Important Changes Since Ver. 4

iDensity 4 is a major release which enables Plugins support: you can connect up to eleven RAU (Remote Audio Units) for both IAA (i.e. Inter-App Audio) and AUv3 (i.e. Audio Unit Extension). With this new feature iDensity works both as a Client and as a Host. For example, you can route the Audio Signals to external Effects and/or Instruments that you can play through the embedded virtual keyboard or via MIDI. Now there are no more limits to creativity!

1) ⊖⊖In the Granular Stream Parameters View, the 'Link' toggle, will enable the current Stream or the AUv3 Plugin, to play/stop/rewind according to the Master play/stop/rewind buttons (on the main tools-bar or on the HOST Transport bar for the AUv3 Plugin).

2) The Granular Streams Pitch Keyboard now responds to the Master Virtual Keyboard (or via MIDI), you need to enable (subscribe) by switching on the toggle on the Patchbay view, see 'Patchbay' section for more details.

3) The GS 'Freeze' now works independently from the 'Scanning Ratio' or 'Measures and Quarter' (when is Linked) parameters, see 'Granular Stream' section for more details.

4) The GS 'Measure and Quarter' (in Link mode) can be sets to zero to Freeze or to negative values to play backwards, see 'Granular Stream' section for more details.

Audio Unit

Since iOS 9 Apple introduced the Audio Unit V3 format which enables multiple instances of the same plug-in running at the same time.
You can load these modules with compliant hosts like Apple's own GarageBand or other audio editing and mixing apps. These plug-ins are compatible with the host-automations, host-save/load presets and host-save/load state in the session. Three modules are available in AUv3 format:

Instrument units, which take MIDI as input, **Effect** units and **Music effect** units. The Music effect combine features of instrument units (such as frequency control) with features of effect units
The 'Instrument' and 'Music Effect' Plugins treat the MIDI Note/On to change the pitch according to the Keyboard grid.

When you are loading iDensity Fx or MFx, the LIVE Input is enabled by default and you can see the Dry/Wet slider on the top right.

Conversely when you load iDensity as Instrument, will start with a default sample. The Audio Unit Extension (i.e. AUv3) can share data only with the main App. The extension have two Manager called QuickSamples and QuickPresets for facilitate the audio/presets sharing. When you copy samples or preset banks, from/to, you will make a copy in a shared folder which is accessible from both.

WARNING:

The memory limit imposed for AU Extensions on iOS is 300 MB for 32-bit devices and 360 MB on 64-bit devices.

These are performance considerations as you can expect from iOS devices having limited shared resources.

We do not recommend loading more than 12 instances.

Sharing procedure (only iOS:)

1) From the AUv3 plugin open QuickSamples or QuickPresets Manager

2) Tap the 'Download icon' this will launch the main app

3) From the main app, if you are importing an Audio Sample, tap one of them and chose 'Share with AUv3'. If you are importing a Preset Bank, select it and tap the 'Share icon'

4) Now you needs to coming back to the Host where you are running the AUv3 plugin, double tap on the iDevice Home Button and select the app.

5) To complete the retrieve process you need to tap the 'Sync icon'

Tips & Tricks

- **Since the presets are shared between the standalone and AUv3, the STREAM 2 is the considered as source for the AUv3 one. It mean that if you save a preset in the standalone app and you load it in the AUv3, will imported only the STREAM 2 state. Viceversa if you save a preset in the AUv3 the state of the preset will affect only the STREAM 2 in the standalone app.**

- Double tap on the **Knobs/Sliders** to show the options. In the '**Edit**' field you can enter the value from the keyboard. Tap '**Random**' to generate a

random value, '**Default'** to reset to the factory settings and configure the knobs dragging behavior. Step fine resolution sets how many points of movement result in a one degree rotation in the knob's position. Only used in the horizontal/vertical slider modes. You can set Knobs behavior from Settings.

- Long Press Tap on the **Toggles** to open Control Manager Assignations.

- Pinch In/Out on the Waveform when is in Zoom mode and Double Tap to fully zoom out.

- iDensity can play audio in the background and/or mix it's own audio with other iOS apps. iDensity also supports Audiobus and Apple IAA (i.e. Inter-App Audio) in order to send and receive audio through up to six separate channels for the Input and six for the outputs. iDensity also offers regular two channel output for mix-down.

