IRCAM 2 PREPARED PIANO

Soundbank Manual

Software Version 1.0

EN 221110

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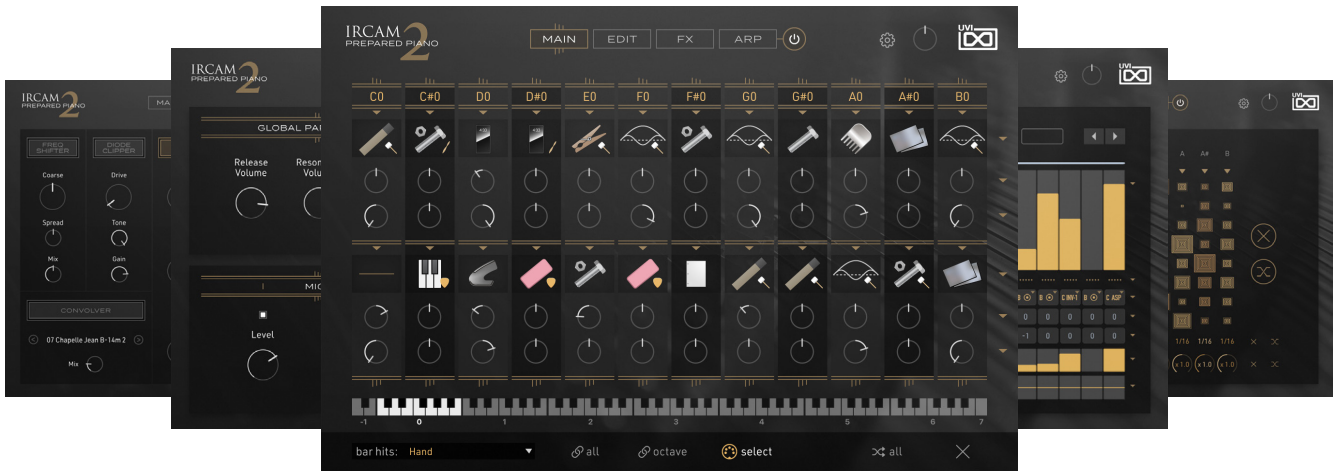
Introduction



IRCAM Prepared Piano 2

The Ultimate Avant-Garde Piano

IRCAM Prepared Piano 2 is an epic creative partner and a near-limitless sonic canvas. Explore the sound of piano like you never have before, equipping each key with any 2 of 45 preparations, apply powerful creative effects, and then perform them in incredible new ways with a duo of smart and highly customizable arpeggiators, all recorded on an immaculate C7 Grand Piano at IRCAM labs in Paris. Try the included preset preparations, or make your own - the possibilities are endless!

With more than 12,000 samples and 45 preparation techniques, IRCAM Prepared Piano 2 gives you complete control over how the preparations are used and combined. Explore the timbre variety of over 40 different preparation styles. Utilize screws, erasers, coins, clothespins, sticks and more. Excite the strings with a mallet, plectrum, bow or even an EBow. Utilize bar hits, Una Corda, Sustenuto, dynamics and velocity, as well as independent mixing between 2 mic positions, you can even layer two preparations for each note with discrete level and pitch controls!

IRCAM Prepared Piano 2 delivers powerful creative effects including a frequency shifter, diode clipper, convolver, EQ, Sparkverb, delay, and maximizer, allowing you to add a finishing touch or radically reshape and transform your sounds. Step over to the Seq page and you will find a duo of featured arpeggiators, including our smart arpeggiator/phraser and the powerful Rain arp, adding new levels of depth and creativity to your performances. IRCAM Prepared Piano 2 is a powerhouse of possibility for curious minds of any musical background.

Minimum System Requirements

- Latest version of UVI Workstation or Falcon
- 6GB of disk space

For more information on the installation process, please refer to the document: Soundbank Installation Guide

About IRCAM & John Cage

IRCAM Centre Pompidou

http://www.ircam.fr/

In 1969 Georges Pompidou initiated the establishment of the Institut de Recherche et Coordination Acoustique/ Musique (Institute for music/acoustic research and coordination) entrusting its direction to the composer and conductor Pierre Boulez.

