



YAMAHA

Power User

EX5 / EX5R: EX_VL#1 VOICE SET

Custom VL Voices

The first sixteen sounds here use Custom VL Elements. These elements must be loaded into the EX5 or EX5R before the sounds can be played. To load the VL Custom Elements simply load the ALL DATA file, **EX_VL#1.s1a**, then play the SONG. Playback the data on track one. You will see the EX receive each of the 16 packets of information. "MIDI Received!" appears in the screen after each group of information. This bulk data loads new VL elements into the custom VL locations 257-272. The first 16 Voices point to the Custom VL Element locations 257-272. The next 32 Voices are made from the resident set of 256 VL elements that are permanently stored in the EX5/EX5R. The first 32 Internal Voices are set for Breath Control. Voices I1-033 – I1-048 are repeats of I1-017 – I1-032 but these are setup for expressive play without a Breath Controller. (Your EX O/S must be 1.07 or later).

Please use a Breath Controller when playing sounds 1-32 – playing them without Breath Control would be the equivalent of playing a saxophone with an air hose at the gas station. Instead of human emotion (varying air pressure) you would have a steady uninterestingly 'flat' tone. The key to VL's Virtual Acoustic physical modeling is that any change in breath pressure will cause an appropriate animation in the sound. Compare Voices 17-32 with 33-48 to see what a difference this animation in the sound makes.

The Custom VL Elements are stored in EX non-volatile memory and will remain there until you either reset the machine or load in new ones. (The VL Custom Element memory works in a similar fashion to the Flash Memory, in that sounds remain in memory whether or not you have Voices loaded in that point to the data). Also supplied on the accompanying disk is a Synth All file (**.s1y**) – this is provided for convenience so that you can load individual Voices that use the Custom VL Voices into your own EX banks.

I1-001 (A01) Rd: Big Tenor - Full tone, lead tenor sax, suitable for solos. Work with MW2 to adjust embouchure. PB is set for scoops only

(pitch bend from below the pitch). Try varying the attack breath pressure; any change in breath pressure causes an appropriate change in timbre and pitch.

I1-002 (A02) Br: Nu Bone 5 - Big trombone, with an extremely smooth tone, not too bright. PB is slide; MW2 is embouchure. Works well inside sections or as a solo instrument. Often VL 'horns' will have a built in "distance" and ambience. Articulation is important on this simulation. If you attempt to play too fast the amount of 'trombone slop' increases. The real acoustic counterpart also must be articulated carefully!

I1-003 (A03) Pi: Bass Flute – Authentic Bass flute. Experiment with the knobs to control amount of breath noise and other factors. PB increases airflow and air flow angle.

I1-004 (A04) Rd: Alto Sax - Passionate alto with growl and throat formant on AT. Lots of control on breath attack from BC.

I1-005 (A05) St: Viol Out - Breath pressure does bow speed. At low breath pressure you will get a scratchy, unsteady beginner's bow. The energy with which you attack notes make playing a VL bowed string sound one of the most difficult to emulate. You must re-attack the BC mouthpiece with each bow stroke. As you play you may hear some notes misfire (called wolf notes) – a bow on a string in motion will sometimes do this very thing. Learn to control the attacks and phrasing. Bow speed is controlled by how fast you move air into the mouthpiece. This is a natural for BC because you can vary the bow speed easily with breath control. If you select velocity to control bow speed (pressure) you would have to *commit to* a bow speed for each note. Velocity sends only one value at note-on and there it remains until the next note on. With BC you naturally vary the air pressure and the virtual string/bow will respond accordingly. A drawback occurs when you have a piece of music that would cause the violinist to bow each note, because you would then have to re-attack each note. The violinist does not have to work their

diaphragm for each note-on. Use of vibrato is also critical to a good emulation. Be sure to use MW1 with care. And consider that not only does the violinist move the bow with a very practiced speed, they maintain a downward pressure that holds the bow against the string (for the VL this parameter translates to the *embouchure* parameter). This is critical to the timbre of the note and is worthy of much practice as well, when it comes to articulating a music phrase with the violin. You must vary appropriately this downward force (embouchure) along with bow speed (pressure) to accurately reproduce the violin phrase. Embouchure control on this sound is programmed to MW2. From the bottom to the center you increase the downward pressure. A lighter touch with the wheel toward you and the heaviest touch when the wheel is centered. Above center the MW2 will add a tremolo provided by the *growl* parameter. If you are unsuccessful, at first, getting a good violin sound out of this voice, do not despair. It is even more difficult to get a good tone out of the real thing! Mix it in with sampled strings in a composition. The ear picks out the articulation of the VL bowed string.

Violin parts don't breathe like horn parts.

