



VINTAGE AMP ROOM USER'S GUIDE

TDM/RTAS
VST/AU/RTAS
POWERCORE VST/AU

TDM/RTAS v. 1.0.5, VST/AU v. 1.0.2, VST/AU PowerCore v. 1.0.2

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Support is handled by TC Electronic (world wide distributor):

Support inquiries: <http://www.tcsupport.tc>

For purchasing info, please visit the TC Electronic web shop at <http://www.tc-now.com>.

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Support

On the Amp Room website (www.softube.com) you will find answers to common questions (FAQ) and other topics that might interest you.

Support questions can be posted at <http://www.tcsupport.tc>, where TC's dedicated staff will help you.

E-mail addresses and updated information are always available on the Amp Room website.

Amp Room website: <http://www.softube.com>

Support is handled by TC Electronic (world wide distributor):

Support website: <http://www.tcsupport.tc>

System Requirements

*Please make sure that you have the latest Interlok drivers installed!
The latest version of Amp Room is always available from the Amp Room website.*

Pro Tools HD|Accel Version (TDM)

- Pro Tools | HD Accel with Pro Tools 7.0 or higher
- System must meet requirements for Pro Tools HD from Digidesign
- Mac OS X (10.4 or higher) or Windows XP (or higher)
- iLok USB key and Pace Interlok version 5.4.1 (or higher)

Vintage Amp Room uses less than 62% of an Accel processor.

PowerCore version (VST/AU)

- Any VST or AudioUnits compatible host application
- Windows XP or Mac OS X 10.4 (or higher)
- PowerCore software 2.2 (or higher) and compatible hardware
- Vintage Amp Room PowerCore is compatible with PowerCore PCI mkII, Express, Unplugged, Compact and FireWire. Vintage Amp Room PowerCore is **not** compatible with PowerCore Element and PCI.
- System must meet requirements of the host application and PowerCore software

Vintage Amp Room uses less than 76% of a PowerCore processor.

Native version (VST/AU/RTAS)

- Mac OS X (10.4 or higher), Windows XP or higher
- Mac: Intel or PowerPC processor (G3 or higher), Windows: PIII or higher
- 512 MB RAM
- Any VST, AudioUnits or RTAS compatible host application
- iLok USB key and Pace Interlok version 5.5.1

Introduction

Straightforward and simple, Vintage Amp Room emulates three great guitar amps in a complete studio set-up with speaker cabinets and fully flexible microphone positioning. It's easy to use for live performances and recordings, as well as for re-amping and last-minute tweaking.

Amp Room has none of the added gadgets or weird-sounding presets sometimes found in simulation software. Focusing on quality and accuracy, it simulates three amps, with sounds that are timeless and authentically raw. The goal is not to give you a pre-produced, ultimate guitar sound, but to provide you with the ultimate tool to create your own. Because after all, only you know exactly what sound you want.



Figure 1: A room of amps.

Product Philosophy

Everything about this product is authentic. The raw and dynamic sound is an absolute replica of what you would get if you had these amps set up in a real studio. What you see on the screen are photo-realistic 3D-renderings of the complete set-ups, and you get to move an actual mic around when deciding which position is best, from near field off-axis to far field and back, continuously, without preset positions.

The idea is that using Amp Room should be like working directly with these amplifiers set up in a real studio, with a microphone in front of the cabinet, connected to your DAW. And we kept it simple. Amp Room has no knobs with dubious or unintuitive functionality, and no added gadgets or ridiculously fake-sounding effects.

The sound of the amps has not been tampered with, because we don't give you a pre-produced, ultimate guitar sound. We simply provide you with the tools: three great, classic amplifiers, in digital form. Then it's up to you to add compressors, EQ's, reverb, or any other effects, to get the sound you want.

In short, you need the same skills to master this software as you need when dealing with a real studio set-up. You can get back to doing what you do best, because music

production is about using your ears, not your computer skills.

Simulation Technology

Here follows three geeky sections, so you might want to skip directly to the next chapter on page 9.

