STS-26 Pro - Free 2012

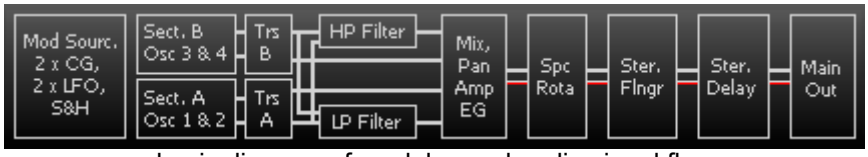
New Generation Space Transition Synthesizer

< Set the controls for the heart of sound ... and PLAY! >

This synthesizer is featuring Wave-Transition method for absolute unique atmospheres, soundscapes, pads & textures. A very straight userinterface with 3 "Lazy"-Buttons for randomizing different sets of parameters so programming this synthesizer is incredibly easy. The Transition method adds a stunning new dimension and motion for an evolving sound changing completely it's characteristics. Although this is an amazingly "simple" structured synthesizer it gains its astounding sound from the Transition method between the oscillators and some neat features inside.

The basic features are:
New: - a complete new soundset of 128 waves plus 21 percussive Groove-Loops
New: - 2 Contour Generators with curves being drawn at realtime
New: - Stereo flanger with selectable modulations for Depth and Feedback per channel
New: - Both filters with Filter FM driven by selectable osc. source each
New: - Single-Finger keys for perc. & FX loops as part of the synthsound (with SF2 source osc only - see appdx.)
- four digital PCM-wave oscillators powered by 128 selectable waveforms via external SF2 file in Pro Version
- two resonant filters (24db Lowpass and 12 db Highpass)
- three ADSR-style envelope generators
- two LFO (bpm-synced)
- one Sample & Hold (bpm-synced)
- Stereo delay with separate feedback per channel
- Space rotation for sound rotating in stereo width

The features of the STS-26 Synthesizer in detail



basic diagram of modules and audio signal flow

The sound-sources

Four **digital oscillators** (in sections: A-1, A-2 and B-3, B-4) have a set of 128 selectable PCM-waves as soundsources. Each oscillator has a **[Level:]**-slider and can be set to -2/-1/0/+1/+2 octaves and shifted up by 11 semitones.

The outstanding feature of this synthesizer is the adjustable transition from one wave to the next via the **[Time]** sliders and with adjustable **[TrEnd]**point plus modulation on this separate for each section. Modulation is affected after the transition has reached it's **End** setting. The **End** point is determined by the resp. TrEnd slider setting so in middle position both oscillator will sound equally unless modulated. Transition can be switched on/off by the button **[ON]** left of TREnd Mod Src.

In other words: Transition 'morphs' from Osc 1 to Osc 2 (e.g. here Section A) with adjustable Time then falls back to Osc.1 if TR End slider is down. If a mod source other than Man(ual) is selected now modulation starts to continue this morphing bewteen those two oscs. with the amount being set by Tr End slider.

Release of VCA EG is controlling 'bouncing back' of Transition after release of keys - thus you can control this behaviour to a certain extend.

Filter section

With the STS-26 each filter has a balance slider **[Sec Bal]** to adjust level between section A and B for input to filters.

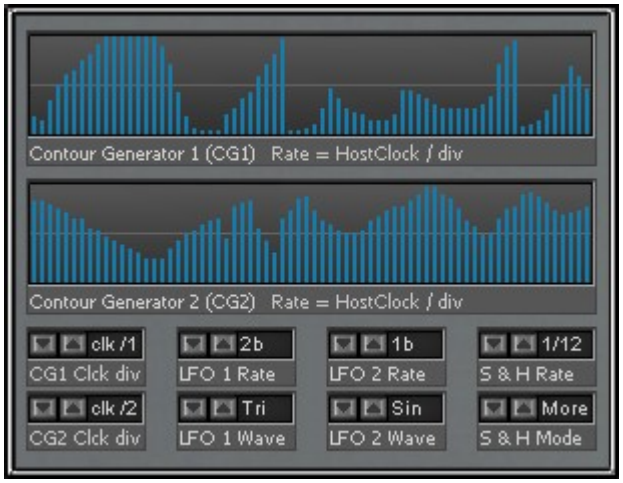
The signal of oscillators are routed to a 24 dB LowPass and 12dB High-Pass Filter both with resonance (Q). Cutoff frequency **[Cut]** and Resonance **[Q]** are adjustable for each filter separately with the respective sliders.

