Hummingbird

ULTRA REAL-SOUNDING VIRTUAL ACOUSTIC GUITAR

USER MANUAL

Prominy
Sound Solution.

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Introduction

Prominy Hummingbird

Ultra Real-sounding Virtual Acoustic Guitar - The true sound of Gibson® 1963 Hummingbird
- includes approx. 80GB*, 89,000 samples

(Hummingbird uses the Lossless Sample Compression format 'NCW' with real-time encoding. The data size after the installation is approx. 40 GB that equals 80 GB of .wav files.)*

Hummingbird enables you to compose and create powerful and natural acoustic guitar tracks that imitate real acoustic guitar playing!

1. Incredible real-time playability – Hummingbird SPI (Super Performance Instrument)

With Hummingbird SPI, you can play ultra realistic acoustic guitar performance in real-time. You can access various playing techniques instantly without stopping your performance and create convincing guitar tracks very quickly.

Single note
Emulated 2-strings dyad chords
(minor 2nd, 2nd, minor 3rd, major 3rd, 4th, flat 5th, 5th, #5th, 6th, 7th, maj7th, octave)
Sampled real chords
(octave, major, minor, 7th, m7, maj7, add9, sus4, 9th, m7$^{(9)}$, maj7$^{(9)}$, dim7, aug, open / low chords, etc.)
Emulated chords
(major, minor, 7th, m7, maj7, add9, sus4, 7sus4, 9th, #9, m7$^{(9)}$, maj7$^{(9)}$, dim, dim7,m7^{-5}, aug, open / low chords, etc.)
User chords
(You can make any chords using User Chord Editor.)
Realtime Hammer-on & Pull-off
Realtime Legato Slide
Vibrato
Trill
Picking Tremolo
Mute & picking noise
Gliss down
Natural Harmonics
Percussion
Fret noise, Pick stop noise, Bridge mute noise, Release noise, Position change noise
Special FX
etc.

2. Fretboard Monitor

The SPI automatically selects a proper string / fret position depending on the situation. You can also change the string manually by key switches. The Fretboard Monitor visualizes the current fret position / playing technique you are playing.

3. Auto Stroke Detection

With the SPI's Auto Stroke Detection feature, SPI automatically detects the current beat position and identify proper stroke direction (down or up). There are several stroke detection modes and you can also control stroke direction manually.

4. Realtime Legato Slide

With Hummingbird's Realtime Legato Slide feature using 'real' legato samples, you are able to get perfectly real expressions of the human finger's legato slide that cannot be reproduced with a slide emulation by changing pitch.

5. Real sampled chords

The extensive number of the 'real' chord samples makes your guitar tracks very convincing. (octave, major, minor, 7th, m7, maj7, add9, sus4, 9th, $m7^{(9)}$, $maj7^{(9)}$, dim7, aug, open / low chords, etc.) Hummingbird includes the huge number of 'real' recorded (in other words, 'pre-recorded' or 'pre-played') chord samples. You can instantly access the various types of guitar chords. Prominy's guitar libraries are the only ones that include such a huge number of the real chord samples.

6. Real emulated chords

Though Hummingbird already includes a huge number of real chord samples, more chords (and more chord shape variations per each chord) are available with the emulated chords. Our unique recording / programming make it possible for you to get a realistic chord sound that is close to a real sampled chord sound, even if you are playing emulated chords.

minor 2nd-dyad , maj2nd-dyad, minor 3rd-dyad, major 3rd-dyad, 4th-dyad, flat 5th-dyad, 5th-dyad, #5th-dyad, 6th-dyad, 7th-dyad, maj7th-dyad, octave-dyad, major, minor, 7th, m7, maj7, add9, sus4, 7sus4, 9th, #9, $m7^{(9)}$, $maj7^{(9)}$, *dim, dim7,* $m7^{(b5)}$, *aug, open / low chords, etc.*

7. User Chord

User Chord Editor enables you to build your own chord shapes and make any chords you like. Each string is fully customizable and you can configure how the string is played using the User Chord Editor. (For example, normal sustain or mute or picking noise, always play open string regardless the fret position, strum the string or not, root string, etc.)

8. Customizable Strum Key

As well as the User Chord Editor, you can configure how each string is played when you hit the Strum Keys and the Normal Key.

9. Arpeggio Key
Arpeggio Key is a dedicated key for each string. When a chord instrument is selected, each note of the chord is automatically assigned to the Arpeggio Key for the string so you can play arpeggio with the keys.

*This is not a so-called ‘Arpeggiator’. This is a feature that enables you to play a certain note (string) of the chord individually.

10. True stereo recording
The samples were recorded using three microphones; a pair of small diaphragm microphones for stereo recording, and one large diaphragm microphone for monaural recording. As a stereo option for the large diaphragm microphone, a Double-Tracking instrument is available (see below).

11. Double-Tracking
In addition to the stereo recorded samples that capture a natural stereo sound, Double-Tracking instruments are available as another option to get a stereo sound. ‘Double-Tracking’ is a technique that is frequently used in recording guitar tracks. It gives the guitar track a nice, wide-spread stereo images and thickness. With Hummingbird SPI, you can reproduce it very easily just by loading the double-tracking instruments. No identical samples are played simultaneously in both channels. You don't need a stereo delay or tweaking your midi data to emulate the double-tracking.

12. Intelligent Instrument Key Switch with chord recognition
You can instantly select an instrument (articulation) using the Instrument Select Key Switches. All the instruments can be assigned to any key switches and you can create your own key switch mapping. The key switches have a chord recognition feature that enables you to select a chord instrument by not only hitting a key that the chord is assigned, but also by hitting the chord notes in the key switch range. In other words, you don’t need to memorize the key switches for the chord instruments. Just hold the chord notes in the key switch range, and you are ready to play the chord.

[The guitar used for recording]
1963 Gibson Hummingbird (very rare maple back and sides, 25.5 inches long scale)
Strings: D’Addario Phosphor Bronze light .012 - .053
Pick: DUNLOP ULTEX 0.60

System Requirements

Mac OS X 10.8, 10.9 or 10.10 (latest update), Intel Core 2 Duo

Windows 7 or Windows 8 (latest Service Pack, 32/64-bit), Intel Core 2 Duo or AMD AthlonTM 64 X2

4 GB RAM (6 GB recommended for large Instruments)

41 GB free disc space
Hi speed Internet connection

Kontakt Player 5 included - No sampler required

SUPPORTED INTERFACES
Stand-alone, VST, Audio Units, ASIO, Core Audio, AAX Native (Pro Tools 10 or higher)

[IMPORTANT] Preload buffer size configuration

Please check your preload buffer size before loading the instrument.
Hummingbird is a very big instrument that loads a huge number of samples. You need to configure the preload buffer size in Kontakt's option because the default pre-load buffer size is too large. If you have not changed the preload buffer setting yet, decrease the pre-load buffer size.

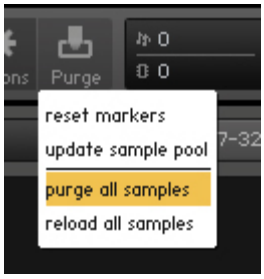
1. Click the Options button;

and select the 'Memory' tab.

2. Check the box and minimize (or set to 12kb); 'Override Instrument's preload size'.

The buffer size ('Override Instruments preload size') in the picture is 6kb, but if you load a big instrument, we recommend 12kb to play the samples smoothly. If the samples are not played smoothly with 12 kb, increase the buffer size as needed unless RAM runs out. It depends on the system, but in most cases 12 kb should work fine. By decreasing the preload buffer size, loading time becomes much shorter and you can save a big RAM space.

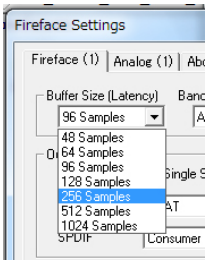
Purge All Samples and 'on the fly streaming'



Another great way to save RAM is using the 'purge all samples' feature of Kontakt Player / Kontakt. After loading the multi / instruments, click on the 'Purge' icon and select 'purge all samples'. If your system is not so old, Kontakt Player should load previously unloaded samples on the fly when you play notes. If your RAM space is tight, it's worth trying.

If you get a noise at the beginning of the note when you play a big instrument…

A big multi that includes many instruments requires a certain amount of processing power. If you get a noise at the beginning of the note, *increase* the latency size of your audio interface (not 'decrease', unlike with the preload buffer size in Kontakt Option). For detail about changing the latency size, please refer to your audio interface manual.



Hummingbird

Instrument

Instrument files (.nki)

Mono

Hummingbird_L (large diaphragm microphone)
Hummingbird_S (small diaphragm microphone)

Stereo

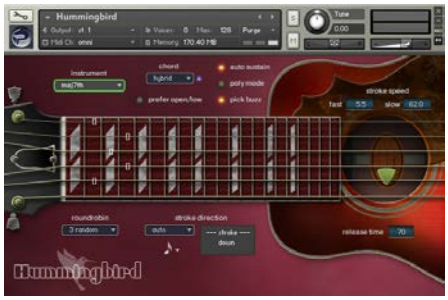
Hummingbird_L_doubletrack (large diaphragm microphone)
Hummingbird_S_doubletrack (small diaphragm microphone)
Hummingbird_stereo (a pair of small diaphragm microphones)

lite

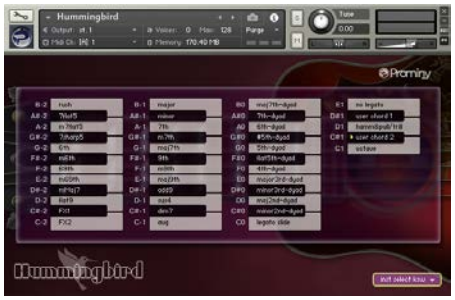
The .nki files in the 'lite' folder are lite versions that require less RAM space than the full versions do. They don't include the real chord samples and the hybrid mode cannot be selected. (emulated chords only)

Interface

Fretboard

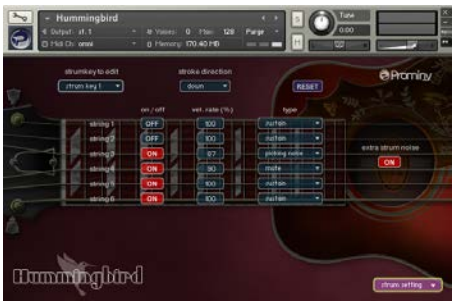


Instrument Select Key Switch



Play Key (Hold Key & Stop Key)

Strum setting

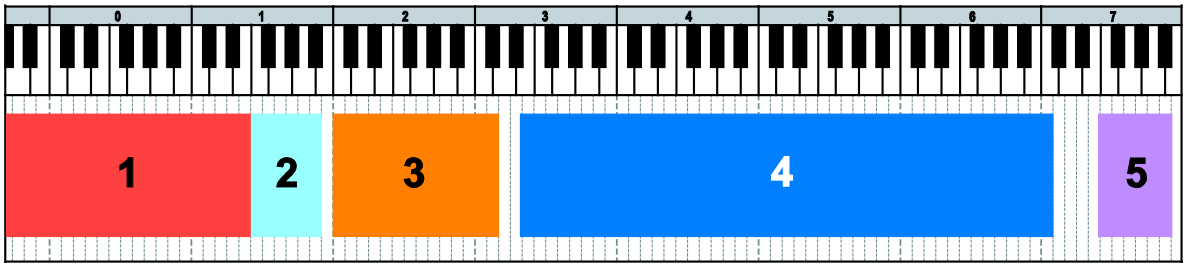


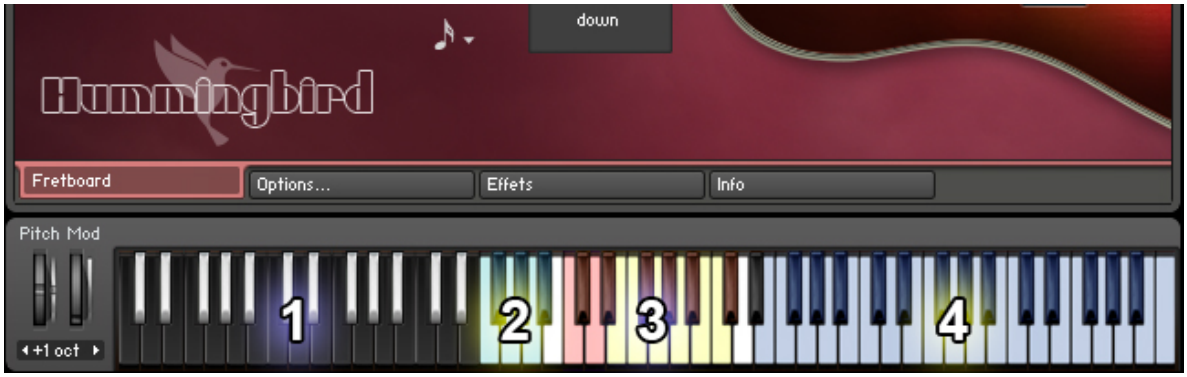
User Chord

Other settings

Effects

Key ranges





1: Instrument select key switch [C-2 - E1]
selects the instrument (articulation) to play.

2: Play Key (Hold Key & Stop Key) [F1 - A#1]
enables you to play gliss down, picking noise, fret noise, etc., also can be used as a 'repeat same note' key.

3: Strum Key & Arpeggio Key
Strum Key [C2, C#2, D2, D#2, F#2, G#2, A#2, C#3]: You can strum chords with the pre-configured Strum Keys.

Arpeggio Key [E2, F2, G2, A2, B2, C3]: When a chord instrument is selected, each note of the chord is automatically assigned to the Arpeggio Key for the string.

4: Normal Key [E3 - C7]
is the main range in which most of articulations such as chord strumming, solo (lead), legato slide, hammer-on, pull-off, etc. can be played.

5: String / Chord shape select key switch [F7 - A#7]
selects the string or chord shape.

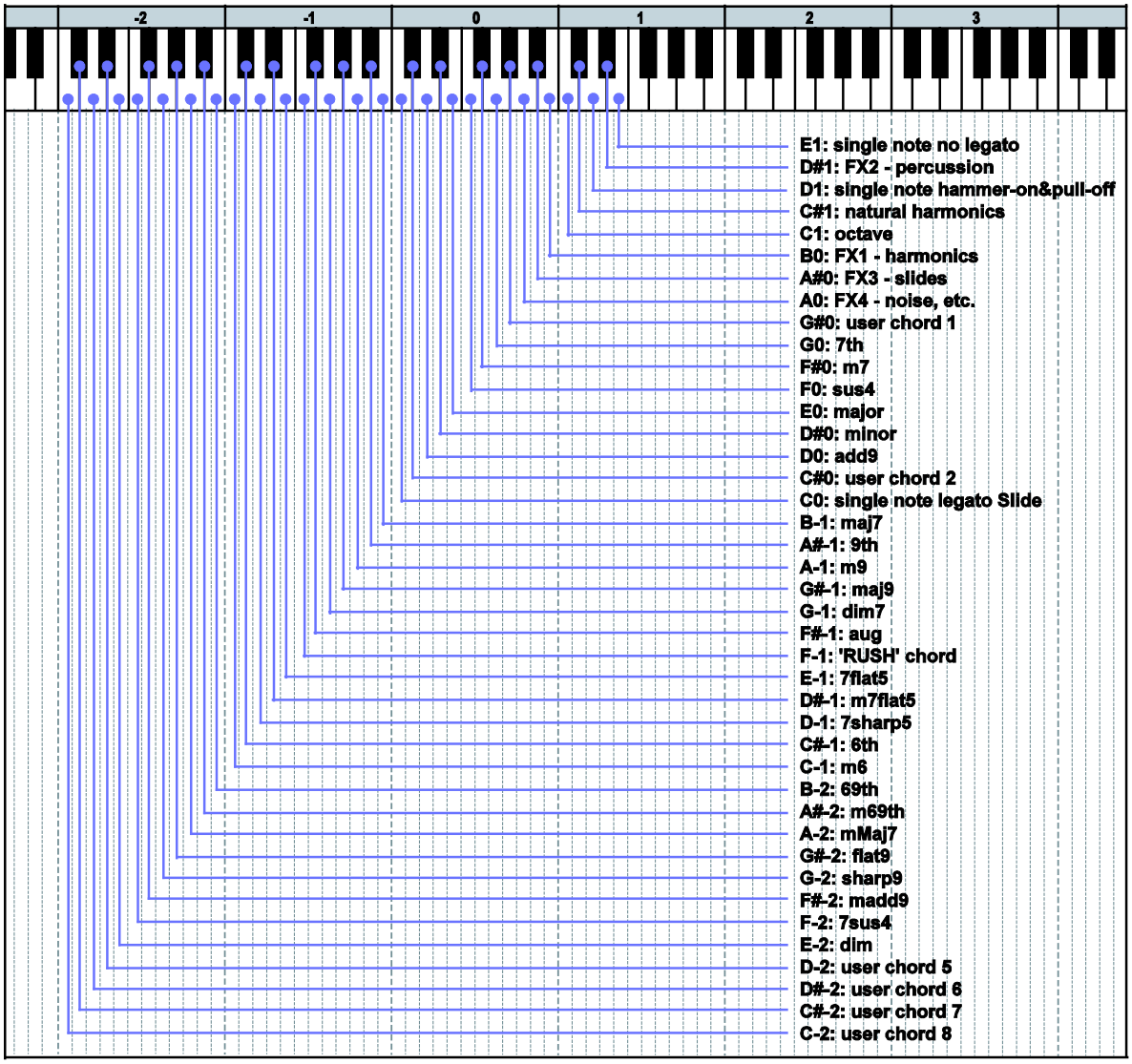
Instruments

single note		
single legato slide hammer-on&pull-off / trill no legato		
dyad chord		
minor2nd major2nd minor3rd-dyad major3rd-dyad 4th-dyad flat5th-dyad	5th-dyad #5th-dyad 6th-dyad 7th-dyad maj7th-dyad octave	
chord		
major minor 7th m7 maj7 $7^{(9)}$ (9th) $m7^{(9)}$ (m9) $maj7^{(9)}$ (maj9) add9 sus4 dim7 aug rush	$7^{(b5)}$ (flat5) $m7^{(b5)}$ $7^{(\#5)}$ (7sharp5) 6th m6th $6^{(9)}$ (69th) $m6^{(9)}$ (m69th) mMaj7 $7^{(b9)}$ (flat9) $7^{(\#9)}$ (sharp9) madd9 7sus4 dim	user chord 1 user chord 2 user chord 3 user chord 4 user chord 5 user chord 6 user chord 7 user chord 8 user chord 9 user chord 10
FX		
natural harmonics FX1 - harmonics FX2 - percussions FX3 - slides FX4 - noise, etc.		

Instrument select key switches

(default)

assigned	not assigned
E1: single note no legato	minor 2nd-dyad
D#1: FX2 - percussion	major 2nd-dyad
D1: single note hammer-on&pull-off	minor 3rd-dyad
C#1: natural harmonics	major 3rd-dyad
C1: octave	4th-dyad
B0: FX1 - harmonics	flat5th-dyad
A#0: FX3 - slides	5th-dyad
A0: FX4 - noise, etc.	#5th-dyad
G#0: user chord 1	6th-dyad
G0: 7th	7th-dyad
F#0: m7	maj7th-dyad
F0: sus4	user chord 9
E0: major	user chord 10
D#0: minor	
D0: add9	
C#0: user chord 2	
C0: single note legato Slide	
B-1: maj7	
A#-1: 9th	
A-1: m9	
G#-1: maj9	
G-1: dim7	
F#-1: aug	
F-1: 'RUSH' chord	
E-1: 7flat5	
D#-1: m7flat5	
D-1: 7sharp5	
C#-1: 6th	
C-1: m6	
B-2: 69th	
A#-2: m69th	
A-2: mMaj7	
G#-2: flat9	
G-2: sharp9	
F#-2: madd9	
F-2: 7sus4	
E-2: dim	
D-2: user chord 5	
D#-2: user chord 6	
C#-2: user chord 7	
C-2: user chord 8	



How to select instrument

Press one of the keys above. For example, if you would like to activate the single note legato slide, press the key; C0. (Click here to see playable key ranges of each instrument.)

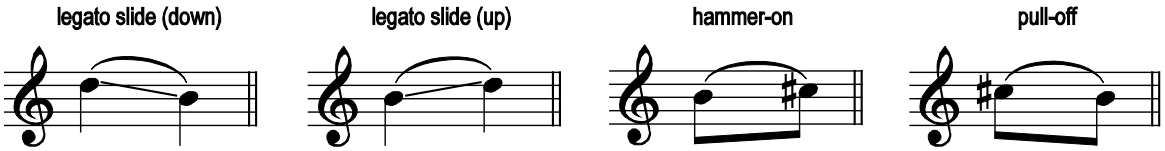
How to select a chord instrument (chord recognition)

You can select a chord by pressing the chord notes within the instrument select key switch range (C-2 - E1). The root note needs to be the lowest. After selecting the chord, hit just the root note within the Normal Key range (E3 - C7) to play the chord.

[Tips]

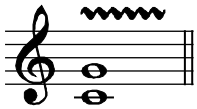
Did you notice that some of the instruments (dyad chords and some user chords) are not found in the list above? Don't worry; you can select chord instruments using the chord recognition feature. That's why the chords are assigned to the lower key switch ranges and some of the chords are not assigned to the key switches

Realtime Legato Slide / Realtime Hammer-on& Pull-off



You can play legato slide by holding down one note while playing the next note to connect those notes within the Normal Key range. Realtime Hammer-on&Pull-off is available with single note instrument. Realtime Legato Slide feature is available with all the instruments including chord instruments except FX instruments and Percussions. (not available when the 'prefer open / low chord' is active)

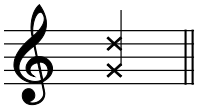
Vibrato



Vibrato can be played using Aftertouch. If your keyboard doesn't have Aftertouch function but has an assignable slider or a knob, you can assign Aftertouch to the slider / knob.

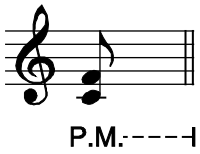
You can also handle Aftertouch using your DAW. For detail about Aftertouch, please refer to your keyboard controller manual and DAW manual. Vibrato is available with the single note instruments and dyad chords.

Picking noise



You can play picking noise using the Play Key; G#1. When a chord instrument is active, the Play Key triggers a real pre-recorded chord strum noise.

Mute



Mute is available using Modulation wheel (CC#1) or velocity switch with all the instruments except FX instruments, Natural harmonics and Percussions. You can also play picking noise using Modulation wheel (CC#1).

default setting:

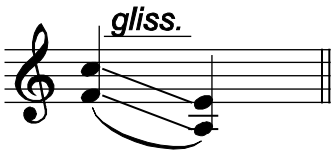
mute mode: mod wheel

mute MIDI CC# 1 threshold: 31

picking noise MIDI CC# 1 threshold: 126

Mute is played if the value of MIDI CC# 1 is higher than 31. Picking noise is played if the value of the MIDI CC# 1 is 127.

Gliss down (using Hold Key)



Hold Key: F#1
Gliss down samples can be played using the Hold Key; F#1. If you release the original note (played within the Normal Key range) while F#1 is held down, the original note is stopped and a gliss down sample is triggered. Gliss down is available with all the instruments except FX instruments and Percussions.

You can assign gliss down to a different Play Key. For detail, please refer to the '[Play Keys (hold keys and stop keys)](#)' section.

Gliss down speed
3 types of gliss down speed (fast, mid, slow) are available. You can also select the gliss down speed in the Play Keys configuration page or MIDI CC# 4.

**Gliss down samples are not available on the 2nd fret or lower.*

MIDI CC# 4	gliss down speed
0 – 42	fast
43 – 85	mid
86 – 127	slow

Fast / Slow stroke

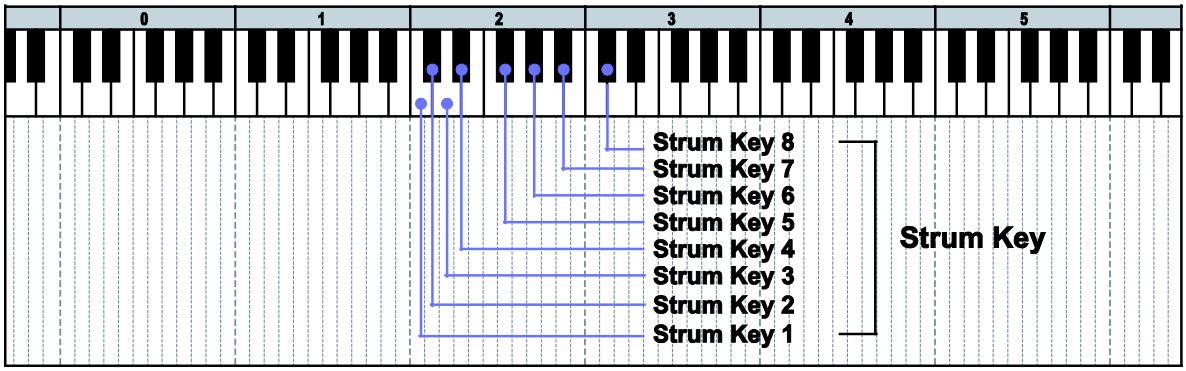
You can switch fast / slow stroke using MIDI CC# 3 if a chord instrument is selected.

MIDI CC# 3
0 – 63: fast stroke
64 – 127: slow stroke

The each stroke speed can be controlled via MIDI CC# 22 & 23. (emulated chords only) For detail, please refer to the stroke speed section.

Strum Key

The Strum Keys can be customized. For details, please refer to the '[Strum setting](#)' section.



Strum Key 1 [C2]: full strum down stroke

Normal sustain down stroke samples (all strings) are triggered.

Strum Key 2 [C#2]: full strum up stroke

Normal sustain up stroke samples (all strings) are triggered.

Strum Key 3 [D2]: mute down stroke

Mute down stroke samples (string 4, 5, and 6) are triggered. String 1, 2, and 3 are stopped and not strummed.

Strum Key 4 [D#2]: mute up stroke

Mute up stroke samples (string 4, 5, and 6) are triggered. String 1, 2, and 3 are stopped and not strummed.

Strum Key 5 [F#2]: lower strings down stroke

Normal sustain down stroke samples (string 4, 5, and 6) are triggered. It neither stops nor strums string 1, 2, and 3.

Strum Key 6 [G#2]: lower strings up stroke

Normal sustain up stroke samples (string 4, 5, and 6) are triggered. It neither stops nor strums string 1, 2, and 3.

Strum Key 7 [A#2]: higher strings down stroke

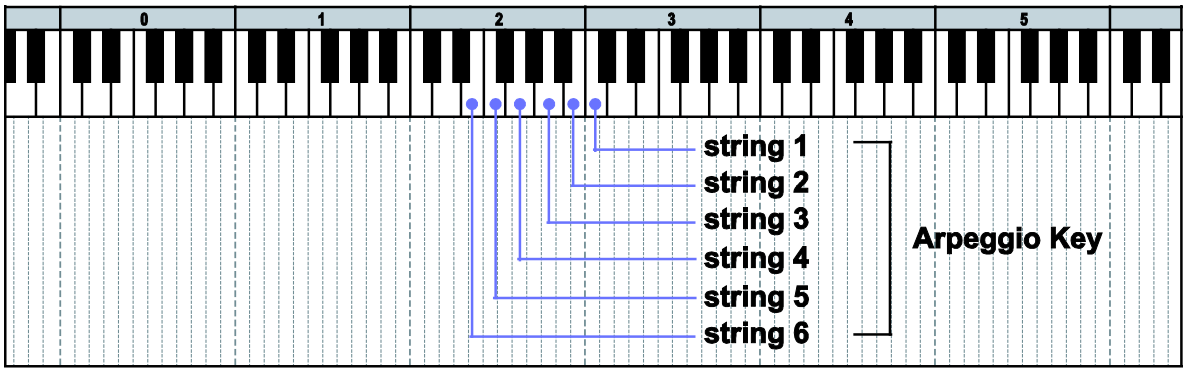
Normal sustain down stroke samples (string 1, 2, and 3) are triggered. It neither stops nor strums string 4, 5, and 6.

Strum Key 8 [C#3]: higher strings up stroke

Normal sustain up stroke samples (string 1, 2, and 3) are triggered. It neither stops nor strums string 4, 5, and 6.

If a single note instrument is active, the Strum Keys work as 'repeat same note ' keys. (The [strum settings](#) are ignored.) The Strum Keys don't work with the FX instruments and Percussions (The note is released when the Strum Key is used and no samples are triggered.).

Arpeggio Key



Arpeggio Key is a dedicated key for each string. When a chord instrument is selected, each note of the chord is automatically assigned to the Arpeggio Key for the string so you can play arpeggio with the keys.

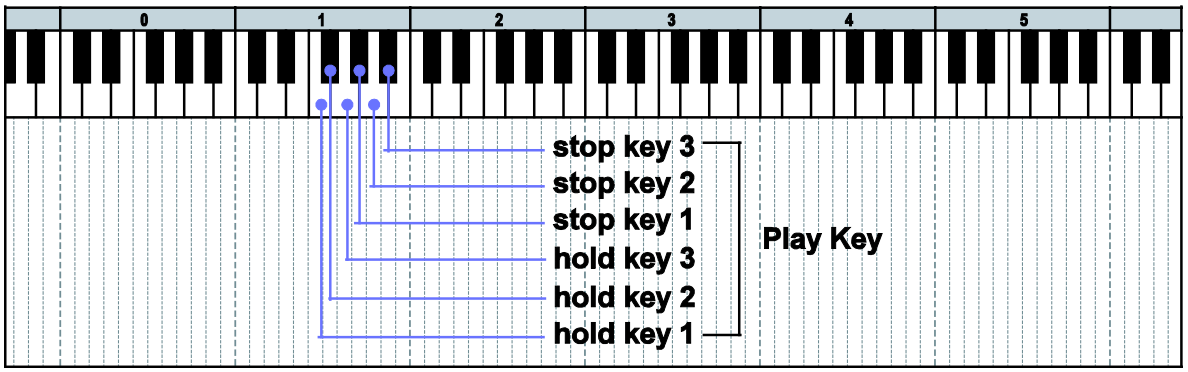
For example, if the chord; Em7 (root: string6) is played or selected, the following notes are assigned to the Arpeggio Keys;
C3 (string 1): E
B2 (string 2): B
A2 (string 3): G
G2 (string 4): D
F2 (string 5): B
E2 (string 6): E

If the chord is Aadd9 (root: string 5);
C3 (string 1): E
B2 (string 2): B
A2 (string 3): A
G2 (string 4): E
F2 (string 5): A
E2 (string 6): no sound

If the chord is octave-dyad (root: B on string 5);
C3 (string 1): no sound
B2 (string 2): no sound
A2 (string 3): B
G2 (string 4): picking noise
F2 (string 5): B
E2 (string 6): no sound

**This feature is not a so-called 'Arpeggiator'. This is a feature that enables you to play a certain note (string) of the chord individually.*

Play Key



Hold Key 1 [F1]: finger release noise and fret noise
Pick stop noise and finger release noise are triggered when the note is released while the Hold Key; F1 is held down.

Hold Key 2* [F#1]: gliss down
Gliss down is triggered when the note is released while the Hold Key; F#1 is held down.

Hold Key 3 [G1]: fret noise & position change noise
Fret noise and position change noise are triggered when the note is released while the Hold Key; G1 is held down.

Stop Key 1 [G#1]: picking noise
Picking noise is triggered when the Stop Key; G#1 is pressed.

Stop Key 2 [A1]: muted brush noise
Bridge mute noise is triggered when the Stop Key; A1 is pressed.

Stop Key 3 [A#1]: repeat same note
The same note as the previous one is triggered when the Stop Key; A#1 is pressed.

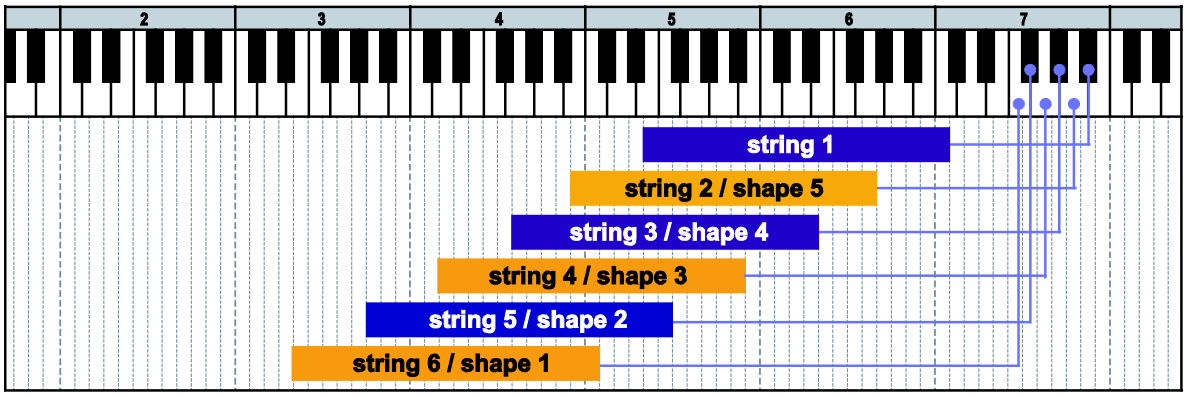
** not available with the FX instruments and Percussions (The note is released and no samples are triggered when the Play Key is used.)*

The Play Keys can be customized. For details, please refer to the ‘Play Keys (hold keys and stop keys)’ section.

String / chord shape select key switch

The SPI automatically selects a proper string / fret position depending on the situation, but you can change the string (or root string) for the next note manually by pressing the string select key switch. The string key switches work only to the next note. (The string select key switches are customizable. For detail, please refer to the 'String / chord shape select key switches' section.) The string key switches also work as 'chord shape select key switches'. If you would like to use a different chord shape of the chord, you can select it using this feature. You can find what chord shape variations are available in the Mapping & Key range.

String / chord shape select key switch (default)



MIDI note names and note numbers

key switch	MIDI note #	string / chord shape
A#7	118	String 1
A7	117	String 2 / chord shape 5
G#7	116	String 3 / chord shape 4
G7	115	String 4 / chord shape 3
F#7	114	String 5 / chord shape 2
F7	113	String 6 / chord shape 1

Forced string select via MIDI CC

You can forcedly stay on the same string by using MIDI CC# 53.

MIDI CC# 53:

0: forced string select OFF

1 - 21: string 6 / chord shape 1

22 - 43: string 5 / chord shape 2

44 - 65: string 4 / chord shape 3

66 - 87: string 3 / chord shape 4

88 - 99: string 2 / chord shape 5

100 - 127: string 1

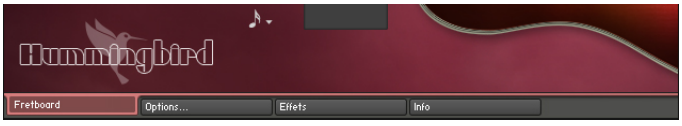
[Tips] Unlike 'Forced string select key switches', MIDI CC# 53 enables you to stay on the same string unless the note is out of the range of the string.

Hummingbird

Customizing Instruments

Fretboard

The Fretboard Monitor visualizes the current stroke direction / fret position / playing technique you are playing. The SPI automatically selects a proper string / chord shape (fret position) depending on the situation. You can also change the string / chord shape manually by String / Chord shape Select Key Switches or MIDI CC# 53.



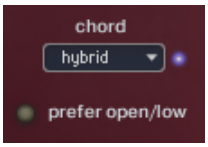
Click the ‘Fretboard’ tab to show the fretboard monitor.

Instrument

shows what instrument is currently selected. You can click this pull-down menu and select the instrument (articulation) you would like to play.

Chord

(works only with chord instruments)



Sampled chord mode

Hybrid - triggers real recorded chord samples if available, emulated chords are played if real recorded samples are not available. When a real recorded sample is triggered, the blue LED next to the pull down menu glows.

emulated - plays only emulated chords using single note samples, no real recorded chord samples are triggered.

The Sampled chord mode can also be selected via MIDI CC# 24.

prefer open/low:

If the 'prefer open/low is ON, open chord / low position are automatically selected regardless the situation. This feature can also be turned ON / OFF via MIDI CC# 21.
(Legato Slide is not available if this feature is ON.)

Auto sustain

With the Auto Sustain feature, you can avoid unwanted staccato that is caused by note-off when the same note (key) is repeated. After note-on, the note keeps playing until;

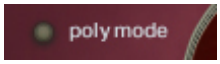
- the next note-on event
- Hold Key or Stop Key is triggered
- the sample is streamed to the end of it.

The previous note is cancelled automatically when a new note is triggered. That means your both hands are free until a new note is triggered. This feature gives you time to press a key switch or move a controller and you are able to be ready for next note without stopping your performance. That is why SPI enables you to control and switch the various articulations smoothly with a single MIDI channel in real time. If the auto sustain is OFF, the sample stops playing when the note is released. You can also turn ON / OFF the auto sustain through MIDI CC# 54.

Tips - playing arpeggio using sustain pedal (temporary poly mode):
Besides using the Arpeggio Keys, you can also do arpeggio using sustain pedal (MIDI CC# 64) if a single note instrument is selected. While sustain pedal is ON, the poly mode is temporarily activated and you can play polyphonic and the samples continue playing even if the note is released because the sustain pedal is ON. When the new note is the same as one of the notes that is currently sustained by sustain pedal, the same old note is canceled automatically. (In short, no duplicate notes are played.) When the sustain pedal is released (=OFF), the temporary poly mode is turned OFF automatically.

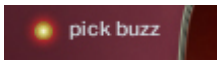
Poly mode

(works only with single note instruments)



Poly mode enables you to play polyphonic. This feature is available only with single note instruments. You can also turn ON / OFF the poly mode through MIDI CC# 56.

Pick buzz



If pick buzz is ON, a slight pick buzz sound is added to the attack of the note, and the guitar sound becomes more realistic and natural. You can also turn ON / OFF the pick buzz through MIDI CC# 25.

Roundrobin mode

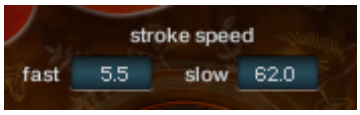
(works only with single note instruments)

Four types of Roundrobin mode are available. It can be selected from the pull-down menu. You can also select the Roundrobin mode through MIDI CC# 42.

MIDI CC# 42	Roundrobin mode
0 – 31	OFF
32 – 63	2 roundrobin
64 – 95	3 random
96 - 127	4 random

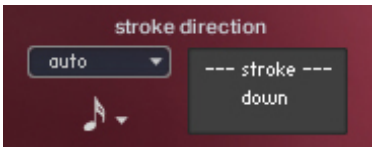
Stroke speed

(works only with emulated chords)



The value shows a time lag between two strings in milliseconds. If fast stroke is active (MIDI CC# 3: 0 – 63), the value of the ‘fast’ is used and if slow stroke (MIDI CC# 3: 64 - 127) is active, the value of ‘slow’ is used. The stroke speed can be changed through MIDI CC# 22 (fast stroke) and MIDI CC# 23 (slow stroke).

Stroke direction (Auto Stroke Direction)

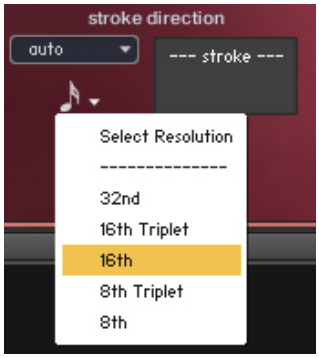


Auto alternation modes

There are four stroke modes. You can also change the stroke mode using MIDI CC# 58.

time recognition (MIDI CC# 58: 0 - 31)	SPI automatically detects the current beat position and identify proper stroke direction (down or up).
forced (MIDI CC# 58: 32 - 63)	Down stroke and up stroke are played alternately regardless of the current beat position.
down only (MIDI CC# 58: 64 - 95)	Only down stroke is played regardless of the current beat position.
up only (MIDI CC# 58: 96 - 127)	Only up stroke is played regardless of the current beat position.

Resolution



When the stroke more is 'auto', the resolution is shown. The stroke direction is determined according to the current beat position and the resolution. You can also change the resolution using MIDI CC# 57.

midi CC# 57	resolution
0 - 25	8th
26 - 50	8th Triplet
51 - 75	16th
76 - 100	16th Triplet
101 - 127	32nd

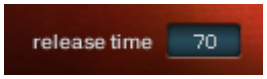
Stroke information window

‘down stroke’ is detected, or ‘down only’ mode is active.

‘up stroke’ is detected, or ‘up only’ mode is active.

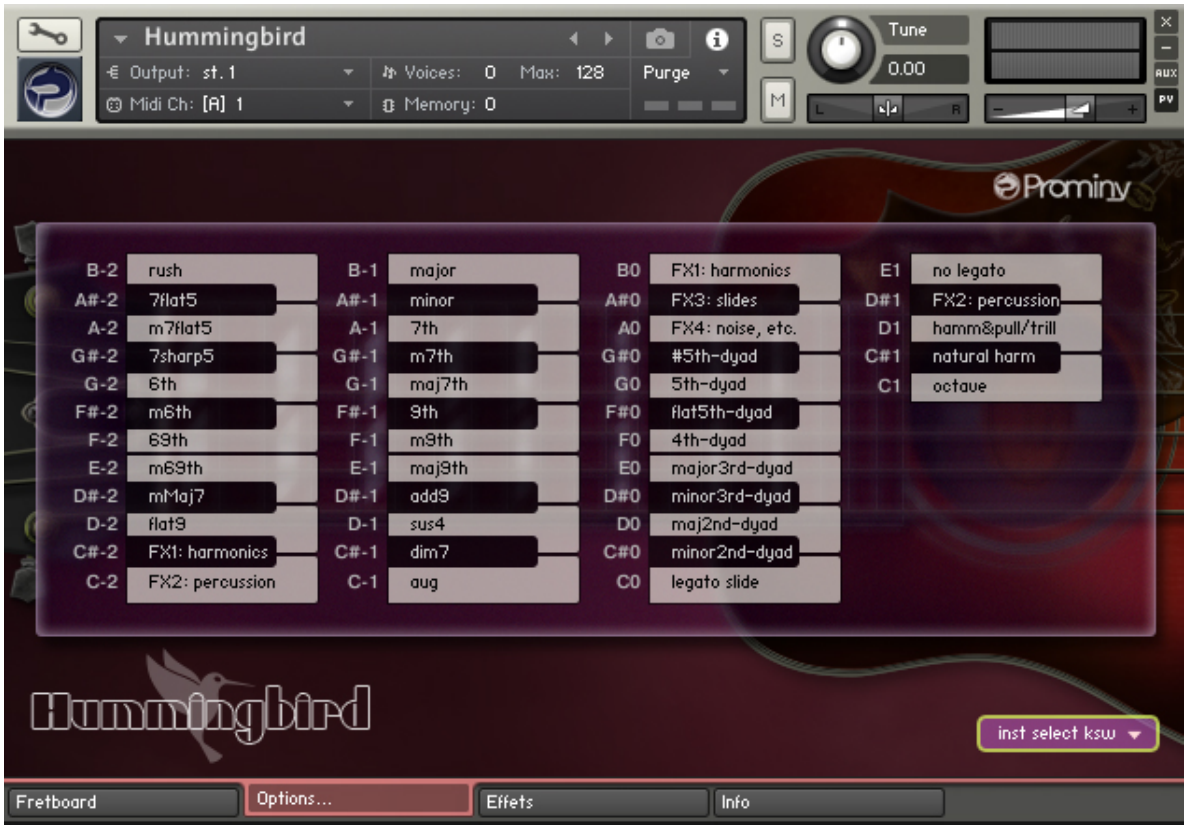
[note] Auto stroke detection mode does not work while the sequencer stops because no beat information is generated unless the sequencer is being played.

