

Octavian

Keyboard Calculator

User Guide

Whether you are a music student, a three-chord rocker, a jazz master, or first violin, **Octavian** puts vital music theory at your fingertips. Find, see, and hear over 500 scales and dozens of chords.



Universal app for the following iOS devices:

iPod touch
iPhone 3
iPhone 3GS
iPhone 4
iPad

Supports iOS versions 3.1 and later, including 4.2

BITNOTIC

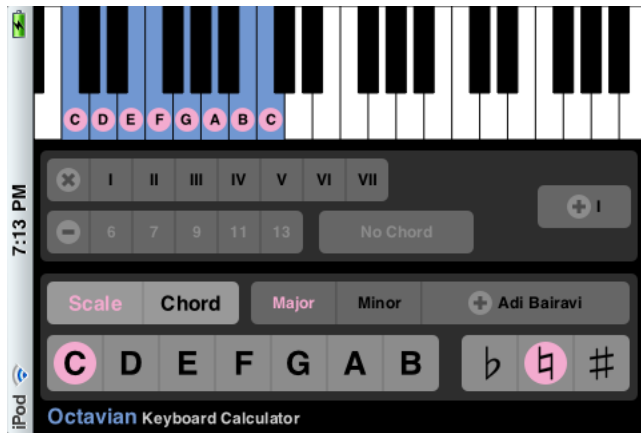
<http://www.bitnotic.com>

Basics

Octavian presents many music theory concepts on a compact screen, putting most of this information just a tap away. The main screen is divided into three sections:

- **Keyboard** Shows the notes in the scale or chord.
- **Options** Additional settings for the current scale or chord. These controls change depending on the context.
- **Scale | Chord** Choose the current scale or chord and its root note.

Octavian Default Screen



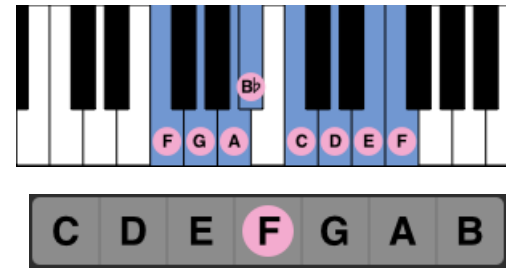
Root Note

Both scales and chords have root notes. For example, you have a C major scale or an F# minor chord. Octavian breaks the root note into two controls: one for the note and one for the accidental.



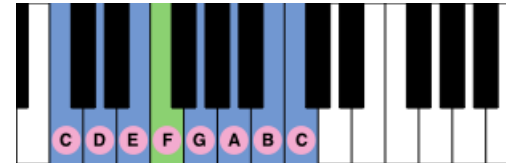
The **C D E F G A B** buttons select the root note for the scale or chord. Use the accidental buttons (b , \natural , \sharp) to modify this note with flat, natural, or sharp.

Ex. F Major Scale



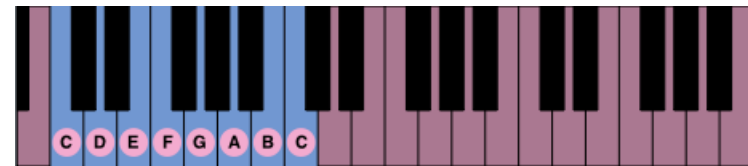
Piano Playback

Whenever you change the root note, scale, chord, or other setting, that new scale or chord plays using Octavian's high-quality piano samples. As notes are played, they are displayed in **GREEN**.



Automatic playback is a feature called **Auto Play**. This is an option that you can configure in the **Settings**. See below for instructions for accessing and changing application settings.

To play the scale or chord again, touch the keyboard.



Additional playback options, including transposition, can be found on the **Settings** screen.

Scale | Chord

The mode control toggles between scales and chords. Simply touch one or the other. The rest of Octavian's controls change to show specific options for the mode.

Scale | Chord



Note Some features, like **Chord Explorer** and **Scale Explorer**, switch the mode automatically.

Scales

Scales are patterns of notes that form the basis of music's melodies and harmonies. When in **Scale** mode, you can view the notes in a scale, the chords in the scale, and the scale's different modes.

