from a License Card with the Authorization Wizard:

The Authorization Wizard is used to install an authorization from a License Card to the iLok USB Smart Key. To use the Authorization Wizard for the Plug-In you purchase, perform the following steps:

- Insert your iLok USB Smart Key into an available USB port.
- On a Mac :Locate and launch the 'Authorizer' application found in the 'Authorize' folder in the Plug-In package for the McDSP Plug-In you purchased on the CD-ROM.
- On Windows XP or Vista, just launch Pro Tools™ to authorize the individual McDSP Plug-In you purchased.

Note: When authorizing the Plug-In on Windows XP or Vista with a new iLok USB Smart Key, you must insert the iLok USB Smart Key and complete the Windows 'Found New Hardware Wizard' before attempting to authorize the Plug-In.

• Select the 'Authorize' button to be guided through the Authorization Wizard.

Note: Selecting the 'Quit' button at any time will not authorize the Plug-In or allow it to be used for a trial period. If 'Quit' is selected, the Plug-In will not be available in the Pro Tools™ insert menu.

- McDSP Plug-Ins require that the user personalize their copy of the Plug-In. A dialog is displayed soliciting this information.
 - Note that the product registration card enclosed with the Plug-In MUST ALSO be filled out as well and returned to McDSP via mail (or fax to 707-220-0994). This additional mail-in registration will entitle the user to future upgrades and advance information from McDSP.





- Once the Plug-In is personalized, click the 'Next' button to continue.
- Check the 'Use License Card' box and press the 'Next' button (figure 2.3).

Note: Although the Authorization Wizard may appear to allow authorization by challenge/ response, that method is currently NOT SUPPORTED McDSP Plug-Ins.

- Separate the small punch-out iLok License Chip (the removable metal and plastic tab) from the License Card by pushing the cutout up and out with your thumb. Do not force your finger downward.
- The iLok License Chip may now be inserted into the 'key slot' of the iLok USB Smart Key (figure 2.6). If the iLok USB Smart Key does not appear to be present on the system, ensure the iLok USB Smart Key is connected to a valid USB port and that the green LED is lit inside the iLok USB

Smart Key. To insert the License Chip into the iLok USB Smart Key, orient the iLok USB Smart Key's USB end to the left, and the loop end to the upper right. Insert the metal chip end of the iLok License Chip (the License Chip tab should have the metal chip side facing up towards you, not down). You should be able to visually verify that the License Chip makes contact with the iLok USB Smart Key metal card reader.

- The green LED in the iLok USB Smart Key will light when it is ready to receive and transmit data.
- Upon inserting the iLok License Chip, a message will be displayed indicating the authorization was installed successfully. Click 'Ok' in the message dialog.









 Once the authorization is installed on the iLok USB Smart Key, a dialog is displayed prompting the user to register their iLok USB Smart Key at the www.ilok.com website. The iLok.com website was created to allow users to manage the software authorizations on their iLok USB Smart Key. THIS STEP IS NOT REQUIRED TO COMPLETE THE AUTHORIZATION OF MCDSP SOFTWARE. The registration of the iLok USB Smart



Key to an iLok.com account can be bypassed by clearing the checkbox. The user may also choose to not be asked to register again. While iLok.com is a great resource for the iLok USB Smart Key, your iLok USB Smart Key may only be linked to one iLok.com account. That is, an individual iLok USB Smart Key can only be registered to one account at a time--but a single account can have multiple iLok USB Smart Keys. If the iLok.com account information is lost, the iLok USB Smart Key may be transferred to another accounts if all the authorizations have been transferred off the iLok USB Smart Key. Register the iLok USB Smart Key to an iLok.com account only when you are ready to retain all the needed iLok.com account information (User ID and Password).

- A 'Finished' dialog is displayed showing what authorization method was used.
- Click 'Finish' to exit the Authorization Wizard.

Authorizing with iLok.com

Required for demo, upgrade, and replacement authorizations only

iLok.com can be accessed from any Macintosh or PC with an Internet connection. You can do this at home, a friend's, or at the office as long as there is an internet connection to access iLok.com--note that you don't have to use your ProTools system computer! You simply use this computer to connect to iLok.com and transfer authorizations to your iLok Smart Key. The iLok Smart Key can then be moved to your ProTools system to complete authorization of your Plug-In.