Release time



When a new note is triggered, the previous note is automatically released. You can adjust the release time of the previous note so that the previous note is connected with the current note smoothly. The range; 50 – 80 is recommended. It depends on the instrument, tempo, and how the sound is processed (reverb, etc.) The release time can be controlled through MIDI CC# 62.

Instrument select key switches

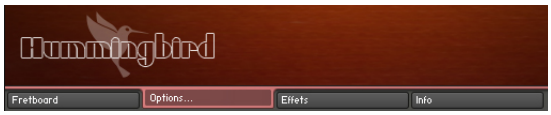


Instrument Key Switch with chord recognition

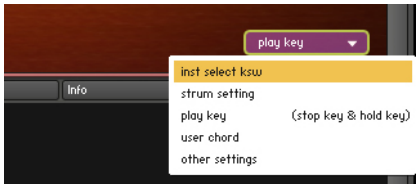
You can instantly select an instrument (articulation) using the Instrument Select Key Switches. All the instruments can be assigned to any key switches and you can create your own key switch mapping. The key switches have a chord recognition feature that enables you to select a chord instrument by not only hitting a key that the chord is assigned, but also by hitting the chord notes (= ‘Chord Recognition Intervals’) in the key switch range. In other words, you don’t need to memorize the key switches for the chord instruments. Just hold the chord notes in the key switch range, and you are ready to play the chord.

We recommend you to assign single note instruments, FX instruments, and other instruments that you frequently use to higher keys in the key switch range because you can select chord instruments using the chord recognition feature.

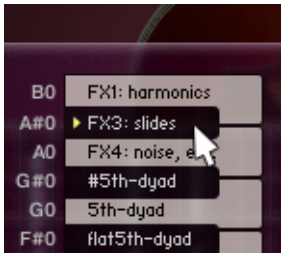
How to check and change the instrument select key switch settings…



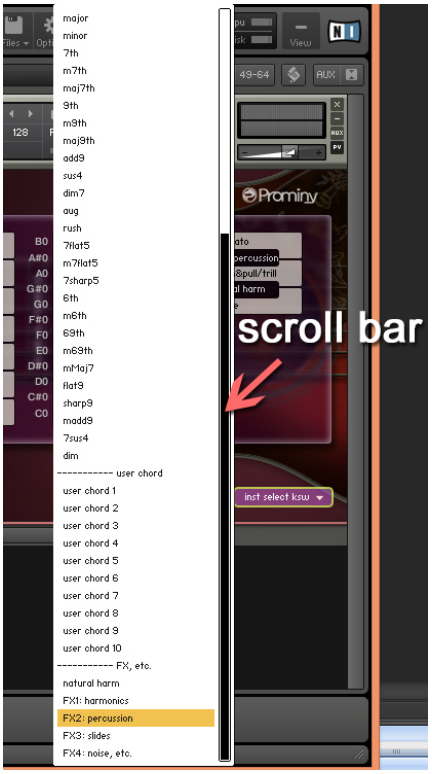
Click the ‘options…’ tab.



Click the pull-down menu on the lower right of the interface and select the ‘inst select ksw’.



Click the key you would like to change…



and select the instrument you would like to assign to the key switch from the pull-down menu.

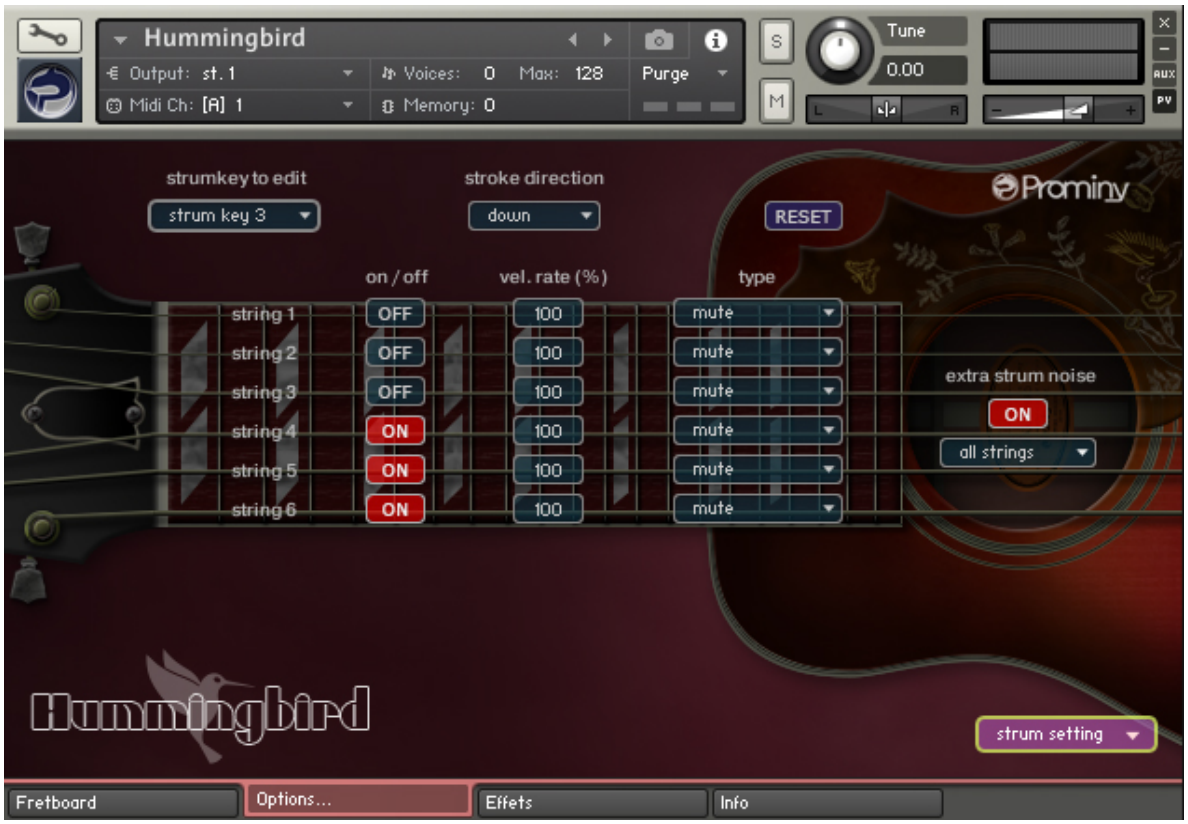
** There is a scroll bar on the right side of the menu. Scroll down if you would like to select a FX instrument.*

How to set Instrument select key switches via MIDI CC#

You can also configure the Instrument Select Key Switches through the MIDI CC# 44, 45, and 46. For example; if you would like to assign ‘no legato’ to E1, send the value 40 (= MIDI note number of E1) though MIDI CC# 44 and send the value 0 (= inst type: single note) though MIDI CC# 45, and then send the value 3 (= instrument number) through MIDI CC# 46.

MIDI CC# 44	**MIDI note number of the instrument key switch** 0 - 40
MIDI CC# 45	**Instrument type** 0: single note / 1: dyad chord / 2: chord / 3: FX
MIDI CC# 46	**instrument number** **(single note)** 1: single legato slide 2: hammer-on&pull-off / trill 3: no legato **(dyad chord)** 1: minor2nd 2: major2nd 3: minor3rd-dyad 4: major3rd-dyad 5: 4th-dyad 6: flat5th-dyad 7: 5th-dyad 8: #5th-dyad 9: 6th-dyad 10: 7th-dyad 11: maj7th-dyad 12: octave **(chord)** 1: major 2: minor 3: 7th 4: m7th 5: maj7th 6: 9th 7: m9th 8: maj9 9: add9 10: sus4 11: dim7 12: aug 13: rush 14: 7flat5 15: m7flat5 16: 7sharp5 17: 6th 18: m6th 19: 69th 20: m69th 21: mMaj7 22: flat9 23: sharp9 24: madd9 25: 7sus4 26: dim 51: user chord 1 52: user chord 2 53: user chord 3 54: user chord 4 55: user chord 5 56: user chord 6 57: user chord 7 58: user chord 8 59: user chord 9 60: user chord 10 **(FX)** 3: natural harmonics 4: FX1 - harmonics 5: FX2 - percussion 6: FX3 - slides 7: FX4 - noise, etc.

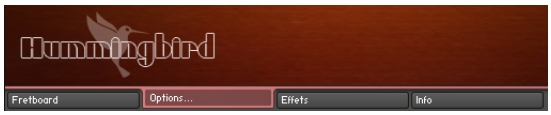
Strum setting



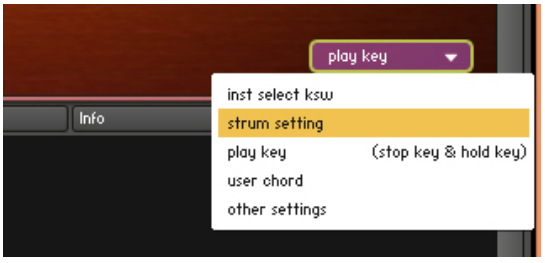
[Note]

The Strum setting works only with emulated chords. If one (or more) of the parameters of the strum key / normal key is edited and you play a chord instrument with the strum key / normal key, an emulated chord is forcedly played even if a sampled chord is available (hybrid mode). To play sampled chords, reset the strum key / normal key by clicking the reset button.

How to check and change the strum settings…



Click the ‘options…’ tab.



Click the pull-down menu on the lower right of the interface and select the ‘strum setting’.

Target strum key

Select the target strum key (or normal key) to edit from the pull-down menu.

Stroke direction (normal key)

If the 'normal key' is selected as a target strum key to edit, you can select the stroke direction from; 'auto', 'down, and 'up'. If the 'auto' is selected the resolution can be selected here. You can also edit the stroke direction setting of the normal key in the Fretboard.

Stroke direction (strum key 1 - 8)

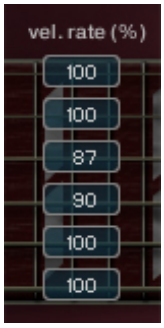
If the 'strum key (1 - 8)' is selected as a target strum key to edit, you can select the stroke direction from ; 'normal', 'down, and 'up'. If the 'normal' is selected, the stroke direction setting of the normal key is used.

String ON / OFF

You can choose which strings are strummed. If the button of the string is OFF, the string is not strummed and the sound of the string is stopped if it is sounding.

This setting is ignored if a single note instrument is selected.

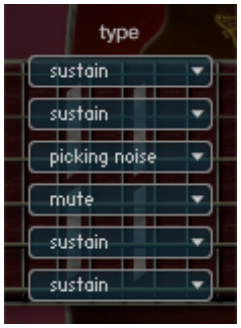
Vel. Rate (%)



You can change the velocity rate of each string. For example, if the note–on velocity is 100 and the velocity rate of the string is 90 %, the string is strummed with the velocity 90. If the note–on velocity is 127 and the velocity rate of the string is 100 %, the string is strummed with the velocity 127.

This setting is ignored if a single note instrument is selected.

Type

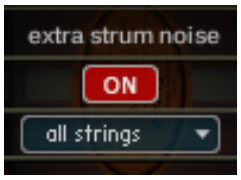


You can configure how the string is played.

‘do nothing’
Unlike the string ON / OFF button, the ‘do nothing’ does not stop the sound of the string. It neither strums nor stops. This can be used if you would like to strum some of the strings without re-strumming the other strings. If you select the ‘do nothing’, the string ON / OFF button needs to be ON. Otherwise, the sound of the string is stopped.

This setting is ignored if a single note instrument is selected.

Extra strum noise



ON / OFF
If the Extra Strum Noise is ON, a strum noise sound is added to the emulated chord.

Strum noise type
There are three types of the extra strum noises;

all strings: strum noise that the string 1, 2, 3, 4, 5, and 6 are strummed
lower strings: strum noise that the string 4, 5, and 6 are strummed.
upper strings: strum noise that the string 1, 2, and 3 are strummed.

The volume of extra strum noise can be controlled via MIDI CC# 82.

This feature works only with emulated chords, not available with sampled chords / single note instruments.

Reset

This button resets the setting of the strum key / normal key.

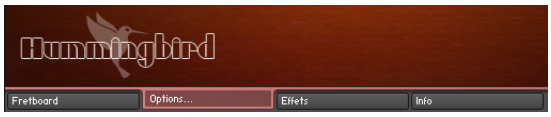
How to configure the Strum setting via MIDI CC#

You can also configure the Strum setting through the MIDI CC# 28, 74, 75, 76, 77, 78, 80, and 81. For example; if you would like to turn OFF the string 1 of strum key 5, send the value 5 (= target strum key number) though MIDI CC# 74 and send the value 1 (= string number) though MIDI CC# 28, and then send the value 0 (0 - 63: OFF) through MIDI CC# 76.

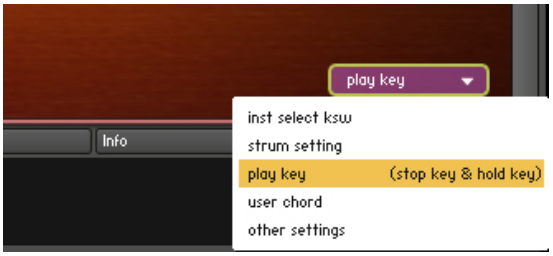
MIDI CC# 74	**target strum key to edit** 0: normal key (E3 - C7) 1: strum key 1 (C2) 2: strum key 2 (C#2) 3: strum key 3 (D2) 4: strum key 4 (D#2) 5: strum key 5 (F#2) 6: strum key 6 (G#2) 7: strum key 7 (A#2) 8: strum key 8 (C#3)
MIDI CC# 28	**target string to edit** 0 : all strings 1: string 1 2: string 2 3: string 3 4: string 4 5: string 5 6: string 6
MIDI CC# 75	**strum key: stroke direction** 0 – 42: auto (time recognition) 43 – 85: down 86 – 127: up
MIDI CC# 76	**strum key: string ON / OFF** 0 - 63: OFF / 64 - 127: ON
MIDI CC# 77	**strum key: string velocity rate** 1 (min) - 100 (max)
MIDI CC# 78	**strum key: string strum type** 0 - 31: do nothing 32 – 63: normal sustain 64 – 95: mute 96 – 127: picking noise
MIDI CC# 80	**extra strum noise ON / OFF** 0 – 63: OFF / 64 – 127: ON
MIDI CC# 81	**extra strum noise type** 0 – 42: all strings 43 – 85: lower strings 86 – 127: upper strings

Play Keys (hold keys and stop keys)

How to check and configure the Play Key settings…



Click the ‘options…’ tab.



Click the pull-down menu on the lower right of the interface and select the ‘play key’.

Hold keys

When the original note is released while the hold key is held down, the original note is stopped and the selected samples are triggered. In the case of the picture above, if you release the original note while F#1 is held down, the original note is stopped and the gliss down is triggered. If you release the original note while F1 is held down, the pick stop noise and the finger release noise are triggered. If you release the original note while G1 is held down, no samples are triggered.

Stop keys

The original note is stopped and the selected samples are triggered when the stop key is pressed. In the case of the picture above, the picking noise is triggered when G#1 is pressed. No samples are triggered when A1 is pressed. The same note as the previous one is repeated when A#1 is pressed.

** 'repeat same note' and 'gliss down' cannot be selected with the other ones.*

[Tips] You can also assign the 'repeat same note' function to a Hold key. When the original note is released while the hold key that is used as a repeat key is held down, the original note is stopped and the same note samples are played. That allows you to play notes very fast, and is good for simulating tremolo playing technique.

Configure Play Keys though MIDI CC

The buttons for each hold key / stop key can be turned on /off through MIDI CC# 114, 115, and 116.

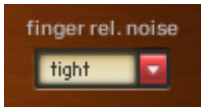
You can select the Play Key that you would like to configure through MIDI CC# 114.

Play Key	MIDI CC # 114
hold key 1	1
hold key 2	2
hold key 3	3
stop key 1	4
stop key 2	5
stop key 3	6

After selecting the target Play Key via MIDI CC# 114, select the target button via MIDI CC# 115, and the button can be turned on / off with the MIDI CC# 116.

button	MIDI CC# 115	MIDI CC# 116
picking noise	1	0 – 63: OFF 64 – 127: ON
pick stop noise	2	
finger rel. noise	3	
repeat same note	4	
gliss down	5	
bridge mute noise	6	
fret noise	7	
position change noise	8	
muted brush noise	9	
palm body hit	10	
finger body hit	11	
string mute buzz	12	

Finger release noise



The finger release noise type can be selected here. You can also select it via MIDI CC# 41.

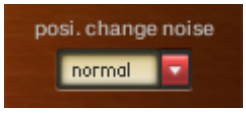
midi CC# 41	Finger release noise type
0 - 63	tight
64 - 127	loose

Gliss down

You can play gliss down using Play Keys. 3 types of gliss down speed (fast, mid, slow) are available. You can also select the gliss down speed through MIDI CC# 4.

MIDI CC# 4	Gliss down speed
0 – 42	fast
43 – 85	mid
86 – 127	slow

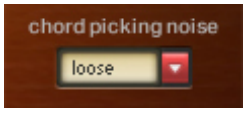
Position change noise



Two types of position change noise are available. You can also select it via MIDI CC# 20.

midi CC# 20	Position change noise type
0 - 63	normal
64 - 127	loud

Chord picking (strum) noise

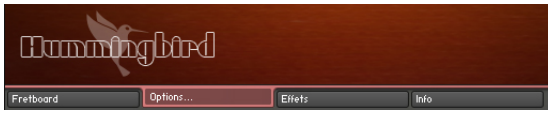


Two types of chord picking noise are available. You can also select it via MIDI CC# 19.

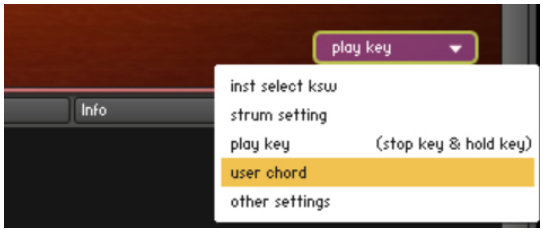
midi CC# 19	Chord picking noise type
0 - 63	tight
64 - 127	loose

User chord

How to check and configure the user chord settings…



Click the ‘options…’ tab.



Click the pull-down menu on the lower right of the interface and select the ‘user chord’.

Target user chord

selects the target user chord to edit.

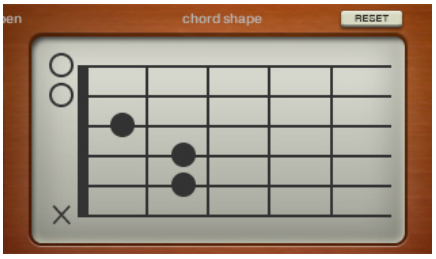
Rename

Click this button and rename the chord, and click the button again (or press the enter key of your keyboard) to apply the change.

Always open

By turning ON the button, the string becomes 'open-string' (= 0 fret) regardless the position of the chord.

Chord shape



You can create your own chord shapes here.

Type

selects how the string is played.

Root

selects the root string of the chord.

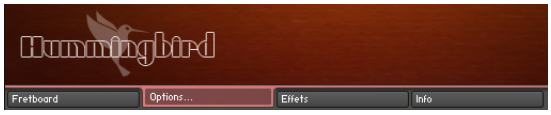
Preview

You can preview the user chord.
(Stop / Play / Stroke direction / Stroke speed)

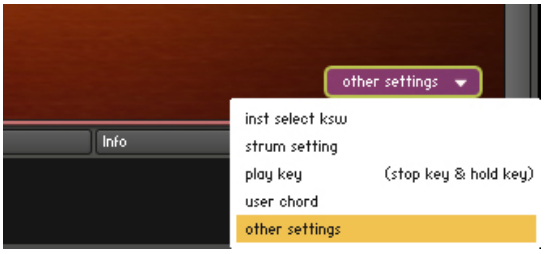
Reset

resets the setting of the user chord.

Other settings



Click the ‘options…’ tab.

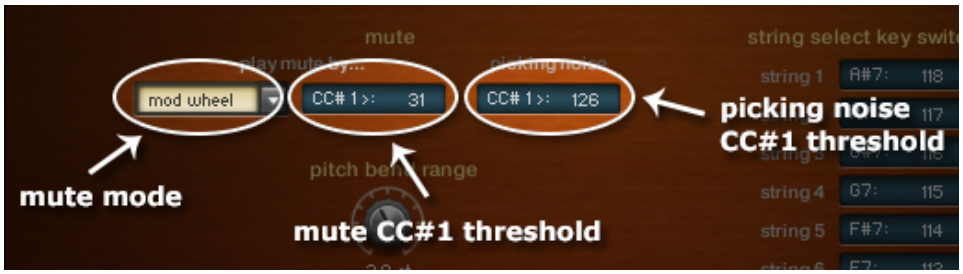


Click the pull-down menu on the menu and select the ‘other settings’ from the pull-down menu on the lower right of the interface.

Mute / Picking noise (CC# 1 or velocity switch)

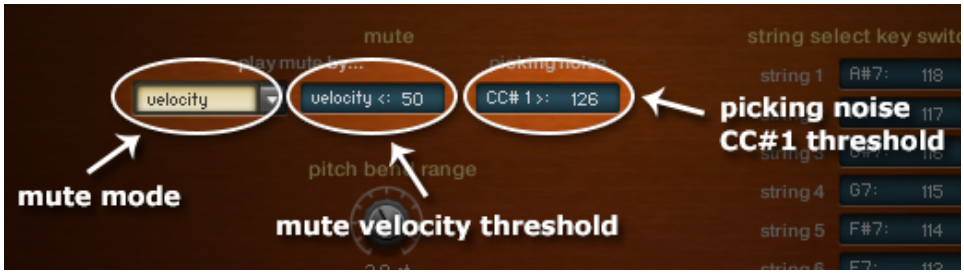
Mute mode: mod wheel (MIDI CC# 1)

With this mode, mute and picking noise can be played using modulation wheel (MIDI CC# 1). Mute samples are triggered if the value of MIDI CC# 1 is larger than the MIDI CC# 1 threshold level. Picking noise samples are triggered if the value of MIDI CC# 1 is larger than the picking noise threshold level.



Mute mode: velocity

With this mode, mute and picking noise can be played using velocity switch. Mute samples are triggered if the note velocity is lower than the mute velocity threshold level. Picking noise samples are triggered if the note velocity is lower than the mute velocity threshold level and the value of MIDI CC# 1 is larger than the picking noise threshold level.

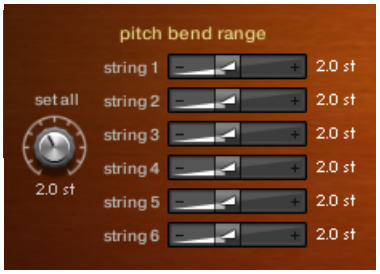


Mute mode (mod wheel / velocity switch), and the threshold levels can be changed through the following MIDI CC numbers.

MIDI CC# 48	**mute mode** 0 - 63: modulation wheel (MIDI CC# 1) / 64 - 127: velocity
MIDI CC# 49	**picking noise MIDI CC#1 (mod wheel) threshold level**
MIDI CC# 50	**mute MIDI CC#1 (mod wheel) threshold level**
MIDI CC# 51	**mute velocity threshold level**

You can also play picking noise using Hold key or Stop Key.

Pitch bend range



default: 2 semi tones, max. 12 semi tones

Set all
With the 'set all' knob, you can set the bend range of all the strings at once. You can also control the knob via MIDI CC# 29.

You can set the bend range of each string individually. This feature enables you to emulate any kind of multi-string bend techniques. For example;

- You can bend the lower string two semi tones, and the upper string one semi tone.

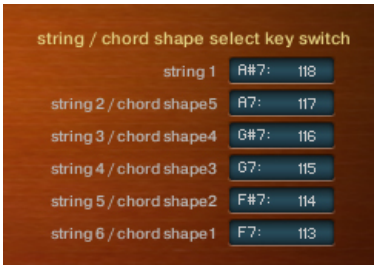
- When you play a single note instrument in Poly Mode or play an emulated chord, you can bend (or do vibrato) only the string(s) you choose.

Set each string individually via MIDI CC
You can also configure the pitch bend range of each string through the MIDI CC# 28 and 30. For example; if you would like to change the bend range of the string 2, send the value 2 (= string number) though MIDI CC# 28, and then send an appropriate value through MIDI CC# 30.

MIDI CC# 28	**target string to edit** 1: string 1 2: string 2 3: string 3 4: string 4 5: string 5 6: string 6
MIDI CC# 30	**bend range** 0 (0 semi tone) - 127 (12 semi tones)

Cmd-clicking (Mac) or Ctrl-clicking (PC) the knobs / sliders resets them and the default value; 2.0 semi tones are assigned.

String / chord shape select key switches



default:

String 1: A#7 (MIDI note number: 118)

String 2 (or string 2 root or chord shape 5): A7 (MIDI note number: 117)

String 3 (or string 3 root or chord shape 4): G#7 (MIDI note number: 116)

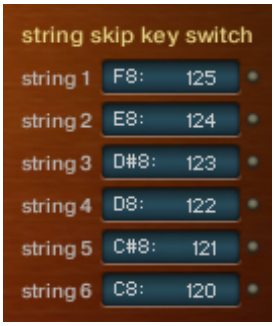
String 4 (or string 4 root or chord shape 3): G7 (MIDI note number: 115)

String 5 (or string 5 root or chord shape 2): F#7 (MIDI note number:114)

String 6 (or string 6 root or chord shape 1): F7 (MIDI note number: 113)

You can also change the string / chord shape select key switches via MIDI CC# 52. Send the MIDI note number you would like to use for the lowest key switch (= key switch for string 6) through MIDI CC# 52, and six consecutive MIDI note numbers are assigned to the strings automatically.

String skip key switches



default:

String 1: F8 (MIDI note number: 125)

String 2: E8 (MIDI note number: 124)

String 3: D#8 (MIDI note number: 123)

String 4: D8 (MIDI note number: 122)

String 5: C#8 (MIDI note number: 121)

String 6: C8 (MIDI note number: 120)

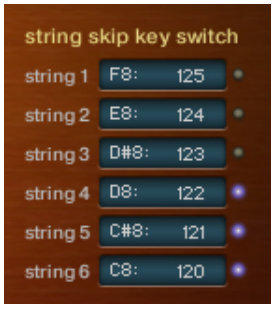
With the sting skip key switches, you can determine what string to strum or not, what string to leave it sounding without re-strumming. By holding the string skip key switch, the string is excluded from the target strings to be strummed / stopped. It is similar to the ‘do nothing’ feature in the Strum Setting, but it is more flexible. For example;

- After playing a chord, only the string(s) selected by the key switch(es) can be slid (legato slide) without stopping / re-strumming the other strings that are not selected.

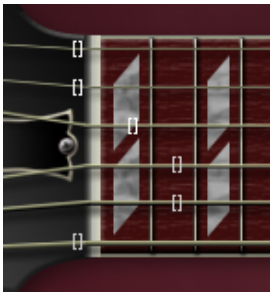
- When you play arpeggio, you can do hammer-on / pull-off only the string(s) selected by key switch(es) without stopping / re-strumming the other strings that are not selected.

- After playing a chord, hold the key switches for the lower strings and select a single note instrument and play notes using the higher strings. The lower strings of the chord keep still sounding even if the chord is no longer selected.

- You can use this feature like you do with the 'do nothing' feature in the Strum Key setting.



While the key switch (in this example, C8 for string 6, C#8 for string 5, D8 for string 4) is being held, the LED of the key switch is turned ON.



While the key switch (in this example, C8 for string 6, C#8 for string 5, D8 for string 4) is being held, the color of the position mark on the Fretboard becomes gray.

Effects

Click the 'Effects' tab to show the effect settings.

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EQUALIZER

LOW CUT: Attenuates frequencies below the cutoff at a rate of -24 dB/octave.

LOW GAIN: Adjusts the amount of boost or cut at the LOW FRQ.

LOW FRQ: Adjusts the center frequency of the low frequency band at which the boost or cut will occur.

LOW MID GAIN: Adjusts the amount of boost or cut at the LOW MID FRQ.

LOW MID FRQ: Adjusts the center frequency of the low-mid frequency band at which the boost or cut will occur.

LOW MID Q: Controls the Quality (or Q) of the low-mid frequency band. For most EQs, the higher the quality, the narrower the frequency band, but with this EQ the control is reversed to match the hardware it emulates and becomes a bandwidth control.

HIGH MID GAIN: Adjusts the amount of boost or cut at the HIGH MID FRQ.

HIGH MID FRQ: Adjusts the center frequency of the high-mid frequency band at which the boost or cut will occur

HIGH MID Q: Controls the Quality (or Q) of the high-mid frequency band. For most EQs, the higher the quality, the narrower the frequency band, but with this EQ the control is reversed to match the hardware it emulates and becomes a bandwidth control.

HIGH GAIN: Adjusts the amount of boost or cut at the HF Frequency.

HIGH FRQ: Adjusts the center frequency of the high frequency band at which the boost or cut will occur.

COMPRESSOR

Compressors are dynamic tools which automatically reduce the level of loud passages in a signal, thereby affecting the signal's dynamic range. They are invaluable tools for a lot of common tasks — for instance, they can be used for reducing level peaks, thereby allowing the overall signal volume to be turned up without making it clip, or in other words, increasing the average volume of a signal. By careful adjustment of the attack and release times, they can also modify signal transients. However, there is a point of diminishing returns; too much compression can result in a rather strained and weak sound.

Threshold: Sets a level threshold above which the Compressor starts working. Only levels that rise above this threshold will be reduced by the compression; signals that stay below it will be left unprocessed.

Ratio: Controls the amount of compression, expressed as a ratio of "input level change" against "output level change". A Ratio of 1:1 means that no compression will be happening. A Ratio of 2:1 means that a level increase of 2 dB at the input will raise the output level by only 1 dB (keep in mind, though, that this applies only for input levels above the threshold). A 4:1 Ratio results in more aggressive compression, with a 4 dB level increase at the input causing a 1 dB increase at the output. Typical ratios for natural compression of instruments are between 2:1 and 4:1.

Attack: Adjusts the time the Compressor will take to reach the full Ratio value after an input signal exceeds the Threshold level. If you're using compression mainly for transparent dynamic reduction, values between 5 and 10 ms are a good starting point. Longer attack times can be useful for emphasizing transients and adding "punch" to a signal.

Release: Adjusts the time the compressor will take to fall back to non-compression after the input signal falls below the threshold. Typical values range from 50 to 250 ms.

Output: Controls the module's output level. This knob acts as a make-up gain control, which allows you to bring the output signal up to the same peak level as the input signal after compression. After you've found a compression setting, it's good practice to adjust the input and output signals so they have comparable levels, and then compare them via the Bypass button. This way, you can make sure your adjustment really made the signal sound better (and not just louder).

TONE ADJUST: Adjusts the tone of the sound after the compression.

CHORUS

The Chorus module "thickens" the audio signal by splitting it up and detuning one version in relation to the original. Separate LFOs with an adjustable phase relationship detune each stereo channel independently for creating wide-panorama effects.

Stereo Modeller: This module allows you to control the width of your signal's stereo base, change the panning, and create a pseudo-stereo signal from mono sources. At the far left position, stereo signals will be summed to mono. Positive values will result in an artificial widening of stereo sources that has a tendency to apparently expand beyond the speakers, but watch out — just like the Pseudo Stereo feature, this tends to cause mono incompatibilities in your mix. (not recommended for the stereo / double-tracking instruments)

Depth: Adjusts the range of modulated detuning. Higher values give a more pronounced chorusing effect.

Speed: Adjusts the LFO speed.

Phase: Imparts an LFO phase difference between the left and the right stereo channel. This can considerably increase the width of the output signal's stereo base.

Dry / Wet: Adjusts the respective levels of the original and processed signals. Note that the typical chorus effect is created by the combination of both signals, so setting these to the same levels results in the most pronounced effect.

REVERB

This module simulates the natural reverberation that occurs when a sound source is placed in an acoustic environment, thus adding a feeling of spaciousness to the sound.

Pre-Delay: Introduces a short delay between the direct signal and the reverb trail build-up. This corresponds to the natural reverberation behavior of large rooms, where a short time elapses before the first reflection of a sound wave returns from a wall.

Size: Adjusts the size of the simulated room. This affects the duration of the reverb trail.

Colour: This control allows you to adjust the construction material of the simulated room and, consequently, the color of the reverb trail. Low values simulate softer surfaces like wood, while high values simulate the reflection behavior of hard surfaces like concrete.

Damping: Sets the amount of simulated absorption that takes place in rooms due to furnishings, people, or acoustic treatments affecting the reflection behavior.

Stereo: Higher values increase the stereo base width of the output signal. Lower values simulate a closer distance to the sound source.

Dry / Wet: Adjusts the respective levels of the original and processed signals. In common scenarios, the reverb signal is mixed in at a lower level than the direct signal.

Bypass all effects

If this button is ON, all the effects are bypassed.

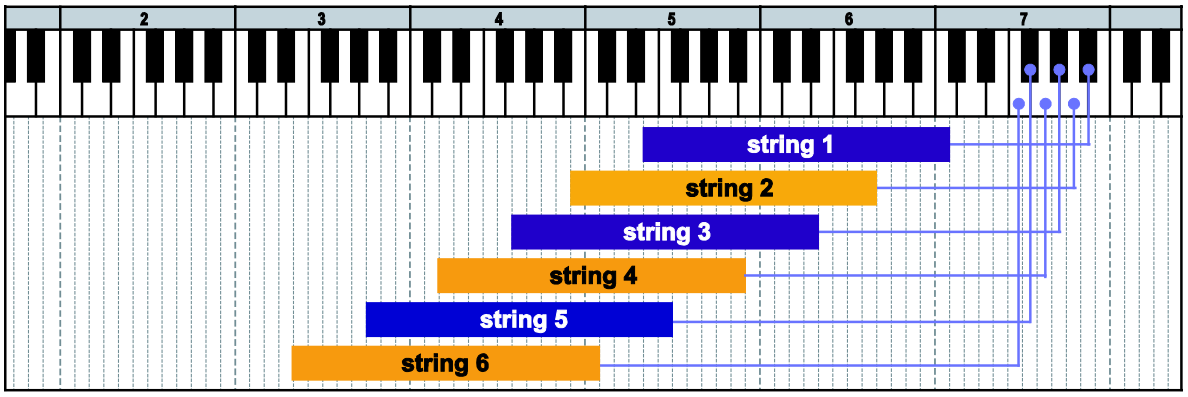
Save / Load

The effect settings can be saved / loaded as a file (.nka).

Hummingbird

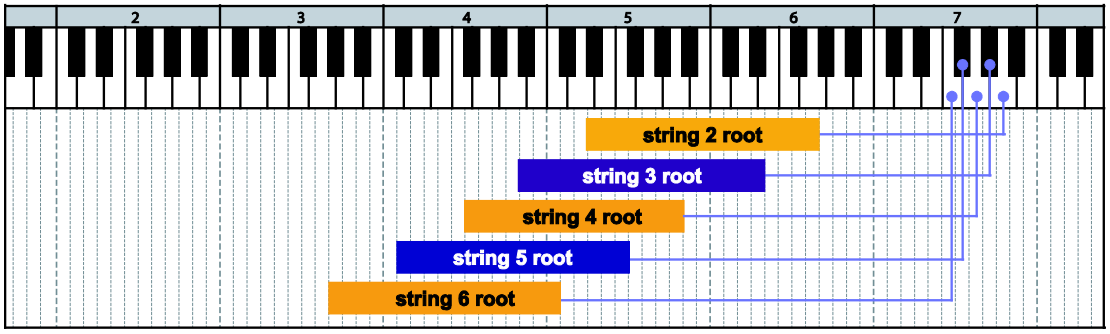
Mapping & key range

single note



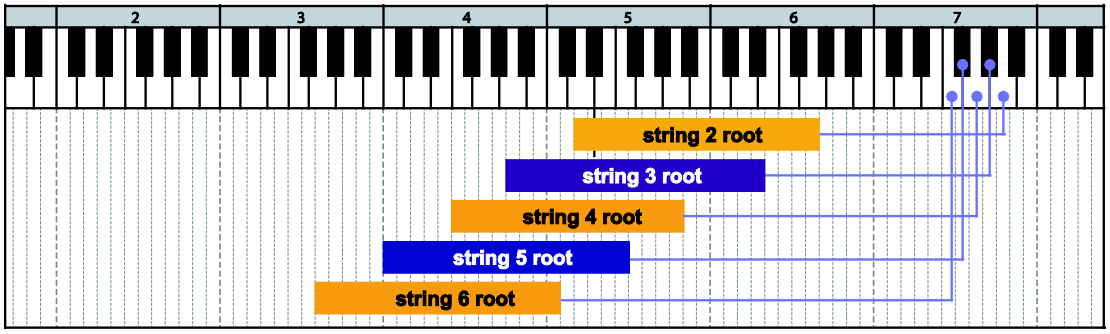
= lowest position = highest position

minor 2nd-dyad chord



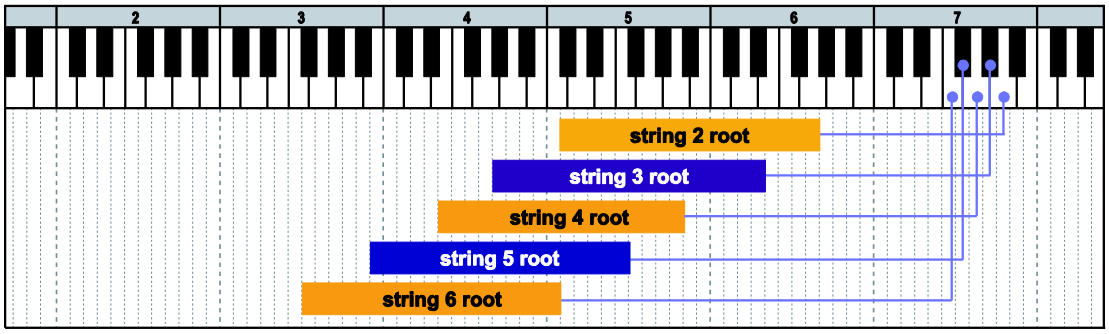
= lowest position = highest position

major 2nd-dyad chord



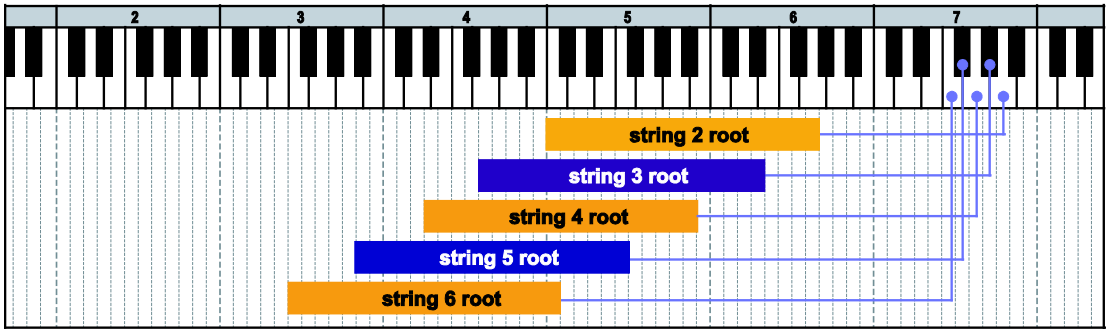
= lowest position = highest position

minor 3rd-dyad chord



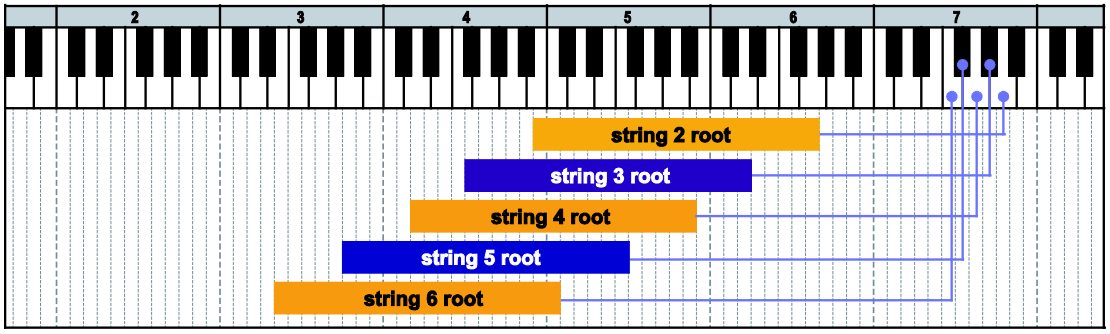
● = lowest position ● = highest position

major 3rd-dyad chord



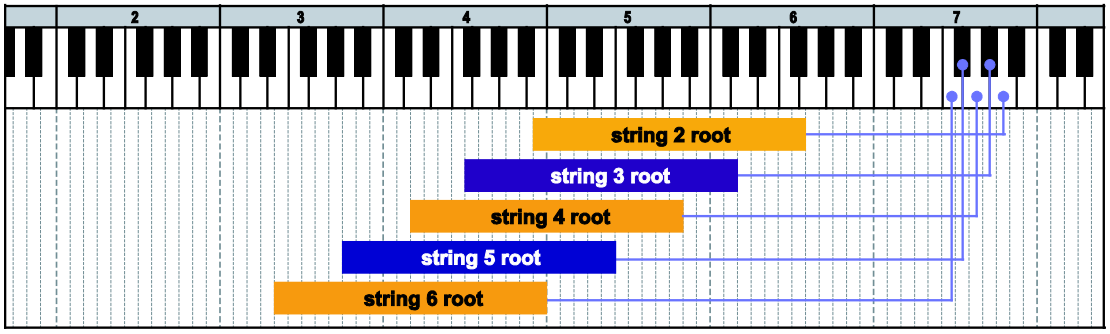
= lowest position = highest position

4th-dyad chord



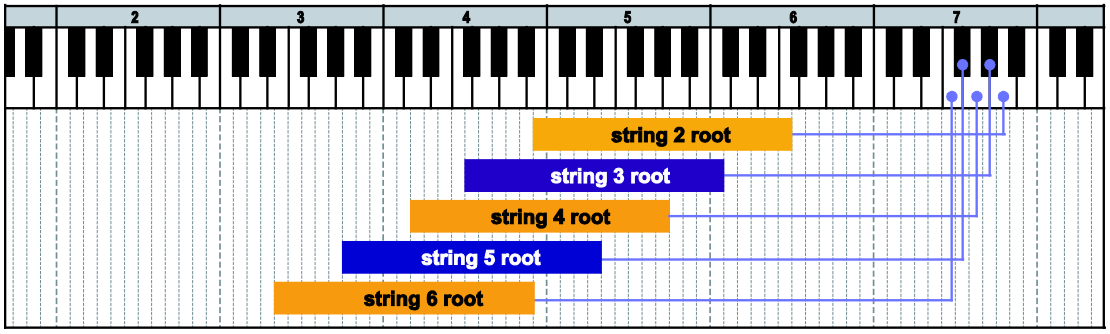
● = lowest position ● = highest position

flat 5th-dyad chord



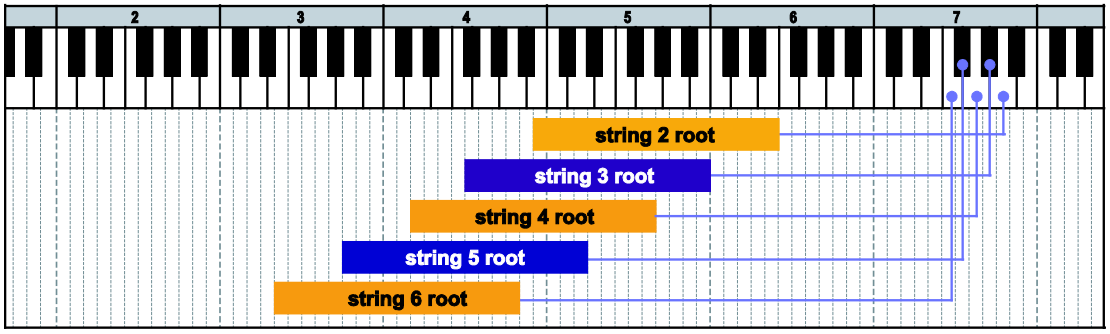
● = lowest position ● = highest position

