#### Chapter 14: Multimedia

- Audio Files
- Playing Audio
- Running Audio on a Separate Thread
- Displaying Images
- Displaying a Sequence of Images
- Using MediaTracker



#### Audio Files

Audio is stored in files. There are several formats of audio files. JDK 1.2 can play several audio file formats, including .wav and .au files.



#### Playing Audio

Plays the audio clip after it is given the URL and the file name that is relative to the URL. Nothing happens if the audio file cannot be found.

play(getCodeBase(), "soundfile.au");
Plays the sound file soundfile.au, located in the applet's directory.

Plays the sound file soundfile.au, located in the HTML file's directory.

#### Using Audio Clips

- public AudioClip getAudioClip(URL url);
- public AudioClip getAudioClip(URL url, String name);

Either method creates an audio clip. Specify String name to use a relative URL address.

- public abstract void play()
- public abstract void loop()
- public abstract void stop()

Use these methods to start the clip, play it repeatedly, and stop the clip, respectively.

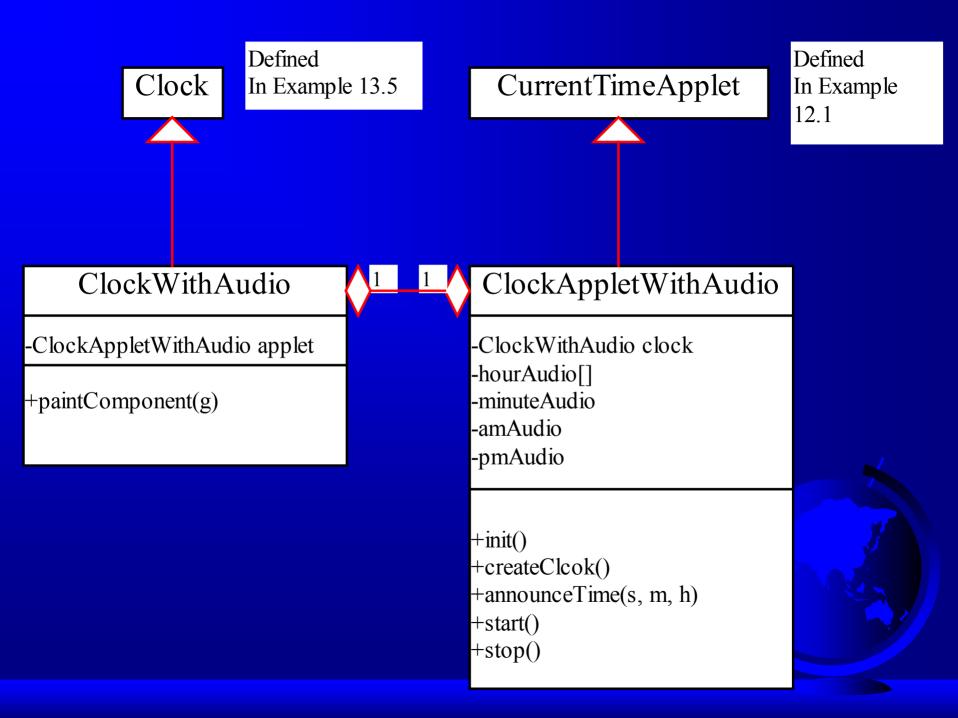


## Example 14.1 Incorporating Sound in Applets

Objective: Display a running clock and play sound files to announce the time at every minute.

<u>ClockAppletWithAudio</u>

Run Applet Viewer



## Running Audio on a Separate Thread

Objective: Avoid the conflict between painting the clock and announcing time in Example 14.1 by running the tasks on separate threads.

 $\underline{ClockAppletWithAudioOnSeparateThread}$ 

Run Applet Viewer



#### Displaying Images

Two methods are available for displaying images:

- Use the getImage() method to retrieve image files and create Image objects.
- Paint the images on the viewing area using the drawImage() method.



# Example 14.3: Displaying Images in an Applet

Objective: Display images in applets

**DisplayImageApplet** 

Run Applet Viewer



# Example 14.4: Using Image and Audio in Applets and in Applications

Objective: Display images and playing audio in applets and in applications.

ResourceLocatorDemo

Run as an Application

Run as an Applet



## Example 14.5: Using Image Animation

Objective: Simulate a movie by displaying a sequence of images in a control loop.

**ImageAnimation** 

Run Applet Viewer

Note: Images may take several seconds to load.



### Example 14.6: Using MediaTracker

Objective: Use the MediaTracker class to load all the images before displaying them in a sequence.

<u>ImageAnimationUsingMediaTracker</u>

Run Applet Viewer

Note: Images may take several seconds to load.

