JOYSTICK MODE MANUAL

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JOYSTICK GLOBAL MODE

Joystick Global mode window

OVERVIEW

The most popular guitar accompaniment technique is chord strumming.

All virtual instruments, including the guitar ones, are intended to use with keyboard controllers. Unfortunately, physical aspects of piano playing technique do not allow to naturally emulate right hand up/down movements of guitarist, which makes it extremely difficult to perform authentic guitar strumming rhythms on a keyboard. On the other part even the entry-level guitarist can easily master basic strumming on his guitar, though facing another difficulty - time-consuming course of learning myriad of chord fingerings, as well as painful physical training to properly press strings with the left hand fingers.

Fortunately with our unique Struminator technology implemented in RealGuitar/Strat/LPC/Rick Joystick mode, allowing using alternative guitar-shaped MIDI controller for chord strumming, the problem's gone. It successfully combines the convenience of RealGuitar chording system with the ease of normal guitar right hand strumming technique.

Joystick mode utilizes two-hand playing principle very close to guitar playing technique:

- Switching chords/strings with left hand (pressing and holding down Fret buttons)

- Strumming chords/strings with the right hand (pressing Strum bar down/up)

- Articulating chords/strings (releasing Frets to cut off a chord/note as it is playing)

- Playing Muted chords/notes (pressing Strum bar with all Frets released)

WHICH GUITAR CONTROLLER?

PlayStation 3 Guitar Hero World Tour/Guitar Hero 5 guitar controller is the best fully functional device to use both on Mac and PC (used on our Demo videos).

Note, no game console needed, only USB wireless receiver.

Other PS3 Guitar Hero guitar models will work as well, but they differ in Star Power (BACK) button appearance, and doesn't have Slider bar. Star Power (BACK) button is multi-functional in Joystick mode layout, so its shape, location, and pressing force is important for the playability of the controller.

All in all any Guitar Hero controller model allows to perform basic techniques with Fret buttons and Strum Bar, though limited in functionality.

## CONNECTING GUITAR HERO CONTROLLER TO REALGUITAR

After installing RealGuitar:

- Plug the USB wireless receiver/dongle of the guitar controller into USB and connect it with the controller

- Run your DAW and check if 'Game controller' input appears among its MIDI IN devices

- Run RealGuitar instrument in the DAW

- Create MIDI track and output it to RealGuitar

- Select Omni MIDI input for this track to get MIDI both from guitar controller and your MIDI keyboard. In case your DAW doesn't support MIDI Omni input you have to create two MIDI tracks outputted to the same RealGuitar instance, one for game controller input and second for MIDI keyboard input

- In RealGuitar window press Joystick button to switch on the Joystick mode

To check the correct connection: pressing Fret buttons on the guitar controller should light up the appropriate virtual Fret buttons, as well as lifting/lowering the controller fretboard should change value displayed in the Tilt box:

GUITAR CONTROLLER LAYOUT
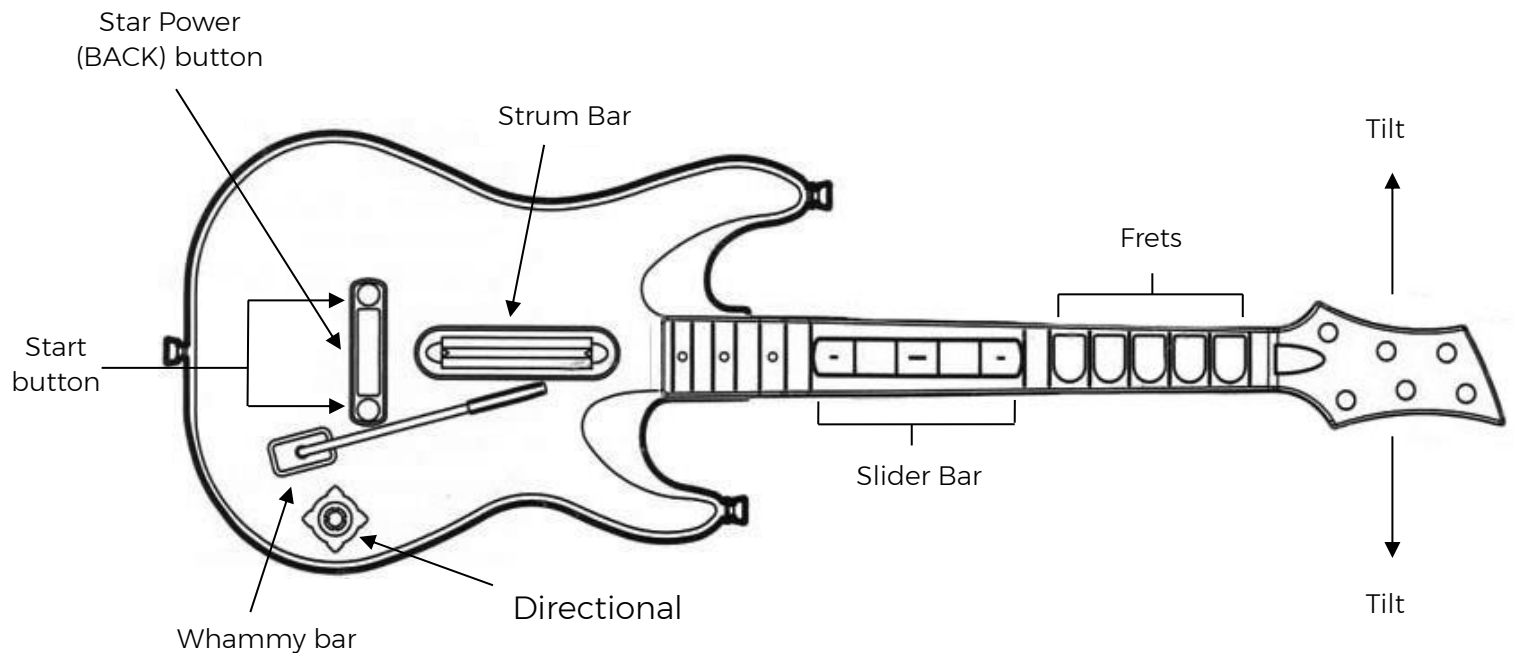
BASIC TECHNIQUES

FRETS (FRET BUTTONS)

- Press/release to switch/articulate chords (ColorTabs, SmartStrums modes), strings (SmartStrings mode)
- Tap to trigger switchable Harmonics FX
- Control chord position/string layers, or dynamics (SmartStrums mode)

STRUM BAR

- Press down/up to trigger strums/mutes/string picks
- Hold to switch on Harmonics FX for Fret taps
- Hold to switch on Hammer-On/Pull-Off for legato Fret taps (SmartStrings mode)

TILT SENSORS (LIFTING/LOWERING THE FRETBOARD)

- Control dynamics (add/reduce output velocity of all Strokes/FX)
- Switch on the assignable 'Star Power on Tilt' FX (SmartStrings mode)
- Switch on 'Modulation on Hold' FX (SmartStrings mode)

ADVANCED TECHNIQUES

WHAMMY BAR

- Press to produce pitch bending, or
- Press to switch on the assignable Strokes/FX

STAR POWER (BACK) BUTTON

- Press to trigger assignable Strokes/FX
- Produce Accent (add velocity) for any assigned Stroke/FX
- Hold to switch on Harmonics FX for Fret taps/Strum bar assignable Strokes
- Press w/o Frets to trigger Mutes or Scrapes

Slider bar (sensor pads)

- Touch/slide to trigger individual strings

DIRECTIONAL PAD

- Press to the right or left to switch on Harmonics FX for Fret taps, or to navigate through String Sequences list (ColorTabs, SmartStrums modes)

START BUTTONS (REMOTE CONTROL)

While holding down Frets press START button for:

a) selecting Chord Position

(1+2) + Start => Position I

(2+3) + Start => Position II

(3+4) + Start => Position III

(4+5) + Start => Position IV

b) selecting Strum bar Function (ColorTabs, SmartStrum modes)
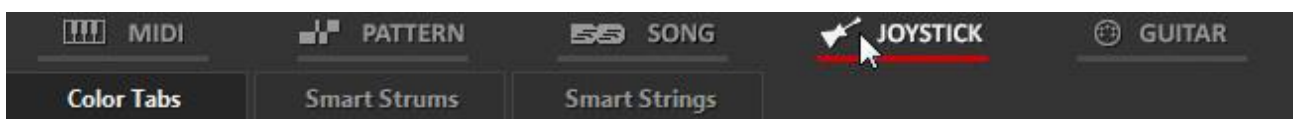
1 + Start => Strum

2 + Start => Bass&Strum

3 + Start => Picking 1

4 + Start => Picking 2

5 + Start => Picking 3

JOYSTICK PERFORMANCE MODES

Press Joystick button to switch on the Joystick Global mode:

Joystick mode includes three basic Playing Modes: ColorTabs, SmartStrums, and SmartStrings utilizing different methods of switching chords (manual or automatic) and playing rhythm with the Strum bar.

