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INSTALLATION AND AUTHORISATION

Start the Obelisk Installer, you will be automatically guided through the installation.

After a successful installation, please start the Obelisk Authorizer. Your computer has to be connected to the internet in order to carry out the authorisation.
After purchasing OBELISK you receive a serial number in your confirmation mail. This number has got two times five digits separated with a hyphen: 12345-12345. Please enter this number in the „enter serial number“ field.

In the second field input your name or a name of someone you want to authorize for the Plug-In. This name will later be displayed in the Plug-In window.

With the button „authorize“ you start the authorisation procedure. After a few moments your Plug-In is authorised and „ready to use“. If you receive an error message, please check that your computer is online and that you have input the serial number correctly. Then restart the authorisation by pressing the button „authorize“.

WHAT IS INSTALLED ?

The OBELISK Audio Unit Plug-In is installed in:
/Library/Audio/Plug-Ins/Components

The OBELISK Audio Unit Plug-In presets are installed in:
/Library/Audio/Presets/Artificial Audio/Obelisk

The OBELISK VST Plug-In is installed in:
/Library/Audio/Plug-Ins/VST

DEMO VERSION

After the installation, OBELISK runs as a demo version until you authorise it with the Obelisk Authorizer. The demo version has the full functionality of the Plug-In but it will automatically switch to bypass after 15 minutes.
INTRODUCTION

OBELISK is a spectral multi effect whose sound possibilities and graphic user interface raise the area of spectral sound processing to a completely new level. OBELISK combines a SPECTRAL DELAY, a SPECTRAL FILTER and a SPECTRAL GATE to a multi effect that not only sounds excellent but also enables an extremely intuitive and musical operation, making use of hundreds of effect parameters. With OBELISK you can draw your effect and with the aid of graphic lines control a multitude of effect parameters in a very simple and descriptive manner. With its 2-dimensional LFOs, OBELISK creates completely innovative modulation possibilities by means of which the processed signal transforms into an endlessly changing sound layer. In spite of the comprehensive possibilities it provides for sound processing and modulation, OBELISK requires very little computing power, thanks to its highly optimized vector algorithms.

OBELISK has a highly efficient spectral analysis and synthesis that ensures an excellent audio quality. The audio signal can be split into 256 or 512 individual frequency bands that can be independently processed with effects. Each frequency band has its own DELAY with FEEDBACK, its own volume regulator (FILTER) and its own noise gate (GATE) with threshold.

QUICK START

If you want to start using OBELISK immediately, simply activate the help function which displays useful information regarding the respective parameter shown by the mouse pointer.

However, before you start you should familiarize yourself with the basic operational concept in particular with the EFFECT LINES. To do so either watch the „OBELISK VIDEO TOUR“ on the artificial audio website (www.artificialaudio.com/pluginmenu/obelisk), or read the next section „Basic Operational Concept“.
BASIC OPERATIONAL CONCEPT

The OBELISK window is divided into three areas: At the top there is the ANALYSER POINT VIEW with the real-time spectrum analyser and the EFFECT LINES. In the middle there is the EFFECT SELECTOR and the global effect parameters. At the bottom there is the modulation-area with the 2-dimensional LFOs.
ANALYSER POINT VIEW

The ANALYSER POINT VIEW shows a real-time spectrum of the audio signal. The spectrum consists of individual frequency bands and the low pitch frequencies are clearly indicated as squares:

One or several effects can individually be assigned to each of these frequency bands: DELAY & FEEDBACK, FILTER and GATE. The effect parameters can be drawn in the form of lines, the so-called EFFECT LINES, via the analyser spectrum. Each EFFECT has got its own EFFECT LINE, which is coloured: DELAY (blue), FEEDBACK (red), FILTER (magenta) and GATE (yellow).

The EFFECT LINES are made up of points, the so-called LINE POINTS. A LINE POINT determines two values: its position on the horizontal (x-axis) determines the frequency or the frequency band and its position on the vertical (y-axis) determines the parameter value whereby the higher the LINE POINT, the greater the parameter value. The course of the EFFECT LINE and the area underneath, the so-called EFFECT PLANE determines the parameter values for the individual frequency bands.

