The CanvasMan Glossary

Introduction.

This **"glossary"** started off as an **attempt to explain** all the **technical** terms **Roland** used in the **SCC1 manual** (or any other SoundCanvas manual for that matter).

The result became a **"glossary of terms used in CanvasMan"**, which basically is the same although Jeff and myself have used different abbreviations and/or names which we thought would be easier to understand and remember.

The **reason** for writing this was **pure frustration** about the fact that **nobody really** was able to **explain** to me what all these **MIDI/SYNTH expressions** meant.

So I started to look around and ask questions and got a lot of help from the **"beta kids"**.

This help file is more or less written in the same following order as you will find the editing screens of CanvasMan, starting with the "General Part Settings #1".

Acknowledgement.

I would like to thank everybody who has in some or other way contributed to this humble effort to bring some light and clear views in this hazy area of MIDI & SYNTH. :

Jeff Cazel, Dan McKee, Paul Stillwell, Parker Adams, Larry Roberts and many others.

Thank you, and thank you, and thank you again <g>.

Furthermore :

If **anybody** feels he or she **should comment** on this **please do so !!**
Let me know what you think of this and/or if it needs improvement.

Lodi J. Claessen. [100112,3722] on CIS.
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About Copyright

I have **written** this glossary for **two reasons**:

1. To **help all MIDI beginners** (and maybe a few pro's as well) with their **"struggle to survive"** in the land of synthesizers & computers.

2. For my own pleasure. Yes, believe it or not I enjoyed doing it.

That means you can **use** this help file **to learn**.

If you plan to distribute it or use it in any commercial way, you will need my permission, like Jeff Cazel has his permission to distribute this file together with his wonderful CanvasMan.

I put a lot of work in this and if there is any money to be earned from this I want to be the one who gets it.

So,........ that's the greedy bit.

For the rest I sincerely hope you will enjoy reading this as much as   I enjoyed writing it.

LJC.

Table of contents.

General Part Settings #1

These are the **settings** that are **unique** to every **single one** of the **16 parts** in the SoundCanvas.
So, unlike the **Patch Common Parameters** which are **overall controls** and apply to all 16 parts, with these parameters you can for instance **set up all the 16 parts** of a SoundCanvas **for instrument nr.1** (piano1) but still have **16 totally different piano sounds**, using the **general parts settings**.

Note :
Behind the title on each of the topics I have written enclosed in square brackets   the name as it is   used in the manuals.

Instrument
Midi Channel
Part Volume
Part Panpot
Chorus Send
Reverb Send
Key Shift
Velocity General
Vel S Depth
Vel S Offset
Cutoff Freq
Resonance
Attack, Decay & Release Time

Table of contents.

Instrument
[tone number]

This is a parameter that does not need a lot of explanation.

Everybody who has a synthesizer knows at least how to change to different **patches (voices)**.

(Although I must say it gets harder and harder to understand all the buttons, switches, levers, pedals etc. etc.).

Here you decide which instrument you will hear when playing a note.

General Part Settings #1
General Part Settings #2

Table of contents.

Midi Channel

This is quite obvious too.

Here you **choose on which midi-channel** this part is going to **send** its **midi data** ie.: "note on", note off", velocity, duration, etc. etc. messages.

Note :
Selecting MIDI **channel 0** (that is 'zero') for a certain part nr., **mutes** (switches off) **that part** because it doesn't have a channel to send it's messages on.

What do you mean : MIDI CHANNELS ??

General Part Settings #1
General Part Settings #2

Table of contents.

Part Volume
[part level]

This is an **independend volume control for each part seperately** in relation to the other parts.

Part Panpot
[part panpot]

Here you can give **each part its own place** in the overall **'stereo picture'**.

So here you can put the bass left, the drums in the middle and, the piano to the right.

There is **one setting** here that has a special effect and that is **"- 64"** (that is "minus" 64), this setting **results** in a **'random panning'**, basically this means that this particular part will be **"all over the place"**.

Chorus Send
[chorus send depth]

This setting decides **how much** of the preset **chorus effect** is   **applied** to this particular part.

<u>General Part Settings #1</u>
<u>General Part Settings #2</u>

<u>Table of contents.</u>

Reverb Send
[reverb send depth]

This setting decides **how much** of the preset **reverb effect** is   **applied** to this particular part.

<u>General Part Settings #1</u>
<u>General Part Settings #2</u>

<u>Table of contents.</u>

Key Shift
[pitch key shift]

This setting is **mostly used**, when a certain chosen **instrument** is **one or two octaves too high or too low.**

With **every step** you change the pitch of the part with **half a tone (that is one semitone) up or down**.

To change to **an octave** higher or lower, you have to **shift 12 steps** up or down.

Note :

You can **while playing a MIDI file**, also use this parameter to **transpose** that particular song to another key. But in this case you will have to do that **for every part seperately**.

If you want to do **any transposing**, you better use the **Master Editing Screen**, which does the same for **all of the parts at the same time**.

Mastersettings

General Part Settings #1
General Part Settings #2

Table of contents.

Velocity general

These parameters are **really difficult to explain**, so to make the confusion even greater I will add my humble effort to explain what is going on.

First of all, the **term velocity** is **related** to the **speed** with which **a key** of a synthesizer **is pressed down** ie.: is moved from top to bottom position.

This may sound as a bit awkward definition, but it is related to what really happens :

- as soon as the key has left its "zero" position, an event "note on" is send.

- then the system measures the time between the occurence of this "note on" event and the occurence of the "key fully down" event.

- this measured time is the actual "velocity value" and in the end causes the strength or volume of the note.

A **low velocity** causes a **soft tone**, a **high velocity** causes a **loud tone**.

The range is from **0 (featherlight)** to **127(sledgehammer)**.

Vel S Depth
Vel S Offset

General Part Settings #1
General Part Settings #2

Table of contents.

Vel S Depth
[velocity sense depth]

Short formulation :

"Maximum achievable volume increase range resulting from minimum and maximum keystroke accelleration (velocity)".

(See also figures 1, 2 & 3)

Little bit longer description :

Suppose you **measure the volume output** to your amplifier **at   minimum velocity(1) and at maximum velocity(127)**.   The result is a **"maximum volume increase range"**.

The **size of this range** is **controlled** and can be adjusted by **"velocity send depth"**.

(See figs.:1, 2 & 3 "depth scale")

So you can **squeeze this range** down **to 1 (or even 0)**, or **stretch** it all the way **up to 127**.

Normally spoken the **"size" of this range** is **64**, at a **maximum volume range of 127**.

