The Trumpet 3
User Manual

Version 3 for Kontakt 5

peter siedlaczek & giorgio tommasini present

THE
trumpet

V3

3 Bb Trumpets, Piccolo Trumpet
Classical German Trumpet
Cornet, Flügelhorn

VIRTUAL INSTRUMENT

samplemodelled
instruments

Created by Giorgio Tommasini & Peter Siedlaczek

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What's new in Trumpet v. 3.0

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Kontakt 5 Player

The Trumpet 3 is supplied with the Kontakt Player 5.4, the read-only version of Native Instruments sampler. It is a separate installer, and no additional software is required to play the instrument. Stand-alone mode, as well as plugin formats VST, AU, and AAX are supported. Earlier Kontakt versions cannot be used. For further details, please refer to the Player Manual.

Kontakt 5 Sampler

The instruments can be also loaded and played in the full version of Kontakt 5.4. Please note, however, that they cannot be opened or modified, and no access to the samples, impulse responses or instrument programming is provided.

Installation

Please read carefully and follow the instructions found in the separate Installation Guide.
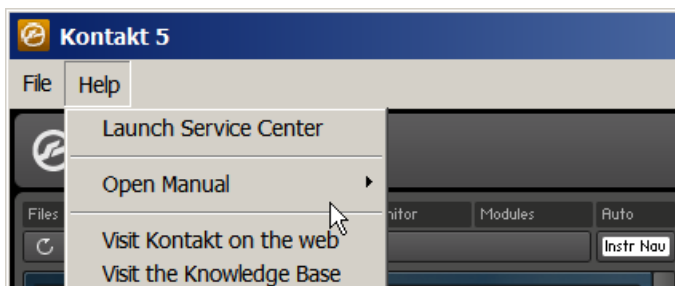
Accessing the Manuals

This Manual and other Trumpet documentation can be accessed at any time by clicking on the "i" icon in the Kontakt browser:

Alternatively, the pdf files can be opened directly; they are placed in the folder "Documentation" inside the library folder (The Trumpet 3).

The Kontakt / Kontakt Player Manual is available from the Kontakt Help menu:

System requirements

Operating systems

PC:
Windows 7 or 8 (latest Service Pack), 32 or 64 bit
Mac:
Intel only, OS X 10.8, 10.9 or 10.10 (latest update)

Note: Compatibility with OS and Hosts is only dependent on the Kontakt version in use. This means that if a future version of Kontakt works properly on your system, and Native Instruments confirms its backward compatibility, our instruments will work as well. All the above OS are fully compatible with the Kontakt 5 Player supplied with The Trumpet v.3.0. Please note, however, that the Trumpet 3 has been developed on Kontakt 5.4 and will not work with previous versions of Kontakt.

Computer
The Trumpet 3, like all Samplemodeling instruments, provides unprecedented realism and expressiveness. However, it's a demanding software in terms of CPU load. A modern PC or Mac with at least 1.6 GHz Core2Duo CPU is required.
Less powerful systems may also prove satisfactory, but may require larger buffer sizes, involving higher latencies, and may even reduce the amount of simultaneously playable instruments down to 1.

Note: This may not present a real problem though. Using the freeze feature or bouncing the single MIDI tracks to audio is a useful remedy.

Important note on CPU load
Loading multiple instruments on a single instance of Kontakt leads to a less efficient use of the multiple cores, and to an increased CPU load. In case you are experiencing excessive CPU load and/or dropouts, we strongly recommend using a separate instance of Kontakt for each instrument.

Audio Interface (sound card)
A good quality audio hardware with suitable low latency drivers (ASIO for the PC) is required. Recommended buffer sizes may range from 128 (low-latency, hight CPU load) to 512 samples (higher latency, but less CPU load).

MIDI interface
A MIDI interface is required if using a MIDI keyboard, another MIDI controller or an external sequencer, unless the connection is made via USB.

Keyboard or Windcontroller
A five-octave MIDI keyboard, mappable from C1 to C6, with pitchwheel, modwheel, and an expression pedal or breath controller, constitute the minimum requirements for realtime playing. Six-octave keyboards with several physical MIDI controllers, including expression and sustain pedals, or a Windcontroller, are recommended for full exploitation of the expressiveness of the instrument.

Sequencer.
If realtime playing is not contemplated (you will miss some great fun though), programming MIDI tracks in a sequencer may avoid the need for several physical MIDI controllers, while maintaining full control of the instrument expressiveness. The Trumpet 3.0 has been thoroughly tested on several sequencers, including Cubase, Ableton Live, Digital Performer, Logic, Sonar, Studio One and Pro Tools.

Supported Plugin Formats

PC:
VST or AAX, 32 or 64 bit

Mac:
AU, AAX or VST, 32 or 64 bit

(For more details please refer to Kontakt 5 Specifications on the Native Instruments site)

General Notes

MOST IMPORTANT:

Like a real instrument, and unlike conventional sample libraries, the Trumpet allows continuous transition across the dynamics (from *pp* to *ff*), free from any side effects. To accomplish this, a suitable continuous MIDI data sent from a physical MIDI controller, such as an expression (CC11) or volume (CC7) pedal, a breathcontroller, or a windcontroller (CC2), [or those same CCs written into a MIDI track], is absolutely necessary.

WITHOUT THIS CONTROLLER THE INSTRUMENT WILL NOT WORK, displaying a warning.

Other physical MIDI controllers, like sliders, knobs or modwheel, though not recommended, can be used for this purpose. Please refer to the Remapping section of this manual for further details.

Tip: Logic users, deactivating the Trumpet track during playback, may reduce the CPU load and greatly improve the overall performance.

Tip: Some users might experience hanging notes upon stopping the playback.This is due to the fact that Sonar sends an "All-Notes-Off" command when the Stop button is pressed. The problem can be easily solved by checking the box "Accept all notes off/ all sounds off" under "Instrument Options -> Controller", as shown below.
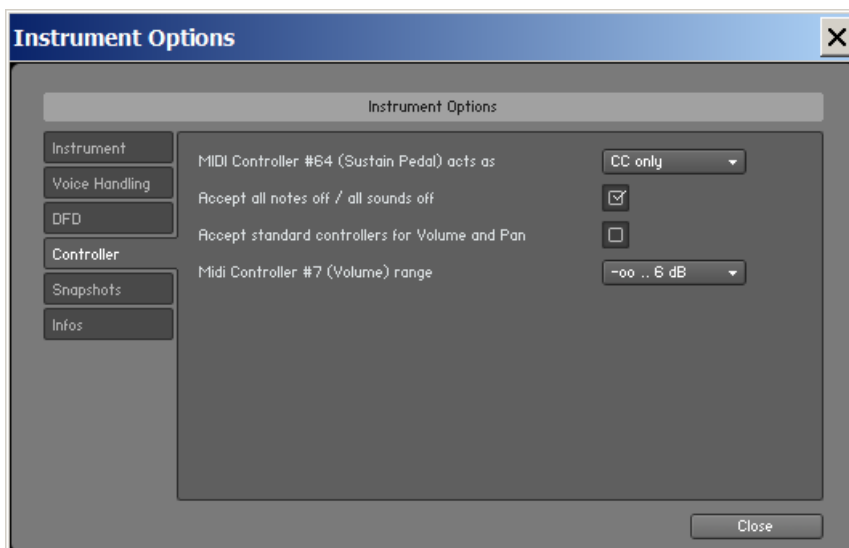
Note: the MIDI note naming convention is based on the Yamaha standard: the middle C is C3, corresponding to MIDI note number 60.

Introduction

The Trumpet is one of the most versatile, dynamic, flexible and expressive musical instruments. It covers an incredibly wide range of sounds and moods. Whether dealing with a huge orchestral arrangement, a pop song, a powerful fanfare, a classical sacred work, or a military march - the trumpet is an indispensable instrument in a vast majority of musical styles.

However, it's extremely difficult to emulate, a true challenge for developers of virtual instruments.
Our virtual instrument uses recorded samples of real trumpet as base material. This proved to be the best choice to preserve the timbral characteristics of the original instrument. We used state-of-the-art recording techniques, including multi-microphone placement, according to the radiation characteristics of the instrument. But we went beyond. All sounds were recorded in an anechoic chamber. To our knowledge, The Trumpet, The Trombone and French Horn & Tuba are the only sample-based anechoic virtual instruments developed so far.

Like the other Kontakt-based Samplemodeling instruments, the Trumpet 3 uses Giorgio Tommasini's proprietary "Harmonic Alignment" technology. It enables realtime, seamless morphing over the entire dynamic range, from *pp* to *ff*, an impossible task for conventional sample-based libraries.

Why anechoic?
The purpose of anechoic recording was threefold:
> 1) avoid "contamination" of the pure trumpet sounds with the uncontrolled resonances of a particular ambience,
> 2) allow artefact-free "harmonic alignment" processing
> 3) provide clean articulations and phrases as a database to build the "adaptive model" (see below).

Early Reflections   NEW!
A sophisticate ER algorithm exploits the directional information of multi-microphone anechoic recordings to recover the full, rich timbre of the instrument along with its radiation pattern, adding a proper virtual space to the anechoic sound.

Virtual Soundstage   NEW!
This new feature allows precise positioning of the instruments in a virtual space located before the listener, using early reflections, pre-delay, convoluted panning and perceived distance algorithms. This will set you free of adding a further suitable acoustic environment, without incurring multiple-ambience issues. This can be carried out within the same Kontakt Player, which provides a high quality convolution reverb.

Realtime Timbral Shaping   NEW!
This revolutionary new feature adds a virtually infinite timbral variety to sample-based instruments, by acting on the amplitude of individual harmonics, or groups of harmonics, even in real time. This is not a graphic equalizer; the controlling vertical bars are not assigned to fixed frequencies, but to the first 10 harmonics of the played note. As a consequence, the affected frequencies vary with the pitch of the note. So, rising, for example, bar #1 will boost the fundamental frequency (first harmonic) of each note played, yielding a "rounder" sound. Raising bars #2, #3, #4, #5 will increase the intensity of the corresponding harmonics for a more "nasal" sound, etc.

