

Concert Grand

User Manual

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User Manual



Description:

Concert Grand is an exceptionally high-quality piano sample library for NI Kontakt 5.7 and above, consisting of nine microphone perspectives and over **185,000 samples** of a Steinway D grand piano recorded in a world-class recording studio. The library is **1157 GB*** in size before lossless compression!

Concert Grand is ideal for Studio Production, Stage Production, Film Score Production, Performance and more!

Instrument Features:

- 20 - 23 velocities pedal up samples
- 20+ velocities pedal down samples
- 16 velocities release samples
- 9 microphone perspectives
- Authentic Pedalling: adds realistic pedal control.
- Continuous Pedal controls (can half-pedal etc.)
- Catch-pedaling, Soft and Sostenuato pedaling
- Custom Reverb impulse responses (IRs)
- Sympathetic Resonance with on/off and volume controls

- Extensive Mixer Page with invert pan, mono left right and sum choices, output selection and more
- EQ, compression, reverb send for each microphone perspective
- User controllable recording noise for added studio realism
- Recorded with world-Class microphones: Coles, AKG 414, Classic U87s, B&K, Crown etc.
- Best possible A/D converters used: Burl Mothership
- Best possible microphone preamps used: API and Neve

Concert Grand Library Size, Bit and Sample Rates:

Depending on the bundle that you have purchased, the samples are divided into three different bit and sample rates:

- | | | |
|---------------------------|-----------------|--|
| 1. Concert Grand Platinum | 24 Bit 96 kHz | Approx. 342 GB compressed or 658 GB uncompressed |
| 2. Concert Grand Gold | 24 Bit 44.1 kHz | Approx. 157 GB compressed or 299 GB uncompressed |
| 3. Concert Grand LE | 16 Bit 44.1 kHz | Approx. 77 GB compressed or 200 GB uncompressed |

Total compressed library size is approximately **576 GB** for the full Concert Grand.

Total uncompressed library size is approximately **1157 GB** for the full Concert Grand.

All samples are delivered in compressed format and do not require decompression to install and function. This saves a significant amount of hard drive space!

Sample size is for reference only. These are accurate as of the writing of this manual and are subject to change as improvements are made to the sample library.

Installation size can vary. The full library requires 576 GB of free space. Portions of the library can be installed as per user's needs. The Ambisonic samples, for example, are placed in a separate folder and can be removed to save a significant amount of space.

Every copy of Concert Grand is digitally watermarked with a serial number and contact information of the purchaser.

9 Microphone Perspectives:

One of the key elements to Concert Grand's sound is the 9 microphone perspectives! Take the time to get to know where each is placed and how the placement and microphone choice changes the sound. Below is a summary.

Player's Perspective: The Player's Perspective is **near binaural**. When you put on your headphones with this perspective, it will sound like you are seated playing the piano! The player's perspective was recorded with a **Crown SASS-P MKII**, but with added processing to linearize the microphone and increase the warmth.

Hammer Microphones: The hammer microphones give plenty of attack for a more aggressive sound. The hammer microphone perspective also captures plenty of hammer mechanism sound as well. These samples are excellent for cutting through a busy mix or a live band. The hammer mic perspective was recorded using **B&K 4006** microphones for their fast linear response. 4006 microphones are used extensively in classical music for their true-to-life sound that does not colour the recording the way other microphones do.

Inside Microphones: This is the sound most people associate with piano recordings. We decided on **vintage Neumann U87s** (they say West Germany on them). This gives the player the ability to get that classic piano sound.

Outside Microphones 1: Just outside the piano we used expensive **Neumann M149** modern tube microphones. The engineer called these the "Golden Sound" microphones. This microphone pair has a classy sound and a more balanced tone than the inside and hammer microphones.

Outside Microphones 2: Just outside the piano we centered a **Neumann U47**, a much sought-after vintage tube microphone that can act like a mono microphone giving excellent balance of tone or combined with other stereo pairs, such as the Outside 1 M149 microphones, to provide more of a centered image for mixing.

Room Microphones: In an attempt to give you modern and classic choices, we used a Royer stereo ribbon microphone and AKG C414s on the rooms. The ribbons sound like... ribbons... smooth and velvety. Ribbons take EQ well; another reason to include them. The AKGs sound true to the piano's tone in the room. The ribbon room microphones are an exceptional pleasure to play, particularly for jazz and solo work. The ribbons due sound less "spread" compared to the 414 rooms as the ribbons were recorded closer to the piano and using the classic Blumlein configuration.

Under Piano Microphone: Underneath the piano two RCA 77 classic ribbon microphones were used. I have to say that I am in love with this sound! Truly unique!



The real strength of Concert Grand is the ability to mix, combine, blend and automate the different sound colours from the microphones together. Even just the left and right channels from any mic perspective can be used and panned how you want. In essence, you have 19 different mono sources to choose from (individual left and right of the stereo channels plus the U47 and ambisonic) !

Microphone Summary:

Hammer Mics: B&K 4006

Inside Mics: vintage Neumann U87

Outside Piano: Neumann M149, vintage Neumann U47

Room Microphones: Royer SF-24 stereo ribbon, AKG 414

Piano Bottom: RCA 77

Player's Perspective: Crown SASS-P MKII for near binaural experience when played!

Ambisonic: Soundfield MK V

***Note: Concert Grand was recorded at Phase One in Toronto Ontario Canada (RIP), an elite studio with professional high-end studio equipment resulting in an unsurpassed sample quality. Concert Grand is capable of rivalling studio recordings. We used the Burl Mothership A/D converters over all the microphone perspectives. Source files were recorded at 24 bit 96 kHz. ***

System Requirements:

Minimum System:

Kontakt 5.7 and above.

