



Retro Pack

4020 Retro EQ

Original Vintage Style Designs

User Manual

McDOWELL SIGNAL PROCESSING, LLC

McDSP 4020 Retro EQ Plug-in Manual

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Special Thanks to:

- Rob Barrett Jr., our #1 customer
- Customers who like innovation, not imitation.

from the entire McDSP development team.

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Getting Started with the 4020 Retro EQ

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 and Native plug-ins are compatible with Pro Tools™ HD, Pro Tools™ LE and Pro Tools™ M-Powered systems as well as Audio Unit compatible DAWs including Logic, Digital Performer (DP) and Ableton Live. Additionally, a third party software application that supports the TDM, RTAS, or AudioSuite plug-in standard may be supported.

McDSP plug-ins support Mac OS 10.5.x (Leopard), 10.6.x (Snow Leopard), Windows XP, Vista, and Windows 7. Supported versions of Pro Tools™ include 7.4.x and 8.x or greater. Supported versions of Audio Unit compatible DAWs including Logic, Digital Performer (DP) and Ableton Live must be versions that support the Mac OS 10.5x (Leopard) or 10.6x (Snow Leopard).

McDSP plug-ins require an iLok USB Smart Key for authorization.

Supported Plug-in Formats

McDSP plug-ins are available in TDM, RTAS, AudioSuite, and Audio Unit (AU) formats.

Hardware

McDSP plug-ins support any Avid (Digidesign) or approved third party hardware supported in Pro Tools™ 7.4.x and 8.x or greater, including HD and HD Accel hardware and interfaces, 002, 003, the Mbox product line, and M-Audio interfaces. McDSP plug-ins also support approved hardware for DAWs supporting Audio Units (AU) including Apogee, MOTU, and RME.

All McDSP HD plug-ins, except Synthesizer One, also support the Avid (Digidesign) VENUE D-SHOW systems.

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 Avid (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).*

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

Installing the 4020 Retro EQ Plug-in

Installation on Mac OS X

The 4020 Retro EQ plug-in Package includes this manual, ReadMe and Release Notes, and a folder of presets for the 4020 Retro EQ plug-in. Two copies of the 4020 Retro EQ Licensing Agreement are included - one in this pdf manual and a second as a separate text file. The 4020 Retro EQ plug-in manual requires that Adobe Acrobat reader (or similar .pdf reader) is installed.

Both online and boxed versions will come with a 4020 Retro EQ installer that will automatically install the 4020 Retro EQ plug-in and its presets on your system. The authorization of the 4020 Retro EQ plug-in is still required after running the installer, and those steps are detailed in the following sections.

Installing the 4020 Retro EQ 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 10.5.x or 10.6.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 4020 Retro EQ 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 4020 Retro EQ plug-in folder on the CDROM - the installer application is contained therein.
- Run the 4020 Retro EQ plug-in Installer application to install (copy) the 4020 Retro EQ 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 4020 Retro EQ 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.

Installation on Windows XP and Vista

The 4020 Retro EQ plug-in Package includes this manual, ReadMe and Release Notes, a folder of presets for the 4020 Retro EQ plug-in, and the 4020 Retro EQ plug-in. Two copies of the 4020 Retro EQ Licensing Agreement are included - one in this pdf manual and a second as a separate text file. The 4020 Retro EQ manual requires that Adobe Acrobat reader (or similar .pdf reader) is installed.

Both online and boxed versions will come with a 4020 Retro EQ installer that will automatically install the 4020 Retro EQ plug-in and its presets on your system. The authorization of the 4020 Retro EQ plug-in is still required after running the installer, and those steps are detailed in the following sections.

Installing the 4020 Retro EQ plug-in and presets with the Installer:

The 4020 Retro EQ plug-in package purchased at your local dealer will be on CDROM and contain a Windows self extracting executable (.exe) similar to the online 4020 Retro EQ plug-in package prepared for Internet delivery. Both the boxed and online versions of the 4020 Retro EQ 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 4020 Retro EQ 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 4020 Retro EQ 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 4020 Retro EQ plug-in installer, you will be prompted by the 4020 Retro EQ 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 4020 Retro EQ plug-in folder on the CDROM - the installer application is contained therein.
- Run the 4020 Retro EQ plug-in Installer application to install the 4020 Retro EQ 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 4020 Retro EQ 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.

