

UFAL Video Recording Manual

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This manual describes all the main aspects of capturing lectures held at UFAL. The history of recording lectures at UFAL started at the end of 2006. From that time, the UFAL linguistic seminar has been regularly recorded every Monday afternoon. Moreover, a few other events were also captured (e.g., Prague Treebanking, Translingual Europe).

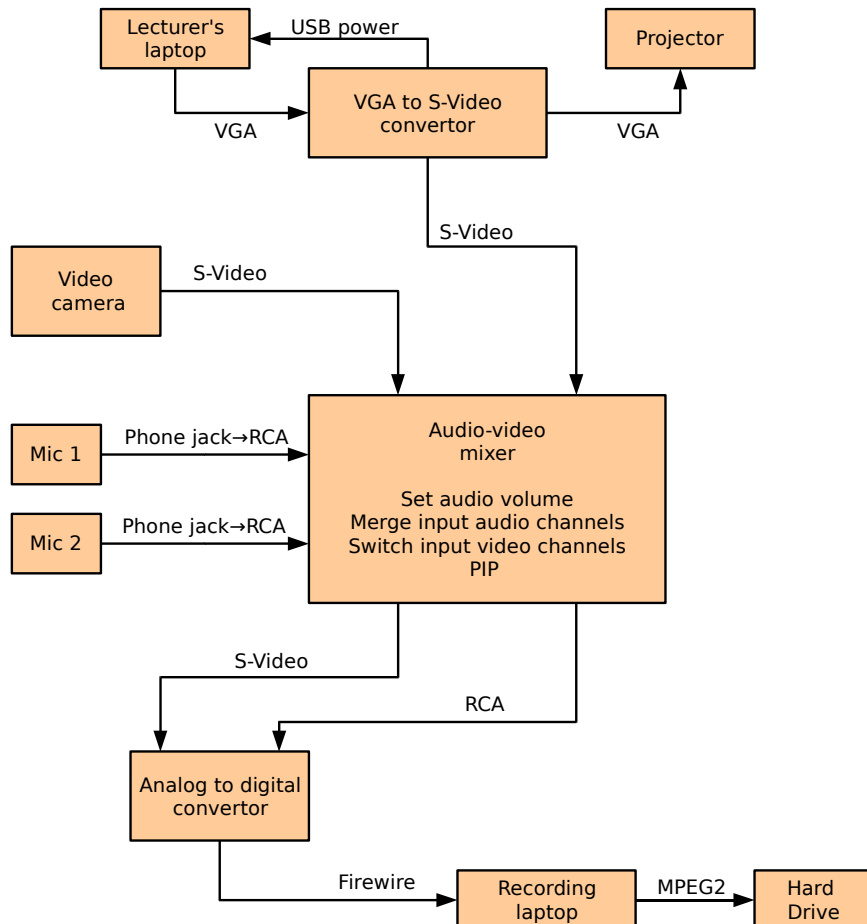
The process of recording, editing, and publishing videos has changed dramatically. First, there was no audio-video HW mixer and all the processing had to be done after taking a record. Also the publishing was not an easy task in the beginning. Everything required a lot of manual work. There was an effort to make the whole process (both editing and publishing) faster which resulted in a couple of actions:

- Audio-video mixer is used during recording.
- Web-based publishing system with an administrative interface was created.

This is just a brief overview of the history. The following text describes only the current state with a few remarks on the past.

Hardware

A lot of pieces of technical equipment are required during recording. Everything has to be properly connected as shows the following figure. The time needed for setting all up varies



between 30 - 60 mins depending mainly on issues with the projector and VGA to S-Video convertor. Approximately 20 mins is required to disconnect all and clear the recording place.

A brief description of the figure:

1. Both lecturer and his/her presentation are recorded.
 - (a) The VGA signal from the laptop is converted into S-Video which is then sent to the video mixer. The VGA signal is forwarded to the data projector which is often a source of problems. The convertor allows for the maximum screen resolution of 1024x768. New laptops often have wide screens with higher screen resolutions. It is needed to make the resolution lower in order to use the convertor.
 - (b) Video camera is actually not recording (no need to press the Record button). Only its S-Video output is connected to the mixer. In the camera menu, select Display→Off before recording. As the camera is not recording, it goes into the sleeping mode after 5 mins of inactivity (which is very inconvenient). It is enough to slightly change the zoom to make the camera active again.
 - (c) Only two video capabilities of the mixer are used - switching between video sources (either the lecturer or presentation is recorded) or the PIP effect (the lecturer is placed on top of the presentation).
2. Two microphones are used. Be sure to have charged batteries in them. The microphones are used to capture the sound in the record. There is no speaker attached to microphones - make everybody aware of this.
 - (a) The first microphone is attached to the lecturer's shirt or jacket.
 - (b) The second one is used for questions and moves around the lecture room.
 - (c) The volume of each microphone can be set on the mixer. The indicators of volume should be mostly green on the mixer (no red).
3. The mixer is only analog. In order to save the record in digital form, the analog-digital convertor is used. It requires a notebook (my own was used) with a Firewire connector. A lecture of 1h requires a space of about 4GB to store the data in MPEG2 format.

Software

In past, much more software was used. There was need to merge audio channels and set up volumes manually (usually in Audacity). Different output formats were created in Mediacoder. Now the following software is used:

1. WinAVI Video Capture (Windows) for capturing the video coming to Firewire connector.
2. MPEG Video Wizard (Windows) for editing videos.
3. Custom video convert script (Linux) which creates all output formats from the edited MPEG2 record. Inside it uses a couple of open-source programs like mplayer, mencoder.

The required software and hardware equipment for the recording laptop is summarized below:

- Recording: Firewire connector, OS Windows, WinAVI Video Capture (freeware)
- Editing: OS Windows, MPEG Video Wizard (no known user-friendly and stable alternative in Linux)
- Publishing: OS Linux, a few utilities (mencoder, mplayer)

Video Editing

MPEG Video Wizard is used for editing videos. It allows to edit MPEG2 streams without the need for decoding and encoding back. Mostly it is enough to cut just the start and end of the record. MPEG Video Wizard was used even in the past when MPEG2 files recorded by the camera were

processed.

Video Publishing

Once the video is edited and stored as MPEG2 file, a couple of output formats is created by the `video_convert` script:

- MP4 for live play inside a browser (better quality than FLV)
- FLV for live play inside a browser.
- OGG Theora High Quality (HQ) and Low Quality (LQ) for download.
- MP3 with a sound only.
- A set of screenshot images taken each minute of the record. View the images and leave only the first and two other nice ones.

Afterwards, the record is published at <http://lectures.ms.mff.cuni.cz>

- Copy the files created by the `video_record` script to the 'lectures' machine in the appropriate directory.
- Enter the admin GUI, create a new record (title, lecturer, annotation), and attach all the files.
- Check the record plays ok.

Ideas for Future

- Replace the video mixer with a new one that
 - accepts VGA (or DVI, ...) so there is no need for VGA to S-Video external conversion,
 - outputs digital data so there is no need for S-Video to Firewire (MPEG2) external conversion.
- Purchase at least one more clip microphone (a lot of lectures is held by more lecturers and it's annoying to change microphones).
- Purchase an ambient microphone to better capture discussions of more people at one moment.
- Try to avoid various analog-digital conversions.

Various Notes

- Video mixer is currently broken! It works only with the sound, not with the video.
- There are no problems with recording when using UFAL's mini notebook (Asus) and data projector (BenQ).
- Be sure to have enough electricity plugs. Sometimes there is need to plug PC speakers or other devices.