Inside MADLibrary 4.2

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Available for Think C - Symantec - CodeWarrior - MPW - XCMD (HyperCard, MacroMind)

MADLibrary is a collection of routines that you can use to implement music in your applications. You can use MADLibrary to…

- play music
- play sounds during music
- read different formats available in plugs : MAD, MOD, XM, S3M, MTM, etc.
- create your own soundtracker editor or player

Modifications since version 4.01 (PlayerPRO 4.5.1)

- On PPC you will need SoundLib (included in Libraries&Headers folder). You have to include it as a **Import Weak** ! or it will crash!

- General volume control functions added: Mac Hardware volume and Driver Software volume.

- MADGetMusicStatus(long *fullTime, long *curTime)

- MADGetBestDriver uses GetSoundOutputInfo() if Sound Manager >= 3.1

- DriverSettings contain information for Reverb effect.

- Plugs can now fully support application or system memory allocation.

- FSSpec compatible functions

- If you don't want to to include Plugs files with your project, you can include them as resources (ONLY in the application resource):

    - start ID : 5000

    - At least : CODE and STR# (with same ID), optional : PPCC

See "example project" and "InternalPlug.Rsrc" file.

You can add more plugs: 5001, 5002, etc...

Modifications since last version 4.02 (PlayerPRO 4.5.2)

- A new settings option : TickRemover

MADLibrary Installation

To use the MADLibrary functions, install the library in your project and make an #include”RDriver.h” in your file “.c”. You'll need 3 files: MAD.h, RDriver.h and MADLibrary.

!! WARNING !!

For previous users:

- Version 4.x doesn't need anymore BGGB resource. Delete it!

- MADLibrary internal music format is MADH, not MADF anymore. You'll have to resave your musics with last version of PlayerPRO to use them with this library.

- MADGetBestDriver replaces GetBestDriver in previous examples.

MADLibrary Reference

This section serves as a reference to the routines MADLibrary provides.

MADInitLibrary

This function initializes the MADLibrary package.

```
OSErr MADInitLibrary(Str255 PlugsFolderName, Boolean
                     UseSystemMemory);
```

DESCRIPTION

The `MADInitLibrary` function is used to initialize the MADLibrary package. `MADInitLibrary` performs some checks to see is MADLibrary can run, and then sets up some internal data structures (it allocates about 20kb). You must call `MADInitLibrary` before calling any other MADLibrary routine. It will also check if there are some Import/Export plugs available: it checks application directory and the `PlugsFolderName` directory if it exists: you can give a "\p" filename, but not a 0L !

UseSystemMemory is a boolean value that indicates if you want to load plugs in system heap or application heap, for a normal usage UseSystemMemory should be set to false.

`MADInitLibrary` returns an error code is initialization fails, other wise it returns noErr.

MADDisposeLibrary

his function shuts down the MADLibrary package.

```
void MADDisposeLibrary(void);
```

DESCRIPTION

The `MADDisposeLibrary` function is used to shut down the MADLibrary package. It should be called when the application is finished using MADLibrary to balance the original call to `MADInitLibrary`. At this point no further calls should be made to any MADLibrary routines until `MADInitLibrary` is called again.

MADGetBestDriver

This will check current Mac hardware and fill the MADDriverSettings structure with the best settings for current Mac. This function doesn't call any other functions of MADLibrary.

```
OSErr MADGetBestDriver( MADDriverSettings *driverParam);
```

driverParam	A pointer to your driver settings:
numChn is loaded.	Active tracks, automatically updated when a new music
outPutBits	8 or 16 bits
outPutRate etc...	Fixed number, by example: rate44Khz, rate22050khz, rate11khz,
outPutMode	MonoOutPut, StereoOutPut or DeluxeStereoOutPut ?
driverMode	This should always be SoundManagerDriver
antiAliasing	Use anti-aliasing filter?
repeatMusic	When music will be over, repeat it?
sysMemory heap(true).	Allocate memory in application heap(false) or in system
Interpolation	Sound Interpolation active?
MicroDelay outPutMode.	Micro delay active? Used only in DeluxeStereoOutPut
MicroDelaySize	Micro delay duration (in ms, max 1 sec = 1000 ms)
surround	Surround effect active?
Reverb	Reverb effect active?
ReverbSize	Delay between echos in ms
ReverbStrength	Strength of reverb in %
TickRemover	Tick Remover filter active?

