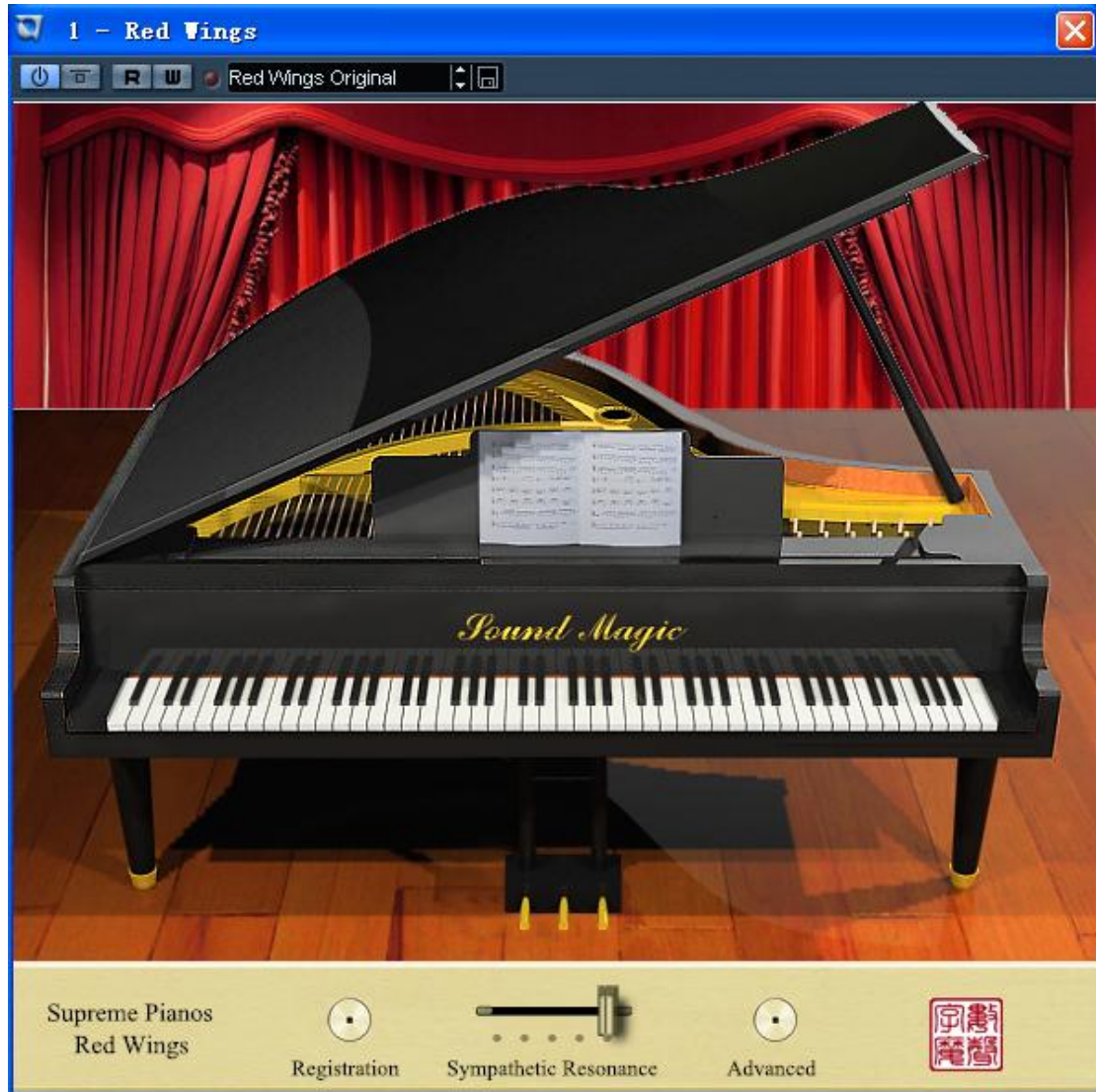


# Supreme Pianos

Next Generation Physical Modeling Pianos



Developed by



## Operational Manual

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Supreme Pianos is designed for the purpose that using physical modeling technology to achieve the same reality level as sampling while keeping the CPU usage low. In order to do this, Supreme Pianos uses a series of groundbreaking technologies including Harmony Rendering Engine and Multi-Dimension Vector Synthesis.

The basic idea of Supreme Pianos is coming from 3D graphic rendering. It uses Physical modeling to shape the sound's "skeleton" of the piano, and then mapping a series of harmony components on to the skeleton to achieve an authentic sound.

