

VERMONA

retroverb lancet



Owner's Manual

Introduction

Today's digital effects and plug-ins can create almost perfect room simulations. However, when it comes to characteristic and charismatic reverb, analogue effect-processors are yet to beat. The reverberating sound of a spring is so lively and unique that its sound is almost impossible to recreate in the digital domain. In addition to this, Retroverb Lancet is not just a spring reverberation system – it is an analogue multi-effects-processor. It offers overdrive, filtering, VCA, envelope and LFO to manipulate the spring sound and create different sounds like Auto-Wah, Tremolo, Distortion, Delay, Gater and of course Reverb. It is far from perfection but sonically unmatched.

Enjoy your Retroverb Lancet!

The VERMONA team

Important Safety Information

1. Read these instructions.
2. Keep these instructions. Always include these instructions when passing the product on to third parties.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Only clean the product when it is not connected to the mains power supply. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use

caution when moving the cart/apparatus combination to avoid injury from tip-over.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, when the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. To completely disconnect this apparatus from the AC mains, disconnect the power supply cord plug from the AC receptacle.
16. **WARNING:** To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
17. Do not expose this equipment to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the equipment.
18. The mains plug of the power supply cord shall remain readily accessible.

Installation

- Ensure that the room in which you use this product is wired in accordance with the local electrical code and checked by a qualified inspector.
- Only use this product indoors.
- Do not install the product in hot, humid, or excessively dusty locations, in direct sunlight or in locations where it is exposed to externally generated vibrations.
- Do not place burning objects (e.g. candles) on top of or near the product.
- If condensation has formed on the product, e.g. because it was moved from a cold environment to a warm one, allow the product to acclimatize to room temperature before using it.
- Do not overload wall outlets and extension cables as this may result in fire and electric shock.

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Getting Started

To ensure top quality we carefully checked Retroverb Lancel before packaging. Nevertheless, the unit could have been damaged during transportation. Therefore, we ask you to take a serious look at the unit when unpacking it. Do not hesitate to contact us, should there be anything unusual on Retroverb Lancel itself or its packaging.

You should find the following items in the box:

- 1 Retroverb Lancel unit
- 1 AC adapter (12V / at least 830mA)
- this manual

Connections and Powering

If you came here without any problems, you can finally start up your Retroverb Lancel:

1. Connect the provided power supply unit to the 12VAC jack on Retroverb Lancel

ATTENTION Only use the included power supply! You may already own a suitable-looking power supply that offers the same connector. **However, Retroverb Lancel requires an AC adapter, not DC!** Using an unsuitable power supply may cause damage to the unit.

2. Connect the INPUT jack of Retroverb Lancel to an appropriate audio source such as a drum-computer, a groove-box, a synthesizer, a guitar or CD-player.
3. Connect the OUTPUT jack of Retroverb Lancel to an appropriate audio input of a mixing console, an audio-interface or an amplifier.
4. Start Retroverb Lancel by switching on OVERKILL on the unit's rear. The corresponding green LED will be lit.
5. Congratulations, Retroverb Lancel has been started.

Components and Controls

Retroverb Lancet is an analogue effects processor. Beside its main sound shaping element – the spring reverb – it offers powerful functions such as multimode-filtering, overdrive, VCA, LFO and an envelope generator. This section will take a closer look to the different sections of Retroverb Lancet and their correspondent control elements.

Input Section (IN)

This section controls the input sensitivity and a possible analogue overdrive of the circuit. The amount of possible distortion in Retroverb Lancet ranges from light saturation to hefty distortion.

The available control elements are:



Picture 1: Input Section

GAIN

Use this control to set the input sensitivity. A corresponding LED will indicate overloads. Set the control in a way that the LED only lights up during signal peaks. Retroverb Lancet has a large GAIN range that allows line- as well as instrument-level-signals to be connected and adequately preamplified. Do not worry if the clip-LED already lights up in the gain control's first half when using line-level-signals. Using higher GAIN settings will allow you to distort the input, which will result in a noticeable increase of volume.