Both **[A] [D] [S] [R]** envelope generators let you adjust the way the filter works on the incoming signal with **A**ttack, **D**ecay, **S**ustain and **R**elease providing the shape on filtering. With the **[EGMod]** – slider you can adjust the amount of this modulation on the filter. You won't need Release here much or this envelope at a greater extent, as the modulations by LFO, Contour Generators and S&H provide a far more interesting motion in sound. Btw. Release is quite CPU-hungry.

As further modulation-source LFO Mod is there with different selectable sources (Note '+' indicates normal modulation while '-' (minus) inverted modulation). Combined sources are abbreviated like L1S = LFO1 + S&H etc.

Also both filters support Filter-FM by a selectable oscillator source each. **Be careful with high Q settings of filters as this might lead to clipping with Filter FM in use**.

Mod Sources



There are 2 Contour Generators, 2 LFO and 1 Sample&Hold for different modulation targets as e.g. Transition, Filter Cutoff and even Flanger. Sometimes even combined sources are used at target.

Notes:
The curves at contour generators can be drawn with mouse at realtime. The generators act like LFO with complex custom drawn waveforms.

Both LFO feature Sin, Tri, Saw and Ramp waves synched to bpm

Sample **& H**old provides a random modulation signal like pulses at varying levels instead of a continous / forseeable modulation from a selected wave of the **LFO**. With the **[Seed-Src]** button you can change the characteristics of the S&H pulses: Less (peaks), More (peaks) and Up & Dn types for ascending or descending motion preferably at lower rates.

The Output section (VCA incl. Mix, Pan, EG; Effects & Main)

The VCA has a premix to adjust output from LP and HP filter plus adjustable direct signal from oscillator sections Dir A and Dir B. The Pan knobs are working in 'opposite' mode so only two knobs are needed here. Opposite mode is e.g. turning LP to left forces HP to right channel and viceversa.

The output section provides an **[A] [D] [S] [R]** envelope generator for shaping the overall signal with **A**ttack, **D**ecay, **S**ustain and **R**elease.

The stereo Flanger with versatile modulations for depth and feedback even seprate for each channel. Note: as there are 4 possible mod sources involved it might occur that no flanging is noticed at all as this depends on the current position of the mod source, e.g. if these positions are all around 0 no effect will be there. Also crosscheck the rates of sources involved too. There are many possibilities within here even a flanger modulated by saw or ramp is possible which results might sound a bit embarrasing first. As mod sources even Transition is present here: T:A = section A, T:B = section B in positive or inverted mode + or -.

A Stereo delay is synced to host clock with several selectable division-settings for left and rigth seperately. Also Feedback amount is adjustable separately for left and right. Use DlyLvl to adjust the amount of delay to output.

Really amazing is Space Rotation (SpcRota) providing the impression of sound rotating in stereo width - not bouncing to and fro as with a simple LFO modulated pan! This one is more sophisticated and also synced to bpm tempo. There are two modes available which simply change the 'sequence' of sections (output from LP, HP, DirA and DirB) moving. Note: Make sure that levels are set properly at VCA premix - if a level knob is set to zero this will lead to a 'gap' in the 'sequence' of rotation.

Further switches and button in this screen area:
blue SF2-Load opens the slots to load SF2 file for osc. 1 to 4 - see appendix for details
blue Structure buttons shows up the diagram of modules and flow audio signal

Three **[Lazy?!]** buttons serve to change settings of different sections: Oscillators, Filters and All
Note: once somebody mentioined 'ah, this is where you switch to next program' ;-)

Hint: Using long release settings will increase CPU-usage - remedy: lower release at filter ADSR, lower release at ADSR in master section and raise delay MixLvl instead. So in most cases a release just below half way up of the slider will be sufficient to get a fading on the sound.

Hint for programming patches: Raise Levels at oscillators as much as possible and needed, next, raise levels at filters as much as possible and needed also at VCA-premix - there is a Main volume knob to lower if output is too much.

Hint: Switching between patches might lead to some sound artefacts by Delay when done while sound is still playing. In order to have a clean switching the sound of current patch should have faded to zero level before switching to next patch. Or, have delays set at the same Delay parameter value.

Note: !! Patches from other/prior STS versions can't be used within the STS-26 except for patches of STS-24 which need some minor adjustments and of course the resp. soundfont present !!
See Appendix for further details!