You will need:

- A computer with an Internet connection. Either a Macintosh running OS 9.2 to OS 10.3 or a PC running Windows 98, ME, 2000, XP, or Vista
- An iLok USB Smart Key
- A valid iLok.com account. Visit www.iLok.com and set up a free account, if you have not already done so.
- 1) Download and install the required client software from iLok.com.
- Download the desired McDSP Plug-In Installer from: http://www.mcdsp.com/support/updating.html
- To receive an upgrade or replacement authorization, send email your iLok. com account information to: <u>support@mcdsp.com</u> To receive a demo authorization, email your iLok.com account information to: <u>authorize@mcdsp.com</u>

Insert your iLok Smart Key into an available USB port and ensure that the indicator light is lit. Once your demo, upgrade, or replacement authorization is available for transfer, your iLok.com account will display the notice saying "You have licenses" on the upper left. Begin by selecting that link.

Account	Manage	Buy	About	Help	
	Overview Hi	istory Profile	Order Status		
Important!	Welcor	ne Bob	!		
You have licenses	You are logge this version in	ed into the ner nclude:	w, improved iL	ok.com. New features wi	ch
Enhance your account Zero Downtime	 Support Optional Secure t Improve Safari bit 	for moving lis Zero Downtin ransfer of ow d browser cor rowser.	censes betweer ne coverage fo nership betwee npatibility, incl	i iLoks. r your critical iLoks. n iLok.com account holdi uding support for Apple's	ers.
What's new?	 Improve 	d automated	help and suppo	<u>tt</u> .	
Buy an iLok	From this acc your account	profile, and r	you can see a s	ummary of your account c.com history. In addition	, edit
Buy a Dongle Buddy	section will p account.	rovide you wi	th important m	essages regarding your	
Move your licenses	To manage ye licenses from	our iLoks, incl i software ver	uding viewing idors, or movir	your iLok contents, recei g licenses between iLoks	ing , click

The next page will display the pending licenses available for download. This page will also display the name of the Plug-In, its manufacturer, the type of authorization (demo, Not For Resale, or License), the date the authorization was deposited, and the date when the authorization will no longer be available for download from the server.

Before any transfer of authorizations can take place, you must synchonize your iLok Smart Key with iLok. com. This may take a moment to process depending on your internet connection.

Once you have synchronized your iLok, you can select the authorization(s) you wish to transfer to your iLok.

If you have multiple iLoks connected to your computer, it is important to select the correct iLok you wish the authorizations to be transferred to. Then click "Download Licenses" to begin the process. Again, this may take a moment depending on your internet connection.

When the transfer finishes you will be asked to confirm the completition of the transaction, thereby letting you know that the transfer was successful.

Pending licenses available for download:

Product	Company	Туре	Deposited	Expiration	
Analog Channel	McDSP	Demo	09/14/2004	03/14/2005	U
Chrome Tone	McDSP	License	09/14/2004	09/28/2004	U
Compressor Bank	McDSP	NFR	09/14/2004	09/14/2005	10
FilterBank	McDSP	License	09/14/2004	03/14/2005	1
MC2000	McDSP	Demo	09/14/2004	03/14/2005	1
Synthesizer One	McDSP	License	09/14/2004	09/28/2004	10

Insert your iLoks and synchronize:

Before downloading licenses, you must insert one or more iLoks as needed and press the "Synchronize" button. Once your iLoks are synchronized with your account, you will be able to select the licenses to download and the target iLok to receive the licenses.

Note that the synchronization process may take some time. Please press the button only once, don't remove or insert your iLoks, and don't touch your browser until the process completes. A progress page should be displayed within a few seconds of pressing the button.

Synchronize

Step 1 - Select the pending licenses to download:

	Product	Company	Туре	Deposited	Expiration	
	Analog Channel	McDSP	Demo	09/14/2004	03/14/2005	U
E.	Chrome Tone	McDSP	License	09/14/2004	09/28/2004	0
	Compressor Bank	McDSP	NFR	09/14/2004	09/14/2005	U
	FilterBank	McDSP	License	09/14/2004	03/14/2005	U
	MC2000	McDSP	Demo	09/14/2004	03/14/2005	U
	Synthesizer One	McDSP	License	09/14/2004	09/28/2004	U

If you wish to go back into your account and visually confirm the transaction for yourself, select "View iLoks" Then select the iLok you had the authorizations transferred to.

