

Guide to SFF

SFF – (*Style File Format*) it's format used by Yamaha in electronic musical instruments (PSR, Tyros, Clavinova). This format was constructed based on the SMF0 (Standard Midi File) format. Due to the roots, the SFF can be easily opened by most midi editors, but if you make changes and save the file, the SFF will be damaged, therefore I do not recommend attempts editing style files via midi editors.

SFF GE – (*Style File Format Guitar Edition*, called also SFF2) is a newer format, with support for styles that use the Mega Voice, has a larger number of parameters for the guitar parts.

StyleMagic YA is a program designed to edit and create styles. This tutorial describes how to create/edit the styles in the StyleMagic.

Feel free to read.

1. How work the SFF?

Have you ever wondered how it is, that when you turn on the auto accompaniment and hitting left hand the keys, instrument begins beautifully play the selected section in the specified key signature?

All this is happening because in the SFF file stored the patterns of notes and midi controllers for each **section**, the looping and proper transposition (except for the Rhythm parts) by the internal keyboard computer, called the **arranger**.

The sections may be of varying length, usually is:

Intro A, Ending A – 1 bar, (by arranger played only once after the trigger)

Intro B, Ending B – 1 or more bars, (by arranger played only once after the trigger)

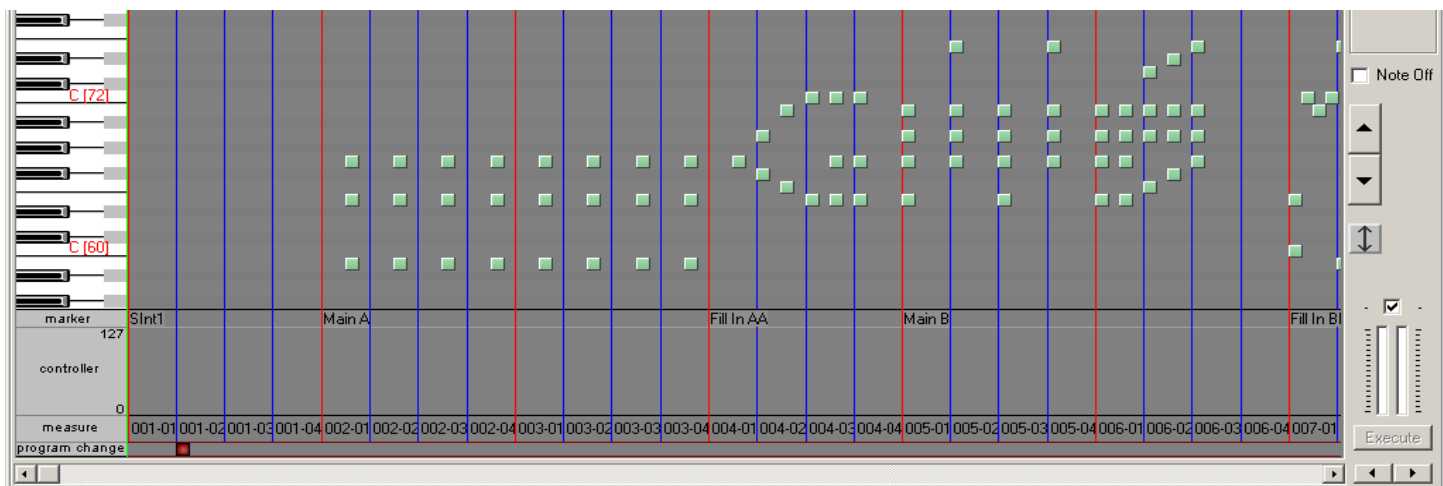
Intro C, Ending C – 1, more or even more bars, (by arranger played only once after the trigger)

Main A, B, C, D – good practice to use an even number of bars – 2, 4, 8, however, it is not necessary, (by arranger played in a loop)

Fill In AA, AB, BB, BA, CC, DD, Break – 1 bar, (by arranger played only once after the trigger)

Section always begin from a marker event, in which the label is the name of the section. StyleMagic has templates with the names of sections, thus avoiding mistakes during typing of name. The end of section is the beginning of another section or the end of the midi file.

