OVERLOUD GEMS

USER MANUAL
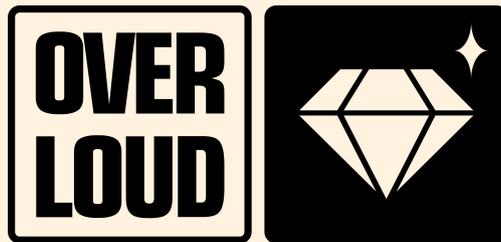
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INTRODUCTION

OVERLOUD GEMS is a collection of top quality plug-ins for both mixing and mastering. We put the best DSP algorithms and hardware emulation techniques available into each **GEM** and enriched these products with additional parameters and features, a consistent preset management, A/B comparison and undo/redo support.

OVERLOUD GEMS come in the following plug-in formats: VST, AudioUnit, AAX plus a standalone application. All in both 32 and 64 bit, and for Mac and Windows. You will be able to load and use them in all common DAWs.

OVERLOUD GEMS licenses need to be authorized. To authorize a **GEM** please follow the instructions on our website: **www.overloud.com** in the AUTHORIZE section.

WHY GEMS?

In a world overcrowded by competing products doing just "the same thing", how is it a good idea to develop another collection of audio plugins?

Well, because: First, they don't actually do the same thing, and then, even in that case, they don't do it in the same way.

Here at **OVERLOUD** *we have been developing high quality DSP effects these last several years, and with great passion and dedication. And as some of the best audio companies worldwide chose us for licensing our DSP effects, we realized that we are doing our job the right way.*

So we decided to take a selection of our effects and let our vision of high quality plugins meet reality, by wrapping these algorithms with gorgeous 3D graphical interfaces, and adding the wished-for features that are missing from the modeled real equipments.

After the first couple of plugins were delivered to beta testers, we discovered that what we were actually achieving was a collection of brilliant products with great sounding DSP plus a set of extra features that made each of them even more desirable.

The plugins looked precious and demonstrated that it was worth having them all. Like gems in a necklace.

There is a common denominator across all the Gems, which sits in the upper part of the user interface: the Gems bar. This bar contains the controls that are present across all Gems. Like Preset management, to mention one. This way, Gems users have a consistent interface to deal with for standard tasks.

- *COMP76, the modeling of a legendary FET compressor, a piece of hardware which immediately became a reference among audio engineers right from its release at the end of '60s.*

  Notable features:
    - *Added Parallel compression, which lets you sum the compressed signal along with the original to improve the overall impact by still keeping the transients intact;*
    - *Added Mid-Side processing, with a duplication of the interface to separately compress both the mono and stereo components of the signal using different settings.*

- *EQ495, a very popular equalizer found in one of the most acclaimed vinyl transfer consoles from the '70s through to '90s.*

  Notable features:

- *Top quality and faithful modeling, to let you reproduce exactly the same tones as the real gear with no compromises;*
- *Super musical EQ curves, providing a unique tone not available on any other channel EQ.*

- **TAPEDESK**, *another meticulous reproduction of the first microprocessor-controlled tape machine from the late '70s. And including models of three different history-making mixing consoles from the annals of analog recording: the same ones behind an endless number of world-class rock and pop hits from those years. Combinations still very appreciated today for the character of their mic-pre transformers and warm tape saturation.*

  Notable features:
  - *Includes the models of three different mixing consoles in order to reproduce the whole signal path just as in the real world, where console channel strips definitely play their role in the final sound along with interactions with the tape machine itself;*
  - *CPU load so low that you can use many instances, just as you would do in the real world: where individual console channels are recorded across multiple tracks on tape; and then, during playback, each track is summed through distinct mix channels back on the console.*

MENU BAR

All **OVERLOUD GEMS** have a menu bar at the top. The menu bar identical across all Gems, and implements the same set of functions. Here is the description of this global menu bar.

POWER - Turns the "power" on or off for the Gem. This control actually works as a bypass: when it is set to off, the plugin transfers the input channel signal unaltered to the output.

PRESETS - The presets area includes four controls: left and right scroll buttons, the preset name box, and the drop-down list button. Each Gem can store an infinite number of presets. You can scroll through them sequentially with the left/right (previous/next) buttons, or by clicking the drop down list button which will list the presets, allowing you to scroll the list interactively and load a preset with a mouse click.

SAVE/SAVE AS - When you have edited the current preset, you can store it in the preset database with the SAVE button. If, instead, you want to duplicate it you can press SAVE AS and type a new name for the copy of the preset.