Microtuning   NEW!

Another new feature is microtuning, applicable to individual keys even in real time, to better cope with non-tempered scales – so essential in, for example, Middle Eastern and Asian music.

Expression Mapping   NEW!

User-drawn nonlinear rescaling of the expression CC may give better control of the dynamics, particularly when tailored to suit your own input devices like breath or wind controllers.

For Unison Ensemble IR   NEW!

A specially devised Impulse Response, markedly reducing the phasing which may occur when several instruments are driven from the same MIDI track (i.e. in unison).

Unison Ensemble Multi   NEW!

Special consideration has been given to creation of realistic ensembles from solo instruments, whether driven from separate MIDI tracks, or when playing unison. An advanced "ensemble maker" has been developed, affecting timing, static and dynamic pitch evolution, phase, response to dynamics, pitchbend, velocity, portamento time, in such a way that even if driven from a single MIDI source, each instrument will sound slightly different, as if played by a different musician.

A ready-to-use Multi, including three specially devised trumpets, the ensemble maker, and an appropriate convolution reverb, suitable for unison playing straight out of the box, is included in the package.

The Instruments

The Trumpet package includes several instruments belonging to the same family. Their playing range corresponds to that of a top professional player, and extends from E2 to G5 (B♭ Trumpets, Cornet), E2 – C5 (Flügelhorn, German Trumpet) or G#2 – G5 (Piccolo Trumpet).

Three B♭ Trumpets

Along with the main, solo B♭ trumpet ("Main Trumpet") you will find 2 other ones – named "Trumpet 2" and "Trumpet 3", sounding slightly different, and suitable for being used in trumpet sections (which shouldn't mean that your arrangements need to be limited to 3 voices only).

Flügelhorn

Similar to the trumpet, but with a wider, conical bore, the Flügelhorn provides a darker and much softer tone. Its beautiful, warm sound is mainly used in jazz or in brass bands, as well as in popular music.

German Trumpet

This more "massive" type of trumpet uses rotary valves and sounds less "bright" than the jazz trumpet. It possesses a larger volume of tone which may better blend with other instruments. It's mainly used in classical music.

Cornet

Similar to the trumpet, but more compact in shape. It sounds a bit warmer and mellow. Its agility makes the Cornet particularly suitable for melodic passages. It is mostly used in brass bands, but also in jazz ensembles.

Piccolo Trumpet

Also known as "Bach trumpet", it represents the smallest instrument of the trumpet family. Its tubing, which is only one-half the length of the "normal" trumpet, as well as other construction details, make this instrument more advantageous for playing in the highest register – not only in Baroque music. Piccolo Trumpet sounds "smaller" and brighter than the B♭ trumpet.

All these instruments are now at your fingertips… You can really PLAY them – shaping the sound like a real trumpet player does. But please, read the manual first and learn more about how to do it in the best way. It is easy and intuitive but, like every music instrument, "The Trumpet" needs some practice and experience. You will certainly learn it very quickly! The demonstrations we prepared show how realistic our trumpet sounds. If you want to learn more about how this has been achieved, please visit our homepage and download the demos we prepared for you as MIDI files:

http://www.samplemodeling.com/en/demos_trumpet.php

The Mutes

Mutes are devices affecting the timbre and/or volume of an instrument. The trumpet – like other brass instruments – uses a wide range of mutes: - the most common are Harmon (with or without stem), Straight, Cup, Plunger and Bucket. They are mostly cone-shaped and are inserted into the bell or simply held or clipped outside the bell. Depending on the shape or material (metal, wood, plastic) they may significantly vary the sound of the trumpet. The most common mutes are:

Straight - commonly used, cone-shaped, hollow mute – provides more metallic and „nasal" sound. It is available for all the brass instruments.

The **Cup** mute, which is similar to the Straight, decreases high and low frequencies providing a rounder, more „muffled" sound.

The bulbous, hollow **Harmon** mute provides a very characteristic sound similar to the „Miles Davis sound" of the trumpet. It completely blocks the air output forcing it to pass the hole in the middle of the mute, providing a very bright, "buzzy" sound, frequently used in Jazz. Harmon can be combined with the stem, which is a short metal pipe with a funnel-like end, fitted into the hole of the Harmon mute.

The **Bucket** mute uses some soft materials which remove the high frequencies providing a much softer, darker sound.

The **Plunger** – which, indeed, is very similar to an unused toilet plunger – is kept by the player in one hand and manipulated in front of the bell. By closing and opening it, the typical "wah-wah" effect – even imitating the human voice - can be obtained.

All these mutes are available for use with our trumpets. We used sophisticated technologies to capture the "fingerprints" of each mute, which were ultimately coded into a suitable impulse response (IR). The latter can be instantly loaded from a drop down menu of the graphical interface, or via MIDI, using CC100 (see MIDI-loadable mutes, page 15).

Tip: In the drop-down menu "Mutes" you will also find an entry named "for **Unison Ens**". This is a specially devised IR, markedly reducing the phasing which may occur when several instruments are driven from the same MIDI track (i.e. in unison).

The Graphical Interface (GUI)

This is how the instrument looks upon loading. A warning message appears, reminding you that:
An Expression controller (CC11, CC7 or CC2) is absolutely necessary for proper functioning of the instrument.
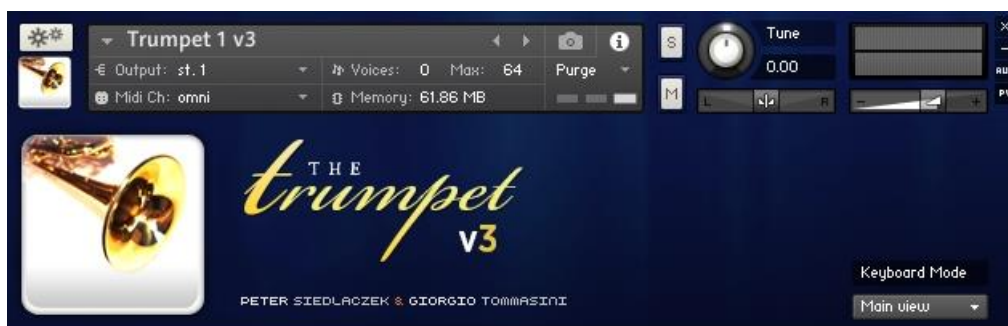
Upon receiving the appropriate CC (from your keyboard or other MIDI sources, such as a windcontroller or sequencer), the warning disappears, and the instrument is fully functional.
The grey button in the lower right corner opens a drop down menu.

You may choose among several options:
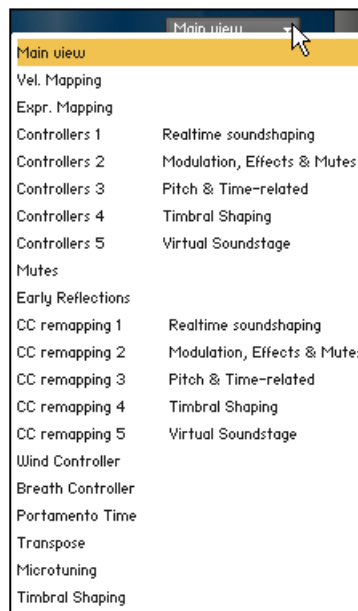
Velocity Mapping

It is well known that MIDI keyboards have different and uneven velocity response, and this may heavily influence the performance of a virtual instrument. To obviate this problem, the instrument includes automatic detection of any velocity inhomogeneities or non-linearity emitted by the keyboard, and provides automatic remapping to any desired curve.

If "Vel. Mapping" is selected in the drop down menu, the velocity mapping GUI will be displayed:
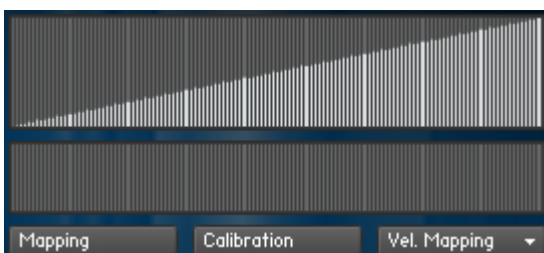

As a default, velocity mapping is disabled.
Velocity mapping is activated by clicking on the "Mapping" button until it turns white:
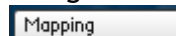
Now, the relationship between in (X axis) and out (Y axis) velocity values is represented by the upper graph. A straight line, from bottom left to top right means linear mapping, i.e. no changes. The graph can be directly edited with your mouse, so that you can program any velocity response you need.

To compensate for a nonlinear behaviour of your keyboard, an automatic calibration procedure is provided. Just click on the "Calibration" button until it turns white:
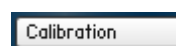
Now what you have to do is hit any key at random velocities, trying to cover the whole velocity range. Each new output velocity will appear as a new bar in the lower panel. The overall velocity curve output of your keyboard will progressively be updated in the upper panel.

The response of a nonlinear keyboard.
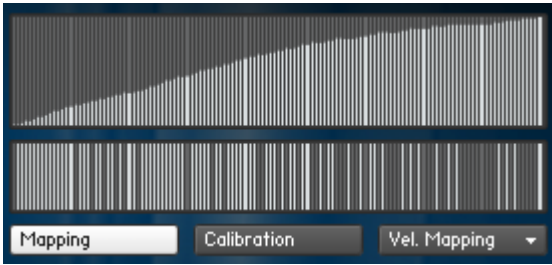
After you're finished with the automatic mapping procedure, i.e. when you notice, that no new velocity bar appears anymore, disable "Calibration" by clicking on it until it turns grey. From now on, compensation for nonlinearity of note-on velocities will be carried out if "Mapping" is active (i.e. white). You may also correct the compensated curve with your mouse. Please note that all changes will be maintained upon storing and reloading the instrument.

Tips: left clicking and dragging the mouse allows free hand drawing. Right clicking and dragging enables drawing of straight lines. Please note that constructing curves with multiple straight segments can be easier and faster.

