



WaitZar User's Guide

SCIM Wait Zar version 1.0.0

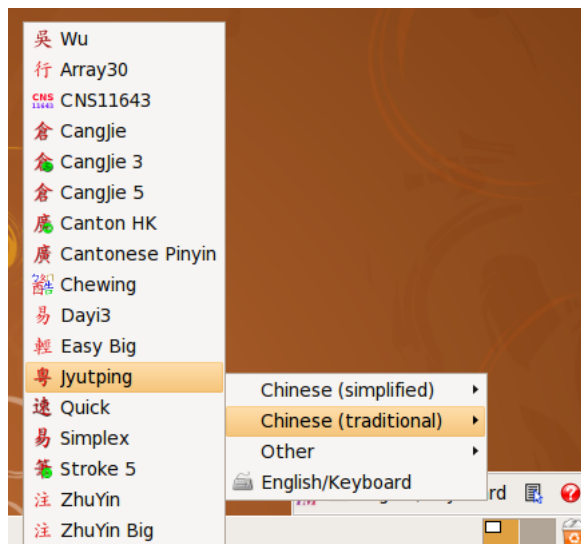
Table of Contents

1. Introduction to SCIM and WaitZar	2
2. Requirements & Installation	3
2.1. Installation Using Apt	3
2.2. Installing the .deb File Directly	4
2.3. Building & Installing from Source	4
2.4. Fonts & Configuration Extras	5
3. Basic Usage	8
3.1. Introduction to SCIM	8
3.2. Typing Your First Myanmar Sentence	8
3.3. Additional WaitZar Hotkeys	9
3.4. The Open Office Glitch	9
3.5. Changing the Output Encoding	10
3.6. A Note About config.txt	11
3.7. Adding custom words to mywords.txt	11
4. Finding a Word	12
4.1. The WaitZar Romanisation	12
4.2. Dictionary Lookup	17
5. Known Bugs	18
5.1. Pat-Sint Choices are Glitched	18
5.2. Alt+Tab Sometimes “Sticks”	18
5.3. Choices Stuck in the Lower-Left	18
5.4. The Console Looks Glitchy	19
A. License	20
B. How It Works	20

1. Introduction to SCIM and WaitZar

If you're a Linux user who knows how to write a complex script like Chinese or Thai, chances are you've used SCIM before. Even some European users prefer SCIM, although their languages do not require such a complex solution. The **scim-waitzar** project extends SCIM to support the Myanmar language.

Figure 1. A screenshot of SCIM running on Ubuntu, showing a wide variety of Chinese input method engines



WaitZar is a romanisation of Burmese designed specifically for fast typing on a standard keyboard. Given the fluid nature of the Myanmar unicode specification (i.e., the 4.0, 5.0, and 5.1 encodings are mutually incompatible) and the wide variety of *ad hoc* encodings (e.g., Zawgyi-One partial, Win Innwa's ASCII kludging, etc.), WaitZar provides a degree of solidity and flexibility above and beyond that provided by most other input schemes for Burmese.

The official project page of **scim-waitzar** is:

<http://scim-waitzar.googlecode.com/>

If you would like to keep casually up-to-date on WaitZar's Windows and Linux projects, you might consider joining our mailing list, which averages about one announcement per month:

<http://groups.google.com/group/waitzar>

2. Requirements & Installation

WaitZar will run on almost any Linux distribution that also supports SCIM. In fact, by installing the **scim** package (or building SCIM from source), you should already have everything you need. WaitZar is recommended for Ubuntu Linux, but it has also been tested on Debian Linux. Please inform us if **scim-waitzar** works (or breaks!) on your favorite brand of Linux.

Unlike the Windows version, WaitZar under Linux requires a significant amount of installation effort. The most stable method is to build **scim-waitzar** from source; see Section 2.3. However, a great many build steps are simplified if your system supports Debian packages. See Section 2.1 if you're used to using apt-get, and Section 2.2 if you'd prefer to (manually) use dpkg. Finally, Section 2.4 explains several very important things to consider after installation (using any of the three methods.) Until WaitZar gets fully integrated into Ubuntu's *Language* manager, you will have to consider these.

You should have at least one of the following Unicode 5.1-enabled fonts installed on your system. Please see Section 2.4 for more information on how to install fonts.

- Padauk
- Parabaik
- Myanmar 3

You should install one of these fonts (for example, **ttf-sil-padauk**) in order to view this document properly.



Note Regarding Fonts

Traditionally, Burmese fonts have defined their own *ad hoc* encodings, which has caused a lot of confusion among novice computer users and experts alike. Even previous versions of the Unicode encoding (for example, 4.0 and 5.0) had non-negligible errors and incompatibilities. Fortunately, Unicode 5.1 has resolved most of these, and the three fonts listed all render this document with no errors.

Developers, please note that, when discussing character encoding incompatibilities (in, say, the "WaitZar User Interface Specification"), the documentation will use the Zawgyi-One font & encoding, due to its unambiguous representation of variant forms.

2.1. Installation Using Apt

The recommended way of installing WaitZar is to use **apt-get** or the Synaptic Package Manager. In order to do this, you will have to add a line to the sources file. To do this, open a console and type:

```
gksudo gedit /etc/apt/sources.lst
```

...and add the following repository lines at the very end. Note that these links are temporary. After we finish alpha testing, we'll put the **scim-waitzar** package at a more suitable location.

```
deb http://www.comp.nus.edu.sg/~sethhetu/scim_wz_1.0.0/ ./
deb-src http://www.comp.nus.edu.sg/~sethhetu/scim_wz_1.0.0/ ./
```

...then, save the file and close **gedit**, and type:

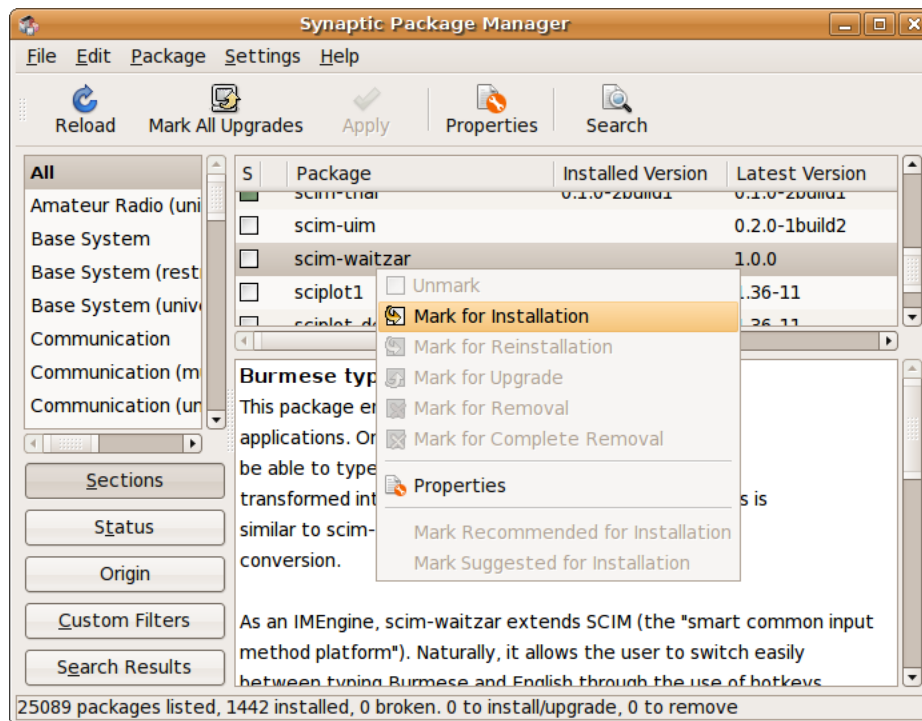
```
sudo apt-get update
```

This will update the list of packages. Finally, install **scim-waitzar**:

```
sudo apt-get install scim-waitzar
```

Of course, you can also use Synaptic at this point:

Figure 2. After reloading your repositories, you can simply install WaitZar like any other package.



2.2. Installing the .deb File Directly

In general, the apt repository will never go offline. Nevertheless, you can always download and install the .deb package manually. Grab the latest version from:

<http://code.google.com/p/scim-waitzar/downloads/list>

...and the latest version of libwaitzar from:

<http://code.google.com/p/waitzar/downloads/list>

...and then run the standard **dpkg** install command:

```
sudo dpkg -i libwaitzar_*.deb scim-waitzar_*.deb
```

...from the directory you downloaded the package to. You must then restart X (log out, log in). In case you are not familiar with **dpkg**, note that un-installation can be done from any directory, and requires only the logical name of the package:

```
sudo dpkg -r scim-waitzar
```

2.3. Building & Installing from Source

Building from source is actually quite simple, thanks to the GNU autotools. Here are the steps for the Ubuntu operating system, although they should work with any **automake**-compatible system. These instructions are for the "developer hat", since users will probably just use **apt-get** to install WaitZar. If you are wearing your "user hat", you should still be able to follow along.

1. Install necessary packages, preferably with **apt-get**:

```
sudo apt-get install subversion autoconf automake gettext libtool scim-dev g++ libwaitzar-dev
```

If apt cannot find libwaitzar-dev, you can build and install that from source as well, using instructions similar to those provided in this section.

2. Make a directory for the source files, and download them with **svn**:

```
mkdir ~/scim-waitzar
svn checkout http://scim-waitzar.googlecode.com/svn/trunk/ ~/scim-waitzar
cd ~/scim-waitzar
```

3. Reconfigure the system:

```
autoreconf
```

4. Run through the standard autotools lifecycle:

```
./configure
make
sudo make install
```

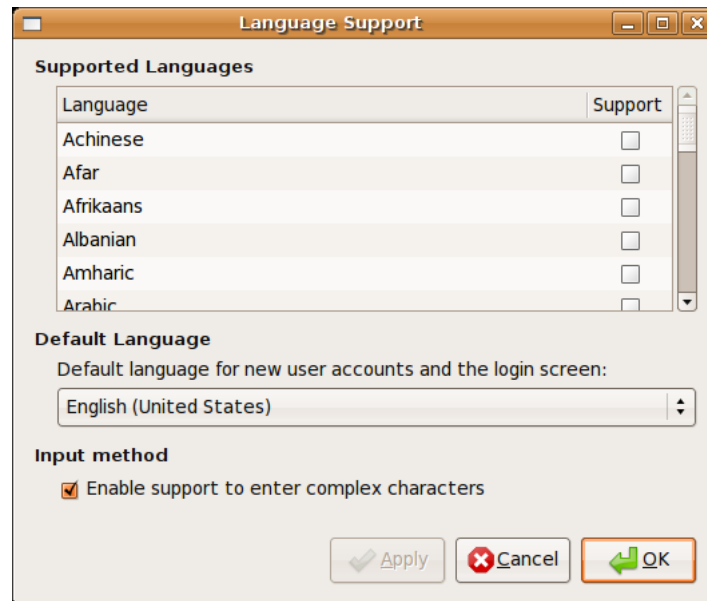
5. Log out, then log in again. WaitZar is now (almost) ready to use.

2.4. Fonts & Configuration Extras

Although most Linux programs have been properly internationalized, a great many users simply do not trust “tacking another layer” onto input (that layer being SCIM). Hence, simply installing WaitZar will not be enough—you’ll also have to enable it, play around with **fontconfig**, and probably install some fonts, too. Here are some helpful hints and tricks. It should go without saying that, although these techniques are harmless, we take no responsibility for any unintentional side effects they have on your system.

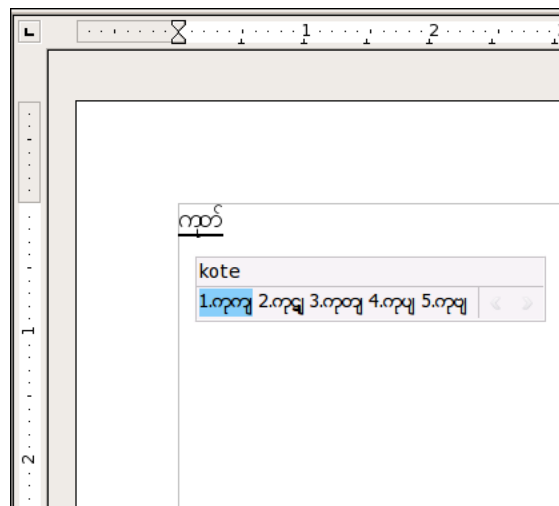
Enable Chinese — Making every application recognize SCIM is not easy; there are reports that “SCIM won't work in Open Office” which are only half true. Fortunately, there's a cheap trick that works well in Ubuntu: just enable Chinese, and the system will figure all this out for you. Click on “System” then “Administration”, then “Language Support”, and check the box marked “Chinese”. Several package files will be installed. Finally, check the box that reads “Enable support to enter complex characters”, and click “Ok”. You will probably have to restart. Note that, if you do not have at least one complex language installed (like Chinese), checking the box will have no effect. That is why we recommend enabling Chinese, specifically.

