



USER MANUAL

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I INTRODUCTION

Universal Piper can be installed on Windows, OS X and iOS. Some functions are unique to or unavailable on the iOS version; these are indicated throughout this user manual. 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, registration and configuration: You'll find instruction for installation, registration, audio configuration and MIDI management configuration, which is an advanced feature vital to both live and home studio.
- Instructions: Universal Piper offers a lot of capability. If you are inquisitive, you might find some hidden gems in its functionality.
- Glossary: If you're newer to virtual instruments, you'll find some useful definitions and explanations here, especially those related to MIDI.

2 INSTALLATION, REGISTRATION AND CONFIGURATION

To install Universal Piper, follow those steps:

- I recommended you plug your audio interfaces and any MIDI controllers in; this will make initial configurations easier. You can modify the configurations later if required,
- Start and follow the instructions of the Universal Piper installer,
- Start Universal Piper and follow the configuration instructions,
- You can play!
- Now 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...

2.1 MAC OSX INSTALLATION

Prerequisite: Mac with Apple Silicon or Intel processor, OS X version 10.13 or later

The installation includes the application and the plug-in in Audio Unit and VST2 and VST3 format. The installation will install Universal Piper to the following folders:

- Application : */Applications/Universal Piper.app*
- Audio Unit plug-in : */Library/Audio/Plug-Ins/Components/Universal Piper.component*
- VST2 plug-in: */Library /Audio/Plug-Ins/VST/Universal Piper.vst*
- VST3 plug-in: */Library /Audio/Plug-Ins/VST3/Universal Piper.vst3*
- Universal Piper library: */Library /Univeral Piper* → **this folder should not be moved.**

The user configuration files are located in the */users/<your account>/Library/Universal Piper*

2.2 WINDOWS INSTALLATION

Prerequisite: Intel or AMD 64 bit processor, Windows 10 64 bit or later.

Note : Windows Defender might display a warning message when starting the installation. Discard the warning to proceed to installation.

The installation includes the application and the plug-in in VST2 and VST3 format. The installation will install Universal Piper to the following folders:

- Application : *C:\Programmes\Universal Piper\Universal Piper.exe*
- VST2 plug-in: *C:\Programmes\Universal Piper\Universal Piper.dll* → the plug-in can be moved in the any folder.
- VST3 plug-in: *C:\Program Files\Common Files\VST3\ Universal Piper.vst3*
- Universal Piper library: *C:\Programmes\Universal Piper\Library* → **this folder should not be moved**

The user configuration files are located in the *c:\users\<your account>\AppData\Local\Universal Piper*

2.3 REGISTRATION

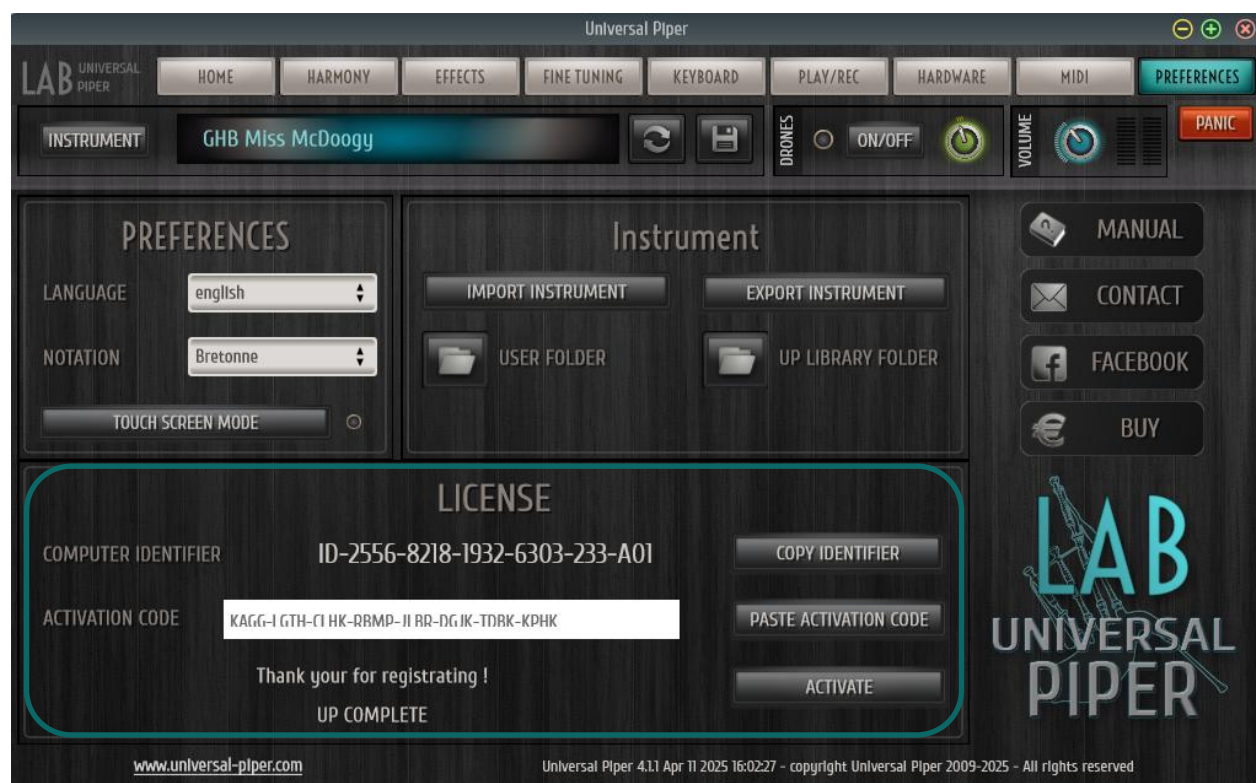
So long an installation of Universal Piper is not activated you will see the message