Left clicking and dragging the mouse while pressing Cntrl resets the corresponding bars to zero.
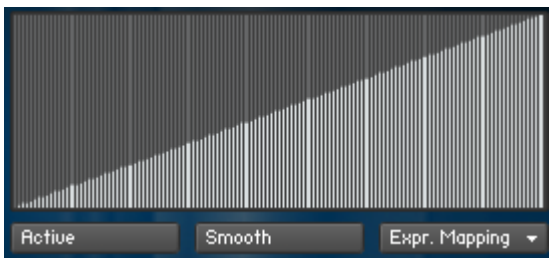
Expression Mapping   NEW!

The default setting for the expression controllers (CC11 or CC2) is linear in a dB scale. This means that a linear rise of the expression CC yields a perceived linear crescendo. While this is perfectly suitable for most applications, there might be cases where a nonlinear mapping would be advantageous. A very intimate piece, never entering the high dynamic range, or a windcontroller too easily jumping to very high CC2 value are examples where a nonlinear mapping of expression could be very useful.

If "Expr. Mapping" is selected in the drop down menu, the velocity mapping GUI will be displayed:


As a default, Expression Mapping is disabled.

Expression mapping is activated by clicking on the "Active" button until it turns white: [Active]

Now, the relationship between in (X axis) and out (Y axis) expression values is represented by the upper graph. A straight line, from bottom left to top right means linear mapping, i.e. no changes. The graph can be directly edited with your mouse, so that you can program any expression response you need. The "Smooth" button facilitates the task of drawing smooth curves.

An example of a nonlinear mapping.
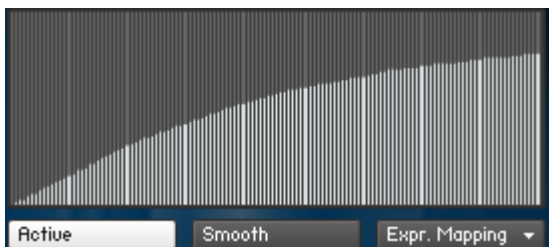
This example shows how to avoid very high dynamics. Mapping may be bypassed by clicking on the "Active" button until it turns grey.

Please note that all changes will be maintained upon storing and reloading the instrument.

Tips: left clicking and dragging the mouse allows free hand drawing. Right clicking and dragging enables drawing of straight lines. Please note that constructing curves with multiple straight segments can be easier and faster.

Left clicking and dragging the mouse over the bars while pressing Cntrl resets these bars to zero.

Controller Knobs

Main view	
Vel. Mapping	
Expr. Mapping	
Controllers 1	Realtime soundshaping
Controllers 2	Modulation, Effects & Mutes
Controllers 3	Pitch & Time-related
Controllers 4	Timbral Shaping
Controllers 5	Virtual Soundstage

All the controllers needed for proper functioning of the instrument are mapped to virtual knobs in five GUI panels, which can be activated by a drop down menu. The function of each controller is indicated by the associated label. The virtual knobs permit to monitor the incoming midi data, but can also be used to directly control the instrument. This allows users of keyboards without physical MIDI controllers or knobs, to explore the expressive capabilities of The Trumpet.

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The five "Controllers" GUIs show each MIDI-controlled function, the associated CC number and its current value. Each knob is bidirectionally mapped to its CC. This means that you may set each CC by moving the associated knob. Conversely, any incoming MIDI CC will be mirrored by the corresponding knob, and its current value will be shown on the display panel.

Please note that, for realistic and expressive playing, the controller knobs <u>cannot</u> substitute the <u>essential</u> controllers, such as CC11, modwheel (C1) and pitchbend, which must be provided by your keyboard or sequencer

The Controllers and their function

PB (pitchbend, not shown in the GUI):   mapped to +/- three semitones.

Controllers 1	Realtime soundshaping

CC11: **expression.** Controls continuous transition across the **dynamics**, from *pp* to *ff*, free from phasing artifacts, due to our proprietary Harmonic Alignment Technology. An expression pedal, or a breath controller, routed to C11, are highly recommended for the most realistic realtime playing.
<u>Please note</u>: a medium, "comfortable" trumpet dynamics corresponds to CC11 around 60 - 70. Strong fortissimo is achieved already at about 90 – 95. Highest CC11 values create an exceptionally bright, extreme ff sound, which should be used only for short, special effects, accents, etc.

CC1 (modwheel): **vibrato - shake intensity**. Vibrato intensity increases linearly for CC1 values between 0 and 96. Above 96, vibrato converts into a three-semitones shake. The shake intensity linearly increases with CC1.

CC19: **vibrato rate**. The frequency range is approximately 2.5 – 8 Hz. Default = 70.

CC26: note-on **attack duration**. Default = 84.

CC27: note-off **release duration**. Default = 15.

Note: CC26 and CC27 also allow to modify the relative duration of each keyswitch. (See "Performance Keyswitches" below).

Controllers 2	Modulation, Effects & Mutes

CC20: note-on **pitch-modulation depth**. Reproduces the typical slight pitch modulation of the real attacks. May vary from none (more precise initial intonation) to slightly excessive. Default = 64.

CC22: on-transition flutter intensity. Bursts of high frequency flutter are automatically generated on transitions, reproducing the behaviour of the real instrument. CC22 controls the overall intensity of this flutter. The recommended range is 45 to 75. Default = 100.

CC21: growl intensity. High frequency flutter may be added by directly acting on this controller, to produce a "growly" or "dirty" sound. Default = 0.

CC23: frullato intensity. Flutter-tongue-like effect may be added by directly acting on this controller. Default = 0.

⭐ **Tip: Different types of frullato can be obtained by adding CC21 to CC23.**

CC100:   MIDI-loadable mutes. Loaded mutes are: "None" (default) (for CC100 between 0 and18), "Straight (19-36) , "Cup" (37-54), "Bucket" (55-73), "Harmon" (74-91), "Harmon + stem" (92-109), "for Unison Ens" (a specially devised IR to reduce phasing when playing unison) (110-127).

Controllers 3	Pitch & Time-related

CC24: dynamics-to-pitch modulation. In the real instrument, the current pitch is affected by transient changes of the dynamics. The Trumpet exactly reproduces this behaviour. The intensity of this pitch response can be varied with CC24, to better cope with different styles. For example, baroque music generally exhibits less fluctuations, and the overall pitch tends to be more steady. You may reproduce this behaviour by decreasing CC24 somewhat from the default value of 64. Conversely, a "funny trumpet", mimicking the performance of a beginner, (or a drunken player, see The Trumpet performance at: http://www.sample-modeling.com/Demos/5-Oktoberfest.mp3 ☺) can be obtained by increasing CC24 to very high values.

⭐ **Tip: Higher settings of CC24 may also allow Breath Control players to perform a realistic vibrato by simply modulating the air flow.**

CC28: random detune. NEW! Real playing is almost invariably characterized by slight pitch fluctuations, and the average pitch often departs from the tempered scale. The latter phenomenon is also likely to affect more the initial part of the note, before the players starts to to correct the pitch. This behaviour is reproduced with the Trumpet, according to a pseudo-random model. The intensity of this effect can be controlled with CC28. Zero means no detuning. Default setting is 64.

CC32: pitch fluctuation. NEW! Controls the extent of the slight pitch fluctuations described above, from very slight (CC32 = 0) to strong (CC32 = 127). Default setting is 64.

CC25: dynamics linked to velocity. The dynamic is normally controlled by CC11 only.

CC25 allows to control the initial dynamics by note-on velocity. This allows fast sforzato-crescendo effects, often too difficult to create with the expression pedal CC11. If CC25 is greater than zero, and note velocity is higher than a preset threshold (80), a sforzato effect is obtained. In the opposite case, one gets a fast crescendo.

The intensity of either effect is proportional to:

abs(velocity – 80) * CC25 (some complex math here ☺)

Thus, the overall dynamic excursion is proportional to CC25. It varies from zero (no dependence on velocity) to 127 (initial dynamics determined only by velocity).
Default = 127

CC5: **portamento time**. By default, the duration of portamento is controlled by the velocity of the overlapped note. Under some circumstances, it may be preferable to control the duration of portamento with a dedicated CC. This is particularly true when using a Wind Controller, where the velocity of the overlapped note basically corresponds to the current dynamics. Lower dynamics unavoidably yield long portamentos and vice versa.
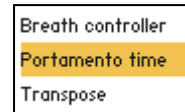
By activating "Portamento time" in the drop down menu you will open a dedicated window. The two knobs show how the duration of portamento is currently controlled. Default is 100% by velocity, as already stated.
By acting on the knobs, you may set the relative weight of velocity vs. CC5 for controlling portamento time.

⭐ **Tip: The aftertouch is particularly suitable for controlling Growl or Flutter Tongue. The slightly increased pressure associated with a keystroke may add some extra growl to the initial part of the note, yielding very realistic effects.**

Controllers 4	Timbral Shaping

Realtime Timbral Shaping (Harmonics Gain)   NEW!

Controllers CC90 – CC93 are reserved for real time control of the Harmonics Gain, related to the entirely new feature of Timbral Shaping (see page 26).
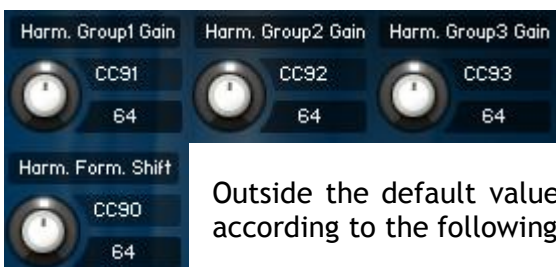

Their default setting is 64. In this "neutral", middle position the timbre will entirely reflect the bar settings in the Timbral Shaping menu (between -6 dB and +6 dB).

Outside the default value, CC90 – CC93 allow to shape the timbre in real time, according to the following rules:

CC91: controls the first (lowest) active* harmonic or group of harmonics.

CC92: controls the second active* harmonic or group of harmonics (if any).
CC93: controls the third active* harmonic or group of harmonics (if any).
CC90: controls the frequency shift of the harmonics settings (*pseudo*formant shift).

