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<http://www.senamirmir.com>

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Introduction

WashRa 4.0 consists of a set of Ethiopic fonts and a keyboard layout and it allows users to produce miscellaneous works with Unicode compatible programs. The fonts entirely support the Ethiopic standard included in Unicode 3.0. The keyboard layout is designed specifically for this purpose; unfortunately, the current version runs only under Windows 2000, XP, and 2003 Server. **MSKLC**¹ was used to generate the layout and it does have a couple of short-comings, but overall it works very well.

Compatibility

The fonts included in WashRa 4.0 are not compatible with the earlier versions of WashRa. You shouldn't edit your old documents with these fonts. If you are upgrading to WashRa 4.0, you can keep your fonts from the earlier version of WashRa in case if you need them. There will not be any conflict with the new ones. The WashRa 4.0 keyboard layout cannot be used to edit works generated with the previous versions.

¹ For more information, visit <http://www.microsoft.com/globaldev/tools/msklc.mspx>

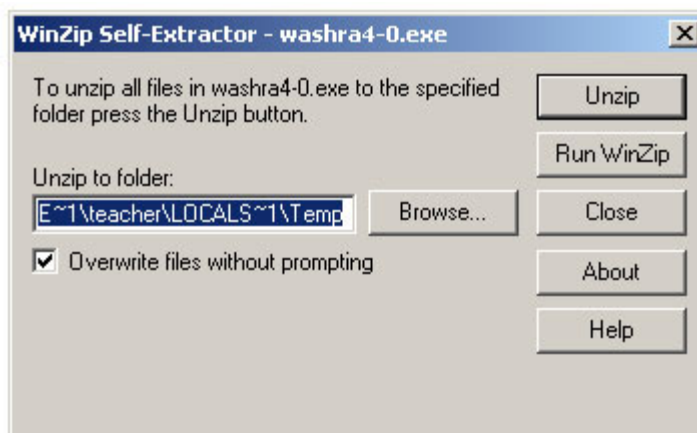
Setup

WashRa 4.0 is distributed with self-extracting zip format. It should be noted that the package needs to be installed on Windows 2000, XP, or 2003 Server.

1. Download WashRa 4.0 from the following site onto your Windows Desktop or a temporary folder where you want to perform the installation. The file name is "washra4-0.exe".

<http://www.senamirmir.com/projects/typography/washra.html>

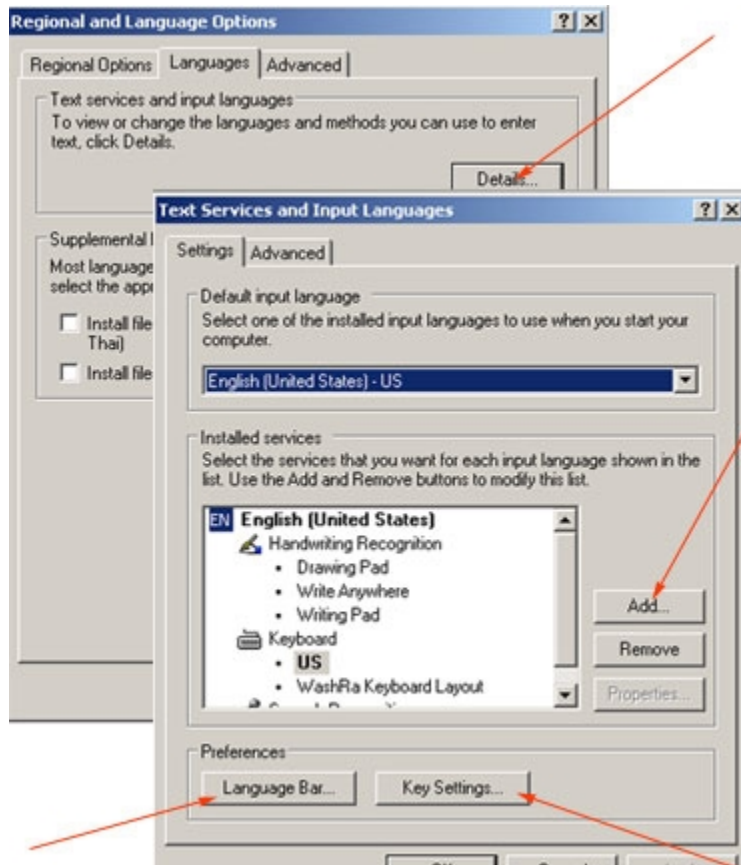
2. From the location where you have saved "washra4-0.exe", perform the self-extracting process by double clicking the file. You should see a dialog box similar to the one shown below. Click the "Browse" button and give the "Desktop" as the unzip folder, and then click the "Unzip" button.