- Swipe gesture (right to left) on a preset or bank to rename/duplicate/delete it. See Presets for more details.

- You can load Presets (current selected bank) by remotely sending a MIDI Program Change message. See MIDI section, below for further details. You can select the MIDI channel where you can receive PC messages. A PC value of zero will select the first preset in the list, a value of 1 for the second etc… The range is from 0 to 127.

- When you are connected in Audiobus or Inter-App Audio, the FX chain will affect only the 'iDensity Out All' sender slot. The six stream senders are not affected by the audio FX chain (i.e. Parametric, High Shelf, ClassicVerb and Dynamics Processor), see 'Post Processing Effects' for more explanations.

- We suggest you to disable the screen rotation, otherwise the accelerometer doesn't work properly.

- In the Matrix, swipe up/down or Long-press the Inter Audio App or Audio Unit V3 (i.e. RAU) to remove the node.

- **Init** will reset to default values, a reset message will be displayed.

- **Create Random Sound** values for all of the parameters including the FX parameters. The result can be very interesting and wayward.

▶ |◀

The main tools-bar contains the Transport buttons to play/stop/rewind the subscribed Granular Streams, see 'Granular Streams' section and for the RAU (Remote Audio Units) Clients, see 'Audio Unit'. Since iDentity acts as an Audio unit HOST, these buttons are indispensable to trigger on/off the RAU clients (if they require these informations), as well the iDensity Virtual Keyboard to play RAU instruments.

🗀 [•] ⌕

In the main tools-bar we have some shortcuts for all six Granular Streams, you can use to load an audio sample, (see Samples Manager for mode details), Freeze all six Granular Streams and Play / Stop the circular scrub buffer.

◀▣▶ ◡ Enable/Disable Accelerometer X/Y and LFO, see the Control Manager for more details.

● Captures Output stereo signal (post Effects) and creates an audio file *wav* format 44.1 kHz 16 bit in the Documents Folder. Files created by *iDensity* are saved with an id-name followed by a number, for example:
Output Rec 1.wav, Output Rec 2.wav etc.
Each new file will be numbered with the next consecutive number.

SYNC

🔗🔗 The goal of SYNC is to setup a global Metronome (MASTER BPM). This will affect the LFO (Low Frequency Oscillator) and/or the Sampler (or Sequencer etc…) when enabled to receive SYNC.

You can set the BPM (Beats Per Minute) by scrolling up/down (or left/right) the label value (♩ 120 ←○→) or tap out the tempo.

Single Tap or Long Tap the minus/plus buttons to increase or decrease by 0.25. By default 120 BPM corresponds to 1 Hz frequency for the LFOs.

Ableton Link description
Ableton Link is a new technology that synchronizes the beat, phase and tempo of Ableton Live and Link-enabled iOS apps over a wireless network. It lets you play devices together with the freedom of a live band. Anyone can

start and stop their part while others keep playing, and anyone can adjust the tempo and the rest will follow. You can use Link to play with several copies of Ableton Live, with Live and iOS apps, or with iOS apps together – even without Live in your setup.

MIDI Clock description
The clock signal is broadcasted via MIDI to ensure that several MIDI-enabled devices such as a synthesizer or music sequencer stay in synchronization.
The iOS implementation is designed to provide precise, jitter-free MIDI clock transmission and robust, error-tolerant MIDI clock reception.

Quantization
When you are connected to an Ableton Live Session, the Play/Stop/Rewind transport will wait until the next sync quantum boundary before starting.

The 'Sync' button waits for the next beat (Tempo Forte) from the MIDI Clock or Ableton Link and resets all phases for LFOs, Sequencer etc.

Send MIDI Clock
Will create a virtual MIDI port for the MIDI Clock Output.
In Play/Stop mode the MIDI Start/Stop Clock messages
are sent according to Transport Play/Stop (Sampler, Sequencer etc…). In 'Always' they will not be sent every time, but only at start.

Please note when you are connected to Ableton Link, the incoming MIDI Clock is disabled while you can send MIDI Clock out, converting the Ableton Link to MIDI Clock.

Receive Sync
1) Local-Host
2) MIDI Clock signal
3) Ableton Link.