When you load a preset, its name appears in the preset name box. As soon as you change a preset after loading, you will see a dot next to the preset name; this dot indicates that the preset has changed. If you try to load a new preset after editing the current one, you will be prompted for confirmation that your real intention is to load the new preset and lose your changes.

A/B COMPARISON - The A and B buttons allow you to compare two sets of settings for the Gem. The version you are currently editing is the one highlighted in red, and you can switch to the counterpart by clicking the other button. You can copy the selected setting to the other one with the arrow button in between.

UNDO/REDO - Each user action done inside the Gem is stored into an internal list. You can reverse these actions one step at a time to restore a previous setting. And even to redo the undone steps if you feel you went too far backwards.

COMP76

COMP76 is a top quality FET compressor modeled after one of the most popular hardware compressor units. It fits well on a whole mix, but its best application is on a single instrument or voice track.
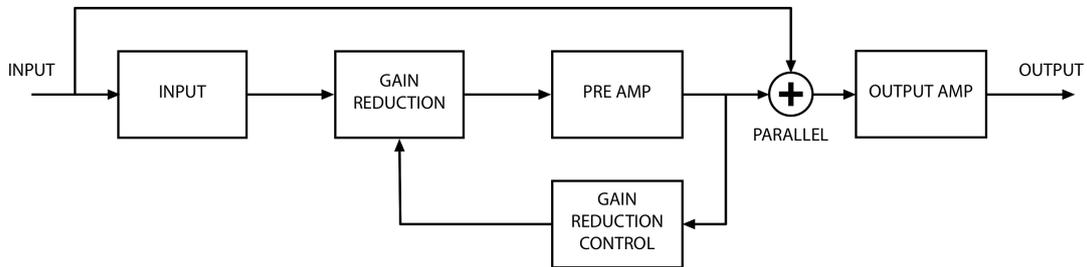
*This diagram shows how the **COMP76** processing blocks are connected and work together. The heart of the processing is the GAIN REDUCTION section, where limiting and compression are performed. The INPUT stage attenuates the input signal by means of the INPUT control. Gain Reduction and Attack and Release times are controlled by the GAIN REDUCTION CONTROL section. Next comes the PRE AMP section where the level of the processed signal is boosted. The resulting signal is then mixed with a portion of the INPUT signal to implement the Parallel Compression. Lastly, the OUTPUT AMP section adjusts the overall final level.*

PARALLEL - Sets the balance between DRY and COMP (processed) sounds. This is commonly called Parallel Compression.

INPUT - Adjusts the level of the input signal and the threshold. Higher levels correspond to increased amounts of limiting or compression.

When a short attack time is set, gain reduction happens immediately catching transient signals and reducing their level.

The audible result is to soften the sound. Longer attack times let short transients pass before the limiting begins.

OUTPUT - Adjusts the final output level. Once you find the right amount of compression with the Input control, you can use the Output control to compensate any possible gain reduction.
To set the output level press the OUT button and turn the OUTPUT knob as required.

ATTACK - Sets the time it takes the **COMP76** to react to a peak of the input signal with gain reduction. The attack time ranges from 20 microseconds to 800 microseconds with the fastest attack time corresponding to the full counterclockwise position of the knob.

RELEASE - Sets the time it takes the **COMP76** to return to its no gain reduction state. The release time ranges from 50 milliseconds to 1100 milliseconds with the fastest release time corresponding to the full counterclockwise position of the knob.

RATIO - Selects how hard the gain reduction is applied. Each setting corresponds to how many input decibels will correspond to 1 dB increase in the output level. For example, a ratio of 4:1 makes the output level increase by 1 dB when there is an increase of up to 4 decibels in the loudness of the input signal.

When the ALL setting is selected, a super compression is applied. The attack time gets delayed, so the perceived distortion on transients is significantly increased. Attack and release times, as well as bias levels, do change with this setting, depending on the input signal's shape and level.

Higher settings of the ratio control let the **COMP76** work more as a limiter than as a compressor, which means that limiting the input level to the bias amount is predominant respective to compressing the input signal dynamics.

STEREO - MID/SIDE - Switches between the two working modes of the **COMP76**. The normal mode is STEREO, where the unit processes the two stereo channels. When in MID/SIDE mode, the stereo signal is split into mid and side portions, where the mid portion is the center, mono part of the stereo image – while the side portion is the outside: the left and right sides of the stereo image. When **COMP76** is in MID/SIDE mode, these two components of the input signal are processed separately. The upper interface, as you can see below the meter, works on MID, while the lower one works on SIDE.

