UNIVERSAL PIPER USER MANUAL

CONTENU

22/01/2018

INTRODUCTION

This user manual is applicable to the Bagpipe Lab version of Universal Piper on Windows, OSX and iOS. If you encounter any difficulties, feel free to contact me at this address: support@universal-piper.com

This manual is divided into three parts:

- Installation and configuration: You'll find instruction for installation, audio configuration and MIDI management configuration, that itself is an advanced feature dedicated to live and home studio.
- Usage: Universal Piper offers a lot of capability; this part describes practical cases rather than every single button. If you are inquisitive, you might find some hidden functions.
- Vocabulary: If you're not familiar with computer-assisted music, you'll find some definition especially some related to MIDI.

Some functions are specific or are not available on iOS. They are indicated along the user manual.

INSTALLATION AND CONFIGURATION

To install Universal Piper, basically follow those steps:

- Plug your MIDI instrument and switch them on,
- on Windows and OSX, start and follow the instruction of Universal Piper installer,
- Start Universal Piper and follow the configuration instructions,
- You can play!
- Now you, you should also have a look at the audio configuration to adjust latency.

That being said, as the devil Is in the details, the following chapters detail subtleties regarding plug-in configuration, audio configuration on Windows, MIDI management and other particular situations…

IMPORTANT NOTES REGARDING UPDAGRADE ON WINDOWS AND OSX TO VERSION 4

Important: the 32 bit VST plugin has display issue in Ableton Live 8 starting from OSX 10.12 Sierra.

Small change of wording: "presets" are now referred to as "**instruments**". Now, you save your customized instruments.

Once Universal Piper version 4 is installed and used, you won't be able to load the configuration and instruments files on older version on Windows/OSX, neither on iOS version 1.x of Bagpipe Lab and 2.x of Pocket Bagpipe. For iOS uses, it is advised to wait for iOS version update before upgrading to version 4 and upgrade all your device at the same time.

A copy of your configuration and presets files is performed during installation with a « bak » extension into a **backup** subfolder of your Universal Piper installation folder.

If your upgrading from version 2 to version 4 on Windows, **first uninstall version 2 before** installing version 4 (your instruments and configuration won't be deleted).

MAC OSX INSTALLATION

Prerequisite: Mac with Intel processor, OS X version 10.5 or later

The installation includes the application and the plug-in in Audio Unit and VST format both in universal 32/64 bit binary.

The installation will deploy the following items:

- Application : /Applications/Universal Piper.app
- Audio Unit plug-in : /Library/Audio/Plug-Ins/Components/Universal Piper.component
- VST plug-in: / Library /Audio/Plug-Ins/Components/Universal Piper.vst
- UP library: / Library /UPipe ➔ **this folder shan't be moved.**

Before starting Universal Piper for the first time, it is recommended to plug your MIDI & audio interfaces as well as MIDI controller before starting Universal Piper to make first configuration easier. Once, started, follow the configuration instruction, you'll be able to modify the configuration later if required.

Note regarding language: as a plug-in, the list of the automation parameters depends on the selected language. At first change of language, close your DAW and start it again. **Don't change it afterwards** not to lose your automation.

Possible issue: Universal Piper doesn't appear in Logic

Sometimes, once updated, the Audio Unit doesn't appear in Logic Audio Unit instrument (this issue is also documented for other plug-in). Proceed as follows to fix this issue:

- Stop Logic,
- Move Universal Piper Audio Unit (/Library/Audio/Plug-Ins/Components/Universal Piper.component) on your desktop,
- Start Logic so that a scan of the available Audio Unit is performed without Universal Piper. Stop and quit Logic.
- Put Universal Piper back in the Components library,
- Start Logic again ➔ Universal Piper should reappear in the Audio Unit instrument list.

PC INSTALLATION

Prerequisite: Windows XP/Vista/7/8, Resolution 1024x640 minimum

There are two versions: 32 and 64bit. Each of the installation includes the application and the plug-in in VST format.

Is you wish to use Universal Piper as a plug-in, select the version corresponding to your DAW technology (Cubase, Live,...). If your DAW is installed in the the folder Program Files(x86) on a 64 bit Windows, then install the 32 bit version of Universal Piper.

The deployment folder of Universal Piper is:

- Windows XP/Vista : C:\Program Files\Universal Piper
- Windows 7/8 32 bit : C:\Program Files (x86)\Universal Piper

- Windows 7/8 64 bit : C:\Programmes\Universal Piper

The installation will deploy the following items in Universal Piper folder:

- **-** Application : Universal Piper.exe
- **-** VST plug-in: Universal Piper.dll ➜ the plug-in can be moved in the any folder.
- **-** UP library : Library ➜ **this folder shan't be moved**

Before starting Universal Piper for the first time, it is recommended to plug your MIDI & audio interfaces as well as MIDI controller before starting Universal Piper to make first configuration easier. Once, started, follow the configuration instruction, you'll be able to modify the configuration latter if required.

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AUDIO CONFIGURATION

Once installed, Universal Piper is ready to play however, for your comfort, it is recommended to adjust the default latency proposed by your computer. The latency is the delay between you playing a note and you hearing the note. The faster you play, the smaller the latency should be.

As an indication, 10 ms is fitted for slow music, 5 ms is pretty reactive and beneath 3 ms is excellent. Beware the smaller the latency, the more processor resource will be used.