When the Ableton Link its enabled the Local-Host and MIDI Clock will be disabled and viceversa.
In Local-Host when the app is connected through Inter-App Audio, will receive the Sync from the HOST (if available, i.e. tempo/start/stop) and the current BPM is overridden.
When MIDI Clock is activated, you cannot change the BPM (Slave) since is controlled by the MIDI Clock (Master). Through the 'CLOCK' button you can select a MIDI Clock Source.

Patchbay

The Matrix provide a flexible and easy way to make complex connections between the Granular Streams, Effects and External Plugins.

RAU (AUV3 and Inter App Audio) Gestures:
Tap on the "+" sign to open an external app (IAA) or AUv3. The "+" sign is replaced by the app icon.
Single tap a node to switch to the app window if the node is an IAA.
The user interface of an Audio Unit Extensions appears directly inside the iDensity app in a floating resizable window (tap the node to bring up the plugin user interface).
Tap and hold a node to drag it in another position.

Swipe up/down or Long-press the app icon to remove the app.

All the nodes have a Dry/Wet slider on the upper left of the edit window. Here is an explanation of the processing of each node, with a list of parameters.

Plugins Support

iDensity can host up to 6 Nodes (i.e. RAU, Remote Audio Units), which can contain Audio Unit Extensions (AUv3) and IAA (Inter-App Audio) as instruments, generators, effects and music effects, on iOS 9 and later.
The Audio Unit Extension is a new audio Apple standard (more on it below). Both types of plugins can receive the host transport state and a beat clock signal for sample accurate synchronization.

AUv3

Unlike the standard music apps, the AUv3 plugins can be launched multiple times. This way you are able to create multitimbral instruments with the same synth plugin or use multiple instances of an effect plugin (filter, delay, etc.) in multiple audio pipelines.
The user interface of an Audio Unit Extensions appears directly inside the iDensity app in a floating resizable window (tap the node to bring up the plugin user interface).
The state of current Audio Unit Extension is saved with the iDensity presets and, of course, you can create multiple instances of the same AUv3 plugin.

Inter-App Audio

An IAA (Inter-App Audio) node is actually a separate app, so when you tap the node inside iDensity, the display switches to the IAA app.
The IAA Instruments and Music Effects can receive MIDI messages directly from iDensity: there's no need to run a separate Virtual MIDI port.
Note that the state of the IAA nodes is NOT saved with the iDensity presets.
Please be aware that all RAU nodes (Instruments or Music Effects) receive MIDI from the same port and channels.

Built-In FX

We have three effects: *Parametric Filter, High Shelf Filter and ClassicVerb.* The amazing ClassicVerb is a reverberation based on an high-quality algorithm, it is possible to control, independently, the early-reflections and the reverberation tail.
Special thanks to **Carmine Cella.**
www.sonic-pad.com

As you can see the Patchbay view contains some shortcuts to play/stop or enable LIVE on the relative GS (Granular Streams).

For instance when the keyboard icon is enabled on a stream, the Granular stream Pitch will change according to built-in Virtual Keyboard or via MIDI.
N.B. In the iPhone/iPod Touch version of iDensity you can find these toggles directly in the keyboard view.

Mixer

Σ

You can adjust the Amplitude and Panning for the Six Granular Streams and for the Six RAU (Remote Audio Units). The most top slider (Passthrough) does not affect the Input gain but works just when the input is connected to the output (🎚 → 🔋) The main purpose of this connection is to forward the direct signal to the output and prevent the audio feedback.

Virtual Keyboard

The Virtual Keyboard responds to the remote MIDI note on/off messages, see 'MIDI' section for more details.
The Virtual Keyboard can change the pitch of the six built-in Granular Streams and/or play the RAU (Remote Audio Unit) Instruments or Music

Effects. Enable this function by switching on the relative switch on the Patchbay view (Keyboard View in iPhone/iPod Touch).

Granular Streams

1

Goes to fullscreen and shows the Parameters for the stream:

▶

Play/pause current Granular Stream, when is playing you will see the *pause* icon appear. Toggle play/pause or touchDown/touchUp in the Waveform (auto-play scrubbing mode), will cause a **fade In/Out**. In the Settings you can setup the fade time, during the fade you will see flashing. You can control play/pause through MIDI Messages, see Control Manager. You can syncronize the play/pause with the Master play/stop by enabling the 'Link' function, see 'Link' explanation in this section.

