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MPEG Advance Xtra is an Asset Xtra. Unlike scripting Xtras, Asset Xtras can be manipulated using the score and cast windows, and their properties can be adjusted through Lingo, just like Director's built-in media types.

Before starting, it is a good idea to enable the "Animate in Background" option in Director. This can be done by selecting the FILE->PREFERENCES->GENERAL menu in Director, and checking the "Animate in Background" option.

There are two ways to create MPEG Advance Xtra cast members. One is to simply use the IMPORT function in Director, and select some MPEG files to import. Director will prompt you to select the format of the import, and you will be presented with a dialog box asking if files should be imported as MPEG Advance Xtra or Quicktime castmembers. Select the MPEG Advance Xtra option. That's it. Castmembers will be directly imported to your cast window, ready to be placed on your movie.

A different way to create MPEG Advance Xtra castmembers is also provided. You can use the INSERT menu in Director, and select the TABULEIRO XTRAS->MPEG Advance Xtra entry. The standard Xtra Properties Dialog Box will appear. Select browse. Another Dialog Box will appear, prompting you to choose the video file associated with this cast member. Select an MPEG file with the correct type and extension. Click OK. You will return to the Properties Dialog Box. The file information should be displayed correctly, indicating the duration, height and width of the media file.

You can preview the file, mark cue points and set the playback options (toolbar, volume, rate, balance, among others).

Leave the Playback options as they are, for now. Finish by clicking OK.

A new cast member will appear in your Cast Window in Director. It has the Xtra icon, and the name of your linked video file. Click on it and drag the cast member to the score. A new sprite will be created on your score window, and you can adjust the position and the size of the video directly in the score.

You can use the "Wait for Cue Point" option in the tempo channel to wait for the end of the playback, or you can use a:

on exitframe

go the frame

end





script on the script channel to make Director loop on the frame while the video plays. That's it!

NOTE: the "Wait for cue point" option will not operate correctly if your Xtra sprite is in the last frame of the score. The same behavior is true for built-in digital video and audio sprites.

MPEG Advance Xtra supports creation of cuepoints in the Director authoring environment and dynamically at runtime. Cue points can be assigned in the Properties Dialog box that appears when you create or when you double-click an Xtra cast member. The number of cuepoints you can mark on each castmember is limited only by memory or performance. It is usually recommended to create at most 500 cuepoints, but your limits may be different depending on your applications. Cue points times are measured in milliseconds, and the name of the cue point can have up to 32 characters. To create a cue point you should first locate the time using the preview movie in the Properties Dialog window. Click the CUEPOINTS tab, and then select "ADD". A window will appear for you to define the name of the cue point. If you need to modify a cue point later you can double-click its name on the list of cue points and edit its name and time directly. You can use the "GOTO" button to check the location of a cue point, and the "REMOVE" button can be used to delete a cue point.

MPEG Advance Xtra does not modify the video file in any way. The cue points are maintained by your Xtra cast members, so you do not need to leave Director or mark them again if the original video is recompressed.

Creating Cue Points from Lingo

There are two functions that you can use to create and remove cue points from Lingo.

addcuepoint(member x, cuepointtime, cuepointname)

removecuepoint(member x, cuepointindex)

Using Cue Points

MPEG Advance Xtra cue points can be used just like Director built-in media cue points. You can use the "Wait for cue point" option in the Tempo channel of the score for easy synchronization of media, as shown in our sample movies. For advanced Lingo users, the following properties are supported:

isPastCuePoint(sprite x)	the mostRecentCuePoint of sprite x
the cuepointtimes of member x	the cuepointnames of member x

Please consult Director's documentation for more information about these properties.

Xtra sprites also receive the onCuePassed Lingo message. However, Director's documentation is inaccurate when it comes to the syntax of this particular Lingo message. The correct syntax is:

on cuePassed me, whichChannel, cuePointNumber, cuePointName

Director's help does not mention the me parameter, but we verified that



this syntax also applies to SWA and Quicktime generated cue points. You can use this event to get information about cue points from inside your behaviors. Again, the sample movie uses this command to display the name of the most recent cue point on the screen. Please examine the movie for more information.