EQ495

EQ495 is a high fidelity equalizer modeled after one of the best German mixer's channel strip EQ. Its typical usage is as bus or mastering EQ, but it also works very well as an insert effect.

INPUT - Adjusts the level of the input signal.

HIGH PASS - Optionally sets a limit to the lower spectrum of frequencies.

LOW PASS - Optionally sets a limit to the higher spectrum of frequencies.

OUTPUT - Adjusts the level of the output signal. When the **EQ495** settings are cutting away much of the original signal, you can use this to bring the level up again to a normal amount.

BASS Hz - Selects the frequency to attenuate or emphasize.

BASS dB - Adjusts the amount of boost or reduction to apply to the selected bass frequency.

MID Hz - Selects the frequency to attenuate or emphasize.

MID dB - Adjusts the amount of boost or reduction to apply to the selected mid frequency.

MID BANDWIDTH - Selects the mid filter bandwidth from three ranges: narrow, middle and broad.

HIGH Hz - Selects the frequency to attenuate or emphasize.

HIGH dB - Adjusts the amount of boost or reduction to apply to the selected high frequency.

TAPEDESK

TAPEDESK is the modeling of a full analog signal flow using simulations of both professional tape recorder and a console bus.


The graphic interface has three areas: the console input channel on the left side, the tape simulator in the middle, and the console mix bus on the right side. The signal path begins at the input channel, travels through the tape machine, and then ends up at the mix channel. The next chapter includes a diagram and explains why we joined the console channels with a tape machine. But, in a few words, this is the setup necessary to have the most accurately modeled analog reproduction, with the same warm sound you have with real instruments.

You may notice that the console and the tape machine have independent power switches. This means that you can use each component by itself, if you prefer.

TAPEDESK DESIGN

When recording and mixing in the analog domain, the input signal enters into the preamp stage of the console channel, and then is sent to the tape recorder. When the tape is played back, the signal reaches the console again and then is summed in the analog mix bus.
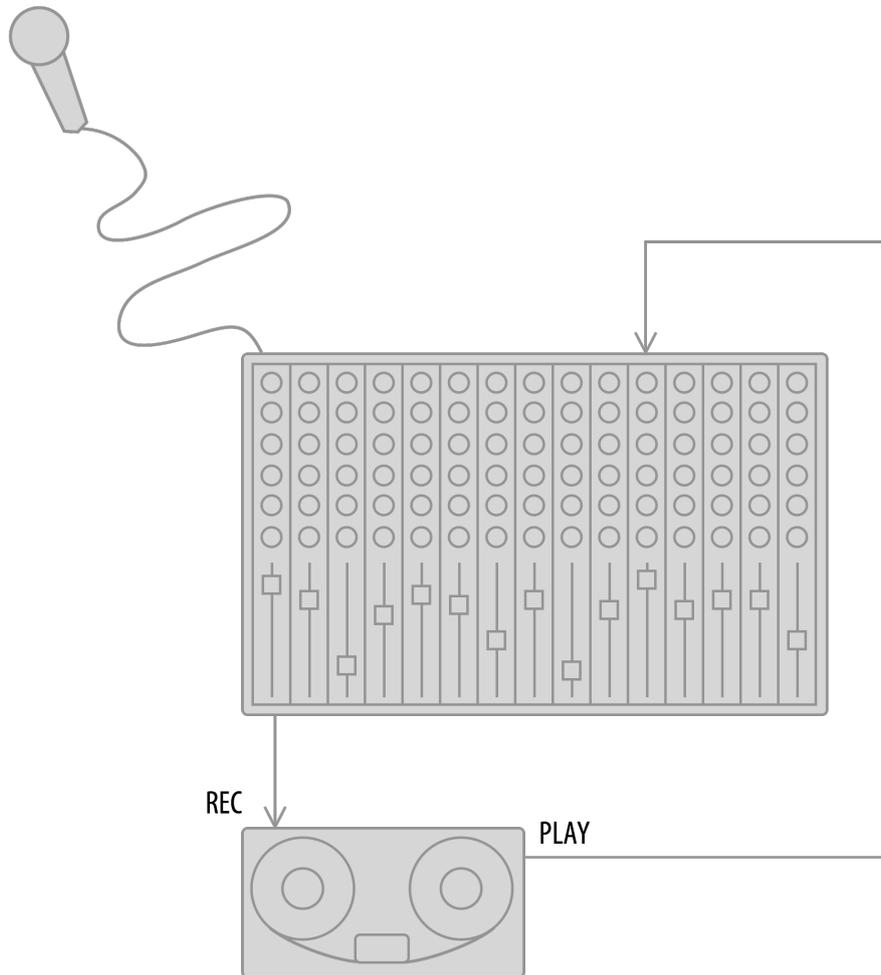
TAPEDESK simulates this complete signal flow in order to recreate the tonal characteristics of the original analog mixing process.