5th-dyad chord



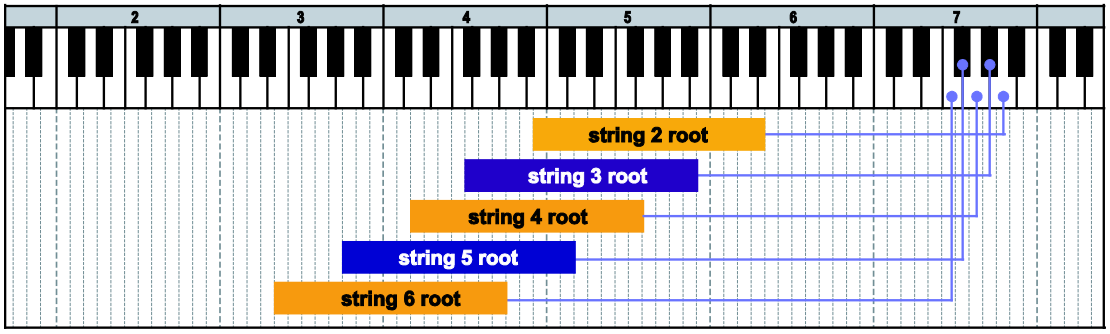
= lowest position = highest position

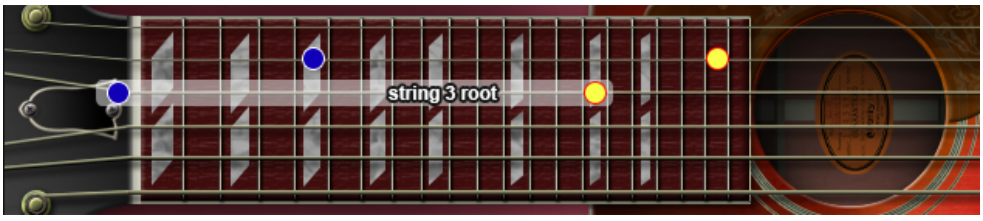
#5th-dyad chord



= lowest position = highest position

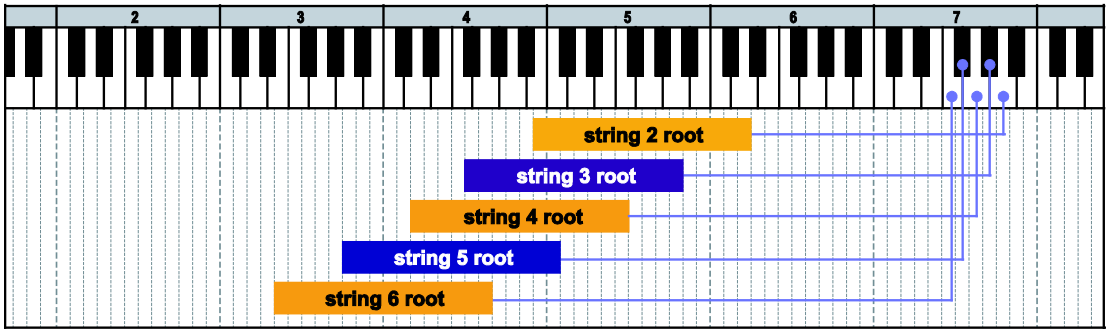
6th-dyad chord

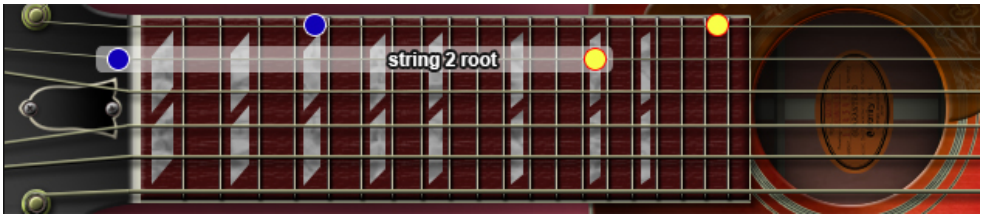


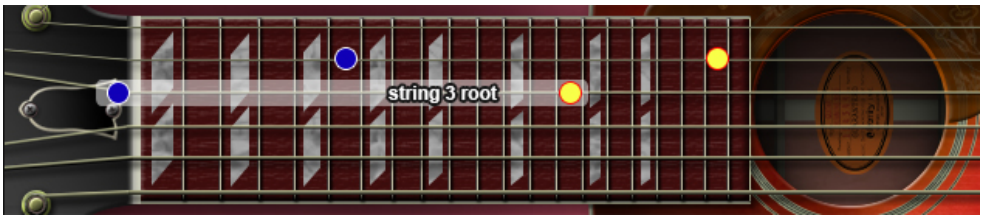


= lowest position = highest position

7th-dyad chord

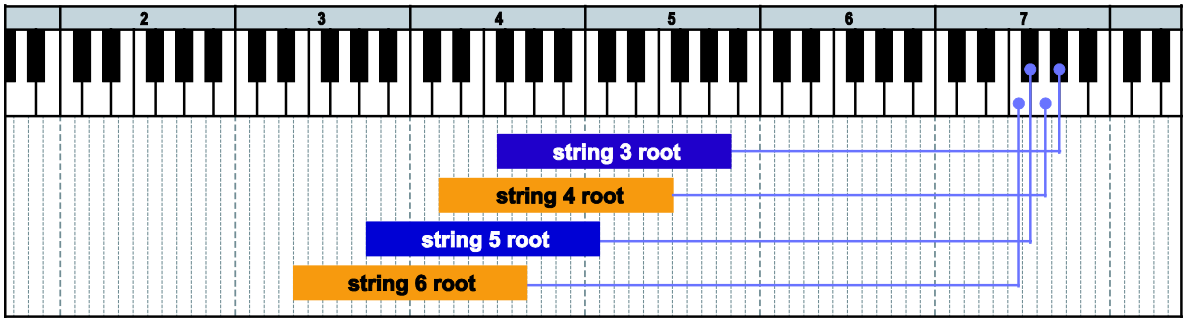






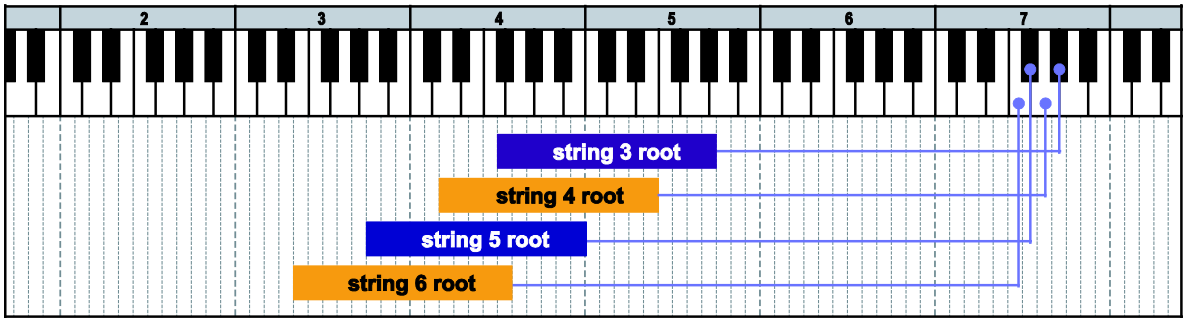
= lowest position = highest position

major 7th-dyad chord



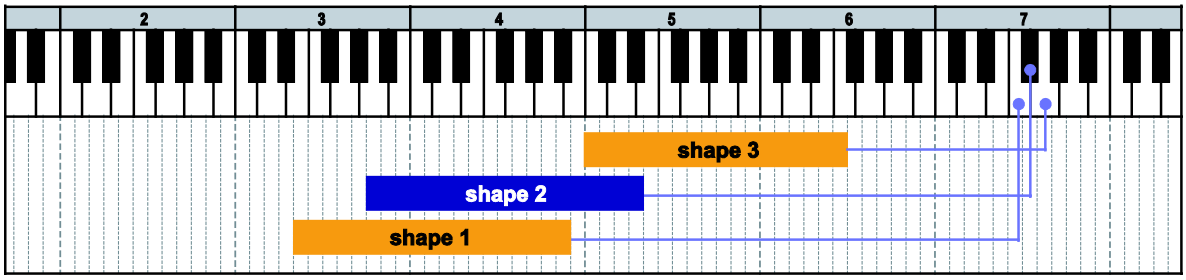
= lowest position = highest position

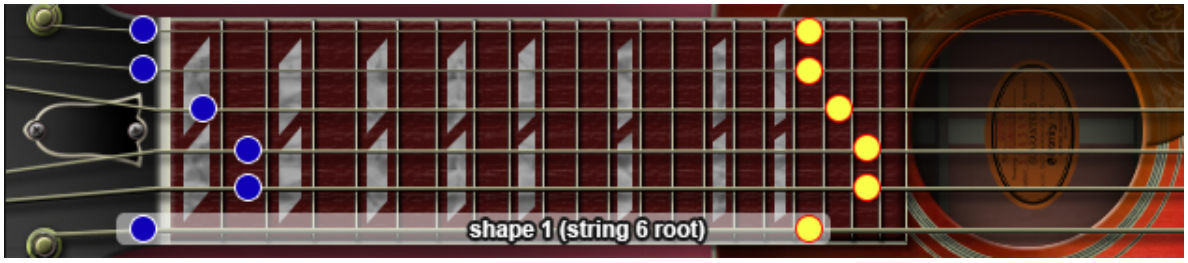
octave



= lowest position = highest position

major





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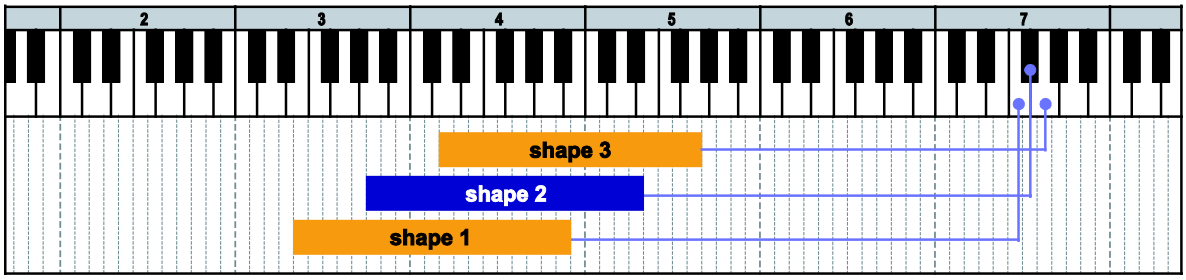
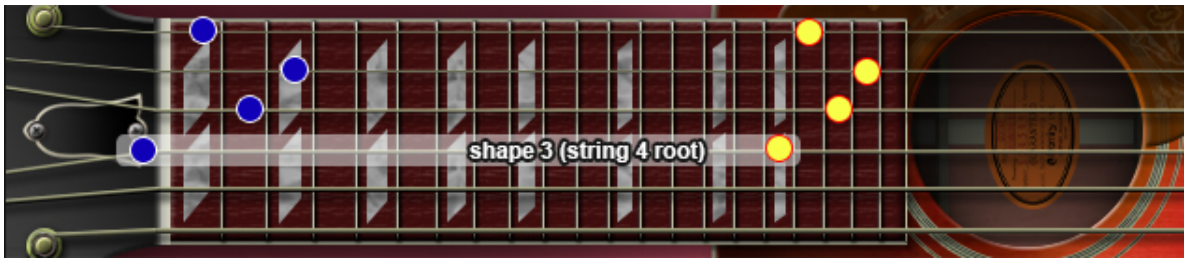
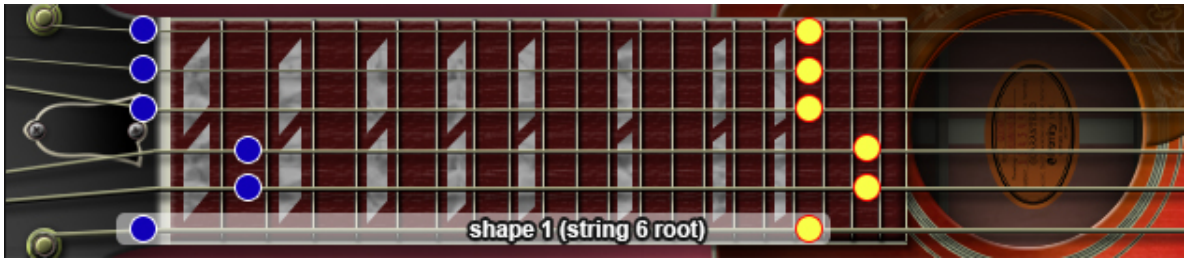
minor







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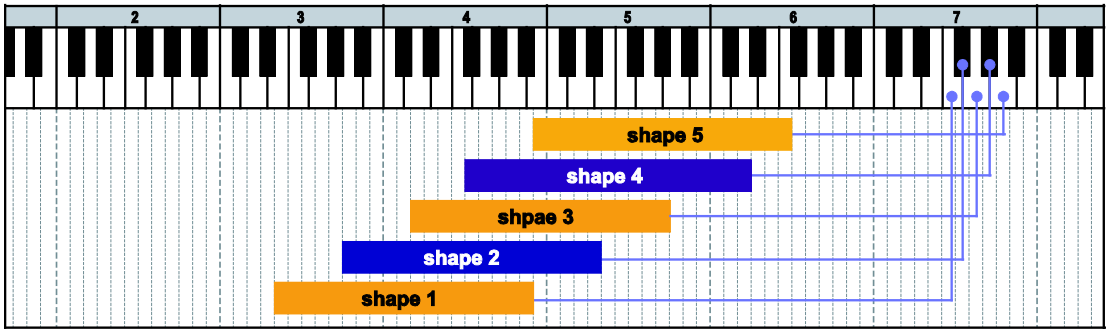
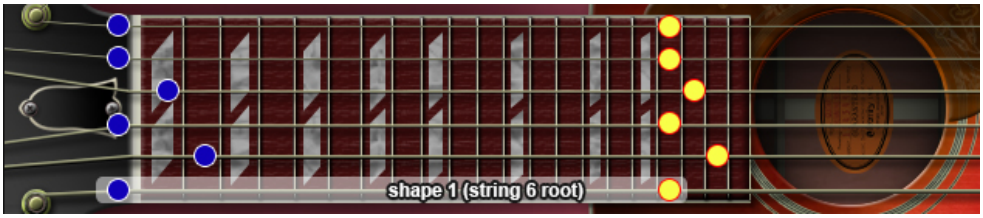
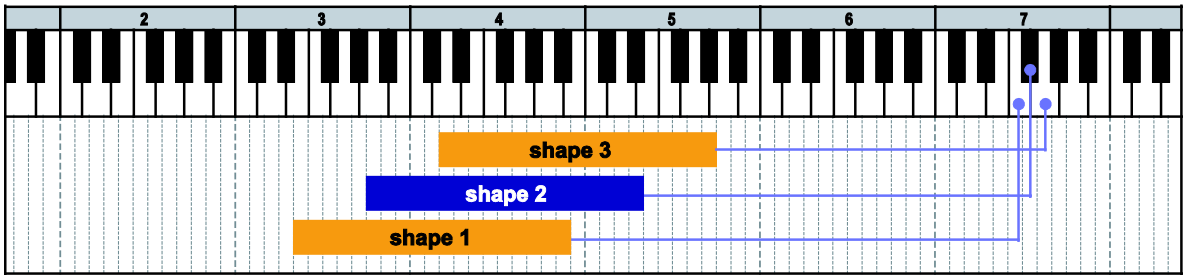
7th

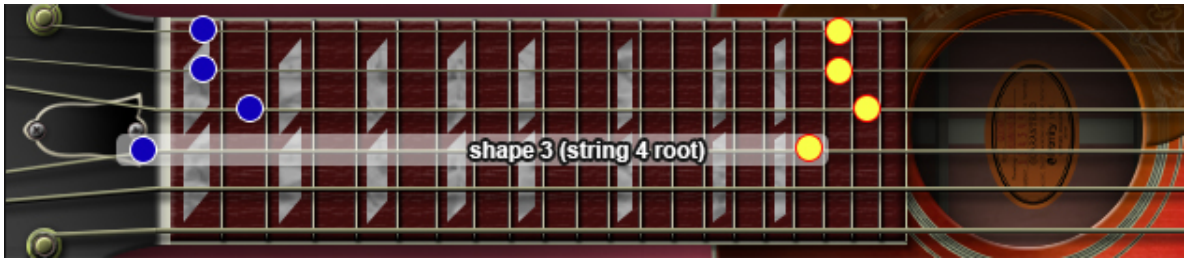




= lowest position = highest position

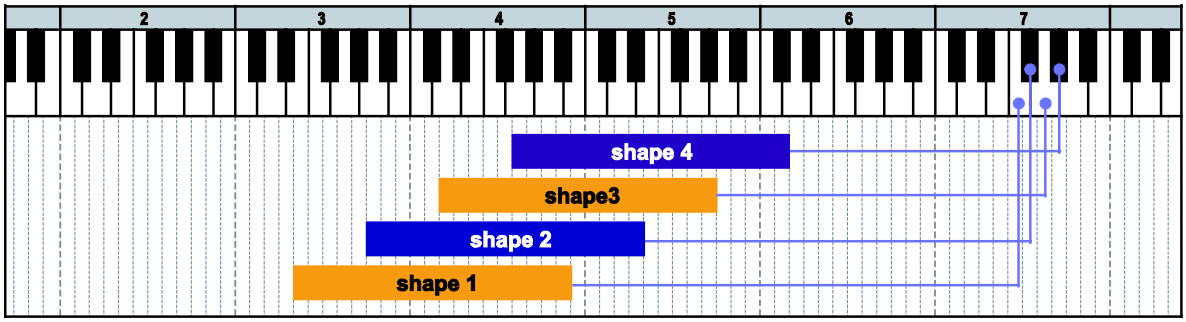
m7

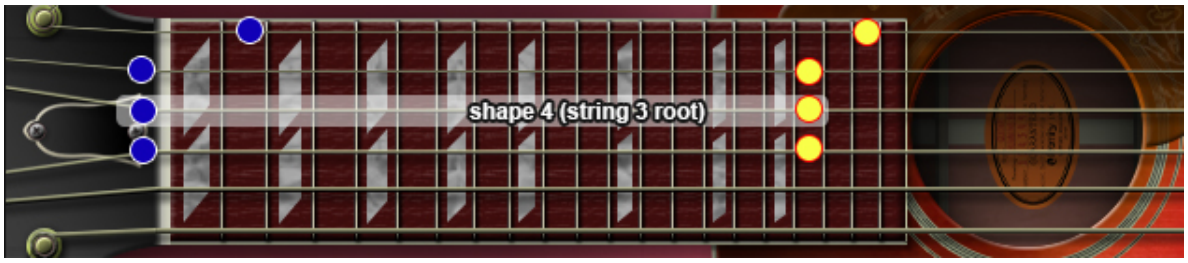


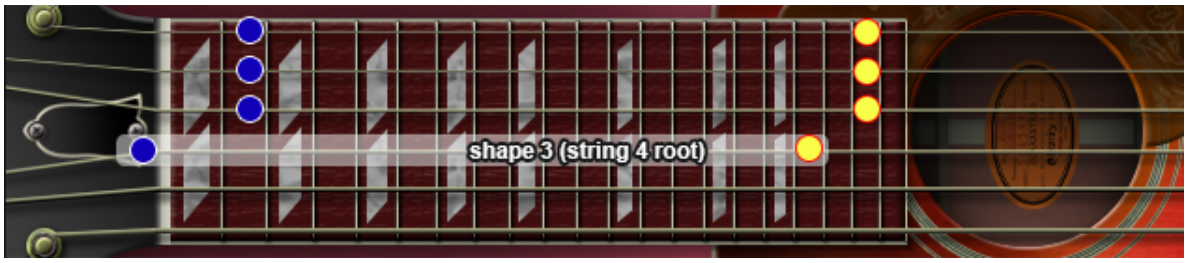


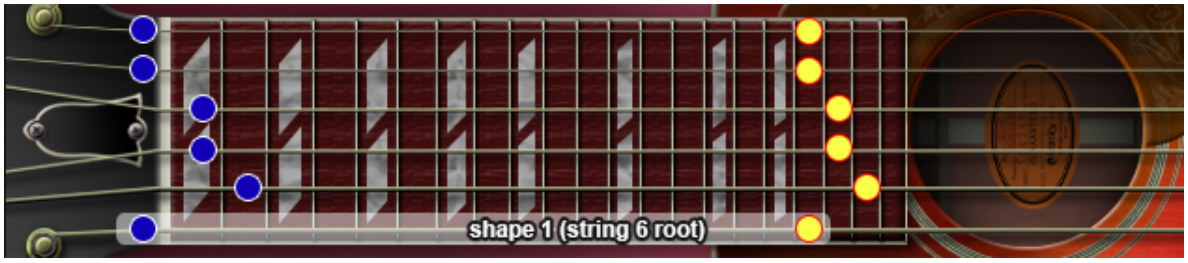
= lowest position = highest position

maj7



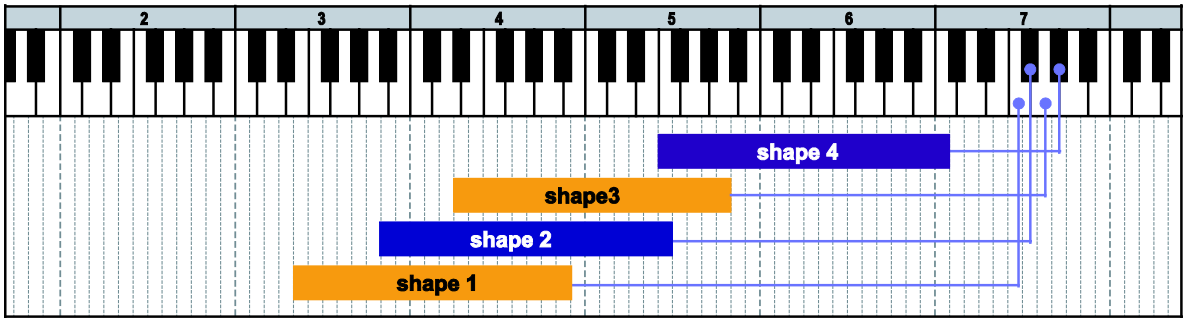


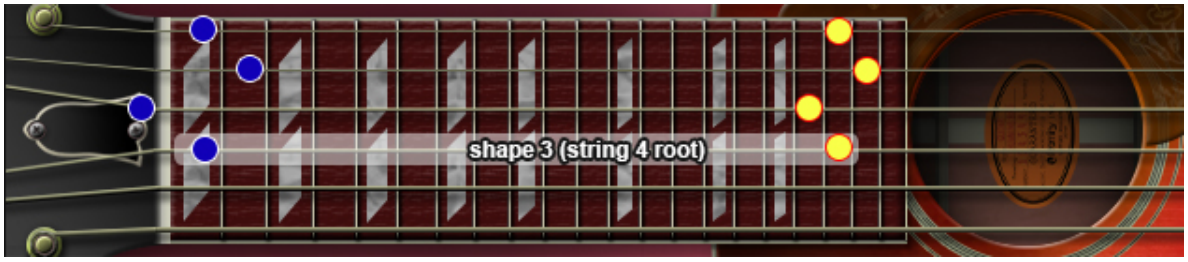


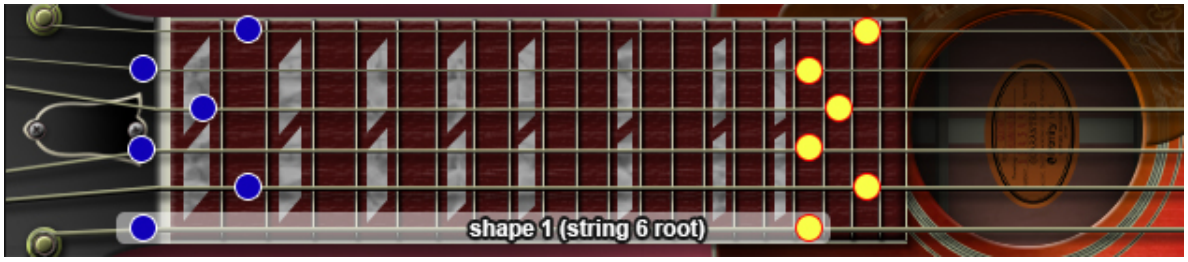


● = lowest position ● = highest position

9th

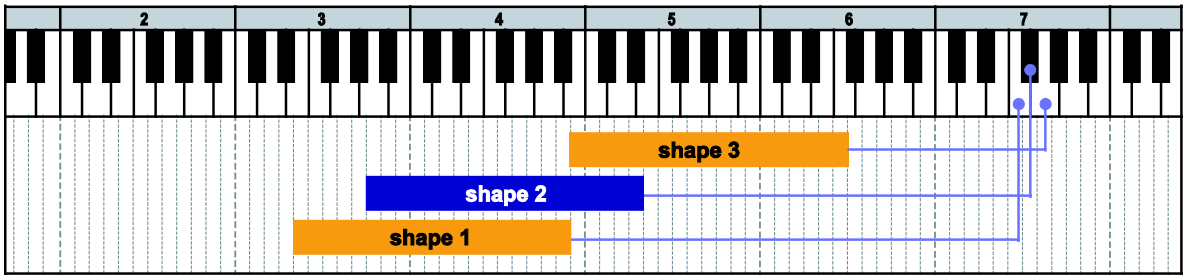


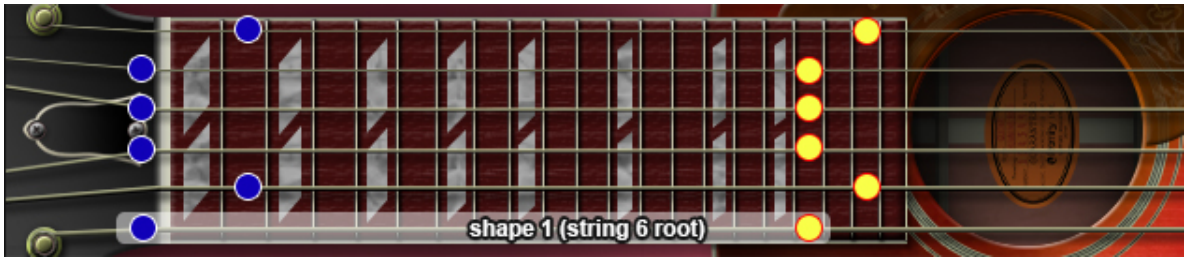




= lowest position = highest position

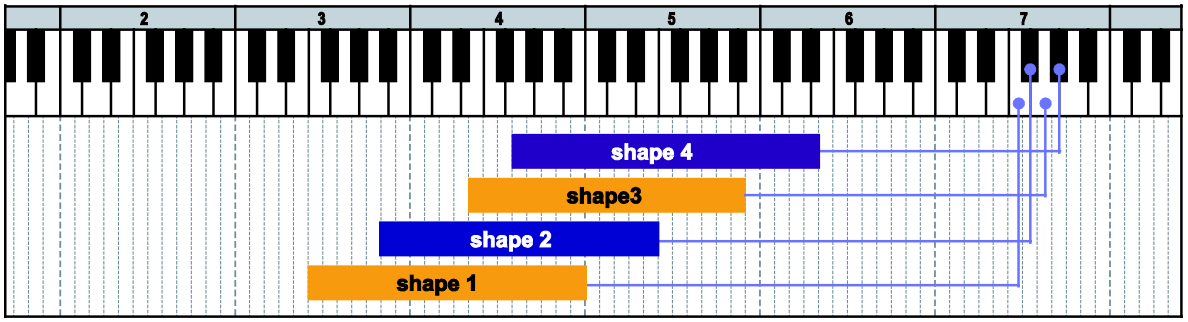
m9

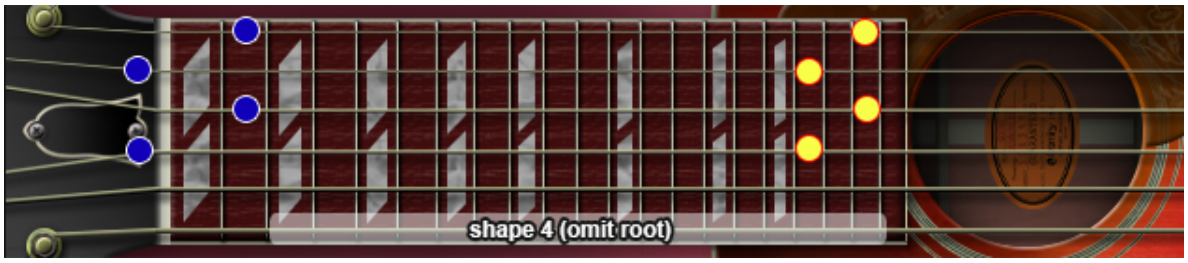


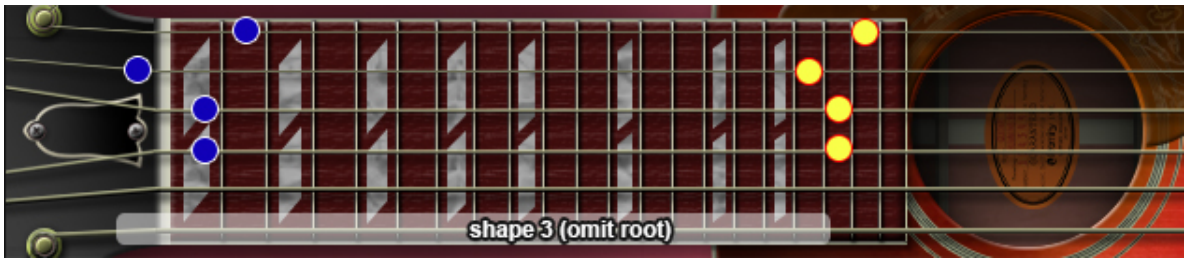


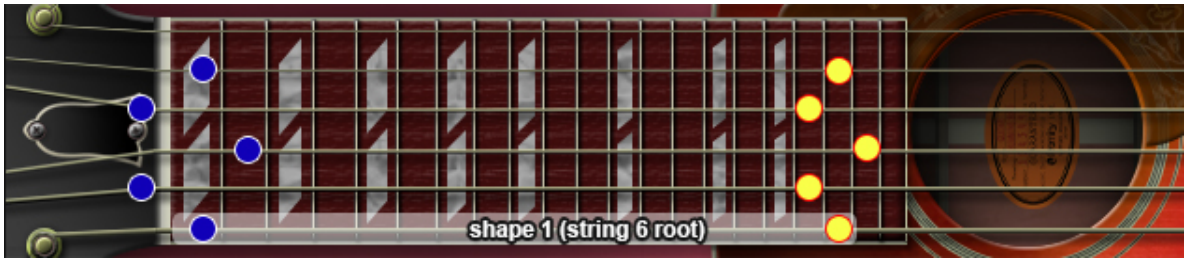
= lowest position = highest position

maj9



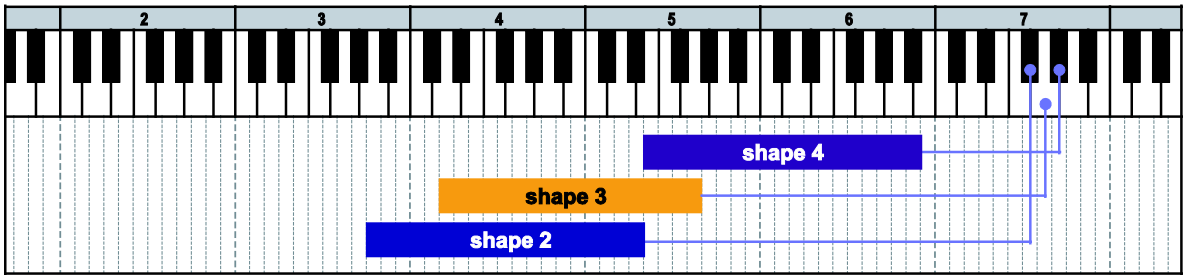


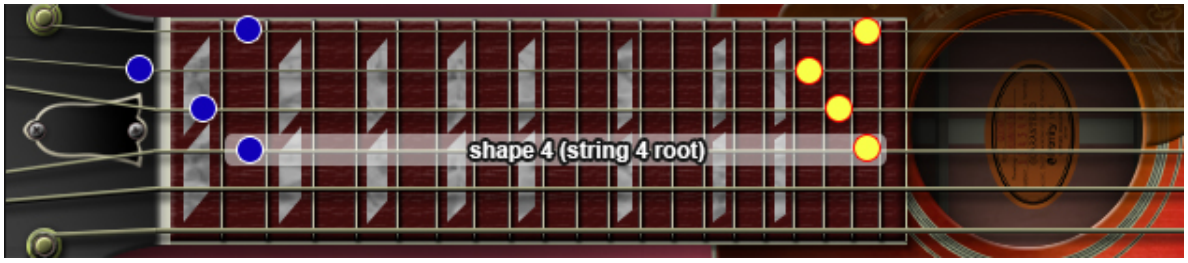


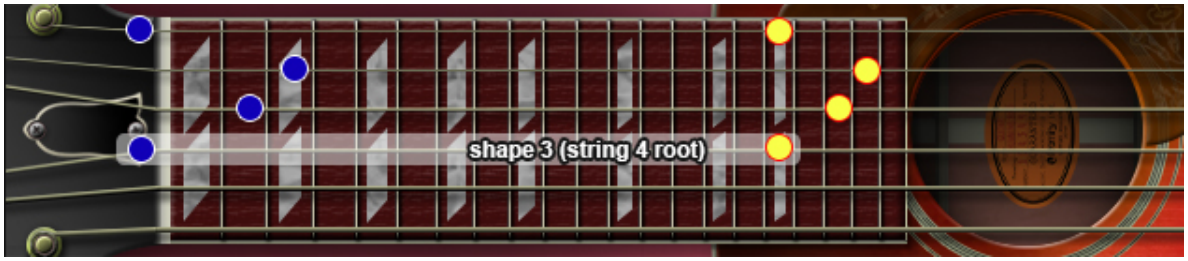


= lowest position = highest position

add9

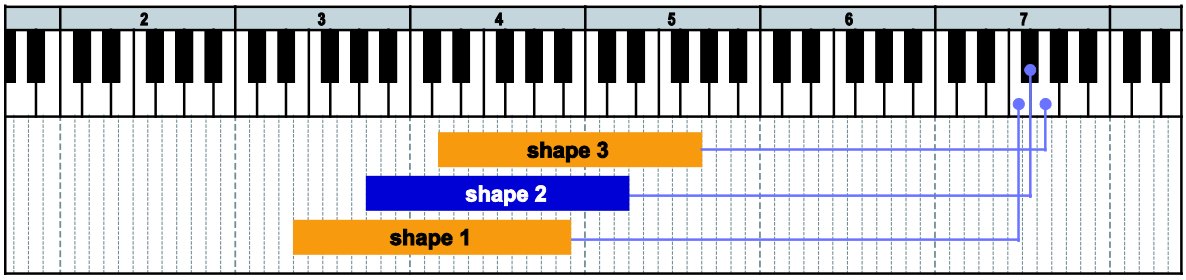


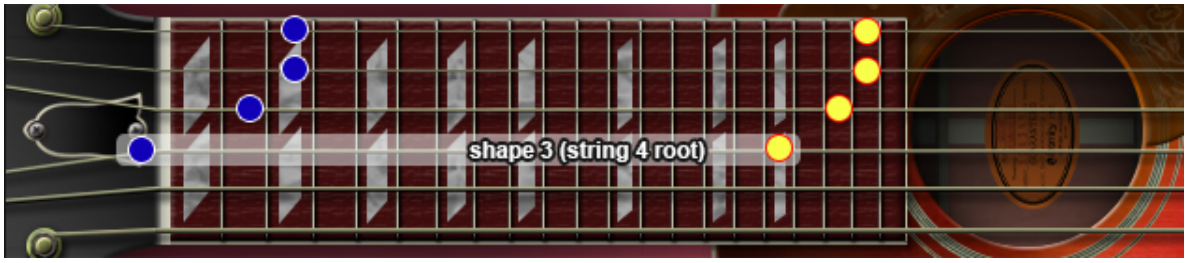




= lowest position = highest position

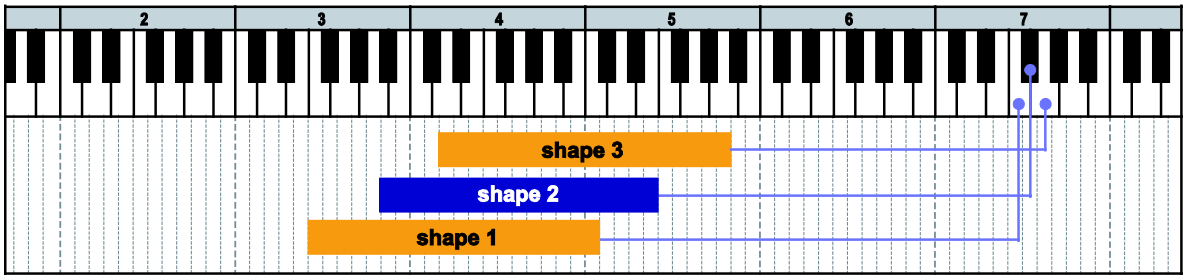
sus4

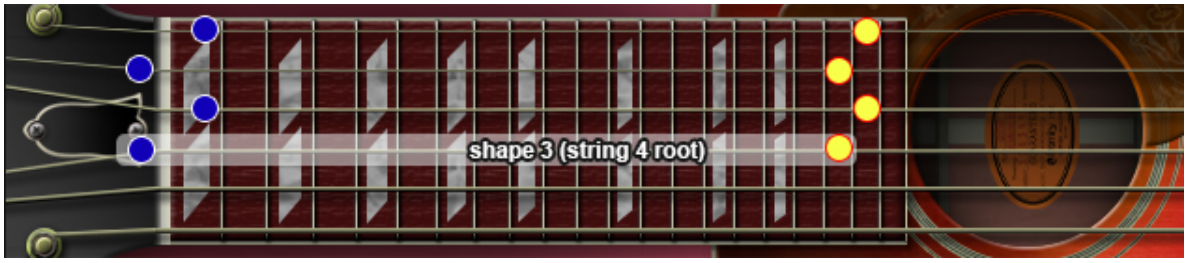




= lowest position = highest position

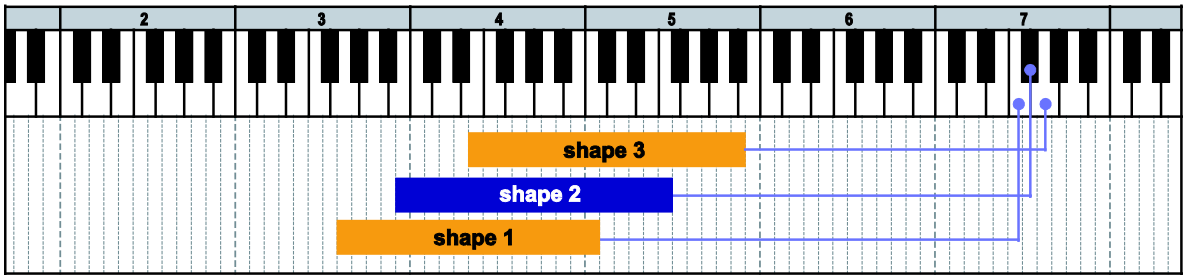
dim7

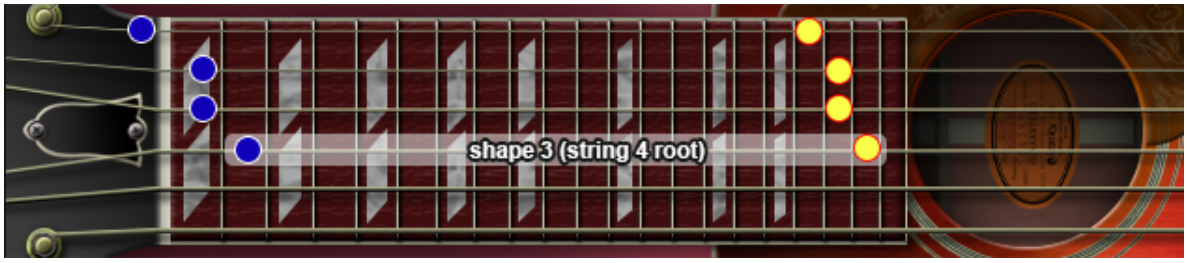




= lowest position = highest position

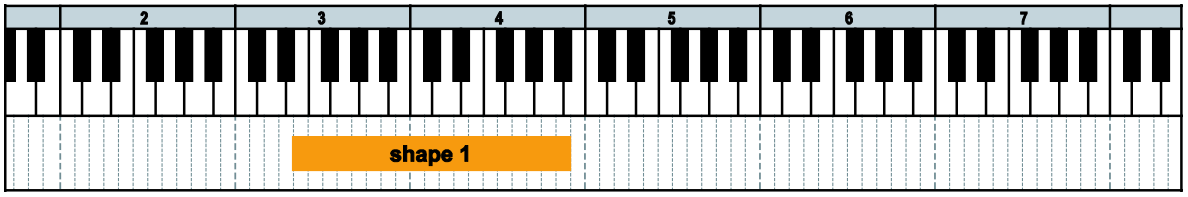
aug

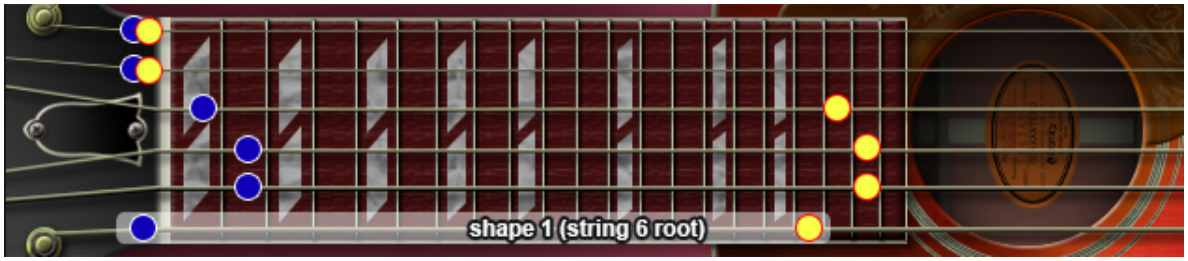




= lowest position = highest position

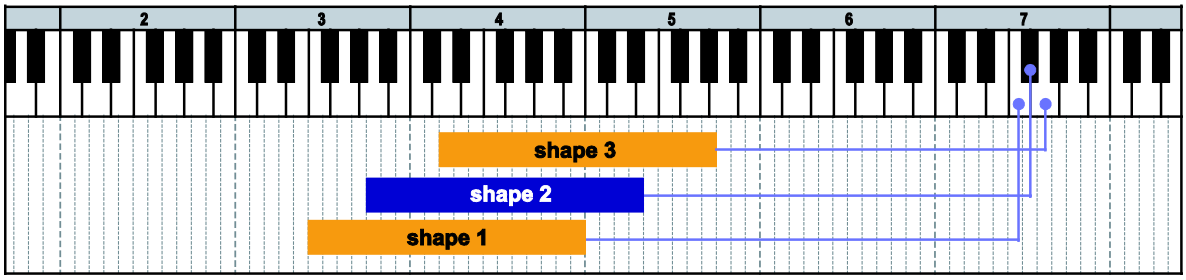
'RUSH' chords

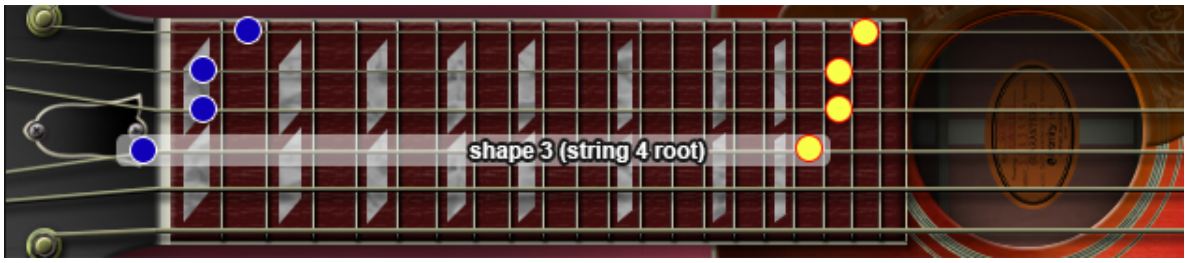


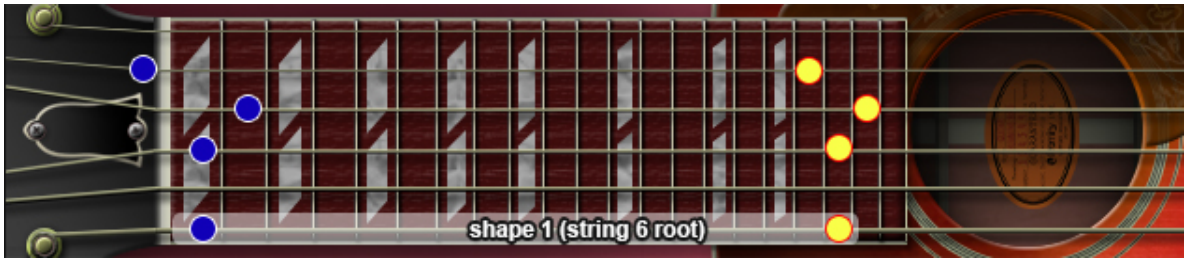


= lowest position = highest position

7(♭5)