Retroverb Lancet's input was designed to handle high-impedance signals of instrument pickups, too. There is no need to use a DI-box here. Instead, you may connect your guitar, bass or clavinet directly.

ATTENTION Using too little preamplification will decrease the signal to noise ratio. In addition, trigger sensitivity (see "Envelope Generator (EG)", page 17) as well as the envelope-follower directly depend on the input level setting. Checking for best possible levels is essential for best results from your Retroverb Lancet.

DRIVE

This control adjusts the amount of distortion applied to the input signal. Note that DRIVE will take effect on the processed as well as on the dry signal. With MIX turned fully counterclockwise, the signal can still be distorted if needed. The distortion can be disabled by switching BYPASS on. In contrary to distortion achieved with the GAIN control, DRIVE will not significantly raise the level when increasing the amount of drive.

Output Section (OUT)

The output section offers the following control elements:



Picture 2: Output Section

MIX

This control adjusts the ratio between direct and processed signal. MIX changes its function depending on the selected routing of the spring within the signal chain (see "The Spring Reverb", page 9).

With SPRING set to OFF or PRE, MIX blends between the input section including overdrive (left) and the signal processed with reverb, filter and VCA (right).

With SPRING switched to POST, MIX blends between the reverberated signal (left) and the signal processed by filter and VCA (right).

VOLUME

This control sets the output level of Retroverb Lancet.

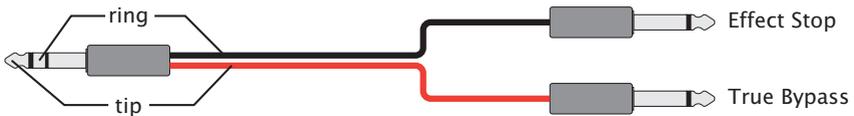
BYPASS

Set this switch to the lower position (the red LED lights up) to disable all sections of Retroverb Lancet. The unit offers a true bypass meaning that the complete signal path including the input preamplification stage is disabled. The input signal is passed directly to the output after the input stage. With the switch set to the upper position, all sections are active.

BYPASS–Input

This TRS–jack allows connecting a single– or double footswitch to remote–control the bypass function. Using a double footswitch allows you to either switch the unit to bypass or to disable the spring reverb section only.

To use the double footswitch function, the footswitch needs to be equipped with a TRS–jack. The spring bypass uses the ring contact, while the total bypass uses the tip contact. Connecting a TS–jack allows switching the global bypass function only.



Picture 3: Connecting a Bypass Switch

NOTE

Since this function is a switch, it does not matter whether you use a footswitch configured as being normally closed or normally open. However, if the footswitch has a corresponding LED, normally open configured switches will work as expected while normally closed configurations will display the status reversed.

The Spring Reverb

The spring reverberation system creates an artificial reverb sound using electro-mechanical techniques. Its sound is metallic and differs significantly from today's modern, digital solutions. It may sound artificial but owns a lot of character. Spring reverb is a preferred choice of guitarists and organ keyboarders until today but is also often found in electronic and dub productions.



TONE

TONE controls the sound character of the reverberation effect. The control is designed in a way that the bass and treble content is adjusted thru a single potentiometer. Turning TONE counterclockwise from center will enhance the low frequencies with higher frequencies being attenuated. Turning clockwise from center will work vice versa.

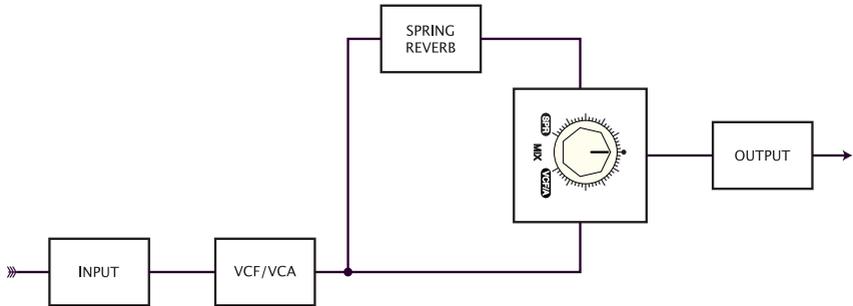
TONE is efficient when using low frequency intense source signals. The high energetic bass content can stimulate the spring heavily leading to smeared results of the effect. Here, attenuation of the low frequency content thru TONE will lead to a more focused sound image.