Figure 3. The “Language Support” window. Make sure the “complex characters” checkbox is checked.



Finagle FontConfig — SCIM does not dictate which font should be used for its main interface, relying on *fontconfig* like every other program does. That means the wrong font can be picked for the wrong encoding. For example, here is what WaitZar looks like if Zawgyi-One is chosen by mistake.

Figure 4. Trying to type “kote” with a mis-configured font selector. Note that this will not actually affect the typed word, just the list of choices.



We recommend listing at least one Unicode 5.1 font in *local.conf*’s “prefer” tags. We’ve created a sample file for you that also makes your text sharper, and has Chinese fonts listed properly. You can get it here:

<http://scim-waitzar.googlecode.com/svn/trunk/local.conf>

...copy it to

/etc/fonts/local.conf

...using, for example:

```
cd /etc/fonts && sudo cp local.conf local.bak  
sudo wget http://scim-waitzar.googlecode.com/svn/trunk/local.conf
```

You'll probably have to restart X. (Log out/Log in).

Install Some Fonts — You'll need at least one font installed to use WaitZar effectively. Some fonts have packages to make installation easier; for example, the *Padauk* font has **ttf-sil-padauk**. If no package exists, you have several options. The simplest is to make a user-level fonts directory:

```
mkdir ~/.fonts
```

...and then copy any fonts you download to that folder. You should not have to restart X, but you might need to restart any running application you want to use the font in.

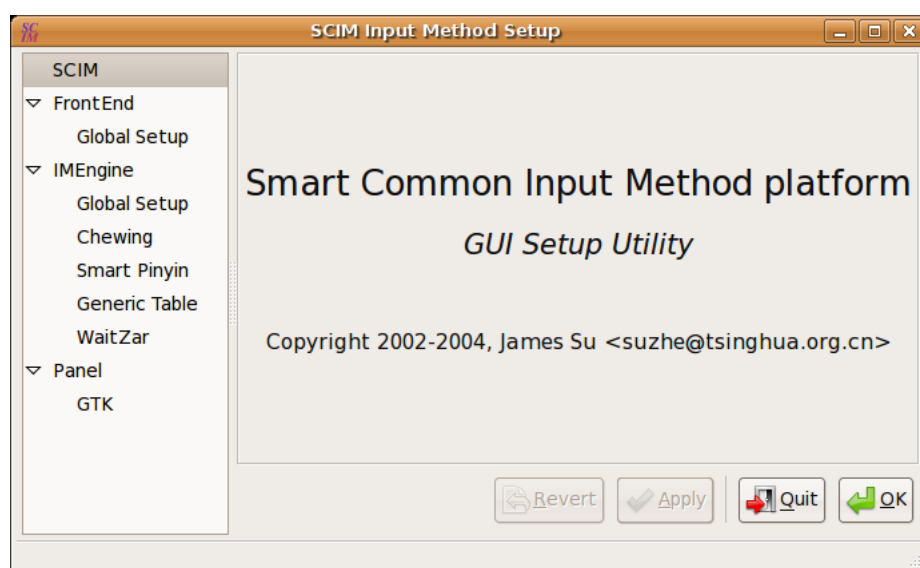
3. Basic Usage

3.1. Introduction to SCIM

After you install **scim-waitzar**, you should take some time to get used to SCIM's unique feel. You will see a small keyboard-shaped icon in your tray, right-click it, and choose “SCIM Setup”. This panel can be quite confusing for new users, so we'll briefly cover it here.

The “Front End → Global Setup” panel contains SCIM's hotkeys, and various global settings. You will probably want to change the hotkey from Ctrl+Space to *anything* else, if you are a programmer.

Figure 5. The SCIM setup window.



The next section (IMEngine) has settings for each “Input Method Engine”. Recalling that SCIM provides support for multiple languages, it makes sense that each language should have its own customizations. The final section, “Panel → GTK”, holds most of the visual settings for SCIM. I recommend changing the “Show” option (under “Toolbar”) to “Always”, at least until you get used to how SCIM behaves. Note that when you click “Ok” to exit the setup panel, SCIM will warn you that you might need to restart SCIM for any changes to take place. The sure-fire way to do this is to log out and then log in again. Optionally, you might right-click on the SCIM icon and choose “Reload Configuration”. In some cases, the operating system will reload SCIM for you. Regardless, you won't be playing around with the WaitZar settings that much anyway.

3.2. Typing Your First Myanmar Sentence

After configuring SCIM just the way you like it, start **gedit** and then look at the lower-right corner of your screen. You'll see the SCIM toolbar; move the mouse over it and it will expand to show that you are typing in English. Click on the language and choose “Burmese” to switch to WaitZar. (Note that if this panel is hidden, you can always click on the SCIM icon in your tray to switch to Burmese.) Then, type “ko”. You will see two possibilities presented to you.


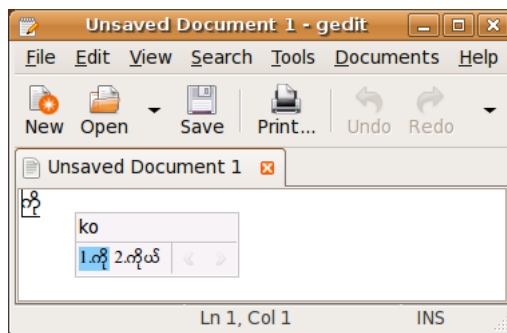
You will also see the word “” inside of **gedit**. This is one of the nice features of WaitZar on Linux: you can keep your eyes on the document you are typing, and only have to look at the list of choices when something doesn't match.

Figure 6. Choosing between two "ko"s.



Hit “space”, and the cursor will move right; the list of choices will disappear. Now, type “2”, and you will see the Burmese numeral “၂”. Finally, hit “Enter”, and the words you typed will no longer be underlined. Why did this happen? Basically, WaitZar “pre-edits” anything you type. Hitting left and right works correctly in WaitZar because it delays direct typing of words. Although this may take some getting used to, it is actually quite natural, and there are several shortcuts to save you time.

3.3. Additional WaitZar Hotkeys

By default, SCIM lets you switch to the *last* language you used by hitting Ctrl+Space. Hitting it again will switch to English.