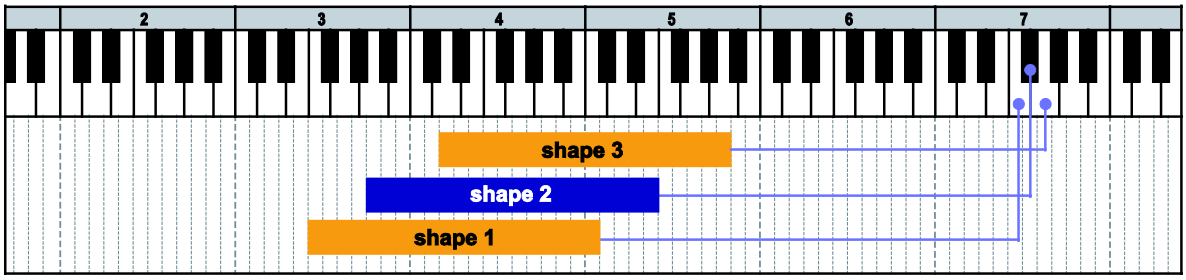


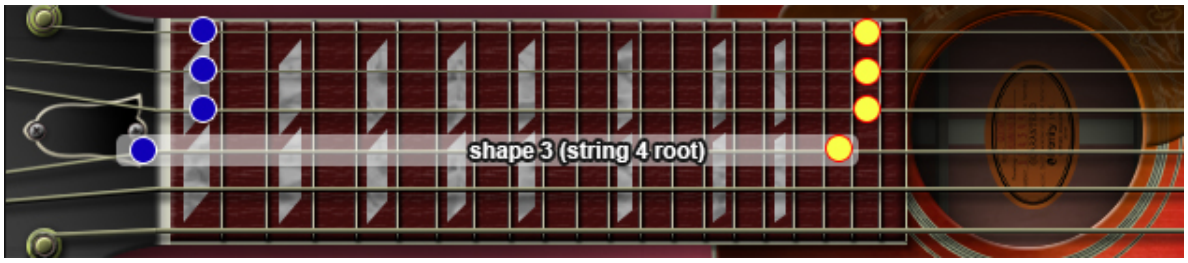


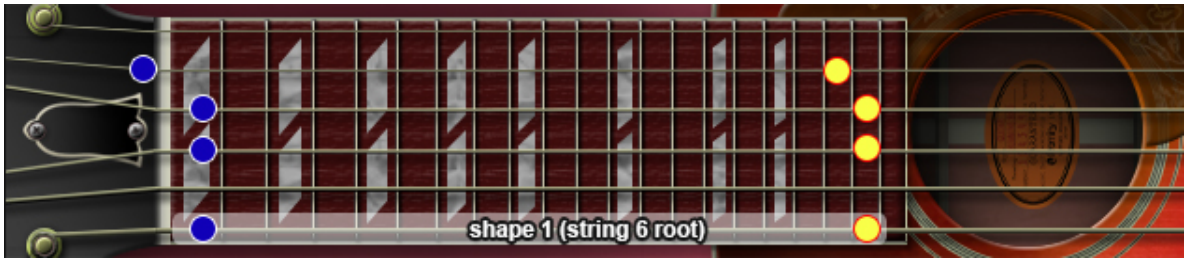


● = lowest position ● = highest position

m7(♭5)

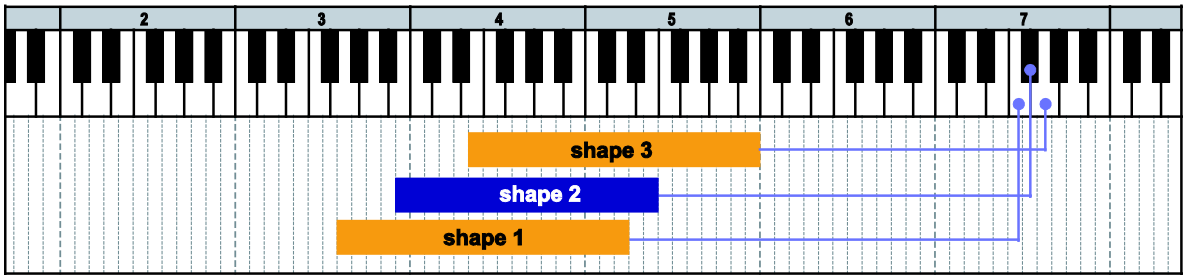


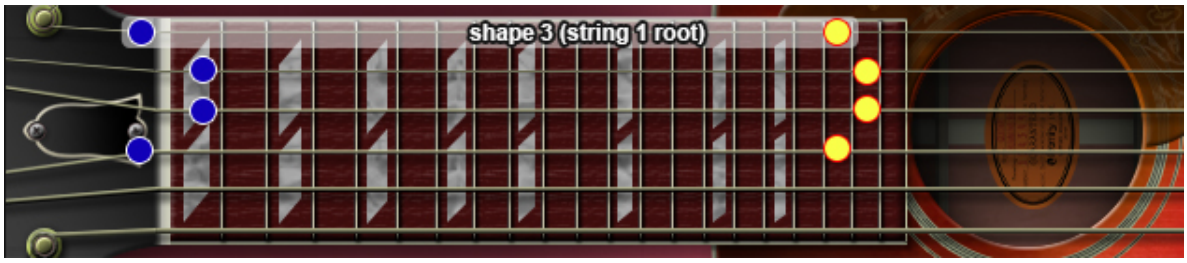


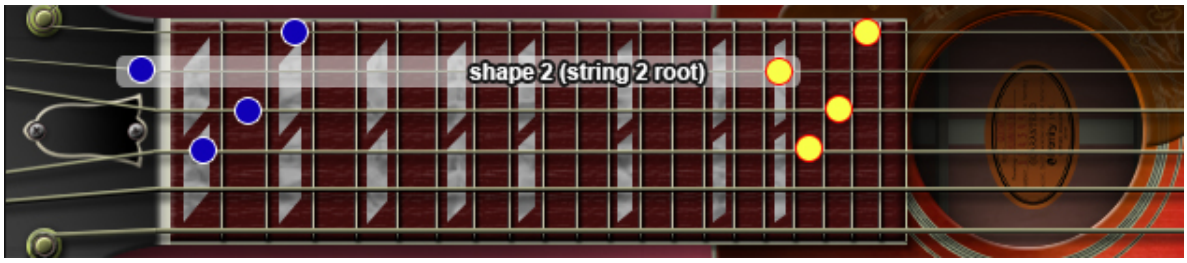


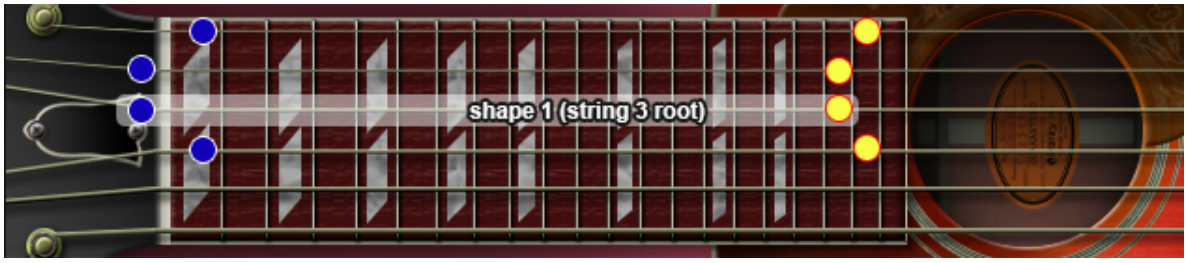
= lowest position = highest position

7(♯5)



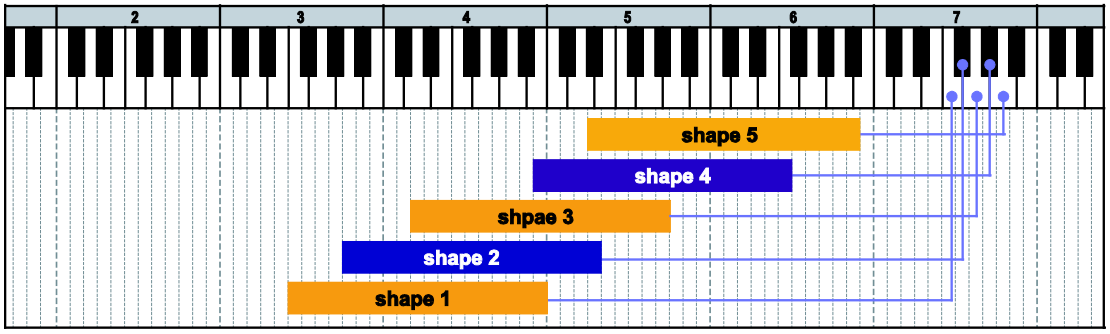


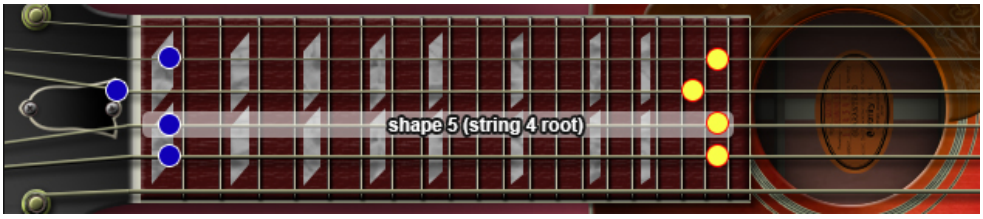


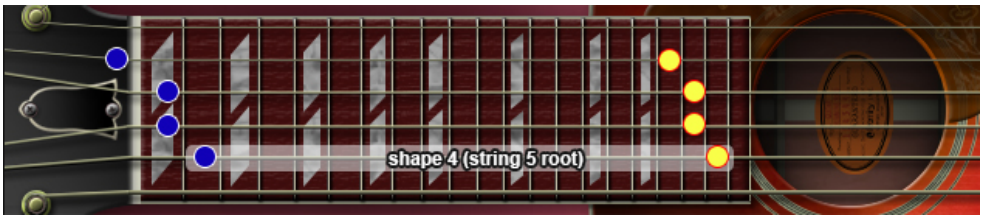


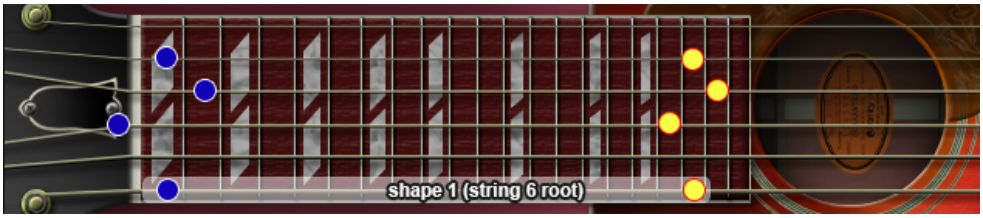
= lowest position = highest position

6th



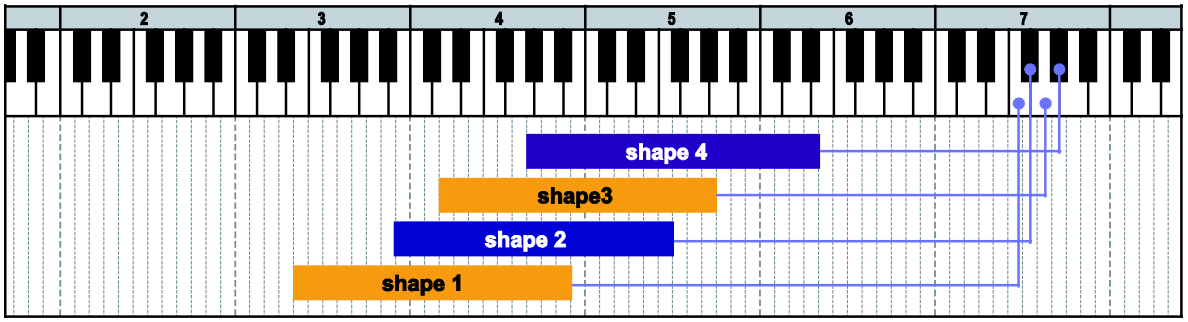


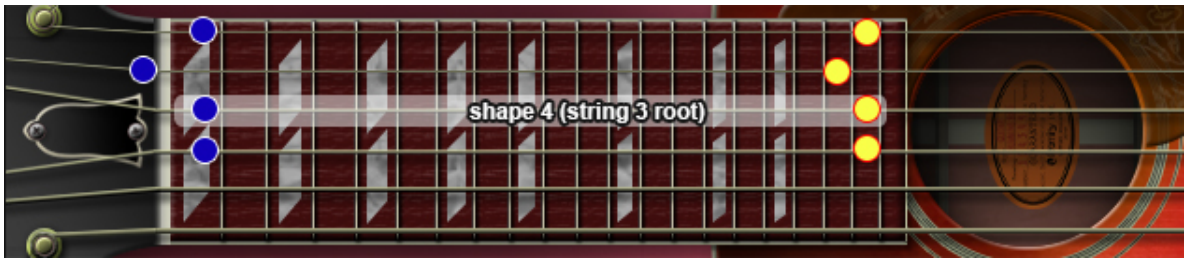


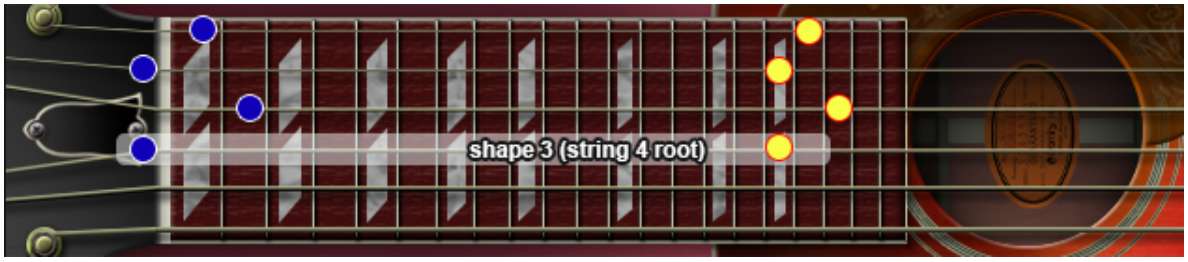


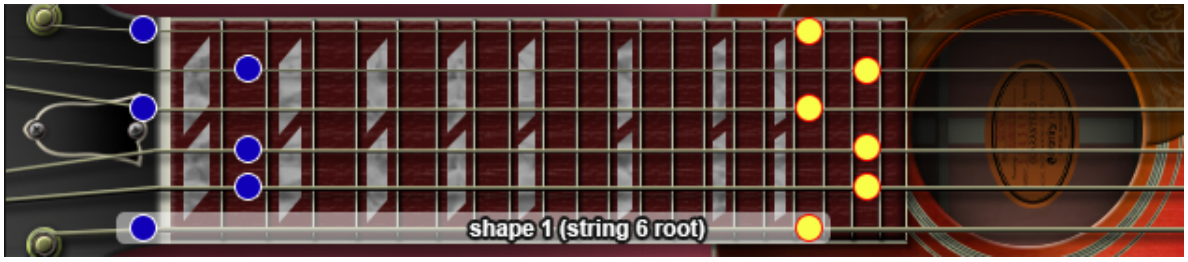
= lowest position = highest position

m6



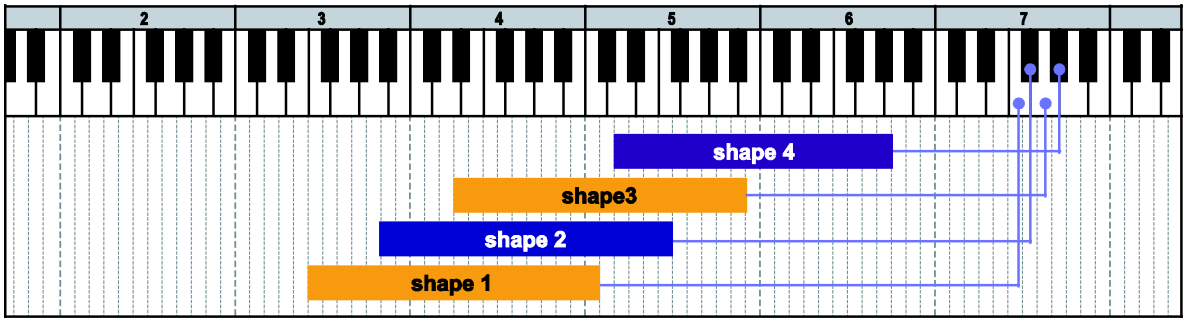


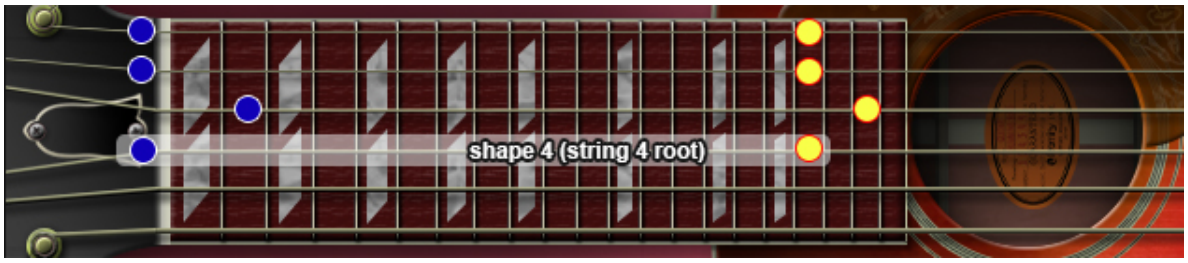


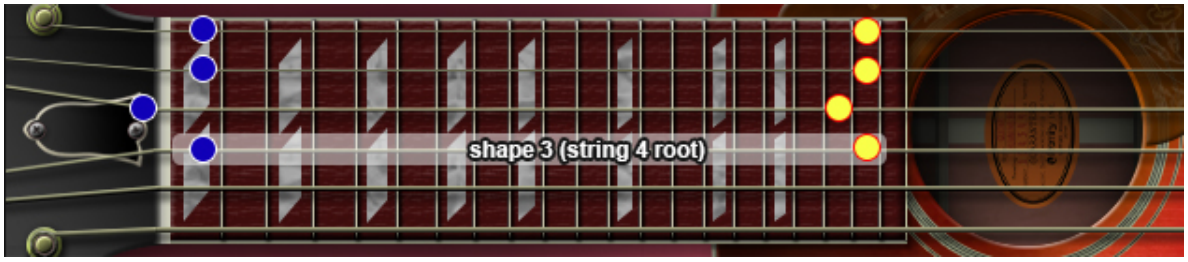


= lowest position = highest position

6 (9)

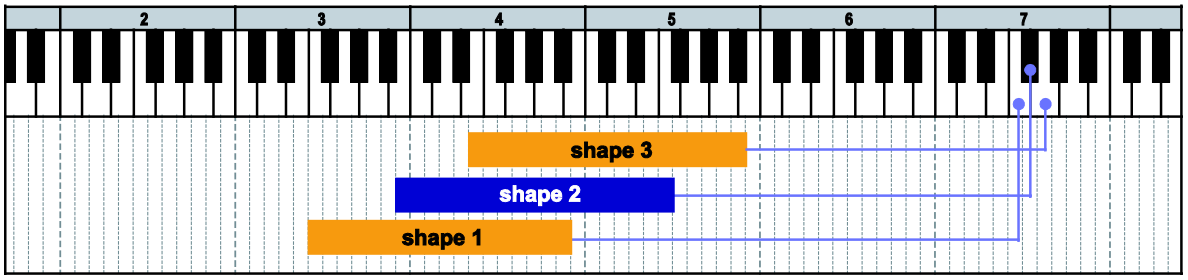


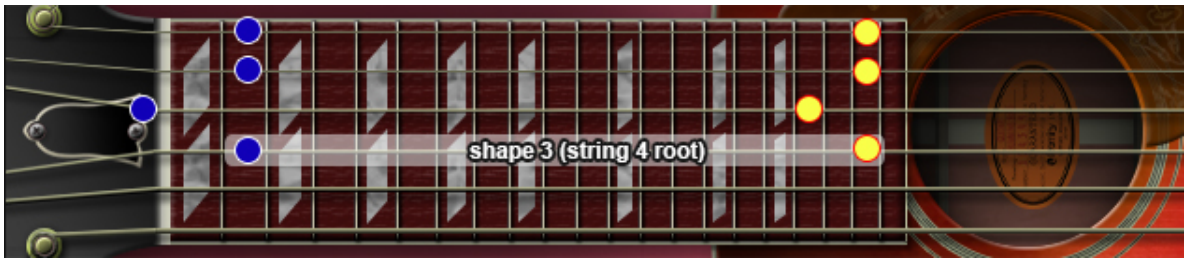


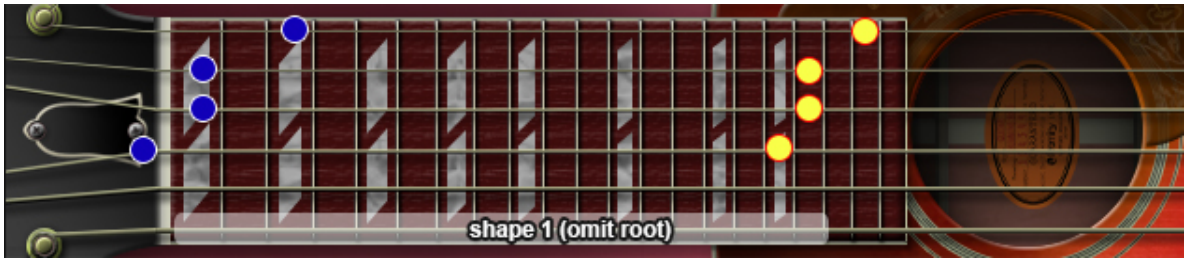


= lowest position = highest position

m6 (9)

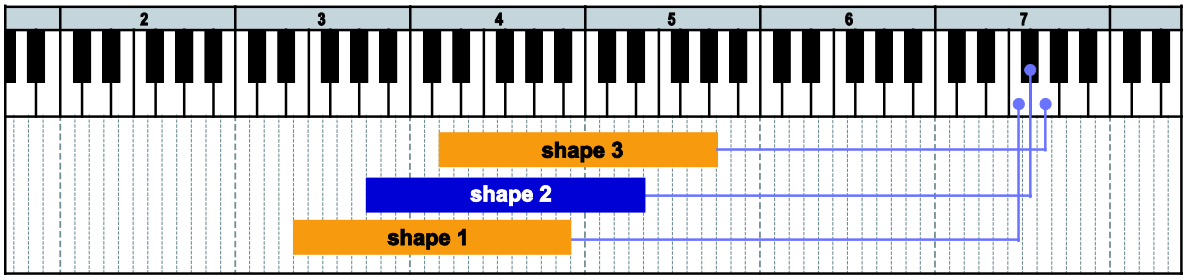


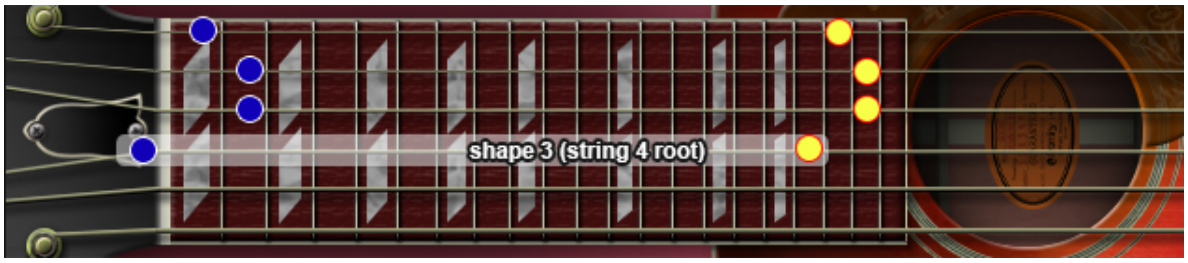


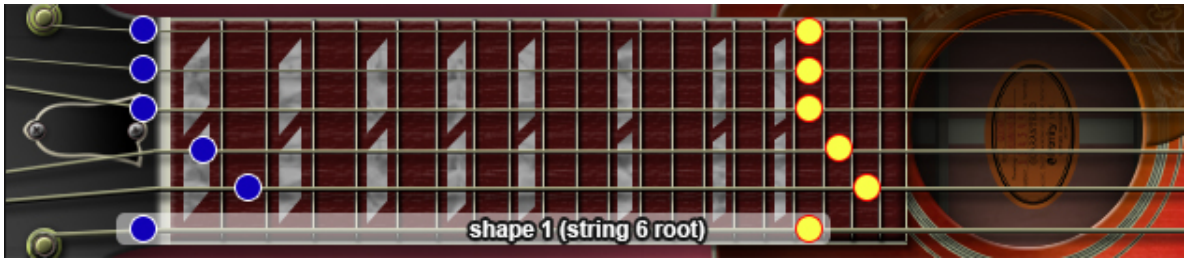


= lowest position = highest position

mMaj7

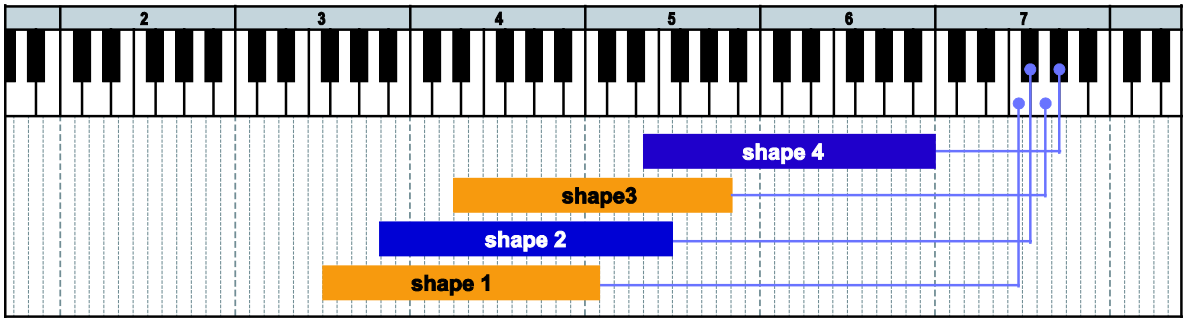


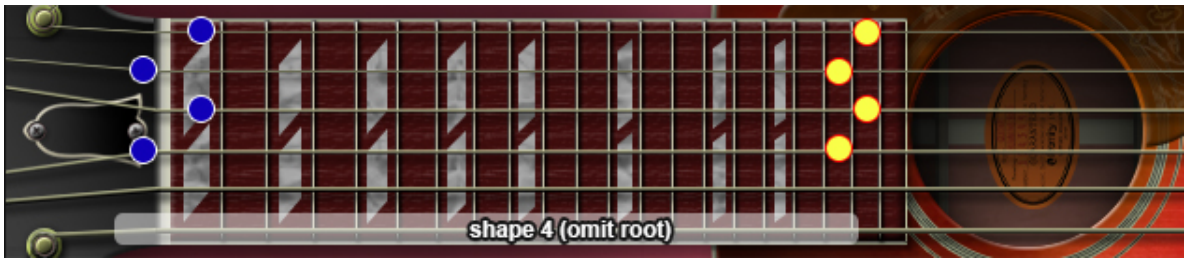


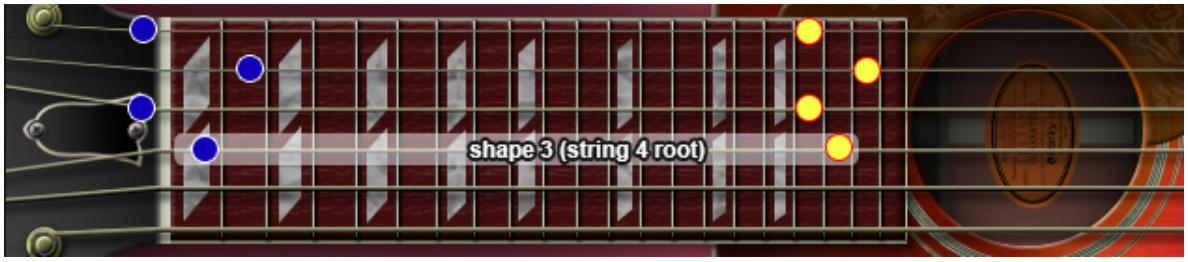


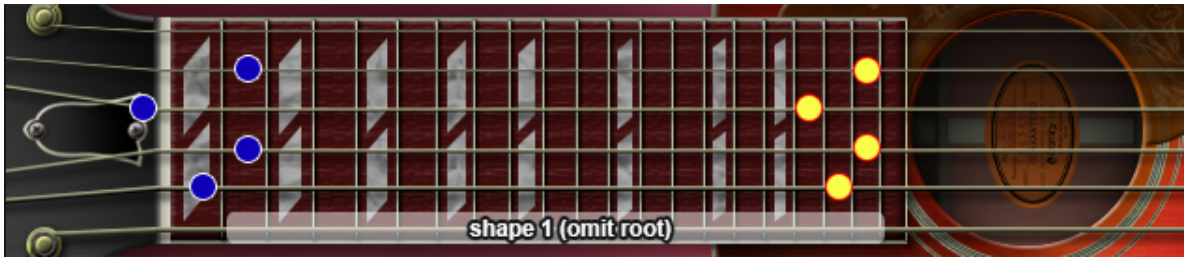
= lowest position = highest position

7(♭9)



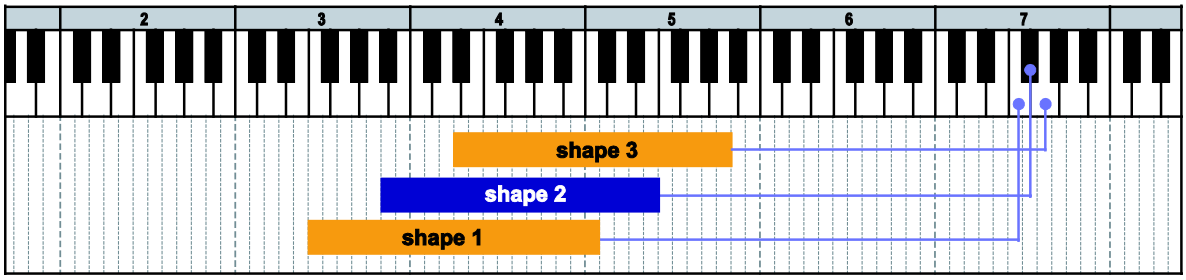


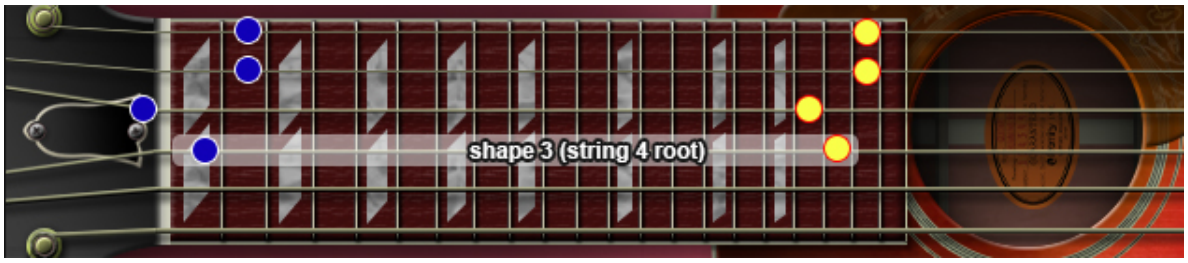


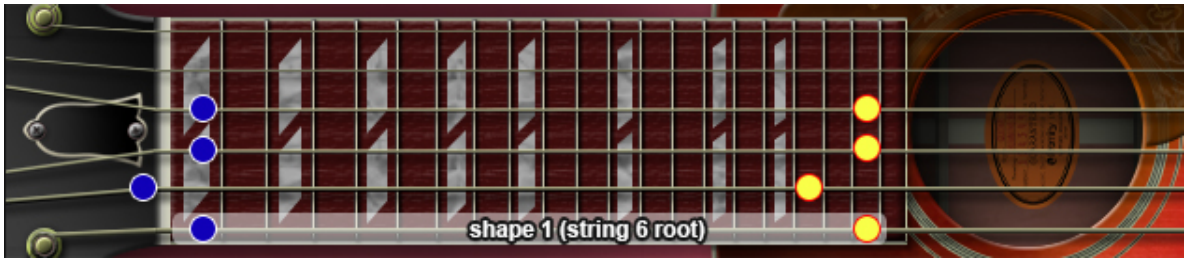


● = lowest position ● = highest position

$7^{(\sharp 9)}$

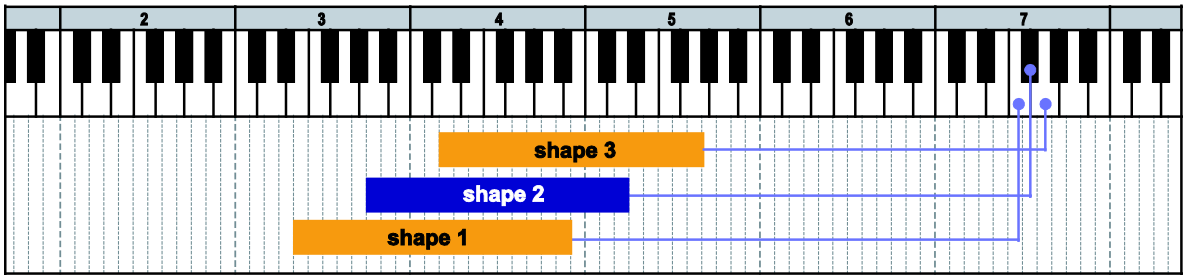


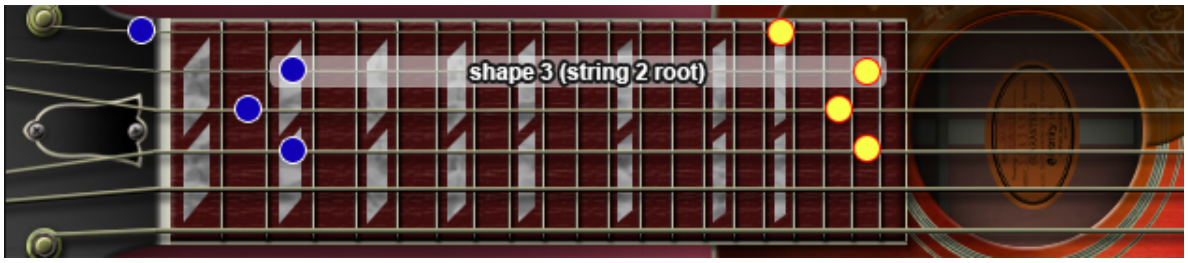


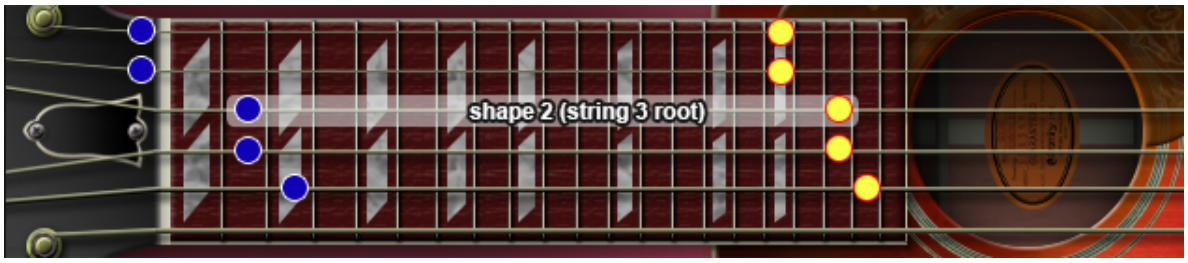


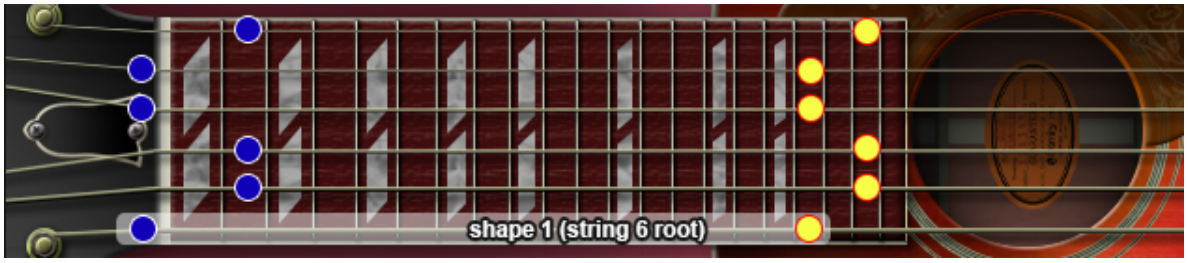
● = lowest position ● = highest position