Please see, this is a tool called Multieditor.



Let's analyze:

Main A – begins in measure 002-01, has two bars and ends in 004-01

Fill In AA – begins in measure 004-01, has one bar and ends in 005-01

Main B – begins in measure 005-01, has two bars and ends in 007-01 etc.

There is also a special section **SInt** – always begins in measure 001-01 and in this case ends in 002-01.

SInt – this initialization section, contains the necessary controllers for mastering, messages of change of voices on the channels, and system exclusive messages. SInt are global in nature, its settings affect for all sections. Besides this the section can have its own local settings, which take priority over the global.

Note! – SInt not have notes, she cannot have! On the picture the green squares it is notes.

If you are doing style file from midi file, your task is select the relevant fragment of midi and inserting markers section. If possible, insert markers in the first beat of bar. Do not insert marker of SInt, this marker will be added automatically when you create the CASM table and execution of the Validation SFF - will this continue.

What to do, if after divide the midi to sections, length of sections is too much, exp.: you inserted the marker Fill In BB and the next marker occurs after 24 bars! After all Fill In BB can only have one bar!?

Do not worry, use END_SEC marker to complete the section (you can use this marker to complete of any section), then use the menu **Tools->Remove END_SEC**. StyleMagic remove redundant bars (from END_SEC to next marker) and all END_SEC markers.

Note! Marker END_SEC used only for design purposes, instruments don't know this marker!

I think, that already you know, how to divide midi file to a sections?

Technical information, you see in the manual StyleMagic (PC key F1), chapter Multieditor.

2. Switch chord i Switch key.

Styles of Yamaha instruments have 8 parts, however the SFF files have 16 channels (like SMF0). How it is happening, that everything is playing good, everything has its place, nothing is lost?

Recall style parts:

Rhytm Sub (the channel no 9 default performs this role)

Rhytm Main (the channel no 10 default performs this role)

Bass (the channel no 11 default performs this role)

Chord 1 (the channel no 12 default performs this role)

Chord 2 (the channel no 13 default performs this role)

Pad (the channel no 14 default performs this role)

Phrase 1 (the channel no 15 default performs this role)

Phrase 2 (the channel no 16 default performs this role)

And so will play the midi file, that soon after dividing into sections, you will save as *.STY and load to your instrument. The instrument won't use channels from 1 to 8 and you will hear only what is on channels from 9 to 16. However, SFF provides for the use of all the channels, even those with a range of 1-8.

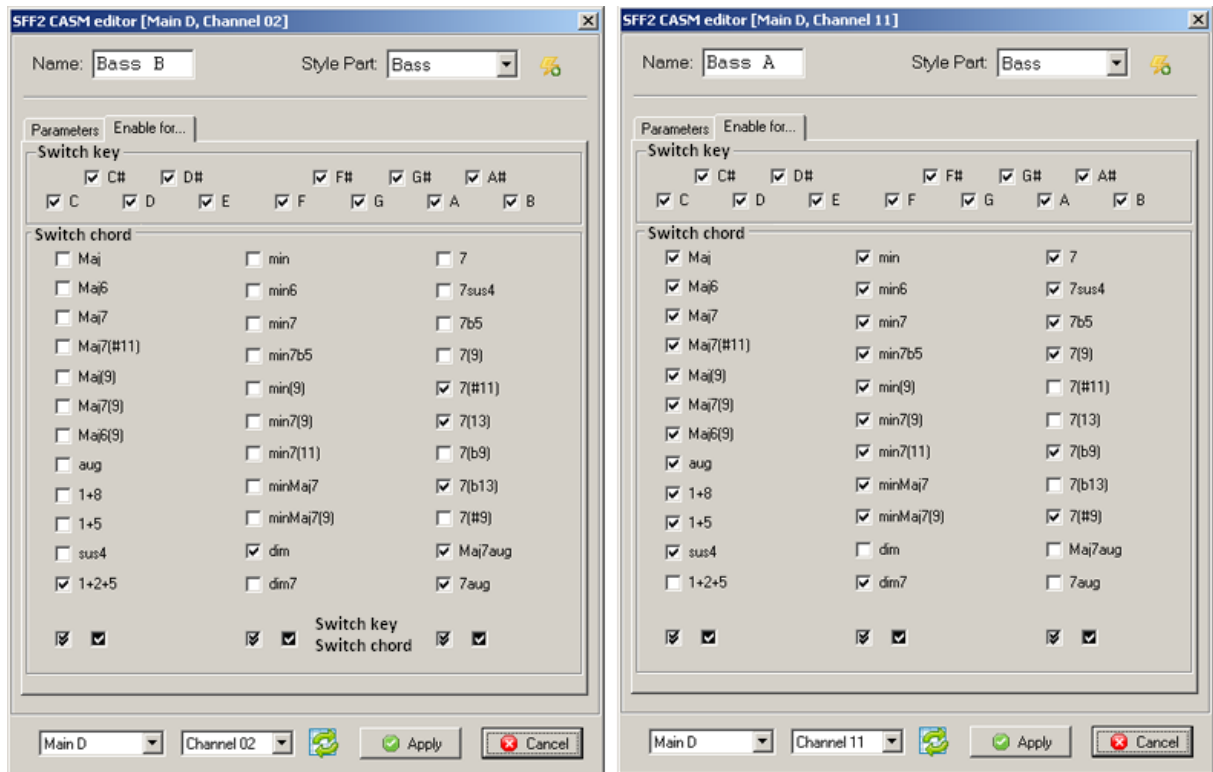
I will discuss for example the Bass parts:

What you can see below it is the **CASM Editor** and settings for channels of no 2 and no 11, for the Main D sections.

Note! - CASM Editor you can call from the Mixing console, when you select a specific section (other than the SInt).

Please, look closely, you see the difference? I think so, and what follows from it, already discuss.

Name – here you can enter 8 character channel name, name does not affect the work of arranger, serves for it, that you can easily identify the track.



Style Part – this is a very important field, it here you can assign role for midi channel, you have to choose 8 items - Rhytm Sub, Rhytm Main, Bass, Chord 1, Chord 2, Pad, Phrase 1, Phrase 2.

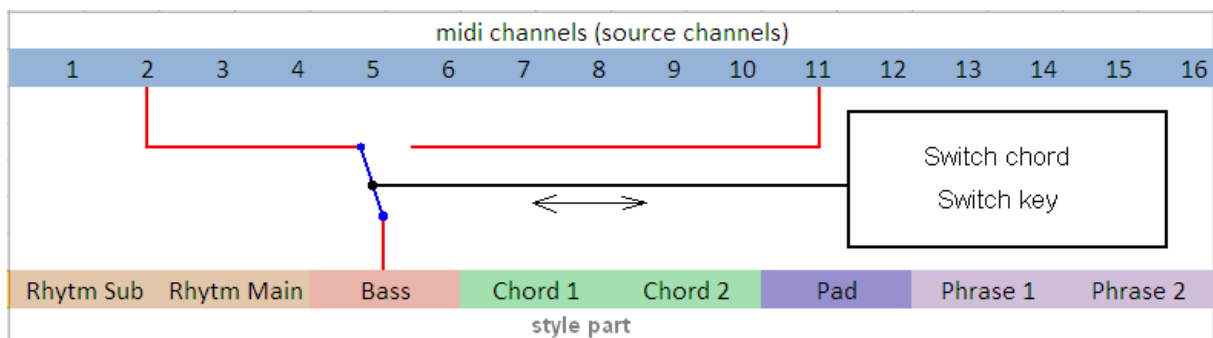
Near is icon with the yellow lightning, you can use to recall default values for the role.

Please notice, that both channels have the same roles, however while playing, two together not hear!

Look carefully at the field of **Switch Chord**, they are not identically positioned, are positioned so, that one is like a negative of the other.

In practice, it looks like this, that the channel of no 2 will be source for the Bass parts only when the arranger receives one of the selected type of chord (1+2+5, dim, 7(#11), 7(13), 7(b13), Maj7aug, 7aug), for the remaining type of chords source will be channel of no 11.

And so work Switch chord i Switch key - mechanism similar in operation to a rail crossover.