Once upon a time, when Softube was not yet born, three guys (the hacker, the guitar player and the professor) were involved in a research project at Linköping Institute of Technology in Sweden, aimed at finding a model that could simulate non-linearities in audio equipment. Non-linear systems were one of the expertise research areas at the university, although the audible effects of the models hadn't been carefully investigated yet. When they, in 2003, found a suitable model for audio non-linearities, it was evident that the ear can discriminate between certain details that are very hard to discover through purely mathematical methods, and also that the human ear couldn't care less about other properties that the mathematical methods focused on.

The birth of this technology also led to the birth of Softube, and since then, about a dozen of different research projects have been completed by Softube and Linköping Institute of Technology, with focus ranging from loudspeaker non-linearities and spring reverb simulations to novel poweramp designs and next generation compilers.

In short, the Amp Room plug-in consists of three core technologies:

- 1) A true physical circuit modeling, where every capacitor, resistor and component is described in detail. In order to simulate these circuits on a DSP platform, we developed a, now patented, simulation method.
- 2) A patented model for non-linearities that leads to a very dynamic and accurate valve modeling.
- 3) A model of the cabinet, room and microphone using resonance modeled IIR filters (yep, also patented), with extra care taken to assure numerical stability.

Supernormalize

The “*supernormalize*” feature (from the beginning the internal name of a slightly magic component of our model building toolbox), makes sure that the output signal from Amp Room always has a reasonable volume. From a user perspective, this means that the Amp Room never clips the signal (unwanted digital distortion). Also, the output volume is normalized, so even with low settings on the Volume knob in Amp Room, the output volume will be within a reasonable level and ready for digital recordings. Compare this to

the real amp, which easily can have a dynamic range of 100 dB.

From a technical perspective, this means that the signal path within Amp Room always has the highest dynamic range possible, and you won't lose any bits on the way.

Patents

This Softube product is protected by patent SE525332 and pending patents US2004-0258250, EP1492081 and JP2004-183976.

User Interface

Simplicity has been the goal when we developed this product; the amps and mics should work just as they do in the real studio. Unfortunately, moving a mouse cursor on a 17" LCD screen isn't exactly like grabbing the real mic stand in a cozy studio. Nevertheless, we have tried to imitate that feeling as far as it is possible, and if you have experience of working in real studios, you will notice that Amp Room handles and sounds the way you expect it to do.

Plug-In View

Panel View (Top Area)

In the Panel View you can alter the settings of the amp by clicking the knob and dragging the mouse up and down. Switches will be switched either by clicking on them, or by click-and-dragging the mouse up and down.

You can fine-adjust any setting by pressing the **Apple-key** (the **Control-key** in Windows) while adjusting the knob.

Knobs and switches can also be reset to their default value by clicking on the knob while pressing the **Alt-key**.

Room View (Bottom Area)

In the Room View you can do two things, select one of the other amps or change the mic position.

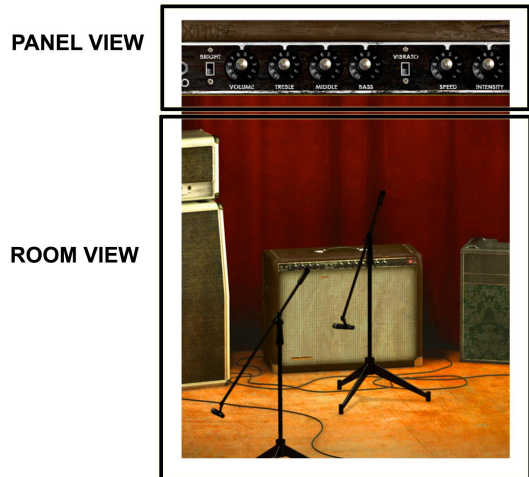


Figure 2: Two main views of the graphical user interface

Mic Position

When the mouse is located over the mic stand, the mouse pointer changes to an “up-down”-arrow. Click-and-drag the mouse up or down to change the position of the mic stand. The microphone moves along a predetermined path (see Figure 3), so you only need to move the mouse up or down, just as if you were changing a knob.



Figure 4: Click-and-drag up or down to change microphone position.

