



Tutorial for Business Modeling (TBM) Project

Draft Investigation of Screen Capture Software

by Stephen Thorpe
Tutorial for Business Modeling (TBM) Project
AUT Usability Research Group

Report conducted: October and November 2003

CONTENTS

1	Project outline	3
2	Introduction	3
3	Screen capture software	4
3.1	Camtasia Studio	4
3.2	Flash.....	4
3.3	Lotus ScreenCam.....	4
4	The Study	5
5	Findings and Discussion	5
5.1	Camtasia Studio	5
5.2	Macromedia Flash MX	7
5.3	Lotus ScreenCam.....	8
6	Conclusion and Recommendation	9

1 Project Outline

The Tutorial for Business Modeling (TBM) project team undertook to conduct an investigation of screen capture recording software to establish optimization for file sizes, ease of use, and ease of production. Our aim was to find out which screen capture software would be suitable for creating short teaching clips that could be imbedded in the TBM application. The clips captured screen activity and audio input of teacher instruction in data modeling techniques. This report outlines the findings from our investigation of Camtasia Studio, Flash MX, and Lotus ScreenCam capture software.

2 Introduction

2.1 The TBM Project

A group of AUT researchers, teaching staff and students are developing computer-based tutorials for a range of IT business modelling skills and techniques that are used to create computer systems. This project is called the Tutorial for Business Modelling (TBM). This investigation of screen capture software is a sub-project of the TBM development project.

2.2 Optimization for file sizes

--! Describe optimization for file sizes, ease of use, and ease of production

2.3 Ease of use

2.4 Ease of production

2.5 Summary of findings

Investigation Of Screen Capture Recording Software			
	Camtasia Studio	Flash MX	Lotus ScreenCam
Optimization for file sizes	Very Good, several options and formats available for clip output	Excellent	Needs more compression options for clip output
Ease of Use	Very Intuitive	Requires expertise	The simplicity meant a lack of important features
Ease of production	Relatively simple	Involved	Straight forward

		processes	
--	--	-----------	--

3 Screen Capture Software

There were three software tools investigated, Camtasia Studio, Flash and Lotus ScreenCam. Each of these software tools are described briefly below.

3.1 Camtasia Studio

Camtasia Studio is described as a digital video production studio. It supports the AVI format and standard video for Windows audio and video Codecs. Camtasia Studio is comprised of five component applications: Camtasia Recorder, Camtasia Producer, Camtasia Effects, Camtasia MenuMaker, and Camtasia Player. The Recorder allows the user to capture cursor movements, menu selections, pop-up windows, layered windows, typing, and everything displayed on the computer screen. The Producer is then used to assemble, edit, and integrate video productions. Camtasia Effects allows the user to add objects, such as callouts, arrows, text, and WMF images to an AVI video. MenuMaker allows the user to create an attractive menu from which to launch produced files. Camtasia Player is a simple, standalone video player, optimized for playing Camtasia screen recordings .

--! reference

3.2 Flash MX

The Flash MX environment includes video, multimedia, and application development features, which allow designers and developers to create rich user interfaces, online advertising, e-learning courses and enterprise application front ends. The main benefit of Flash is that it creates vector-based content. For development this means lower file sizes that download faster than bitmap equivalents.

--! reference

3.3 Lotus ScreenCam

Lotus ScreenCam is described as a PC screen recording application. Lotus ScreenCam records mouse click and scroll actions along with any action occurring on-screen. It allows a developer to add captions, voice and post-editing (although limited to twenty movie segments).

--! reference

4 The Study

Our aim was to find out what was the most useful screen capture software for generating small teaching clips. A 4-minute teaching clip was created with the software listed above. The 4-minute teaching clip included the screen capture of mouse movements and typing in Microsoft Word with instructor audio.

The ability for the capture software to create an optimized file size without compromising quality was important as the files were intended to be delivered through a web-based browser. The affordability of the software was important as the chosen capture software was to be used by several lecturers with minimal training. The ease of production was also an important aspect to the study. The aspects of recording, editing and exporting the teaching clips needed to be effortless for non-technical lecturers to produce teaching clips when needed.

5 Findings and Discussion

Next are discussed some of the main findings of the study. We found that Camtasia Studio was an excellent match for our needs. Camtasia produced small file sizes, was easy to use and production was a relatively simple process. Flash MX was more difficult to use as it is designed more as an authoring tool rather than for screen capture. Lotus ScreenCam, although easy to use, lacked some important features.