That's it! Dont forget to logout and move the iLok Smart Key to your ProTools System if you are using another computer for Internet access. Also, you

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may need to install a different version of the Plug-In if you are upgrading or replacing.

Transferring Authorizations with iLok.com

You may freely transfer any authorization within your iLok.com account between any of your registered iLok Smart Keys. If you wish to transfer an authorization out of your iLok.com account to a different user, it will require additional support from PACE Anti-Piracy, Inc and may be subject to a service fee or limited by manufacturer restrictions. Check the www.ilok.com website for updates and developments regarding iLok USB Smart Keys and the Pace Interlok Copy Protection system.

Registering your McDSP Plug-In

To register your McDSP Plug-In, fill out and return the product registration card enclosed with the boxed Plug-In package by mail or fax 707-220-0994. Registering your product entitles you to future upgrades and advance information from McDSP. Each individual product must be registered (even if you have multiple copies), and the product must be registered to an individual, not an entity. If you represent a company it is your company's responsibility to notify McDSP in writing if the individual who registered the Plug-In is no longer with the company. The Company must also be able to supply matching registration information to successfully transfer ownership of the Plug-In.

Using your McDSP Plug-Ins

Starting a McDSP Plug-In:

Follow the installation, authorization, and registration instructions above, Launch Pro Tools[™], and the McDSP Plug-In and its presets are ready for use. Refer to the Digidesign[™] Pro Tools[™] Reference Guide for details on general Plug-In operation such as automation.

Exiting a McDSP Plug-In

A McDSP Plug-In is exited by clicking on the desktop or other window in the DAE application running the Plug-In, closing the Plug-In window, or de-instantiating the Plug-In. Pro Tools[™] sessions will save instantiated Plug-In configurations and their settings. Refer to the Digidesign[™] Pro Tools[™] Reference Guide for details on general Plug-In operation.

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Channel G Surround

Channel G Surround is a fully featured Compressor/Limiter solution with 4 channel sets (LR, C, LsRs, LFE) to meet the demands of modern post production and 5.1 mixing.

The **Channel G Surround Compressor/Limiter** offers the unique design of 4 independent yet linkable channel sets (LR, C, LsRs, and LFE) allow the Channel G Surround surround compressor to act as a standard 5.1 (or 5.0) compressor, or be more customized to deal with the many challenges of surround mixing. The Surround Compressor/Limiter is identical to the Compressor/Limiter section of the Dynamics and Console configurations, and can read the settings from a mono or stereo configuration of the G Dynamics configuration. This allows mixing into multiple formats with the same settings and improving workflow. An LFE filter with controllable frequency and slope of 24 dB/Oct is also included.

Feature List:

- Full featured surround Compressor/Limiter in LR, C, LsRs, and LFE channel sets
- Optional LFE low pass filter 24 dB/Oct slope
- Analog Saturation Modeling
- Double precision processing
- Ultra low latency
- 5.1 version only

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The Quick Start Tour: Channel G Surround

Start Protools™ and Instantiate the Channel G Surround Dynamics Configuration

- Launch Protools[™] and Open a Protools[™] Session.
- Verify the Display-> Mix Window Shows->Inserts View option is checked.
- In one of the inserts of a stereo master fader, select the Channel G Surround Dynamics stereo configuration. On another insert select the Channel G Surround Equalizer stereo configuration. Note the Channel G Surround plugin will operate on master or regular audio tracks in mono or stereo versions.
- If the insert selection does not show Channel G Surround plug-ins, verify that the Channel G Surround plug-in has been installed correctly.
- For more information on starting ProTools[™] and working with plug-ins, see Digidesign's[™] ProTools[™] Reference Guide

Knobs

To adjust any of the controls with knobs you can:

- Click and drag the knobs (note the knob will respond to left/right or up/down mouse movement, and will lock to the left/right or up/ down movement once the mouse is dragged beyond the knob graphic - this significantly reduces control jittering commonly found in knob controls)
- Hold the <Command> key while dragging the knobs for fine control
- Click on the text box to highlight and edit the numeric value to get precise control (if a value outside the valid range is input, the control will default to the nearest allowed value when enter is hit) and hit <Enter>
- Click on the text box to highlight the numeric value and then use the arrow keys to increase or decrease the numeric value
- Use the <Option> key to bring all the controls to their default values
- Use hardware controller surfaces supported by Channel G Surround including Digidesign's ICON, ProControl[™] and Control-24 and the Mackie HUL



Toggle control that takes the section 'in' or 'out' of the audio processing path.