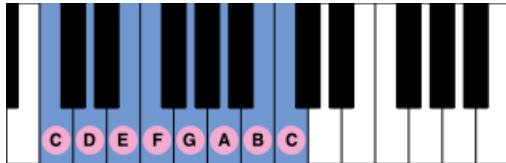
Scale | Chord, Scale Selected



Scale

The keyboard shows the notes in the scale, starting at the root note and ending on the root note an octave higher. The number of notes highlighted on the keyboard depends on the scale. Some contain seven notes, some six, others eight, and so forth.

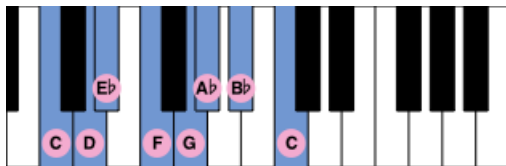
Ex. C Major Scale



When you run **Octavian** for the first time, you see the notes in the C major scale. Each subsequent time you launch the program, the scale that were you viewing when you quit appears.

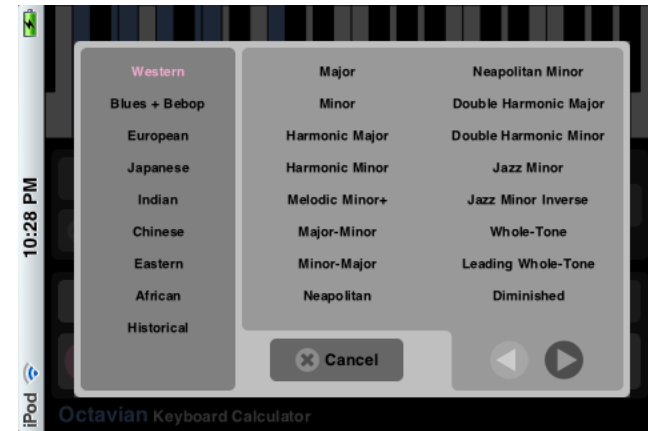
Touching **Minor** changes the highlighted notes to those in the minor scale.

Ex. C Minor Scale



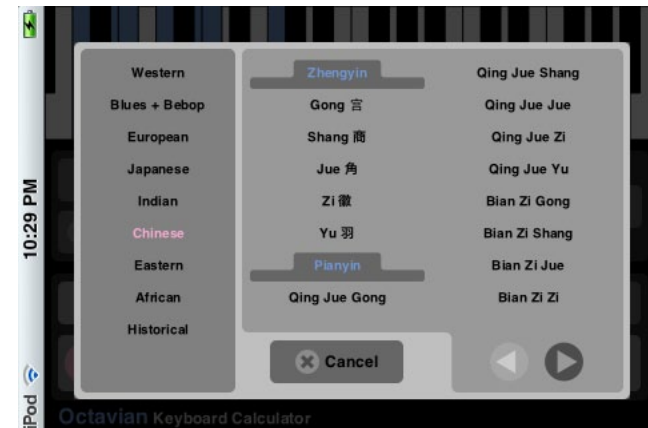
Touch the **Choose** button to open a dialog listing over 500 additional scales.

Scale Dialog

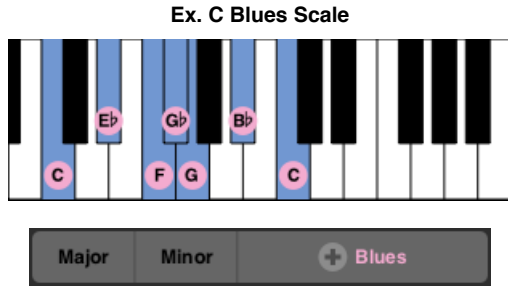


Scales are grouped into nine categories that either describe a geographical region or period in time. The current category is highlighted in the left-most column. Touch the name of a category to view its scales.

Scale Dialog, Chinese Scales



If the category contains more than two columns of scales, the scroll buttons are enabled. Touch the left or right button to scroll the list a column at a time. Touch a scale's name to close the dialog and view the notes in that scale. Touch the **Cancel** button to close the dialog without changing the current scale.



To view the scale dialog again, touch the third item. In the example above, it is **Blues**.

Ascending + Descending Forms

Scales that have different ascending and descending notes have a + next to their name in the **Scale** dialog. Only a few Western scales have this characteristic, but many scales from around the world do. For example:

Melodic Minor+	
Ascending	C D E♭ F G A B
Descending	C D E♭ F G A♭ B♭

Only the ascending notes are displayed on the keyboard, but when played back, the descending notes are sounded and highlighted.