Supreme Pianos does not rely on sampling, has a small memory footprint and extreme low CPU usage making it ideal for live performances. Even on a Pentium III 533MHz system, it could work great while running under heavy duty. And on today's quad core system, Supreme Pianos could maintain CPU usage unnoticeable.

Supreme Pianos contains 3 grand pianos, Blue Water Piano, Red Wings Piano and Mini Piano. Supreme Pianos now provides Stand-alone version and VSTi plug-in version running on Windows system. There will be more add-ons in the future.

## **Features**

Revolutionary 256 stages/40Hz Harmony Rendering Engine adds Reality to the sound of physical modeling piano.

Patented Multi-Dimension Vector Synthesis technology reveals the power

of next generation Physical Modeling technology that is 20X faster than traditional physical modeling algorithm.

Proprietary Real Dynamic Response System accurately represents real grand piano's non-linear dynamic response.

Full repedalling feature accurately recreates the behavior between pedal up and pedal down.

Proprietary 264-strings Sympathetic Resonance System reproduce comprehensive Sympathetic Resonances of a true Grand Piano.

Optimal Coding for Multi-core CPU leads to extreme low CPU usage and RAM usage. The CPU usage even lower than a sample player!

Optimal for most MIDI keyboards.

Small Size, Total 335MB for 3 Pianos

Full MIDI learn and automation

### **Harmony Rendering Engine**

Harmony Rendering Engine is a ground breaking technology developed to give physical modeling instruments more reality in sound compared to sample libraries.

The first step in Harmony Rendering Engine is using a group multi phase filters to separated all harmony components in an instrumental sound.

After this step, we could obtain a series of harmony components.

The second step is mapping the harmony components to the physical

modeling skeleton and then rendering to the final result.

The main advantage of Harmony Rendering Engine is that the CPU usage does not affect too much by polyphony numbers. For under heavy duty situation, the CPU usage by Harmony Rendering Engine is 3 times as mono in maximum. But in a sample player, 128 polyphonies often mean 128 times CPU consumption compared to mono. So harmony rendering will lower CPU usage a lot. Harmony Rendering Engine will also be limited in size. It is much less in size than samples.

Harmony Rendering Engine also could give the sounds more color when cooperated with Multi-Dimension Vector Synthesis technology

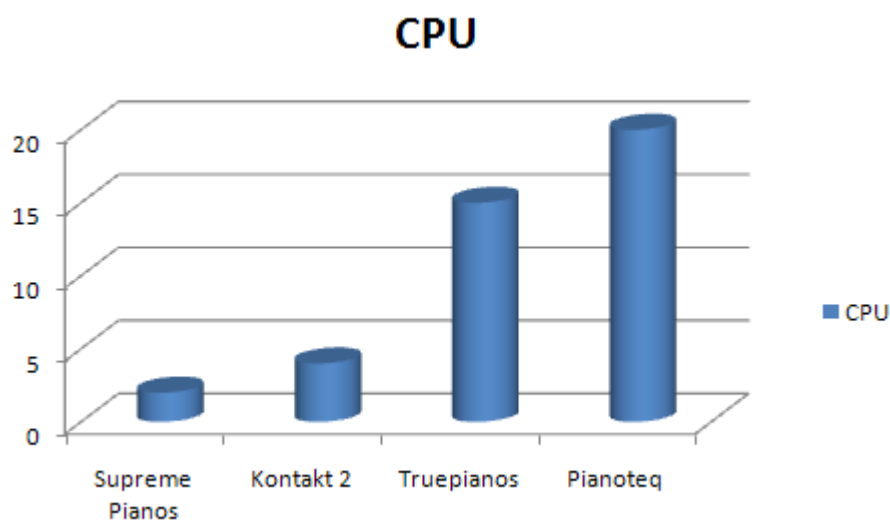
### **Multi-Dimension Vector Synthesis**

Multi-Dimension Vector Synthesis (MDVS in short) is a patented technology developed for next generation physical modeling. MDVS takes all factors as dimensions and modeling the behavior between each of them. For example, MDVS takes pitch, velocity and time as three dimensions and modeling the behavior between them. The result of MDVS leads to a very accurate model.

### **Optimal Coding**

Cooperated with Harmony Rendering Engine and Multi-Dimension Vector Synthesis, Optimal Coding makes the CPU usage even lower than

a sample player! Also the RAM usage is subtle and the plug-in could be loaded within two seconds, that's really fast. For today's quad-core system, Supreme Pianos consume less than 2% CPU under heavy duty (over 64 polyphonies). And in a very old system like Pentium III 533, the CPU usage remains 20% maximum under heavy duty.