Credits and further info

The STS-26 Synthesizer has been created by H. G. Fortune with Synthedit by Jeff McClintock.

Thanks go to:
Heinz L. Maennchen for creating the GUI (great job in doing my preferred filigrane style, though probably less eyecatching at a first glance than has been STS-24 but definitively better to work with.)
Betatesting: ugo, Jack Dark, Peter Schoffhauzer, Micha Baum, Miquel Matas, et al.

Patches were kindly done by
Annabelle (ANN)
Dimitri Schkoda (DS or no sign)
Steve Blenkinsopp (WF) http://www.tangent-music.com/Waveform/home.html
Miquel Matas (MTZ)
Elvar Aron (Elv)
Stanley King (SK)
Loops provided by Dimitri Schkoda & Stan Lea
This VSTi uses further modules by David Haupt, Kelly D. Lynch and Lance Putnam
The 'Space graphic' has been composed using parts of photos by ESA Hubble Space Telescope - Image Archive

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Thanks to all who have helped and do support my work!

Note:
The free version is fully functional but some features are only within the 8 voice registered Pro version:
e.g. loading of wav-files, loading of SF2, and more patches!

List of PCM-Waveforms supplied with the STS-26

001.Guevercin-I.	033.GlassBlojob	065.Wonderland	097.Huuoouh
002.Margalit	034.GlassFlute	066.Simplify	098.FatQuyer
003.DeepString	035.Asianic	067.HiPassed	099.LowXsaw
004.Pentagram	036.ZFlute	068.Soloid	100.StabMeUp
005.NTropic	037.FakeShaku	069.ExotAtck	101.Distorter
006.Crystallite	038.LadyNature	070.Hitme	102.FatOnFloor
007.TadukiVision	039.EthnicVoc	071.WetQAtck	103.SoftAtkPad
008.Aphrodisia	040.Aaahhha	072.Sawysaid	104.MircalePad
009.HugeArc	041.LongAhhh	073.WetSaws	105.SparklyGls
010.Spheroidia	042.LongOoouh	074.OmniSaw	106.NaturePad
011.Haunted	043.AiryVoices	075.Saxorguitar	107.UglyPitch
012.MilkyWay	044.Horrifical	076.LightWay	108.Wateryfonic
013.Whereisit	045.HiGhouls	077.SpitBras	109.Clusterbell
014.BelloPad	046.SadFemale	078.SharpBras	110.SpacingOut
015.She	047.Voc2Syn	079.Brasselle	111.DlySurprise
016.Courteousy	048.Morphomat	080.LiteBras	112.HotMotion
017.LunaHolmes	049.SparkleStr	081.AtkBrassy	113.Lesbos
018.UltraFloat	050.MegaStrngs	082.AtckPad	114.HadesLoop
019.Forlorn	051.StarStrngs	083.AtkPad-Z	115.FXGameNoiz
020.Darkness	052.ClassicStrn	084.RhoAtkPad	116.RisingHigh
021.TechQuyer	053.FineStrngs	085.AtkPadSoft	117.LostInSpace
022.FakeQuyer	054.FatStringy	086.AtkWonder	118.QiGong-1S
023.Technoidon	055.WideStrngs	087.Metallic	119.Abstract-1S
024.FLX-SpklStr	056.Bowed	088.BelInharm	120.Saurus-1S
025.FLXtring	057.FastStrngs	089.Nopia	121.GlassTekHit-1S
026.FLXAtkPad	058.ArconicSyn	090.Roaring60s	122.Driftnby-1S
027.FLXSyn2	059.SharpStrn	091.Roaring50s	123.Surprisor-1S
028.FLX-Brite	060.SmearTape	092.Bishtorg	124.BigBang1S
029.FLX-Aaahh	061.UglyStrngs	093.gOrgantic	125.Thunor-1S
030.FLX-Strngsoft	062.Stringelized	094.WoodPipes	126.Mysteries-1S
031.FLX-Strgbrite	063.Ensemblon	095.Synphony	127.Tumbler-1S
032.FLX-PStorm	064.WonderWorld	096.BowedStrs	128.Whoop!-1S

In total there are **128 new waves** supplied with the STS-26 Pro (in free version as internally stored waves)
These samples have been preprocessed in a completely different way than before in order to enhance the quality for usage within my VSTi.

