Overview
Different Drummer is a new kind of drum machine that uses the innate rhythmic power of waves to control all aspects of drumming using our patent pending Cyclophone Technology. Since waves are the primal source of all cyclical motion in the Universe, it makes sense to tap into them for musical purposes other than synthesizers. Not only can waves create sounds, they can play sounds and compose music too. We feel we have discovered the "Fountain of Drumming" and we are sharing our discovery with the world!

While this software is definitely fun to play with, real production is what it's for—saving wave patterns and combining them into sequences and recording tracks or as a live performance tool. It can also be used to inspire new ideas for drum patterns or rhythmic ideas for songs because, as you will find out, the variety of rhythms is nearly endless. If you are serious about your drum tracks, Different Drummer is a must-have tool! Pros can use the direct MIDI out and MIDI sync features to use this for much more than drumming, for example, to play complex musical wave patterns. You can also play other synthesizers and drum machines on your iPad.

Different Drummer is not a synthesizer. People often mistake Different Drummer for a Drum Synthesizer because of the Wave Controls. Different Drummer has little to do with how drums sound and everything to do with how they are played. As the name implies, Different Drummer is like having a drummer that plays drums in a fresh new way. The drum samples provided come to life under the control of Different Drummer's unique algorithms. In a bizarre way, it ends up being a new "macro synthesizer" because it can play samples in such a new way that the effect is a new sound. You can also import your own drum and non-drum samples for incredible results. This doesn't mean we won't build a drum synthesizer into future versions!

The Waves
The main saved module of Different Drummer is the Wave Set which is a collection of up to 8 Drum Waves, each of those composed of five Control Waves:

- **Note Wave:** Allows you not just to have plain drums, but also drums that change pitch inside an assigned scale. You won't believe the difference "tonal" drumming makes to your productions. With Different Drummer you set the key and scale of your drums and can change it on the fly for enhanced impact. After using Different Drummer you'll discover that many drums are out of tune with the songs they are used in creating subtle harmonic dissonance. Different Drummer samples have been tuned to a key pitch and can be transposed together or separately with ease and locking into one of over 70 musical scales.

- **Rest Wave:** Lets you create gaps in the drum pattern based on the interaction between a wave pattern and a line. The rest wave has a huge impact on the perceived rhythm since it determines where notes can play or not play.

- **Tie Wave:** Lets you create rhythmic variations that tie drum notes together or break them apart based on waves. Tie waves have an intense effect on rhythms and are reliant on the wave's assigned beat-value that determines how fast or slow untied notes play.

- **Dynamics Wave:** Lets you control the loudness or velocity of drum strikes creating a very human feel. Slower dynamic waves create crescendos while faster waves can create complex accents.

- **Panning Wave:** Lets you control the left-right position of drums dynamically creating interesting spatial effects.
Each of these component waves is composed of a Fundamental wave and 6 partials of that fundamental, making for an astronomical set of variables that allow you to dial in any rhythm imaginable and many more that are unimaginable—the whole point of Different Drummer.

The Interface

Different Drummer functionality is conveniently packed in to an easy-to-use interface broken into three main sections:

The Scrolling Visualizer at top shows drum notes as they are played so you can get an idea of which voices are doing what in real-time. Vertical lines depict measures. Above this area are a few controls for: Master Tempo, to Capture the current Wave settings if you like them and the all-important Play-Pause button. Use the Range Control to limit final output of each voice to a specified range. Bring up the Piano Transposer to change drum or musical keys on-the-fly.

The Touch-enabled Wave Display is an important section where the currently active editing effects are shown. Pinch the wave to change frequency or slide it to change position or phase. Zoom in or out on a wave using the + and – buttons to see how it looks over 1 measure or up to 16 measures or, when in Grid Mode, switch between measures of your loop pattern. Above the Wave Display is the Wave Selector which allows you to select, solo and mute waves. The White selector is used for any actions or adjustments you want to perform on all the waves at once. Toggle into Grid Mode to capture the wave in a traditional fixed grid loop up to 16 measures long. When in Grid Mode, you can override the wave and add, delete and move notes as desired. You can combine grid and non-grid voices.

The Control Area at the bottom (right when in landscape) of the screen is where most of the action takes place. This is where you construct and explore wave patterns and save them as well as make sequences or set up automation. You can also export wave sets as MIDI files to be used in other applications via the iTunes Documents Panel or email.

