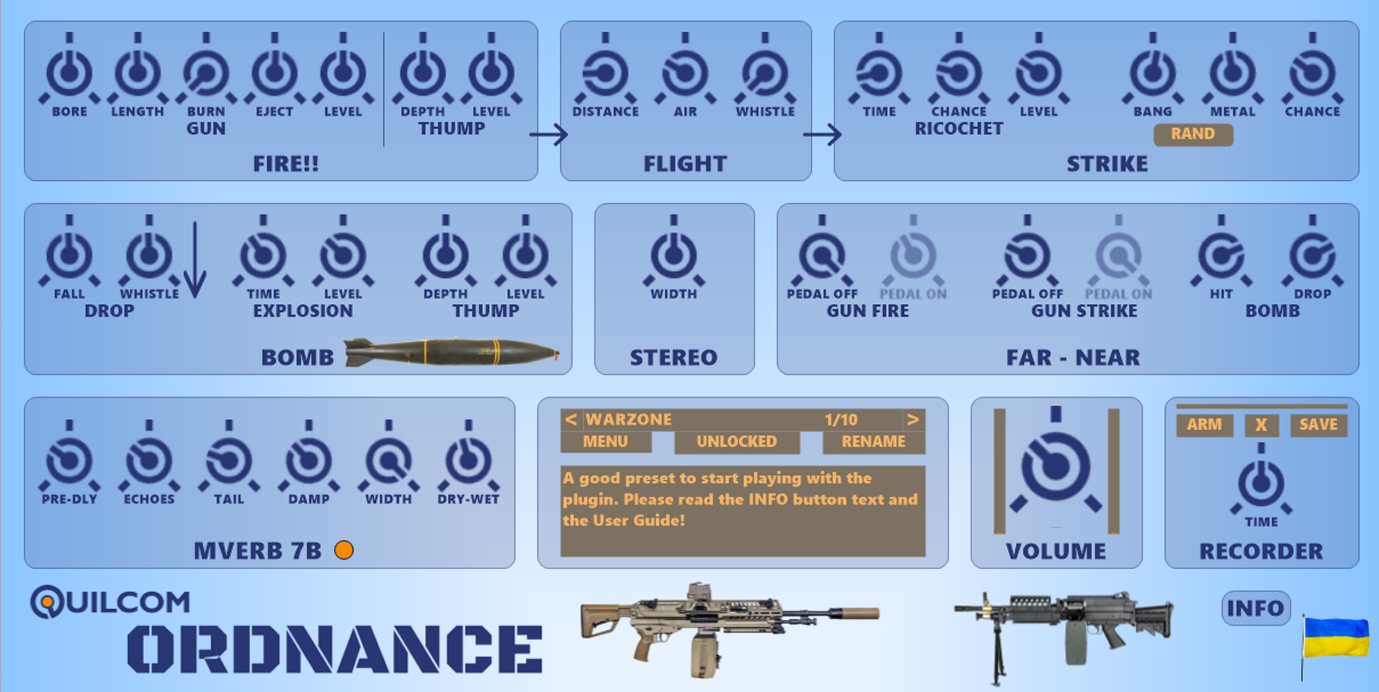
**Quilcom ORDNANCE**



**Design**

Someone who liked my Quilcom Fireworks plugin suggested I have a go at making a synth to create weapon sounds and I thought that sounded like fun! The resulting ORDNANCE plugin is tailored to single gunshots, machine guns and bombs, with considerable control over those sounds. There are many free sampled gun sounds available but, inevitably, they normally have other ambient sounds included. A synthesiser, while never being super-authentic, allows you to tailor the sound to your needs and could be used as a layer along with other samples.

**In use**

To play and control the synth click on the INFO button and it will show the following text:

*Ref: C4 is middle C (note 60)*

*The gun is fired using C4 to C5. The note played in this range will pan from C4 left to C5 right.*

*Rapid fire machine gun is operated from C3 to B3 while playing C4 to C5 for firing the gun. The note pressed from C3 to B3 determines the rate of fire.*

*The bomb is released by playing C2 to B2. The note played will pan the bomb from C2 left to B2 right.*

*The sustain/hold pedal (CC64) gives alternative near - far adjustments for gun fire and gun strike.*

*Pitch bend, modwheel, velocity and aftertouch are not in use.*

**Overview**

The plugin contains 4 synthesisers. The top row of 3 panels control the 3 phases of gun fire, and are linked in series from left to right.

