

THE GOLD DISK MCI ANIMATION DRIVER

Version 2.00.00

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What is MCI?

MCI stands for *Media Control Interface*. It is a high-level interface defined by Microsoft to provide a method for applications to control multimedia devices. This includes standard devices like audio recorders, audio players, and animation playback as well as external devices such as videodisc players.

MCI is available with *Windows 3.0* with the *Multimedia Extensions* and with *Windows 3.1*.

MCI Animation Driver

The MCI Animation Driver allows applications to use a standard command set to control the playback of animated movies. An MCI Animation Driver is provided with the *Multimedia Extensions*. It allows applications to control the playback of animation movie files that were created on the Macintosh using *MacroMind Director*.

Gold Disk provides an alternate MCI Animation Driver that is command-level compatible with the *Windows* MCI Animation Driver. However, Gold Disk's MCI Animation Driver (hereafter referred to as *MCI Driver*) allows other applications to control the playback of animation movie files created with Gold Disk's animation products.

Gold Disk's MCI driver supports all of the basic commands defined by the MCI standard and all of the important animation specific commands. The driver uses the MP-DLL playback library to control the playback of any animation from Gold Disk animation products.

MCI Driver Installation

1. Run the *Windows Control Panel* application and select the Drivers applet.
The *Drivers* dialog box appears, listing the drivers that are already installed.
2. Click on the *Add* button.

- The *Add* dialog box is displayed.
3. Select *Unlisted or Updated Driver* from the list box and then click on the *OK* button.
The *Install Driver* dialog box is displayed.
 4. Place the *MCI Driver* disk in the appropriate drive and enter the drive name in the edit box.
 5. Click on the *OK* button.
The *Add Unlisted or Updated Driver* dialog box is displayed.
 6. Select *[MCI] Gold Disk Animation* from the list box.
 7. Click on the *OK* button to begin copying the driver files.
The files will take some time to be transferred to your *Windows* System directory.

The following files will be copied into your *Windows* System directory:

MCIAWI.DRV
MCIAWIIO.DLL
MCIAWIID.DLL
MCIAWIIT.TSK

The *Setup...* button in the *Drivers* dialog will display the MCI Driver version number.

You can test the driver by using the *Windows Media Player* application (mplayer.exe). The device menu should contain an entry for the Gold Disk MCI Animation driver.

MCI Driver Play Window

The MCI Driver will use a default window to display an animated movie, unless otherwise directed to use a window specified by the controlling application. This default window can be resized, maximized, minimized and closed. However, when the window is closed or minimized, the movie will not be displayed. An MCI_PLAY ("play"), MCI_SEEK ("seek"), or MCI_WINDOW ("window") command can reopen or show the window.

Using Non Bitmap (eg. GIF, PCX, etc.) Images

If non bitmap images (eg. GIF, TIFF, PCX, TGA, etc.) images are used in the movie, the movie must be saved *Embedded* if you wish to play it using the MCI Driver.

MCI Driver Debug Support

Full debugging output for all MCI commands, and actions performed by the MCI Driver, can be enabled on the AUX port. To do this, add the following to the system.ini file:

```
[mmsystem]
mciawi=1
```

NOTE: mciawi=1, will cause output to appear on the monochrome monitor or on the debug terminal. To disable this feature use mciawi=0, or do not initialize the entry at all.

Recommended Reading

Microsoft Corporation, *Programmer's Workbook*, Microsoft Multimedia Development Kit.

Microsoft Corporation, *Programmer's Reference*, Microsoft Multimedia Development Kit, Microsoft

Corporation.

Petzold, Charles, "An Introduction to the Media Control Interface," *PC Magazine*, January 14, 1992.

Petzold, Charles, "MCI Command Strings: The Easy Multimedia Interface," *PC Magazine*, January 28, 1992.

MCI Command Set for the MCI Animation Driver

MCI commands are divided into 4 categories:

Required Commands	- commands supported by all MCI drivers
Basic Commands	- commands optionally supported by MCI drivers
Extended Commands	- commands specific to a device type; for example, an animation player
New Commands	- new commands for the specific device driver

This section describes the MCI commands that the Gold Disk MCI Animation Driver supports. The commands are listed first by the Required MCI commands, then the Basic MCI commands, then the Extended (animation specific) commands, and finally the New commands. Note that some commands may appear in multiple sections (ie. play is described in both the basic and extended sections), however the flags or options are not duplicated.