The audio configuration is performed in the following tab:
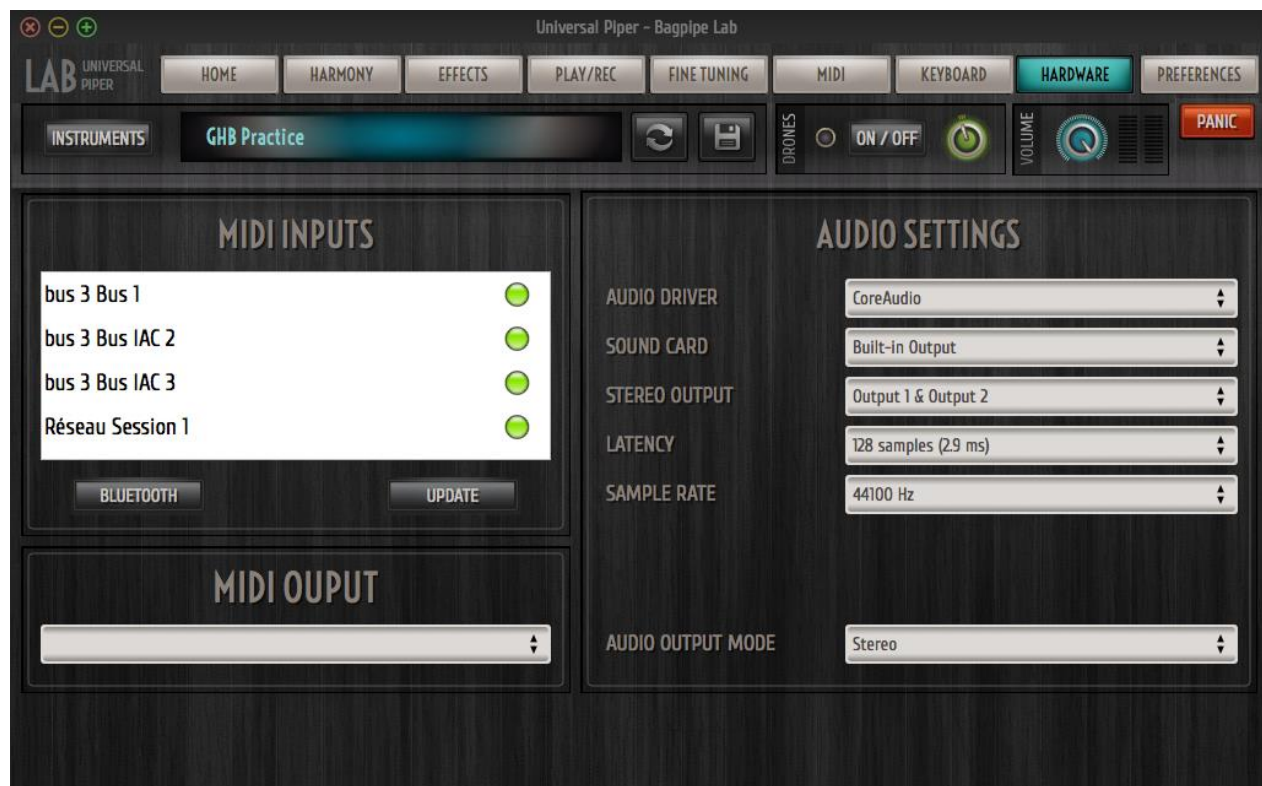
If you exceed your sound card capability, you will hear cracking and a distorted sound. In that case, increase the latency until you hear a clear sound.

On PC Windows, the achievable latency highly depends on the selected audio driver. Some drivers are overflown with a 20 ms latency. Usually ASIO drivers followed by Direct Sound drivers have better performances. If you can't reach a suitable latency, you can try installing the freeware ASIO4ALL that provides a generic and performant ASIO driver for your internal soundcard. ASIO4ALL is developed by Michal Tippach.

You can also configure your audio output in different configurations:

- Stereo: the chanter and the drones are mixed and spatialized in stereo.
- Chanter and drones separated : fitted to tune separately the chanter and drones on a mixing board
- Double mono: the chanter and the drones are mixed in mono. Fitted to send the mix to a mixing board and keep a live monitor.

MIDI INPUTS CONFIGURATION

The MIDI inputs configuration is performed in the same panel as the audio configuration (see above). MIDI inputs are automatically activated when connected. A green dot indicate the input is active, a red one that is it deactived.

You can activate or deactivate each MIDI input separately clicking on the green/red dot.

Note: The MIDI messages received on the activated MIDI input are displayed as a flow under the PANIC button.

Note: the MIDI output is only useful with a Skelpipe chanter (mine ☺).

MIDI INSTRUMENT CONFIGURATION

At first start, Universal Piper asks you to select your main MIDI instrument and its fingering for MIDI chanter. This selection allows you to play immediately.

A set of settings allows you to adjust this configuration if needed. The settings are divided into two tabs:

- A MIDI CHANTER tab that gathers the settings related to the capture of the melody,
- A MIDI PARAMETERs tab that allows you to control most Universal Piper via MIDI (including the drones)

But first, a few notions about Universal Piper MIDI processing:

- Universal Piper has a dedicated input and processing for MIDI chanters. The latest having a fixed key, Universal Piper automatically transposes to the selected bagpipe key. Moreover, the MIDI chanters usually have a non-chromatic scale (myxolidian for GHB); you will have the possibility to alter the scale of your MIDI chanter (just like tapping your real chanter). Most of commercial MIDI chanters are preconfigured including their different fingerings to make things easier.
- A second input is dedicated to MIDI keyboards, EWI,…This input is a standard MIDI input without alteration except for a fixed transposition you can set. You'll have to adapt your play according to the key of the selected bagpipe.
- A last input is dedicated to the control of Universal Piper (volume, drones start,…)

- You can set the MIDI channel for each of those inputs. Universal Piper will process in priority the control input then the MIDI chanter input and finally the MIDI keyboard input.
- You associate Program Change to your instruments to call them back quickly with your MIDI controller.
- ON/OFF type parameters of Universal Piper can be controlled using three different mode : momentary (ON as long as it doesn't receive a OFF MIDI message), toggle (changes its state each time it receives a ON MIDI message), automatic (if the ON message stays long enough it will be considered as momentary otherwise as a toggle). The ON/FF type parameters can be controlled through Command Control (CC) or Note ON/OFF MIDI messages.

