

# Client-side access to timecode data embedded by Flash Media Encoder

## Timecode Introduction

SMPTE refers to the Society of Motion Picture and Television Engineers and SMPTE Timecode is a set of co-operating standards used to label individual frames of video or film. SMPTE Timecode and is essentially binary coded strings of 80 bits containing information pertaining to the hour, minute, second and frame (HH:MM:SS:FF), the type of time code (non drop or drop frame) and 32 user-definable bits.

Time code can have any of a number of frame rates. common ones are:

- 24 frame/s (film)
- 25 frame/s (PAL colour television)
- 29.97 (30\*1.000/1.001) frame/s (NTSC color television)
- 30 frame/s (American black-and-white television) (virtually obsolete)

*Linear Timecode* (LTC, pronounced "lit-see") is suitable to be recorded on an audio channel for distribution within a studio to synchronize storage devices and cameras.

*Visible Time Code*, a.k.a. Burnt-in Timecode (BITC, pronounced "bit-see") - the numbers are burnt into the video image so that humans can easily read the time code.

*Vertical Interval Timecode* (VITC, pronounced "vit-see") is recorded directly into the VBI (Vertical Blanking Interval) of video signal on each frame of video.

## Flash Media Encoder's timecode functionality

FME is able to embed SMPTE time code, Linear Timecode (LTC) or Vertical Interval Timecode (VITC) and Visual Timecode (BITC), from any device that is capable of generating it, into the encoded media stream and pass it to Flash Media Server. The stream can optionally be saved locally as an FLV file. Subscribing clients connected to the published stream are able to use the embedded timecode information.

## Usage

On the Flash Media Encoder side, with a compatible capture device that supports timecode generation, users can enable the timecode feature by checking the 'timecode' and 'burn timecode' checkboxes and the timecode settings dialog. These elements are enabled depending on the capture device's capacity to give timecode info and to burn timecode values in video frames.

On the subscribing client side, the client that wants to use timecode information should implement the netstream onFI method. Timecode info is available in 'tc' member of the object sent as parameter to onFI. Client side sample ActionScript code to get timecode info is as follows:

```
ns.onFI = function(infoObj){
    var timecode:String;
    for( i in infoObj)
    {
        if(i == "tc")
            timecode = infoObj.tc; //string formatted HH:MM:SS:FF
    }
}
```