Evaluation mode: Universal Piper is fully fonctionnal except for a random silence

To activate your copy of Universal Piper, proceed as follows:

- Provide me with your computer identifier through the purchase form or via mail. I recommend to use the "COPY IDENTIFIER" to avoid misspell.
- I'll send you the corresponding activation code by mail within 48 hours (usually much faster). You can paste the code using the "PASTE ACTIVATION CODE" button
- Your copy is registered, the random silence disappear

Each computer identifier is unique to a computer. If you have two computers, you will have to provide the two computer identifiers and will receive two activation codes. If you change your computer, you will also need to register the new computer.

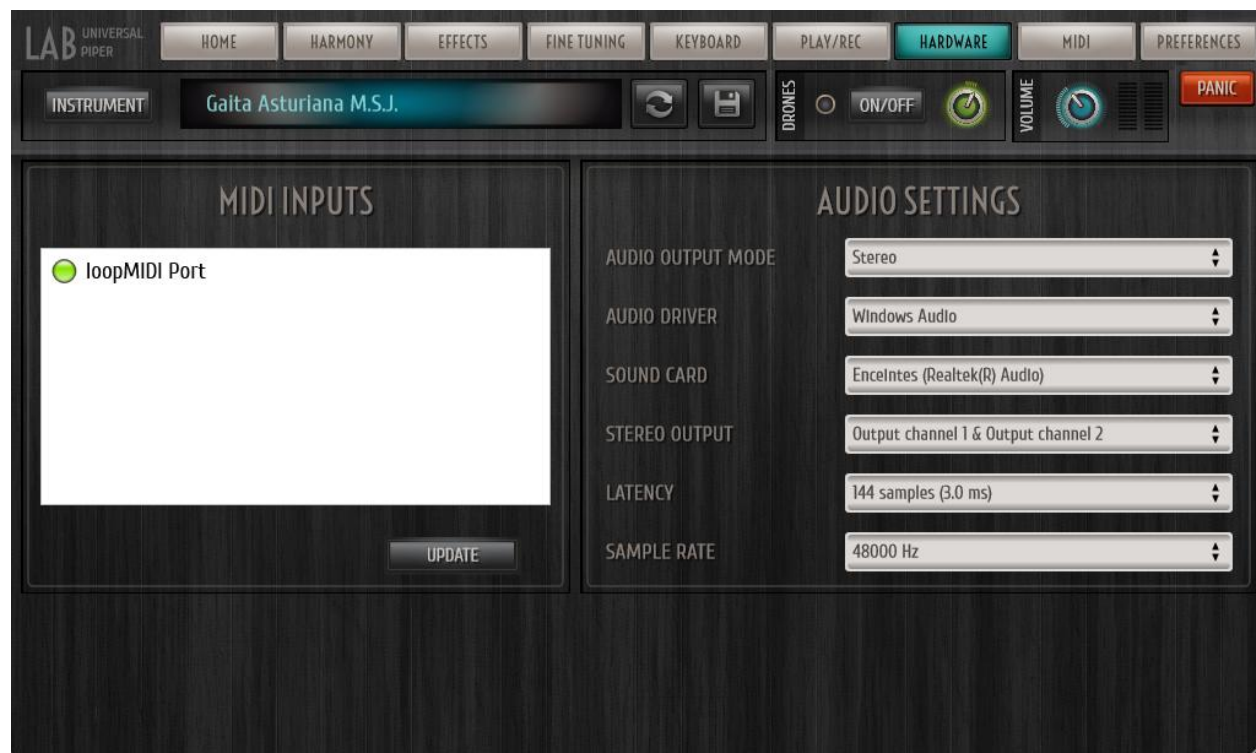


2.4 AUDIO CONFIGURATION

Once installed, Universal Piper is ready to play, but I recommend that you adjust the default latency proposed by your computer. The latency is the delay between you playing a note and hearing the note. The faster you play, the smaller the required latency should be.

As a general point of reference, 10 ms is fitting for slower music, 5 ms is very reactive, and 3 ms or less is imperceptible. However, keep in mind that the smaller the latency, the more processor resources will be used.

The audio configuration is performed in the **HARDWARE** tab:



If you exceed your sound card's capability, you will hear cracking and a distorted sound. If this occurs, increase the latency until it goes away.

On Windows, the achievable latency depends largely on the selected audio driver. Some drivers can have problems with even 20 ms latency. Usually ASIO drivers, followed by Direct Sound drivers, have better performance. 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 sound card. ASIO4ALL was 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:** used to tune the chanter and drones separately on a mixing board
- **Double mono:** the chanter and the drones are mixed in mono; used to send the mix to a mixing board and monitor live.

2.5 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 indicates the input is active, a red one that is it deactivated.

You can activate or deactivate each MIDI input separately by 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.

2.6 MIDI INSTRUMENT CONFIGURATION

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

The following settings allow you to adjust this configuration if needed. The settings are divided into two tabs, located at the bottom of the screen:

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

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

- Universal Piper has a dedicated input and processing for MIDI chanters. Using 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 can alter the scale of your MIDI chanter (just like tapping a real chanter). Most commercial MIDI chanters are preconfigured, including their different fingerings to make things easier.
- A second input is dedicated to MIDI keyboards and EWl controllers. This input is a standard MIDI input without alteration, except for a fixed transposition you can adjust. 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 (such as volume, drones, and start).
- You can set the MIDI channel for each of those inputs. Universal Piper will process them in this order: the control input first, then the MIDI chanter input, then the MIDI keyboard input.
- You can associate Program Change to your Universal Piper instruments to call them back quickly with your MIDI controller.
- ON/OFF type parameters of Universal Piper can be controlled using three different modes: momentary (ON as long as it doesn't receive an OFF MIDI message), toggle (changes its state each time it receives an ON MIDI message), and automatic (if the ON message stays long enough, it will be considered momentary; otherwise, it will be treated as a toggle). The ON/OFF type parameters can be controlled through Command Control (CC) or Note ON/OFF MIDI messages.

All those settings allow you to manage complex configurations. If you are not familiar with MIDI, here is some advice:

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

A frequently asked question is **how do I control the drones?** There are several ways:

- Use the Drones ON/OFF function, which 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 MIDI chanters that generate specific notes for drones, the preconfiguration includes this setting. You can control the drones' long start and short start (DRONES – SHORT START) separately.
- If you use Universal Piper as a plugin, the previous parameters can be controlled through automation.

2.6.1 MIDI CHANTER TAB



MIDI CHANTER Frame

A few up-front notes:

- Default MIDI chanter (as well as its fingering): The title says it all. You can also select a specific chanter and/or fingering for each instrument in the Harmony panel.
- Authorize MIDI chanter scale modification: 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, you will play in the selected instrument scale. You can alter this scale or switch quickly to your MIDI chanter scale in the HARMONY panel.