8 GB RAM

80 GB of available hard drive space (576 GB for full library).

SSD drive. (Yes, it's necessary. Don't skimp out.)

Computer that meets the minimum requirements of Kontakt 5.7 and above.

Intel i3, i5, i7 or better

Advanced Use Recommended System:

(Film scoring, Album production etc.)

16 GB RAM or more.

Fast hard drive: SSD: Solid State Drive highly recommended. (Realistically you need an SSD to run this thing! It's a big library! We were going for sound. Factor in the cost of an SSD when you buy this!)

Concert Grand Full (all three versions): 576 GB of available hard drive space on a non-system drive (drive that is not running the computer OS).

Concert Grand Platinum: 342 GB

Concert Grand Gold: 157 GB

Concert Grand LE: 77 GB

Fastest possible processor. Don't run Concert Grand on a 2013 laptop and complain that you can't play more than 200 notes with the sustain pedal down.

See performance later in the manual for system performance tips.

Concert Grand Controls:

Many of Concert Grand's controls are near identical to that of Production Grand 2. So, if you have used Production Grand 2, Concert Grand will feel familiar. Many of the microphones and placements are also similar between Production Grand 2 and Concert Grand. The main difference is the piano sampled, of course.

Main Page:



The Main Page gives quick access to presets and common controls.

1. The **Presets** drop down menu provides a few presets to get you started. The Concert Grand default preset only loads two microphone perspectives for quick loading and playing. All other presets load the rest of the Concert Grand samples.

2. The **Reverb Presets** drop down menu is identical to the Mixer Page Reverb Presets. The presets are included here for quick access. Choosing a reverb preset before a microphone preset may result in a zeroed mixer. Before selecting a reverb preset, choose a mic preset first.

3. The **Show Mics** tab reveals the placement of the

microphones for the recording session.

4. **Touch Response** (same as on the Settings page) is the dynamic range determined by velocity. Touch Response determines how Concert Grand adjusts the sample volumes to incoming velocity. At 100%, Concert Grand will respond exactly like it was sampled. Some users may find this too dynamic. 89% is about where most of the presets are set to. Setting Touch Response too low will result in the low velocities sounding noisy and louder than is natural on a “real” piano.

5. thru 9. Same controls as on the Settings page, just with easy access on the Main Page. See Settings Page below for details.

10. Each channel has a **Reverb Send** that influences how much of that microphone volume gets sent to the reverb. The reverb on the Mixer Page has to be turned on to hear the result. **The Reverb Send is pre-fader** meaning that the volume sent to the reverb is independent and not influenced by the channel/microphone volume UNLESS the channel is turned completely down or off. With reverb setup as a pre-fader send, reverb can originate from a microphone perspective that has no DRY signal present in the mix. This gives lots of flexibility in the sound for audio engineers and producers.

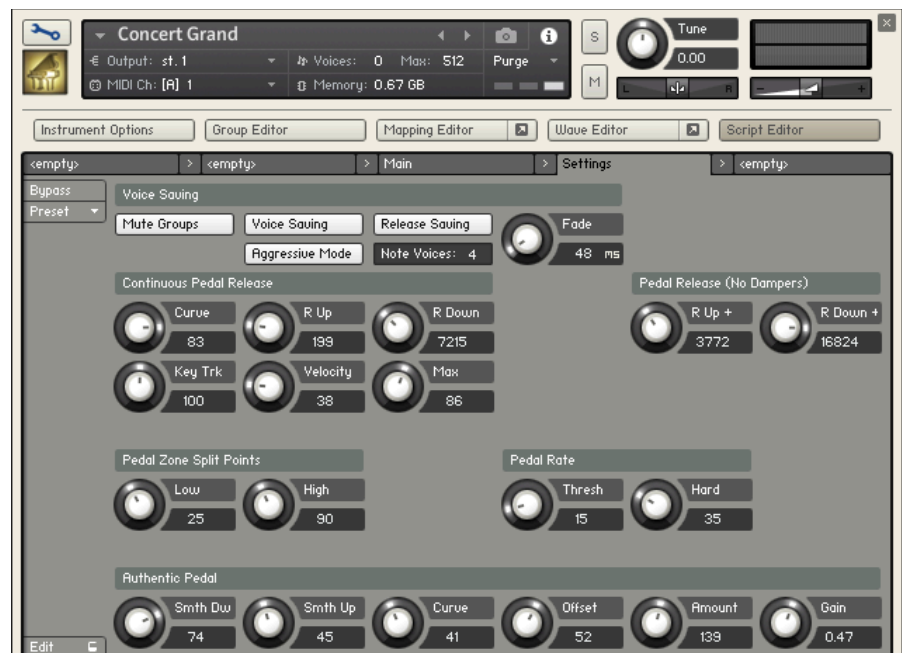
11. Volume Knob and Microphone On/Off: The **Volume Knob** controls are straightforward: turn up to the right for more volume; turn all the way down to the left to mute and save voices (polyphony) on that channel. Command-Click (Control click on a PC) the volume knob to reset the volume to unity gain where the control is neither adding nor subtracting volume from the original sample. Unity gain is the ideal setting when using only one microphone perspective. The volume should be set lower than unity gain when two or more mic perspectives are active to avoid digital clipping.

The **On/Off channel buttons** switches turn on/off the respective microphone perspectives. When turned off, the memory used for that microphone perspective by the samples is purged. This means that the RAM used by the samples is cleared and available for other samples, libraries or other programs on your computer. If you save the instrument with the mixer on/off buttons in the “off” position, the Kontakt instrument will load, but with less memory use. The moment a microphone perspective is turned on, the samples will load into RAM and Kontakt’s memory server. Turning on/off a microphone perspective loads and unloads the samples quickly while still allowing the user to play the instrument.