5.1 Camtasia Studio

We found Camtasia Studio to be the “best-fit” screen capture software for our goals.

5.1.1 *Optimized file size*

Using Camtasia Studio the final file size for the 4:03 minute teaching clip was 1139 KB. This was from an original 11,196 KB uncompressed (.avi) file, almost 1/10th of the original. The Camtasia Producer (a sub-component of Camtasia Studio) allowed the user to export the teaching clips in the macromedia flash format (.swf). This allowed for both a very small size file and the ability to play within an Internet browser. One unexpected benefit of using the Camtasia Producer was that our AUT logo could be imbedded in the teaching clip (see fig.1, page 5).

Phase 1 List all the Attributes

Customer Invoice		Acoustic Trax Production Studios			
21 Reverb Road, Newtown Phone 09 410-3240 Fax 09-410-3245		Invoice no: 122433 Invoice Date: 12 February 2003 Contact: John Wilson			
Customer: Down Under Music Store Address: 245 Queen Street Auckland 125012 New Zealand					
Item Code	Title	Qty	Recommended Retail Price	Price	Amount
13425	Live in the Cathedral	10	35.00	25.00	250.00
10266	One or two from the Tree	10	40.00	30.00	300.00
54000	Below the High Country	10	42.00	32.00	320.00
Delivery Charge					20.00
GST					110.63
Total Due					995.63

AUT




Figure 1 Teaching clip with embedded AUT logo

Capture Details for Camtasia Studio:

Size: 600x500
 Colors: High Color (16-Bit)
 Frame Rate: 11
 Audio Codec: MPEG Layer 3
 Audio Format: 22.050kHz, Mono, 24kBits/sec

The file size was lower as the audio within the clip could be converted into Mp3. We found that using the 22Khz, Mono, 24KBits/sec Mp3 encoding produced low enough file sizes without compromising the audio quality.

5.1.2 Ease of use

The Camtasia Recorder system was intuitive. Two settings were changed from the default settings. One change allowed the user to select the screen area for capture, the other was to record the audio. A red recording light was selected and then a box

drawn around the area to be recorded. The corners of the recording area then flash and the recording panel displays summarized data about the progress of the capture (see fig. 2).

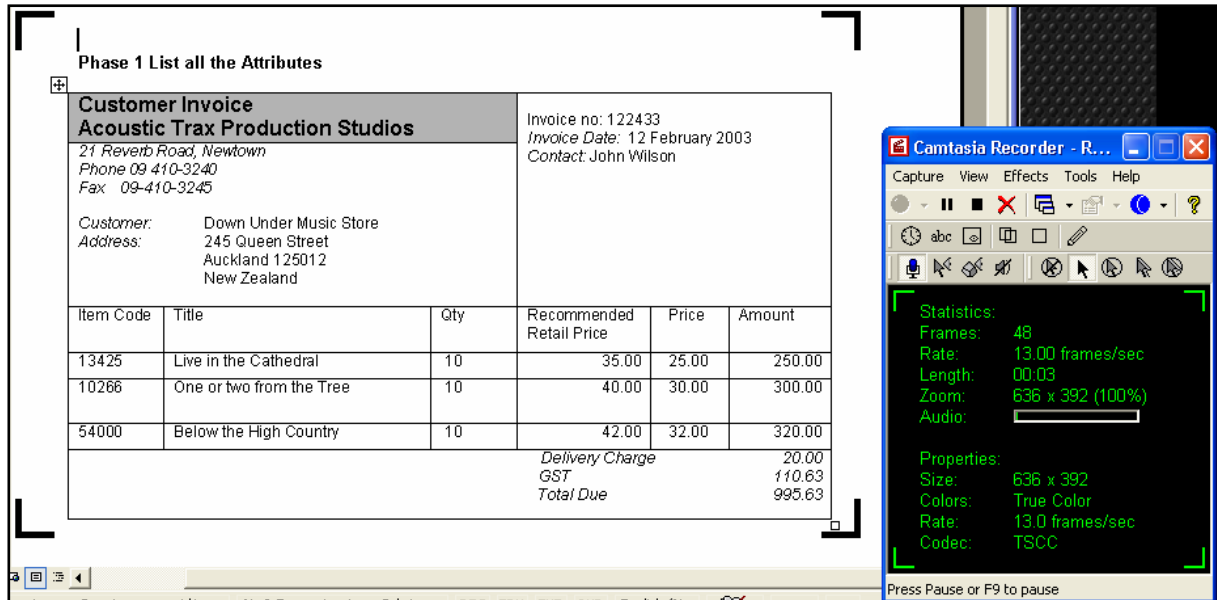


Figure 2 Screen capture area and Camtasia Recorder.