Installation on VENUE D-SHOW systems

The 4020 Retro EQ plug-in Package for VENUE D-SHOW systems includes presets for the 4020 Retro EQ plug-in and the 4020 Retro EQ plug-in. The 4020 Retro EQ 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 4020 Retro EQ 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 4020 Retro EQ plug-in and its presets on your system. The authorization of the 4020 Retro EQ 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 4020 Retro EQ plug-in and presets on VENUE with the 'HD Disk':

The boxed 4020 Retro EQ 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 4020 Retro EQ 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 4020 Retro EQ 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 4020 Retro EQ plug-in available on the left hand side.
- Select the 4020 Retro EQ plug-in and select 'INSTALL.'

- If a previous version of the 4020 Retro EQ plug-in was already installed, it will be updated by the installer.

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

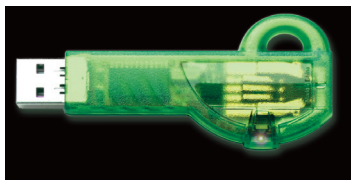
If you do not have a boxed copy of the 4020 Retro EQ with the included 'HD Disk' CDROM, you can still obtain a copy of the VENUE compatible installers from the www.mcdsp.com website. Once you have located and downloaded the latest VENUE compatible installers from the McDSP website, you will have to take 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:

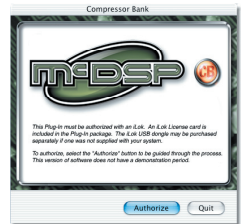
The Authorization Wizard is used to install an authorization from a License Card to the iLok USB Smart Key. To use the Authorization Wizard for the plug-in you purchased, perform the following steps:

- 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 the DAW host 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 DAW host insert menu.

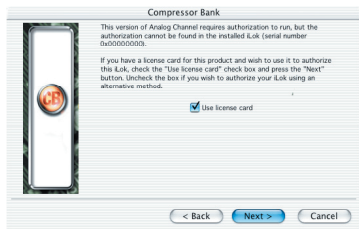


- McDSP plug-ins require that the user personalize their copy of the plug-in. A dialog is displayed soliciting this information.

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.

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. 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.



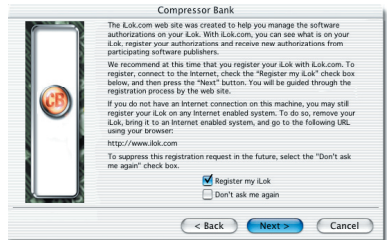
- The green LED in the iLok USB Smart Key will light when it is ready to receive and transmit data.
- Upon inserting the iLok License Chip, a message will be displayed indicating the authorization was installed successfully. Click 'Ok' in the message dialog.



- 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 cannot be registered to another account. However, an iLok USB Smart Key may be transferred between 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 DAW host 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 DAW host 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 10.5 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.
- 2) Download the desired McDSP plug-in Installer from:
<http://www.mcdsp.com/support/updating.html>
- 3) To receive an upgrade or replacement authorization, email your iLok.com account information to: support@mcdsp.com
To receive a demo authorization, email your iLok.com account information to: authorize@mcdsp.com

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.

The screenshot shows the iLok.com v2.0 web interface. At the top, there's a navigation bar with links: Account, Manage, Buy, About, Help. Below this is a sub-navigation bar with: Overview, History, Profile, Order Status. The main content area is titled 'Welcome Bob!' and includes a message: 'You are logged into the new, improved iLok.com. New features with this version include:'. A list of features follows: Support for moving licenses between iLoks, Optional Zero Downtime coverage for your critical iLoks, Secure transfer of ownership between iLok.com account holders, Improved browser compatibility, including support for Apple's Safari browser, and Improved automated help and support. Below this, a section titled 'From this account section you can see a summary of your account, edit your account profile, and review your iLok.com history.' provides links to 'edit your account profile', 'review your iLok.com history', and 'important messages regarding your account'. At the bottom, a section titled 'To manage your iLoks, including viewing your iLok contents, receiving licenses from software vendors, or moving licenses between iLoks, click here.' provides a link to 'here'. On the left side of the interface, there's a sidebar with a section titled 'Important!' containing a link 'You have licenses' with a mouse cursor pointing to it. Below this are sections: 'Enhance your account' with links 'Buy an iLok', 'Buy a Dongle', 'Buy a Budget', and 'Move your licenses'; and 'What's new?' with a link 'Buy an iLok'.

