

[Audio Toolbox](#) / Workgroup Management

API Collection

Workgroup Management

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

Overview

Real-time audio rendering often requires coordination between the threads of an app, the system, and the threads of any active Audio Unit plug-ins. Workgroups provide the mechanism to coordinate the efforts of these different processes, and ensure that they execute on the same schedule. In an Audio Unit, use a render context observer to retrieve the workgroup that the host app uses for real-time audio rendering. In an app, fetch the workgroup for a Core Audio device directly from the device or from your [AUAudioUnit](#) object.

If your app has real-time rendering threads that operate on their own deadlines, create your own workgroup using the [AudioWorkIntervalCreate](#) function. Use your custom workgroup to set and update the rendering schedule for your threads.

Topics

Essentials

 Understanding Audio Workgroups

Learn how to optimize real-time rendering performance with the Audio Workgroups API.

 Adding Parallel Real-Time Threads to Audio Workgroups

Optimize the performance of real-time audio threads that run in sync with the I/O thread by adding them to the audio device workgroup.

- Adding Asynchronous Real-Time Threads to Audio Workgroups
Optimize system performance by adding real-time audio threads that run asynchronously to the I/O thread to custom audio workgroups.
- Adding Audio Unit Auxiliary Real-Time Threads to Audio Workgroups
If your Audio Unit plug-in creates auxiliary real-time rendering threads, add them to the host app's audio workgroup so the system can schedule them appropriately.

Device Workgroup

```
var kAudioDevicePropertyIOThreadOSWorkgroup: AudioObjectProperty
Selector { get }
```

The device's workgroup object, which you use to coordinate your threads with the threads of the device.

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.
- Audio Codec
Translate audio data from one format to another.
- Clock Utilities

Manage time-related information associated with audio playback.