Picture 4: Spring Section

SPRING

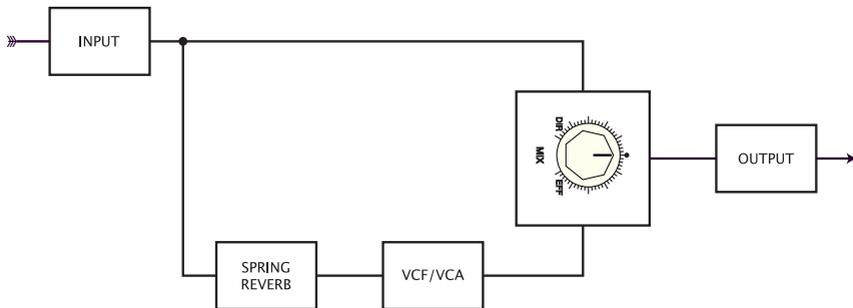
Using the SPRING switch, the spring can be placed at two different positions of the signal path.

With the switch set to POST, the spring is placed after the filter and the VCA. Here, the signal is processed by the filter and the VCA before it reaches the reverberation stage. This signal will then reach the output stage in parallel to the filter/VCA section. The MIX control allows balancing the signal between the filter/VCA signal and the reverb output.



Picture 5: Spring POST Mode

With the switch set to PRE, the spring is placed before the filter and the VCA. Here, the source signal will be processed by the reverb section first before it reaches the filter/VCA stages. This mode allows shaping of the reverb tail. In contrary to common spring reverb units, this configuration has control over the decay time through the VCA envelope.



Picture 6: Spring PRE Mode

CRASH

It was and still is popular amongst guitarists to kick their amp and rattle the built in spring reverb this way. Because the spring is installed inside a shielding metal tray, the kick causes the spring to hit the tray's walls. This results in a distinctive crash sound.

With Retroverb Lancet, there's no need to kick your gear. Simply press the CRASH button with the same result. But, use CRASH with care. The effect is exceptionally loud and can may lead to overloads of your A/D-converters.

NOTE

Slight knocking on Retroverb Lancet's enclosure or vibrations nearby may also stimulate the spring, but unlike the intense CRASH function. If this is undesirable, place Retroverb Lancet on a stable base.

CRASH-Input

This jack allows connecting a gate signal with 5 volts (minimum) and positive slope. These signals are widely available from analogue sequencers, modular synthesizer systems as well as from LFOs using square waveforms. Use this input to trigger the CRASH function at exact rhythmical positions.

Filter (VCF)

Retroverb Lancet's multimode filter allows shaping the reverberated signal. However, the unit may also be used as a fully functional filter box without the reverb effect. The filter can be configured as low pass, high pass and band pass. Each type will suppress certain frequencies that will result in specific sound coloring. Let us start with a short explanation of the available filter types:

Low pass

The low pass will only let the low frequencies of the input signal pass. CUTOFF sets the frequency where the attenuation starts. The lower CUTOFF is set, the more high frequencies will be suppressed, resulting in a sound more muffled.

A slowly opening low pass filter is a characteristic element of countless House- and Dance-tracks. Its rising effect will accentuate intros, breaks and build-ups.