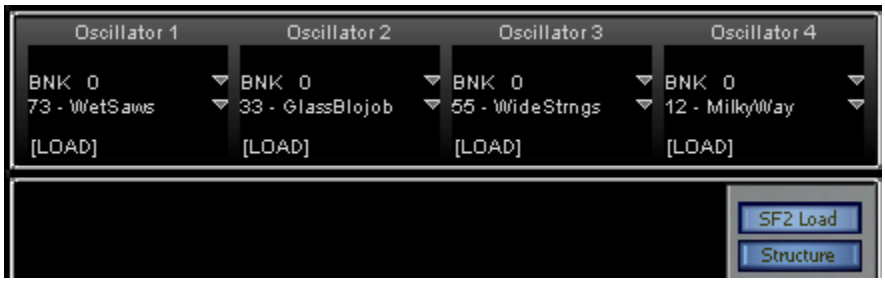
Plus: **21 percussive loops** in 7 presets in HGF-ROM1.SF2 Bank #128 assigned to keys from C1=MIDI Note #36

key:	001.6Grv-x2	002.2Grv-x6	003.4Grv-x3A	004.4Grv-x3B	005.4Grv-x3C	006.4Grv-x3D	007.3Grv-x4A
C	Groove_013	Groove_035	Groove068_90	Groove_038	Groove_029	Groove_018	sgroove-4
c#	Groove_018	"	Groove013_90	Groove_057	Groove_067	Groove_029	sgroove-2
D	Groove_029	"	Groove037_90	Groove_049	Groove_075	Groove_013	Prc10J-90
d#	Groove_030	"	Groove_057	Groove_039	Groove_045	Groove_045	sgroove-4
E	Groove_031	"	Groove068_90	Groove_038	Groove_029	Groove_018	sgroove-2
F	Groove_073	"	Groove013_90	Groove_057	Groove_067	Groove_029	Prc10J-90
f#	Groove_013	Groove_011	Groove037_90	Groove_049	Groove_075	Groove_013	sgroove-4
G	Groove_018	"	Groove_057	Groove_039	Groove_045	Groove_045	sgroove-2
g#	Groove_029	"	Groove068_90	Groove_038	Groove_029	Groove_018	Prc10J-90
A	Groove_030	"	Groove013_90	Groove_057	Groove_067	Groove_029	sgroove-4
a#	Groove_031	"	Groove037_90	Groove_049	Groove_075	Groove_013	sgroove-2
B	Groove_073	"	Groove_057	Groove_039	Groove_045	Groove_045	Prc10J-90

These presets serve as examples how loops can be assigned to keys in different ways.
Patches comprising [LOP] in name feature low octave loop playing on dedicated keys.
Loops have been recorded at 90 bpm so it is advisable to set host to this too to match bpm synced delay.

Appendix on Soundfonts SF2 and wave files

General note: place all SF2 and wavefiles you want to use into the subdir which has been created by the STS (e.g. C:\somewhere\VSTplugins\HGF\STS-26Pro\ ) you can also have subdirs there. The VSTi will automatically point to this STS subdir so it is more convenient to load files from there.



To load an SF2 file simply press the SF2 Load button (top blue one right on image) this will open the four slots for the resp. oscillators. Pressing Load of a slot will open a typical windows file selector to navigate and select a file. **Also banks within an SF2 file can be switched here.** Note: As this is not accessible in free version simply use a patch using this bank to access this bank.

Saving a patch or patchbank with different SF2 loaded will be memorized for later usage. But please keep in mind that a selection is valid for **a whole bank** saved. So you can't have more than up to different SF2 files within a patch bank.

Note on SF2-files:

Although you can use basically any SF2 around there is one limitation: the internal SF-Player does support only one layer or a one multisample layer of an SF2-preset or instrument (the bottom one as seen in Vienna) and the synthfunctions of the SB-hardware are not supported as a specific SB soundcard is not needed.

In order to make SF2-files from Your wavefiles You can use the freeware/donationware tool ***Viena*** by Kenneth Rundt - http://www.saunalahti.fi/kru99/index.htm
As a major advantage **Viena** does not require the presence of a Creative Soundblaster Live or Audigy card to assemble SF2-files and please note there is only one 'n' in Viena (unlike *Vienna* from Creative Labs).