Each EFFECT LINE has got a certain LINE STYLE that determines how the points are linked together to form a line. The polygon LINE STYLE connects two neighbouring points with a straight line. The square LINE STYLE connects two neighbouring points with a rectangle cut-out.
EFFECT SELECTOR

The EFFECT SELECTOR is the central control when working with EFFECT LINES. Here you chose the desired EFFECT LINE before inserting new points into the ANALYSER POINT VIEW. You can activate or deactivate the EFFECT and view of the EFFECT LINE independent from each other. For each EFFECT LINE you can determine the respective LINE STYLE.

A click on delay, feedback, filter or gate activates the respective type of line and the related unit will be displayed on the left hand side next to the ANALYSER POINT VIEW (e.g. seconds for Delay):
WORKING WITH EFFECT LINES

In OBELISK the effect parameters (e.g. the delay times of the delay) are not adjusted with a control dial or by inputs but rather are the result of the course of the EFFECT LINE. The parameter value for a single frequency band results from the height of the EFFECT LINE above the respective frequency band.

The following example illustrates this concept:

We want to determine a delay time of 500 ms for all the frequency bands. To do so we chose the point type delay with the EFFECT SELECTOR. With command-click we now insert a new DELAY POINT in the ANALYSER POINT VIEW. A new DELAY POINT and the DELAY LINE with the underlying DELAY PLANE appear. We can move the point with the mouse which displays the INFO BOX.

We position the point in the vertical (y-axis) to the position 500.0 ms.

A delay time of 500.0 ms is now set for all the frequency bands.

But we would now like to allocate another delay time to a certain frequency band. All frequency below 640 Hz should be delayed by 1035 ms. We therefore insert a new delay point at the position (640.0 Hz / 1035 ms).
A delay time of 1035 ms is now set for all frequency bands up to 640 Hz. All frequency bands above this value are delayed like before by 500 ms.

In this manner up to 10 DELAY POINTS can be inserted. As a result, up to 10 frequency bands with various delay times can be determined.

With the EFFECT SELECTOR, you can set the LINE STYLE for every EFFECT LINE: square or polygon. For the LINE STYLE square the connecting lines between two points are rectangular cut-outs. For the LINE STYLE polygon the connecting lines are straight lines.

This basic operational concept is valid for all lines i.e. DELAY, FEEDBACK, FILTER und GATE.
OPERATION WITH MOUSE AND KEYBOARD

Inserting a point
Deleting a point
Selecting individual points
Selecting additional points
Selecting several points simultaneously
Set the default value of a controller
Fine adjustment of the controllers or points

Command - Click
Command & Shift - Click
Click
Shift - Click
make a frame around them
Alt - Click on the respective controller
Shift - Click
THE ANALYSER POINT VIEW

The ANALYSER POINT VIEW shows the real-time spectrum of the audio signal together with the EFFECT LINES.

DELETE deletes all selected points (selected points are filled in white).
UNDO / REDO cancels the following actions (up to 50 steps):
Insert points, move points, delete points, quantize points.
QUANTIZE activates/deactivates the quantizing of selected delay points (quantized delay points are square).
RESCUE deletes the delay buffer (is useful for example with strong feedbacks)
INFO shows information about OBELISK.
SOURCE selects the signal shown in the analyser:
show input shows the input signal
show effect shows the pure effect signal
show output shows the output signal (= input + effect)
FREQ turns the vertical frequency guides on/off.
dB turns the horizontal db guides on/off.
HOLD turns the maximum-hold line on/off.
EFFECT SELECTOR

The EFFECT SELECTOR is the central switching element when working with EFFECT LINES. The various effects are turned on and off here, the lines are made visible or invisible and the LINE STYLE is adjusted for every type of line.

SELECTED EFFECT
Before inserting new LINE POINTS you can chose the desired EFFECT LINE here. A click on delay, feedback, filter or gate selects the respective EFFECT LINE. The corresponding unit is displayed on the left side of the EFFECT SELECTOR and on the left side next to the ANALYSER POINT VIEW (e.g. sec. for DELAY).

EFFECT ON / OFF
Here the individual EFFECTS can be switched on or off (irrespective of the EFFECT LINES being displayed).