Velocity General
Vel S Offset

General Part Settings #1
General Part Settings #2

Table of contents.

Vel S Offset
[velocity sense offset]

Short formulation :

"Velocity depth's offset point" (This is very short indeed).

Little bit longer description :

(See also figs.: 1, 2 & 3)
This is the **difficult bit** and needs a **bit of imagination**.

Look at the three pictures for a bit of visualisation.

Here the **"offset scale"** is **fixed** in its **size and position**.
The **"depth scale"** can be **changed** in **size (0-127)** and **position**, ie. its **"0" point** can **be moved up and down along the "offset scale" range**.

In simple words (if ever possible), the **offset decides** the **volume** when you **strike the key "ever so lightly"** (featherlight), **the depth AND the offset together decide** on the **volume at "sledgehammer" keystroke**.
This last bit : **"the depth AND the offset"** can be explained in the following way.
In fig.2 we have a **rather normal situation**, where the **"featherlight"** volume is approx. **20**, the **depth is set at 64** so the **"sledgehammer" volume** will be **approx. 20 + 64 = 84.**

The **same calculation** can be made in figure 1.
In fig.3 however, there is a **"featherlight" volume of 122**.

The resulting "sledgehammer" volume should be 122 + 64 = 186 !!

But......... there is no 186 !!!............ So what happens ???

The **output volume** sort of **"clips"** at a **ceiling of 127. You simply can't go any louder than 127.**

Try out the following :
Set CanvasMan for   a violin with a velocity send depth of 127 and a velocity offset of 0 and play a key very light and very hard changing   the "depth" in small steps.
Next bring the "depth" back to 127 and   do the same with the "offset". Use the figs to understand what it is you are doing.

Cutoff Freq
[tvf cutoff frequency]

[Cut Off Freq(uency) & Resonance.](#)

With **these two parameters** you can, to a certain extend, **completely change** the **characteristics** of the instrument chosen for that particular part
You can even change it so it sounds completely different, in fact so different that retracing the original sound would be very hard indeed.

Mostly these parms are used to give voices a certain **"synthesizer" effect**, or something like a **flanger effect.**
But you **also** can use them to for instance **"soften"   a trumpet sound** by decreasing the cutoff frequency a little.

[Cut Off Freq(uency).](#)

This is an adjustable filter for higher frequencies.

The **lower its value** the more high **frequencies are filtered out**.

In combination with Resonance it gives you the possibillity to filter out the "sharp edges" after increasing the Resonance.

Resonance

General Part Settings #1
General Part Settings #2

Table of contents.

Resonance
[tvf resonance]

Cut Off Freq(uency) & Resonance.

With these two parameters you can, to a certain extend, completely change the characteristics of the instrument chosen for that particular part
You can even change it so it sounds completely different, in fact so different that retracing the original sound would be impossible.

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Resonance.

Resonance is **also a filter** but it is one that filters out **very specific frequencies** and this filter has an **internal feedback** that actually **causes the main feature** of its effect.

To describe the final effect it would probably be enough to say the following :

- the filtering is done mainly on the "harmonic frequencies".

- increasing only the resonance value while playing a voice like the violin will show you what it really does, it sort of adds "harmonic frequencies".

- the comparison with a flanger is not too bad.

- decreasing the value   does not show you very much, but it does really diminishes the "harmonic frequencies", which you can hear when you listen very carefully.

Cutoff Freq

General Part Settings #1
General Part Settings #2

Table of contents.

Attack, Decay & Release Time
[tvf & tva envelope]

One could say that **these three parameters control the dynamics of a particular voice** (part). **Together with a parameter called "sustain" which is NOT adjustable here, they comprise the voice's "envelope".**

This whole "envelope" business   is best explained using a little <u>graph</u> that shows the actions.

The **left (Y) axis** going up in the sky represents the **increase in volume AND cutoff frequency**. The **bottom (X) axis** represents **time**. <u>(See graph)</u>So we are talking about a **"change in volume/cutoff freq. over time"**.

For those who are not used to reading graphs the following :

When **striking,** blowing, plucking, sledgehammering (or whatever) **a tone** on any instrument, the **tone** does **not appear** just like that **at full strength**.
It starts, and depending on the instrument, it **needs some time to reach full volume** (listen to the difference between violin and tomtom). <u>(See graph)</u>

Then the volume/cutof freq. drops off ("decays") to a certain **"sustained" level** as **long as** the note is **held on**. <u>(See graph)</u>

Then when the musician actually **stops playing the note**, there is a **certain "dying out"** of the sound which is **called "release"**. <u>(See graph)</u>

In the SoundCanvas envelope you can adjust the **duration** of the **"release", "attack" and "decay"**.

So a   note has a kind of sound progression that looks approximately like the <u>graph</u> shows you.
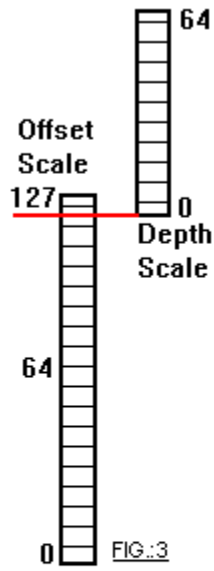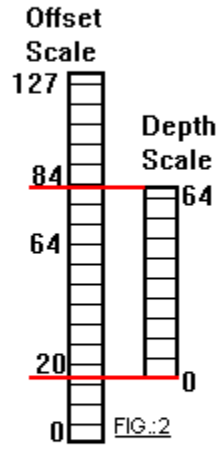At least that is how this is **represented** in a **synthesizer trying to imitate a real instruments**.
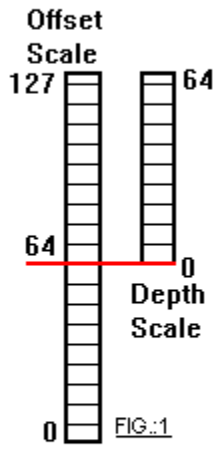
Play with it using the parms one by one to find out their scope.

