300 Grand

User Manual

MADE FOR
KONTAKT
PLAYER

NKS
NATIVE
KONTROL
STANDARD®

Table of Contents

User Manual

DESCRIPTION

A 9 foot performance grand piano sampled in a real concert hall providing an immersive audio experience with the precision and control of a multi-track recording.

300 Grand is an exceptionally high-quality piano sample library for Native Instruments Kontakt Player, consisting of nine microphone perspectives and over **100,000 samples** of a Yamaha CFX grand piano recorded in a world-class recital hall.

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

300 Grand is a product of Production Voices. Visit our website for additional information and complementary sample libraries: https://www.productionvoices.com

300 GRAND FEATURES

- 9 microphone perspectives including ambisonics and binaural microphone perspectives
- Continuous Pedal controls (can half-pedal etc.)
- Catch-pedaling, Soft and Sostenuto 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
- Recorded with studio standard microphones: Coles, AKG 414, U87s, Soundfield, Crown etc.
- Industry-leading A/D converters used: Lynx Aurora (n), Apogee Symphony I/O
- Premium microphone preamps used: API 312, Millennia HV-3D/8 and Focusrite ISA 828
- Natural concert hall acoustics (reverb) sampled
- Up to 36 velocities pedal up samples (depending on preset loaded and key range)
- Up to 36 velocities pedal down samples (depending on preset loaded and keyrange)
- 16 velocities release samples
- Full NKS implementation

NOTE FROM the DEVELOPER

300 Grand is Production Voices most ambitious project to date! We set out to record a performance grand in a true performance venue with the best equipment with as little compromise as possible. Could we capture the true sound of a performance grand and still have samples that excelled in other styles of music that require a much drier sound? Everything for the sampling session came together to capture lightning in a bottle, so to speak. Sampling sessions require the piano to be available at the same time as the venue is available for ten days or more (which is next to impossible with concerts and events going on) while the producer/engineer was between projects and I was not working on something else. Not to mention having the piano technicians available everyday for tuning and such. We got a few strange looks when we said we needed 24 hour access and would be recording around the clock to get the project sampled in time. With three hard drives full and 10 days of shared 12 hour shifts later, we had our sampling session.

It took months to edit the sessions into something that we could hear for the first time, but the moment I first played these early sample edits, I knew we had something special. The velocity layers were so smooth that I couldn't believe the sound was coming from a controller. The Coles ribbon microphones just brought out the huge low end of the instrument and the hall mics just added a realism I hadn't heard before by using reverb alone.

Halfway through the project, COVID happened. No one saw it coming and it delayed everything, but we are all getting used to the changes. In the end, we produced what I believe to be one of the best sampled piano performance libraries ever made. A piano library with more sonic variety from the 9 microphone perspectives than previously available. From big bold forward sounds to lyrical pianissimos with natural ambience and everything in-between, 300 Grand has it covered.

My hope is that 300 Grand inspires your playing, compositions and productions and is right at your finger tips through your practice sessions, live performances and recordings for many years to come.

Jason Chapman
Lead Designer
Production Voices

UNDERSTANDING 300 GRAND'S INSTRUMENTS

300 Grand has six configurations that vary the number of velocities and features available:

- 300 Grand.nki Default Instrument with 16 to 18 velocities per note and all functions active.
- 300 Grand 22V.nki Instrument with 22 to 23 velocities per note. External ambisonics disabled.
- 300 Grand 30V.nki Instrument with 30 to 34 velocities. Pre-Attack disabled. Lowest 2 velocities removed.
- 300 Grand 32V.nki Instrument with 32 to 36 velocities. Pre-Attack and Internal ambisonics disabled.
- 300 Grand 32V Ch1-9.nki Instrument with 32 to 36 velocities. Ambisonics disabled.
- 300 Grand 32V Ambi.nki Instrument with 32 to 36 velocities. Only Ambisonics active.

The default 300 Grand.nki is perfect for exploring 300 Grand's presets and features. All features are active and the lower velocity count loads samples quickly and uses less RAM. This instrument is perfect for practice, live performance and recordings where the piano is not predominantly featured or lower resources are needed.

More detailed sound comes with the higher velocity instruments. You just have to choose if you need pre-attack or ambisonics.

