

CDSoundMaster "Mastering Suite"

A collection of high quality preset programs for Acustica Audio's Nebula plug-in.

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Forward

Thank you for purchasing the CDSoundMaster "Mastering Suite" library for Nebula Commercial! This collection is not your ordinary Mastering Software EQ. In fact, I have designed this collection for my own personal use in Mastering. This collection is now my primary set of tools for all of my equalization duties, hand-crafted to cover the wide-range of situations that Mastering calls for, sampled setting by setting, frequency for frequency, decibel for decibel, based upon over a decade of experience. This collection makes use of the benefits of Nebula's 64-Bit precision and advanced distortion kernels for excellent reproduction of frequencies and corresponding harmonics.

If you haven't yet purchased this library, then make sure to download the free preset versions for NebulaFree and Commercial!

A Little Background

My name is Michael Angel. I have been recording since 1989, and completed my first professional project studio circa 1992-'93. Since that time I have seen computer technology give birth to a whole new frontier in recording.

I began doing CD Mastering in 1997, and just over a decade later, what used to be a \$600 4x CD Burner is now a 16x DVD-R/52x CD-R for roughly \$35.

The speedy technology and development in the world of sound recording plug-ins is truly mind-boggling, and today we have the options of completely software-coded 'concept' plug-ins in addition to those that are created by actual measurements of real hardware.

Still, there have been limitations that make both the simulated and measurement-calculated approaches fall short to varying degrees.

The Nebula by Acustica Audio (Acusticaaudio.net) is a truly phenomenal device that continues to evolve weekly. It operates similarly to a hardware keyboard sampler. Elements of sound can be recorded and processed by a complex playback engine that has recognition and functionality for everything from waveform function to dynamic timing and fluctuation, from LFO's to filtering and threshold comparisons.

I first learned about the Nebula project in 2006-2007 when speaking with developers of Impulse Response technology. I watched as months and months of development began to yield the first free demo releases of Nebula. Very different from convolution or dynamic convolution, Nebula uses streams of sampled data kernels to recreate very realistic reactions of recording hardware. Like others, I was amazed at the quality of the equalizers, and the similarities in the compressor to the original device. When I later spoke with Giancarlo about my plug-in concepts and development, I was hopeful that there might be some way to incorporate them into the Nebula system. I truly believe that this collection illustrates the amazing leaps and bounds that Acustica Audio has accomplished, and I applaud them in their giving of time, generosity in customer relations, and scientifically embracing the sharing of technology over greed.

Thank you Acustica Audio!!!

This collection of original presets has been created for the Acustica Audio plug-in "Nebula". Nebula can, and mostly will, be used to sample individual pieces of gear. People from around the world have been involved in the earliest stages of Beta Testing, and have created presets of hardware equalizers, compressors, reverbs, and more. My first collection did include some hardware sampling as well, but primarily focused on bringing to life my theoretical work of finding a way to dynamically bring the entire chain of an analog studio to the user within a plug-in. This meant not only capturing the personality of one piece of gear, but sampling very complex emulations of the order of events from a channel input to it's corresponding tape track, returned to channel, sent to channel group, and out to two track. Many of the stages involved were real pieces of hardware and others were calculated events that I set up in different programs to be sampled in the proper order at constantly manipulated settings.

Every preset program contained in this collection is the result of many careful tests and studies, and draws from my experience as a professional Mastering Engineer. Similar to what is described above, these programs are created from scratch, using many different programs and utilities, to provide the user with the same functions and exact settings that I use in my Mastering projects. All settings of all presets have been designed in the digital realm and provide an excellent signal path for your Master recording projects. By sampling each filter and enhancement at every volume and editing point that I use with my work, the user is provided with what I believe to be of the highest caliber of Mastering tools.

The Concept

Now, about the concept for this library. My goal is to provide Nebula Commercial users with a collection of absolute top quality Mastering eq's that are comprehensive and complete, at a cost that is literally a fraction of a fraction of the cost of even one high quality general purpose software Mastering EQ. With this suite, you are getting seventeen presets!

