

Version 1.5



Biblical Hebrew (Tiro) keyboard manual

© John Hudson, 2004, 2007. For keyboard driver version 1.5
See below for upgrade instructions

Introduction

This manual and keyboard charts are designed to help you make use of Tiro Typework's Biblical Hebrew keyboard driver (v1.5). This keyboard driver has been developed to facilitate typing of Biblical texts including *teamin* (accents/cantillation marks) and *nikudot* (vowel points). The driver works with the Windows 2000, XP and Vista operating systems, and is being made available for download from the Society of Biblical Literature website (www.sbl-site.org) as a service to scholars using the new SBL Hebrew font. The keyboard layout was developed by John Hudson, the designer of the SBL Hebrew typeface.

Note that the keyboard driver can only be installed on Windows 2000 and later. Because the keyboard driver, like the SBL Hebrew font, relies on Unicode character encoding, it cannot be installed on older operating systems and will not work with non-Unicode applications that rely on 8-bit character sets.

Upgrading

Version 1.5 of the Tiro Biblical Hebrew keyboard supports characters added in version 5.0 of the Unicode Standard and additional characters for Dead Sea Scrolls transcription. It supercedes the previous release version, 1.2, which added support for new characters in Unicode 4.1.

If you have a previous version of the keyboard installed on your system, and wish to upgrade, you will need to uninstall the old one before installing the new one. Because the installation procedure for previous versions was more complicated than for this new one, the uninstall procedures are also. Before the old keyboard driver can be uninstalled, it must be manually removed from the installed Text Services. Follow the uninstall instructions for previous versions on page 10 to perform this operation and to finish uninstalling the old version. Once the old version is uninstalled, you are ready to install version 1.5.

Installation

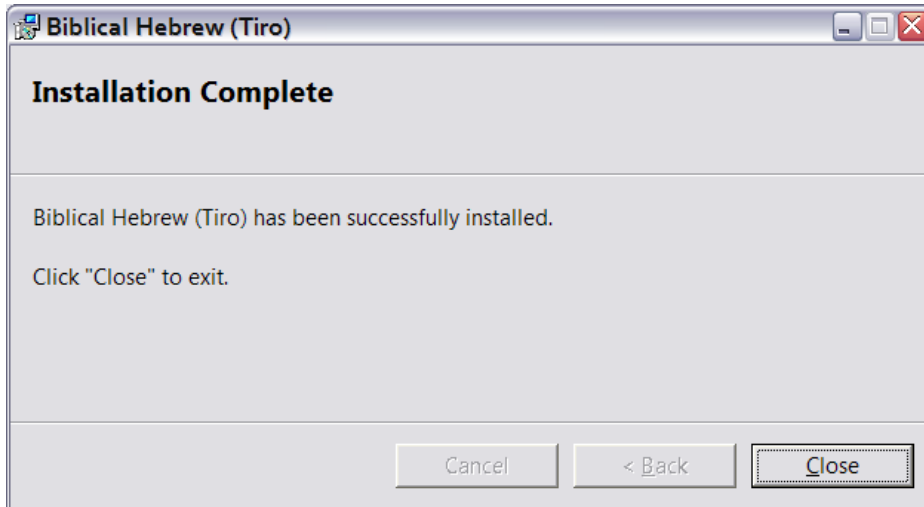
The installation procedure for this version of the keyboard differs from previous versions, so please review these instructions carefully. The good news is that the installation is considerably easier. The new version includes several different keyboard drivers for use with different versions of Windows, and a single setup file that automatically selects and installs the appropriate driver for your system configuration. This new installation procedure also automatically adds the keyboard to your installed Text Services, removing the need to do this manually. [Instructions for manual addition of the keyboard to installed services are still documented in this manual, since they will be of use in managing such services if you need to disable or re-enable the keyboard drivers. See 'Managing keyboards' on pages 12–13] The keyboard driver can be uninstalled using system tools, as documented on page 12, so this version of the keyboard does not ship with an uninstall file.