LINE VIEW
The display of the EFFECT LINES can be switched on or off. EFFECT LINES with switched off VIEW are visible in the background as grey lines. Important: the LINE VIEW has no influence on the EFFECT itself, but only on the depiction of the EFFECT LINE!

LINE STYLE
switches the LINE STYLE between polygon and square.
The DELAY LINE determines the delay time at a range of 0 sec to 3 sec for the individual frequency bands. The POINT INFO BOX shows the point number for a DELAY POINT, the bin-number (number of the frequency band) as well as the frequency in Hz and the delay time. The delay time is depicted both in ms, as well as in analysis – blocks.

The display of the analysis-blocks has the following significance: when the input signal is converted into the spectral display, the signal is divided into small blocks. The length of these blocks is determined by the FRAME SIZE (512 or 1024). These blocks overlap each other in a certain manner that is determined by the parameter OVERLAP (0%, 50%, 66%, and 75%). The parameters FRAME SIZE and OVERLAP jointly determine the smallest possible interval for the delay time. The possible delay times are thus „quantized“. The finest fragmentation ensues in FRAME SIZE = 512 and OVERLAP = 75%. The finest fragmentation ensues in FRAME SIZE = 512 and OVERLAP = 75%. The length of a block is in this case equivalent to 2.9 ms (with a sampling rate of 41.1 KHz). This is the smallest possible interval for the delay time.

As opposed to the other lines, the DELAY LINE has one distinctive feature: delay points can be quantized and thus it is possible to additionally indicate delay times in beats as well as in seconds. As a result the delay can be synchronized to the song tempo or to the Plug-In tempo. A delay point becomes quantized when you select the point (it turns white) and then click on quantize above the ANALYSER POINT VIEW. A quantized delay point is displayed as a square.
Independent of whether an individual delay point is quantized or not, the quantization of all points can be globally activated or deactivated. The global quantization brings about that each quantized delay point is drawn from its original position on to a grid that corresponds to the adjusted beat values. Values for quantization are adjusted in the DELAY PARAMETERS.
DELAY PARAMETER

In addition to the DELAY LINE there are global delay - parameters that are valid in equal measure for all the frequency bands.

**note** sets the note value for the quantization. All quantized delay points will be quantized according to the note value that has been set here.

**quant** activates the global quantization.

**grid** activates the view of the quantization grid in the ANALYSER POINT VIEW.

**tempo** sets the internal tempo.

**int. / ext.** selects the tempo source: *int.* for internal tempo, *ext* for external host tempo. The tempo chosen here is the basis for the quantization of delay points and for the synchronisation of the LFOs.

**Tempo field** the external tempo is displayed here (host - tempo).

The delay time of a delay point will only be quantized if the respective point is marked as a quantized point (the point is square) and the global quantization is activated. A quantized point remembers its original position to which it jumps back to when the quantization is switched off. If the tempo changes when the global quantization is activated, the grid is automatically adjusted and the delay points are drawn to the new grid position accordingly. Each quantized point will always be drawn to the grid line that is nearest to its original (unquantized) position.

The quantize-grid can be activated with the grid switch. Blue horizontal grid lines appear as well as a scale on the right hand side next to the ANALYSER POINT VIEW. The scale displays the delay time in „Bar . Beat“: „0.2“ means: 2 beats, „1.3“ means: one bar and 2 beats.
The FEEDBACK LINE determines the feedback value for each frequency band. The feedback values range between 0 % (at the bottom = feedback off) and 100 % (at the top = total feedback). The feedback value determines the proportion of the delayed signal that is sent back to the entrance of the delay. In order to hear a delay with feedback, both DELAY and FEEDBACK have to be activated in the EFFECT SELECTOR and at least one delay point > 0 sec has to exist. The POINT INFO BOX shows the point number, the bin number (number of the frequency band) as well as the frequency in Hz and the feedback value in %.

RESCUE – Above the ANALYSER POINT VIEW the rescue – switch is located. A click on rescue deletes the delay buffer. This can be very useful when working with high feedback values.
The FILTER LINE regulates the volume of the individual frequency bands. This means that the level of any frequency area can be lowered.