All those settings allow you to manage complex configuration. If you are not familiar with MIDI, here are some advices:

- Deactivate the MIDI chanter input if you use a MIDI keyboard and likewise (done automatically during the first configuration),
- If you use one of the preconfigured fingering for MIDI chanter, do not modify the chanter and control MIDI channel.

A frequently asked question: **how to control the drones?** Here are the possibilities:

- Use the "drones auto on/off" function that activates the drones as long as the chanter plays. The drawbacks are you won't hear the drones long start unless you trigger the drones manually and the drones will stop as soon as you stop playing.
- Associate a MIDI message to control the drones start ("DRONES – ON/OFF" parameter). For all the MIDI chanter that generates specific notes for drones, the preconfiguration includes this setting. You can control the drones long start as well as the drones short start ("DRONES – SHORT START") separately.
- If you use Universal Piper as a plug-in, the previous parameters can be controlled through automation.
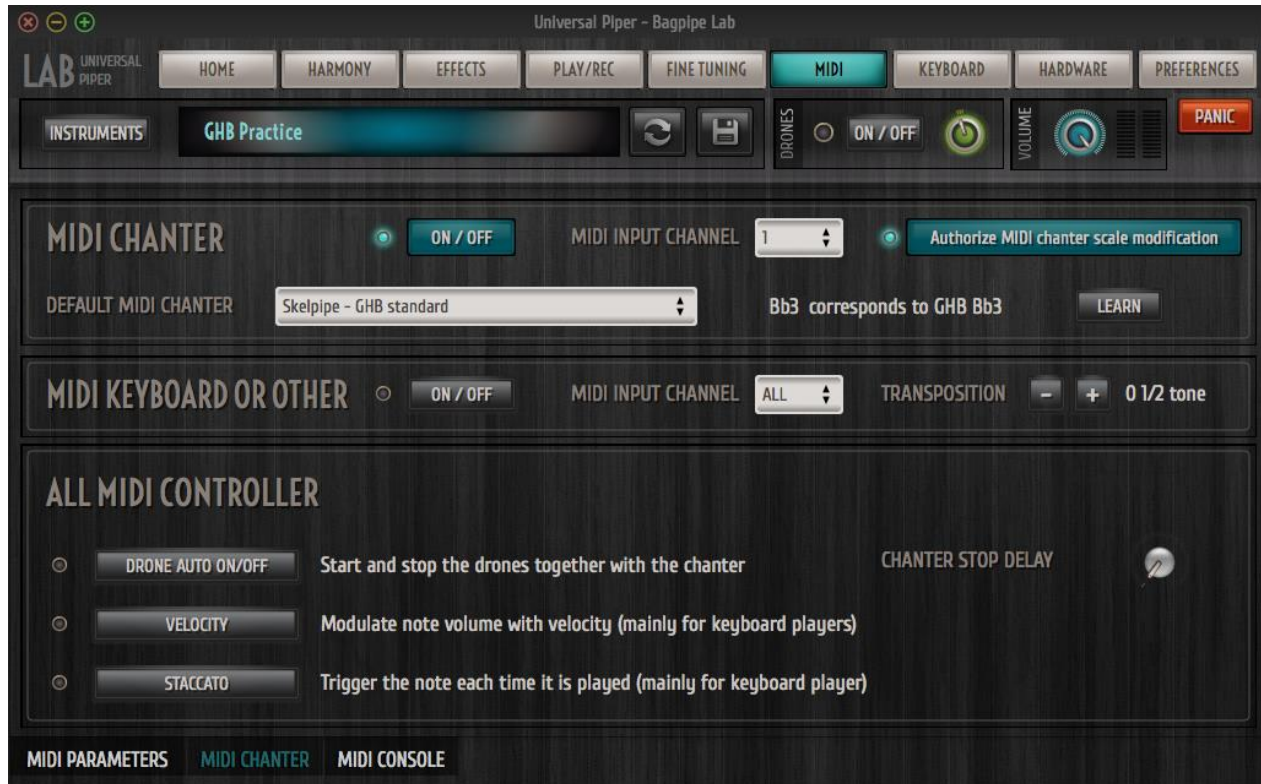
MIDI CHANTER frame

A few particularities:

- <u>Default MIDI chanter</u> (as well as its fingering): The title says it all. You can however select in the Harmony panel a specific chanter and/or fingering for each instrument.
- <u>Authorize MIDI chanter scale modification:</u> if this option is not activated, you will play **exclusively** with your MIDI chanter scale transposed in the instrument key. If this option is activated, by default you will play in the selected instrument scale still you will be able to alter this scale or switch quickly to your MIDI chanter scale in the harmony panel.