*) "Active harmonics" means the harmonics whose bars are set to any value different from "0".
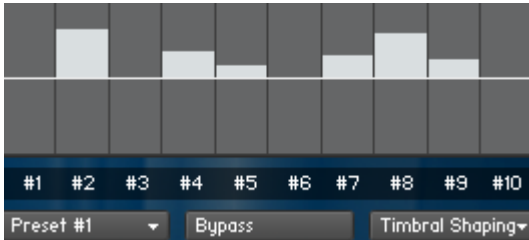
In this example CC91 will control the harmonic number 2 (which is the first/lowest, separate bar set to a value different from "0"). CC92 will control the group of harmonics centered around the harmonic no. 4/5, and CC93 - the group of harmonics centered around harmonic 8.

Please note:

- acting on the controllers CC91-93 will <u>not</u> displace the displayed bars in the Timbral Shaping menu. Instead, the controllers will introduce an additional gain which must be added or subtracted from the current bar setting(s) according to their current values, following the rules below:
  CC91-93 = 64: 0 dB, i.e. no changes – the harmonics gain corresponds exactly to the bar settings
  CC91-93 between 64 and 127: adds up to 6 dB to the current bar setting(s)
  CC91-93 between 64 and 0: subtracts up to 6 dB from the current bar setting(s)

- Similarly, no frequency shift is applied if CC90 = 64 (default setting); rising the value up to 127 will gradually shift the settings up to one octave higher; decreasing the value down to 0 will shift the settings down to one octave lower.

 Tips:

- **If you intend to use the real time control by any of the controllers CC91 – 93, consider using very small, "shallow" settings of the bars – close to "0" as much as possible. These settings will make the particular harmonic "active", i.e. fully responsive/controllable by CC91 – 93. However, their level will be fully under control of the CC91 – 93 knobs in both directions (+/- 6 dB), with practically zero gain if the controllers are set to the middle (64).**

- **Please note that acting on single harmonics provides usually more "radical" changes in timbre, suitable for special effects, whereas acting on a group of harmonics (using wider curves and not too excessive gains) yields more "natural" results.**

- **If simultaneous control of all three harmonics or harmonic groups with just one MIDI controller is required, you can use the remapping feature (CC remapping 4 from the drop down menu) and assign a single CC (ex. CC91) to each Harm.Group Gains.**
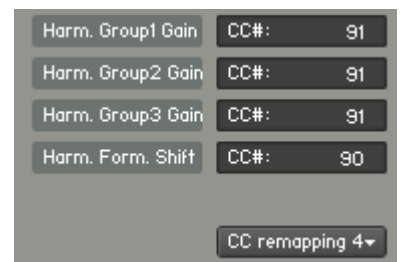
Virtual Soundstage　　　　　　　NEW!

This new feature allows precise positioning of the instruments in a virtual space located before the listener, using early reflections, pre-delay, convoluted panning and perceived distance algorithms. This will set you free of adding a further suitable acoustic environment, without incurring multiple-ambience issues. This can be carried out within the same Kontakt Player, which provides a high quality convolution reverb.

CC29: **early reflections**. As reported above, all samples were recorded in an anechoic chamber. This recording technique provides the cleanest sound, devoid of any contamination with an arbitrary ambience. However, even the most directional instrument has a complex radiation pattern that contributes to the richness of the sound. Using the spatial information gathered from multi microphone recording, a specially devised "early reflection" impulse response has been developed, which recreates the original radiation pattern in a virtual space from the anechoic sound. The intensity of this effect can be controlled with CC29. Default value = 75.

CC31: **pre-delay**. Controls the time delay of the first early reflections.　Default = 0, corresponding to about 20 msec.

CC10: **panning**.　It spans from zero (extreme left) to 127 (extreme right).　Default = 64 (middle).

CC14: **distance**.　Controls the perceived distance from the player.　Default = 0.

> **Note: When panning, do not use the standard pan slider on the Kontakt GUI. Always use the Virtual Soundstage pan knob (CC10) described above, which provides a much better spatial localization.**

> **Note: setting CC29 to zero sets the early reflection convolution in a bypass mode, leading to a decreased CPU load. This setting is, however, generally best avoided, since it spoils the sound and the spatialization of the instrument. In any case, it may only be used in conjunction with an external reverberation unit including a suitable ER algorithm.**
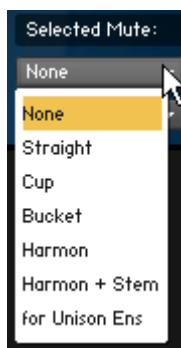
Volume control by CC7

> **Tip: If you wish to control the instrument volume (not the dynamics) by CC7, don't forget to enable this function by checking the box "Accept standard controllers for Volume and Pan", under "Instrument Options -> Controller", as shown below.**
> **(we need to check whether this adversely affect Stage positioning)**
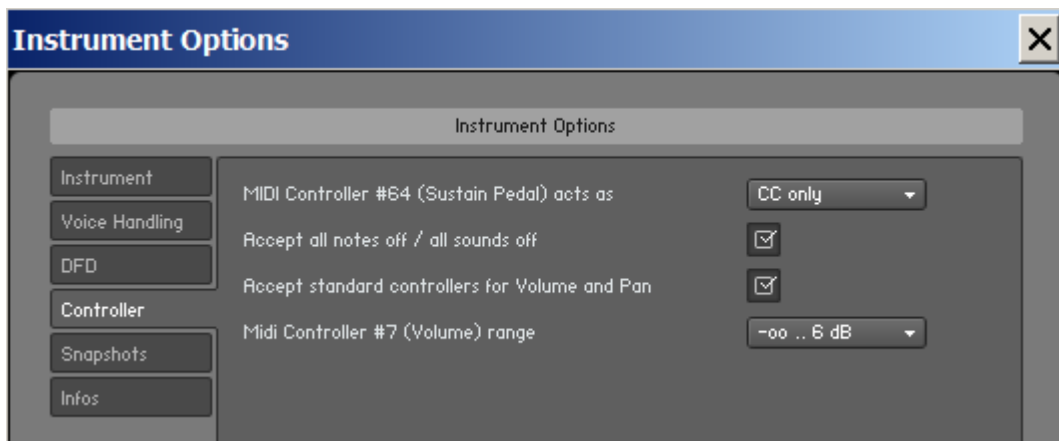
The Mutes

The mutes are selected on the drop down menu.
You may choose among "Straight", "Cup", "Bucket", Harmon" and "Harmon + Stem".

In addition to the conventional mutes, you may also select "for Unison ensemble". This is a specially devised IR aimed at markedly reducing the phasing which may occur when several instruments are driven from the same MIDI track.

Please note that the actual activation of the mute will occur on the first detached note (i.e. the note which is separated from the preceding one), in order to preserve the continuity of a legato phrase. To disable the mute and restore the "normal" sound please select "None" on the Mutes menu. The "unmuted" sound will occur on the first detached note.

Loading of a mute can be also accomplished via MIDI using CC100.
(see "Controllers and their function" above)

⭐ **Tip: Unlike the other mutes, the Plunger does not appear in the GUI menu but is activated by pressing the Key Switch A#1. In this mode, CC11 controls directly the "wah-wah" effect. Both a momentary and a toggle mode are available. The momentary mode is activated when the KS A#1 is hit at velocities below 64. In this case the wah-wah effect will be active as long as the A#1 KS is kept pressed. Velocities above 64 activate the toggle mode, which maintains the wah-wah until the A#1 KS is hit again. For more details see "Playing techniques" below.**
Please note that both activation and deactivation of the wah-wah mode will only take place on the next detached note, to maintain the homogeneity of a legato phrase.

⭐ **Tip: The wah-wah effect can be applied even when other mutes are used. This is easily accomplished by activating the selected mute and pressing A#1.**

Early Reflections

Main view
Vel. Mapping
Expr. Mapping
Controllers 1
Controllers 2
Controllers 3
Controllers 4
Controllers 5
Mutes
Early Reflections
CC remapping 1

Selected Instr:

Instr.1 ▾
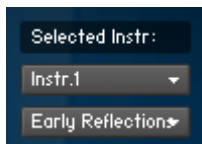
Early Reflections▾

The Early Reflections menu will allow to select a different IR, named Instr.1, 2, 3 etc. At present, only a single IR (Instr.1) can be selected.

This menu is therefore reserved for future use.

CC Remapping

Five different CC-remapping panels allow remapping of all controllers to any CC.

CC remapping 1   Realtime soundshaping

	CC#:	
Vibrato Intensity	CC#:	1
Dynamics	CC#:	11
Vibrato Rate	CC#:	19
Attack Time	CC#:	26
Release Time	CC#:	27
	CC remapping 1 ▾	

CC remapping 2   Modulation, Effects & Mutes

	CC#:	
Attack Modulation	CC#:	20
Transition Flutter	CC#:	22
Growl	CC#:	21
Flutter Tongue	CC#:	23
Mute	CC#:	100
	CC remapping 2 ▾	

CC remapping 3   Pitch & Time-related

	CC#:	
Dynamics to Pitch	CC#:	24
Random Detune	CC#:	28
Pitch Fluctuation	CC#:	32
Vel. to Dynamics	CC#:	25
Portamento Time	CC#:	5
	CC remapping 3 ▾	

CC remapping 4   Timbral Shaping

	CC#:	
Harm. Group1 Gain	CC#:	91
Harm. Group2 Gain	CC#:	92
Harm. Group3 Gain	CC#:	93
Harm. Form. Shift	CC#:	90
	CC remapping 4 ▾	

CC remapping 5   Virtual Soundstage

	CC#:	
Early Reflections	CC#:	29
Predelay	CC#:	31
Pan	CC#:	10
Distance	CC#:	14
	CC remapping 5 ▾	

20

 Note: Aftertouch can be remapped as CC129, and used to control other parameters.

 Note: Pitchbend cannot be remapped, nor used to control other parameters.

