
# Effects Processor Pro v. 1.5

Effects Processor Pro is a real-time audio effects processor for Win 95/98.

## Program overview

EPP offers a flexible palette of high quality modulation effects (phaser, flanger, chorus and C-Delay) to enhance any audio material. A simple, accurate and customizable tool for your creativity.

- effective real time; really low latency time.
- no noise due to processing: all processing procedures and links between effects sections are made with 64 bit accuracy, this ensures a truly clean and noiseless sound.
- fully user controllable effects patch
- four effects simultaneously
- built-in limiter
- many, carefully scaled, control parameters

**And all at a little fraction of a commercial program cost!**

### Main menu

To enter the main menu just click the right mouse button on the form representing the processor unit.

**Command:**

| | |
|---|---|
| Open: | open a .WAV file |
| Effects patch: | modify effect chaining order |
| Preferences: | choose a sound card or set latency time |
| Mixdown: | process permanently .WAV file on HD |
| Exit: | exit EPP |
| Help: | call this help |
| About... : | open ‘‘about’’ info window |

## Using EPP

Please, before using EPP read carefully the Installation & configuration section.

**Usage:**
Graphic interface is (we hope) easy and user friendly, and very similar to a real-world tool.
To start a processing session with EPP click the right mouse button on the form representing the processor unit to enter a menu containing the "Open" command.
Open the .WAV file you intend to process.

***Note:***
*We chose to limit the file formats only to .WAV files 16 bit signed, a standard for high quality audio processing under Windows systems. EPP is not meant to be an editor, or a converter.*
*It supports only the 16 bit format because we think the 8 bit format is not fit for serious audio applications.*
*For the same reason we put some limitations also to the sampling rate, in fact 16khz is the minimum accepted sample rate.*

Now you are ready to process it.

- Press play button to hear your audio file.
- Turn on the current selected effect (the default one is phaser) clicking on the "On/Off" button on the processor unit.

Now this button should become lighted (this means that this effect is active) and you should be able to hear the phaser factory preset.
- Try to move the knobs to familiarize with their behavior (for accurate explanations on every effect, follow the links below).
- To select another effect you must use the spinning button called "Mode".
- If you desire to modify the effect chaining order, choose the "Effects patch" command in the menu.

The available effects in version 1.5 of EPP are:

- Phaser
- Flanger
- Chorus
- C-Delay

We advise you to use, at first, one effect at a time, so it'll be easier for you to understand its working.
- When you have achieved the desired result, you can permanently process your audio file, choosing the "Mixdown" command present in the previously mentioned menu. The program will ask you to enter the name of the destination file.

### Effects patch

The “Effects patch” command allows you to modify the effect chaining order.
In the default setting, all available effects are selected and positioned in the following order: phaser, flanger, chorus, C-Delay.

You must use the two list boxes to add, remove or change the order of an effect.


- Select one effect from one of the two list boxes, then choose the desired button.
- Use mouse double clicking, as a shortcut, instead of using the buttons.
- Double clicking on an effect present in the "Available effects" box, will add it to "Effects patch" box
- Double clicking on an effect present in the "Effects patch" box, will remove it from "Effects patch" box
- The “Clear” button removes all effects from the “Effects patch” list box.

### How to avoid distortion

You should use the volume slider to prevent distortion. Remember that clipping is often caused by too high feedback values. Another important thing to keep in mind is that digital distortion is particularly unpleasant, and very different in nature from the analog one. To obtain high dynamics and low noise, you should keep the volume as high as you can, without causing distortion.

## Phaser

The phaser program produces stereo phasing. This effect, popular in the ’70s, creates a sound similar to a Flanger, but less metallic.

**Parameters:**
frequency: affects phasing timbre
depth: regulates the modulation depth.
rate: regulates the speed of the modulation
feedback: controls signal recirculation. It creates a sharper timbre
degree: allows stereo enhancing of an incoming audio signal
mix: controls the unprocessed/processed signal ratio

**Tips:**
- If you put rate=0 (in this way no modulation takes place), this phaser works as a stereo allpass-filter (plus unprocessed signal added). This creates a sophisticated notch filtering action (for example, apply it on a clean trumpet and you will obtain, with a proper frequency and feedback setting, a beautiful muted trumpet)

- please, read the note on how to avoid distortion

## Flanger

Flanging is an effect produced by mixing a signal with a delayed time-varied copy of itself. This generates a typical "whooshing" sound.
This flanger program produces stereo flanging with two flanges that move in a user definable relationship with each other.

