

Voice Translation & Processing

Overview

This procedure describes how to create a new vocabulary for Comfort in another language. The procedure consists of translation, recording and editing, and processing.

For help with translation, this on-line translator at Alta Vista website is very useful for words and short sentence translation (European Languages).

<http://babelfish.altavista.com/cgi-bin/translate?>

Vocabulary Files

The Voice Menu system consists of Sentences (sentence.tab) and Number Tables (number0.tab to number8.tab). These are text files which can be edited with Notepad or any other text editor. The files used are as follows:

Sentence.tab - Sentence File

The sentence.tab file consist of all the sentences which are used by Comfort in Voice Menus and announcements. Sentences consists of a number of words indicated by WORD_XXXX, eg Sentence 104 - "PHONE TROUBLE"

WORD_PHONE WORD_TROUBLE

WORD_PHONE and WORD_TROUBLE make up the sentence "Phone Trouble"
Each WORD_xxx looks up a audio .wav file called xxx.wav in a specified directory.

The above example is an example of a fixed sentence, but some sentences have an argument which allows a selection of words to be used, for example

Sentence 1 - YOU HAVE <N> NEW MESSAGE(S)

WORD_YOUHAVE OPT_DEFAULT OPT_NUMBER WORD_NEW CONTROL_SING
WORD_MESSAGES

OPT_DEFAULT and OPT_NUMBER do not represent fixed words, but it allows words from the number tables to be used in their place to announce "you have 1 new message" or "you have 10 new messages" depending on the number of new messages you have.

CONTROL_SING is a control instruction which tells the system to use the singular if the argument is 1. The OPT_ and CONTROL_ items do not refer to recorded wav files; they are instructions to the system.

In the beginning of the sentence.tab file, there are two lines;

NumOfSentences=255

MaxSentenceLength=9

NumOfSentences is the number of sentences which is 255 and should not be changed. Note that unused sentences have WORD_NULL which is a short silence. Hence every language should include WORD_NULL and NULL.WAV

MaxSentenceLength is the maximum number of words required for each senetnec in the table.

When the sentence table is translated into another language, the MaxSentenceLength parameter may have to be changed accordingly.

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When translating to another language, each sentence must be translated so as to maintain the meaning of the sentence and not a word-by-word translation, for example

```
;4 - N TO CHANGE DATE  
OPT_FORM1 OPT_NUMBER WORD_TO WORD_CHANGE WORD_DATE
```

translated to Italian may be

```
;4 - N PER CAMBIARE DATA  
OPT_FORM1 OPT_NUMBER WORD_PER WORD_CAMBIARE WORD_DATA
```

The words making up the sentence must be chosen and arranged in such a way as to make up a grammatical sentence. The placement of the numerical value OPT_FORM1 OPT_NUMBER in the sentence must be correct for the language.

When translating to another language, translate each sentence in sentence.tab and the number tables number0.tab to number8.tab and list the unique words required. These unique words are entered into another file called TRANSLAT.TAB. More on this later.

Number Tables

Number tables consist of number0.tab to number8.tab. Each number table instructs the system how to say certain types of numbers or numbered lists.

In each numberx.tab file two lines in the beginning set the size of the number table

```
NumOfNumbers= ____  
MaxNumberLength= ____
```

NumOfNumbers is the number of numbers on the number table.

MaxNumberLength is the maximum number of words which are used for any entry in the number table.

When the number tables are translated into another language, parameters

MaxNumberLength may have to be changed accordingly. NumOfNumbers should **not** be changed.