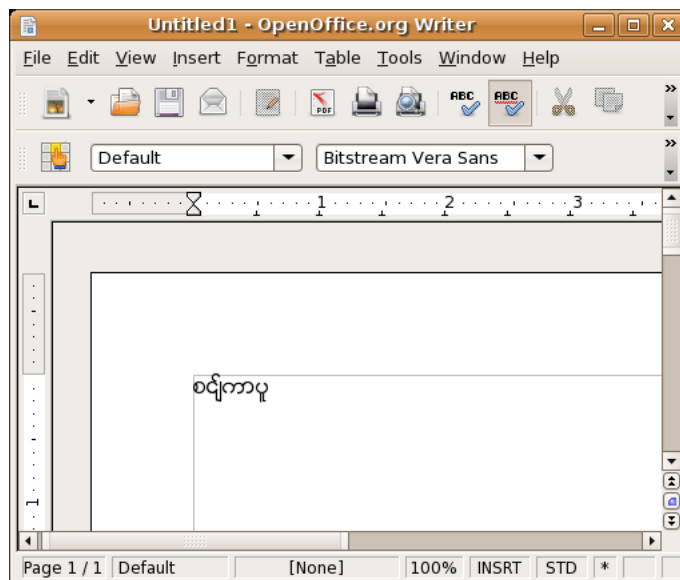
When you are typing in WaitZar, several other hotkeys also take effect:

- Pressing any letter will type that letter, and attempt to form a word.
- Pressing left and right will move the cursor. When you are typing a word, left and right switch between the various choices.
- Pressing “enter” will confirm the typed sentence. If you are typing a word, hitting “enter” is the same as hitting “space”.
- Pressing “space” will move the cursor right. If the cursor is all the way to the right, hitting “space” will confirm the typed sentence. When you are typing a word, hitting “space” will choose the currently-selected choice.
- Hitting the number keys (0-9) will type the burmese numeral (၀-၉). If you are typing a word, hitting a number will “shortcut” to that word. (Try typing “ko2” to see this work).
- Hitting the period or comma keys will type the Burmese full or half stop characters (“.” and “,”). If you have typed part of a sentence, this will also confirm the sentence.
- Hitting “esc” will cancel the sentence or word you are typing.
- Hitting “backspace” and “delete” will function as expected, deleting letters or words depending on the context.
- In the rare case that you are using an absolutely tiny display, hitting up and down will scroll the list of choices if there are too many to fit on the screen at once.

3.4. The Open Office Glitch

There are several glitches related to WaitZar; most are covered in Section 5. However, one particularly nasty bit occurs in Open Office Writer –to see it for yourself, change the font (in Open Office) to Padauk, type “singapore”, and then hit “space” twice to finalize it. The result is a mess of glyphs:

Figure 7. Open Office seems to like resetting the font for you, even when this is actually incorrect.



Fortunately, this is easy to fix: just select all the text and change the font to “Padauk” again. For some reason, Open Office reverts the font to *Bitstream Vera Sans*, an otherwise-excellent font that, unfortunately, cannot entirely handle Burmese just yet.

Even more fortunately, this only has to be done once: the first time you create a new document. Even if you delete everything on the page, Open Office can still manage to change the font back to Padauk the second time you enter Burmese text.

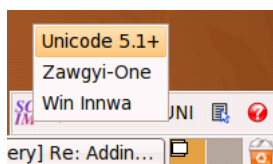
On a side note, this glitch is far worse on Windows, which doesn't provide a reasonable catch-all font. In this case, the first Burmese word you type in Open Office will actually be invisible!

3.5. Changing the Output Encoding

A great many websites use encodings that conflict with the established standard. Criticizing them will do no good; these *ad hoc* encodings were all developed to suit a particular niche, and they will likely be around until the end of time.

WaitZar supports two of these encodings: the Zawgyi-One font encoding, and the Win Innwa font family encoding. (Win Kalaw, for instance, is in the Win Innwa font family). To change the encoding, start typing in Burmese, and then click the “UNI” icon in the SCIM toolbar. Now choose the encoding you want. This will reset the next time you log in; if you want to change the encoding used by default, see Section 3.6.

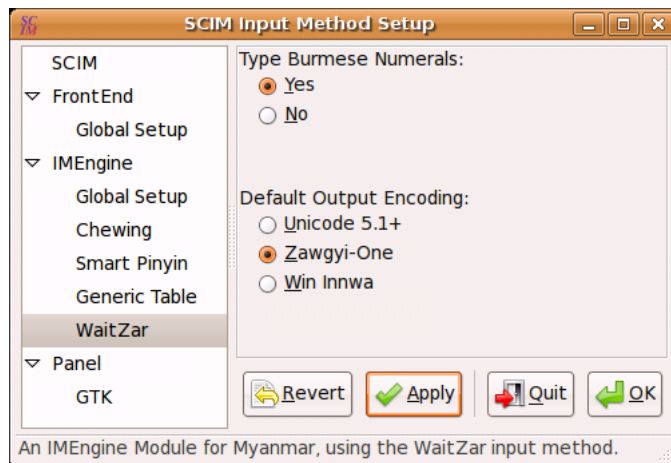
Figure 8. Changing the output encoding.



3.6. A Note About config.txt

For Windows users of WaitZar, it should come as a mildly unpleasant surprise that config.txt does nothing. The proper way to change WaitZar's configuration settings is through the SCIM settings panel, on the “WaitZar” tab. You can currently only change two settings: how Burmese numbers are typed, and the default output encoding. A screenshot of this panel follows.

Figure 9. WaitZar's settings: here, the user has chosen to type numbers in Burmese, and to start WaitZar with Zawgyi-One by default.



3.7. Adding custom words to mywords.txt

WaitZar's dictionary is drawn from online forums, books, and news articles, and it contains most of the words needed by most of the users. However, it is possible that you may find it lacking a word you need. Or, you might type a word so often (like your name) that you want to shorten it. For this, you will add lines to the file "mywords.txt" of the form:

```
myanmar = roman
```

For example:

```
မ = ma
```

Note that, for legacy reasons, you will have to enter the word you require in the Zawgyi-One encoding. If you have the word in a different encoding, the following web site provides excellent software for converting it:

<http://burglish.googlepages.com/fontconv.htm>

The only remaining detail is *which* mywords.txt file to edit. For global changes to WaitZar, you can change /usr/share/scim-waitzar/mywords.txt. For user-level changes, you should change ~/.scim-waitzar/mywords.txt. The latter way is preferred. You should use the UTF-8 encoding for this file; for example:

```
mkdir -p ~/.scim-waitzar
gedit --encoding UTF-8 ~/.scim-waitzar/mywords.txt
```

4. Finding a Word

Although WaitZar was designed to be natural to use, there will come a time when you do not know how to type a word in WaitZar. Fortunately, as of release 1.6 on Windows (and 1.0.0 on Linux), WaitZar now ships with version 2.0 of the WaitZar romanisation. This romanisation was designed to be simple and effective, and to make looking up unknown words easy. We will now discuss how this works.

