# BlueLab infra

plugin version: 6.3.0
manual version: 2.0

www.bluelab-plugs.com

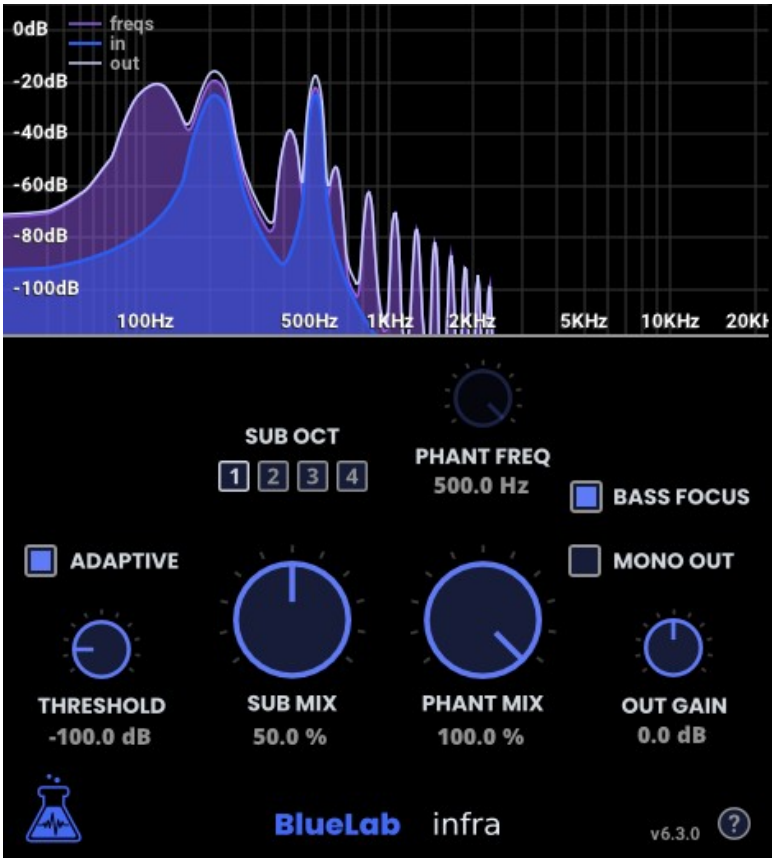
# DESCRIPTION

**Infra** is a powerful bass enhancer plugin. It uses the phantom fundamental psychoacoustic phenomenon, and also adds sub fundamental frequencies, to increase the bass perception.