Number0.tab

Number table 0 is used for saying numbers 0 to 255. It is also used for saying the time in hours, ie 0 to 23.

```
NumOfNumbers=255  
MaxNumberLength=5 WORD_0
```

```
WORD_1  
WORD_2  
WORD_3  
WORD_4  
WORD_5  
WORD_6  
WORD_7  
WORD_8  
WORD_9  
WORD_10  
WORD_11
```

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WORD_12
WORD_13
WORD_14
WORD_15
WORD_16
WORD_17
WORD_18
WORD_19
WORD_20
WORD_20 WORD_1
WORD_20 WORD_2
WORD_20 WORD_3
WORD_20 WORD_4
WORD_20 WORD_5
WORD_20 WORD_6
WORD_20 WORD_7
..
..
WORD_2 WORD_HUNDRED WORD_AND WORD_50 WORD_3
WORD_2 WORD_HUNDRED WORD_AND WORD_50 WORD_4

Each line in the table tells the system how to say the corresponding number eg
Number 103 is made up of the words;
WORD_1 WORD_HUNDRED WORD_AND WORD_3

In other languages the number would probably be put together differently, for example in Chinese;

WORD_YI WORD_BAI WORD_LING WORD_SAN
("one hundred zero three")

Number1.tab

Number table 1 is used for saying numbers on the telephone numeric keypad and comfort keypad. It consists of 16 numbers

NumOfNumbers=16

MaxNumberLength=1

WORD_0 ;0
WORD_1 ;1
WORD_2 ;2
WORD_3 ;3
WORD_4 ;4
WORD_5 ;5
WORD_6 ;6
WORD_7 ;7
WORD_8 ;8
WORD_9 ;9
WORD_END ;10
WORD_STAR ;11
WORD_POUND ;12
WORD_AWAY ;13

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WORD_NIGHT ;14

WORD_DAY ; 15

0 to 9 are the 10 numeric numbers used in any telephone keypad.

STAR (*), POUND (#) are the regular keys on the bottom left and right respectively of a telephone keypad.

AWAY, NIGHT, DAY are additional keys on the comfort keypad.

Number2.tab

These are to announce time in Minutes

;Number2.tab

NumOfNumbers=100

MaxNumberLength=2

WORD_OH WORD_OH

WORD_OH WORD_1

WORD_OH WORD_2

WORD_OH WORD_3

WORD_OH WORD_4

WORD_OH WORD_5

WORD_OH WORD_6

WORD_OH WORD_7

WORD_OH WORD_8

WORD_OH WORD_9

WORD_10

WORD_11

WORD_12

WORD_13

WORD_14

WORD_15

WORD_16

..

..

WORD_90 WORD_6

WORD_90 WORD_7

WORD_90 WORD_8

WORD_90 WORD_9

The numbers range from 0 to 99 even though there are only 60 seconds and minutes.

To see where this number table is used, look up senetnce.tab look for OPT_FORM2. It is used in Sentence 0, 116 and 145. OPT_FORM2 OPT_MINUTE means that the “minutes” portion of the time is announced.

To illustrate how time is announced, sentence 116 is

OPT_SYS_TIM OPT_DEFAULT OPT_HOUR_12 OPT_FORM2 OPT_MINUTE

CONTROL_AM WORD_AM

OPT_SYS means system time is announced, not message time (for recorded messages)

OPT_DEFAULT means Number Table 0 is to be used from now on

OPT_HOUR_12 means the system time in 12 hour format is to be announced (using Number table 0, because of the preceding OPT_DEFAULT). OPT_HOUR_24 selets 24 hour time format.

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OPT_FORM2 means Number Table 2 is to be used from now on

OPT_MINUTE means the system time in minutes is to be announced using number table 2 (because of the preceding OPT_FORM2).

CONTROL_AM means if the time is 1 AM to 12 AM, the next word (WORD_AM) is to be used. However, if the time is 1 PM to 12 PM, the word following WORD_AM in the file TRANSLAT.TAB should be used (which is WORD_PM)

The 1st sentence in number0.tab in English is

WORD_OH WORD_OH

Which is why Comfort announces time say 6:00 AM as “six oh oh AM”

Number3.tab

Number table 3 is used for the days of week, as shown below.