If you don't find your MIDI chanter and/or its fingering in the predefined list, contact me and I can add it. As a workaround, you can configure Universal Piper:

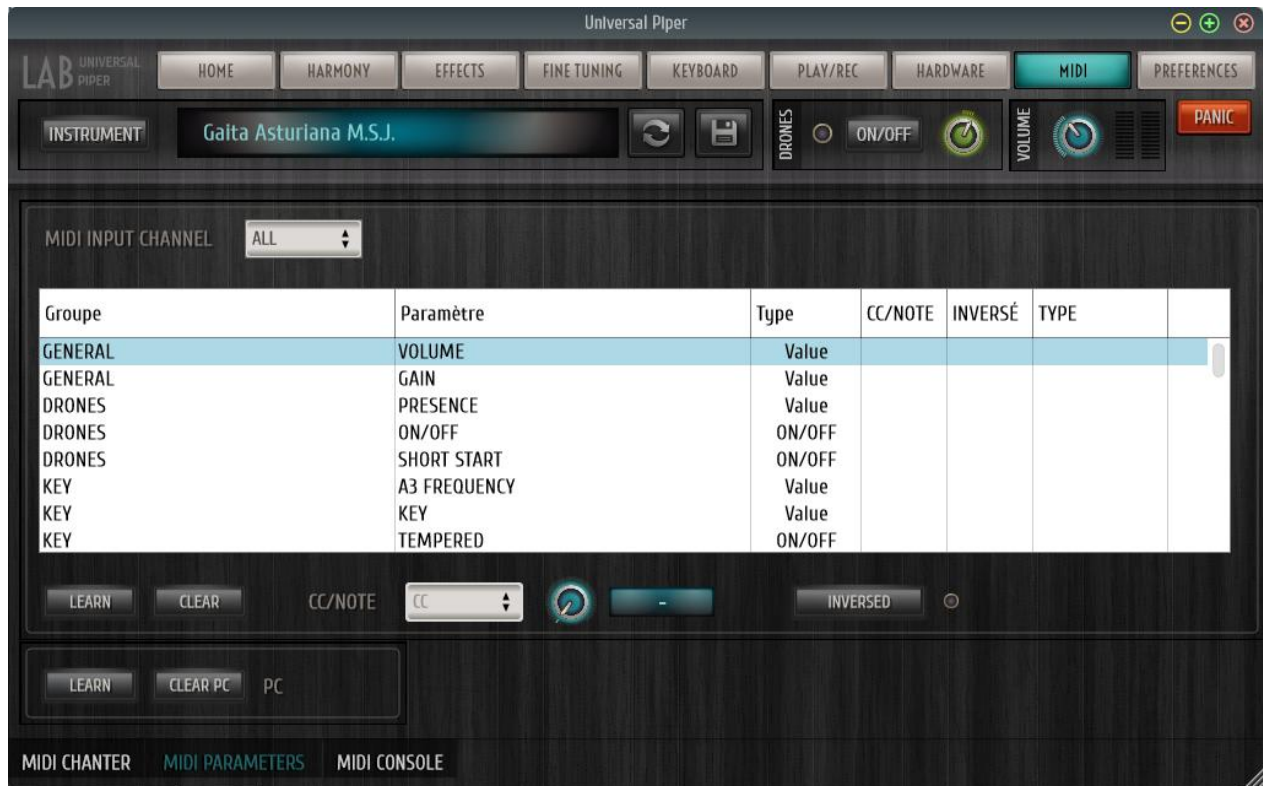
- Select «Generic MIDI Chanter- B3=MIDI 70».
- Activate your MIDI chanter and prepare to play a Low A.
- Click on the "LEARN" button.
- Play the Low A until the "LEARN" button is off.
- Your MIDI chanter tone should be set.

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

ALL MIDI CONTROLLER frame

- Drone auto on/off : the drones are playing and stopping together with the chanter
- 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.
- Chanter stop delay: this delay smooths micro sound interruptions that can be related to a legato not playing perfectly or MIDI chanter hand-dryness issues. This delay is the time before the last note is actually stopped.
- Pitchbend range: you can increase the default semi-tone range of the pitchbend

2.6.2 MIDI PARAMETERS TAB



Here you will find all the parameters of Universal Piper that can be externally managed (almost everything). You can set the parameters manually or by learning (via the LEARN button) and triggering the corresponding MIDI message with your MIDI controller.

You can also define 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 *up_shared_pc_list.csv* file available in your UP preference folder (see PREFERENCES panel).

3 INSTRUCTIONS

3.1 UNIVERSAL PIPER OVERVIEW

3.1.1 HOME

Quick access to the instrument choice and main parameters in a simple panel, optimized for live performance. You can also manage your customized instruments here..