What Types of Tools?

When doing a Professional Mastering for a client, the Engineer needs to have certain tools at their disposal; tools that they know and trust. Many Engineers will only work with the most expensive outboard hardware for Mastering, while others use a combination of digital software for editing along with hardware. Still others only work within the digital domain. All three options are credible in today's studio environment. Regardless of personal taste, the Mastering Engineer requires several different eq functions that offer precise and non-damaging results. This includes:

1: Eq's with a very narrow bandwidth used for cutting out frequencies that are obstructive or harsh.

2: Very wide bandwidth filters that can bend the shape of the program material's entire frequency band (low, mid, or high) in the direction of other tracks in an album project without sounding like processing has taken place.

3: Enhancement eq's that are either intentionally musical in character, or that go sonically unnoticed, but that provide an artistic polish to the final recording.

4: In addition to specific "problem solver's", a solid, general purpose eq is needed for every scenario in between, whether it is to boost or cut; it needs to sound good, and it needs to sound like the material is improved, and not like there is any kind of processing present.

This is where some Mastering Engineers draw the line when it comes to eq. Some feel that it is not the M.E.'s job to perform any kind of sonic enhancements that can be recognizable or that place any personal fingerprint on the final project. Others are known for providing a particular sound and quality to their work. While it is good to work with very high quality, clean, transparent tools, it is also very important, in my opinion, to have the option and ability of giving a final musical polish, sheen, or improved character to the ending result of a project. For this, one needs 'personality' eq's that can improve upon an already great sounding recording.

I believe that this collection allows for the best in precise corrective tools that leave the least amount of unwanted changes to the original material, along with sonically superior 'enhancement' filters for placing your personal trademark sound on mixes and masters, along with general purpose, wide-bandwidth eq's that are precise enough for any Mastering needs, but musical enough to give a signature sound where desired. I hope that you will be pleased, and will feel empowered with the right set of tools for any job that you are faced with.

About the presets

All of the presets for this library are found in the **MST** category. Use Nebula's up and down arrows to scroll through the category list until you find "MST". The following is a list of the presets:

10Hz_Hi_Pass
20Hz_Hi_Pass
30Hz_Hi_Pass
40Hz_Hi_Pass
EQ_Enhance_1
EQ_Enhance_2
HiBellMastering
Mast_LowBell
MasterQHMed
MasterQLMed
Mast_Low_Cut_1
Mast_LowCut_2
MasterQ_Hi
Master_eq_1
MastHi_Med_Q
Mast_Wide_Q
Nice_Harmonics

Making It A Reality

Part of the challenge in making this collection was to avoid mistakes that I have found to be a shortcoming in many software Mastering releases. I also wanted this collection to be an optimization to what is currently out there: not a substitute for expensive hardware, but an improvement upon what makes the expensive gear worth using. I didn't want to make a single high quality, linear or minimum phase Mastering eq, and then leave various elements unanswered in the Mastering process.

One thing to consider especially with Mastering, is that making improvements in stereo imaging, phase coherency, consistency in saved settings, noise floor, dynamic range, and gaining control over exactly what harmonics are entering into the signal path, are all idealized and helpful. Thanks to Nebula, all of the presets in this collection are configured to work in parallel without phase cancellation issues. This is ideal for comparisons and also to give you a better DAW-based work flow than you may have been able to achieve in a Mastering-only environment. All processing is taking place with 64-Bits of dynamic range. All harmonics contained in this collection are intentional, and are made to enhance the program material in a positive manner. The exact amount of enhancement has been pre-programmed into each preset, and can be increased or decreased to meet your needs. If you want a cleaner reaction from the eq presets that have harmonic distortion added in, simply lowering the input slider of the Nebula will give you an increasingly cleaner signal. And, since you are processing 64-Bits internally, there is no need for concern in reducing bits by lowering the input even by 15 decibels or so.

