

The ICPC Coach View



An ACM ICPC Tool

Introduction

The Coach View (CV) is a software component designed to provide the ability for spectators (coaches as well as other interested people) to view either or both of a selected team's desktop (machine screen) or web camera during a contest. It requires that the Contest Administrator configure desktop and/or webcam streaming from team machines during the contest, and also requires configuring the CV software to access the video streams.

Video streams can be accessed from one of two sources: directly from the team machines, or via a service provided by a [Contest Data Server](#). In either case, the Coach View system provides the ability for a coach to select a specific team by name or team number and to view either or both of that team's desktop and webcam video feeds.

Installing the Coach View

To install the Coach View software, download a copy of the latest version from the [ICPCTools web page](#) and unzip it into any convenient directory. That's it!

Configuring the Coach View

The unzipped Coach View contains ...

Configuration Using a Contest Data Server (CDS)

When using a CDS, the Coach View is configured by ...

Configuration Using Direct Access

When not using a CDS, the Coach View is configured by ...

Starting the Coach View

Instructions here on how to start and run the CV ...

Appendix A: Setting up Video Streaming on Team machines

In order for the Coach View to be able to provide access to team desktops and/or webcams, two things must be done. First, the Coach View software must be told how to access team desktop and/or camera feeds. Second, the Contest Administrator must arrange for team machines to generate appropriate video streams on the ports which are specified in the Coach View configuration.

Any mechanism can be used to generate the video streams on the team machines. At the World Finals, the free open-source package called **VLC** is used. Specifically, each team machine has VLC installed, and two instances of VLC are running on each team machine: one to generate the team desktop stream, and a second to generate the team webcam stream. The commands used to generate these streams are shown below.

Note that while this works at the World Finals, it is possible you will have to do some tweaking to get it to work in your environment. In particular, for example, the commands contain references to specific image resolutions. In addition, note that the commands are run using Linux "sudo" at the World Finals. That is, the actual command used is

```
exec /usr/bin/sudo -u camera -H vlc_command > /dev/null 2>&1 &
```

where *vlc_command* represents the VLC command shown below.

In any case, the commands shown below will hopefully be enough to point you in the proper direction.

Team WebCam Streaming

The following VLC command is used at the World Finals to start a stream on port 8080 containing the team's web camera output:

```
vlc -I dummy -q v4l2:///dev/video0:width=1280:height=720:aspect-ratio="16:9" :input-slave=alsa://plughw:1,0 --sout '#transcode{venc=x264{keyint=15},vcodec=h264,vb=0,scale=0,fps=30,acodec=mpga,ab=128,channels=2}:http{mux=ts,dst=:8080}'
```

Team Desktop Streaming

The following VLC command is used at the World Finals to start a stream on port 9090 showing the team's desktop:

```
vlc -I dummy -q screen:// --screen-fps=30 --sout  
"#transcode{venc=x264{keyint=15},vcodec=h264,vb=0}:http{mux=ts,dst=:9090/}"
```