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**java.applet Reference**

**Introduction to the Reference Chapters**

The preceding seventeen chapters cover just about all there is to know about AWT. We have tried to organize them logically, and provide all the information that you would expect in a reference manual—plus much more in the way of examples and practical information about how to do things effectively. However, there are many times when you just need a reference book, pure and simple: one that's organized alphabetically, and where you can find any method if you know the class and package that it belongs to, without having to second guess the author’s organizational approach. That's what the rest of this book provides. It's designed to help you if you need to look something up quickly, and find a brief but accurate summary of what it does. In these sections, the emphasis is on *brief*; if you want a longer description, look in the body of the book.

The reference sections describe the following packages:

- java.applet (Chapter 18, java.applet Reference)
- java.awt (Chapter 1, java.awt Reference)
- java.awt.datatransfer (Chapter 20, java.awt.datatransfer Reference)
- java.awt.event (Chapter 21, java.awt.event Reference)
- java.awt.image (Chapter 22, java.awt.image Reference)
- java.awt.peer (Chapter 23, java.awt.peer Reference)

Within each package, classes and interfaces are listed alphabetically. There is a description and a pseudo-code definition for each class or interface. Each variable and method is listed and described. New Java 1.1 classes are marked with a black
star (✩), as are new methods and new variables. Of course, if a class is new, all its methods are new. We didn’t mark individual methods in new classes. Methods that are deprecated in Java 1.1 are marked with a white star (✩).

Inheritance presents a significant problem with documenting object-oriented libraries, because the bulk of a class’s methods tend to be hiding in the superclasses. Even if you’re very familiar with object-oriented software development, when you’re trying to look up a method under the pressure of some deadline, it’s easy to forget that you need to look at the superclasses in addition to the class you’re interested in itself. Nowhere is this problem worse than in AWT, where some classes (in particular, components and containers) inherit well over 100 methods, and provide few methods of their own. For example, the Button class contains seven public methods, none of which happens to be setFont(). The font used to display a button’s label is certainly settable—but to find it, you have to look in the superclass Component.

So far, we haven’t found a way around this problem. The description of each class has an abbreviated class hierarchy diagram, showing superclasses (all the way back to Object), immediate subclasses, and the interfaces that the class implements. Ideally, it would be nice to have a list of all the inherited methods—and in other parts of Java, that’s possible. For AWT, the lists would be longer than the rest of this book, much too long to be practical, or even genuinely useful. Someday, electronic documentation may be able to solve this problem, but we’re not there yet.

**Package diagrams**

The following figures provide a visual representation of the relationships between the classes in the AWT packages.

java.awt, as the mother of all AWT packages, is better represented by two diagrams, one for the graphics classes and one for the component and layout classes.
Figure 18–1: Component and Layout classes of the java.awt package.
Figure 18–2: Graphics classes of java.awt package
Figure 18–3: The java.awt.image package

Figure 18–4: The java.awt.datatransfer package
Figure 18–5: The java.awt.event package
Figure 18–6: The java.awt.peer package

Figure 18–7: The java.applet package
18.1 Applet

Description
The Applet class provides the framework for delivering Java programs within web pages.

Class Definition
public class java.applet.Applet
    extends java.awt.Panel {
    // Constructors
    public Applet();

    // Instance Methods
    public void destroy();
    public AppletContext getAppletContext();
    public String getAppletInfo();
    public AudioClip getAudioClip (URL url);
    public AudioClip getAudioClip (URL url, String filename);
    public URL getCodeBase();
    public URL getDocumentBase();
    public Image getImage (URL url);
    public Image getImage (URL url, String filename);
    public Locale getLocale();
    public String getParameter (String name);
    public String[][] getParameterInfo();
    public void ref(int width, int height);
    public final void setStub (AppletStub stub);
    public void showStatus (String message);
public void start();
public void stop();
}

Constructors

Applet
public Applet()
Description Constructs an Applet object.

Instance Methods

destroy
public void destroy()
Description Called when the browser determines that it doesn’t need to keep the applet around anymore.

getAppletContext
public AppletContext getAppletContext()
Returns The current AppletContext of the applet.

g.getAppletInfo
public String getAppletInfo()
Returns A short information string about the applet to be shown to the user.

getAudioClip
public AudioClip getAudioClip (URL url)
Parameters url URL of an audio file.
Returns Object that implements the AudioClip interface for playing audio files.
Description Fetches an audio file to play with the AudioClip interface.
g.getAudioClip (URL url , String filename)
Parameters url Base URL of an audio file.
filename Specific file, relative to url, that contains an audio file.
Returns Object that implements AudioClip interface for playing audio file.
Description  Fetches an audio file to play with the AudioClip interface.