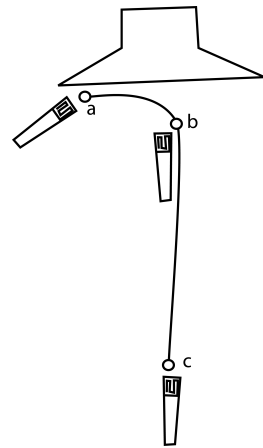


Figure 3: The mic moves along this path, from a close off-axis position (a) with some treble roll-off, to the close on-axis position (b) with the most un-colored sound, and finally the distant far-field position (c), with lots of room ambiance.

Amp Selection

You can change amp by clicking on the background and dragging the mouse to the left or right. The mouse pointer becomes a “left-right”-arrow when you are pointing at the background to indicate that it is possible to change amplifier.



Figure 5: Click on the background and drag left or right to change amplifier.

Clicking on the background while holding the Shift-key toggles between the amplifiers without any animations.

Controls Summary

Mouse

Up/Down: To change a parameter such as a knob or the position of the mic stand (Figure 6).

Left/Right: To change amplifier (Figure 7).

Click: To toggle switches or activate the “About”-box.

Mouse wheel: Use the mouse wheel to change knob parameters and mic stand position.



Figure 6: Up/Down cursor – changes knobs, switches and microphone position.

Keyboard Commands for Mac OS X

Use these key commands while changing a parameter.

Fine Adjust: Apple

Reset to Default: Alt

Toggle Amplifier: Shift (while clicking on the background)

Pro Tools only:

Automation Control Window: Control+Apple+Alt+click



Figure 7: Left/Right cursor – changes amplifier.

Keyboard Commands for Windows

Use these key commands while changing a parameter.

Fine Adjust: Control

Reset to Default: Alt

Toggle Amplifier: Shift (while clicking on the background)

Pro Tools only:

Automation Control Window: Control+Windows+Alt+click

In order to automate amp selection in Pro Tools, click on the background while holding down Control+Apple+Alt (Control+Windows+Alt on Windows).

Platform Specific Issues

TDM/RTAS on Pro Tools|HD

There are some specific issues to consider when using an RTAS plug-in in recording mode on a Pro Tools|HD system. First of all, an audio buffer latency is introduced in the RTAS version, but not in the TDM version. So for the best live guitar experience, it is preferred to use the TDM version with zero latency instead of RTAS.

Secondly, all RTAS plug-ins are automatically bypassed in recording mode, unless an TDM plug-in is inserted on the insert slot *before* the RTAS plug-in.

Enabling Vintage Amp Room RTAS in recording mode (Pro Tools 7 or higher):

- Insert a TDM plug-in (such as the “Trim” plug-in) on your track
- Insert Vintage Amp Room RTAS on an insert slot *after* the TDM plug-in

Please see your Pro Tools reference guide for more info.

Output Volumes on Different Platforms

The VST/AU versions of Vintage Amp Room has a theoretical maximum output volume of +3dB. The TDM/RTAS version, due to the fixed-point format of Pro Tools|HD, is limited to a maximum output of 0dB.

Format	Maximum output level
VST Native	+3 dB
AU Native	+3 dB
RTAS Native	0 dB
VST PowerCore	+3 dB
AU PowerCore	+3 dB
TDM	0 dB

White Amp

White is based on an all-round great amp, a classic that set the industry standard for classic, distorted rock'n'roll sounds. The genius is its simplicity. It's stripped down to the bare essentials – all tubes, only one channel, and no reverb or any other built-in effects.

Sound-wise, it goes from mad screaming preamp shred, to warm, speakers-about-to-break poweramp distortion. Perfect when you need a characteristically distorted edge and a powerful roar.

First Usage

Set all parameters in the middle (12 o'clock). Turn down the **Master Volume** a little bit (to 10 o'clock) and play your guitar while changing the **Pre Amp Volume**. The sound goes from almost Hi-Fi clean on low **Pre Amp Volume** settings, to a crunchy distortion (**Pre Amp Volume** in the middle), and finally to a high-gain setting with **Pre Amp Volume** on max. If you want an even meaner distortion, turn down the **Middle** and turn up the **Master Volume**.