3. Now, you should see on the desktop the folder "washra4-0"; enter to this folder by double clicking it. Among the list of files, there are two of them with the extension "msi" and these are the files that we are going to install step by step as outlined below.
4. Installing WashRa Fonts
 - a. Double click the "**Washra4-0-Fonts.msi**" file. The setup program will start with a welcome statement; now just click "Next" and move to the next step. You will be prompted to provide a destination folder for WashRa, but you can accept the default location and click "Next" to continue the installation.



- b. When the installation is done click the "Close" button and end this session.
5. Return to the "washra4-0" folder, and start setting up the layout by double clicking the "**WashRa- Keyboard-Layout.msi**" file. Unless there is a problem, the installation will complete. Click the "Close" button. Now, we are ready to configure the keyboard layout with Windows.
 - a. Click the "Start" button, and then select "Control Panel".
 - b. Click on "Regional and Language" icon.
 - c. Click on the "Language" tab.
 - d. Click the "Detail" button. Now, another dialog box will be opened something similar to the following figure.



- e. Click the "Add" button; another dialog box will be opened. Click on the "Keyboard Layout/IMF" checkbox; now the list box becomes enabled. Select "WashRa Keyboard Layout" from the list and click "Ok".
- f. Click the "Language Bar" and make sure all the checkboxes are ticked or enabled and click "Ok" when you are done. This will add a language bar on the desktop.
- g. Click the "Apply" button; this should take you back to the "Language" tab. Click once again the "Apply" button, and finish the process.

WashRa Fonts

WashRa is bundled with twelve Ethiopic fonts. All of them support the Ethiopic standard include in Unicode 3.0. Among them, there are three fonts with slant (italic) style which were generated from their family. Basically, creating slanted font is not needed since that can be done dynamically by the host program, but with Ethiopic glyph, the result leaves much desire to be wanted. Hopefully, these slanted fonts will help solve that problem.

Font Names	Samples
Ethiopia Jiret	መልክሉ ፊደል፤ አለቃ ኪዳነ ወልድ ክፍሌ
Ethiopia Jiret Slant	<i>መልክሉ ፊደል፤ አለቃ ኪዳነ ወልድ ክፍሌ</i>
Ethiopic WashRa Bold	መልክሉ ፊደል፤ አለቃ ኪዳነ ወልድ ክፍሌ
Ethiopic WashRa Bold Slant	<i>መልክሉ ፊደል፤ አለቃ ኪዳነ ወልድ ክፍሌ</i>
Ethiopic WashRa SemiBold	መልክሉ ፊደል፤ አለቃ ኪዳነ ወልድ ክፍሌ
Ethiopic WashRa SemiBold Slant	<i>መልክሉ ፊደል፤ አለቃ ኪዳነ ወልድ ክፍሌ</i>
Ethiopic Hiwua	መከንክ ፊደል፤ ክከቃ ኪዳነ ወልድ ክፍሌ
Ethiopic Fantuwua	መከንክ ፊደል፤ ክከቃ ኪዳነ ወልድ ክፍሌ
Ethiopic Yebse	መከንክ ፊደል፤ ክከቃ ኪዳነ ወልድ ክፍሌ
Ethiopic Wookianos	መከንክ ፊደል፤ ክከቃ ኪዳነ ወልድ ክፍሌ
Ethiopic Tint	መከንክ ፊደል፤ ክከቃ ኪዳነ ወልድ ክፍሌ
Ethiopic Yigezu Bisrat Gothic Goffer	መከንክ ፊደል፤ ክከቃ ኪዳነ ወልድ ክፍሌ