If you don't find you MIDI chanter and/or its fingering in the predefined list, contact me so that I can add it. In the meanwhile, you can configure Universal Piper:

- Select « Generic MIDI Chanter- B3=MIDI 70 »,
- Activate your MIDI chanter and prepare to play a Low A
- Click on the "LEARN" button
- Play the Low A until the "LEARN" button is off,
- Your MIDI chanter tone is setup in Universal Piper

Note: if you use Generic MIDI Chanter, the note list displayed in the MIDI chanter tab won't be representative of your chanter capabilities

ALL MIDI CONTROLLER frame

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- Chanter stop delay: this delay smooths micro sound interruptions that can be related to a not perfectly legato playing or MIDI chanter hand-dryness issues. This delay is the time before the last note is actually stopped.
- Velocity: if activated, the note volume will be changed according to the velocity. Not recommended with a MIDI chanter
- Staccato: if activated, repeating the same note will start the note repeatedly. Not recommended with a MIDI chanter

MIDI PARAMETERS TAB
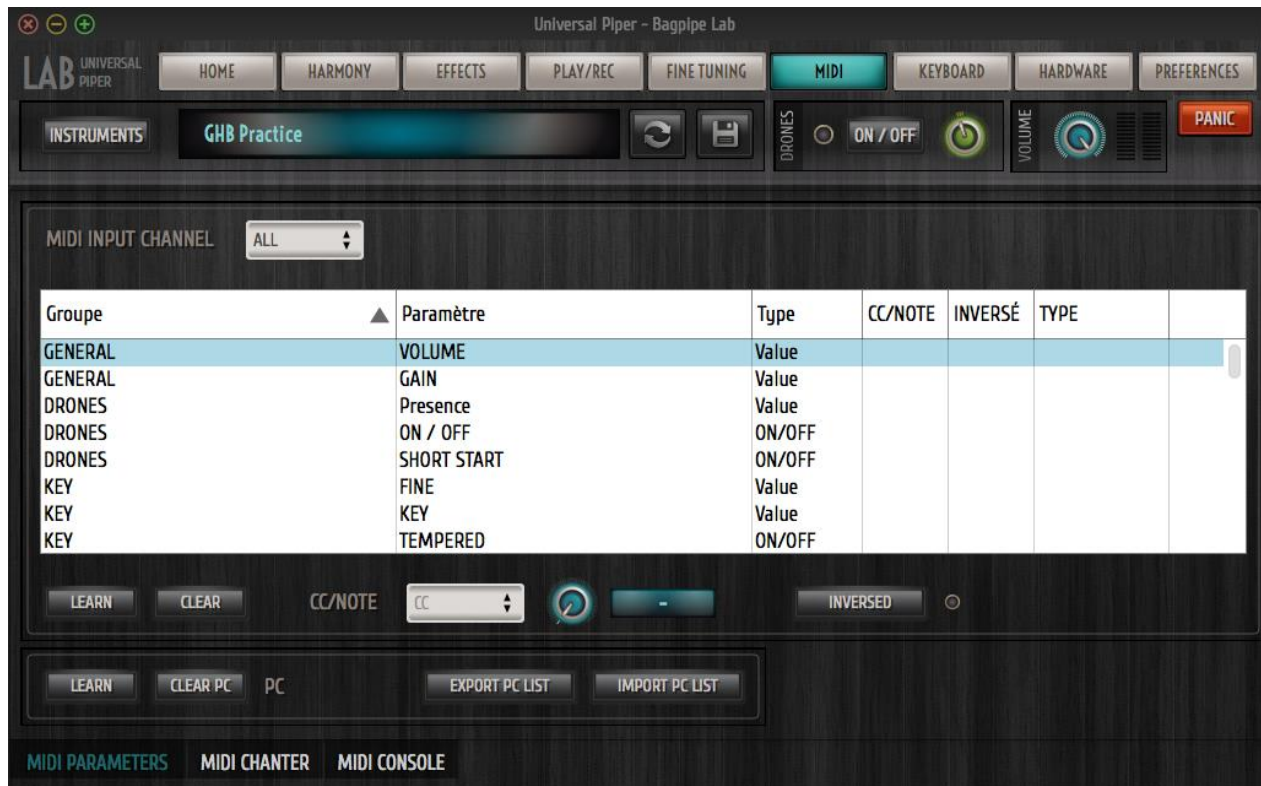
You will find in this panel all parameters of Universal Piper that can be externally managed (that is to say almost everything). You can set the parameters manually or by learning (LEARN button) and triggering the corresponding MIDI message with your MIDI controller.

You can also define in this panel the Program Change number of the current instrument. This configuration is only performed through the learning function. If your instrument list is huge, you can also edit the Program Changes number with a text editor. You will first need to export your PC list, modify it and import it back.

UNIVERSAL PIPER OVERVIEW

HOME

Quickly access to the instrument choice and main parameters in a simple panel fitted for live. You will also be able to management your customized instruments list.

HARMONY

Tune everything related to harmony: scale, key, second voice, drones note. You will also be able to customize the scale of your MIDI chanter and its behavior.

EFFECTS

Shape your sound and atmosphere with the available effects: reverb, EQ but also more avant-garde effects (for bagpipe). A particularly important parameter is also there: the gain.

PLAY/REC

Three functions: MIDI and BWW file player, MIDI and audio recorder and metronome.

FINE TUNING

Build and tune your bagpipe note by note (tuning, sample, volume) for both the chanter and drones.

MIDI

Drive Universal Piper with your fingers and feet using MIDI. You can also set the Program Change associated to the current instrument.

KEYBOARD

Your computer has a touch screen: play bagpipe on your computer.

HARDWARE

Audio output and MIDI input configuration.

PREFERENCES

You will find links to Universal Piper world as well as a quick access to the Universal Piper folder containing your instrument and configuration to share them.

CUSTOMIZED INSTRUMENTS MANAGEMENT

Universal Piper is delivered with a set of predefined "factory" instruments (bagpipe). Those instruments are sorted in different folders. You can select one of those instruments by clicking on the "INSTRUMENTS" button.