Tip: The sound will change quite dramatically when you start moving the mic away from the cabinet, since certain frequencies will cancel each other out due to interference between the four speaker drivers.



Knobs



Figure 8: White amp panel view.

The functionality of the knobs on the front panel of the plug-in correspond exactly to the front panel of the real amplifier.

Presence: The presence is used to control the feedback loop and thus the amount of treble in the power amp. Turn it up to get a high frequency boost.

Bass, Middle, and Treble: These knobs are the tone control of the amplifier. This circuit is located after the preamp distortion and is used to shape the sound of the preamp distortion.

“Hey, the bass knob doesn’t do anything!” Well, yes it does. But it only affects the sound deep down in the frequencies, and chances are that your studio monitors doesn’t output these low frequencies the way a 4x12” cabinet does...

Master Volume: This knob controls the amount of power amplifier distortion. The power amp distortion is usually a little bit dirtier than the preamp distortion and gives a crunchier sound that sounds amazing for chords. Set the **Pre Amp Volume** to a low setting and turn up the **Master Volume** to the max to get that typical power amp distortion.

Pre Amp Volume: This knob controls the amount of preamplifier distortion, but since a high output from the preamplifier also makes the power stage distort, this also affects the power amplifier distortion. The preamp distortion is typically much “tighter” than the crunchy power amp distortion. To get a tight preamp distortion, you’ll have to turn down the **Master Volume** while maxing the **Pre Amp Volume**.

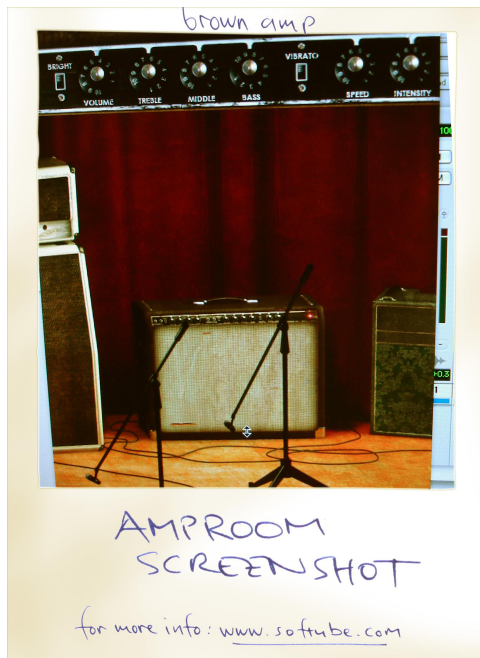
Brown Amp

Amp Room Brown is based on one of the most versatile classic amplifiers in music history. It's been used in all kinds of genres, and with all kind of instruments, thanks to a sound that is clean, crisp and clear, but also warm, thick and punchy.

Brown can produce anything from the clearest country-style sound for steel-guitars to a dirty, bluesy guitar sound. It works for both funky rhythms and mellow electric piano chords. It's got a notoriously warm sound with a massive bass and a shimmering treble. Versatility embodied, it can do more or less whatever you want it to do. Except high gain heavy metal. And baking pizzas.

First Usage

Set all knobs in the middle (at 12 o'clock). Set the microphone in a far field position (click the mic and drag the mouse downwards). Turn on the **Vibrato** and **Bright** switches. You should hear a bluesy sound with lots of room ambiance and a nice transition between distortion and a clean sound. Change the **Volume** to get more or less distortion and move the microphone closer to the cabinet to get a "tighter" sound with more bass frequencies.



Knobs



Figure 9: Brown amp panel view.

The functionality of the knobs on the front panel of the plug-in corresponds to the front panel of the real amplifier, except the spring reverb, which hasn't been included in this plug-in. We have also added a “Vibrato” switch, which on the real amplifier is a foot switch. There is also a difference when all the tone controls are set at 0, see “Treble, Middle, and Bass” below.

Volume: This amplifier doesn't have a Master Volume control, so the **Volume** knob controls both the preamplifier and power amplifier distortion.

Bright: Turn on this switch to get a high frequency boost. Works only at low to moderate **Volume** settings.