The keyboard drivers and installer are delivered as a self-extracting zipped archive, `BHebTiro(v1.5).exe`. To unzip the archive, simply double-click on this file. The contents will be unzipped to a directory structure in the same location as the archive:

```
/Biblical Hebrew keyboard (Tiro) v1.5
  /amd64
  /i386
  /ia64
  /wow64
  BHebTiro_amd64.msi
  BHebTiro_i386.msi
  BHebTiro_ia64.msi
  setup.exe
```


To install the keyboard driver appropriate to your operation system, simply double-click on the `setup.exe` file. This will trigger three automatic operations: copying of the appropriate driver file to your Windows system folder, adding a registry entry for the new keyboard, and adding


the keyboard to your installed Text Services. These operations may take a couple of minutes, during which your computer may not appear to be doing anything. Be patient. When the installation is complete, you will receive a confirmation message:



Using the language bar

You are now ready to start using your Biblical Hebrew keyboard driver. The keyboard has been installed to your Text Services along with other keyboard drivers for different languages that you might use. Your default keyboard, *e.g.* US English, is automatically active in all applications; other keyboards are activated in individual application sessions using the language bar.

The language bar displays, in minimised mode, as a two-letter language icon in your taskbar. If your default input language is English, you will see a small square with the letters EN:  If you left-click once on this icon a list of all text services supported languages will pop up. To use your Biblical Hebrew keyboard, select the Hebrew language (HE) from the pop-up list. Note that this keyboard selection will only apply to the application you are using when you switch to the Hebrew keyboard; other applications will continue to use your default keyboard or whichever one you have been using in them. If you want to use the Hebrew keyboard in more than one application, you will need to activate it for each application. If the Tiro Biblical Hebrew keyboard is the only keyboard you have associated with the Hebrew language, you are now ready to start typing Biblical Hebrew.

If you have more than one keyboard associated with the Hebrew language, the language bar should display a small keyboard icon next to the HE language icon when Hebrew is selected:  If you hover your mouse pointer over the keyboard icon, it will display the name of the keyboard currently selected. If it is not the keyboard you want, click on the keyboard icon and select the preferred keyboard from the pop-up list. [Note that due to a display problem the keyboard icon might not appear immediately when you select the Hebrew language icon. To correct this, right-click on the language icon and select 'Restore the Language Bar' from the pop-up menu. This will display the full language bar on your desktop. Click the small minimise button in the top right of the language bar to return it to the taskbar: the keyboard icon should now be displayed next to the Hebrew language icon.]

Using the keyboard

• **Normal state.** The Tiro Biblical Hebrew keyboard matches the positioning of consonants in the modern Israeli standard keyboard. Unlike some Hebrew keyboard, this standard does not phonetically relate Hebrew letters to English equivalents (*e.g.* ק=Q, י=Y), but instead maps Hebrew letters in a manner most convenient for efficient touch-typing. This means that it may take some time and practice to familiarise yourself with the layout, but in the longer term you should be able to achieve decent typing speeds. Only the consonants and European numbers strictly follow the layout of the Israeli standard keyboard: many modern punctuation characters that are not found in Biblical texts have been relocated from the normal and Shift states to the less commonly accessed Shift+AltGr state.

• **Shift state.** This state is of the Tiro keyboard is completely given over to combining marks. These are arranged by type and by their default position relative to a consonant. For example, cantillation marks such as *telisha gedola* that are positioned above and at the right of a consonant are grouped in the top right corner of the keyboard. Similarly, all cantillation marks that are positioned below a consonant are grouped in the bottom row of the keyboard. The vowel points—with the exception of *holum*, which is grouped with the above marks in the top row—are all arranged for most convenient access on the ‘home’ row of keys where the fingers rest.

• **AltGr state.** Some keyboard hardware makes a distinction between the left and right Alt keys, identifying the latter as AltGr. Even if your keyboard does not have the right Alt key labelled as AltGr, some applications will treat it as distinct. This means that, alone and in combination with the Shift key, two additional states can be utilised for text input. *If you find that holding down the right Alt key does not provide access to this state, you can press a combination of Ctrl+Alt instead.* The most important keys in the AltGr state of the Tiro Biblical Hebrew keyboard are the control characters in the number row at the top of the keyboard. The use of these characters to affect rendering is detailed in the SBL Hebrew font

manual. Note that this state contains three double-consonant characters that are included in the Microsoft standard Hebrew keyboard; these are Yiddish digraphs and should not be used in encoding Hebrew text.