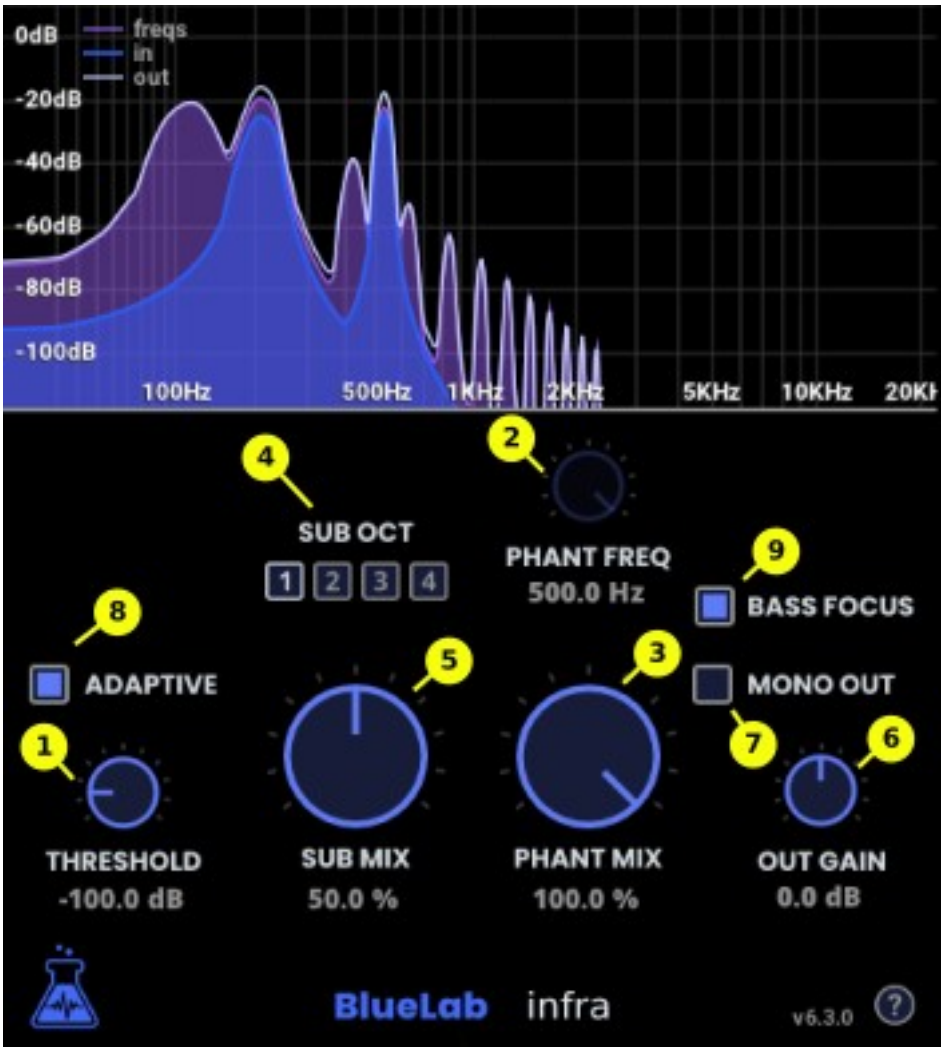
**Phantom fundamental**
“Some sounds are heard to have a pitch below any frequency actually present in the sound. Certain spectra suggest a fundamental frequency that doesn’t exist in reality”.

Phantom fundamental, or missing fundamental, is a psychoacoustic phenomenon that makes hear a frequency that is not present in a sound, by using a particular arrangement of harmonics.

The **Infra** plugin adds such harmonics to a sound and makes hear a bass sound stronger than it is in reality.



# USAGE




***PARAMETERS***

The **THRESHOLD (1)** parameter is the threshold for the detection of the fundamental of the original bass sound. It can be modified if for example there are other less strong sounds in addition to the original bass sound, or if there is a strong hiss on the track.
Most of the time the default value of -100dB is appropriate.

The **PHANT. FREQ (2)** and **PHANT. MIX (3)** parameters are used to setup the phantom fundamental effect.

The **PHANT. FREQ (2)** parameter sets the minimum value of the phantom fundamental. The default value of 20.0Hz is appropriate most of the time.

The **PHANT. MIX (3)** parameter sets the strength of the phantom fundamental effect. From 0% to totally ignore the effect, to 100% to apply it the most.

The **ADAPTIVE (8)** parameter can be used to avoid a “rumbling” sound effect that appears when using lowest phantom fundamental frequencies. When activated, the phantom fundamental frequency automatically follows the

lowest signal frequency over the time. This way, the phantom fundamental effect will be used to increase the lowest signal frequency instead of generating a phantom frequency under the lowest signal frequency. When this parameter is activated, the **PHANT. FREQ (2)** parameter gets disabled.

The **SUB OCT. (4)** and **SUB MIX (5)** parameters are used to setup an additional sub octave frequency.

The **SUB OCT. (4)** parameter chooses the sub octave. From 1 for one octave below the fundamental of the original bass sound, to 4 for four octaves below the fundamental of the original bass sound. Values of 1 or 2 are usually appropriate.
If the value of the **SUB OCT. (4)** parameter is too high, the sub octave will be generated below the threshold of perception of the human hear (or below the capabilities of the hardware), and the sub octave will have no effect.

The **SUB MIX (5)** parameter mixes the generated additional sub octave to the result sound.

The **OUT GAIN (6)** parameter adjusts the output gain of the plugin.