CPU usage under heavy duty on a quad core system. Kontakt 2 is using an 800MB piano sample library for simple sample playback. You could see Supreme Pianos cost only 50% CPU of a sample player! For other physical modeling competitors, Supreme Pianos could win with ease.

### **Repedalling**

The real pianos the strings doesn't stop vibrating immediately after you release the key, and if you press the sustain pedal in that short interval while the string is still vibrating, you could allow it to sound again and continue from that velocity point. This works mainly for the bass notes.

Also when you hold one key and press the pedal. The sound will naturally switch to pedal down sounds. Repeddalling feature enable Supreme Pianos sound more nature than others when you press the pedal. And what is more, different pedal value (CC64) in Supreme Piano result different sounds while others have only two values.

### **Real Dynamic Response System**

Proprietary Real Dynamic Response System accurately represents real grand piano's dynamic response. The Real Piano's dynamic response differs from what we hear in sample library. Every note of the real grand has its own dynamic response. For example, low note A0 could have 33dB dynamic range while High note C8 has a 53dB dynamic range.

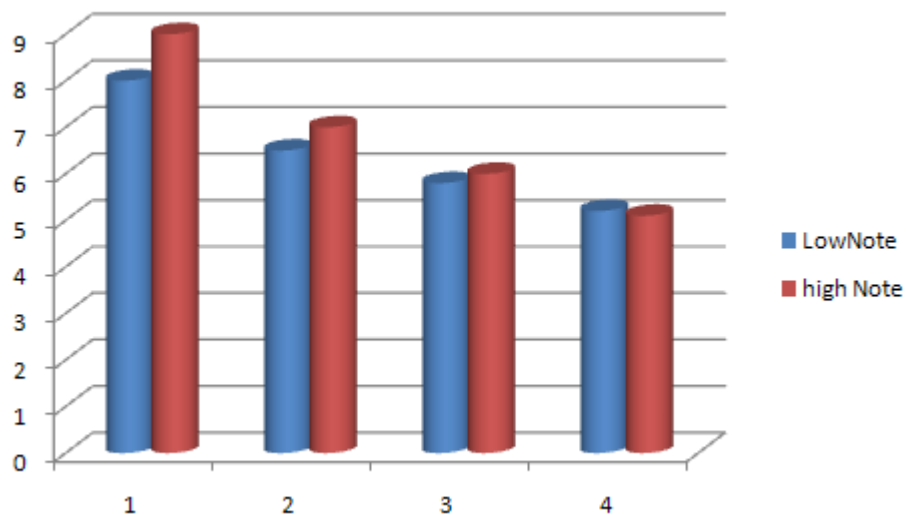