On the right side of the Controls is the Control Switcher that is used to move between different control panels.

Wave Control sliders let you dial in an endless variety of note, rest, tie, panning and dynamic settings that work together to create distinctive drum patterns never before possible. We provide convenient randomizers to help you explore the vast array of possibilities which you can then tune to your liking and save or record.
The icons for switching between the different Control Panels are as follows:

- **Wave Controls**: To Adjust all wave parameters
- **Automation Controls**: To create automated morphing sequences based on randomization
- **Control Sounds and Scales**
- **Control Grid Mode** settings
- **Mixer**: To add effects and alter the volume of the drum tracks
- **Wave Manager**: To save, load, rename, delete and export wave sets
- **Sequences**: To string together wave sets to create compositions for live playback or recording
- **Setup**: To control MIDI and Audio outputs and other general settings

**Possible Uses for Different Drummer**

- Quickly create credible, copyright-free drum parts and share them between projects, 1 track or 8 tracks at a time
- Create next-level drum parts perfectly tuned to your songs and hear the difference.
- Idea generator/scratchpad obliterates writer’s block
- Create rich backing tracks for layered electronic music
- Live performance
- DJ mixing
- Dubstep and Hip Hop
- As a MIDI controller for either drums or music
- Stay ahead of deadline production schedules
- Commercials and promo materials
- Experimental music
- A new kind of arpeggiator
- Algorithmic Raves
- Entertainment/relaxation, set it on automate and sit back

**The Wave Editor**

This important panel is used to edit all aspects of a Drum Wave or all Drum Waves at once. There are five Control Waves that govern the behavior of a single Drum Voice. They are the basis of the theory of Different Drummer which comes out of Holistic Tonality Theory and derives from other Techné Media software such as Cyclophone and HyperChord. These Control Waves are:

- **Note Wave**: This wave controls the pitch of a drum. For plain drums, use a flat wave here. The midline is middle-C.
- **Rest Wave**: This wave controls where drums cut in and out. Anything above the midline is a rest and thus silent and below the line plays
- **Tie Wave**: This wave controls whether consecutive drum notes are tied together or played separately. Anything above the midline is untied and anything below will be tied together (legato).
- **Dynamics Wave**: This wave controls the loudness of the drum notes when they play
- **Panning Wave**: This wave controls the left-right positioning of drum notes
All waves are governed by 12 Parameters which shape the waveform:

**Beat Value:** Determines the value given to untied notes or in the case of Grid Mode, the grid resolution for a looping pattern. Tap the small Q to toggle quantize on/off. When unquantized, notes will play more exactly when the wave dictates instead of waiting for the next available beat.

**CPM/MPC:** Cycles per Measure or Measures per Cycle which in mathematical terms is akin to Wavelength. Since this wavelength is expressed relative to a fixed musical unit of one measure, it really controls the Frequency of the Fundamental wave. The Fundamental wave is the main wave and all the other adjustments are related to this "Carrier Wave." As wavelengths get longer than one measure, the label switches to Measures per Cycle to indicate a longer period. PINCH in the Wave Display area to change the CPM value or use the **CPM Wheel.** You can type in a precise number too.

**Phase:** This determines where in the wave's cycle it starts. Use a single finger swipe in the Wave Area or use the **Phase Wheel** to adjust. You can type in a precise value. See below for full details.

**Shape:** Determines if wave is a smooth sine wave or abrupt square wave or one of two saw wave types.

- **$f/2$:** this determines the amplitude of a half-frequency wave that is added to the fundamental CPM wave.
- **$f$:** this determines the amplitude of the fundamental wave at the current CPM.
- **$f_2$:** this determines the amplitude of a two-times-frequency wave that is added to the fundamental CPM wave.
- **$f_3$:** this determines the amplitude of a three-times-frequency wave that is added to the fundamental CPM wave.
- **$f_4$:** this determines the amplitude of a four-times-frequency wave that is added to the fundamental CPM wave.
- **$f_5$:** this determines the amplitude of a five-times-frequency wave that is added to the fundamental CPM wave.
- **$f_6$:** this determines the amplitude of a six-times-frequency wave that is added to the fundamental CPM wave.