• **Shift+AltGr state.** This state contains modern punctuation characters not found in Biblical texts, remapped from their positions in the Shift state of the Microsoft standard Hebrew keyboard.

The keyboard charts

The charts on the following four pages show the layout of the different states of the Tiro Biblical Hebrew keyboard. Each key is represented by a diagram containing an image of the character, a key identifier, a mnemonic name and the character’s Unicode value. There are three types of keys:



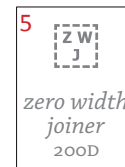
Base character key

The large black glyph shows the character. The red letter or other character in the top left corner indicates the English keyboard identifier (*e.g.* the *alef* is located on the T key). The grey text below the glyph names the character and gives its Unicode value.



Combining character key

The black glyph shows the default positioning of the mark on a consonant, represented by a grey dotted circle. The other information is the same as on the base character key.



Control character key

Control characters are not normally displayed in text, and have no advance width, so they are represented in the key charts by a grey identifier in a dotted square. The other information is the same as on the base character key.

Note that the names on the key diagrams are meant only as an aid to identification. In some cases they have been abbreviated to fit on the

key diagram, and not all names correspond directly to Unicode Standard character names or any other nomenclature. The Hebrew cantillation marks have different names in different traditions (the Sephardic and Ashkenazic traditions even use the same names for different marks) so users should be guided by the appearance of the glyph and the Unicode value rather than the name.

Known input issues

The Tiro Biblical Hebrew keyboard has been tested with a variety of applications. The keyboard functions correctly in all test situations, inputting Unicode character values as specified in the charts on the following pages. However, a number of bugs have been identified in test applications. Most seriously, some shift-state keys on the Tiro Biblical Hebrew keyboard trigger an unwanted font change that breaks correct text rendering in Microsoft Office Xp, including Word 2002 (this bug has been fixed in Word 2003 and 2007). Also, some applications, including Word, use the AltGr state of some keys as shortcuts to application functions, and these may override character entry from the Tiro Biblical Hebrew keyboard. Plain text applications such as Notepad do not have these problem, so it is possible to work around the bug by typing text in a plain text editor and then pasting it into Word or another application.

Biblical Hebrew (Tiro) – US Standard layout

State : Normal

⋮ <i>sof pasuq</i> 05C3	1 1 <i>one</i> 0031	2 2 <i>two</i> 0032	3 3 <i>three</i> 0033	4 4 <i>four</i> 0034	5 5 <i>five</i> 0035	6 6 <i>six</i> 0036	7 7 <i>seven</i> 0037	8 8 <i>eight</i> 0038	9 9 <i>nine</i> 0039	0 0 <i>zero</i> 0030	- - <i>maqaf</i> 05BE	= ○ <i>bullet†</i> 25E6	Backspace
Tab	Q ◌̇ <i>masora dot</i> 0307	W ' <i>geresh p.</i> 05F3	E ק <i>qof</i> 05E7	R ר <i>resh</i> 05E8	T א <i>alef</i> 05D0	Y ט <i>tet</i> 05D8	U ו <i>vav</i> 05D5	I ן <i>final nun</i> 05DF	O ם <i>final mem</i> 05DD	P פ <i>pe</i> 05E4	[[<i>bracket*</i> 005D]] <i>bracket*</i> 005B	\ <i>paseq</i> 05C0
Caps Lock	A ש <i>shin</i> 05E9	S ד <i>dalet</i> 05D3	D ג <i>gimel</i> 05D2	F כ <i>kaf</i> 05DB	G ע <i>ayin</i> 05E2	H י <i>yod</i> 05D9	J ח <i>het</i> 05D7	K ל <i>lamed</i> 05DC	L ך <i>final kaf</i> 05DA	; ף <i>final pe</i> 05E3	' ◌̇ <i>yetiv</i> 059A	Enter	
Shift	Z ז <i>zayin</i> 05D6	X ס <i>samekh</i> 05E1	C ב <i>bet</i> 05D1	V ה <i>he</i> 05D4	B נ <i>nun</i> 05E0	N מ <i>mem</i> 05DE	M צ <i>tsadi</i> 05E6	, ת <i>tav</i> 05EA	. ץ <i>final tsadi</i> 05E5	/ ◌̇ <i>dehi</i> 05AD	Shift		
Ctrl		Alt	Space <i>word space</i> 0020					Alt (AltGr)		Ctrl			

Consonant positions are based on Israeli standard keyboard.

