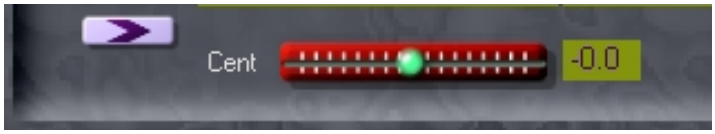
microVibes Microtonal VST Synth

This synth combines a physical model of a resonant stiff bar with a sampler. It's primarily for microtonal mallet family percussion, but can be played with any compatible sample. Four biquad filters take the impulse of the sample and generate layers of 'ringing' resonance modes at tuned overtone frequencies. The basic idea is that a sample gives a patch its sonic identity – marimba, gong, wineglass, etc. while modal resonance adds harmonic character and expressive response.

Samples

Click the red button shown below labeled 'File' to open a standard Windows file navigation pop-up that is filtered to show only .wav files. The synth takes 16 bit mono samples. Large (1 mb or more) samples are ok. The left pane shows header info from a selected .wav. If compatible, its path is shown on the box to the right, and the sample is loaded into the current patch of the synth. Use the 'Root' slider bar to set the root pitch for sample playback. The synth is designed to take samples tuned to 12 tone equal temperament, where midi note A4 = 440 hz. You can use freeware like Audacity to measure or adjust sample pitches. A list of pitches in hz corresponding to midi notes is provided on page 3.

The resonant bar is tuned by math independently of the sample, so it may be necessary to adjust the sample pitch by ear if there is unwanted beating. Clicking the purple arrow shows a cent adjustment slider that ranges +/- 50 cents.

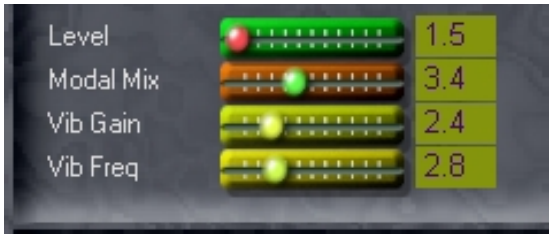


Output Controls

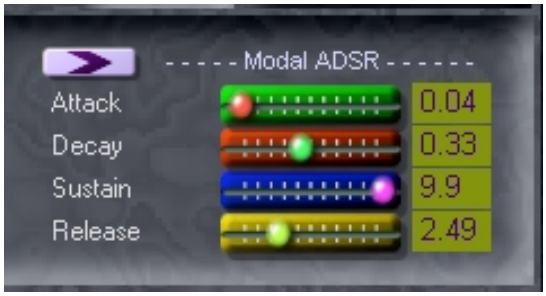
Level – Main output level of synth. Units are db of gain.

Modal Mix – Proportion of resonant bar (hard left) and sample (hard right) in output.

Vib Gain/Freq – Amount and frequency of vibrato applied to output.



ADSR – Clicking the puple button switches display between two ADSR envelopes. One ADSR shapes volume over time for the modal resonant bar and the other controls the overall output including the sample. ADR units are seconds for the Modal envelope, and 'voltage' (out of 10 v) for the other sliders.



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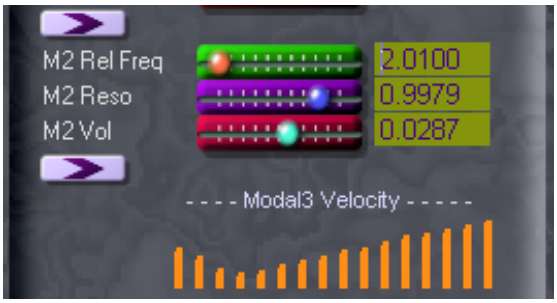
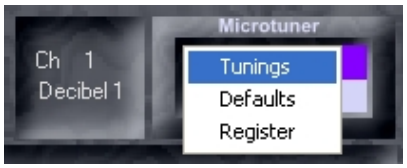
Modal Resonance Controls



There is a set of identical controls for each of the four resonant filters. Numeric values can be set by slider or direct entry.
Relative Frequency – This is a multiple of the pitch of the current note that sets the resonance pitch of the filter. For example, a relative frequency of 2.0000 resonates an octave above the current note.
Resonance – This sets the degree of 'ring' the filter has. Increasing resonance also affects volume and sustain. Exercise care at settings approaching .9995, as the resonance begins to ramp rapidly to a howl.
Volume – Sets gain of the filter.
Relative Weighting - Clicking a purple arrow shows a bar graph that sets the relative weighting of the filter. The horizontal axis represents midi velocity from 0 to 127. The height of a bar sets the weighting of that filter at that midi velocity. Vertical height is parsed into 10 weighting bands. Dragging over the bars with the left mouse button down sets the bar height. At a particular velocity, if the bar for each filter is the same height, each mode will have equal volume within the modal resonance sub-mix (assuming the volume and resonance settings of each filter are producing the equal volumes). Typical settings might roll-off the fundamental and increase higher frequencies at higher velocities to simulate tonal brightness with velocity.