Low octave loop play [LOP] (since STS-26)

This is a neat little addition to the STS and is in a minor way similar to triggering different rhythms etc. on an entertainer's keyboard by dedicated keys. But in contrary to that those loops are part of the whole synthsound limited to a dedicated key while You can still play chords etc. on the remaining keys without those loops being retriggered and transposed then (this will occur if wavefiles are used for such a purpose what is not reccommended). Anyway it's up to you whether you make use of it or not!

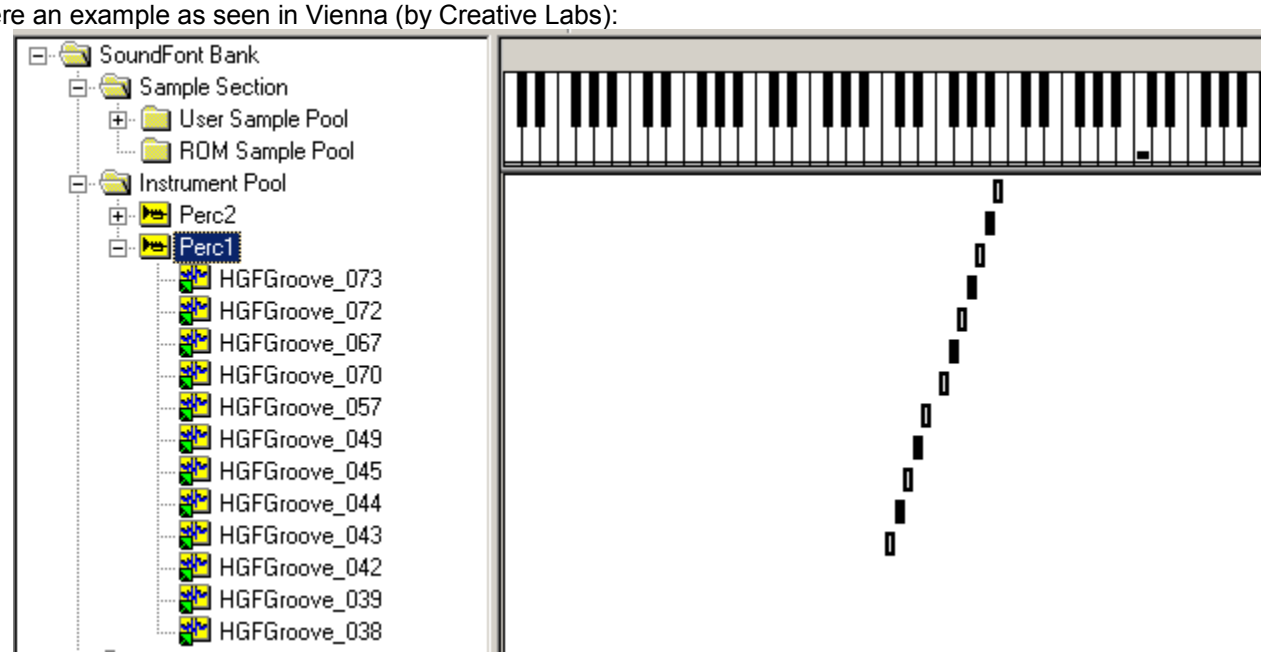
This is a rather open feature which in most cases does require certain preparations in order to get the results you want to have. As this feature demands some creativity by the user this is also a chance for a user to do something really unique. It is not limited to percussion loops as even spoken sentences (unlooped) or certain FX loops can provide another dimension here. Also do not underestimate using this feature with transition e.g. when a loop is faded out, returns and even this modulated. But be careful with delay settings: less is always better here and the delay time should be selected to get a floating sound unless You want something drastically different.

So what has to be considered else? In using rhythm loops it has turned out that these should not comprise too many events. In general simple percussion loops have to be favoured instead of four-on-the-floor beats featuring heavy kickdrums. Make sure the tempo of the loop matches to the tempo of the destination track. It's not a too big task to adopt tempo with an appropriate external wave editor or loopslicer instead of having such rather CPU hungry features inside the STS itself. Keep in mind the STS is a synthesizer not a loop processor.

In processing an SF2 file for this usage it is advisable to put such loops to the *Percussive Pool* within the *Presets* of the SF2. This pool is predestined for percussion kits with different instruments on dedicated keys. This feature can be used for loops too simply in activating the loop flag on the instrument level.