COLORTABS MODE (MANUAL CHORD CHANGES)

CHORD TAB

Press ColorTabs tab to switch on the ColorTabs mode

ColorTabs mode window

In the lower part of ColorTabs window you see a set of chord cells presenting various Fret schemes with a chord name on each cell. In fact the cells are chord fingerings allowing to switch chords by pressing various Fret button combinations. Each set is saved as individual Chord Tab within the internal Chord Tab Library.

Load Chord Tab from the Tabs list (the default Tab is loaded on switching on the ColorTabs mode):
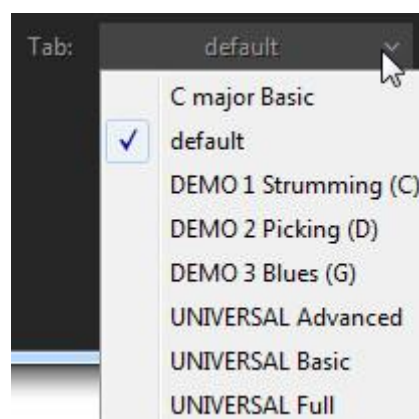
COLORTABS MODE PLAYING TECHNIQUES

FRETS FUNCTION. SWITCHING CHORDS

In this mode Fret buttons are used to switch and articulate chords.

To switch a chord press Fret buttons combination on guitar controller corresponding to the needed chord cell, and then press Strum bar to play the chord. Release Frets to mute the sound.
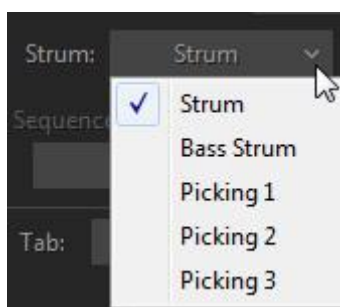
Follow fret schemes displayed on chord cells to switch between chords available in the current Chord Tab.

STRUM BAR FUNCTION. PLAYING RHYTHM

Pressing Strum bar down/up lets you perform chord switched with Fret buttons using various guitar techniques: Strum, Bass&Strum, and Picking.

Select the playing technique in Strum bar Function menu:

STRUM BAR PLAYING TECHNIQUES

STRUM

Pressing Strum bar Down/Up triggers DownStrum/UpStrum of the chord switched by Frets.

Pressing Strum bar Down/Up with all Frets released triggers Muted Strums Down/Up of the last played chord.

BASS&STRUM

Strum bar Down triggers Bass I once on chord change and/or after you release all Fret buttons, and will continue triggering DownStrums of the same chord until you change the chord or release Fret buttons.

Activating Alt.Bass button allows to automatically alternate between Bass I and Bass II with each Strum bar Down.

Strum bar Up triggers UpStrums all the time.

PICKING

With Picking function Strum bar works differently, according to its name.

Strum bar Down triggers Bass I of the current chord all the time.

Activating Alt.Bass button allows to automatically alternate between Bass I and Bass II.

Strum bar Ups sequentially trigger individual strings (chord voices) in the order specified by selected String Sequence. Click on Sequence combo box to select String Sequence in the popup list:
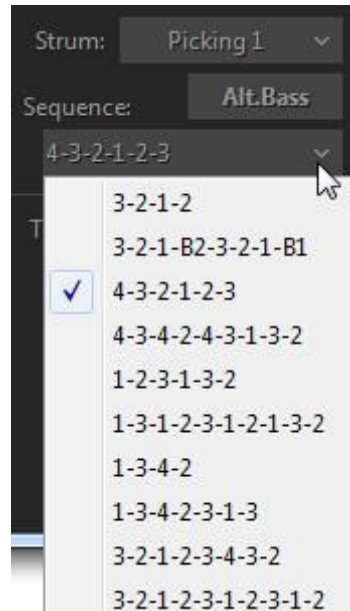
Selecting String Sequence

STRING SEQUENCE

String Sequence is a special tab presenting the order of strings you can pick step-by-step with every Strum bar Up stroke. For instance:

3-1-2 sequence will trigger 3rd string-> 1st string-> 2nd string picking pattern.

Continuous Strum bar Ups will cycle String Sequence until you press Strum bar Down which will trigger Bass I note and reset String Sequence to the first step.

CREATING STRING SEQUENCE

String Sequence is a plain text data included in Sequences.txt file (found in the installation directory):
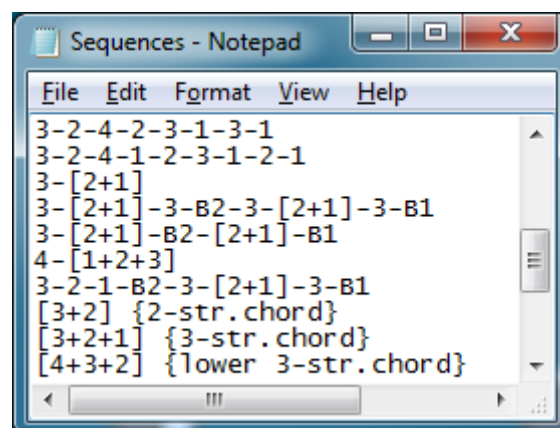
You can open/save this file in any text editor and easily edit/create your own picking patterns by simply typing the needed string numbers in a row separated by '-' symbol.

You may use Bass I and Bass II picks in a Sequence by entering B1, B2 symbols, as well as 2 or more simultaneous string picks within single step by entering string numbers in square brackets with '+' symbol between them:

3-[1+2] sequence will trigger 3rd string->1+2 strings picking pattern.

If you name the Sequence you'll see its name instead of row of numbers in the Sequences popup list. To do this, simply type the name in braces at the right, e.g.:

3-1-2-3-1 {Easy arpeggio} will show up in the menu list as 'Easy arpeggio'.

STRUM BAR FUNCTION SETTINGS

Note, that each of 5 Strum bar Function selections, Strum, Bass&Strum, Picking1, Picking2, Picking3 has independent settings, automatically saved within the engine on going to another function or mode, and are saved within the DAW project as well.