<u>General Part Settings #1</u>
<u>General Part Settings #2</u>

<u>Table of contents.</u>

Velocity Graph

FIG.:1

Offset Scale
127
64
64
0
Depth Scale
0

FIG.:2

Offset Scale
127
84
64
64
20
0
Depth Scale
0

FIG.:3

64
Offset Scale
127
0
Depth Scale
64
0

Offset
Scale

127

64

0

64

0
Depth
Scale

FIG.:1

**Offset
Scale**

127

84

**Depth
Scale**

64

64

20

0

0

FIG.: 2

64

Offset
Scale

127   0
      Depth
      Scale

64

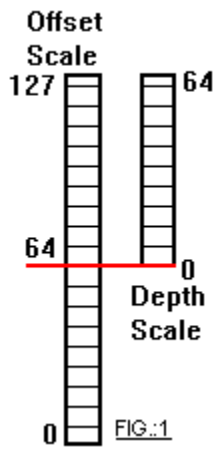0   FIG.:3
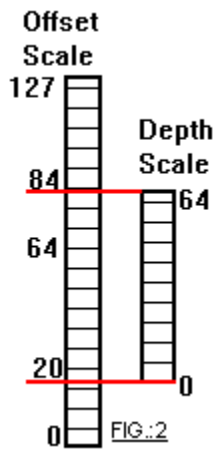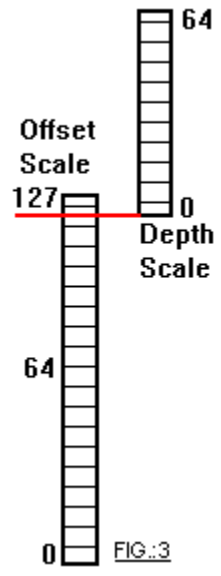
- Attack Decay & Release Time -

The Envelope
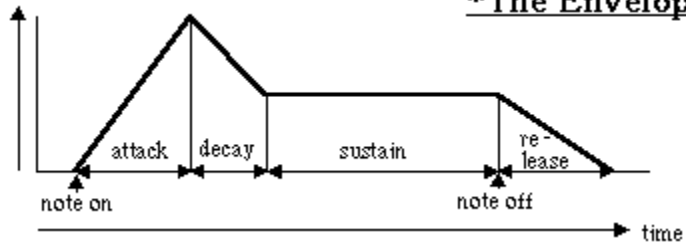
attack | decay | sustain | re-lease

note on

note off

time

General Part Settings #2

Instrument
Midi Channel
Part Volume
Pitch Bend
Mod Depth
KeyRange Lo & Hi
Vibrato Rate
Vibrato Depth
Vibrato Delay
Pitch
Mono/Poly
Assign Mode

Table of contents.

Pitch Bend
[bend pitch control]

This primarily relates to the socalled **"pitch bend wheel or lever"** present on many synthesizers.

When the **pitch bend wheel** is applied, depending on **the direction** in which the wheel is turned, the **sound changes pitch.**
The **more** you **turn** the wheel, the **higher (or lower)** the pitch.

This parameter **sets** the **number of half tones** the sound or voice will **"glide up or down"** at a **full turn/swing** of the wheel./lever.

So **setting this to "4 "**means **a shift of two full notes** when the **wheel/lever is aplied to its utter limit.**

Basic Part Settings #1
Basic Part Settings #2

Table of contents.

Mod Depth
[mod pitch control]

This relates to on of the two wheel/lever present on most synthesizers.

With **this wheel/lever** you **increase the vibrato** while playing ,which results in a bit more realistic effect especially when playing voices like violin or flute etc.

This parameter controls the maximum depth of the vibrato effect at full "throttle".

Modulation/Pitch Bend

Basic Part Settings #1
Basic Part Settings #2

Table of contents.

KeyRange Lo & Hi
[key range low & high]

With **these two parameters** you can **assign** the related **part** to a **range (or a region)   of your keyboard**.

You **set the "start key"** of the range with **"low"** and the **"end key"** with **"high"**.

That basically means that you **could   assign 16 different parts to 16 different ranges**, that is if you wanted to. It would be a bit difficult to play though.

Ranges also can "overlap". So for instance the top section of the high range of   one part could overlap a section of   the bottom range of another part.

Vibrato Rate
[vibrate rate]

Vibrato General.

This is an **effect** that is **applied just before** the **signal** goes **into the amplifier**.

This **effect processor** also contains a **"low frequency oscillator" (LFO)** the **output of which is applied to the pitch control of the signal.**

The **result** is called **Vibrato** and is the same as the effect that is achieved , when you hear that funny sound your (battle axe) aunt makes in the back of her throat, in an effort to keep the note, when she practices *her* version of Carmen.

Or, if you want another comparison :

The **effect** you hear on a **violin (or guitar)** when you see the **violin (or guitar) player** make this **"nervous" movement** with one of   his (normally   left) **fingers** on a **string** on the neck of the instrument.

Vibrato Rate.

The **faster** this above mentioned **finger movement**, **the faster** the **pitch changes** up and down **(LFO's frequency).**

Vibrato Depth
Vibrato Delay

Basic Part Settings #1
Basic Part Settings #2

Table of contents.

Vibrato Depth
[vibrate depth]

[Vibrato General.](#)

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[Vibrato Depth.](#)

The **larger** this above mentioned **finger movement**, the **larger the pitch change** or the **higher (and lower) the pitch fluctuations are (LFO's amplitude).**

Vibrato Rate
Vibrato Delay

Basic Part Settings #1
Basic Part Settings #2

Table of contents.

Vibrato Delay

This is an effect that is applied just before the signal goes into the amplifier.

This **effect processor** also **contains** a **"low frequency oscillator" (LFO)** the output of which is **applied to the pitch control of the signal.**

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Or, if you want another comparison :

The **effect** you hear on a **violin (or guitar)** when you see the **violin (or guitar) player** make this **"nervous" movement** with one of   his (normally   left) **fingers** on a **string** on the neck of the instrument.

This last one decides when the vibrato starts after pressing a key.

In other words, **the delay between "note on" and actual start of the vibrato effect.**

Pitch
[pitch offset fine, -12.0 - +12.0 Hz]

This is a pitch fine-tuning .

You won't be using it a lot, since **synthesizers** are **normally tuned** electronically to **exactly the same wave length**. So why bother, you would ask ????

I could imagine at least **two situations** where one would **need** this :

1. When **accompanying** for instance a **'non-tunable' instrument** (which could very well be an expensive 'grand piano') with your synthesizer.

2. When **using the same instrument twice or three times**. For instance, playing a flute on part 1, part 2 and part 3, results in **playing three exactly tuned flutes** at the same time.

That is an **impossibillity** in real time terms, and also it will result in **weird sounds**.

When **using pitch to slightly de-tune** the three flutes, you get **this nice warm sound** (which you only would recognize if you've ever heard three flutes together of course).

NOTE :
If you have to tune the whole instrument it is better to use the "global" facility which you can find on the Master Editing Screen.

Master settings

Basic Part Settings #1
Basic Part Settings #2

Table of contents.

Mono/Poly
[mono/poly mode]

Set for **"Mono"** the SoundCanvas will allow you to play **only one note at a time** for this particular part.

