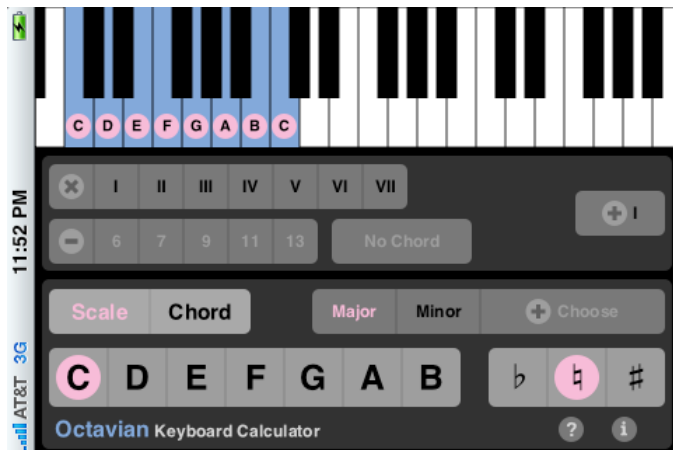


# Octavian

## Keyboard Calculator

# User Guide

Use Octavian to explore scales, chords, and their relationship to each other. Whether you are a music student, a three-chord rocker, a jazz master, or first violin, Octavian puts vital music theory at your fingertips. Featuring high quality piano samples, you can hear the notes behind the theory.



## Basics

Octavian's operation begins with a root note and a mode. The mode determines whether you are viewing scales or chords.

### 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** **♮** **#**) to modify this note with flat, natural, or sharp.



**Tip** Hold down the **G A** or **B** button for one second to move up one step clockwise along the Circle of Fifths. Hold down the **C D** or **E** buttons to move one step counter-clockwise (down a fourth).

### Mode (Scale/Chord)

The **Mode** selector switches between **Scale** and **Chord**. Simply touch one or the other. The rest of Octavian's controls change to show specific options for the mode.



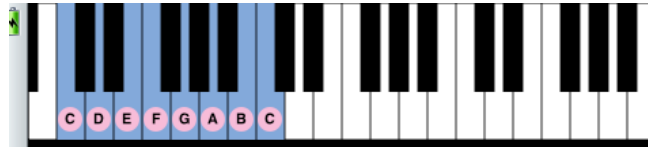
**Note** Some features, like **Chord Explorer** and **Scale Explorer**, switch the mode automatically.

# Scales

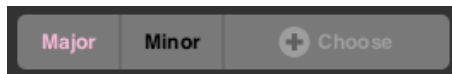
Scales are patterns of notes that form the basis of Western music's melodies and harmonies. When in **Scale** mode, you can view the notes in a scale, the chords in the scale, and even the scale's different modes.

## Scale

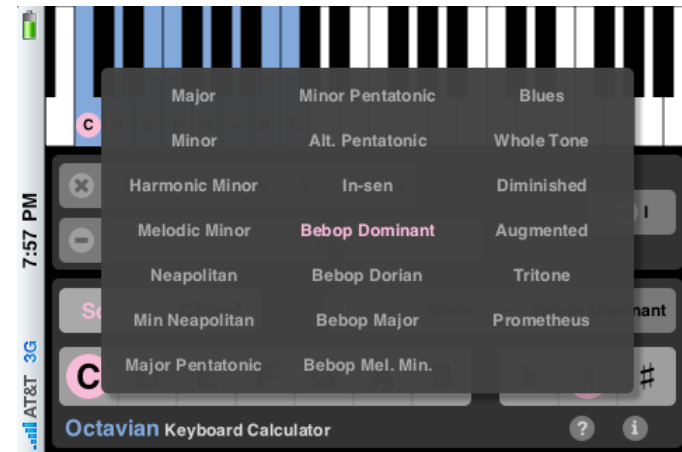
The scale display shows the notes in the scale, starting at the root note and ending on the root note an octave higher. The number of notes highlighted depends on the scale. Some show eight notes, some show six, others nine, and so forth.



Initially, you see the notes in the Major scale. Touching the Minor scale changes the highlighted notes to those in the Minor scale.



Touching the **Choose** button opens a dialog listing additional scales. Touch a scale's name to switch to that scale. Touch outside of the dialog to cancel.

