

# MS-20EX Tutorial 1

## Programming a String Sound

Material: KORG Kronos & MS-20EX Block Diagram.  
Level: Beginner.  
Time: approx. 15 min.  
Goals: Program MS-20 with a string sound, add Kronos effects, swap effects.

The String  
Experiment

This tutorial describes step by step how to program a string sound with the KORG Kronos MS-20EX Synth Engine.

This tutorial consists of four parts:

1. Setting up the Basic Sound.
2. Shape the Sound.
3. The Beauty Pass - Kronosification.
4. Summary Schema of all settings.

If this is your first tutorial on programming a synth engine of the KORG Kronos (X), you might consider to look at the PolysixEX tutorials first.

Many concepts are explained in these tutorials, which are also important for programming the MS-20EX.

# 1. Setting up the Basic Sound

1. Select a free USER Program and set in the **Common** tab the **EXi 1 Instrument Type** to **MS-20EX**.
2. Select the **EXi 1** tab and then the **Osc & Filter** tab, if not selected.
3. First “reset” the MS-20EX by setting:

VCO MIXER	VOLTAGE CONTROLLED LOWPASS FILTER	CUTOFF FREQUENCY MODULATION
VCO 1 LEVEL = 10	CUTOFF FREQUENCY = 0	EG 2/EXT = 0
VCO 2 LEVEL = 0	PEAK = 0	

Leave the other values at their default settings.

PEAK for the MS-20EX is called RESONANCE for the PolysixEX.

Reset

We begin with only one VCO - **Voltage Controlled Oscillator**.

4. Now select the **MG, EG, & Mod** tab. We have to reset a few more values.

# 1. Setting up the Basic Sound

5. Continue to “reset” the MS-20EX by setting:

## ENVELOPE GENERATOR 2

DECAY TIME = 0

SUSTAIN LEVEL = 0

RELEASE TIME = 0

Leave the other values at their default settings.



We end up with ... no sound. That's okay for now. We clearly did reset the MS-20EX.

To create the new sound we start with the **basic sound source** - the **VCO** - Voltage Controlled Oscillator.

6. Select the **Osc & Filter** tab. As you can see, the **WAVEFORM** for **VOLTAGE CONTROLLER OSCILLATOR 1** is set to **saw**. A saw waveform is good for string type sounds.

## 2. Shaping the Sound

Next we have to **shape the sound**, by determining which frequencies we want to cut off. For this we look at the **VCF** - Voltage Controlled Filter.



7. To shape a string sound start by selecting the **CUTOFF FREQUENCY** of the **VOLTAGE CONTROLLED LOWPASS FILTER** (VCLF from now on). Move the **value slider** till value **8**.

Note that you can also enter the number **8** using the number buttons and then press **ENTER**.

8. Select **PEAK** on the Kronos' screen and move the **value slider**. Notice that the sound becomes sharper and thinner at higher values. For this tutorial set **PEAK = 1**.

Remember, PEAK on the MS-20EX is called RESONANCE on the PolysixEX.

Play some notes. The sound is a little 'sharpish'. No way near a string sound yet. Lets see if we can change this.



## 2. Shaping the Sound

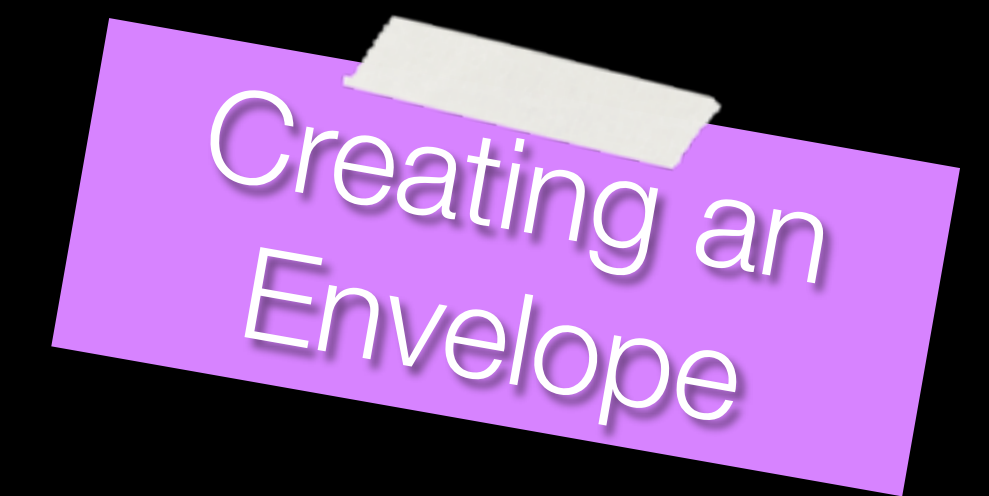
We have to shape the sound even further.