;Number3.tab

NumOfNumbers=9

MaxNumberLength=1

WORD_DAY

WORD_MONDAY

WORD_TUESDAY

WORD_WEDNESDAY

WORD_THURSDAY

WORD_FRIDAY

WORD_SATURDAY

WORD_SUNDAY

WORD_HOLIDAY

It is used when days of the week are to be announced, eg Time Programs, Reminder, and system date

Number4.tab

Number Table 4 is used for system announcements, as an extension to the sentence table. NumOfNumbers should be 128 and unused lines must be entered with WORD_NULL for future expansion.

This number table is used for fixed words without arguments. There are no references to other number tables eg OPT_NUMBER here.

Translate all the sentences just like in sentence.tab

Number5.tab

Number Table 5 is used for Months of the year

NumOfNumbers=13

WORD_NULL

WORD_JANUARY

WORD_FEBRUARY

WORD_MARCH

WORD_APRIL

WORD_MAY

WORD_JUNE

WORD_JULY

WORD_AUGUST

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WORD_SEPTMBER

WORD_OCTOBER

WORD_NOVEMBER

WORD_DECEMBER

The first word shall be WORD_NULL.

Number Table 6

NumOfNumbers=100

WORD_OH WORD_OH

WORD_OH WORD_1

WORD_OH WORD_2

WORD_OH WORD_3

WORD_OH WORD_4

WORD_OH WORD_5

WORD_OH WORD_6

WORD_OH WORD_7

WORD_OH WORD_8

WORD_OH WORD_9

WORD_10

WORD_11

WORD_12

WORD_13

WORD_14

WORD_15

WORD_16

WORD_17

WORD_18

WORD_19

WORD_20

WORD_20 WORD_1

WORD_20 WORD_2

WORD_20 WORD_3..

Number Table 6 is used to announce both the years and century in the date. For example the year 2003 in english is announced as the WORD_20 (20th line) followed by WORD_OH WORD_3 (3rd line).

In another language, it may be announced as “WORD_2 WORD_OH WORD_OH WORD_3” In this case, the number table may be like this;

WORD_0 WORD_0

WORD_0 WORD_1

WORD_0 WORD_2

WORD_0 WORD_3

WORD_0 WORD_4

WORD_0 WORD_5

WORD_0 WORD_6

WORD_0 WORD_7

WORD_0 WORD_8

WORD_0 WORD_9

WORD_1 WORD_0

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WORD_1 WORD_1
WORD_1 WORD_2
WORD_1 WORD_3
WORD_1 WORD_4
WORD_1 WORD_5
WORD_1 WORD_6
WORD_1 WORD_7
WORD_1 WORD_8
WORD_1 WORD_9
WORD_2 WORD_0
WORD_2 WORD_1
WORD_2 WORD_2
WORD_2 WORD_3
..
..

Number7.tab

Number Table 7 is used to announce hundreds from 100 to 900 as shown below

NumOfNumbers=10

WORD_NULL
WORD_1 WORD_HUNDRED
WORD_2 WORD_HUNDRED
WORD_3 WORD_HUNDRED
WORD_4 WORD_HUNDRED
WORD_5 WORD_HUNDRED
WORD_6 WORD_HUNDRED
WORD_7 WORD_HUNDRED
WORD_8 WORD_HUNDRED
WORD_9 WORD_HUNDRED

Number8.tab

Number Table 8 is used to announce numbers from 128 to 255

NumOfNumbers=128

MaxNumberLength=5

WORD_1 WORD_HUNDRED WORD_AND WORD_20 WORD_8
WORD_1 WORD_HUNDRED WORD_AND WORD_20 WORD_9
WORD_1 WORD_HUNDRED WORD_AND WORD_30
WORD_1 WORD_HUNDRED WORD_AND WORD_30 WORD_1
WORD_1 WORD_HUNDRED WORD_AND WORD_30 WORD_2
WORD_1 WORD_HUNDRED WORD_AND WORD_30 WORD_3
WORD_1 WORD_HUNDRED WORD_AND WORD_30 WORD_4
WORD_1 WORD_HUNDRED WORD_AND WORD_30 WORD_5
WORD_1 WORD_HUNDRED WORD_AND WORD_30 WORD_6
WORD_1 WORD_HUNDRED WORD_AND WORD_30 WORD_7
WORD_1 WORD_HUNDRED WORD_AND WORD_30 WORD_8

...