The volume knobs when moved all the way down can function in one of two ways:

1. Mute the channel saving cpu resources, or,
2. Turn off the volume, but still plays the channel and uses resources.

There is a hidden button in the top left corner labeled “mute_groups” on page 4 of the scripting editor that switches between fader group muting or not. By default, it is set to mute the samples when a fader on the mixer page is turned all the way down. This will work for the majority of users. The default of muting the channel when a knob is turned all the way down will save valuable cpu resources and give greater polyphony to the channels still active. A few users may want to trigger notes and then blend in a microphone perspective from zero volume to full volume. These users will have to turn off the group button in the top right corner of page 4 on script editor.



Settings, Page 2:



12. Lid Select: Simulates the position of the piano lid. An EQ curve is applied to the output to mimic the muffling effect of the lid. This was first measured from audio from the sampled piano and recreated with the EQ curve to be accurate to the original. NOTE: Only mic perspectives that would be effected by the lid being closed will hear the change. So, Hammer and Inside mics would not hear the difference, as an example.

13. Velocity Curves: Getting the right feel from your controller.

Velocity Curves: Getting the right feel from your MIDI keyboard controller.

The top right portion of the page contains the built-in velocity curves. The velocity curves help match your

MIDI keyboard controller and playing style to the volume/velocity response of the piano samples. If you find that you are not getting enough volume or aggressiveness out of the piano samples, try using a velocity curve that emphasizes the high velocities. Conversely, if you find that the louder velocities or notes are being triggered too easily while playing, adjust the velocity curve to suppress the upper velocities. Experimentation is quick so try several settings. Users can only save presets by saving the Kontakt instrument. Our suggestion is to append the name as to not overwrite the factory settings. i.e. “Concert Grand Gold Hi Vel Curve”.

On/Off - The switch in the title bar turns the velocity curves on and off.

Strength works both positive and negative with no change to velocity when set in the middle (12 o’clock).

There are two curves to choose from: **Sine (S-Curve)** and **Exponential**. These are alternated by pressing the S-Curve button.

A Sine (**S-Curve**) allows the user to either suppress the low velocity while increasing the high velocities or vise versa while keeping the middle velocities relatively untouched.



An **Exponential** velocity curve allows the user to either suppress the low velocity while increasing the high velocities or visa verse.

Users wishing for visual feedback of the curves can check in Kontakt's Mapping editor while playing (pressing the wrench in the top lefthand corner of the instrument) or record MIDI into a DAW such as Logic, Cubase or Pro Tools.

14. Pedal Options:

Sympathetic Resonance adds harmonics to the sound the same way a piano does when a note is held and another note is struck. This naturally occurs on notes that are struck an exact fourth, fifth, octave etc. above a held note and a couple of notes below a struck note. **Sympathetic Resonance can add warmth and realism to Concert Grand, but at the expense of both increased cpu and voice count!** For solo piano work it is suggested to turn it on, but perhaps advisable to turn it off in busy arrangements where the resonance is likely to be masked or not heard.



Turning **Authentic Pedal** on makes Concert Grand respond to the sustain (damper) pedal the same way a grand piano would beyond basic sample switching. Without Authentic Pedal, a sustain sample or a non-sustain piano sample is played depending on the position of the sustain pedal.

There are two components to how Authentic Pedal works:

1. Notes triggered without sustain and sustain added in.
2. Notes triggered with sustain and held with the sustain pedal released.

With Authentic Pedal on, anytime a note is played, held and then the sustain pedal is pressed, there is a gradually increase to the sympathetic resonance caused by the blending of samples just like on a grand piano. When the note continues to sustain, but the pedal is released, the sample plays the correct no-pedal sample. The switching is dynamic and can occur multiple times with multiple pedal up and downs on a held note.

Notes triggered with the sustain pedal down and held when the sustain pedal is released will behave similarly, except the algorithm for determining the speeds of crossfades and relative volumes have been changed to act more like a grand piano would when starting from a sustained note.

The Authentic Pedal was perhaps the most labour intensive part of the scripting for the Concert Grand. This is an advanced form of the Authentic Pedal first developed for Production Voices' Estate Grand.

Hidden Controls: All the relative speeds and volumes of the Authentic Pedal are accessible (but hidden on the main instrument panel) by editing the fourth scripting page. This is really only for the advanced user!

NOTE: Authentic Pedal doubles the voice count! Having Authentic Pedal engaged will use twice the disk and CPU resources. For the purist, this doubling of resources may be worth it. For basic playing, practicing etc., it is best to leave Authentic Pedal turned off.

NOTE: It is recommended to leave Authentic Pedal Off unless it works with your playing style.

Continuous Pedal determines if Concert Grand responds to continuous sustain pedal messages. Most sustain pedals are simply a switch that turns the sustain on or off, but some piano midi controllers have sustain pedals that can send continuous midi messages through the entire range of the sustain pedal like a real piano. Concert Grand has the ability to respond to continuous pedal messages to allow for half pedaling and other piano effects from the use of partial pedaling. An example is if you play a note with the continuous sustain pedal held half way down, the sustain will be less length than if the sustain was fully depressed. Some users may wish to turn this feature off to only have traditional on/off sustain. Continuous Pedal will only work with sustain pedals that are capable of sending continuous midi messages. As such, there is no benefit to continuous being turned on if you do not have a continuous pedal, unless you plan on manually adding the message to a sequenced part.