This is **mainly used for 'mono' instruments** like the trumpet or a flute, to **avoid notes overlapping** causing an 'unnatural' performance.

Set for "Poly" you can play up to a maximum of 24 notes at the same time.

See also :   Tone/Rythm / Voice Reserve

Basic Part Settings #1
Basic Part Settings #2

Table of contents.

Assign Mode
[assign mode]

This explanation is an almost exact copy of the one that Parker Adams got from Roland and later gave to me.

The **Assign parameter** is used to determine **how two notes of the same instrument on the same midi channel respond**. (It also affects how two parts with the same instrument and midi channel sound).

1. **Single** means that **only one note will be played**

2. **Limited Multi** means that the **"chorused" effect** that you get **when two notes are played** (of the same instrument on the same midi channel) **will only use 1 partial** (out of the allotted 24). Thus, Roland has made it possible to **get this particular chorused effect without using extra partials**.

At this point, you probably should go and try to recreate the named effect both by doubling the notes played and by assigning the same instrument and the same midi channel to two adjacent parts.

3. **Multi** means you **play all the notes** and **use up the polyphony as well**.

Basic Part Settings #1
Basic Part Settings #2

Table of contents.

Controllers General

Using **these controllers** one can (to a certain limit and not always) **change** in what **way** a particular **sound (or voice) is affected**, when one of the **six controller options** in CanvasMan are **applied and/or activated.**

These controller options are :
Modulation &   Pitch Bend, Pressure & Channel Aftertouch   and   Continuous Controllers #1 & #2

Most of the parameters listed down below are **normally also used in a synthesizer** to **create** a certain **sound.   However** in this case they **only** can be used to **affect already existing sounds**.
Therefore the **resulting sound** can be (and very often is) **very different or even unexpected** for each voice.

It is also **important** that changing these parameters is done **in small amounts, one parameter at a time** and **remember** that the **change is only heard** when **that particular controller is applied.**

Important Note :

Most people **won't use** this "synthesizer"- like **facility** because **exploring the sounds** using the **normal parameters takes time enough.**
 But if you do, try to develop a **certain discipline**.   **Find out the best following order of applying the changes.**
 Create a testfile containing a **small sequence** so you can **audit those changes**, and **keep** a sort of **register of what they do to certain sounds.**

That is the best way to learn what the various parameters do and it will actually save you a lot of time in the longer term.

There are three "Controller" editing windows. :
1. Modulation / Pitch Bend
2. Aftertouch (channel & pressure)
3. Continuous controllers (CC1 & CC2)

Each of the controller editing windows contain the following parameters :
"#" (Controller nr. only for 'Continuous Controllers')
Pitch
TVF Cut
TVF Ampl
LFO1 & LFO2
RC
PD
TVF
TVA

Table of contents.

Modulation / Pitch Bend

These are the two wellknown levers/wheels/rollbars/slides/whatever controllers that are present on virtually every synthesizer or keyboard

If you want to know a bit more about "Modulation" and/or"Pitch Bend" just "click on it".

Pitch
TVF Cut
TVF Ampl
LFO1 & LFO2
RC
PD
TVF
TVA

Controllers General
Table of contents.

Aftertouch

This is a **feature** that is **not always present** on every keyboard.

When a **key is struck and held**, one can **affect the sounding note** by **applying variable pressure** on the held down key.

Normally used to apply vibrato, but by **changing the parameters** below, you can to a certain extend **control how the sound changes** when you apply this pressure.

[Note. :](#)

There are two kinds of "aftertouch" :

- **key pressure**, where you **affect only** the sound of **that particular key/note**.

- **channel pressure**, where you **affect the sound** of the **whole channel at the same time**, ie. when a chord is played and pressure is applied to only one key, all sounding notes will be affected.

Pitch
TVF Cut
TVF Ampl
LFO1 & LFO2
RC
PD
TVF
TVA

Controllers General
Table of contents.

Continuous Controllers

This is a feature that can be great fun if applied with caution.

First you have to **understand** the **"Control Change"** principle of MIDI.

Control Change is a message(command) **send** on a particular **channel**. This message can be for instance "Change modulation to a certain value"   or "change the panpot to a certain value".

These **Control Change messages consist** of a **number** (change modulation is nr.1) and a **value** ranging from 0-127.

The **Continuous Controllers** are **two controllers** that can be used as a **kind of preset.**

The **parameters below** (except for the first one) let you **setup** a **certain change** in sound.

The **first parameter "#"** lets you **assign a "Control Change number"** to that change.

Example :

Suppose you assign the value 18 to the "#" parameter and you change some of the other parameters for a certain part on a certain channel.

If you then send a Control Change message for controller nr.18 and a value of 1 to 127 the "preset" parameters will be applied to that sound.

When you want to revert to your default settings, you have to send another Control Change message for controller nr.18 but in this case with a value of 0 (zero).

"#" (Controller nr. only for 'Continuous Controllers')
Pitch
TVF Cut
TVF Ampl
LFO1 & LFO2
RC
PD
TVF
TVA

#" [CC1 or CC2 controller number]

This is the **"Control Change" number** you can **assign** to your **"preset"** controller values.

The **Control Change message consists** of a **"Control Change Number"** and a **"Control Change Value".**

The **Number** is **normally set to nr.16** for the top editing window and **nr.17** for the bottom one, but if you want to you give them **other numbers**, you can.   That **range** lies between **0 to 127**.

The **Value** is the **"on/off" switch**. **"0"** switches **"off "**and anything **between 1 and 127** switches **"on".**

Don't forget that if you **use** an **already existing number** you are actually **activating two controllers** at the same time. Which could be very useful if you did that on purpose, but very annoying if you didn't expect it.

Note :

If you really want to do weird things set both Continuous Controllers to respond to for instance nr.10 bearing in mind that nr.10 is also the Panpot and that values 1 to 127 all switch the Continous Controllers on.
So while you set the value for the Panpot to 20 you also switch on both Continuous Controllers if they are set for the same number as the Panpot nr.10.

Try it using the testfile

Controllers General
Continuous controllers (CC1 & CC2)

Pitch
[pitch control] (-24 to +24 semitone)

This **controls** the **height** of the **note** in **steps** of **one semi-tone** at a time
.

TVF Cut
[tvf cutoff control] (-9600 to +9600 cent)

TVF stands for **Time Variable Filter**, which means that this is a **low pass filter**(LPF-filter=filter that allows the low frequencies to go through and cuts off the high's) **from which** you can **adjust the cutoff on the high side OF THE FREQUENCIES with + or - 150 cent per step.**

The **more** you **cut off** the **"lower"** the sound gets.