There are a couple of Multis that load both the 32V Ch1-9 and 32V Ambi instruments into one Kontakt instance. These Multis give the maximum velocities while retaining all the features. The only minor compromise is that the traditional microphone perspectives are adjusted in a different instance than the Ambisonic microphone perspective.

INSTRUMENTS	Velocities	Pre-Attack	Traditional Mics	Ambisonic
300 Grand.nki	16 to 18	Yes	Yes	Yes
300 Grand 22V.nki	22 to 23	Yes	Yes	Internal Only
300 Grand 30V.nki	30 to 34	No	Yes	Yes
300 Grand 32V.nki	32 to 36	No	Yes	External Only
300 Grand 32V Ch1-9.nki	32 to 36	Yes	Yes	No
300 Grand 32V Ambi.nki	32 to 36	Yes	No	Yes

Velocities Explained

The number of velocities are distributed between two ranges. If the chart says 32 to 36 velocities, it means that pedal up samples have 32 velocities from A-1 to B3 and 36 velocities from C4 to C7 and the pedal down samples have 32 velocities from A-1 to B4 and 36 velocities from C5 to C7. One or two notes may have one velocity less, but for the vast majority of the range the number of velocities is accurate.

Pedal Up group 1 velocity range: A-1 to B3
Pedal Up group 2 velocity range: C4 to C7

Pedal Down group 1 velocity range: A-1 to B4
Pedal Down group 2 velocity range: C5 to C7

Snapshots and Presets

Each instrument has both Presets and Snapshots. The presets are a dropdown menu in the top left of the instrument itself and show the most common presets. These Presets are identical on all of the instruments.

The Snapshots change based on the instrument loaded. There are only Ambisonic presets in the 300 Grand 32V Ambi.nki, for example.

When loading Presets or Snapshots, allow the samples to fully load (white indicator bar near the top middle) before changing to another preset.

9 MICROPHONE PERSPECTIVES

One of the key elements to 300 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.

1. 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 **Neumann U87 AI** microphones.

2. Inside Microphones: This is the sound most people associate with piano recordings. We used **Rode NT2As**. This gives the player the ability to get that classic piano sound.

3. 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.

4. Outside Microphones 2: Just outside the piano we used a pair of **Coles 4038 ribbon microphones**, much sought-after ribbon microphones that can bring out the low-end like a rumbling tank while providing a velvety smooth mid to top-end of the piano.

5. Ambisonic Microphone: Centered just outside the piano is a Soundfield MKV ambisonic microphone. This microphone is wonderfully balanced and able to dial in any sound from direct piano to only hall and everything and anything in between. Ambisonics is truly a flexible recording format that Production Voices pioneered in the sampling world with our Concert Grand library and continue with 300 Grand.

6. 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**, but with added processing to linearize the microphone and increase the warmth.

7. Stage Decca Tree: AKG 414 XLS set to wide card. The stage mics up a clear, balanced classical piano sound without being overwhelmed by the hall reverb.

8. Hall Microphone 1: Schoeps MSTC 64U ORTF. A little more forward than the omni Hall 2 microphones, these microphones capture a more forward hall sound with more direct piano while picking up the hall. For classical recordings, consider using these with the Hall 2 microphones.

9. Hall Microphone 2: Sennheiser K6 omni spaced pair. Spacious sounding, but meant to be blended with other microphone pairs. Think of this pair as a reverb send, but to real reverb from the exact space and sampling session!

The real strength of 300 Grand, just like our Production Grand 2 and Concert Grand libraries, 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 20 different mono sources to choose from (individual left and right of the stereo channels plus the ambisonic) !

Microphone Summary:

Hammer Mics: Neumann U87
Inside Mics: Rode NT2A
Outside Piano: Neumann M149, Coles 4038 Ribbon
Stage: AKG 414
Room Microphones: Schoeps ORTF, Sennheiser Omni
Player's Perspective: Crown SASS-P for near binaural experience when played!
Ambisonic: Soundfield MK V

***Note: 300 Grand was recorded in Ontario Canada in a recital hall with professional high-end studio equipment resulting in an unsurpassed sample quality. 300 Grand is capable of rivalling studio and live recordings. We used the Lynx and Apogee converters over all the microphone perspectives. Source files were recorded at 24 bit 96 kHz. ***

300 GRAND CONTROLS

Many of 300 Grand's controls are near identical to that of Production Voices' Production Grand 2 and Concert Grand. So, if you have used Production Grand 2 or Concert Grand, 300 Grand will feel familiar. Many of the microphones and placements are also similar between the libraries. The main difference is the piano sampled, of course.

