| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/ReverbType.html) | [**Tree**](http://docs.google.com/package-tree.html) | [**Deprecated**](http://docs.google.com/deprecated-list.html) | [**Index**](http://docs.google.com/index-files/index-1.html) | [**Help**](http://docs.google.com/help-doc.html) | | --- | --- | --- | --- | --- | --- | --- | --- | | | ***Java™ Platform***  ***Standard Ed. 6*** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [**PREV CLASS**](http://docs.google.com/javax/sound/sampled/Port.Info.html)   [**NEXT CLASS**](http://docs.google.com/javax/sound/sampled/SourceDataLine.html) | [**FRAMES**](http://docs.google.com/index.html?javax/sound/sampled/ReverbType.html)    [**NO FRAMES**](http://docs.google.com/ReverbType.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
| SUMMARY: NESTED | FIELD | [CONSTR](#3znysh7) | [METHOD](#2et92p0) | DETAIL: FIELD | [CONSTR](#3dy6vkm) | [METHOD](#4d34og8) |

## **javax.sound.sampled**

Class ReverbType

[java.lang.Object](http://docs.google.com/java/lang/Object.html)  
 **javax.sound.sampled.ReverbType**

public class **ReverbType**extends [Object](http://docs.google.com/java/lang/Object.html)

The ReverbType class provides methods for accessing various reverberation settings to be applied to an audio signal.

Reverberation simulates the reflection of sound off of the walls, ceiling, and floor of a room. Depending on the size of the room, and how absorbent or reflective the materials in the room's surfaces are, the sound might bounce around for a long time before dying away.

The reverberation parameters provided by ReverbType consist of the delay time and intensity of early reflections, the delay time and intensity of late reflections, and an overall decay time. Early reflections are the initial individual low-order reflections of the direct signal off the surfaces in the room. The late Relections are the dense, high-order reflections that characterize the room's reverberation. The delay times for the start of these two reflection types give the listener a sense of the overall size and complexity of the room's shape and contents. The larger the room, the longer the reflection delay times. The early and late reflections' intensities define the gain (in decibels) of the reflected signals as compared to the direct signal. These intensities give the listener an impression of the absorptive nature of the surfaces and objects in the room. The decay time defines how long the reverberation takes to exponentially decay until it is no longer perceptible ("effective zero"). The larger and less absorbent the surfaces, the longer the decay time.

The set of parameters defined here may not include all aspects of reverberation as specified by some systems. For example, the Midi Manufacturer's Association (MMA) has an Interactive Audio Special Interest Group (IASIG), which has a 3-D Working Group that has defined a Level 2 Spec (I3DL2). I3DL2 supports filtering of reverberation and control of reverb density. These properties are not included in the JavaSound 1.0 definition of a reverb control. In such a case, the implementing system should either extend the defined reverb control to include additional parameters, or else interpret the system's additional capabilities in a way that fits the model described here.

If implementing JavaSound on a I3DL2-compliant device:

* Filtering is disabled (high-frequency attenuations are set to 0.0 dB)
* Density parameters are set to midway between minimum and maximum

The following table shows what parameter values an implementation might use for a representative set of reverberation settings.

**Reverberation Types and Parameters**

| Type | Decay Time (ms) | Late Intensity (dB) | Late Delay (ms) | Early Intensity (dB) | Early Delay(ms) |
| --- | --- | --- | --- | --- | --- |
| Cavern | 2250 | -2.0 | 41.3 | -1.4 | 10.3 |
| Dungeon | 1600 | -1.0 | 10.3 | -0.7 | 2.6 |
| Garage | 900 | -6.0 | 14.7 | -4.0 | 3.9 |
| Acoustic Lab | 280 | -3.0 | 8.0 | -2.0 | 2.0 |
| Closet | 150 | -10.0 | 2.5 | -7.0 | 0.6 |

**Since:** 1.3

| **Constructor Summary** | |
| --- | --- |
| protected | [**ReverbType**](http://docs.google.com/javax/sound/sampled/ReverbType.html#ReverbType(java.lang.String,%20int,%20float,%20int,%20float,%20int))([String](http://docs.google.com/java/lang/String.html) name, int earlyReflectionDelay, float earlyReflectionIntensity, int lateReflectionDelay, float lateReflectionIntensity, int decayTime)            Constructs a new reverb type that has the specified reverberation parameter values. |

| **Method Summary** | |
| --- | --- |
| boolean | [**equals**](http://docs.google.com/javax/sound/sampled/ReverbType.html#equals(java.lang.Object))([Object](http://docs.google.com/java/lang/Object.html) obj)            Indicates whether the specified object is equal to this reverb type, returning true if the objects are identical. |
| int | [**getDecayTime**](http://docs.google.com/javax/sound/sampled/ReverbType.html#getDecayTime())()            Obtains the decay time, which is the amount of time over which the late reflections attenuate to effective zero. |
| int | [**getEarlyReflectionDelay**](http://docs.google.com/javax/sound/sampled/ReverbType.html#getEarlyReflectionDelay())()            Returns the early reflection delay time in microseconds. |
| float | [**getEarlyReflectionIntensity**](http://docs.google.com/javax/sound/sampled/ReverbType.html#getEarlyReflectionIntensity())()            Returns the early reflection intensity in decibels. |
| int | [**getLateReflectionDelay**](http://docs.google.com/javax/sound/sampled/ReverbType.html#getLateReflectionDelay())()            Returns the late reflection delay time in microseconds. |
| float | [**getLateReflectionIntensity**](http://docs.google.com/javax/sound/sampled/ReverbType.html#getLateReflectionIntensity())()            Returns the late reflection intensity in decibels. |
| [String](http://docs.google.com/java/lang/String.html) | [**getName**](http://docs.google.com/javax/sound/sampled/ReverbType.html#getName())()            Obtains the name of this reverb type. |
| int | [**hashCode**](http://docs.google.com/javax/sound/sampled/ReverbType.html#hashCode())()            Finalizes the hashcode method. |
| [String](http://docs.google.com/java/lang/String.html) | [**toString**](http://docs.google.com/javax/sound/sampled/ReverbType.html#toString())()            Provides a String representation of the reverb type, including its name and its parameter settings. |