TVF Ampl
[amplitude control] (-100.0 to +100.0 %)

This **parameter** turns the sound's **volume louder or softer.**

Each **step** about **10%** of the original sound.

LFO1 & LFO2

LFO stands for **Low Frequency Oscillator** and is a bit of a special.

In short, this is something with which you can cause something else to go up and down, or high or low, or soft or loud in a not too fast tempo.

The **LFO** creates a **"wave"**, which has **two basic dimensions** (see "Graph LFO") :

- **the Rate**, which represents **how many times** the wave **repeats** itself over time.
- **the Wave height**, which is **adjustable** and **controls the Pitch Depth and/or the TVF Depth and/or the TVA Depth.**

LFO nr.1.
This one is more or less explained in the topics just below. Just click on one of them.

Rate, Pitch Depth, TVF Depth and the TVA Depth

These **topics** also contain **suggested settings** so you can **audit** and **hopefully understand** a bit more about these topics.
How to **create** a **test file** so you can **hear** the **settings suggested** in those topics and the one below, click on Testfile where ever it appears

LFO nr. 2.
This is even more a bit of a special.

While the **first LFO creates** a **waveform** and **controls** the output by **sweeping** a couple of the sound's **parameters up and down**, the **second LFO** creates **another wave** that is **superimposed** on the **already existing wave nr.1**, also **sweeping** a couple of these **parameters up and down !!**

And **you** thought **the first bit was confusing <g>**, well forget it, this looks even worse when reading about it for the first time.   Don't worry, it LOOKS worse than that it actually is and the best way to get an idea is by listening to it.

First of all you have to create a "test midi file" **to be able to hear** what the result are.

Assuming the testfile is loaded and playing in CanvasMan and you're looking at the Controllers/Continuous Controllers window, set LFO nr.1 Rate to 40 and LFOnr.1 TVA to 100 on the nr.1. piano. **This setting results in a slow "sweep" of the volume.**
Listen to that for a while and then change the settings of LFO nr.2 to :   Rate = 90 and TVA = 68, while still playing the testfile. **Presto, there's your second wave form !!**
By setting the Rate of LFO nr.1 to zero, you can hear the effect of LFO nr.2 on its own and do some fine-tuning if necessary.

Controllers General
Table of contents.

LFO1 or LFO2 RC
[LFO1&2 rate control] (-10.0 to +10.0 Hz)

With the **rate control** you can **set the frequency** of the **LFO** ie. how many times the LFO's wave "sweeps" up and down over a certain period. (see "Graph LFO")

Use the testfile and **change the rate** but remember to do it **in small steps** at a time so you can hear the changes.

LFO1 & LFO2

LFO1 or LFO2 PD
[LFO1&2 pitch depth] (0 to 600 cent)

This **parameter sets** the **top** and **bottom level** (+ or -) of the **LFO's "sweep"** in between which the pitch is swept up and down. (see "Graph LFO")

Use the testfile with the **LFO's rate set** at **default** (64) and the **Pitch Depth set** at **35** and you will get a **highly exaggerated vibrato** on the nr. 1 piano.

LFO1 & LFO2

Controllers General
Table of contents.

LFO1 or LFO2 TVF
[LFO1&2 tvf depth] (0 to 2400 cent)

TVF stands for **Time Variable Filter**, which means that it is a **low pass filter**(LPF-filter=filter that allows the low frequencies to go through and cuts off the high's) which **"cutoff point"** can be **controlled continuously over time**.   And that **controlling** is **done** by the **LFO**.

This **parameter sets** the **top** and **bottom level** (+ or -) of the **LFO's "sweep"** in **between** which the **cutoff limit of the filter** is **swept up and down**. (see "Graph LFO")

Use the testfile with the **LFO's Rate set at default (64)** and the **Time Variant Filter set at 127** and you will get a certain **"flanger" effect** on the nr.1 piano.

LFO1 & LFO2

Controllers General
Table of contents.

LFO1 or LFO2 TVA
[LFO1&2 tva depth] (0 to 100.0 %)

TVA stands for **Time Variant Amplitude** which means that the **volume** of the chosen sound is **continuously controllable** in this case **by the LFO**.

This **parameter** sets **the top and bottom level** (+ or -) of the **LFO's "sweep"** in between which the **volume** of the sound is **continuously swept up and down.** (see "Graph LFO")

Use the testfile with the **LFO's rate set at 45** and the **TVA Depth set at 127** and you will get a fair idea what this does on a nr.1 piano.

LFO1 & LFO2

Controllers General
Table of contents.

How to create a Test File.

Use your favourite **sequencer** and **set it up** for **recording** a **new** song.

If you don't have a sequencer it is about time you checked out Dan McKee's WinJammer™, the best value for money sequencer there is.

Now just **record a song** with the **same note played again and again** with **short pauses** in between them (a sort of dull one-note-samba).

You can use the **"copy"**, **"paste"** and/or **"replicate"** functions that are available in most sequencers and certainly in **WinJammer™**.   Make sure the notes are played **long enough**.   Start with eight bars duration for each note and if you find that too long, just make them shorter.

At the very **beginning** of the "song" you **insert** a **Control Change** message **nr.16 value 0**, then in the **first "pause"** between the notes, you **insert** a **Control Change nr.16 value 127**, in the second "pause" the same with value 0, etc.   That means you **switch** the **"Change" off and on** after every note, so you can check what your edits result in and compare it with the default sound.

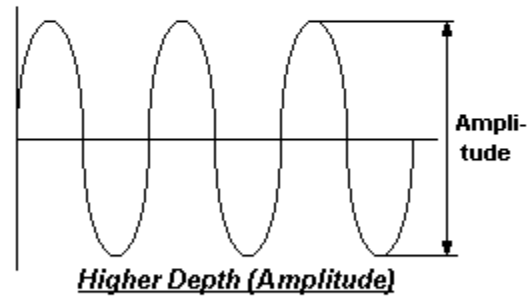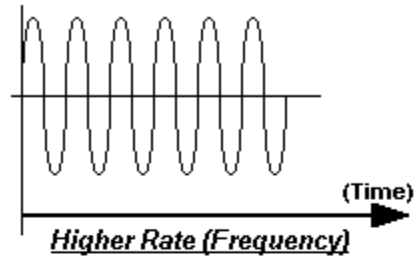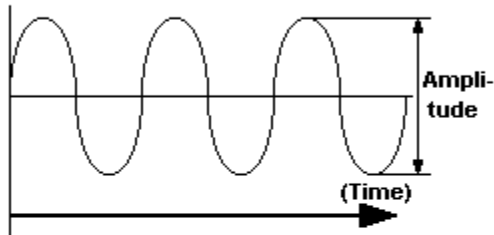**Save** this **"song"** as a .MID file and **load** it into **CanvasMan™**.