MAIN PAGE:

The Main Page gives quick access to presets and commonly used controls.

1. The **Presets** drop down menu provides a few presets to get you started. Some presets take longer to load than others as the samples need to load and purge between presets. Make sure to wait for a complete load before switching presets to avoid crashes.

2. The **Reverb Presets** drop down menu is identical to the Mixer Page Reverb Presets. The presets are included here for quick access. The first reverb presets are impulse responses (reverb samples) from the actual piano concert hall with the microphones labeled. These "Hall: 300…" reverb presets will likely give the best results for a homogeneous reverb sound with the samples.

3. The **Show Mics** tab reveals the placement of the microphones for the recording session. An animation reveals the mics. The arrow to the right of SHOW MICS reveals the microphone labels. The graphic is not proportional to the actual distanced microphones and the graphic is not of the actually concert hall used. Still looks cool though :)

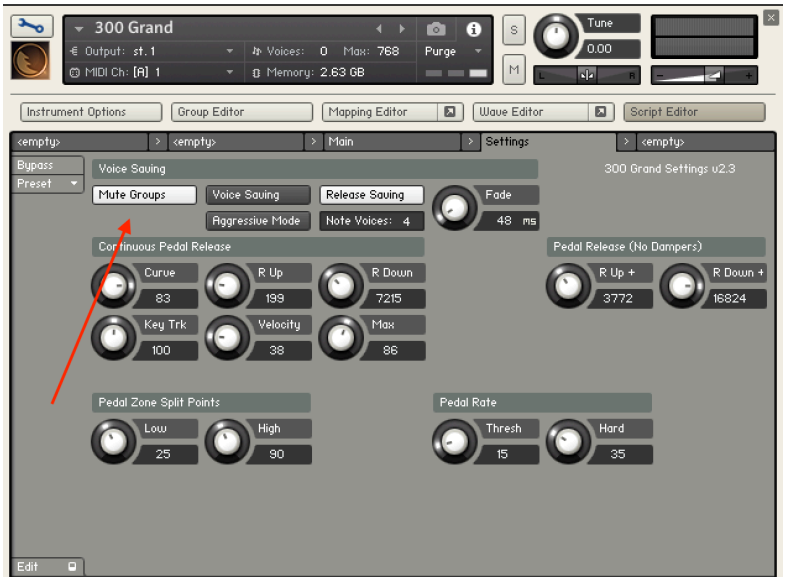
4. Touch Response (same as on the Settings page) is the dynamic range determined by velocity. Touch Response determines how 300 Grand adjusts the sample volumes to incoming velocity. At 0%, 300 Grand will respond exactly like it was sampled. Some users may find this too dynamic. 5.2% is about where most of the presets are set to. Setting Touch Response too high will result in an overly dynamic piano with very soft low velocities and loud high velocities. The Touch Response of 300 Grand takes a different approach than other Production Voices' libraries. Hence, responding inversely to Touch Response compared to Concert Grand and Production Grand 2.

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 Settings 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.

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. “300 Grand 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.

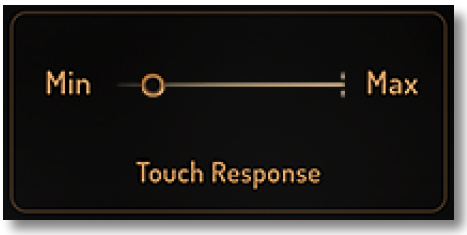
An **Exponential** velocity curve allows the user to either suppress the low velocity while increasing the high velocities or visa verse.

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.

18. 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 300 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.

Continuous Pedal determines if 300 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. 300 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.



19. Touch Response: (same as on the Main page) is the dynamic range determined by velocity. Touch Response determines how 300 Grand adjusts the sample volumes to incoming velocity. At 100%, 300 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.