**Position:** this shifts the wave up and down.

---

**Scroll Wheel Controllers**

These controllers give you more precise control than a slider. For finer control, touch in the center and move left or right. For course control, touch on the edges and move left or right. Phase is circular so it will go back to the beginning or end when you reach the limit. Tap the plus or minus to change by discreet increments.

**Note Wave**

Above is an example of a simple 2-cycle per measure wave where only the Fundamental Wave is given some amplitude. By adjusting other sliders, the wave form can become more complex and less predictable, though it always creates a repeating pattern, making it suitable for drums.

By giving waves odd frequencies (CPM) they can be made to repeat in ways that create endless variation between the voices since each voice has independent frequencies.

A dashed line indicates there is a rest wave in effect that is "eating away" at the note wave based on separate parameters. To control the rests, switch to the Rest Wave.

To produce a plain drum that doesn't vary in pitch, simply flatten the wave by moving all the $f$ sliders to zero or by tapping the 0 button.
If you do give the note wave any amplitude, it will start to apply new pitches to your drum according to the currently selected musical scale which is selected from the Scale List, Dorian shown below.

### Rest Wave

Controlling the Rest Wave is identical to the note wave: CPM, Phase, various amplitudes and position. However, in this case the wave has a different meaning and wherever it touches or goes above the midline, it carves a rest into the drum. You can use your fingers directly on the wave to position it or use the sliders. Adjusting the rest wave only affects the gaps in the main note wave but has no other effect on that wave.

Phase and Position are very important in the Rest Wave as they can greatly effect syncopation.

*Beat Value has no effect on the Rest Wave.*

### Tie Wave

The Tie Wave works similarly to the Rest Wave except in this case, wherever the wave goes above the midline, it Unties the notes. So wherever the dashed line appears darker, it is tied. Where it is brighter it is untied. When it is tied, if two notes in a row are the same, it won't strike the second note but will sustain it like a musical tie does. If it is untied, of course it will strike a new note whenever it encounters one.

This can be very much effected by the **Beat Value Slider** next to the wave selector because that determines how often it tries to play a new note.

### Dynamics Wave

The Dynamics Wave simply causes the notes to be played louder or softer according to the con-
tours of the wave. By creating interesting shapes in the dynamics you can create a very human feel and when combined, all five waves produce an astounding variety.

The combined effect of above four musical waves is shown in the drawing of the wave as follows in the Color of the selected wave:

- **Notes**: the Y-position
- **Rests**: the Gaps in the dash
- **Ties**: the Brightness
- **Dynamics**: the Thickness

### Panning Wave

The Panning Wave works similarly to the other waves except it controls the stereo positioning of drum notes dynamically. You can use it subtly or in a radical manner making drums jump around in interesting ways.

- Tapping this button will randomize all the waves (Note, Rest, Tie, Dynamics, Panning) for the currently selected Voice(s). Lift your touch outside the button to reset the voice.

- Tapping this button will Randomize only the current wave type for the current voice.

### The Wave Manager

Use this panel to save Wave Sets that you’ve created and load up or delete those that you have saved. At any time, you can come to this panel and save the current Wave Set by typing in a name and tapping the **Save** button (Blue Down arrow). A Wave Set is the sum total of each of the colored waves (up to 8). First give your Wave Set a name in the top left text field before saving.

- **Load** waved sets by selecting a name from the list and tapping Load button (Green Up arrow).

- **Delete** Wave Sets by selecting it from the list and tapping Delete (Red X).

To **Rename** a Wave Set, select it in the list and immediately type in a new name before editing the wave. The Save button will turn into a Name button when this functionality is active.

To convert the currently active Wave Set into a **MIDI file** of \( n \) measures duration, first type the desired number of measures into the Measures field, then tap the Make MIDI File button. You can Delete a MIDI file by selecting it and tapping Delete.

**Email** or save to **Dropbox** and selected wave preset by tapping the respective icon.

**Create Folders** with the Folder Button, first give it a name. Then you can tap Edit to drag items just past the Folder row to place them in a folder. Remove them from a folder by doing the same within a folder or delete the folder and the items will move out a level.
The Sequence Manager

Use this panel to string together wave sets and create sequences which can be used in performance or recording.