Refer to your MCI documentation for more detailed documentation of MCI commands (eg. Microsoft Multimedia Development Kit's *Programmer's Reference*.)

Required MCI Commands Supported by the MCI Driver

All required commands, flags, and options for these commands are operational and perform as described in the Microsoft Multimedia Development Kit's *Programmer's Reference*. See the chapter describing MCI Command Strings for more information.

Command:	CAPABILITY	
Description:	Obtains information about the capabilities of the device.	
Implementation note:	Implemented	
Command Flags/Options		Return Value
can eject		false
can play	true	
can record		false
can save	false	
compound device		true
device type		animation
has audio		true
has video		true
uses files		true

Command:	CLOSE
Description:	Closes the device.
Implementation note:	Implemented

Command:	INFO
Description:	Obtains information from the device driver.

Implementation note: Implemented
Command Flags/Options
product

Return Value
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Command: **OPEN**
Description: Opens and initializes the device.
Implementation note: Implemented

Command Flags/Options
alias

Return Value
Specifies another name for the given device. If this is specified, the name must be used for subsequent references to the device.

shareable

Initializes the device as shareable. Subsequent attempts to open will fail unless shareable is specified

type

in both the original and following Open commands. Specifies the device type. Alternately, MCI can use the MCI entries in the SYSTEM.INI file to select the device.

Command: **STATUS**
Description: Obtains status information from the animation driver.
Implementation note: Implemented

Command Flags/Options
mode

Return Value
Returns the device's current mode. All devices can return: **not ready**, **paused**, **playing**, and **stopped**.

ready

Returns **true** if the device is ready.

Basic MCI Commands Supported by the MCI Driver

All basic commands, flags, and options for these commands are operational and perform as described in the Microsoft Multimedia Development Kit's *Programmer's Reference*. See the chapter describing MCI Command Strings for more information.

Command: **LOAD**
Description: Loads a Gold Disk animation product's movie file from disk.
Implementation note: Implemented

Command Flags/Options
filename

Return Value
Specifies the source path and file.

Command: **PAUSE**
Description: Stops playing.
Implementation note: Implemented

Command: **PLAY**
Description: Starts the playing of the movie.
Implementation note: Implemented

Command Flags/Options
from

Return Value
Specifies the position to start playing. If omitted, the play starts from the current position.

to

Specifies the position to stop playing. If omitted, the

play stops at the end of the media.

Command: **RECORD**
Description: Starts recording data.
Implementation note: Not Implemented

Command: **RESUME**
Description: Resumes playing on a paused device.
Implementation note: Not Implemented

Command: **SAVE**
Description: Saves the current movie file.
Implementation note: Not Implemented

Command: **SEEK**
Description: Seeks forward or backward to a frame number.
Implementation note: Implemented
Command Flags/Options
to Return Value
to start Specifies where to stop the seek.
to end Specifies to seek to the beginning of the media or device element.
Specifies to seek to the end of the media or device element.

Command: **SET**
Description: Sets device information.
Implementation note: Implemented
Command Flags/Options
audio all off Return Value
audio all on Disables audio output.
audio left off Enables audio output.
audio left on Not appropriate.
audio right off Not appropriate.
audio right on Not appropriate.
door closed Not appropriate.
door open Not appropriate.
time format (ms) Not appropriate.
video on Not appropriate.
video off Not appropriate.

Command: **STATUS**
Description: Returns requested status information for the device.
Implementation note: Implemented
Command Flags/Options
current track Return Value
length 1
length track <track#> Returns the number of frames in movie.
Returns the number of frames in movie (valid only for track 1).
number of tracks 1
position Returns the current frame in movie.

position track <track#>	Returns the current frame in movie (valid only for track 1).
time format	frames

Command:	STOP
Description:	Stops the playing of the movie.
Implementation note:	Implemented

Extended (Animation Specific) MCI Commands Supported by the MCI Driver

The majority of specific commands and flags and options for these commands are operational and perform as described in the Microsoft Multimedia Development Kits *Programmer's Reference*. See the chapter describing MCI Command Strings for more information.

