

CasaTunes Web Services 2.0

Prepared by: David Krinker

Thursday, November 19, 2009

Version: 2.0.2

Table of Contents

Overview	1
Objective	1
Goals	1
Terminology and Concepts	1
CasaTunes Music Server	1
System, Zones, Zone Groups and Sources	2
Media Collections and Media Items	3
Now Playing Items, Now Playing List, and CasaTunes Playlists	3
Application	4
Web Methods	5
Application Information Methods	5
System Information Methods	5
Zone and Zone Group Methods	5
Source Methods	9
Now Playing Item and Now Playing List Methods	10
Media Collection and Media Item Web Methods	12
Tuner Methods	14
Artwork Methods	15
Classes & Properties	16
Overview	16
Class ApplicationInfo	16

Class SystemInfo	16
Class ZoneInfo	17
Class ZoneGroupItem	19
Class SourceInfo	20
Class CTPlaylistInfo (Note: CT is an abbreviation for CasaTunes)	21
Class NowPlayingMediaItem	21
Class NowPlayingQueue	22
Class MediaCollection	22
Class MediaItem	23
Class Artwork	24
Enumerated Types	25
Overview	25
Enum ControllerCapabilitiesEnum As Integer	25
Enum DaysOfTheWeekEnum As Integer	26
Enum MediaItemTypeEnum As Integer	26
Enum SourceCategoryTypeEnum As Integer	27
Enum TransportControlsEnum As Integer	27
Enum PlayingStatusEnum As Integer	28
Web Services Known Issues	31
Changes between v2.0.1 and v2.0.2	31



Overview

Objective

The CasaTunes Web Services provides a rich SOAP based interface for managing a CasaTunes Music Server on the intranet, on a local machine, or even across the Internet. The CasaTunes Web Services can be accessed from multiple heterogeneous clients, so long as they support SOAP. The SOAP web services are great when used by platforms that automatically generate the client code.

The CasaTunes server side components have been developed using Microsoft Windows Communications Foundation (WCF) and the Microsoft .Net Framework 3.5.

Note: Use this document strictly as a guide. You should use the code generated by parsing the WSDL file for the latest and most accurate documentation.

Goals

1. Provide an interface with sufficient functionality to allow the creation of a rich client UI. In fact, the CasaTunes App for iPhone was developed using these same Web Services.
2. Support multiple platforms and client technologies. SOAP based web services are platform agnostic and work on a multitude of platforms including Windows, Mac, Linux and UNIX variants. Client technologies currently include iPhone and cross browser support (Opera, Safari, Internet Explorer and FireFox).
3. Encourage developers to add support for new clients, for example, Crestron, AMX, Pronto, Flash, etc.
4. Provide an architecture that allows new hardware and music services to be transparently added.

Terminology and Concepts

The following provides an overview of the terminology and concepts referred to in this document.

CasaTunes Music Server

The CasaTunes Music Server is where the CasaTunes software is installed and where the media engine runs. It is also where the Web Services are hosted. The CasaTunes Music Server:

1. Manages and controls the multi-room music system hardware
2. Implements a robust multi-streaming music server
 - 2.1. Manages and controls hardware based music sources (for example, tuners, sound cards, iPod, etc.)



- 2.2. Manages online music services
- 2.3. Manages multiple media libraries
- 3. Hosts the CasaTunes Web Services

System, Zones, Zone Groups and Sources

CasaTunes controls various multi-source, multi-zone systems, also known as AV controllers, including those from CasaTunes, Russound and Nuvo Technologies. All the multi-room systems supported by CasaTunes utilize a matrix switch which provides the capability to switch any input source to any output zone, or any input source to any number of output zones.

CasaTunes abstracts the system it controls using three main objects:

System Object

The system object which is accessed via the [GetSystemInfo](#) (web services) method returns information about the multi-room system, including the number of zones, sources, features and settings.

Zone and Zone Group Object

The zone object provides all the information related to an output zone, typically a room, including whether the room is on or off, the current volume level, which input source is being used by this zone, and many other settings. You access this information via the [GetZoneInfo](#) method, and you can change the settings for a zone using the [SetZoneXXX](#) methods.

A zone group object represents a collection of zones that are managed as if they were a single zone. You can get and change the settings for a zone group in much the same way you access these for a zone. Zone groups are often used in party mode scenarios or when you have large listening areas that require more than one zone for coverage.

Source Object

The source object provides all the information related to an input source. Similar to zones, you access the source information using the [GetSourceInfo](#) method, and you can change the source settings using the [SetSourceXXX](#) methods.

CasaTunes supports many different types of sources, including:

Media Player

This is the most versatile source and is capable of playing disc based tracks, networked tracks, and Internet streams. The CasaTunes Player supports over 20 different media formats, including the most common Windows, iTunes and Internet streaming formats.

Tuners

CasaTunes supports several 3rd party tuners, including those from Russound, Nuvo and Onkyo (Integra). These include AM, FM, HD, XM, Sirius and DAB tuners. All these tuners support 2-way control via RS-232, for improved reliability.

A major benefit of the using the CasaTunes Web Services API's, is that we have hidden all the nuances involved in supporting the various different multi-room systems and sources, thereby providing the developer with seamless support for not only the current list of hardware CasaTunes supports, but also new multi-room systems and sources that are added in the future.



Media Collections and Media Items

When the user selects to change the music for a zone, you query CasaTunes to provide you with the list of music services supported by the zone by calling the *GetMusicServicesForZone* method. This method returns a media collection object.

A media collection object contains zero or more media collections and/or media item objects. You can further drill down (or navigate) these media collections until the user locates and selects the music they want to listen to.

A media item object represents a track (song), stream or station to be played or tuned to.

When navigating the list of media collections and items, you can specify the index of the first item to return from the list, the maximum number of items, and the filter criteria to use, if any. This allows processing the lists in chunks, improving the user experience.