14. 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 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 300 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!

15. 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!

16. 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***** 300 Grand was scripted/programmed 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.

17. Pre-Attack: Pre-Attack is the mechanical sound of the hammers before the string is struck. Pre-Attack adds a whip-like whoosh sound, to describe it poorly, to the beginning of a note trigger as it naturally occurs on a piano. While Pre-Attack adds a natural element to the sound, it also introduces latency, a delay before the note is heard. This delay depends on velocity. Lower velocity notes will have a longer Pre-Attack sound, up to 180ms, while higher velocity notes will have a much shorter delay (3 ms typically).

With Pre-Attack on and LIVE off, a latency of 180 ms is added to piano to compensate for Pre-Attack samples. This setup is best for sequencing, instead of live performance.

To compensate for the Pre-Attack latency, there is a LIVE button that plays the Pre-Attack at the same time as the piano strikes. While not perfect, this allows for live playing with the Pre-Attack samples.

20. Tuning: 300 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.

21. Reverb: The Reverb Sections on the Settings and Mixer Pages are identical and are just placed on both pages for convenience.

The added reverb section in 300 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 300 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 300 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 3: MIXER PAGE

The Mixer Page puts all the controls of a studio mixer right within 300 Grand. This is where you can dial in and really take control of the piano sound!

21. EQ, Compression and Reverb Send on every channel.

The **EQ** and **COMP** is Kontakt's modelled SSL G. There is an ON/OFF button for every channel's EQ and COMP and an arrow to open each. To keep the interface small and clean, the values for the EQ and COMP 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.

RVB Send: This is the amount of signal from each channel sent to the reverb and can individually be adjusted for each microphone perspective. A separate global reverb send is available on the Master FX page. The Mixer reverb send and the Master FX reverb sends are independent of each other.

If you increase the reverb send on a channel and do not hear reverb, make sure that the channel is on and that the reverb is turned on.

22. MONO Section. When designing the MONO section for 300 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. There is also a Width control if mono is too extreme.

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!

23. 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.

Width - The Width control reduces the stereo field to mono when turned to the left and creates a pseudo-stereo wider sound all the way to the right. The unaltered sound occurs when the control is at center. Command-clicking on the Width knob on a Mac (Control click on a PC) will return it to center.

Production Tip: Width is a powerful tool for slotting a piano sound in a mix. Taking a naturally wide microphone perspective and reducing the width a bit may help the place the piano in a busy mix. Reducing the stereo width and then panning the stereo signal either a little left or right can give the piano a different position in the sound stage instead of dead center as it was sampled.

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.

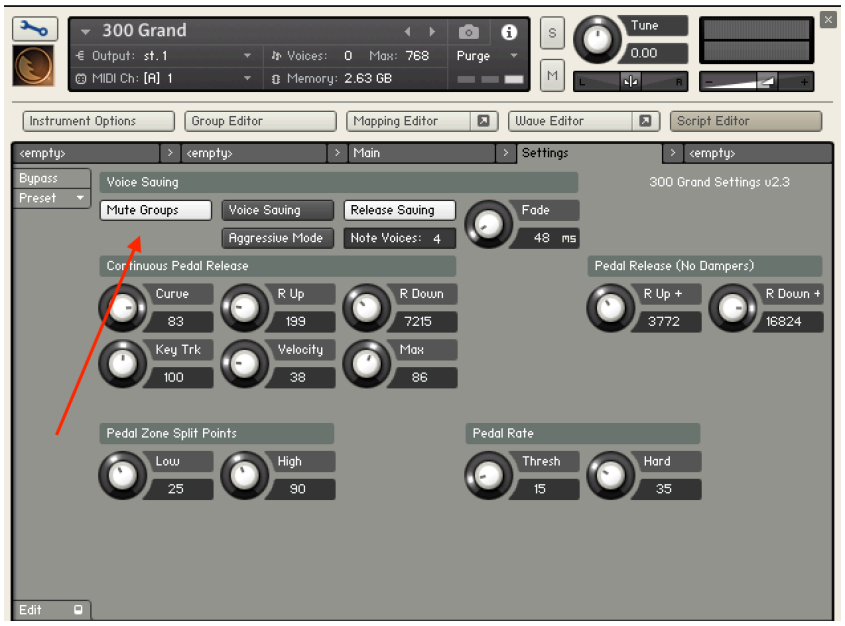
Volume. The **Volume fader** controls are straightforward: push up for more volume; pull all the way down to mute and save voices (polyphony) on that channel. Command-Click (Control click on a PC) the volume knob to reset the volume to unity gain where the control is neither adding nor subtracting volume 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 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 or alternatively just do it in your DAW with the microphone perspectives assigned to different outputs.