See **Settings**, below, for instructions on switching playback mode to play both ascending and descending forms of a scale.

Modes

Scale modes create a new scale from the intervals that make up a scale by shifting the order of the intervals. Since the intervals between notes gives each scale its mood or feel, by transforming them, you create a new scale from the same set of intervals.

C Major Scale	Notes + Intervals
Mode I (Ionian)	C D E F G A B C
Intervals (Semitones)	2 2 1 2 2 2 1
Mode III (Phrygian)	C D♭ E♭ F G A♭ B♭ C
Intervals (Semitones)	1 2 2 2 1 2 2

In the above example, the interval pattern (2-2-1-2-2-2-1) is the same for both, but in Mode III, the notes start on the first half-step interval, flattening the II, III, VI, and VII intervals.

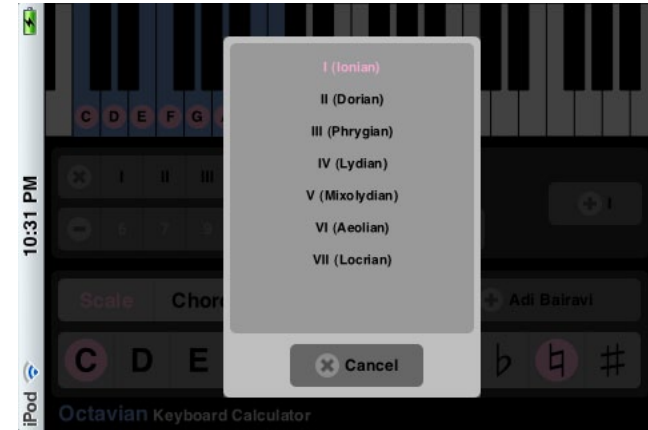
In **Octavian**, the current mode is indicated by a Roman numeral indicating the scale degree. If the mode is not I, the degree is highlighted. When you change scales, the mode resets to I.

Scale Mode



Touching the **Scale Mode** control opens a dialog that lists the possible modes for the scale. When known, the name of each mode (such as “Mixolydian”) is shown in parentheses.

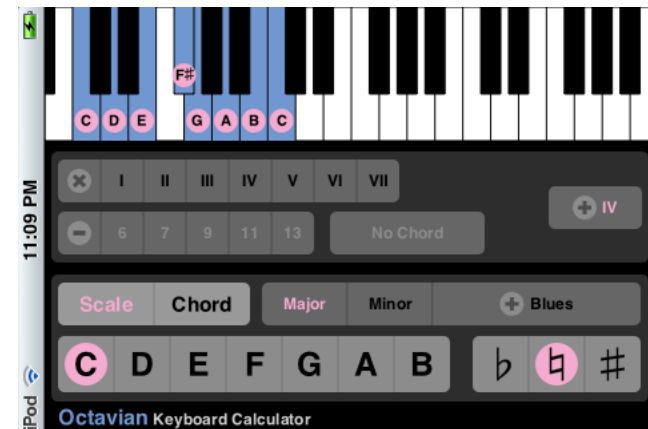
Scale Mode Dialog



To select a mode, touch its number (or name).

Touch the **Cancel** button to close the dialog without changing the current mode.

C Major Scale, Mode IV

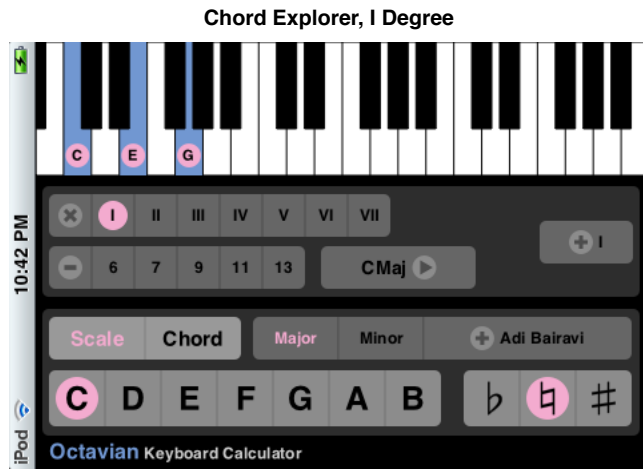


The **Scale Mode** control now shows “IV” and the F in the scale has changed to an F# on the keyboard.