...

Even though 128 to 255 are included in number table 0, this table is needed because of some limitations to the number table size.

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Translat.tab

Translate all the sentences in sentence.tab and number0.tab to number8.tab according to the instructions above. The words are prefixed with WORD_ followed by the word, eg WORD_PRESS. Enter all the unique words required into the file translat.tab

Tranlat.tab consists of lines in the format

Number WORD_xxx yyy

There are 3 fields in the line;

Number is the word number

WORD_xxx is the word label which is used in the sentence and number tables.

Yyy is the name of .wav file, ie yyy.wav. **The wav file name must be 8 characters or less**

For example,

85 WORD_MESSAGES MESSAGES

Word 85 is WORD_MESSAGES and the wav file is MESSAGES.WAV

194 WORD_SEPTEMBER SEPTEMBE

Word 194 is WORD_SEPTEMBER and the wav file is SEPTEMBE.WAV due to the 8 character limitation

In translat.tab, words 230 to 248 are control instructions and should not be changed or translated. These are listed in the beginning of the file;

230 OPT_HOUR_12
231 OPT_HOUR_24
232 OPT_MINUTE
233 CONTROL_AM
234 CONTROL_NULL
235 CONTROL_SING
236 CONTROL_DAY
237 OPT_NUMBER
238 OPT_MSG_TIM
239 OPT_SYS_TIM
240 OPT_DEFAULT
241 OPT_FORM1
242 OPT_FORM2
243 OPT_FORM3
244 OPT_FORM4
245 OPT_FORM5
246 OPT_FORM6
247 OPT_FORM7
248 OPT_FORM8

You do NOT need to follow the same order or use the same words as in English. Translat.tab is arranged in two parts; There are a maximum of 256 words

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The 1st 128 words, 0 to 127 can be used by the user for selection of words for zones and control menu, ie they are part of the wordlist.

When they are used by the wordlist, the numbers are offset by 128. For example, word 129 ("1") in the English wordlist is word 1 in translatab. Word 242 in the English wordlist ("Security") is word 114 in translatab. Words 0 to 127 in the wordlist comes from another file RESID.TAB. Hence when constructing TRANSLAT.TAB, put all the words which are useful for the wordlist in the 1st 128 places. This is a trick to save memory so that you do not have to record twice a word which is used by the system and for the wordlist.

Try to minimise the number of unique words which have to be entered into translatab by choosing common words as far as possible and avoiding unnecessary words. Only 229 words are available as 230 onwards are control words.

As an example in the Italian translation;

194 WORD _ SEPTEMBRE SEPTEMBE

eg. septembe.wav will be the file name of the actual voice sample.

The following words from the Italian translatab show this:

40 WORD_CAMBIARE CAMBIARE
41 WORD_CONTROLLO CONTROLL
42 WORD_CODICE CODICE
43 WORD_GUASTO GUASTO
44 WORD_GUASTA GUASTA
45 WORD_ZONA ZONA
46 WORD_DATA DATA
47 WORD_GIORNO GIORNO
48 WORD_CANCELLARE CANCELLR
49 WORD_TELEFONICA TELEFONI

Most translatab words are made up of individually recorded words EXCEPT for some of the Answer Machine words such as:

185 WORD_DITE_IL_VOSTRO_NOME DITLVNOM (Say your name)
184 WORD_DOPO_IL_TONO DOPILTON (after the tone)
151 WORD_LASCIATE_IL_VOSTRO_MESSAGGIO LSIIVSMES (leave your message)

If the longer words are being shortened to produce their 8 character wav version, be careful to keep every wav name unique, otherwise the voice compiling program will not recognise them and will produce an error.