You can also search media collections and media items which meet the specified search criteria.

Now Playing Items, Now Playing List, and CasaTunes Playlists

You can query CasaTunes to get the current song that is playing in a zone, if any, by calling the *GetCurrentSong* method which returns a *NowPlayingMediaItem* object, as well as the list of songs in the queue, if any, by calling the *GetCurrentQueue* method, which returns a *NowPlayingQueue* object. You can also query CasaTunes to get a list of all the songs that are currently playing on each of the sources by calling the *GetCurrentSongForAllSources* method.

You can manage the current song that is being played. Call *StopSong*, *PauseSong*, and *PlaySong*, to stop, pause and play the current song, respectively. To move to the next or previous song call *NextSong* or *PreviousSong*, and to start playback from a different position within the song, call the *SetPositionInSong* web method.

You can also manage the Now Playing queue using the CasaTunes Web Services. You can select to move to a different song in the queue by calling the *PlayQueueItem* method, re-order songs in the queue by calling *MoveQueueItem*, re-shuffle the songs in the queue by calling *ShuffleQueue*, delete a song from the queue by calling *DeleteQueueItem*, delete all songs from the queue by calling *DeleteQueue*, and save the current queue as a CasaTunes Playlist by calling the *SaveQueueAsPlaylist* method.

CasaTunes Playlists are special playlists that are proprietary to CasaTunes. The main difference between the CasaTunes playlist and a regular playlist is that the CasaTunes playlist can contain music selections from multiple music libraries, for example, your iTunes, iPod and Windows Media Player libraries. In addition, the CasaTunes playlist has some additional properties, for example, whether to shuffle the list, and whether to enable continuous play (repeat mode) when the playlist is selected for playback.

Lastly, the playlist can be a dynamic or static playlist. A static playlist is saved song by song, in order. A dynamic playlist saves your selections at a higher level, for example, play all songs by artists whose name includes "Rod Stewart". When a dynamic playlist is selected for playback, CasaTunes will re-evaluate the list of songs that should be played. So, if in our previous example you added a new Rod Stewart album, these songs would be added to the playlist.



Application

The Application object is accessed via the [GetApplicationInfo](#) method and returns information about the current state of the application, licensing status information, and version information.

When developing your custom application, the first thing your application should do is call the [GetApplicationInfo](#) method to verify the CasaTunes music server has finished initializing and is ready to process your requests. If the music server is not ready, you should periodically repeat the call until the music server reports that it is ready.

Once the music server is ready to receive your requests, you should validate whether the CasaTunes license is valid. If the license has expired, CasaTunes will ignore any requests other than [GetApplicationInfo](#).



Web Methods

Application Information Methods

Method	Description
GetApplicationInfo	<p>Returns information about the CasaTunes application, including whether the application has completed the initialization process, and if not, the current initialization progress, whether the user has a valid license, and the version of the application and web services.</p> <p>Usage: GetApplicationInfo() as ApplicationInfo</p>

System Information Methods

Method	Description
GetSystemInfo	<p>Returns information about the multi-room controller hardware that is currently configured, including the number of zones, number of zone groups, number of sources, features the controller supports, the minimum and maximum values for volume and other settings.</p> <p>Usage: GetSystemInfo() As SystemInfo</p>

Zone and Zone Group Methods

Method	Description
All Zones Web Methods	
GetAllZonesInfo	<p>Returns the following information for all zones and zone groups: zone or zone group ID, name, power status, source, mute, volume, max volume, hidden, DND, locked, party mode, master mode, balance, bass, treble, loudness compensation status, whether sleep mode is enabled, whether a wakeup event is scheduled, the wakeup schedule, and if a zone group, the list of zones that make up this zone group.</p> <p>Note: A zone ID < 1000. A zone group ID is always >= 1000</p> <p>Usage: GetAllZonesInfo() as ZoneInfo</p>



Method	Description
SetAllZonesPower	<p>Sets the power setting for all zones. If a zone has DND set, the zone is unaffected. When turning zones off you can specify whether to delay turning the zones off (sleep mode)</p> <p>Usage: SetAllZonesPower(Power As Boolean, SleepDelayInSecs As Integer)</p>
Zone Web Methods	
GetZoneInfo	<p>Returns information for a zone, including its ID, name, power status, source, mute, volume, max volume, hidden, DND, locked, party mode, master mode, balance, bass, treble, loudness compensation status, whether sleep mode is enabled, whether a wakeup event is scheduled, the wakeup schedule, and if a zone group, the list of zones that make up this zone group.</p> <p>Usage: GetZoneInfo() as ZoneInfo</p>
SetZoneName	<p>Sets the name of a zone</p> <p>Usage: SetZoneName(ZoneID As Integer, Name As String)</p>
SetZonePower	<p>Sets the power for a zone</p> <p>Usage: SetZonePower(ZoneID As Integer, Power As Boolean)</p>
SetZoneSource	<p>Sets the source for a zone</p> <p>Usage: SetZoneSource(ZoneID As Integer, SourceID As Integer)</p>
SetZoneMute	<p>Enables or disables muting a zone</p> <p>Usage: SetZoneMute(ZoneID As Integer, Mute As Boolean)</p>
SetZoneVolume	<p>Sets the volume for a zone</p> <p>Usage: SetZoneVolume(ZoneID As Integer, Volume As Integer)</p>
SetZoneHidden	<p>Hides or unhides the zone from being displayed</p> <p>Usage: SetZoneHidden(ZoneID As Integer, Hidden As Boolean)</p>
SetZoneDND	<p>Enables or disables DND (Do Not Disturb), if DND is supported</p> <p>Usage: SetZoneDND(ZoneID As Integer, DND As Boolean)</p>