IMPORTANT: The "Wait for cue point" setting in the Tempo channel does not work correctly if an Xtra sprite is in the very last frame of the score. This is also true for SWA and Quicktime sprites. It is always a good idea to avoid using the very first and the very last frame of the score in Director, since they do not behave exactly like all the others.

All properties of the MPEG Advance Xtra cast member can be easily set in the Properties Dialog box, which is displayed when the cast member is created and also when you double-click the cast member icon in the cast window. These properties can also be set via Lingo.

Filename - the complete pathname of the linked media file.

Example: put the member(1).filename

-- "C:\myfiles\myfile.mpg"

Duration - the duration of the linked Media file in milliseconds.

Example: put member(1).duration

-- 45200

Videowidth - the original encoded width of the linked Media file, in pixels. This is a read-only property.

Example: put member(1).videowidth

-- 320

Videoheight - the original encoded height of the linked Media file, in pixels. This is a read-only property.

Example: put member(1).videoheight

-- 240

Volume - The default audio volume to be used during playback of new Xtra sprites. Values range from 0 to 255, expressed linearly. The sprite volume property may be used when you want to modify the volume of a sprite that is already on the stage.

Example: put member(1).volume

-- -10

Balance - The default audio balance to be used during playback of new Xtra sprites. Values range from -100 to 100. The sprite function The sprite balance property may be used when you want to modify the balance of audio of a sprite that is already on the stage.

Example: put member(1).balance

-- 0

Rate - The default playback rate to be used during playback. Values range from 0 to 2, expressed in percentage of the original playback rate. The sprite function rate may be used when you want to modify the rate of playback of a sprite that is



already on the stage.

Example: `member(1).rate = 0.5`

Cpuboost - On Windows MPEG Advance Xtra can slow down Director to allow more CPU time for the DirectShow driver. This can be useful if you are experiencing poor or stuttering playback on older machines. Legal values are in the range of 0 to 95 percent, although values over 80 may result in problems with the performance of your Director animation and/or Lingo event detection.

Example: set the cpuboost of member 1 to 50

Toolbar - Indicates whether a toolbar is attached to the video window. Possible values are 0 (FALSE) or 1 (TRUE).

Example: `member(1).toolbar = true`

Loop - Indicates whether the linked Media file will loop automatically. Possible values are 0 (FALSE) or 1 (TRUE).

Example: `member(1).loop = false`

PlaySegment - Indicates whether only a segment of the Media file is to be played. Possible values are 0 (FALSE) and 1 (TRUE).

Example: set the playsegment of member 1 to TRUE

Starttime - Specifies the start time of the Media file to be played, in milliseconds. Only active if "the playsegment of the member" is TRUE.

Example: `member(1).starttime = 10700`

EndTime - Specifies the end time of the Media file to be played, in milliseconds. Only active if "the playsegment of the member" is TRUE.

Example: `member(1).endtime = 45000`

PausedAtStart - Indicates whether the Media file should be opened in "paused" state. Possible values are 0 (FALSE) and 1 (TRUE).

Example: set `member(1).pausedatstart= 0`

DTS - Indicates whether the Media file will be played in direct-to-stage mode. Disabling DTS allows compositing of the sprite with other elements of the stage, including the possibility to distort the sprite using quads and skew, and enables Director inks to be used. The drawback is a severe performance penalty on older systems. The default value is for sprites to play with DTS enabled. Possible values are 0 (FALSE) and 1 (TRUE).

Non dts playback is also not available on older Windows systems. Consult the canImageOffScreen() member function for more information on this topic.

Example: set member(1).pausedatstart= 0

CuePointTimes - Contains a list of the cue point times associated with this member.

Example: put the cuepointtimes of member 1

-- [4500,12300,34650,67321]

CuePointNames - Contains a list of the cue point names associated with this member.

Example: put the cuepointnames of member 1

-- ["Cue 1","NewCuePoint","Start Point","Second part"]

The Sprite properties are only accessible when a MPEG Advance Xtra sprite is being displayed on the stage. You should use the sprite channel as the argument to pass commands to the sprite.

Image - Gets the current video frame as an image object, ready to be used with imaging Lingo functions. The image of sprite is only available on Windows if the canImageOffScreen() member function returns true and the sprite is playing in non-dts mode.