Much of what I have created here you will not see in any other release, and it is based around what I have found to be the best sounding alterations to Master recordings. The boost and cut filters in these presets benefit from reshaping

unaffected frequencies, boosting and cutting frequencies that are scientifically connected to each other, and balancing this concept with harmonics that increase the musical outcome of every single setting. Slight changes to the timing of elements in the entire frequency spectrum are synchronized with harmonic content specifically associated with the frequencies being raised, lowered, or rounded off.

Some Background Theory

In studying the best designs in the hardware world, I found that some of the digital realm limitations were not so different from those in hardware design. This first became apparent to me in all the tests that were done prior to releasing the "Retro Analog Studio Suite 1" collection. In certain passive electronic designs, the ideal nature of the resulting sound comes from putting less stress on the signal chain, primarily in amplification stages, by lowering everything in the signal that is not being adjusted, instead of boosting the individual frequencies that are being adjusted. The signal remains much more clean, and enters less deeply into unwanted harmonic distortion when eq'ing. I did a lot of preliminary tests built around this theory in the digital world, and found that strangely enough, there are benefits to this concept in software as well.

In-Synch

In linear phase equalization, it requires increasingly complex algorithms to deal with peaks and cuts the more extreme the settings. Truly, a linear phase eq at some point requires more than just phase-accuracy to sound transparent when going beyond even 3-5 decibels of boost or cut. The reason that analog mastering hardware typically sounds as good as it does, is that the filters are based around nature-dependent designs. We hear things in a musical, sound wave, air pressure based dimension. It becomes a great challenge to bend or adjust only one element of the natural wave without causing an unnatural sounding result in another factor. It is misleading to believe that it is only phase that suffers from a perfectly linear design. In the same manner that bits of digital information have become acceptable due to the greater number of 'stair-step' movements used to re-create the natural smooth arc of analog waveforms, there are ways to use real world limitations to one's benefit in designing the absolute best sounding filters. In fact, we benefit more from an eq algorithm that can analyze the signal it is being fed, and make corrections to the original phase cohesiveness of the program material. Why preserve the phase accuracy of a poorly aligned recording, when certain timing elements can be improved upon by spreading the actual reaction time of the entire spectrum across multiple variables to strengthen the apparent width, transient speed, and imaging depth of the recording at it's most optimal settings? This type of information is not usually monitored in mixing or many Mastering situations, but it can have as great an impact as the easily visible shape of eq curves and dynamics.

For instance, perfect time alignment is necessary to replay sound with the original impact and sonic equivalency. If the bass frequencies are sluggish, or too much adjustment happens to the wrong frequencies when they are processed, we will hear these changes as being less musical, and even hear the performances as not being as powerful. This can be as damaging as jitter, and for many of the same reasons. In addition, the translation of stereo to mono playback can be extremely defective.

Well, the greatest audible limitations on eq filters are at the greatest dynamic peaks. Harmonic structure begins to break down when the phase alignment is maintained but the peak of frequencies are increased. So, if one counteracts the natural wave structure with harmonically balanced cuts, and then actual harmonics are added to the same frequencies that are being changed, the result is an amazingly accurate, musical sounding change in frequency. On a graph, what appears like a typical eq shape can be created by slight adjustments to neighboring frequencies, scientifically related octave-frequencies, and corresponding harmonics. These harmonics add to the perceived volume in fundamental frequencies without necessarily being visible at the same point on the visuals displayed. As a result, one can perceive a desired result in sonic changes with much less volume change at individual frequencies. Time alignment of the entire spectrum of sound is easier to balance when cutting obtrusive frequencies: this is true in the analog and digital realms for different reasons, but equally weighted. Many studies have shown that many steps in corrective equalization can be avoided by bending the shape of counter-related frequencies in addition to the change in the primary frequency. This approach is sonically seamless with your working process, but the technical aspects of these presets are working with you to get a much better final result than you may normally achieve.

The exact concept for each preset is covered below. I hope that you will take the time to learn about the presets and their usefulness in Mastering. They will all be included in my online tutorials to help you gain the most from this collection!