Method	Description
SetZoneSourcesEnabled	<p>Specifies which sources are enabled for the zone. Sources are represented by a bitmap. Bit0 => SourceID 0. If the bit is set to one, the source is enabled for this zone, otherwise the source is disabled for this zone. By default, all sources are enabled for all zones.</p> <p>Usage: SetZoneSourcesEnabled(ZoneID As Integer, SourcesEnabled As Integer)</p>
SetZoneKeypadLock	<p>Enables or disables locking the keypad, if keypad locking is supported</p> <p>Usage: SetZoneKeypadLock(ZoneID As Integer, Lock As Boolean)</p>
SetZonePartyMode	<p>Enables or disables Party Mode (Rusound only), if party mode is supported</p> <p>Usage: SetZonePartyMode(ZoneID As Integer, PartyMode As Boolean)</p>
SetZoneMasterMode	<p>Enables or disables making this zone a/the master, if master mode is supported</p> <p>Usage: SetZoneMasterMode(ZoneID As Integer, MasterMode As Boolean)</p>
SetZoneBalance	<p>Sets the balance setting for a zone</p> <p>Usage: SetZoneBalance(ZoneID As Integer, Balance As Integer)</p>
SetZoneBass	<p>Sets the bass setting for a zone</p> <p>Usage: SetZoneBass(ZoneID As Integer, Bass As Integer)</p>
SetZoneTreble	<p>Sets the treble setting for a zone</p> <p>Usage: SetZoneTreble(ZoneID As Integer, Treble As Integer)</p>
SetZoneLoudness	<p>Enables or disables loudness compensation, if supported</p> <p>Usage: SetZoneLoudness(ZoneID As Integer, Loudness As Boolean)</p>
SetZoneMaxVolume	<p>Specifies the maximum volume permitted for a zone</p> <p>Usage: SetZoneMaxVolume(ZoneID As Integer, MaxVolume as Integer)</p>
SetZonePowerOnVolume	<p>Specifies the volume level when a zone is turned on, if ResetVolumeOnPower is enabled for this zone.</p> <p>Usage: SetZonePowerOnVolume(ZoneID As Integer, PowerOnVolume as Integer)</p>



Method	Description
SetZoneResetVolumeOnPower	<p>Specifies whether the volume should be reset to the value specified in <i>PowerOnVolume</i> when the zone is turned on, or whether the volume level should remain at the same level it was when the zone was last turned off. This option is not supported by all supported hardware. Check the controller capabilities to see whether this feature is supported. In addition, some controllers, for example Russound controllers, always reset the volume when the zone is powered.</p> <p>Usage: SetZoneResetVolumeOnPower(ZoneID As Integer, ResetVolumeOnPower as Boolean)</p>
SetZoneEnableExtMuteOrPage	<p>Specifies whether this zone will participate in an externally triggered mute or page request.</p> <p>Usage: SetZoneEnableExtMuteOrPage(ZoneID As Integer, Enable As Boolean)</p>
SetZonePageVolume	<p>Specifies the volume level to use for Paging. This option is not supported by all hardware. Check the controller capabilities to see if this feature is supported.</p> <p>Usage: SetZonePageVolume(ZoneID As Integer, PageVolume As Integer)</p>
Sleep and Wakeup Scheduling Web Methods	
SetZoneSleep	<p>Enables or disables turning off a zone after a sleep delay</p> <p>Usage: SetZoneSleep(ZoneID As Integer, EnableSleep As Boolean, SleepDelayInSecs As Integer)</p>
GetZoneWakeupSchedule	<p>Returns the wakeup schedule for this zone</p> <p>Usage: GetZoneWakeupSchedule(ZoneID As Integer) As WakeupScheduleItem()</p>
AddZoneWakeupScheduleItem	<p>Adds a wakeup schedule item to this zone</p> <p>Usage: AddZoneWakeupSchedule(ZoneID As Integer, Item As WakeupScheduleItem)</p>
DeleteZoneWakeupScheduleItem	<p>Deletes a wakeup schedule item for this zone</p> <p>Usage: DeleteZoneWakeupScheduleItem(ZoneID As Integer, ItemIndex As Integer)</p>



Method	Description
UpdateZoneWakeupScheduleItem	<p>Updates a wakeup schedule item for this zone</p> <p>Usage: UpdateZoneWakeupScheduleItem(ZoneID As Integer, ItemIndex As Integer, Item As WakeupScheduleItem)</p>
Zone Group Web Methods	
GetZoneGroupInfo	<p>Returns the list of zones and settings for this zone group</p> <p>Usage: GetZoneGroupInfo(ZoneGroupID As Integer) As ZoneGroupItem()</p>
RecordZoneGroup	<p>Creates a new Zone Group by recording the settings for all zones that are powered on. The easiest way for the user to create a zone group is to power on the zones they want to assign to a zone group, adjust the volumes, and then record the state as a zone group</p> <p>Usage: RecordZoneGroup() As ZoneInfo</p>
DeleteZoneGroup	<p>Deletes a Zone Group</p> <p>Usage: DeleteZoneGroup(ZoneGroupID As Integer)</p>
AddZoneGroupItem	<p>Adds a Zone Group Item to this Zone Group</p> <p>Usage: AddZoneGroupItem(ZoneGroupID As Integer, Item As ZoneGroupItem)</p>
DeleteZoneGroupItem	<p>Deletes a Zone Group Item for this Zone Group</p> <p>Usage: DeleteZoneGroupItem(ZoneGroupID As Integer, ZoneID As Integer)</p>
UpdateZoneGroupItem	<p>Updates a Zone Group Item for this Zone Group</p> <p>Usage: UpdateZoneGroupItem(ZoneGroupID As Integer, Item As ZoneGroupItem)</p>

Source Methods

Method	Description
GetSourceInfo	<p>Returns information about a source, including its ID, name, whether the source is hidden (unused), type of source, and the media types supported by the source</p> <p>Usage: GetSourceInfo(SourceID As Integer) As SourceInfo</p>