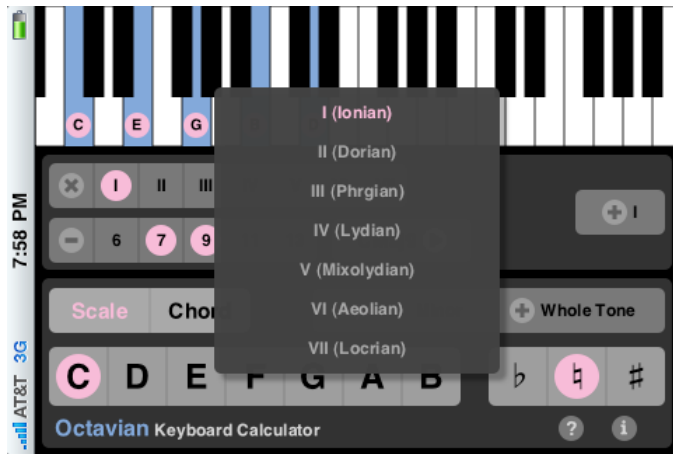


## Modes

While scale modes form an important part of harmonic theory, they can be tricky to understand and even harder to figure out. Since changing even a single note in a scale dramatically affects its feel and mood, modes are a powerful tool to have at your command. With Octavian, any mode of any scale is at your immediate disposal.




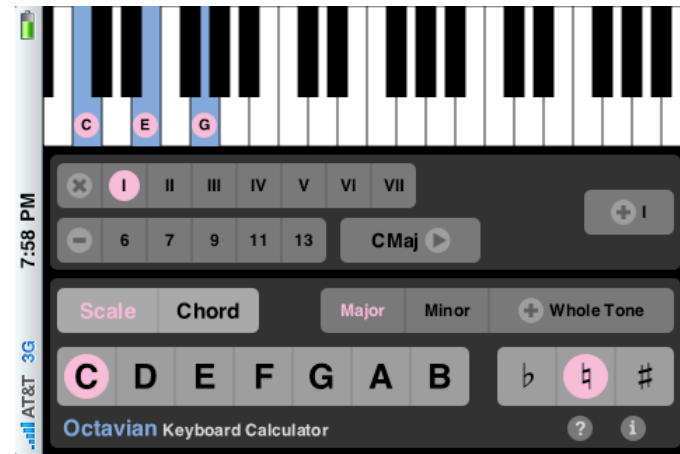
In Octavian, the current mode is indicated by a roman numeral or a digit. Touching this control opens a dialog that lists the possible modes for the scale. When possible, the common names for the scale (such as "Mixolydian") are shown in parentheses. Touch outside of the dialog to cancel.



### 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, it identifies them, too. 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 root 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  button.



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

I, II, III, IV, &c.	Major interval
i, ii, iii, iv, &c.	Minor interval
i <sup>o</sup> , ii <sup>o</sup> , iii <sup>o</sup> , iv <sup>o</sup> , &c.	Diminished interval
I <sup>+</sup> , II <sup>+</sup> , III <sup>+</sup> , IV <sup>+</sup> , &c.	Augmented interval

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<sup>b</sup> F G D<sup>b</sup> 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)

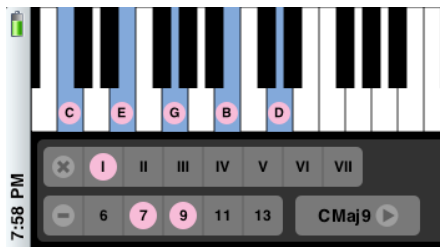
#### If the 5th is missing:


- 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  button.

**Note** If the triad drops the fifth adds a seventh, you will not be able to toggle the seventh, it is always on for this particular chord.

If added notes would extend beyond the range of the keyboard, they will be transposed one octave lower.


## 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 . 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

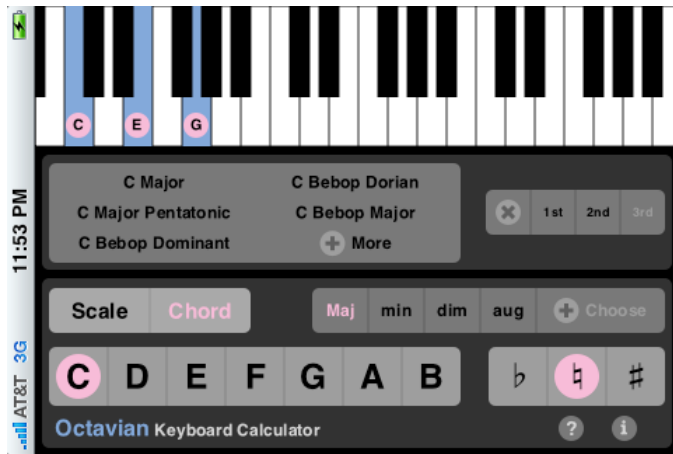
If you have not selected a scale degree to build the chord on or you have touched  to clear the chord, you will see **No Chord** here.

