

The U.S. Combining Keyboard Layout Manual

For Users of OS X

v.2.3/Pim Rietbroek/08_SEP_2015

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WHAT IS THE U.S. COMBINING KEYBOARD LAYOUT FOR?

The **U.S. Combining** keyboard allows users of OS X to key so-called ‘combining characters’ easily: these characters (mostly accents and other character modifiers) have zero width of themselves, and they are therefore positioned above, below, or through the preceding character, or they bridge two characters. The range of characters-with-accents available on modern computing systems, which use the Unicode Standard, is large, but in essence limited. (These characters-with-accents are also called ‘precomposed characters’.) With combining characters, however, you can combine *any* diacritic in Unicode with *any* alphabetic character in Unicode, which enormously increases the possible number of combinations. This mechanism also makes it possible to type and display combinations of characters and diacritics hitherto not supported except in highly specialised software.

You will find as a precomposed character, for instance, á – a with an acute accent; its Unicode is 00E1 (hexadecimal; this is also written as: U+00E1). But should you need the letter ù, you would find no precomposed character – it is not defined as such in Unicode, and most fonts will flounder. Similarly, very few precomposed characters with more than one accent have been defined; combinations such as s with caron plus acute (š) and s with dot below plus caron above (š) are missing. Fortunately, the Unicode Standard has made a provision for this need: it defines the so-called combining characters mentioned before, which can be used on any modern computer. You first key the character that is to carry the diacritic(s), and then insert one *or more* combining characters.

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However, most computer systems have no way of easily typing such combining characters. The ‘U.S. Combining’ keyboard layout is meant to fill that void, at least for the Latin script, including IPA characters. [Greek combining characters can be input by using the ‘GKUdcmp1’ and ‘GKUdcmp2’ keyboards bundled with the ‘GreekKeys Unicode’ software (<http://apagreekkeys.org>).]

You will also need a font or a set of fonts which contains the combining characters and the ‘intelligence’ to position these correctly. The ‘**Brill**’ family, developed for the Brill publishing house by John Hudson, is one such set of fonts: see <http://www.brill.com/brill-typeface>. The ‘U.S. Combining’ keyboard software was in fact developed with just this set of fonts in mind.

Users are advised that some applications, most notably **Microsoft Word (Mac version only!** the Windows versions are fine) including version 2011, sometimes do not handle OpenType instructions correctly.

It is unknown at the time of this writing, 8 September 2015, whether version 2016 of MS Word for Mac is better in this respect).

But **most applications**, including TextEdit, Pages, Mellel, Nisus Writer Pro, **handle multiple combining characters** well enough (Mellel best of all), and even MS Word can handle base characters with a single combining character.

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1 INSTALLATION OF THE U.S. COMBINING KEYBOARD LAYOUT SOFTWARE

There are several folders (or ‘directories’) in which keyboard layouts may be installed on OS X. In this document, I explain how to install the keyboard files in the current user’s Keyboard Layouts folder inside the user’s Library folder, because this is what most users will need.

The notation used for folder pathnames follows the OS X standard:

slashes (/) separate folder names;

going to the left means going up higher in the hierarchy;

the tilde (~) stands for the current user’s Home folder.

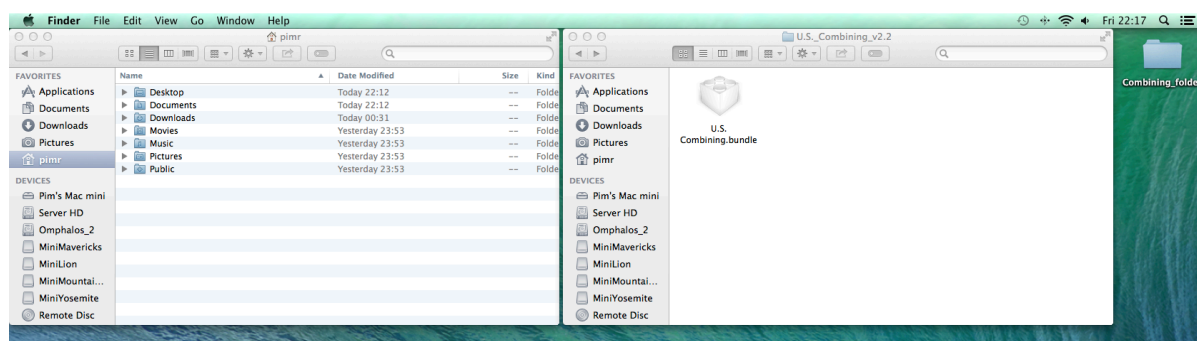
Example:

~/Library/Keyboard Layouts/

means: the folder named **Keyboard Layouts** inside the folder **Library** inside the current user’s **Home** folder. This is where the U.S. Combining keyboard layout files should be put by most users, for just that one user. (For all users on a computer to gain access to activating the keyboard layout, choose **/Library/Keyboard Layouts/**, without the ~.)