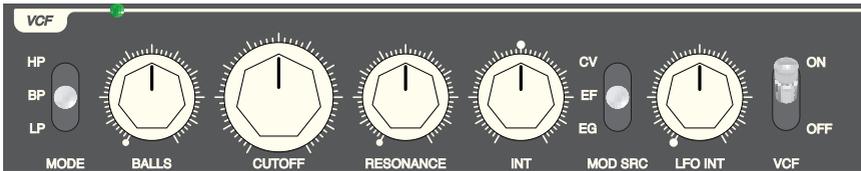
High pass

The high pass filter is the exact opposite of the low pass filter. It will only let high frequencies of the input signal pass. CUTOFF sets the frequency where the attenuation starts. The higher CUTOFF is set, the more low frequencies will be suppressed and the sound will lose bass. The high pass filter is well suited for mash-up-mixing. It allows removing/attenuating bass drums and basslines from a track that is to be mixed with a second track. Ideally, the second track is run through a separate low pass filter at the same time.

Band pass

The band pass filter is a combination of a low pass- and high pass filter. It will only let a certain frequency band of the input signal pass. CUTOFF sets the center frequency for that frequency band. By moving CUTOFF, you set the pass band for the mid frequencies. The band pass offers a slope less steep than that of the other filter types. Its efficiency is a little less distinctive.

The filter section offers the following control elements:



Picture 7: Filter Section

MODE

MODE selects the filter type.

LP = Low pass	Low pass filter with a slope of 24dB per octave
BP = Band pass	Band pass filter with a slope of 12dB per octave
HP = High pass	High pass filter with a slope of 24dB per octave

BALLS

BALLS will emphasize low and higher frequencies in a predefined ratio. The resulting signal will cut through the mix with increased punch and bass amount. The high frequency enhancement will be best accentuated with higher RESONANCE settings.

ATTENTION The amplification using BALLS will not necessarily be perceived as increased level. However, the lower frequencies are emphasized. This can lead to clipping of sensitive inputs in audio-interfaces. Make sure, you match Retroverb Lancet's output level or the input sensitivity (Gain) or your audio-interface to avoid distortion.

CUTOFF

This control manually sets the filter's cutoff-frequency. This is the frequency from which the audio signal is manipulated (filtered) with the filter's slope. In low pass mode (MODE LP) the filter is fully opened with CUTOFF turned fully clockwise, closed when turned fully counterclockwise. In high pass mode (MODE HP), the principle of operation works oppositely. When using the filter in band pass mode (MODE BP), there is no fully opened filter. Here, specific frequencies are always suppressed.

CUTOFF has a larger control knob intentionally. It is one of the most important functions of Retroverb Lancet and turning this knob should be fun!

RESONANCE

Resonance is a feedback circuit within the filter that emphasizes the CUTOFF frequency. Lower values will slightly color the sound, higher values more significantly. With higher values, the filter will also start to self-oscillate, generating a sine wave at the CUTOFF frequency.

NOTE Resonance in Retroverb Lancet will easily reach self-oscillation and produce a constant sine-wave-like tone. It is recommended, not to set the VCA to ON but preferably use it through the envelope-generator (EG) or the envelope-follower (EF).

Self-oscillation of the filter will reach a high volume within the last third of the control. Typically, you would avoid these levels by not turning up the control that far. The prominent resonance frequency will also be audible at lower settings. However, the maximum level-settings are useful when mixing the original with a little portion of the filtered signal

through the MIX control. Here, the distinctive self-oscillation will also be heard at tiny mix amounts.

INT

The INT control sets the intensity of the CUTOFF frequency being controlled by a modulation source. The MOD SRC switch (Modulation Source) selects this source. The INT control works bipolar. Turning clockwise from the center position results in upwards CUTOFF modulation while turning left from center results in downwards modulation. In its center position, CUTOFF modulation is deactivated.

MOD SRC

The MOD SRC switch selects the modulation source for the CUTOFF frequency. There are three possible sources:

EG	Envelope Generator – see section 5.2.
CV	external signal connected to the pedal/CV-input
EF	Envelope Follower, a control signal deriving from the level at the audio input

NOTE

Combing an envelope-follower with rhythmic audio-signals such as drum loops is quite useful. Another useful application is using a guitar with the Retroverb Lancet set to band pass filtering with audible resonance. An envelope-follower will create a sound that resembles of the typical Autowah-effect.

LFO INT

This control sets the LFO's modulation intensity towards the CUTOFF-frequency. The filter's frequency will be modulated periodically according to the selected LFO's waveform and its speed.