## 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.



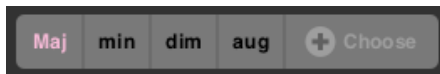
To switch to chord mode, touch the **Chord** button. Most of the controls switch over to chord-centered options, such as the chord chooser, inversion, and **Scale Explorer**.



As in scale mode, clicking notes and accidentals changes the root note.

## Chord

Octavian puts the most common triads a single touch away. To view major, minor, diminished, or augmented triads, touch its name in the chord chooser.



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). Touching the name of a category shows the chords of that type. Touch one of the chord names to view the notes in that chord. Touch outside of the dialog to cancel.



## Inversion

An inverted chord has a note other than the root in the bass position. For example, in a C major triad (C E G), the first inversion has the third as the root (E G C).



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

Inversion is reset when you switch chords.

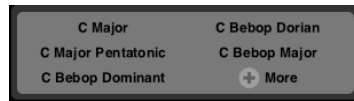
To return the chord to root position, touch the **X** button.

**Note** Some chords have standard or common inversions, and those are used. For example, some of the sixth chords are typically used with the sixth note in the root position, so if you choose one of them, the inversion will be set automatically.

## Scale Explorer

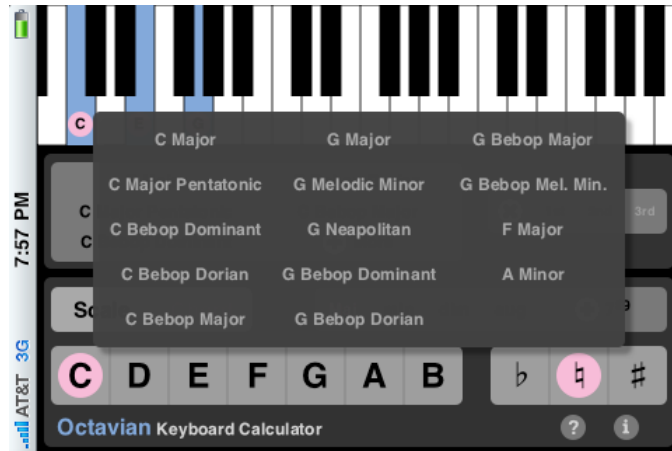
While classical music is typically modal, where the notes in the melodies and harmonies are found within a scale, jazz and blues music is frequently built around chords. Musicians will play a chord, and then solo around that chord. In order to do this, the soloist must be able to find a scale that contains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

In **Chord** mode, the Scale Explorer area 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 more than five scales that match, the **More** item is enabled. Touch this to bring up a dialog that shows additional scales.



## Options

Octavian more options that are related to neither scales nor chords.

### Help

When you touch the **Help** button, each control on the screen shows an overlay with a description of itself. To return to normal operation, touch the screen anywhere.

### Info

Touch the **Info** button to view the version, credits, and copyright information of Octavian. Touch the screen outside of the dialog to close this dialog.

## Settings

Octavian features several options that are chosen using your device's **Settings** app. Open **Settings**, then scroll down to find the entry for Octavian. When you select Octavian, you can choose the following options:

### Auto Play

When Auto Play is **ON**, any time you touch a button on the screen, Octavian automatically plays the scale or chord. You can replay the scale or chord by touching the keyboard.

When Auto Play is **OFF**, Octavian only plays the scale or chord when you touch the keyboard.

### Show Intervals

Turn Show Intervals **ON** to display the notes on the keyboard as intervals from the first note. So if you are viewing the chord of C major, the notes are labeled 0 4 7, rather than C E G.

## Screen Lock

Depending on how you use Octavian, you might want to stop your iPhone or iPod touch from going to sleep after a minute. For example, if you want to prop up Octavian on your keyboard and refer to a particular scale or chord while you practice it.



<http://www.bitnotic.com>

Octavian 1.1.0 @ Oct 22, 2009

Manual draft 1.1.0 @ Nov 5, 2009

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