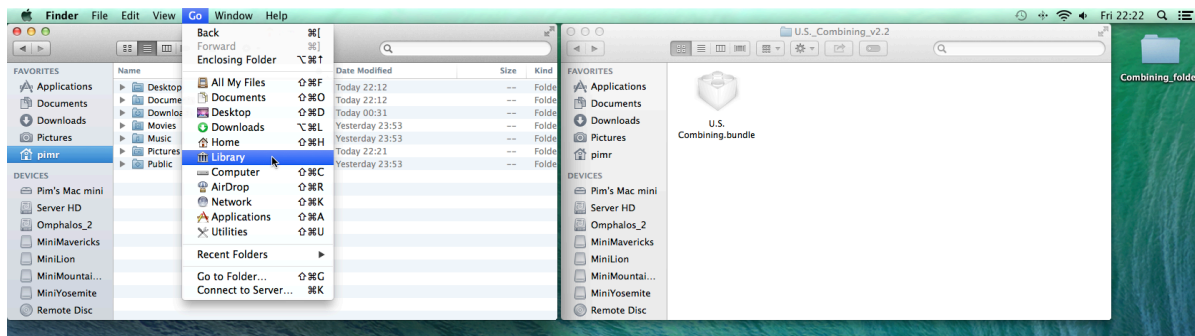
How do I access my own Library folder?

In recent versions of OS X (from v. 10.7 ‘Lion’), the user’s **Library** folder is hidden from view, in order to prevent accidental changes from being made to the user’s system. Please note: the illustrations below are taken from an OS X 10.9 ‘Mavericks’ system, but the procedure is the same from at least OS X v. 10.7 through OS X v. 10.10 ‘Yosemite’.

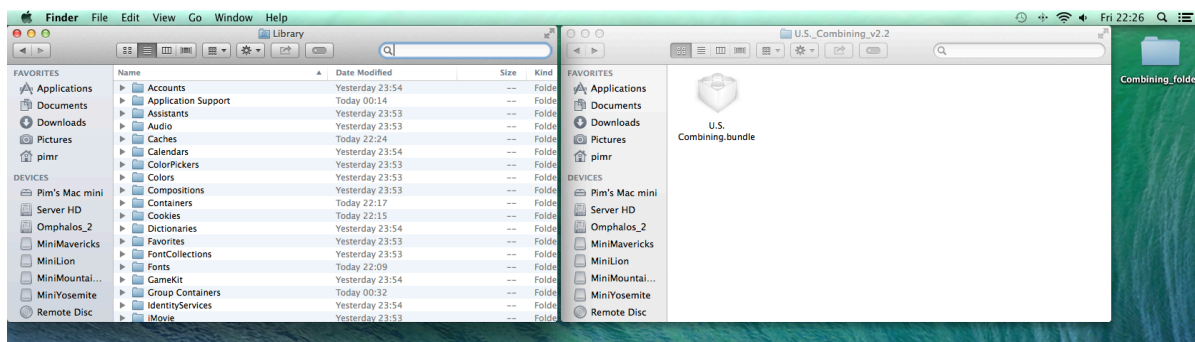


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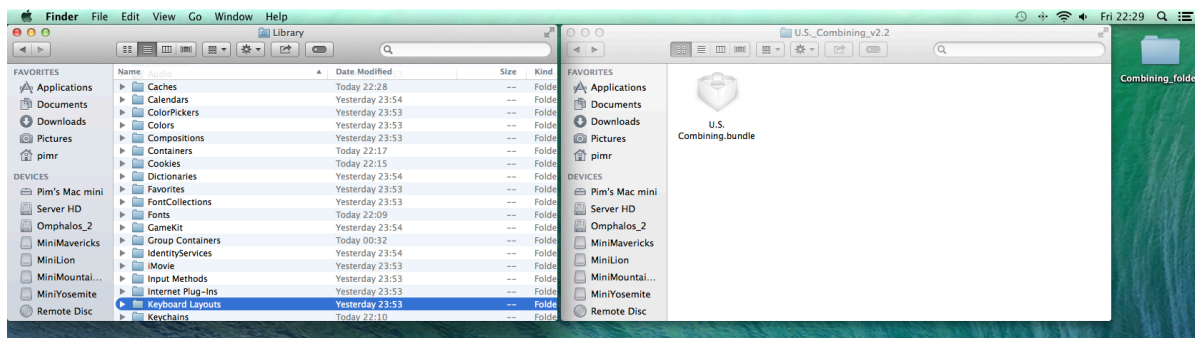
In the Finder you can make the Library appear in the Go menu by *first* pressing the Option (alt, ⌥) key and then choosing Go→Library.



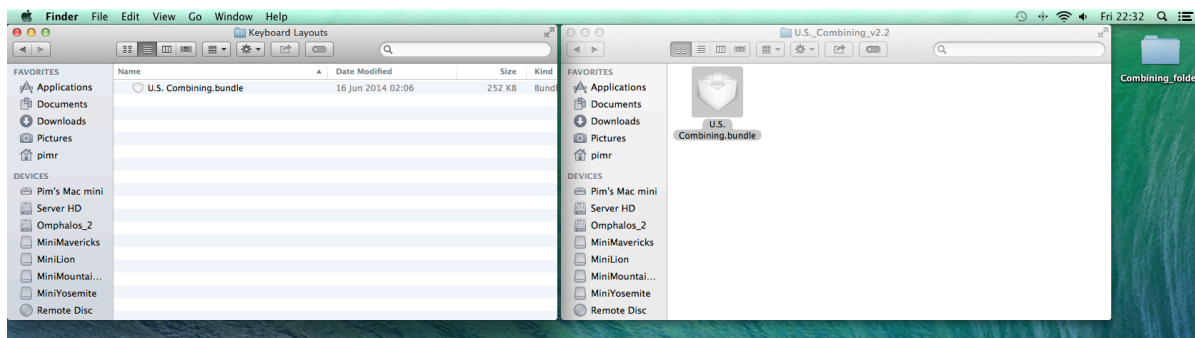
A new Finder window opens showing the contents of the current user's Library folder.