Wind Controller Mode

Main view
Vel. Mapping
Expr. Mapping
Controllers 1
Controllers 2
Controllers 3
Controllers 4
Controllers 5
Mutes
Early Reflections
CC remapping 1
CC remapping 2
CC remapping 3
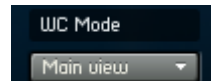CC remapping 4
CC remapping 5
Wind Controller
Breath Controller

This option opens the WindController panel.

By clicking on "Use Windcontroller" button,

you will activate the universal Windcontroller mode.

The selected mode will appear on the main view GUI.

WC mode automatically maps the Dynamics to CC2, and gives complete (100%) control of Portamento Time (see below) to CC5.
In Keyboard mode, the duration of portamento is determined by the velocity of the overlapped note. Since note-on velocities output by Wind Controllers generally reflect the current CC2 value, portamento time becomes a function of the current dynamics. This is undesirable, since, for example, playing pp will always lead to long portamento and vice versa. Linking portamento time to a separate controller, such as CC5, permits to overcome this limitation. The duration of portamento can now be controlled with any suitable physical controller mapped to CC5. If no controller is available, one might still set CC5 to a suitable value by directly acting with the mouse on the appropriate knob in the Controllers 1 panel.

A mixed-mode behaviour is also possible, partially linking the duration of portamento to both dynamics (velocity) and CC5, allowing even greater flexibility and expressiveness.

A pitch sensitivity knob is provided to compensate different pitch responses to lip pressure among different brands. For example, the pitch output of the Yamaha WC is generally smaller. This can be fixed by setting Pitch Sensitivity to a higher (200%) value. The default setting (100%) should be generally adequate for Akai devices (EWI).

WC mode is deactivated by clicking again on the "Use Windcontroller" (yellow) button.
Dynamics control will be automatically remapped to CC11.
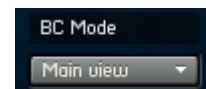
Breath controller Mode

This option opens the Breathcontrol panel.

By clicking on "Use Breathcontroller" button,

you will activate the Breathcontroller mode.

The selected mode will appear on the main view GUI.

BC mode automatically maps the Dynamics to CC2.
In addition, it's now the BC which triggers note-on & off when exceeding or falling below a certain threshold. As in the real instrument, the pressed key only determines the note which will be played.
The note-on velocity is related to the steepness of the initial CC2 curve, so that a quickly rising CC2 will trigger a stronger attack.

This does not apply to legato notes, where legato/portamento duration is determined, as usual, by the velocity of the overlapped notes.
BC mode is deactivated by clicking again on the "Use Breathcontroller" (yellow) button.
Dynamics control will be automatically remapped to CC11.

Portamento Time

This option opens the Portamento Time panel.

In Keyboard (default) mode, the duration of portamento is determined by the velocity of the overlapped note. While this represents a very convenient approach to portamento control, there might be cases where linking portamento time to a separate controller (such as CC5) would be preferable. By setting the right knob to 100%, the duration of portamento could be linked to any physical controller mapped to CC5.
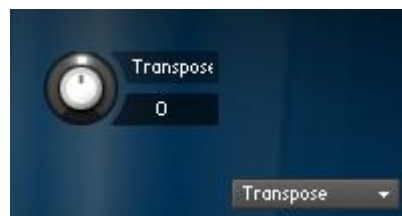
A mixed-mode behaviour is also possible, partially linking the duration of portamento to both velocity and CC5, allowing even greater flexibility and expressiveness. In this example, portamento time is determined 30% by the velocity of the overlapped note, and 70% by CC5.

Transpose

This option opens the Transpose panel.

The MIDI Transpose knob allows shifting of the instrument mapping +/- 36 semitones. Please note that the Key Switches will be correspondingly shifted as well.

Note: When transposing, always use the Transpose knob described above, or the transpose function of your MIDI source. Do not use "MIDI Transpose" function of the Kontakt software (Instrument Options), since it does not transpose the key switches and limits the instrument range.

Microtuning

This option opens the Microtuning panel.

This is an entirely new feature, coping with the requirements of musicians using non-tempered scales.

Our approach to microtuning yields maximal flexibility, allowing user-defined scales, where the extent of detuning (range +60/-60 cents) can be precisely set for each note by means of a sliding bar. The scale can be saved and recalled as a preset.

The reference note, and the overall % amount of detuning can be set for each preset by acting on the "Key" button and the "Amount" knob, respectively.

Example of Static detuning.
With this setting, all E and B notes will be permanently detuned by - 50 cents.

By setting the Key button to D, all F# and C# notes would be detuned instead.

In addition, selective detuning can be applied to individual notes in real time by using third-level keyswitches, similar to those used for split portamenti, falls and doits. In this case the Preset #2 should be used, where all notes are detuned by a predetermined amount of -50 cents (which of course can be modified by the user):
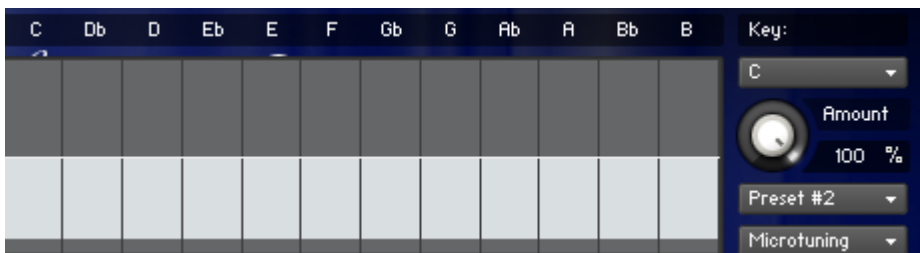
Directly using such a preset wouldn't make much sense, since all notes would be detuned the same way. However, since the player wishes only certain notes to be detuned, he simply needs to hold the sustain pedal (CC 64) down while pressing the keyswitches (C1 to C2) corresponding to the keys he wants to detune. For example, pressing the sustain pedal plus D0, F#0 and A0, detunes all D, F# and A notes by the preset amount. The currently detuned notes will be displayed in the GUI, as shown below.
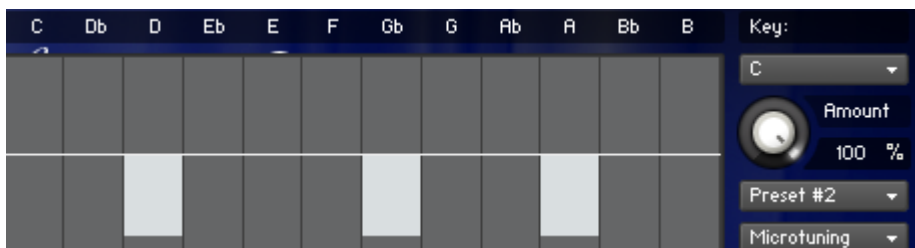
Each time one presses the sustain pedal the detuning of all notes will be reset, allowing a new set of detuned notes to be chosen

Note: Using the sustain pedal for this purpose requires that the "CC only" option is enabled under Instrument Options -> Controller -> MIDI Controller #64 … (see below). This corresponds to the default setting.
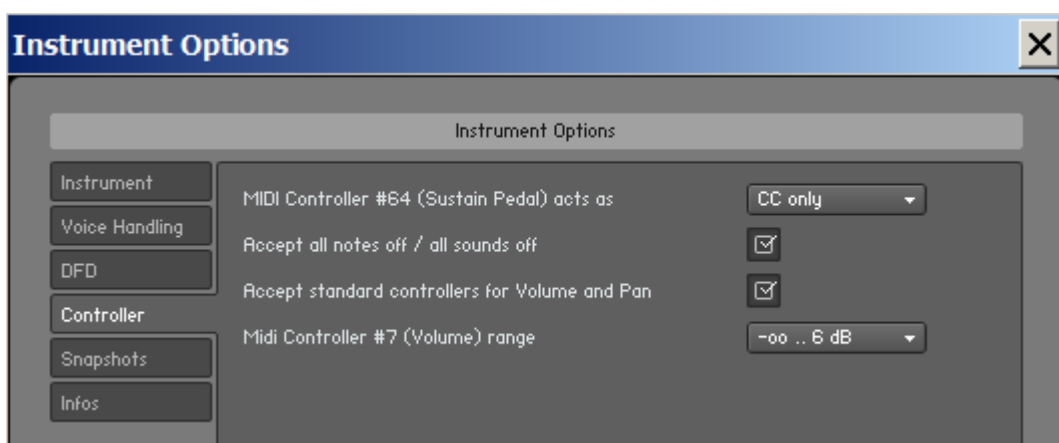
Saving and restoring Microtuning settings.

Any Microtuning setting can be stored as a preset. Ten presets are available, numbered from #1 to #10. They will be stored when saving the instrument, and will be immediately available upon reloading.

Please note: unlike the storage function within the Timbral Shaping feature (see below), storing Microtuning settings does not require clicking on "save as Preset #...". The user acts by directly modifying the preset, so that any previous setting is automatically overwritten.

Example presets

Preset #1:   Empty. Default preset, used when no microtuning is required.
Preset #2:   Template for detuning "on the fly" using the Keyswitches (see above)

There are several wonderful Arabic scales (modi) using quartertones and other micro-intervals, stored under Presets # 3 - 7:

Preset	Name	Scale
Preset #3:	**Rast**	C – D - **E-50** – F – G – A - **B-50** - C
Preset #4:	**Husseini**	D – **E-50** – F – G – A – **B-50** - C - D
Preset #5:	**Sigah**	**E-50** – F – G – A - **B-50** – C - D - E
Preset #6:	**Saba**	D - **E-50** – F – Gb – A – Bb – C - D
	Bayati	D - **E-50** – F – G – A – Bb – C - D
Preset #7:	**Garib Higaz**	D – **Eb+15** - **F# -25** - G - A - Bb – C -D

Timbral Shaping

This option opens the Timbral Shaping panel.

This revolutionary new feature adds a virtually infinite timbral variety to sample-based instruments, by acting on the amplitude of individual harmonics, which can be accomplished in real time.