In general you'll use keys within the low octave of a 5octave keyboard i.e. MIDI note numbers #36 to #47 from C to B (=H German). Assigning loops to keys is done within the *Instrument* level of a Soundfont.

here an example as seen in Vienna (by Creative Labs):

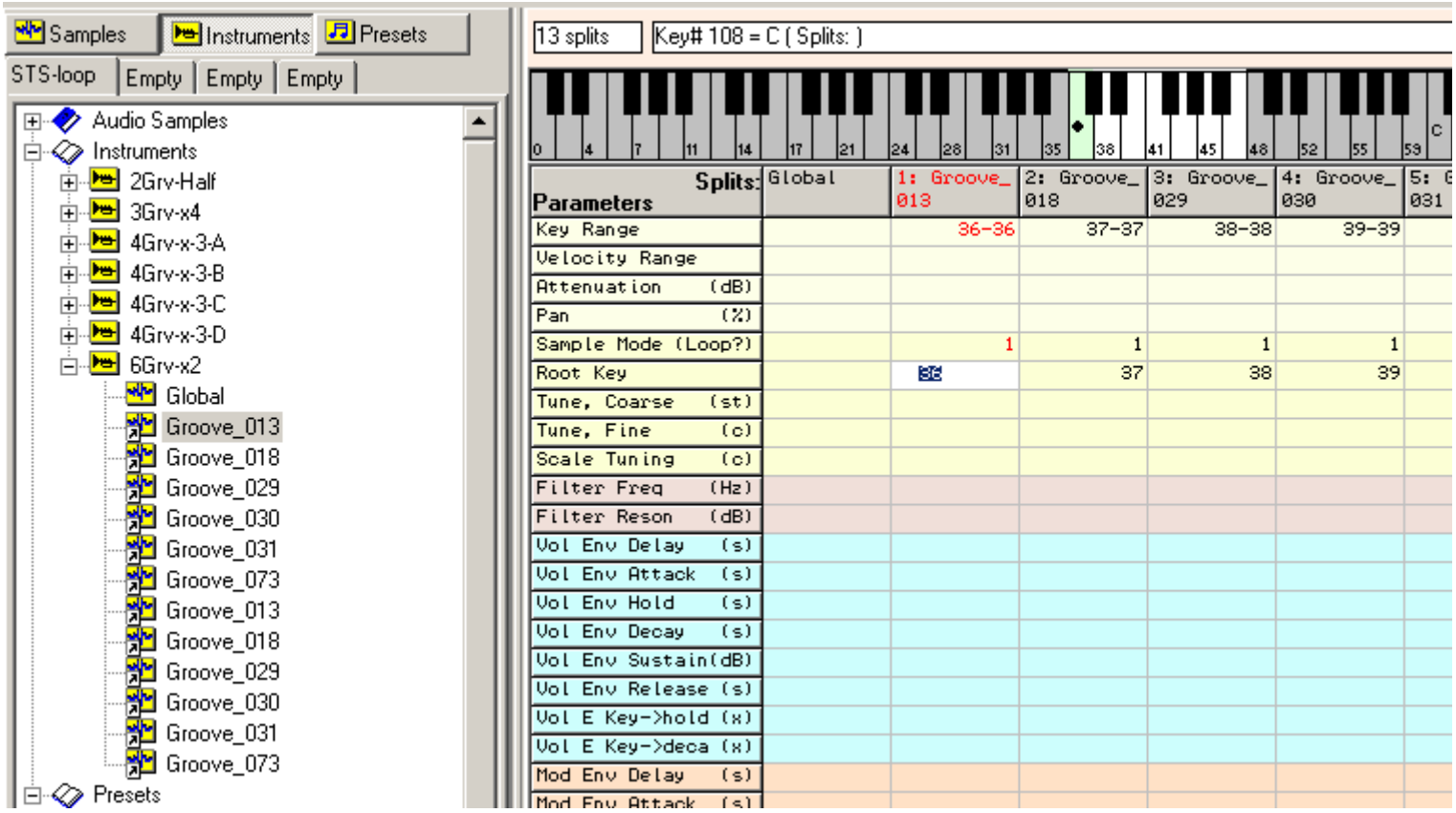


As this is based on playing in 'C' you might ask whether this can be changed without doing an additional instrument for this? This is rather simple as you can shift simply by changing to the corresponding semitone you want (and maybe octave setting) within the STS-26. So you can still play the correct key for the bass but the loops are shifted respectively.