Chord Explorer

Harmony in modal music (music built around scales) uses the notes in the scale to form chords. With **Octavian's Chord Explorer**, you can view chords built on each note in the scale. When possible, the chord's common name is displayed. You can add additional notes, like sevenths and ninths, to the triad to form more complex chords.

To view a triad, touch the scale degree that you want to build the chord on. The first degree (I) is the root of the scale. Depending on the scale, the chord will be major, minor, diminished, or augmented.



To show the notes in the scale again, touch the **Cancel (X)** button.

Interval Display

Octavian displays scale degrees according to the type of interval between that degree and the root. Depending on the scale, you will see a combination of the following Roman numerals:

Notation	Interval Type
I, II, III, IV, &c.	Major
i, ii, iii, iv, &c.	Minor
i°, ii°, iii°, iv°, &c.	Diminished
I°, II°, III°, IV°, &c.	Augmented

Substitutions

Some scales do not have all of the required notes to form one of the basic triads. For example, a scale with notes C B \flat F G D \flat is missing the E note that forms a C major chord (C E G). In this case, **Octavian** does the following:

If the 3rd is missing:

- If there is a 4th interval, makes a suspended fourth (sus4) triad (root, fourth, fifth)
- Checks for a 2nd interval and makes a suspended second (sus2) triad (root, second, and fifth)

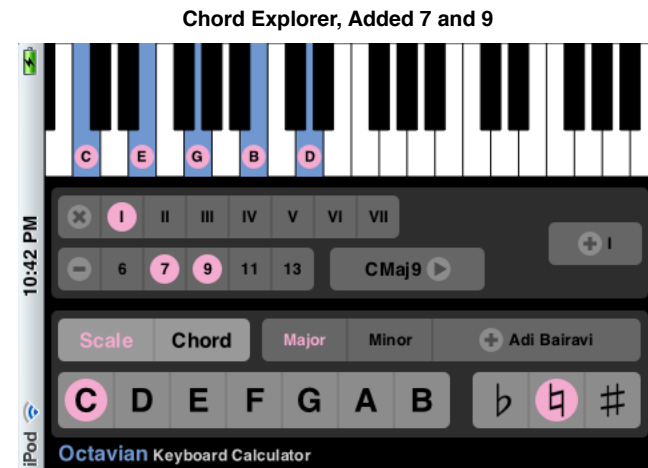
If the 5th is missing:

- Tries to add a 7th interval (the 5th is dropped). The chord then becomes a 7th chord, with an assumed fifth. This is a common harmonic substitution.

Complex Chords

While triads are the fundamental type of chord, meaningful harmony often comes from chords composed of four, five, or more notes. In **Chord Explorer**, you can add additional notes to the triad.

To add notes to the chord, touch the **6, 7, 9, 11, or 13** buttons. The numbers represent the interval between the root of the chord (not the scale) and the note. You can add any combination of these intervals to the chord. Some scales might not contain all of the intervals; in this case, the missing intervals are gray.



To clear all of the extra notes, touch the **Clear (-)** button.

Note If the triad drops the fifth and adds a seventh as part of a substitution, you will not be able to toggle the added seventh – it is always on for this particular scale degree.

When added notes extend past the upper range of the keyboard, the keyboard display is transposed down by an octave.

Exploring Chords

Whenever possible, **Octavian** identifies the chord you have defined in **Chord Explorer**. Chords are defined by the intervals between the notes they contain. A triad generally contains a root, a third, and a fifth. Depending on whether the third and the fifth are diminished, minor, major, or augmented intervals, the chord changes from major, minor, and so on.

Chord Explorer has three possibilities:

Chord Name

If **Octavian** can identify the chord, it displays the name of the chord. Names are standard abbreviations, for example, CMaj or F13. To view this chord in **Chord** mode, click **Go** (▶). This switches over to **Chord** mode and selects the root note and chord. There, you can change the root or see which other scales contain this chord.

No Match

Octavian features an extensive chord library, but ultimately there are nearly an endless number of chords. When the combination of the triad and additional notes you have added cannot be identified, **Octavian** displays **No Match**.

No Chord

If you have not selected a scale degree to build the chord on or you have touched **Cancel (X)** to clear the chord, you will see **No Chord** here. If there is a chord, but its root note is a double-sharp or double-flat, **Chord Explorer** displays the chord, but you cannot switch to it.