madd9



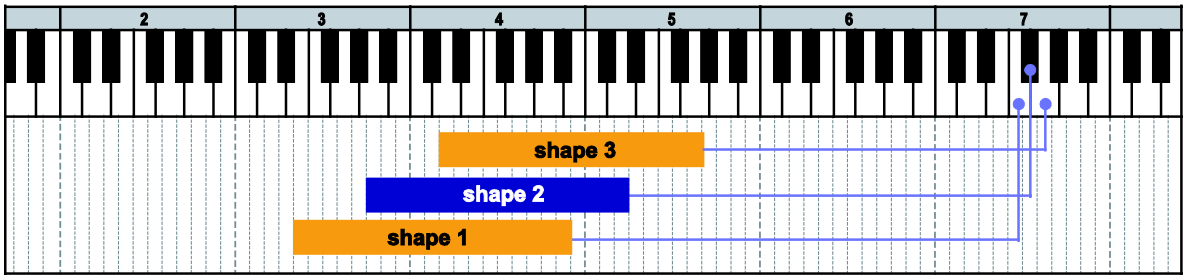


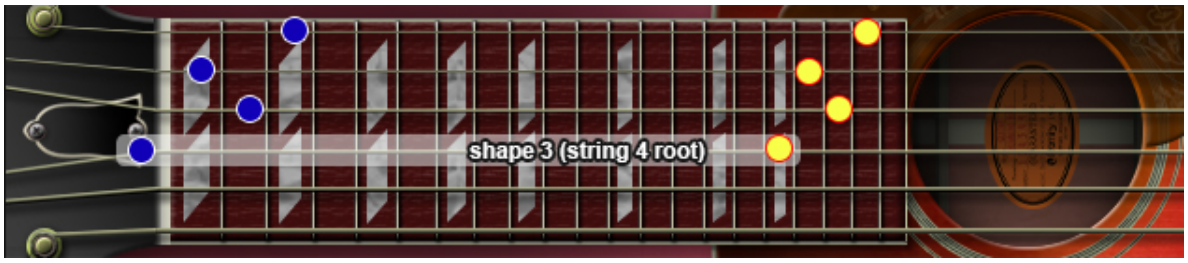


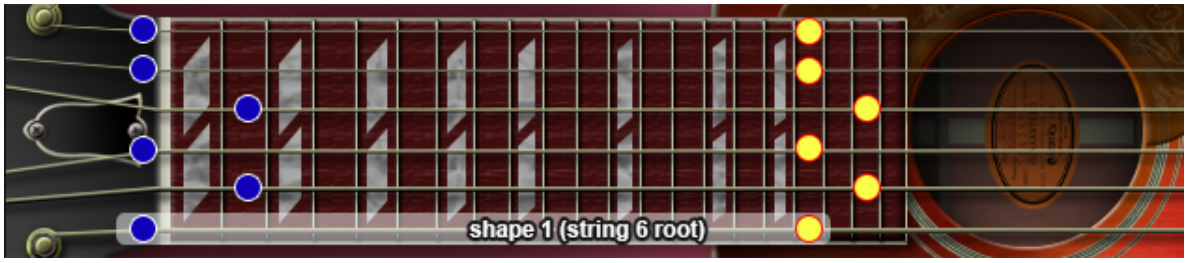


= lowest position = highest position

7sus4

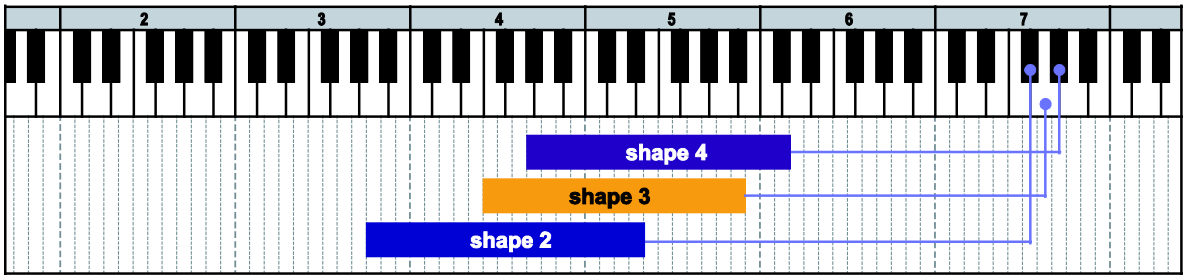


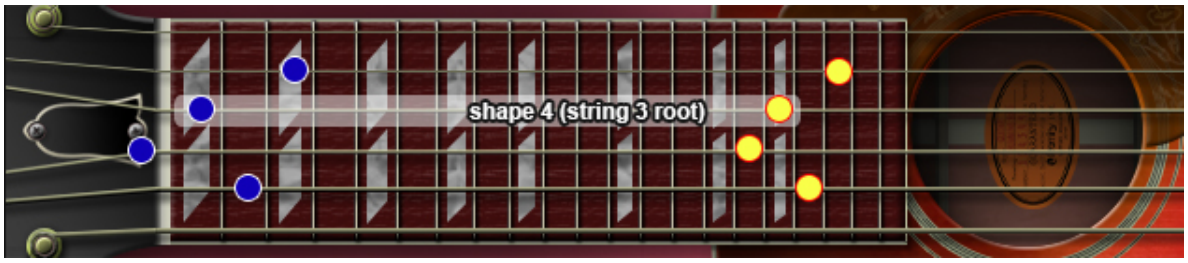


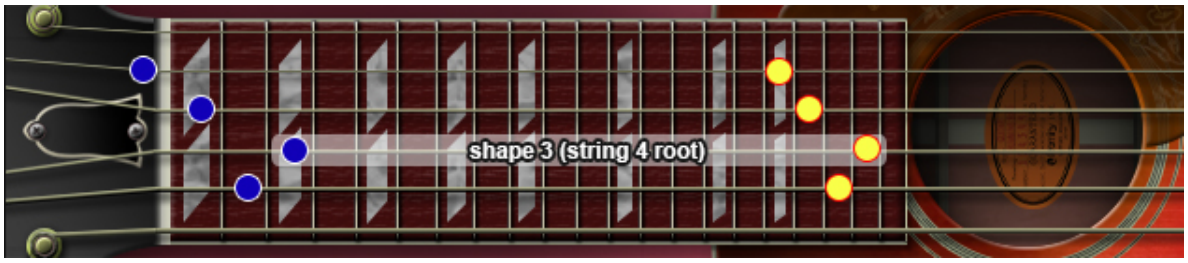


= lowest position = highest position

dim

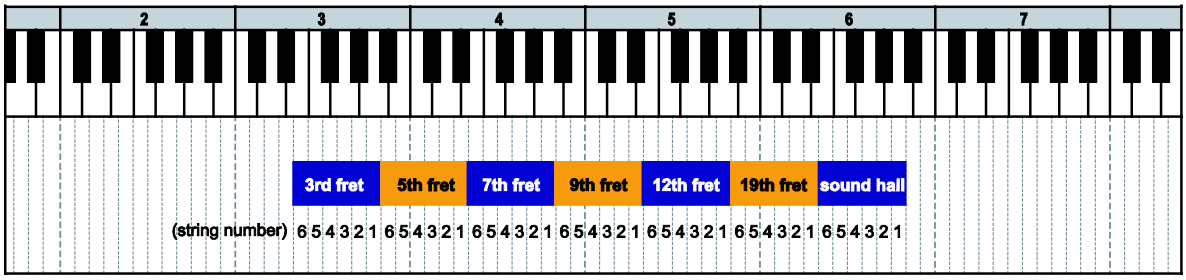




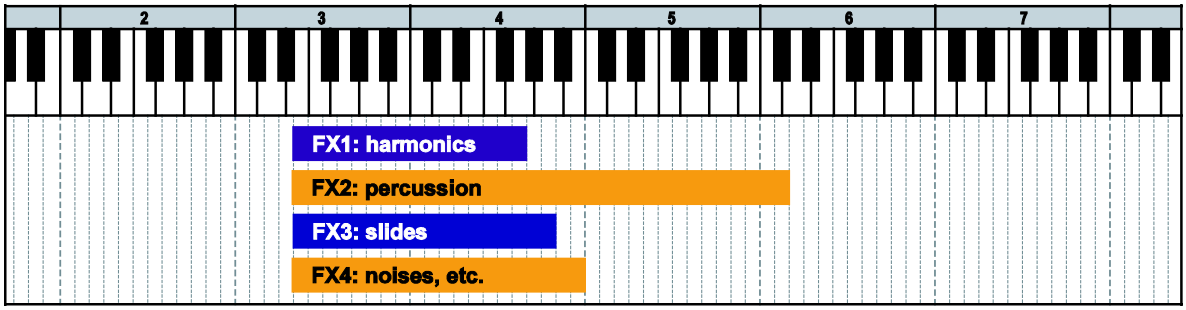


= lowest position = highest position

natural harmonics



FX

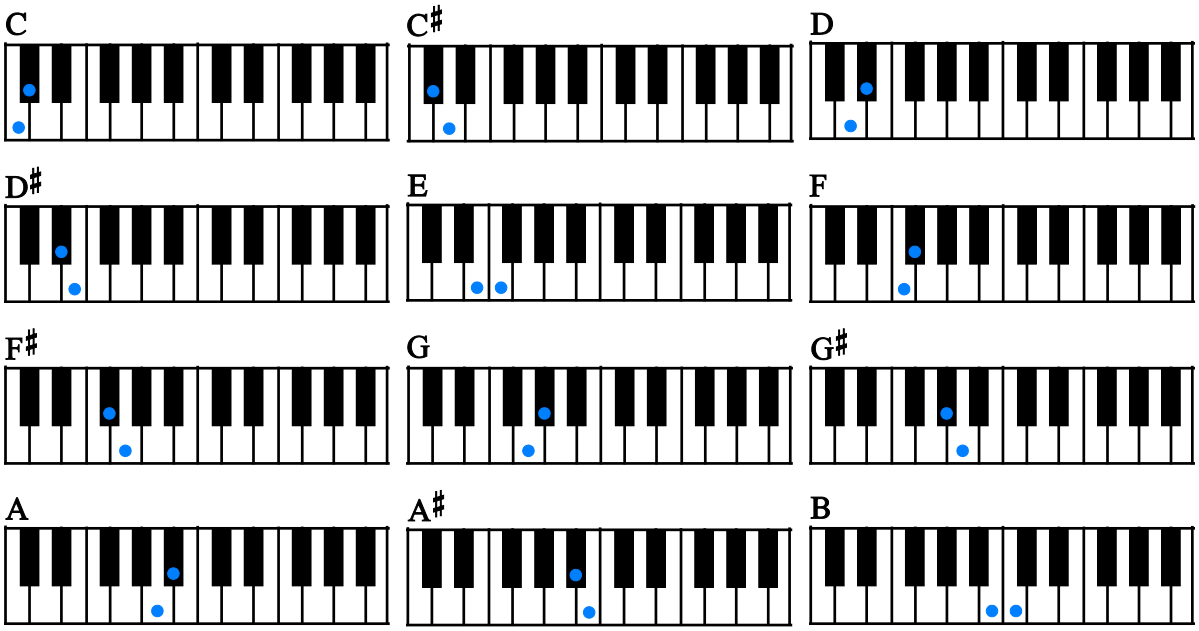


Hummingbird

Chord Recognition Intervals

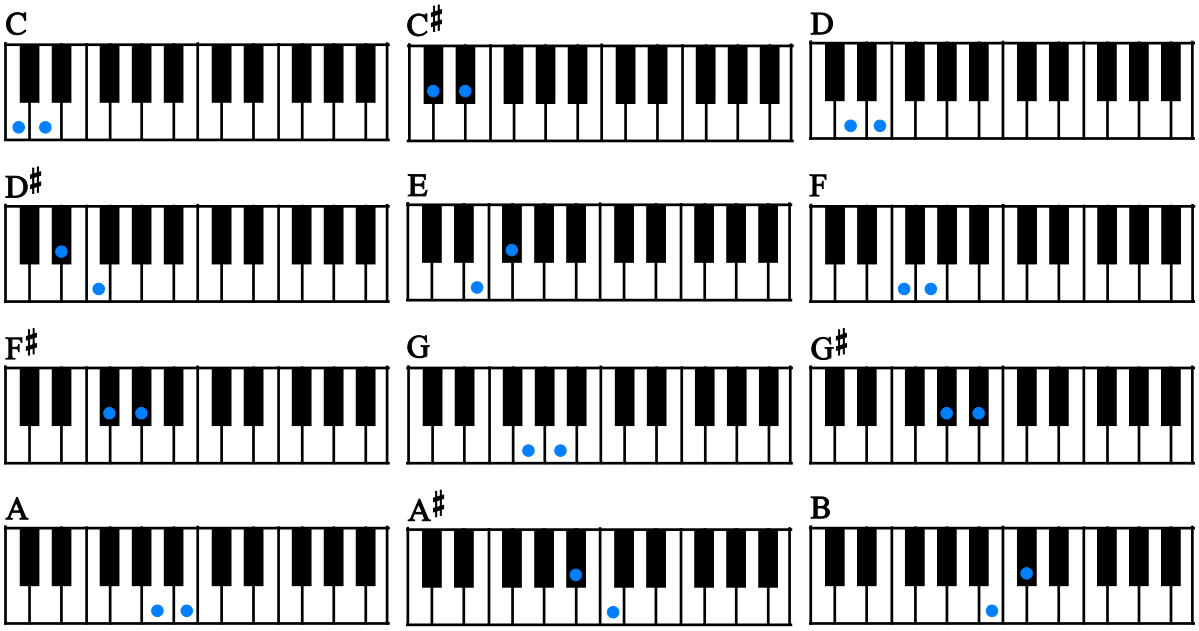
minor 2nd-dyad chord

root + minor2nd



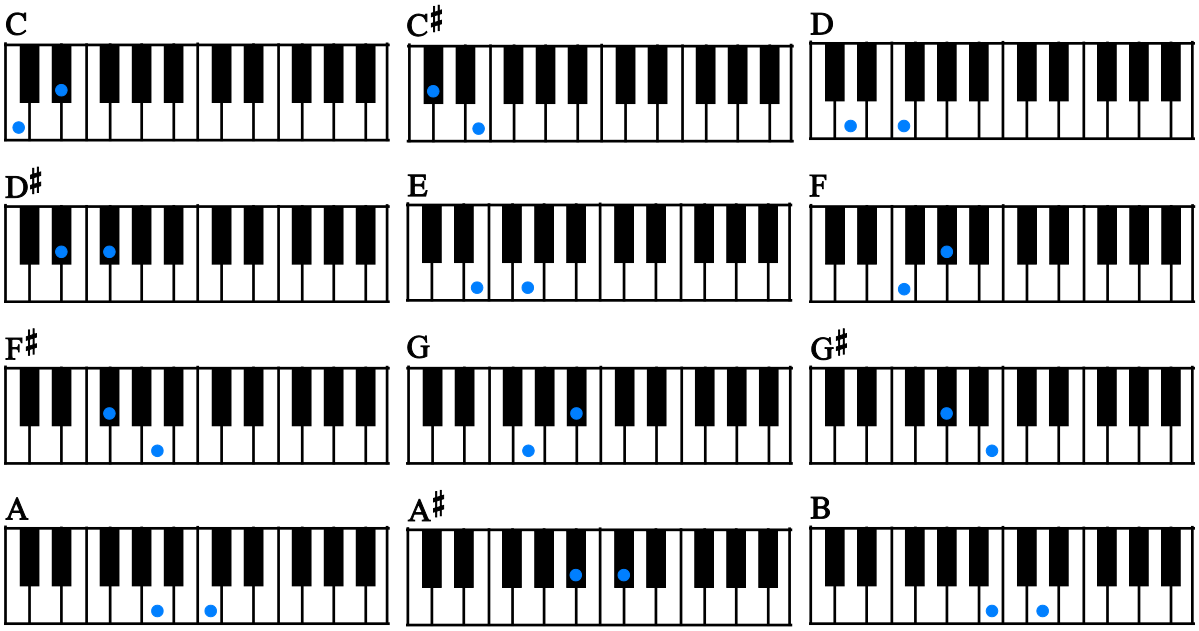
major 2nd-dyad chord

root + major2nd



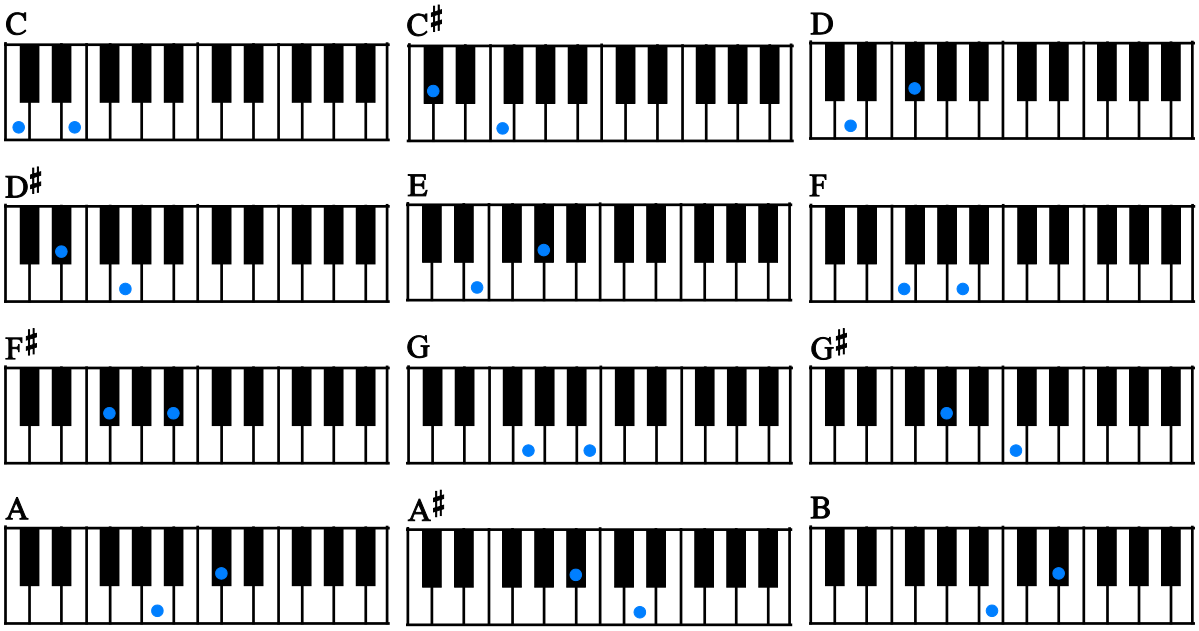
minor 3rd-dyad chord

root + minor3rd



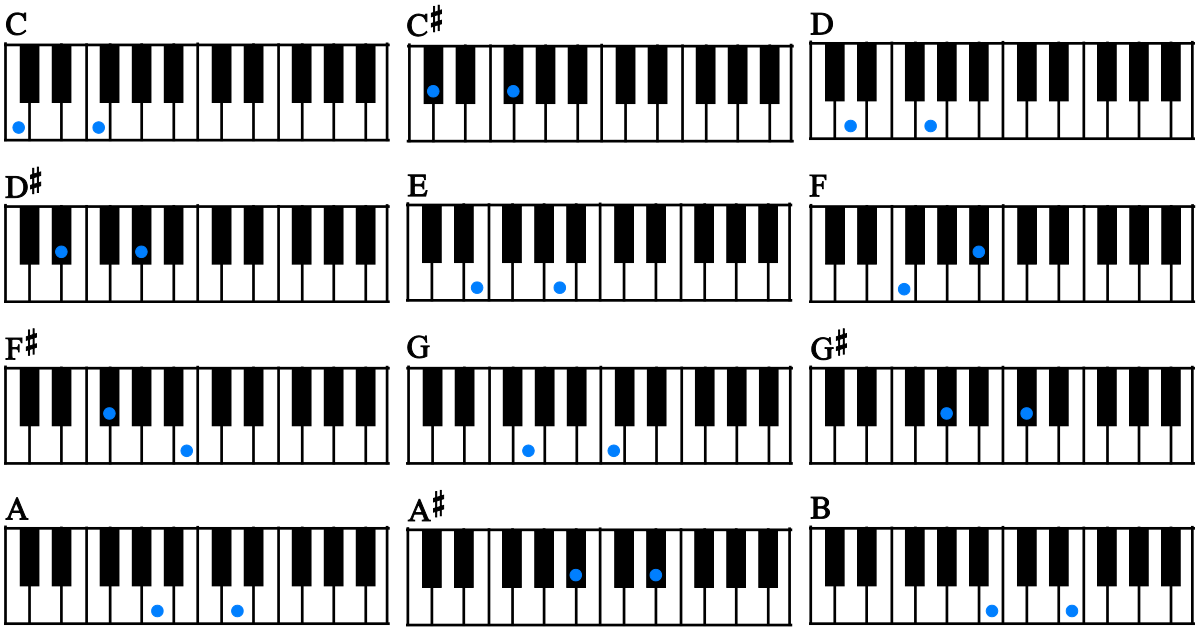
major 3rd-dyad chord

root + major3rd



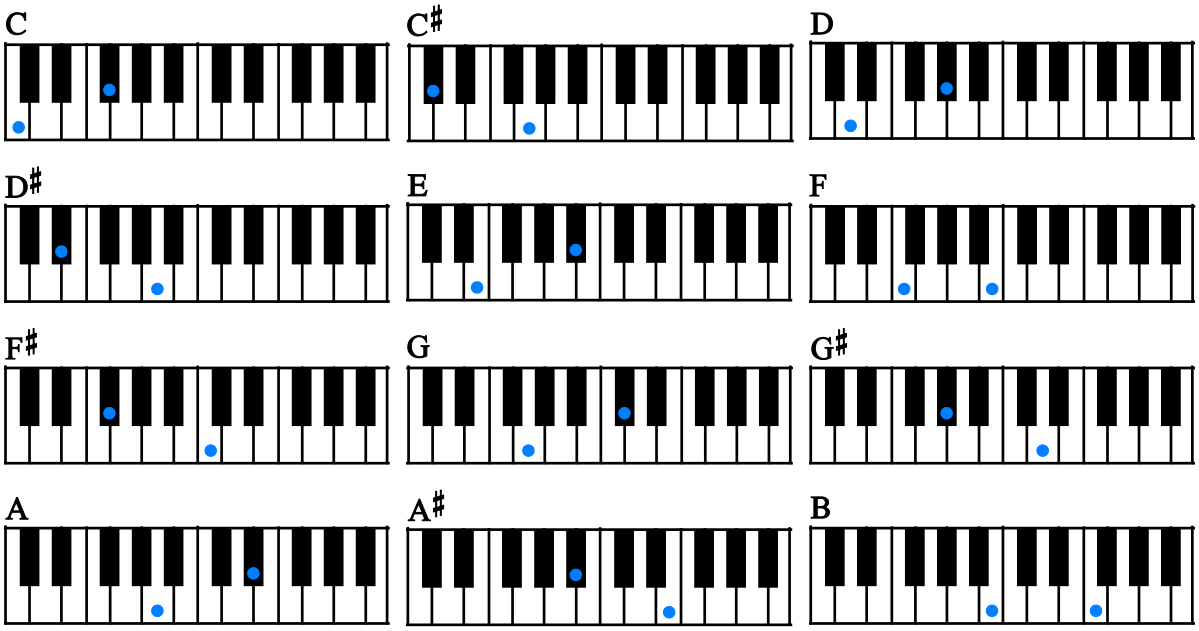
4th-dyad chord

root + 4th



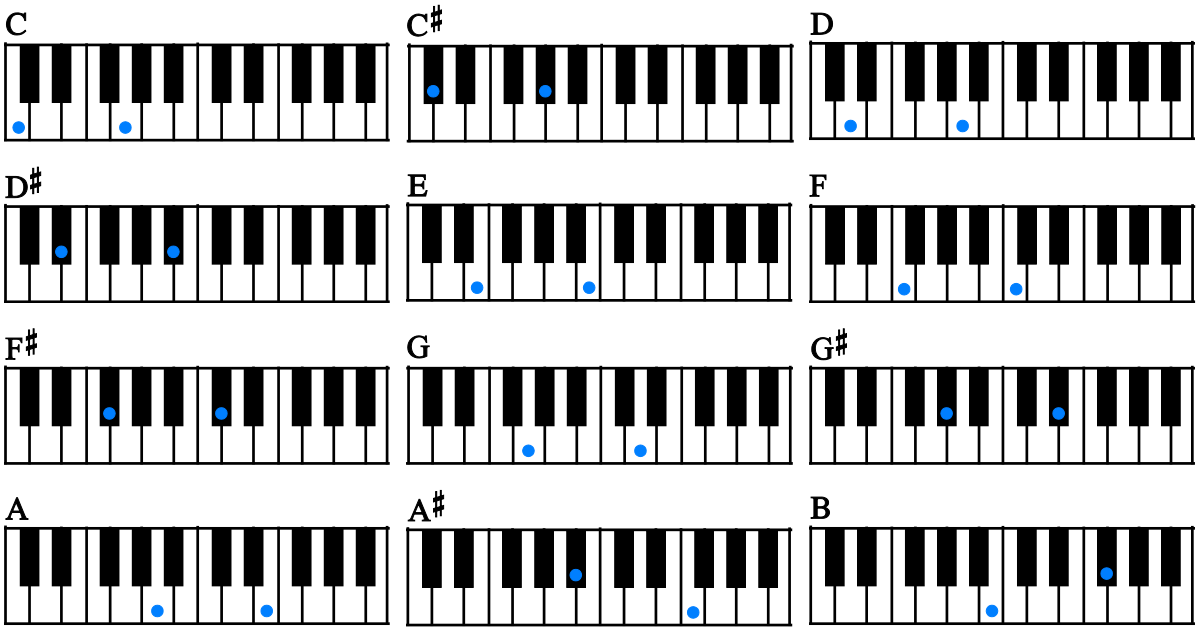
flat 5th-dyad chord

root + flat5th



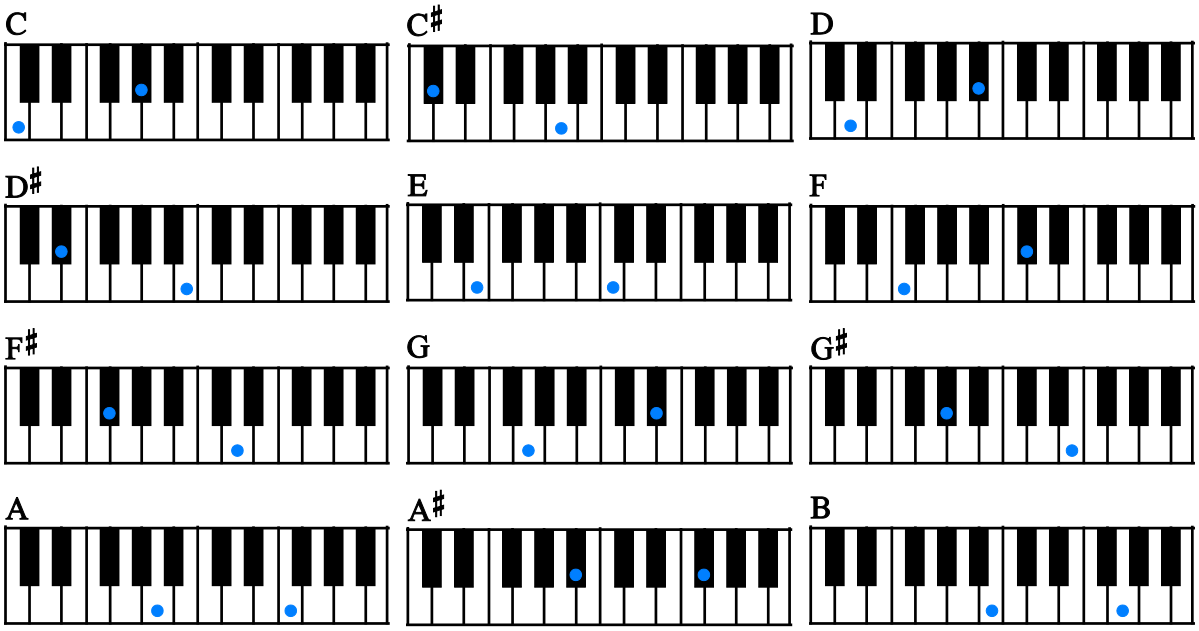
5th-dyad chord

root + 5th



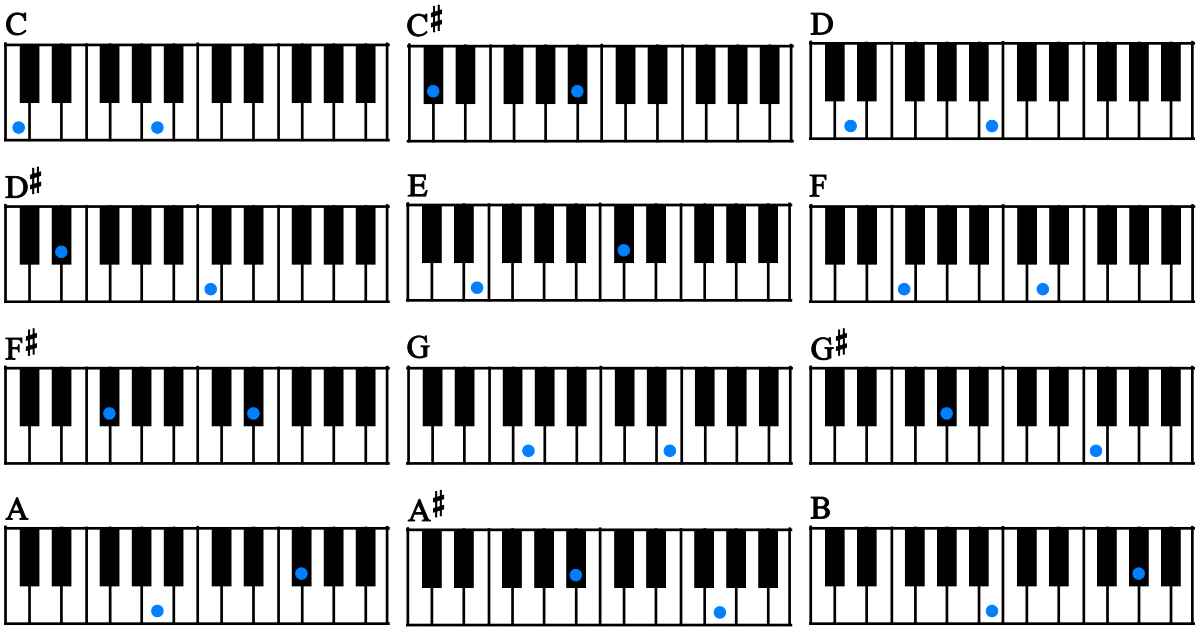
#5th-dyad chord

root + #5th



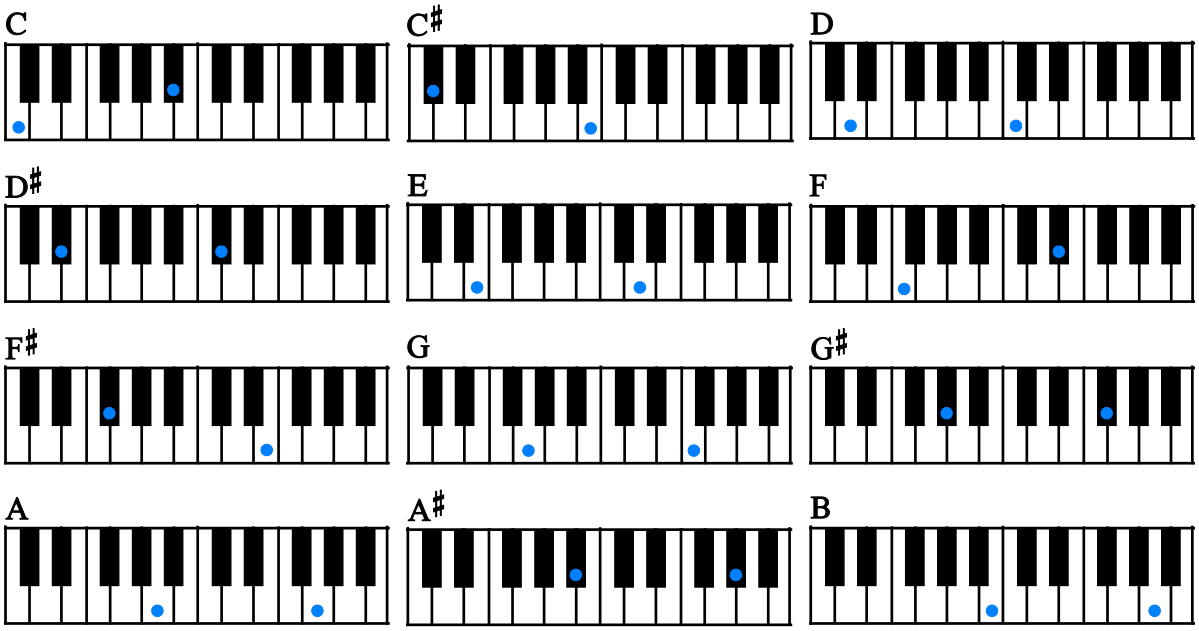
6th-dyad chord

root + 6th



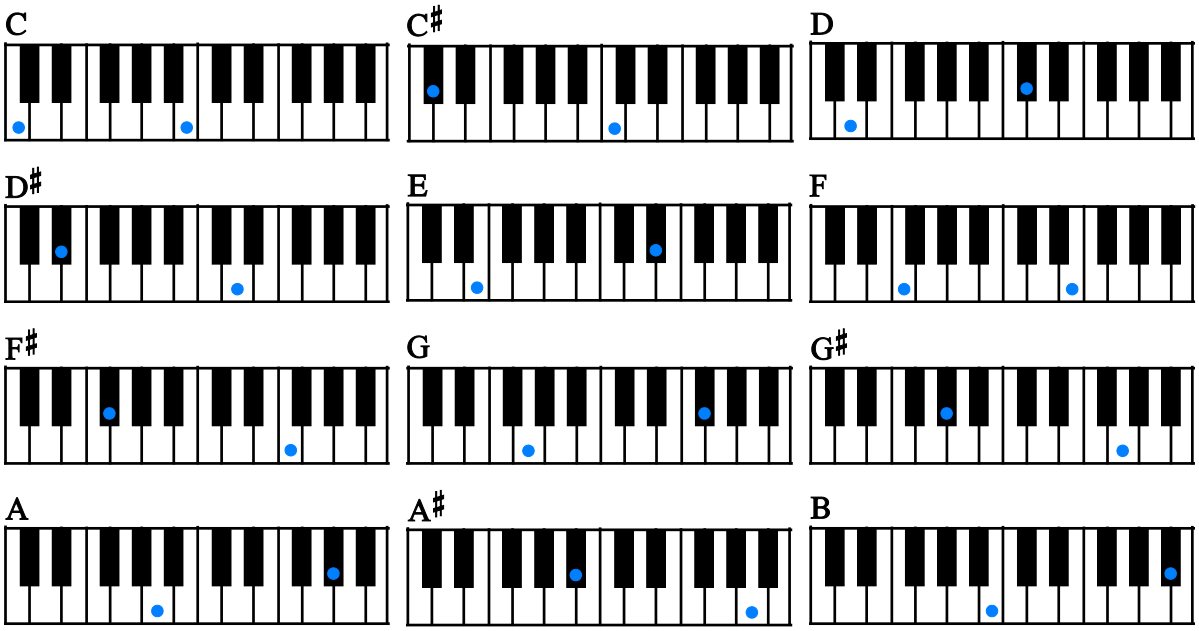
7th-dyad chord

root + 7th



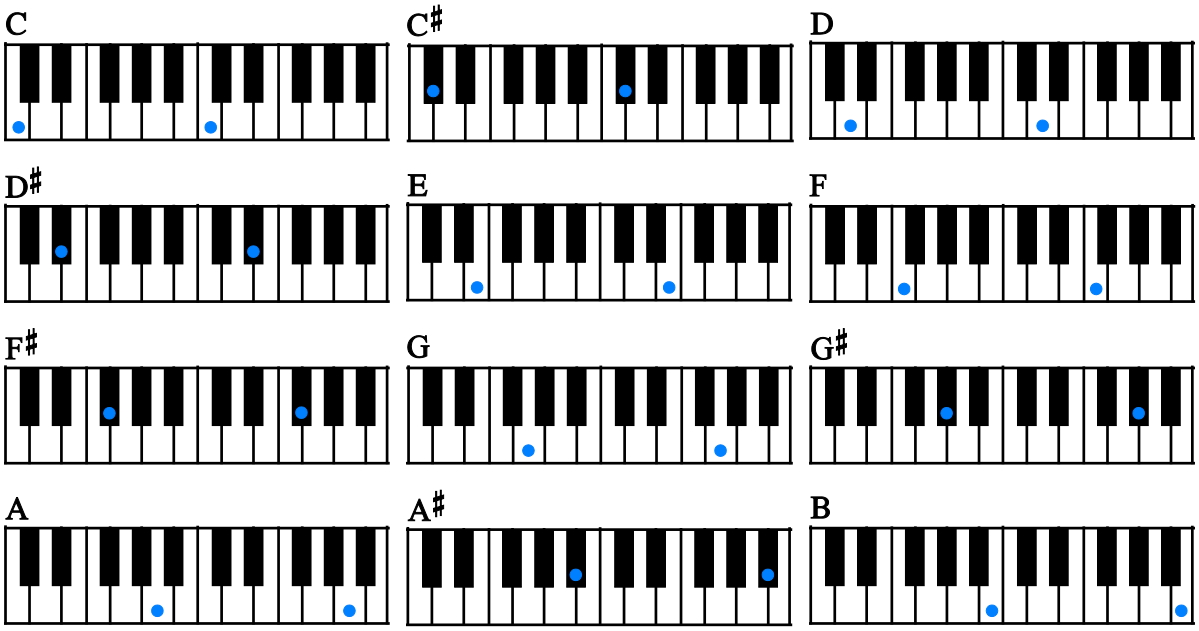
major 7th-dyad chord

root + major7th



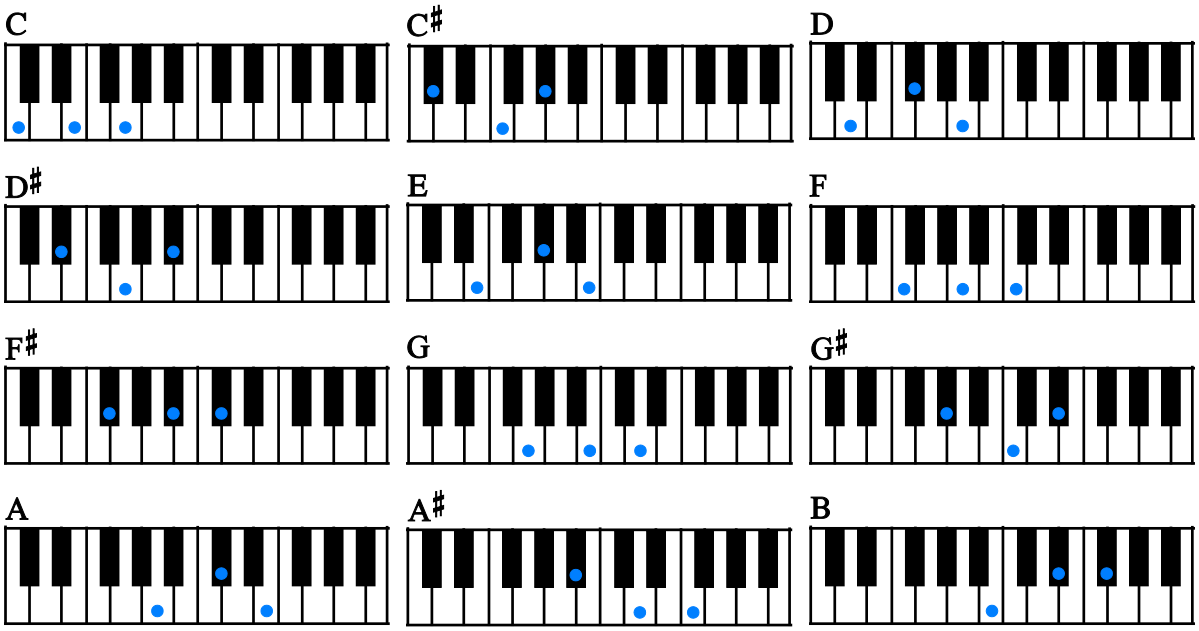
octave

root + octave



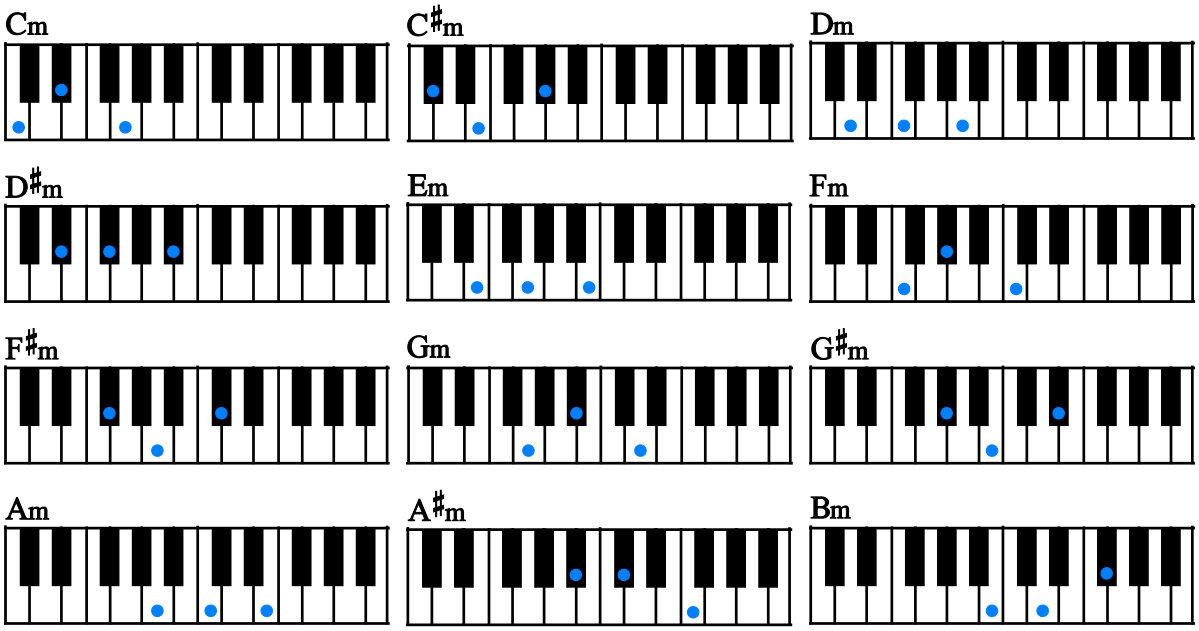
major

root + major3rd + 5th



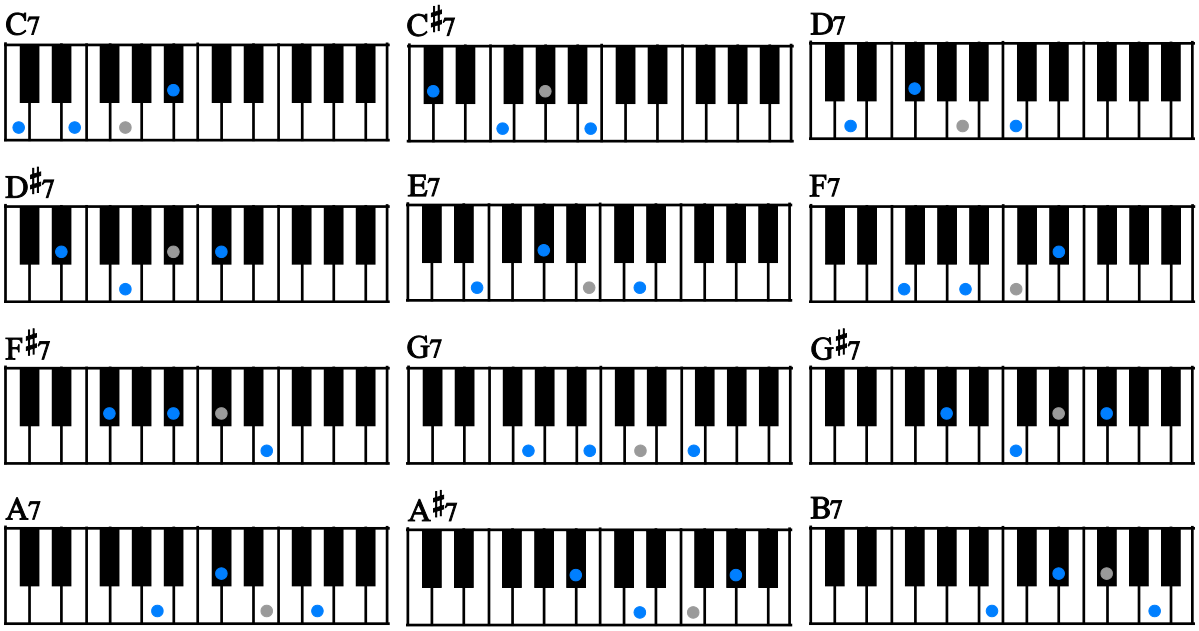
minor

root + minor3rd + 5th



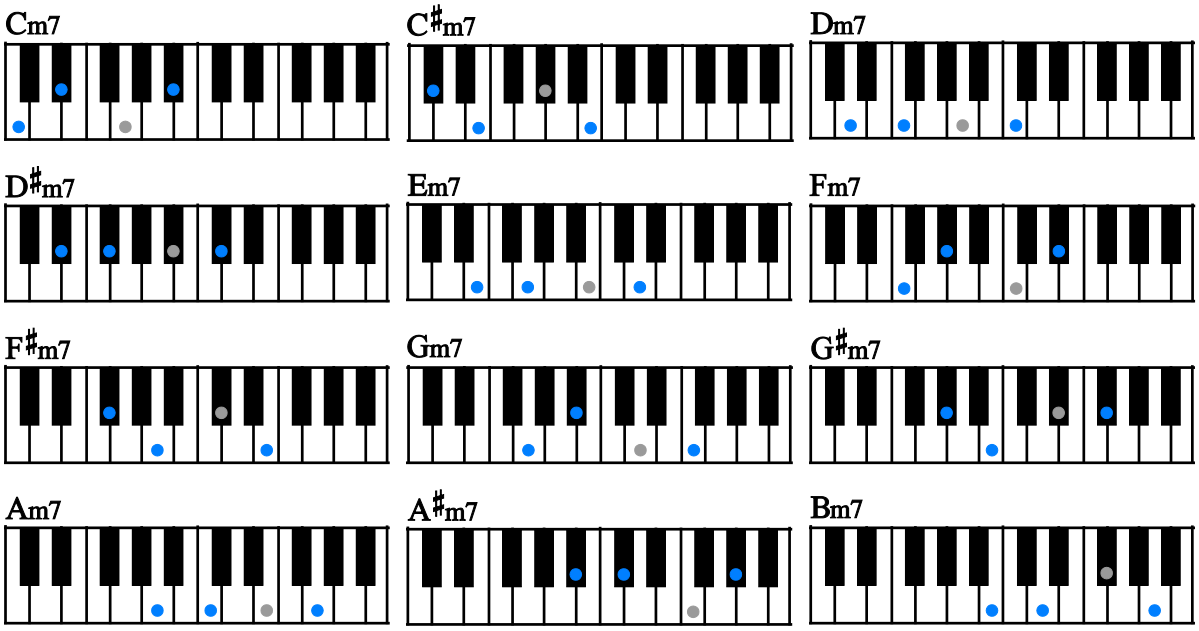
7th

root + major3rd + 7th (5th can be omitted.)