In the Library folder, there is a folder named 'Keyboard Layouts'.



Drag the file named U.S. Combining.bundle into that folder.



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2 ACTIVATION

Restart your computer. After this, the keyboard layout can be activated, and this needs to be done only once. The procedure is slightly different for different versions of OS X.

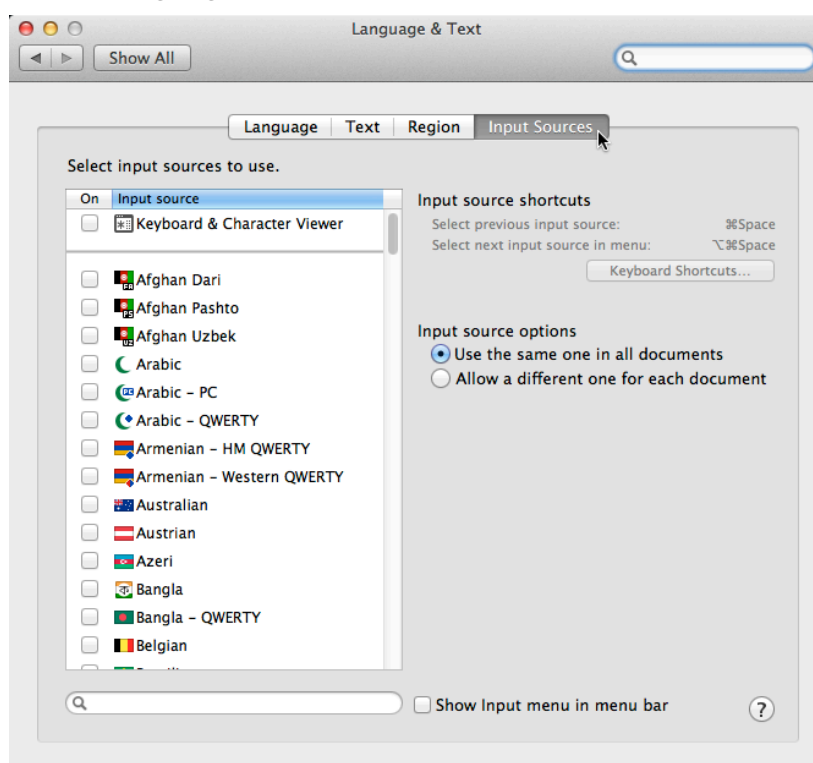
The first procedure is for OS X v. 10.7 and 10.8 ('Lion' and 'Mountain Lion'), the second procedure is for OS X v. 10.9 and 10.10 ('Mavericks' and 'Yosemite').

2.1 OS X 10.7 'Lion' and OS X 10.8 'Mountain Lion'

Go to **System Preferences**: in the **Personal** category, choose **Language & Text**.

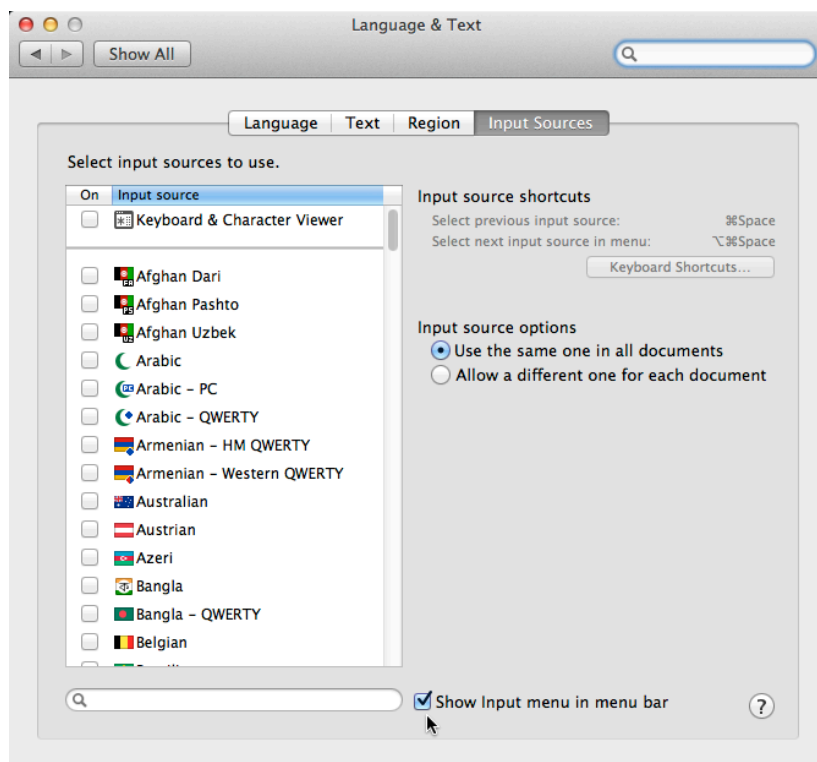


In the Language & Text window, click on the **Input Sources** tab.