Chords

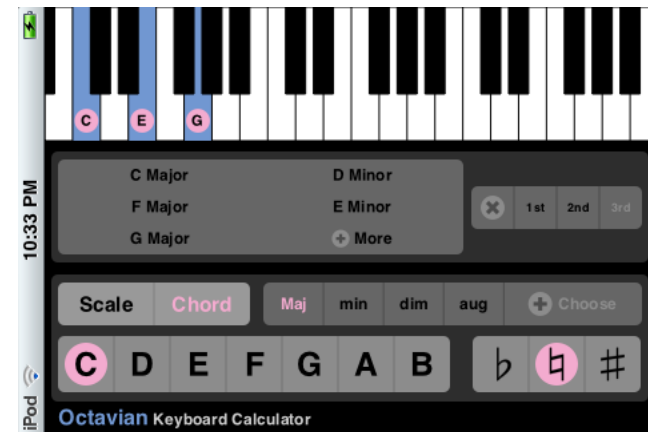
Chords are the building blocks of musical harmony. Different combination of three or more notes played at the same time elicit a wide range of emotional responses in listeners. You can use **Octavian** to quickly find the notes that comprise a particular chord.

Scale | Chord, Chord Selected



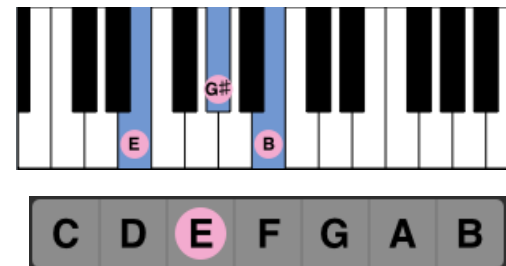
To switch to chord mode, touch the **Chord** button. Most of the controls switch over to chord-centered options, such as the chord chooser, inversion, and **Scale Explorer**.

Chord Mode



As in **Scale** mode, touching a note or accidental changes the root note, and, if **Auto Play** is on, plays that chord.

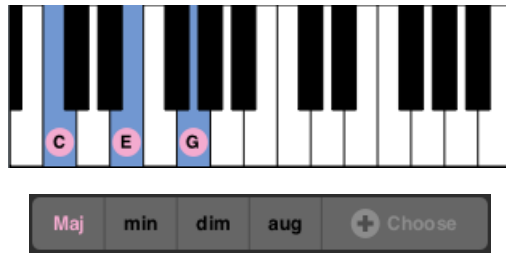
Ex. E Major Chord



Chord

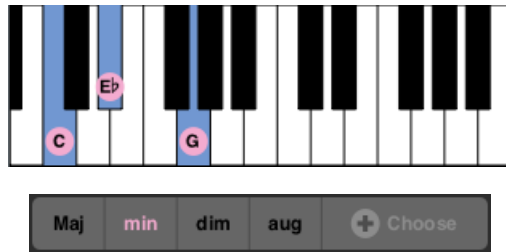
Octavian puts the most common triads a single touch away.

Ex. C Major Chord



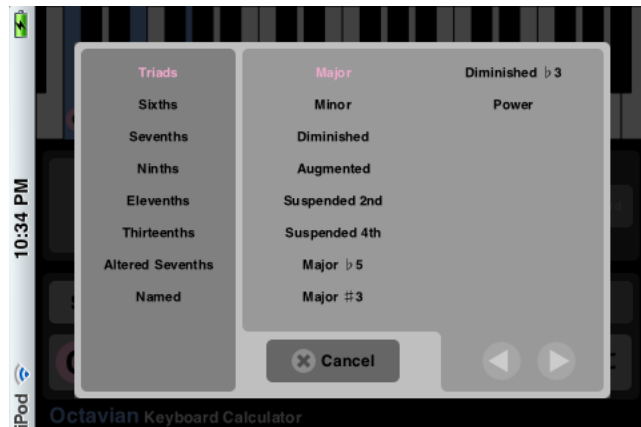
To view major, minor, diminished, or augmented triads, touch that item in the chord chooser.