Figure 1: Dynamic Difference between Low and High note in real piano,

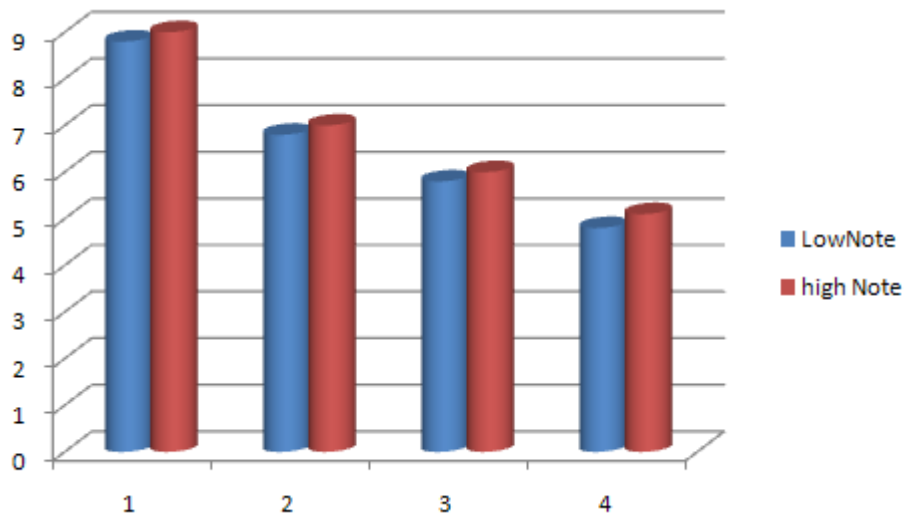
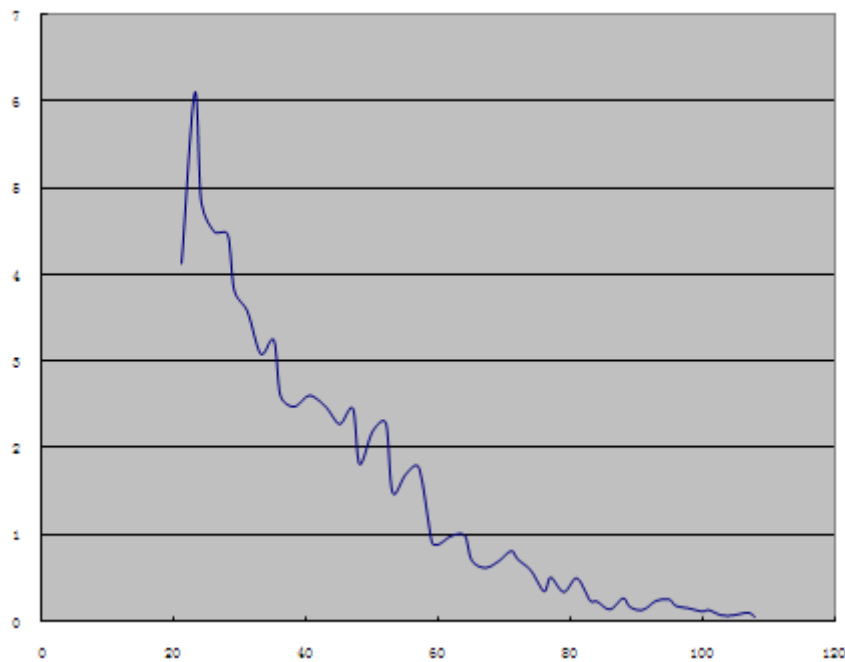


Figure 2: This is common situation in piano sample libraries, linear response and using interpolation. But that is not true piano dynamic

And what is more, this dynamic response is a non-linear variation in level that has complex hills and valleys.



Non-Linear Dynamic Response of Piano

Real Dynamic Response System let every notes have individual dynamic response which could accurately represents real grand piano's dynamic response. The result of Real Dynamic Response System is supernatural

and brilliant sounding.

Also we know that MIDI has only 128 velocity values. Real Dynamic Response System successfully exceeds this limit and could have a range over 16 millions velocity levels. The result of this leads to an exquisite sounding.

### **The 264-strings Sympathetic Resonance System**

Sympathetic Resonance happens when you hold some notes while hit another note. The strings sympathetic resonate with each other. The pitch and volume are determined by note and also the holding note. So it is a very complex system that other Piano VSTi and sample library failed to recreates before. Supreme Pianos uses 264-strings Sympathetic Resonance System that first time recreates the whole behavior.