The **BOMB** panel controls a separate synth dedicated to bomb sounds.

You can adjust the apparent distances with the **FAR – NEAR** controls.

The synthesisers generate a stereo signal and the width of the field can be adjusted.

**FIRE!!**



The 5 **GUN** knobs on the left side control the sound of the gun firing, along with the 2 **THUMP** knobs on the right side.

**BORE** adjusts the effect of the diameter of the gun barrel (or calibre of the ammunition). Higher settings give a deeper sound.

**LENGTH** adjusts the effect of the length of the barrel. Higher settings equate to a longer barrel which reduces the amplitude and depth of the “muzzle flash”. The explosion has further to travel in a longer barrel, and is more directional.

**BURN** adjusts the ramp-up time of the explosion. The idea is to simulate a “slower” explosion like you could get from a canon or musket. For more regular gunshots I would leave this at zero.

**EJECT** adjusts the level of the simulated mechanical sound which follows the shot as the cartridge is ejected. For older machine gun sounds I would turn this up, since the mechanisms were less refined and thus noisier.

**LEVEL** adjusts the total volume of the **GUN** section.

**THUMP** is synthesised to add a deep pulse to the sound. This is more for Hollywood and games, both of which expect more deadly and impactful sounds. It sounds much better if you have a subwoofer!

**DEPTH** adjusts the base pitch of the thump sound. At minimum the pitch is fairly high and turning it up deepens the sound to almost subsonic.

**LEVEL** adjusts the volume of the thump.

Note that the **GUN** settings affect the **THUMP** settings.

**FLIGHT**



The **FLIGHT** synthesiser is pretty simple.

**DISTANCE** adjusts the flight time of the projectile. Higher settings increase the flight time. If you have a **STRIKE** sound set up the impact will always come at the end of the flight because it’s sequenced.

**AIR** adjusts the level of the projectile sound as it rushes through the air.

I provided a **WHISTLE** level so you can add a whistling sound to the flight. You can use this to simulate a sci-fi laser shot for example. At short distance settings it can add something interesting to a more conventional gunshot sound.

**STRIKE**



After the time adjusted on the **DISTANCE** knob on the **FLIGHT** panel has elapsed, you can optionally create target **STRIKE** sounds.

There are 2 sections, one to set a **RICOCHET** sound and the other to create an impact **BANG** or **METAL** hit noise.

**RICOCHET**:

The **TIME** knob adjusts the duration of the sound. The **CHANCE** knob adjusts the randomised likelihood of getting a ricochet. At minimum there will be no chance and at maximum it will always happen. The **LEVEL** knob adjusts the volume of the ricochet sound. With a rapid machine gun the chance is automatically reduced.

**BANG & METAL**:

The **BANG** and **METAL** knobs adjust the volume of the respective sounds. The **CHANCE** knob sets the randomised likelihood of getting either sound. **RAND** is a selector and when **RAND** is chosen the sound is either **BANG** or **METAL**. This selector can be set to **BANG** only or **METAL** only. If you set the **CHANCE** knob to *maximum* it’s easier to adjust the levels of the chosen sound since it will always happen.

**BOMB**



This panel controls the separate **BOMB** synth.

**DROP**:

The **FALL** knob sets the time between pressing the note and hearing the explosion. The classic Hollywood sound of a bomb falling, a whistle that decreases the pitch and increases the volume as it falls is based on the fact that the Germans actually strapped 4 metal whistles to the tail fins of the bomb to add more terror to those being bombed. Bombs don’t whistle on their own! The **WHISTLE** knob sets the level of this sound.

When a bomb is falling, the pitch will fall due the doppler effect but this is what the *pilot* would hear. On the ground the pitch would *increase* because the bomb is getting closer and faster as it falls. For this reason, I provided the up/down arrow switch so you choose between pitch down or up.

If you just want to hear the explosion when you play a bomb key, set the **FALL** and **WHISTLE** to minimum.

**EXPLOSION**:

**TIME** adjusts the duration of the explosion and **LEVEL** sets its volume.

**THUMP**:

The bomb “thump” adds depth to the explosion and is best auditioned with a subwoofer system. The **DEPTH** knob sets the base pitch of the thump or rumble, higher pitched at low settings. The **LEVEL** sets the volume.



The **WIDTH** knob adjusts the width of the stereo field for the synthesised sounds (which are panned based on which keys are played). It has no effect on the reverb width.