Shaping the timbre using the Harmonics Bars

Timbral Shaping allows modifications of the timbre of the instrument by acting on the first 10 harmonics of each note. It can be accessed via the drop-down menu. Going to Menu -> Timbral Shaping displays ten bars which can be dragged with the mouse between -6 dB and + 6 dB.

This is not a graphic equalizer; the bars are not assigned to fixed frequencies, but to the first 10 harmonics of the played note. As a consequence, their frequencies vary with the pitch of the note. So, raising, for example, bar #1 will boost the fundamental frequency (first harmonic) of each note played. Lowering bar #3 will decrease the intensity of the third harmonics etc.
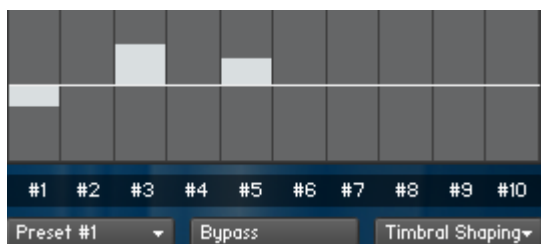
For example, this bar setting yields the following:

- slight reduction (-1,5 dB) of the level of the fundamental frequency (1st harmonic)
- boost of the 3rd harmonic (+3.5 dB)
- slight boost of the 5th harmonic (+2 dB)

Harmonics separation and grouping.

Setting a single bar corresponding to the desired harmonic number (from 1 to 10) to any value different from zero, while leaving the adjacent bar(s) set to zero will enable individual control of that harmonic by the height of the bar and by CC91. See the examples below.

Second harmonic increased 2 dB and controlled by CC91.

Third harmonic increased 4 dB and controlled by CC91. Sixth harmonic increased 2 dB and controlled by CC92.

Setting the adjacent bar(s) to any value with reversed polarity with respect to the first active bar will enable individual control of the corresponding harmonics by CC92 (and CC93).
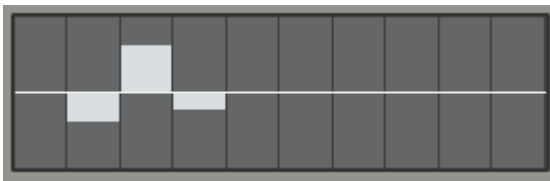
Second harmonic decreased 2 dB and controlled by CC91. Third harmonic increased 4 dB and controlled by CC92. Fourth harmonic decreased 1 dB and controlled by CC93.

Setting adjacent bars to the same polarity will create a group of harmonics.
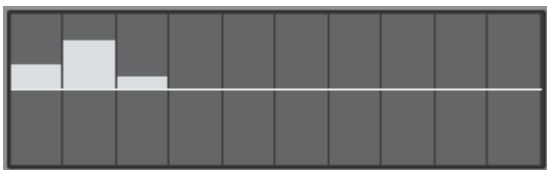
Single harmonic group (first, second and third harmonic, increased 2, 4 and 1 dB respectively), and controlled by CC91.
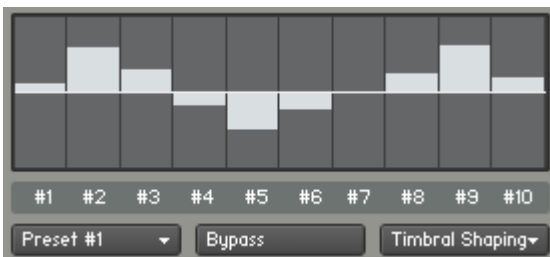
Three groups of harmonics, with different polarities, including harm. 1,2,3 - 4,5,6 - 8,9,10. The three groups are individually controlled by CC91, 92, 93, respectively.

Saving and restoring Timbral Shaping settings.

Once you're done with your Timbral Shaping settings within a certain preset, you can store it using the "save as preset" function before selecting another preset, otherwise these settings get lost. Ten presets are available, numbered from #1 to #10. They will be permanently stored only when saving the instrument, and will be immediately available upon reloading.

This example shows grouping of the first three harmonic gains, stored as preset #1.

Example presets

There are 4 example presets stored under Preset # 2 – 5:

Preset #1:
flat (no predefined settings)
Preset #2:
Boost of middle harmonics - more "nasal" or "brassy" sound, used in Trumpet 2
Preset #3:
Boost of lower harmonics for a "warmer", fuller sound, used in Trumpet 3
Preset #4:
Prepared for the use with the realtime control via CC91 – 93, where CC91 controls the first harmonic, CC92 – the second, and CC93 – the third harmonic. (all bars are set to minimal values making them "active" – see "Tip" on page 29 below)
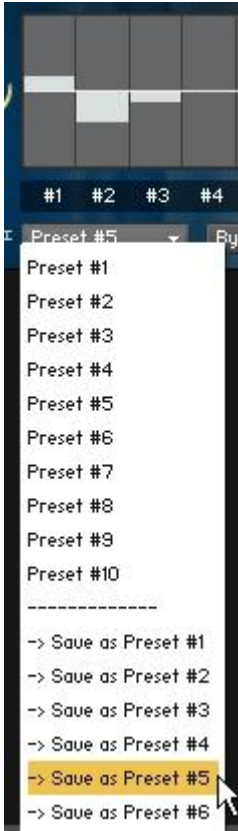Preset #5:
"Talkbox"-like effect; to be used with modulating CC90

Pressing the Bypass button temporarily switches off the effect of Timbral Shaping.

⭐ **Tip: To reset a single bar, left-click on the bar you want to reset to zero while pressing the Cntrl key. To reset all the bars simply drag across the bars while left-clicking and holding the Cntrl key .**

Note: Timbral Shaping activates an automatic loudness compensation, which keeps the overall volume virtually constant, independently of the settings of the bars and of CC91-93.

Harmonics Gain vs. external controllers.
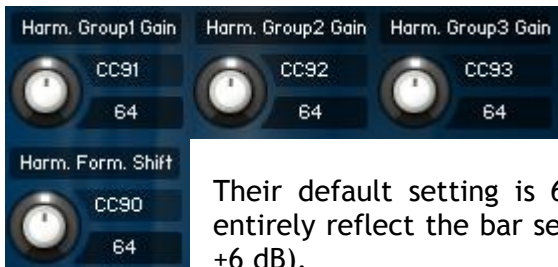
Controllers CC90 – CC93 are reserved for realtime control of the Harmonics Gain. They can be accessed and monitored on the Menu page "Controllers 4 - Timbral Shaping".

Their default setting is 64. In this "neutral", middle position the timbre will entirely reflect the bar settings in the Harmonics Gain menu (between -6 dB and +6 dB).

However, controllers CC90 – CC93 can be used to shape the timbre in real time.
Please refer to the Menu page "Controllers 4 - Timbral Shaping"for further details.

 Tip:

If you intend to use the real time control by any of the controllers CC91 – 93, consider using very small, "shallow" settings of the bars – as close to "0" as possible – like, for example, in the Preset #4. These settings – since different from zero - will make the particular harmonic "active", i.e. fully responsive to CC91 – 93. However, their level will be fully under control of the CC91 – 93 knobs in both directions (+/- 6 dB), with practically zero gain (no changes in timbre) if the controllers are set to the middle (64).

Timbral Shaping is intended to be used for:

- effective sound shaping of the instrument by permanent, gentle enhancement or reduction of certain groups of harmonics, introducing, for example, a "warmer", "softer", more "nasal" or midrange sound.
- dynamic, CC-controlled real time modulation of the tone quality, adding more "liveliness" to the sound
- special effects – like modulating the frequency of "fancy" gain settings of single harmonics, for example for some interesting vowel-like effects.
- creating fully unconventional sounds, far away from the timbre of the real trumpet.

Playing Techniques

Despite its structural complexity, this instrument is very intuitive and easy to play.

The Trumpet does not use pre-recorded articulations, and shaping the sound is the task of the player, carried out by proper use of a few midi controllers. However, extensive use of advanced Artificial Intelligence (AI) techniques greatly facilitates this task.

Our revolutionary "Adaptive Model" approach acts by minimizing the differences from the real instrument, whatever articulation or phrase you play. You can therefore concentrate on creating music, rather than mastering complex sample bank management.
Nevertheless, thorough knowledge of the controllers and the keyswitches, and some practice are certainly needed to get virtuoso effects.

Before starting to play, please <u>make sure</u> your expression pedal (or breath controller) is connected to the keyboard and properly mapped to CC11 (or CC2).

Playing range

Active notes of the Bb Trumpets are in the range of E2 – G5.
D#2 and G#5 are silent notes, useful for portamento & falls "to nowhere".
C1 to D2 are reserved for the performance keyswitches (see "Key Switches" below).

The range of the other instruments is:

German Trumpet, Flügelhorn:	E2 – C5
Cornet	E2 – G5
Piccolo Trumpet:	G#2 – G5

Basic playing techniques

Detached notes

Detached (non legato), is a note separated from the previous one by some amount of time. They consist of an attack, a sustain, and a release phase.

The type of the attack depends on the interaction between note-on velocity and CC11. As a general rule, the higher the velocity, the more "punchy" the attack. However, a much more sophisticated approach, linked to CC25, as described above in "The Controllers and their function", page 14, allows the player to shape virtually any attack from a crescendo (low key velocity) to a neutral (medium velocity) attack, to a sharp (high velocity) sforzato effect.

One can also vary the pitch-modulation depth of the attack and its duration – adding a characteristic timbral richness - acting on CC20 and CC26, respectively.

The dynamics of the sustain phase is entirely under control of CC11. You may continuously morph from *pp* to *ff* by acting on your expression pedal or breath controller.

A natural release curve is performed on note-off. The duration of the default release can be varied with CC27. The default setting of 15 corresponds to a rather short decay.
Please refer to the "Controllers" section above for more details.

Legato/Portamento notes

"Legato" means "bound together": legato notes are not separated, but rather connected to the previous note by some form of transition. The transition time (and type) between subsequent notes represents one of the most important elements of expression. If it's short, it is usually named legato. If exceeds a certain time, the transition may "carry" from one note to another by a slide, which is called "portamento". On a real trumpet, this can be achieved by skilled control of the lip tension, and/or by changing the tube length with the valves.