You are also able to create your own customized instrument by saving all settings available in the HOME, HARMONY, EFFECTS and FINE TUNING panels. You have two possibilities:

- Overwrite a "factory" instrument: for instance to change the default scale,
- Create an instrument with a customized name and store it in a customized folder.

Those customized instruments will also appear in the instrument list by clicking on the "INSTRUMENT" button.

The "SAVE" or "floppy icon" button save the current settings under the name and folder of the current instrument. If the current instrument is a "factory" one, the factory settings are replaced by yours (Universal Piper actually keeps a backup of the factory settings just in case…)

If you've changed an instrument and want to switch to the latest saved settings, click on the "INITIAL SETTING" or "recycle icon" button.
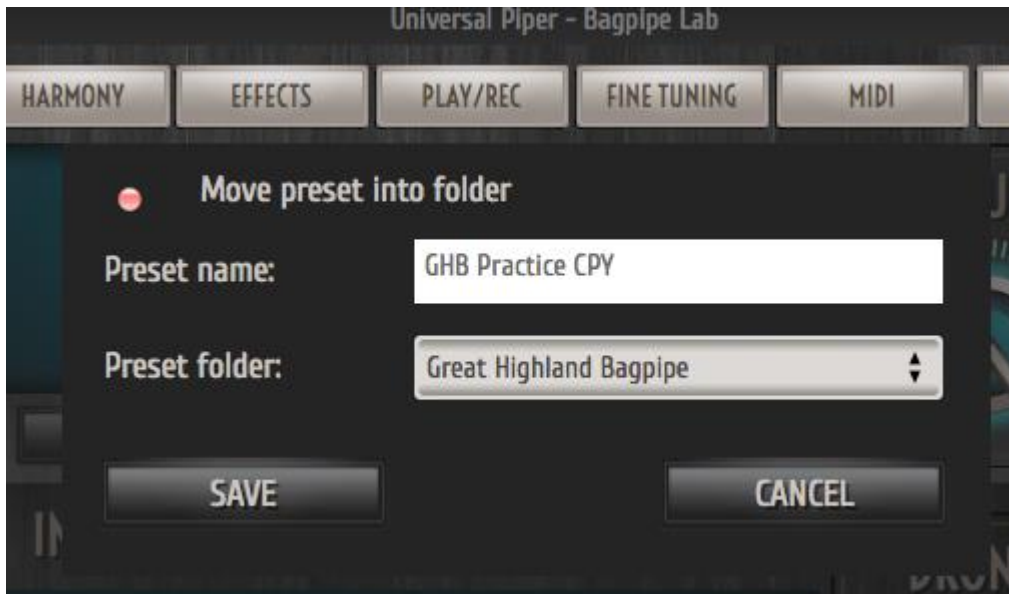
The "SAVE AS" button allows to duplicate, move and rename instruments. If you want to:

- Duplicate an instrument in the same folder: enter the name of your customized instrument and click on "SAVE".
- Duplicate an instrument and save it in another folder: enter the name of your customized instrument, select or enter the name of the new folder and click on "SAVE". Note: two instruments can't have the same name.
- Move an instrument into another folder: Click on "move the instrument into the folder", select or enter the name of the destination folder and click on "SAVE". Note: the "factory" instruments can't be moved.
- Rename an instrument: click on "move the instrument into the folder", enter the new instrument name and click on "SAVE". Note: the "factory" instrument can't be renamed.

You can delete an instrument by clicking on the "DELETE" button. If you delete the customization of a "factory" instrument, the default settings will be available again. Note: you can't delete a "factory" instrument.

TUNING AND KEY

The tuning and key of the bagpipes are an important matter. All notes are tuned specifically according to a fundamental note. This tuning is seldom tempered and the drones are also tuned according to the fundamental. Therefore playing a bagpipe in a key different from its original one can cause pain to your ears.

The "KEY" button allows you to change the key of your all instrument including the drones and maintain a perfect tuning. Tip: even if the bagpipes are available with chromatic scales, always set the key of the instrument to your song key.

The bagpipes are also provided in their original tuning usually different from 440Hz in order to preserve the bagpipe tone and color. Depending on the situation you may want to adapt:

- Play with another bagpipe: adjust the tune to the other bagpipe tune and click on "LOCKED A". All instruments will respect this new tune without being modified as long as the "LOCKED A" button is active.

- Play with tempered instrument at 440 Hz: click on the "440 Hz" and "TEMPERED" button. All instruments will be adjusted as requested without begin modified as long as the buttons are activated. Note: some notes might sound roughly with the drones when tempered; this is the compromise.