Method	Description
GetAllSourcesInfo	Returns the source information for all sources. Usage: GetAllSourcesInfo() As SourceInfo ()
SetSourceName	Sets the name for a source Usage: SetSourceName(SourceID As Integer, Name As String)
SetSourceHidden	Hides or unhides the source Usage: SetSourceHidden(SourceID As Integer, Hidden As Boolean)

Now Playing Item and Now Playing List Methods

Method	Description
GetCurrentSong	Returns the information for the current song playing in a zone, if any Usage: GetCurrentSong(ZoneID As Integer) As NowPlayingMediaItem
GetCurrentSongForAllSources	Returns the current song information for all sources Usage: GetCurrentSongForAllSources() As NowPlayingMediaItem ()
GetCurrentQueue	Returns the list of songs in the Now Playing queue for a zone Usage: GetCurrentQueue(ZoneID As Integer, StartIndex as Integer, MaxItems as Index) As NowPlayingQueue
PauseSong	Pauses the current song for a zone Usage: PauseSong(ZoneID As Integer)
StopSong	Stops the current song for a zone Usage: StopSong(ZoneID As Integer)
PlaySong	Starts playing the current song for a zone (either where it was last <i>paused</i> , or from the beginning of the song otherwise) Usage: PlaySong(ZoneID As Integer)
NextSong	Moves to the next song in the queue. If you have reached the end of the queue, and repeat mode is off, then the player stops, otherwise the first song in the queue is selected. Usage: NextSong(ZoneID As Integer)

Method	Description
PreviousSong	<p>Moves to the previous song in the queue. If you have reached the beginning of the queue, and repeat mode is off, then the player stops, otherwise the last song in the queue is selected.</p> <p>Usage: PreviousSong(ZoneID As Integer)</p>
SetPositionInSong	<p>Moves the current playback to a new position within the song, if supported</p> <p>Usage: SetPositionInSong(ZoneID As Integer, PositionInSongInSecs As Integer)</p>
SetRating	<p>Changes the rating for a station, channel or song. If the MaxRatings attribute is present then it specifies the ratings range to be from 0 to MaxRatings, otherwise assume the ratings range is from 0 to 1.</p> <p>Currently, this is only supported by tuner sources and for internet radio, and is used to select/deselect the station as a Favorite. Specify the Rating be 1 to make this a Favorite station, 0 otherwise.</p> <p>You must check the <i>Controls</i> property of the NowPlayingMediaItem object to verify whether rating for this media item is supported.</p> <p>Usage: SetRating(ZoneID As Integer, Rating As Integer)</p>
PlayQueueItem	<p>Starts playing the specified item from the Now Playing Queue</p> <p>Usage: PlayQueueItem(ZoneID As Integer, ItemIndex as Integer)</p>
DeleteQueueItem	<p>Deletes an item from the Now Playing queue</p> <p>Usage: DeleteQueueItem(ZoneID As Integer, ItemIndex As Integer)</p>
MoveQueueItem	<p>Moves an item to a new position within the Now Playing queue</p> <p>Usage: MoveQueueItem(ZoneID As Integer, FromItemIndex As Integer, ToItemIndex As Integer)</p>
DeleteQueue	<p>Deletes all items in the Now Playing Queue and stops the current song that is playing, if any</p> <p>Usage: DeleteQueue(ZoneID As Integer)</p>
SaveQueueAsPlaylist	<p>Saves the Now Playing Queue as a CasaTunes playlist</p> <p>Usage: SaveQueueAsPlaylist(ZoneID As Integer, PlaylistInfo as CTPlaylistInfo)</p>



Method	Description
SetQueueRepeatMode	Enables or disables continuous play (repeat), as well as repeat-once playback Usage: SetQueueRepeatMode(ZoneID As Integer, RepeatMode as RepeatModeEnum)
SetQueueShuffleMode	Each time this method is invoked with ShuffleMode set to true, CasaTunes will (re)shuffle the queue. The current song that is playing is moved to the top of the list (and continues playing) If ShuffleMode is set to false, CasaTunes will restore the queue based on the order songs were added to the playlist. Usage: SetQueueShuffleMode(ZoneID As Integer, ShuffleMode As Boolean)

CasaTunes Playlist Methods

Method	Description
GetCasaTunesPlaylists	Returns a list containing information about the CasaTunes playlists available. The information includes an ID, name, shuffle and repeat mode, and whether the list is dynamic (may change over time as items are added to the media library) or static Usage: GetCasaTunesPlaylists() As CTPlaylistInfo()
SaveQueueAsPlaylist	Saves the Now Playing Queue as a CasaTunes playlist Usage: SaveQueueAsPlaylist(ZoneID As Integer, PlaylistInfo as CTPlaylistInfo)
DeleteCasaTunesPlaylist	Deletes a CasaTunes playlist Usage: DeleteCasaTunesPlaylist(PlaylistInfo As CTPlaylistInfo)
UpdateCasaTunesPlaylist	Updates the information for a CasaTunes playlist Usage: UpdateCasaTunesPlaylist(PlaylistInfo as CTPlaylistInfo)

Media Collection and Media Item Web Methods

Method	Description
GetMusicServicesForZone	Returns a media collection containing the root media collection container for all music services supported by this zone (and CasaTunes playlists) Usage: GetMusicServicesForZone(ZoneID As Integer) As MediaCollection