Ex. C minor Chord



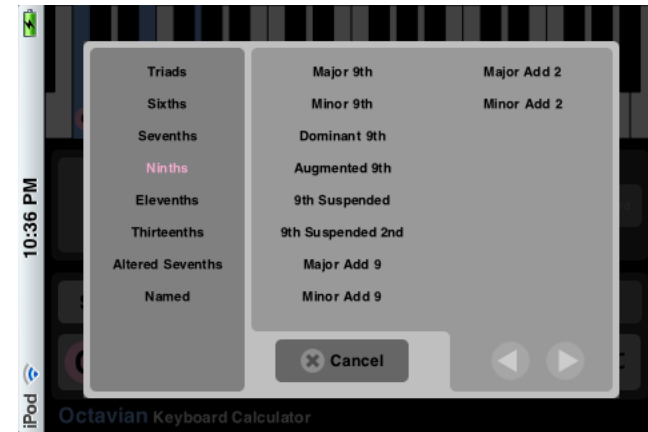
Touch the **Choose** button to open a dialog that lists an extensive collection of chords. Chords are grouped by category (Triad, Sixths, Sevenths, and so on).

Chord Dialog



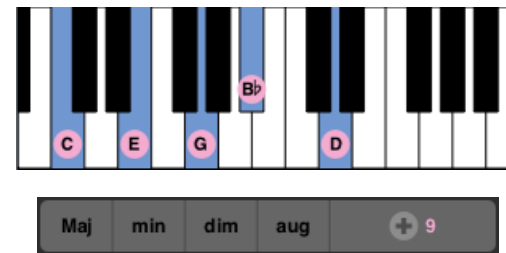
Touching the name of a category shows the chords of that type.

Chord Dialog, Ninth Chords



Touch one of the chord names to view the notes in that chord, or touch the **Cancel** button to go back to the previous chord.

Ex. C9 Chord



Inversion

An inverted chord has a note other than the root in the bass position. For example, the first inversion of a C major triad (C E G) moves the C root note to the third note (E G C) and the second note (E) becomes the bass note.

Chord Inversion



Third inversion is enabled when you are viewing a chord that has more than three notes.

To return the chord to root position, touch the **Cancel (X)** button. Switching chords also resets the inversion to root position.

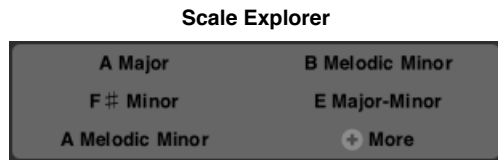
Note When a chord has a standard or common inversion, the inversion is selected

automatically. For example, some of the sixth chords are typically used with the sixth in the root position, so if you choose one of them, the inversion will be set automatically.

Scale Explorer

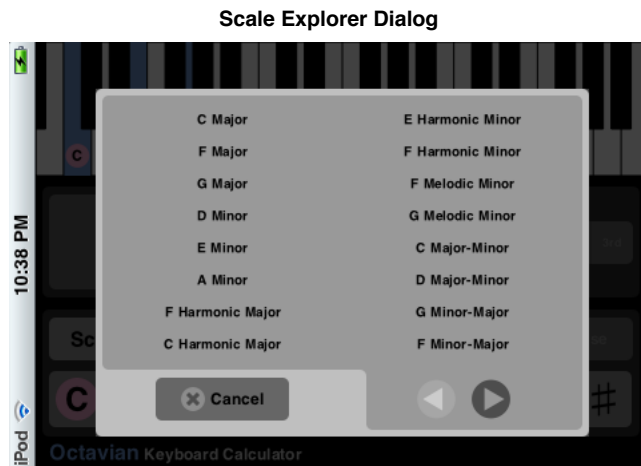
While classical music is typically modal, where the notes in the melodies and harmonies are found within a scale, jazz and blues music is frequently built around chords. Musicians will play a chord, and then solo around that chord. In order to do this, the soloist must be able to find a scale that contains the notes in the chord (and a few extra notes, for color). **Octavian** makes this task easy!

In **Chord** mode, **Scale Explorer** shows scales that contain the notes in the current chord. Scales are ranked by those that share the same root, then by those whose root is the fifth of the chord.



Touch one of the scale names to switch **Octavian** to **Scale** mode, where you can view the notes in the scale, transpose it, and so on.

If there are additional scales that match, the **More** item is enabled. Touch this to bring up a dialog that shows additional scales.



If there are more scales that match than will display in the dialog, the arrow buttons are enabled for scrolling. Touch them to scroll a column at a time.