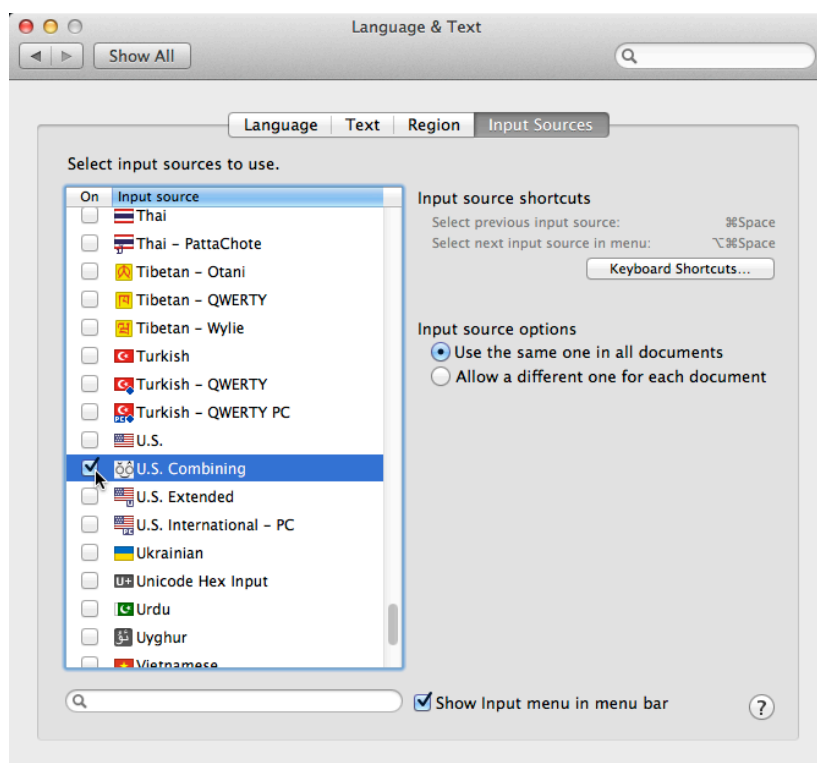


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It is a good idea to checkmark **Show Input menu in menu bar** (bottom right of the Input Sources window): you will get the handy **Keyboard menu** near the top right of your menu bar.

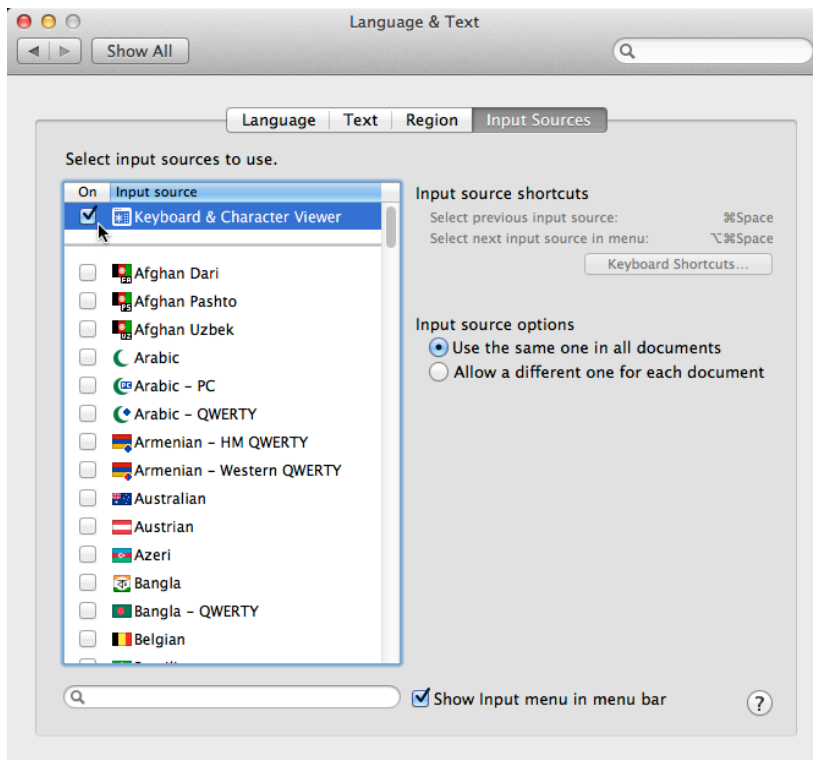


In the long list of input sources, checkmark the **U.S. Combining** keyboard.

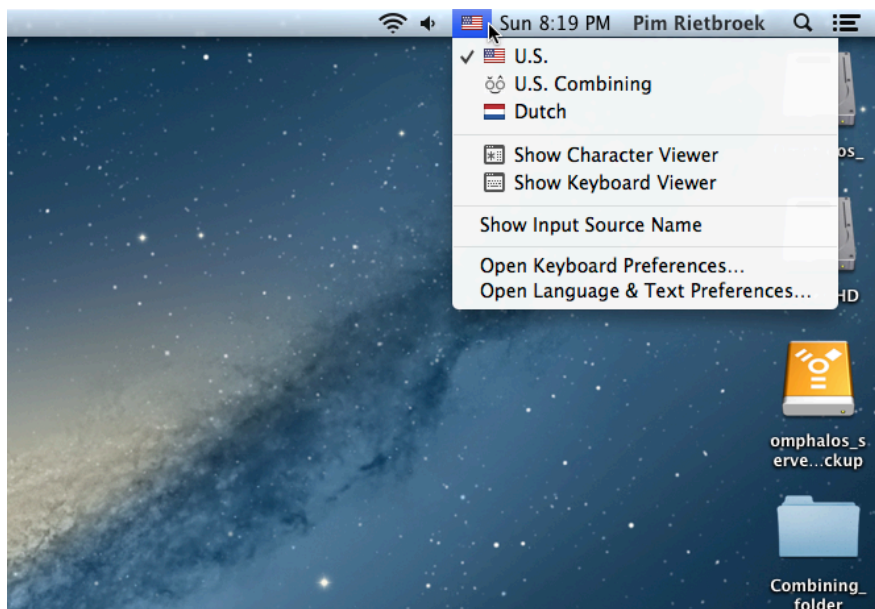


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It is a good idea to also checkmark **Keyboard & Character Viewer** in the same list.