Control Instructions

CONTROL_SING is used to say the plural or singular form of the word. It is used in Sentences 1 and 47 for the number of messages in the answering machine;

;1 - YOU HAVE <N> NEW MESSAGE/S.

WORD_YOUHAVE OPT_DEFAULT OPT_NUMBER WORD_NEW CONTROL_SING
WORD_MESSAGES

;47 - N FOR MESSAGE(S) (MESSAGE OF NUMBER IS 1 - TRICK)

OPT_FORM1 OPT_NUMBER WORD_FOR CONTROL_SING WORD_MESSAGES

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If the number of message is not equal to one the word following CONTROL_SING is used.
If the number of message is exactly one the word number following CONTROL_SING is incremented by 1

Hence for this to work, WORD_MESSAGE must follow WORD_MESSAGES, ie

If there is 1 new message, sentence 1 will read "You have 1 new *message*"

If there is 0 or more than 1 new message, sentence 1 will read "You have x new *messages*"

If the language does not have a plural form, do NOT use CONTROL_SING in the above sentences.

CONTROL_DAY is used in a date/time sentence. Together with the following word, it announces the current day of the week.

It is used in Sentence 0:

CONTROL_DAY WORD_MONDAY OPT_DEFAULT OPT_HOUR_12 OPT_FORM2
OPT_MINUTE CONTROL_AM WORD_AM

For this to work, in Translat.tab WORD_MONDAY, WORD_TUESDAY,
WORD_WEDNESDAY,, WORD_SUNDAY should follow each other in that order.

Control_Day is used in day/time announcements while Number Table 3 is used for announcement of day of week for schedules.

OPT_SYS means system time is announced, not message time (for recorded messages). It is used in a date and time announcement sentence like sentence 0.

OPT_HOUR_12 means the system time in 12 hour format is to be announced (using Number table 0, because of the preceding OPT_DEFAULT).

OPT_HOUR_24 selects 24 hour time format. To announce time in 24 hour format sentence 0 is changed to ;

CONTROL_DAY WORD_MONDAY OPT_DEFAULT OPT_HOUR_24 OPT_FORM2
OPT_MINUTE

CONTROL_AM is used in a day/time sentence to control the AM/PM announcement. If the current time is in the range 0 to 11, announce AM, if 12 to 23, announce PM. For this to work, the WORD_AM must be followed by WORD_PM in the translat.tab file.

CONTROL_AM is used in sentence 0 and 116.

OPT_MINUTE announces the current minute count. The count is in the range 0 to 59.

OPT_MINUTE is used in sentence 0 and 116.

OPT_DEFAULT means Number Table 0 is to be used until another Number table is specified

OPT_FORM1 means Number Table 1 is to be used until another Number table is specified

OPT_FORM2 means Number Table 2 is to be used until another Number table is specified

OPT_FORM3 means Number Table 3 is to be used until another Number table is specified

OPT_FORM4 means Number Table 4 is to be used until another Number table is specified

OPT_FORM5 means Number Table 5 is to be used until another Number table is specified

OPT_FORM6 means Number Table 6 is to be used until another Number table is specified

OPT_FORM7 means Number Table 7 is to be used until another Number table is specified

OPT_FORM8 means Number Table 8 is to be used until another Number table is specified

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Resid.tab

User-selected words which can be used for naming zones and control keys are placed in resid.tab using the same rules as for translat.tab. You can have up to 128 words in resid.tab. This makes up words 0 to 127 in the user wordlist. Words 128 to 255 come from words 0 to 127 in translat.tab. The words in resid.tab should be words that are NOT used by the system, otherwise the words should be listed in translat.tab

Words may be regionalised to the particular country's requirements, for example, in the UK word list we included typically English room descriptions such as, Snug and Toilet, whereas in the American version we included words such as Den, Gun and ACPower. You are free to do any words you wish in this.