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.

24. 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 using other processing plugins, such as EQ or compression, and DAW routing (sends and bussing) to be applied to each microphone independently. This is the best approach when using 300 Grand in recording or album production.

25. Send Reverb: The added reverb section in 300 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, also 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 300 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 300 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. The first reverb presets starting with "Hall" are all reverbs sampled from the actual performance hall that 300 Grand was sampled in and labeled with which microphone picked up the reverb sample.

Production Tip: While the natural reverb is captured in the piano samples, adding more of the hall reverb creates a more blended cohesive sound that can assist with the realism of the piano releases.

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.

Pioneered in Production Voices' own Concert Grand sample library, 300 Grand is our second library to include an ambisonics channel. The ambisonics section is CPU intensive and may bog down older 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. 300 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.

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

As a limitation of Kontakt, 300 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 with the external mode.

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 300 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.

26. 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.

27. 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.

28. 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.

29. 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.

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

31. 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.

32. 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.

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.

33. 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).

34. 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.

35. 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.

36. 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.

37. 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.

38. 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. The Send Reverb also has to be turned on on either the Settings or Mixer page for the Master Reverb to be heard.

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 with the other microphones either off or turned all the way down will not experience a latency delay as the software will adjust the sample starts. The Stage, Hall 1 and Hall 2 all have alternate start times set depending on what microphones are active. You may notice that when the Hammer and Hall 2 microphones are both on, the sample recording is true where the Hammer microphones play slightly ahead of the Hall 2 microphones. If the Hammer microphones are turned all the way down or turned off, then the Hall 2 microphones will have the alternative sample start time activated so that you hear the piano hall mics with no delay. Once another microphone perspective is added in, the Hall 2 microphones will return to their normal sampled time align. This is simply in place to avoid long latencies when playing the Stage, Hall 1 or Hall 2 microphones.

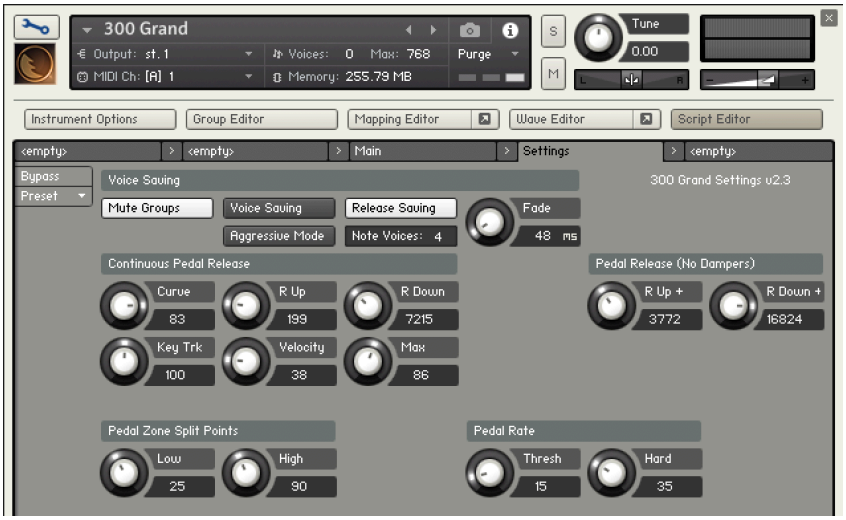
ADVANCED PERFORMANCE POLYPHONY CONTROLS (Hidden):

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 both Aggressive Mode and Voice Savings may help.