Example: myimg = sprite(1).image

Currenttime - The current position of the Media file, in milliseconds.

Example: put sprite(1).currenttime

-- 22345

Rate - The playback rate Media file. The Xtra supports rates between 0 and 2 (reverse playback is not supported.) The movierate can also be used to play or pause the media, setting it to 1 or 0.

Example: put sprite(1).rate

-- 1

Movietime - The current position of the Media file, in milliseconds. This returns the same value as the currenttime of sprite property.

Example: put sprite(1).movietime

-- 22345

Movierate - The playback rate Media file. This returns the same value as the rate of sprite property.

Example: sprite(1).movierate = 0.5

Mediabusy - Indicates whether the Media file is playing. Possible values are 0 (FALSE) and 1 (TRUE) .

Example: put sprite(1).mediabusy

-- 1

MostRecentCuePoint - The index of the last cue point passed. Consult Director's documentation for additional info on this property.

Example: put the mostrecentcuepoint of sprite 1

-- 2

Duration - The duration of the Media file, in milliseconds. Can



only be retrieved, not set.

Example: put sprite(1).duration

-- 100000

Volume - The current volume of the Media file, in a linear scale from 0 to 255. Can be tested and set.

Example: sprite(1).volume = 128

Visible - Hides or shows the sprite window. Can be tested and set, and is useful to prevent black flashes at the beginning or end of media playback on Windows.

Example: sprite(1).visible = false

MPEG Advance Xtra provides several functions that can be called from Lingo to retrieve information about the Media linked to the members.

AddCuePoint(member x, cuepointtime, cuepointname) - This function can be used to create a new cue point from Lingo. Cue points are automatically sorted for you.

Example: addcuepoint(member 2, 10500, "NewCue")

RemoveCuePoint(member x, cuepointindex) - This function can be used to remove a cue point. You should supply the index of the cue point to be removed.

Example: removecuepoint(member 2, 2)

canPlayVideo(member x) - Returns 1 (TRUE) or 0 (FALSE). Can be used to determine if a given member can be played in the system, and it is useful to test for system capabilities if you are planning for example to play MPEG2 or MPEG4 content. IMPORTANT: on the Macintosh the function quicktime6present() should be used to test for the capability to play MPEG4 videos. Attempting to play or query some MPEG4 files when Quicktime 5 is installed can produce a type 10 error.

Example: canPlayVideo(member 1)

if the result=0 then

alert("Member 1 can not be played")

else

--nothing

end if

canImageOffScreen(member x) - Returns 1 (TRUE) or 0 (FALSE). Can be used to determine if non direct-to-stage playback and access to the image of sprite object is possible in the system. Older versions of the DirectShow engine (released before DirectX 7.1) can play MPEG1 files, but do not allow access to the data necessary for offscreen imaging. In this case the MPEG file will still play correctly in DTS mode, which is set automatically by the Xtra.

Example: canImageOffScreen(member 1)

if the result=0 then

alert("DTS playback is disabled for member 1")

else

--nothing



end if

quicktimeversion(member x) - This function can be used to test for the presence of Quicktime 6 on the Macintosh, and enable playback of MPEG4 files. Possible return values are the version of Quicktime installed (3.01 or 6.02 for example) or FALSE (0). On Windows the return value is always 0.

Example: put member(2).quicktimeversion()

ScanFile(member x) - This function can be used to extract the correct duration and dimensions of a video file when the linked media is changed via Lingo. The file is queried and the castmember properties are updated automatically. Usually not necessary for the typical operation of the Xtra.

Example: scanfile(member 2)

Register(member x, registrationnumber) -This function can be used in Projectors to register the Xtra at runtime, and allow developers to save linked casts. It is not necessary for the normal operation of the Xtra.

Example: register(member 2, "SERIALNUMBERHERE")

Sprite Functions

The following sprite functions can be called from Lingo to control playback of MPEG Advance Xtra sprites. The sprite must be present in the score, and the function should be targeted at the sprite channel number.

Play(sprite x) - Used to start or resume playback of a Media file. Playback is usually started automatically when the sprite is loaded, unless the "Paused at Start" option is checked.