**Parameters:**
delay: affects flanging timbre
depth: regulates the modulation depth
rate: regulates the speed of the modulation
feedback: controls signal recirculation. It creates a sharper timbre
degree: allows stereo enhancing of an incoming audio signal
mix: controls the unprocessed/processed signal ratio

**Tips:**
- If you put rate = 0 (in this way no modulation takes place), this flanger works as a stereo comb-filter, and it can be useful to produce interesting effects
- If you choose big delay & depth values with a slow rate you obtain chorus like effects
- please, read the note about "detuning" in the modulation paragraph
- please, read the note on how to avoid distortion

## Chorus

Chorus is an effect that creates the impression that a given part is being played by more musicians together. It is used often to sweeten and widen the sound of an instrument.
As for a flanger, it is produced by mixing the incoming audio signal with a delayed time-varied copy of itself. Unlike flanging, the chorus delay is wider (>8ms).
This chorus program is a four voice chorus (two stereo pairs).

**Parameters:**
delay: affects chorus timbre and dimension
depth: regulates the modulation depth
rate: regulates the speed of the modulation
feedback: controls signal recirculation creating a sharper timbre, and a "small reverb" sensation
degree: allows stereo enhancing of an incoming audio signal
mix: controls the unprocessed/processed signal ratio

**Tips:**
- you can use this effect as a spatial enhancer:
1) put rate = 0 (in this way no modulation takes place)
2) set a big delay, and a big depth value
3) increase degree (and feedback, if you want)

- please, read the note about "detuning" in the modulation paragraph
- please, read the note on how to avoid distortion

## C-Delay

This effect creates a rich chorused delay. Its flexibility allows to obtain a great variety of effects like crisp and wide stereo choruses, long delays (up to 1 second), modulated delays, spatial enhancing and more.

**Parameters:**
delay: affects the delay length
depth: regulates the modulation depth
rate: regulates the speed of the modulation
feedback: controls the echo decay
degree: allows stereo enhancing of an incoming audio signal
mix: controls the unprocessed/processed signal ratio

**Tips:**
- Setting the rate control to 0, you obtain a classic steady (not chorused) delay
- Using delay values <80 ms, this effect can be used as a spatial enhancer (please read the notes about chorus)

- please, read the note about "detuning" in the modulation paragraph
- please, read the note on how to avoid distortion

## Modulation

Here are two examples on how delay, depth and rate parameters affect delay modulation over time. These should clarify how they work (The same applies to the phaser Just substitute delay with frequency).
In this case, we used a sinusoidal modulation that ensures smooth transitions. Surely, this is not the only possibility. You can choose almost any periodic wave shape, to modulate the delay value (more info in the Future improvements & other projects section).

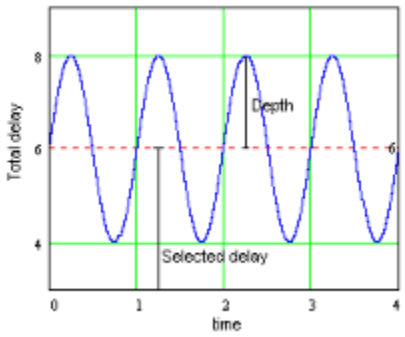


*Fig. 1 Delay modulation*

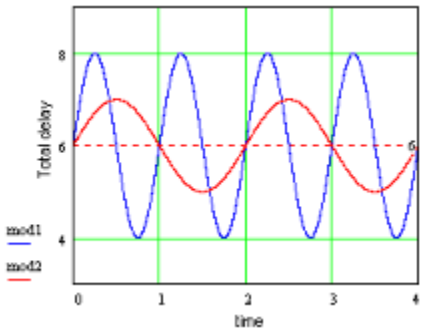


*Fig. 2 Different modulation settings*

This second example shows two different modulation setting.
Modulation 1 (the blue one) is obtained with Delay=6ms, Depth=2ms and Rate=1Hz.
Modulation 2 (the red one) is obtained with the same Delay but with Depth=1ms and Rate=0.5Hz.

Modulation 2 is slower and softer (less depth). This second modulation will cause also less detuning (pitch changing).
In fact, the more the modulation has steep fronts (fast delay changes) , the more the pitch modification will be audible.
So if you don't want UFO like effects, decrease rate when you increase depth.
EPP has been already regulated to limit these "horrible" effects (that they are horrible is our opinion, since many software developers are perfectly happy to obtain such stuff). However in order to keep EPP flexibility, it's still possible to obtain some "unpleasant" borderline effects.

## Installation & configuration

*Remember that an improper use of this program might damage your speakers. If you are not exactly sure of what you are doing, it's advisable that you keep the amplifier volume low.*

EPP requires a Pentium processor and a video board with at least 256 colors capabilities (optimal setup >=65536 colors).