Most of the modern punctuation, not used in Bible texts, has been relocated to the AltGr+Shift state.







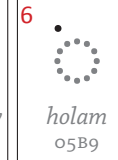
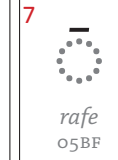
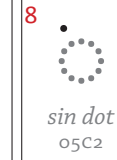





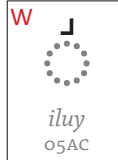




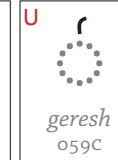
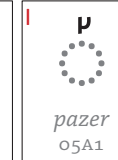

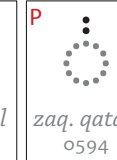
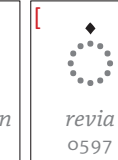


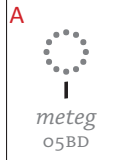





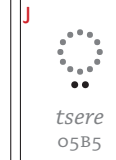
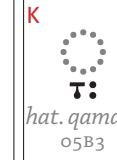
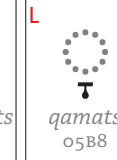








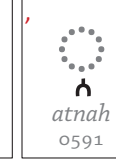


Note presence of combining marks *yetiv* and *dehi* and the double number dot for thousands in this state; these would not fit on the shift state with the other combining marks.

* Mirrored character: some applications may reverse display, e.g.)→(

† Dead Sea Scrolls transcription character

Biblical Hebrew (Tiro) – US Standard layout

State : SHIFT

 zinator 05AE	1  tel. qetana 05A9	2  pashta 0599	3  segolta 0592	4  masora c. 05AF	5  hol. for vav 05BA	6  holam 05B9	7  rafe 05BF	8  sin dot 05C2	9  shin dot 05C1	0  g. muqdam 059D	-  tel. gedola 05A0	=  dagesh 05BC	Backspace	
Tab	Q  punctum 05C4	W  iluy 05AC	E  ole 05AB	R  qar. para 059F	T  shalsholet 0593	Y  gershayim 059E	U  geresh 059C	I  pazer 05A1	O  zaq. gadol 0595	P  zaq. qatan 0594	[ revia 0597]	^  zarqa 0598	~  qadma 05A8
Caps Lock	A  meteg 05BD	S  sheva 05B0	D  qubuts 05BB	F  hiriq 05B4	G  hat. segol 05B1	H  segol 05B6	J  tsere 05B5	K  hat. qamats 05B3	L  qamats 05B8	;	'  hat. patah 05B2	Enter		
Shift	Z  punctum 05C5	X  mahapakh 05A4	C  yer. ben yomo 05AA	V  mer. kefula 05A6	B  merkha 05A5	N  darga 05A7	M  tevir 059B	,	ˆ  atnah 0591	˙  tipeha 0596	/  munah 05A3	Shift		
Ctrl		Alt	Space word space 0020					Alt (AltGr)		Ctrl				

Combining marks are arranged by type and by normal position relative to a consonant.

Number row: above marks, incl. prepositional *teamin*, consonant modifiers, *holam*, textual marks, postpositional *teamin*.

Top row: *dagesh*, above centre *teamin*, upper punctum.

Middle row: below *nikud*.

Bottom row: below *teamin*, lower punctum.