- The green light indicates the section is in;
- When the light is off, the section is bypassed.

The Meters

The Channel G Surround plug-in has a 'Metering Center Section' to display input levels, Compressor/Limiter gain reduction, and Compressor/Limiter output levels.

Automation

All Channel G Surround controls are completely automatable. See the Digidesign™ ProTools™ Reference Guide, Automating plug-ins section.

Presets: Using the Presets and Making Your Own

The Channel G Surround presets are designed as 'roughs' for various analog mixing console applications. The presets can be accessed from the ProTools ™ "plug-in Librarian" and "plug-in Settings" pop-up menus.

To make and save your own presets, see the "plug-in Librarian Functions" section of Digidesign™ 's DigiRack plug-ins Guide.

A Word on Preset Compatibility

Presets for Channel G, Channel G Compact, and Channel G Surround are interchangeable. Settings created from one configuration will affect the like-named controls in another.

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Channel G Surround Compressor/Limiter Configuration

The G Surround Compressor/Limiter is comprised of 4 individual Compressor/ Limiter arranged into 'channel sets' for the various surround channels (5.1 channels). The LR, C, LsRs, and LFE dynamics sets are all exactly like the Compressor/Limiter found in the G Dynamics configuration. The channel sets can be linked to each other, and can select from any combination of the LR, C, LsRs, and LFE channels for their input key signal.



Channel G Surround Compressor/Limiter Overview



Channel G Surround Compressor/Limiter Controls

Input and Output

The G Surround Compressor/Limiter configuration has dedicated Input and Output controls.

- Input the amount of gain applied to the signal before it reaches the Compressor/Limiter.
- <u>Output</u> the amount of gain applied to the signal after the Compressor/Limiter Makeup Gain. The signal polarity (phase) may also be adjusted at this stage in the processing.



Compressor/Limiter

The Channel G Surround Compressor /Limiter meets all the needs and

requirements of modern post production while retaining the needed musicality for music applications. The controls are:

- <u>Knee</u> the shape of the compression curve. The greater the Knee control value, the smoother the transition into the compression zone above the selected threshold. There are several additional Knee control modes that model specific compressors found in analog mixing consoles.
- <u>Attack</u>- the rate at which the Compressor/ Limiter begins to reduce the dynamic range of the input signal as it exceeds the selected threshold.



- <u>Gain</u>- the amount of makeup gain applied to the signal after the dynamic range reduction.
- <u>Ratio</u> the slope, or input to output ratio of the Compressor/Limiter . When this control is near its maximum (100:1) the process acts as a Limiter.
- <u>Release</u>- the rate at which the Compressor/Limiter stops reducing the dynamic range of the input signal as it goes below the selected threshold.
- <u>Threshold</u>- the signal level that must be exceeded in order for the Compressor/Limiter to start reducing the input signal dynamic range.

- Key selects the signal channel set(s) used to cause the Compressor/Limiter channel set to begin reducing signal dynamic range once it exceeds the selected threshold.
- <u>Compressor/Limiter Page</u>- selects which page of controls is active on the user interface.
- Linking- each Compressor/Limiter can be linked to a master. Selecting the 'M' button sets a Compressor/Limiter as the master to which all other linked Compressor/Limiter s will track relatively. A Compressor/Limiter can be set to link to the master by pressing the 'L' button for that Compressor/Limiter.
- <u>Compressor/Limiter In</u> the switch that engages or bypasses the Compressor/ Limiter algorithm.

Control Matrix

The Surround Compressor's control matrix allows the user to page select and set the key signal for each compressor individually, as well as set master and link options from a single source.

The green circle lights along the bottom show which compressors are engaged. The little green "L" lights show that compressor as linked. The little yellow "M"

light show that center channel compressor is the master. The illuminated L R button shows what page you are on, or in this case that the compressor controls are now operating the Left Right Compressor Set. The blue L R and LsRs lights next to the key label let you know that the LR Compressor is now keying off the LR & LsRs channels. Each channel set can key of any other channel set in the matrix.



LFE

The LFE Filter section is a 24 dB/Oct filter whose frequency range covers the most used values for LFE channel signal bandwidth (20-200 Hz). The LFE section controls are:

- Freq- the center frequency or cutoff frequency of the filter.
- LFE In/Out- enables or disables the LFE filter.