IRCAM, linked to the Centre Pompidou in Paris, France, became, and remains today, the only center of its kind across the globe, dedicated to contemporary musical research and production.

IRCAM provides a unique framework to welcome and coordinate various scientific approaches in music, including physics (acoustics, mechanics), signal processing, computer science, cognitive psychology, and musicology. Activities are structured according to specific themes, entrusted to specialized teams.

The personnel working within IRCAM's Department of Research and Development includes 90 researchers, engineers, post-graduates, technicians and administration staff under the direction of Hugues Vinet.

John Cage (1912–1992)

http://johncage.org/

Over 80 years ago, John Cage modified pianos to invent what we call today, prepared pianos. The unique property of a prepared piano is its transformation of particular timbres through modifications to the string(s), making it possible to play the piano by using the keyboard in the normal way, whilst at the same time producing different sounds, like an acoustic sampler.

It was during John Cage's attempts to integrate the piano into percussion ensembles that Cage invented the prepared piano. Although in Imaginary Landscape I (1939) the sound of the piano strings was transformed by an assistant in real time, Second Construction in Metal (1940) required a screw and the insertion of a piece of cardboard between the strings. Three months later, Cage composed Bacchanale (1940), the first prepared piano solo work. The instrument was considered to be a kind of percussion orchestra, controlled by a single conductor. The technical innovation mainly consisted in progressing from one to several prepared keys, creating a range of tones used for playing a musical solo.

Interface - Main

IRCAM Prepared Piano 2 features two layers, allowing the use of two preparations per note across the entire 88 note range.

Note: *IRCAM Prepared Piano 2 can have more than 12,000 samples loaded into memory in a single instance; combined with advanced scripting and effects it can be both CPU and memory intensive.*

1 Page Select

Change current page: Main, Edit, FX and Arp

» **Arpeggiator Power** ⏻

2 Settings

Click to open the settings page

3 Global Pitch

Sets the global pitch

4 Note Indicator

Indicate the MIDI signal status when MIDI Select on, for helping to visualize preparations and edit

5 Highlight Key

Quickly determine and select the key locations (octaves) you are viewing with this navigation bar

6 Layer 1/2

» **Preparation**
Select the preparation for the layer

» **Volume**
Adjust the volume of the layer

» **Tune**
Adjust the fine tuning of the layer [+/- 24 semi]

7 Menu Buttons

Click the ▾ button of the right side of the slots to manipulate the parameter

» **Preparation**
Select the layer preparation for all keys

» **Init Octave**
Reset the layer preparation/parameter of the selected octave

» **Randomize Octave**
Randamize the layer preparation or parameter of the selected octave

» **Copy/Paste Octave**
Copy the layer preparation/parameter of the selected octave, and paste it from other layer of octave

8 Bar Hits

Mapped from C-1 to G#-1, each of the piano's metal bars were recorded in unique ways. Choose between hitting the metal bars with hands, sticks, or mallets

9 Parameter Link

Use to make edits across all keys, or octaves of the selected key, simultaneously

10 MIDI Select

Enables MIDI Note Indicator

11 Randomize

Click the ⤮ button to assign a random collection of preparations to all keys on both Layers

12 Reset

Click the X button to reset all parameters

Interface - Edit

1 Global Parameters

» **Release Volume**
Controls the volume of all the release samples

» **Resonance Volume**
Controls the volume of the pedal-down resonance effects

» **Tone**
Overall sound brightness

2 MIcs

» **On/Off Toggle**

» **Level**

» **Mic 1 (DPA microphones)**
Close position mic, within the piano

» **Mic 2 (Shoeps microphones)**
Mic positioned above the player's head

3 Amplitude

» **Preparation [Menu]**
Select a preparation, Bow, Ebow and Mutes to edit their amplitude