This can be realized with the help of the **EG** - the **Envelope Generator**.

But, before an envelope can be generated, you have to create one.

This is done by the ADSR knobs or **ATTACK**, **DECAY**, **SUSTAIN** and **RELEASE**.

The **A**, **D** and **R** are **time** related and the **S** is **level** related.



We want our strings to start softly and then increase.

To do this, increase the value of **ATTACK** - the time from the moment you press a key on the keyboard (note-on) until the maximum level is reached.

9. Select the **MG**, **EG**, & **Mod** tab. Enter the following values by selecting the knobs on screen and entering the numbers:

**ATTACK TIME = 3**

**DECAY TIME = 7**

**SUSTAIN LEVEL = 5**

**RELEASE TIME = 5**

See the PolysixEX Tutorial 2 Programming a Bass Sound for more information about the ADSR and VCF.

# 2. Shaping the Sound

ADSR & VCA

We don't want the EG to shape the Voltage Controlled Filters.

Therefore, both EG 2/EXT knobs are set to 0. (CUTOFF FREQUENCY MODULATION at Osc & Filter tab)

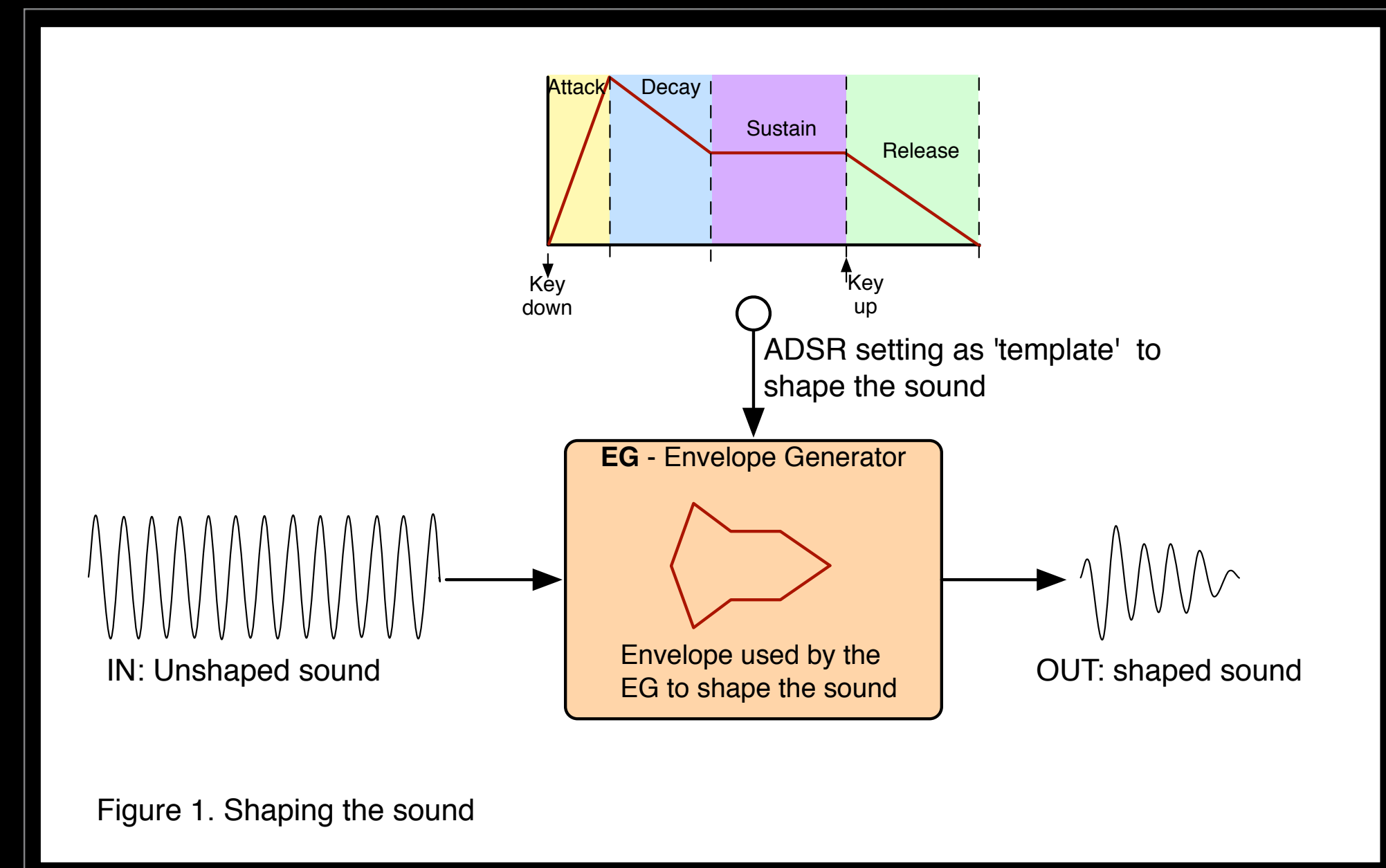
As you can see in the MS-20EX Block Diagram (separate download), Envelope Generator 2 connects directly with the VCA - Voltage Controlled Amplifier.