Method	Description
GetMediaCollection	<p>Returns a media collection containing zero or more media collections and media items. You can specify the starting index of the first item to return, the maximum number of items to return, and a filter to include only items that match the filter criteria. You can also specify the list of attributes to include in the response. By default it returns all the attributes for a media or collection item. You should not call GetMediaCollection with the ItemID for a Media Item.</p> <p>The filter is used as follows:</p> <ul style="list-style-type: none"> - By default any items that <i>contain</i> the filter are included - If you specify a filter that starts with '=', then the item must <i>equal</i> the filter - If you specify a filter that starts with '*', then the item must <i>end with</i> the filter - If you specify a filter that ends with '*', then the item must <i>start with</i> the filter <p>Usage: GetMediaCollection(ID As String, StartIndex As Integer, MaxItems As Integer, Filter As String, IncludeAttributes As KeyValueElem()) As MediaCollection</p>
SearchMediaCollection	<p>Returns a media collection containing zero or more media items that match the search criteria. You can specify the starting index of the first item to return, and the maximum number of items to return. If you specify multiple words (separated by spaces), then only media items that match all words are returned. For disc based songs, the album, song title and artist are searched. For radio stations, the station description is searched.</p> <p>For example, if you specify a SearchFilter = "Leona Lewis Spirit" for a Windows music library, then all media items that include "Leona", and "Lewis" and "Spirit" in either the album name, song title or artist name, are included.</p> <p>The IncludeItemTypes specifies whether to return just disc tracks, just radio stations, or both.</p> <p>Usage: SearchMediaCollection(ID As String, StartIndex As Integer, MaxItems As Integer, SearchFilter As String, IncludeItemTypes as SearchTypeEnum, IncludeAttributes as KeyValueElem()) As MediaCollection</p>



Method	Description
SearchMediaCollectionByAttribute	<p>Returns a media collection containing zero or more Albums, Artists, Genres or Playlists (including CasaTunes Playlists) that match the search criteria. You can specify the starting index of the first item to return, and the maximum number of items to return.</p> <p>For example, if you specify a SearchText = "Lewis" and SearchAttribute=2 for a Windows music library, then all artists that include the text "Lewis" are included.</p> <p>Usage: SearchMediaCollectionByAttribute(CollectionID as String, StartIndex as Integer, SearchText as String, SearchAttribute as SearchAttributesEnum, IncludeAttributes As KeyValueElem()) As MediaCollection</p>
PlayMediaCollectionOrItem	<p>Call this method to play, tune to, or add a media collection or media item to the Now Playing Queue</p> <p>Usage: PlayMediaCollectionOrItem(ZoneID As Integer, ID As String, Filter As String, AddToQueue As AddToQueueEnum)</p>
RefreshMediaCollection	<p>Call this method to refresh the media library for a certain library type. You should check the AllowLibraryRefresh property is set, to determine whether this collection can be refreshed. You call this method to reload a library if it has been changed and CasaTunes does not dynamically refresh the library.</p> <p>Usage: RefreshMediaCollection(ZoneID As Integer, CollectionID As String)</p>

Tuner Methods

Method	Description
TunerBand	<p>Selects the tuner band for tuners that support multiple bands. For example, the Onkyo tuner supports AM/FM/XM/DAB and Sirius bands. It returns the station information for the selected band.</p> <p>Usage: TunerBand(ZoneID As Integer, Band As MediaItemTypeEnum) As NowPlayingMediaItem</p>
TunerStep	<p>Selects the specified band, and steps the tuner up or down. It returns the station information for the newly selected station.</p> <p>Usage: TunerStep(ZoneID As Integer, Band As MediaItemTypeEnum, Up As Boolean) As NowPlayingMediaItem</p>



Method	Description
TunerSeek	<p>Selects the specified band, and seeks up or down. It returns the station information for the newly selected station.</p> <p>Usage: TunerSeek(ZoneID As Integer, Band As MedialItemTypeEnum, Up As Boolean) As NowPlayingMedialtem</p>
TunerScan	<p>Selects the specified band, and starts or stops the tuner scan function. It returns the station information for the newly selected station.</p> <p>Usage: TunerScan(ZoneID As Integer, Band As MedialItemTypeEnum, Start As Boolean) As NowPlayingMedialtem</p>
TunerDirect	<p>Selects the specified band and station. It returns the station information for the newly selected station.</p> <p>Usage: TunerDirect(ZoneID As Integer, Band As MedialItemTypeEnum, StationID As String) As NowPlayingMedialtem</p>

Artwork Methods

Method	Description
GetArtwork	<p>Returns an Artwork object that contains the image type, width, height and image data. You call this method to get any CasaTunes artwork, including artwork for Now Playing, Media Collections, and Media Items. To minimize network bandwidth (and latency) you should specify the maximum size of the image you need. Set this value to -1 if you do not want to limit the size. This method shrink images, but will not expand images, therefore you may need to scale the image after you have received it.</p> <p>Usage: GetArtwork(ID As String, MediaType as MedialItemTypeEnum, MaxImageWidthHeight As Integer) As Artwork</p>



Classes & Properties

Overview

This section identifies the different classes and class properties that are either passed to, or returned from, a web service method.

Class ApplicationInfo

Property	Type	Description
CasaTunesVersion	String	The current CasaTunes version
InitComplete	Boolean	When CasaTunes has finished initializing this value is set to true. An application must not call other methods until this value is set to true (and CasaTunes has a valid license)
InitPhase	String	A string describing the current phase of the initialization progress
InitProgress	Integer	Indicates initializing progress. Can be a value from 0 to 100.
LicenseValid	Boolean	Specifies whether CasaTunes has a valid license. A valid license is required before any additional methods can be called.
WebServicesVersion	String	The current version of these Web Services

Referenced by the following Web Service Methods:

- [GetApplicationInfo](#)

Class SystemInfo

Property	Type	Description
ControllerFeatures	ControllerCapabilitiesEnum	A bitmap which specifies which features are supported by this controller. See ControllerFeaturesEnum for a definition of the bitmap.