STRUM BAR FUNCTION REMOTE SELECTION

You can remotely select Strum bar Playing Technique directly from the guitar controller by holding different Frets and pressing START button:

1 + START -> Strum

2 + START -> Bass&Strum

3 + START -> Picking 1

4 + START -> Picking 2

5 + START -> Picking 3

CHORD TAB EDITOR. CREATING CHORD TAB

Press Edit button to open Chord Tab Editor window showing 31 cells with all possible Fret combinations:
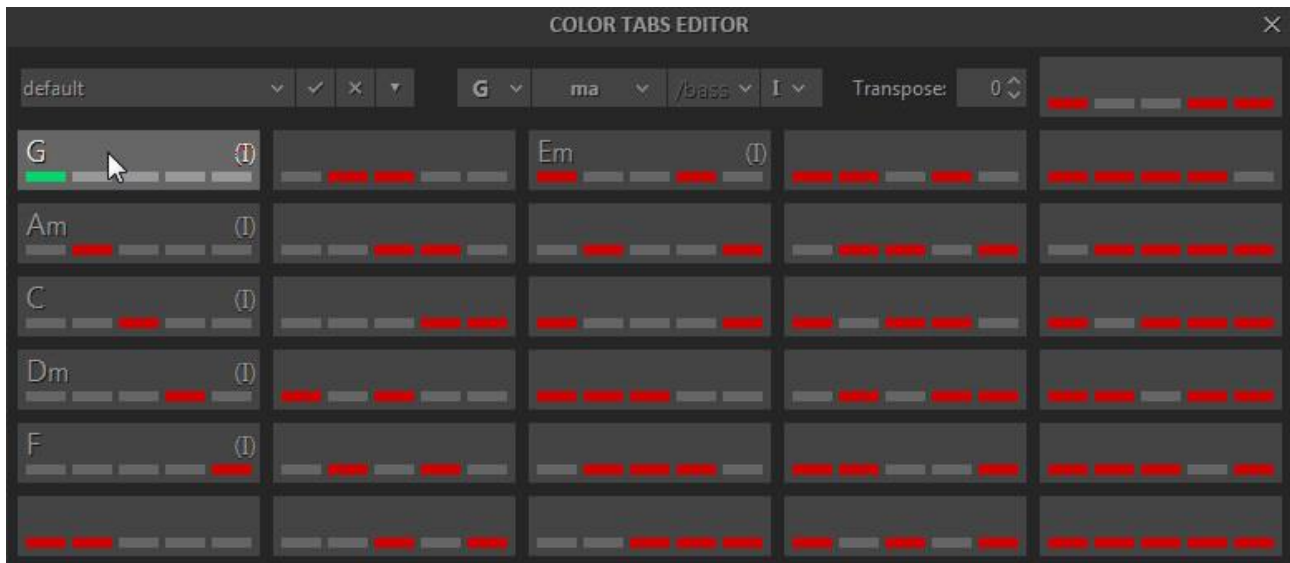
Chord Tab Editor

ASSIGNING CHORDS TO FRET SCHEMES

Click on the chord cell with the needed Fret scheme to select it.

Select Root note, chord type, /Bass note, Chord Position in the appropriate chord boxes, and full chord name will appear on the cell:
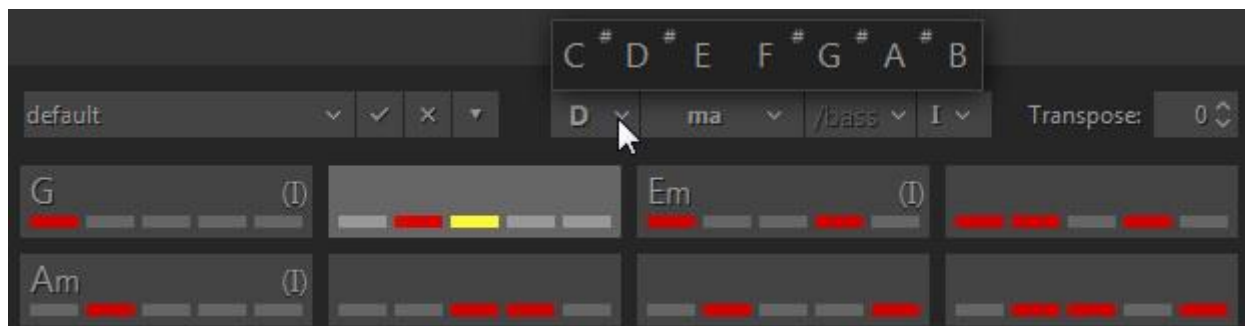
Assign as many chords as you need for the song (up to 31 available)

EDITING CHORD TAB

Tab Editor allows to copy/paste, clear, disable single chords, re-order, transpose and change position for all chords from the right-click context menu:
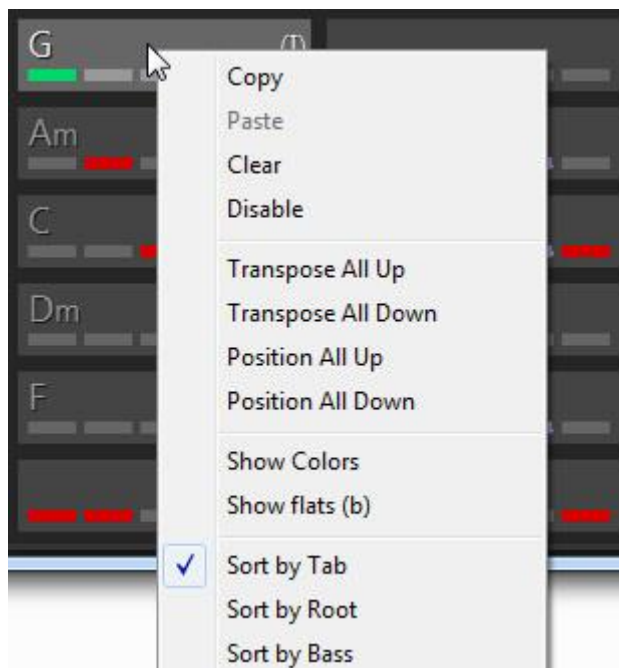
Note, that disabled cells will be greyed out and displayed only in Tab Editor

SAVING CHORD TAB

Click on Tabs combo box, type in the name and press Enter to save your Tab (or simply press Save icon). To delete Chord Tab press Delete button:

Save, Delete buttons

You can import/export single Chord Tab or the whole Tab Library using File button (the one with triangle icon):
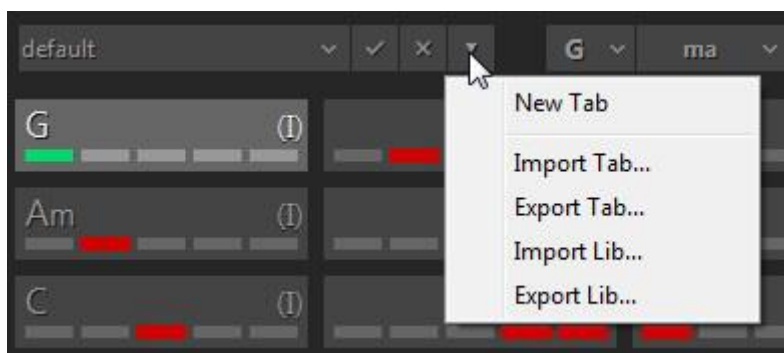
TRANSPOSING CHORD TAB (AUTOMATED)

To transpose all chords of the TAB simply press/enter the appropriate MIDI note in Repeat zone (C through B):

C   => 0

C#   => +1

D   => +2

D#   => +3

etc.

UNIVERSAL CHORD TAB

For Joystick (Struminator) mode fans we have developed a Universal Chord Tab letting you perform guitar accompaniments to countless simple songs in ANY key within the single Chord Tab, using just 5 Fret buttons of guitar controller for chord changes.

In addition to Strum bar guitar performance techniques implemented in RealGuitar the Universal Chord Tab turns Guitar Hero game controller into a new harmonic musical instrument for performing song backgrounds, as well as a powerful song-writing tool for your future masterpieces.

For details refer to the Appendix section, MusicLab Universal Chord Tab.

