

[Audio Toolbox](#) / Clock Utilities

API Collection

# Clock Utilities

Manage time-related information associated with audio playback.

## Topics

### Creating a Clock

```
func CAClockNew(UInt32, UnsafeMutablePointer<CAClockRef?>) -> OSStatus  
func CAClockDispose(CAClockRef) -> OSStatus  
typealias CAClockRef
```

### Starting and Stopping the Clock

```
func CAClockStart(CAClockRef) -> OSStatus  
func CAClockStop(CAClockRef) -> OSStatus  
func CAClockArm(CAClockRef) -> OSStatus  
func CAClockDisarm(CAClockRef) -> OSStatus
```

### Adding and Removing Listeners

```
func CAClockAddListener(CAClockRef, CAClockListenerProc, UnsafeMutableRawPointer) -> OSStatus  
func CAClockRemoveListener(CAClockRef, CAClockListenerProc, UnsafeMutableRawPointer) -> OSStatus  
typealias CAClockListenerProc
```

```
enum CAClockMessage
```

## Accessing the Current Time

```
func CAClockGetCurrentTime(CAClockRef, CAClockTimeFormat, UnsafeMutable  
Pointer<CAClockTime>) -> OSStatus  
  
func CAClockSetCurrentTime(CAClockRef, UnsafePointer<CAClockTime>) ->  
OSStatus  
  
func CAClockGetStartTime(CAClockRef, CAClockTimeFormat, UnsafeMutable  
Pointer<CAClockTime>) -> OSStatus  
  
struct CAClockTime  
  
enum CAClockTimeFormat  
  
typealias CAClockSamples
```

## Accessing Tempo Information

```
func CAClockGetCurrentTempo(CAClockRef, UnsafeMutablePointer<CAClock  
Tempo>, UnsafeMutablePointer<CAClockTime>?) -> OSStatus  
  
func CAClockSetCurrentTempo(CAClockRef, CAClockTempo, UnsafePointer<  
CAClockTime>?) -> OSStatus  
  
func CAClockGetPlayRate(CAClockRef, UnsafeMutablePointer<Float64>) ->  
OSStatus  
  
func CAClockSetPlayRate(CAClockRef, Float64) -> OSStatus  
  
typealias CAClockTempo  
  
struct CATempoMapEntry
```

## Accessing Clock Properties

```
func CAClockGetProperty(CAClockRef, CAClockPropertyID, UnsafeMutable  
Pointer<UInt32>, UnsafeMutableRawPointer) -> OSStatus  
  
func CAClockGetPropertyInfo(CAClockRef, CAClockPropertyID, Unsafe  
MutablePointer<UInt32>?, UnsafeMutablePointer<DarwinBoolean>?) ->  
OSStatus  
  
func CAClock SetProperty(CAClockRef, CAClockPropertyID, UInt32, Unsafe  
RawPointer) -> OSStatus
```

```
enum CAClockPropertyID
```

```
enum CAClockSyncMode
```

## Parsing MIDI Data

```
func CAClockParseMIDI(CAClockRef, UnsafePointer<MIDIPacketList>) ->  
OSStatus
```

## Converting Time Values

```
func CAClockBarBeatTimeToBeats(CAClockRef, UnsafePointer<CABarBeatTime>,  
UnsafeMutablePointer<CAClockBeats>) -> OSStatus
```

```
func CAClockBeatsToBarBeatTime(CAClockRef, CAClockBeats, UInt16, Unsafe  
MutablePointer<CABarBeatTime>) -> OSStatus
```

```
func CAClockSMPTETimeToSeconds(CAClockRef, UnsafePointer<SMPTETime>,  
UnsafeMutablePointer<CAClockSeconds>) -> OSStatus
```

```
func CAClockSecondsToSMPTETime(CAClockRef, CAClockSeconds, UInt16,  
UnsafeMutablePointer<SMPTETime>) -> OSStatus
```

```
func CAClockTranslateTime(CAClockRef, UnsafePointer<CAClockTime>,  
CAClockTimeFormat, UnsafeMutablePointer<CAClockTime>) -> OSStatus
```

```
enum CAClockTimebase
```

```
typealias CAClockSeconds
```

```
typealias CAClockBeats
```

```
typealias CAClockSMPTEFormat
```

```
struct CABarBeatTime
```

```
struct CAMeterTrackEntry
```

## Getting Clock-Related Errors

☰ Clock Errors

## See Also

# Utilities

## Analyzing audio performance with Instruments

Ensure a smooth and immersive audio experience in your apps using Audio System Trace.

## Audio Converter Services

Convert between linear PCM audio formats, and between linear PCM and compressed formats.

## Audio Session Support

Describe the properties that you associate with audio sessions and audio routes.

## Audio Toolbox Debugging

Obtain the internal state of Core Audio objects during the development and debugging of your code.

## Workgroup Management

Coordinate the activity of custom real-time audio threads with those of the system and other processes.

## Audio Codec

Translate audio data from one format to another.