3.1.2 HARMONY

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

3.1.3 EFFECTS

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

3.1.4 FINE TUNING

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

3.1.5 KEYBOARD

If your computer has a touch screen, you can use this to play on your computer.

3.1.6 PLAY/REC

This has three functions: to play MIDI/BWW files, and record your performance in MIDI or audio. It also includes a metronome.

3.1.7 HARDWARE

Audio output and MIDI input hardware configurations are done here.

3.1.8 MIDI

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

3.1.9 PREFERENCES

Here you will find links to Universal Piper social media, as well as quick access to the Universal Piper folder containing your instruments and configurations.

3.2 HOME PANEL



3.2.1 CUSTOMIZED INSTRUMENTS MANAGEMENT

Universal Piper is delivered with a set of predefined "factory" instruments (bagpipes) which are stored in different folders. You can select one of those instruments by clicking on the "INSTRUMENTS" button or by clicking on the large arrows to the left and right of the instrument's image to scroll through the list.

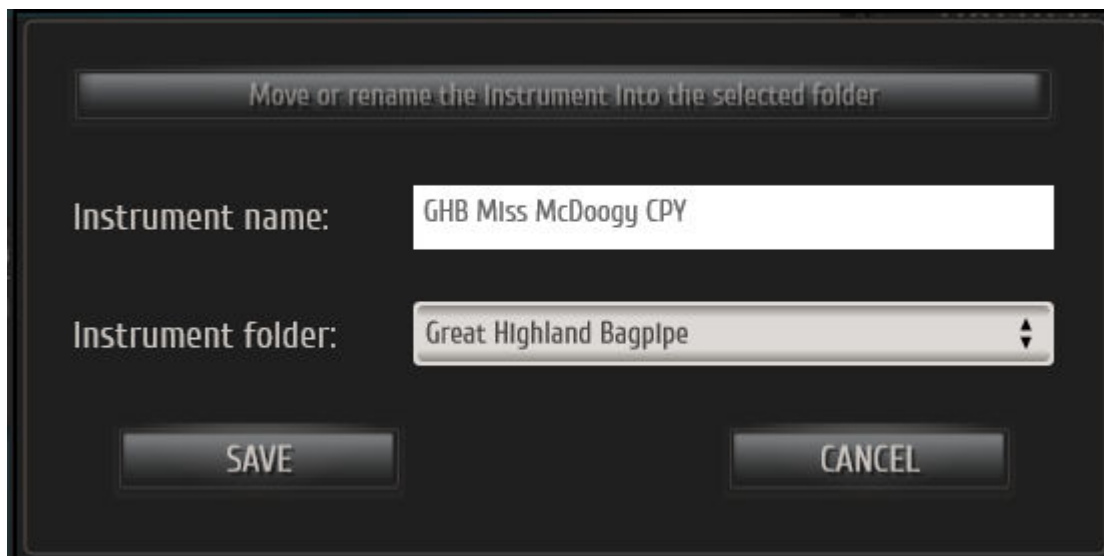
You can also create your own customized instrument by saving all settings available in the HOME, HARMONY, EFFECTS and FINE TUNING panels. You can do this in two ways:

- Overwrite a factory instrument setting: 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 button saves the current settings under the name and folder of the current instrument. If it is a factory instrument, the factory settings are replaced by yours. Universal Piper also keeps a backup of the factory settings just in case...

If you've changed an instrument, but haven't saved the changes and want to revert to the last saved settings, click on the INITIAL SETTING button.



The "SAVE AS" button allows you to duplicate, move and rename instruments. If you want to:

- Duplicate an instrument in the same folder: Enter the name of your new 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: Enter the name of the destination folder and click on SAVE. Note: the factory instruments can't be moved.
- Rename an instrument: Enter the new instrument name and click on SAVE. Note: the "factory" instruments 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.

3.2.2 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. The drones are also tuned according to the fundamental note; therefore, playing a bagpipe in a key different from its original one can cause pain to your ears.