Touch a scale's name to switch to that scale.

Touch the **Cancel** button to return to the previous chord.

Other Features

Octavian includes additional tools that musicians of all levels will find useful.

Circle of Fifths

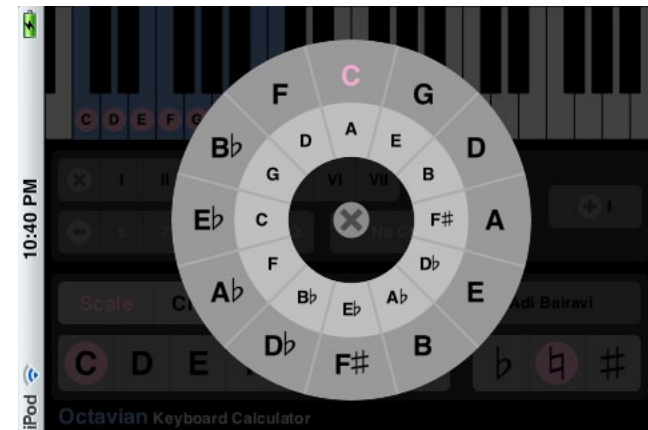
The circle of fifths is graphical representation of musical notes' relationship to each other. Specifically, it lets you easily transpose a scale or chord by perfect fourths and perfect fifths. These intervals are fundamental building blocks in modal music.

For scales, you can also easily identify the relative minor or major scale, which is a common transposition when changing keys within a piece of music.

Tap the current root note to bring up the circle of fifths dialog.



Circle of Fifths Dialog



The notes increase by an interval of a perfect fifth clockwise. Counter-clockwise, the notes move in perfect fourths. Any individual notes that have two or more flats or sharps are grayed out.

Touch the **Cancel (X)** button in the center to close the circle of fifths dialog and return to the previous scale or chord.

Scales

For scales, the outer ring of the circle of fifths shows the major modes of the scale, while the inner ring shows the relative minor modes.

Touch a note transpose the scale to the new root note. If the current scale is major, and you touch the minor ring (or vice-versa), the scale is also changed.

Note Some scales do not have relative major or minor modes, and in these cases,

the notes in the inner ring are grayed out. For example, the Neapolitan scale has a relative minor (Neapolitan Minor), while the Whole-Tone scale does not.

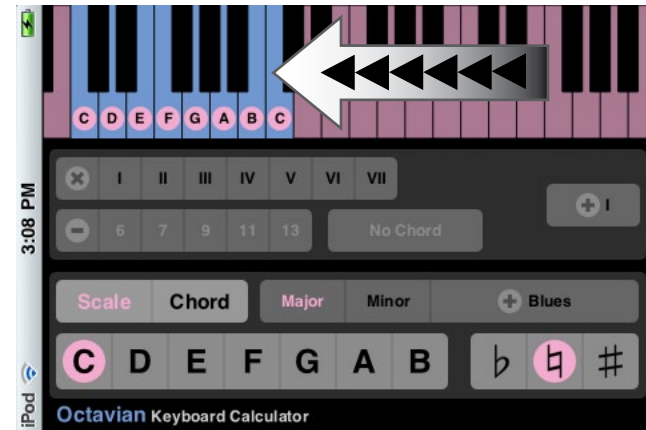
Chords

For chords, only the outer ring is enabled. Touch a note to transpose the current chord to a new root note.

Settings

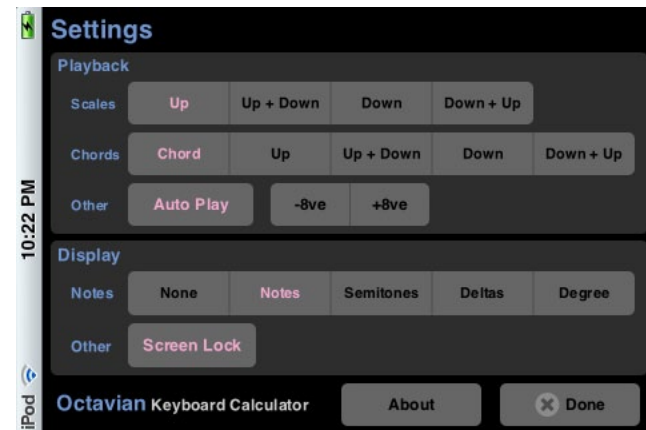
Octavian has many options you can use to change display and playback. To reveal the **Settings** screen, touch the keyboard and swipe to the left.