I1-006 (A06) Pi: Tin Whistle – “Overblow” gives mode jump, highly accurate. If you have one of those little tin pipes with the plastic mouthpiece get it and amaze yourself with the physics involved in this very ‘simple’ instrument. Blow into the mouthpiece of the tin whistle, while varying the air pressure. Notice that you are flat until you reach a certain breath pressure. As you increase beyond a certain point the pitch is steady, as you continue to increase the pressure the sound becomes unsteady and then jumps an octave to the next mode (harmonic). As you decrease air pressure the sound becomes unsteady and drops the octave to the original mode and eventually goes flat and disappears. Now try this VL model voice. Since the mouthpieces are almost on a 1:1 basis the result and translation of parameters here is very easy to understand. This Tin Whistle VL voice will parallel the acoustic tin whistle exactly. As you blow harder you will notice the same change in pitch and harmonic content.

I1-007 (A07) Ld: Cosmic - Synth tone. Ribbon controller changes harmonic content. A science fiction sound made from a combination of acoustic processes.

I1-008 (A08) Ld: Mad Tube - Size and shape (length and bore) change in this ‘horn’. This is a sound only available with VL technology.

Work AT, wheels and legato phrasing. In our discussion of the Viol Out sound we got into the idea that the sound will behave differently depending on the condition of the model. A string (or column of air) in motion has different characteristics depending on its current state. The Mad Tube is a ‘science fiction’ sound because we do not have materials that behave like the mathematics of this sound – imagine a horn that changed shape as you played it! It is the manifestation of changing parameters **mathematically** that **physically** could not change in such a manner. The voice also is the personification of how a virtual instrument changes timbre based on the unique combination of your physical MIDI controllers: wheels, breath, velocity, aftertouch, etc. Embouchure (mode jumps) are on aftertouch – Yamaha’s unique Touch EG interpolation takes note-on velocity and translates it to an appropriate Aftertouch value. You must work with aftertouch here to get the full effect of the MAD Tube. As you press harder the shape of the virtual horn and embouchure of the virtual player change simultaneously. The positions of the other MIDI controllers also are in effect, so the sound changes in a holistic sense: everything effects everything else.

I1-009 (A09) Rd: Oboe 2 – A double-reed ‘simulation’. Although the VL engineers will tell you that, strictly speaking, the VA model cannot accurately imitate the complex mathematics in a real double reed instrument, here is a very expressive sound. The math in a double reed instrument differs radically from a single reed instrument. But by modeling the shape and material of the response chamber and the beating of a single reed and an extremely thin fixed mouthpiece we get a fairly emulative double reed, albeit, not scientifically faithful to the mathematics.

I1-010 (A10) Ld: Haze - Fat filter sweep on BC. This is one half of a sound originally programmed for the VL1 (which could play 2 models simultaneously). It is another science fiction sound – explore the knobs and wheels.

I1-011 (A11) Vo: Yhokih - Unique VL tone. Work with AT, velocity, and wheels. This voice can take on the quality of a singing female voice when played with expression. From the original VL1 set.

I1-012 (A12) Rd: Sax Tenor - VL end user Bill Busch’s tenor sax converted for EX5 / EX5R. This sound was downloaded from the Internet and converted for the EX5/5R VL engine.

I1-013 (A13) Rd: ChromaticHrm - Sesame Street special – chromatic harp. This Voice emulates the sound of a chromatic reed harmonica.

I1-014 (A14) St: Contraire - Bowed bass/cello; Breath pressure moves bow; Continue to hold a note down and use breath to articulate the bow, “ta, ta, ta”. You can ‘bounce’ the bow on the string.

I1-015 (A15) Br: Trmpt2ndMode - Lead trumpet. This is a Voice from VL (expert) programmer, Manny Fernandez. It is bright and brassy. Use the PB wheel to tighten the embouchure and jump modes. Place on top of brass section. Here you can see that what a trumpet player accomplishes with the just mouthpiece must be spread out to several different controllers. A question we often hear is, “Can you control the mode jumping with the mouthpiece just like a trumpet player?” The answer is yes and no. Yes, you could put the parameter responsible for controlling mode shifting (embouchure) under breath control. And, no, it would not behave *just* like a trumpet because on a trumpet it is how tightly the top and bottom lips (‘parent reed’ and ‘child reed’ within the model) are pursed that controls the mode – not how hard you blow. The trumpet player must practice to hold the musculature to maintain the mode. This is way too difficult to do with just a BC3 mouthpiece. So putting embouchure control on BC is not a wise choice when you are trying to emulate a trumpet performance **with a keyboard**. Also consider this: the poor trumpet player’s solution to having only 3 keys (valves) when there are 12 tones in the chromatic scale, is a combination of fingerings and precise mode maintenance via mouth muscles. Wow! As a keyboard player we would prefer to use our standard ‘one note-one result’ interface, thank you. However, we can use that embouchure mode jump to great effect by assigning it to the MW2 and the Ribbon. Both controls have a center mark (normal embouchure) and you can both tighten (raise the MW2 or move to the right on the ribbon) and loosen (lower the MW2 or move to the left on the ribbon) the virtual player’s facial muscles. This way you are in tune when the MW2 is centered or you let go of the ribbon. Notice how much control you have in articulating the attack portion of the sound. Try a double tonguing technique. Have a horn player teach you how to double and triple tongue. You practice...You get better – there is something very real about this whole process!