Treble, Middle, and Bass: These knobs are the tone control of the amplifier, but they also control the amount of distortion. If you, for example, have too much distortion in the bass frequencies, try turning down the **Bass** knob. (Electrically speaking, the tone controls are located *before* the preamp distortion.)

The tone controls behave exactly like the real thing, except when all the controls are set fully counter clock-wise. On the real amp, the amplifier would have become silent, as if you turned down the volume. A lot of reasons^{*} made us exclude this feature, so now when you turn the **Treble**, **Middle** and **Bass** knobs fully counter clock-wise, that actually corresponds to the knobs being set to a little bit over nothing on the real amp.

Vibrato, Speed and Intensity: Turn on the vibrato (which is in fact a tremolo) by turning on the **Vibrato** switch. Use **Speed** to control the speed of the tremolo, and **Intensity** to control the amount of the tremolo effect.

^{*}The reasons are mathematical. Physical modeling is a pretty tricky thing, and one of the most difficult parts is when a circuit becomes almost bypassed by a short circuit, and this is what happens when you turn down the EQ knobs to zero on the real amp. In the computer world, this will lead to numbers that are smaller than what the computer can represent, and this leads to instability in the filters. So we decided to let the EQ knobs be almost zero instead of completely zero in order to avoid these problems. Of course we could have worked around this, but we saw no point in interfering with an otherwise good simulation, and besides, is that really a very useful feature?

Green Amp

Green is packed with character and produces a pleasant guitar sound with warm yet intense poweramp distortion. Its edginess makes it shine through in mixes, without drowning out other instruments.

Green is based on a famous brit-pop amplifier from the middle of the 60's. It has three different channels ("Vib-Trem", "Normal" and "Brilliant") with two inputs each, and normally a guitar player will connect the guitar to the "Vib-Trem" input and patch the signal to the other two channels. We have simulated the amplifier exactly this way; the guitar connected to the "Vib-Trem" input and patched to the other two channels.

To complicate things further, this amp doesn't have a normal tone stack (EQ) but a single tone control which attenuates high frequencies when turned clock-wise (different to what one would expect of a tone control). The previous owner of the original amp was so kind as to carve out "HI" and "LO" in the metal panel so that he would remember this. We have of course included this feature in Amp Room.



First Usage

Turn on the Vib-Trem effect (**Vib-Trem Off-On**) and select the tremolo effect (**Vib-Trem Switch** pointing at "Trem"). Set the **Vib-Trem Volume** knob in the middle position and all other knobs in the minimum position. Now adjust the **Brilliant Volume** to get a good balance between the tremolo effect and a clean sound.

Knobs

The functionality of the knobs on the front panel of the plug-in corresponds exactly to the front panel of the real amplifier, except that we have added the foot switch as a “Vib-Trem Off-On” switch.

Vib-Trem Off-On: Turn on the vibrato or tremolo effect by moving this switch clock-wise.

Vib-Trem Speed: Three way switch that sets the speed of the vibrato or tremolo effect.

Vib-Trem Switch: Select between a vibrato and a tremolo effect. Unlike the makers of the Brown amp, the guys who built this amp actually knew the difference between a tremolo effect (amplitude modulation of a signal) and a vibrato effect (frequency modulation of a signal). Although this vibrato effect doesn't sound anything like a real-world vibrato (opera-singer-style vibrato), it's a lovely effect that gives the sound that special touch.



Figure 10: Green amp panel view.

Vib-Trem Volume: Volume control of the Vib-Trem channel. This channel is basically the only one of the three channels that has any preamp distortion worth talking of.

Normal Volume: Volume control of the Normal channel. Except for the fuzz-like poweramp distortion on higher volume settings, this channel is very clean and doesn't change the guitar sound so much.

Brilliant Volume: Volume control of the Brilliant channel, which has a much brighter sound than the Normal channel.

Tip: Use the Vib-Trem Volume to get the distortion you want, and then use the Normal and Brilliant Volume as a bass and treble control. If you want a more fuzz-like distortion, use only the Normal and Brilliant channel.

Tone: The Tone knob cuts high frequencies when it's turned clock wise.

