

PocketSphinx.pm

- [PocketSphinx_Control](#)
 - [SYNOPSIS](#)
 - [DESCRIPTION](#)
 - [INHERITS](#)
 - [METHODS](#)
 - [INI PARAMETERS](#)
 - [AUTHOR](#)
 - [SEE ALSO](#)
 - [LICENSE](#)
- [PocketSphinx_Listner](#)
 - [SYNOPSIS](#)
 - [DESCRIPTION](#)
 - [INHERITS](#)
 - [METHODS](#)
 - [INI PARAMETERS](#)
 - [AUTHOR](#)
 - [SEE ALSO](#)
 - [LICENSE](#)

PocketSphinx_Control

SYNOPSIS

NONE

DESCRIPTION

Use this module to control the PocketSphinx VR engine (currently Linux only)

Requirements:

Download and install Sphinxbase, PocketSphinx, and CMU Language Toolkit <http://cmusphinx.sourceforge.net/wiki/download/>

Current Version Supported:

PocketSphinx: 0.7

SphinxBase: 0.7

Cmuclmtk: 0.7

When building SphinxBase, it will default to OSS, if you want ALSA (recommended) then you need to add --with-alsa to the configure command.

Install and configure all the above software. Set these values in your mh.private.ini file Note that all those marked as default are in mh.ini and need not be loaded unless truly different. Enable the pocket_sphinx_control module in misterhouse setup (code/common).

INHERITS

Generic_Item

METHODS

_trim

Trim leading and trailing spaces

restart

Shut down the process before we restart

said

Check for any new voice command from external pocketsphinx client(s)

build_sentence_file

BUILD SENTENCE FILE

build_lm

BUILD LANGUAGE MODEL FILE

1) Prepare a reference text that will be used to generate the language model. The language model toolkit expects its input to be in the form of normalized text files, with utterances delimited by <s> and </s> tags. A number of input filters are available for specific corpora such as Switchboard, ISL and NIST meetings, and HUB5 transcripts. The result should be the set of sentences that are bounded by the start and end sentence markers: <s> and </s>.

Here's an example:

```
<s> generally cloudy today with scattered outbreaks of rain and drizzle persistent and heavy at times </s>
<s> some dry intervals also with hazy sunshine especially in eastern parts in the morning </s>
<s> highest temperatures nine to thirteen Celsius in a light or moderate mainly east south east breeze </s>
<s> cloudy damp and misty today with spells of rain and drizzle in most places much of this rain will be
light and patchy but heavier rain may develop in the west later </s>
```

2) Generate the vocabulary file. This is a list of all the words in the file:

```
text2wfreq < weather.txt | wfreq2vocab > weather.tmp.vocab
```

3) You may want to edit the vocabulary file to remove words (numbers, misspellings, names). If you find misspellings, it is a good idea to fix them in the input transcript.

4) If you want a closed vocabulary language model (a language model that has no provisions for unknown words), then you should remove sentences from your input transcript that contain words that are not in your vocabulary file.

5) Generate the arpa format language model with the commands:

```
% text2idngram -vocab weather.vocab -idngram weather.idngram < weather.closed.txt
% idngram2lm -vocab_type 0 -idngram weather.idngram -vocab \
weather.vocab -arpa weather.arpa
```

6) Generate the CMU binary form (DMP)

```
% sphinx_lm_convert -i weather.arpa -o weather.lm

/usr/local/bin/text2wfreq < current.sent | /usr/local/bin/wfreq2vocab > current.vocab
text2idngram -vocab current.vocab -idngram current.idngram < current.sent
/usr/local/bin/idngram2lm -vocab_type 0 -idngram current.idngram -vocab current.vocab -arpa current.arpa
/usr/local/bin/sphinx_lm_convert -i current.arpa -o current.lm
```

INI PARAMETERS

voice_cmd	= pocketsphinx	# REQUIRED
server_pocketsphinx_port	= 3235	# REQUIRED
pocketsphinx_awake_phrase	= "mister house,computer"	# optional
pocketsphinx_awake_response	= "yes master?"	# optional
pocketsphinx_awake_time	= 300	# optional
pocketsphinx_asleep_phrase	= {go to sleep,change to sleep mode}	# optional
pocketsphinx_asleep_response	= 0k, later.	
pocketsphinx_timeout_response	= Later.	
pocketsphinx_hmm	= /usr/local/share/pocketsphinx/model/hmm/en_US/hub4wsj_sc_8k	# default
pocketsphinx_rate	= 16000	# default
pocketsphinx_continuous	= /usr/local/bin/pocketsphinx_continuous	# default
pocketsphinx_dev	= default	# default

Note: If using OSS instead of ALSA, pocketsphinx_device needs to be "/dev/dsp" or similar.

- pocketsphinx_awake_phrase: Command(s) that will switch mh into active mode (all commands recognized) from asleep mode.
- pocketsphinx_awake_response: This is what is said (or played) when entering awake mode
- pocketsphinx_awake_time: Stay in awake mode for this many seconds after the last command was heard. Then it switches to asleep mode. Set to 0 or blank to disable (always stay in awake mode).
- pocketsphinx_asleep_phrase: Command(s) to put mh into asleep mode.
- pocketsphinx_asleep_response: This is what it said (or played) when entering sleep mode
- pocketsphinx_timeout_response: This is what is said (or played) when the awake timer expires.
- pocketsphinx_hmm Pocketsphinx Human Markov Model directory location.
- pocketsphinx_rate Audio Sample rate
- pocketsphinx_continuous Program location for pocketsphinx_continuous
- pocketsphinx_dev Audio device (multiple devices can be separated by "|")

AUTHOR

01/21/2007 Created by Jim Duda (jim@duda.tzo.com)

SEE ALSO

NONE

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PocketSphinx_Listner

SYNOPSIS

NONE

DESCRIPTION

NONE

INHERITS

Generic_Item

METHODS

new

Constructor

set_hmm_file

Set functions

_trim

Trim leading and trailing spaces

restore_string

We need to save the persistent information for the Process_Item p_sphinx object between restart and startup such that we can safely kill any running pocketsphinx processes. We'll save the persistent information in restore_data and eval to play it out and restore the object information.

restore

Restore will be called on startup or restart such that we can play out the information contained in p_shpinx_state, which represents the persistent data for the Process_Item object.

restart

Shut down the process before we restart

speak

Update speak parameters based upon context

set_speak_room

Define the speaking room

start_listner

Allow the listener to startup on the next pass of the state_machine maintenance thread.

stop_listner

Stop any active listener program currently running

state_machine

The state_machine loop runs once each pass of misterhouse. This is basically a maitanance thread which insures that the listener is running, since it has been known to crash on its own. We keep a count of restarts to avoid thrashing since the crashes could be caused by bad configuration.

INI PARAMETERS

NONE

AUTHOR

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SEE ALSO

NONE

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