bar CHIMES concert mark tree



v1.0.1



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barCHIMES Concert Mark Tree

barCHIMES overview

Whether it's for energetic turnarounds or sparkling drops, *barCHIMES* gives you that extra texture to lift your tracks and your crowds into the stratospheric frequencies!



Previously on... "Windchimes"

The "Windchimes" selection of our earlier *Republik Handheld Percussion* had only six round robins and no individual hits, and was recorded using only the classic X/Y microphone arrangement. While this was a useful approach for that product as a whole, for the chimes specifically, X/Y does result in a narrower stereo field than may be required.

And so ...

... we decided to re-record the bar chimes as a dedicated device, additionally being able to offer the latest capabilities of the IDT format for Reason for some useful extras, including playback speed adjust and damping.

For *barCHIMES* we have made hundreds of new performances on a professional Mark tree set, and mapped them across the keyboard from C0 to B6. Most performed hit types have ten round-robin samples for sweeps and random performances, plus split ranges (Low/Mid/High bars) for random loops, for even less chance of repetition of samples, the exceptions being the 36 individual chime samples, mapped from C4 to B6. Additionally, all these have been recorded four times. Once again we have X/Y stereo format, but now we also have the chimes available in O.R.T.F. (a wide stereo miking setup), and two mono sets, mapped in a double-tracked format (left channel and right channel).

Since all of these are individually recorded, you can stack three *barCHIMES* and set each to a different miking setup with no chance whatsoever of phase-cancellation or otherwise identical round-robin sample playback.

"Windchimes", "bar chimes" or "Mark tree"?

The official name of the instrument is a "Mark tree" and, perhaps surprisingly, it is a relatively modern instrument, dating from the late 1960s. Named after its inventor Mark Stevens, the Mark tree is a series of small metal tubes hung linearly in decreasing tube length in order to produce rising or falling glissandi simply by running a finger across them.

Therefore the Mark tree is—quite markedly—not a "Windchime", which is typically a circular arrangement of chimes with a central striker, and may be constructed with wood, metal or ceramics, and may be harmonically tuned or untuned.

The Mark tree only produces inharmonic tones (and even individual bar samples cannot really be tuned beyond a very small comparable range) and was designed as a percussion instrument.



Multi-Mode Mic Control Unit

The controls are located below the hanging chimes in their own pre-attached Rack unit.

Miking

barCHIMES offers three alternative microphone placements. All three are unique samplesets, and mic selection cannot be automated in this particular device.

Double-Tracked (Dbl-Trk)

Two mono tracks are opposably panned. For double-tracking to work correctly each track must be unique, so this is not simply the same sample delayed a few milliseconds on one side. For this mode there are actually *twenty* unique mono samples per performance type: ten round-robins for the left channel, and another ten just for the right. All the single hits are also double-tracked, but the offsets may not be noticeable.

O.R.T.F.

The O.R.T.F. (Office de Radiodiffusion Télévision Française) configuration provides a wide and realistic stereo field more akin to human stereo perception. In this mode you can hear the chime sweeps move side to side across a wide portion of the stereo field. Likewise, individual chimes have very defined placements from left to right.

X/Y

This common or garden close-miking stereo approach also provides a full tone but the sound stage is much narrower. This selection is the preferred mode to use if you want to use the Mono option. The middle range of chimes will naturally be slightly louder than the low and high regions.

Mix Mono

All three **Miking** options can be downmixed to mono by enabling this switch. Note that X/Y is likely the preferred setup in which to do this, however O.R.T.F. works well too. Setting Double-Tracking to mono may be less effective, however.

Mapping

There are several alternate sample mappings available. Click the **Mapping** display and select from one of five options.

1. "Performance Bar Chimes"

The standard sample mapping is "Performance Bar Chimes", which carefully maps the various hit types across the keyboard from C0 to B6 (with several repeated selections also available above and below this range).

With ? (aka **Display Key**) enabled—top right, next to the **Volume** knob—pressing a key while in the "Performance Bar Chimes" mapping will display the key pressed and the sample type it plays, while the background colour indicates whether the sample covers All bars (blue [single direction sweeps up or down, or random hits], or brown or purple [dual direction sweeps: outsides to middle, or middle to the outsides]), or just groups of 12 bars (singles or split random hits: red [Low Bars 1-12], yellow [Middle Bars 13-24], or green [High Bars 25-36]).