| **Methods inherited from class java.lang.**[**Object**](http://docs.google.com/java/lang/Object.html) |
| --- |
| [clone](http://docs.google.com/java/lang/Object.html#clone()), [finalize](http://docs.google.com/java/lang/Object.html#finalize()), [getClass](http://docs.google.com/java/lang/Object.html#getClass()), [notify](http://docs.google.com/java/lang/Object.html#notify()), [notifyAll](http://docs.google.com/java/lang/Object.html#notifyAll()), [wait](http://docs.google.com/java/lang/Object.html#wait()), [wait](http://docs.google.com/java/lang/Object.html#wait(long)), [wait](http://docs.google.com/java/lang/Object.html#wait(long,%20int)) |

| **Constructor Detail** |
| --- |

### ReverbType

protected **ReverbType**([String](http://docs.google.com/java/lang/String.html) name,  
 int earlyReflectionDelay,  
 float earlyReflectionIntensity,  
 int lateReflectionDelay,  
 float lateReflectionIntensity,  
 int decayTime)

Constructs a new reverb type that has the specified reverberation parameter values.

**Parameters:**name - the name of the new reverb type, or a zero-length StringearlyReflectionDelay - the new type's early reflection delay time in microsecondsearlyReflectionIntensity - the new type's early reflection intensity in dBlateReflectionDelay - the new type's late reflection delay time in microsecondslateReflectionIntensity - the new type's late reflection intensity in dBdecayTime - the new type's decay time in microseconds

| **Method Detail** |
| --- |

### getName

public [String](http://docs.google.com/java/lang/String.html) **getName**()

Obtains the name of this reverb type.

**Returns:**the name of this reverb type**Since:** 1.5

### getEarlyReflectionDelay

public final int **getEarlyReflectionDelay**()

Returns the early reflection delay time in microseconds. This is the amount of time between when the direct signal is heard and when the first early reflections are heard.

**Returns:**early reflection delay time for this reverb type, in microseconds

### getEarlyReflectionIntensity

public final float **getEarlyReflectionIntensity**()

Returns the early reflection intensity in decibels. This is the amplitude attenuation of the first early reflections relative to the direct signal.

**Returns:**early reflection intensity for this reverb type, in dB

### getLateReflectionDelay

public final int **getLateReflectionDelay**()

Returns the late reflection delay time in microseconds. This is the amount of time between when the first early reflections are heard and when the first late reflections are heard.

**Returns:**late reflection delay time for this reverb type, in microseconds

### getLateReflectionIntensity

public final float **getLateReflectionIntensity**()

Returns the late reflection intensity in decibels. This is the amplitude attenuation of the first late reflections relative to the direct signal.

**Returns:**late reflection intensity for this reverb type, in dB

### getDecayTime

public final int **getDecayTime**()

Obtains the decay time, which is the amount of time over which the late reflections attenuate to effective zero. The effective zero value is implementation-dependent.

**Returns:**the decay time of the late reflections, in microseconds

### equals

public final boolean **equals**([Object](http://docs.google.com/java/lang/Object.html) obj)

Indicates whether the specified object is equal to this reverb type, returning true if the objects are identical.

**Overrides:**[equals](http://docs.google.com/java/lang/Object.html#equals(java.lang.Object)) in class [Object](http://docs.google.com/java/lang/Object.html) **Parameters:**obj - the reference object with which to compare **Returns:**true if this reverb type is the same as obj; false otherwise**See Also:**[Object.hashCode()](http://docs.google.com/java/lang/Object.html#hashCode()), [Hashtable](http://docs.google.com/java/util/Hashtable.html)

### hashCode

public final int **hashCode**()

Finalizes the hashcode method.

**Overrides:**[hashCode](http://docs.google.com/java/lang/Object.html#hashCode()) in class [Object](http://docs.google.com/java/lang/Object.html) **Returns:**a hash code value for this object.**See Also:**[Object.equals(java.lang.Object)](http://docs.google.com/java/lang/Object.html#equals(java.lang.Object)), [Hashtable](http://docs.google.com/java/util/Hashtable.html)

### toString

public final [String](http://docs.google.com/java/lang/String.html) **toString**()

Provides a String representation of the reverb type, including its name and its parameter settings. The exact contents of the string may vary between implementations of Java Sound.

**Overrides:**[toString](http://docs.google.com/java/lang/Object.html#toString()) in class [Object](http://docs.google.com/java/lang/Object.html) **Returns:**reverberation type name and description

| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/ReverbType.html) | [**Tree**](http://docs.google.com/package-tree.html) | [**Deprecated**](http://docs.google.com/deprecated-list.html) | [**Index**](http://docs.google.com/index-files/index-1.html) | [**Help**](http://docs.google.com/help-doc.html) | | --- | --- | --- | --- | --- | --- | --- | --- | | | ***Java™ Platform***  ***Standard Ed. 6*** |
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[Submit a bug or feature](http://bugs.sun.com/services/bugreport/index.jsp)

For further API reference and developer documentation, see [Java SE Developer Documentation](http://docs.google.com/webnotes/devdocs-vs-specs.html). That documentation contains more detailed, developer-targeted descriptions, with conceptual overviews, definitions of terms, workarounds, and working code examples.

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