This means that the ADSR envelope shapes the sound signal as shown in figure 1.

Play some notes. A synth type string sound starts to appear. But what if we want this sound to be a little, say fuller sounding? Like the Ensemble effect of the PolysixEX (well, sort of)

Wider Sound

10. Select the Osc & Filter tab, if not yet selected. Then of the VCO MIXER set VCO 2 LEVEL = 10 to add the second VCO to the scene, and play some notes. Wow, that makes a difference.



# 3. The Beauty Pass - Kronosification

Let's add some nice effects to this basic string sound and make it Kronos worthy.

11. Select the **Common** tab.

12. Then the **IFX** tab, and then the **Insert FX** subtab.

13. Set **IFX1** = **On**, and select for the **effect: 011: Stereo Parametric 4EQ**, a stereo 4-band parametric equalizer.

14. Select the **IFX 1-12** subtab and then **IFX1** (if not selected).

15. Enter the following settings:

## PARAMETRIC EQ

Trim = 50

Band1 Type = Shelving-Low

Band4 Type = Peaking

Band1 Fc [Hz]: 20	Q:	Gain [dB]: -9.5
-------------------	----	-----------------

Band2 Fc [Hz]: 300	Q: 1.1	Gain [dB]: 6
--------------------	--------	--------------

Band3 Fc [Hz]: 4.1	Q: 8.8	Gain [dB]: -11
--------------------	--------	----------------

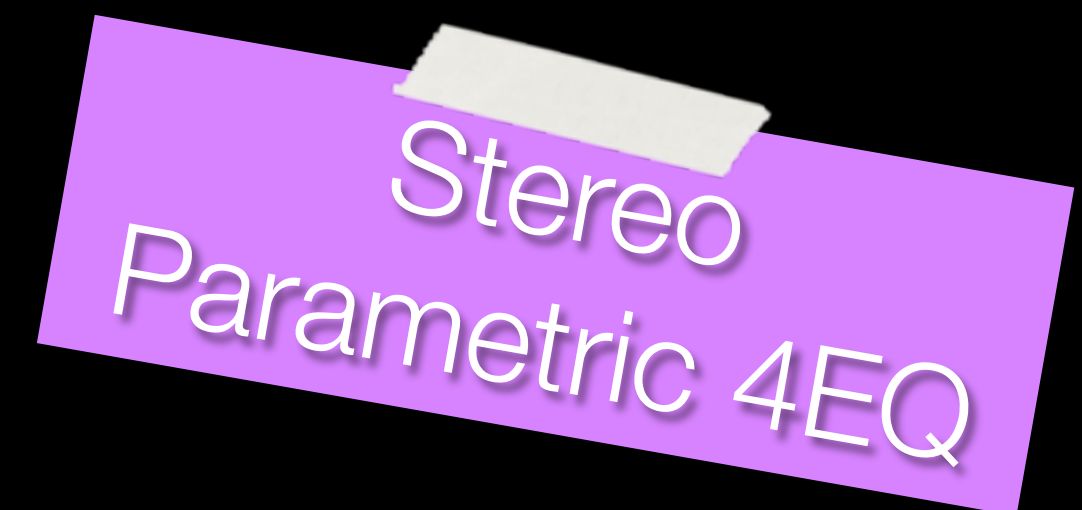
Band4 Fc [Hz]: 11.2	Q: 2.5	Gain [dB]: 9.5
---------------------	--------	----------------