CanvasMan™'s player starts automatically and if you now **open** the **Controllers/Continuous Controllers window (CTRL+6)**, (and make sure the **"Controller #"** on the far left is **set for 16**), you can **set** the **suggested** parameters in the top part of the window **or play with them as you like.**

Using the **testfile** with different voices and **changing the parameters** one by one, step by step will give you a **reasonable understanding** of this.   In the **test file** you also can **convert** the **Continuous Controllers** to **Modulation**, **Pitch Bend** and/ or **Aftertouch** controller messages.

Have fun !!

LJC.

- Graph LFO -

Ampli-tude

(Time)

Higher Rate (Frequency)

(Time)

Ampli-tude

Higher Depth (Amplitude)

Chorus

This **effect processor** creates a kind of **choir effect**, which is best demonstrated by taking guitar sound and listen to it while increasing the effect (turning up its level, that is).

The effect was as far as I know first used on electric guitars.

Basically it works the same as the reverb, feeding the **resulting signal back** into the **processor** after a **small delay**.

The   difference with reverb is, that **the fed back signal itself is changed** before sending it back into the processor. The pitch of   this 'fed back signal' is not a "straight" signal but is influenced (controlled) by a **low frequency oscillator** that **controls the pitch**.

Basically that means that **the pitch of the feedback into the effect processor is varied ever so slightly over time** resulting in this typical choir effect.

Of course, there is a bit more to it, but we're not giving a course in electronics here.

Note :

To try out all these possibillities, you could use the suggested testfile and leave out the control changes or change them to control the chorus depth (controller 93).

Chorus Macro
[chorus macro]

Like reverb, chorus has **8 different presets** that control how the above mentioned feedback is done.

They all result in a specific "chorus sound" and the best thing to do is **try them out with a 'clean' sound, like the guitar or the piano**.

The macro names are :

Chorus 1, 2, 3 &4, Feed Back, Flanger, Short Delay, Short Delay Feed Back.

!!!!!!!!!!   Warning !!!!!!!!!!!

When you **change** to one of these **macros** you'll see that the **other parameters below change as well.**

As stated above the **"Macro"** parameter is a **preset**.

Every one of the **presets** results in a **different setup** of the **rest of the parameters**.

 I suppose Roland has done this for **our** convenience so we have **8 nice sounding presets**.

 And once you've chosen a macro   you can even change it's parameters to create your own sound.

But…………………………

When you do change the setup and you then change to another preset don't try to find your previous setup back........ it has been zapped into Midi Heaven !!!!!

Note :

To try out all these possibillities, you could use the suggested testfile and leave out the control changes or change them to control the chorus depth (controller 93).

Chorus

Chorus Pre-LPF
[chorus pre-lpf]

LPF stands for **Low Pass Filter**, which means that this is a filter that **will allow low** frequencies to pass and **stops high frequencies**.

The **Pre** means that the filter is placed **before the actual effect processor**.

And all this together means that before the 'chorus' effect is applied you can filter out the higher **'resonance frequencies'** which results in a softer (more padded like) sound.

Note :

To try out all these possibillities, you could use the suggested testfile and leave out the control changes or change them to control the chorus depth (controller 93).

Chorus

Chorus Level
[chorus level]

The level parameter basically decides **how much** of the **resulting signal** is allowed to **proceed** to the final **output** ie., **how much of the chorus effect you get**.

Note :

To try out all these possibillities, you could use the suggested testfile and leave out the control changes or change them to control the chorus depth (controller 93).

Chorus Feedback
[chorus feedback]

Here you control **how much** of the signal is **fed back** into the **effect processor** ie., **"how many voices you get in the choir".**

Note :

To try out all these possibillities, you could use the suggested testfile and leave out the control changes or change them to control the chorus depth (controller 93).

Chorus
Table of contents.

Chorus Delay
[chorus delay]

This parameter is **a part of a set of three** that **control** the aforementioned **low frequency oscillator's (LFO)** settings.

The other two are **rate** and **depth**.

The **LFO** creates a **wave form** and its **number of waves over time** and the **height of these waves** is **adjustable** (within limits).

LFO's are often used in synthesizers to be able to control certain **key parameters** with a **variable source**.

Without delay, the effect would be applied **immediately** after   a **'note on event'** (this is whenever you for instance play a note on your keyboard).

With delay, **the time between the 'note on event' and the actual start of the effect is adjustable**.

Note :

To try out all these possibillities, you could use the suggested testfile and leave out the control changes or change them to control the chorus depth (controller 93).

Rate
Depth

Chorus
Table of contents.

Chorus Rate
[chorus rate]

This parameter is **a part of a set of three** that **control** the aforementioned **low frequency oscillator's (LFO)** settings.

The other two are **rate** and **depth**.

The **LFO** creates a **wave form** and its **number of waves over time** and the **height of these waves** is **adjustable** (within limits).

LFO's are often used in synthesizers to be able to control certain **key parameters** with a **variable source**.

Rate gives you control over the **number of oscillations over time** ie., the **oscillator's** (low) **frequency**.

Note :

To try out all these possibillities, you could use the suggested testfile and leave out the control changes or change them to control the chorus depth (controller 93).

Depth
Delay

Chorus
Table of contents.

Chorus Depth
[chorus depth]

This parameter is **a part of a set of three** that **control** the aforementioned **low frequency oscillator's (LFO)** settings.

The other two are **rate** and **depth**.

The **LFO** creates a **wave form** and its **number of waves over time** and the **height of these waves** is **adjustable** (within limits).

LFO's are often used in synthesizers to be able to control certain **key parameters** with a **variable source**.

The depth controls the height of the the LFO's waveform. To get an idea of how that sounds it is best (like in most of these cases) totry this one out with various patches (voices).

Note :
To try out all these possibillities, you could use the suggested testfile and leave out the control changes or change them to control the chorus depth (controller 93).

Delay
Rate

Chorus
Table of contents.

Cho => Rev Send
[chorus send level to reverb]

To create **special effects**, one can decide to **send part** of the **resulting reverb** signal to the **chorus processor**, before output.

This typically an effect that is **hard to describe** in it's results, **because the final result** is (sometimes extremely) **different for every patch** (voice).

Note :

To try out all these possibillities, you could use the suggested <u>testfile</u> and leave out the control changes or change them to control the chorus depth (controller 93).