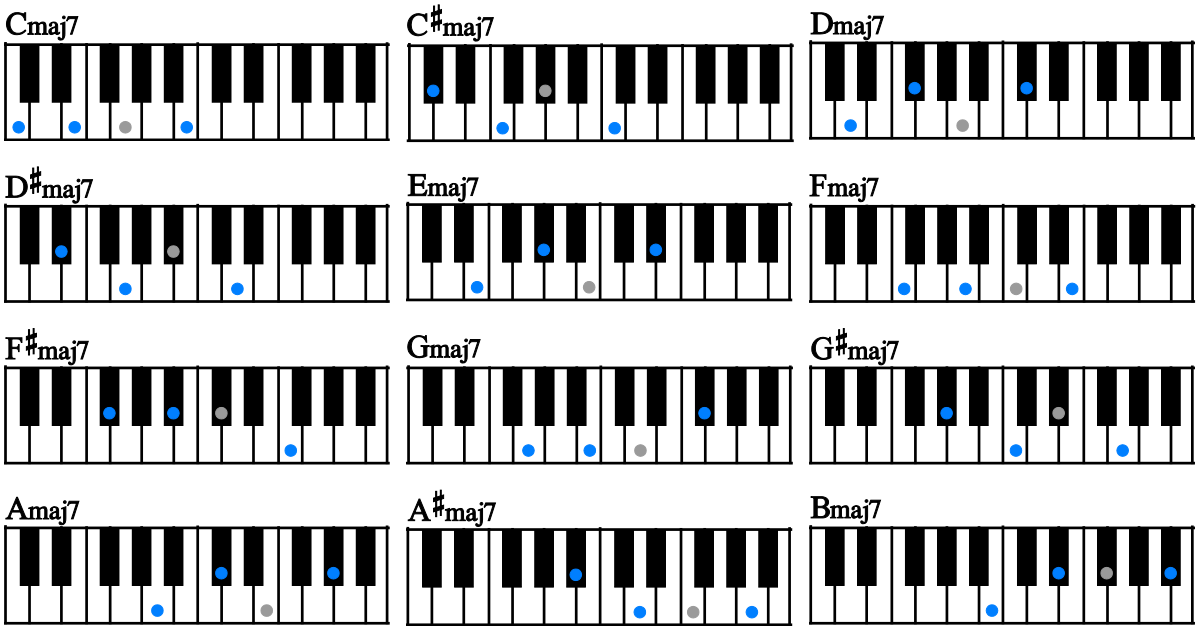
m7

root + minor3rd + 7th (5th can be omitted.)



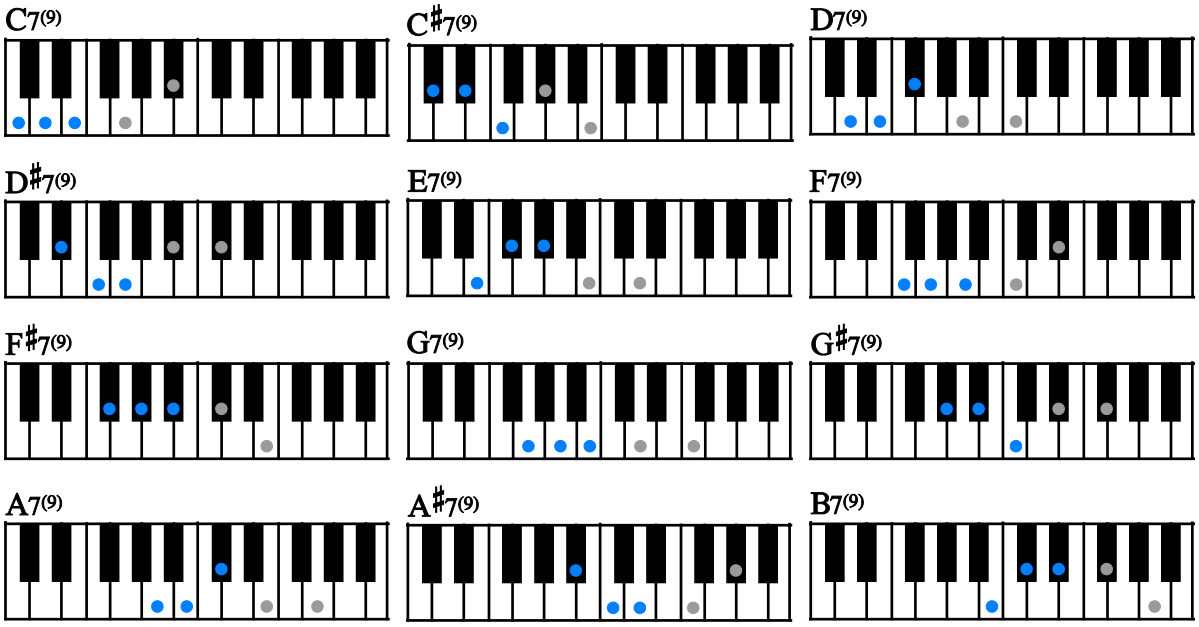
maj7

root + major3rd + major7th (5th can be omitted.)



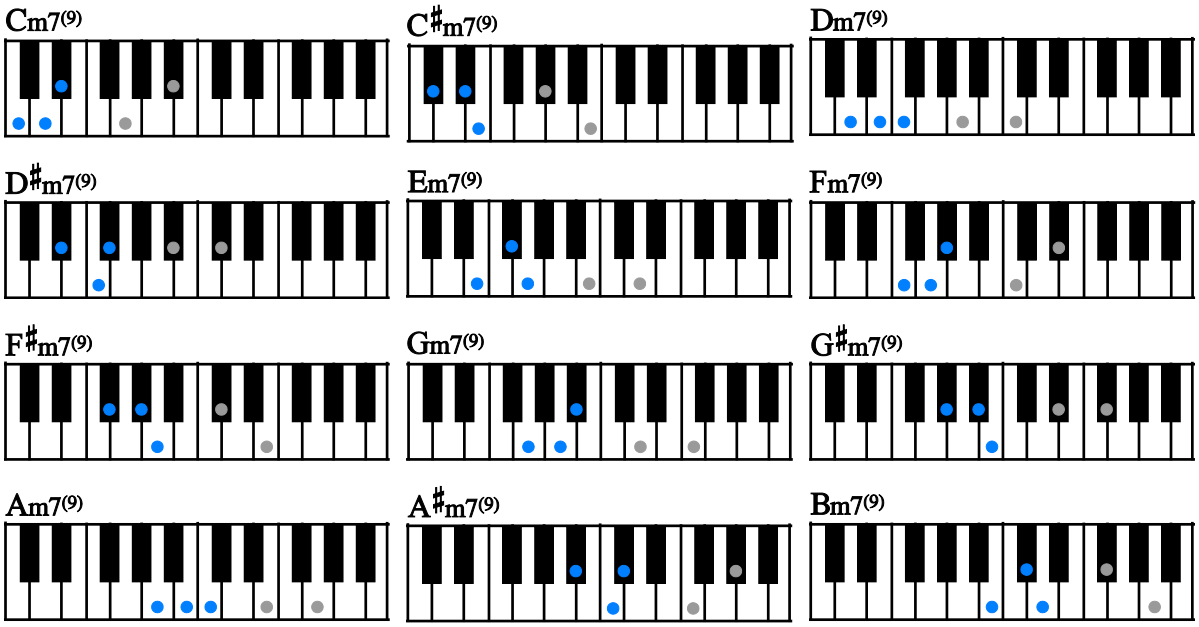
9th

root + 9th(2nd) + major3rd (5th and 7th can be omitted.)



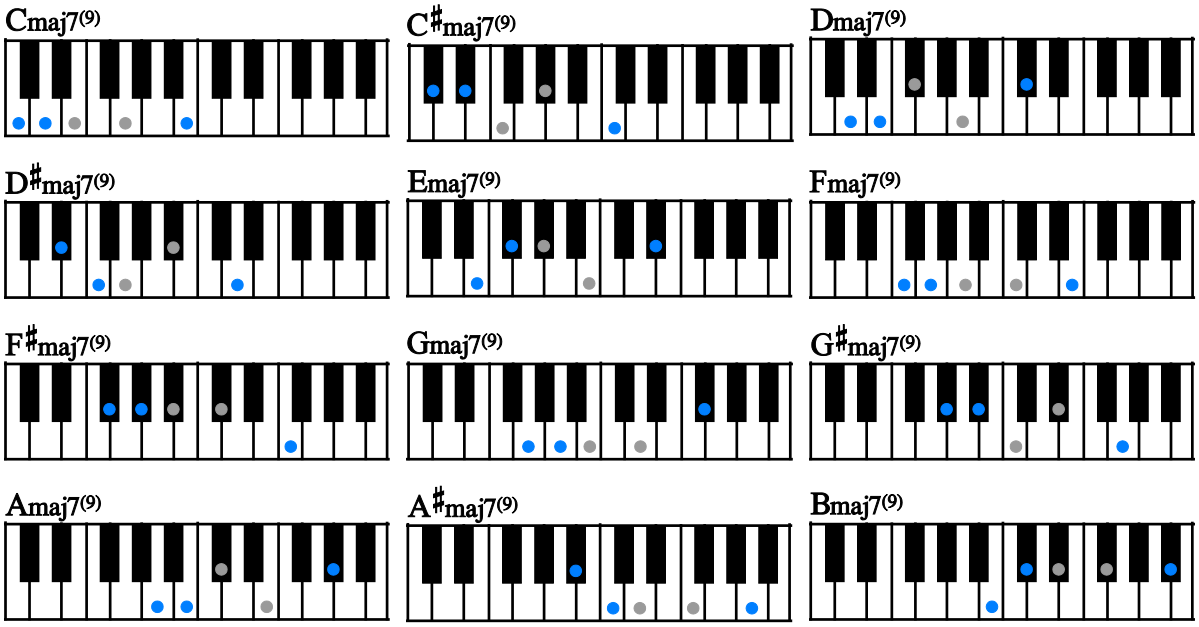
m9

root + 9th(2nd) + minor3rd (5th and 7th can be omitted.)



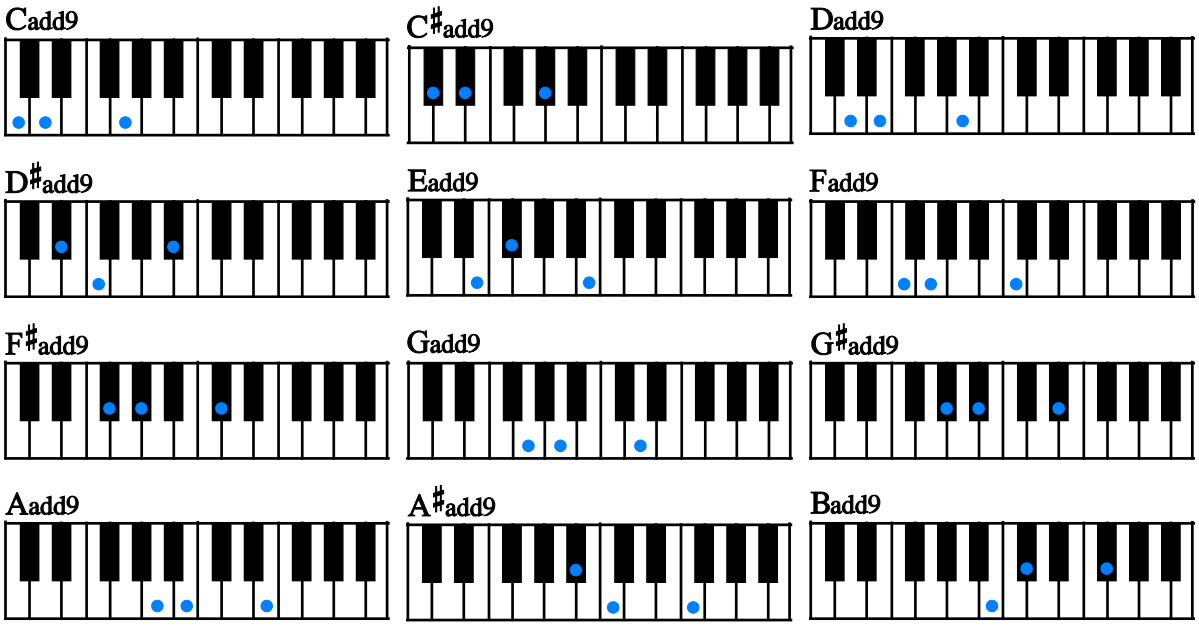
maj9

root + 9th(2nd) + major7th (3rd and 7th can be omitted.)



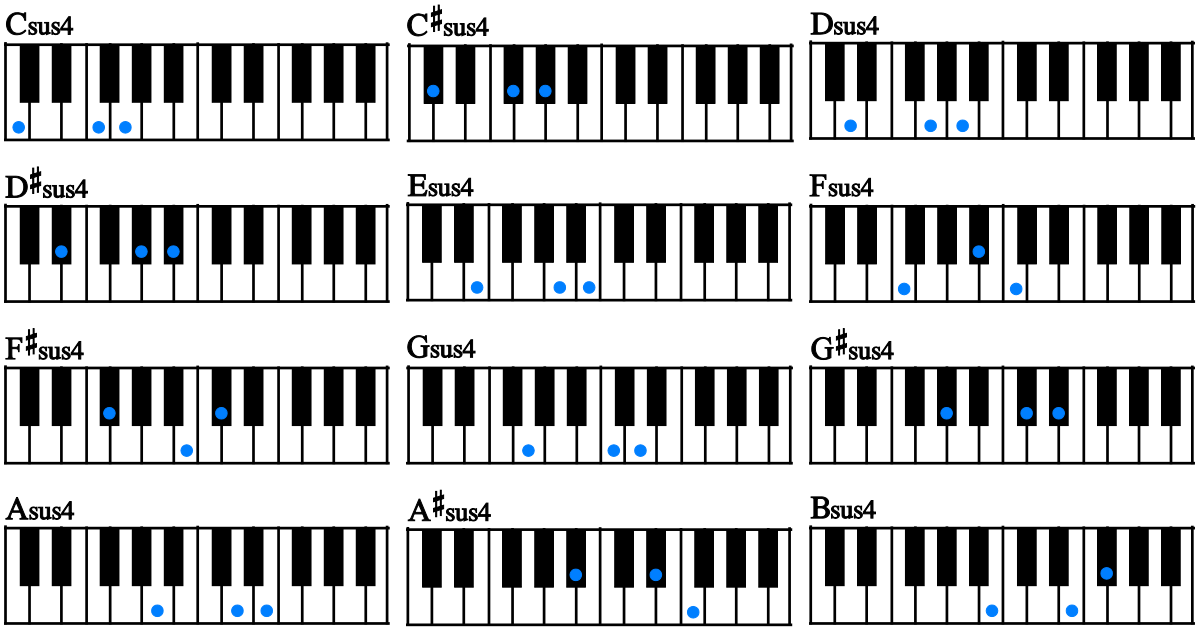
add9

root + 9th(2nd) + 5th



sus4

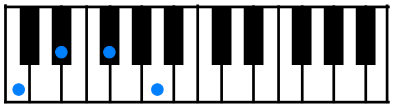
root + 4th + 5th



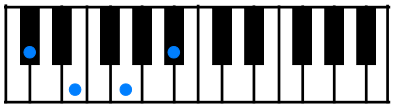
dim7

root + minor3rd + dim5 + dim7

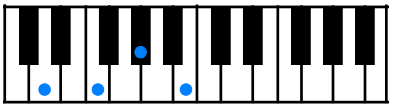
Cdim7



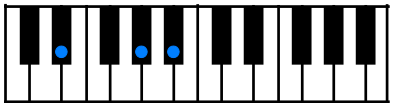
C♯dim7



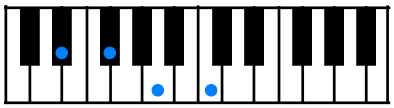
Ddim7



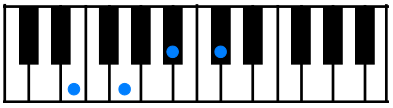
D♯sus4



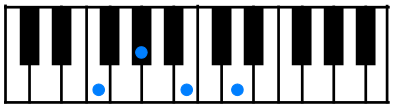
D♯dim7



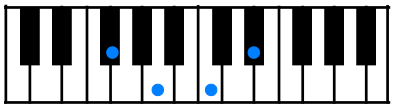
Edim7



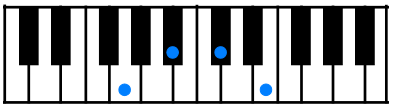
Fdim7



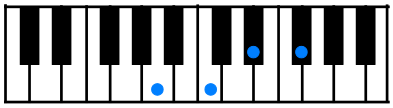
F♯dim7



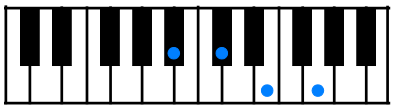
Gdim7



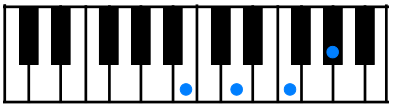
Adim7



A♯dim7



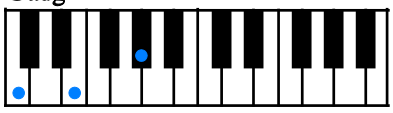
Bdim7



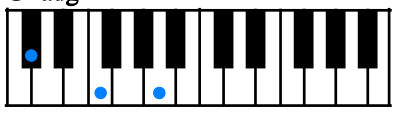
aug

root + major3rd + aug5

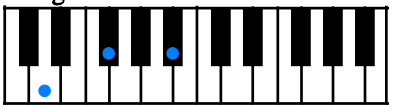
Caug



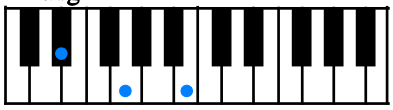
C♯aug



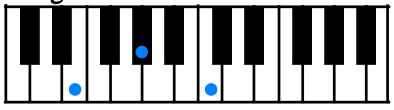
Daug



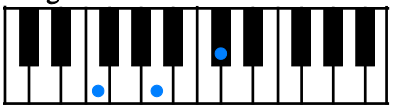
D♯aug



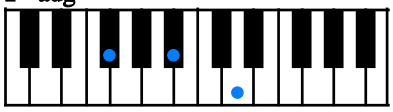
Eaug



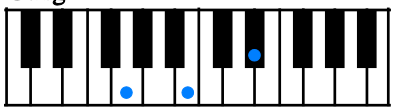
Faug



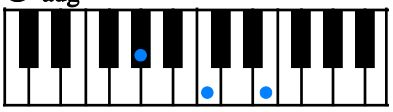
F♯aug



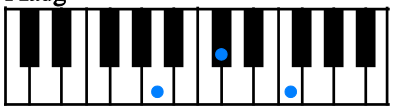
Gaug



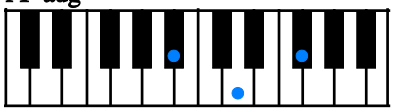
G♯aug



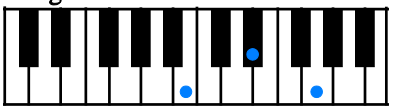
Aaug



A♯aug



Baug



'RUSH' chords

root + minor2nd + minor3rd + major3rd (does not represent actual chord notes of the chord)

RUSH chord (root = C)

RUSH chord (root = C#)

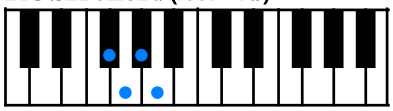
RUSH chord (root = D)

RUSH chord (root = D#)

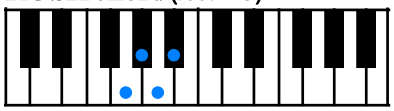
RUSH chord (root = E)

RUSH chord (root = F)

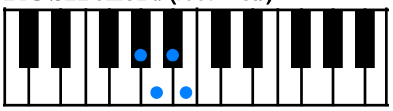
RUSH chord (root = F#)



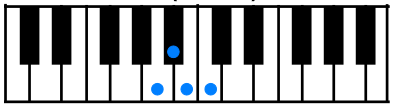
RUSH chord (root = G)



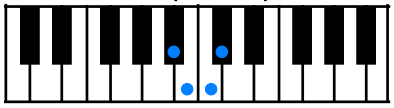
RUSH chord (root = G#)



RUSH chord (root = A)



RUSH chord (root = A#)

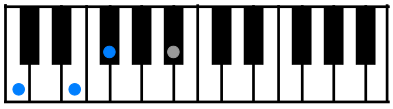


RUSH chord (root = B)

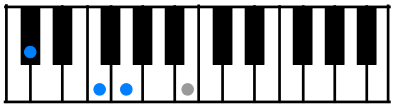
7(♭5)

root + major3rd + flat5th (7th can be omitted.)

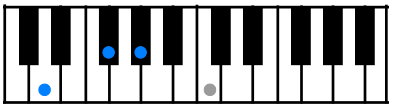
C7♭5



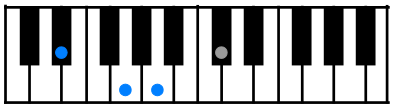
C♯7♭5



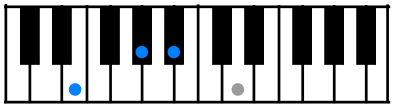
D7♭5



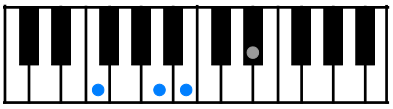
D♯7♭5



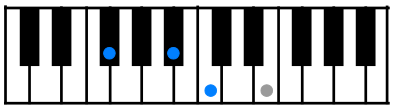
E7♭5



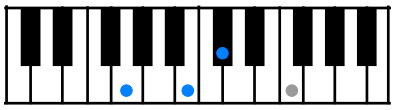
F7♭5



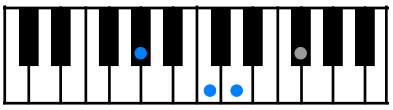
F♯7♭5



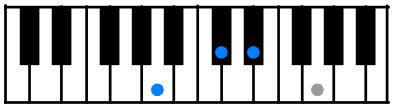
G7♭5



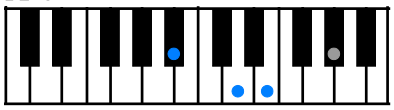
G♯7♭5



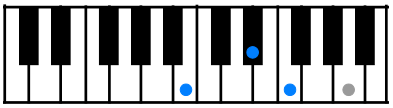
A7♭5



A♯7♭5

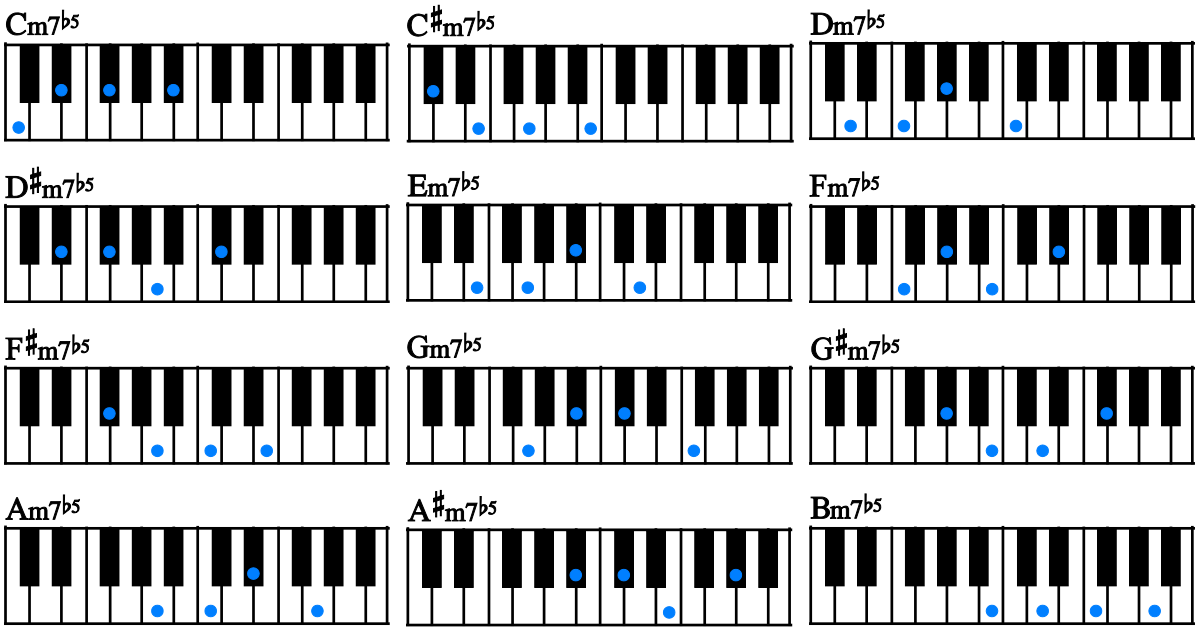


B7♭5



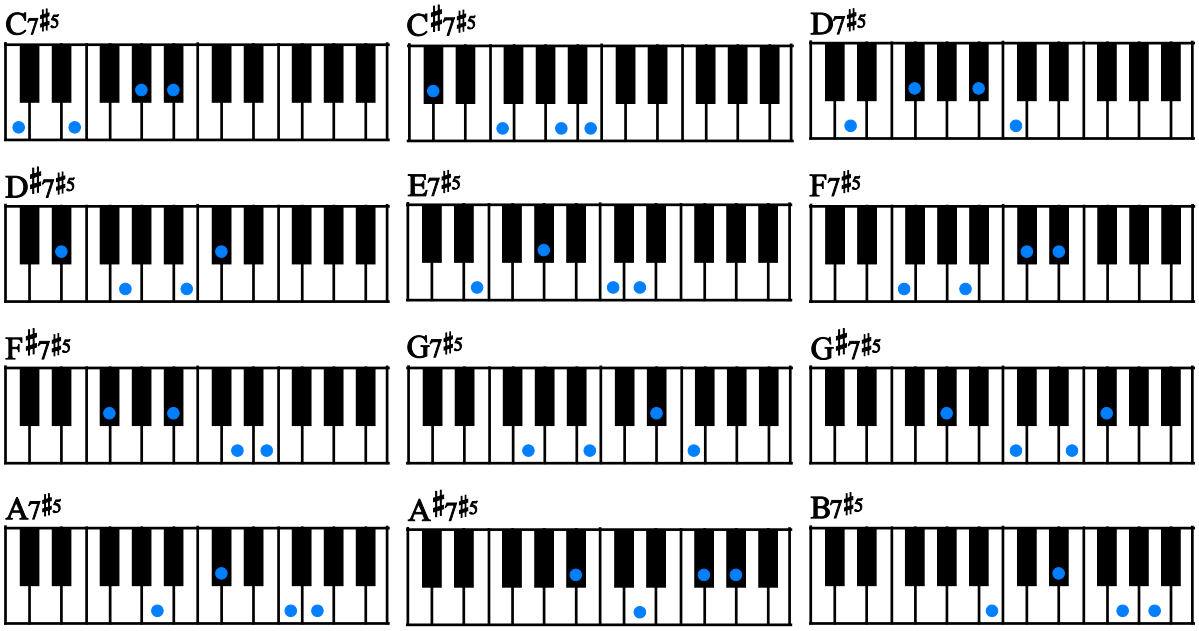
m7 (♭5)

root + minor3rd + flat5th + 7th



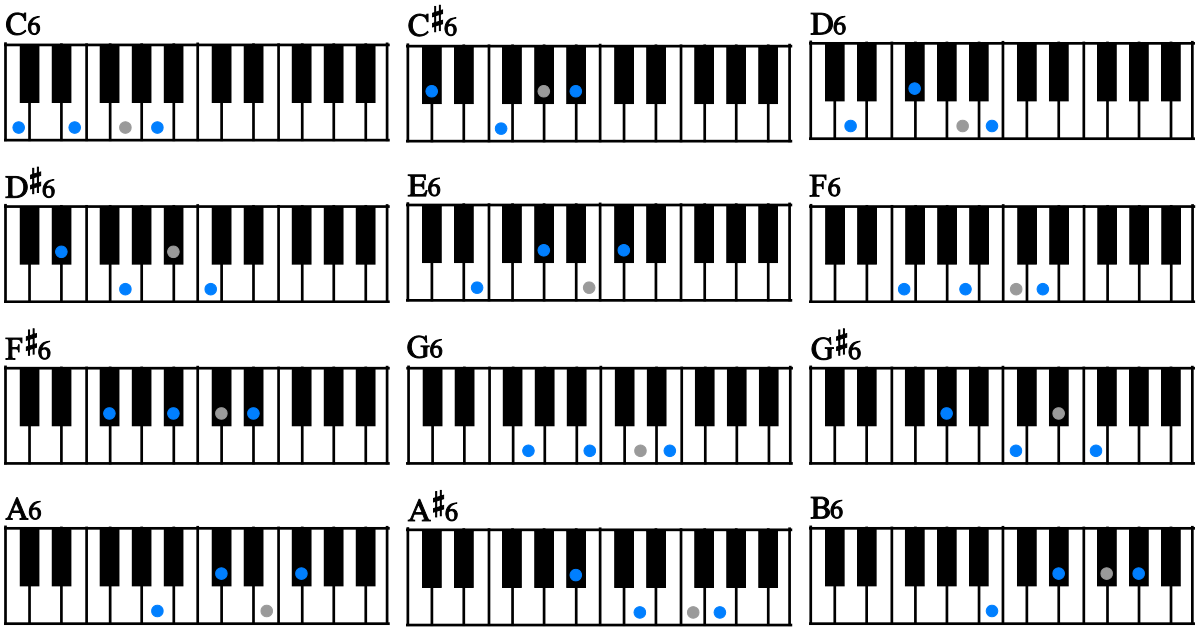
7 (♯5)

root + major3rd + #5th + 7th



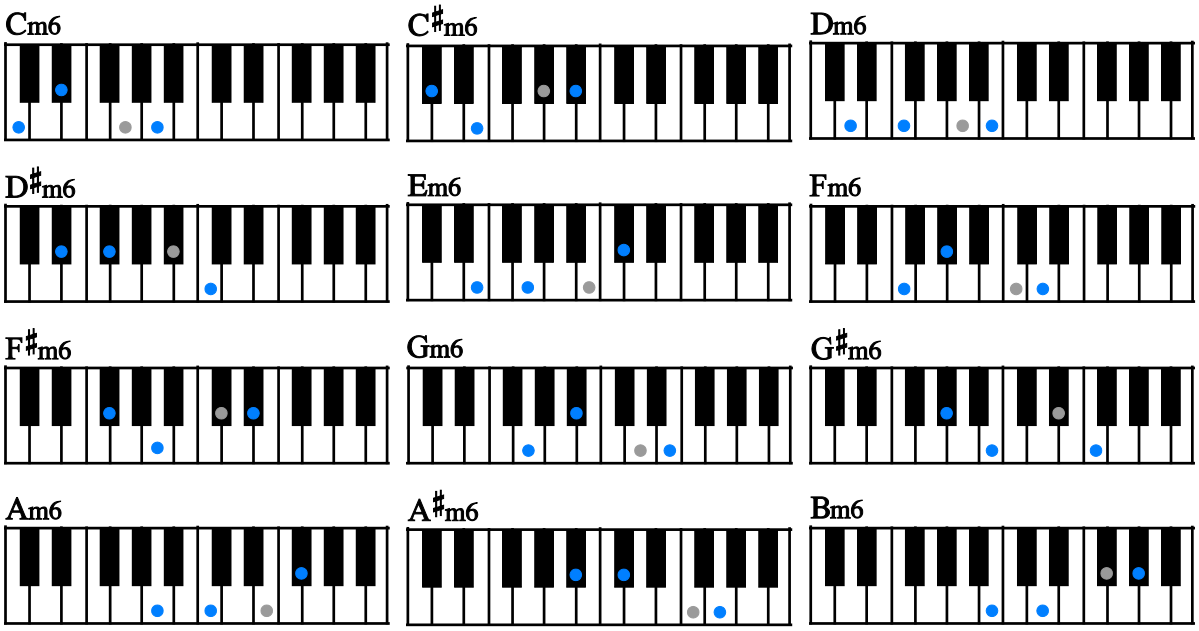
6th

root + major3rd + 6th (5th can be omitted.)



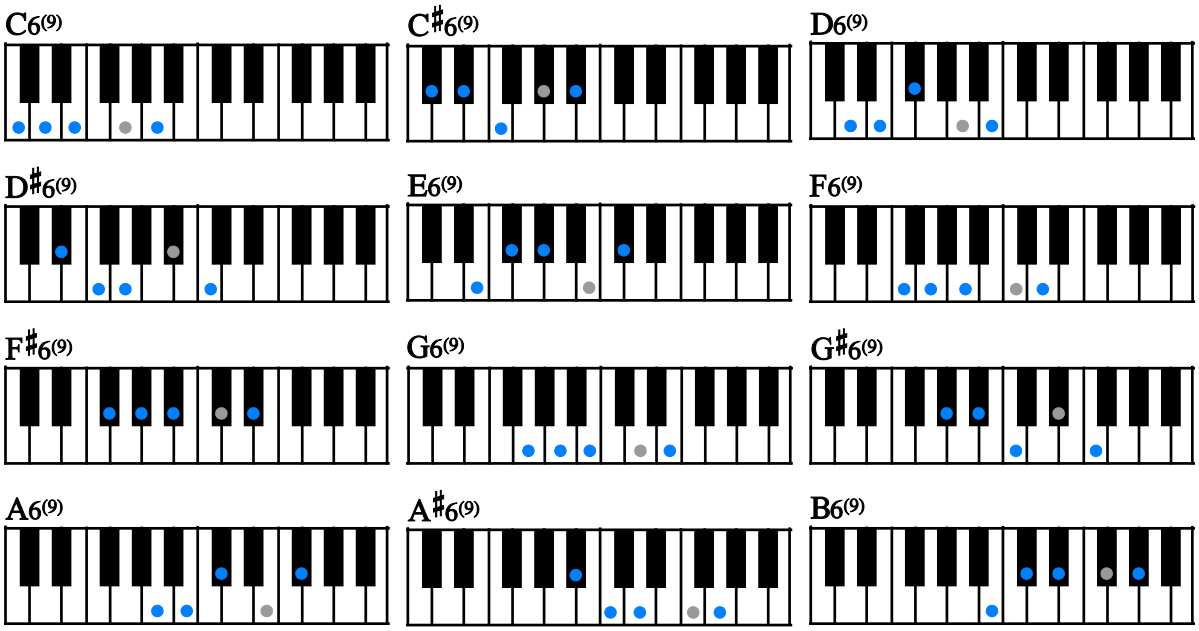
m6

root + minor3rd + 6th (5th can be omitted.)



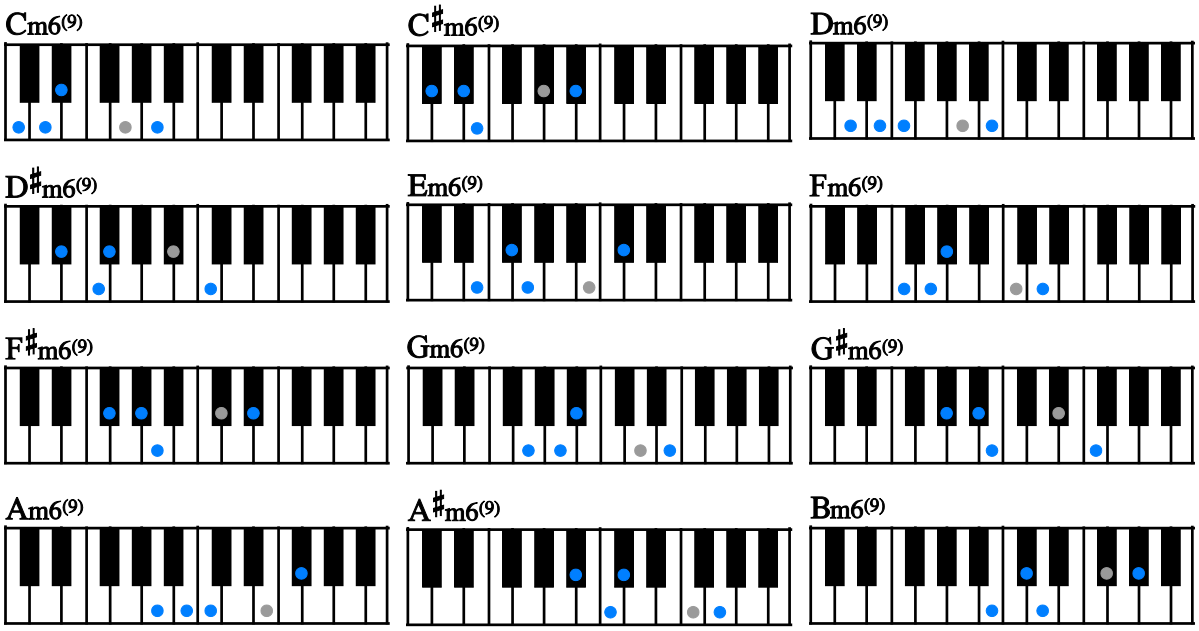
6 (9)

root + 9th(2nd) + major3rd + 6th (5th can be omitted.)