PERFORMANCE EXPECTATIONS on DIFFERENT SYSTEMS

300 Grand can really test the limits of a computer system if many microphone perspectives are active. Using a modern computer with a fast SSD (exceeding 500 MB/s) and plenty of RAM (16 GB+) is highly recommended to get the best performance and user experience out of 300 Grand.

Test Systems 300 Grand:

Test System 1:

2020 MacBook Air M1
macOS Monterey 12.0.1
16 GB RAM
Samples played off internal 1 TB SSD

Performance results:
Flawless performance with all features active and all microphone perspectives loaded.

Test System 2:

Late 2013 Mac Pro 6-Core 3.7 GHz

Mac OSX 10.14.6 Mojave
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.

Test System 3:
Early 2015 MacBook Pro 13” 2.7 GHz
Mac OSX 10.12
8 GB RAM
Samples played off USB 3 SSD external with average read and write at over 400 MB/s

Performance results:
300 Grand runs smoothly with four or more microphone perspectives on. All presets perform near flawlessly unless the damper is held excessively.

We anticipate that recent 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.

Performance Tip: Sequencing parts with only one or two microphone perspectives active and rendering with the microphone perspectives that you want is an excellent way to maintain a workflow while getting exceptional quality for your bounce or exports.

MISC

300 Grand Strengths
Sampled from a 9’ Yamaha CFX piano, the tone is balanced without bright overtones like a Yamaha C7. 300 Grand has a true dynamic range that matches the original instrument and has more sonic possibilities than any other sampled instrument thanks to its 9 microphone perspectives.

300 Grand Known Issues
The Mixer Page may have the occasional stuck button graphic from mouse hoovers that are cleared up by moving the cursor across the button again. This does not affect the sound in any way.

To reduce resource issues, some sustained notes that are repeated will be dropped with a first note priority instead of a loudest note priority. The “Voice Saving” button on the Script Editor Settings page turns on and off this function. So, the choices are either repeated sustained notes that accumulate (Voice Saving OFF) or repeated sustained notes that drop the oldest note regardless of velocity (Voice Saving ON).

LEGAL

License Agreement

300 Grand is licensed, not sold, to the end user. Licensed Users can install with Native Access and must abide by the licensing agreement of Kontakt Player.

300 Grand is a software product intended for the end user use 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, music recordings and live performances.

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 Coles, Soundfield, Lynx, Apogee, AKG, Sennheiser, Rode, Crown, Plogue, Native Instruments, Neve, Neumann, Yamaha or Steinway.

sforzando, Aria Engine, Steinway, Yamaha, CFX, Kontakt Player and Kontakt are trademarks of their respective owners and are not associated with Production Voices.

Any mention of a trademark is just to indicate what products were used to make this product and does not qualify as an endorsement from or for that said product.

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

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: Kovdra Studio www.kovdrastudio.com
Kontakt Scripting and Programming: Adam Hanley, Toby Sherriff, Will Bedford, Jason Chapman
Recording Engineer: Dajaun Martineau
Audio Editing: Kyle Ashbourne

Personal Thank you's

To Dajaun: You kept 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!
To Mike G: Thanks for sharing your space!
To Toby: Thanks for making sense of my mess and getting things to work!
To Kyle: Thanks for being rock steady!
To D&S Pianos: Thanks for your amazing technical support!
Finally… to my wife Debbie: Thanks for putting up with my obsessions!
Thanks to all the beta testers!

UPGRADES and CROSSGRADES

Native Instruments, the maker of Kontakt Player, has an upgrade path to the full version of Kontakt that can load additional Production Voices sample libraries. For details visit: http://native-instruments.com/

300 Grand is upgradable to 300 Grand Pro and 300 Grand Max, higher sample rate and bit rate versions of 300 Grand that also require the full version of Kontakt.

If you looking to add additional piano sample libraries to your available tools, consider the following libraries from Production Voices that require the full version of Kontakt:

Concert Grand - 9 Microphone Perspective New York Model D Piano Sample Library:
https://www.productionvoices.com/concert-grand-2/

Production Grand 2 - 8 Microphone Perspective Yamaha C7 Piano Sample Library:
https://www.productionvoices.com/production-grand-2/

CONTACT

Email: support@productionvoices.com

Website: http://www.productionvoices.com

Manual revision 1.06