**getCodeBase**

```java
public URL getCodeBase()

Returns  The complete URL of the .class file that contains the applet.
```

**getDocumentBase**

```java
public URL getDocumentBase()

Returns  The complete URL of the .html file that loaded the applet.
```

**getImage**

```java
public Image getImage (URL url)

Parameters  url  URL of an image file.

Returns  Image to be displayed.

Description  Initiates the image loading process for the file located at the specified location.
```

```java
public Image getImage (URL url, String filename)

Parameters  url  Base URL of an image file.

filename  Specific file, relative to url, that contains an image file.

Returns  Image to be displayed.

Description  Initiates the image loading process for the file located at the specified location.
```

**getLocale**

```java
public Locale getLocale() ★

Returns  Applet's locale.

Overrides  Component.getLocale()

Description  Used for internationalization support.
```

**getParameter**

```java
public String getParameter (String name)

Parameters  name  Name of parameter to get.

Returns  The value associated with the given parameter in the HTML file, or null.

Description  Allows you to get parameters from within the <APPLET> tag of the .html file that loaded the applet.
getParameterInfo

public String[][] getParameterInfo()

Returns Overridden to provide a series of three-string arrays that describes the parameters this applet reads.

init

public void init()

Description Called by the system when the applet is first loaded.

isActive

public boolean isActive()

Returns true if the applet is active, false otherwise.

play

public void play (URL url)

Parameters url URL of an audio file.
Description Plays an audio file once.

public void play (URL url, String filename)

Parameters url Base URL of an audio file.
filename Specific file, relative to url, that contains an audio file.
Description Plays an audio file once.

resize

public void resize(int width, int height)

Parameters width New width for the Applet.
height New height for the Applet.
Description Changes the size of the applet.

public void resize (Dimension dim)

Parameters dim New dimensions for the applet.
Description Changes the size of the applet.
### setStub

```java
default void setStub (AppletStub stub)
```

**Parameters**
- `stub`  
  Platform specific stub for environment.

**Description**
Called by the system to setup AppletStub.

### showStatus

```java
default void showStatus (String message)
```

**Parameters**
- `message`  
  Message to display to user.

**Description**
Displays a message on the status line of the browser.

### start

```java
default void start()
```

**Description**
Called by the system every time the applet is displayed.

### stop

```java
default void stop()
```

**Description**
Called by the system when it wants the applet to stop execution; typically, every time the user leaves the page that includes the applet.

### See Also

- AppletContext, AppletStub, AudioClip, Container, Dimension, Image, Locale, Panel, String, URL

## 18.2 AppletContext

### Description

AppletContext is an interface that provides the means to control the browser environment in which the applet is running.

### Interface Definition

```java
public abstract interface java.applet.AppletContext {

    // Interface Methods
    public abstract Applet getApplet (String name);

```
public abstract Enumeration getApplets();
public abstract AudioClip getAudioClip (URL url);
public abstract Image getImage (URL url);
public abstract void showDocument (URL url);
public abstract void showDocument (URL url, String frame);
public abstract void showStatus (String message);

Interface Methods

getApplet
public abstract Applet getApplet (String name)
Parameters name Name of applet to locate.
Returns Applet fetched.
Description Gets a reference to another executing applet.

getApplets
public abstract Enumeration getApplets()
Returns List of applets executing.
Description Gets references to all executing applets.

getAudioClip
public abstract AudioClip getAudioClip (URL url)
Parameters url Location of an audio file.
Returns AudioClip fetched.
Description Loads an audio file.

getImage
public abstract Image getImage (URL url)
Parameters url Location of an image file.
Returns Image fetched.
Description Loads an image file.

showDocument
public abstract void showDocument (URL url)
Parameters url New web page to display.
Description Changes the displayed web page.
public abstract void showDocument (URL url, String frame)

Parameters
url New web page to display.
frame Name of the frame in which to display the new page.

Description Displays a web page in another frame.

showStatus
public abstract void showStatus (String message)

Parameters message Message to display.

Description Displays a message on the status line of the browser.

See Also
Applet, AudioClip, Enumeration, Image, Object, String, URL

18.3 AppletStub

Description
AppletStub is an interface that provides the means to get information from the run-time browser environment.

Interface Definition
public abstract interface java.applet.AppletStub {

    // Interface Methods
    public abstract void appletResize (int width, int height);
    public abstract AppletContext getAppletContext();
    public abstract URL getCodeBase();
    public abstract URL getDocumentBase();
    public abstract String getParameter (String name);
    public abstract boolean isActive();
}

Interface Methods

appletResize

public abstract void appletResize (int width, int height)

Parameters

width Requested new width for applet.
height Requested new height for applet.

Description Changes the size of the applet.

getAppletContext

public abstract AppletContext getAppletContext()

Returns Current AppletContext of the applet.

g.getCodeBase

public abstract URL getCodeBase()

Returns Complete URL for the applet’s .class file.

g.getDocumentBase

public abstract URL getDocumentBase()

Returns Complete URL for the applet’s .html file.

g.getParameter

public abstract String getParameter (String name)

Parameters

name Name of a <PARAM> tag.

Returns Value associated with the parameter.

Description Gets a parameter value from the <PARAM> tag(s) of the applet.

isActive

public abstract boolean isActive()

Returns true if the applet is active, false otherwise

Description Returns current state of the applet.

See Also

AppletContext, Object, String, URL
18.4 AudioClip

**Description**
AudioClip is an interface for playing audio files.

**Interface Definition**
```java
public abstract interface java.applet.AudioClip {

    // Interface Methods
    public abstract void loop();
    public abstract void play();
    public abstract void stop();
}
```

**Interface Methods**

**loop**
```java
public abstract void loop()
```
Description Plays an audio clip continuously.

**play**
```java
public abstract void play()
```
Description Plays an audio clip once from the beginning.

**stop**
```java
public abstract void stop()
```
Description Stops playing an audio clip.

**See Also**
Object