The **MONO OUT (7)** parameter converts the result sound to mono when checked.

The **BASS FOCUS (9)** parameter for the lowest frequencies to mono.

## *QUICK START*

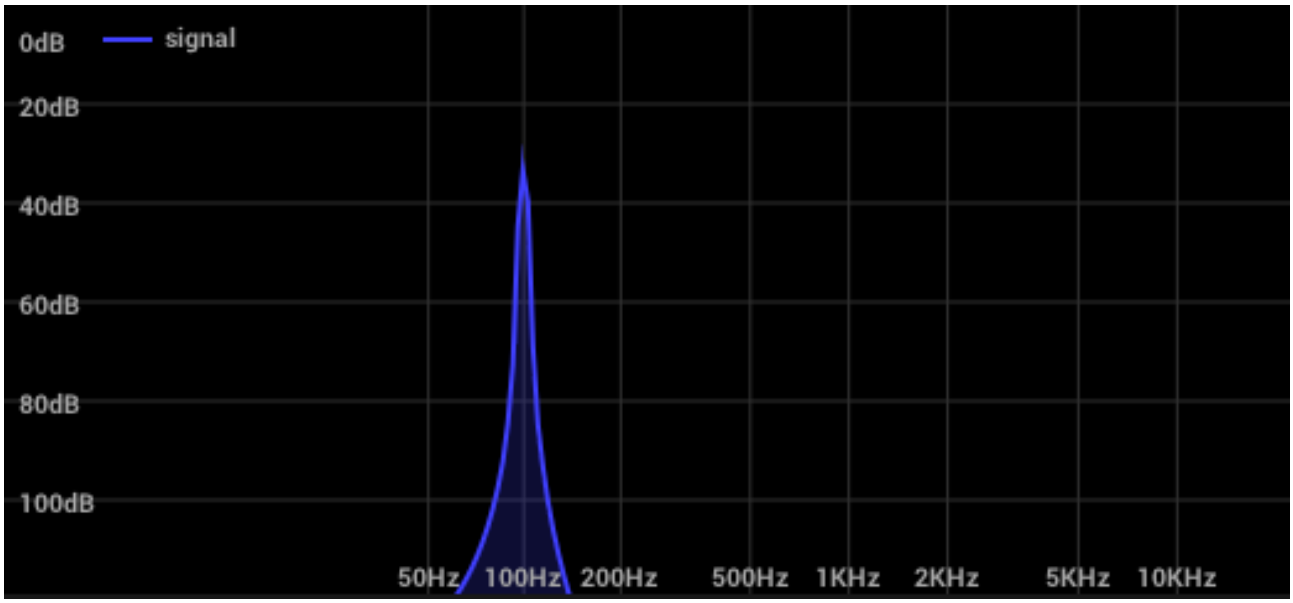
When setting up bass sounds, it is recommended to work at sufficiently high volume.

Here are the steps that will be sufficient most of the time:

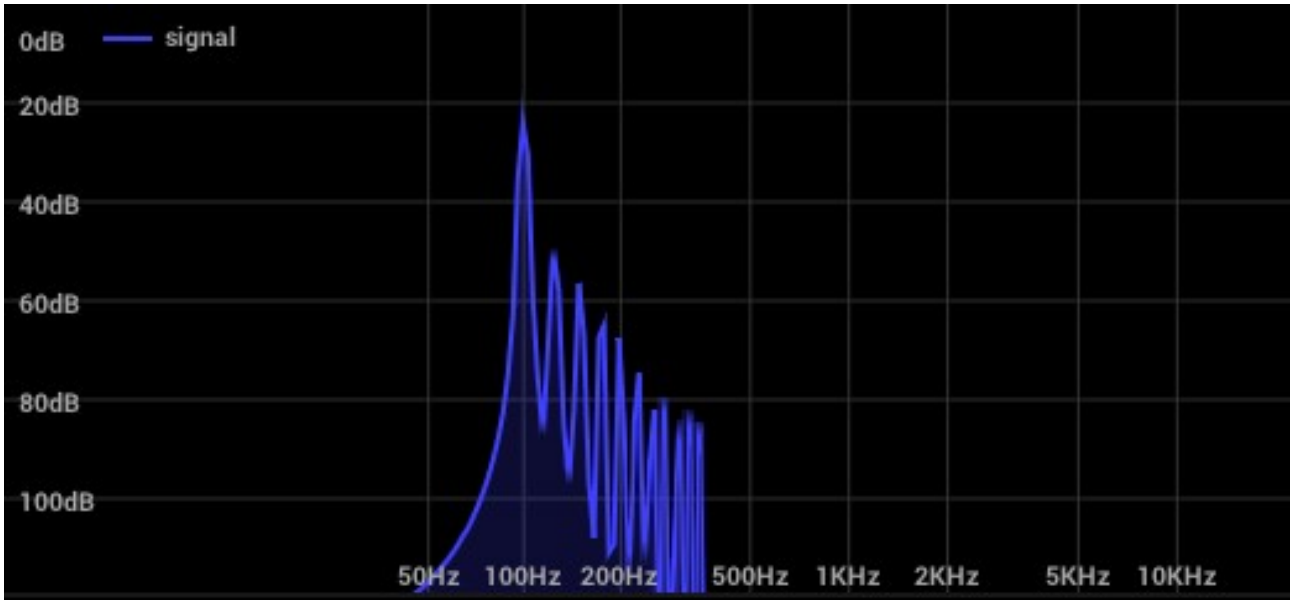
- Insert the plugin on a bass track, or on a track with a bass synth for example.
- Adjust the **PHANT. MIX (3)** parameter to increase the bass perception of the original sound fundamental.
- Adjust the **SUB MIX (5)** parameter to adjust the level of the generated sub octave frequency.
- Adjust the **OUT GAIN (6)** parameter if necessary (particularly if the result level is too high and saturates).

# ADDITIONAL INFORMATION

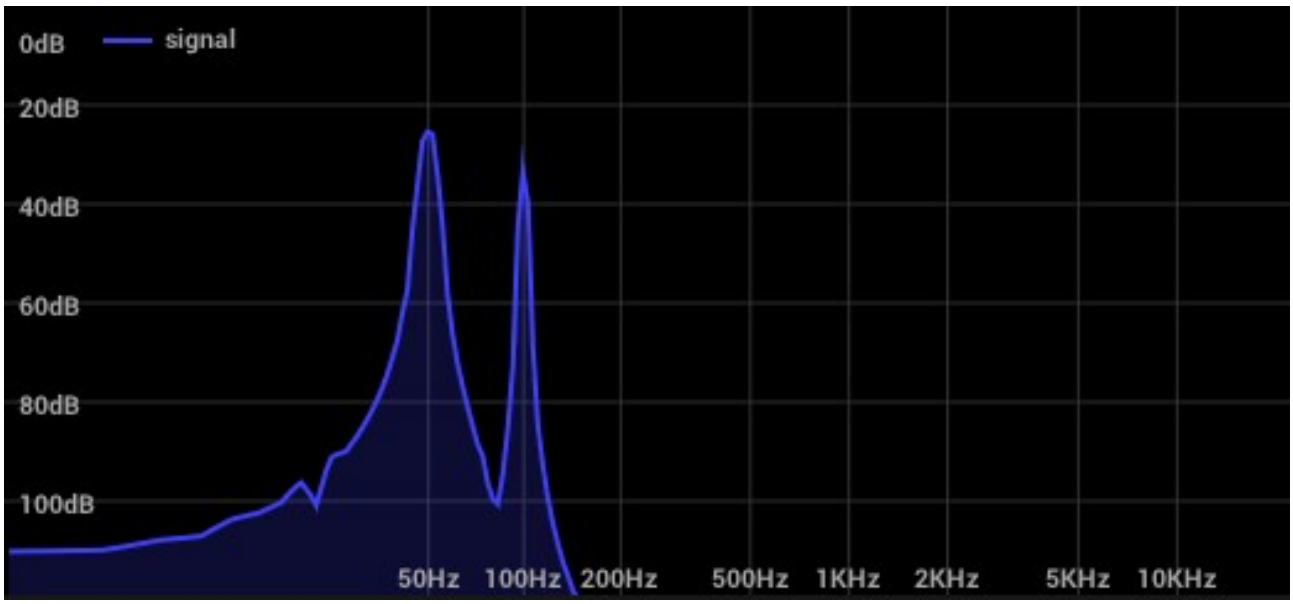
This section shows spectrums to illustrate the functioning of the **Infra** plugin.