Note that the LFE filter is before the input meter shown in the metering section.

Surround Plot Response Graphs

The G Surround Compressor/Limiter configuration displays the Input/Output transfer functions of the Compressors/Limiters in the LR, C, LsRs channel sets. The transfer functions are displayed over a 60 dB range.



Surround Meters

The Channel G Surround Compressor/Limiter configuration groups all metering functionality in the following channel order: L, C, R, Ls, Rs, LFE. Gain reduction is displayed in the LR, C, LsRs,

and LFE channel sets. Displayed meters are Input post Input Gain, Compressor/ Limiter gain reduction, Compressor/Limiter output post Makeup Gain, and final Output post Output Gain. Gain reduction meters are completely orange. The remaining signal level meters are green for all metered values at and below

- 6 dB. Metered values above - 6 dB are displayed in yellow. There are peak LED indicators above each signal level meter (Input, Compressor/Limiter Output, Output) that will light when the signal level is approximately -0.05 dB. These peak LEDs can be



cleared by simply clicking on the lit portion with the mouse. The option to clear all clip meters is available by clicking the clip LED in the plugIn tool bar. Channel G Surround also supports the new ICON plugIn metering facilities.



Control Linking

Extensive control linking is available in the G Surround Compressor (5.1). Note that as of release 1.0, Channel G Surround does not offer any control linking capabilities via quick key commands.

Each compressor (LR, C, LsRs, LFE) can act as a master, and selected compressors can link (relatively) to the master band. A compressor is made the master by pressing the 'M' button located under each compressor page selector. Pressing the 'L' button on any of the other compressors will enable those compressors to slave (or link) to the master compressor. NOTE: when automating linked compressors, it is only necessary to automate the master compressor. Automating both the linked and master compressors can generate conflicting automation data.

Using Channel G Surround

A Closer Look at the Surround Compressor/Limiter

The G Surround Compressor/Limiter is comprised of 4 individual Compressor /Limiters arranged into 'channel sets' for the various surround channels (5.1 channels). The LR, C, LsRs, and LFE channel sets are all exactly like the Compressor/Limiter found in the G Dynamics configuration. The channel sets can be linked to each other, and can select from any combination of the LR, C, LsRs, and LFE channels for their input key signal.

Basics

A Compressor/Limiter section is used to reduce the level of an input signal once it rises above the selected threshold. Such an effect is useful to control the dynamic range of a track, impart a different character on a track (more punchy, smoother), or create certain special effects. For surround mixing, the dynamic range control can be even more critical. Signal levels that exceed broadcast station requirements can result in mixes being returned for re-work. For post production the source tracks (dialog, music, and fx) must all co-exist without interfering with each other.

To this end, the G Surround Compressor/Limiter was designed to give all the needed flexibility, while maintaining a practical workflow. Each channel set (LR, C, LsRs, LFE) can key from any combination of these Channel G Surround roupings, allowing the user to create sophisticated ducking effects (reducing the signal level of some channels when another channel signal level increases), or maintain a balance between all the surround channels as signal content is shifted from channel to channel.

Each Channel set is accessible from the page control located in the 'control matrix' at the right lower half of the user interface. Selecting one of the large green buttons sets the controls above it to operate the Compressor/Limiter for the LR, C, LsRs, or LFE channel sets. The multi-channel key input for each dynamics set is shown in the blue LCDs just below the standard 6 Compressor/Limiter controls. The Master and Link buttons for each compressor set are located just underneath each Compressor/Limiter set page button. The control matrix also houses the bypass buttons for each Compressor/Limiter set. Note the G Surround Compressor/Limiter cannot key off its own output (as opposed to the mono and stereo Compressor/Limiter in the G Dynamics and G Console configurations).

Selecting the 'M' button sets a Compressor/Limiter as the master to which all other linked Compressor/Limiter s will track relatively. A Compressor/Limiter can be set to link to the master by pressing the 'L' button for that Compressor/ Limiter .

Channel Ducking

The interaction of the surround channels often depends on how the channels interact with each other. Giving different channels emphasis at different times enhances the listening experience, and allows an otherwise crowded mix some breathing room.