Microtuning

On the left are dropdown lists for midi channel and keyboard velocity curve.



On the right, clicking the top purple bar shows a popup menu list of Microtuner screens. Use of the Microtuner is documented at http://www.12equalboresme.com/Scala2SE/Scala2SE.html

The microTuner plays in demo mode until it is registered.
In demo mode, tuning reverts to 12 tone equal temperament after a few minutes per session. It can be registered at http://www.12equalboresme.com/Transactions/S2SEtrans.html

Any questions or comments, please contact me at mailto:robert@12equalboresme.com
Thanks for your interest,

Robert Strauss
9/20/2008

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Midi Pitch Table

hz	note #	name	octave	hz	note #	name	octave	hz	note #	name	octave
8.1758	0	C	-1	97.9989	43	G	2	1,174.6591	86	D	6
8.6620	1	C#	-1	103.8262	44	G#	2	1,244.5079	87	D#	6
9.1770	2	D	-1	110.0000	45	A	2	1,318.5102	88	E	6
9.7227	3	D#	-1	116.5409	46	A#	2	1,396.9129	89	F	6
10.3009	4	E	-1	123.4708	47	B	2	1,479.9777	90	F#	6
10.9134	5	F	-1	130.8128	48	C	3	1,567.9817	91	G	6
11.5623	6	F#	-1	138.5913	49	C#	3	1,661.2188	92	G#	6
12.2499	7	G	-1	146.8324	50	D	3	1,760.0000	93	A	6
12.9783	8	G#	-1	155.5635	51	D#	3	1,864.6550	94	A#	6
13.7500	9	A	-1	164.8138	52	E	3	1,975.5332	95	B	6
14.5676	10	A#	-1	174.6141	53	F	3	2,093.0045	96	C	7
15.4339	11	B	-1	184.9972	54	F#	3	2,217.4610	97	C#	7
16.3516	12	C	0	195.9977	55	G	3	2,349.3181	98	D	7
17.3239	13	C#	0	207.6523	56	G#	3	2,489.0159	99	D#	7
18.3540	14	D	0	220.0000	57	A	3	2,637.0205	100	E	7
19.4454	15	D#	0	233.0819	58	A#	3	2,793.8259	101	F	7
20.6017	16	E	0	246.9417	59	B	3	2,959.9554	102	F#	7
21.8268	17	F	0	261.6256	60	C	4	3,135.9635	103	G	7
23.1247	18	F#	0	277.1826	61	C#	4	3,322.4376	104	G#	7
24.4997	19	G	0	293.6648	62	D	4	3,520.0000	105	A	7
25.9565	20	G#	0	311.1270	63	D#	4	3,729.3101	106	A#	7
27.5000	21	A	0	329.6276	64	E	4	3,951.0664	107	B	7
29.1352	22	A#	0	349.2282	65	F	4	4,186.0090	108	C	8
30.8677	23	B	0	369.9944	66	F#	4	4,434.9221	109	C#	8
32.7032	24	C	1	391.9954	67	G	4	4,698.6363	110	D	8
34.6478	25	C#	1	415.3047	68	G#	4	4,978.0317	111	D#	8
36.7081	26	D	1	440.0000	69	A	4	5,274.0409	112	E	8
38.8909	27	D#	1	466.1638	70	A#	4	5,587.6517	113	F	8
41.2034	28	E	1	493.8833	71	B	4	5,919.9108	114	F#	8
43.6535	29	F	1	523.2511	72	C	5	6,271.9270	115	G	8
46.2493	30	F#	1	554.3653	73	C#	5	6,644.8752	116	G#	8
48.9994	31	G	1	587.3295	74	D	5	7,040.0000	117	A	8
51.9131	32	G#	1	622.2540	75	D#	5	7,458.6202	118	A#	8
55.0000	33	A	1	659.2551	76	E	5	7,902.1328	119	B	8
58.2705	34	A#	1	698.4565	77	F	5	8,372.0181	120	C	9
61.7354	35	B	1	739.9888	78	F#	5	8,869.8442	121	C#	9
65.4064	36	C	2	783.9909	79	G	5	9,397.2726	122	D	9
69.2957	37	C#	2	830.6094	80	G#	5	9,956.0635	123	D#	9
73.4162	38	D	2	880.0000	81	A	5	10,548.0818	124	E	9
77.7817	39	D#	2	932.3275	82	A#	5	11,175.3034	125	F	9
82.4069	40	E	2	987.7666	83	B	5	11,839.8215	126	F#	9
87.3071	41	F	2	1,046.5023	84	C	6	12,543.8540	127	G	9
92.4986	42	F#	2	1,108.7305	85	C#	6				