Quit System Preferences. You should now see the Keyboard menu in the right-hand half of your menu bar, and after clicking on the Keyboard icon the menu drops down, showing you all the active keyboards, among which you will see the U.S. Combining keyboard listed.



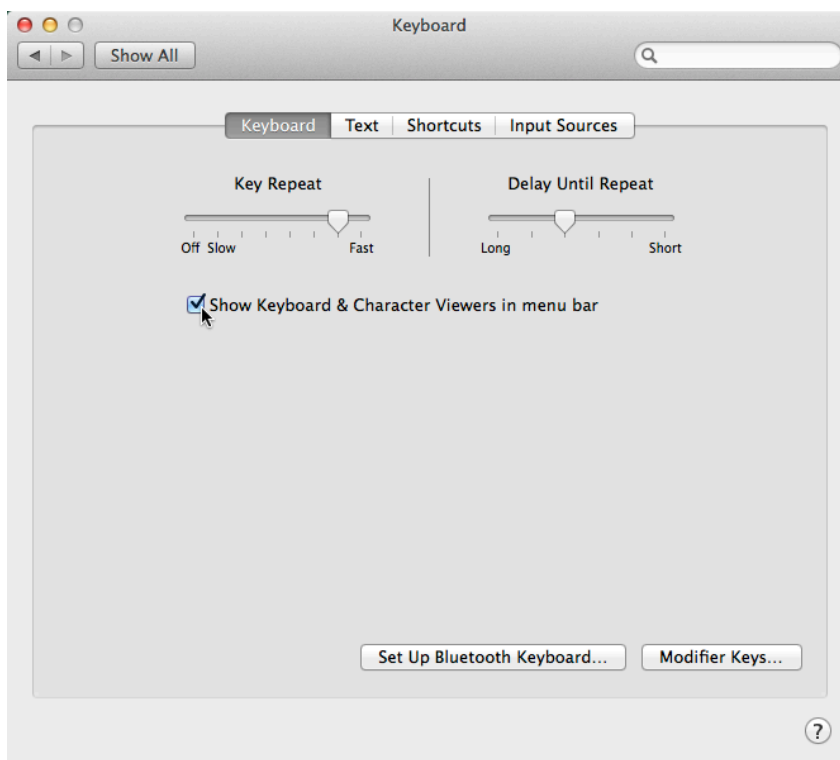
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OS X 10.9 'Mavericks' and OS X 10.10 'Yosemite'

Go to **System Preferences** and choose **Keyboard**.

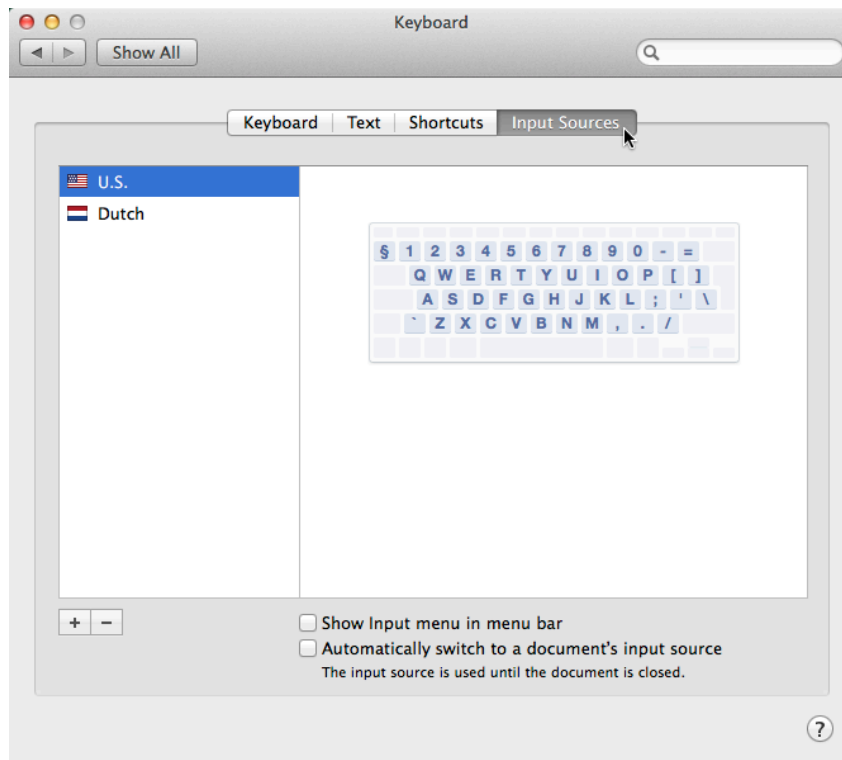


In the Keyboard window (with the Keyboard tab active), checkmark **Show Keyboard & Character Viewers in menu bar**.