HARMONY PANEL
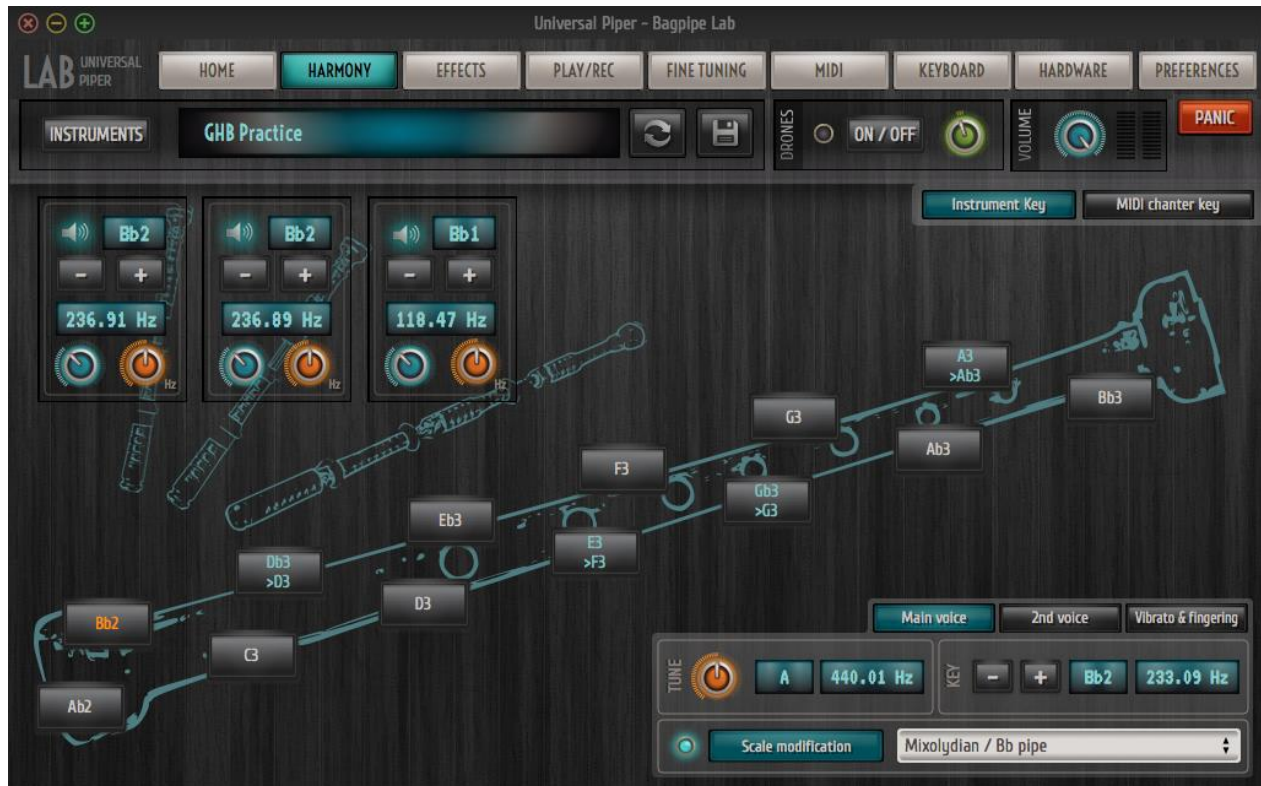
This panel allows you to modify the harmony of your instruments: chanter scale, 2nd voice and drones.

The drones settings are available all the time. The chanter represents the notes of the main voice or the second voice depending on the selected tab in the down right corner.

In case your MIDI controller is a MIDI chanter, the displayed notes are those available on your chanter. You can either display the notes in the current instrument key or those in your MIDI chanter key (useful if you are used to only one type of bagpipe).

In case you authorized the chanter scale modification in the MIDI panel, you will also be able to adjust the chanter scale in this panel. **Why should you modify the scale?** For instance, if your chanter only offers the GHB scale, you won't be able to play bagpipe in C or gaïta tunes or you will simply want to "tap" your MIDI chanter to access a Dd instead or a D.

In order to modify the chanter scale, select the "Main voice" tab, click on the note you wish to adjust and use the plus/minus button to change the note. The modified notes are displayed in blue. You have access to predefined scales in the "Main voice" tab. You can also deactivate momentary or permanently the chanter scale modification to switch back to your MIDI chanter scale. The red note is the fundamental that can't be change directly. You'll need to adjust your instrument key to change this note.
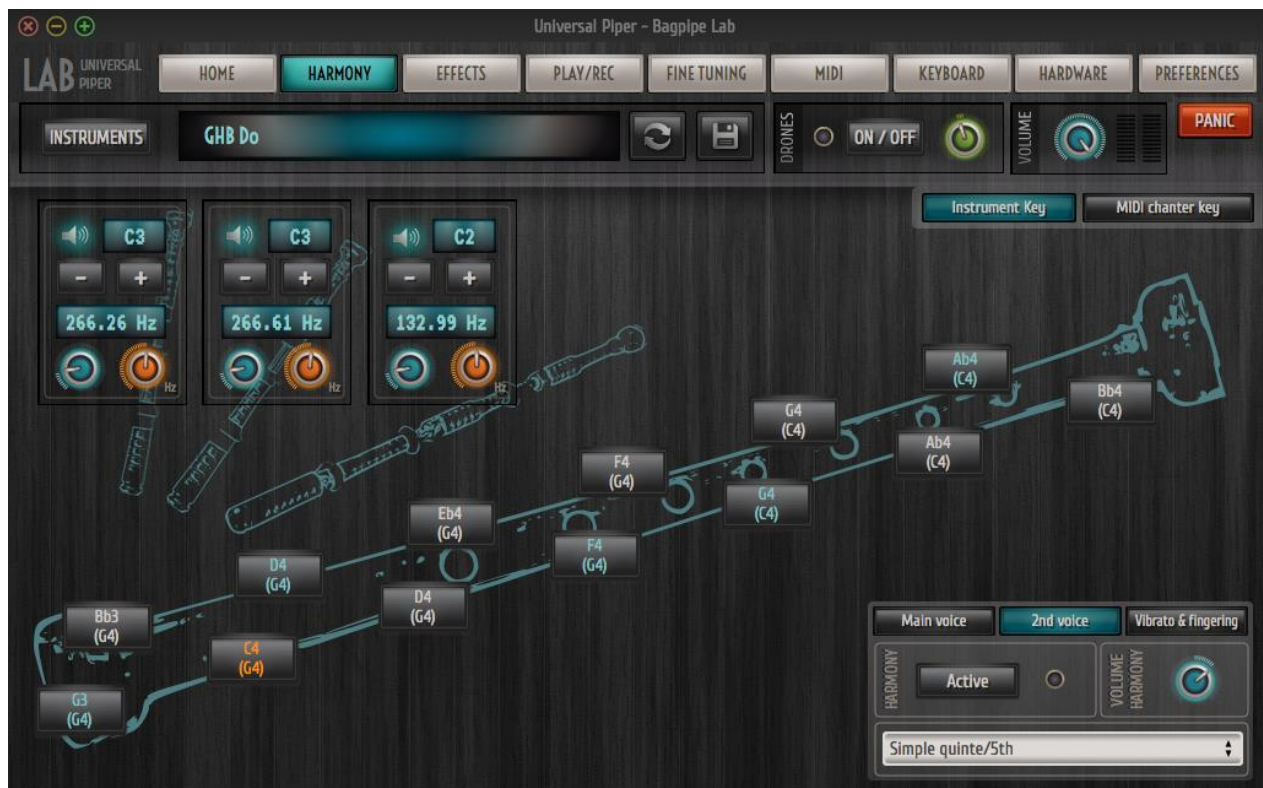
If you select the "2nd voice" tab the chanter presentation changes. It now displays on top the main voice and in brackets the 2nd voice note. You can modify the 2nd voice the same way you modify the main voice using the plus/minus button. A predefined list of 2nd voice harmony is provided in the 2nd voice tab.