15. Touch Response: (same as on the Main page) is the dynamic range determined by velocity. Touch Response determines how Concert Grand adjusts the sample volumes to incoming velocity. At 100%, Concert Grand will respond exactly like it was sampled. Some users may find this too dynamic. 89% is about where most of the presets are set to. Setting Touch Response too low will result in the low velocities sounding noisy and louder than is natural on a “real” piano.



16. Pedal Noise: Authentic damper pedal samples.

The pedal noise controls the volume of the sound of the foot depressing and releasing the sustain pedal. Here the dampers activate the strings in the piano and then stop the strings with a subtle thump sound when released.

There is an on/off switch for the pedal noise that also unloads the samples when off. The pedal noise samples are very small compared to the rest of library, so they will load quickly.



Most workstation keyboards do not have this sound! But it is the easiest way to add realism to your sampled piano.

Every microphone perspective has its own pedal noise samples. There are multiple pedal down and pedal up noise samples that are played in round robin.

The Mod-Wheel controls the pedal noises as follows:

When the mod wheel (MIDI CC#1) is less than 63, the pedal noises cycle through “regular” variations of both pedal up and pedal down noises. These are the modest casual samples from “regular” pedal usage.

When the mod wheel has a value of 64 or greater, the louder more aggressive pedal noises are triggered.

If you want to trigger specific pedal noises manually, such as in a sequencer, they are mapped starting from C-2 (lowest MIDI note) and go up 18 notes.

Turning off the Pedal Noises with the switch purges the samples from memory.

The volume control for pedal noises controls the volume of all eight microphone perspectives equally. The pedal noise samples are linked to the mixer. So, only the pedal noises for the microphone perspectives that are active will sound.

Advanced control: If you want to control the volume of the pedal noises separately, the volumes of the groups can be changed in the group editor within Kontakt within the instrument editor. Another less complicated option is to use another instance of Concert Grand for a single mic perspective and adjust the pedal noise for that mic individually.

Pedal Noise Tips:

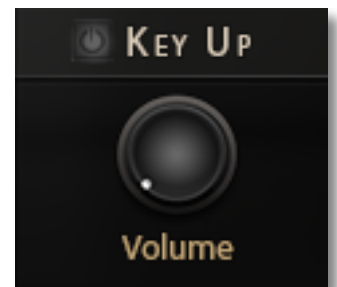
Busy mixes, such as songs with many instruments, may mask the pedal noise. In this case, Pedal Noise can be turned off to save voice count.

On solo or sparse arrangements, consider increasing the pedal noise to give an intimate sound.

Control clicking on the pedal noise volume will allow you to assign any MIDI continuous controller number to it. We suggest assigning it to a control pedal so that the volume of the pedal noise can change throughout a performance!

17. Key Up: Key Up controls the volume of the keyboard action sound as a key is released (the hammer returning). It is only triggered when the pedal is down and a key is released. This is a subtle sound that is barely heard even at the maximum volume, but it adds that extra touch of realism. You might be asking: “Why only when the pedal is down and when a key is released? Why not when the pedal is off as well?” These are good questions! The Key Up sample is a natural part of the Key Release samples.

In a busy production or song, the Key Ups may not be heard. There is a button to turn the Key Ups off and to unload them from RAM. When turned back on, the samples will automatically be loaded again. Key Up does tend to use plenty of CPU and polyphony!



18. Key Release: Key Release is the volume control for samples triggered when a key is released or when the pedal is let up when a note was sustaining from the pedal, but no key is held. This is the sound of the dampers stopping the piano string from ringing.

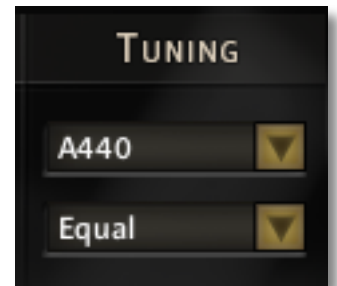
The key releases give a realistic sound to the stopping of a note that just isn't achievable with ADSR release envelopes. Users vary in how loud they like the key release samples. The key releases, like the rest of the instrument, have been professionally scripted (programmed in Kontakt) to sound as realistic as possible. The longer you sustain a note in isolation, the more likely it is that you will hear the key release when a key is released.



All of the mechanical noises can add up to create an authentic piano sound that may not be available in some keyboard workstations, digital pianos or other piano sample libraries.

NOTE Concert Grand was professional scripted to have a smart release for the pedal samples. Release samples are only played on the notes that are not sustained. When a note is struck, the pedal is depressed and the note is released, it will still sustain. But... when the pedal is released, a proper release sample is played.

19. Tuning: Concert Grand has added tuning options with perhaps the stretch tuning being the most useful. There are a few temperaments to choose from as well. Most users will leave the tuning at A440 and Equal.



Mixer Page:

The Mixer Page puts all the controls of a studio mixer right within Concert Grand. This is where you can dial in and really take control of the piano sound!

20. EQ, Compression and Reverb Send

The **EQ** is Kontakt's modelled SSL G EQ. There is an ON/OFF button for every channel's EQ and an arrow to open the EQ. To keep the interface small and clean, the values for the EQ will not show up until you click on a knob and change a value.

Channel 6 has a default value for the EQ to linearize the Crown SASS microphone. This EQ will add some warmth and reduce the shrill sound.

21. MONO Section.

When



designing the MONO section for Concert Grand, we wanted controls that should be in every DAW, not just a sample library!

The **MONO button** when pressed will convert the stereo pair to a single mono audio channel according to the selection below the MONO button:

MONO SUM will combine both the left and right channel into a single audio channel.

L will mono just the Left channel from the stereo microphone pair, essentially muting the Right channel.

R will mono just the Right channel from the stereo microphone pair, essentially muting the Left channel.

NOTE: A mono channel can still be panned left or right.