Testing WashRa

WashRa 4.0 can be used with applications that support Unicode including MS Office, Open Office, Macromedia Dreamweaver, MS Outlook, Mozilla Thunderbird, and more. For this release, the only limitation is that the keyboard works only under Windows 2000, XP, and 2003 Server. We can our installation using WashRa with MS Word and here is how.

1. Start MS Word. The step may differ from one version to another.
2. Under Word, select one of the WashRa fonts; for instance, "**Ethiopic Hiwua**".
3. Switch the keyboard to WashRa by pressing "**Ctrl+Shift**" or by using the Language Bar.
4. Enter the character as shown below.

ሰንመታ	h,	hu	hi	ha	hy	he	ho
ወጤት	ሀ	ሁ	ሂ	ሃ	ሄ	ህ	ሆ

5. Each Ethiopic character is produced by a combination of two key strokes. At the first key stroke, nothing will be shown, but when second key stroke is completed, the intended character is displayed. If the two key strokes combination is not recognized, a wrong character will be displayed. This doesn't mean that the layout isn't working, but key strokes' sequence is incorrect.
6. If the result is as shown in the table, WashRa is working and the installation is successful; otherwise, the keyboard layout may not be set to WashRa a font is selected correctly.
7. To switch the keyboard layout "regular", press "Ctrl+Shift" or use the language bar.

WashRa Keyboard Layout

WashRa's keyboard layout is compatible to a standard "101 keyboard" under Windows 2000, XP, or 2003 Server. In this section, we will discuss the layout in detail.

Switching Keyboard Layout

There are two methods to switch the keyboard layout from one to another. If you active more than two layouts, the switch takes order.

1. Using short-cut keys: Pressing "Ctrl+Shift" switches the keyboard back and fourth. This can be done as needed.
2. Using language bar: Another option is, of course, to use the language bar which list active layouts.



Key Strokes Composition

Obviously, we cannot make a one-to-one map between 101 keyboard and Ethiopic characters, because the later has more than 300 characters. By composing two keys strokes, however, we can solve the problem.

1. The 1st order (Ge'ez Bate) of each Ethiopic character family is treated as "**base-character**" and a key stroke is designated for each one of them. For each basic-character to reach its final order, it needs to be qualified by a set of key strokes that are identified here as "**qualifier-keys**" and they include ",", "u", "i", "a", "y", "e", and "o". This table illustrates the basic principle of the key stroke composition their mapping to the characters.

	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th
Keys	h,	hu	hi	ha	hy	he	ho
Results	ሀ	ሁ	ሂ	ሃ	ሄ	ህ	ሆ

2. The qualifier keys also are assigned to their own 1st order Ethiopic characters.

3. The six characters family known as "Dikala Fidelat" are entered as shown below.

	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th
Keys	g1	g2	g3	g4	g5	g6	g7
Results	ገ		ገ	ገ	ገ	ገ	

4. The 4th order dikala fidelat;

Keys	l/	m/	r/	s/	u/	b/	...
Results	ሊ	ሚ	ሪ	ሪ	ሪ	ሪ	...

5. Ethiopic punctuation marks;

Keys	.	'	"	/	:	[]
Results	።	፣	፥	፤	፦	«	»

6. Ethiopic numbers;

Keys	1	2	3	4	5	6	7	8	9	0
~	፩	፪	፫	፬	፭	፮	፯	፰	፱	፲
~	፳	፴	፵	፶	፷	፸	፹	፺	፻	፼

A general table illustrating the WashRa keyboard system.