4.1. The WaitZar Romanisation

The WaitZar romanisation was designed around three simple principles:

- There should be a few simple rules which most words follow.
- All words should be easy to guess, even if you don't know the rules.
- Each Burmese word gets exactly one English romanisation.

The first rule is covered in the next section (on the default romanisation), and the second rule is relevant throughout. The final rule may seem silly: why not allow တာ = “tar” or “thar” or “ttar”? Our main reason for enforcing this rule is efficiency. Once you learn that တာ = “thar” in WaitZar, then you will start to get annoyed if you see တာ when you type “tar” or “ttar”. Through decisions like this, we try to make our system agreeable to both novices and experts.

4.1.1. Default Romanisation

Most Burmese words can be thought of as an onset combined with a rhyme. For example: န, pronounced “non”, can be broken up into န = “n(a)” and ဝ = “on”. Words can actually be broken up further, into consonants, medials, vowels, tones, and finals, but a unique quality of onsets and rhymes is that they can be spelled the same way when they appear in different words. For example:

န → n		ဝ → on	
Myanmar	Roman	Myanmar	Roman
န	non	ဝ	non
န	nin	ဝ	khon
န	ne	ဝ	son
န	nay	ဝ	yon
န	nwal	ဝ	thon

The rhymes always follow their phonetic pronunciation; the onsets are more structured. The following rules apply to onsets:

1. The first sound of the Myanmar letter is the Roman letter.
2. If two onsets share the same first sound, the less common onset has an “h” after it. (For example: ခ is “d”, but ခ is “dh”)
3. Rarely-used letters won't add an “h”. (For example: ဂ and ဝ are both “n”, even though န is also “n”).

For reference, here is the current list of rhymes and onsets. Within a rhyme, a dash indicates where onsets may be plugged in. We apologize for the large size of these tables; we were forced to include them as images, since none of the Unicode-enabled fonts provides a convenient way for representing Burmese syllable fragments. The alternative was to require you to install the (non-compliant) Zawgyi-One font, which we felt was unreasonable.

Onsets							
Myanmar	Roman	Myanmar	Roman	Myanmar	Roman	Myanmar	Roman
က	k	တ	tt	စ	dh	ဝ	w
ခ	kh	ဒ	dh	န	n	သ	th
ဂ	g	ဌ	ht	ပ	p	ဟ	h
ဃ	gh	ဋ	ht	ဖ	ph	အ	
င	ng	ဍ	n	ဗ	v	ဥ	o
စ	s	ဇ	d	ဘ	b	ရှ	sh
ဆ	ss	ဏ	nh	မ	m	သျှ	sh
ဇ	z	တ	t	ယ	yh	လျှ	sh
ဈ	zh	ထ	ht	ရ	y	ရွှ	shw
ည	ny	ဒ	d	လ	l		

Rhymes											
my	rom	my	rom	my	rom	my	rom	my	rom	my	rom
-	a	ို	ote	ျာ	ya	ေ	ywae	ို	oi	ေ	shae
ာ	ar	ေ	ate	ျာ	yar	ေ	yaw	ေ	wet	ာ	ywa
ာ	a	ေ	at	ျိ	yi	ေ	yan	ေ	ut	ာ	yaunote
ာ	arr	ာ	at	ျိ	ye	ေ	yant	ေ	oot	ာ	way
ိ	i	ာ	an	ျိ	yee	ေ	yo	ေ	on	ာ	way
ေ	e	ာ	am	ျိ	yu	ေ	yoe	ေ	ont	ာ	wal
ေ	eet	ာ	ai	ျိ	yuu	ေ	yoe	ေ	onn	ာ	yon
ေ	ee	ာ	ohn	ျိ	yuu	ေ	yone	ေ	wot	ာ	yot
ု	u	ာ	hite	ျိ	yay	ေ	yote	ေ	wan	ာ	ywin
ု	uu	ာ	ine	ျိ	yay	ေ	yone	ေ	wann	ာ	yut
ု	hu	ာ	at	ျိ	yal	ေ	yat	ေ	wal	ာ	hon
ု	uu	ာ	at	ျိ	yae	ေ	yout	ေ	wae	ာ	honn
ေ	ay	ာ	at	ျိ	yaw	ေ	yite	ာ	ha	ာ	yun
ေ	ae	ာ	ate	ျိ	yut	ေ	yin	ာ	har	ာ	hwa
ေ	ay	ာ	ote	ျိ	yaw	ေ	hint	ာ	ha	ာ	lyar
ာ	al	ာ	hote	ျိ	yan	ေ	yinn	ာ	har	ာ	haw
ာ	ae	ာ	hit	ျိ	yant	ေ	yaung	ေ	eet	ာ	hawe