» **ADSR**
Adjust the amplitude [typical ADSR envelope]

» **Dynamics**
Adjust the influence of overall dynamics

» **Velocity Curve**
Adjust the play style from more soft to firm

Interface - Effects

1 Frequency Shifter

- **On/Off**
- **Coarse** - Shifts the spectrum up or down
- **Spread** - Adds a shift difference between the channels. Even a slight difference can be used to get a full, wide stereo effect
- **Mix** - Adjust the dry/wet ratio

2 Diode Clipper

- **On/Off**
- **Drive** - Set the drive amount
- **Tone** - Set the freuency of the LP filter
- **Gain** - Set the output gain

3 Convolver

- **On/Off**
- **IR** - Select an IR by drop-down menu or by using the ◄► arrows
- **Mix** - Adjust the dry/wet ratio

4 EQ

- **On/Off**
- **High** - Set the high frequency band gain
- **Mid** - Set the middle frequency band gain
- **Low** - Set the low frequency band gain
- **Crossover Frequency** *f* - Set the frequency between low and middle bands, and between middle and high bands

5 Sparkeverb

- **On/Off**
- **Size** - Adjust room size [4 to 50m]
- **Decay** - Adjust decay time
- **Low Decay** - Adjust the low frequency decay time
- **High Decay** - Adjust the high frequency decay time
- **Mix** - Adjust the dry/wet ratio

6 Delay

- **On/Off**
- **Time** - Adjust delay timing in musical division
- **Feedback** - Increase or decrease the amount of re-injecting signal
- **Hi Cut** - Directly control delay's LP filter cutoff
- **Low Cut** - Directly control delay's HP filter cutoff
- **In Width**- Adjust the stereo width of the effect at input stage
- **Out Width**- Adjust the stereo width of the effect at output stage
- **Mix** - Adjust the dry/wet ratio

7 Maximizer

- **On/Off**
- **Threshold** - Sets the level at which limiting will be applied

Interface - Arp

1 Arpeggiator

Click ARP to select the Arpeggiator

» **Mode** - Click to set the arpeggiator mode: Arpeggiator, or Phraser

» **Octave Low/High** - Lock the sequence in a specific octave range, with lowest and highest octave [Phraser mode only]

» **Motion** - Click to set the arpeggiator motion as played, up, down, or up+down [Arp mode only]

» **Speed** - Set the step duration

» **Steps** - Set the number of steps

» **Octave** - Set the octave range of the arpeggiation

2 Preset

» **Preset** - Change presets by drop-down menu or by using the ◀▶ arrows

3 Chord Detector

» **Chord** - Indicates the chord type detected from current incoming MIDI notes

4 Shift

» **Shift** - Move all sequence steps left or right

5 Step Editor

» **Velocity** - Click-drag to set the velocity

» **Link** - Enable to sustain the previous step

» **Mode** - Set the step type (Basic, Harmonized or Chord) based on mode

» **Pitch** - Set a pitch offset in semitones

» **Octave** - Set a pitch offset in octaves

» **Gate** - Set the step gate duration

» **Pan** - Set the step pan

» **Menus** ▼ - Click the ▼ button to right side of each row to either initialize, randomize, or select a preset.

Interface - Rain Arp

1 Rain Arpeggiator

Click RAIN to select the Rain arpeggiator

The Rain arp is a chromatic 8-step velocity sequencer with per-note control over speed and velocity multiple.