Switch Chord and Switch Key contains information about, which midi channel will serve as the source for the style parts.

Similarly, you can create an alternate channel for a particular base note, just set properly the check box in the **Switch key** field.

Simple styles usually do not have the alternative channels of source. Professional styles have alternative channels of source, creating them is not difficult, so I think that you will master this art.

At bottom the window of CASM Editor **there are fields indicating**, where currently you are (which channel and which section)? But you can use them to move to other section or channel.

Remember! - you always assign the role (Style Part) to the channel, not vice versa!

The **button with the icon of arrows** use for reset (returns to the settings saved in the style file).

For testing Switch Chord and Switch Key you can use **Auto Selection** fields – this field you will find, among others, in the **Mixing console**.



If you used markers and divided the midi file to sections, and you did nothing any more, next started the Mixing console (best from the **Section manager**), you will not see the colorful icons (Rythm1, Rythm2, Bass, Chord1, Chord2, Pad, Phrase1, Phrase2), you will see a **gray button that says CASM**.

This means, that your channels have not received the roles and work on the default (will be heard only from 9 to 16). Moreover – Your file is not style! Will it becomes when you click one of the **gray buttons with the CASM label**, or choose from the menu software **Tools->CASM auto create**. It is at this stage, choose the file format, one of the two available, SFF1 or SFF2 (SFF GE). If you choose the wrong for your instrument, do not worry, StyleMagic have a format converter: menu software **Tools-> SFF1 to SFF2 converter** (or vice versa) . This also works on preset styles!

*Note! - CASM auto create works only on the channels from 9 to 16, sets the default values for the parameters of style, such as: **Source Root, Source Type, Range Of Zones (only SFF2), Highest Key (High Key), Low Limit Key, High limit Key, NTR, NTT, RTR**, probably will have improve the settings!*

At the end, be sure to execute the Validation SFF, operations inserts a marker SInt and rebuild the SInt section.

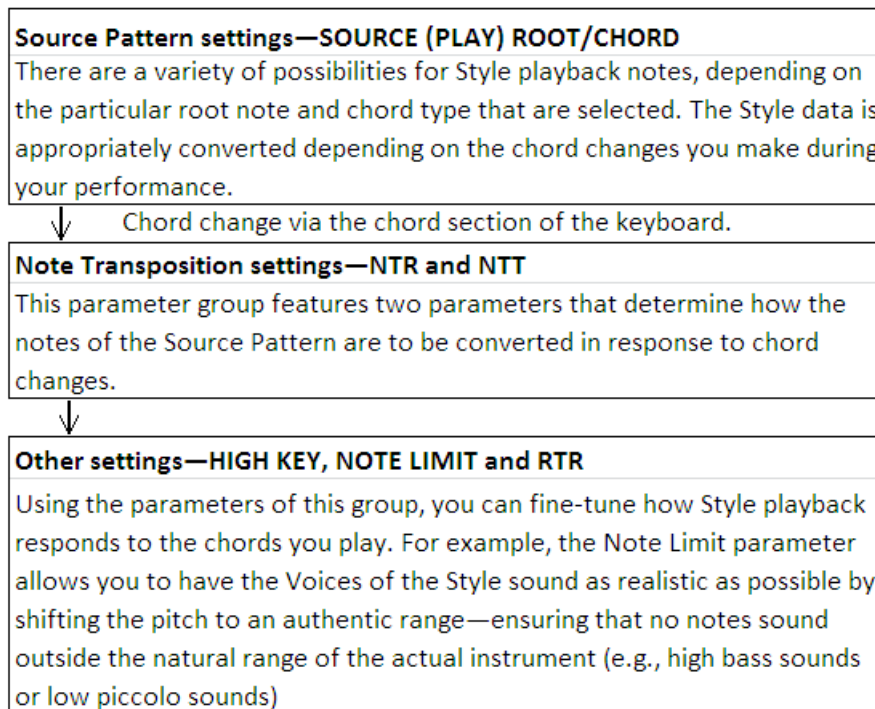
Note - CASM auto create default also performs Validation SFF so you do not have to do it.