Why MONO? Some producers prefer to narrow the stereo width of a channel so that the piano does not fully come out of both left and right channels of a mix. Also, sometimes a MONO piano sound is preferred in the mix.

New stereo pairs can also be made by MONOing the left side of one mic and combining it with the right side of another mic perspective. This flexibility can create some very interesting sound combinations!

All channels except Channel 4 and Ambisonics are stereo pairs of microphones. So, Channel 4 is mono no matter what settings are selected for it. The Ambisonics, while using 3 audio sources, combines to stereo in Kontakt.

22. Channel Strip lower section controls.

Pan - Standard Left to Right panning. The panning style in Kontakt is to lower the volume of the left channel as panning goes to the right and vice versa.

Invert Pan - Invert Pan switches the left and right channels. This is useful for changing from the standard player's perspective of high-end on the right and low-end of the piano originating in the left to audience perspective of high-end in the left and low-end in the right as if someone was listening to the piano from the audience instead of playing at the piano.

M - Mute. When the channel/track is muted, not only is the channel not heard, but cpu resources are saved as well (reduces voice count). Mute is usually used as a temporary selection to compare when a channel is active or not or to work on the settings of another channel without hearing a certain channel or channels.

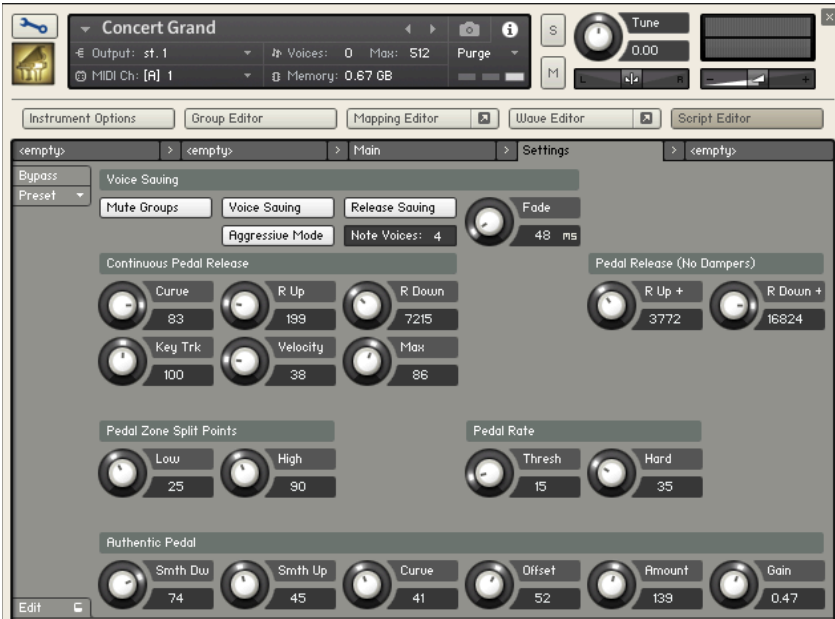
S - Solo. If a channel/track is soloed only that channel can be heard. Several tracks can be soloed at once. Standard practice is to use solos temporarily to compare sounds in isolation. To remove other channels, turn down their volume or turn off the channel with the ON/OFF button instead of using solo.

Volume. The **Volume fader** controls are straightforward: push up for more volume; pull all the way down to mute and save voices (polyphony) on that channel. Command-Click (Control click on a PC) the volume knob to reset the volume to unity gain where the control is neither adding nor subtracting volume from the original sample. Unity gain is the ideal setting when using only one microphone perspective. **The volume should be set lower than unity gain when two or more mic perspectives are active to avoid digital clipping.**

The Volume Faders and Volume Knobs on the Main Page are linked and act as the same controls.

The Volume Faders when moved all the way down can function in one of two ways:

1. Mute the channel saving cpu resources, or,
2. Turn off the volume, but still plays the channel and uses resources.



There is a hidden button in the top right corner labeled “mute_groups” on page 4 of the scripting editor that switches between fader group muting or not. By default, it is set to mute the samples when a fader on the mixer page is turned all the way down. This will work for the majority of users. The default of muting the channel when a knob is turned all the way down will save valuable cpu resources and give greater polyphony to the channels still active. A few users may want to trigger notes and then blend in a microphone perspective from zero volume to full volume. These users will have to turn off the group button in the top right corner of page 4 on script editor.

Channel ON/OFF

The **On/Off channel buttons/switches** turn on/off the respective microphone perspectives. When turned off, the memory used for that microphone perspective by the samples is purged. This means that the RAM used by the samples is cleared and available for other samples, libraries or other programs on your computer. If you save the instrument with the mixer on/off buttons in the “off” position, the Kontakt instrument will load, but with less memory use. The moment a microphone perspective is turned on, the samples will load into RAM and Kontakt’s memory server. Turning on/off a microphone perspective loads and unloads the samples quickly while still allowing the user to play the instrument.

23. Mic Labels: The names of the channels indicate the placement of the microphone compared to the piano and indicate the type of microphone that was used.

The microphone pictures on the right side, besides given a relative shape to the actual microphones used to record the samples, are purely aesthetic.

Channel Output Assignment - Each Channel can have an Output Assignment depending on the outputs created within Kontakt. This allows any microphone perspective to have its own mixer channel within your DAW such as Pro Tools or Logic. Having separate outputs for each microphone perspective is highly desirable when mixing as it allows processing such as EQ or compression to be applied to each microphone independently. This is the best approach when using Concert Grand in recording or album production.

24. Send Reverb: The added reverb section in Concert Grand gives flexibility while providing high quality reverb options. Users now have the choice between the included reverbs or external reverbs.