SMARTSTRUMS MODE (AUTOMATIC CHORD CHANGES)

Press SmartStrums tab to switch on the SmartStrums mode:
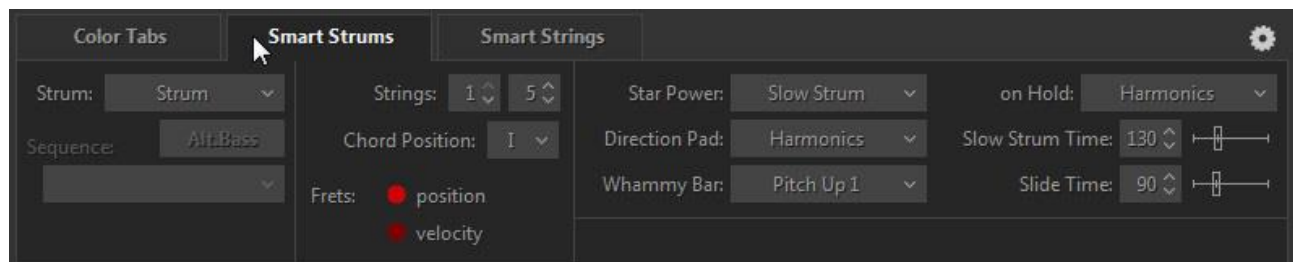
SmartStrums mode window

CHORDS

Insert chords in a MIDI track and chord changes will automatically sent to RealGuitar engine along with the song, so you simply play rhythm with Strum bar and articulate current chord with Fret buttons.

You may need to shift chord track or single chords ahead to anticipate chord changes when playing rhythm.

If you want to use /Bass chords in a song enter Bass note octave or more lower basic chord notes to let chord detect engine interpret such a chord as /Bass chord.

FRETS FUNCTION. ARTICULATING CHORDS

In addition to articulating (sustain/release) chords Fret buttons may control either Chord Position/String layers, or Velocity (dynamics) of articulated chords at your choice.
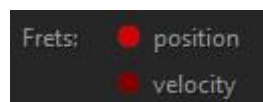
POSITION/STRING LAYERS CONTROL:

Fret 1   = Position I, lower strings

Fret 2   = Position I, upper strings

Frets (1+2)   = Position I, full chord

Frets (2+3)   = Position II, full chord

Fret 3   = Position II, upper strings

Frets (3+4)   = Position III, full chord

Fret 4   = Position III, upper strings

Frets (4+5)   = Position IV, full chord

Fret 5   = Position IV, upper strings

Lower and upper strings strums can be triggered by Strum bar with Strum function only.

VELOCITY (DYNAMICS) CONTROL:

Any single Fret articulates full chord in current chord position

Fret 5 adds velocity, while Frets 3, 2, and 1 proportionally reduce velocity of played chords

STRUM BAR FUNCTION. PLAYING RHYTHM

In SmartStrums mode Strum bar works exactly the same way as in ColorTabs mode.

Refer to ColorTabs mode, 'Strum bar Function. Playing Rhythm' Chapter.

SMARTSTRUMS MODE (AUTOMATIC CHORD CHANGES)

Press SmartStrums tab to switch on the SmartStrums mode:
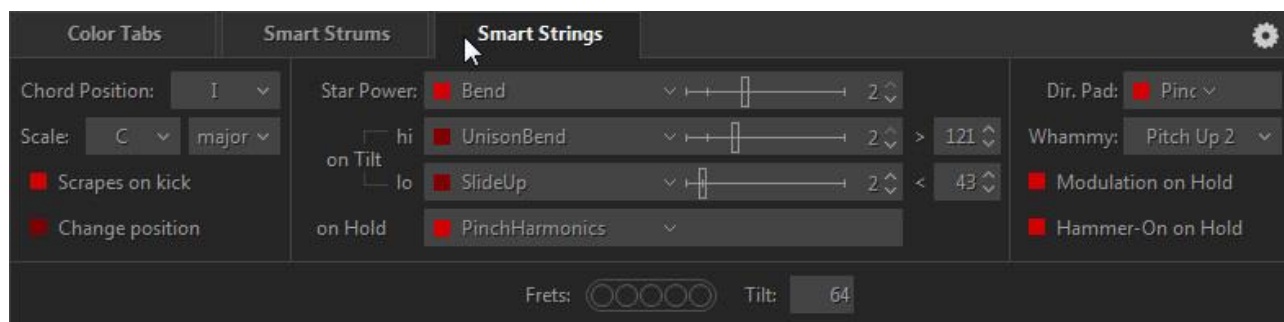

SmartStrings mode window

CHORDS

Insert chord changes in a MIDI track and they will be automatically sent to RealGuitar engine along with the song.

BASIC PLAYING TECHNIQUES

Press Frets to select strings you want to play (Frets from left through right correspond to Bass I-4th-3rd-2nd-1st strings).

Play selected string(s) by pressing Strum bar.

Holding any Fret allows to sustain next played strings, while releasing the initial Fret will cut off all sustaining notes.

Pressing Strum Bar with released Frets triggers muted sound of previously played note(s)

PRODUCING HAMMER-ON/PULL-OFF

SmartStrings mode not only allows you to play chord notes (voices) by triggering different strings with Strum bar, but diatonic (non-chordal) notes as well using Hammer-On/Pull-Off techniques.

Click Hammer-On on Hold LED to activate it:
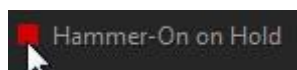
To produce Hammer-On:

- Press and hold Fret to select a string

- Press Strum bar to trigger selected string(s)

- While holding down Strum bar and Fret, tap the right neighbor Fret to trigger Hammer-On

- While holding down Strum bar, release the newly tapped Fret to trigger Pull-Off to the initial chord note

To produce Pull-Off:

- Press and hold Fret to select a string

- Press Strum bar to trigger selected string(s)

- While holding down Strum bar and Fret, tap the left neighbor Fret button to trigger Pull-Off

- While holding down Strum bar release the newly tapped Fret to trigger Hammer-On to the initial chord note

DIATONIC SCALE FOR HAMMER-ONS/PULL-OFFS

Hammer-Ons and Pull-Offs trigger diatonic (non-chordal) notes which are the nearest to the initial chord note (upper for Hammer-On and lower for Pull-Off). To let the engine 'know' non-chordal notes you must previously assign the appropriate major or minor diatonic scale for the whole song or for the groups of chords if needed.

E.g. you have C-Dm-G7 chord sequence. Assigning C major scale for the chord group you'll get the following Hammer-Ons for each chord note:

C chord: C->D, E->F, G->A

Dm chord: D->E, F->G, A->C

G7 chord: G->A, B->C, D->E, F->G

Pull-Offs will use the same diatonic notes but lower the initial chord notes

ASSIGNING DIATONIC SCALE

There are two ways to assign diatonic scale, Manual and Automatic:

1. Manually select Root note and scale type for the entire song in the Scale combo boxes:
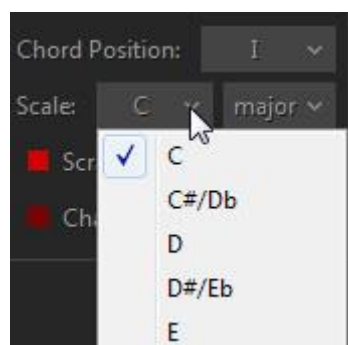
2. If you need various scales within the song you can use MIDI CC Automation to change root note and scale type in the needed measure(s) of the song

AUTOMATING ROOT NOTE SELECTION:

MIDI CC#91 values to Root note (C through B, by tens)

1-9　　= C

10-19　= C#(Db)

20-29= D

30-39= D#(Eb)

etc..

AUTOMATING SCALE TYPE SELECTION:

MIDI CC#92 values to scale type (by tens)

1-9　　= major

10-19　= minor

ADDITIONAL TECHNIQUES/EFFECTS/SOUNDS

While main buttons, Frets and Strum bar allow to easily articulate chords and chord notes, and produce basic playing techniques, you can use other buttons and controls implemented in Guitar Hero controller to improve the performance by adding a number of effects and sounds.