With no note pressed, the Key itself will default to a useful overview:



The **Display Key** is not shown in the other mapping modes.

There are five types of Mark tree performances, each mapped over an octave (three octaves for the "Singles") starting from C.

The first three octaves contain the same extensive set of "Random Hits" samples, but handled in slightly different ways, while octave C3 is the "Sweeps". Also note that, aside from the "Singles", all other samples are mapped over two or three consecutive keys in order to facilitate switching the same sample type without instantly releasing the currently active sample of the same type, especially useful when using lower **Release** times to avoid sudden unwanted drops or silence. Effectively this means you can play in a legato style to cross-fade from one sample to the next.

The full per-key mapping list is available on Pages 8–9.

Random Hits

The Mark tree was played ten times per mic setup, triggering different bars in a pseudo-random manner for around twenty seconds, then allowed to naturally decay to silence (up to an additional ten seconds). This process was then repeated for each of the three ranges, Low, Middle, and High, to allow construction of further random performances from groups of bars.

These samples have been mapped with three alternate trigger options:

• [C0] RND Velocity to Start

Samples in this octave do not apply any note velocity control to sample volume, merely a fixed velocity level. Instead, the velocity value itself is applied to the sample start value. Higher velocities therefore trigger the sample at a later point, resulting in a shorter time to reach the natural decay stage. The samples in this octave are therefore unlooped. A velocity of 1 then, will play the full length of the sample on a held key, while a velocity of 127 starts at between 75–85% of the sample length.

Be aware that due to the random variance in performance and the way a Mark tree can naturally decay in an equally unpredictable manner, it is possible to trigger some samples already in their decay at high velocities, as the sample start ends up beyond the last performed hit of the chimes; if this happens, reduce the velocity to a range of 100–115 to ensure you trigger slightly earlier. There may be scenarios where it may be preferable to render a fixed performance than rely on a random selection.

We also suggest moving the **Attack** to 1–5ms if using "Velocity to Start" to fade in the sample as while we have mitigated this internally to an extent, we didn't want to over-cook that mitigation, so it is possible the velocity to start position can still result in a nonzero position resulting in a noticeable click. Adding an extra attack forces it to start at zero volume for slightly longer, thus removing the chance of this occurring but with the downside of losing some potential transient sounds.

[C1] RND

This octave simply plays each sample from start to finish, 20 seconds of random hits followed by up to 10 seconds of natural decay. Velocity—here and in subsequent octave sample maps—is now applied to the sample level as normal.

[C2] RND Loop

For this octave the "Random Hits" have been looped instead of allowed to decay, allowing you to hold the triggered samples indefinitely. Use the AHDSR controls to create a faux-decay, if required.

Sweeps

[C3] Sweep

Using a single finger swept across the bars, the Mark tree produces glissandi. The straight low-to-high and reverse high-to-low movements are performed at two speeds, Slow and Fast. Fast is louder and results in a longer natural decay.

• [from G#3] Dual Sweep

Using two fingers sweeping the chimes in an opposable manner, the Mark tree performs two glissandi, from the middle two bars to the outside bars, and from the outside bars into the middle bars.

Again, all are performed ten times per mic setup to provide plenty of depth for automatic round-robin variance selection.

Singles

C4 to B6 provide dedicated keys for each of the 36 bars with a single hit. Keep in mind that this is not a chromatic mapping: the bars are both micro-tuned, so each subsequent bar has only a small increase in pitch, and they're also inharmonic. By finding new ways of triggering them you can create your own random sequences. We've included a few examples using the *Quad Note Generator* device as a polyphonic trigger.

In attempting to coax more realistic performances out of the "Singles", however, consider playing consecutive notes together, e.g., C4+C#4, or E5+F5, as it's adjacent notes that hit each other, causing both to ring, and as with a Newton's Cradle the kinetic energy imparted is transferred in waves back and forth across the chimes.