Property	Type	Description
EQSettings	SettingsRange	Specifies the minimum, maximum and step increment values for the equalization settings (Balance, Bass, Treble) for this controller
NumberOfSources	Integer	Specifies the number of sources supported by this controller
NumberOfZoneGroups	Integer	Specifies the number of zone groups
NumberOfZones	Integer	Specifies the number of zones (rooms) supported by this controller
VolumeSettings	SettingsRange	Specifies the minimum, maximum and increment values for volume for this controller

Referenced by the following Web Service Methods:

- [GetSystemInfo](#)

Class SettingsRange

Property	Type	Description
Minimum	Integer	Specifies the minimum value in the range
Maximum	Integer	Specifies the maximum value in the range
Increment	Integer	Specifies the step increment

Class ZoneInfo

Property	Type	Description
Balance	Integer	Specifies the balance setting for the zone
Bass	Integer	Specifies the bass setting for the zone
DND	Boolean	Specifies whether DND is enabled or disabled for the zone
EnabledSources	Integer	A bitmap that defines which sources are enabled for the zone
EnableMuteOrPage	Boolean	Specifies whether this zone should ignore mute or paging when an external mute/page is detected
Hidden	Boolean	Specifies whether the zone is being used or whether it should be hidden



Property	Type	Description
IsSourceLocked	Boolean	Specifies whether another zone is in DND mode and has locked this source. A source is locked when DND is enabled
IsSourceShared	Boolean	If the zone is on, it indicates whether the source being used by this zone is also being used by another powered zone
KeypadLock	Boolean	Specifies whether the keypad for this zone is locked or not
Loudness	Boolean	Specifies whether Loudness Compensation is enabled for the zone
MasterMode	Boolean	Specifies whether the zone is in master mode or not
MaxVolume	Integer	Specifies the maximum volume for this zone
Mute	Boolean	Specifies whether the zone is muted
Name	String	Specifies the name of the zone
PageVolume	Integer	Specifies the paging volume for this zone
PartyMode	Boolean	Specifies whether the zone is in party mode
Power	Boolean	Specifies whether the zone is on or off
PowerOnVolume	Integer	Specifies the volume level to use when a zone is first powered on AND ResetPowerOnVolume is enabled.
ResetPowerOnVolume	Boolean	Specifies whether the volume level for a zone will reset its volume level when powered on, or will be set to the same level when the zone was last powered off
SleepEnabled	Boolean	Specifies whether this zone will turn off after the sleep delay has expired (see SetZoneSleep)
SleepEventScheduled	Integer	If SleepEnabled is true, this property specifies the number of seconds remaining before the zone will shut off
SourceID	Integer	Specifies the ID of the source for this zone
Treble	Integer	Specifies the treble setting for the zone
Volume	Integer	Specifies the volume setting for this zone
WakeupEventSchedule	WakeupScheduleItem()	Specifies the list of wakeup schedule items for this zone, if any.
ZoneGroupInfo	ZoneGroupItem()	Specifies the list of zones that are part of this Zone Group. Only set, if this is a Zone Group (see ZoneID)
ZoneID	Integer	Specifies the ID of this zone or zone group. If the ID ≥ 1000 it is a Zone Group, otherwise it is a zone.


Referenced by the following Web Service Methods:

- GetZoneInfo
- GetAllZonesInfo

Class ZoneGroupItem

Property	Type	Description
KeypadLock	Boolean	Specifies whether the keypad for this zone is locked. Ideal for party scenarios where you do not want your guests changing the music.
Master	Boolean	Specifies whether this zone is a master for the zone group. A master zone controls all zones in the zone group. For example, if the source is changed on a master zone, then the source is changed on all zones in the zone group.
VolumeAdjustment	Integer	Specifies the adjustment, if any, to be made to the volume level relative to the volume level for the zone group.
ZoneID	Integer	Specifies the ID of the zone that is part of this zone group

Referenced by the following Web Service Methods:

- GetZoneInfo
- GetAllZonesInfo
- GetZoneGroupItems
- AddZoneGroupItem
- UpdateZoneGroupItem

Class WakeupScheduleItem

Property	Type	Description
DaysOfTheWeek	DaysOfTheWeekEnum	Bitmap that specifies which days of the week to run this schedule item. The Days of the week bitmap is defined by DaysOfTheWeekEnum
Enabled	Boolean	Specifies whether this scheduled item is active
EndTime	TimeSetting	If specified, the zone will automatically turn off after EndTime passes
Name	String	User supplied name to identify the schedule item



Property	Type	Description
PlaylistID	String	If specified, specifies the ID of a CasaTunes Playlist to play when the zone or zone group is turned on
SourceID	Integer	Specifies the ID of the source to be used by the playlist
StartTime	TimeSetting	Specifies the time this item is scheduled to start
Volume	Integer	Specifies the startup volume level for the zone or zone group

Class TimeSetting

Property	Type	Description
Hour	Integer	Specifies the hour in 24 hour time for a schedule item
Minute	Integer	Specifies the minute for a schedule item

Class SourceInfo

Property	Type	Description
Hidden	Boolean	Specifies whether the source is being used or should be hidden
IsShared	Boolean	Specifies whether the source is being used by another powered zone
MediaTypesSupported	MediaItemTypeEnum	Bitmap that specifies the different kinds of media that are supported by this source.
Name	String	Specifies the Name for the source
SourceID	Integer	Specifies the ID for the source
SourceType	SourceCategoryTypeEnum	Specifies the type of source, whether it is a media player, tuner type, other (IR or serial) controlled device, or none. The SourceCategoryTypeEnum defines the possible values

Referenced by the following Web Service Methods:

- [GetSourceInfo](#)
- [GetAllSourcesInfo](#)



Class CTPlaylistInfo (Note: CT is an abbreviation for CasaTunes)

Property	Type	Description
Dynamic	Boolean	Specifies whether this is a dynamic or static playlist
Name	String	The name for this playlist. Note: The name does not have to be unique
PlaylistID	String	Specifies a unique ID for this playlist
RepeatMode	RepeatModeEnum	Specifies whether to enable continuous mode when this playlist is selected
ShuffleMode	Boolean	Specifies whether to shuffle the playlist when selected

