

Ovo Studios Recording Technologies

This document describes Ovo Studios' video and media recording technologies. This document has the following sections:

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After reading this document, we hope you will consider Ovo Studios when you build your next UX/Usability Lab. If you would like more information, please contact Rich or Scott personally or email sales@ovostudios.com.

Overview

A user experience research facility is only as effective as its ability to capture the user behavior that is observed there. Usability Labs from the last century relied on a variety of analog devices and VCRs to capture what amounted to low-fidelity versions of what transpired during a research session. Fast-forward a generation, to digital capture, and many modern UX facilities have been developed to resemble television production studios, with over-engineered and expensive cameras and distribution hardware, hard-to-use hardware based encoding devices, and proprietary, locked-down streaming protocols.

Ovo Studios has never sold a lab with a VCR. We have never sold a lab with a hardware-based encoder. From day one, Ovo Studios put its stock in software-based, digital media capture. Since 2011 we have been all-digital and high-definition. Our recording solutions are production-quality, and easy to install, use, and upgrade. Our recording engine also streams natively, with no additional CODECs or special players needed. What's more, we can record pretty much anything with a Video Output on it.

Industry Standard

Our encoding engine is built on DirectX and Windows Media Technologies, the industry standard for digital media capture. This means that our recording engine is reliable, recoverable, and cutting-edge in terms of compression, encoding, and streaming technology. Unlike other engines that store temporary files until recording stops successfully, Ovo Studios recording writes to disk in real-time: if you were to pull the power cable on your Ovo Workstation during recording, when you turned it back on, your recording up to that point would be there waiting for you. Our recording engine also allows you free rein over all encoding characteristics: frame rate, resolution, buffer, bit rate. This allows us to apply the tightest encoding to the source content you are recording, saving you hard disk space and decreasing streaming lag.

Up To Eight Sources

Prospective Customers sometimes look at us funny when we tell them we can record up to eight sources. Why would any user researcher need that many? The truth is, we have labs where UX researchers are capturing more than 20 sources, and we've been able to architect their lab to split up that workload over several Ovo Logger workstations. Imagine a video game playtesting facility with multiple "pods", one for each playtester. Each pod could have a source coming from the gaming console, a camera pointed at the user's controller, and another camera pointed at the user's face. We've also built a number of "at home" labs where users move freely around a simulated home environment: kitchen, bedroom, office, living room. With our flexible lab architecture and powerful recording, we can ensure that there will never be any data loss with regard to recording user behavior.

Software-Less Screen Recording

Ovo Studios recording technologies do not require a software application to be installed on the participant machine in order to record it. We record screens by distributing the video feed from the participant machine in much the same way you'd connect to a projector. We can capture VGA, DVI, HDMI, and DisplayPort. We capture it at full resolution and full motion. We can capture multiple monitors. All without imposing any load on the processor, RAM, or hard drive on the participant's computer. By comparison, our competitors install software on the participant machine which can tangibly slow down the performance of the computer, including the application you're trying to test. What's more: because we don't require software to be installed on the participant computer, your participant machine can run any operating system: Windows, Linux, Mac OSX, or no operating system at all! We can record through reboots of the participant machine as well.

Software-Based Multiplexing

Some User Research Facilities offer the ability to pre-mix sources as a single, laminated source. This could be a picture in picture, a quad split, or something similar. This is typically done with a piece of hardware called a Scaler or a Multiplexer. These devices often cost upwards of \$15,000US, and, as new technologies emerge, they can quickly become obsolete. Ovo Studios has developed a software-based version of this same capability. Using the inputs on the capture cards installed in your Ovo Studios Workstation, you are able to create your own mix of sources with control over source position, size, and opacity, as well as other treatments like borders and captions. Sources are mixed together in real-time, audio is embedded, and recording and streaming proceed with a single mixed stream. For some clients, they might want to record MULTIPLE multiplexer feeds from various sources. No problem: Ovo Studios recording technologies can handle that without any trouble. Our primary way of recording video is to record each source to its own file and then allow for post-hoc mixing of highlight clips, but Multiplexing is a great alternative to this if you only want to manage one file per session, or if your recording setup is fairly rigid from test-to-test.

Video Streaming

Our video streams using the Windows Media protocol. This means you can open it up in Windows Media Player, VLC Player, or QuickTime Player (with the Windows Media add-ons installed). All streaming video is going to have a certain amount of network lag, and our solution is no different. However, Ovo Studios has written an algorithm to calculate and account for this lag on an observer-by-observer basis. Our LabStream viewing software measures the amount of network lag, and compensates for when your remote observers take notes. This ensures that their notes annotate the correct time on the recorded video.

Video Playback and Editing

Ovo Studios Video Player is a top-of-the-line video playback tool. It allows you to "scrub" through video, meaning as you move the playhead back and forth, the video frame updates, which is great for

pinpointing items of interest in a video file. There is also zero buffering time for video to start playing. You can playback video at $\frac{1}{4}$, $\frac{1}{2}$, and $\frac{3}{4}$ time, as well as 2x, 3x, 4x, and 5x. Audio is resampled for playback from $\frac{1}{2}$ up to 2x, so your user won't sound like a cartoon character or an LP played on the wrong speed.

The Video Player also has quick-keys which allow you to automatically skip the video to the next item of interest or logged observation, skipping over the "dead air". You can mark your highlight clips right from the player and then process them as a batch. They are saved as carbon copies of the raw video files and those raw files remain completely intact. You can mix together whatever video sources you were recording during a session, much like the Multiplexer feature, but with pre-recorded files instead of live sources. Finally, you can create a highlight reel comprised of your highlight clips, title slides, captions, voiceovers, static image slides, and even charts and graphs from Ovo Logger's data analysis engine. All of it is exported as a single, high-quality .WMV-based video presentation that can easily be distributed to stakeholders.

Conclusion

Ovo Studios has been at the forefront of video recording technology since our inception. We continue to develop recording technologies in-house that will increase efficiency, quality, and functionality. We think we deliver on our commitment to quality and reliability in recording technology.