



Bayonne



Text To Speech How-To

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GNU Bayonne

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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* speached 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 through 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.central.com>; the downloaded package has both binaries and the include files needed by Bayonne. (In this How-To we use Bayonne 1.2.9 and 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 through 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 synthesise. 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 (typically */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 different 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.

6 Copyright

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