Command:	CAPABILITY
Description:	Obtains requested information about the capabilities of the device.
Implementation note:	Partially Implemented
Command Flags/Options	Return Value
can eject	false
can play	true
can record	false
can reverse	true
can save	false
can stretch	false
compound device	true
device type	animation
fast play rate	Not implemented in ver 2.00.
has audio	true
has video	true
normal play rate	Not implemented in ver 2.00.
slow play rate	Not implemented in ver 2.00.
uses files	true
uses palettes	true
windows	16

Command:	CLOSE
Description:	Closes the movie and any resources associated with it.
Implementation note:	Implemented

Command:	INFO
Description:	Gets requested information from the device.
Implementation note:	Implemented
Command Flags/Options	Return Value
file	Returns the name of the file used by the animation device or player in a null-terminating string.
product	Gold Disk MCI Animation Driver
window text	Returns the caption of the window used by the device.

Command:	OPEN
----------	-------------

Description:	Opens and initializes the device.
Implementation note:	Partially Implemented
Command Flags/Options	Return Value
alias	Specifies another name for the animation or movie player. If specified, it must be used for all following references.
nostatic	not implemented in ver 2.00
parent	Specifies the window handle of the parent window.
shareable	Initializes a device element as shareable. Must be specified in original and subsequent Open commands or subsequent Open attempts will fail.
style <style type>	Indicates a window style.
style child	Opens a window with a child style.
style overlapped	Opens a window with an overlapped window style.
style popup	Opens a window with a pop-up style.
type	Specifies the type of device element (ie. Animation).

Command:	PAUSE
Description:	Pauses (stops) playing of the movie.
Implementation note:	Implemented

Command:	PLAY
Description:	Play a range of movie frames.
Implementation note:	Partially Implemented
Command Flags/Options	Return Value
fast	Not implemented in ver 2.00.
from	Specifies the frame to start playing from. If omitted, play starts at the current frame.
reverse	Indicates the play direction is reversed.
sca	Not implemented in ver 2.00.
slow	Not implemented in ver 2.00.
speed (fps)	Not implemented in ver 2.00.
to	Specifies the frame to stop playing at. If omitted stops at the last frame.

Command:	PUT
Description:	Define a destination rectangle within the playback window.
Implementation note:	Partially Implemented
Command Flags/Options	Return Value
destination	Sets the destination to the whole window.
destination at (rect)	Specifies a rectangle for the area of the window used to display the image. Rectangle co-ordinates are relative to the window origin and are specified as X1 Y1 X2 Y2. The first pair of co-ordinates specify the top left corner of the rectangle, and the second set specify the bottom right corner.
source	Not implemented in ver 2.00.
source at (rect)	Not implemented in ver 2.00.

Command:	REALIZE
Description:	Causes the palette to be realized into the playback window.
Implementation note:	Implemented.

If the playback window is not a child window, this is done automatically in the driver. If it is a child window this command must be used to realize the palette when the application receives a WM_QUERYNEWPALETTE message from Windows.

Command Flags/Options

Return Value

background

Realizes the palette as a background palette.

normal

Realizes the Palette normally.

Command:

RESUME

Description:

Resumes playing.

Implementation note:

Not Implemented

Command:

SEEK

Description:

Moves to the specified frame and stops.

Implementation note:

Implemented

Command Flags/Options

Return Value

to

Specifies where to stop the seek.

to start

Specifies to seek to the start of the device element.

to end

Specifies to seek to the end of the device element.

Command:

SET

Description:

Sets the time format.

Implementation note:

Partially implemented: supports Frames format only.

Command Flags/Options

Return Value

audio all off

Disables audio output.

audio all on

Enables audio output.

audio left off

Not appropriate.

audio left on

Not appropriate.

audio right off

Not appropriate.

audio right on

Not appropriate.

door closed

Not appropriate.

door open

Not appropriate.

time format (ms)

Not appropriate.

time format frames

Sets the time format to frames. All subsequent position information is specifies in frames.

video on

Not appropriate.

video off

Not appropriate.

Command:

STATUS

Description:

Obtains status information from the device.

Implementation note:

Implemented

Command Flags/Options

Return Value

current track

1

forward

Returns true if the play direction is forward or the device is not playing.

length

Returns number of frames in movie.

length track <track#>

Returns number of frames in movie (valid only for track 1).

media present

Returns true if the media is inserted in the device.

mode

Returns the current mode of the device. All devices can return: not ready, paused, playing and stopped. Open, parked, recording and seeking are device dependent.

number of tracks

1

palette handle	Returns the handle of the palette used for the animation in the low-order word of the return value.
position	Returns the current frame in movie.
position track <track#>	Returns the current frame in movie (valid only for track 1).
ready	Returns true when movie fully loaded.
speed	Returns the current playback speed of the device in frames per second.
start position	1
time format	frames
window handle	Returns the handle of the window used for the animation in the low-order word of the return value.