**Installation:**

To install EPP you have to:

- create a proper folder on your hard disk
- unzip "epp15.zip" (the zipped file you have found on the net) into that folder
- create a shortcut to "epp15.exe"

**Fine tuning (latency time):**

now you have to tune EPP for maximum performance:

- enter "Preferences" in main menu
- choose the audio board you intend to use
- open main menu
- open a stereo 44.1 Khz .WAV file (please, see the important note below about Sound Blaster).
- play it with all effects on (all mix values different from zero)

If you can't hear anything:
- check that your audio board is correctly installed. If it is (this means that it must work with other audio softwares) try to enlarge latency time as told below. If your audio board still doesn't play anything, please, contact us.

If audio material is frequently chopped:
- enter "Preferences" in main menu
- increase latency time. This is the minimal time necessary to get the effect of a parameter change so it is desirable to get it as short as possible
- if necessary, repeat all the steps above until everything is OK

If EPP doesn't work with all the effects on, even if latency time is set to its maximum value, your machine is not fast enough (however we will soon release a more optimized version of EPP). This must not happen if your computer has a P166 CPU or better. In this case, please, contact us.

**if everything is already OK:**
- enter preferences in main menu
- decrease as much as you can (that is without encountering the above mentioned problems) the latency time
- when latency time becomes short for your hardware setup, some clicks of different nature, may also be caused by particular latency values. Please, try also to make manually changes to avoid this problem

**Uninstalling EPP:**

To remove EPP from your hard disk, simply:
- delete Effects Processor Pro folder and all its contents
- delete "epp15.ini" from your Windows folder

**Additional notes:**

- response time is directly proportional to the length of the buffer sent to the audio board. Minimum latency allowed is strictly connected with the characteristic of your sound card (mainly), of your CPU power and of your hard disk transfer rate. Too short latency time might not work with your hardware.
- remember that many Sound Blaster boards (and similar) haven't got 48Khz sample rate files playback capability.
- the default setting of latency time, should work well with Sound Blaster (or similar boards). We have tried EPP with Sound Blaster 16 value PnP, 32 PnP, AWE 32, AWE 64, IBM Mwave, Turtle Beach Pinnacle, Event Layla & Gina and Pro Audio Spectrum boards. If you have some problems with some other models, please, contact us.

Perhaps it might be useful to show you, as an example, the latency values we use on our machines (that should be rather standard):

Pentium 166 Mhz RAM 24MB
Hard Disk EIDE 1.7Gb
SB 16 value PnP
LATENCY=130 ms

K6 233 Mhz  RAM 16MB,32MB, 64MB
Hard Disk EIDE 3.2Gb
Turtle Beach Pinnacle
LATENCY=38 ms

With these settings EPP works well.

## Version history

v. 1.5 (September '98)
**Enhancements:**
- Windows 98 support
- new effect (C-Delay)
- built-in limiter
- flanger depth widened
- degree control of chorus improved

**Fixed bugs:**
- fixed a problem regarding the graphic interface visualization (that was spoilt during particular conditions of working)
- solved a problem that caused crashes using Guillemot sound cards
- corrected other minor bugs

v. 1.0 (January '98)
First release

See Future improvements & other ANWIDA Soft projects to know what we have in store for you.

## Future improvements & other projects

ANWIDA Soft has been working in digital audio software since 1995.
We have developed Parametric Equalizer Pro and Graphic Equalizer Pro
Look for the most updated release and download it from our WWW site: http://www.anwida.com.

Our future goals include:

Improvements of EPP:
- better routines optimization (no wavetables were used in this version)
- add preset support
- add user definable modulation wave shape
- eliminate transition clicks due to real time changes of some knobs (as delay or depth).
- adopt DirectX (ex ActiveMovie) audio plug-in architecture to make the effects present in EPP available from many commercial programs.
- MIDI external control over knobs and sliders

New projects:
- develop a real-time high quality mixing console (this is the natural extension of ParEq)
- develop a real-time high quality reverb
- develop a real-time high quality multitap delay processor
- develop a real-time high quality dynamic processor

Visit us at http://www.anwida.com for the latest news.

## Parametric Equalizer Pro

Parametric Equalizer Pro is a professional real-time parametric equalizer that lets you shape the timbre of a sound by boosting or attenuating its frequency components. The high quality and flexibility of the program's filter bank, together with its intuitive user interface, enable you to make subtle or radical changes to your audio material.

