propellerhead

RADICAL PIANO
OPERATION MANUAL

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Radical Piano

Introduction

Radical Piano is a Propellerhead Rack Extension device designed to be a straightforward, awesome sounding and very flexible piano. Radical Piano combines sample playback technology with physical modelling to give you great sound quality and seamless dynamic response as well as great freedom to tweak your sounds.

The combination of sample playback and physical modelling also makes it possible to keep each piano sound set down to a minimum size. This allows for very quick loading times when you switch between instruments.

Radical Piano also features sympathetic resonance, which means that any undamped strings will ring along with the played notes (strings), just like on acoustic pianos. This makes Radical Piano sound extremely realistic and alive. There are also a number of other controls for further shaping the sound the way you want it.

As a bonus, we also included an audio input so you can route external audio and process it in Radical Piano!

The pianos

Radical Piano holds complete sound sets recorded from these three pianos:

- **Home Grand**
  A Bechstein grand piano with a nice "not perfectly tuned" home grand character.

- **Deluxe Grand**
  A Steinway Model D grand piano - one of the greatest grand pianos out there. This particular one belongs to Sveriges Radio (Swedish Radio Ltd).

- **Upright**
  A Futura upright piano with a distinct "living room" character.

The microphone configurations
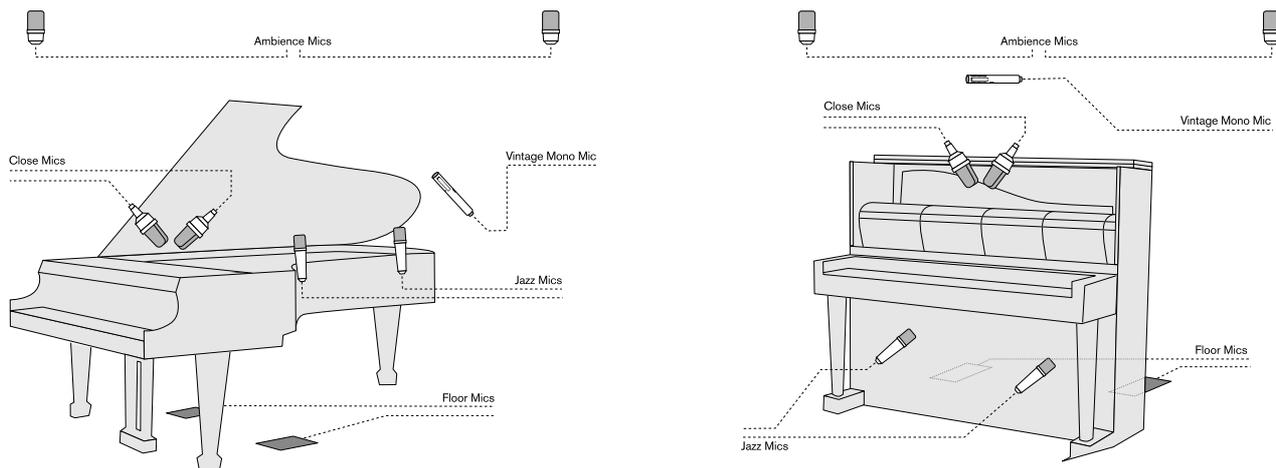
The microphone configurations for the grand pianos and the upright piano respectively.

The pianos were recorded using up to nine microphones per instrument, placed at various critical positions inside and outside of the pianos. The different microphone recordings were then stored in Radical Piano as separate sound sets.

The following microphone configurations were used:

- **Vintage Mono**
  A single microphone placed outside the waist of the grand piano (or behind the upright piano). For the Steinway grand piano we used an old school mono ribbon mic with vintage characteristics and a narrow frequency response with the emphasis in the mid range. For the Futura upright piano we used a vintage tube microphone.

- **Ambience**
  Two microphones in AB configuration* placed quite far away from the piano to capture the room ambience.

- **Floor**
  Two pressure zone microphones that lay flat on the floor just behind the front legs of the grand piano (and behind the upright piano). They add depth and richness to the sound and are best used as a complement to the other mics.

- **Jazz**
  Two microphones in AB configuration* placed just outside/in front of the piano. This gives a full bodied sound with a wide stereo image and a less pronounced attack.

- **Close**
  Two microphones in XY configuration** placed close to the hammers. The close mics produce a distinct sound with a sharp attack, ideal for uptempo pop/rock.

* AB configuration: Two mics in stereo configuration placed several feet apart and tilted slightly away from each other.