DESCRIPTION

This will check current Mac hardware and fill the MADDriverSettings structure with the best settings for current Mac. This function doesn't call any other functions of MADLibrary. The common usage is to use it just before MADCreateDriver function.

MADCreateDriver

Use This function will create a new music driver, allowing you to specify the settings to be used.

```
OSErr MADCreateDriver(MADDriverSettings *driverParam);
```

See MADGetBestDriver function for informations about `MADDriverSettings *driverParam`.

DESCRIPTION

You have to call this function before calling loading and playing functions. The `MADCreateDriver` function is used to create a new music driver. It is strongly advised to launch this routine at the beginning of your program. See example.c to see parameters how you can perform an automatic set up of driverParam by using `MADGetBestDriver`. This functions allocates about 10kb. You have to call `MADDisposeDriver` if you want to free memory.

MADDisposeDriver

This function delete current music driver created with `MADCreateDriver`.

```
OSErr MADDisposeDriver(void);
```

DESCRIPTION

This function delete current music driver created with `MADCreateDriver`. You cannot use loading and playing function after this call (you have to call `MADCreateDriver`again.)

MADMusicIdentify / MADMusicIdentifyFSp

This will identify what kind/format of music is a file.

```
OSErr MADMusicIdentify (OSType *type, Str255 name);
or
OSErr MADMusicIdentifyFSp(OSType *type, FSSpec *theSpec);
```

`name`	Music file name in current directory.
type	File format of this music. If it returns an error, type = '!!!!'

DESCRIPTION

The `MADMusicIdentify` function is used to identify a music file.

MADLoadMusicFile / MADLoadMusicFSpFile

This will load a music file into memory. The music file has to be a 'MADH' file, created with PlayerPRO last version.

```
OSErr MADLoadMusicFile(Str255 name);
or
OSErr MADLoadMusicFSpFile(FSSpec *theSpec);
```

`name`	Music file name in current directory.

DESCRIPTION

The `MADLoadMusicFile` function is used to load a PlayerPRO music file in memory. You have to set directory to the music file directory, otherwise it will return a file error.

This call is equivalent to `MADImportMusicFile('MADH', filename);`

MADLoadMusicRsrc

This will load a music resource into memory. The music resource has to be a 'MADH' music format, created with PlayerPRO last version.

```
OSErr MADLoadMusicRsrc(OSType resType, short resID);
```

`resType`	Resource type
resID	Resource ID

DESCRIPTION

The `MADLoadMusicRsrc` function is used to load a PlayerPRO music resource in memory. You have to open your resource file before if resource is not in application resources, otherwise it will return a file error.

How to convert resources <-> files

There is a hidden feature in PlayerPRO to do that. You'll need PlayerPRO and ResEdit.

Resource to file:

Open your resource file with ResEdit and COPY the resource in the clipboard.

Open PlayerPRO and select the MusicList Window.

Press on your space bar AND PASTE.

PlayerPRO will ask you where to save the file. The type of the file will be resource type.

File to resource:

Add your music file to PlayerPRO Music List Window and select it.

COPY it in clipboard.

Clipboard now contains your music file with the same type as your music file type.

PASTE it in ResEdit.

(MADLoadMusicRsrc supports ONLY MADH music format!)

If you want to change the resource type, change the music file by pressing '?' button in PlayerPRO and then COPY it.

You can also easily create 'MADH' resource by exporting your music as an application.

MADLoadMusicPtr

This will load a music pointer into memory. The music pointer has to be a 'MADH' file, created with PlayerPRO last version.

```
OSErr MADLoadMusicPtr(Ptr musicPtr);
```

`musicPtr` A pointer on music data

DESCRIPTION

The `MADLoadMusicPtr` function is used to load a PlayerPRO music pointer in memory. You can dispose your pointer after this call, MADLibrary will not access data on your pointer.