To create a **New Sequence**, tap the Blue-green Plus Button and type a name into the field that appears. Then select Wave Sets from the available Wave Sets List in the middle and enter in how many measures you would like it to repeat to the right of the name field. This number will appear like 4x to indicate 4 times (measures).

Tap the curved Plus button to add your Wave and duration to your sequence. Continue adding until you are ready to save and then tap the Save button to finalize.

Your new sequence should appear in the left hand column.

At any time you can select saved sequences and then play them by tapping the **Play Sequence** button or modify them and hit Save again to update the file.

Remove any selected Wave Set in the Sections List by selecting it and tapping the curved Minus button.

Delete a Sequence by tapping the Delete button after you select a sequence from the Sequences List.

You can also convert sequences into MIDI files for use in other applications.

Automation Controls

Use this panel to make Different Drummer automatically create new drum patterns after a certain number of measures.

**Automation On/Off:** If on, then automation will take place as soon as you hit play or if already playing will kick in.

**Morph:** causes the randomization to be less drastic, only changing a few parameters while keeping others.

The **Dice** slider determines the level of randomization to apply. You can also tap the dice to force a new randomization.

**Randomize After** determines how many measure go by before it randomizes the waves.

**Return After** determines how often the automation will return to the original theme to start over. The original theme is captured at start of Automation.

The three switches at the bottom are respectively:

**Beat Values** will randomize beat values
**Drum Sounds** (select which drums to chose from to the right)
**Mix** to randomize the mix within the starting voices
**Panning** to randomize the panning wave

If switched on, these will be included in the randomization, otherwise they won't.
The Mixer

Match the color of the voice you wish to adjust and then move the corresponding slider from 0-127.

Master Volume is controlled by the White slider

The Master Reverb Slider controls the amount of reverb applied to the master mix. For a drier mix move it more to the left and wetter, to the right. You can assign individual effects to each channel by using the Effects Selector:

- **Volume**: the channel volume
- **Reverb**: the amount of reverb for a given channel
- **Filter**: A Low-pass filter that will cut more bass frequencies as you go higher
- **Distortion**: a Toggle for adding channel distortion. Will be improved in the future.

Switch **Grid Mode** on or off (you can also use the Grid Button in the Wave View area).

**Grid Resolution** determines how many notes to allow per measure.

**Loop Length** determines how many measures to give your pattern for this channel. Each channel can have its own loop length and grid resolution.

When in Grid Mode and **Note Wave view**, you can drag notes up and down or double-tap to toggle them. You can copy one measure to another using Copy and Paste.

The Sounds and Scales Panel

Use this panel to control the sound that is used for each voice and the scale to use.

Sound Category buttons are used to scroll to related types of sounds: Bass, Snare, Toms, Hats, Cymbals, Skin Drums, Percussion, Tonal instruments, Effects and Custom sounds you import respectively. If the White Wave selector is on, then the same sound will be assigned to all channels.

Scales (or Modes) can be assigned to each channel or if **Global** is on, all channels will get the assignment.

**Key** is a global setting and can also be controlled using the Keyboard in the Scrolling Area.

Add Custom Sounds by tapping the Blue-green Plus button (see below).

Select random sounds or scales by tapping the Die buttons at the top right of the lists.
The Settings Panel

This is used for general settings that apply mostly to the output of Different Drummer.

**Output:** Select whether you want audio, MIDI or both for output.

**Channel Mode:** Select how you want MIDI channels sent; either 1 thru 8 corresponding to the waves or Specified where all output goes to one channel. When 1 thru 8 is selected the Out Channel Slider will be disabled.

**Out Channel Slider:** Controls the channel to use for single channel output.

**Send MIDI Sync:** Determines if MIDI Sync is sent 24 times per Quarter Note. It also enables/disables the Start/Stop Sequence MIDI signal.

**Run In Background:** Determines if it’s OK for Different Drummer to keep playing while not being the front app. If you use it with Audiobus, leave this on.

**Time Signature:** This really only affects MIDI files since you can adjust waves to any time signature imaginable.

**Swing:** Adjust this to “swing” eight notes more or less.

**Auto Downloads:** When on, Community Presets will be loaded immediately after downloading.

**Reset Audio:** Use this if you are experiencing audio issues.

**Dropbox Status:** Use this button to connect or disconnect your Dropbox Account. When the Green Check appears, it’s connected.