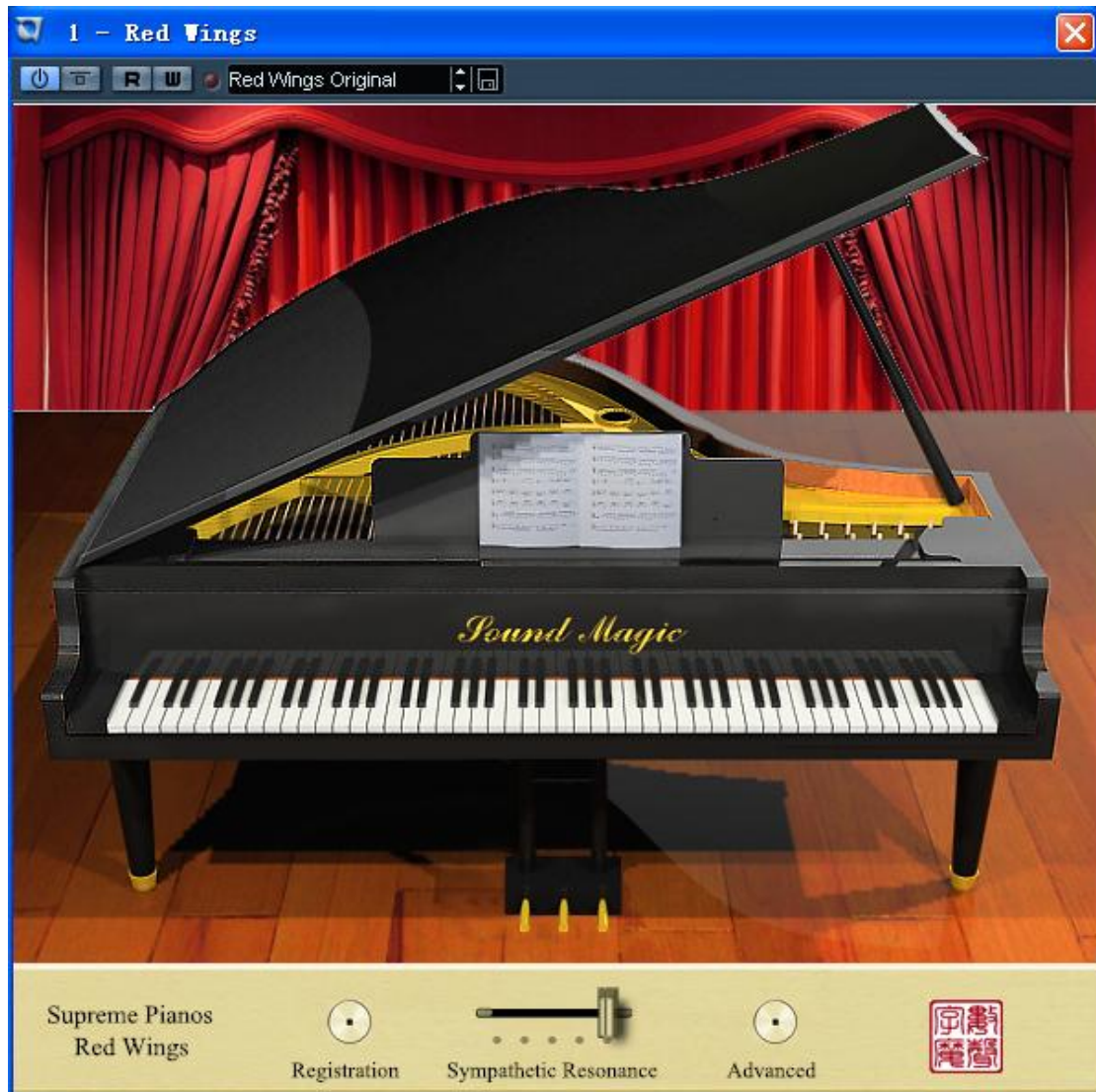
## **Quick Start**

Supreme Pianos are easy to use. Here are some quick steps to getting Supreme Pianos running.

If using as a VSTi:

When you run the setup file of Supreme Pianos

Run your DAW host program (such as Cubase). Most host programs will automatically find any new plug-ins, including Supreme Pianos. If your host does not automatically locate Supreme Pianos, seek the Preferences for an option such as "Find New VST Plug-Ins," or take a look at your owner's manual.



Supreme Pianos should show up as a folder of virtual instruments in your DAW. Under the folder it should have Blue Water, Red Wings and Mini, 3 modules in total.

If using in Stand-Alone mode:

Run Supreme Pianos, either using the Supreme Pianos desktop icon, or selecting the Start Menu in Windows and choosing All Programs-> Supreme Pianos ->module names. It may take up to a minute to load Supreme Pianos' data.

By default, Supreme Pianos in stand-alone mode can be controlled by any MIDI input. It will use your default audio device. To adjust your audio device and latency settings, select Devices->Wave.



### Three Pianos in one package

There are 3 pianos in one package, Blue Water, Red Wings and Mini Blue Water piano is a concert grand with classical sound. It is better used

in soft and slow tracks. Also it is best when play for classical music.

Red Wings is a concert grand with bright sound, best for pop and new age music.

Mini Piano is a concert grand designed for quick use. It is really fast for it does not have Sympathetic Resonances function and very small in size. It has an aggressive sound.

## Registration

Supreme Pianos Demo Version will work for 14 days before it must be registered with a valid User ID and License Key. A License Key can be purchased from our web site <http://www.soundemon.com/spiano.htm>



To registration Supreme Pianos, Pressing this button will bring up the Registration Dialog:

A screenshot of a software dialog box titled "Product Registration". The title bar is blue with a red close button on the right. The main area has a white background. At the top, it says "Blue Water Piano". Below that, it says "Enter registration information below:". There are two text input fields: "User ID:" followed by a text box containing a vertical cursor, and "License Key:" followed by an empty text box. Below these is a "Demo period:" label, a text box containing the number "0", and the text "Days left". At the bottom, there are three buttons: "Cancel", "Enter Key", and "Get License Key".