When your midi file has sections, table of CASM and assigned one of the following formats of SFF, becomes a style file. At this stage should be visible the OTS Manager, however before you begin the adventure with OTS, your style needs some "polishing", segregation of notes and tuning of parameters.

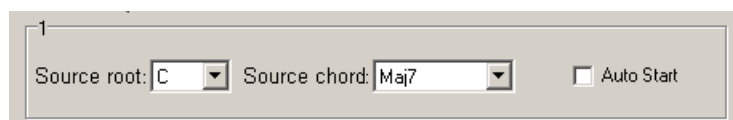
3. Why so many parameters, what is CASM?

The chart shown below indicates the process by which the Style is played back (this does not apply to the rhythm track).

CASM parameters are, because arranger needed know how to use the sources schematics (how to respond to the chord changes, how use turn away chords or transpose and ect.). This information is stored in style file in the table of CASM. All parameters for both the SFF1 and SFF2 (SFF GE) formats, you can edit in the StyleMagic.

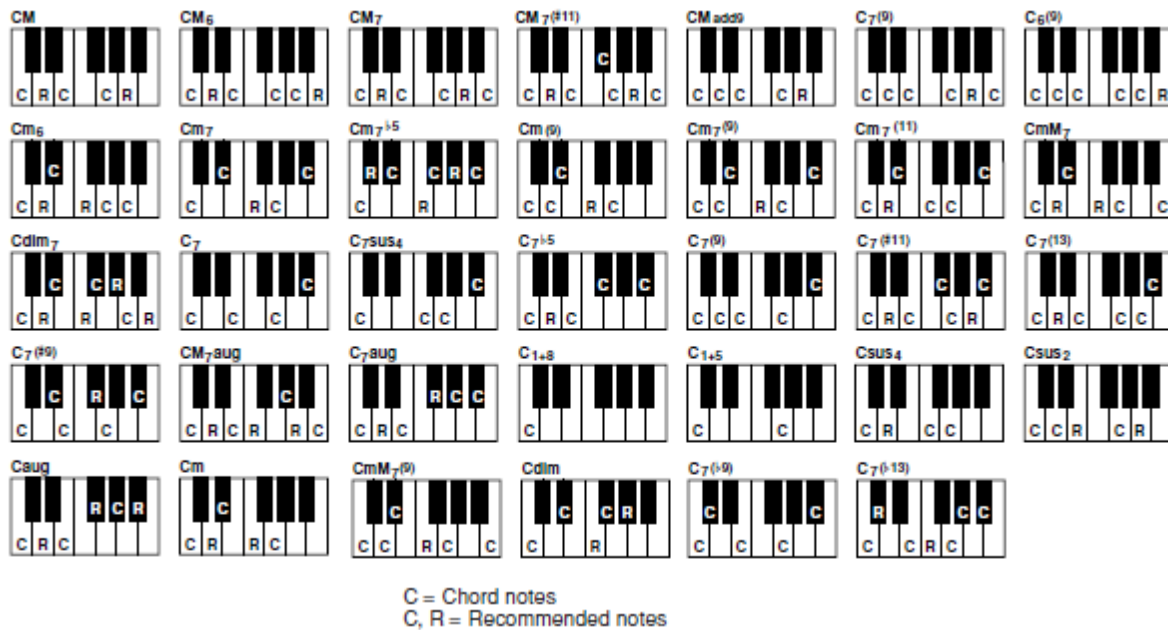


SOURCE (PLAY) ROOT/CHORD:



These settings determine the original key of the source pattern (i.e., the key used when recording the pattern). The default setting of CM7 (with a Source Root of “C” and a chord Type of “M7”), I recommend bring notes to the default chord/key on channels of the source in all sections Main, Fill In and Break. When you change Source Root/Chord from the default CM7 to another chord, the chord notes and recommended notes will also change, depending on the newly selected chord type.

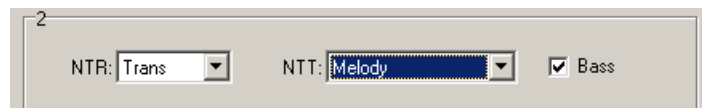
When the Source Root is C:



Note! – This is not applied when the NTR is set to GUITAR (only in SFF GE).