** XY configuration: Two mics in stereo configuration placed close together in 'V' shape at a 90° coincidence.

Using Radical Piano

Loading and saving patches

Loading and saving patches is done in the same way as with any other internal Reason/Reason Essentials device - see the "Sounds and Patches" chapter in the Reason/Reason Essentials Operation Manual pdf for details.

Selecting piano sound sets

A patch in Radical Piano can consist of a mix between two piano sound sets. The mix could be between two sound sets from the same piano, or from different pianos. You could, for example, blend a Close mic'ed upright piano with the Floor microphones from a grand piano to create your own custom piano sound. The piano sound sets can be selected in the Piano Select section:

The Piano Select section.

1. **Select desired piano sound set(s) by clicking the corresponding LED button(s).**
   You can select one sound set to the left of the Blend knob and one to the right.

2. **Set the mix between the sound sets with the Blend Microphones knob.**
   If you only want to use a single sound set for your sound, set the Microphone Blend knob to min or max.

Character

→ **Set the character of the sound with the Character knob.**
   Range: Subdued to Agitated, in 24 steps, with natural sound at the 12 o'clock position.
   Subdued produces a warm and mellow tone whereas Agitated generates a brighter and significantly more pronounced tone.

! **Changing the Character value temporarily mutes the audio outputs.**

Volume

The master volume control for Radical Piano.

Velocity Response

Most sample-based piano instruments and sound libraries on the market use a predefined number of velocity layers. Depending on how soft or hard you play the keys, samples from a specific velocity layer play back. Due to memory limitations, the number of velocity layers aren't often that many. This can make the velocity response feel and sound unnatural. Thanks to the combination of samples and physical modelling in Radical Piano, all sound sets feature very wide and completely seamless velocity ranges.

With the Velocity Response knobs you can tailor the dynamic response of your piano sound.

- **With the High knob you set the timbre for the highest velocity.**
  Note that the High parameter can go far beyond the natural range of an acoustic piano, which is great for experimental sounds.

- **With the Low knob you set the timbre for the lowest velocity.**
  With the Low knob set to zero (marked with an 'S') playing really soft won't play back any sound at all. This can be useful if you, for example, want to hold down a chord and then play other keys to introduce the sympathetic resonance effect, see "Resonance".

- **With the Curve knob you set the shape of the velocity curve - from exponential, via linear to logarithmic.**
  Set this parameter where it feels the best to play. There is no "perfect" position since most MIDI keyboards respond differently to velocity.

- ► **If you want a natural dynamic range, set the Low knob to around the 9 o'clock position and the High knob to around the 12 o'clock position. Adjust the Curve setting to your liking.**

- ► **If you want a dynamic range that stretches beyond the range of an acoustic piano, set the Low knob to zero and the High knob past the 12 o'clock position.**

- ► **If you want a static response (with the same timbre no matter how soft or hard you play), set the Low knob to max and the High knob to zero. Note that there will still be some velocity sensitivity left for controlling the volume.**

Tune

Cent

→ **Set the overall master tune of your sound with the Cent knob.**
  Range: +/-1 semitone (+/-100 cents).

Drift

The Drift parameter can be used for introducing a slow irregular pitch variation to your sound. It's perfect for adding kind of a "scary" or melancholic touch to your piano sound.

Sustain

The Sustain parameter is a special feature in Radical Piano. It lets you control the piano sustain continuously from pedal up to pedal down. As on acoustic pianos, the sustain pedal is not either "on" or "off - it can be "somewhere in between" as well. The Sustain function in Radical Piano simulates this behavior.

The Sustain parameter can be controlled either from the Pedal LED strip control on the front panel or from a Sustain pedal connected to the Sustain Pedal input of your MIDI master keyboard.

• **When you use a standard (switch type) sustain pedal connected to a standard sustain pedal input on your MIDI keyboard, this will control the Sustain function in Radical Piano as either Off ('0') or On ('127').**
  You could record using the standard sustain pedal and then manually edit the Sustain Pedal performance controller data in the note clip in Reason/Reason Essentials afterwards and adjust the "in between" Sustain levels.

! **The Sustain parameter value (and LED bar) will always adjust to the latest incoming Sustain Pedal data, be it from the Pedal LED strip control or from a sustain pedal connected to your MIDI keyboard.**

Resonance

Sympathetic resonance is a physical phenomenon that can occur in acoustic instruments, like in pianos for example. It means that any undamped strings will ring along with the played strings. For example, if you play a key with the sustain pedal down, all other strings in the piano will also vibrate at various intensities. Similarly, if you hold down a number of keys (so that the dampers are off the strings) and then play additional keys, the strings for the held keys will resonate.

With the Resonance controls you set the amount of sympathetic resonance in your piano sound.

