Guide to DVD Chapter 7 Examples:
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Further Work With Audio Streams

Libraries

These examples use four libraries, two of which you can build from the sources supplied here, *portsf* and *tiny*. The third and fourth, *portaudio* and *fltk,* can be downloaded and installed from its main distribution site.

portsf

To build this library, go to the portsf sub-directory and run make:

```
$ make
```

But if you are on OSX 10.6, you will need to add some options to make (this is because a required library FLTK does not build for the default 10.6 architecture. x86_64, so all code used needs to be built for i386):

```
$ make CC="gcc –arch i386"
```

To install it ready for your own use, just type:

```
$ make install
```

tiny

To build this library, go to the TinyAudioLibrary sub-directory and run make:

```
$ make
```

But if you are on OSX 10.6, you will need to add some options to make (as explained above):

```
$ make CC="gcc –arch i386"
```

To install it ready for your own use, just type:

```
$ make install
```

portaudio

Instructions for downloading and installing Portaudio (v.19) this are found in
http://portmedia.sourceforge.net/

fltk

FLTK can be downloaded from http://www.fltk.org . In this examples we are using version 1.1.* (e.g. 1.1.9), of which you can download the latest stable sources. After extracting the archive files, change to the sources directory and type:

```
$ ./configure --enable-shared –enable-threads
```

After this configuration step, you can build with:

```
$ make
```

But if you are on OSX 10.6, FLTK will not build for the default architecture, so you will need to add some options to make:

```
$ make CC="gcc –arch i386" CXX="g++ –arch i386"
```

To install it in your system, just type (you will need the admin password for this):

```
$ sudo make install
```

Now you have fltk installed (in /usr/local) and can proceed to build the examples.

Player examples

The two soundfile players will require all the four libraries introduced above (plus pthreads, but that is likely part of your system). In order to build the first one, you will need the command:

```
$ g++ -o playergui playerGUIsimple.cpp –I./include
      -I/usr/local/include –L./lib –L/usr/local/lib
      -ltiny –lportsf –lfltk –lpthread –lportaudio
```

If you are on OSX10.6, remember to add –arch i386 to the g++ command:

```
$ g++ -arch i386 ...
```

[NB: this will be required all the other examples to be successfully built on OSX10.6] This program can be run with the simple command:

```
$ ./playergui
```

To build the second one, you will need a similar command, with different source files:

```
$ g++ -o playergui2 playerGUI.cpp main-player.cpp –I./include
      -I/usr/local/include –L./lib –L/usr/local/lib
      -ltiny –lportsf –lfltk –lpthread –lportaudio
```

This program can be run with the simple command:

```
$ ./playergui2
```

HelloRingGUI

To build this example, you will need only the portaudio and fltk libraries:

```
$ g++ -o ringgui helloRingGUI.cpp main-ring.cpp -I./include
    -I/usr/local/include -L./lib -L/usr/local/lib
    -lfltk -lportaudio
```

To run it, just type

```
$ ./ringgui
```