Biblical Hebrew (Tiro) – US Standard layout”

State : ALTGR (ALT+CTRL)

;	1	2	3	4	5	6	7	8	9	0	-	=	Backspace
semicolon 003B		strikeout† 0336	ring above† 030A	sheqel 20AA	zero width joiner 200D	zero width non joiner 200C	c. grapheme joiner 034F	left-to-right mark 200E	right-to-left mark 200F	generic mark base 25CC	hyphen 002D	bullet† 2022	
Tab	Q	W	E	R	T	Y	U	I	O	P	[]	\
	thousands 0308	gersahyim p. 05F4	euro 20AC				dbl. vav 05F0						backslash 005C
Caps Lock	A	S	D	F	G	H	J	K	L	;	'	Enter	
						dbl. yod 05F2	yod-vav 05F1		qam. qatan 05C7		comma 002C		
Shift	Z	X	C	V	B	N	M	,	.	/	Shift		
			atn. hafukh 05A2		n. hafukha 05C6					period 002E			
Ctrl		Alt	Space					Alt (AltGr)		Ctrl			
			thin space 2009										

Note control characters in number row; these will not display and have no advance width, but can be used to affect rendering of specific character combinations. See SBL Hebrew font manual for more information.

† Dead Sea Scrolls transcription character

The double consonant characters are Yiddish digraphs and should not be used for Hebrew text.

Biblical Hebrew (Tiro) – US Standard layout

State : ALTGR+SHIFT (ALT+CTRL+SHIFT)

~ <i>asciitilde</i> 007E	1 ! <i>exclamation</i> 0021	2 @ <i>at sign</i> 0040	3 # <i>numbersign</i> 0023	4 \$ <i>dollar</i> 0024	5 % <i>percent</i> 0025	6 ^ <i>asciicircum</i> 005E	7 & <i>ampersand</i> 0026	8 * <i>asterisk</i> 002A	9 (<i>paren.*</i> 0029	0) <i>paren.*</i> 0028	- _ <i>underscore</i> 005F	= + <i>plus</i> 002B	Backspace
Tab	Q / <i>slash</i> 002F	W ' <i>quote</i> 0027	E	R	T	Y	U	I	O	P	[{ <i>brace*</i> 007D] } <i>brace*</i> 007B	\ <i>bar</i> 003B
Caps Lock	A	S	D	F	G	H	J	K	L	; : <i>colon</i> 003A	' " <i>dbl. quote</i> 003B	Enter	
Shift	Z	X	C	V	B	N	M	, < <i>less</i> 003E	. > <i>greater</i> 003C	/ ? <i>question</i> 003F	Shift		
Ctrl		Alt	Space <i>no-break space</i> 00A0					Alt (AltGr)		Ctrl			

This state is populated with punctuation characters that may be encountered in modern Hebrew text, and which are mapped in the shift state of the Microsoft standard Hebrew keyboard.

* Mirrored character: some applications may reverse display, e.g.)→(

Uninstalling previous versions

If you have previously installed version 1.0 or 1.2 of the Biblical Hebrew (Tiro) keyboard driver, you will need to uninstall it before you can install the new version. To uninstall a previous version, please follow these steps. *Note that the appearance of windows and dialogue boxes may differ somewhat from those illustrated here depending on your version of Windows and your display preference settings.*