MADImportMusicFile / MADImportMusicFSpFile

This will load a music file into memory. This function will check if there is a 'Plug-ins' to load this music.

```
OSErr MADImportMusicFile(OSType type, Str255 name);
```

or

```
OSErr MADImportMusicFSpFile(OSType type, FSSpec *theSpec);
```

`OSType` File type : 'MADH', 'MADF', 'XM' ,'S3M', etc.

DESCRIPTION

The `MADImportMusicFile` function is used to load a PlayerPRO music filte into memory. It will check if there are some Import/Export plugs available for this type of music: it checks application directory and the 'Plugs' directory if it exists.

MADDisposeMusic

This will dipose current music in memory after a load function.

```
OSErr MADDisposeMusic( void);
```

DESCRIPTION

The `MADDisposeMusic` function is used to dispose the current music in memory.

MADPlay

This will play current music in memory.

```
OSErr MADPlay( void);
```

DESCRIPTION

The `MADPlay` function is used to play the current music in memory.

MADStop

This will stop playing current music in memory.

```
OSErr MADStop( void);
```

DESCRIPTION

The `MADStop` function is used to stop playing the current music in memory.

MADGetMusicStatus

This will get informations about position and full duration of current music in memory.

```
OSErr MADGetMusicStatus( long *fullTime, long *curTime);
```

DESCRIPTION

Values are in seconds. You can use toolbox function Secs2Date to convert them in hours, minutes and seconds.

MADReset

This will reset reading position of current music in memory to startup position.

```
OSErr MADReset( void);
```

DESCRIPTION

The `MADReset` function is used to reset reading position of current music in memory to startup position.

MADPlaySndHandle

This will play a sound handle of 'snd ' type on a MADLibrary driver channel.

```
OSErr MADPlaySound( Handle sndRsrc, long channel, long note);
```

`sndRsrc`	Handle on a 'snd ' handle (see Inside Macintosh)
`channel`	Channel ID which will be used to play this sound
`note`	note ID: from 0 (C0) to 95 (B7) or 0xFF (play this sound at normal rate)

DESCRIPTION

The `MADPlaySndHandle` function is used to play a sound 'snd ' on a MADLibrary driver channel. WARNING: This function will change the sndRsrc handle, you will not be able to use it with normal SoundManager functions: you will have to reload it. (It will inverse amplitude of data for faster processing).

MADPlaySoundData

This will play a sound data on a MADLibrary driver channel. If you want to play a snd resource, use MADPlaySndHandle function instead of this one.

```
OSErr MADPlaySound( Ptr soundData, long soundDataSize, long
                    channel, long note, long amp, long
                    loopBegin, long loopSize, unsigned long
                    rate);
```

`soundData`	Pointer on raw data
`soundDataSize`	Sound size
`channel`	Channel ID which will be used to play this sound
`note`	note ID, 0xFF : play this sound at normal rate
`amp`	amplitude of this sound, 8 or 16
`loopBegin`	Loop begin
`loopSize`	Loop size
`rate`	sample rate of this sound data

DESCRIPTION

The `MADPlaySound` function is used to play a sound data pointer on a MADLibrary driver channel.

MADGetHardwareVolume

This function returns the Mac HARDWARE volume, not SOFTWARE volume. To get SOFTWARE volume, use MADDriver->VolGlobal (see RDriver.h). Minimum volume = 0 (0%), Maximum volume = 64 (100%).

```
long MADGetHardwareVolume(void);
```

DESCRIPTION

The `MADGetHardwareVolume` function uses `GetSoundVol` or `GetDefaultOutputVolume` functions from ToolBox.

MADSetHardwareVolume

This function changes the Mac HARDWARE volume, not SOFTWARE volume. To change SOFTWARE volume, use MADDriver->VolGlobal (see RDriver.h). Minimum

volume = 0 (0%), Maximum volume = 64 (100%).

```
OSErr MADSetHardwareVolume(long volume);
```

`volume`	Volume value: from 0 to 64

DESCRIPTION

The `MADSetHardwareVolume` function uses `SetSoundVol` or `SetDefaultOutputVolume` functions from ToolBox.