Referenced by the following Web Service Methods:

- GetCasaTunesPlaylists
- DeleteCasaTunesPlaylist
- UpdateCasaTunesPlaylist

Class NowPlayingMediaItem

Property	Type	Description
Controls	TransportControlsEnum	Specifies the various transport control options to display for this media item. For example, whether to display the Play, Stop, Pause, Rewind, Fast Forward, Thumbs Up/Down, Favorites, etc. control options
RepeatMode	RepeatModeEnum	Specifies whether continuous mode is enabled
ShuffleMode	Boolean	Specifies whether shuffle mode is enabled
MediaItem	MediaItem	Specifies the current media item that is playing (if any)
Progress	Integer	Specifies the current playback position, in seconds, for the current song, if any. You get the duration for the song from the MediaItem
QueueCount	Integer	Specifies the total number of songs in the current Queue
QueueDuration	Integer	Specifies the total number of seconds required to play all the songs in the queue
QueueProgress	Integer	Specifies the total number of seconds it would take to play all the songs in the queue up to this point in the current song.
QueueSongIndex	Integer	Specifies the index of this song in the current Queue

Property	Type	Description
SourceLockedByZoneID	Integer	Specifies the ID of a zone that has locked this source (by setting the Zone DND on), if any. Set to -1 if no Zone has this source locked. When a source is locked, the zone that owns the lock has exclusive access to the source.
Status	PlayingStatusEnum	Specifies whether this item is currently Playing, Paused or Stopped

Referenced by the following Web Service Methods:

- [GetCurrentSong](#)
- [GetCurrentSongForAllSources](#)

Class NowPlayingQueue

Property	Type	Description
StartIndex	Integer	Specifies the index of the first item in the list of MediaItems
MediaItems	MediaItem()	The list of items (starting at FirstItemIndex)
QueueCount	Integer	Specifies the total number of items in the queue
QueueSongIndex	Integer	Specifies the index of the current song in the queue that is playing

Referenced by the following Web Service Methods:

- [GetCurrentQueue](#)

Class MediaCollection

Property	Type	Description
ArtworkID	String	Specifies the unique ID of the artwork associated with this Media Collection
Attributes	KeyValueElem()	A list of Key/Value objects that describe the media collection
AllowAddToQueue	Boolean	Even if a Media Collection is selectable, you still may not be able to add the collection to the Now Playing Queue. This field specifies whether the source type supports enqueue-ing and playing more than one media item. For example, a radio station cannot be added to the queue, it can only be played now



Property	Type	Description
AllowSelect	Boolean	Specifies whether you can select the media collection and/or items in the collection. Some media collections are simply containers and would not make sense if selected. For example, a Media Collection could contain Favorites, Stations and Stations By Genre. Selecting to play or add the Media Collection to the Now Playing Queue, would not make sense.
AllowDeleteItems	Boolean	Specifies whether the items in this media collection can be deleted. Typically these are CasaTunes playlist items.
AllowLibraryRefresh	Boolean	Specifies whether this collection can be refreshed (usually available for the root of a music service collection)
ID	String	A unique ID for this collection
TotalItemsAvailable	Integer	Specifies the total number of items available in this media collection.
MediaCollections	MediaCollection()	Specifies the list of Media Collections, if any, that are part of this media collection. The Media Collection items returned do not include their contained Media Items and Media Collections. To get these you need to recursively call <i>GetMediaCollection</i> using the ID of the Media Collection you want to get this information for
MediaItems	MediaItem()	Specifies the list of Media Items, if any, that are part of this media collection. Please keep in mind that a Media Collection could contain both Media Collections and Media Items.
Name	String	The name for this collection (for example, album name, artist name, etc)

Referenced by the following Web Service Methods:

- *GetMusicServicesForSource*
- *GetMediaCollection*
- *SearchMediaCollection*

Class MediaItem

Property	Type	Description
ArtworkID	String	Specifies the unique ID of the artwork associated with this Media Item
Attributes	KeyValueElem()	A list of Key/Value objects that describe the media item



Property	Type	Description
ID	String	A unique ID for this Media Item
Name	String	The name for this Media Item (for example, song title, or station name)
Type	MediaItemTypeEnum	Specifies the type of Media Item this is. See MediaItemTypeEnum

Referenced by the following Web Service Methods:

- [GetMediaCollection](#)
- [SearchMediaCollection](#)

Class KeyValueElem

Property	Type	Description
Key	String	
Value	String	

Referenced by the following Classes:

- [MediaCollection](#)
- [MediaItem](#)

Class Artwork

Property	Type	Description
Data	Byte()	Specifies the image data
Height	Integer	The height of the image
ImageType	ImageTypeEnum	The type of image. See ImageTypeEnum
Width	Integer	The width of the image

Referenced by the following Web Service Methods:

- [GetArtwork](#)

Enumerated Types

Overview

This section identifies the different enumerated types used by the CasaTunes Web Services. Since these types are not automatically generated from the WSDL, you will need to create these enumerations, as needed.