The last tab allows you to modify your MIDI instrument behavior:

- You can accept or not pitchbends (vibrato), increase or decrease the effects,
- If you use a MIDI chanter with different fingerings, you can select a specific fingering depending on the instrument instead of the default MIDI chanter.
- Glissando are only available for Skelpipe.

Effects are organized in three groups:

- Effects applied to the chanter,
- Effects applied to the drones,
- Effects applied to both chanter and drones including their dedicated effects.

Effects are provided with presets and simplified list of parameters. You can access the full parameter list by selecting the "custom" option of an effect.

The effects configuration is specific to each instrument. You can apply the effect configuration of another instrument into the current one by clicking on the "IMPORT EFFECTS" button and selecting the instrument you want to copy the effects configuration.

A word about gain: if you play live, you might want to adjust the volume of your different sounds. The volume control allows you to do it still its purpose is rather to manage dynamically the volume inside a song and its value is not stored in the instrument. For a fixed volume, the gain parameter allows you to adjust the output level of the instrument and is also stored in the instrument.

As for the explanation of the other effects, best thing is to try them. The regen parameter determines the amount of output signal that is feed back into the input of the effect.

PLAY/REC PANEL

SCORE PLAYER & RECORDER TAB

To read a score, click on the folder and select a BWW or MIDI file (only the first track is read). You usually need to adjust the transposition to match the score key and the instrument key.

Score recording is performed in MIDI format, click on the record button to trigger the recording. Recording starts when receiving the first note. You can save the last recording once you are satisfied with it.

AUDIO RECORDER TAB

Note : this function is not available on iOS

The audio recorder works differently: you first need to select an output wav file in order to trigger the recording.

The "auto on/off" allows to start and stop automatically the recording together with the chanter and the drones. Once activated, click on "record", the recorder will change to "waiting" status and will change to "record" once you play. The recording will stop when you stop playing and stop the drones

This panel allows you to create your own bagpipe assembling a chanter with different drones and tuning the notes and volume as you wish.

The chanter frame displays all available notes for the selected instrument. The color code is the following:

- Orange: instrument fundamental,
- White: original note of the instrument
- Blue: note that doesn't on the genuine instrument

If you wish to apply the tuning of another instrument to the current one (even if the key is different), click on "IMPORT TUNINGG" and select the instrument you wish to copy the tuning. For instance, to build a bagpipe in C with a practice C, select" GHB Practice" instrument then import the tuning of the "GHB UP standard C" instrument.
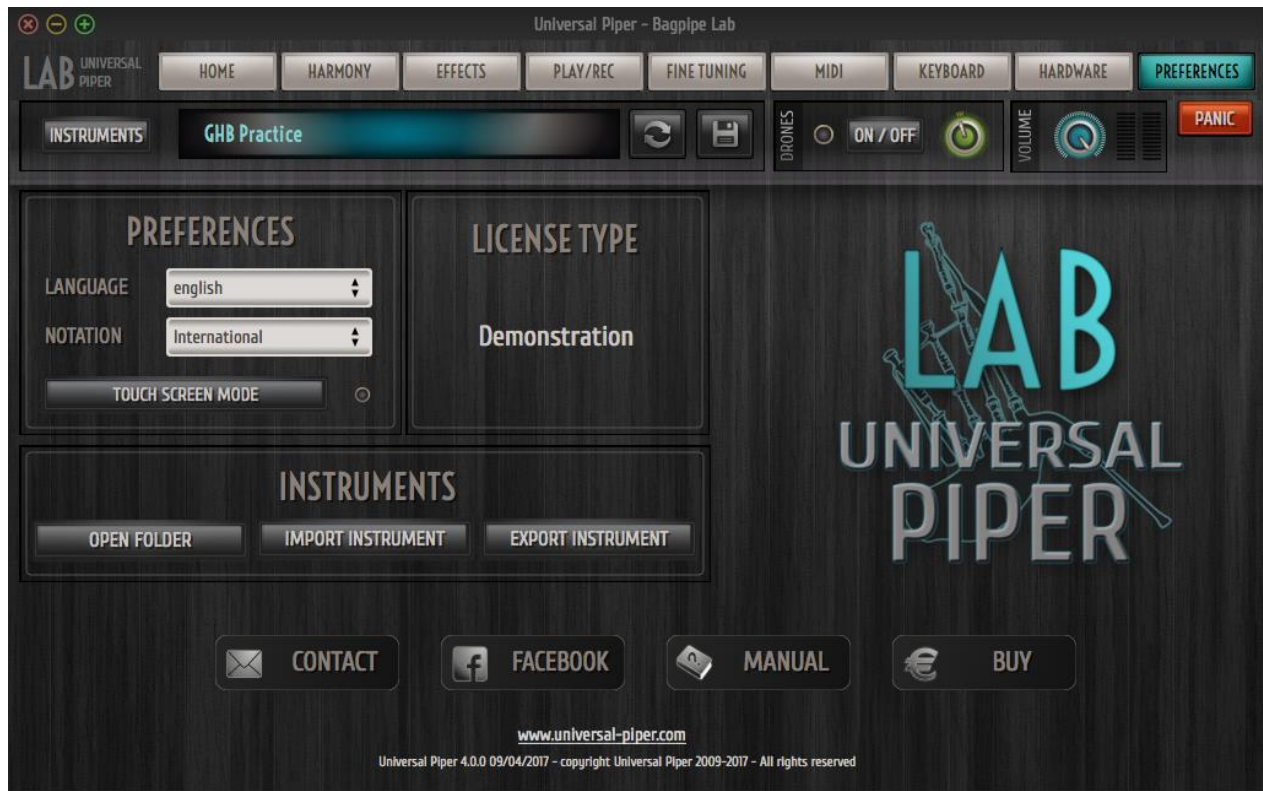
If you want to back up your presets or synchronize two computers using Universal Piper, you need to copy the following files:

- **upipe_preset.xml : contains your presets**
- **upipe_config.xml : contains your MIDI configuration**

Those files are available clicking on the "OPEN FOLDER" button.

The "IMPORT INSTRUMENT" and "EXPORT INSTRUMENT" button allow you to exchange the current instrument. Those functions are rather useful to exchange an instrument with someone else.

If you are not accustomed with MIDI, plug-in, latency, DAW, controller, you should find some answers in this chapter.

A bit of musical instruments history:

Acoustic instrument (25000 years ago): the sound is generated by vibration of mechanical parts controlled by the player and diffuses naturally. In other words, you hit the skin of a drum and you can ear the skin vibrating. The sound depends on the instrument (and the player). Example: bagpipe, piano, acoustic guitar....

Electro-acoustic instrument (60 years ago): natural sound diffusion is replaced by sound capture with a microphone, **effects** are inserted, sound diffusion is done through **amplification system**. The sound depends on the instrument and on the effects and amplification systems. Different sounds can be designed with the same instrument.

Synthesizer (50 years ago): sound is synthesized by electronic circuits. Plenty of known or unknown sounds can be generated by the same instrument and stored as **presets** to be recalled in a breeze just pushing a button. Synthesizers usually have a build-in keyboard. Actual electronic chanters are synthesizers.

MIDI definition (34 years ago): this invention has nothing to do with sound but is crucial in the music evolution. The idea is to separate the **play capture** and the sound generation and to connect both with a **standard communication cable**. On the one hand you have **MIDI controller** (keyboard, chanter, drums) that generate nothing but information (the note you play) and on the other hand sound generators (synthesizer) that process those information to play. Now, a keyboardist can play bagpipe and a bagpiper can play piano.

Computer Assisted Music (25 years ago): sound is synthesized by software called **virtual instruments** on a computer (Universal Piper is one of them). The computed signal is converted from digital (0 and 1) to analogic signal by a **soundcard**. No more sounds limit: you can compose on your computer using a symphonic orchestra, a drum and a bagpipe (Universal Piper off course).

MORE ABOUT MIDI

MIDI stands for Musical Instrument Digital Interface. It allows a MIDI controller (a chanter) to pilot several synthesizers through a cable. Through the cable controller can send MIDI messages. Those messages can be:

- **Note On/Note Off** messages: this type of message indicates to start or stop playing a note. Each note is identified by a standard number: C3 is 60, C#3 is 61...
- **Control Change** messages: those messages are used to control parameters of the synthesizer such as volume, tone, effects amount....

- **Program Change** messages: those messages are used to select a new sound usually stored in a preset.

Additionally, to be able to control several instruments, messages can be sent through 16 different channels. Each synthesizer can listen to one or several channels..

MORE ABOUT SOFTWARE

Imagine a studio with synthesizers, batteries, bagpipes, microphones, a mixing console, tape recorders...Now

imagine, you put all this in a computer. This virtual studio is called a **DAW** (Digital Audio Workstation). Well known DAW are Logic, Garageband, Cubase, Live, Protools... They include at least a virtual mixing console and recording devices where you can **plug** virtual instruments called plug-ins. There are different standard for **plug- ins** depending on your DAW. VST and Audio Unit are widespread.

MORE ABOUT CABLES

A drawback of CAM is cables. Cables are usually a source of arguments for aesthetic reason at home. To connect your virtual studio to the real world, you need to connect your computer both to your MIDI controller and to your amplification system.

Typical connections are:

- MIDI controller to MIDItoUSB converter with a MIDI cable,
- MIDItoUSB converter to computer with a USB cable,
- Computer to soundcard with a USB or firewall cable,
- Soundcard to amplification system through audio cables.

MORE ABOUT TIME

Computer are faster and faster but still all this electronic requires time and generates a delay between your fingering and the sound going out. This is called the **latency**. To keep this latency unnoticeable (max. 10 ms), the wick link is often the soundcard. PCs require a dedicated external soundcard to match the performance.