**FAR – NEAR**



This panel controls 6 instances of my Quilcom FARANEAR DSP, which is designed to simulate the closeness of the input sound.

When any knob is adjusted to minimum, the sound will be very distant. Turning it up will bring the sound closer and at maximum there is no effect.

There are 2 settings each for **GUN FIRE** and **GUN STRIKE** so you can use the sustain (hold) pedal to switch between the two knobs. If you don’t have such a pedal, you can use CC64 for switching. With the adjustments shown above, not pressing the pedal will make the shots sound local and the strikes sound far. Pressing the pedal will make the shots more distant and the strikes more local.

The **BOMB** sound closeness is not affected by the pedal. You have separate knobs for **HIT** and **DROP** sounds.

**REVERB**



Once again, I chose to include this lovely reverb made by Martin Vicanek. Turn it off with the orange LED-switch if you prefer to use your own.

**PRE-DLY** adjusts a time period before the signal gets to the actual reverb DSP. This can simulate being closer to the source in a reverberant space.

**ECHOES** sets the level of some background environmental echoes.

**TAIL** adjusts the length of the reverb tail (T60 limit).

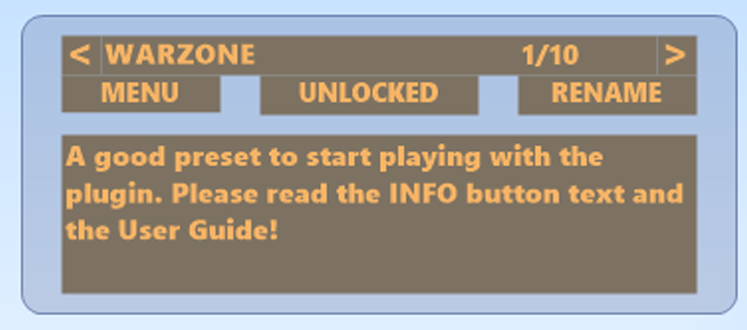
**DAMP** simulates a more absorbent space. At minimum there is no damping.

**WIDTH** adjusts the stereo width of the reverb tail.

**DRY-WET** adjusts the balance between the incoming **DRY** signal and the **WET** reverb signal. Fully acw is **DRY** only.

*Note that the input to the reverb DSP in this version is filtered to sound better for this plugin.*

**Preset Manager**



I’ve included several presets which demonstrate some of the possibilities and for you to use as starting points to shape the sounds you want.

At the top of the preset manager is the section where you select the preset by clicking on the preset name or paging though them using the arrow buttons.

The **MENU** selector is where you operate on presets and banks. You can save, load, copy or paste presets, or save and load a bank from this menu.

All changes made to any settings will be stored with the DAW song file unless the switch **UNLOCKED** is changed to **LOCKED**. This locking feature is to avoid losing settings if you just want to mess with editing, but want to keep the original default parameters. In Reaper you can reset to the original factory presets, but they will *all* be reset.

The **RENAME** button allows you to name or rename a preset, providing the preset manager is **UNLOCKED**. Otherwise, the **RENAME** button is dimmed.

At the bottom is a free text area for adding comments to the preset. These comments are saved with the song, and also the preset if you save it, providing the preset manager is **UNLOCKED**. Please be aware that you shouldn’t use a carriage return (Enter) in this text because the system won’t store any text after that. Also please be aware that when you **RENAME** a preset this text will clear, so if you want to keep it and just rename the preset, highlight the text, copy it then paste back in after you’ve renamed.

**VOLUME**



The output volume control has stereo meters which indicate average peak levels. The centre ring and label will turn red for 1 second if the peak goes even briefly beyond +/- 1 to indicate that clipping has happened. If you need accuracy, or other metering, please rely on the DAW’s meters.

In this synth, peak clipping can add to the impact!

**RECORDER**



This simple **RECORDER** allows you to make samples to use in any sampler or DAW. You might find it easier than creating lots of stems in your DAW and exporting them.

**TIME** sets the recording time.

Clicking **ARM** will get the recorder ready. When you play a MIDI key the recording will start. A red progress bar appears on the upper strip.

You can click on **X** at any time which will stop the recording, but the recording will be lost.

Clicking on **SAVE** opens a Windows file save dialog. Please note the file has to be compiled first, so wait a few seconds before playing the WAV file.