Auto start – if you checked, after pressing the Start/Stop button arranger will playback the track. This option is used only to Rhythm track.

NTR/NTT



NTR - Note Transposition Rule. Determines the relative position of the root note in the chord, when converted

from the Source Pattern in response to chord changes.

Available parameters:

Trans - Root Transpose. When the root note is transposed, the pitch relationship between notes is maintained. For example, the notes C3, E3 and G3 in the key of C become F3, A3 and C4 when they are transposed to F. Use this setting for channels that contain melody lines. (Phrase role).

Fixed – Root Fixed. The note is kept as close as possible to the previous note range. For example, the notes C3, E3 and G3 in the key of C become C3, F3 and A3 when they are transposed to F. Use this setting for channels that contain chord parts. (Chord, Pad role).

Guitar – only in SFF2 (SFF GE). This is exclusively for transposing guitar accompaniment. Notes are transposed to approximate the chords played with natural guitar fingering..

NTT – Note Transposition Table.

Available parameters when the **NTR** is set to **TRANS** or **FIXED**.

BYPASS	When NTR is set to ROOT FIXED, the transposition table used does not do any note conversion. When NTR is set to ROOT TRANS, the table used only converts the notes by maintaining the pitch relationship between notes..
MELODY	Suitable for melody line transposition. Use this for melody channels such as Phrase 1 and Phrase 2.
CHORD	Suitable for chordal parts transposition. Use this for the Chord 1 and Chord 2 channels, especially when they contain piano or guitar-like chordal parts.
MELODIC MINOR	When the played chord changes from a major to a minor chord, this table lowers the third interval in the scale by a semitone. When the chord changes from a minor to a major chord, the minor third interval is raised by a semitone. Other notes are not changed. Use this for melody channels of Sections which respond only to major/minor chords, such as Intros and Endings.
MELODIC MINOR 5th	In addition to the Melodic Minor transposition above, augmented and diminished chords affect the 5th note of the Source Pattern.
HARMONIC MINOR	When the played chord changes from a major to a minor chord, this table lowers the third and sixth intervals in the scale by a semitone. When the chord changes from a minor to a major chord, the minor third and flatted sixth intervals are raised by a semitone. Other notes are not changed. Use this for chord channels of Sections which respond only to major/minor chords, such as Intros and Endings.
HARMONIC MINOR 5th	In addition to the Harmonic Minor transposition above, augmented and diminished chords affect the 5th note of the Source pattern.
NATURAL MINOR	When the played chord changes from a major to a minor chord,

	this table lowers the third, sixth and seventh intervals in the scale by a semitone. When the chord changes from a minor to a major chord, the minor third, flatted sixth and flatted seventh intervals are raised by a semitone. Other notes are not changed. Use this for chord channels of Sections which respond only to a Major/minor chord such as Intros and Endings.
NATURAL MINOR 5th	In addition to the Natural Minor transposition above, augmented and diminished chords affect the 5th note of the Source pattern.
DORIAN	When the played chord changes from a major to a minor chord, this table lowers the third and seventh intervals in the scale by a semitone. When the chord changes from a minor to a major chord, the minor third and flatted seventh intervals are raised by a semitone. Other notes are not changed. Use this for chord channels of Sections which respond only to a Major/minor chord such as Intros and Endings.
DORIAN 5th	In addition to the Dorian transposition above, augmented and diminished chords affect the 5th note of the Source pattern.

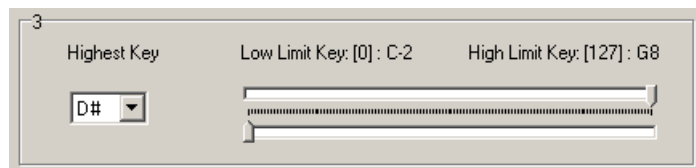
Available parameters when the **NTR** is set to **GUITAR** (only SFF2).

ALL-PURPOSE	This table covers both strummed and arpeggio played sound.
STROKE	Suitable for stroke-played sound of the guitar. Some notes may sound as if it is muted—this is normal condition when the chord is played on guitar by stroke.
ARPEGGIO	Suitable for arpeggio-played sound of the guitar. Using this table, four notes arpeggio sounds most beautiful.