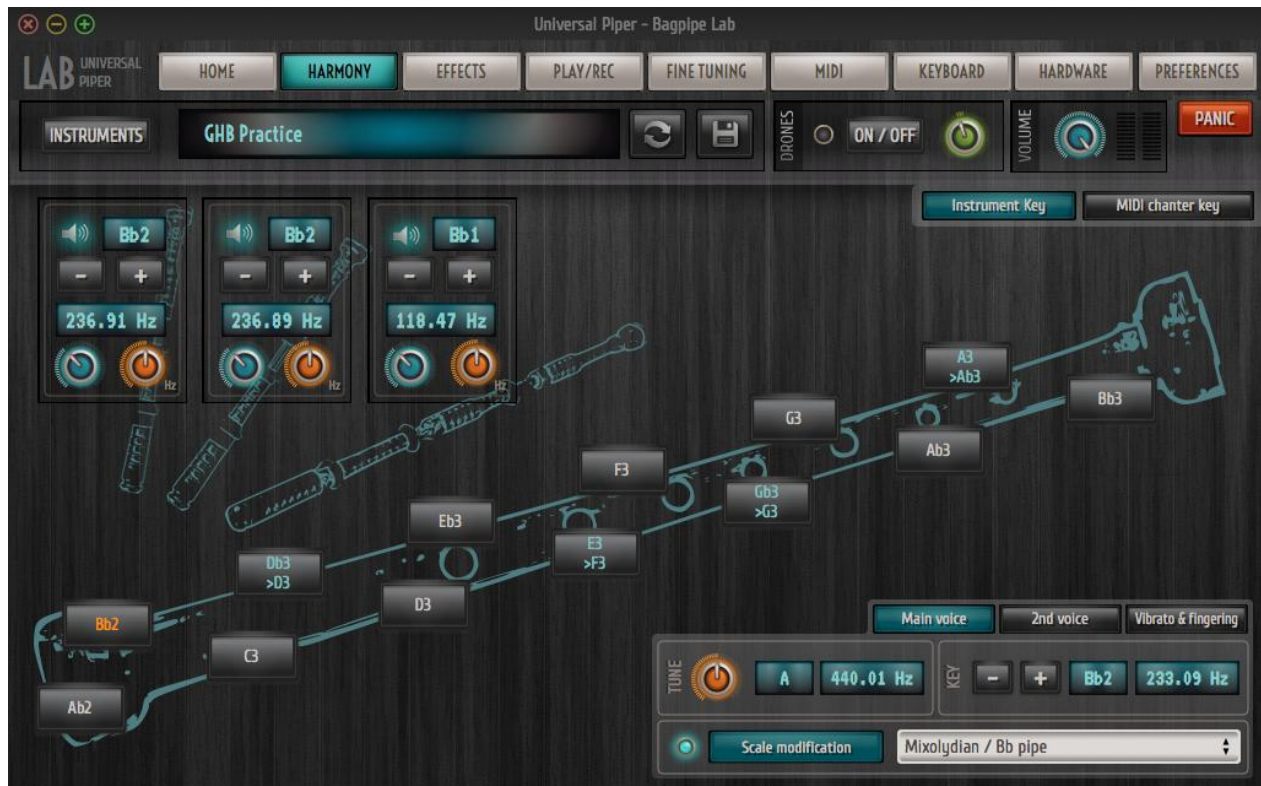
The KEY section allows you to change the key of all instruments, including the drones, and maintain a perfect tuning. Tip: even if the bagpipes are available with chromatic scales, always set the key of the instrument to your song key.

The bagpipes are also provided in their original tuning, which is usually different from 440Hz 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 being modified for as long as the buttons are activated.
Note: some notes might sound rough with the drones when tempered; this is the compromise.