Type - Convolution or Algorithmic. **Convolution** reverb uses Impulse Responses known as IRs as samples of actual spaces or recordings of classic reverb units. **Algorithmic** uses math formulas (hence algorithms) to simulate reverb. Both types have their advantages. Convolution tends to sound the most realistic as the sampled reverb is coming from an actual acoustic space. Convolution reverb tends also to be more preset based where the actual reverb size is static. Algorithmic, by comparison, is more malleable and can change the reverb length and settings.

Most users will choose Convolution.

All the preset reverbs for Concert Grand use Convolution.

Convolution Reverb Settings:

Pre-Delay - The delay between when a piano note is played and when that note is heard in the reverb. Longer pre-delays work for longer reverb times. Shorter pre-delays work for short reverbs. All the presets for Concert Grand have the pre-delay perfectly set for the reverb.

Return - Return is essentially the reverb volume. How “wet” the signal is.

IR selection - This is simply a drop down menu to select the different reverb samples. Anything ending in (r) is a real space that has been sampled. All other presets are coming from digital reverb units where the presets have been carefully crafted for piano.

Algorithmic Reverb Settings:

Pre Delay - Delay between piano sound and the reverb start.

Size - Room Size

Colour - The amount of modulation added to the reverb tail similar to classic Lexicon reverbs

Damping - The amount of high frequency reduction. Damping can create a “warmer” reverb sound.

Stereo - The amount of stereo spread.





Page 4: Ambisonics

The Ambisonics Page allows for the control of the ambisonics microphone perspective.

Concert Grand may just be one of the first ambisonic sample libraries available. The ambisonics section is CPU intensive and really bogs down the best of systems! BUT... it is so much fun to explore and the resulting flexibility is incredible!

What is Ambisonics? Ambisonics is a four channel WXYZ recording that can be morphed using software into just about any combination of virtual microphones and polar patterns. From a single pattern cardioid to 5.1 surround to complex microphone outputs, ambisonics is quite possibly the most flexible method of recording when output formats are taken into consideration. Concert Grand uses a four channel B-format ambisonics recording from a Soundfield Mk V microphone. Using external software, such as Harpex-X or the free Soundfield SurroundZone2, complete 3D panning is possible.

Concert Grand's ambisonic decoder is rather basic and utilitarian, but some incredible room and piano sound variations are possible.

As a limitation of Kontakt, Concert Grand uses only 3 of the 4 ambisonics channels to decode the signal, therefore within Kontakt, no height (Z channel) variation is possible, but is available using other software.

Each virtual mic within the Ambisonics page uses 3 voices coming from the WXY channels. Therefore, with both virtual mics active, **6 voices are used per note!** Using external software to decode the ambisonics will result in only 4 voices per note being used and height adjustments being possible. Therefore, to fully explore the ambisonic capabilities of Concert Grand, we recommend using a software plugin within your DAW for decoding.

Ambisonics Internal = 6 voices per note, no Z height channel

Ambisonics External = 4 voices per note with Z channel

Overview: The ambisonics section is basically two virtual microphones that have polar pattern morphing, can be panned and rotated 360 degrees. The two mics can combine together to create traditional stereo pairs such as XY, Blumlein, M-S etc. or can be used in non-traditional ways to point the microphones at different parts of the piano and room.

25. Ambisonic Presets: The ambisonic presets are 20+ presets for exploring what is possible with the ambisonics mic perspective. To best hear what is happening, turn off or mute the other microphone perspectives and then combine other mics after setting up the ambisonics, if desired.

26. Output Assignment: The ambisonics can be processed either internally in Kontakt or externally in your DAW. The external option only works if you have setup the outputs in Kontakt. A warning at the bottom of Kontakt will read "Warning - Not enough output channels. Please read the manual before using external ambisonics mode". Well, despite what the warning says, the video manual on how to setup external ambisonics is way faster to follow and understand. So, catch the video on the Production Voices website.

27. Ambisonics Channel Strip: This is just a copy of the channel strip from the mixer page to make using the ambisonics easier than flipping pages all the time. The settings on the channel strip will show changes and mirror each other on both the mixer page and ambisonics page.

28. Virtual Mic Mixer: Each of the two virtual mics have their own volume, pan and links for each. When the link button is on, both mic volumes or pans will work together.

29. Mic Polar Pattern: This control selects the type of pickup pattern used by the virtual mic. This essentially decides if the mic should only hear sound from the front (cardioid) or all the way around (omni) and the variations in between.

30. Angle: Angle positions the front of the microphone. 0 degrees points the microphone forward towards the middle of the piano. -180 degrees points the microphone away from the piano towards the room. 180 and -180 are the same position. -45 degrees will point at the hammers and 45 degrees will point to the rear of the piano.

31. Width: Width is pseudo-stereo processing that provides width to the stereo signal. The virtual mics cannot be moved apart, but Width can create the illusion that they are providing a wider stereo field.

*** Full Disclosure *** The ambisonics section is not perfect! The mic got bumped and slightly repositioned a few millimeters off during the sampling session and I literally mean off by a millimeter or two. (What can I say?!? The world is not perfect and every super model needs a mole.) The middle velocities and the extreme high and low velocities have a slightly different placement that is not detectable in Kontakt but may be detectable in external mode.

Page 5: Master FX

The values for most of the controls on the Master FX Page are only viewable once a control is clicked and/or an adjustment is made.

Each section of the Master FX has its own **On/Off button** to the left of the section's title.

32. Tape Simulation: The Tape Simulation can add warmth and a bit of compression to the piano sound. Too much can add distortion either in a good way or a bad way! The primary control is Warmth. Reducing the HF Rolloff to 16 kHz, increasing the Warmth and adding a slight amount of Gain will yield a close approximation of actual tape machine sound (without the noise, cost and calibration time).