2. "Tuned Chromatic"

This is chromatic tuning in the loosest possible sense, given that the Mark tree is by its nature resolutely and determinably inharmonic. This mapping uses just the first bar, which provides the widest possible note range. Notes in the range of C4–C5 are probably the best tuning to match other instruments, but perhaps more usefully in most scenarios layer it with a fully tuned instrument, so that shoulders the burden of the fundamental pitch, while *barCHIMES* simply adds texture.

While it is fairly subtle, there are also ten round-robin samples here too, as for this selection the bar was separately rerecorded in the centre of the stereo field, although due to the way the chime must be struck, the output may still skew a little to the left, so either turn on Mono mode (X/Y is likely the preferable selection as this mode combines best to mono), or use a true stereo corrective RE e.g. *selig Gain* to shift the left to the right slightly.

3. "Non-Chromatic (10 Alt Bars)"

Ten different solo bars stretched across the keyboard range, providing one of ten round-robin-selected pitches per key.

4. "Inharmonic Stack (Odd Bars)"

Twelve of the odd bars in a single stack stretched across the keyboard range, for a rich percussive effect.

5. "Inharmonic Stack (All Bars)"

All the bars in one stack stretched across the keyboard range, for deep and slightly disturbing percussive drama.

Other controls



HQI (High Quality Interpolation)

When using the "Performance Bar Chimes" **Mapping**, this can be left off unless you're using the **Pitch Shift** or **Speed** controls where it may or may not be of some benefit depending on musical context. However, when using any of mappings 2–5, absolutely enable this control as it dramatically raises the quality of tone using the best stretching algorithm available. Enabling this could, however, be at the expense of additional DSP usage, especially when using **Speed** or long **Release** times, or high polyphony or voice counts.

Pitch Shift

You can use this slider to tune the device up to 12 semitones higher, or 24 semitones lower than the default. This will also have the side-effect of speeding up or slowing down the "Random Hits" and "Sweeps" samples. This change in rate by itself is also a useful special effect. If the rate change is unwanted you can compensate somewhat using the **Speed** control, although be aware such post-processing is going to result in tones and tinkles that are different, perhaps even unnaturally so, to the unprocessed samples alone.

Speed

The speed of the sample playback can be increased or decreased without changing the pitch. In particular you can use this control to fine-tune the rate at which the glissandi "Sweeps" occur. Start by playing the appropriate Slow or Fast Sweep as this will be the rate closest to where you need to adjust it from for the best adjusted quality result. There may be some tonal change but it works pretty well if the adjusted amount is within a fairly narrow range.

For the "Single" samples and single-sample mappings, changing the Speed may not result in much obvious change unless you set it to 0, where it will turn into an almost pad-like sound!

However, **Speed** can be a highly DSP-intensive process and is not recommended in scenarios where lots of voices are likely to be active. If you don't need it, leave this control at—or reset it to, via CTRL-click—100 to set it to deactivated.

Damping (also available via Mod Wheel)

This control adds a damping-style filter to the samples giving the effect of muting the chimes as they play.

Damping on Mod Wheel works exactly the same way: increase the Mod Wheel value to add damping. Note that the **Damping** slider value is overridden by the Mod Wheel, and vice versa, so we recommend using either rather than both, e.g. if using Mod Wheel leave the **Damping** control itself at 0% to prevent confusion.

Amp Envelope

A five-stage envelope with Attack, Hold, Decay, Sustain and Release is available for amp envelope shaping.

Reverb

A simple stereo reverb adds some extra roominess.

Volume

Make the entire output louder or guieter.

Important Notes!

Sample levels

Single samples and sweeps have been normalised to -6dB, while the random samples have been set to average at c.-6dB; however, do be aware that sections of these random performances can occasionally, if briefly peak up to around -3dB, or can drop to -15dB or less. "Random Hits" and "Sweeps" start relatively quietly until more than a few bars get triggered and the sound has built up somewhat. This is all expected intended behaviour to create variance in both dynamic range and pace, but feel free to use a compressor or maximizer if you wish to try and level these differences out.

Frequency range and aliasing

Bar chimes, under standard mappings, do not have any low frequency content below 2.5kHz, and there are a lot of harmonics well above 12kHz. With certain effects applied this can create aliasing. You could filter out some of the high frequencies first—although this risks dulling the sound—or ensure the effect has a high sample rate/over-sampling to remove or mitigate the aliasing. (If attaching our own BBD effects devices, for example, either set the internal sample rate to a high value (e.g. 100Hz), or, where not available, switch to the DDL mode.) In any event, modulation via any device may still cause unwanted effects in the audible range.