Since in the analog world a tape machine is always physically connected to a console, if you want to replicate the warm tones of an analog mixing workflow, you need to simulate the tape machine, the console, and the interactions between the two. This is what **TAPEDESK** is designed to do.

TAPEDESK uses the best of Overloud's DSP technology to emulate the complete signal path of three different legendary analog consoles: the ones used every day in the last 20 years of audio production to create thousands of hits by the world's finest studios.

The 2-inch 24 track tape machine emulation lets you control any working parameter, from tape speed to biasing, in order to recreate any desired classic analog tone.

Of course in the virtual world of plugins, the sound path described above can be reproduced using many separate plugins strung together as a chain of effects. **TAPEDESK** simplifies all these steps by letting you insert the plugin on your track and enjoying the experience of analog mixing.

TAPEDESK SOUND

The original purpose of the tape recorder was to provide a transparent solution to store and reproduce audio.

But at the time these early tape machines were developed, the latest technology still had specific limitations which greatly influenced the quality of the sound reproduced while playing it back from tape. Tape noise and saturation, modulation noise, harmonic distortion, phase shift and non-linear frequency response are just a few of the examples of how the recorded audio was quite far from the unchanged playback they intended.

For these reasons analog recording was superseded by digital technology.

But, the over-all tape-based recording and reproduction process, with all its intrinsic limitations, conferred a pleasing character to the resulting sound.

If we described the way the sound changed using a few simple words (even with some margin of subjectivity kept in account), we would talk about an increase in the amount and clarity of the harmonic content, as if those frequencies were brought into better focus.

From this perspective, what here in the digital age is generally taken as a quite limited sound processing, has turned out to be quite desirable. Digital audio has been described by many as being cold and wet, while analog processing is considered as sounding warm and musical.

So this is the kind of sound that you can expect from **TAPEDESK** processing. And its parameters do allow ranging from slight sound corrections and trimmings, all the way to dramatic saturation and tape noise. The initial default preset settings provide an accurate and detailed model of all the components of the **TAPE DESK** signal chain.

TAPEDESK IN THE DAILY WORK

One of the most powerful features of **TAPEDESK** is that it is very light on the underlying computer system, so you can feel free to assign it to a sub-mix bus as well as to individual tracks.

Use **TAPEDESK** whenever you need a clearer and warmer sound. Use it with single instruments, ensembles, drum sets and orchestras. And don't forget the mastering stage, where **TAPEDESK** may quickly become indispensable.

TAPEDESK CONTROLS AND PARAMETERS
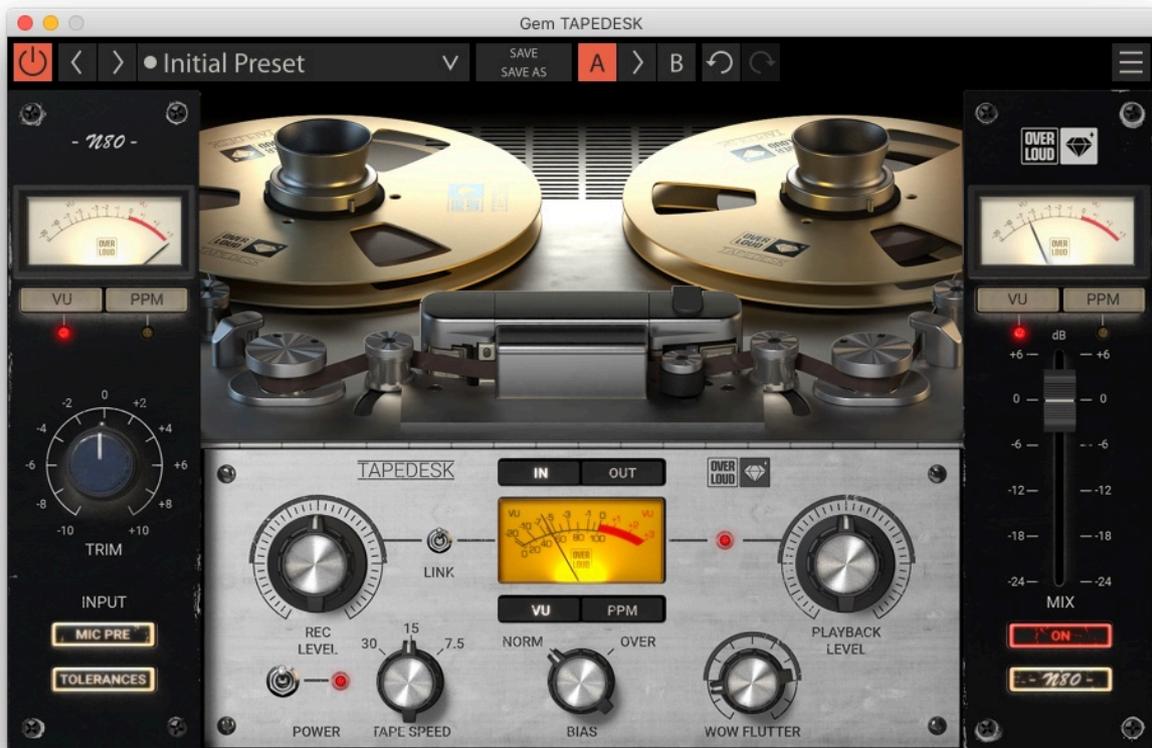
VU METERS - **TAPEDESK** has three Meters: two from the mixer and one in the tape machine. All three can be switched between VU or PPM modes.