33. Master EQ: The Master EQ adjusts the equalization of all the microphone perspectives. If, for example, the overall sound is too bright, just use the HF EQ to



remove some of the high frequencies. The Master EQ is based off the same Solid G EQ as the Mixer Page channel EQ. The EQ defaults to adding a low boost to a slightly more robust sound when turned on.

34. Transient Designer: The Transient Designer adjusts the attack and sustain of samples by using volume control similar to a compressor. Anything from naturally stronger attacks to aggressive fake attacks that may work in electronic styles of music can be achieved. Most classical purists will avoid the Transient Designer.

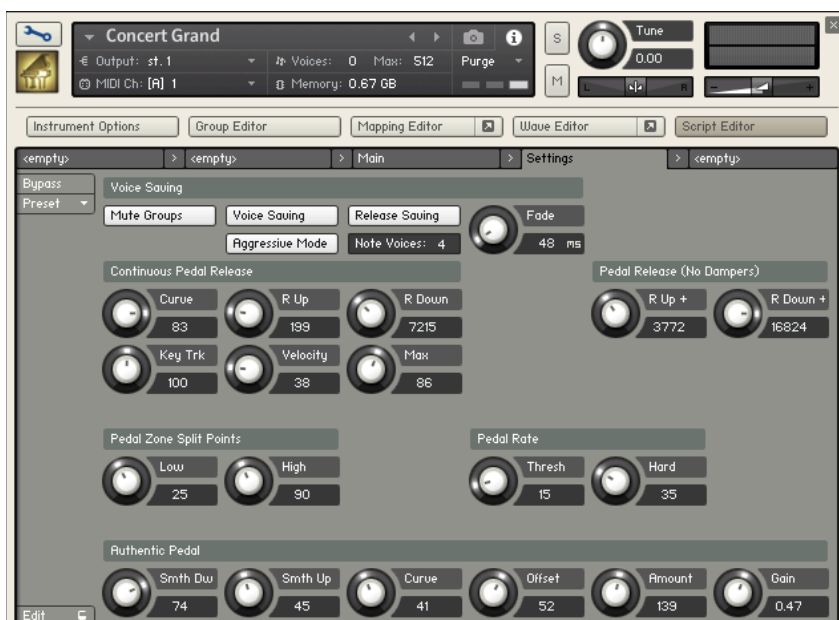
35. Master Compressor: The Master Compressor can be used across all the microphone perspectives at once. It can be used to smooth out the dynamic range or used for aggressively compressed piano sounds. It is the same type of compressor as on the individual microphone channels. A few of the presets use the Master Compressor for the pop sounds and such.

36. Master Limiter: The Master Limiter is similar to the Master Compressor except that it has a fix high ratio for limiting. A limiter has many functions, but one such function is to control the loud peaks or transients of the piano samples while raising the sustain or lower volume notes. When set appropriately, limiters can retain much of the dynamic range while also increasing the overall volume.

37. Master Reverb Send: The Master Reverb Send routes a portion of the main output to the reverb section as set on the Main Page or in the Reverb section on the Mixer Page. Having a Master Reverb Send is in some cases faster and easier to handle than 8 separate sends, but lacks some of the control of individual sends.

Performance note, Latency: Since the microphone perspectives are all time aligned to be phase accurate to the original recording, there is a very small delay between the sound of say the hammer microphones and the room microphones. Users just playing the room microphone perspective instruments will experience a slight latency that most will have no issues adjusting to. Users looking for the shortest latency when playing Concert Grand should use Pencil, the hammer microphone perspective.

Advanced Performance Polyphony Controls (Hidden):



There are hidden controls for **Voice Saving**, **Aggressive Mode** and **Release Saving** on page 4 of the scripting editor. By default, they are set to lower the voice count as much as possible. This will work for the majority of users and playing styles, but occasionally you experience a dropped note or performance issue that may be solved by adjusting one of the parameters.

Voice Saving enables the algorithm that attempts to reduce voice count with the least amount of intrusion to the playing experience. Let's hope that when computers get faster, this setting may be unnecessary.

Release Saving is used to stop multiple release samples from triggering on the same note. This generally should be left on.

Fade is the amount of time it takes to remove a repeated voice that is considered redundant or not necessary. Too fast and it will be obvious. Too slow and the CPU and disk usage will be higher.

Note Voices: By default is set to 4. Note Voices are the number of repeats of a note before the oldest note is dropped. Setting this higher will increase voice count and tax your hard drive more. We experimented with trying to get the loudest note to stay, but Kontakt currently does not have a volume detect on voices and the processing power required to setup a velocity table was cpu intensive with constant scans.

Aggressive Mode looks to reduce the polyphony as much as possible. If sustained notes are being robbed when other notes or glissandos are being played, consider turning off Aggressive Mode.

Dropped Notes: If you experience dropped notes while sustaining long low notes, for example, turning off Aggressive Mode and Voice Savings may help.

MISC Noise Samples: As a bonus, we have include the following miscellaneous Foley samples to help create an authentic recording:

Piano Lid Open	D7
Piano Lid Open	D#7
Piano Lid Open	E7
Piano Lid Close	F7
Piano Lid	F#7
Piano Lid	G7
Piano Lid	G#7
Piano Lid	A7

All the misc noise samples were taken from the recording session and are represented in all eight microphone perspectives.

The misc noise samples will have to be triggered from a sequencer as most 88 note controllers do not go into these extreme ranges. The samples are also not one hit (drum) triggers meaning that in order to hear the complete sample, a note must be sustained for the duration of the sample.