All settings are saved in your preferences.

Adding Custom Sounds

When you are in the Sounds Panel, you can Tap the Blue-green Add Button to bring up this panel up top. If you have copied some sound from a supported app, your can give it a name and the tap the Paste New sample button and the sample will be added alphabetically to the bottom of your sound list. If your Dropbox account is linked and you have a folder called Samples in the Different Drummer App folder, any WAV or CAF files in that folder will appear in the list on the right. Select a sample and tap **Download from Dropbox.** You can rename the sample as you wish it to appear in your list by entering the name.

Custom sounds can be deleted by tapping the Trash Can icon in the sounds list. Any Presets using that sound will load a default drum for deleted samples.

Recording Audio

Recording can be done in one of two ways:

- **Manual Recording** of either an unknown length of a pre-determined length
- **Record a Pre-determined Length** of music with automated start and end

To set a **Recording Limit**, tap the red **Recording Limit Button** to the left. The Text fields will become active for you to enter in the desired limits. Tapping it again will capture the setting. You can set limits by Minutes and Seconds or Measures and Beats by tapping the **Recording Limit Type Button**. Tapping the **00** button will reset the Recording Limit to zero, or Unlimited.
When Recording is set to Unlimited, you need to manually stop recording when you are done. Commence recording in one of two ways:

**On-the-fly:** while playing, tap the Record Button and recording will begin immediately. If no limit is set it will continue recording until you tap Stop Record (flashing Red Square).

**Controlled:** while stopped, tap the Record Button and it will turn Orange. Tap the Play Button to begin recording or tap the Record button again to cancel the action.

When recording has stopped, you will see the Recording Manager appear up top.

At any time, while stopped, you can get to the Recording Manager by tapping the Record Button.

Here is where you can listen back, rename and delete recordings as well as export them.

To **Rename**, simply select a recording from the Recording List, type in a new name and tap the Name Button.

To use a recording in another application, you can either try the various Copy and Paste buttons to see if they work with your target app. Otherwise you may want to save the recording to your Dropbox account (free) and access it from there.

**Wave Selectors**

Tap one of these color-coded Wave Selectors to make a wave the current wave (it will display a white outer border). Use a sliding motion to toggle a wave on/off or long-hold a touch to solo/unsolo a wave. When you select the White Wave Selector, anything you do will effect all waves at the same time.

Whenever you tap the community icon (above), the Community Panel will appear up top. If you don’t have Internet Access, then it’s pretty useless since it reaches out to our server to get news, preset lists and feedback. You also can’t post presets without Internet access on your iPad.

The Community has three main functions:

To give access to free presets that other users are kind enough to share
To display messages and news about Different Drummer
To allow users to provide Feedback about Different Drummer

You don’t need to log in to download presets but if you want to upload them or add feedback, you need to be logged in.

In order to Log In, you first need to **Register** using the Register Button. To register, tap the Register Button. Just make sure to give yourself a nice user name as this is how others will see you. You can actually register multiple identities if you want but they have to have unique email addresses.

You usually only need to log in once using your email and password provided at registration. Your User Name will appear in large letters up top.

To **Upload Presets**, first select a preset from your Wave List. Then, please select an appropriate category in the blue selector and tap Upload Preset. If Public is turned off, only you or those that follow you will be able to see your preset.

Submit Feedback by typing into the Feedback field and tap Submit Feedback.
You can delete your presets at any time by tapping the “Mine” tab in the Community Preset List and then tap the Red X.

Sort Presets by Time, Likes or User using the icons to the right of the list. Tap it twice to switch order.

Capture Wave Set
Tapping this button will save the current wave set using a YY-MM-DD-hh-mm-ss naming convention. You can rename it later (recommended).

Tempo Controls

| BPM: | -+ | 100.0 | TAP |

Tempo is expressed in **Beats Per Minute** (BPM). This is how many quarter notes play in a minute. Use the BPM Stepper to raise or lower the tempo. Holding your finger on the button to accelerate the rate change.

Tap on the BPM number to enter a precise value or alternatively, tap a rhythm you are trying to match using the Tap button. The more you tap, the more accurate the average is.

Tap the “BPM:” label to set the current BPM as the default. This will be saved and when you tap the New Wave set button, it will use this BPM.