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 synchronize 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 completion of the transaction, thereby letting you know that the transfer was successful.

Pending licenses available for download:

Product	Company	Type	Deposited	Expiration	
Analog Channel	McDSP	Demo	09/14/2004	03/14/2005	
Chrome Tone	McDSP	License	09/14/2004	09/28/2004	
Compressor Bank	McDSP	NFR	09/14/2004	09/14/2005	
FilterBank	McDSP	License	09/14/2004	03/14/2005	
HC2000	McDSP	Demo	09/14/2004	03/14/2005	
Synthesizer One	McDSP	License	09/14/2004	09/28/2004	

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	Type	Deposited	Expiration	
<input type="checkbox"/> Analog Channel	McDSP	Demo	09/14/2004	03/14/2005	
<input checked="" type="checkbox"/> Chrome Tone	McDSP	License	09/14/2004	09/28/2004	
<input type="checkbox"/> Compressor Bank	McDSP	NFR	09/14/2004	09/14/2005	
<input type="checkbox"/> FilterBank	McDSP	License	09/14/2004	03/14/2005	
<input type="checkbox"/> HC2000	McDSP	Demo	09/14/2004	03/14/2005	
<input type="checkbox"/> Synthesizer One	McDSP	License	09/14/2004	09/28/2004	

Step 2 - Select an iLok to receive the licenses:

Select which iLok should receive the licenses, then press the "Download Licenses" button.

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If the **iLok1 (0x00011053)** is not in the list above, insert the iLok now and click [here](#).



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 log out and move the iLok Smart Key to your DAW host system if you are using another computer for Internet access. Also, you may need to install a different version of the plug-in if you are upgrading or replacing.

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From here you can see what's on your iLok, register your iLoks, synchronize your iLok license contents with your account, and identify which iLoks are installed on your machine.

You have 1 registered iLoks. 0 are covered by Zero Downtime, 1 are not covered. [Sign up for Zero Downtime here.](#)

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Name	# Licenses	Last sync	Inserted	Covered
iLok1 ⓘ	5	09/14/2004		No

Note that the synchronize and identify processes 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.

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 your DAW host, and the McDSP plug-in and its presets are ready for use. Refer to your DAW User Manual for details on general plug-in operation.

Exiting a McDSP Plug-in

A McDSP plug-in is exited by closing the plug-in window, or de-instantiating the plug-in. Your DAW host sessions will save instantiated plug-in configurations and their settings. Refer to your DAW User Manual for details on general plug-in operation.

4020 Retro EQ

The 4020 Retro EQ plug-in, along with the rest of the McDSP Retro Pack plug-in product line, is an entirely new design based on more than a decade of McDSP engineering experience. The Retro Pack plug-ins are highly stylized products (both visually and sonically), and through an elegant user interface, deliver a vintage gear experience.

The 4020 Retro EQ is a four-band EQ and complimentary filter set. The HF and LF bands are shelving EQ, with two additional parametric EQs at the HMF and LMF bands. All EQ bands operate on a unique gain dependent variable slope/Q system for a smooth sound and increased selectivity at large boost/cut gain values. The HPF and LPF filters use a unique split-octave design giving a 12 dB / Oct slope near the selected frequency, and a maximum slope of 24 dB / Oct.

All Retro plug-ins use a McDSP designed output stage topology to eliminate digital clipping at any output level and produce a smoother distortion characteristic. This feature is in addition to the analog saturation modeling that has made McDSP famous over the last decade.