2 Step Editor

» **Menus** ▼ - Click the ▼ button to the right side of each row to either initialize, randomize, copy/paste, or assign a template pattern to the line.
» **Velocity** - Click-drag to set the velocity
» **Reset**- Click the [X] button to initialize the values of all rows
» **Randomize** - Click the ⤮ button to randomize the values of all row steps

3 Speed

Sets the step speed per note

» **Link** - Allows all speed paramaters to be adjusted simultaneously
» **Speed** - Click-drag to set the speed
» **Reset**- Click the [X] button to initialize the values of the row
» **Randomize** - Click the at ⤮ button to randomizes the values of the row

4 Velocity X

Sets the step velocity multiply amount per note

» **Link** - Allows all speed paramaters to be adjusted simultaneously
» **Velocity Multiplier** - Click-drag to set the multiply amount
» **Reset**- Click the [X] button to initialize the values of the row
» **Randomize** - Click the ⤮ button to randomize the values of the row

Interface - Settings

1 Una Corda CC

Select a CC to control the Una Corda pedal [only affects preparations utilizing the 2 and 3 strings]

2 Sustenuto CC

Select a CC to control the Sustenuto pedal

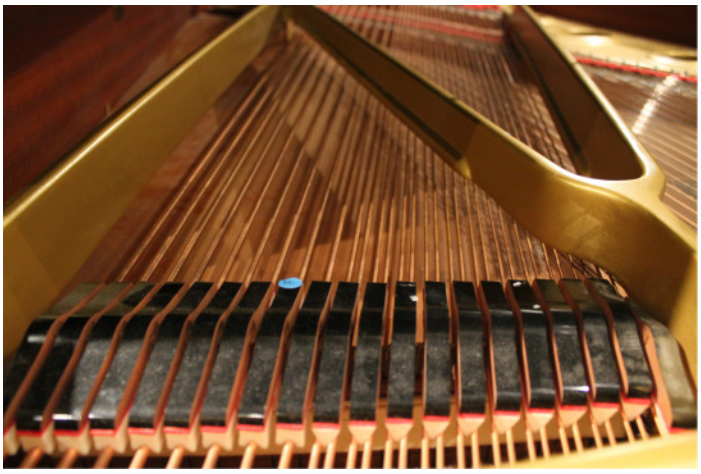
3 Extra Length CC

Strumming the unused part of the strings in a piano with a plectrum is often done as an effect in prepared pianos. These knobs simulate that strumming effect and you can control them with the CC of your choice

» **Extra Length CC1** / **Extra Length CC2** - Set the modulation amount for the control

» **CC#** - Click the number under the knobs to set the MIDI control number

IRCAM Prepared Piano Playing Techniques



NOTE: To reflect the fact that certain effects or preparations cannot be performed in all registers, the full range of preparations are not available for all keys when using IRCAM Prepared Piano within UVI Workstation. For example, you will not find a screw preparation for the bass keys because the lowest bass keys have only one string, making it impossible to place a screw on the lowest bass keys.

Normal Playing Techniques

Sustain and Empty

A normal piano sound. The strings are struck by hammers, triggered by the notes played on the keyboard. Use of the una corda and forte pedals is possible. There is no object in or on the strings modifying the sound.

The empty preparation setting does not refer to there being no object or preparation modifying the sound of the string, but rather to the lack of sound produced by playing this key - a form of preparation that is impossible without breaking the hammer. This setting can be very useful in preventing the sounding of misplayed notes, or for playing Gyorgy Ligeti's Etude: Touches bloquées (by cheating, a little...)

Expanded Playing Techniques

Striking the Strings

Mallets: The strings are struck with a vibraphone mallet. The resulting sound is similar to a normal key strike, but is slightly softer due differences between the mallet and the normal hammer action.

Wooden Stick: The strings are struck directly with wooden sticks, making the attack harder and shorter. The timbre is similar to that of a dulcimer and can be activated by pressure on the forte pedal.

Stick Rebound: This setting features the same technique and resulting timbre as the Wooden Stick setting, but allows the stick to bounce on the string after the initial strike.

Muted Stick Rebound: This setting features the same technique as Stick Rebound, but uses the stick on muted strings (see mutes).

Plucking or Strumming the Strings with the Fingers

Pizz: The strings are plucked with a plectrum, one string only per note. This results in a sound resembling that of

IRCAM Prepared Piano Playing Techniques [continued]

a guitar. It is a widely used effect, for example by Georg Crumb in Makrokosmos, or by Gerard Pesson in Rescousse.