I1-016 (A16) Rd: ContraBassoon Orchestral bassoon ‘simulation’. Again, although the VL technology is not strictly set up to do double reeds, it does give a very playable result on the big bassoon.

I1-017 (B01) Ld: Zub-zub – a unique VL synth lead. Customize it via the knobs and wheels.

I1-018 (B02) Se: Moby– a sound that can be made only by VL technology. Use the PB wheel / Ribbon / AT to evoke whale-like harmonics. Yes, it is named for the whale, Moby! Use your controllers to take this Voice from a ghostly high-pitched whale call to a suspension bridge cable being used as a cello. Huge lows, soaring highs, Explore!

I1-019 (B03) Et: Shaku Too – an alternate shakuhachi flute. Embouchure is on PB and Ribbon. Lift your finger with each note to “take a virtual breath”; play legato for flute-like phrasing.

I1-020 (B04) Rd: Floboe – a ‘syncoustic’ hybrid sound combines attributes of a flute and an oboe. MW2 and Knob 4 add chaotic scream. A very expressive and playable physical model. Because there is no such animal as a Floboe there are no rules about how to play it. Change breath pressure and the sound will animate!

I1-021 (B05) Br: 1st Trumpet! – first chair, can blast those high notes. Embouchure on PB and Ribbon for trumpet like mode jumps. Great for doing the first trumpet parts of a sampled brass section.

I1-022 (B06) Se: Digeridooish – based on a long tube but has a synth type Pressure envelope. Technically speaking a Digeridoo is in the brass family of instruments. Not because of the material it is made from but because the playing technique involves the ‘parent’ and ‘child’ reeds – the upper and lower lips – to generate the sound. This ‘synth’ version gives you the big tone of a long tube instrument

I1-023 (B07) Rd: Air Sax – not a sax but plays extremely well. A Tom Scott favorite. Tom, plays saxophone, so naturally his interest in Virtual Acoustic technology leans towards sounds that can be played expressively, not those that do imitations of a sax (duh)! This was the sound used in his VL70-m demo, Silhouette. Worth a listen.

I1-024 (B08) Ld: Jet Lip Bow – combines “jet-reed” (flute) type behavior with a bowed attack.

Ribbon and PB wheel control embouchure mode behavior (like a flute). This hybrid voice can be played with great expression and individuality. Unique never heard before tone, yet somehow a fully acoustic and organic sound.

I1-025 (B09) Br: Flugelhorn – mellower brass tone of the Flugelhorn

I1-026 (B10) Br: BassTrombone – big trombone

I1-027 (B11) Br: Viking Call – legendary long horn of the Viking is recalled in this brass horn. Use PB to scoop up to the pitch

I1-028 (B12) Pi: Tull Flute – flute with lots of character. Tongue flutter on MW2

I1-029 (B13) Rd: Sweet Alto – expressive alto sax with scream on AT. Has 'room acoustics' built in.

I1-030 (B14) Rd: JazzTenor\Bs – Jazz Tenor split with Acoustic bass. Split at Tenor's lowest note Bb. Combines a VL+AWM – the bass is a sampled element.

I1-031 (B15) St: Viola 1 – Bowed string. Velocity = bow speed; AT = bow pressure

I1-032 (B16) Rd: Clarinet! – Reedy and full of character.

Voices **I1-033 – I1-048** are duplicates of **I1-017 – I1-032** but setup to play with expression from the keyboard without Breath Control. If you do not have a BC3 (get one) please play these voices not the previous ones to get change in pitch and timbre via key pressure and velocity.

Bonus PERFORMANCES:

[A01: Sq: For Patterns – Performance for previous Demo Disk Patterns].

A02: Co: Blue Note – Combines VL Tenor Sax, AWM Trumpet with Acoustic Bass. Named for the legendary jazz label.

A03: Br: Real Bones – VL Trombone in with the sampled Bone section.

A04: Co: Warm Floboe- Split Performance with pad in the left-hand Floboe in the right

A05: Co: Moby Choir – Odd combination of whale song and human voices. Intelligent mammals singing. Sci-fi.

A06: Br: New Section – Blasting VL 1st trumpet in with the AWM Voices

A07: St: String lines – VL Viola mixed in with Agitato strings; great for fast string lines.

A08: Pi: Int'l Flutes – Eastern meets Western flutes

NOTE:

Also included on the accompanying diskette is a Synth All file (**EX_VL#1.s1y**) and a backup of the 'song' bulk file (**customvl.mid**). In order for the Custom VL Elements to be loaded and played properly the EX5 must have a TG system later than 1.07.

I would like to thank Toshi Kunimoto for his work developing Virtual Acoustic technology, and Manny Fernandez for his expert programming and all the programmers and players of this truly individual technology.

Original programming done by various VL Experts; Voices assembled and all EX controllers programmed by:

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