VCF

This switch will enable or disable the complete filter section, leaving the setting of the in- and output section, the spring, the VCA and the modulations untouched.

Amplifier (VCA)

A voltage-controlled-amplifier (VCA) controls Retroverb Lancet's output. It offers the following control elements:



Picture 8: VCA Section

LFO INT

This control sets the LFO's modulation intensity towards the output volume. The result is a tremolo-effect.

MOD SRC

This switch sets the modulation source for the VCA. There are three positions:

CV	external signal connected to the pedal/CV-input
EF	Envelope Follower, a control signal deriving from the level at the input
EG	Envelope Generator – see "Envelope Generator (EG)", page 17

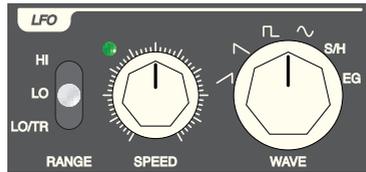
MOD

This switch enables or disables the modulation via the selected modulation source. If it is set to OFF the VCA is opened permanently.

Modulation

Modulation Generator (LFO)

The LFO (Low Frequency Oscillator) is an oscillator specialized on slow frequencies that are used to create cyclic repeating modulations. Its frequency is variable, ranging from 0.05Hz to 300Hz, being divided in two switchable ranges. The LFO allows modulating the VCF and/or VCA, each with individually adjustable intensity. The available control elements are:



Picture 9: LFO Section

RANGE

The range switch selects the LFO's frequency range:

LO/TR	low frequencies (0.05Hz–25Hz) with retrigger. Incoming trigger-signals will restart the waveform (depending on the TRIG SRC setting in the EG section). Using suited trigger settings allow synchronizing the LFO to an external tempo. It may also act as a simple envelope using rhythmical trigger signals with a suited waveform selected.
LO	lower frequency range (0.05Hz–25 Hz), free oscillating LFO.
HI	higher frequency range (1Hz–300Hz), free oscillating LFO.

SPEED

This control sets the LFO speed (frequency). The available range depends on the RANGE-setting.

WAVE

This switch selects the LFO waveform. Choices are ascending saw tooth, descending saw tooth, rectangle, sine, Sample & Hold (random).

A distinctive feature is the waveform EG. It derives from the envelope modulator. Use ATTACK and DECAY to shape the waveform freely. With ATTACK set to zero and DECAY at a higher value, you will receive a

descending saw tooth. A triangle results from identically raised ATTACK and DECAY values. Since the envelope controls use logarithmic scaling, the resulting EG waveforms will differ slightly from the linear preset LFO waveforms.

Envelope Generator (EG)

Retroverb Lancet's envelope generator (EG) generates a variety of envelope shapes depending on the trigger source used. It will work as an Attack/Decay envelope when using triggers from the audio input or the TRIGGER IN. It will work in three phases (Attack, Sustain, Release) when using gate input signals at TRIGGER IN. The sustain period cannot be adjusted in Retroverb Lancet. It is dependent on the duration of the incoming gate signal. The release phase will follow once the gate signal has been ended. To select between audio- or gate-trigger, use the TRG SRC switch. The following parameters are available for contour shaping:

ATTACK

adjusts the rising time from 0ms to 10s (maximum level).

DECAY/RELEASE

adjusts the decay time for the sound between 0ms to 15s.

SENSE

SENSE controls the sensitivity for the trigger source. SENSE will be inactive with GATE being selected as trigger source.

TRIG SRC

TRIG SRC sets the trigger source:

INPUT	the audio input
GATE	a 5 volts gate voltage applied to the TRIGGER IN input.
AUDIO	audio signal fed into TRIGGER IN.

Envelope Follower (EF)

The envelope-follower converts the amplitude characteristic of the audio input signal into a control voltage. Most audio signals do not show clear levels and -jumps as pure control voltages. This results in the envelope-follower being less effective compared to a regular envelope. In most cases, it is therefore necessary to increase the VCF modulation intensity to achieve a comparable effect depth.