STAR POWER BUTTON FX (SMARTSTRINGS MODE)

STAR POWER (GLOBAL):
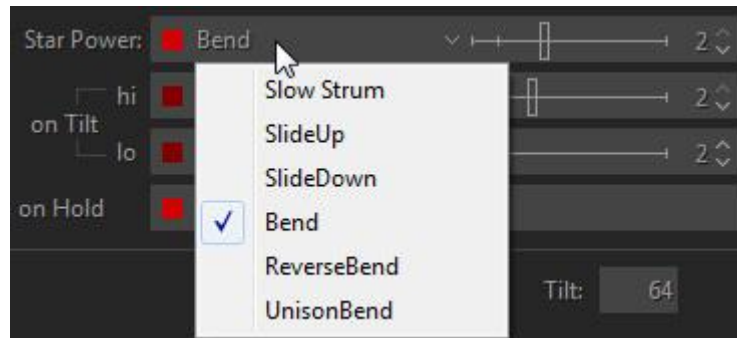
- **Slide Up** - triggers automatic slide up TO the played note(s)
- **Slide Down** - triggers automatic slide down FROM the played note(s)
- **Bend** - triggers automatic bend up TO the played note(s)
- **Reverse Bend** - triggers automatic bend down TO the played note(s)
- **Unison Bend** - triggers automatic Unison Bend TO the played note(s)
- **Slow Strum** - triggers Slow Strum of the current chord

STAR POWER ON TILT:
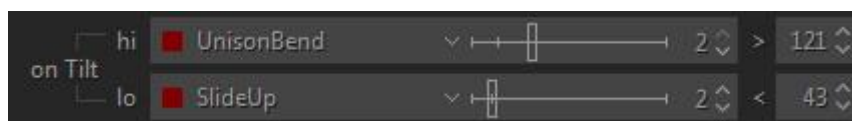
- **hi** - triggers the selected FX with the fretboard position higher the value set in Tilt numeric box
- **lo** - triggers the selected FX with the fretboard position lower the value set in Tilt numeric box

STAR POWER ON HOLD:

When activated lets you tap Harmonics or Pinch Harmonics with Frets while holding Star Power (BACK) button pressed.

STAR POWER BUTTON FX (COLORTABS, SMARTSTRUMS MODES)

STAR POWER:
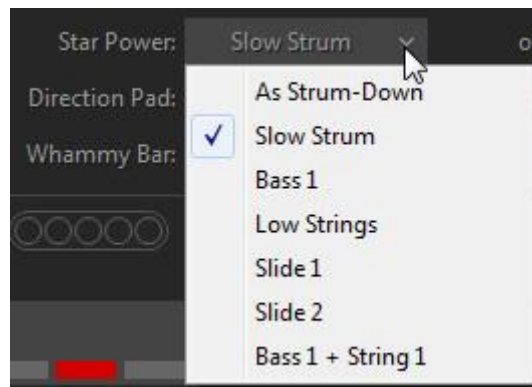
- **As Strum bar** - duplicates Strum Bar, letting you produce Accent stroke
- **Slow Strum** - triggers Slow Strum
- **Bass I** - triggers Bass I of current chord
- **Lower Strings** - triggers lower string strum of current chord
- **Slide 1** - triggers automatic 1-step slide up to current chord
- **Slide 2** - triggers automatic 2-step slide up to current chord
- **Bass I + String 1** - triggers Bass I and string 1 simultaneously

STAR POWER ON HOLD:
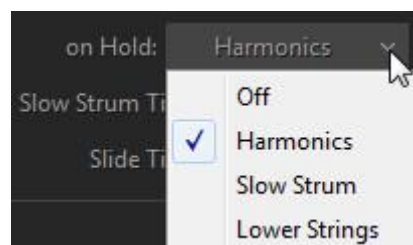
- **Off** - disabled
- **Harmonics** - holding Star Power (BACK) lets you tap Harmonics with Frets
- **Slow Strum** - holding Star Power (BACK) lets you play Slow Strum Down/Up with Strum bar
- **Lower Strings** - holding Star Power (BACK) lets you play Lower String Strum Down/Up with Strum bar

TIMING CONTROLS:

You can adjust Slow Strum time and Slide time for Strokes assigned on Star Power (BACK) button with the appropriate control:
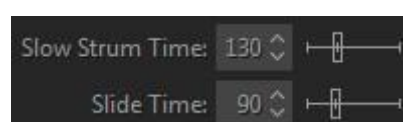
WHAMMY BAR FX
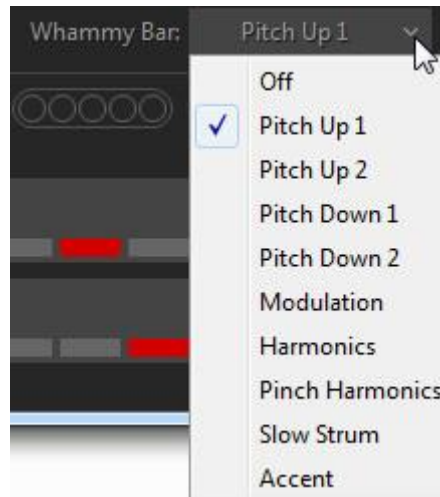
- **Off** - disabled

- **Pitch Up 1** - Pitch bend up to semitone

- **Pitch Up 2** - Pitch bend up to 2 semitones

- **Pitch Down 1** - Pitch bend down to semitone

- **Pitch Down 2** - Pitch bend down to 2 semitones

- **Modulation** - switches on Modulation CC

- **Harmonics** - switches on Harmonics FX playable by Fret taps

- **Slow Strum** - switches on Slow Strum FX playable by Strum bar

- **Accent** - switches on the Accent stroke playable by Strum bar (set Accent velocity value in Settings panel)

DIRECTIONAL PAD FX
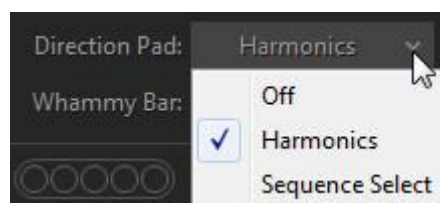
- **Harmonics** (all modes) - pressing Directional pad to the left or right switches on Harmonics FX playable by Fret taps

- **Sequence Select** (ColorTabs, SmartStrums modes) - pressing Directional pad to the right or left navigates through String Sequences list (available only for Strum bar Picking function)

STAR POWER BONUS FX
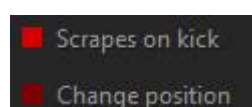
- **Scrapes on kick** (all modes) - allows to trigger Scrapes FX with Star Power (BACK) button when no Frets are pressed

- **Change Position** (SmartStrings mode) - lets you play Stroke with Star Power (BACK) button and simultaneously change chord position up or down depending on what Fret is being pressed:

  o Position Up with 5th Fret (Orange) pressed

  o Position Down with 1st Fret (Green) pressed

On the chord change Position returns to initial value.

'ON HOLD' BONUS FX (SMARTSTRINGS MODE)
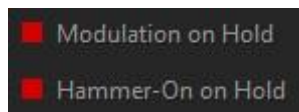
- **Modulation on Hold** - lifting/lowering the guitar fretboard while holding down the Strum bar switches on/off Modulation CC for the sustaining note(s).

- **Hammer-On on Hold** - allows to tap Hammer-Ons/Pull-Offs with Fret buttons while holding down the Strum bar.