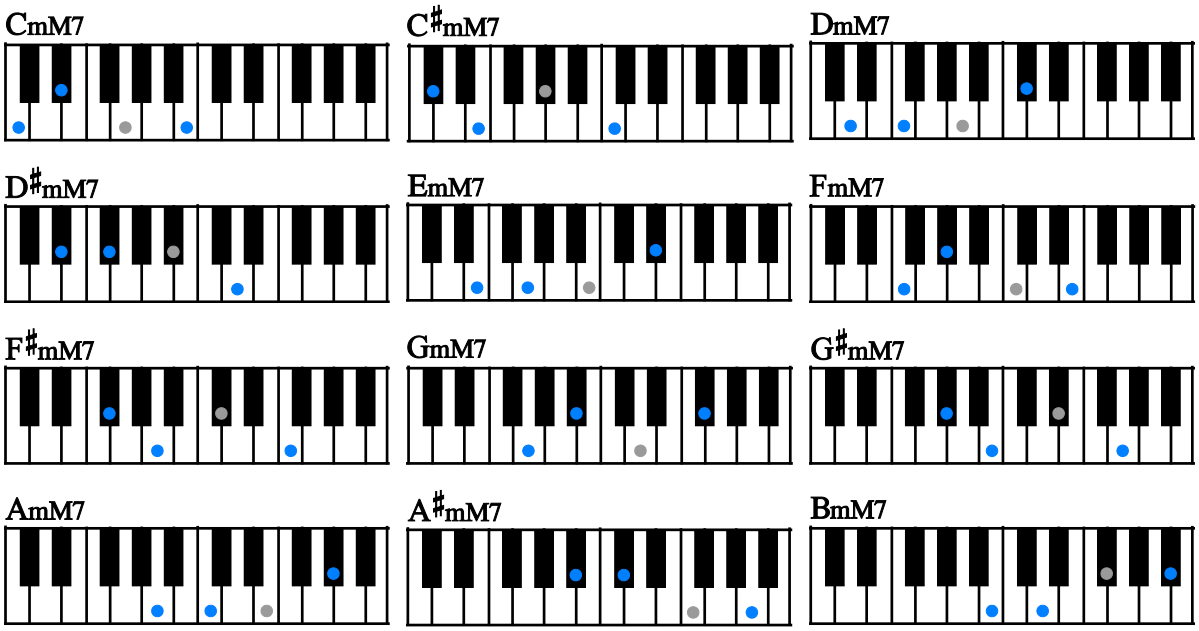
m6 (9)

root + 9th(2nd) + minor3rd + 6th (5th can be omitted.)



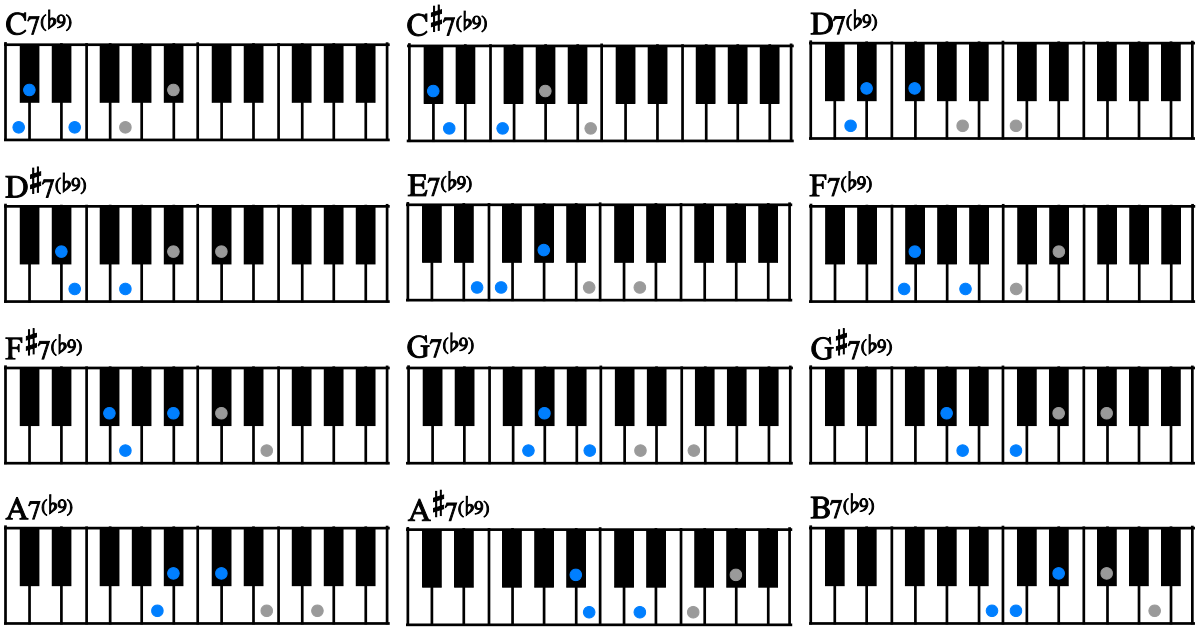
mMaj7

root + minor3rd + major7th (5th can be omitted.)



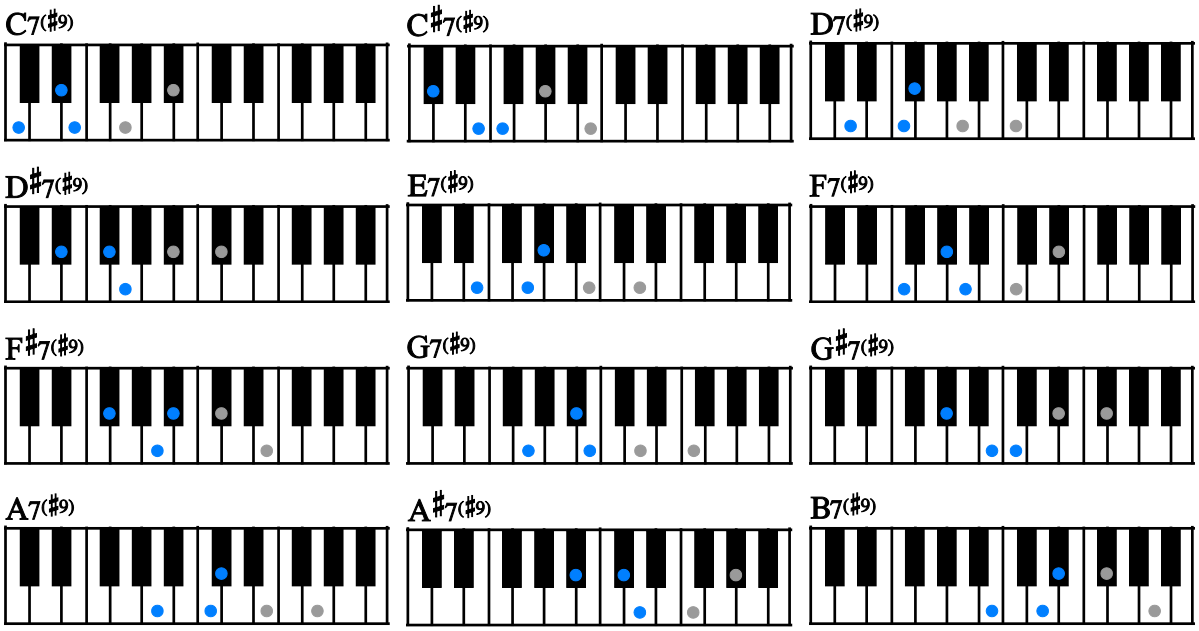
7(♭9)

root + flat9(minor2nd) + major3rd (5th and 7th can be omitted.)



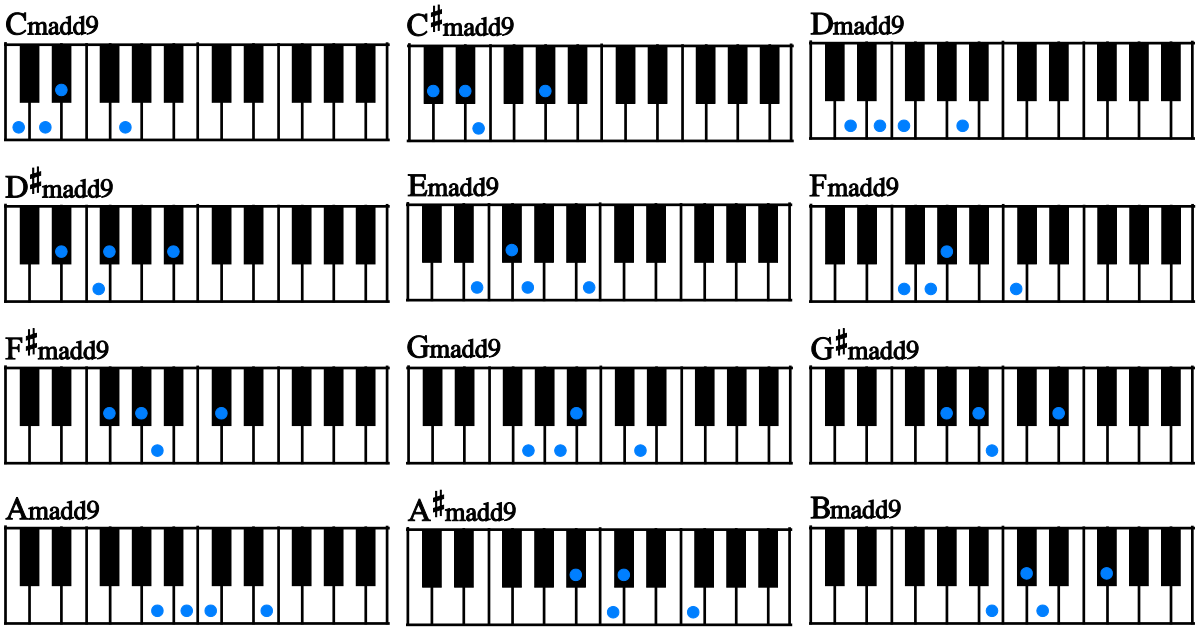
7(♯9)

root + #9th(#2nd) + major3rd (5th and 7th can be omitted.)



madd9

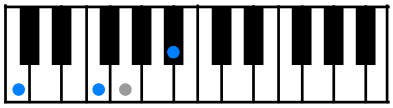
root + 9th(2nd) + minor3rd + 5th



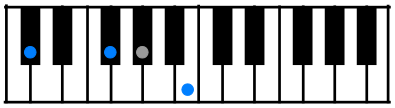
7sus4

root + 4th + 7th (5th can be omitted.)

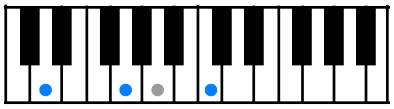
C7sus4



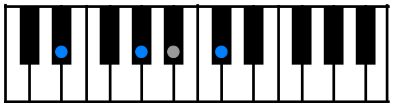
C♯7sus4



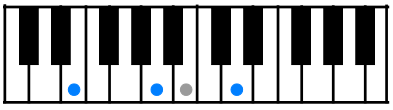
D7sus4



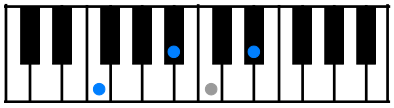
D♯7sus4



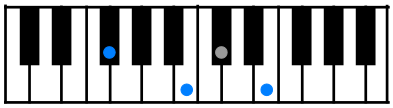
E7sus4



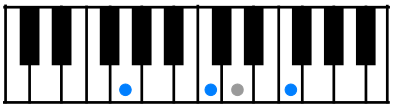
F7sus4



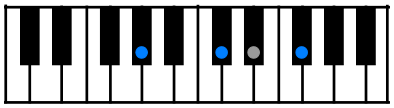
F♯7sus4



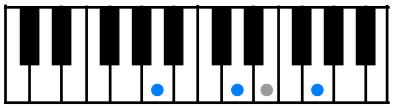
G7sus4



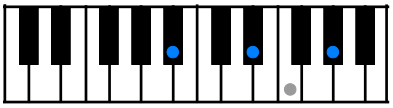
G♯7sus4



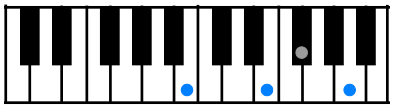
A7sus4



A♯7sus4



B7sus4

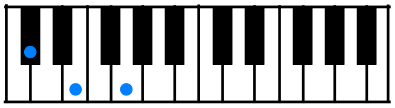


dim

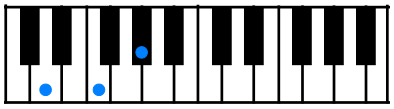
root + minor3rd + dim5

Cdim

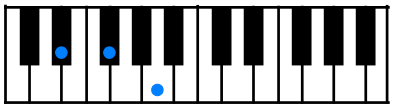
C♯dim



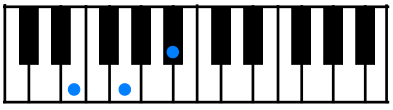
Ddim



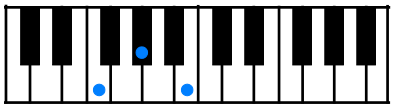
D♯dim



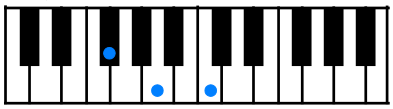
Edim



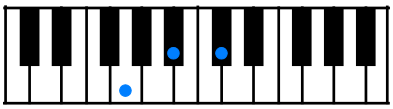
Fdim



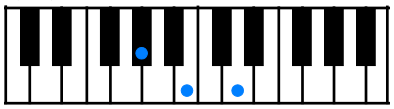
F♯dim



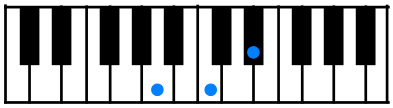
Gdim



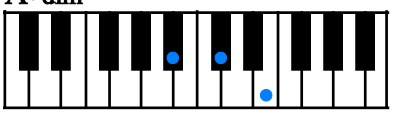
G♯dim



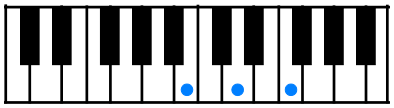
Adim



A♯dim



Bdim



user chord 1

root + 9th(2nd) + minor3rd + major3rd (does not represent actual chord notes of the chord)

user chord 1 (root = C)

user chord 1 (root = C#)

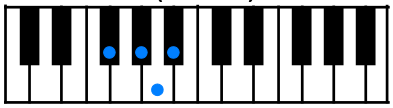
user chord 1 (root = D)

user chord 1 (root = D#)

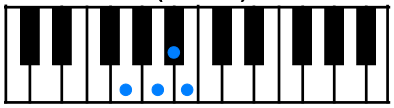
user chord 1 (root = E)

user chord 1 (root = F)

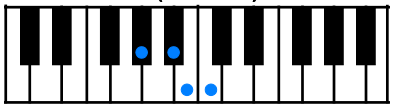
user chord 1 (root = F#)



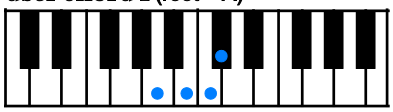
user chord 1 (root = G)



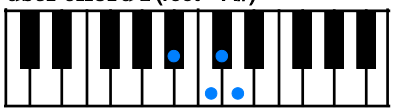
user chord 1 (root = G#)



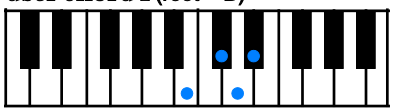
user chord 1 (root = A)



user chord 1 (root = A#)



user chord 1 (root = B)



user chord 2

root + minor3rd + major3rd + 4th (does not represent actual chord notes of the chord)

user chord 2 (root = C)

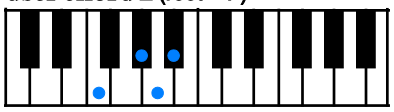
user chord 2 (root = C#)

user chord 2 (root = D)

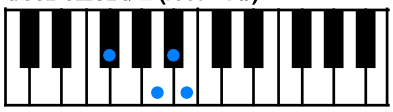
user chord 2 (root = D#)

user chord 2 (root = E)

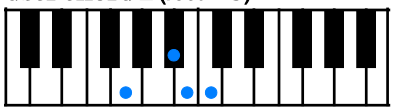
user chord 2 (root = F)



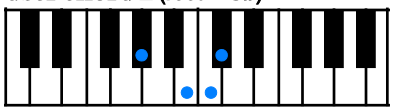
user chord 2 (root = F#)



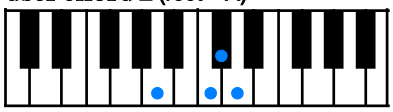
user chord 2 (root = G)



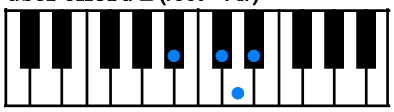
user chord 2 (root = G#)



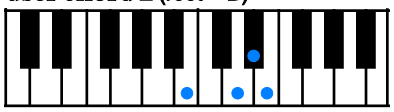
user chord 2 (root = A)



user chord 2 (root = A#)



user chord 2 (root = B)



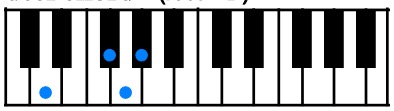
user chord 3

root + major3rd + 4th + flat5 (does not represent actual chord notes of the chord)

user chord 3 (root = C)

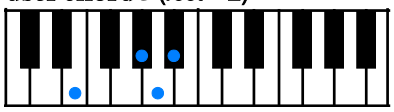
user chord 3 (root = C#)

user chord 3 (root = D)

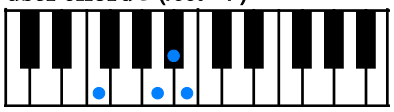


user chord 3 (root = D#)

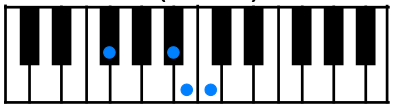
user chord 3 (root = E)



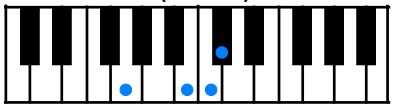
user chord 3 (root = F)



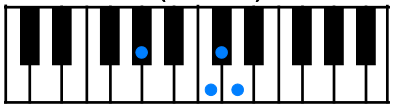
user chord 3 (root = F#)



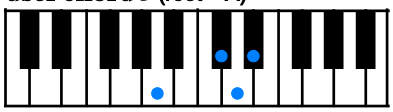
user chord 3 (root = G)



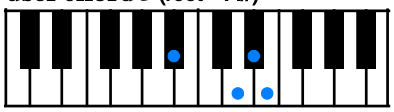
user chord 3 (root = G#)



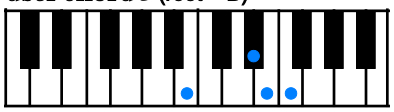
user chord 3 (root = A)



user chord 3 (root = A#)



user chord 3 (root = B)

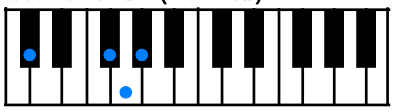


user chord 4

root + 4th + flat5 + 5th (does not represent actual chord notes of the chord)

user chord 4 (root = C)

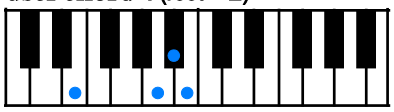
user chord 4 (root = C#)



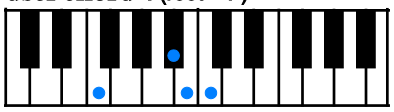
user chord 4 (root = D)

user chord 4 (root = D#)

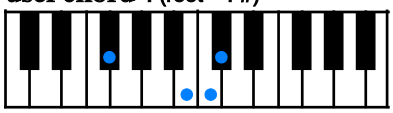
user chord 4 (root = E)



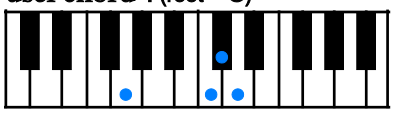
user chord 4 (root = F)



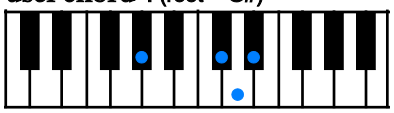
user chord 4 (root = F#)



user chord 4 (root = G)

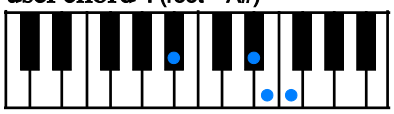


user chord 4 (root = G#)



user chord 4 (root = A)

user chord 4 (root = A#)

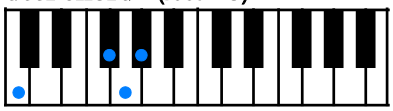


user chord 4 (root = B)

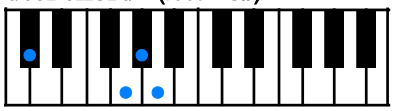
user chord 5

root + flat5 + 5th + #5th (does not represent actual chord notes of the chord)

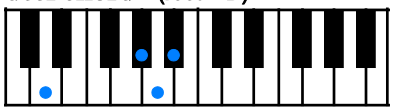
user chord 5 (root = C)



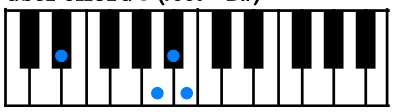
user chord 5 (root = C#)



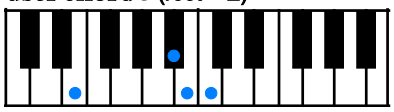
user chord 5 (root = D)



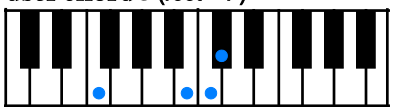
user chord 5 (root = D#)



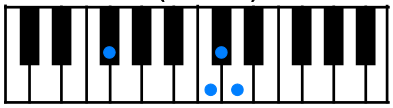
user chord 5 (root = E)



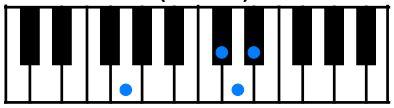
user chord 5 (root = F)



user chord 5 (root = F#)



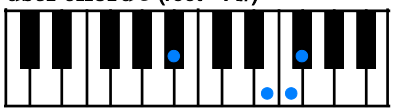
user chord 5 (root = G)



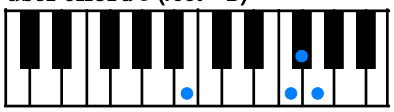
user chord 5 (root = G#)

user chord 5 (root = A)

user chord 5 (root = A#)



user chord 5 (root = B)



user chord 6

root + flat9(minor2nd) + 9th(2nd) + m3rd + maj3rd (does not represent actual chord notes of the chord)

user chord 6 (root = C)

user chord 6 (root = C#)

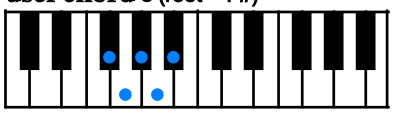
user chord 6 (root = D)

user chord 6 (root = D#)

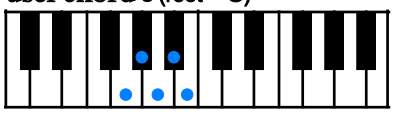
user chord 6 (root = E)

user chord 6 (root = F)

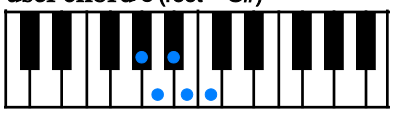
user chord 6 (root = F#)



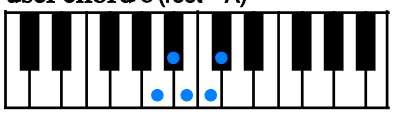
user chord 6 (root = G)



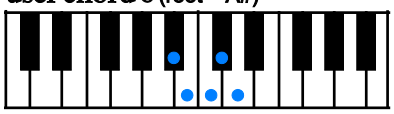
user chord 6 (root = G#)



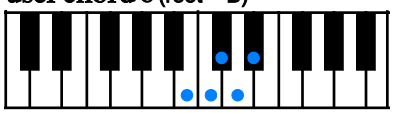
user chord 6 (root = A)



user chord 6 (root = A#)



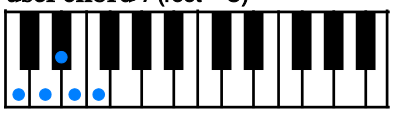
user chord 6 (root = B)



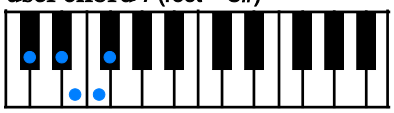
user chord 7

root + 9th(2nd) + minor3rd + major3rd + 4th (does not represent actual chord notes of the chord)

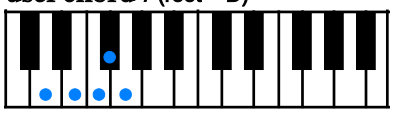
user chord 7 (root = C)



user chord 7 (root = C#)



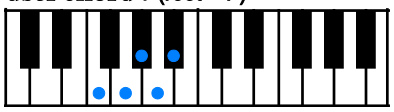
user chord 7 (root = D)



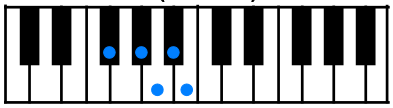
user chord 7 (root = D#)

user chord 7 (root = E)

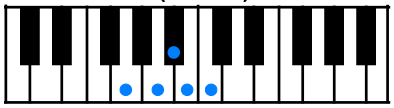
user chord 7 (root = F)



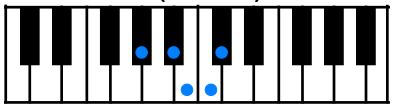
user chord 7 (root = F#)



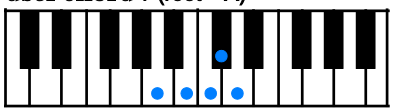
user chord 7 (root = G)



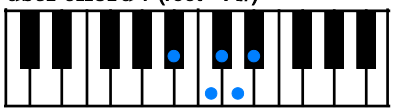
user chord 7 (root = G#)



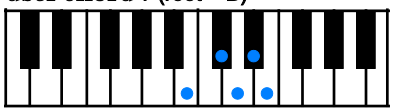
user chord 7 (root = A)



user chord 7 (root = A#)



user chord 7 (root = B)



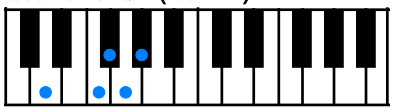
user chord 8

root + minor3rd + major3rd + 4th + flat5 (does not represent actual chord notes of the chord)

user chord 8 (root = C)

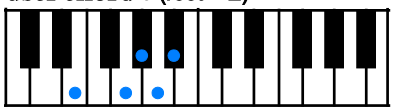
user chord 8 (root = C#)

user chord 8 (root = D)

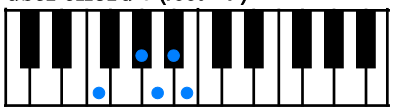


user chord 8 (root = D#)

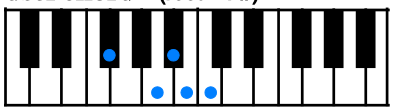
user chord 8 (root = E)



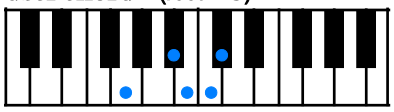
user chord 8 (root = F)



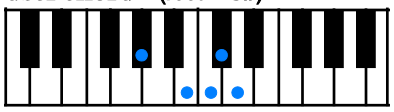
user chord 8 (root = F#)



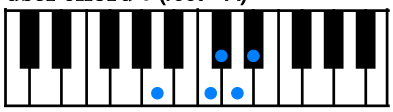
user chord 8 (root = G)



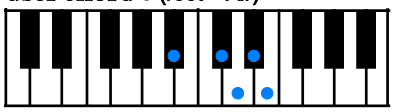
user chord 8 (root = G#)



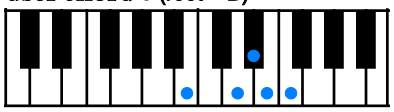
user chord 8 (root = A)



user chord 8 (root = A#)



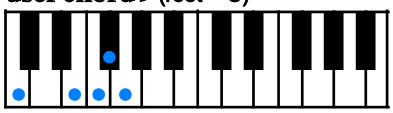
user chord 8 (root = B)



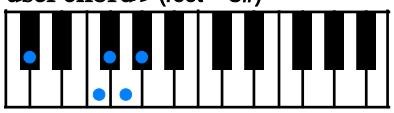
user chord 9

root + major3rd + 4th + flat5 + 5th (does not represent actual chord notes of the chord)

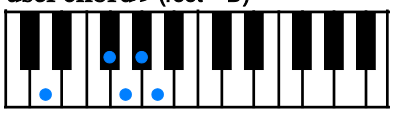
user chord 9 (root = C)



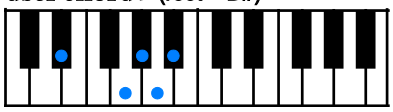
user chord 9 (root = C#)



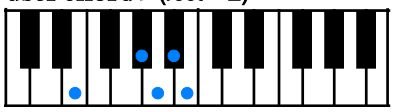
user chord 9 (root = D)



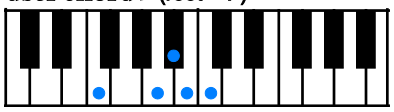
user chord 9 (root = D#)



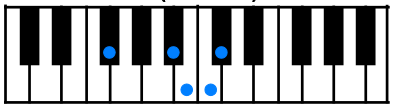
user chord 9 (root = E)



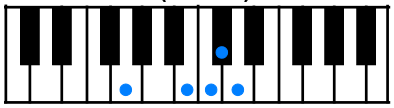
user chord 9 (root = F)



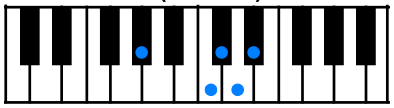
user chord 9 (root = F#)



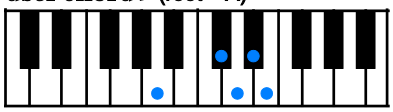
user chord 9 (root = G)



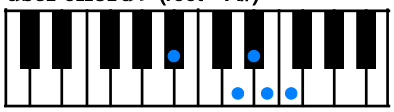
user chord 9 (root = G#)



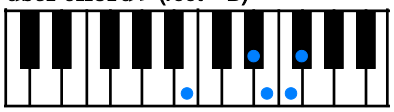
user chord 9 (root = A)



user chord 9 (root = A#)



user chord 9 (root = B)



user chord 10

root + 4th + flat5 + 5th + #5 (does not represent actual chord notes of the chord)

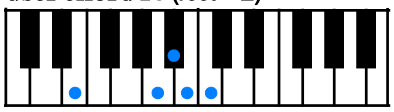
user chord 10 (root = C)

user chord 10 (root = C#)

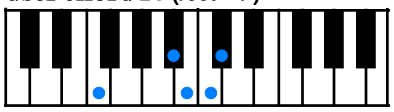
user chord 10 (root = D)

user chord 10 (root = D#)

user chord 10 (root = E)



user chord 10 (root = F)



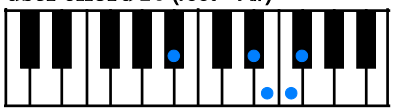
user chord 10 (root = F#)

user chord 10 (root = G)

user chord 10 (root = G#)

user chord 10 (root = A)

user chord 10 (root = A#)



user chord 10 (root = B)

MIDI Controller Chart

Hummingbird MIDI controllers

MIDI CC# 1	**mute / picking noise** (active only when the mute mode is 'mod wheel')
MIDI CC# 3	**chord stroke speed (fast or slow)** 0 – 63: fast stroke 64 – 127: slow stroke *Each stroke speed can be changed via MIDI CC# 22 (fast) and 23 (slow).
MIDI CC# 4	**gliss down speed** 0 – 42: fast 43 – 85: mid 86 – 127: slow
MIDI CC# 18	**note off cancel key switch** (MIDI note number for the lowest note off cancel key switch)
MIDI CC# 19	**chord picking noise mode** 0 – 63: tight 64 – 127: loose
MIDI CC# 20	**position change noise mode** 0 – 63: normal 64 – 127: loud
MIDI CC# 21	**prefer open / low chord** 0 - 63: OFF 64 - 127: ON
MIDI CC# 22	**strum speed 1 (2 - 30 ms) fast**
MIDI CC# 23	**strum speed 2 (30 - 199.9 ms) slow**
MIDI CC# 24	**sampled chord mode** 0 – 63: hybrid (play sampled chord if available) 64 – 127: emulated (play only emulated chord)
MIDI CC# 25	**pick buzz ON / OFF** 0 - 63: OFF 64 - 127: ON
MIDI CC# 28	**target string to edit** ** Use with MIDI CC# 27 (pitch bend range) or MIDI CC# 29 (pitch bend range) or MIDI CC# 30 (bend range per string) or MIDI CC# 77, 78, and 79 (strumkey setting)* 0 : all strings 1: string 1 2: string 2 3: string 3 4: string 4 5: string 5 6: string 6
MIDI CC# 29	**pitch bend range**
MIDI CC# 30	**custom pitch bend range (per string)** ** Use with MIDI CC# 28*
MIDI CC# 31	**direct select instrument via MIDI CC** ** Use with MIDI CC# 45* (single note) 1: single legato slide 2: hammer-on&pull-off / trill 3: no legato (dyad chord) 1: minor2nd 2: major2nd 3: minor3rd-dyad 4: major3rd-dyad 5: 4th-dyad 6: flat5th-dyad 7: 5th-dyad 8: #5th-dyad 9: 6th-dyad 10: 7th-dyad 11: maj7th-dyad 12: octave (chord) 1: major 2: minor 3: 7th 4: m7th 5: maj7th 6: 9th 7: m9th 8: maj9 9: add9 10: sus4 11: dim7 12: aug 13: rush 14: 7flat5 15: m7flat5 16: 7sharp5 17: 6th 18: m6th 19: 69th 20: m69th 21: mMaj7 22: flat9 23: sharp9 24: madd9 25: 7sus4 26: dim (chord) 51: user chord 1 52: user chord 2 53: user chord 3 54: user chord 4 55: user chord 5 56: user chord 6 57: user chord 7 58: user chord 8 59: user chord 9 60: user chord 10 (FX) 3: natural harmonics 4: FX1 - harmonics 5: FX2 - percussion 6: FX3 - slides 7: FX4 - noise, etc.

MIDI CC# 41	**finger release noise mode (Play Key)** 0 - 63: tight 64 - 127: loose
MIDI CC# 42	**roundrobin mode** (works only with single note instruments) 0 – 31: OFF 32 – 63: 2 roundrobin 64 – 95: 3 random 96 - 127: 4 random
MIDI CC# 44	**target instrument select key switch** (MIDI CC value = MIDI note number) * *Use with MIDI CC# 45 & 46* 0: C-2 1: C#-2 2: D-2 3: D#-2 4: E-2 5: F-2 6: F#-2 7: G-2 8: G#-2 9: A-2 10: A#-2 11: B-2 12: C-1 13: C#-1 14: D-1 15: D#-1 16: E-1 17: F-1 18: F#-1 19: G-1 20: G#-1 21: A-1 22: A#-1 23: B-1 24: C0 25: C#0 26: D0 27: D#0 28: E0 29: F0 30: F#0 31: G0 32: G#0 33: A0 34: A#0 35: B0 36: C1 37: C#1 38: D1 39: D#1 40: E1
MIDI CC# 45	**Instrument type** * *Use with MIDI CC# 44 or 46* 0: single note 1: dyad chord 2: chord 3: FX
MIDI CC# 43	**legato slide & gliss sample volume** (0: max, 127:min)
MIDI CC# 46	**instrument number** * *Use with MIDI CC# 45* ***If MIDI CC# 45 = 0 (single note) ;*** 1: single legato slide 2: hammer-on&pull-off / trill 3: no legato ***If MIDI CC# 45 = 1 (dyad chord);*** 1: minor2nd 2: major2nd 3: minor3rd-dyad 4: major3rd-dyad 5: 4th-dyad 6: flat5th-dyad 7: 5th-dyad 8: #5th-dyad 9: 6th-dyad 10: 7th-dyad 11: maj7th-dyad 12: octave ***If MIDI CC# 45 = 2 (chord);*** 1: major 2: minor 3: 7th 4: m7th 5: maj7th 6: 9th7: m9th 8: maj9 9: add9 10: sus4 11: dim7 12: aug 13: rush 14: flat5 15: mflat 16: sharp5 17: 6th 18: m6th 19: 69th 20: m69th 21: mMaj7 22: flat9 23: sharp9 24: madd9 25: 7sus4 26: dim ***If MIDI CC# 45 = 2 (chord);*** *51: user chord 1* *52: user chord 2* *53: user chord 3* *54: user chord 4* *55: user chord 5* *56: user chord 6* *57: user chord 7* *58: user chord 8* *59: user chord 9* *60: user chord 10* ***If MIDI CC# 45 = 3 (FX, etc.);*** 3: natural harmonics 4: FX1 - harmonics 5: FX2 - percussions 6: FX3 - slides 7: FX4 – noise, etc.
MIDI CC# 48	**mute mode** 0 - 63: modulation wheel (MIDI CC# 1) 64 - 127: velocity
MIDI CC# 49	**picking noise MIDI CC#1 (mod wheel) threshold level**
MIDI CC# 50	**mute MIDI CC#1 (mod wheel) threshold level**
MIDI CC# 51	**mute velocity threshold level**

MIDI CC# 52	**string / chord shape select key switch** (MIDI note number for the lowest string select key switch)
MIDI CC# 54	**auto sustain ON / OFF** 0 - 63: ON 64 - 127: OFF
MIDI CC# 55	**high velocity threshold level**
MIDI CC# 56	**poly mode ON / OFF** 0 - 63: OFF 64 - 127: ON
MIDI CC# 57	**auto alternation (auto stroke detection) resolution** 0 - 25: 8th 26 - 50: 8th triplet 51 - 75: 16th 76 - 100: 16th triplet 101 - 127: 32nd
MIDI CC# 58	**auto alternation (auto stroke detection) mode** 0 - 31: auto 32 - 63: forced 64 - 95: down only 96 - 127: up only
MIDI CC# 62	**release time**
MIDI CC# 74	**target strum key to edit** 0: normal keys (E3 - C7) 1: strum key 1 (C2) 2: strum key 2 (C#2) 3: strum key 3 (D2) 4: strum key 4 (D#2) 5: strum key 5 (F#2) 6: strum key 6 (G#2) 7: strum key 7 (A#2) 8: strum key 8 (C#3)
MIDI CC# 75	**strum key: stroke direction** (* Use with MIDI CC# 74) 0 – 42: auto (time recognition) 43 – 85: down 86 – 127: up
MIDI CC# 76	**strum key: string ON / OFF** (* Use with MIDI CC# 74 & 28) 0 - 63: OFF 64 - 127: ON
MIDI CC# 77	**strum key: string velocity rate** (* Use with MIDI CC# 74 & 28) 1 (min) - 100 (max)
MIDI CC# 78	**strum key: string strum type** (* Use with MIDI CC# 74 & 28) 0 - 31: do nothing 32 – 63: normal sustain 64 – 95: mute 96 – 127: picking noise
MIDI CC# 80	**extra strum noise ON / OFF** (* Use with MIDI CC# 74) 0 – 63: OFF 64 – 127: ON
MIDI CC# 81	**extra strum noise type** (* Use with MIDI CC# 74) 0 – 63: lower strings 64 – 127: upper strings
MIDI CC# 82	**extra strum noise volume** (0: max / 127: min)

MIDI CC# 114	**target play key to edit** 1: hold key 1 2: hold key 2 3: hold key 3 4: stop key 1 5: stop key 2 6: stop key 3
MIDI CC# 115	**target play key button to turn ON / OFF** 1: picking noise 2: pick stop noise 3: finger release noise 4: repeat same note 5: gliss down 6: bridge mute noise 7: fret noise 8: position change noise 9: muted brush noise 10: palm body hit 11: finger body hit 12: string mute buzz
MIDI CC# 116	**ON / OFF the play key button** * Use with MIDI CC# 114 & 115 0 – 63: OFF 64 – 127: ON

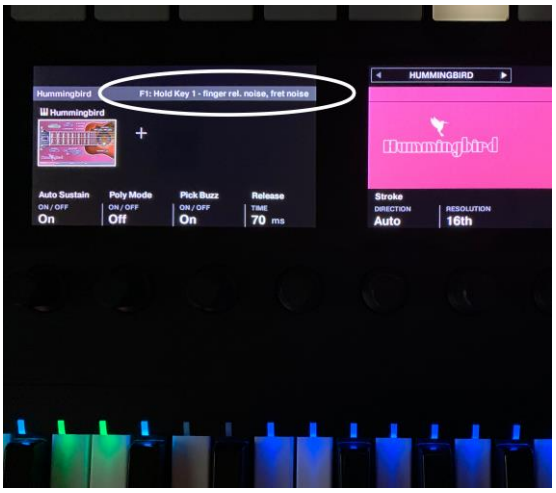
update ver.1.22c

ver.1.22c New Features / Fixes:

New Features

- Virtual keyboard of Kontakt and Komplete Kontrol keyboard display MIDI note name

Virtual On-Screen Keyboard of Kontakt
MIDI note name has been added to the information that is displayed on Info Pane when the mouse cursor is hovered over the keys of the virtual On-Screen Keyboard of Kontakt.



Komplete Kontrol Keyboard
When a key of Komplete Kontrol Keyboard is played, the information of the key is displayed in the Komplete Kontrol's LCD.

Fix

- Values of the pitch bend range sliders were not displayed correctly in some situations. That has been fixed.

[Please check your Kontakt Player version]
This update requires Kontakt Player (or Kontakt) 5.8.1 or later. If your Kontakt Player version is older than 5.8.1, go to;
https://www.native-instruments.com/en/products/komplete/samplers/kontakt-6-player/free-download/

and download the latest version of Kontakt Player.

ver.1.22 New Features / Fixes:

New Features

- User chord shape editor can preview chords higher than the 5th fret by clicking the left / right arrow buttons.

- User chord shape editor displays fret numbers and note names.

- User chord shape editor displays the available Normal Key Range of the user chord and the note name of the Normal Key to play the chord on the selected preview position.

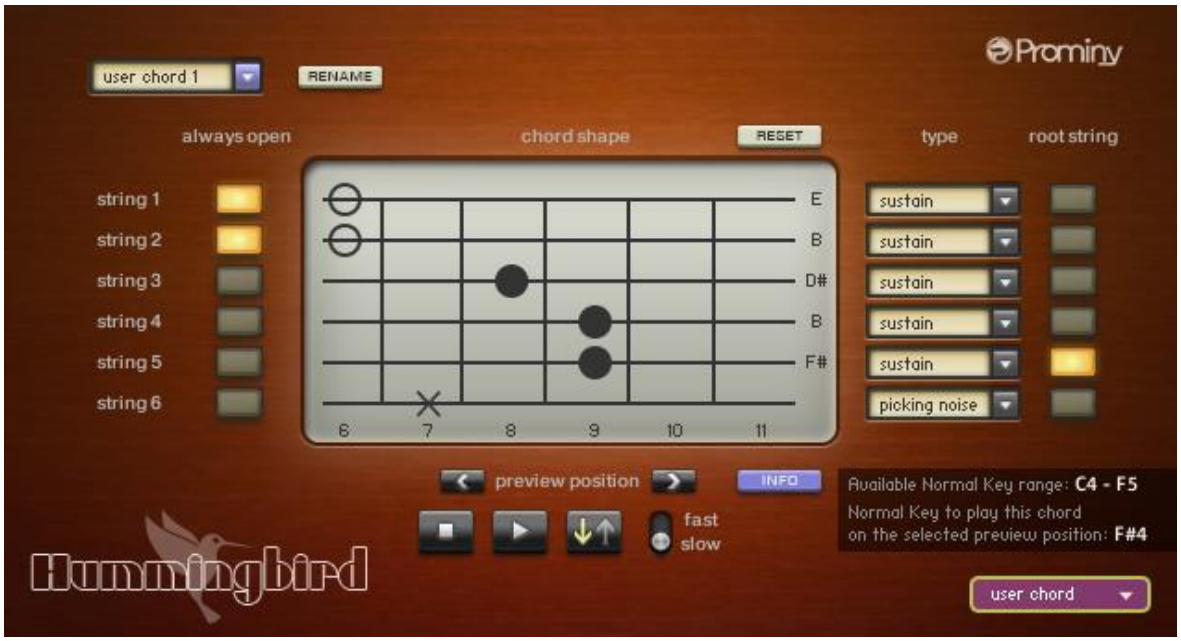
Fix

- The picture of the pick on the Fretboard Monitor is not displayed correctly in some situations. That has been fixed.