Pitfalls and Common Mistakes (Input Impedance is Important!)

It is very important to have a line box or a preamp with an input that is designed for guitar (or bass) before the signal from your guitar enters your computer.

More technically speaking: the signal from your guitar must go directly into a high impedance input (1 megohm). Line inputs on mixers or sound cards are usually low impedance inputs (around 10 kilohms) which in most cases remove the high frequencies from your guitar, which in turn makes your guitar sound dull and lifeless.

All of the real amplifiers we have simulated have a 1 megohm input impedance, and for the plug-in to re-create the sound correctly, the guitar input to your system must have a 1 megohm input impedance!

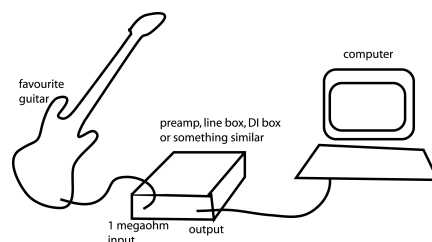


Figure 11: Using a line box with 1 megohm input is one way to correctly connect your guitar. ("Guitar? That looks like a Jazz Bass!")

Tip: If you don't have a line box or preamp, you could always check your stomp boxes. If the stomp box doesn't have the "true bypass" feature, chances are that it will work just like a high impedance preamp when it's in bypass.

If you want to check the impedance in the manual of your preamp, go to the "Technical Specifications" section and look for "Input Impedance". In order to get the most accurate guitar sound and amplifier simulation, the input impedance should be 1 megohm (1 M Ω) (have we repeated this enough times now?). A value ranging between 500 kilohms and 4 megohms should also be OK.

Lots of Noise

Due to the high-gain nature of guitar amplifiers, even the smallest input noise can (and will) be amplified a thousand times and sometimes become very disturbing. It is even more important to have a good signal when you're using an amplifier simulation than if you, for instance, are recording a crystal-clear vocal track.

A rule of thumb is that the input stage should not have more noise than your guitar,

although this will most probably rule out most input stages and A/D converters.

Input Levels Make the Difference!

If you experience the amplifier distorting too much or too little, you should experiment by attenuating or boosting the guitar signal before the plug-in, for example by using the “Volume” plug-in that usually come with most plug-in host softwares. For most settings, try to have as high guitar signal as possible without causing unwanted digital saturation.

If you experience that the amplifier distorts more than you would expect, use a “Volume” plug-in before Vintage Amp Room to decrease the level of the guitar signal. Don't be afraid to have peak levels as low as -24 – -12 dBFS. Experiment!

For heavy distorted sounds, clipping (digital saturation) of the input signal isn't a big problem. A saturated input signal has more power (RMS) than a clean signal with the same amplitude, which will make the power amp simulation distort even more.

Buying Recommendations

If you like the sound from Amp Room and would like to get that sound using the real deal (let's face it, a real vintage amp is always sexier than a plug-in), here are some buying recommendations.

White

If you like the sound of the White amp, we recommend you to buy a Marshall JCM800 2203 with a 1960A 4x12" cabinet. Nothing beats the roar from a 100W valve amp.

Brown

Likewise, if Brown is your favorite, we strongly recommend a 1966 Fender Twin Reverb combo with a 2x12" cabinet.

Green

Nothing beats the real stuff, and that quirky vibrato calls for a Vox AC30/6 Treble from the middle of the 60's, perhaps suited with a pair of new Celestion Blue drivers.

Room

And finally, if you like the sound of the room in which the cabinets we're measured, you better call Soulmine Studios in Linköping and book some studio hours. Just tell them to set things up just as they did for the guys from Softube, and you'll be fine from there...

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Vintage Amp Room was made by Oscar Öberg - concept, preamp modeling, sound- and DSP-programming. Niklas Odelholm - cabinet and microphone modeling and sound design. Arvid Rosén - power amp modeling and sound programming. Torsten Gatu - interface and DSP programming. Per Connman - amp selection and modeling. Örjan – amp selection. Tommy - amp selection and modification. Anders - graphics programming. Ulf - graphics programming and 3D rendering. Micko - 3D rendering.

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