5.1.3 Ease of production

The process of moving from the raw capture in .avi format to the final .swf format was overall relatively intuitive. One annoying aspect of the Camtasia Producer was the Pop-up tool tip. This reappeared each time I opened the Camtasia Producer. Although informative it distracted me from my train of thought and broke my flow and concentration. First the folder where the uncompressed files are located is selected in the left panel. Then the file is selected in the middle panel and dragged up to the upper storyboard panel. Then "Produce Movie..." is selected. Several options can then be selected such as changing the audio compression format and imbedding the AUT watermark. The system takes a few moments to compress and create the final file. It's relatively simple overall.

5.2 Macromedia Flash MX

We found that while Macromedia Flash MX produced the smallest file sizes. However, it was involved and complex to use.

5.2.1 Optimized file size

Macromedia Flash MX produced the smallest file sizes for our study.

5.2.2 *Ease of use*

Macromedia Flash MX requires the kind of expertise that cannot be developed quickly with minimal training. This meant that anyone creating the teaching clips would need to know how to use the authoring software. If approached without training it is a confusing and unintuitive interface to use. The system uses a stage and timeline metaphor. The background screen is put on to the stage as one image (called a sprite) and all interaction such as adding text and highlighting are put on to the stage as images in front of this background image. The file sizes are therefore smaller as the software has captured only a single background image. Other images are added and occur and interact at differing points along the timeline. The audio is then imported and synchronized with the screen interaction.

5.2.3 *Ease of production*

The production of teaching clips in Macromedia Flash MX involves many steps. The user is required to create many elements before-hand, such as a capture of the background screen and any text or images used need. These are usually required to be developed in a 3rd party application. In this case we used the Microsoft Photo Editor to create elements and then imported them into Flash MX. The training audio also has to be recorded separately. We used the Microsoft Sound Recorder and later converted it to Mp3 using the Audiofan Wave to MP3 Converter¹.

5.3 **Lotus ScreenCam**

Overall Lotus ScreenCam was simple and easy to use. However it lacked some important functionality such as the ability to select areas for recording, and compression of the final output.

5.3.1 *Optimized file size*

Using ScreenCam the final file size for the 4:03 minute teaching clip was 13293 KB using the Lotus ScreenCam format (.scr) or 14084 KB in a stand-alone .exe format. Converting it to a generic (.avi) format took the file size up to 743434 KB. Options were suggested to bring this file sizes down such as reducing the frame rate, number of colours and the screen capture size. Although ScreenCam is simple and easy to use it did not allow the screen area for recording to be selected by the user.

5.3.2 *Ease of use*

ScreenCam's interface includes a simple floating panel (see fig. 3).



Figure 3 Lotus ScreenCam recording interface

It has very few options making it very intuitive. ScreenCam contains a useful option to hide the panel during recording and an option to imbed a logo in the recording. Although easy to use it did not allow the screen area for recording to be selected by the user. This meant that a larger area was recorded than what was needed. The simplicity of the interface meant that beneficial features such as this ability to record parts of the screen and file compression were unavailable making the tool less useful than the others we looked at.

5.3.3 Ease of production

Production was straight forward as there were very few production options for the user. There was the option to save the captured clip in either the ScreenCam format (.scr), AVI, as a stand-alone exe file, or the audio track only in wav format.

6 Conclusion and Recommendation

From looking at the 3 tools it appears that Camtasia Studio has the most useful elements that we require for our project's goal - *capturing screen activity and audio input for the creation of teaching clips.*

Camtasia has very good optimization of file sizes, it is intuitive to use, and relatively simple to walk through the production of teaching-clips. There were other benefits for our project such as the multiple formats available for clip output and ability to imbed a logo. Although Flash MX produced small file sizes it requires expertise to use and has an involved process to produce the final clips. Lotus ScreenCam is a very simple and easy tool to use. However it lacks important functionality such as compression options for clip output and the ability to select the screen area for capture.

From this study we can recommend using Camtasia Studio for the creation of teaching clips for the TBM project.

¹ download.com (n.d.) Audiofan Wave to MP3 Converter [http://download.com.com/3000-2140-10164138.html] retrieved on 23/09/03. CNET Networks, Inc.