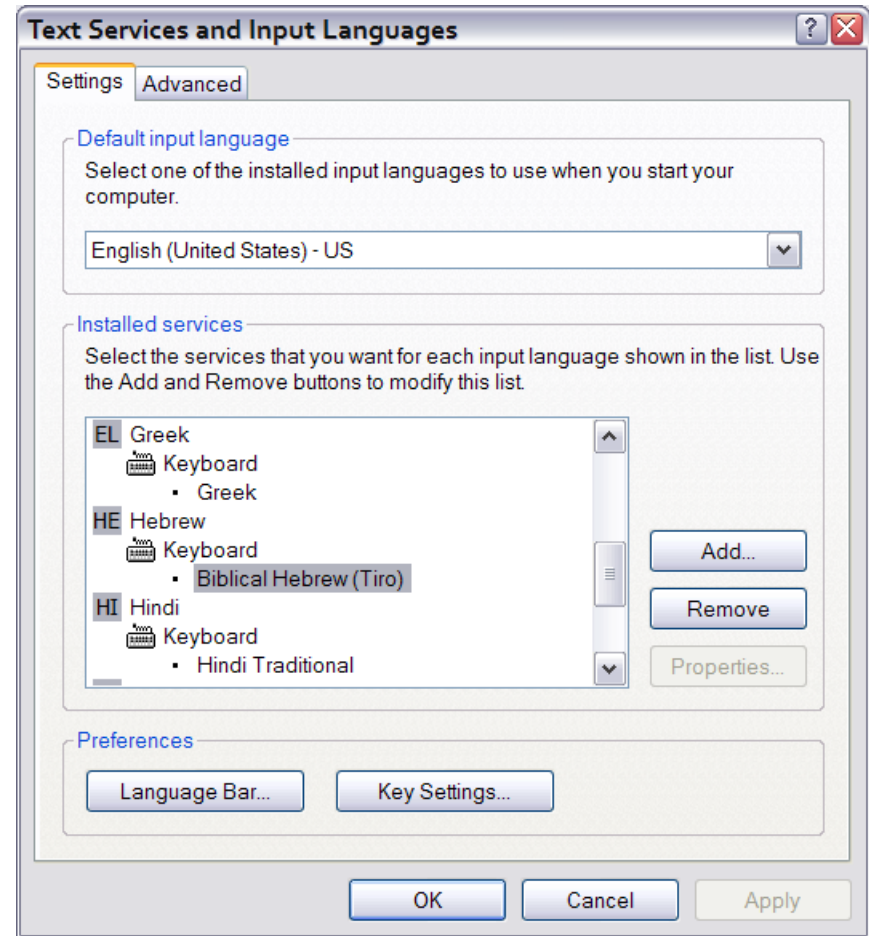
Before the keyboard driver file can be removed from your system and replaced with the new driver, it must first be uninstalled from your Text Services. This is a manual operation.

Right-click on the Language icon in the lower right of your screen, *i.e.* the same icon that you use to select particular keyboards. [This icon displays the two-letter code for the active keyboard, e.g. EN or HE.] When you right-click on this icon, you will be presented with a number of options. Select the *Settings...* option. This will open the Text Services and Input Languages window shown opposite. [Alternatively, you can access the Text Services and Input Languages window from Regional and Language Options in your Control Panel.]

In the Text Services and Input Languages settings panel, scroll down to the Hebrew installed services and select the Biblical Hebrew (Tiro) keyboard. Now click the *Remove* button on the right. This will remove the Tiro keyboard from installed services so that it can be uninstalled from the system. Click *OK* to close this window.

To remove the old driver from your system directory and registry, you should be able to use the Windows Add/Remove Programs tool, which can be accessed via your Control Panel. Go to your Start menu (the *start* button usually located in the lower left of your screen), left-click, and navigate to the Control Panel. Depending on how your Start menu is configured, the Control Panel will either be directly accessible from the Start menu, or via the Settings sub-menu.

In the Control Panel, select 'Add or Remove Programs'. This will open the tool that enables you to remove installed software on your system.



It will probably take a minute or more to populate the list of installed software, depending on how many programs you have on your computer. When the list is populated, scroll down to the entry for 'Biblical Hebrew (Tiro)', select it, and then click the *Remove* button. [If you cannot locate this entry, please see the advanced instructions on the next page.] Once this is done, you can close the Add/Remove Programs tool, and are ready to install the new version of the Biblical Hebrew keyboard driver.

Advanced: manual removal of previous versions

Under certain circumstances, it is possible that the old Biblical Hebrew (Tiro) keyboard driver may fail to show up in the list of installed software in the Add/Remove Programs tool. This should be a rare situation, with which few users should need to contend. But if it does happen then the old driver will need to be uninstalled manually, following these steps.

First, ensure that the initial steps to remove the driver from installed Text Services, as explain on page 10, have been completed.

Second, delete the driver file from your system directory. In the Windows file explorer, navigate to the WINDOWS/SYSTEM32 directory, locate the BHebTiro.dll file, and delete it.

The third and final step requires you to manually edit your Windows registry. This must be done carefully, because the registry contains important information about every piece of software installed on your system, and a corrupt registry can cause major problems. It is strongly advised to make a backup of your current registry before making any changes.