<u>Chorus</u>
<u>Table of contents.</u>

Reverb

This is what in the old days was called **"echo".**

However nowadays it is somewhat more sophisticated and of a higher quality standard.

It is a generally well known effects processor that creates the "bathroom" effects.

It achieves this by **feeding it's resulting signal partially back** into the reverb processor, thus creating double, triple,quadruple etc. occurrences of the same initial signal.

In electronic language this is called a **feedback loop**.

"Controlling that loop" is done with the following parameters :

Reverb Macro
Character
Pre-LPF
Level
Time
Delay Feedback
Rev -> Cho Send

Table of contents.

Reverb Macro
[reverb macro]

There are 8 different **Reverb Macros.**

You have to regard these **"Macro things"** as a set of presets that control the above mentioned loop in such a way, that they produce effects similar like the ones we know from the real world.

For instance three different **"Room"** effects, and two **"Hall"** effects that simulate two types of Concert Halls, one a bit "roomier" than the other.

The next effect **"Plate"** is derived from the old (isn't it Hohner ??, if not it IS real sixties stuff) "plate echo's", where the initial echo delay was created by metal plates.

(Who remembers not the old clunk, clonk, boiiinggg sounds when carrying them around while alive ???).

The last two effect are digital versions of what you could do with the "tape-echo's" from the past. The famous effect of the Tiroler echo.

The last one **Panning Delay** adds a real digital goodie resulting in a Tiroler echo, that is **"all over the place"**.

!!!!!!!!!!   Warning !!!!!!!!!!!

When you **change** to one of these **macros** you'll see that the **other parameters below change as well.**

As stated above the **"Macro"** parameter is a **preset**.

Every one of the **presets** results in a **different setup** of the **rest of the parameters**.

 I suppose Roland has done this for **our** convenience so we have **8 nice sounding presets**.

 And once you've chosen a macro you can even change it's setup to create your own sound.

But……………………

When you do change the setup and you then change to another preset don't try to find your previous setup back........ it has been zapped into Midi Heaven !!!!!

Note :

To try out all these possibillities, you could use the suggested testfile and leave out the control changes or change them to control the reverb depth (controller 91).

Reverb
Table of contents.

Reverb Character
[reverb character]

There are also **8** different **Reverb Character** settings.

This is the first "preset" parameter and it gives you a basic type of reverb.

Just pick the first one of the macros and change this parm while playing just one chord.

You'll find that these eight "Reverb Character" parms sound the same as the eight "Reverb Macros" which is understandable knowing that the "Macros" are created by the rest of the parms below them.

So if you want to read a description of the basic types of reverb available just click on :
<div align="center">Reverb Macro</div>

Note :

To try out all these possibillities, you could use the suggested testfile and leave out the control changes or change them to control the reverb depth (controller 91).

Reverb

Table of contents.

Reverb Pre-LPF
[reverb pre-lpf]

LPF stands for **Low Pass Filter**, which means that this is a filter that **will allow low** frequencies to pass and **stops high frequencies**.

The **'Pre'** means that the filter is placed **before** the actual **effect processor**.

And all this together means that **before** the **'reverb' effect** is applied you can **filter out** the higher **'resonance frequencies'** which results in a **softer** (more padded like) sound.

Note :

To try out all these possibillities, you could use the suggested testfile and leave out the control changes or change them to control the reverb depth (controller 91).

Reverb
Table of contents.

Reverb Level
[reverb level]

The level parameter basically decides **how much** of the **resulting signal** is allowed to **proceed** to the final output ie., **how much of the reverb effect you get**.

The **more level** the **'(bath)roomier'** the result.

Note :

To try out all these possibillities, you could use the suggested <u>testfile</u> and leave out the control changes or change them to control the reverb depth (controller 91).

<u>Reverb</u>

Reverb Time
[reverb time]

The time parameter decides **how fast the repeats (ECHO'S)** follow each other up.

To try out all these possibillities, you could use the suggested testfile and leave out the control changes or change them to control the reverb depth (controller 91).

Reverb Delay Feedback
[reverb delay feedback]

Without a 'delay feedback' the repetition would start right after pressing the relative key on the keyboard.

The 'delay feedback' causes **the repetition not to start until after the set delay time**.

Like in real life when an echo does not immediately reply after calling.

Note :

To try out all these possibillities, you could use the suggested testfile and leave out the control changes or change them to control the reverb depth (controller 91).

Reverb
Table of contents.

Rev => Cho Send
[reverb send level to chorus]

To create special effects, one can decide to **send part** of the resulting **reverb signal** to the **chorus processor**, before output.

This typically an effect that is **hard to describe in it's results**, because the **final result** is (sometimes extremely) **different** for every patch (voice).

Note :

To try out all these possibillities, you could use the suggested testfile and leave out the control changes or change them to control the reverb depth (controller 91).

Reverb

What do you mean : MIDI channels ??

Now here is something that is very easy to understand if you know a bit about midi, but   can be **very confusing** when you are **a novice**, especially when **mixed up with Roland's part principle**. (And to be honest which has confused me too for a long time !!)

First of all, there is no connection whatsoever between Midi Channels and SoundCanvas Parts.

- **Midi Channels are typically related to Midi.**

- SoundCanvas Parts are typically related to the SoundCanvas.

Some remarks about Midi Channels.

- there are **16** of them, no more no less.

- you **don't** have to use **all** of them.

- they are like **radio channels** unique lines along which you can send your **midi events.**

- **Midi events** have **'headers'** (address labels) which contain also the **channel number** you are **sending** the events to.

- the Midi **synthesizer reads** the **'header'** (address label) and **directs** the Midi **events** to the **right channel** that is **preset** in the **synthesizer** by the guy or girl who uses it.

So one could have the following setup :

- five different Midi capable synthesizers., connected up in 'series' using the "Midi In" and the "Midi Thru" ports.

- have each synthesizer setup to receive only one unique Midi channel.

The result would be :

Sending all Midi data through the one cable to all synthesizers, each synthesizer accepting only the events that have a header that contains that one channel the synthesizer is set for.

What do you mean : Parts ???

Now here is something, that is very easy to understand if you know a bit about midi, but   can be **very confusing** when you are **a novice**, especially when **mixed up with Roland's part principle**. (And to be honest which has confused me too for a long time !!)

First of all, there is **no connection** whatsoever between **Midi Channels** and **SoundCanvas Parts**.

- **Midi Channels** are typically related to **Midi**.

- **SoundCanvas Parts** are typically related to the **SoundCanvas**

Some remarks about SoundCanvas parts.