Scratch: A fast scraping action by the nail along the string. When used on the bass strings, this causes a burst of harmonics. One can hear this technique, in combination with numerous other piano string effects, in Clepsydre by Horacio Radulescu (for 16 sound icons, or pianos installed vertically and played exclusively on the strings).

Sustained Sounds

Bow: Rosin horsehair (a single strand of a violin bow) causing the two or three strings that comprise a single pitch to vibrate. The resulting sound is continuous. Changes in the direction of the bow are always audible and give transient color to the timbre. This effect is sometimes made with fishing line rosin.

Ebow: A small device normally used on electric guitars, causing the strings of the piano to vibrate through a magnetic field. This produces a continuous sound with a masked attack, resulting in a delicate and subtle timbre.

Other String Playing Techniques

Harmonics: The default harmonic is the octave, activated by finger pressure in the middle of the string. The key is then played normally from the keyboard. It is also possible to transpose this harmonic, thereby simulating any harmonic of the string. A specific digital chord can be played by double clicking on the detune button. This technique is greatly used in solo music, as in Crumb's work, for example, and may even found in a transcript of Johann Sebastian Bach's Contrapunctus XIX by Marc-Andre Dalbavie.

For the following preparations, the string is normally struck by the hammer. Objects can be placed on the strings, altering the manner in which they sound. The ones placed on the strings in this manner would normally affect several notes in succession on a real piano, which is not mandatory in IRCAM Prepared Piano.

Other objects may be inserted between the strings. From the treble keys down to medium bass (F1), there are three strings per note. In this range it is possible to insert one object between strings 1 & 2, and another in the strings 2 & 3.

Similarly, in IRCAM PREPARED PIANO, you can continue to add several more objects or playing techniques from those available when there are only two strings (F # 0 - E1) or one (as for F0). When the una corda pedal is pressed, only the preparations on strings 2 and 3 are activated, meaning that the pedal is functioning in line with organ techniques.

Objects Placed on the Strings

Paper: Sheet of writing paper, rolled up and placed on the strings. Its design and the resulting tone echo the bassoon of some pianofortes.

Aluminum: Aluminum foil placed flat on the strings. This gives a fairly long and characteristically metallic vibration. It is similar to preparations that consist of placing metal chains on the strings, as in the first work, Primeval Sounds, in Georg Crumb's Makrokosmos I.

iPhone: An iPhone resting flat on the strings. This gives a slightly metallic damping effect, as well as an occasional bouncing of the iPhone when the strings are struck. This is due to the iPhone not being tethered to the piano strings.

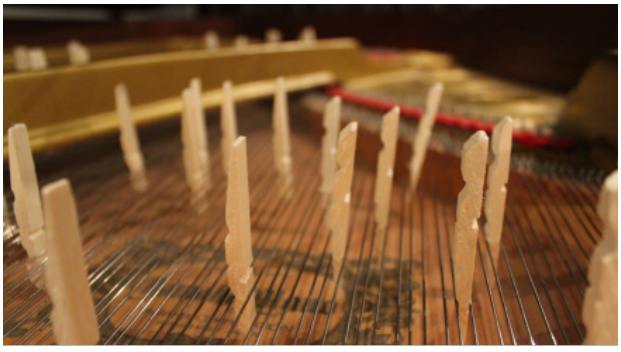
IRCAM Prepared Piano Playing Techniques [continued]

Mutes: The string is dampened with a finger, close to the bridge. This category of dampened sounds includes preparations inserted between the strings, using fabric, felt [Felt Temperament Strip], or window seal, as well as variations in angle that influence the overall time effect of the damping. Studies by Michael Levinas exploit this technique.

Objects Inserted Between the Strings

Rubber: Large pencil erasers are used for this preparation, producing a sound similar to that of a deep bass gong. In the first movement of John Cage's Amores, three notes are muted with rubber giving a «touches bloquées» effect in contrast to other resonant preparations.