Swipe for Settings



A successful swipe shows the **Settings** screen, where you can access these options.

Settings Screen



Playback

The **Playback** group has options for Octavian's piano playback feature.

Scales

By default, scales are played one note at a time, going from low to high. You can configure this, though, using this control.

Setting	Notes Played
Up	C D E F G A B C
Up + Down	C D E F G A B C C B A G F E D C
Down	C B A G F E D C
Down + Up	C B A G F E D C C D E F G A B C

Note If the current scale has different ascending and descending forms, the ascending notes are played on the **Up** phase, and the descending notes played on the **Down** cycle.

Chords

Since chords describe harmonies, generally, you will want the notes to play simultaneously. However, if you want to listen to chords as arpeggios, you can. This setting applies to any chords sounded in **Chord** mode as well as chords played by **Chord Explorer** in **Scale** mode.

Setting	Notes Played
Chord	C E G (Simultaneous)
Up	C E G
Up + Down	C E G G E C
Down	G E C
Down + Up	G E C C E G

Other

This section contains general playback options.

Auto Play

Select **Auto Play** to start piano playback whenever you change the root note, scale, chord, or other option. Otherwise, to begin playback, touch the keyboard.

+8ve | -8ve

Transposes piano playback down or up an octave. This control is a three-state button. You can have one of the options, or neither, selected.

Display

The **Display** group contains options for the visual appearance of **Octavian** and behavior of the screen.

Notes

Octavian labels the highlighted keys on the keyboard. By default, the labels are the name of the note, but you can select one of several other options.

Setting	Example Labels
None	(none)
Notes	A B _♭ C
Semitones	0 3 6
Deltas	0 1 2 1
Degree	I ii iv° V*

Other

This section contains general display options.

Screen Lock

Your iOS device will lock its screen if you don't touch it for a set amount of time. Depending on how you use **Octavian**, you might want to temporarily disable this feature. Touch the **Screen Lock** button to enable or disable this iOS feature. When you exit **Octavian**, screen lock is restored to your system settings.

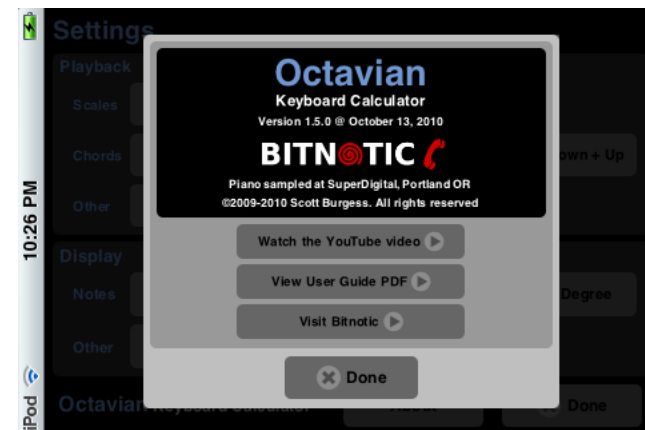
Done

Touch the **Done** button to return to the main **Octavian** screen.

About

Touch the **About** button to see information about the current release of **Octavian** and to access additional instructions and resources for learning how to use the software.

About Dialog



Watch the YouTube Video

Touch this button to view a detailed instructional video about **Octavian** on YouTube. This video shows how to use the features of the software.

Internet access (3G or WiFi) is required to watch the video.

View User Guide PDF

Touch this button to view this document on your iOS device. If you are running [Octavian](#) on iOS 3.2 or later, this feature uses Quick Look to display the PDF inline. Otherwise, it will launch the PDF as a URL on Bitnotic's web site, so Internet access (either 3G or WiFi) is required.

Visit Bitnotic

Touch this button to visit Bitnotic's web site (<http://www.bitnotic.com>), where you can find news and additional support for [Octavian](#), as well as information about other Bitnotic products. Internet access is required to view this web page.

Done

Touch the **Done** button to return to the **Settings** screen.



<http://www.bitnotic.com>

Octavian 1.5.0 @ Jan 2, 2011

Manual draft 1.5.0 @ Nov 19, 2010

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