MIDI Services

MIDI drivers own and control physical MIDI devices, which include hardware such as USB interfaces, MIDI keyboards, and so on.

A MIDI device may have multiple logically distinct subcomponents. For example, one device may contain a MIDI synthesizer and a pair of MIDI ports, both addressable over a USB port.

Each element of a device is a MIDI entity.
A MIDI entity can have any number of MIDI endpoints, each of which is a source or destination of a 16-channel MIDI stream.

Grouping a device's endpoints into entities provides the system enough information for an app to make reasonable default assumptions about how to communicate bidirectionally with each entity, as is necessary in MIDI librarian apps.

Client Management

typealias MIDIClientRef = MIDIObjectRef
An object that maintains per-client state.

func MIDIClientCreate
Creates a MIDI client.

func MIDIClientCreateWithBlock
Creates a MIDI client with a callback block.

func MIDIClientDispose
Disposes of a MIDI client.

MIDI Object Configuration

typealias MIDIObjectRef = UInt32
The common base class for many of the framework's objects.

func MIDIObjectFindByUniqueID
Locates a device, entity, or endpoint by its unique identifier.

MIDI Object Properties
List of the properties of MIDI objects

MIDI Services Errors
Error codes for Core MIDI operations.

Deprecated Symbols
Unsupported symbols and their replacements.

Device Lookup

typealias MIDIDeviceRef = MIDIObjectRef
A MIDI device that contains entities.

func MIDIGetNumberOfDevices
Returns the number of devices in the system.

func MIDIGetDevice
Returns a device from the system.

func MIDIGetNumberOfExternalDevices
Returns the number of external MIDI devices in the system.

func MIDIGetExternalDevice
Returns one of the external devices in the system.

func MIDIDeviceGetNumberOfEntities
Returns the number of entities in a device.

func MIDIDeviceGetEntity
Returns the device's entity at a specific index.

Entity Lookup

typealias MIDIEntityRef = MIDIObjectRef
An entity that a device owns and that contains endpoints.

func MIDIEntityGetDevice
Returns an entity's device.

func MIDIEntityGetNumberOfSources
Returns the number of sources in an entity.

func MIDIEntityGetSource
Returns one of an entity's sources.

func MIDIEntityGetNumberOfDestinations
Returns the number of destinations in an entity.

func MIDIEntityGetDestination
Returns one of an entity's destinations.

Port Management

typealias MIDIPortRef = MIDIObjectRef
A MIDI connection that a client maintains.

func MIDIInputPortCreateWithProtocol
Creates an input port through which the client may receive incoming MIDI messages from any MIDI source.

func MIDIOutputPortCreate
Creates an output port through which a client sends outgoing MIDI messages to any MIDI destination.

func MIDIPortDispose
Disposes of a MIDI port.

func MIDIPortConnectSource
Makes a connection from a source to a client input port.

func MIDIPortDisconnectSource
Closes a previously established source-to-input port connection.

Endpoint Management

UInt32 on tvOS
typealias MIDIEndpointRef = MIDIObjectRef
A MIDI source or destination an entity owns.

func MIDIEndpointDispose
Disposes of a virtual source or destination.

func MIDIEndpointGetEntity
Returns an endpoint's entity.

func MIDIEndpointGetRefCons
Returns contextual data assigned to an endpoint.

func MIDIEndpointSetRefCons
Sets contextual data on an endpoint.

func MIDISourceCreateWithProtocol
Creates a virtual source in a client.

func MIDIGetSource
Returns a source in the system.

func MIDIGetNumberOfSources
Returns the number of sources in the system.

func MIDIDestinationCreateWithProtocol
Creates a virtual destination in a client.

func MIDIGetDestination
Returns a destination in the system.

func MIDIGetNumberOfDestinations
Returns the number of destinations in the system.

Event List Management

struct MIDIEventList
A variable-length list of MIDI event packets.

struct MIDIEventPacket
A series of simultaneous MIDI events in Universal MIDI Packets (UMP) format.

struct UnsafeMutableMIDIEventListPointer

struct UnsafeMutableMIDIEventPacketPointer

func MIDIEventListInit
Initializes an event list.

func MIDIEventListAdd
Adds an event to an event list.

func MIDIEventPacketNext
Advances a packet pointer to the next packet in memory, if the packet is part of an event list.

func MIDISendEventList
Sends MIDI events to a destination.

func MIDIReceivedEventList
Distributes incoming MIDI events from a source to its connected client input ports.

Packet List Management

struct MIDIPacket
A collection of simultaneous MIDI events.

struct MIDIPacketList
A list of MIDI events the system sends to or receives from an endpoint.

typealias MIDITimeStamp = UInt64
The time on the host clock when the event occurred.

struct UnsafeMutableMIDIPacketListPointer

struct UnsafeMutableMIDIPacketPointer

func MIDIPacketNext
Advances a MIDI packet pointer to the next packet in a packet list.

