

## Nat 5 Tech – EFFECTS/ EFFECT PROCESSES

### Time Domain effects

Types of effects processes that change the time characteristics of an input signal by adding to it. Delay, reverb, chorus, phasing or any of the delay or reverb-related effect variations.

#### Reverb

An **electronic effect** which imitates natural reflections of sound created in enclosed spaces e.g. halls or stadiums. This creates a sense of space and distance.

Reverb is the name given to the natural series of very short and dense reflections of a sound that occur in a confined space such as a room or a hall. While echoes with a longer delay would be discernible, in reverb the echoes happen so fast and are so dense it is impossible for the listener to hear individual repeats. The addition of reverb to a sound makes it appear as if the instrument is being played in a real acoustic environment, for example a church or concert hall.

#### Gated Reverb

An effect whereby a noise gate is applied to the output of a reverb processor. The natural decay of the reverb is therefore cut off sharply, resulting in a rather startling unfinished sound. The effect is most often used on drums to make them sound powerful and "punchy," while keeping the overall mix clean and transparent-sounding.

## Delay

**Delay** is an **echo** effect. Delay effects store the input signal—and hold it for a short time—before sending it to the effect input or output. The held, and delayed, signal is repeated after a given time period, creating a repeating echo effect. Each subsequent repeat is a little quieter than the previous one.

Delay is different from reverb in that reverb makes the sound 'roomier' whereas delay is a full-blown echo. Delays can be edited so that the speed of the repeat is altered (*time/ rate*), as can the length of time that the echo goes for (*feedback/ release*). **Delay** is best used in moderation and is particularly effective in **solos** and on **ballad vocal tracks**.

## Distortion

An effect whereby a noise gate is applied to the output of a reverb processor.

The natural decay of the reverb is therefore cut off sharply, resulting in a rather startling unfinished sound. The effect is most often used on drums to make them sound powerful and "punchy," while keeping the overall mix clean and transparent-sounding.

## Chorus

An effect whereby short delays and slight modulations are added to a signal to make it sound as if there is more than one player. Chorus takes the original sound and creates a copy that is slightly out of tune with the original. The chorus's shifted pitch varies over time. This variance is called *modulation*, and the result is an effect that can add interest and variety to an instrument. It therefore applies a detuning effect, which can be detrimental to some instruments (for example the acoustic piano) but can be very effective on others (for example the **electric guitar**). Chorus is a common guitar pedal effect that gives a clean electric guitar a "dreamy" quality. It's also used on **acoustic guitar, bass guitar and electric piano**. On **strings and synth pads**, chorus creates a richer, more complex sound.

Most chorus effects give you **several parameters** :

- **Rate:** The rate dictates how fast the modulation happens. This parameter is described as a frequency (usually 0.1 to 10 Hz). The frequency actually doesn't refer to a pitch; rather, it describes how many times per second (Hz) the oscillation happens. The oscillation is controlled by the depth parameter.
- **Depth:** The depth parameter controls the amount of pitch modulation that's produced by the chorus. This determines how deep (or far) the sweep of the delayed sound will be, essentially setting limits on how far the modulation will reach. This gives the sound a phaser-like characteristic.
- **Predelay:** The predelay setting affects how far out of time the chorus's sound is in relation to the original. This setting is listed in milliseconds, and the lower the number, the closer the chorused sound is to the original in time.
- **Feedback:** The feedback control sends the affected sound from the chorus back in again. This allows you to extend the amount of chorusing that the effect creates. This setting can also be called stages in some systems.
- **Effect Level/ Mix/ Dry&Wet :** The effect level controls how much effect is sent to the aux return bus. This determines how much of the original sound will be mixed with the affected sound

## Wah Wah Envelope Filter

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## Mix Control (process)

**Mix**, also known as **wet/dry mix**, **controls** how much of your **wet signal** (signal with **reverb**) is **mixed** into your **dry signal** (without **reverb**).

**Dry** – No effects applied

**Wet** - A signal that has been processed in some way.



## Effects Processor *(process)*

A piece of hardware that offers several different effects, e.g. reverbs, delays and choruses. These are most used in live settings, but they are still found within a studio environment.

Controls on an effects processor include:

• Balance	Gate time
• Decay	Diffusion
• Depth	Pre-delay
• Mix – 'Dry/wet'	Room size
• Time	Rate



## Effects pedals *(process)*

Often used in live settings, effects pedals cover a range of different effects from reverbs, distortions and delays to vocal processing. These can be switched on and off via a pedal (stompbox) on the floor.

## **Vocal enhancer***(process)*

This is can be a hardware or software multi-effects unit combining a range of functions, eg compression, de-essing, harmoniser, pitch correct, which can be used by a singer in a live or studio environment.

## **Autotune** *(process)*

Autotune can be used correctively or creatively.

- When being used correctively, it should be difficult to hear that it is even being used. For example, someone sings or plays slightly out of tune and the engineer wants to rectify this using an autotune plugin. Here, the attack of the autotune would be set to slow so that the changes in tuning aren't as noticeable.
- When used creatively as an effect, the attack would be set much quicker, so that the voice or instrument sounds almost robotic.

### Autotune as an effect:

Cher – Believe

Daft Punk – Digital Love