To create a backup and edit your registry entries, use the Registry Editor tool. You can open this tool from your Start menu *Run...* command. Type 'regedit' in the Run dialogue, and then click *OK*. This will open the Registry Editor tool. The layout of the tool is simple: there is a stacked list of registry 'keys' on the left, and a panel on the right that displays information about the selected key.

To create a backup of the current registry, go to the File menu and select the *Export...* option. This will open a dialogue from which you can save a .reg file to *e.g.* your desktop or some other convenient location. Make sure that the 'All' option in the 'Export range' field is selected. Give your backup file a name (*e.g.* the current date) and click *Save*. It will take a little while for the registry to be saved, during which time the Registry Editor tool will be inactive.

Once the registry is backed up, click on the small + mark in the box beside the HKEY_LOCAL_MACHINE key in the list of registry keys. This

will expand the contents of that item. Now click on the + beside the newly exposed SYSTEM key, then on the + beside the CurrentControlSet key, and then on the + beside the Control key. You should now be presented with a long list of system services including Keyboard Layouts. [Note that there will also be an entry labelled Keyboard Layout, without the final s. This is not the one you want.]

Click on the + mark in the box beside Keyboard Layouts. This will expose the list of all registry keys for installed keyboard drivers. This list is coded with 8-character names, *e.g.* 00000401. Scroll down the list until you see names starting with the letter a, *e.g.* a0000409; these are custom keyboards and will include the entry for the Biblical Hebrew (Tiro) driver. Unfortunately, because the coded names vary from computer to computer, you will need to check each key beginning with a to find the correct one. Click on each key in the list beginning with a, looking at the information displayed in the righthand panel, until you find the one for which the 'Layout Text' data reads 'Biblical Hebrew (Tiro)'.

With the appropriate list entry selected, simply hit Delete on your keyboard to remove this registry entry. You will be asked to confirm that you wish to delete the key and its sub-keys; click *Yes*. Note that this operation cannot be reversed *so be absolutely sure that you have selected the correct key*. Once you have deleted the entry, you can close the Registry Editor tool (there is no need to 'save' your edits: they are completed as soon as you make them).

You have now completely removed the old keyboard driver from your system.

If you make an error at any stage while editing the Windows registry, import your backup .reg file (*Import* in the Registry Editor File menu), and start again.

Uninstalling version 1.5

It is relatively easy to uninstall version 1.5 of the keyboard driver. Unlike previous versions, it is not necessary to first manually remove the driver from installed Text Services. The whole uninstall process can be managed from the Add/Remove Programs tool.

Go to your Start menu (the *start* button usually located in the lower left of your screen), left-click, and navigate to the Control Panel. Depending on how your Start menu is configured, the Control Panel will either be directly accessible from the Start menu, or via the Settings sub-menu.

In the Control Panel, select 'Add or Remove Programs'. This will open the tool that enables you to remove installed software on your system. It will probably take a minute or more to populate the list of installed software, depending on how many programs you have on your computer. When the list is populated, scroll down to the entry for 'Biblical Hebrew (Tiro)', select it, and then click the *Remove* button. You will be asked to confirm that you want to remove the driver from your system; click *Yes*. Because the keyboard driver is associated with the Hebrew language, the following uninstall progress and cancellation dialogue may appear in Hebrew. The button labelled ביטול is the cancel button; if you click this at any point during the uninstall progress, the process will be cancelled and the keyboard remain installed.

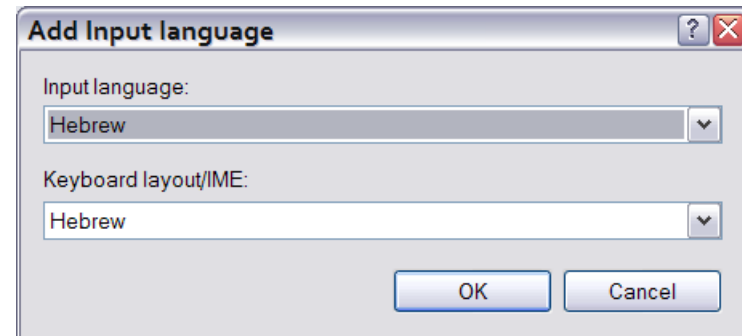
Managing keyboards

You can disable the Biblical Hebrew keyboard driver using the Text Services settings, if you so wish. This will leave the driver installed on your system, but will not provide access to it from the Language icon in your Taskbar. Similarly, you can use the Text Services settings to re-enable the keyboard.