When choosing the key input for a given Compressor/Limiter set, selecting the channel sets other than what the Compressor/Limiter is operating on, causes that compressor/limiter to compress its channel when the others combine to exceed the level of that channel's threshold. Such an effect, often referred to as ducking, is a great way to almost 'ride the gain' of tracks without the countless hours of editing track fader automation.

Channel G Surround Plug-In Reference Guide

Channel G Surround Specifications

Parameter	Settings	Function
INPUT		
IN	-24 to +24 dB	Amount of gain applied to the signal before it reaches the Expander/Gate and Filter sections.
COMPRESSOR/LIMITER		
KEY	Output of the Compressor/ Limiter itself, Original Input, Side Chain (key) Signal, Output of the Filter section, .	Selects the signal used to cause the Compressor/ Limiter to begin reducing signal dynamics range once it exceeds the selected threshold. The choices are the original input, the side chain (key) signal, the output of the Filter section, or the output of the Compressor/ Limiter itself (feedback).
KNEE	hard 10 soft modes 5 modeled modes	Shape of the compression curve. The greater the Knee control value, the smoother the transition into the compression zone above the selected threshold. There are several additional Knee control modes that model specific compressors found in analog mixing consoles.
RATIO	1:1 to 1:100 (Limiter)	Slope, or input to output ratio of the Compressor/Limiter. When this control is near its maximum (100:1) the process acts as a Limiter.
ATTACK	0.01 to 100 msec	Rate at which the Compressor/Limiter begins to reduce the dynamic range of the input signal as it exceeds the selected threshold.
RELEASE	100 to 5000 msec	Rate at which the Compressor/Limiter stops reducing the dynamic range of the input signal as it goes below the selected threshold.
GAIN	-24 to 24 dB	Amount of makeup gain applied to the signal after the dynamic range reduction. Note that this gain occurs before feedback in Output Key Mode.
THRESH	-80 to 0 dB	Signal level that must be exceeded in order for the Compressor/Limiter to start reducing the input signal dynamic range.
COMP/LIMITER IN	ON, OFF	Switch that engages or bypasses the Expander/ Gate algorithm.

Parameter	Settings	Function
LFE FILTERS		
FREQ	20 to 200 Hz	Center frequency or cutoff frequency of the filter.
Q/SLOPE	fixed at 24 dB/Oct	Width of the notch filter or slope of the HPF or LPF filter.
OUTPUT		
Ø (PHASE)	ON/OFF	Polarity (phase) of the final output, ON is 180° from original.
OUT	-24 to +24 dB	The amount of gain applied to the signal after the Compressor/Limiter Makeup Gain.

DSP Delay

The delay incurred by any of the Channel G Surround plug-in configurations is ZERO samples. On HD systems the delay is 1 (ONE) sample. There is a 2 sample delay from the TDM connection to the Channel G Surround plug-in. This is the absolute minimum number of delay samples a TDM plug-in can have. The McDSP plug-ins are designed in this manner to provide the user with the closest analog mixing console experience possible (analog inserts such as EQ and compression do not cause a processing delay when inserted into a track).

DSP Usage

HD and HD Accel DSP hardware

The TDM versions of the Channel G Surround plug-in configurations use a varying amount of DSP resources for each Channel G Surround configuration. The table below is a listing of these DSP usages. The DSP Allocator utility provided by Digidesign™ (or the DSP Usage display in Pro Tools™ for PT version 5.0 and later) may be used to display dsp resource allocation when Pro Tools™ is running. Note there is no MIX hardware support for Channel G Surround.

Maximum Instantiation Counts at 48kHz

Configuration (5.1)	# Instantiations per DSP on HD systems	# Instantiations per DSP on HD Accel systems
G SURROUND COMPRESSOR	4	10

Percentage Counts per HD & HD Accel DSP at 48kHz

Configuration (5.1)	Use percentage per DSP HD systems	Use percentage per DSP HD Accel systems
G SURROUND COMPRESSOR	24%	10%

For HD systems, Channel G Surround supports all higher sample rates (up to 192 kHz). However due to the DSP usage of some of the larger Channel configurations, not all configurations are available at the higher sample rates. For 96 kHz operation the dsp usage is doubled (x 2). For 192 kHz operation the dsp usage is quadrupled (x4).

ProTools MIX DSP hardware

McDSP has decided to remove Mix support from its entire product line, as Digidesign is no longer actively investing development into the Mix hardware platform.

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