Half Spring-type Clothespin: The half-spring pegs found here represent preparations made from wood. The hardness of the wood used in the pegs results in the production of gong-like sonorities. To simulate preparations using softer wood (which give a duller, dampened sound), half spring pegs can be combined with muted or rubber preparations. Wooden preparations sometimes touch the soundboard, producing a short, hard attack when the string is struck. It is possible to achieve this effect by simultaneously selecting both Clothes Pin and Eraser preparations.



Screw / Bolt [tapered screw / bolt screw]: The screw, or bolt, is the most common preparation. There are screws of varying lengths and thicknesses, as well as screws with large heads, small heads, tapered heads or un-tapered heads. All of these factors affect the sonic characteristics when applied as a preparation to a piano string.

The preparation chosen uses a wide range of materials to create a variety of timbres from one note to another. The sounds are generally rich and resonant; they remain within the gong family, featuring a small vibration when the note is played forte.

All of Cage's works use at least one screw. Prelude for Meditation contains only four notes, surrounded by numerous silences. Each note in the piece is prepared with bolts in addition to the normal sound of the piano, making it possible to hear the preparations clearly. By contrast, in Daughters of the Lonesome Island thirty-nine keys are prepared, almost all of them with screws, resulting in an abundance of timbres which remind the listener of a gamelan ensemble.

IRCAM Prepared Piano Playing Techniques [continued]

Screw / Bolt + Loose Nut (buzz): The same preparation described above, but with a loose nut around the screw which bounces when the note is played, creating a «buzz». An example of this preparation can be found in the first movement of John Cage's Amores, where two notes prepared using screws must also be topped with nuts. This work also serves as a concise overview of the preparations Cage employed using mixed materials.
Coins: A coin is inserted between the strings (above 1 and 3 and below 2), greatly enriching the sound. The result resembles a rich yet soft gong, sometimes featuring a very slight vibration. The sound is generally more rounded than when the strings are prepared with screws. The low notes of John Cage's A Room are a fine example of the use of coins, combined with screws used on other notes.

Effects

Glass Slide: A stemless glass is held on the strings, maintaining constant pressure, and slid lengthwise along them. The glissando is ascending or descending, depending on whether the slide is moving towards or away from the dampers.

Bar Hits: A percussive impact on the bars of the piano's cast-iron plate, above the soundboard. Three playing techniques are used: the hands, soft drumsticks and hard drumsticks. These samples are played on the lowest bass notes beyond A-1. In Caravan, from Jacky Terrasson's album Mirror, there is an improvisation using the hands inside the piano frame (video: http://www.youtube.com/watch?v=RxTi9lJSHyY). The phrase featured at 2:35 would be completely applicable within the IRCAM Prepared Piano software.

Extra Length: A plectrum slide along the part of the strings located between the bridge and the tuning pins. Since this is an unusual two-handed polyphonic technique, two potentiometers are used to produce this effect.

Preset List

01 Preparations

Ancient Hammer
Arctic Rune
Bacchanale
Broken Harpsichord
Chance
Cinematic Distance
Circle of Fifths
Cloud Hill
Cold Graph
Desert Stick
Desolation
Dreamy Fifth
Furr Texture
Glass Orchestra
Harmonics
Heritage
Lullaby
Magical Fourth
Music Box
Octave Grand
Skelliga
Super Mellow
Suspenseful Forms
Tiny Radio
Tomorrow
Toy Keys
Underwater
War Piano
Wednesday Adams
Well Tempered
Western

02 Natural

Ancient Hammer
Arctic Rune
Bacchanale
Broken Harpsichord
Chance
Cinematic Distance
Circle of Fifths
Cloud Hill
Cold Graph
Desert Stick
Desolation
Dreamy Fifth
Furr Texture
Glass Orchestra
Harmonics
Heritage
Lullaby
Magical Fourth
Music Box
Octave Grand
Skelliga
Super Mellow
Suspenseful Forms
Tiny Radio
Tomorrow
Toy Keys
Underwater
War Piano
Wednesday Adams
Well Tempered
Western