3.3 HARMONY PANEL



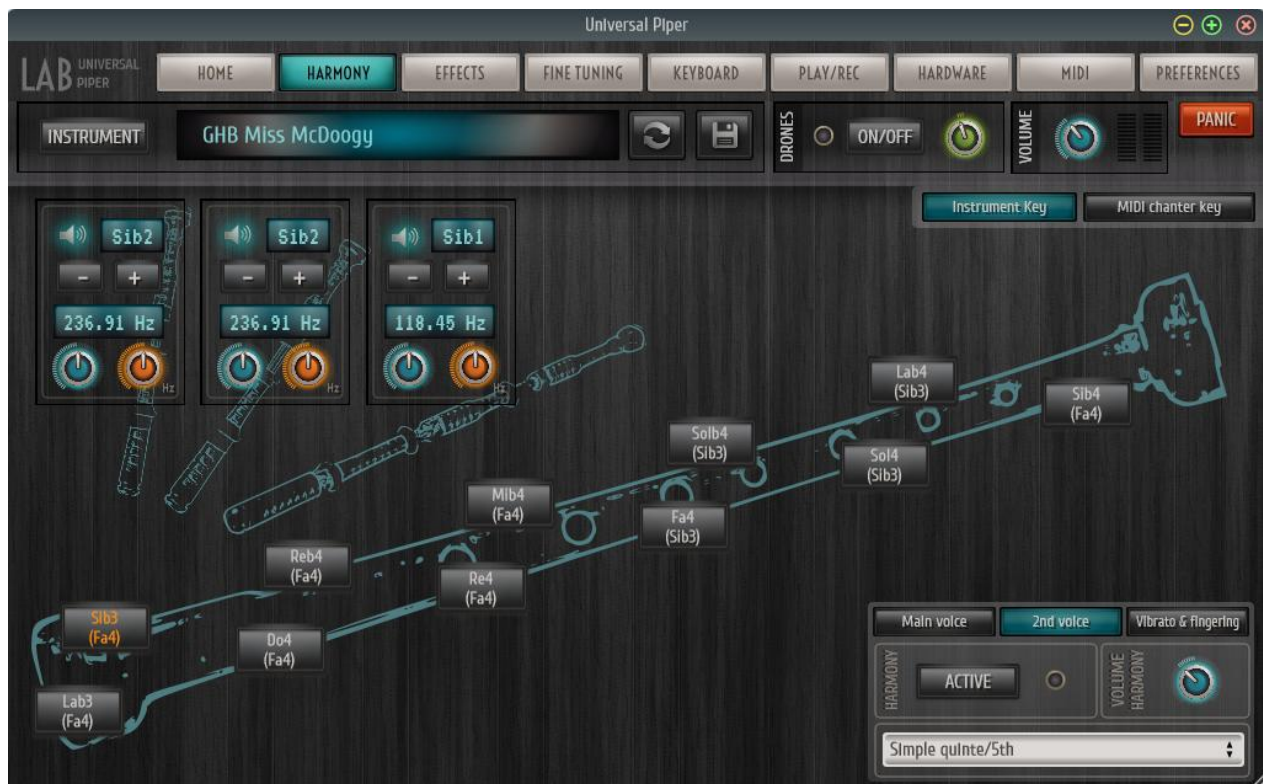
This panel allows you to modify the harmony of your instruments: chanter scale, 2nd voice, and drones.

The drone 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 lower-right corner.

If 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).

If 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?** If your chanter only offers the GHB scale, or you won't be able to play your bagpipe in C or gaïta tunes, or you simply want to "tap" your MIDI chanter to access a Dd instead of 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 here. You can also momentarily or permanently deactivate the chanter scale modification to switch back to your MIDI chanter scale. The red note is the fundamental note and can't be changed directly. You'll need to adjust your instrument key to change this note.



If you select the 2nd voice tab, the presentation of the notes on the chanter changes. It now displays the main voice on top and the 2nd voice note in parentheses. 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 harmonies is also provided.

The Vibrato & Fingering tab allows you to modify your MIDI instrument behavior:



- You can toggle pitchbends (vibrato) and increase or decrease the effects:
- If you use a MIDI chanter with different fingerings, you can select a specific fingering instead of the default MIDI chanter, depending on the instrument.

3.4 EFFECTS PANEL



Effects are organized in three groups:

- Chanter: Effects applied only to the chanter
- Drones: Effects applied only to the drones
- Mix: Effects applied to both the chanter and drones, including their dedicated effects

Effects are provided with presets and a 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 effects configuration of another instrument to the current one by clicking on the IMPORT EFFECTS button and selecting the instrument you want to copy the effects configuration from.

A word about gain: if you play live, you might want to adjust the volume of your different sounds. The Volume control on the Main panel allows you to do this, but its main purpose is to dynamically manage the volume for a song; 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 stored in the instrument.

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

3.5 FINE TUNING PANEL



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 as follows:

- Orange: instrument fundamental
- White: original notes of the instrument
- Blue: notes that don't exist on the real instrument

Tuning of chanter and drone notes is indicated both in Hertz and Cents. A value of +0 Ct corresponds to the tempered scale.

If you wish to apply the tuning of another instrument to the current one (even if the key is different), click on IMPORT TUNING and select the instrument you wish to copy. For example, to build a bagpipe in C with a practice C, select the "GHB Practice" instrument, then import the tuning of the "GHB UP standard C" instrument.