- **there are 16 of them,... no more,.... no less.**

- **you don't have to use all of them at the same time.**

- the **SoundCanvas** is like a **little theatre** that contains **16 musicians** that play only **one instrument** at **any given moment** (we don't have musicians in the SoundCanvas that can play two instruments at the same time except for the percussionist), so the **maximum number of instruments** that can be played **at any time is 16**, **each** one of the **sixteen possibillities** is called : **"Part"**.

- **each part "can"** (and if you want to hear any sound at all at least one of them "has to") be related to **one Midi Channel**.
Normally (in default setting) it would be 'part 1. assigned to Midi Channel 1., part 2. to channel 2., etc., etc.
But **if** you **wanted** to, you could **assign all 16 parts to one Midi Channel only**. (It would be a bit crowded though, and you would have to change your Voice Reserve, but that's something we will talk about later).
Also all Midi messages on this one channel would apply to all 16 parts, which is a situation that normally is 'not wanted'.

But....... it is possible.

Scale Tuning / Rx Flags

This screen has two main items :

Receive Flags
Scale Tuning

Table of contents.

Receive Flags
[RX.<control message name>]

"Rx" is actually an abbreviation for **"receive"**.

In **MIDI** one can **send** and **receive** socalled **"control messages"** on **each channel** destined for **every voice** (part) on that channel.

Here you can actually **block** a particular **voice** (part) from **receiving** certain **"control messages"**.

So **whatever you send to other voices** (parts) on a **particular channel** will **not change** the voice **on that channel where you "unchecked"** this Rx Flag in CanvasMan.

For the "profs" a listing of the 'control messages' that can be controlled :

- Channel
- Pitch Bend
- channel pressure (CAf)
- program change
- control change
- poly pressure (PAf)
- note message
- rpn
- nrpn
- moduration
- volume
- panpot
- expression
- hold1
- portamento
- sostenuto
- soft

In a later stage of my "editorial exercises" I promise I will create explanations for these expressions as well, but for the moment you will have to be happy with just the listing.

Scale Tuning
[scale tuning]

This is something you only will use in **exceptional** occassions, for instance creating a **detuned instrument**.

With this you can **control** the actual **tuning** of each **half tone** of the keyboards **octaves**, again for **every single part**.

The total range is from **-12Hz to +12Hz**. (**127** steps representing **24Hz**, so no complaining about the **resolution** please).

Tone, Rhythm & Voice Reserve

This screen has two items :

Part Type
[use for rhythm part]

Normally spoken the **"drum section"** is assigned to **part nr. 10**.

But with this setting you can change that.

In fact these parameters let you **assign two different drum sets to any part nr. and therefore any channel you want**.

After having assigned one (or two) rythm map(s) to one (or two) parts, in CanvasMan, you can then **go to that part** and you'll find instead of the normal "instruments", **10 different drum set configurations**.

Voice Reserve
[partial reserve]

Also this topic seems to be a rather complicated one, but in the end isn't.

It all has to do with the fact that with a **SoundCanvas** you can **"only" sound 24 notes at the same time.**

So when you play **more notes** something has to **decide which notes** are **more important** and shut the less important ones down.

Now if you are playing 24 notes (which could be the case in a large multi-instrument composition) and you **now play the 25th note,** this **system** will, **cut off** the **longest already sounding note** in the **part** with the **lowest priority**.

This **part priority** is assigned as follows :

Part nr. 10 (drum section) has priority 1.
Part nr. 1 has priority 2.
....
Part nr. 9 has priority 10.
Part nr. 11 has priority 11 etc......and part nr. 16 has priority 16.

This will **work fine**, if you have all your **notes spread out** over **16 parts**, **but** when you have **most** of your notes **spread out** over **four or even three parts** you could be **cutting off notes** you really don't want to cut off.

This is where **Partial Reserve** comes into the play.

You can assign a number off **"simultaneously playable notes"** to each part.

That means that independent of the **part priority** the number of assigned **"simultaneously playable notes"** will be played whatever happens.

This assignment of **"simultaneously playable notes"** is called Partial Reserve.
In the default situation this assignment is in priority following order :

Part 1 has 6 partial reserves.
Part 2 to and included part 10 have 2 partial reserves each.
The rest have 0 partial reserves.

When reassigning partial reserves, be aware of the fact that you have only got 24 simultaneous notes to work with, in other words :

The grand total of all the partial reserves has to be and never can exceed 24 notes.

Master Settings

These are socalled **"global" parameters** that **change the overall conditions** (or "Master Settings") of the SoundCanvas.

 In this group we have :

Tuning
Volume
Key Shift
Master Pan
LGC Controller Number

Table of contents.

Master Tuning
[master tune] (-110.0 to +100.0 cent)

To **tune** the SoundCanvas in **very tiny steps (cents)** to for instance an old piano (that can't manage the standard height any more).

Or to tune to a tape recorder that lost a bit of speed.

Master Volume
[master volume]

This more or less explains itself, doesn't it ?

Master Key Shift
[master key-shift] (-24 to +24 semitones)

This is about the same as Master Tune but it is done in **half-tones** and not really for tuning to old piano's.

This could for instance be used **to transpose** a piece of music from one key to another key **'on the fly'**.

Master Pan
[master pan]

When the **SoundCanvas** for instance is used **in combination with other SoundCanvas's**, this option enables you to give **every single SoundCanvas its own position in the total stereo universe**.

LGC Controller Number
[lgc controller number]

Attention: This parameter can only be addressed on the SCC-1 !!!

Legato is one of **MIDI's Control Messages**.

If **"Legato"** is written as an instruction on a piece of **sheet music**, it means that the composer wants the **performe**r to play the **following notes fluently after each other** in such a way that the notes **seem more or less connected**.

In MIDI language **Legato** is **directly related to Portamento**, which means that when a note is struck a **slide in pitch** will be heard starting at the **previous note's height** and ending at the t**he presently struck note's height**.   **A sort of sliding effect between the notes.** The **angle of the slide** (or how fast the note reaches the next height) is **also for Legato** adjustable by setting the **Portamento Time** (Controller nr. 5).

"La Grande Différence."

A **Legato** instruction is put right before the "previous note" and only affects that following one note.

Portamento is "switched on" and affects all following notes untill it is "switched off".

"Finally the parameters explanation"

The **"LGC Controller Number**" parameter lets you decide **which Control numbe**r the SCC-1 will **respond to**, after which message the SCC-1 will apply the legato effect with stated value.

For instance if you set this **parameter to 126**, the **legato effect** will be activated by **Control message nr. 126** and value of your choice.