BASS ON/OFF

The channel for which this is set to ON will be played back by the bass root note, when the on-bass chord is recognized by the instrument. When the NTR is set to GUITAR and this parameter is set to ON, only the note which is assigned to bass will be played back by the bass root note.

HIGH KEY / NOTE LIMIT



Highest Key (High Key) - This sets the highest key (upper octave limit) of the note transposition for the chord root change. Any notes calculated to be higher than the highest key are transposed down to the next lowest octave. This setting is available only when the NTR parameter is set to “Trans”.

Example—When the highest key is F.

Root changes → CM C#M . . . FM F#M . . .

Notes played → C3-E3-G3 C#3-E#3-G#3 F3-A3-C4 F#2-A#2-C#3

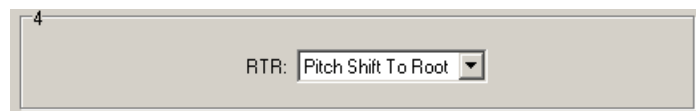
Note Limit (Low Limit Note, High Limit Note) - These set the note range (highest and lowest notes) for Voices recorded to the Style channels. By judicious setting of this range, you can ensure that the Voices sound as realistic as possible—in other words, that no notes outside the natural range are sounded (e.g., high bass sounds or low piccolo sounds).

Example—When the lowest note is C3 and the highest is D4.

Root changes → CM C#M . . . FM . . .

Notes played → E3-G3-C4 E#3-G#3-C#4 F3-A3-C4

RTR - Retrigger Rule.

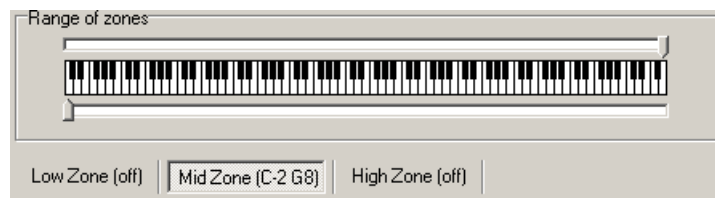


These settings determine whether notes stop sounding or not and how they change pitch in response to chord changes.

STOP	The notes stop sounding.
PITCH SHIFT	The pitch of the note will bend without a new attack to match the type of the new chord.

PITCH SHIFT TO ROOT	The pitch of the note will bend without a new attack to match the root of the new chord.
RETRIGGER	The note is retriggered with a new attack at a new pitch corresponding to the next chord.
RETRIGGER TO ROOT	The note is retriggered with a new attack at the root note of the next chord. However, the octave of the new note remains the same.

Range of Zones (only in SFF2)



Style File Format Guitar Edition (SFF GE, also called SFF2) provides the ability to split the keyboard into zones. Each zone can have a separate source schema and distinct CASM parameter settings (previously mentioned).

This solution is most often used, when the source channel have Mega Voice and source schema contains in addition to playing the notes, the notes playing FX of Mega Voice.

Mega Voice FX notes are available above the C6 and for them to be set up a separate zone, and use the settings NTR=FIXED and NTT=BAYPAS. This will ensure that the arranger will not transposed these notes (Parts of Rhythm use the same settings NTR and NTT).

Source path can be divided into 3 zones, the default it is one zone - MID, and includes the entire range of octaves (from C-2 to G8).

Note! - If you use the settings ALL-PURPOSE, STROKE, ARPEGGIO, you do not need split the keyboard into zones.

Summation

That would be everything when it comes to the construction and operation of style, if you meet the first time, you can have the impression, that it is too complicated – trust me, it is not difficult! The quickest way to understand, is a work in the StyleMagic and reading this guide. Please, test different combinations of settings, play this, commit errors (even deliberately), if you hear it with

your ears, quickly memorize the various nuances. The StyleMagic not play your style in accordance with the specified parameters, do it only keyboard, so save your "test style" and listen in the instrument.

More technical information, how to handle StyleMagic see the manual of the program (PC key F1).

Thank you