	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	wa	wí	wa	wee	we
	,	u	i	a	y	e	o	/	1	3	4	5	6
h	ḥ	ḥ̣	ḥ̣̣	ḥ̣̣̣	ḥ̣̣̣̣	ḥ̣̣̣̣̣	ḥ̣̣̣̣̣̣						
l	ḷ	ḷ̣	ḷ̣̣	ḷ̣̣̣	ḷ̣̣̣̣	ḷ̣̣̣̣̣	ḷ̣̣̣̣̣̣	ḷ̣̣̣̣̣̣̣					
H	ḥ	ḥ̣	ḥ̣̣	ḥ̣̣̣	ḥ̣̣̣̣	ḥ̣̣̣̣̣	ḥ̣̣̣̣̣̣						
m	ṁ	ṃ̇	ṃ̣̇	ṃ̣̣̇	ṃ̣̣̣̇	ṃ̣̣̣̣̇	ṃ̣̣̣̣̣̇	ṃ̣̣̣̣̣̣̇					
S	ṣ	ṣ̣	ṣ̣̣	ṣ̣̣̣	ṣ̣̣̣̣	ṣ̣̣̣̣̣	ṣ̣̣̣̣̣̣	ṣ̣̣̣̣̣̣̣					
r	Ṛ	Ṛ̣	Ṛ̣̣	Ṛ̣̣̣	Ṛ̣̣̣̣	Ṛ̣̣̣̣̣	Ṛ̣̣̣̣̣̣	Ṛ̣̣̣̣̣̣̣					
s	ṣ	ṣ̣	ṣ̣̣	ṣ̣̣̣	ṣ̣̣̣̣	ṣ̣̣̣̣̣	ṣ̣̣̣̣̣̣	ṣ̣̣̣̣̣̣̣					
u	ṽ	ṿ̃	ṿ̣̃	ṿ̣̣̃	ṿ̣̣̣̃	ṿ̣̣̣̣̃	ṿ̣̣̣̣̣̃	ṿ̣̣̣̣̣̣̃					
q	ṗ	ṗ̣	ṗ̣̣	ṗ̣̣̣	ṗ̣̣̣̣	ṗ̣̣̣̣̣	ṗ̣̣̣̣̣̣		ṗ̣̣̣̣̣̣̣	ṗ̣̣̣̣̣̣̣̣	ṗ̣̣̣̣̣̣̣̣̣	ṗ̣̣̣̣̣̣̣̣̣̣	ṗ̣̣̣̣̣̣̣̣̣̣̣
Q	ṗ̣	ṗ̣̣	ṗ̣̣̣	ṗ̣̣̣̣	ṗ̣̣̣̣̣	ṗ̣̣̣̣̣̣	ṗ̣̣̣̣̣̣̣		ṗ̣̣̣̣̣̣̣̣	ṗ̣̣̣̣̣̣̣̣̣	ṗ̣̣̣̣̣̣̣̣̣̣	ṗ̣̣̣̣̣̣̣̣̣̣̣	ṗ̣̣̣̣̣̣̣̣̣̣̣̣
b	ḅ	ḅ̣	ḅ̣̣	ḅ̣̣̣	ḅ̣̣̣̣	ḅ̣̣̣̣̣	ḅ̣̣̣̣̣̣	ḅ̣̣̣̣̣̣̣					
B	ḅ̣	ḅ̣̣	ḅ̣̣̣	ḅ̣̣̣̣	ḅ̣̣̣̣̣	ḅ̣̣̣̣̣̣	ḅ̣̣̣̣̣̣̣	ḅ̣̣̣̣̣̣̣̣					
t	ṭ	ṭ̣	ṭ̣̣	ṭ̣̣̣	ṭ̣̣̣̣	ṭ̣̣̣̣̣	ṭ̣̣̣̣̣̣	ṭ̣̣̣̣̣̣̣					
c	ṭ̣	ṭ̣̣	ṭ̣̣̣	ṭ̣̣̣̣	ṭ̣̣̣̣̣	ṭ̣̣̣̣̣̣	ṭ̣̣̣̣̣̣̣	ṭ̣̣̣̣̣̣̣̣					
y	ṿ̃	ṿ̣̃	ṿ̣̣̃	ṿ̣̣̣̃	ṿ̣̣̣̣̃	ṿ̣̣̣̣̣̃	ṿ̣̣̣̣̣̣̃		ṿ̣̣̣̣̣̣̣̃	ṿ̣̣̣̣̣̣̣̣̃	ṿ̣̣̣̣̣̣̣̣̣̃	ṿ̣̣̣̣̣̣̣̣̣̣̃	ṿ̣̣̣̣̣̣̣̣̣̣̣̃
n	ṇ	ṇ̣	ṇ̣̣	ṇ̣̣̣	ṇ̣̣̣̣	ṇ̣̣̣̣̣	ṇ̣̣̣̣̣̣	ṇ̣̣̣̣̣̣̣					
N	ṇ̣	ṇ̣̣	ṇ̣̣̣	ṇ̣̣̣̣	ṇ̣̣̣̣̣	ṇ̣̣̣̣̣̣	ṇ̣̣̣̣̣̣̣	ṇ̣̣̣̣̣̣̣̣					
a	ḥ	ḥ̣	ḥ̣̣	ḥ̣̣̣	ḥ̣̣̣̣	ḥ̣̣̣̣̣	ḥ̣̣̣̣̣̣	ḥ̣̣̣̣̣̣̣					