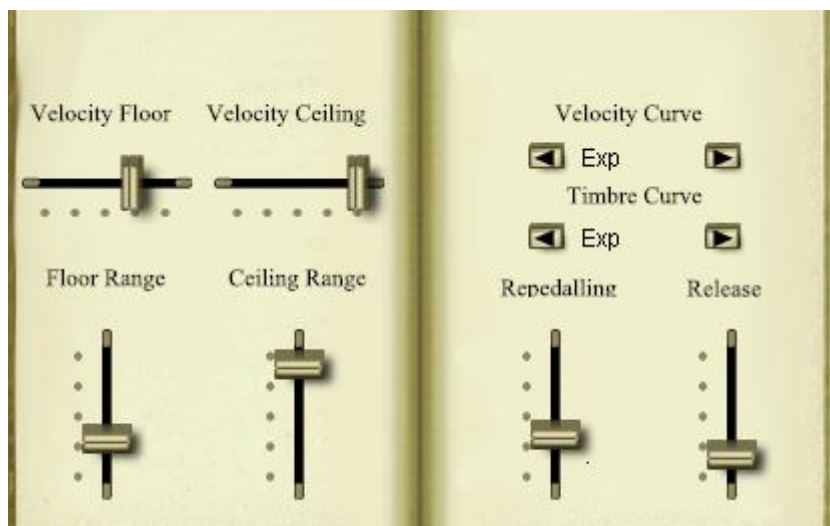
Enter your User ID and License Key, and press the Enter Key button. If you've entered your ID and License Key, properly, Supreme Pianos will immediately become registered,

If you have any problems registering Supreme Pianos, please contact Customer Service.

## Controls



**Advanced:** Press this button will bring up the advanced controls GUI, shown as below.



**Velocity Ceiling:** The Ceiling of Volume, the larger, the louder of the sound in MAX velocity. Moving the slider rightwards will make the sound brighter while leftwards will make the sound darker.

**Velocity Floor:** The Floor of Volume, the larger, the louder of the sound in MIN velocity. Moving the slider rightwards will make the sound warmer, but it will lose dynamic if you move rightwards too much. Moving the slider leftwards will make the sound more dynamic. But it will make the low velocity too low in Volume when you move leftwards too much.

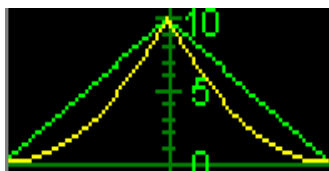
**Ceiling Range:** The Volume difference Between A0 and C8 at MAX velocity. Upwards will increase the differences while downwards decrease the differences.

**Floor Range:** The Volume different Between A0 and C8 at MIN velocity. Upwards will increase the differences while downwards decrease the differences.

**Velocity curve:** Different respond curve of Velocity. You should click the arrows to switch or click on the middle and a down drop list will show up. Velocity Curve also means the relationship between Velocity and Volume.



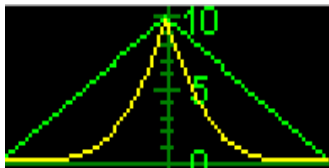
**Linear:** This type of response means Volume changes with constant rate as Velocity changes.



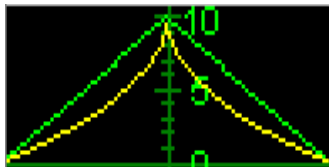
**Exp:** this type of response means Volume changes slows first and then getting fast as Velocity increases



Inv.exp: this type of response means Volume changes fast first and then getting slow as Velocity increases



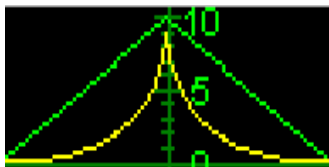
Exp2: this type of response means Volume changes slower first and getting faster as Velocity increases



Root: very close to Exp type, but with a smoother changing curve.



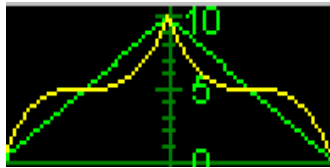
Inv.Root: very close to Inv.Exp type, but with a smoother changing curve.



Exp+Root: very close to Exp2 type, but with a flatter changing curve.



S\_Crv: this type of response means Volume changes as an “S” shape as Velocity changes. It changes slower in both ends and getting fast while in the middle range.



S\_Crv2: this type of response means Volume changes as an “S” shape as Velocity changes. It changes slowest in both ends and getting fastest while in the middle range.