JOYSTICK GLOBAL MODE SETTINGS PANEL

Being in any of Joystick modes click Settings button to open Joystick mode Global Settings panel:
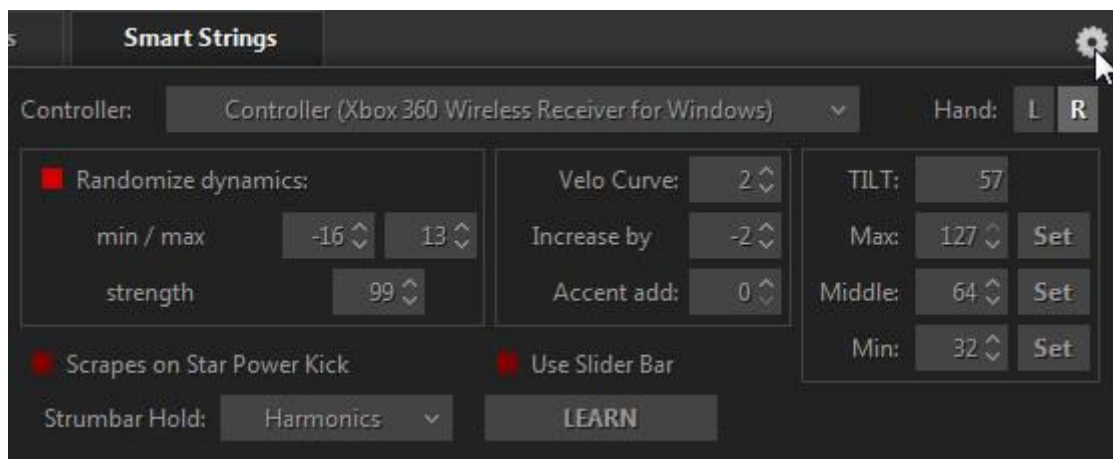
Joystick Settings panel

CONTROLLER:

- Click combo box to select active game controller as an input

HAND:

Press L or R button to switch between Left or Right Handed guitar position:

- **R** - playing Strum bar with the right hand

- **L** - playing Strum bar with the left hand (Strum bar Down/Up strokes reversed)

RANDOMIZATION SECTION:

- **Randomize dynamics** - click to switch velocity randomization on/off
- **min/max** - set randomization range, minimum and maximum deviation values
- **strength** (%) - sensitivity of randomization

VELOCITY SECTION:

- **Velo Curve** - select the output velocity curve
- **Increase by** - add/reduce output velocity
- **Accent add** - set velocity value that will be added to the Stroke/FX produced by Star Power (BACK) button, or switched on with Whammy bar Accent function

TILT SECTION:

Tilt sensors implemented in Guitar Hero controller are used in Joystick mode as dynamics control option, adding velocity on lifting the fretboard while reducing velocity on lowering it.

Play chords with the Strum bar and calibrate your Tilt control by moving the fretboard up and down and setting guitar position values in the Max, Middle, Min boxes you consider the best for highest, normal, and lowest dynamics thresholds.

OTHER CONTROLS:

- **Scrapes on Star Power kick** - allows to trigger Scrapes by pressing Star Power (BACK) button when all Frets are released
- **Strumbar Hold** - allows to trigger Harmonics/Pinch Harmonics (if assigned) by tapping Fret buttons while holding down the Strum bar
- **Use Slider bar** - switches on the Slider bar sensors functioning

GUITAR STROKES AND EFFECTS AVAILABLE IN JOYSTICK MODE

- **Strum Down/Up** - Strum bar down/up
- **Muted Strum Down/Up** - Strum bar down/up with no Frets pressed
- **Slow Strum Down/Up** - Star Power, Strum bar (Star Power on Hold, Whammy bar switch)
- **Lower Strings Strum Down/Up** - Star Power, Strum bar (Star Power on Hold switch); Fret 1 + Strum bar (SmartStrums mode)

- **Upper Strings Strum Down/Up** - Frets 2, 3, 4, or 5 + Strum bar (SmartStrums mode)

- **Individual String picks** - Strum bar Picking function; Frets + Strum bar (SmartStrings mode)

- **Bass I** - Strum bar Picking/Bass&Strum functions, Star Power (assignable); Fret 1 + Strum bar (SmartStrings mode)

- **Hammer-On/Pull-Off** - tap neighbor Fret legato while holding down the Strum Bar (SmartStrings mode)

- **Automatic Slide Up** (chord, string) - Star Power, assignable FX

- **Automatic Bend Up** , **Unison Bend** - Star Power, assignable FX (SmartStrings mode)

- **Manual Bend 1, 2 steps** (chord, string) - Whammy bar, assignable

- **Modulation CC** (chord, string) - Whammy bar switch, assignable FX; Tilt Modulation on Hold switch, assignable FX (SmartStrings mode)

- **Harmonics/Pinch Harmonics FX** - tap Frets while holding Star Power/Directional pad/Whammy bar/Strum bar, assignable FX

- **Scrapes FX** - Star Power (BACK) with no Frets pressed, assignable FX

JOYSTICK BUTTON MAP

Note #	Note name	Button name
127	G 8	1 Fret (Green)
126	F#8	2 Fret (Red)
125	F 8	3 Fret (Yellow)
124	E 8	4 Fret (Blue)
123	D#8	5 Fret (Orange)
122	D 8	Strum Bar Up
121	C#8	Strum Bar Down
120	C 8	Star Power (BACK) button
119	B 7	START button
118	A#7	Directional Pad (left)
117	A7	Directional Pad (right)
116	G#7	1 Slider Bar
115	G 7	2 Slider Bar
114	F#7	3 Slider Bar
113	F 7	4 Slider Bar
112	E 7	5 Slider Bar

All buttons activity (pressing/holding/releasing) is recorded/read as normal MIDI notes in the upper octave according to the Joystick Button Map.

Moving Whammy bar is recorded/read as Pitch Wheel MIDI data.

Tilt data (fretboard position change) is automatically applied to velocity value of MIDI notes producing Strokes and FX (Strum bar, StarPower button, Fret taps, Slider bar).

In SmartStrings mode when Star Power 'on Tilt' FX, and/or Modulation 'on Hold' FX are activated Tilt data used for switching the FX on/off is additionally recorded/read as MIDI CC#93 data.

Buttons-to-MIDI mapping gives you the opportunity to easily edit the recorded part in Piano Roll view of your DAW.

Sonar users can import RealGuitar instrument definition file (RealGuitar.ins) included in the installation folder to see button names in Piano Roll view.

For MIDI examples refer to Joystick Demo Songs Tutorial pack.

JOYSTICK MODE TUTORIAL

For your better understanding how to use Guitar Hero controller in Joystick mode, we prepared 9 demo song packs

http://www.musiclab.com/assets/files/Joystick_Mode_tutorial.zip including MIDI file (*.mid*) of the performance, audio background file (*.wav*), RealGuitar/LPC settings file (*.rgsong*), as well as a reference video (*.mp4*) for each song.

In this tutorial all three Joystick playing modes: ColorTabs, SmartStrums, and SmartStrings are presented in detail.

MUSICLAB UNIVERSAL CHORD TAB

For Joystick (Struminator) mode fans we have developed a Universal Chord Tab letting you perform guitar accompaniments to countless simple songs in ANY key within the single Chord Tab, using just 5 Fret buttons of guitar controller for chord changes.

In addition to Strum bar guitar performance techniques implemented in RealGuitar the Universal Chord Tab turns Guitar Hero game controller into a new harmonic musical instrument for performing song backgrounds, as well as a powerful song-writing tool for your future masterpieces.

CONCEPT

CHORD FUNCTION

If you think of chords as a musical family of chords derived from the notes of a key (scale degrees) tied to one another by harmonic function, as opposed to individual sets of notes indicated by Root note and chord type in the name, we recommend that you use Roman numerals instead of their letter names.

For example, in the key of C, the chord function for an F chord is IV, similarly, the chord function for a G chord is V, for Dm is ii, for Em is iii, etc. Uppercase Roman numbers are used to indicate major chords and lowercase numbers to indicate minor chords.

C major scale diatonic chords

```
C     Dm    Em    F     G     Am    Bm7b5
|     |     |     |     |     |     |
I     ii    ii    IV    V     vi    vii
```

Numeric system allows to name much more than seven diatonic chords. You can built major chords on minor chord degrees (and vice versa) by changing uppercase/lowercase numerals, indicate various chord types by typing appropriate symbols after the numeral, and even use chromatic degrees as a Root by typing #/b symbol before the numeral:

```
CM7   Cm    D     E7    Fm    F#m7b5  Gm7   A     Bb
|     |     |     |     |     |       |     |     |
IM7   i     II    III7  iv    #iv7b5  v7    VI    bVII, etc.
```

Thinking of chords as chord functions lets you easier read chord progressions, memorize them, transpose to different keys, as well as better understand harmonic structure of the songs (which often appears to be surprisingly common for many quite dissimilar ones!).