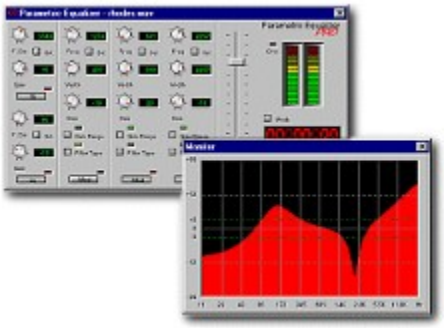

*Fig. 1 Parametric Equalizer Pro v 2.5*

Look for the most updated release and download it from our WWW site: http://www.anwida.com

## Graphic Equalizer Pro

Graphic Equalizer Pro is a professional real-time graphic equalizer.
It enables you to add up to 12 dB of boost or cut at any of 15 bands centered around International Standards Organization (ISO) 2/3 octave frequencies from 20Hz to 20kHz. This two channel system offers completely independent channel control.

The perspective used in designing Graphic Equalizer Pro was to obtain the warmth of a classic analog equalizer with the clarity and the accuracy of the digital domain processing. This was achieved adopting the best analog equipment's topology.

*Fig. 1 Graphic Equalizer Pro v 1.0*

Look for the most updated release and download it from our WWW site: http://www.anwida.com

## Shareware, distribution, warranty & copyright

**Evaluation and Registration**
This is NO free software.
EPP is a SHAREWARE application (JUST FOR $30 U.S.).
Subject to the terms below, you are licensed to use this software for evaluation purposes without charge. Shareware distribution, in fact, gives users a chance to try software before buying it. But if you try a shareware program (as EPP) - and continue using it - you are required to register it. Registration numbers can only be given out by ANWIDA Soft.
To register and encourage further development, please follow the directions in this help file.

**Distribution**
As shareware, you can give copies of EPP to anyone you think might find it useful. You can also upload it to BBS, FTP or HTTP sites. The package may be distributed on CD-ROM.

**You are prohibited from**:
- permitting other individuals to use this software except for evaluation purposes;
- modifying, translating, reverse engineering, decompiling, disassembling, or creating derivative works based on this Software;
- renting, leasing, granting a security interest in, or otherwise transferring rights to this software;
- removing any proprietary notices or labels on this software.

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## About ANWIDA Soft

ANWIDA Soft has been working in digital audio software since 1995.
All our work relies on the synergy between our wide professional experience in the musical & in the scientific field.
This allows us to produce carefully designed products developed by musicians for musicians.

Available from ANWIDA Soft  Parametric Equalizer Pro  and Graphic Equalizer Pro

**Andrea Forlani**
E-mail: forlani@anwida.com

**Massimiliano Tonelli**
E-mail: tonelli@anwida.com

## How to register

When you install EPP the program is in a "demo" mode. This means that you cannot use all features of the full version, but you can test the software before you decide to purchase it.

Without registering your copy of EPP, the following restrictions apply :
- Audio stream interrupts every 15 seconds during real time processing
- You are not able to save files longer than 15 seconds

**Registration price: Effects Processor Pro $30US**

Registering Effects Processor Pro you will get a personal registration number; as a registered user you will receive further passwords to unlock all the intermediary minor releases (when available).

Minor releases correspond to an increment in the minor version number (i.e. 1.3,1.4) Minor releases consist of bug fixes, little changes and small feature additions.
Major releases correspond to an increment in the major version number, (i.e. 1.0,2.0). Major releases will contain major new enhancements and features over the previous version.

Tech support is provided for free to the registered users

**We accept two modalities of payment:**

**1) On-line:** all major credit cards accepted; visit us at http://www.anwida.com for the latest on-line registering options.
**2) By mail:** send us the registration form available in this help, with money (US $) or checks (US $, payable to Andrea Forlani) enclosed to the address below. We will send by e-mail to you your personal password to unlock all EPP features. If you haven't got an e-mail address, please, add 5 US $ for mail delivery.

**Please, be sure to send your mail order to:**

**Andrea Forlani**
**Via Baracca, 16**
**61100 PESARO**
**ITALY**

For more information about registrations, contact us at sales@anwida.com, for any other information:

## ANWIDA Soft

**E-mail**
Information: info@anwida.com
Tech Support: support@anwida.com

**WWW**
http://www.anwida.com

**Effects Processor Pro Registration Form**

Name (first&last):_____
[Company]: _____
Address: _____
_____
City: _____State/Prov:_____Zip:_____
Country: _____

E-mail: _____
Phone #: _____
FAX #: _____

Version of EPP
you are using: __.____

Pricing: ____copies of Effects Processor Pro at $30US = $_____

You may answer these if you like !

Where did you ear about this program? _____
What do you use EPP for ? _____
CPU you are using: _____
OS you are using: _____
Sound Card: _____

What kind of competence have you got in music?

[ ] None

[ ] Multimedia

[ ] Musician Instrument(s): _____

[ ] Sound Engineer

[ ] Other (please be specific): _____

Comments/Suggestions: _____
_____
_____
_____
_____

°°° THANK YOU !!! °°°