Configuration Files

The configuration files cyt267.ini and resid267.ini are used to provide information for the compression software to generate the binary vocabulary to be downloaded into the flash memory U7.

cyt267.ini is the configuration file for the system words. The contents are;

```
[General]
; this is a configuration file for system sentences
IvsId=001
NumOfWords=203
WavesDir=voice.wvd
CompressedDir=voice.vcd
VCD_Compression_Rate=4.8
VocabularyFileName=cyt267.bin
SentencesFileName=sentence.tab
TranslationFileName=translat.tab
NumOfTables=9
```

```
[Filters]
HighPass=ON
```

```
[Filters]
HighPass=ON
```

```
[Tables]
Table0FileName=number0.tab
Table1FileName=number1.tab
Table2FileName=number2.tab
Table3FileName=number3.tab
Table4FileName=number4.tab
Table5FileName=number5.tab
Table6FileName=number6.tab
Table7FileName=number7.tab
Table8FileName=number8.tab
```

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NumOfWords is the number of words in the file translat.tab. It starts with 0 and ends at NumOfWords-1

WavesDir is the subdirectory voice.wvd where all the recorded wav files are stored.

CompressedDir is the directory voice.vcd where the compressed .vcd files are put after processing

VocabularyFileName is the name of the compressed vocabulary file cyt267.bin which contains the system vocabulary. This must be combined with the wordlist file to form the complete bin file which can be used in the system

SentencesFileName=sentence.tab is the name of the sentence file

TranslationFileName=translat.tab is the name of the translate file

The other parameters IvsId, VCD_Compression_Rate, NumOfTables should be left alone

resid267.ini is the configuration file for the user words

The contents are;

[General]

; this is a configuration file for user words

IvsId=002

NumOfWords=101

WavesDir=voice.wvd

CompressedDir=voice.vcd

VCD_Compression_Rate=4.8

VocabularyFileName=resid267.bin

SentencesFileName=resenten.tab

TranslationFileName=resid.tab

NumOfTables=1

[Filters]

HighPass=ON

[Tables]

Table0FileName=numdum.tab

The meaning is the same as for cyt267.ini

The wav and compressed directory specified is the same as for the system words.

The binary file generated is VocabularyFileName=resid267.bin

cyt267.bin is combined with resid267.bin to form the final vocabulary file.

resenten.tab is a dummy sentence table, as sentences are not used here.

numdum.tab is a dummy number table as number tables are not used here.

You may have to put valid words into resenten.tab and numdum.tab

Recording

Voice Talent

It is recommended that a professional voice talent (newsreader, radio announcer, TV reporter etc) be employed for the recording process, as this is the most important factor determining the quality of the final result. After the recording, a lot of work needs to go into the editing and compression process, and this will be wasted if the original source is poor for pronunciation or clarity.

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Environment

A quiet room without background noise from radios or air-conditioners should be used. A recording studio is ideal, but not essential.

Equipment

Use a PC with a good sound card and a professional microphone.

Procedure

All the words in sentence.tab are contained in translat.tab. **Hence all the words in translat.tab must be recorded.** However, the context of the individual words in the sentences must be noted. Some words are used in more than one context and must sound right in all contexts eg

"Intruder Alarm", and "Press 1 for Alarm Voice message", "Alarm History". There is not the space in the vocabulary structure to include several recordings of a single word to fit in different contexts, so in such cases the pronunciation of such multiple-context words should be flat or neutral.

Record into the voice.org subdirectory. Adjust the recording volume so that the peak amplitude of the voice samples are around half full scale. The recording should be done in the .wav format.

Use a recording program like Sound Recorder or Goldwave for Windows.

Recording parameters should be Mono, 8000 Khz sampling rate, 16 bit samples.