[Please check your Kontakt Player version]
This update requires Kontakt Player (or Kontakt) 5.8.1 or later. If your Kontakt Player version is older than 5.8.1, go to;
https://www.native-instruments.com/en/products/komplete/samplers/kontakt-6-player/free-download/

and download the latest version of Kontakt Player.

User Chord Shape Editor’s new features



User chord shape editor displays fret numbers and note names.

Left / Right arrow buttons

You can move the fret position to preview the user chord you are creating by clicking the arrow buttons.

INFO button

The following information can be displayed / hidden by clicking the INFO button.

- Available Normal Key Range of the user chord
- The note name of the Normal Key to play the chord on the selected preview position.

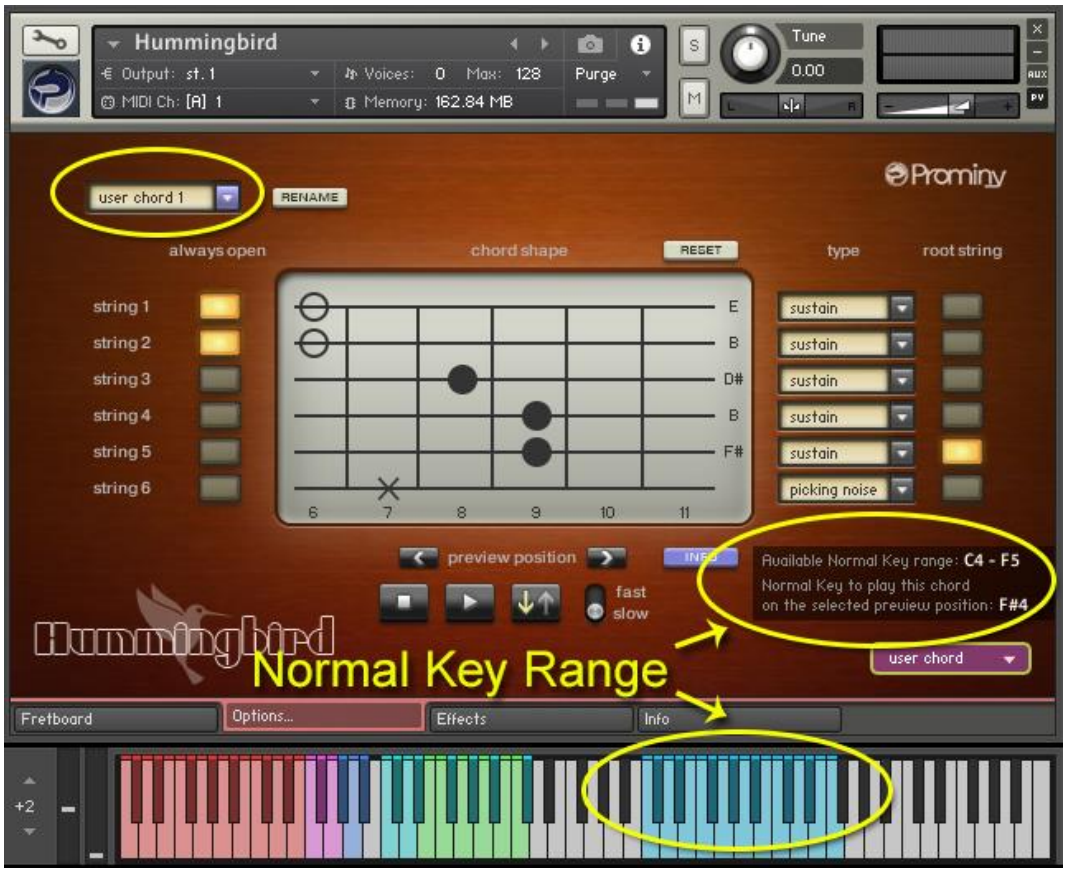
[TIPS]

The key ranges on Kontakt's virtual On-Screen Keyboard is that of the instrument currently selected in the Fretboard Monitor window.

Though the user chord you are editing can be previewed using the preview button on the user chord shape editor, ***if you would like to play the user chord using Kontakt's virtual On-Screen Keyboard or your MIDI keyboard controller, the user chord needs to be selected in the Fretboard Monitor Window.***

(Example: editing 'user chord 1') Select the 'user chord 1' using Instrument Select Key Switch or the pull-down menu; 'instrument' in the Fretboard Monitor window before editing the 'user chord 1'.

And then open the user chord shape editor and select the 'user chord 1'. By doing this, you can also see the available Normal Key range of the user chord on Kontakt's virtual On-Screen Keyboard.



ver.1.21 New Features / Fixes:

New Features

The virtual On-Screen Keyboard and Info Pane of Kontakt Player show the following information. These improvements have been made to NKS (Komplete Kontrol Keyboard) as well.

- The virtual On-Screen Keyboard of Kontakt and Kontrol Keyboard indicate which string is being selected by lighting the light guide of the key.

- Info Pane shows what instrument is assigned to the key when the mouse cursor is moved over the Instrument Key Switch of the virtual On-Screen Keyboard of Kontakt.

- Info Pane shows what string the String Select Key Switch selects when the mouse cursor is moved over the String Select Key Switch of the virtual On-Screen Keyboard of Kontakt.

- Info Pane shows what string the String Skip Key Switch selects when the mouse cursor is moved over the String Skip Key Switch of the virtual On-Screen Keyboard of Kontakt.

- Info Pane shows what string the Arpeggio Key plays when the mouse cursor is moved over the Arpeggio Key of the virtual On-Screen Keyboard of Kontakt.

- Info Pane shows what function(s) the Play Key does when the mouse cursor is moved over the Play Key of the virtual On-Screen Keyboard of Kontakt.

Fixes

- A wrong note; 'A#' was assigned to the sting 5 of F#m7flat7 (prefer open = ON) instead of the correct note; 'A'. That has been fixed

- The Fretboard monitor did not display the wrong position fret in some situations. That has been fixed.

[Please check your Kontakt Player version]
This update requires Kontakt Player (or Kontakt) 5.8.1 or later. If your Kontakt Player version is older than 5.8.1, go to;
https://www.native-instruments.com/en/products/komplete/samplers/kontakt-6-player/free-download/

and download the latest version of Kontakt Player.

ver.1.20 New Features / Fixes:

New Features

- New feature; 'forced hammer-on / pull-off'

- New chord presets; m11 (5 chord shapes), 9sus4 (5 chord shapes)

Improved

- When the hybrid mode is selected and the string skip key switch feature is used, the sampled chord is automatically cancelled and an emulated chord is played. (In the previous versions, the string skip is just ignored if the hybrid mode is selected.)

Fixes

- Picking noise that is assigned to Stop Key is not played correctly in some situations.

- When the hybrid mode is selected and the prefer low / open is ON, string / chord shape select key switches cause an incorrect chord position in some situations.

- minor fixes

[Please check your Kontakt Player version]
This update requires Kontakt Player (or Kontakt) 5.7.3 or later. If your Kontakt Player version is older than 5.7.3, go to;

http://www.native-instruments.com/en/products/komplete/samplers/kontakt-5-player/free-download/

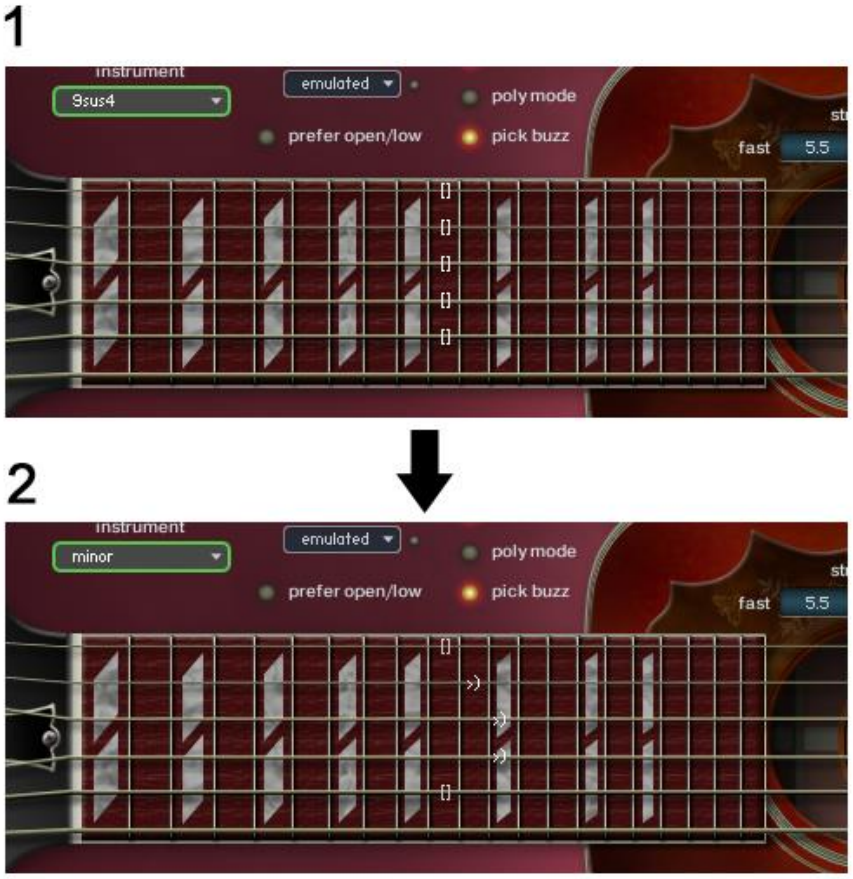
and download the latest version of Kontakt Player.

Forced hammer-on / pull-off feature

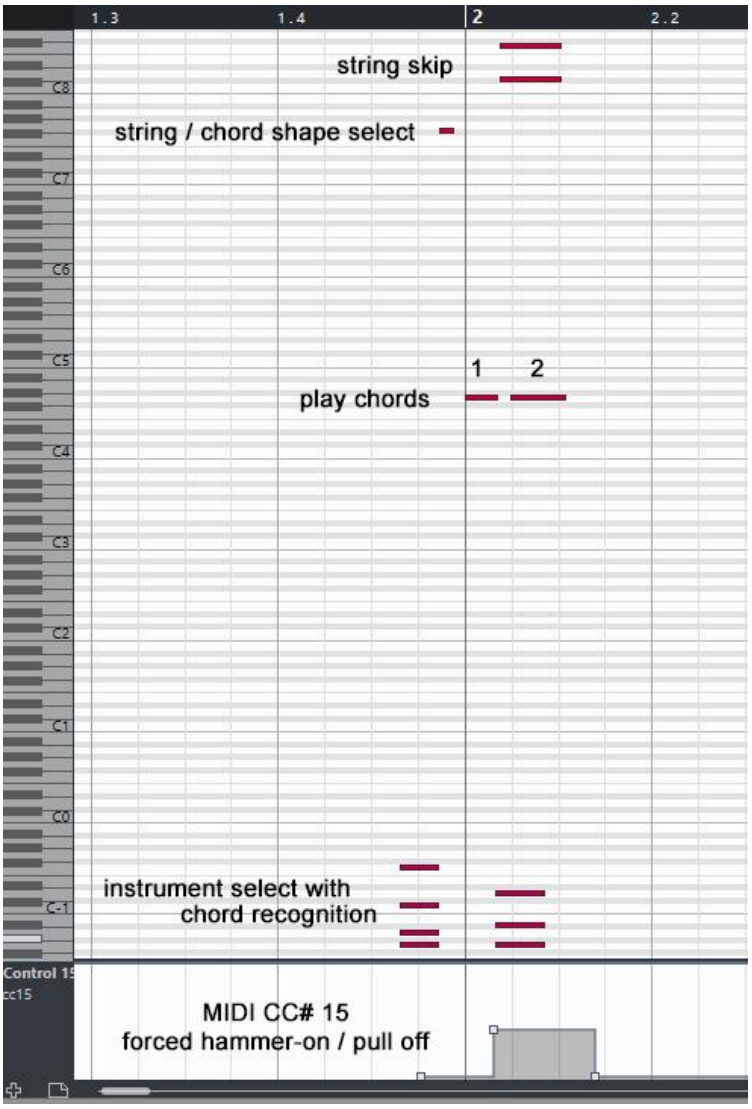
With the Forced hammer-on / pull-off feature, hammer-on or pull-off samples can be used instead of normal sustain samples. For example, after strumming a chord, you can do hammer-on or pull-off only with some (or all) of the chord notes that you select. By using this feature, you can add hammer-ons / pull-offs to chords like the guitar intro of the famous song; 'Long Train Running'. Forced hammer-on / pull-off is activated via MIDI CC# 15.

MIDI CC# 15
0: OFF
1 - 63: Forced hammer-on
64 - 127: Forced pull-off

Example
This example reproduces a minor chord with hammer-on. After playing the chord 1 (G9sus4), hammer-on only the string 2, 3, and 4 without re-strumming the other strings. By adding the hammer-on, it becomes the chord 2 (Gm).



How to do



After playing the chord 1, set the MIDI CC# 15 to a value between 1 and 63 to activate the forced hammer-on before playing the next chord.

Select the next chord using instrument select key switches.

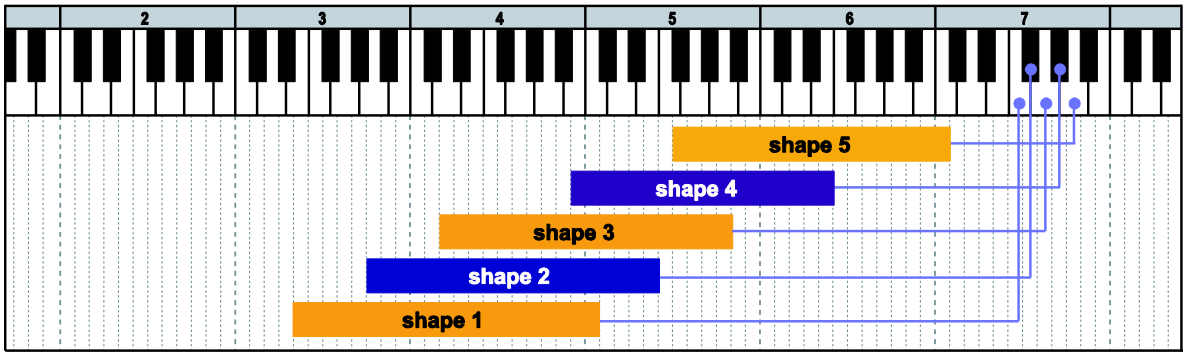
Input the string skip key switches; C#8 (for string 5) and F8 (for string 1) so the string 1 and 5 are not re-strummed when the chord 2 is played.

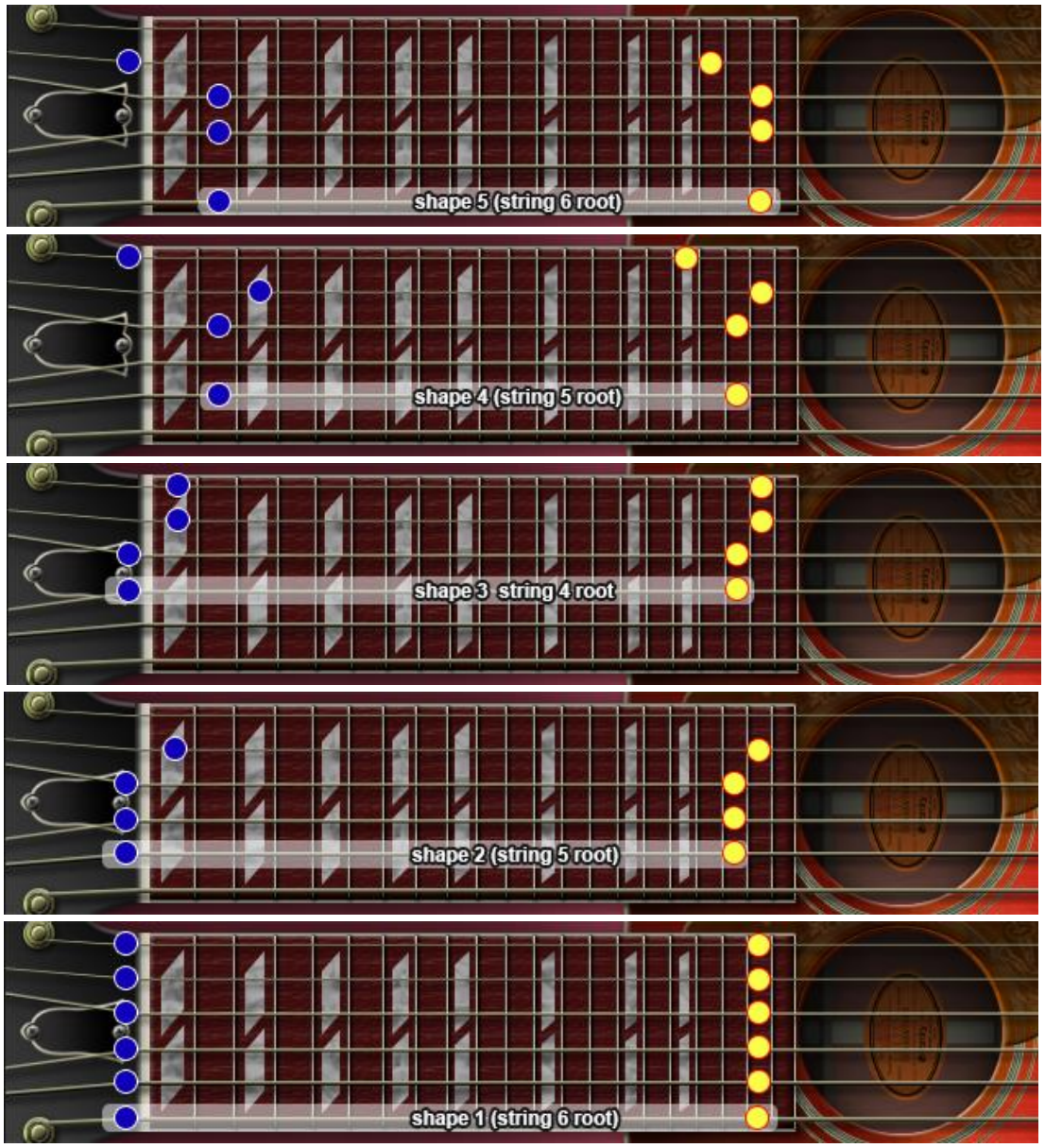
Play the chord 2, and only the string 2,3, and 4 are played with hammer-on.

As a result, the chord 1 becomes Gm (G minor chord) with hammer-on.

New chord presets (m11, 9sus4) chord shapes

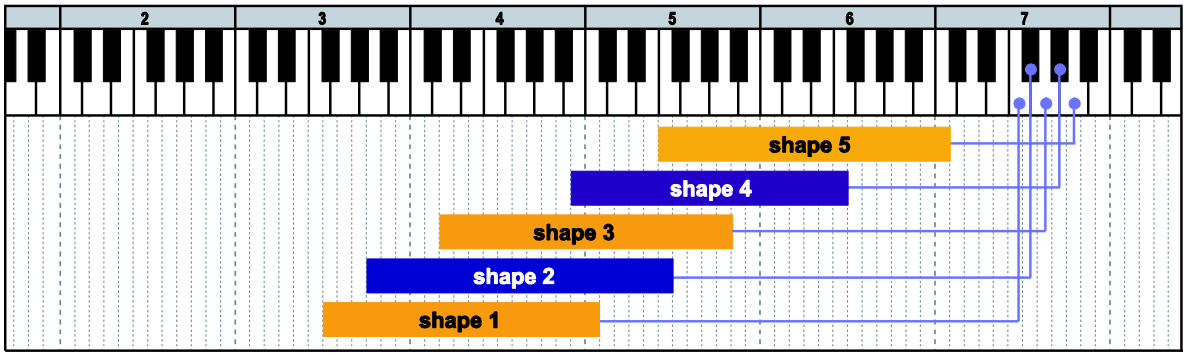
m11

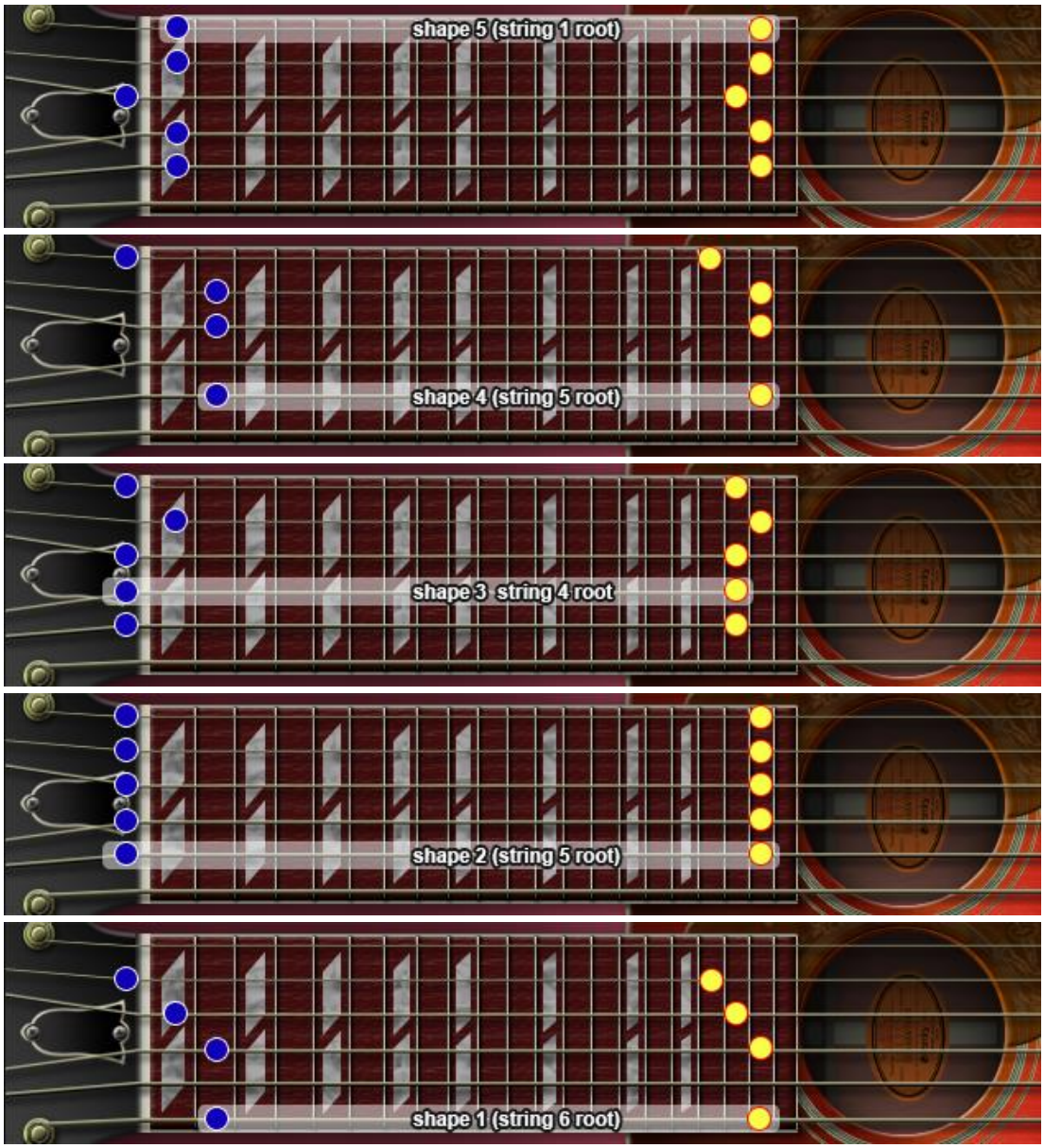




= lowest position = highest position

9sus4



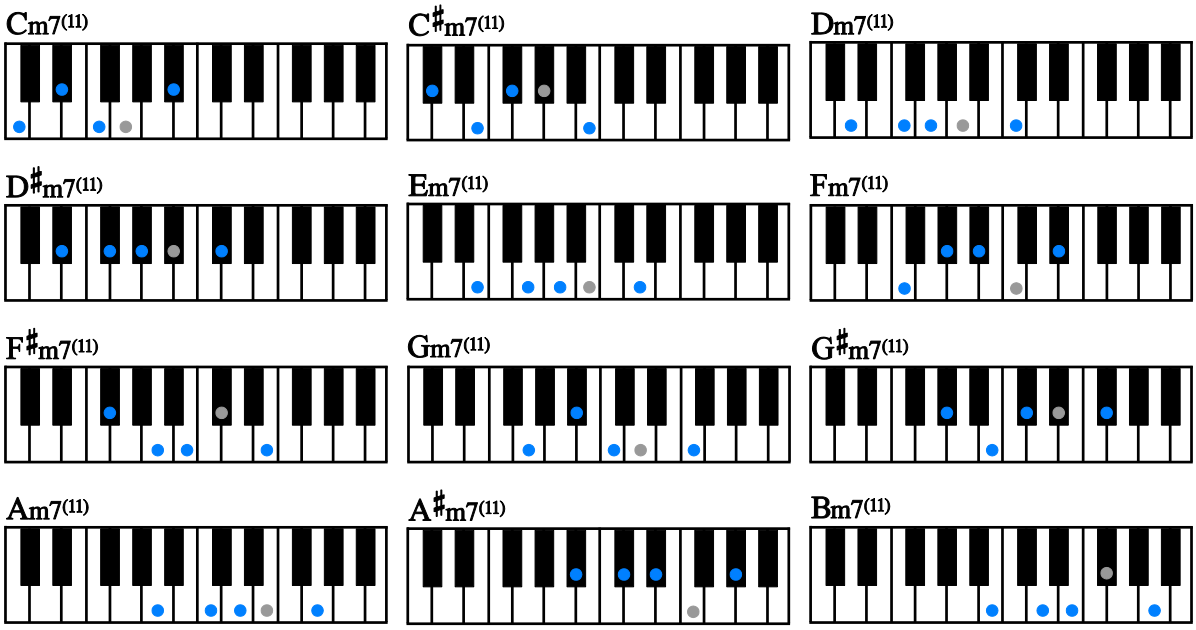


= lowest position = highest position

New chord presets (m11, 9sus4) Chord Recognition Intervals

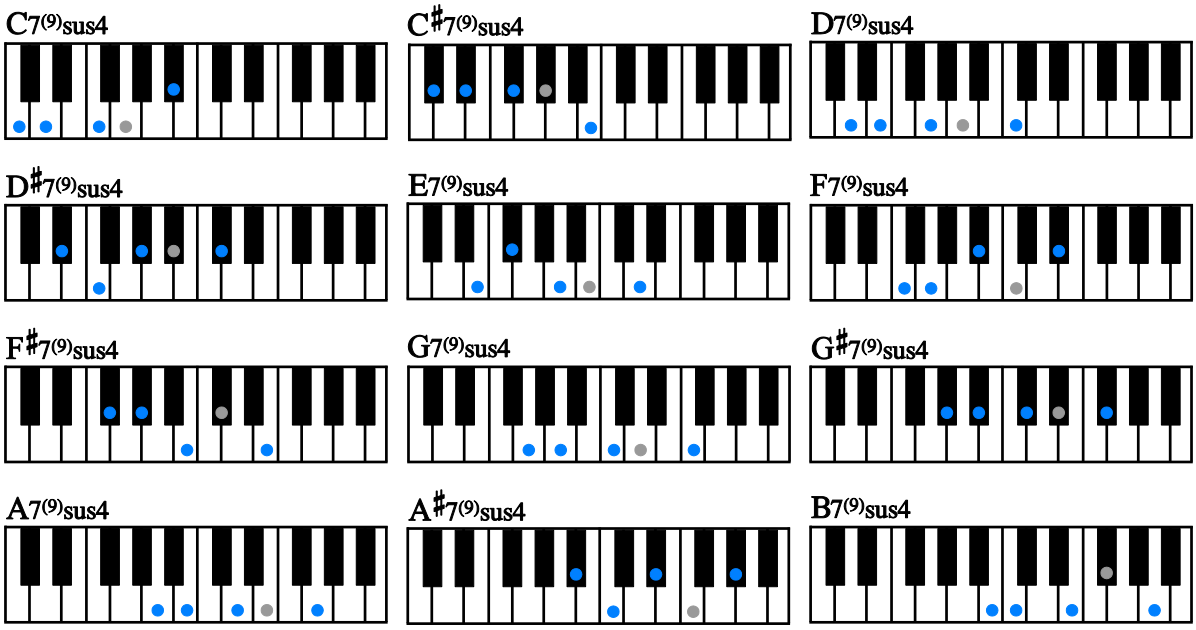
m11

root + minor3rd + 11th(4th) + 7th (5th can be omitted.)



9sus4

root + 9th(2nd) + 4th + 7th (5th can be omitted.)



ver.1.11 New Features / Fixes:

New Features

- Now chord shape select key switches can be used with Strum Keys and Arpeggio Keys. (A chord shape can be directly selected without using Normal Keys.)

- The virtual Keyboard of Kontakt and the Light Guide of KOMPLETE KONTROL S series keyboard (when it is used with Komplete Kontrol application / plug-in) show only string / chord shape select key switches that are available with the instrument currently selected.

Fixes

- Wrong notes are assigned to Arpeggio Keys in some situations.

[Please check your Kontakt Player version]
This update requires Kontakt Player (or Kontakt) 5.6.8 or later. If your Kontakt Player version is older than 5.6.8, go to;

http://www.native-instruments.com/en/products/komplete/samplers/kontakt-5-player/free-download/

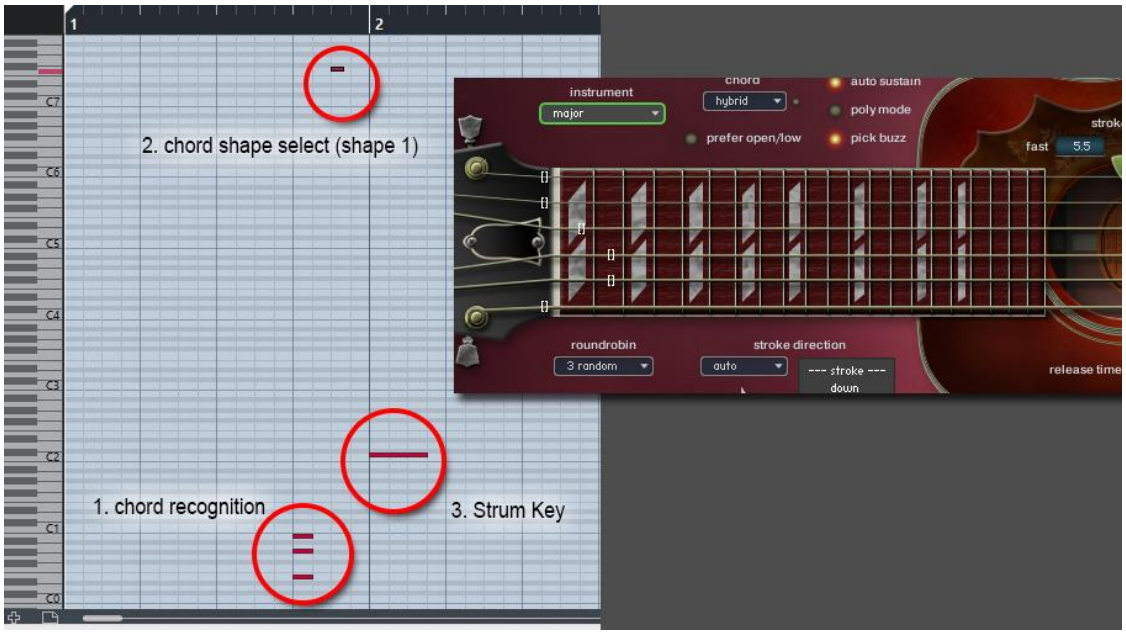
and download the latest version of Kontakt Player.

Chord Shape Select with Strum Keys / Arpeggio Keys

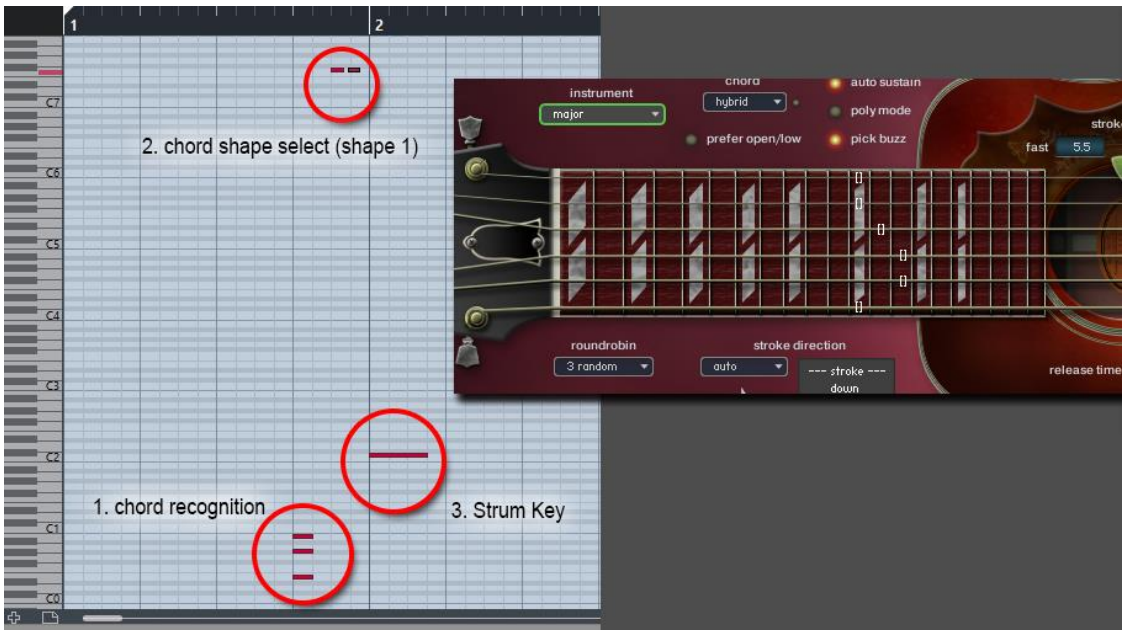
How to select a chord shape:

1. Do a chord recognition in the instrument select key switch range by pressing the .
2. Press one of the chord shape select key switch.
3. Play Strum Keys or Arpeggio Keys.

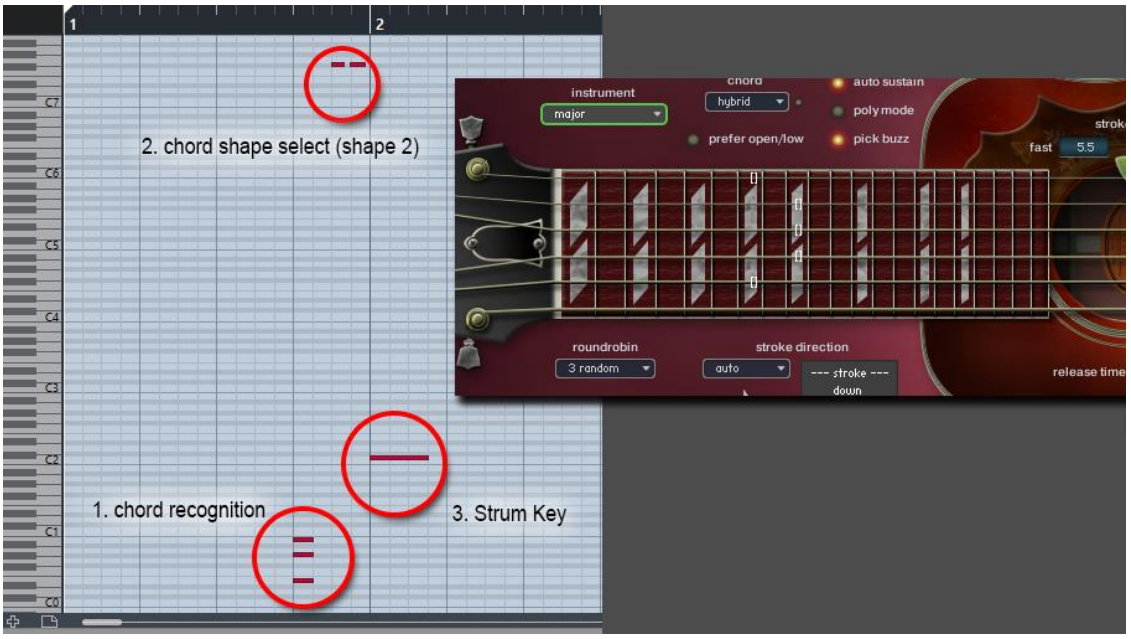
If you press the chord shape select switch only one time, the lowest position (the fist octave) of the chord shape is played.



If you press the chord shape select switch twice in a row, the position 12 frets higher (the second octave) than the lowest position is played if it is available.



If you press the chord shape select key switch twice but the second octave is not available with the chord shape (because it is out of the fretboard range), the first octave is played.



* If you press the chord shape select key switch 3 times or more in a row, the highest position that is available with the chord shape is selected. (As Hummingbird is a 20 fret guitar, the third octave is not available.)

ver.1.10 New Features / Fixes:

New Features

- String Skip Key Switch
With the String Skip Key Switches, you can determine what string to strum or not, what string to leave it sounding without re-strumming.

- Pitch Bend Range per string
You can set the band range of each string individually. This feature enables you to emulate any kind of multi-string bend techniques.

- Native Kontrol Standard (NKS) support
Now Hummingbird officially supports Native Kontrol Standard (NKS). With this NKS integration, you can control major parameters via KOMPLETE KONTROL S series keyboard / Maschine hardware and software. KOMPLETE KONTROL S's Light Guide shows available key switches, playable key ranges of each articulation.

Fixes

- minor fixes

String Skip Key Switch

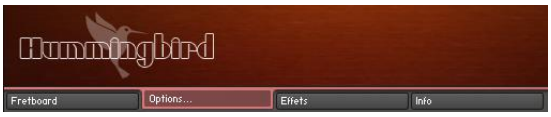
With the String Skip Key Switches, you can determine what string to strum or not, what string to leave it sounding without re-strumming. By holding the String Skip Key Switch, the string is excluded from the target strings to be strummed / stopped. It is similar to the ‘do nothing’ feature in the Strum Setting, but it is more flexible. For example;

- After playing a chord, only the string(s) selected by the key switch(es) can be slid (legato slide) without stopping / re-strumming the other strings that are not selected.

- When you play arpeggio, you can do hammer-on / pull-off only the string(s) selected by key switch(es) without stopping / re-strumming the other strings that are not selected.

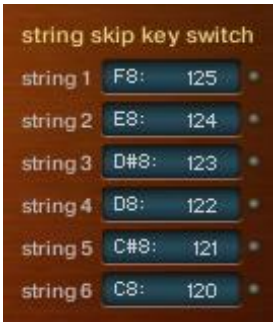
- After playing a chord, hold the key switches for the lower strings and select a single note instrument and play notes using the higher strings. The lower strings of the chord keep still sounding even if the chord is no longer selected.

- You can use this feature like you do with the 'do nothing' feature in the Strum Key setting.



Click the ‘options…’ tab.

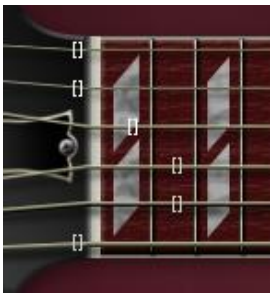
Click the pull-down menu on the menu and select the ‘other settings’ from the pull-down menu on the lower right of the interface.



default:

String 1: F8 (MIDI note number: 125)
String 2: E8 (MIDI note number: 124)
String 3: D#8 (MIDI note number: 123)
String 4: D8 (MIDI note number: 122)
String 5: C#8 (MIDI note number: 121)
String 6: C8 (MIDI note number: 120)

While the key switch (in this example, C8 for string 6, C#8 for string 5, D8 for string 4) is being held, the LED of the key switch is turned ON.



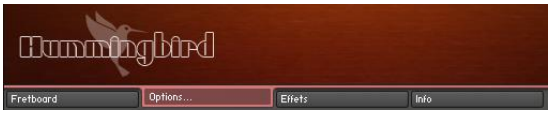
While the key switch (in this example, C8 for string 6, C#8 for string 5, D8 for string 4) is being held, the color of the position mark on the Fretboard becomes gray.

Pitch Bend Range per string

You can set the bend range of each string individually. This feature enables you to emulate any kind of multi-string bend techniques. For example;

- You can bend the lower string two semi tones, and the upper string one semi tone.

- When you play a single note instrument in Poly Mode or play an emulated chord, you can bend (or do vibrato) only the string(s) you choose.



Click the ‘options…’ tab.

Click the pull-down menu on the menu and select the ‘other settings’ from the pull-down menu on the lower right of the interface.

Set all

With the ‘set all’ knob, you can set the bend range of all the strings at once. You can also control the knob via MIDI CC# 29.

Set each string individually via MIDI CC

You can also configure the pitch bend range of each string through the MIDI CC# 28 and 30. For example; if you would like to change the bend range of the string 2, send the value 2 (= string number) though MIDI CC# 28, and then send an appropriate value through MIDI CC# 30.

MIDI CC# 28	**target string to edit** 1: string 1 2: string 2 3: string 3 4: string 4 5: string 5 6: string 6
MIDI CC# 30	**bend range** 0 (0 semi tone) - 127 (12 semi tones)

Cmd-clicking (Mac) or Ctrl-clicking (PC) the knobs / sliders resets them and the default value; 2.0 semi tones are assigned.

Credits

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Hummingbird User Manual

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