[The Presets](#)

[10Hz_Hi_Pass](#)

[20Hz_Hi_Pass](#)

[30Hz_Hi_Pass](#)

[40Hz_Hi_Pass](#)

As the names suggest, these four presets cut frequencies below 10Hz, 20Hz, 30Hz, and 40Hz respectively. They do so in a steady slope. This type of filter is named as such because they allow the frequencies that are higher than the filter name to "pass" through the signal without being affected.

If you run into a situation where there is a great deal of problematic rumble, mud, or unwanted signal below these marks, you can use these presets to eliminate the interference. The result will be more transparent and less noticeable than the usual high pass filter. Where most mix-oriented high pass filters sound drastically different when engaged, and the absence of the lower frequencies is very evident, you will find that with these presets the program material will not automatically sound like it is missing the bottom register as predominantly. These presets are also enhanced with a careful measure of even and odd harmonics. This works together with the chosen shape of the cut-off filters to maintain the fullness and richness of the signal, lightly coloring the sound in a similar manner to a very fast JFet input or high end valve design, combined with an even lighter effect of two track tape. All of this is done without adding audible negative side effects. To lower the amount of harmonic content added, simply lower the input slider of the Nebula. The internal engine is processing at 64 Bit, so there is no reason to fear losing fidelity.

EQ_Enhance_1

EQ_Enhance_2

These two presets are created to help bring life to a dull recording. I don't normally recommend that people use Mastering program preset-eq curves assuming that they will automatically work. But, these two presets I have created to address some very specific problems with program material with an extremely high quality formula that enhances the natural frequencies of the sound passing through them in a very pleasant way. These are not like using a sonic maximizer or subharmonic generators, but are very carefully shaped frequency adjustment matched with the same harmonics that I created the "high pass" presets with. In these two presets, you have the ability to increase the drive setting, or lower the harmonics by lowering the Nebula's input slider. I do not recommend raising the drive level unless doing so for use on individual tracks in a mix, as opposed to using it on a client's final program material.

If you have recordings that suffer from audible degradation in the high frequencies, were recorded to inexpensive cassette tapes, or are simply 'muddy' sounding due to less than average microphone preamps, you may find these to be valuable. The first of these two presets provides a very smooth increase in the high frequencies, starting from around 2 kHz all the way to the highest frequencies. There is a very small cut in lower mid frequencies to add to the clarity of this enhancement. The second enhance preset brings a rounder, smoother sound to the entire signal from the lower mids to the upper frequencies, with a little bit of a cut in the lower frequencies.

HiBellMastering

Mast_LowBell

These are two very special presets that I hope will become a secret weapon in your work. The overall effect of these two presets is a very musical brightening in the highs and full, rich, prominent and expansive sound in the lows, sounding like it comes directly from the music and not from an effect. Additionally, these presets give the appearance of doing a lot with a little. A single decibel can make a profound change without any harshness.

From years of studying different designs in equipment, one of the things that I wanted to develop was a program that could truly respond to audio based upon the quickness of the dynamics and also specifically related to the frequencies most affected. By adjusting a fairly wide "Q" in a very specific shape, and enhancing the primary harmonics similarly, these two bell-shaped eq's give you an extremely smooth Mastering processor that is diverse and unique enough sounding for you to "make it your own". You may find these very useful in your mixes as well, by rolling off very small amounts of eq on one track, and adding the same onto another, you will find you have the ability to shape your mixes in a dimension and analog-sounding process that you have not used before!

MasterQHMed
MasterQLMed
Mast_Low_Cut_1
Mast_LowCut_2
MasterQ_Hi

These five presets are connected with each other and all serve the same purpose in critical, surgical Mastering.

Each of these are narrow "Q" eq filters made to give you enough boost signal to listen through the frequencies of your program material for any specific problem frequencies you may want to eliminate, and equally enough cut volume to eliminate the chosen frequency with very little interference from the resulting audio. Each of these presets has been optimized in a very subtle way with a combination of harmonics that help to balance the overall spectrum for just about any recording, along with a very gentle rise in the high frequencies from around 1kHz to above 20kHz (less than .5dB of audible frequency enhancement). The cut filters have been created with intentional, step by step alterations to make any rendered change exceptionally smooth and balanced sounding.