Performance Expectations on Different Systems

Concert Grand can really test the limits of a computer system if many microphone perspectives are active. We will all have a good laugh in 2025 that our computers could barely handle Concert Grand, just like computers in 2012 when the first version of Production Grand was released.

Test Systems Concert Grand:

Test System 1:

Early 2015 MacBook Pro 13" 2.7 GHz

Mac OSX 10.12

8 GB RAM

Samples played off USB 3 SSD external (ADAT 480 GB SSD with average read and write at over 400 MB/s)

Performance results:

Concert Grand Gold and Concert Grand LE run smoothly with four or more microphone perspectives on. All presets perform near flawlessly unless the damper is held excessively.

Concert Grand Platinum 96k samples, no issues with two microphone perspectives.

Test System 4:

Late 2013 Mac Pro 6-Core 3.7 GHz

Mac OSX 10.10.5

64 GB RAM

Samples played off USB 3 SSD external.

Performance results:

Near flawless with all presets, unless excessive damper use without release.

Entirely depends on speed of SSD. Anything over a read of 500 MB/s should be able to play all mics with options on.

We anticipate that recent top-of-the-line computers with SSD drives with 16 GB or more of RAM will easily be able to play four or more microphone perspectives with all options on.

All computers with 8 GB or more of RAM should be able to offline render files with no major concerns.

SSD vs Raid: Our tests showed that for Concert Grand, a SSD well outperforms a RAID because of access time.

Performance Tip: Sequencing parts with the 16 Bit version of Concert Grand and rendering with the 24 Bit 96k samples is an excellent way to maintain a workflow while getting exceptional quality for your bounce or exports.

* 1157 GB represents the complete library in three versions (24 bit 96 kHz, 24 bit 44.1 kHz and 16 bit 44.1 kHz) before using Kontakt's lossless compression. The library is reduced from 1157 GB to 576 GB using Kontakt's lossless compression format. Specifications subject to change.

Note from the Developer

Concert Grand is sampled from a Steinway D that just came off tour with a famous Canadian artist (his initials are B.A. for those guessing). The piano was in great shape, but was used enough to have a character of its own. This

piano had some mechanical noises from the hammer mechanism that were louder than the Yamaha C7 that I am used to. My guess is that the longer strings and quick action required a little more effort from the mechanism. The sound is not percussive as much as it is a refined and balanced sound. The Model D is the first choice usually for sampled pianos as it is the “typical” piano sound most associate with piano. Yet, our sampling philosophy was not to get the perfect Model D sound, but rather to capture the heart and character of the instrument we had in front of us. The perfect piano sample requires removing parts of the sound and taming elements while bringing out other parts of the sound with processing such as EQ and compression. This was all kept to a minimum for this sampled instrument resulting in flaws revealed like an actress removing her makeup. Why sample a piano for perfection when character is more appealing? The signal-path of the sampling process combined with this grand instrument is what makes sampling unique. We got to capture one particular piano at one point in time and the resulting audio photograph is a pleasure to use and play. We used Neumann M149 tube condenser microphones just outside the open piano with API mic preamps all running through a classic Neve console into Burl converters. These mics are over \$10,000 USD for the pair and sound every bit as impressive.

Concert Grand has been an labour of love and I am so pleased to be able to share it with you and other performers, producers, songwriters and composers.

Jason Chapman
Lead Designer
Production Voices

Support

Contact us by email: support@productionvoices.com

Concert Grand Strengths

Sampled from a 9’ Steinway D piano, the tone is balanced without bright overtones like the Yamaha C7. The Steinway D has plenty of mechanical noises naturally present with a bit of metallic bite on the attack of notes. The Steinway D is a fixture in many concert halls and is one of the most requested pianos by performers.

Concert Grand Known Issues

Concert Grand does have plenty of hammer thump in the samples and mechanical noise. Don’t say we didn’t warn you! The piano is not perfect from top to bottom. Some octaves have a little more bump and thump noises and more key release volume. This all adds up for an authentic concert grand experience.

License Agreement

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Concert Grand is a software product intended for the end user in the creation of musical works. It is not intended nor licensed to create additional software products such as sample or phrase libraries. Users are free to use this product in the creation of trailer music, music libraries and music recordings.

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The complete license agreement can be found here: <http://www.productionvoices.com/terms-and-conditions/>

Legal Notice

Production Voices is in no way associated with Plogue, Native Instruments, Neve, Neumann or Steinway. sforzando, Aria Engine, Steinway and Kontakt are trademarks of their respective owners and are not associated with Production Voices.

*Specifications subject to change. Sample sizes are for reference only and may differ slightly depending on how drives are formatted.

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Credits:

This massive project could not have been completed without the support and dedication of many talented people! I am very fortunate to have worked with such an excellent team. Thanks again!

Concept, Editing, Programming: Jason Chapman

www.productionvoices.com

Graphic User Interface: Scott Kane

Kontakt Scripting and Programming: Adam Hanley

www.icebreaker-audio.com

Recording Engineer: Dajaun Martineau

Assistant Engineer: Milan Sarkadi

Personal Thank you's:

To Dajaun: You keep me steady and focused through the sampling and solved more issues than allowable by nature. When I was tired at 1am and couldn't go on, you said "One more note". You Rock! Are you sure you don't wear a cape?

To Adam: My questions and requirements must have been insane at times! You managed to get everything I asked for in the script and you got the ambisonics to work in Konakt. You rock!

To Scott: I know I killed you with a thousand changes and going back and forth, but we did it! Exceptional work!

To Milan: Thanks for only complaining a little at midnight when I said tomorrow was a 7am start.

Finally... to my Debbie: Thanks for listening to all the editing issues and your understanding as I left the dinner table to start another render!

Thanks to the beta testers!



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