Enum ControllerCapabilitiesEnum As Integer

Specifies the various capabilities/features of the matrix switching AV controller

Name	Value	Description
LoudnessCompensation	0x1	Specifies whether this controller supports Loudness Compensation
MasterMode	0x2	Specifies whether this controller has native support for Master mode (for example, Russound controllers)
PartyMode	0x4	Specifies whether this controller has native support for Party Mode (for example, Russound controllers)
DND	0x8	Specifies whether this controller supports DND
KeypadLock	0x10	Specifies whether this controller supports locking keypads
PowerOnVoume	0x20	Specifies whether this controller supports setting the volume when a zone is powered on
MaximumVolume	0x40	Specifies whether this controller can limit the volume for a zone
ResetVolumeOnPower	0x80	Specifies whether this controller supports resetting the volume level when a zone is turned on
PageVolume	0x100	Specifies whether this controller supports a page volume setting
ExtMuteOrPage	0x200	Specifies whether this controller supports external paging and/or muting

Referenced by the following Classes:

- [SystemInfo](#)



Enum DaysOfTheWeekEnum As Integer

Enumerates the days of the week and is used by the wakeup classes for scheduling waking up to music. To schedule an event for multiple days of the week, simply add the different days of the week together

Name	Value	Description
Monday	0x1	
Tuesday	0x2	
Wednesday	0x4	
Thursday	0x8	
Friday	0x10	
Saturday	0x20	
Sunday	0x40	

Referenced by the following Classes:

- [WakeupScheduleItem](#)

Enum MediaTypeEnum As Integer

Specifies the type of media item

Name	Value	Description
Unknown	0x0	
AM	0x1	AM station
FM	0x2	FM station
WX	0x4	Weather station
XM	0x8	XM station
Sirius	0x10	Sirius station
DAB	0x20	DAB station
DABPlus	0x40	DAB+ station
iNetStream	0x100	Internet radio/stream
WindowsMedia	0x1000	Windows Media track
iPod	0x2000	iPod track
iTunes	0x4000	iTunes track



Name	Value	Description
Other	0x8000	

Referenced by the following Classes:

- [MediaItem](#)
- [SourceInfo](#)

Referenced by the following Classes:

- [GetArtwork](#)

Enum SourceCategoryTypeEnum As Integer

Specifies the generic type for a source

Name	Value	Description
MediaPlayerType	0x1	This source is a media player type (most likely a CasaTunes Player)
TunerType	0x2	This source is a tuner type
ExternalDeviceType	0x4	This source is an external device, typically an IR or Serial (RS232) controlled device. CasaTunes allows you to control these devices by sending pre-defined commands and/or macros for these devices. The installer is responsible for mapping these generic commands to the device specific IR and Serial strings, and defining any macros

Referenced by the following Classes:

- [SourceInfo](#)

Enum TransportControlsEnum As Integer

Enumerates the various controls that should be available when playing items from the NowPlaying Queue

Name	Value	Description
CanPlay	0x1	Specifies this media item can be played
CanStop	0x2	
CanPause	0x4	
CanEnableShuffleMode	0x8	Shuffle mode is available
CanEnableRepeatMode	0x10	Repeat/Continuous mode is available



Name	Value	Description
CanMoveToNextTrack	0x20	
CanMoveToPreviousTrack	0x40	
CanDisplayProgressInfo	0x80	Can display the progress bar
CanPositionWithinTrack	0x100	Can change the position in the current track (song)
CanRateSong	0x200	Can set the rating for this media item. Also used to set the station or channel as a Favorite, and to give a station, channel or song a Thumbs Up/Down
Tuner specific controls		
CanTuneDirect	0x1000	For tuner source types, can direct tune to a station or channel
CanTuneUp	0x2000	
CanTuneDown	0x4000	
CanSeekUp	0x8000	
CanSeekDown	0x10000	
CanScan	0x20000	

Referenced by the following Classes:

- [NowPlayingMediaItem](#)

Enum PlayingStatusEnum As Integer

Specifies the different player state

Name	Value	Description
Stopped	0x0	Playback is stopped
Paused	0x1	Playback is paused
Playing	0x2	Playback is in progress (playing)

Referenced by the following Classes:

- [NowPlayingMediaItem](#)

Enum RepeatModeEnum As Integer

Enumerates the different Repeat modes



Name	Value	Description
RepeatOff	0x0	
RepeatOn	0x1	
RepeatOnceOnly	0x2	

Referenced by the following Web Service Methods:

- [SetQueueRepeat](#)

Referenced by the following Classes:

- [NowPlayingMediaItem](#)

Enum SearchTypesEnum As Integer

Enumerates the different media items to return from a search request

Name	Value	Description
DiscTracksOnly	0x1	
RadioStationsOnly	0x2	
BothTracksAndStations	0x3	

Referenced by the following Web Service Methods:

- [SearchMediaCollection](#)

Enum SearchAttributesEnum As Integer

Enumerates the different types of media collections to return from a search request

Name	Value	Description
SearchForAlbums	0x1	
SearchForArtists	0x2	
SearchForGenres	0x3	
SearchForPlaylists	0x4	

Referenced by the following Web Service Methods:

- [SearchMediaCollection](#)

Enum AddToQueueEnum As Integer

Enumerates the different options to add a selection to a playlist



Name	Value	Description
ReplaceAndPlayNow	0x0	
AddToQueue	0x1	
AddAndPlayNow	0x2	

Referenced by the following Web Methods:

- [PlayMediaCollectionOrItem](#)

Enum ImageTypeEnum As Integer

Enumerates the different types of images

Name	Value	Description
PNG	0x0	
JPEG	0x1	

Referenced by the following Classes:

- [Artwork](#)



Web Services Known Issues

The following are known issues with the current web services:

1. The *PlaylistID* in the *WakeupScheduleItem* is being ignored and does not currently result in the playlist being played when the scheduled item is triggered.
2. The *Dynamic* property of a *CTPlaylistInfo* object is currently ignored. All CasaTunes playlists are saved as dynamic playlists.
3. The *GetArtwork()* method currently ignores the *MaxImageWidthHeight* parameter.

Changes between v2.0.1 and v2.0.2

1. Modified *GetMediaCollection()* interface
2. Modified *SearchMediaCollection()* interface (and *SearchTypeEnum*)
3. Modified *PlayMediaCollectionOrItem()* interface
4. Added *RefreshMediaCollection()* interface
5. Removed *FilterTypeEnum*
6. Added DAB+ support
7. Changed the *MediaCollection* Property *MoreItemsAvailable* with *TotalItemsAvailable*
8. Added *SearchMediaCollectionByAttribute* method to search for playlists, albums, artists and genres