Anyway setting up additional *Instruments* and *Presets* within the *Percussive Pool* with different loop-to-key assignments using loops already present within the soundfont is not a big task. If you are going to make heavy use of this Single Finger Loop Play with lots of your own loops then it might be advisable to assemble a new dedicated SF2 file for this being loaded into a dedicated slot. Please keep in mind how SF2 files are managed within the presets of this VSTi as stated above.

Also it should be considered whether completely different loops are assigned to the keys or if in some way matching loops are assigned to certain keys or keygroups only. Even the same loop on different keys may make sense if you want to change the bass note while still having the same loop played.

In Viena (by Kenneth Rundt) it is quite easy to edit rootkeys in a row and set the loop flag for each loop:



Note on assigning specific loops to keys reflecting what sequence of bass-notes you want to play. E.g. C G E .. so if you want some kind of 'breaktype loop' on E you have to assign it in advance while C and G might be assigned to the same loop. Thus changing the bass notes and loops will follow the way of your tune. This is simply a matter of preparation assigning loops corresponding to the tune you want to play. This feature is not meant to play complex drum loops rather than light percussion or fx loops to add some of this flavour used typically in ambient type of music.

MIDI-Implementation of Continuous Controllers (CC) for sliders & knobs

=CC# (recognized data valid from 0-127)

Main Vol	= 7	LP:		Amp	
DirA:B-Pan	= 8	Cut	= 70	A	= 15 *
LP:HP-Pan	= 10	Q	= 71	D	= 16 *
A:Dir	= 11	A	= 72	S	= 17 *
B:Dir	= 12	D	= 73	R	= 18 *
Mix A:B LP*	= 13	S	= 74		
Mix A:B:HP*	= 14	EnvAmt	= 75	FlgDpth L	= 92 *
		LFOModSrc	= 76	FlgDpth R	= 93 *
		LFOAmt	= 77	FlgFdbk L	= 94 *
Transit A	= 20	LPLvl	= 78	FlgFdbk R	= 95 *
Transit B	= 21			Flg-Lvl	= 102 *
End A	= 22	HP:		Flg-Mix	= 103 *
End B	= 23	Cut	= 80	Dly Lvl	= 104 *
Mod A	= 24	Q	= 81	DlyFdbkL	= 105 *
Mod B	= 25	A	= 82	DlyFdbk R	= 106 *
		D	= 83		
Wav 1	= 26	S	= 84		
Wav 2	= 27	EnvAmt	= 85	LFOs	
Wav 3	= 28	LFOModSrc	= 86	1 Sync	= 109 *
Wav 4	= 29	LFOAmt	= 87	1 Wav	= 110 *
		HPLvl	= 88	2 Sync	= 111 *
Wave-Lvl1	= 116			2 Wav	= 112 *
Wave-Lvl2	= 117	LP FmAmnt	= 79*	SH Sync	= 113 *
Wave-Lvl3	= 118	LP FmSrc	= 90*	SH Wav	= 114 *
Wave-Lvl4	= 119	HP FmAmnt	= 89*		
		HP FmSrc	= 91*		
*=changed & updated to STS-26: 02.11.06					

Notes on adapting patches from STS-24 to STS-26:

- loading patches of STS-24 will give a neglectible error message indicating patches loaded from prior version.

- be sure the SF2 file **STS-24P.sf2** is in the subfolder of STS-26Pro otherwise you have to reload this manually (this is valid only for registered users of the STS-24 having updated to STS-26).

- after loading a patch check first whether both sliders of filter Q are all the way up - if so move the resp. slider/s down a little and then back. this will ensure the correct range of the slider in STS-26.

- next check section balance (A:B) slider left in each filter section and adjust if needed

- also check LFO modulation sources selected at both filters as LFO3 and LFO4 of STS-24 have been replaced by the contour generators in STS-26

- check flanger settings - these will need some adjustment in most cases, esp. Flanger level knob

- finally save the adapted patches!

Note: it might occur in some cases that a patch of STS-24 loaded into STS-26 will cause audio to stop. Adjust the aforementioned settings, save patch and this will be gone.

For those missing X-Torsion there is a 'Distorter' wave #101 in HGF-ROM1.sf2 suited to substitute this to a certain extent.

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As of accompanying SF2 (soundfont files) - with registered version only! - You may use these in other applications too even modify these for personal use, but You are in no case allowed to make these files (original or modified based on waves supplied with my VSTi) available to others.