To get a legato or portamento with our virtual trumpet is indeed very easy. You only need to overlap subsequent notes with the appropriate velocity. The duration of legato/portamento ranges from 30 msec to about 1 sec., depending on the velocity of the overlapped note and on the played interval. Normal legato is obtained with velocities ranging from 70 to 90. Lower velocities lead to a more "trumpet-like" portamento effect. Portamento may be interrupted by overlapping a new note. This leads to the very realistic effect of a split portamento, especially if a wide interval is played in an arpeggio-like fashion.
Please note: very low velocities (below 10), which are necessary for longer portamentos, might be difficult to play on some keyboards, so the proper calibration of the velocity response of your keyboard may be very helpful. Under these circumstances we strongly recommend using our velocity remapping tool. Please refer to the Menu description above to learn more how to apply it.

Half-valve sound

To perform legato/portamento on a real trumpet, the player frequently applies the so-called "half-valve" – technique. By pressing the valves only about half way down the tone "collapses", providing a characteristic "squeezed" sound. During this very unstable status of the instrument the player is able to perform within some limits a nearly continuous glissando. In our virtual trumpet, the half valve sound is automatically activated on portamenti. Please note that, in order to maintain realism, larger portamento intervals shouldn't be played entirely with the half valve sound; instead, some intermediate, fixed notes should be inserted. This might be sometimes quite difficult to perform in realtime – for that reason some keyswitches have been programmed to perform ready-to use "split portamento" transitions. Please refer to the keyswitch section for more details.

Vibrato

An extremely important element of musical expression. The vibrato of a real trumpet has a very complex "anatomy" which can be described as a modulation of pitch, intensity and timbre. Also, vibrato intensity and frequency slightly vary over time. Our virtual trumpet creates a realistic vibrato by reproducing these subtle variations by advanced AI (Artificial Intelligence) techniques. Vibrato intensity is controlled by the ModWheel (CC1), vibrato rate - by CC19 (available also on the instrument GUI).

Note: a particular type of expressive, transient vibrato can be added by pressing F1 or F#1 keyswitch (see below).

Vibrato-like endings

If you analyse a real trumpet phrase, you will notice that some notes may have a brief, tasteful kind of vibrato at the very end. This vibrato is mostly just a single oscillation (one period) long, and adds a very typical expression to the sound. These articulations, nearly impossible to perform by the interaction of the main controllers, can be easily obtained by simply hitting a keyswitch. F1 provides a most typical, expressive end-vibrato. F#1 triggers a very expressive, short end-vibrato. Both Key Switches are of the "on-the-fly" type, which immediately affects the currently played note. A1 provides an end-vibrato upon the release of the note.

Since the intensity (via KS velocity) and duration are entirely under your control, these keyswitches are one of the most important articulation tools, allowing incredible realism to be easily achieved.

Trills / shakes & ornamentations

Realistic trills, ornamentations and shakes can be obtained by simply playing them on a keyboard. However, a very helpful retrigger feature greatly facilitates this task: upon release of an overlapped note, the previous note will be played again (retriggered) if the key is still held down. So in order to play a trill, keep the initial note pressed while pressing and releasing the other note. Try different velocities, which noticeably determine the character of the trill/shake. This technique works also in more complex ornamentations using two or more overlapping notes. Typical trumpet shakes can be played either using the technique described above, or raising the ModWheel (CC1) to 110-127. In this latter case, a very realistic vibrato-to-shake transition will be obtained.

Falls

Falls are descending glissandos going to nowhere, i.e. they just fade out and do not stop on a particular note. If performed using only the half-valve sound, which is more suitable for longer falls, they sound smoother and softer. If a "punchy" or "sloppy" fall is needed, a series of notes (usually in f-ff) is played – either chromatic, or using any other – e.g. harmonic - series of notes. These articulations may be directly executed on the keyboard by skillful players. However, more conveniently, the same effect will be obtained by using dedicated keyswitches. For more details please refer to the "Performance Keyswitches" below.

Growl & Flutter-tongue

These playing techniques provide a characteristic "dirty" sound, which is the result of a frequency modulation of the sound. The most common is "growling", accomplished by singing a tone of a different pitch (vocalizing) while playing a note. The flutter-tongue (frullato) is accomplished by modulating the airflow: while playing a note, the trumpet player flutters his tongue making the typical "Frrrrr" – sound, similar to pronouncing a "rolling R". "The Trumpet" uses 2 controllers to obtain growling and frullato effects: CC21 and CC23, where CC21 uses higher modulating frequency. To differentiate the results, they can be used separately or mixed in different proportions.

Trumpet ensembles

This package includes three Trumpets which slightly differ in timbre, dynamic response, natural pitch drift, early reflections pattern, etc. A very convincing trumpet section can be obtained by loading all three trumpets. Best result will be obtained by playing them individually, using separate tracks, and applying slightly different timing, intonation, pitch bending, portamento, vibrato depth and frequency, etc. Those small differences in sound and articulations are essential for a natural section sound. Please note that even real trumpets, if played in a very similar, "perfect" manner, may produce some phasing-like sound.

Unison Ensemble Multi   NEW!

Special consideration has been given to the creation of realistic ensembles from solo instruments playing unison. An advanced "ensemble maker" algorithm has been developed, affecting timing, static and dynamic pitch evolution, phase, response to dynamics, pitchbend, velocity, portamento times, in such a way that each instrument of the ensemble sounds as if driven from a different track even if played in unison.   Unlike conventional ensemble libraries, any articulation will always sound different,   yet real.   A ready-to-use Multi, including three specially devised Trumpets, suitable for unison playing from a single MIDI source, along with an appropriate ambience /convolution reverb, is included in the package.

The screenshot below shows the three trumpets included in the Multi, displayed in the reduced instrument header view, (rather than in the larger Performance View).

Clicking on the small AUX icon on the right margin of the instrument opens the AUX sends section of the instrument, as shown above. They control the amount of the reverb separately for each instrument. The convolution reverb itself can be accessed in the Output section of the Kontakt/Kontakt Player (see Kontakt Manual for details).

[BC] and [WC] are versions ready to play with a Breath or Wind Controller.

Tip: while opening a multi, the following question appears: "Replace multi (pressing `No` will merge in the new instruments)?". Click on "YES" if you want to load the multi with the convolution reverb. Click on "NO" only if you need a setup without ambience/reverberation, or you prefer to use your own reverb.

Note: loading multiple instruments on a single instance of Kontakt leads to a less efficient use of the multiple cores, and to an increased CPU load. In case you are experiencing excessive CPU load and/or dropouts with this Multi, we strongly recommended to use a separate instance of Kontakt for each instrument. Please load the Trumpets labeled "for unison ensemble". They are perfectly suitable for unison playing even if driven from a single MIDI source. Please note that in this case the ambience / reverb must be provided by the user.
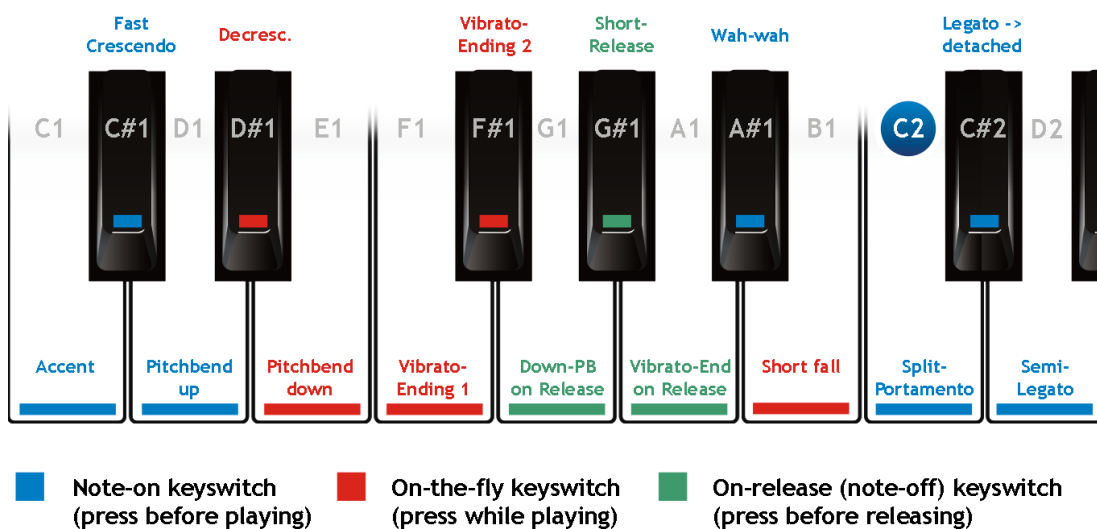
The Performance Keyswitches

Basic concepts

The keyswitches (KS) are conceived to ease the task of shaping complex articulations or phrases which are impossible or too difficult to perform with the usual interaction of the expression pedal, pitchbend and modwheel.
For example, accent, fast crescendo, upward pitchbend, on-the-fly modulation and different types of release, can be obtained by hitting one or more of the modulating keyswitches.

Non-modulating keyswitches perform several specific tasks, such as wah-wah effects, automated split portamentos and other typical phrases, such as falls or semi-legato.