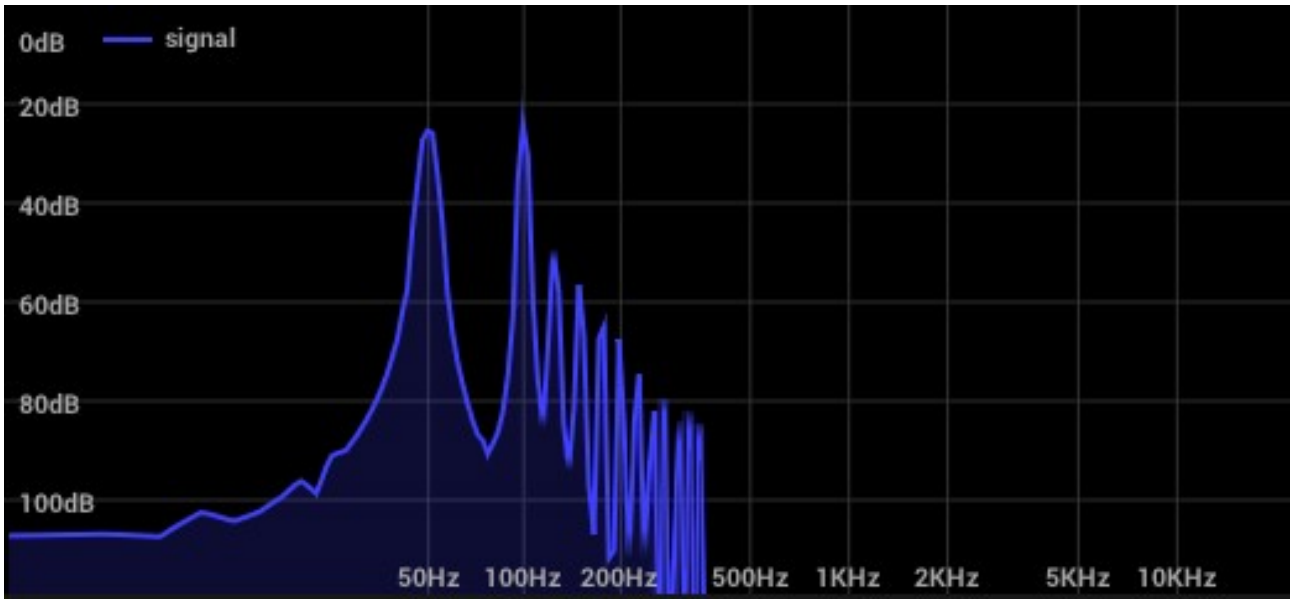

**This spectrum shows a sine wave at 100Hz (it is a test signal). This sine wave will be detected as the original fundamental frequency. With PHANT. MIX (3) set to 0% and SUB MIX (5) set to 0%, the result is the original signal (the 100Hz sine wave).**




**This spectrum shows the result with PHANT. MIX (3) set to 100% only. The original sine wave is still there, but many structured harmonics have been added by the plugin to create the phantom fundamental phenomenon.**




**This spectrum shows the result with SUB MIX (5) set to 100% only. A sub octave frequency have been added by the plugin at 50Hz.**




**This spectrum shows the result with PHANT. MIX (3) set to 100% and SUB MIX (5) set to 100%. The result contains the original sine wave, additional structured harmonics, and the sub octave frequency.**