CAMediaTimingFunction Class Reference

Graphics & Imaging > Quartz

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Contents

CAMediaTimingFunction Class Reference

Inherits from	NSObject
Conforms to	NSCoding NSObject (NSObject)
Framework	/System/Library/Frameworks/QuartzCore.framework
Availability	Available in Mac OS X v10.5 and later.
Declared in	CAMediaTimingFunction.h
Companion guides	Core Animation Programming Guide Core Animation Cookbook

Overview

`CAMediaTimingFunction` represents one segment of a function that defines the pacing of an animation as a timing curve. The function maps an input time normalized to the range [0,1] to an output time also in the range [0,1].

Tasks

Creating Timing Functions

`+ functionWithName:` (page 6)
Creates and returns a new instance of `CAMediaTimingFunction` configured with the predefined timing function specified by *name*.

`+ functionWithControlPoints::::` (page 6)
Creates and returns a new instance of `CAMediaTimingFunction` timing function modeled as a cubic bezier curve using the specified control points.

`- initWithControlPoints::::` (page 7)
Returns an initialized timing function modeled as a cubic bezier curve using the specified control points.

Accessing the Control Points

`- getControlPointAtIndex:values:` (page 7)
Returns the control point for the specified index.

Class Methods

functionWithControlPoints::::

Creates and returns a new instance of `CAMediaTimingFunction` timing function modeled as a cubic bezier curve using the specified control points.

```
+ (id)functionWithControlPoints:(float)c1x
    :(float)c1y
    :(float)c2x
    :(float)c2y
```

Parameters

c1x
A floating point number representing the x position of the c1 control point.

c1y
A floating point number representing the y position of the c1 control point.

c2x
A floating point number representing the x position of the c2 control point.

c2y
A floating point number representing the y position of the c2 control point.

Return Value
A new instance of `CAMediaTimingFunction` with the timing function specified by the provided control points.

Discussion
The end points of the bezier curve are automatically set to (0.0,0.0) and (1.0,1.0). The control points defining the bezier curve are: [(0.0,0.0), (*c1x*,*c1y*), (*c2x*,*c2y*), (1.0,1.0)].

Availability
Available in Mac OS X v10.5 and later.

Declared In
`CAMediaTimingFunction.h`

functionWithName:

Creates and returns a new instance of `CAMediaTimingFunction` configured with the predefined timing function specified by *name*.

```
+ (id)functionWithName:(NSString *)name
```

Parameters

name

The timing function to use as specified in "Predefined timing functions" (page 8).

Return Value

A new instance of `CAMediaTimingFunction` with the timing function specified by *name*.

Availability

Available in Mac OS X v10.5 and later.

Declared In

`CAMediaTimingFunction.h`

Instance Methods

getControlPointAtIndex:values:

Returns the control point for the specified index.

```
- (void)getControlPointAtIndex:(size_t)index
    values:(float[2])ptr
```

Parameters

index

An integer specifying the index of the control point to return.

ptr

A pointer to an array that, upon return, will contain the x and y values of the specified point.

Discussion

The value of *index* must between 0 and 3.

Availability

Available in Mac OS X v10.5 and later.

Declared In

`CAMediaTimingFunction.h`

initWithControlPoints::::

Returns an initialized timing function modeled as a cubic bezier curve using the specified control points.

```
- (id)initWithControlPoints:(float)c1x
    :(float)c1y
    :(float)c2x
    :(float)c2y
```

Parameters

c1x

A floating point number representing the x position of the c1 control point.

c1y

A floating point number representing the y position of the c1 control point.

c2x

A floating point number representing the x position of the c2 control point.

c2y

A floating point number representing the y position of the c2 control point.

Return Value
An instance of `CAMediaTimingFunction` with the timing function specified by the provided control points.

Discussion
The end points of the bezier curve are automatically set to (0.0,0.0) and (1.0,1.0). The control points defining the bezier curve are: [(0.0,0.0), (*c1x*,*c1y*), (*c2x*,*c2y*), (1.0,1.0)].

Availability
Available in Mac OS X v10.5 and later.

Declared In
`CAMediaTimingFunction.h`

Constants

Predefined timing functions

These constants are used to specify one of the predefined timing functions used by `functionWithName:` (page 6).

```
NSString * const kCAMediaTimingFunctionLinear;
NSString * const kCAMediaTimingFunctionEaseIn;
NSString * const kCAMediaTimingFunctionEaseOut;
NSString * const kCAMediaTimingFunctionEaseInEaseOut;
```

Constants

`kCAMediaTimingFunctionLinear`

Specifies linear pacing. A linear pacing causes an animation to occur evenly over its duration.

Available in Mac OS X v10.5 and later.

Declared in `CAMediaTimingFunction.h`.

`kCAMediaTimingFunctionEaseIn`

Specifies ease-in pacing. Ease-in pacing causes the animation to begin slowly, and then speed up as it progresses.

Available in Mac OS X v10.5 and later.

Declared in `CAMediaTimingFunction.h`.

`kCAMediaTimingFunctionEaseOut`

Specifies ease-out pacing. An ease-out pacing causes the animation to begin quickly, and then slow as it completes.

Available in Mac OS X v10.5 and later.

Declared in `CAMediaTimingFunction.h`.

`kCAMediaTimingFunctionEaseInEaseOut`

Specifies ease-in ease-out pacing. An ease-in ease-out animation begins slowly, accelerates through the middle of its duration, and then slows again before completing.

Available in Mac OS X v10.5 and later.

Declared in `CAMediaTimingFunction.h`.

Declared In

`CAMediaTimingFunction.h`

Document Revision History

This table describes the changes to *CAMediaTimingFunction Class Reference*.

Date	Notes
2008-07-11	Corrected descriptions of the predefined timing functions.
2007-07-24	New document that describes the class that encapsulates the pacing of an animation as a timing curve.

Document Revision History

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