Features:

- Unique original algorithms
- EQ and filtering
- Anti-clip output stage topology
- Analog saturation modeling
- Double precision processing
- Ultra low latency
- Mono and stereo versions

The Quick Start Tour: The 4020 Retro EQ Plug-in

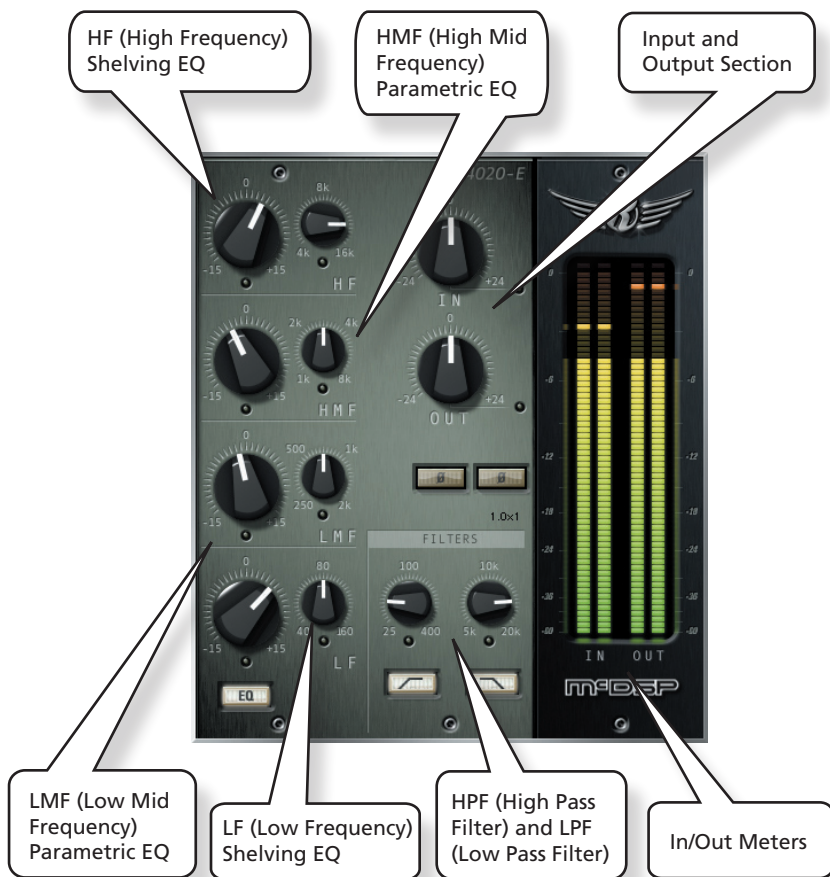
Start the DAW host and instantiate the 4020 Retro EQ plug-in

- Launch the DAW host and open a session.
- Verify the Display-> Mix Window Shows->Inserts View option is checked.
- In one of the inserts of a stereo master fader, select the 4020 Retro EQ plug-in. Note the 4020 Retro EQ plug-in will operate on master or regular audio tracks in mono or stereo versions.
- If the insert selection does not show the 4020 Retro EQ plug-In, verify that the 4020 Retro EQ plug-in has been installed correctly.
- For more information on starting your DAW host and working with plug-ins, see the Reference Guide provided by your preferred DAW.

Retro Pack Overview

The McDSP Retro Pack plug-ins are designed for the ultimate vintage vibe, using new and original algorithms based on McDSP's decade of industry experience. Retro plug-ins are a line of 'classics' that can live up to their own name without emulating something else.

The 4020 Retro EQ is a four-band EQ with high pass and low pass filtering options.



Controls

In/Out

The In/Out section controls input and output levels, along with phase control over the output stage.

- **In** - input signal level adjustment (-24 to +24 dB)
- **Out** - output signal level adjustment (-24 to +24 dB)
- **Phase** - inverts the phase of the audio waveform



HF (High Frequency)

The 4020 EQ HF (high frequency) band is a shelving EQ with a unique variable slope design for a smooth sound at small gains, and a more selective response at large gains.