I/O Management

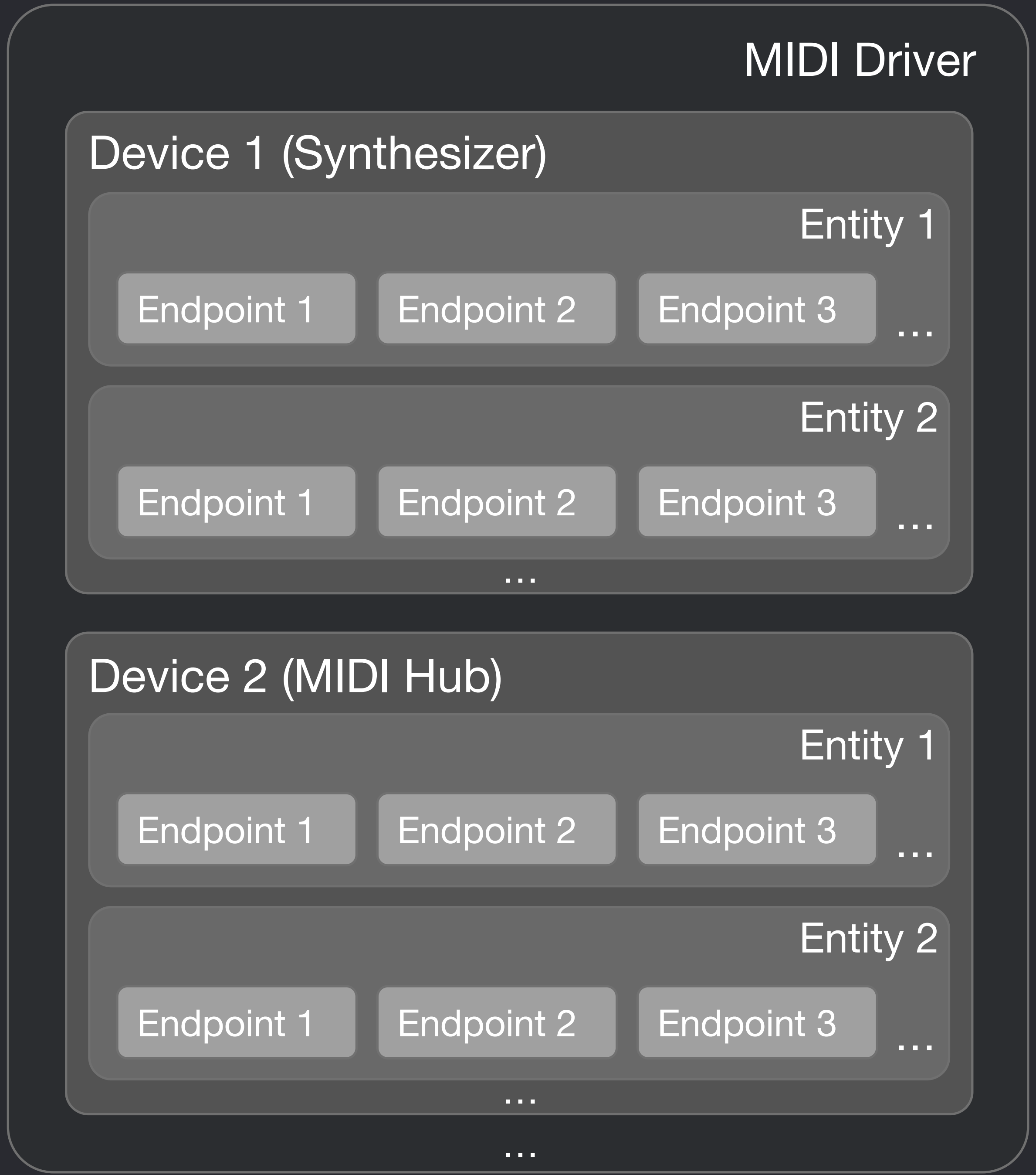
struct MIDISysexSendRequest
A request to asynchronously transmit a single System Exclusive (SysEx) event to a destination.

struct MIDIIOErrorNotification
A general I/O error notification.

func MIDISendSysex
Asynchronously sends a single System Exclusive (SysEx) event.

func MIDIFlushOutput
Cancels sending packets that were previously scheduled for future delivery.

func MIDIRestart
Stops and restarts MIDI I/O.



MIDI Driver

Device 1 (Synthesizer)

Entity 1

Endpoint 1 Endpoint 2 Endpoint 3 ...

Entity 2

Endpoint 1 Endpoint 2 Endpoint 3 ...

...

Device 2 (MIDI Hub)

Entity 1

Endpoint 1 Endpoint 2 Endpoint 3 ...

Entity 2

Endpoint 1 Endpoint 2 Endpoint 3 ...

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2020.12.18 This list is not complete. For more info please refer to the official docs: https://developer.apple.com/documentation/coremidi/midi_services

https://lensflare.dev/