◀◀

Reset Scanning to start position, as play/pause. You can controls Reset Scanning through a MIDI CC, see Control Manager. You can syncronize the rewind with the Master rewind by enabling the 'Link' function, see 'Link' explanation in this section.

◉

Freeze the scanning pointer, please note its works independently from the 'Scanning Ratio' or 'Measures and Quarter' (when is Linked) parameters. You can assign a MIDI CC, see Control Manager.

🎹

Show the MIDI Keyboard for Stream Pitch control. The default value is 60 (C4) it mean no Pitch transpose, the Keyboard range is according to the Pitch range -24 +24 (i.e. four octaves). When you open the Keyboard view, the Pitch will be adjusted according to nearest integer in order to match with the MIDI note. The Granular Streams Pitch Keyboard now responds to the Master Virtual Keyboard but you need to subscribe the GS through the own toggle, see Patchbay section for more details.

🎥

When you tap for the first time you will enable recording for the scrub recording. The start will begin just when you scrub waveform and continue

until you disable it. The circular buffer size is two minutes, when the buffer contains valid data, the playback button will enabled. These data are saved in the presets as a normal parameter.

OO

Play / Stop the circular buffer scrub, when the stream SYNC is enabled the reproducing ratio is depending from the Master BPM. So, 120 BPM involve a Ratio of 1 and consequently the Master BPM will affect the Ratio value according to BPM.

↩

Resets the phase at the beginning, this is depending from the Master SYNC when the stream is linked.

⫴

Enable LIVE Granulation for Current Stream. You can feedback the input through the Input Matrix, see the 'Patchbay' section for more details.

⊗

When the LIVE input is active, use this function to Clears the circular Live buffer and reset Write index at the beginning

📄

When the LIVE is disabled, you can export the Audio Buffer as WAV format (16 bit 44.100 kHz Mono) or restore last sample, if is available.

🔗 Link (subscribes) the Stream for the Master SYNC, the Scanning Ratio will change in two parameters for the Time Signature. When in Ratio mode you can set the play ratio: 1 means play the sound file at the original speed, 0.5 means play at half speed, -0.5 means play at half speed and in reverse and so on. When in Time Signature mode you specify the number of Measures and Quarter per Measure the sound file contains, and the tempo is linked to the general Metronome Tempo; for instance if we specify 2 measures of 4 quarters each, and the general Tempo is 120 BPM, the sound file will be executed in 4 seconds.
WARNING: in iDensity ver. 4, standalone or AUv3, this function will enable the current Stream to play/stop/rewind according to Master play/stop/rewind buttons (on the main tools-bar).

↩ ▷ ⫟

You can choose among three Waveform interactions **scrub, scrub_play** and **loopoints** (zoom).

In **scrub** mode, when a Granular Stream is playing, touching the waveform you will take the control over the Scanning. Thus, you can move manually the pointer throughout the whole waveform, when you leaves the waveform (touch up) the scanning will be resumed from current time position.

scrub_play will trigger play/pause every time you touch the waveform.

Scrub and **scrub_play** can be configured as **Absolute** or **Relative**, see Settings.

In **loopoints** you can zooming by **pinching (**in/out) the waveform, the selection will be considered as start/end for the scanning. Double tap on the waveform to full "zoom out".

Parameters

The **Normalize** slider, scales the samples in the waveform. When you load a sound file, Normalize will take value from the highest sound-file peak.

In **LIVE** it works as gain for incoming audio.

Amplitude *(%)* = grains amplitude, 1 is 100%;

Width *(%)* = grains spread, random distributions on the stereo field;

Panning = equal-power panning (post width) for the Left/Right distribution;

Density *(Hz)* = grain for seconds in Hz or gps i.e. grains per second (exponential map);

Rnd Density *(%)* = random range deviation, in % of Grains Density;

Length *(Ms)* = grain duration in milliseconds;

(exponential map);

Rnd Length *(%)* = random range deviation, in % of Grains length;

Pitch *(Semitones)* = detune factor: value 1: original pitch, value 0.5: octave down, 2 octave up;

Rnd Pitch *(Semitones)* = random range deviation, 0: no pitch deviation, 12: one octave range deviation i.e. one octave == 12 semitones;

Scanning *(Ratio)* = playback scanning ratio: value 1: original time, value 0.5: half-tempo (time stretching), 2: twice-tempo (time compressing); 0: freezes playback at the current location; negative values rate: backwards play;

WARNING:

When the Link is enabled this parameter switches from Ratio to Time Signature mode. In Time Signature mode you can specify the number of Measures and Quarter per Measure the sound file contains, and the tempo is linked to the general Metronome Tempo; for instance if we specify 2

measures of 4 quarters each, and the general Tempo is 120 BPM, the sound file will be executed in 4 seconds. Negative values for the Quarter involve a backwards play.