You can activate the tempered scale: in that case, the tuning of the chanter notes is computed automatically and can't be changed.

3.6 PLAY/REC PANEL



3.6.1 SCORE PLAYER & RECORDER TAB

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

Score recordings are saved in MIDI format. To record, simply click on the red record button to trigger the recording. Recording starts when the first note is played. You can save the last recording once you are satisfied with it.

3.6.2 AUDIO RECORDER TAB

Note: this function is not available on iOS

To record, simply click on the red record button to trigger the recording. Recording starts when a sound is emitted by Universal Piper. You can save the last recording once you are satisfied with it.

The AUTO ON/OFF button allows you to automatically start and stop the recording together with the chanter and drones. Once activated, click on RECORD; the recorder will change to "waiting" status and then to "record" status once you begin to play. The recording will stop when you stop playing (the drones will stop as well).

3.7 PREFERENCES PANEL



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
- **up_shared_pc_list.csv**: contains the MIDI Program Change assignation

Click on the USER FOLDER button, select those files, and save them wherever you wish.

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

4 GLOSSARY

If you are not familiar with terms like MIDI, plugin, latency, DAW, or controller, you should find some answers in this chapter.

A bit of musical instrument history (from 2009 point of view):



Acoustic instruments (25,000 years ago): sound is generated by the vibration of various parts controlled by the player and diffuses naturally. For example, if you hit the skin of a drum, you hear the skin vibrating. The sound depends on the instrument (and the player). Examples include the bagpipe, piano, and acoustic guitar.

Electro-acoustic instruments (60 years ago): natural sound diffusion is replaced by sound capture with the aid of electronics. **Effects** can be added, and sound diffusion is done through an **amplification system** (speakers). The sound depends on the instrument, effects, and amplification system. Different sounds can even be created with the same instrument.

Synthesizers (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 by just pushing a button. Synthesizers are usually in the form of an electronic keyboard, but this is not required; for example, electronic chanters are synthesizers.

MIDI (34 years ago): this invention has nothing to do with sound, but is crucial to music evolution. The idea is to separate the **play and capture** of the sound's characteristics from the sound generation, connecting the instruments and the sound generators with a **standard communication cable**. On one hand, you have a **MIDI controller** (such as a keyboard, chanter, or drums) that generates nothing but information about the notes you play; on the other hand, you have sound generators (such as audio interfaces or your computer's sound card) that process that information and convert it to audio. Now a keyboardist can play bagpipes and a bagpiper can play piano.

Computer Assisted Music (25 years ago): sound is generated by software called **virtual instruments** on a computer (Universal Piper is one of them). The computed signal is converted from digital bits of information to analog sounds by a **sound card**. This has effectively eliminated limits on the sound one can make: you can compose on your computer using anything from a symphonic orchestra to a drum to a bagpipe (Universal Piper off course).

4.1 MORE ABOUT MIDI

MIDI stands for Musical Instrument Digital Interface. It allows a MIDI controller (such as a keyboard or chanter) to generate sounds through a cable. Through the cable, the controller sends MIDI messages to a processor (sound card, computer) that converts them to audio. Those messages include 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, and so on.
- **Control Change (CC)** messages: those messages are used to control parameters of the MIDI controller, such as volume, tone, and effects.
- **Program Change** messages: those messages are used to select a new sound, usually stored in a preset.

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

4.2 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 DAWs include Logic, Garageband, Cubase, Ableton Live, and Pro Tools. They include a virtual mixing console and the ability to add **plugins**, such as virtual instruments. There are different formats for plugins, depending on your OS and DAW. VST and Audio Unit (AU) are the two most common.



4.3 MORE ABOUT CABLES

A drawback of CAM is cables. Cables are usually a source of arguments for aesthetic reasons 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 (speakers).

Typical connections are:

- MIDI controller to MIDI-to-USB converter with a MIDI cable
- MIDI-to-USB converter to computer with a USB cable
- Computer to audio interface/sound card with a USB or firewall cable
- Audio interface/sound card to speakers through audio cables.

4.4 MORE ABOUT TIME

Computers are getting faster and faster, but all this technology still requires time; there is still a delay between your fingering and the sound going out. This is called the **latency**. To keep this latency unnoticeable (ideally, no more than 10 ms), the weak link is often the sound card. PCs require a dedicated external sound card to match the performance.