ော/ ခါ	aww	ောတ်	ot	ဝါ	yo	ောင့်	yout	ေ	he	ော်	haw
ော/ ခါ	ot	ော	at	ဝါ	yoe	ောင်း	yaung	ေ	hee	ဝါ	hloe
ော/ ခါ	aw	ော/ ခါ	at	ဝါ	yoe	ေါ	yai	ါ	uu	ေါ	hlin
ော	ot	ေါ	kit	ါ	hone	ေါ	yine	ါ	hu	ေါ	hit
ါ	an	ေါ	oat	ါ	hote	ေါ	yit	ါ	huu	ေါ	yinn
ါ	ant	ေါ	ite	ါ	yone	ေါ	yit	ါ/ါ	huu	ေါ	wa
ေါ	o	ေါ	an	ါ	yat	ေါ	yin	ါ/ါ	huu	ေါ	war
ေါ	hoet	ေါ	ant	ေါ	yout	ေါ	yinn	ေါ	hay	ေါ	wyar
ေါ	oe	ေါ	am	ါ	yite	ေါ	yi	ေါ	hae	ေါ	way
ါ/ါ	one	ေါ	han	ါ	at	ေါ	yae	ေါ	aye	ေါ	ywae
ါ	ote	ေါ	ann	ါ	yin	ေါ	yee	ါ	hal	ေါ	way
ါ	one	ေါ	ane	ါ	yint	ေါ	yat	ါ	hlae	ေါ	wyat
ါ	hoe	ေါ	ate	ါ	yin	ေါ	yat	ေါ	aww	ေါ	wyin
ါ	at	ေါ	ane	ေါ	aung	ေါ	yate	ေါ	haw	ေါ	yoot
ေါ	ate	ေါ	one	ေါ	yaung	ေါ	yote	ါ	han	ေါ	yoon
ါ/ါ	ote	ေါ	oat	ါ	hai	ေါ	yan	ါ	hant	ေါ	yut
ါ/ါ	ote	ေါ	oat	ါ	hai	ေါ	yan	ါ	hant	ေါ	yut
ေါ/ေါ	out	ေါ	one	ါ	yite	ေါ	yant	ေါ	ho	ေါ	wyan
ေါ	ite	ေါ	at	ါ	yine	ေါ	yan	ေါ	hoet	ေါ	ywal
ေါ	ite	ေါ	ate	ါ	yit	ေါ	yai	ေါ/ါ	hoe	ေါ	yu
ါ	hote	ေါ	ote	ါ	yin	ေါ	hyate	ါ	hone	ေါ	yae
ါ	at	ေါ	at	ါ	yin	ေါ	yane	ါ	hote	ေါ	yone
ေါ	ate	ေါ	at	ါ	in	ေါ	yone	ါ	hone	ေါ	yout
ါ	oat	ေါ	ait	ါ	yi	ေါ	yat	ါ	hat	ေါ	yite
ါ	in	ေါ	ote	ါ	yeet	ေါ	yote	ေါ	hout	ေါ	yint
ါ	int	ေါ	at	ါ	yee	ေါ	yote	ေါ	hite	ေါ	yaung
ါ	inn	ေါ	an	ါ	yat	ေါ	yan	ါ	hin	ေါ	yout
ေါ	ain	ေါ	amt	ါ	yate	ေါ	yan	ါ	hint	ေါ	yaung
ေါ/ေါ	aung	ေါ	eint	ါ	yote	ေါ	yane	ါ	hinn	ေါ	hote
ေါ/ေါ	out	ေါ	ann	ါ	yan	ေါ	yate	ေါ	hane	ေါ	yote
ေါ/ေါ	aung	ေါ	ain	ါ	ant	ေါ	yane	ေါ	haung	ေါ	yine
ေါ	ine	ေါ	aint	ါ	yan	ေါ	yal	ေါ	hout	ေါ	lwa
ေါ	hite	ေါ	ane	ါ	yane	ေါ	hlo	ေါ	haung	ေါ	hwar
ေါ	ine	ေါ	one	ါ	yane	ေါ	at	ေါ	laing	ေါ	war
ေါ	aing	ေါ	hone	ါ	yone	ေါ	hate	ေါ	laing	ေါ	wee

-စ်	it	-ယ်	al	ယိုနီး	yone	ငှက်	at	၊-စ်	hit	ခွေ	lwae
-တ်	it	-ယ်လ်	al	ယိုတ်	yat	ငှက်	at	၊-င့်	hin	ခွေ	lwae
-ာတ်	hars	-ယ့်	ae	ယိုတ်	yate	ငှက်	ho	၊-င့်	hin	ခွေ	wae
ခွေ	ate	ဘယ်/ဘယ်	hal	ယိုတ်	yote	ဝံ	wa	၊-ည့်	lae	ဝံ	wal
၊-စ်	hit	ဝံ	o	ယိုတ်	yote	ဝံ/ဝံ	war	၊-ည့်	hal	ဝံ	won
ခွေ	oss	ဝံ	oe	ယိုတ်	yan	ဝံ	wa	၊-တ်	hat	ဝံ	yon
ခွေ	ost	-ရ်	al	ယိုတ်	aint	ဝံ	warr	ဝံ	hate	ဝံ	hwin
-စ်	it	-ရ်	an	ယိုတ်	yal	ဝံ	weet	၊-တ်	hote	ဝံ	wint
-တ်	yiz	ခွေ	hay	ငှက်	ya	ဝံ	weet	၊-နီး	han	ဝံ	hwin
ခွေ	ist	ဝံ	ho	ငှက်	yar	ဝံ	wee	၊-နီး	lant	ဝံ	oot
၊-စ်	yit	-လ်	Al	ငှက်	yar	ဝံ	hee	၊-နီး	han	ဝံ	yon
-င့်	in	ဝံ	ain	ငှက်	yi	ဝံ	way	ဝံ	hane	ဝံ	yon
-င့်	int	ဝံ	ho	ငှက်	ye	ဝံ	wae	ဝံ	hane	ဝံ	wat
-င့်	inn	ခွေ	all	ငှက်	yee	ဝံ	way	၊-နီး	hone	ဝံ	wan
-တ်	im	ခွေ	all	ငှက်	yu	ဝံ	wal	၊-နီး	hote	ဝံ	yun
ခွေ	yin	ဝံ	ho	ငှက်	yu	ဝံ	wae	၊-နီး	hone		
၊-င့်	hone	-သ်	at	ငှက်	yu	ဝံ	on	၊-တ်	hat		
ခွေ	ay	ဝံ	ate	ငှက်	yay	ဝံ	ont	ဝံ	hate		
-င့်	i	ဝံ	ote	ငှက်	hae	ဝံ	wat	၊-တ်	hote		
-င့်	eet	ခွေ	aye	ငှက်	way	ဝံ	wite	၊-င့်	hann		
-င့်	ee	ဝံ	ai	ငှက်	yal	ဝံ	win	ဝံ	hane		
-စ်	oot	ယို	ya	ငှက်	hae	ဝံ	wint	ဝံ	ate		
ခွေ	ate	ယို	yar	ငှက်	yaw	ဝံ	win	၊-ယ်	hal		

Warning: You may have noticed that “အ” is not romanised as “a”. This is because it functions as a silent, “placeholder” onset in spoken Burmese. Instead of typing, for example, “aa”, “aone”, “aote”, one would simply type “a”, “one”, or “ote”. This is consistent with how most Burmese type.