Inv.S\_Crv: this type of response means Volume changes as an inverted “S” shape as Velocity changes. It changes fast in both ends and getting slow while in the middle range.

**Timbre Curve:** The change curve of timbre with different velocities.

**Repedalling:** The time between pressing the pedal and the full pedal down sound. Moving upwards will make the time shorter while moving

downwards will make the time longer.

**Release:** The release time of the sound, range from 0 seconds to 2 seconds. Moving upwards will increase the release time.



**Sympathetic Resonance:** The amount/volume of it. The more rightwards, the louder of sympathetic resonance sound is.

## Presets



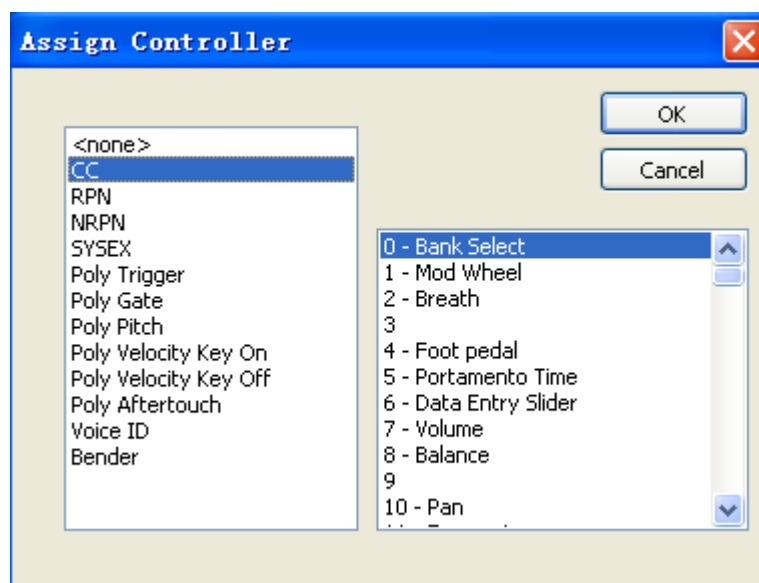
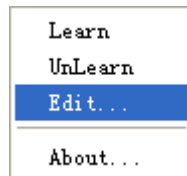
There are several presets in each piano to use. We found that some MIDI

keyboards tend to output low velocity while some keyboards tend to output high velocity. In order to solve this problem, we made some special presets. The presets with KB Low prefix means it fit for those keyboards tend to output low velocity. The presets with KB High prefix means it fit for those keyboards tend to output High velocity.

There are total 9 factory presets and 7 empty presets left for users

## MIDI Automation and MIDI learn

Every sliders and choices could assign MIDI controls individually. You just need to right click on it, and at popup menu choose Edit.



Also every sliders and choices could learn and unlearn by choosing popup menu.

## Stand-Alone mode

### Record to wave file

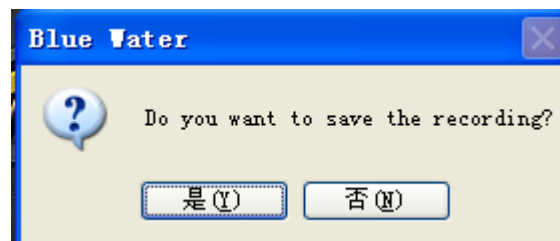
In Stand-Alone mode, you can record performance into wave files. To do this, you need to click the record button shown as below:



Then when you want to save to wave file, you need to click the stop button:



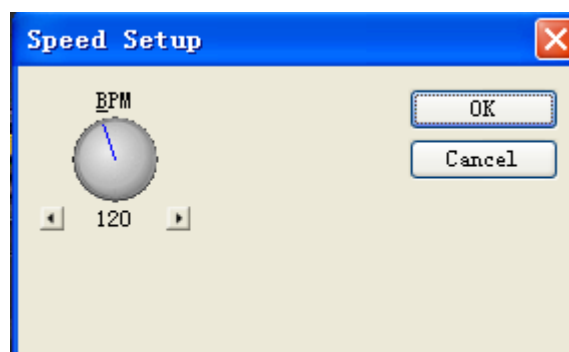
A dialog will show up:



You click yes button and save your wave file.

### Adjust tempo/Speed

Click this ICON will bring up speed/tempo menu



You can set your tempo here

## Switch presets



Click on the arrow, you can switch presets one by one

If you want to choose a preset quickly, you can also use the menu

PlugIn->Programs 0-15 and choose the presets you want to load.