## GAIN MOD

Band2 Source: Off

Leave the other values at their default settings.

More information on the Stereo Parametric 4EQ can be found on page 902 of the *Kronos Parameter Guide*.



# 3. The Beauty Pass - Kronosification

16. Select the **Routing** subtab.

17. In the **Bus Select (IFX/Indiv.Out Assign)** section set **EXi 1&2** to: **IFX1**.

18. Play some chords, notes...

Let's add another effect.

19. Select the **Insert FX** subtab.

20. Set **IFX2 = On**, and select for the **effect: 040: Stereo Chorus**.

21. Also select the little **square** under **Chain** of **IFX1**. The sound now travels through IFX1 to IFX2 and out.

22. Select subtab **IFX 1-12** and side tab (left) **IFX2** (if not selected).

Stereo Chorus



# 3. The Beauty Pass - Kronosification

23. Enter the following settings for the Stereo Chorus:... on second though we leave all values at their default setting.

*The Stereo Chorus effect adds thickness and warmth to the sound by modulating the delay time of the input signal.*

More information on the Stereo Chorus can be found on page 927 of the *Kronos Parameter Guide*.

Play the following Chords (smoothly and slowly):

1. Eb (G3-Bb3-Eb4)
2. Gm (G3-Bb3-D4)
3. F sus4 (F3-Bb3-C4)
4. F (F3-A3-C4)
5. Dm (D3-F3-A3)
6. C (C3-E3-G3)
7. F (A2-C3-F3)

**OOPS!**

Oh dear ... wouldn't it be better if the sound first travels through Stereo Chorus and then through the EQ?  
Do I have to re-type all values again?  
Nope, Select the **Common** tab, then the **IFX** tab and then the **Insert FX** tab.  
Select **IFX1** (top left), and then on the *Insert FX menu* (top right marked by v ) select **Swap Insert Effect**.  
Set **Source2: IFX2** and select **OK**. Done!

Swap it...

## 2. Shaping the Sound

Oops, we're back at Shaping the Sound ... what happened?

Well, maybe we can change the sound further, make it more massive as it were.

Lets try the following:

24. Select the **EXi 1** tab and then select the **Osc & Filter** tab. Then of **VCO 2** set **SCALE = 16'** to lower it one octave.

25. To make it not too heavy, of the **VCO MIXER** set **VCO 2 LEVEL = 8** and play some chords to hear the difference.

Hmm, a bit sharp still. Soften it, might do the trick. But, how to do that?

Sharp sound means that the cutoff frequency has a high value, i.e. high frequencies come through.

To soften the sound, we should lower the **cutoff frequency** of the **VCLF** in our case.

26. Try the following: of the **VCLF** (see slide 4) set **CUTOFF FREQUENCY = 7**. Play some chords. Nice, isn't?



A massive  
sound



A softer  
sound

## 4. Summary Schema

Settings for the different modules of the MS-20EX in this tutorial.

In case you want to quickly program the sound again.

### Assignment

Say, you want to add a Polysix Ensemble effect (047) between IFX1 and IFX2 for even better sound. That is, move IFX2 to IFX3 and insert the Polysix Ensemble effect. Make sure you do not lose the settings of the Stereo Parametric 4EQ effect!

## String Sound