- **HF Gain** - HF equalizer gain adjustment (+/- 15 dB)
- **HF Freq** - HF equalizer frequency adjustment (4 - 16 kHz)



HMF (High-mid Frequency)

The 4020 EQ HMF (high-mid frequency) band is a parametric EQ with a unique variable slope design for a smooth sound at small gains, and a more selective response at large gains.

- **HMF Gain** - HMF equalizer gain adjustment (+/- 15 dB)
- **HMF Freq** - HMF equalizer frequency adjustment (1 - 8 kHz)



LMF (Low-mid Frequency)

The 4020 EQ LMF (low-mid frequency) band is a parametric EQ with a unique variable slope design for a smooth sound at small gains, and a more selective response at large gains.

- **LMF Gain** - LMF equalizer gain adjustment (+/- 15 dB)
- **LMF Frequency** - LMF equalizer frequency adjustment (250 Hz - 2 kHz)



LF (Low Frequency)

The 4020 EQ LF (low frequency) band is a gentle EQ with a unique variable slope design for a smooth sound at small gains, and a more selective response at large gains.

- **LF Gain** - LF equalizer gain adjustment (+/- 15 dB)
- **LF Frequency** - LF equalizer frequency adjustment (40 - 160 Hz)



Displays

Meters

The 4020 Retro EQ has meters showing input signal and output signal levels. These meters also can be used to confirm relative input and output levels are the same if desired.



General Information

To adjust any of the 4020 Retro EQ controls the user can:

- Hold the <Command> key while dragging the slider for fine control, or
- 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>, or
- Click on the text box to highlight the numeric value and then use the arrow keys to increase or decrease the numeric value, or
- Use the <Option> key to bring all the controls to their default values, or
- Use hardware controller surfaces supported by your DAW host such as the Mackie HUI and Digidesign's ICON™, ProControl™ and Control 24.

Control Linking

There is no control linking capability in the 4020 Retro EQ at this time.

Automation

All 4020 Retro EQ controls are completely automatable. See your DAW User Manual for automating plug-ins section.

Presets: Using the Presets and Making Your Own

The 4020 Retro EQ preset library demonstrates the wide range of applications where the 4020 Retro EQ can be used. No preset will suit every application, and they have been provided as a guide for the user, and will hopefully inspire new ideas and ways to use this sophisticated plug-in.

Refer to your DAW User Manual for accessing and saving plug-in presets.

A Word on Preset Compatibility

Presets for the 4020 Retro EQ configurations are interchangeable.

Using the 4020 Retro EQ Plug-in

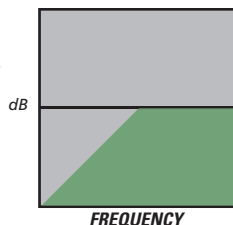
The 4020 Retro EQ is a highly stylized combination of equalizers and filters. The following sections cover basic operations of the EQ and filter algorithms in the 4020 Retro EQ, provide a more in depth description of some of the features of the 4020 Retro EQ, and outline some applications of the 4020 Retro EQ plug-in.

Basics

There are three types of EQs included in the 4020 Retro EQ (high shelf, parametric, and low shelf), and two types of filters (high pass and low pass).

High Pass Filter (HPF)

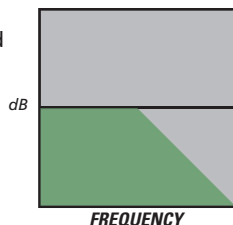
High pass filters remove signals below the selected frequency, and pass the signals above the selected frequency unaffected (hence the term high pass). High pass filters have a slope measured in the amount of signal reduction (in dB) per frequency octave. Typically these values are in multiples of 6 dB / Oct. At the exact selected frequency of the high pass filter the signal reduction is usually - 3 dB, however this can change based on filter design.



The 4020 Retro EQ high pass filter has a unique design element that gradually increases the filter slope from an initial slope of 6 dB / Oct to a maximum of 24 dB / Oct.