	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	wa	wi	wa	wee	we
	,	u	i	a	Y	e	o	/	1	3	4	5	6
k	ከ	ኩ	ኪ	ካ	ኬ	ክ	ኸ		ከ።	ከፋ	ኪ	ኪ	ከፋ
<u>K</u>	ኸ	ኹ	ኺ	ኻ	ኼ	ኽ	ኾ		ኸ።	ኸፋ	ኺ	ኺ	ኸፋ
w	ወ	ዐ	ዒ	ዔ	ዖ	ዘ	ዠ						
o	ዐ	ዑ	ዒ	ዓ	ዔ	ዕ	ዖ						
z	ዘ	ዙ	ዚ	ዛ	ዞ	ዟ	ዠ	ዡ					
<u>Z</u>	ዡ	ዢ	ዣ	ዤ	ዥ	ዦ	ዧ	የ					
i	የ	የ	ዩ	የ	ዬ	ይ	ዮ						
d	ደ	ዳ	ዲ	ዳ	ደ	ድ	ዶ	ዷ					
<u>D</u>	ዸ	ዹ	ዺ	ዻ	ዼ	ዽ	ዾ	ዿ					
j	ጃ	ጄ	ጅ	ጆ	ጇ	ገ	ጉ	ጊ					
g	ገ	ጉ	ጊ	ጋ	ጌ	ግ	ገ		ገ።	ገፋ	ጊ	ጊ	ገፋ
<u>G</u>	ጊ	ጋ	ጌ	ግ	ገ	ጉ	ጊ						
x	ጠ	ጡ	ጢ	ጣ	ጤ	ጥ	ጦ	ጧ					
C	ጨ	ጨ	ጨ	ጨ	ጨ	ጨ	ጨ	ጨ					
<u>P</u>	ዳ	ዳ	ዳ	ዳ	ዳ	ዳ	ዳ						
v	ዳ	ዳ	ዳ	ዳ	ዳ	ዳ	ዳ	ዳ					
<u>V</u>	ፀ	ፀ	ፀ	ፀ	ፀ	ፀ	ፀ						
f	ፈ	ፋ	ፊ	ፋ	ፊ	ፋ	ፆ	ፈ					
p	ፐ	ፑ	ፒ	ፓ	ፔ	ፕ	ፖ						

WashRa Layout