Level

→ **Set the amount of overall sympathetic resonance in your sound.**

Release Time

→ **Set the time it should take for the sympathetic resonance to fade to silence.**

Envelope

Radical Piano features a special type of envelope generator which is used for shaping the character of the piano sound.

Attack

→ **Set the attack time for the piano sound, from immediate to (unnaturally) slow.**
   The range is 0-200 ms.

Decay Curve

→ **Set the shape of the decay curve.**
   This control determines how the sound should decay when you play and hold the keys.
   The range is from exponential, via linear, to logarithmic. Exponential settings will make the sound decay faster, which simulates a piano with little body sustain. Logarithmic settings makes the sound sustain more slowly and simulates a piano with a lot of body sustain.

Release

→ **Set the time it should take for the sound to fade to silence once you release the keys.**
This simulates the behavior of the dampers. For example, worn out dampers could result in somewhat longer release times.

Mechanics
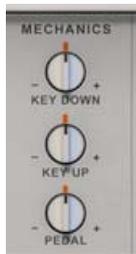
The Mechanics section features controls for the mechanical noise.

Key Down

• **Key Down controls the level - and character - of the noise that occurs when the keys are pressed/hit.**
At the 12 o'clock position the noise is the most natural. Above the 12 o'clock position the noise is more pronounced and below the 12 o'clock position the noise is suppressed.

Key Up

• **Key Up controls the level of the noise that occurs when the keys are released and the hammers and dampers return to their initial positions.**
At the 12 o'clock position the noise level is natural. Above the 12 o'clock position the noise is louder and below the 12 o'clock position the noise is quieter.

Pedal

• **Pedal controls the level of the noise that occurs when you press and release the sustain pedal.**
At the 12 o'clock position the noise level is natural. Above the 12 o'clock position the noise is louder and below the 12 o'clock position the noise is quieter.

EQ

The built-in equalizer is a powerful 3-band EQ with gain controls for the Low, Mid and High bands. The EQ characteristics have been fine tuned and optimized for piano sounds. The gain range is +/-18dB for each of the bands, which makes it easy to quickly achieve great sonic results.

The EQ can be switched on/off by clicking the LED button at the top.

Ambience

The Ambience section features four different reverb types and a Level control. The reverb types are:

- **Small Room**
  This simulates the acoustic reflections in a small room.

- **Large Room**
  This simulates the acoustic reflections in a large room.

- **Hall**
  This simulates the acoustic reflections in a medium size hall.

- **Theater**
  This simulates the acoustic reflections in a large hall/theater.

Output

Width

This lets you set the stereo width of the piano sound.

! **Note that the Width control does not have any effect on the sound if you use only the "Vintage Mono" piano sound set(s), see "Selecting piano sound sets".**

Compression

This controls the amount of compression of your piano sound.

Connections

! **Remember that CV connections will not be stored in the Radical Piano patch!**

Sequencer Control

The Sequencer Control CV and Gate inputs allow you to play Radical Piano from another CV/Gate device (typically a Matrix or an RPG-8). The signal to the CV input controls the note pitch, while the signal to the Gate input delivers note on/off along with velocity.

Modulation In

These control voltage (CV) inputs (with associated trim pots) can modulate following parameters in Radical Piano:

• **Pitch**
The Pitch can be modulated at a maximum range of +/-1 octave.

! **Note that +/- 1 octave is the maximum range a piano sound can be pitch shifted in Radical Piano. This assumes that no Pitch Bend performance controller is used (see "Pitch Bend") and that the Character knob is set to Natural (see "Character").**

• **Master Volume**

Audio In

Route an external audio signal to this input to process it with the Resonance, EQ, Ambience and Compression effects in Radical Piano.

► **Routing a vocal signal and processing it with the sympathetic resonance effect (with the sustain pedal down) could generate really interesting results. It would be like singing into a piano body!**

Audio Out

These are the main audio outputs. When you create a new Radical Piano device, these outputs are auto-routed to the first available channel in the main mixer in Reason.

Additional external control

The Radical Piano responds to the following standard Performance Controllers:

- **Pitch Bend**
  Radical Piano responds to Pitch Bend data from the pitch bend control of your MIDI master keyboard.
  The range is fixed at +/-7 semitones.

! **Note that the Character setting (see "Character") as well as any Pitch CV modulation (see "Pitch") can reduce the Pitch Bend range.**

- **Sustain Pedal**
  If you have a standard (switch type) sustain pedal connected to a standard Sustain Pedal input of your MIDI master keyboard, this can be used for controlling Sustain On/Off. You can then edit the Sustain values in your note clips in the sequencer afterwards and set continuous values all the way between 0-127, see "Sustain" for more details.