The reserved keyswitch range is C1 – D2

The Trumpet Keyswitch Assignment

| Note-on keyswitch (press before playing) | On-the-fly keyswitch (press while playing) | On-release (note-off) keyswitch (press before releasing) |

C2 key activates the Second Level Keyswitches:

| Split-portamento or glissando | Fall | Doit |
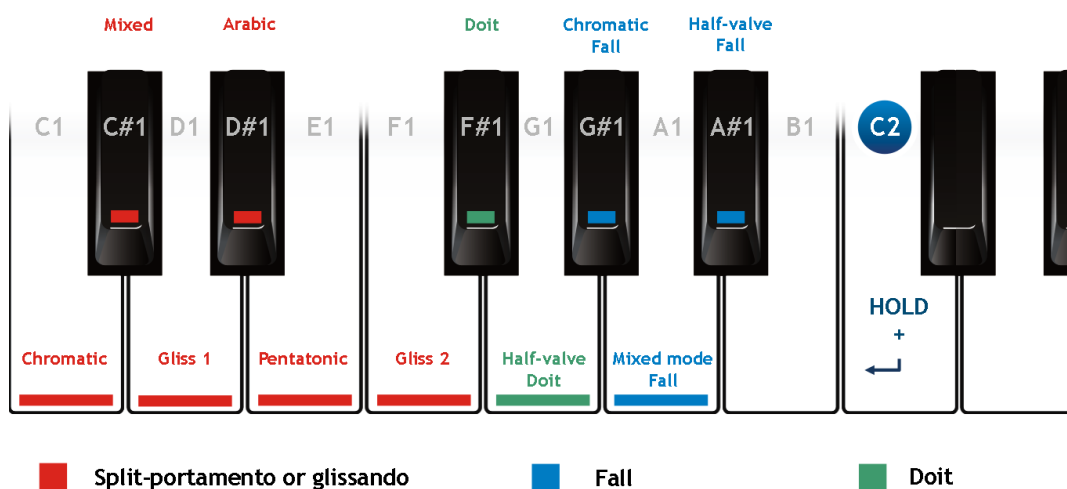
Three types of modulating KS are available:

1) Note-on KS (C1-D1). When held down, these KS will affect the next detached note(s).
2) On-the-fly KS (D#1- F#1). They immediately affect the currently played note, adding some characteristic modulation patterns.
3) Note-off KS. (G1 – A1). They affect the release of the current note(s).

Three types of non-modulating KS are also available:

1) Wah-wah effect (A#1)
2) Default fall (B1)
3) Modeled split portamento and falls (C2)

Note-on, legato/portamento, on-the-fly and release KS do not produce repetitive, stereotypical patterns, as a presampled articulation would do. Rather, they act by modulating the note so that the current dynamics, pitch and evolution are preserved. This ensures that a virtually infinite series of nuances can be elicited by pressing a single KS.

The intensity of the effect carried out by a modulating keyswitch is linked to the KS note-on velocity (from none to slightly excessive, for special effects).

The duration of the modulating KS articulation has a default value of 64, which is generally most appropriate. It can, however, be varied by holding down just the selected KS while setting CC26 (for note-on) or 27 (for release) to the desired value.

Note-on and legato/portamento keyswitches

C1: *Accent.* Adds an accent to the next detached note(s).

C#1: *Fast Crescendo.* Imparts a slight crescendo pattern to the next detached and legato note(s).

D1: *Upward pitchbend.* Applies an upward pitchbend to the next detached note(s).

On-the-fly keyswitches

D#1: *Transient Vibrato.* Adds a particular type of expressive, transient vibrato to the current note.

E1: *Fading Vibrato.* Adds a characteristic, short fading vibrato to the current note.

F1: *Vibrato-like ending #1.* Modulates the current note with a typical vibrato-like pattern.

F#1: *Vibrato-like ending #2.* Modulates the current note with a characteristic, shorter and more "definitive" vibrato-like pattern.

Note-off keyswitches

G1: *Release pattern #1.* Imparts a longer, rich release pattern to the next note- off.

G#1: *Release pattern #2.* Imparts a characteristic, vibrato-like ending release pattern to the next note-off.

A1: *Release pattern #3.* Imparts a characteristic, vibrato-like ending release pattern to the next note-off. Very suitable for faster sequences.

Tip: note-on, on-the-fly and note-off KS may be simultaneously activated for multiple modulations. For example, by holding down C0 and A0, one can obtain an accented pattern with vibrato-like endings on each next staccato note.

Note: CC26 also allows to modify the relative duration of each note-on and on-the-fly keyswitch. To perform this, you need to set the controller while holding down the keyswitch. Similarly, CC27 will allow to modify the relative duration of each release keyswitch. A message on the lower bar will report the new value. Please note that this new value will be stored along with the instrument, replacing the default. By pressing a keyswitch, the associated value will be displayed on CC26 and CC27 GUI knobs.

Non-modulating keyswitches

A#1: *Wah-wah effect.* This KS activates the wah-wah effect of the plunger mute. In this mode, CC11 directly modulates the "wah-wah" effect itself, i.e. the degree of the plunger closure. Both a momentary and a toggle mode are available. The momentary mode is activated when the KS A#1 is hit at velocities below 64. In this case the wah-wah effect will be active as long as the A#1 KS is kept pressed. Velocities above 64 activate the toggle mode, which maintains the wah-wah until the A#1 KS is hit again. Please note that, in order to avoid glitches in the audio output, activation/deactivation of the wah-wah will actually take place at the end of the currently played note or phrase. The wah-wah effect can also be used with all the other mutes.

B1: *Short fall.* This KS reproduces a typical short fall from the currently played note. This obviates the necessity of playing a very quick scale with staccato notes to get the same effect. The fall starts upon pressing the KS. The duration of the fall is determined by the KS velocity. The fall can be interrupted, before its natural end, by releasing the KS, or by playing a new note.

C2: *Automated split portamento.* This KS modifies the normal portamento pattern into a harmonically based, split portamento, very typical for a trumpet. This obviates the necessity of playing a very complex arpeggio with staccato notes, instead of just overlapping the start and destination notes. The overall portamento duration is similar to that of a normal portamento, and is therefore determined by the velocity of the overlapped note, and by the played interval.

Note: C2, pressed along with another KS, such as C1 to A#1, will activate non-default, different types of split portamento and falls:

C2 + C1:   chromatic split portamento
C2 + C#1:   mixed split portamento (half & full steps)
C2 + D1:   half-valve portamento
C2 + D#1:   Arabic scale split portamento
C2 + E1:   pentatonic scale split portamento
C2 + F1:   mixed mode half-valve portamento
C2 + F#1:   doit (upward gliss)
C2 + G1:   half-valve doit
C2 + G#1:   chromatic long fall
C2 + A1:   mixed fall (half & full steps)
C2 + A#1:   half-valve fall

Appendix 1

Using the Convolution Reverb

Both Kontakt 5 Player and Sampler have a built-in convolution reverb. It is capable of recreating a reverb of real acoustic environment previously sampled and stored as an IR (Impulse Response). Even if you do not own the full Sampler, you can apply this high quality reverb to any patch using the Player included in this library. Open the output section of the Player and insert the Convolution into the Aux channel. Click on "Conf" and make sure that the output of the Aux channel is routed to the main output. Open the convolution unit (double-clicking on the insert) and drag-and-drop any Impulse Response (as "wav" file) into its editor window. You will find a small library of the IRs in the Player folder (Kontakt 5 > Presets > Impulses). Move the slider "DRY" to zero to eliminate the direct (dry) signal.

For more details refer to the Kontakt Player Guide.

The Reverb Multi

A useful application of the convolution reverb described above is supplied with the Trumpet package within the "Multis" folder as "Reverb Setup.nkm". This is an "empty" setup loading a convolution reverb inserted in the output section of Kontakt. While loading this Multi, the following question appears:
"Replace multi (pressing `No` will merge in the new instruments)?"
Click on "YES", otherwise the convolution reverb will not be loaded.

The Amount of reverb can be controlled by the Aux slider (reverb send) of any loaded instrument as shown below. To make the Aux sliders visible, click on the small "Aux" icon in the right upper corner:

The above Multi uses an example impulse response encoded in the library. There are further impulse responses in the Kontakt player folder – see "Using the Convolution Reverb
" above. You can exchange them by drag & drop. Please refer to the Kontakt / Kontakt Player manual for further details:
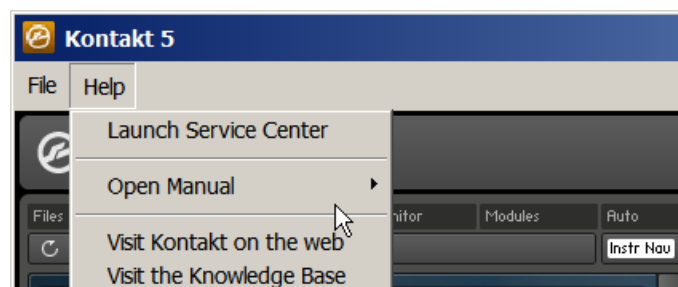
Appendix 2

Moving from one computer to another

If you wish to move our instruments to your new computer, please follow the steps below:

1. Make sure that you know your serial number (license key) you received after the purchase. The number can be also viewed in your Service Center (the utility/application belonging to the Kontakt software) or in your Native Instruments account.

2. Install/copy the instruments exactly like you did on your first computer. Alternatively, you can copy the library folder (e.g. "The Trumpet v. 3") from the old to the new computer. Please note: this is possible even if you change from PC to Mac or vice versa.
3. Remove the library from the Kontakt/Kontakt Player on your old computer using the "Remove" function in the Kontakt browser (the small gear-wheel icon near the "i" icon).

Delete completely all the product-related files from the old computer.

4. Perform the product activation on your new computer using the "Add Library" function, as described in the Installation Guide.

Technical Support

All questions related to the installation and activation of The Trumpet, or those pertinent to the Kontakt sampler/player, or the host (sequencer, DAW etc.), should be addressed to Native Instruments support:
http://www.native-instruments.com/support.info

Specific questions on how to use The Trumpet should be emailed to Samplemodeling™,

info@samplemodeling.com,

or via the contact page on our website:
http://www.samplemodeling.com/en/contact.php,

providing as much information as possible on the system, including computer, OS, audiocard, Kontakt version and sequencer and the settings. A MIDI file showing the problem is usually the best approach to debugging.

Technology-related questions, exchange of experiences, tips & tricks, examples, demos (mp3) can be posted in our forum:
http://www.samplemodeling.com/forum

after registration.

For future **Updates** of the Trumpet 3 please check the UPDATE tab within the **Service Center** – the utility belonging to the Kontakt software. Refer to the Kontakt Manual for more details.