03 Prepared

Caverns
Cosmic Tale
Curly Sine
Dark Chimes
Deepnest
Djangle
Drone Bow
Dry & Broken
Elvish Dream
Flying Saucepan
Hokusai
Jamboree
Last Arrival
Machine Ghost
Midnight Factory
Miners
Octave Platter
Paname Papers
Purple Silk
Reverse Screws
Spectres
Starving
Time Piano
Untroubled Aspects
Variations

04 Animated

Acadie
Across Country
Amapiano
Azure Pulse
City Adventure
Cold Stir
Documentaries
Encompass
Fiddler Inside
Harmonic Motion
Juicy Pluck
Metallic Toy
Octet
Orbion
Passing Time
Phantom
Picking Rain
Pinguin Dancer
Pitter Patter
Stone Cloud
Sunburst 1K
Sweet Moon
Wood Choral

05 Percussive

Brodin
Crippled Branches
Crusher
Dark Journey
Dysphoric
Industrial Hand
Jumanji
Kisenso
Kitchen Beat 1K
Mecanical Oil
Metal Room Kit
Metal Tribe
Optical
Parade
Robotic Echo
Slapback Conga
Tribal Pursuit

06 Performance Split

Baroque Castle
Capoeira
Dream Atmosphere
Island Hills
Medieval Dream
Multitimbral Keys
Old Arranger
Percussionist
Short Harmonics
Spooky Mansion

Preparation List

Preparations

Sustain
from A-1 to C7

Mutes
from A-1 to C7

Harmonics
from A-1 to F5

Eraser
from A-1 to G4

iPhone
from A-1 to B6

Coins
from F1 to D#5

Sustain Pick
from A-1 to C7

Mutes Pick
from A-1 to C7

Harmonics Pick
from A-1 to F5

Eraser Pick
from A-1 to G4

iPhone Pick
from A-1 to G4

Coins Pick
from A-1 to G4

Sustain Mallet
from A-1 to D5

Mutes Mallet
from A-1 to C7

Harmonics Mallets
from A-1 to F5

Eraser mallet
from A-1 to G4

iPhone mallet
from A-1 to G4

Coins mallet
from A-1 to G4

Sustain Stick
from A-1 to C7

Mutes Stick
from A-1 to C7

Harmonics Stick
from A-1 to F5

Eraser Stick
from A-1 to G4

iPhone Stick
from A-1 to G4

Coins Stick
from A-1 to G4

Sustain Stick
rebound
from F1 to C#6

Mutes Stick
rebound
from A-1 to C7

Preparation List

Clothes pin
from A-1 to C7

Screw
from A-1 to C7

Screw+Nut
from A-1 to C7

Bow
from A-1 to C7

Glass Slide Up
from E2 to F5

Empty
No Sound

Clothes pin Pick
from A-1 to G4

Screw Pick
from A-1 to G4

Screw+Nut Pick
from A-1 to G4

Ebow
from A-1 to C7

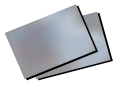
Glass Slide Down
from E2 to F5

Clothes pin mallet
from A-1 to G4

Screw mallet
from A-1 to G4

Screw+Nut mallet
from A-1 to G4

Scratch
from A-1 to E1



Aluminum Foil
from A-1 to F6

Clothes pin Stick
from A-1 to G4

Screw Stick
from A-1 to G4

Screw+Nut Stick
from A-1 to G4

Paper
from A-1 to A#5

Links

UVI

Home	uvi.net/
UVI Portal	uvi.net/uvi-portal
Manage Your Products	uvi.net/download-with-portal
Soundbank Installation Guide	installing_uvi_soundbanks_en.pdf
UVI Workstation User Guide	uviworkstation_user_guide_en.pdf
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IRCAM PREPARED PIANO 2

Credits and Thanks

Produced by UVI

Documentation / Expertise
Yan Maresz
Nicolas Mondon
Nathaniel Reeves
Kai Tomita

Presets
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Kévin Guilhaumou
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UVI™

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