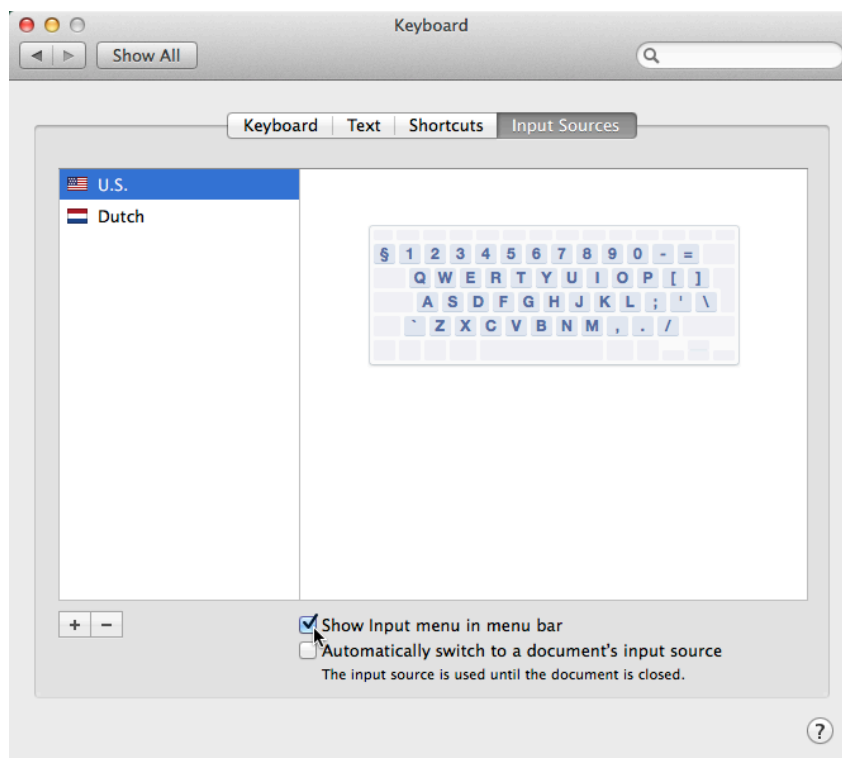


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Then, click on the **Input Sources** tab.

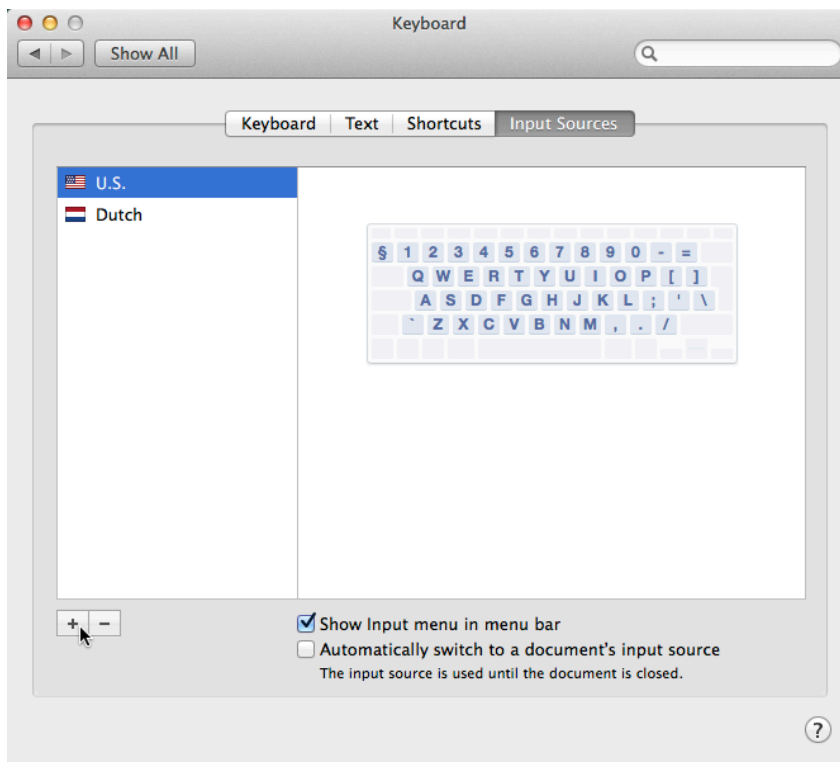


It is a good idea to checkmark **Show Input menu in menu bar** [near the bottom of the Input Sources window]: you will get the handy **Keyboard menu** near the top right of your menu bar.