Pedal/CV-Input

This input allows connecting a suited pedal or an analogue control voltage to control the CUTOFF frequency. MOD SRC has to be switched to CV when using this input.

PEDAL

The PEDAL input allows connecting expression pedals with a TS-connector. In addition, volume pedals with in- and output can be connected using Y-cables. Use an expression pedal with a resistance of 100 k Ω to ensure smooth control scaling.



Picture 10: Connecting a Volume Pedal

CV

Analogue control voltages ranging from 0-5 volts can be connected to the PEDAL/CV input. This allows Retroverb Lancet to be controlled from external CV-sources such as step-sequencers, key-CV of analogue synthesizers, LFOs with special functions as well as Theremin antennas.

Further Control Elements

OVERKILL

Connects Retroverb Lancet to the AC-power-supply-unit. A green LED shows an active powered unit.

ATTENTION The OVERKILL switch is no power switch. It simply removes the connection to the power supply. Please do always disconnect the PSU from the socket when not using the unit for a longer period!

REV. LEVEL

This controller allows to adjust the reverb level. Turning it counterclockwise will decrease the reverb signal while turning clockwise amplifies the signal.

The reverb level is already set to a useful value and readjusting won't be necessary in most cases.

Connectors

Find a short description of the connectors on Retroverb Lancet's rear panel:

12 VAC

Connect the supplied AC power supply here.

INPUT

Input jack for the audio signal.

PEDAL/CV

Allows connecting a CV-source or a pedal to control the CUTOFF-frequency.

CRASH

Allows connecting a gate signal to trigger the CRASH function.

TRIGGER IN

Allows connecting audio or gate signals to trigger the envelope-generator.

BYPASS

Allows connecting a single or double BYPASS footswitch pedal.

OUTPUT

Carries the output signal of Retroverb Lancet to be connected to a mixing console, an audio-interface or an amplifier.

Technical Data

Input	
max. Input Level	-32dBu
Impedance	1MΩ
Output	
max. Input Level	20dBu
Impedance	600Ω
Audio Trigger	
max. Input Level	-32dBu
Impedance	1MΩ
GATE	
min. trigger voltage	+4V
CV Input	
voltage	+/-10V
Signal-to-Noise Ratio	
Direct	>80dB
Effect (VCF open, no reverb)	>75dB
Spring Reverb	
Number of Springs	3
Reverb time	2,75s - 4s
Controller	Tone
Switch	Spring (<i>OFF, Pre, Post</i>)
Momentary Switch	Crash
Filter	
Modes	24dB Lowpass, 24dB Highpass, 12db Bandpass
Modulation Sources	envelope generator, envelope follower, CV
Controllers	Balls, Cutoff, Resonance, INT (Modulation Intensity), LFO Intensity
Switches	Mode, Modulation Source, VCF On/Off
VCA	
Controller	LFO Intensity

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Switches	Modulations Source (<i>Envelope Generator</i> , <i>Envelope Follower</i>) Modulation ON/OFF
LFO	
Frequency Range	0,05..300Hz
Waveforms	saw up, saw down, square, sine, sample&hold, EG
Controller	Speed
Switch	Range: Lo/Trigger, Lo, Hi
Envelope Generator	
Attack	1ms..10s
Decay/Release	1ms..15s
Controllers	Attack, Decay/Release, Trigger Sense
Switches	Trigger Source (<i>Input</i> , <i>GATE</i> , <i>Audiotrigger</i>)
Input- /Output section	
Controllers	Gain, Drive, Mix, Volume
Switch	Bypass
Product Properties	
Connectors	Input, Pedal/CV, Crash, Trigger In, Bypass, Output, 12VAC
Weight	0,75kg

Declaration of Conformity

We declare under our sole responsibility that this product is in conformity with the following standards or standardization documents in attention of operation conditions and installation arrangements acc. to operating manual:

EN61000-3-2, EN 61000-3-3, EN 55013, EN 55020, EN 60065 according to the provisions of the regulations 2004/108/EG and 2006/95/EG.



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