Bayonne

Text To Speech How-To

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GNU Bayonne

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Contents

1   Introduction

GNU Bayonne can work with a lot of external servers such as web servers, databases and TTS. From versions 1.2.x Bayonne scripts can have Text To Speech commands and work directly with TTS servers. In this document we will show how to install and configure Bayonne to connect to different TTS server and how to use TTS commands inside Bayonne scripts. If someone knows how to use Bayonne with a Text To Speech server not mentioned in this How-To please write me.

2   Before you begin

In this document we assume that:

- you are root in your local system (where Bayonne will be installed);

- you are familiar with Bayonne and its scripting language;

- you have Bayonne 1.2.x source package;

- you have TTS server source or binary package.

3   TTS Flite

Flite is a free and open source Text To Speech server, you can download it from *http://cmuflite.org*. (For this How-To we'll use Flite 1.2 and Bayonne 1.2.9)

3.1   Flite installation

Flite installation is very simple:

```
tar zxvf flite-1.2-release.tar.gz
cd flite-1.2-release
./configure
make
make install
```

To check your installation you can execute the server (from the source directory) with:

```
./bin/flite doc/alice
```

if you hear the document *doc/alice* speeched your Flite installation is ok.

3.2   Bayonne configuration/installation

To compile Bayonne to work with Flite (in `/foo/flite-1.2-release`) you need to execute:

```
./configure --with-flite=/foo/flite-1.2-release
```

in the configuration output you must have a row like

```
checking for flite (/foo/flite-1.2-release/lib)... found
```

you must copy all ".h" files from `/foo/flite-1.2-release/include` to subdirectory `module/flite` of your bayonne root directory; then, as usual (you must be root):

```
make
make install
```

in the *etc/bayonne.conf* configuration file you must set:

```
; Enable flite tts system
tts = flite
```

3.3   Running Bayonne and Flite

From Bayonne script we can use Flite TTS throught the command *say*, a very simple example for using it is (sayFlite.scr):

```
slog "start"
say "hello world"
say "I am Flite Text To Speech"
slog "stop"
exit
```

the logs of this script are:

```
dummy(0): sayFlite: start
*** hello world
*** I am Flite Text To Speech
dummy(0): sayFlite: stop
```

4   TTS Theta

Theta is a commercial Text To Speech server, you can buy it from *http://www.cepstral.com*; the downloaded package has both binaries and the include files needed by Bayonne. (In this How-To we use Bayonne 1.2.9 ans the package *Cepstral_Emily_i386-linux_2.4.1.tar.gz* which has the *Emily* voice only)

4.1 Theta installation

Theta installation is very simple (you must be root):

```
tar zxvf Cepstral_Emily_i386-linux_2.4.1.tar.gz
cd Cepstral_Emily_i386-linux_2.4.1/
./install.sh
```

To check your installation you can execute the server (assuming you installed on */opt*) with:

```
/opt/theta/bin/theta "Hello I'm Theta"
```

if you hear the phrase your Theta installation is ok; if you have multiple voice you can specify it with:

```
/opt/theta/bin/theta -N Emily "Hello I'm Emily voice"
```

4.2 Bayonne configuration

To compile Bayonne to work with Theta (in the directory /foo/theta) you need to execute:

```
./configure --with-theta=/foo/theta
```

in the configuration output you must have a row like

```
checking for theta (/foo/theta/lib)... found
```

and then, as usual (you must be root):

```
make
make install
```

in the */etc/bayonne.conf* configuration file you must set:

```
; Enable flite tts system
tts = flite
```

(the row *tts = flite* is not an error, it's like flite TTS)

4.3   Running Bayonne and Theta

From Bayonne script we can use Theta TTS throught the command *say* and the parameter *voice* (in this example voice=Emily), a very simple example for using it is (sayTheta.scr):

```
slog "start"
say voice=Emily "hello world"
say voice=Emily "I am Theta Text To Speech with
                                    Emily voice"
slog "stop"
exit
```

the logs of this script are:

```
dummy(0): sayTheta: start
*** hello world
*** I am Theta Text To Speech with Emily voice
dummy(0): sayTheta: stop
```

5   External TTS

Bayonne can work with external Text To Speech server which support command line synthesize. With these TTS server the Bayonne installation is like usual and doesn't depend by the particular TTS server used; to configure Bayonne for using an external TTS server you must have a executable script with .tts extension (example otherTTS.tts) in your libexec directory (tipically */usr/local/libexec/-bayonne*) and set a row in the configuration file to call it with say=otherTTS.