Low Pass Filter (LPF)

Low pass filters remove signals above the selected frequency, and pass the signals below the selected frequency unaffected (hence the term low pass). Low pass filters have a slope measured in the amount of signal reduction (in dB) per frequency octave. Typically these values are in multiples of 6 dB / Oct. At the exact selected frequency of the low pass filter the signal reduction is usually - 3 dB, however this can change based on filter design.

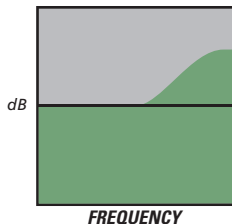


The 4020 Retro EQ low pass filter has a unique design element that gradually increases the filter slope from an initial slope of 6 dB / Oct to a maximum of 24 dB / Oct.

High Shelf EQ

High shelf EQ increases (or decreases) signal levels at and above the selected frequency. Shelving EQ can have a slope, or Q control, that determines the shelving EQ shape.

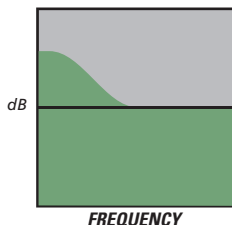
The 4020 Retro EQ uses a unique design to alter the slope of the shelving EQ for a gradual slope at low gains, becoming steeper at high gains.



Low Shelf EQ

Low shelf EQ increases (or decreases) signal levels at and below the selected frequency. Shelving EQ can have a slope, or Q control, that determines the shelving EQ shape.

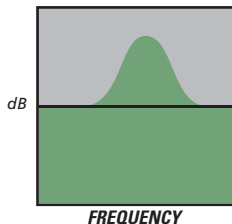
The 4020 Retro EQ uses a unique design to alter the slope of the shelving EQ for a gradual slope at low gains, becoming steeper at high gains.



Parametric EQ

Parametric EQ increases (or decreases) signal levels at the selected frequency. Parametric EQ can have a Q control that determines the parametric EQ width. A Q of 1.0 is about one frequency octave. A Q of 12.0 is about 1/12 a frequency octave, or one semi-tone.

The 4020 Retro EQ uses a unique design to alter the Q (width) of the parametric EQ for a gradual slope at low gains, becoming steeper at high gains.



A Closer Look

Frequency Calibration

The 4020 Retro EQ frequency ranges and defaults have been carefully chosen. A first pass in adjusting the tone of a track with the 4020 Retro EQ should be just using the gain controls on the four-band EQ section. After this initial pass, move the frequency controls to observe the changes they will produce. Note how the frequency controls in the 4020 Retro EQ are calibrated in octaves for a more musical response.

HF-HMF Pairing

A good EQ technique is to offset a boost (or cut) with a cut (or boost). Note the default frequency values for the HF and HMF sections in the 4020 Retro EQ. Try applying some positive gain in the HF section along with some negative gain in the HMF section. The HF boost combined with the HMF cut can help promote the boost in the HF section in the mix, and possibly reduce the need for so much HF boost as well.

LF-LMF Pairing

What goes for the high frequencies goes for the low frequencies as well. A good EQ technique is to offset a boost (or cut) with a cut (or boost). Note the default frequency values for the LF and LMF sections in the 4020 Retro EQ. Try applying some positive gain in the LF section along with some negative gain in the LMF section. The LF boost combined with the LMF cut can help promote the boost in the LF section in the mix, and possibly reduce the need for so much LF boost as well.

Applications

Air Guitar

Many instruments, once recorded, can sound dull, as if a blanket was thrown over the microphone. The HF section of the 4020 Retro EQ can give up to 15 dB of gain to the upper frequency range, for a nice light / bright sound. Unlike other digital EQs, the 4020 Retro EQ Anti-clip output stage topology prevents digital clipping, so this technique can be used more generously than with other EQs.

Often it is a good idea to remove low end ‘thuds’ from guitar tracks at the same time this ‘air’ is applied. The high pass filter of the 4020 Retro EQ is perfect for such an application. Several guitar oriented presets are included with the 4020 Retro EQ.

Drums

The balance of the low end kick with the power of the snare and the percussive elements of the cymbals is difficult indeed. The smooth sound of the 4020 Retro EQ shelving EQs can beef up the low end and liven up the high end. Subtle (yet effective) adjustments in the mid range are accomplished through the two parametric sections. Several drum oriented presets are included with the 4020 Retro EQ.