Bigger Warning: Please be careful not to read the rhymes with an English pronunciation. For example, when typing “one”, do *not* read it to sound like the English numeral 1. If you consider a consonant in front of the word (e.g., “kone”) then you won't run into this problem.

4.1.2. Special Romanisations

Some words don't fall into any simple pattern, and you'll just have to memorize them. These include pat-sint and foreign words. Also, there are six words that directly contradict our onset + rhyme rule; these include “lhyo” (not “sho”) for example. The following table lists these six words, and the pat-sint words. For brevity, we do not include foreign words, which romanize to their foreign spelling.

Special Words							
Over-rides		မန္တ	manda	စဝ္ဂ	sitsa	စမ္မာ	sanpar
လျှို	lhyo	ဝန္တာ	wontar	အဝ္ဂ	itsa	သပ္ပိယ	thatnal
လျှိုး	lhyoe	ဂုတ္တ	goatta	ရဝ္ဂ	yitsa		
လျှက်	lhyat	သန္တာ	thandar	ကဝ္ဂ	kitsa	နန္ဒ	nanda
လျှင်	lhyin	သန္တ	thanda	နဝ္ဂ	nitsa	စန္ဒ	sanda
လျှပ်	lhyat	အတ္တ	atta	မဇ္ဈိ	myitzi	ဆန္ဒ	sanda
လျှမ်း	lhyan	လန္တိတ်	lantate			အိန္ဒိ	indi
မ		မုတ္တ	moteta	သိက္ခာ	theitkhao	ကိန္ဒ	kaida
ကမ္ဘာ	kaba	ရိတ္တ	yateta			အိန္ဒြေ	eidray
ကမ္ဘ	kamba			ဒုက္ခ	dotka	အိန္ဒြာ	eidra
ကမ္ဘာ	kabar	ခန္ဓာ	khandar	ဒုက္ခိ	dotkhe	နန္ဒာ	nandar
ကမ္ဘော	kambaw	ဝန္ဓု	bandu	ယက္ခ	yatkha	မုဒ္ဒ	moteda
မ		ဗုဒ္ဓ	buddha	ရက္ခ	ratka	ဣန္ဒြေ	eaidray
စက္ကန်	setkant			လက္ခ	latkha		
စက္က	satku	ဓမ္မ	damma	သိက္ခာ	theitkhar	ဘဝ္ဂ	batga
မတ္တ	matka	ဓမ္မာ	dammar	ရက္ခိ	yatkhe	ပုဂ္ဂိုလ်	poatgo
ကျိတ္တ	kyiteka	ကြမ္မာ	kyanmar	စက္ခု	satkhu	မဂ္ဂ	matga
ဥတ္တ	oatka	သမ္မာ	tanmar			ပုဂ္ဂ	poatga
တတ္တ	tatka	သမ္မ	tanma	အင်္ဂ	inga		
သတ္တ	thatka	ရမ္မတ်	yatmat	အင်္ဂါ	ingar	ပုဏ္ဏား	ponenar
မ				ဒင်္ဂါး	dingar		
မိလ္လာ	mailar	ဝတ္ထု	woothtu	နင်္ဂ	ninga	ဘဏ္ဍာ	bandar
မ		မိတ္တိ	matehti	မင်္ဂ	minga	သဏ္ဍာန်	thatan
သဏ္ဍာန်	thandan			သင်္ကေ	tinkay	သဏ္ဍာန်	thandan
ပဏ္ဍာ	patnar	ပုစ္ဆာ	poatsar	ဒင်္ဂ	dinga	ဒဏ္ဍာ	dantar
ကဏ္ဍ	ganda	ဣတ္ထိ	eightsi	သင်္ကန်း	thingan	ကဏ္ဍ	ganda
မ		မဇ္ဈိ	myitseet	ဟင်္တာ	hintar	Misc	
စန္ဒ	santa	ရုတ္တန်	yutesan	နင်္လာ	ninlar	သုံ	the
အန္တ	anda			ဘင်္ဂ	binga	လကျင်	latyar
နတ္ထိ	nethti	သင်္ချိုင်း	thingjine	သင်္ကြန်	thingyam	ဧည့်	ae
ကတ္တာ	kattar			သင်္ဘော	thinbaw	ဧ	ae
ပြိတ္တာ	pyittar	အင်္ဂါ	inngi	သင်္ချာ	tinchar	ဤ	ei

မထီ	matedhi	မ	တင်္ကလူ	singapore	စီ	eat
ဝတ္တ	wootta	သတ္တ	tinzar	အင်္ဂလိပ်	၍	ywae
မေတ္တာ	myittar	ဝိတ္တ	waitzar	မ	၌	nhite
ခေတ္တ	khitta	မ	သိပ္ပံ	theitpan	ဦး	ou
ပုတ္တ	poatta	ပစ္စည်း	pyitsee	သမ္မာ	ဦး	oo
ပတ္တ	patta	သတ္တ	thitsar	သမ္ဘာယ်	၎င်း	lakaung
သတ္တ	tattar	ဥတ္တ	oatsar	ကပ္ပ	သ	tha
သတ္တု	thattu	ဝတ္တ	wootsa	ကုမ္ပ	ယောက်ျား	youtkyar
သတ္တိ	thetthe	ပတ္တ	pyitsa	ဂိပ္ပိယ်	datepal	
အန္တာ	antar	ကိတ္တ	katesa	စမ္မော	sanpaw	

Note: At the time of publication, the following three special last-minute exceptions were added:

Extra Exceptions	
သော်	aww
သေ	aww
သ	aww

4.1.3. Shortcuts

WaitZar uses two shortcuts to speed up typing.

- Any word containing “aung” can shorten it to simply “g”. For example, “kaung” can be typed as “kg”. “Aung” by itself can be shortened to “ag”.
- If only one set of words is possible at any point, the sequence to that set is parenthesised. For example, typing “singa” is sufficient for WaitZar to guess that you want “singapore”.

4.2. Dictionary Lookup

If, for any reason, you cannot find the word you want to type in WaitZar, you can search for it in the generated wordlist:

http://waitzar.googlecode.com/svn/trunk/eclipse_project/wordlist.generated.txt

In the future, WaitZar will allow you to search within the program itself; for now, you will have to manually look for your word. Please note that you will need Zawgyi-One installed to view the generated wordlist (most development is done in Zawgyi-One to avoid ambiguity errors).