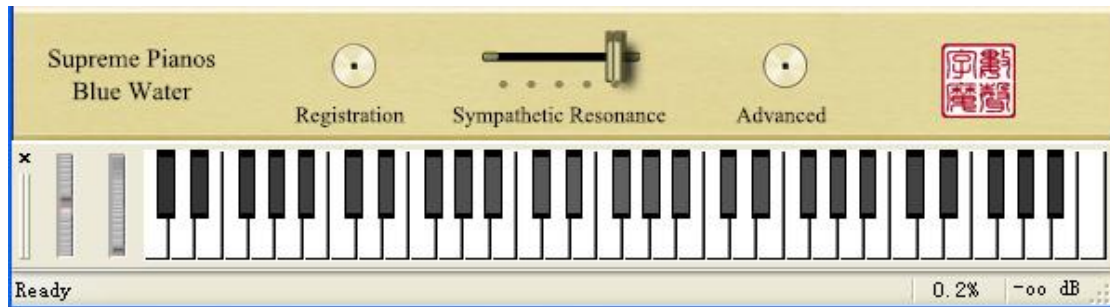


## Show Virtual Keyboard

You can choose to show Virtual Keyboard by clicking this button



A Virtual Keyboard will show up below the GUI

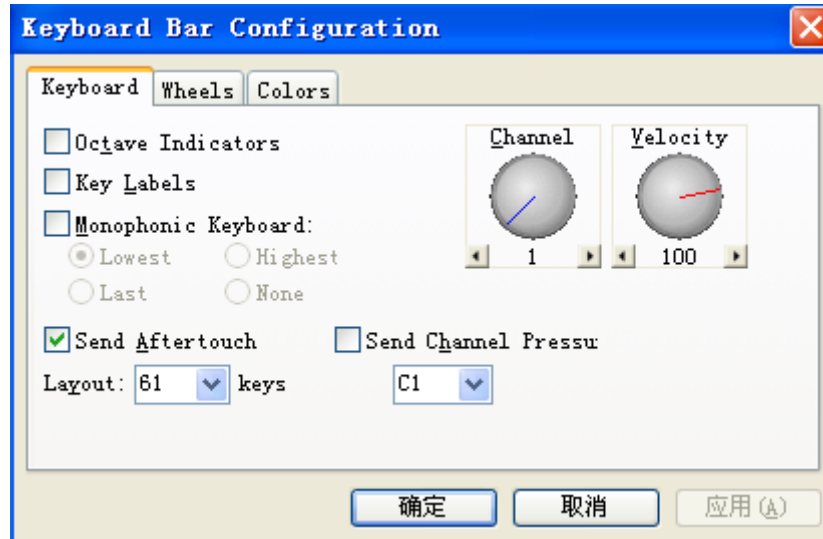


## Configure the Keyboard

You can configure the Keyboard by click this icon:



A dialog will show up



Here you can choose keyboard type/layout and even colors! In the wheels option, you can choose controller for each wheel.

## **FAQ**

### **Will Supreme Pianos work on a very old computer?**

Supreme Pianos can run on Pentium III system. Even under heavy duty it could maintain a reasonable low CPU usage. For older computer, the best to find out is to try the demo version.

### **How long could I receive my Serial Numbers after payment?**

We guaranteed user could receive serial numbers within 72 hours. Regularly it will be done in 24 hours.

### **Can I sell my Supreme Pianos license to another person?**

We offer this service free of charge. You can transfer the license every 9 months. We will process the request within one week.

### **How frequently is Supreme Pianos updated and improved?**

We scheduled updating monthly. We will add more feature in updates, such as more add-ons.

### **Could I use Supreme Pianos on more than one computer?**

For personal users, you can install on reasonable amount (At the most 3) of computers for yourself. But you may not install it to your friend's computers. For company customers, there is another model.

### **What technologies does Supreme Pianos use to produce its piano sound?**

Supreme Pianos combines a series groundbreaking technologies to reproduces an authentic piano sound. It did not use samples but Harmony

Rendering Engine to produce sound and Multi-Dimension Vector Synthesis to do physical modeling.

**How many pianos included in Supreme Pianos?**

Currently there are 3 modules or pianos in Supreme Pianos. We will add more pianos in future updates.

**What updates could a user receive after buying Supreme Pianos?**

We offer our customers updates monthly, and free upgrade to Supreme Pianos Version 2.0. Also customers will have a discount of our add-ons.