Jittering *(Ms)* = randomly moves the time-pointer around the current value (scanning or scrubbing), the value is expressed in milliseconds.

Show the envelope-windowing for current stream, iDensity provides 12 built-in envelope for smoothing the grain amplitude, the default shape is *Hanning*.

FX
Two post process Granular Stream FX: Stereo Echo and Ring Modulation.

Samples

Samples manager can read/write in the Documents folder, you can also share files through AudioCopy, Document Picker (iCloud, Dropbox etc…) and AudioShare. Samples manager can also read the Built-in files, but you cannot rename or delete them. Touch on a file in the list to show the actions popup. Here it is possible to **Load** a file in one of two Samplers (i.e. Sampler Ch.1 and Sampler Ch.2), Open In... contains all system actions over the file, according to file type. For example you can send files as an e-mail, open file with a listed app etc…

 You can rename files in the Documents Folder, if you omit the file extension then Samples Manager will fill the original audio file extension for you. N.B. Samples manager shows only audio files supported, the other files in the Documents folder will not be seen.

 You can pre-listen to the samples before you load them.

 Starts audio capture from the microphone immediately and saves new stereo audio file in wav format 44.1 kHz, 16 bit in the Documents Folder. Files created are composed by id-name followed by a number, for example:
Input Rec 4.wav, Input Rec 5.wav etc…
Every new file will be numbered with the next consecutive number.

N.B. You can record a mono or stereo file in wav format 16 bit 44.1 kHz according to the iDevice channels. Even if the iDensity is connected to

Audiobus or IAA, the Grab Audio will record always from iPad microphone/line

You can import files from AudioCopy, Music Library, Document Picker (iCloud, Dropbox etc…) and AudioShare.

Access to the iPod library, this allows the application to read user's songs, audio books, and audio podcasts. The file can be converted in *.wav* (PCM 16 bit 44.1 kHz) or *.caf* formats and stored in the local app Documents Folder. If the file exist at path then progressive number will be attached to the file name.

The document picker feature lets users select documents from outside your app's sandbox. These include documents stored in iCloud Drive and documents provided by a third-party extension. Users can open these documents directly, editing them in place. This access simplifies sharing documents between apps and easily enables more complex workflows.

Use iTunes to share files between your computer and your device
1) Open iTunes on your Mac or PC.
2) Connect your iPhone, iPad, or iPod touch to your computer using the USB cable that came with your device.
3) Click your device in iTunes.
4) In the left sidebar, click File Sharing.
5) Select an app to see which files are available for sharing in that app on your device.

Controls Manager

MIDI

Scrub Y

Second Finger

Accelerometer X

Accelerometer Y

LFO

After selecting **MIDI**, *iDensity* enters into "learn mode" i.e. is waiting for a send message, the type of Control Change (CC are only supported yet). Now

it's possible to send messages with MIDI hardware, Virtual Midi and Network Midi. Flashing screen means the association between the parameter and the MIDI message has been successfully and displays the corresponding control Change and Channel. In alternative you can enter direct CC and Midi Channel number through number keyboard. You will also receive an additional setting: 'Widget Range' that allows you to resize the range of action on the parameter. This is because you can use all 128 steps MIDI to control precisely particular part of the parameters.

Scrub Y binds the widget to vertical movement on the Waveform (Scrub Y). You can assign one or more parameters to scrub Y (i.e. vertical axis). An additional setting allows you to specify the speed (gravity amount) of the action.

Second Finger, similar to **Scrub Y** but it works in horizontally (X axis). It's triggered when a second finger touches the Waveform. While you scrubbing the Waveform with a finger, a second finger can be used to control the related parameters.

Accelerometer X and **Y** are used to control the parameters through the horizontal or vertical inclination of the device.