PPM mode shows peaks because it works with instantaneous levels of the measured signal, so you would expect to see the needle moving a lot while following the waveform of the processed audio. PPM meters are used while adjusting the recording level of an analog machine, so that the audio won't saturate the input stage and let it introduce undesired distortion.

VU mode shows the perceived loudness of the signal, which is a complex but standard and well defined way to show signal levels, focusing more on a kind of "resulting average" level. This setting for a meter reflects more the perceived loudness of measured audio material.

You can use the tape machine VU meter to control how much you are saturating the tape. The mix VU meter lets you adjust the TAPEDESK output level to keep it close to the input level visible on the input VU meter.

Since both modes are useful in evaluating the characteristics of the processed audio, we support them both.

A last point is about how these digital meters are configured, they are calibrated to show a level of 0 VU when fed by a 1 KHz sine wave with a peak level of -14 dBFS.

INPUT & MIX - Input trims the signal level on the console bus input channel by also controlling how much the console's typical sound will take part in the audio processing. Mix adjusts the level of the console bus output channel and it works as a level control.

MIC PRE - Enables the mic-pre transformer emulation.

TOLERANCES - Adds a certain amount of drift to the console modeling, to emulate the original's discrete component tolerances. It's important to note that having **TAPEDESK** loaded in a project with

TOLERANCES enabled, that the internal amounts of drift will be preserved when saving and restoring the project.

CONSOLE MODEL - You can switch the console emulation between three available models: S4000, N80, and T88. The features are the same for all, but of course each console has its own characteristic timbre.

S4000 is a very famous mixing console, with a clean, wide and somewhat aggressive kind of character that made it the first choice for high gain rock, metal and pop music.

N80 is another very popular console, with a rich, warm sound which can give your mix some classic vibe.

T88 is a particularly sought-after console, with a thick, fat tone and a renowned personality due to its midrange push.

TAPE SPEED - Three speeds are available: 30, 15 and 7.5 inches per second. Low speed provides better low frequency response, but with some loss in the higher frequencies. Higher speeds response is more full range but with slightly less low end.

REC & PLAYBACK LEVEL - REC LEVEL adjusts the sound level before the virtual recording head, and includes tube circuitry, mic-pre transformer and saturation. PLAYBACK LEVEL adjusts the sound level after the virtual playback head, and includes the effects of tape speed, bias, wow & flutter, and noise (as well as, indirectly, mic-pre transformer modeling and saturation).

BIAS - In the original machine, the bias control was an adjustment which added an ultrasonic signal in order to reduce some limitations of the magnetic heads. This practice has been popularized over the years because adding bias, even at higher ranges, allowed many engineers to get a better sound. The tape machine modeling of **TAPEDESK** provides two settings for bias: NORM for nominal bias and OVER for a +3 dB overbias.

WOW & FLUTTER - These two words describe fluctuations and modulation in the playback speed and frequency response, caused by the mechanical parts of the tape itself. Even if those machines were designed to minimize wow and flutter, these effects have become part of what we refer to when we have to do with an analog tape. Adding more wow & flutter makes the sound rougher and worn.

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