Ranger Controller
Slide the top or bottom thumb to limit the final output range for a given voice or all voices if White is active. Move the whole range around by touching in the middle and sliding up or down. By setting top and bottom on the same note you can force Different Drummer to play only that note, regardless of the musical scale or key.

New Wave Set
Tapping this button will effectively return you to the default wave set, leaving current voice assignments intact.

Tapping these buttons in the Wave Panel will set the wave to a simple division of the measure corresponding to the number or in the case of 0, flatten the wave. Releasing outside the button will give an alternate value.

Composing Presets

There are no set rules for creating wave presets but it can be frustrating for beginners to “tune in” an exact result. We suggest taking a more exploratory approach, taking advantage of randomizers and **automation** to find something interesting. Then use the Capture Button (camera icon) if you hear something you like. You can then later tweak your captured wave.

When you do know exactly what you want, we recommend trying the Grid Mode where you can set drums/instruments on exact beats you want. However, you may want to play with the Wave controls while in Grid Mode where you get the best of both worlds. You can then adjust, add or remove notes once they have been captured in the grid.

The Rest Wave is a powerful influence on the rhythm and often making small adjustments to the Phase or Position can be the difference between a good rhythm and a great one.

Dynamics is one of the most important tools in the musician’s toolbox. Use the Dynamics Wave liberally to bring more expression to your beats and breathe life into them. Without this, music gets dull and monotonous quickly.

One great way to learn Different Drummer is to study what others have done by downloading Presets from the Community.

When composing presets to upload to the Community, we recommend that you compose all 8 channels, even though some might be turned off. That way users can turn them on to add enhancements that create nice remixes of your main composition.
A Note About Presets and the Future
Presets consist of a file that stores your saved settings and any samples you may have included. Keep in mind that even though we try to make sure presets will play exactly the same way as they did when created, it is possible, over time, for algorithms to slightly change (due to fixed bugs, iOS changes, deleted samples or additional abilities) so older presets may not sound exactly the same even if off by a tiny amount. It’s almost impossible to maintain perfect backwards compatibility with this type of algorithmic method. That said, we will only alter algorithms when it is absolutely necessary and we recommend recording loops or standard MIDI files for those presets that you are most fond up to preserve them as they were.

Copy and Paste
In most cases, to duplicate the settings from one track to another, first tap the Copy Wave button (arrow going up). Then select another track using the Wave Selectors and Paste with the other button. However, when in Grid Mode, and on the Note Wave, it works differently. Here it will only copy one measure of your pattern so you can copy it to other measures by using the Plus and Minus navigators.

Undo and Redo
For many changes you can perform to a wave, including randomization and slider changes, Different Drummer first captures the current state so you can usually undo your last change by tapping the left arrow. Inversely, you can then restore back to the changed version by tapping Redo. This can be useful for comparing two settings.

Zoom and Navigate
Tapping these while in Wave Mode will allow you to zoom in or out on your pattern to see how it looks over more measures (up to 16). When in Grid Mode these buttons change functionality to allow you to step through measures of your grid pattern.

Phase Control Tools
Tap the Phase Label to reset phase to Zero.
Tap the Number to manually enter a value.
Tap the Note Icon to bring up the Shift Selector. Select the desired value from the available choices, the smallest of which is the default 1° value. Once set, the Note icon will change to the value you selected and then whenever you tap the + or the - buttons, the phase will be shifted by exactly that amount. The Red X will close the selector with no changes.

Phase has a drastic effect on any of the waves because it moves the wave left and right. Phase values perfectly correspond to beat values since all waves are expressed in Cycles Per Measure and degrees represent precise divisions of a measure just like note duration values:

<table>
<thead>
<tr>
<th>Degrees</th>
<th>Note Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>360°</td>
<td>Whole</td>
</tr>
<tr>
<td>180°</td>
<td>Half</td>
</tr>
<tr>
<td>120°</td>
<td>Half Triplet</td>
</tr>
<tr>
<td>90°</td>
<td>Quarter</td>
</tr>
<tr>
<td>60°</td>
<td>Quarter Triplet</td>
</tr>
<tr>
<td>45°</td>
<td>Eighth</td>
</tr>
<tr>
<td>30°</td>
<td>Eighth Triplet</td>
</tr>
<tr>
<td>22.5°</td>
<td>Sixteenth</td>
</tr>
<tr>
<td>15°</td>
<td>Sixteenth Triplet</td>
</tr>
<tr>
<td>11.25°</td>
<td>Thirty-second</td>
</tr>
<tr>
<td>7.5°</td>
<td>32nd Triplet</td>
</tr>
<tr>
<td>5.625°</td>
<td>Sixty-fourth</td>
</tr>
<tr>
<td>1°</td>
<td>1/360th measure</td>
</tr>
</tbody>
</table>
Troubleshooting