Example: `sprite(1).play()`

Pause(sprite x) - Used to pause playback of a Media file.

Example: `sprite(1).pause()`

Seek(sprite x, time) - Seeks the video to a different time in the Media file, and pauses the video. Time should be expressed in milliseconds.

Example: `sprite(1).seek(15000)`

StepForward(sprite x) - Moves the video playback position one frame forward.

Example: `sprite(1).stepforward()`

StepBack(sprite x) - Moves the video playback position one frame backward.

Example: `sprite(1).stepback()`

Playsegment(sprite x, starttime, endtime) - Plays a segment of the Media file. Please note that using this option actually limits access to the times of the stream that falls outside the playback segment boundaries. You should use another `videoplaysegment()` command to seek to a different time on the stream.

Example: `sprite(2).playsegment(10000, 25000)`

IsPastCuePoint(sprite x, cuepointindex) - Returns TRUE if the cue point indicated has already passed, FALSE otherwise. The Xtra only supports this function used with cuepoint indexes, not names.

Example: `isPastCuePoint(sprite 1, 2)`

put the result

-- 1



MPEG Advance Xtra works with all operational systems and platforms supported by Director 8.5 and Director MX. Please check our web site at <http://xtras.tabuleiro.com> for updated information about system requirements for different media types including MPEG2 and MPEG4. You should create your Projectors with the "Animate in Background" option checked.

The Xtra is automatically included in the Projector if your first movie contains a MPEG Advance Xtra cast member. If you are creating a "dummy" projector that will call your .dxr movie, you can include the Xtra in the Projector using the MODIFY->MOVIE->XTRAS menu, and adding the Xtra manually.

TIP: You can also deliver the MPEG Advance Xtra file in a folder named XTRAS, located in the same directory of your Projector, if you do not want to embed the file into your projector. This is recommended for faster startup of your Projector.

We also recommend including a LINGO.INI file with your Projector. This file should contain the following code to prevent problems playing sounds when Intel RSX and DirectSound are installed:

```
on startup
set the soundkeepdevice to 0
end startup
```

The final structure of files should look like:

```
Projector - C:\myproj\proj.exe
Lingo.ini - C:\myproj\lingo.ini
```

The Xtra will automatically locate all linked Media files that are located in the same directory of the Projector, or in a relative location that matches the one used when first importing the linked MPEG files. The Xtra will also search all the directories listed in "the searchpaths" Lingo variable for missing Media files, using the same resolution mechanism used by built-in Director capabilities. The searchpaths is evaluated before any Lingo in the current movie executes so it should be set preferably in a LINGO.INI file.

DIRECTOR SAMPLE LINGO.INI:

```
on startup
```





```
set the soundkeepdevice to 0
```

```
append(the searchpaths, the applicationPath & "media")
```

```
end startup
```

You can safely put your Media files in the "media" subdirectory (C:\myproj\media in the example above) and the Xtra will automatically find them when the Projector starts.

How to Order & Register

The unregistered version of MPEG Advance Xtra is fully-functional and may be used for evaluation, nonprofit and educational purposes only: commercial distribution is strictly prohibited. A registered version of the Xtra can be used in commercial products, and may be purchased online at xtras.tabuleiro.com, using a secure server. At our web site you can also consult our purchase policy, purchase instructions, payment, delivery and security methods.

If you decide to buy the Xtra you don't need to download a new copy of the software. After your order is processed you will receive an e-mail with a serial number to register the software you've already installed on your machine.

To register you should double-click a MPEG Advance Xtra castmember and select the "Register" tab in the Properties dialog box. Please keep your serial number archived. You will need it to register again if you reinstall Director or the Xtra.



Licensing & Availability

MPEG Advance Xtra is a commercial product. Current price and updated information can be found at xtras.tabuleiro.com. The Xtra can be distributed with your Projectors. You have to include the following copyright information in the product documentation:

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No royalty-fees are required for a distribution of the playback version of the Xtra with your product.



Technical Support

Please use the YOUR ACCOUNT section available at our web site (xtras.tabuleiro.com) to submit your questions. The site also contains Technotes and other resources that can help you identify and solve the most common problems quickly.