DSP usage

Hard limits have been set for the number of voices to reduce the likelihood of excessive DSP caused by the IDT system's curiously DSP-intensive voice handling processes (curious at least compared to NNXT). However, in testing we found bar chimes really do need fairly long **Release** times (e.g. 2 seconds, which arguably is not even particularly long) in normal use, and reducing the voice allocation to DSP-safe levels merely caused obvious oldest-note dropouts.

What constitutes "normal" use of course is fairly subjective: our definition here is playing up to 10 "Singles" at a time in a fairly leisurely and as random a manner as possible with the default release time, to mimic the behaviour of such performances on the real percussion.

The different mappings have alternative voice allocations based on a minimum number of voices absolutely required (e.g. the All Bars stack needs a minimum of 36 per note for X/Y and O.R.T.F, and 72 for Double-Track, providing a polyphony of 4, while the default "Performance Bar Chimes" mapping 4 voices per note provides a polyphony of will provide a minimum polyphony of 16, likely be more than enough and keep the DSP levels down).

So using "Performance Bar Chimes" with "normal" usage (i.e. not trying to trigger twenty keys every second, but a few at a time, moderately) we do not expect any significant DSP or voice dropping issues. In the two stacks that require a lot of voices per key, be aware that triggering <u>lots</u> of notes rapidly, and in any event *especially* when changing the **Speed** from its default 100 value—where it is disabled completely—it's not too difficult to hit DSP limits with a 2 second release time if you're playing a *lot* of notes in quick succession, and particularly with **Speed** at 0.

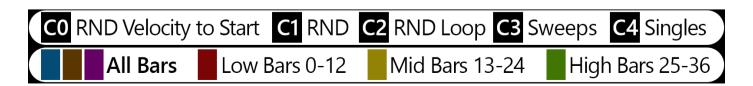
Key Mapping

C-1	12	С	Dual Sugary Incide Out	C2	48	С	Random: Looped
C-1			Dual Sweep: Inside Out	C2		C#	
	13	C#	Dual Sweep: Inside Out		49		Random: Looped
	14	D	Dual Sweep: Inside Out		50	D	Random: Looped
	15	D#	Dual Sweep: Outside In		51	D#	Random: Looped
	16	E	Dual Sweep: Outside In		52	E	Random: Looped
	17	F	Dual Sweep: Outside In		53	F	Random: Looped
	18	F#	Sweep: Up, Slow		54	F#	Random: Looped
	19	G	Sweep: Up, Slow		55	G	Random: Looped
	20	G#	Sweep: Up, Slow		56	G#	Random: Looped
	21	Α	Sweep: Up, Fast		57	Α	Random: Looped
	22	A#	Sweep: Up, Fast		58	A#	Random: Looped
	23	В	Sweep: Up, Fast		59	В	Random: Looped
C0	24	С	Random: Unlooped, Velocity to Sample Start	C3	60	С	Sweep: Up, Slow
	25	C#	Random: Unlooped, Velocity to Sample Start		61	C#	Sweep: Up, Slow
	26	D	Random: Unlooped, Velocity to Sample Start		62	D	Sweep: Down, Slow
	27	D#	Random: Unlooped, Velocity to Sample Start		63	D#	Sweep: Down, Slow
	28	Е	Random: Unlooped, Velocity to Sample Start		64	Е	Sweep: Up, Fast
	29	F	Random: Unlooped, Velocity to Sample Start		65	F	Sweep: Up, Fast
	30	F#	Random: Unlooped, Velocity to Sample Start		66	F#	Sweep: Down, Fast
	31	G	Random: Unlooped, Velocity to Sample Start		67	G	Sweep: Down, Fast
	32	G#	Random: Unlooped, Velocity to Sample Start		68	G#	Dual Sweep: Inside Out
	33	Α	Random: Unlooped, Velocity to Sample Start		69	Α	Dual Sweep: Inside Out
	34	A#	Random: Unlooped, Velocity to Sample Start		70	A#	Dual Sweep: Outside In
	35	В	Random: Unlooped, Velocity to Sample Start		71	В	Dual Sweep: Outside In
C1	36	С	Random: Unlooped, Velocity	C4	72	С	Bar 1
	37	C#	Random: Unlooped, Velocity		73	C#	Bar 2
	38	D	Random: Unlooped, Velocity		74	D	Bar 3
	39	D#	Random: Unlooped, Velocity		75	D#	Bar 4
	40	Е	Random: Unlooped, Velocity		76	Ε	Bar 5
	41	F	Random: Unlooped, Velocity		77	F	Bar 6
	42	F#	Random: Unlooped, Velocity		78	F#	Bar 7
	43	G	Random: Unlooped, Velocity		79	G	Bar 8
	44	G#	Random: Unlooped, Velocity		80	G#	Bar 9
	45	Α	Random: Unlooped, Velocity		81	Α	Bar 10
	46	A#	Random: Unlooped, Velocity		82	A#	Bar 11
	47	В	Random: Unlooped, Velocity		83	В	Bar 12