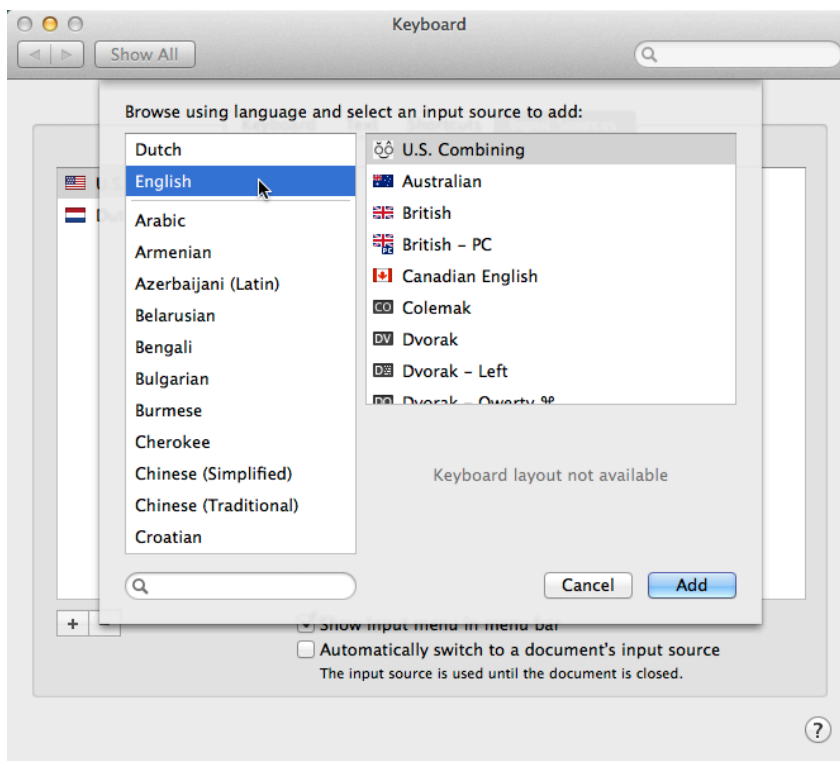


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The left-hand column of the Input Sources menu shows all the keyboards that are currently active. At bottom left, click on the '+' button.

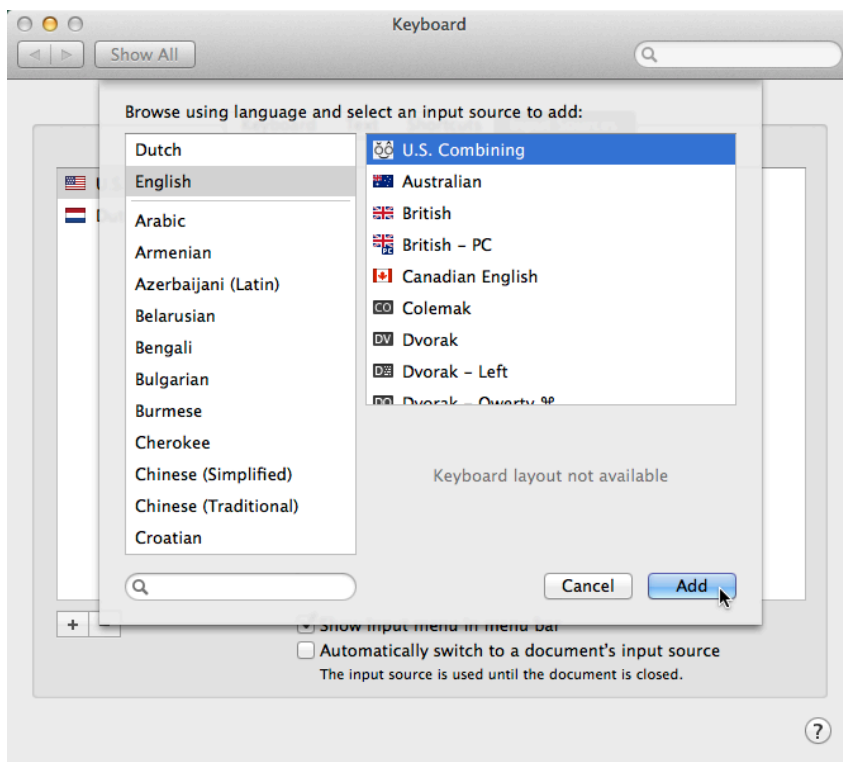


In the dropdown list that appears, click once on 'English' in the left-hand column.



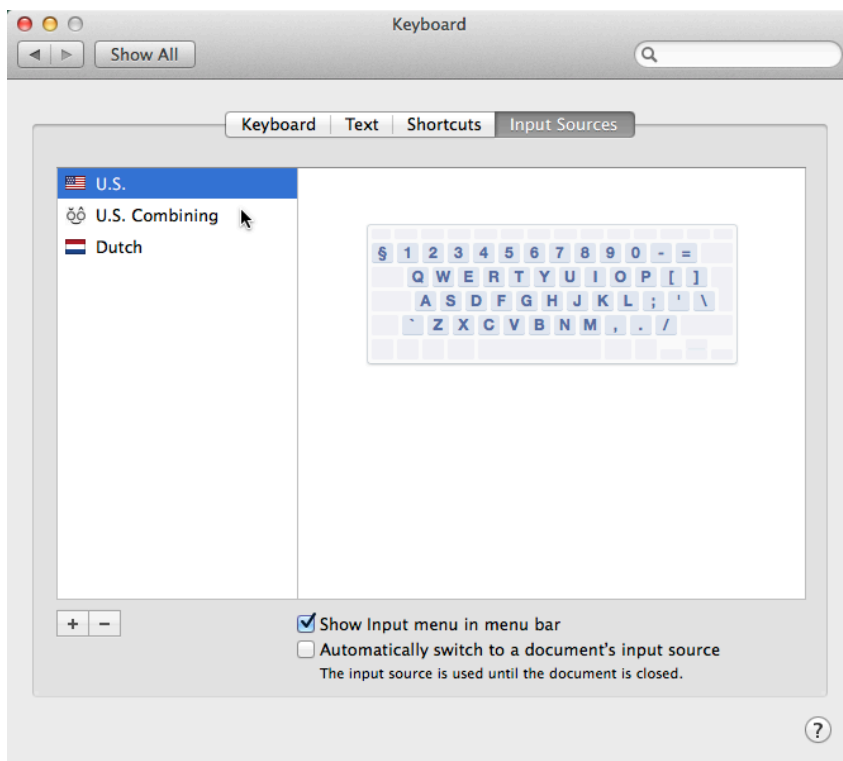
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In the right-hand column, click on **U.S. Combining** to select it



and click on the 'Add' button near the lower right.