Record the words in groups of about 30 seconds to a minute. It is best to record in sentences, but with short breaks between words, eg : Press, 1, to, arm, security, system, 2, for, messages, etc. Repeated instances can be skipped, eg "Press (N) for"

TRANSLAT.TAB contains all the words needed by the system and RESID.TAB has the user-selected words used in zones and control menu..

You should expect to do at least 2 to 3 sessions of recording, to re-record certain words for better pronunciation or to fit into the context of the sentence.

Editing

When all the recording has been completed, it is time for the most time-consuming part of the process, editing. Use a voice file editor like Goldwave for windows (This is shareware which can be downloaded from www.goldwave.com)

Each of the words should be isolated from the files in which they were recorded, and saved as a separate word. The file name for the words must be taken from the translat.tab file.

When editing,

1. Remove unwanted silence before and after each word. The system does not add silence between words, so the word itself should have the required silence if necessary. However, it is usually not necessary to add silence before and after each word, as the trailing portions of many words are inaudible even though signal may be present. Practice will help here.
2. Adjust the volume of each word sample so that the amplitude is around 1/2 full scale. However, some words are naturally pronounced softer.
3. Adjust the duration of each word when necessary. Certain words may be pronounced too slowly. Certain sections within words have silence which may be removed, or reduced. Also, most sound editing tools have a facility to adjust the speed of the pronunciation without affecting the pitch. Be careful when doing this - make liberal use of the Undo button.

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Testing the Sentences

Run IVSTOOL.EXE. This takes the parameters and file names from the file cyt267.ini and allows you to hear each sentence by combining the words specified in sentence.tab. This allows you to identify which words need to be edited or re-recorded.

Note that what you hear are the words in sentences without compression. The quality of the voice when compressed will not be as good as this.

Compression

IVS_267.EXE is the compression tool which will process the wav files into a binary vocabulary file according to the instructions in the configuration files.

To compress the system words, run the program in DOS

```
C:> ivs_267.exe /i cyt267.ini
```

This processes all the .wav files in the subdirectory voice.wvd specified in cyt267.ini, and put the processed .vcd files in the subdirectory voice.vcd specified in cyt267.ini

The subdirectory voice.wvd and voice.vcd must be created. All the edited wav files must be saved in voice.wvd.

The binary file cyt267.bin is created if there are no errors.

This may take more than an hour, depending on the speed of your PC. If successful, a file, called cyt267.bin will be produced, with no error messages. This file contains the sentences and words needed for the system menus.

To compress the user words, run the program

```
C:> ivs_267.exe /i resid267.ini
```

The binary file resid267.bin is created if there are no errors. This file contains the compressed user words.

Combine cyt267.bin and resid267.bin using the batch file combine.bat;
copy /b cyt267.bin + resid267.bin vocab267.bin

This creates a single vocab267.bin file which can be used to make an EPROM for use in the Voice programmer board or download using Comfigurator.

The vocab267.bin should not be larger than 256K bytes (262144 bytes) in order to fit into a 2 Megabit EPROM

EPROM Programming

This requires an EPROM Programmer

A blank 2 Mbit EPROM is needed. Load the vocab267.bin file into the programmer starting at address 0000.

Program the EPROM.

Programming the Voice Chip (U7)

The Vocabulary is transferred from the EPROM created by the above process into the U7 chip on the main board using the Voice Programmer Board. (VPG). See instructions for the VPG

The vocabulary can also be downloaded into the U7 using Comfigurator

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Files Required

sentence.tab	Sentence table
number0.tab	Number table 0
number1.tab	Number table 1
number2.tab	Number table 2
number3.tab	Number table 3
number4.tab	Number table 4
number5.tab	Number table 5
number6.tab	Number table 6
number7.tab	Number table 7
number8.tab	Number table 8
translat.tab	system words table
resid.tab	user words table
resenten.tab	dummy sentence table
numdum.tab	dummy number table
cyt267.ini	system words configuration file
resid267.ini	user words configuration file
ivs_267.exe	compression tool
combine.bat	batch file to combine system and user words files
ivstool.exe	Vocab testing program