Key Mapping (cont'd)

C5	84	С	Bar 13
	85	C#	Bar 14
	86	D	Bar 15
	87	D#	Bar 16
	88	E	Bar 17
	89	F	Bar 18
	90	F#	Bar 19
	91	G	Bar 20
	92	G#	Bar 21
	93	Α	Bar 22
	94	A#	Bar 23
	95	В	Bar 24
C6	96	С	Bar 25
	97	C#	Bar 26
	98	D	Bar 27
	99	D#	Bar 28
	100	E	Bar 29
	101	F	Bar 30
	102	F#	Bar 31
	103	G	Bar 32
	104	G#	Bar 33
	105	Α	Bar 34
	106	A#	Bar 35
	107	В	Bar 36
C7	108	С	Random: High Bars, unlooped, velocity
	109	C#	Random: High Bars, unlooped, velocity
	110	D	Random: High Bars, unlooped, velocity
	111	D#	Random: High Bars, looped
	112	E	Random: High Bars, looped
	113	F	Random: High Bars, looped
	114	F#	Sweep: Down, Slow
	115	G	Sweep: Down, Slow
	116	G#	Sweep: Down, Slow
	117	Α	Sweep: Down, Fast
	118	A#	Sweep: Down, Fast
	119	В	Sweep: Down, Fast



//Remote Map template for Effects Jiggery-Pokery Sound: barCHIMES Concert Mark Tree Scope Jiggery Pokery com.jiggerypokery.barCHIMES Control Surface Item KeyRemotable Item Interpolation Quality //Map _control_ Pitch Shift //Map _control_ //Map _control_ Speed //Map _control_ Reverb //Map _control_ Volume //Map _control_ Trigger Mode //Map _control_ Mono Mode //Map _control_ Damping //Map _control_ Miking Attack //Map _control_ //Map _control_ Hold //Map _control_ Decay //Map _control_ Sustain //Map _control_ Release

//Map _control_

Help

Version history

Initial release

Special thanks to the barCHIMES testing crew.

barCHIMES Concert Mark Tree was designed, coded and assembled by Jiggery-Pokery Sound, of London, England. Design incorporates assets by Sarah Mancuso.

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From the maker of ...