Vocals

The 4020 Retro EQ gentle curves can give a vocal track that ‘polish’ it may need to cut through the mix. The high pass filter and/or low shelf EQ can remove some of the plosives. The two parametric EQs can adjust the tone of the vocal to better fit in with the rest of the tracks in the mix. Finally, the high shelf EQ can give the vocal that ‘sparkly top’ some may be searching for.

Several vocal oriented presets are included with the 4020 Retro EQ.

Bass

The many combinations of the LF and LMF EQ band settings offer a wide variety of tones for the bass guitar and similar instruments. Signal boosts from the LF band used in conjunction with cuts from the LMF band give a good ‘meaty’ sound to many low end tracks. The tone variations from the HMF and HF bands should not be underestimated even when mixing instruments that are primarily considered ‘bass tracks’.

Several bass oriented presets are included with the 4020 Retro EQ.

Fix the Mix

While generally designed for individual tracks and instruments, the 4020 Retro EQ gentle curves can make it a useful tool for overall ‘tone adjustment’. The Anti-clip output stage is not a bad thing to have on the master either!

4020 Retro EQ Plug-in Reference Guide

4020 Retro EQ Specifications

Parameter	Range	Function
IN	-24 to +24 dB	Input signal level adjustment
OUT	-24 to +24 dB	Output signal level adjustment
PHASE	ON / OFF	Inverts the phase of the audio waveform
HF - (HIGH FREQUENCY)		
GAIN	-15 to +15 dB	HF equalizer gain adjustment
FREQ	4 - 16 kHz	HF equalizer frequency adjustment
HMF - (HIGH-MID FREQUENCY)		
GAIN	-15 to +15 dB	HMF equalizer gain adjustment
FREQ	1 - 8 kHz	HMF equalizer frequency adjustment
LMF - (LOW-MID FREQUENCY)		
GAIN	-15 to +15 dB	LMF equalizer gain adjustment
FREQ	250 Hz - 2 kHz	LMF equalizer frequency adjustment
LF - (LOW FREQUENCY)		
GAIN	-15 to +15 dB	LF equalizer gain adjustment
FREQ	40 - 160 Hz	LF equalizer frequency adjustment
FILTERS		
HPF	25 to 400 Hz	High pass filter frequency adjustment
LPF	5 - 20 kHz	Low pass filter frequency adjustment

DSP Delay

The delay incurred by any of the 4020 Retro EQ plug-in configurations is 3 (THREE) samples on HD systems. 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

Pro Tools™ HD and HD Accel DSP hardware

The TDM versions of the 4020 Retro EQ plug-in configurations use a varying amount of DSP resources for each 4020 Retro EQ configuration. The table below is a listing of these DSP usages. DSP usage is shown in the Pro Tools™ System Usage window.

Maximum Instantiation Counts at 48 kHz

Configuration	4020 Retro EQ Mono	4020 Retro EQ Stereo
# INSTANTIATIONS PER DSP ON HD SYSTEMS	8	4
# INSTANTIATIONS PER DSP ON HD ACCEL SYSTEMS	16	8

All of the 4020 Retro EQ plug-in configurations can operate on the same DSP, depending on the configuration's DSP requirements. See below for the percentages of a HD or HD Accel DSP used by a single instantiation of a 4020 Retro EQ plug-in.

Percentage of DSP used by one instantiation at 48 kHz

Configuration	4020 Retro EQ Mono	4020 Retro EQ Stereo
% OF DSP USED ON HD SYSTEMS	12%	24%
% OF DSP USED ON HD ACCEL SYSTEMS	6%	12%

Using the data provided in the above chart, the 4020 Retro EQ (mono and stereo) and 4020 Retro EQ (mono and stereo) plug-in configurations can share the same DSP.

The 4020 Retro EQ supports some higher sample rates (88.2 kHz and 96 kHz). For 88.2 kHz and 96 kHz operation the DSP usage is roughly doubled (2x).



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