UNIVERSAL CHORD TAB

MusicLab Universal Chord Tab covers C major key diatonic chords, as well as a number of other relative and modulation chords that can fit the harmonic structure of majority of popular songs. You can use Universal Chord Tab as is, or consider it as basis for editing/creating your own Universal Tab.

BASIC UNIVERSAL CHORD TAB

Let's start with the **Basic Universal Tab** including just 12 chords.

Connect your guitar controller to computer, run RealGuitar, turn on Joystick/ColorTabs mode, and load 'Universal Basic' tab by clicking on Tab combo box:

Basic Universal Chord Tab

On the picture below 12 chords of the Basic Universal Tab are shown under Roman numerals (Functions). Uppercase numerals pertain to major chords, while lowercase Roman numerals to minor chords with Root notes found on diatonic degrees of C major scale.

Chord fingerings are displayed with '0' symbols for 1 through 5 Fret buttons that should be pressed to switch a chord.

Middle Fret (#3) corresponds to C chord, which is I chord (Tonic) of C major key.

```
 |    -I-       |  -ii-  |  -II-  | -iii- | -III7- | -IV- | -iv- |
   (C)    (C7)      (Dm)      (D)       (Em)      (E7)     (F)      (Fm)
1|   -      O   |   -    |        |   O   |   -    |  -   |  -   |
2|   -      O   |   -    |   O    |   -   |   O    |  -   |  O   |
3|   O      O   |   -    |   -    |   -   |   O    |  -   |  -   |
4|   -      -   |   O    |   O    |   O   |   O    |  -   |  -   |
5|   -      -   |   -    |   -    |   -   |   O    |  O   |  O   |


 |  -V-  |  -vi-  |  -VI7-  |  -vii- ||
   (G)       (Am)      (A7)      (Bm7b5)
1|   O   |   -    |   O    |   -   ||
2|   -   |   O    |   O    |   O   ||
3|   -   |   -    |   O    |   O   ||
4|   -   |   -    |   O    |   -   ||
5|   -   |   -    |   -    |   O   ||
```

Numbers 1 through 5 correspond to left through right Fret buttons:
1 –> Green, 2 –> Red, 3 –> Yellow, 4 –> Blue, 5 –> Orange

PRACTICING CHORD PROGRESSIONS

In order to use Universal Chord Tab successfully for playing song accompaniments with Guitar Hero controller, you have to memorize chord fingerings (beginning from Universal Basic Tab) and learn to play rhythm pattern with the Strum bar.

For playing techniques details refer to Joystick Global mode/ColorTabs mode/Playing Techniques section of the Manual, and video examples included in Joystick Demo Songs pack/ColorTabs folder. Please download it from http://www.musiclab.com/assets/files/Joystick_Mode_tutorial.zip

For startup we have included a number of common chord progressions.

Playing the progressions will help you in sight-reading Joystick Tabs, memorizing chord fingerings, and quickly finding the appropriate Fret button(s) when moving from one chord to another.

Read chord changes thinking of their harmonic functions (Roman numerals), but not of their letter names. For example, middle Fret chord (C) is I chord (Tonic), Fret 1 (G) is V chord (Dominant), Fret 5 (F) is IV chord (Subdominant), while Fret 2 (Am) is relative minor chord (vi chord), Fret 4 (Dm) is ii chord (Predominant), and so on...

Note also, that unlike literal chord names the relative harmonic functions (and thereafter Roman numerals) apply for any key, so you can transpose the whole Tab to any interval, using Transpose option, and easily play transposed chord sequences thinking of Fret buttons as I-IV-I, ii-V-I,

I-V-vi-IV functions, etc.

Here on the pictorial diagram you can see the Fret - Chord - Function relationship for 9 chords used in the following chord progressions:
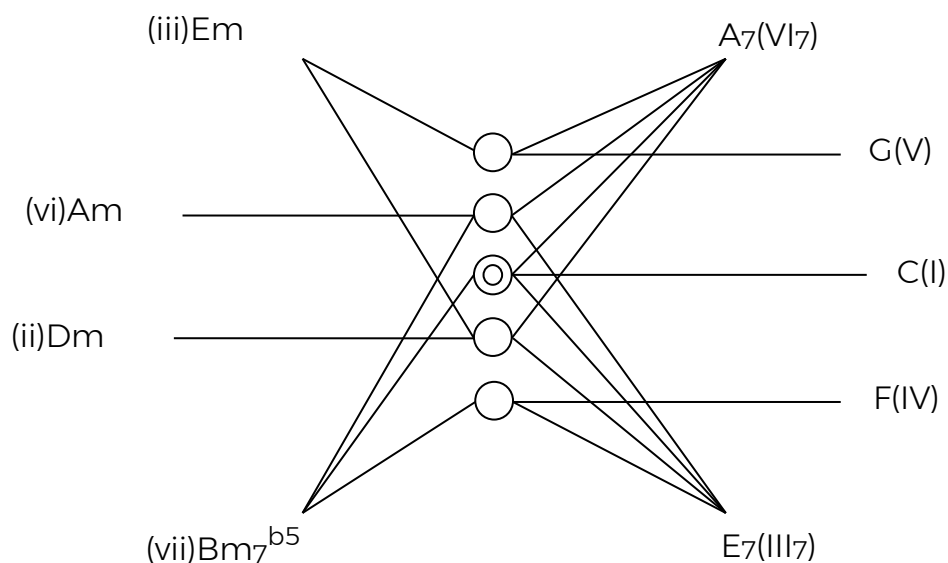
CHORD PROGRESSIONS

Fingering Tips:

- Learn to finger a chord a tiny bit ahead of strumming
- Try using the same finger(s) for common Fret(s) in two sequential chords

MAJOR KEY (C MAJOR)

```
  (C)    (F)    (G)    (C)    (C)    (Am)    (F)    (G)    (C)    (G)    (Am)    (F)
  |I -   IV -   V  -   I      |I -   vi  -   IV -   V      |I -   V   -   vi  -   IV   |

1 |-     -      O      -      |-     -        -      O      |-     O      -        -    |
2 |-     -      -      -      |-     O        -      -      |-     -      O        -    |
3 |O     -      -      O      |O     -        -      -      |O     -      -        -    |
4 |-     -      -      -      |-     -        -      -      |-     -      -        -    |
5 |-     O      -      -      |-     -        O      -      |-     -      -        O    |


  (C)    (Em)   (F)    (G)    (C)    (Em)    (Am)   (F)    (C)    (Dm)   (Em)    (F)
  |I -   iii -  IV -   V      |I    - iii -  vi  -  IV     |I     - ii - iii  -  IV    |

1 |-     O      -      O      |-     O        -      -      |-     -      O        -    |
2 |-     -      -      -      |-     -        O      -      |-     -      -        -    |
3 |O     -      -      -      |O     -        -      -      |O     -      -        -    |
4 |-     O      -      -      |-     O        -      -      |-     O      O        -    |
5 |-     -      O      -      |-     -        -      O      |-     -      -        O    |


  (Em)    (F)    (G)    (C)    (Dm)   (Em)    (Am)  (G)    (F)    (G)    (C)    (E7)
  |iii -  IV  -  V  -   I      |ii -  iii -  vi   -  V      |IV -  V  -   I  -  III7   |

1 |O      -      O      -      |-     O        -      O      |-     O      -        -    |
2 |-      -      -      -      |-     -        O      -      |-     -      -        O    |
3 |-      -      -      O      |      -        -      -      |-     -      O        O    |
4 |O      -      -      -      |O     O        -      -      |-     -      -        O    |
5 |-      O      -      -      |-     -        -      -      |O     -      -        O    |


  (C)    (E7)    (Am)   (C7)  (F)    (Fm)    (C)    (G)    (F)    (G)    (Am)   (D)
  |I -   III7 -  vi -   I7 -  IV -   iv  -   I  -   V      |IV -  V   -   vi -  II    |

1 |-     -       -       O     -      -       -      O      |-     O      -        -    |
2 |-     O       O       O     -      O       -      -      |-     -      O        O    |
3 |O     O       -       O     -      -       O      -      |-     -      -        -    |
4 |-     O       -       -     -      -       -      -      |-     -      -        O    |
5 |-     O       -       -     O      O       -      -      |O     -      -        -    |
```