To use the external TTS in the Bayonne script we must use command *say text*; this command can have several parameters (not always used by the external TTS):

- *language*: Bayonne uses %session.language value;

- *voice*: Bayonne uses %session.voice value;

Bayonne gives other variables to otherTTS.tts (the text to be synthetized and the audio file to be created), in the examples for Festival you can see how to get these values.

5.1   Festival

Festival is a free and open source Text To Speech server, you can download it from http://www.cstr.ed.ac.uk/projects/festival/ (in this How-To we'll use Festival 1.4.3 and Bayonne 1.2.9).

5.1.1 Installation

Festival installation is very simple (you don't need to be root):

- download all .gz packages and unpack them in /foo;

- ```
  cd /foo/speech_tools
  ./configure
  make
  make install
  ```

- ```
  cd /foo/festival
  ./configure
  make
  make install
  ```

The basic festival installation has several voices, two of them are *english* and *spanish*; to test them:

```
cd /foo/festival/bin
./festival --language english
festival> (SayText "Hello gentlemens")
^D
./festival --language spanish
(SayText "Ola")
^D
```

If you listen two diffent voices your installation is ok.

5.1.2 Bayonne configuration

To use Festival with Bayonne you must prepare a script *festival.tts* (in */usr/local/libexec/bayonne*):

```
#!/bin/sh
#
# $TTS_PHRASE: message to be synthesized (first word)
# $*: any other word of the message to be synthesized (second and
                                                 other words)
# $TTS_LANGUAGE: language to be used for TTS
# $TTS_VOICE: voice to be used for TTS (not used by festival)
# $TTS_AUDIO: file audio to be used (created by TTS and used by
                                                 Bayonne)
#
# if there is a second word then TTS_PHRASE will contain all the
                                                 words of the message
```

```
#
if test ! -z "$*" ; then
        TTS_PHRASE="$TTS_PHRASE $*"
fi
#
# remove (if exist) the audio file to be used by TTS
rm -f $TTS_AUDIO
#
# generate the command to be used with TTS
commandTTS=""
if test ! -z "$TTS_PHRASE" ; then
        commandTTS="(utt.save.wave (utt.synth
        (Utterance Text \"$TTS_PHRASE\")) \"$TTS_AUDIO\"
         \"ulaw\")"
fi
#
path="/foo/festival/bin"
#
if test ! -z "$commandTTS" ; then
        echo "$commandTTS" | $path/festival --language
                                "$TTS_LANGUAGE" --pipe
else
        exit -1
fi
#
exit 0
```

This script must be executable: chmod +x festival.tts

In the *bayonne.conf* file you must set the row *say=festival*.

5.1.3   Runnig Bayonne and Festival

```
# to execute this script Bayonne needs an external Text To Speech
                                                            server
        answer
        set %session.voice "anyvoice"  # not used by festival
        set %session.language "english"
        say "Hello gentlemens"
        set %session.language "spanish"
        say "Ola"
        exit
^hangup
        slog "Hangup event: end of the call"
```

```
exit
```

The output is:

```
fifo: cmd=start 0 say
tgi: cmd=festival.tts language=english audio=
    temp/.tts.0.ul voice=anyvoice phrase=Hello gentlemens
fifo: cmd=wait 0 11140
tgi: exec /usr/local/libexec/bayonne/festival.tts
fifo: cmd=exit 0 0
*** temp/.tts.0.ul
tgi: cmd=festival.tts language=spanish audio=
    temp/.tts.0.ul voice=anyvoice phrase=Ola
fifo: cmd=wait 0 11145
tgi: exec /usr/local/libexec/bayonne/festival.tts
fifo: cmd=exit 0 0
*** temp/.tts.0.ul
```

The audio file are usually created in */var/lib/bayonne/temp* (as set in bayonne.conf) and are removed by Bayonne after the use.

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