

# Multimedia Modules

*"Wot? No quote?"*

*Guido van Rossum*

## Overview

Python comes with a small set of modules for dealing with image files and audio files.

Also see *Python Imaging Library* (PIL) (<http://www.pythonware.com/products/pil>) and *Snack* (<http://www.speech.kth.se/snack/>), among others.

## The imghdr module

This module identifies different image file formats. The current version identifies **bmp**, **gif**, **jpeg**, **pbm**, **pgm**, **png**, **ppm**, **rast** (Sun raster), **rgb** (SGI), **tiff**, and **xbm** images.

### Example: Using the imghdr module

```
# File:imghdr-example-1.py

import imghdr

result = imghdr.what("samples/sample.jpg")

if result:
    print "file format:", result
else:
    print "cannot identify file"

file format: jpeg
```

## The sndhdr module

This module can be used to identify different audio file formats, and extract basic information about the file contents.

If successful, the **what** function returns a 5-tuple, containing the file type, the sampling rate, the number of channels, the number of frames in the file (-1 means unknown), and the number of bits per sample.

### Example: Using the sndhdr module

```
# File:sndhdr-example-1.py

import sndhdr

result = sndhdr.what("samples/sample.wav")

if result:
    print "file format:", result
else:
    print "cannot identify file"

file format: ('wav', 44100, 1, -1, 16)
```

## The `whatsound` module

(Obsolete). This is an alias for `sndhdr`.

### Example: Using the `whatsound` module

```
# File:whatsound-example-1.py

import whatsound # same as sndhdr

result = whatsound.what("samples/sample.wav")

if result:
    print "file format:", result
else:
    print "cannot identify file"

file format: ('wav', 44100, 1, -1, 16)
```

## The aifc module

This module reads and writes AIFF and AIFC audio files (as used on SGI and Macintosh computers).

### Example: Using the aifc module

```
# File:aifc-example-1.py

import aifc

a = aifc.open("samples/sample.aiff", "r")

if a.getnchannels() == 1:
    print "mono,",
else:
    print "stereo,",

print a.getsampwidth()*8, "bits,",
print a.getframerate(), "Hz sampling rate"

data = a.readframes(a.getnframes())

print len(data), "bytes read"

mono, 16 bits, 8012 Hz sampling rate
13522 bytes read
```

## The sunau module

This module reads and writes Sun AU audio files.

### Example: Using the sunau module

```
# File:sunau-example-1.py

import sunau

w = sunau.open("samples/sample.au", "r")

if w.getnchannels() == 1:
    print "mono,",
else:
    print "stereo,",

print w.getsampwidth()*8, "bits,",
print w.getframerate(), "Hz sampling rate"

mono, 16 bits, 8012 Hz sampling rate
```

## The sunaudio module

This module identifies Sun AU audio files, and extracts basic information about the file contents. The **sunau** module provides more complete support for Sun AU files.

### Example: Using the sunaudio module

```
# File:sunaudio-example-1.py

import sunaudio

file = "samples/sample.au"

print sunaudio.gethdr(open(file, "rb"))

(6761, 1, 8012, 1, 'sample.au')
```

## The wave module

This module reads and writes Microsoft WAV audio files.

### Example: Using the wave module

```
# File:wave-example-1.py

import wave

w = wave.open("samples/sample.wav", "r")

if w.getnchannels() == 1:
    print "mono,",
else:
    print "stereo,",

print w.getsampwidth()*8, "bits,",
print w.getframerate(), "Hz sampling rate"

mono, 16 bits, 44100 Hz sampling rate
```



## The audiodev module

(Unix only) This module provides sound playing support for Sun and SGI computers.

### Example: Using the audiodev module

```
# File:audiodev-example-1.py

import audiodev
import aifc

sound = aifc.open("samples/sample.aiff", "r")

player = audiodev.AudioDev()

player.setoutrate(sound.getframerate())
player.setsampwidth(sound.getsampwidth())
player.setnchannels(sound.getnchannels())

bytes_per_frame = sound.getsampwidth() * sound.getnchannels()
bytes_per_second = sound.getframerate() * bytes_per_frame

while 1:
    data = sound.readframes(bytes_per_second)
    if not data:
        break
    player.writeframes(data)

player.wait()
```

## The winsound module

(Windows only). This module allows you to play Wave sound files on a Windows machine.

### Example: Using the winsound module

```
# File:winsound-example-1.py

import winsound

file = "samples/sample.wav"

winsound.PlaySound(
    file,
    winsound.SND_FILENAME|winsound.SND_NOWAIT,
)
```

## The colorsys module

This module contains functions to convert between RGB, YIQ (video), HLS, and HSV color values.

### Example: Using the colorsys module

```
# File:colorsys-example-1.py

import colorsys

# gold
r, g, b = 1.00, 0.84, 0.00

print "RGB", (r, g, b)

y, i, q = colorsys.rgb_to_yiq(r, g, b)
print "YIQ", (y, i, q), "=>", colorsys.yiq_to_rgb(y, i, q)

h, l, s = colorsys.rgb_to_hls(r, g, b)
print "HLS", (h, l, s), "=>", colorsys.hls_to_rgb(h, l, s)

h, s, v = colorsys.rgb_to_hsv(r, g, b)
print "HSV", (h, s, v), "=>", colorsys.hsv_to_rgb(h, s, v)

RGB (1.0, 0.84, 0.0)
YIQ (0.7956, 0.3648, -0.2268) => (0.9999998292, 0.8400000312, 0.0)
HLS (0.14, 0.5, 1.0) => (1.0, 0.84, 0.0)
HSV (0.14, 1.0, 1.0) => (1.0, 0.84, 0.0)
```