Configurator Word List

The word list which is used by Configurator is shown in Configuration > Modules & Settings. This is selected from a drop-down list. To get the new vocabulary into that list, the file vocab.cfg in the Configurator folder must be modified

Vocab.cfg contents are as follows;

```
>WordList
00=Standard Residential,cs-wl-std.cfg,sentence.cfg
01=Chinese Residential,cs-wl-ch.cfg,sentence-ch.cfg
02=UK Residential,cs-wl-uk.cfg,sentence.cfg
03=Italian Residential,cs-wl-it.cfg,sentence-it.cfg
04=US Residential,cs-wl-us.cfg,sentence.cfg
05=Pagewatch,cs-wl-pw.cfg,sentence.cfg
```

It consists of a numeric index and a description followed by two file names. Taking the example of the Standard residential wordlist, cs-wl-std.cfg is the name of the file containing the worldlist.

cs-wl-std.cfg contents

```
>WordList
Item0=(SILENCE),0
Item1=1st,86
Item2=2nd,87
Item3=3rd,88
Item4=Action,156
Item5=Airconditioner,1
```

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Item6=Alarm,157
Item7=Alert,158
Item8=All,85
Item9=And,160
Item10=Answering,161
Item11=Area,80
Item12=Arm,162

Itemxx is a sequential number which is the order of display of the words.

The word after the "=" is the Word which is displayed.

The number at the end is the word number corresponding to the entry in translatab

The 2nd file sentence.cfg is a list of sentences used for Alarm Types in the "Phrase" column.

The format is

>Sentences

s1=8,8-ARM FAILURE
s2=19,19-FAMILICARE MODE
s3=20,20-HOME MODE
s4=23,23-NIGHT MODE
s5=27,27-WRONG CODE
s6=3,3-AWAY MODE
s7=74,74-NEW MESSAGE
s8=75,75-VACATION MODE
s9=246,246-DAY MODE
s10=100,100-FIRE ALARM
s11=101,101-INTRUDER ALARM
s12=102,102-TAMPER ALARM
s13=103,103-DURESS ALARM
s14=104,104-PHONE TROUBLE
s15=105,105-ZONE TROUBLE
s16=106,106-ZONE ALERT
s17=107,107-PANIC ALARM
s19=108,108-BATTERY WARNING
s20=109,109-POWER FAILURE
s21=110,110-FAMILICARE ALARM
s22=111,111-PERIMETER ALERT
s23=112,112-DIAL FAILURE
s24=113,113-GAS ALARM
s25=119,119-HOMESAFE SIGNIN REPORT
s26=121,121-ENTRY ALERT
s27=127,127-SIGNIN TAMPER
s28=131,131-ALARM ERASED
s29=134,134-RESTORE
s30=135,135-ENTRY ALARM
s31=140,140-VOICE PHONE
s32=141,141-PAGER
s33=142,142-MONITORING STATION
s34=164,164-(UNUSED)
s35=173,173-ALARM VOICE MESSAGE

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s36=191,191-SYSTEM ARMED
s37=197,197-BYPASS
s38=198,198-WARNING ALARM
s39=201,201-INVALID- CALL ENGINEER
s40=212,212-BYPASS OFF
s41=213,213-DOOR BELL
s42=230,230-PHONE CALL, PLEASE HANG UP
s43=238,238-DIAL TEST
s44=242,242-FORCE ARM
s45=229,229-SIREN TROUBLE
s46=248,248-COMMUNICATIONS FAILURE
s47=9,9-ENGINEER SIGN-IN OPTION

The first item on the line *sx* is the order in which the sentences are displayed

The number after the "=" is the Sentence number in sentence.tab

The last item after the comma is the sentence which is displayed in the Alarm Type Phrase

To add a vocabulary to the list, new .cfg files for the word list and the alarm phrases in the above format must be created, and vocab.cfg must be modified to add a line with references to the two files