With the FILTER FORCE control, the strength of the filters can be adjusted. The FILTER FORCE controls in this respect the scale of the y-axis. A high FILTER FORCE value leads to a stronger lowering of the level even in the top areas of the scale. On the other hand a low FILTER FORCE value slowly lowers the level in the top area, enabling a very fine adjustment.
GATE LINE

The GATE LINE controls the SPECTRAL GATE. The SPECTRAL GATE is a noise gate with an individual threshold - value for each individual frequency band. Similar to a normal noise gate, the threshold – value determines the level at which the gate opens. Only those signals whose level lies above the threshold value can pass through. Signals whose level remains under the threshold value become mute. The GATE in the OBELISK functions exactly like this: for each frequency band the GATE LINE determines the respective threshold level. Only those bands whose level lies above the GATE LINE can pass though. All other become mute.

The scale of the GATE LINE (y - axis) exactly corresponds to the level display of the ANALYSER. If in the ANALYSER a frequency band protrudes above the yellow GATE LINE, the GATE is opened and the frequency band can pass through, otherwise it becomes mute.
In addition to the GATE LINE there are other global GATE - Parameters:

**attack**
- globally regulates the ATTACK TIME for all frequency bands. If the GATE of a frequency band opens after it has become mute, the ATTACK TIME determines the interval until the GATE is completely open.
- ATTACK TIME = 0 means: the GATE opens immediately.
- ATTACK TIME = 1 means: the frequency band is faded in and it takes a certain time for the frequency band to reach its full level.

**release**
- globally regulates the RELEASE TIME for all frequency bands. If the GATE of a frequency band closes after it was open, the RELEASE TIME determines how quickly the GATE will close.
- RELEASE TIME = 0 means: the GATE closes immediately.
- RELEASE TIME = 1 means: the frequency band will be faded out and it will take a certain time for the frequency band to become completely mute.

**mono/stereo**
- **mono**: in the case of a stereo signal the GATES of the left and right channels are connected. The GATE only opens when the level of the left and right channels is above the threshold.
- **stereo**: the left and right channels are sent through the GATE independently. If, for example, the level of the left channel is above the threshold and the level of the right channel is below it, the right GATE remains closed whereas the left one remains open.
SPECTRAL SHIFT

With SPECTRAL SHIFT you can move the frequency bands up or down before they join together again to form a music signal in the SYNTHESIS. A shift of +3 for example moves all bands three positions to the right.

This leads to a frequency band shift, a very experimental and unusual sound effect.
SETTINGS

In the settings the parameters for the SPECTRAL ANALYSIS / SYNTHESIS and the global parameters BYPASS and EFFECT MIX can be set.

Parameters of the SPECTRAL ANALYSIS / SYNTHESIS:

- **overlap** determines the overlap of the audio blocks in the spectral analysis / synthesis. The best audio quality and the finest resolution of the delay times can be achieved with overlap = 75% (= default value).

- **window** selects the window function utilized in the spectral analysis / synthesis (square, triangle, Henning, Hamming, Bleckman). Recommended setting: Hanning (= default value).

- **frame size** selects the block size of the audio blocks and thus determines the number of frequency bands (number of frequency bands = frame size / 2). The finest resolution of the delay times is achieved with frame size = 512 (=default value). Frame size 512 corresponds to 256 frequency bands, frame size 1024 corresponds to 512 frequency bands.

- **effmix** EFFECT MIX regulates the relationship between input signal and effect signal.

- **byp** BYPASS switches the effect internally to bypass.
MODULATION

Every LINE POINT can be modulated. 2-dimensional LFOs serve as modulation sources, of which there is a total of 3.

2 - DIMENSIONAL LFO

In order to explain the concept of the 2-dimensional LFO, we should take a look at geometry. The movement of a point in the plane can be depicted by two combined movements: a movement on the x-axis and a movement on the y-axis. According to this principal, a 2-dimensional LFO combines two individual LFOs into a 2-dimensional LFO, where the movement of the one LFO controls the x-axis and the movement of the second LFO the y-axis. With the aid of both the x- and the y-LFOs, movements can be created in the plane. A movement created this way is made visible in the LFO VIEW by means of a small ball, the LFO BALL.

The movement of an LFO BALL can be used as modulation for LINE POINTS. In this case the movement is modulated on to one or more LINE POINTS, e.g. the LINE POINT follows the same movement as the LFO BALL. The three different 2D-LFOs can be selected via the tags „2D-LFO 1“ to „2D-LFO 3“.
The parameters for the x- and y-movement are arranged along the two axes: the x-parameter is on the x-axis and the y-parameter is on the y-axis.