Rack Extensions

- Ammo 100LA Modulation Oscillator Portable single-channel oscillator for audio and CV rate synthesis and LFOs, featuring 128 waveforms
- Ammo 400R Modulation Oscillators 4-channel LFO generator with audio output, featuring 136 waveforms and advanced modulation mixing
- Ammo 1200BR Modulation Synthesizer Advanced 4-channel LFO generator and audio synthesizer adds S&H, Comparator and Electro-Switch
- Anansi Mid/Side Mastering Router Mid/side audio router with mono compatibility check, 3-in merger and 3-out splitter
- Ariuna Duelling TZ Flangers Dual stereo through-zero flanger with parallel or serial operation, and negative or positive feedback
- barCHIMES Concert Mark Tree Extensively multi-sampled Mark tree with three miking setups, featuring ten round-robins, and single bar hits
- Champagne SuperNova Vintage Synthesizer A loving and virtual recreation of the original polyphonic synth: the 1939 beast, the Novachord!
- Charlotte Envelope Generator 9-stage EG with time, level, curve and velocity control per stage, and a priority-selectable MIDI-to-cv-pitch splitter
- Chenille BBD Chorus Ensemble Realistic BBD chorus device, based on the 70s string synth ensembles and the classic Roland Dimension D rack unit
- Combo 310 Unique Organ The legendary Dutch electronic home/church organ, best known as the "Jarre" organ of Oxygene and Equinoxe.
- Combo B3T Organ The famous American tonewheel organ and Leslie combo in highly tweak-able and addictive Rack Extension format
- Combo Compact Organ The classic Italian transistor organ now in a brilliant, easy to use and equally compact Rack Extension format. Bags o' fun!
- Combo Continental Organ The classic British transistor organ in a fantastic Rack Extension for that instant 60s feel!
- Combo Electric Harpsichord A rare example of a lovely 60s curio, the Baldwin Solid Body, aka Electric, Harpsichord!
- Combo X~705 Space Organ An inspirational Frankensynth monster: an all-in-one Hammond clone, synthesizer and Rhapsody 610 string ensemble!
- Itsy Stereo/Phase Inverter L/R channel flip, cv-controllable 180° stereo inverting width adjust, stereo phase inverters and phase correlation metering
- JPS Harmonic Synthesizer Vintage additive synthesizer emulation, based on the ultra-rare RMI keyboard
- Lolth CV Delay Splitter 4x4 channel cv splitter with independently adjustable gain and inversion controls, channel delay, and mirroring
- Melodic Electric Glockenspiel The fabulous Czech keyboard, the deliriously delicious deep clang of the delightfully delovely Delicia Melodic
- Miranda CV Delay Merger 4x4 channel cv merger with independently adjustable gain and inversion controls, channel delay, and mirroring
- Mordred Audio Bypass Merger 4 x 5 channel stereo audio merger with independently switch-able outputs and auto-fade control
- Psyclone Dual Rotary Speaker An advanced and dedicated rotary speaker plugin, based on the Combo B3T rotary effect
- Shelob Audio Bypass Splitter 4 x 5 channel stereo audio splitter with independently switch-able outputs, mirroring, and auto-fade control
- Steerpike BBD Delay Ensemble Vintage style 6-tap BBD device, with multiple delay modes including parallel, serial, and reverse
- The Animus Shimmerverb Ensemble 6-channel shimmerverb, with algorithmic and convolution-based reverb into granular pitch-shifter
- Titus BBD Delay Line A lightweight 1U delay device featuring a single Steerpike delay line, with reverse
- Villanelle Killer Wah A convenient wah-wah device featuring multiple wah ranges, including several based on classic guitar pedals

ReFills

- Guitars vol.1+2: Stratocaster & Telecaster Multi-sampled guitars with slides, mutes, signature L6 effects and keyswitching
- Elements²: Vector Synthesis Workstation Massive patch collection featuring Korg Wavestation/MS2000, Waldorf Blofeld and Roland SC-8850
- Additions: Vintage Additive Synthesizers DK Synergy + Kawai K5m + Thor FM.
- Blue Meanie: Virtually an ARP2600 Thor and Kong-based analogue synth machine
- Kings of Kong Classic Drum Machines* the premier ReFill for Reason 5+, with over 50 classic beatboxes for Kong Drum Designer
- Retro Organs v2- Hammond B3 + Farfisa Combo Compact + Vox Continental in one brilliant ReFill. Also available for Reason Essentials
- B3 Tonewheels v1.5 the original 24-bit non-Leslie samples ReFill with advanced rotary speaker emulation
- Farfisa Combo Compact Deluxe v1.5 the complete set of original 24-bit Farfisa samples covering, both standard and Deluxe models
- Vox Continental v1.5 a complete set of original samples from the classic C300 organ, featuring original and extended Continental footages
- Hammond Novachord the near-antique pre-WW2 monster polyphonic valve synthesizer, in association with Hollow Sun
- Retrospective: 40 years of Synthesizer History Over 1Gb of vintage samples from synths and electronic keyboards licensed from Hollow Sun

For more information on these products and for direct downloads of the latest versions, plus a wide range of great Combinator skins, please visit **www.jiggery-pokery.com**