The only variation in these presets is in the "Mast_LowCut_2", where the filter has been designed slightly different, with no harmonic content added. It is based upon fixed frequencies and not interpolated like the rest of the spectrum. After a great deal of experimentation and variations tested, I felt that the original design of the low filters were beneficial for frequencies around 250Hz and above to 1000Hz, but they did not produce the right results in lower frequencies. A special shape and corresponding "Q" was created for use in the lowest fundamental frequencies, and now the two separate low frequency presets work very well to provide the best response for the corresponding ranges.

Master_eq_1

This is what I hope can become a 'go-to' Mastering Equalizer when you need a tool that doesn't impart it's own sound to the program material, that is good for managing many different balance scenarios for most any type of music, but is not sterile or offensively clinical sounding. Boosting remains pleasant sounding, but will definitely reveal if something needs adjustment.

This preset is a minimum phase-type equalizer ranging from 200Hz to 5kHz, and has been carefully crafted to do what is sonically the best sounding with each part of the spectrum. The "Q" remains almost perfectly shaped as a typical medium width bell shape, but there are slight variances in the exact peak height and dip, and the apparent volume change may differ by less than a dB in certain octaves. Because the design is inspired by many of the finest analog designs mixed with my own unique concept, this eq will challenge you to make creative decisions in Mastering based primarily on listening. Where you normally would expect a boost to look like a camel hump centered at the chosen frequency and extended evenly left and right of the center, this eq gives a cleaner sounding center frequency while also providing more perceived dynamic change than other eq's. Above and below your bell curve frequency are corresponding boost or cut alterations. To maintain the perfect aural

response to this unique filtering, some frequencies are slightly wider than others, and some begin with deeper boost and cut settings that are based upon sound, and not perfect visual perception. I believe that you will truly enjoy using this eq!

MastHi_Med_Q

This preset is a boost eq that enhances a very wide range of frequencies with centers based from 3kHz to 16kHz. It is inspired by a 'tried and true' passive design, but also makes use of the balance of corresponding frequencies as they interact. This preset can be excellent for shaping the sound of individual tracks, and has a much higher boost range than you should ever use in Mastering. Ideally, this eq should never exceed a decibel or two in Mastering. The shape of the eq curve changes with every setting to give the best sonic performance. Even at the 'flattest' setting, there is a slight boost at 20kHz.

Mast_Wide_Q

This preset is a very wide bell curve eq that is useful to reshape a recording to correspond closer to other recordings within the same project. It is also excellent for bending, boosting and cutting with several instances to completely restructure overlapping bands with little negative sonic impact. Changes to entire frequency ranges will be extremely smooth, may be described as "warm", and are excellent for accentuating and de-accentuating specific performances within a recording without the need for dynamic limiting. This can also be used as a polishing eq purely for the aesthetics of adding a touch of sheen in the highs or smooth bass. This is an eq to try out on individual tracks in your mixes as well.

Nice_Harmonics

As the name suggests, this preset is not an equalizer, but rather it is a carefully created harmonic structure that is meant to bring some life and fullness to a dull recording. The amount of harmonic content added is directly related to the input slider of the Nebula. For subtle changes, lower the slider, and for more pronounced harmonics raise the slider and adjust the output slider to compensate. You may hear the effects of this preset as a slightly warmer, rounder, more 'together' grouping of performance, and even a slightly louder overall perceived level.

This concludes the presets!
I truly hope that this collection makes an awesome addition to your enjoyment of Nebula. There are two other library collections: one that is already released (Retro Analog Studio Suite 1), and one currently in production. All three of these library collections combined, serve to complete my vision for using Nebula to it's fullest extent in production, mixing, and mastering your music with the highest quality of tools.

Thanks and God Bless You.

***Sincerely,
Michael Angel
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