5. Known Bugs

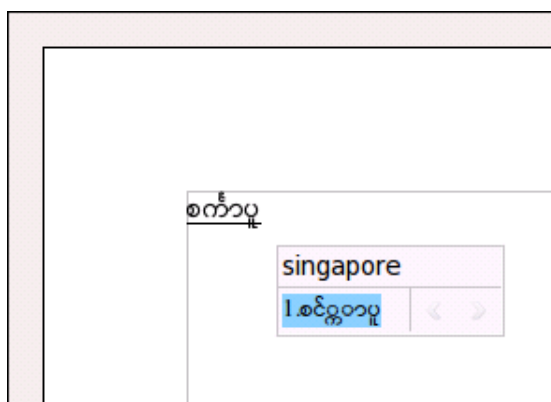
This section details a number of issues that are known to occur with WaitZar. If you find any new issues, please submit a bug report online:

<http://code.google.com/p/scim-waitzar/issues/entry/>

5.1. Pat-Sint Choices are Glitched

Even if you follow the advice in Section 2.4, you will find that some words are still incorrect when presented as choices. For example, below is a screenshot of “singapore” as it appears in the lookup table –note that the actual, typed version is still correct.

Figure 10. The Myanmar text is “decomposed” in SCIM, but renders correctly in Open Office.



The WaitZar team is uncertain as to what is causing this glitch. There are many interacting components (cairo, pango, GTK, or even scim itself) that might be slightly off. Perhaps the issue is actually a fontconfig issue on our end. We *could* solve this problem by defaulting SCIM to the Zawgyi-One font, but we feel that this solution would be a cheap hack that delays the adoption of Unicode 5.1 for Burmese in Linux. Instead, we will write some test cases to determine what package is causing the glitch, and then work with those developers to resolve this problem.

5.2. Alt+Tab Sometimes “Sticks”

This appears to be a bug in SCIM itself; under some configurations, switching to WaitZar will cause the “Alt+Tab” combination to “stick” –pressing this will outline the window one is hoping to switch to, but releasing it will see you at the original window; nothing happens. Clicking on any other window will cause this bug to go away until the next time you switch languages.

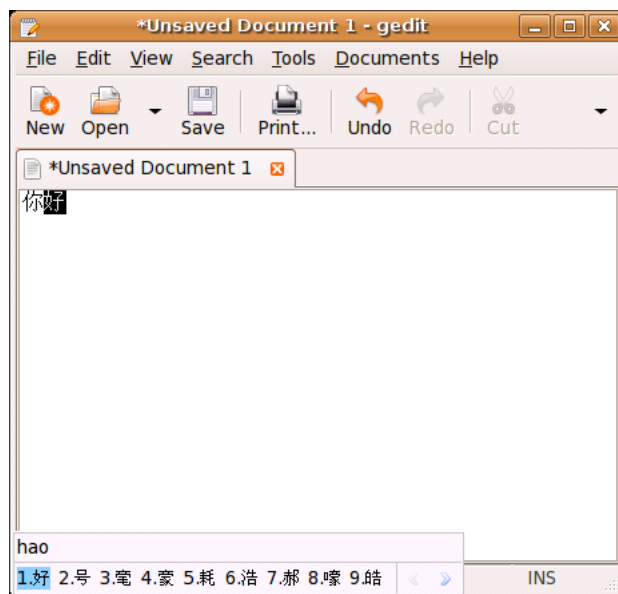
So far, we have only found one setup where this occurs, and this behavior is apparent in other IMEngines (Chinese, Thai, etc.), so it is probably a bizarre case of SCIM and Linux interacting poorly. Please report this bug if you encounter it, and we will try our best to narrow it down and fix it.

5.3. Choices Stuck in the Lower-Left

Under some configurations (usually, the same ones described in Section 5.2), the list of choices will appear “locked” to the lower-left of the current window. See the screenshot below for an example of this annoying bug, which makes

typing very difficult. Of course, you can click and drag the choices window to a more convenient location, but it will jump right back to the lower-left corner as soon as you switch the language again.

Figure 11. The choices window is “sticking” to the corner of gedit. This occurs with all language IMEs (Chinese is shown here).

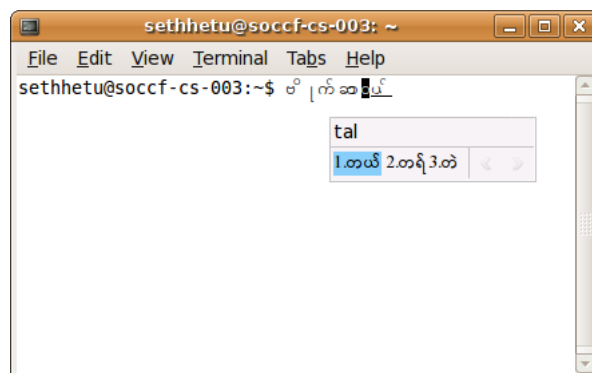


We might try re-positioning the choices window to somewhere nicer when WaitZar gets a “focus_in()” message, but seeing as how this is tied in to the previous bug, we decided not to hack around it until we were sure it couldn't be fixed normally.

5.4. The Console Looks Glitchy

Have a look at the following screenshot.

Figure 12. Notice how the text does not compose correctly in the console.



If this is what you see when you try to type WaitZar in the console, there's no need a file a bug report; we're aware. If you actually see proper Burmese, then *please* let us know how to configure the console to make this work. (**Note:** using Zawgyi-One or Win Innwa is *not* the solution we are looking for.)

A. License

scim-waitzar is licensed under the GNU General Public License v3, although some parts of it are licensed under the Apache License v2, and a small amount is licensed under the GNU General Public License v2.

This means that **scim-waitzar** is Open Source, of course, and free software as well. The original WaitZar on Windows is licensed under a BSD-style license; we chose to license **scim-waitzar** under the GPL to make it more compatible with the GNU philosophy, and chose version 3.0 to help strictly enforce that this software is not used in a non-open way.

Of course, our concerns apply only to Linux, really. The WaitZar library API, available from:

<http://code.google.com/p/waitzar/downloads/list>

...contains the majority of the encapsulated functionality; both the Windows *and* the Linux project build primarily off of this library, adding only implementation-specific code. Furthermore, the library is released under the Apache License, with the intention of not forcing any restrictions on developers.

Discussion about WaitZar is generally taken with both appreciation and seriousness, and occurs primarily on the mmgeeks forum, in English:

<http://mmgeeks.org/forum/>

B. How It Works

This section explains the use of trigram models in language modeling. It is currently under development.