LFO, Low Frequency Modulation is a table look-up oscillator with seven built-in shapes. The frequency of LFO is expressed in Hz and BPM (Beats per Minute). You can get the period time by dividing 1/freq.The LFO Frequency value is converted in BPM (Beats Per Minute), you can adjust this value through the minus/plus buttons, these will replace current value with the integer BPM (previous/next) or you can TAP to set your own Tempo.

φ   Will reset to zero the phase of current LFO.
Φ   Will reset to zero the phase of ALL LFO actives.

⊝⊝   Enabling the Link symbol, you will disable the 'Low Frequency Oscillator in Hz' Slider, so the value of the current LFO is sampled from the global 'MASTER BPM'. You can adjust the BPM value from SYNC view. When the MIDI Clock or Ableton Link is enabled (see MIDI Manager and SYNC) the BPM value will affect all LFO enabled for SYNC mode. The goal of the 'SYNC Subdivision' Slider is to rescale the 'MASTER BPM' from SYNC according to the relative symbol (abbreviate musical note time values):

Normal : 1/1, 1/2, 1/4, 1/8, 1/16, 1/32, 1/64

Triplets : 1/1T, 1/2T, 1/4T, 1/8T, 1/16T, 1/32T, 1/64T
Dotted : 1/1D, 1/2D, 1/4D, 1/8D, 1/16D, 1/32D, 1/64D

Where 'D' is a **dotted** note and 'T' is **triplet**.
With 1/4 (Default), the BPM follows the 'SYNC BPM' or 'MIDI Clock' BPM when enabled, i.e. 120 BPM corresponds to 1 Hz.

- • 1/4 - each step is a quarter note (or BPM), e.g. 60 BPM is 0.5 Hz
- • 1/4D - each step is a dotted quarter note (or 1.5 x BPM),
- • 1/4T - each step is a triplet quarter note (or 0.5 / 3) etc.

♩ Reset default value (1/4 = 120 BPM)

MIDI

You can enable/disable the incoming MIDI signal from all the physical, virtual and network ports available. The MIDI Clock is managed by SYNC, see the SYNC section for more details.

If the Core MIDI Network is connected a wifi symbol will appear in the Network port cell.

Channel sets the input channel for the selected port, the Piano Keyboard will receive the Note On/Off messages in OMNI (from all 16 channels) or, one of the 16 channels.

Configure Bluetooth LE MIDI
With the release of iOS 8 and OS X Yosemite, sending and receiving MIDI data is supported using Bluetooth Low Energy connections on any iOS device or Mac that has native Bluetooth Low Energy support. All established connections are secure which means that pairing is enforced and connections cannot be made to your devices without your explicit consent. After a connection is established, it simply appears as an ordinary MIDI device that any MIDI application can communicate with.

Enable NRPN
NRPN stands for "Non-Registered Parameter Number" and is part of the MIDI specification for the control of electronic musical instruments. NRPNs allow for manufacturer-specific or instrument-specific MIDI controllers that are not part of the basic MIDI standard.
Unlike other MIDI controllers (such as velocity, modulation, volume, etc.), NRPNs require more than one piece of controller data to be sent. First, controller 99 - NRPN Most Significant Byte (MSB) - followed by 98 - NRPN

Least Significant Byte (LSB) sent as a pair specify the parameter to be changed. Controller 6 then sets the value of the parameter in question. Controller 38 may optionally then be sent as a fine adjustment to the value set by controller 6.

This fine adjustment is part of the conventional MIDI controller specification, where any of the first 32 controls can be optionally paired with a control offset 32 higher. This is the rare 14-bit Continuous Controller feature of the MIDI specification, and NRPNs simply take advantage of that existing option in the same way offering 16,384 possible values instead of only 128.
(http://en.wikipedia.org/wiki/NRPN)

When you enable NRPN, you should not employ CC 99 and 98 as the normal CC in order to avoid an undesired overlap. An NRPN message must be sent with this order: CC 99 98 6 38 where the first couple is the CC number and the second couple is the data. You can MIDI learn as for the normal CC, and NRPN works for all knobs and parameters. Although an NRPN CC number can be greater than 127, you will not be able to learn CC beyond 127.

Program Change for Presets Selection
You can select Presets (current selected bank) by remotely sending a MIDI Program Change. You can select the MIDI channel where you can receive PC messages. A PC value of zero will select the first preset in the list, a value of 1 for the second etc… The range is from 0 to 127.