The U.S. Combining keyboard will now be shown as an active keyboard:



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Quit System Preferences. You should now see the Keyboard menu in the right-hand half of your menu bar, and after clicking on the Keyboard icon the menu drops down, showing you all the active keyboards, among which you will see the U.S. Combining keyboard listed.



3 USING THE U.S. COMBINING KEYBOARD LAYOUT

The ‘U.S. Combining’ **plain** keyboard layout (the one that is active when no modifier key such as Shift or Option [alt, ⌘] or Control [ctrl, ⌘] is pressed) is the same as the regular ‘U.S.’ keyboard and the same goes for the **Shift** keyboard state, so you can use it as your regular keyboard for unaccented English-language text. Pressing **Option**, **Option-Shift**, **Option-Control**, or **Option-Shift-Control** provides access to most combining characters, as well as to a few special ‘space’ characters and to the Combining Grapheme Joiner [U+034F].

Consult the keyboard charts called [US_Combining_keyboard_2_3_diagrams.pdf](#) for the position of the combining characters. Or, if you prefer, use the Keyboard Viewer which has been activated in the Keyboard menu.

Please note that you should *first* type the **base character** and *after that* the **combining accent(s)**. This is contrary to the way ‘deadkeys’ for precomposed characters are used.

When a character has **multiple stacked accents**, the order of typing is **inside out**, *i.e.*, you first key the character closest to the base character and then work outwards.

When a base character has multiple accents **below and above**, key the set on one side first, and then the other set on the other side. To get correct positioning, do not mix or alternate above-below-above (etc.), or vice versa. When a base character carries *exactly* one diacritic below and one diacritic above, it does not matter which of the two you insert first.

Bridging characters, like the ‘combining double breve below’ [U+035C] and the ‘combining double inverted breve’ [U+0361] are keyed (inserted) between the two characters they are supposed to bridge.

Note on the disposition of the combining characters: the basis for the character layout was the U.S. **Extended** keyboard layout bundled with OS X. Where U.S. Extended has deadkeys for accents, the same accents – but now the combining ones – were positioned in the Option and Shift-Option states. So many accents will be in positions familiar to users of U.S. Extended. But many, many others were added afterwards; therefore one should never assume a one-to-one correspondence of the

two keyboard layouts. Consulting this documentation, and especially the separate keyboard charts, is the best way to get used to the layout of **U.S. Combining**.

4 FINDING THE CHARACTERS ON THE KEYBOARD

You can check out which character is under which key by choosing **Show Keyboard Viewer** from the Keyboard menu, after you have selected the keyboard you want to inspect, such as U.S. Combining. You can use modifiers such as Shift, Option (= alt, ⌥), Option-Shift, and Option-Shift-Control, and the Keyboard Viewer will reflect these changes.

But because diacritics are usually small and therefore hard to distinguish, and combining diacritics are sometimes awkwardly placed in the Keyboard Viewer, the **keyboard diagrams** in PDF format (see the file **US_Combining_keyboard_2_3_diagrams.pdf**) provide a clearer overview of the characters and their positions on particular keys. Also, these keyboard diagrams clearly indicate the Unicode hexadecimal value of each combining character, which will help distinguish between characters which closely resemble each other in shape or position, such as:

◌̇	U+0307	COMBINING DOT ABOVE
◌̇	U+0358	COMBINING DOT ABOVE RIGHT
and		
◌̈	U+0320	COMBINING MINUS SIGN BELOW
◌̈	U+0331	COMBINING MACRON BELOW
◌̄	U+0332	COMBINING LOW LINE.

5 INFORMATION FOR USERS OF NON-U.S. KEYBOARDS

Users of non-U.S. keyboards will be perfectly able to use the U.S. Combining keyboard, but they should be aware of a few differences between hardware keyboards. The keyboard diagrams use the **U.S.-English** language hardware keyboard layout. Also note that the keyboard diagrams bundled with the keyboard are all of the **QWERTY** kind, in the sense that that is the basic hardware layout reference of the keyboard.

Another hardware aspect that merits attention: there exist both ANSI (mostly used in the U.S.) and ISO hardware keyboards (mostly used outside the U.S.), which differ slightly in the shape and/or position of the Return key, the Backslash key, the Grave accent/Tilde key, and the presence or absence of the \$/± key. I provide keyboard diagrams for both ANSI and ISO keyboard layout diagrams in the file **US_Combining_keyboard_2_3_diagrams.pdf**. [I have not been able to take JIS (Japanese) layouts into account, because I do not have access to a hardware JIS keyboard, which I would need to test the (software) keyboard.]

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I have not made diagrams showing non-QWERTY layouts, like QWERTZ (German, a.o.), AZERTY (French, a.o.), etc. etc. So you may need to do some mental swapping of a few hardware keys, or you could just print out the keyboard diagrams and write up the few differences on the printed version!