Voice Not Playing
The most common cause of a voice not playing is the wave settings themselves. Everything that plays has to meet certain conditions in order for a given note to have “permission” to play. Just because it appears in the Wave View or the Scrolling Display doesn’t guarantee this condition is met, especially when “Quantize” is on. The internal “beat clock” is like the Master Grid that everything is checked against and there are times when your settings just happen to not line up with the clock. The longer the Beat Value, the simpler the wave should get to accommodate. If you are trying to play half notes when your wave is complex the “go” moment for your notes may not correspond to the half note go moments. Try either simplifying the wave or speeding up the beat value or turn off the Quantize for that wave.

Notes that are tied will only play once at the beginning and can often not get played, especially if they are of longer beat values.

Rest and Tie Waves, Beat Value and Quantize have the most effect on whether you will hear notes or not.

No Sound at All
Make sure your mute switch is not on if you don’t have a headphone jack plugged in. Also, check your sound settings in the Settings of your iPad. Sorry, if the audio is a little soft when playing on the iPad speakers, we’ll try to improve that but we certainly recommend speakers or headphones that can do justice to the booming bass of the drums. In fact be careful not to turn it up too loud if your speakers are not ready for prime time!

If a voice drops out after the app is dormant for a prolonged period, you may have to restart the app by going to the springboard and double-clicking the home button and doing a long hold on the Different Drummer icon (or swipe in OS7). You can also restart the sampler by tapping the Reset Audio button in the Settings Panel. Also check to see if your voice has been turned down in the Mixer or if you have turned off Audio Out in the Settings Panel.

Better Performance
Make sure to quit unnecessary apps that are running on your device to free up as many resources as possible. Try tapping the little pause button for the scrolling graphic which can improve performance, especially when all voices are playing. Unlike other types of drum machines, this one is a real-time generator and so it is sensitive to other things that hog up the CPU though we have tried to optimize it.

If you are experiencing glitchy sound with Audiobus, try switching to the 512 frames setting in Audiobus. Also, check to see if you have channel effects applied as sometimes these can use more CPU cycles than are really available. Turn some or all of them off for best performance.

Application Quits
iPad shares limited resources among all apps so the more apps you have running, the less to share. iOS looks for apps that are not in use and sometimes makes a decision to jettison them to free up memory so they are essentially killed. That is the most common cause of Different Drummer quitting. To mitigate this, start fresh, run the bare minimum of apps and don’t leave it in the background unused too long.

Sharing Presets and Ownership of Your Work
It is our position that presets and recordings you create with Different Drummer belong to you, especially for artistic purposes and the only thing we don’t allow is for you to create a business selling Recorded Presets as drum loops in a way that would undermine our sales, which is unlikely.

Keep in mind however, when you decide to Publically Share your presets, those become public domain, including any samples you provide. “Public” in this case only means other DD users since it’s a closed community. We don’t prevent users from modifying your presets or even creating new ones using your samples so share presets in the true spirit of creativity and hopefully enjoy how your presets can be altered as cool variations. When you Tap New, your identity is stored in the preset and that can not be altered so we will try to maintain a thread to the originator in future versions. Also, if you delete a preset from the community,
this will have no effect on copies that may have been downloaded to other users devices.

**Tech Support**
You can email support questions, suggestions, comments, etc. to:
   support@technemedia.com

**Credits**
Different Drummer has evolved over many years in a natural process of refining ideas both internally and from our customers. We like to acknowledge these contributors both for their kind support of our product and their ideas and feedback that have served to improve it:

   Michael McClard
   Nick Trass
   Florent Roux
   Russell Bradley
   Hermann Asakura
   Mauro Sgrilla
   Marlene DeGrood
   Bianca Smith