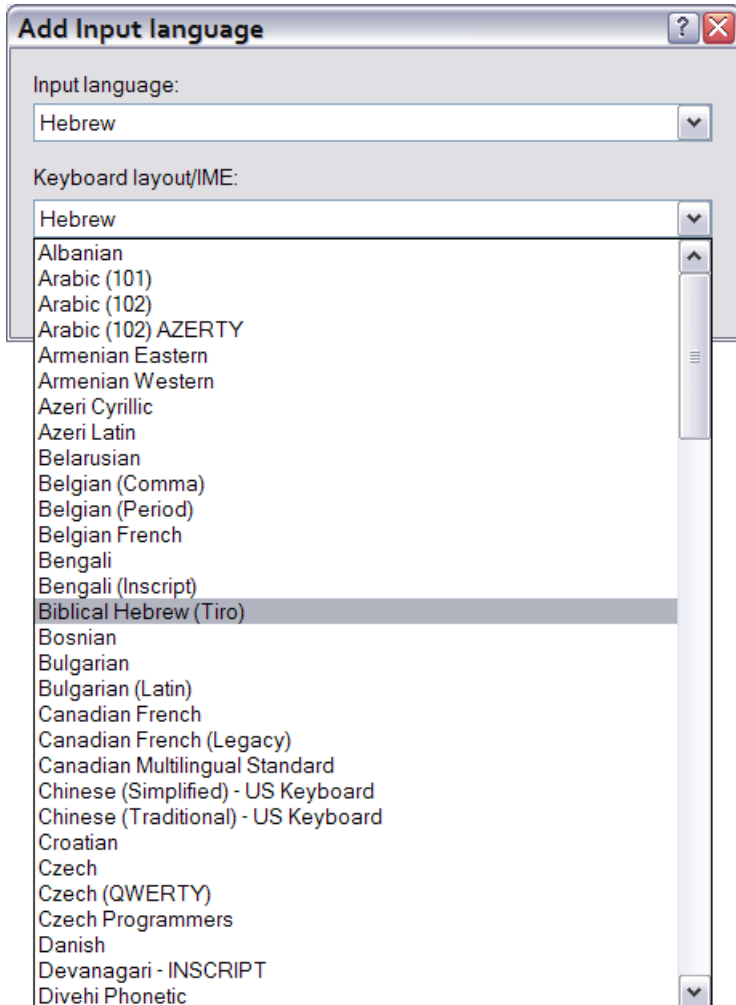
To disable the keyboard, right-click on the Language icon in the lower right of your screen, *i.e.* the same icon that you use to select particular keyboards. [This icon displays the two-letter code for the active keyboard, e.g. EN or HE.] When you right-click on this icon, you will be presented with a number of options. Select the *Settings...* option. This will open the Text Services and Input Languages window as shown in the illustration on page 10. [Alternatively, you can access the Text Services and Input Languages window from Regional and Language Options in your Control Panel.]

In the Text Services and Input Languages settings panel, scroll down to the Hebrew installed services and select the Biblical Hebrew (Tiro) keyboard. Now click the *Remove* button on the right. This will remove the Tiro keyboard from installed services but leave the driver installed on your system. Click *OK* to close this window.

To re-enable the keyboard, open the Text Services and Input Languages window as described above, and click the *Add...* button. This will open the Add Input Language dialogue:



In the 'Input Language' field, select Hebrew from the dropdown list. In the 'Keyboard layout/IME' field, select Biblical Hebrew (Tiro) from the dropdown list.



Note that the list will default to the standard Israeli Hebrew keyboard, and you will need to scroll up to the Biblical Hebrew (Tiro) entry. Select the latter, and then click *OK* to close the Add Input Language dialogue.

You should now see the Tiro keyboard installed for Hebrew in the Text Services window. Click *OK* to close this window and continue working.