Presets

Preset Manager will collect all the **Banks** *(i.e. .idensity suffix)* and **Snapshots.** A *Snapshot* is a simple "photo" of the parameters in the UI (i.e. User Interface). Both the Matrix and Keyboard/Sequencer are included but they can also be excluded, see the Settings for more details.

So, once you find an interesting sound you can take a snapshot (i.e. save this new preset) by touching the 'plus' icon and this new preset will be added to the selected Bank. The top four elements of the Snapshots list are assigned for 'HV Snapshot Pad', you can then sort or delete the Snapshots in the List by tapping the 'List Icon'. You can even share the selected Bank and you can restore the factory Built-In Banks from the 'Cloud' icon.

Backup

Factory preset-banks (Excluded from iCloud back up)

Library preset-banks (if available as In-App Purchasing) (Excluded from iCloud back up)

User preset-banks (Included in iCloud back up)

If you delete, overwrite, rename or save new presets in factory/library banks, the icon will change as User preset-banks , being backed up.

Snapshot banks are located in Documents folder, you can access files via iTunes Sharing, see 'Samples'.

You can add new files by copying in the app's documents (through iTunes or from another app) and refresh the list from there.

Load a preset, randomly from the banks list.

Delete all Presets for a selected bank. A warning message will be displayed.

The Snapshots bank file is a kind of Property List format (*.iDensity*), you can edit as text and modify the values just rename in *.plist*

Swipe (right to left) on a preset or bank to rename/duplicate/delete it.

The purpose of the unique **Snapshot Pad** is to obtain intermediate values between four snapshots (corners). You can change snapshots assigned in the corner through the Snapshots list (see above).
The Snapshots Pad performs complex interpolations between four snapshots on a two-dimensional space. By scrubbing your finger on the Snapshots Pad a temporary new snapshot will be created by mixing the four snapshots depending on distance. Thus you can modify hundreds of parameters with a single touch, this is also called *Hyper Vectorial Synthesis.*
Snapshots Pad can be resized on fullscreen for detailed controls (left bottom icon).
N.B. Snapshot Pad have no effect on Switches.

Dynamics Processor (post)

You can change the output sound using a conventional compressor and expander effect.

This is used to either reduce or expand the dynamic range of an audio signal. The Dynamics Processor controls set high (compression) and low (expansion) threshold volume levels. When the incoming audio is between these levels, it is left unchanged. Audio that rises above the upper threshold is cut in volume to bring it back down to that level (compression). Audio that falls below the lower threshold is cut in volume to make quiet sounds even quieter (downward expansion).

Additional controls adjust the attack and release time for the plugin's volume envelopes, the expansion ratio, the compression headroom, and a master gain to boost or cut volume on the Dynamics Processor's output.

Threshold: when the signal is above the threshold it is compressed

Headroom: upper limit for the compressor, a limiter prevents the signal to go above this threshold

Attack and Release: activation and de-activation times for the compression when it is above the threshold

Exp Threshold: when the signal is below the Exp Threshold it is backward expanded

Exp Ratio: expansion ratio

Settings

Buffer Size set the Audio Device latency. When you run *iDensity* from **Audiobus**, or **Inter-App** this value will be taken from **Audiobus** or **Inter-App Host**. Warning! When an app runs first and keeps running in the background, the Sampling Rate and Buffer Size will impose for the whole iOS while running.

Polyphony changes overlapping factor of the grain (maximum numbers of simultaneous grains) for each Granular Stream.

Snapshot Pad Resolution Update sets the time interval for the interpolations, from about 15 to 350 milliseconds. Short times for higher resolution but higher consumption of CPU.

Fade In/Out time for play/pause. You can disable the fade by setting time zero i.e. minimum allowable value one millisecond. Defaults values 125 milliseconds, maximum is one second.

Save/Restore the Last App Setup, when you exit from the application, save the status and reload when next opening the app.

Others Settings
The switch in this section are self-explanatory. As for all warning messages; include/exclude Control Manager, Assignations and Knob Color in the presets etc…

Waveform Scrubbing Mode (default is **Absolute**)
when the pointer jumps to the **Absolute** position of the finger that touches the waveform or **Relative** if it does not jump but still maintains its position and you can move the pointer in relation to the relative position.