MINOR KEY (A MINOR)

Note, that A minor key is a relative key to C major having identical diatonic chords, so in order to prevent confusion we keep using C major scale numerals for A minor key chords.

```
 (Am)   (F)    (C)   (G)   (Am)  (C)    (D)    (F)   (Am)  (F)    (C)     (E7)
 |vi – IV  –  I –  V    |vi – I  –  II  – IV   |vi – IV – I   – III7 |

1|-      -      -    O    |-     -      -      -    |-     -      -      -     |
2|O      -      -    -    |O     -      O      -    |O     -      -      O     |
3|-      -      O    -    |-     O      -      -    |-     -      O      O     |
4|-      -      -    -    |-     -      O      -    |-     -      -      O     |
5|-      O      -    -    |-     -      -      O    |-     O      -      O     |


 (Am)  (G)     (F)   (E7)  (Am)  (Dm)   (G)    (C)   (Bm7b5) (E7)   (Am)  (F)
 |vi – V   –  IV – III7 |vi –   ii – V   – I    |vii – III7 – vi– IV  |

1|-      O      -    -    |-     -      O      -    |-      -      -      -    |
2|O      -      -    O    |O     -      -      -    |O      O      O      -    |
3|-      -      -    O    |-     -      -      O    |O      O      -      -    |
4|-      -      -    O    |-     O      -      -    |-      O      -      -    |
5|-      -      O    O    |-     -      -      -    |O      O      -      O    |


 (F)    (E7)   (Am)   D    (Am)  (Em)   (F)    (G)   (Am)  (D)    (Am)  (Em)
 |IV – III7 – vi – II  |vi – iii   – IV – V    |vi – II   – vi – iii

1|-      -      -     -    |-     O      -      O    |-      -      -      O    |
2|-      O      O     O    |O     -      -      -    |O      O      O      -    |
3|-      O      -     -    |-     -      -      -    |-      -      -      -    |
4|-      O      -     O    |-     O      -      -    |-      O      -      O    |
5|O      O      -     -    |-     -      O      -    |-      -      -      -    |
```
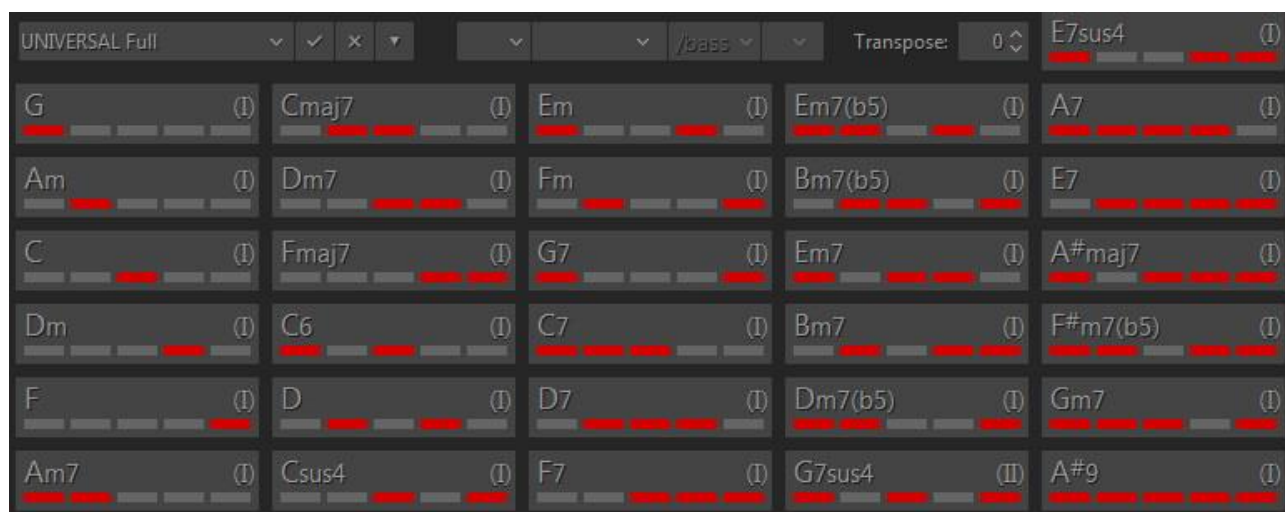
FULL UNIVERSAL CHORD TAB

When you get familiar with Basic Universal Chord Tab, you may need more chords in the Tab.

Try the **Advanced Universal Tab** (24 chords, including 7, m7, maj7, 7sus4 chords):

Advanced Universal Chord Tab

Expert users can try our **Full Universal Tab** (31 chords), which is a real challenge, but gives you much more harmonic freedom:

Full Universal Chord Tab

On the picture below all 31 chords of Full Universal Tab are grouped under Roman numerals (Functions) with Root notes found on diatonic and some chromatic degrees of C major scale.

Note, that m7b5 (half-diminished) chords in the minor groups fit the harmonic function of the group even not having the same Root note.

```
 |            -I-               |       -ii-    |  -II-  |
 (C)    (CM7) (C6)    (C7) (Csus) (Dm)    (Dm7)    (D)   (D7)
1|-      -      O      O     -    |-      -      |-     -     |
2|-      O      -      O     -    |-      -      |O     O     |
3|O      O      O      O     O    |-      O      |-     O     |
4|-      -      -      -     -    |O      O      |O     O     |
5|-      -      -      -     O    |-      -      |-     -     |


 |  -iii-  |    -III-    |       -IV-      |     -iv-     | -#iv- |
 (Em) (Em7)  (E7sus)(E7)  (F)    (FM7)  (F7)  (Fm)  (Dm7b5)(F#m7b5)
1|O    O    |O      -    |-      -      -    |-      O    |O          |
2|-    -    |-      O    |-      -      -    |O      O    |O          |
3|-    O    |-      O    |-      -      O    |-      -    |-          |
4|O    O    |O      O    |-      O      O    |-      -    |O          |
5|-    -    |O      O    |O      O      O    |O      O    |O          |


 |     -V-     |     -v-     |   -vi-   |-VI-|   -bVII-   |    -vii-    |
 (G)   (G7)(G7sus)(Gm7) (Em7b5) (Am) (Am7)  (A7)  (BbM7)(Bb9) (Bm7b5) (Bm7)
1|O    O    O   |O     O    |-    O    |O   |O    O    |-     -    |
2|-    -    -   |O     O    |O    O    |O   |-    O    |O     O    |
3|-    -    O   |O     -    |-    -    |O   |O    O    |O     -    |
4|-    -    -   |-     O    |-    -    |O   |O    O    |-     O    |
5|-    O    O   |O     -    |-    -    |-   |O    O    |O     O    |
```

Basic diatonic chords are marked with red.
Fingering Tip: Press Frets 1+2 with index finger for Dm7b5 (iv), F#m7b5 (#iv), Gm7 (v), Bb9 (bVII) chords

EDITING UNIVERSAL CHORD TAB

There are two ways to edit Universal Chord Tab in Tab Editor.

1. You can disable some multi-fret Chord cells of the Universal Tab to move between chords more easily when you are just beginning the learning curve.

To do that open Tab Editor, right-click a Chord cell and select 'Disable' item in popup menu. 'Disabled' cells will not show up in the Tab view if you close the Editor.

Basic and Advanced Universal Tabs are made similarly by simply disabling a number of more complex relative chords of Full Universal Tab.

2. You can assign other chords and/or chord types fitting your harmonic needs on Chord cells, and save the edited Chord Tab under custom name.

Advanced users can try creating their own Universal Tab from scratch.

CONTACTING MUSICLAB

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