The parameters for the x- and y-axis in detail:

- **wave** selects the wave form: sinus, triangle, square, saw tooth up, saw tooth down, sample & hold (random).

- **% (amount)** determines how far the LFO BALL moves away from the centre.

- **snap** the first zero run of the wave form can be “clicked into” an adjustable beat-position. The position is between “1.1“ and “4.4“. A value of “2.4“ for example means: 2. beat / 4. semiquaver. As a result LFO modulations can be placed in an exact rhythmic manner. The LFO oscillation is thus determined for the total time line of the song and can be exactly reproduced at every song start.

- **Hz** sets the desired frequency of the LFO.
sync activates the tempo control of the LFO. The LFO can thus be synchronized to the external or internal tempo. The Hz-control becomes the NOTE-control.

note if sync is activated, the NOTE – control appears. This allows for a regulation of the note values or bar intervals in order to determine the frequency of the LFO oscillation. The depiction „N. N. N“ means „bars . beats . semiquavers“. For example: „1.3.2“ means: the LFO requires a bar plus three beats plus 3 semiquavers for a whole wave run.
MODULATION OF LINE POINTS

If a LINE POINT is modulated by an LFO BALL, this can be recognized by the fact that the EFFECT PLANE separates from the POINT LINE and completes an own movement. The top edge of the EFFECT PLANE forms a new line out of the modulated LINE POINTS and thus determines the modulated parameter values. For the calculation of the effects, those parameters are now used that result from the top edge of the EFFECT PLANE.

The LINE POINTS themselves do not move, only the EFFECT PLANE changes. One can therefore always recognize and change the (unmodulated) position of the points.

As the modulation allows a modulated LINE POINT to move in all directions, the sequence of the LINE POINTS on the x-axis (horizontally) may change. This may give rise to a completely different line form which makes this type of modulation appealing.
MODULATION TARGETS

In order to modulate a LINE POINT, you have to assign the respective point to an LFO as a modulation target. The MODULATION TARGETS determine which point is to be modulated by which LFO and to what extent. Every 2D-LFO has got five MODULATION TARGETS and thus can modulate up to 5 LINE POINTS.

Each LINE POINT can be exactly identified by its colour (blue = delay, red = feedback etc.) and its number (0 - 9).

In order to modulate the movement of an LFO BALL on to a LINE POINT, you have to proceed as follows:

By clicking on learn the LEARN MODE of the TARGET is activated. The TARGET blinks. You now have to click in the ANALYSER POINT VIEW on the LINE POINT to be modulated. The TARGET then automatically sets the selected LINE POINT as a modulation target. The parameters line and point now correspond to the target point. The AMOUNT - control (% amt) determines the strength of the modulation. A negative AMOUNT – value causes counter movement to the LFO BALL: if the LFO BALL moves up or to the right, the modulated LINE POINT moves down or to the left.

The values line and point can also be set manually with the controls. This, however, is rather tedious because you first of all have to find out the respective number of the LINE POINT in the POINT INFO BOX of this LINE POINT.
The TARGET - Parameter in detail:

- **line**
  - the line type of the target point (DELAY, FEEDBACK, FILTER, GATE)

- **point**
  - the point number (0 - 9)

- **% amt**
  - the modulation strength (-100% to +100%)

- **on / off**
  - switches modulation on / off

- **learn**
  - activates/ deactivates the LEARN MOD
MISCELLANEOUS REMARKS

AUTOMATION OF PARAMETERS

All OBELISK parameters can be automated in the sequencer. Parameters can be easily recorded in the sequencer by activating the „learn“ mode of the sequencer and then changing the respective parameter.

SAMPLE RATES

OBELISK works with arbitrary sample rates up to 192 KHz.

BUFFER SIZES

OBELISK works with arbitrary buffer sizes from 32 to 8192 samples. If the buffer size exceeds 2048, the display of the real-time analyser will be slowed down because OBELISK does not receive enough audio data from the sequencer to calculate a fluent display.

LATENCY

OBELISK has a constant latency value of 1024 samples.