Command:	STEP
Description:	Play from the current frame, one or more frames in the forward or reverse direction.
Implementation note:	Implemented
Command Flags/Options	Return Value
by <number of frames>	Indicates number of frames to step through.
reverse	Indicates to step through frames in reverse.

Command:	STOP
Description:	Stops playing.
Implementation note:	Implemented

Command:	UPDATE
Description:	Update (repaint) an invalid rectangle on the playback window.
Implementation note:	Implemented.
Command Flags/Options	Return Value
hdc <DeviceToUpdate> [at <rectangle>]	Repaints the current frame into the device context specified.

Command:	WHERE
Description:	Gets the rectangle specifying the source or destination area.
Implementation note:	Implemented
Command Flags/Options	Return Value
destination	Requests the destination offset and extent.
source	Requests the source offset and extent.

Command:	WINDOW
Description:	Specifies the playback window or its window's attributes.
Implementation note:	Implemented
Command Flags/Options	Return Value
handle <window handle>	Specifies the handle of the destination window used as an alternate default window.
handle default	Specifies that the animation device or movie player should set current display window back to default window.
state hide	Hides current display window.
state iconic	Display the window as iconic.
state maximized	Maximizes current window.

state minimize	Minimizes specified window and activates top-level window.
state minimized	Minimizes current window.
state no action	Displays display window in its current state and currently active window stays active.
state no activate	Displays display window in most recent size and state and the currently active window remains active.
state normal	Activates and displays the current display window in its original size and position.
state show	Shows current display window.
text (window caption)	Specifies the caption for the display window.

New MCI Commands Supported by the MCI Driver

MCI Drivers can implement their own MCI commands.

Command:	VERSION (string command)				
Description:	Obtains the version number of the MCI Device Driver.				
Implementation note:	Version number is returned in a 4 bytes as follows:				
	<table> <tr> <td>MSB</td><td>LSB</td></tr> <tr> <td>00 11</td><td>22 33</td></tr> </table>	MSB	LSB	00 11	22 33
MSB	LSB				
00 11	22 33				
	00 = Always zero				
	11 = Major portion of version number				
	22 = Minor portion of version number				
	33 = Sub portion of version number				

Example: 0x00010A00 = version 01.10.00

Note for Developers: The Version command is also available in non-string format (ie. commands, data structures, messages). This Version command is referred to as: GOLDDISK_MCI_GETVER. To use the command in this format you must include the header file MCIWI_X.H which is included on the MCI Driver disk.

Sample MCI Application

Included with the MCI Driver is the source for a sample Windows application which demonstrates the use of the driver. This application can load a movie and play it into a small window within the application's main window or into a separate window. The application offers a user interface that allows the user to control the playing of the movie. Play options include playing forward or reverse, stepping through the movie in forward or reverse, going to the first, last, or a specific frame. This application can also display information regarding the MCI Driver's capabilities or status.

The source files are located in the *SAMPLE* directory on the *MCI Driver* disk. Any portion of the sample source can be freely examined, modified, and used; however, Gold Disk does not warrant, guarantee or make any representations regarding the use of, or the results of the use of the Sample MCI application in terms of correctness, accuracy, reliability, currentness, or otherwise; and you rely on the Sample MCI application and results solely at your own risk.

Playing Animations from *Windows Media Player*

Once you have installed the MCI Driver, you can play Gold Disk animated movies from *Window's Media Player*.

1. Load the *Media Player* application by double-clicking on its icon.
The Media Player window will appear.
2. Select *Gold Disk Animation* from the *Device* menu of the *Media Player*.
An *Open file* dialog will appear.
3. Select the movie you wish to play, then click on *OK*.
4. Click on the *Play* button to play the movie.
5. Click on the *Stop* button to stop playing.

Licence

When distributing the MCI Driver please refer to the Gold Disk licence agreement. As a reminder, a boot-up or ending screen must be prominently and legibly displayed with the following notice: "This production was developed using Animation Works Interactive and contains proprietary software of Gold Disk Inc. For more information, call (416)602-4000. Any attempt to breach Gold Disk's proprietary rights is subject to civil and criminal sanctions."