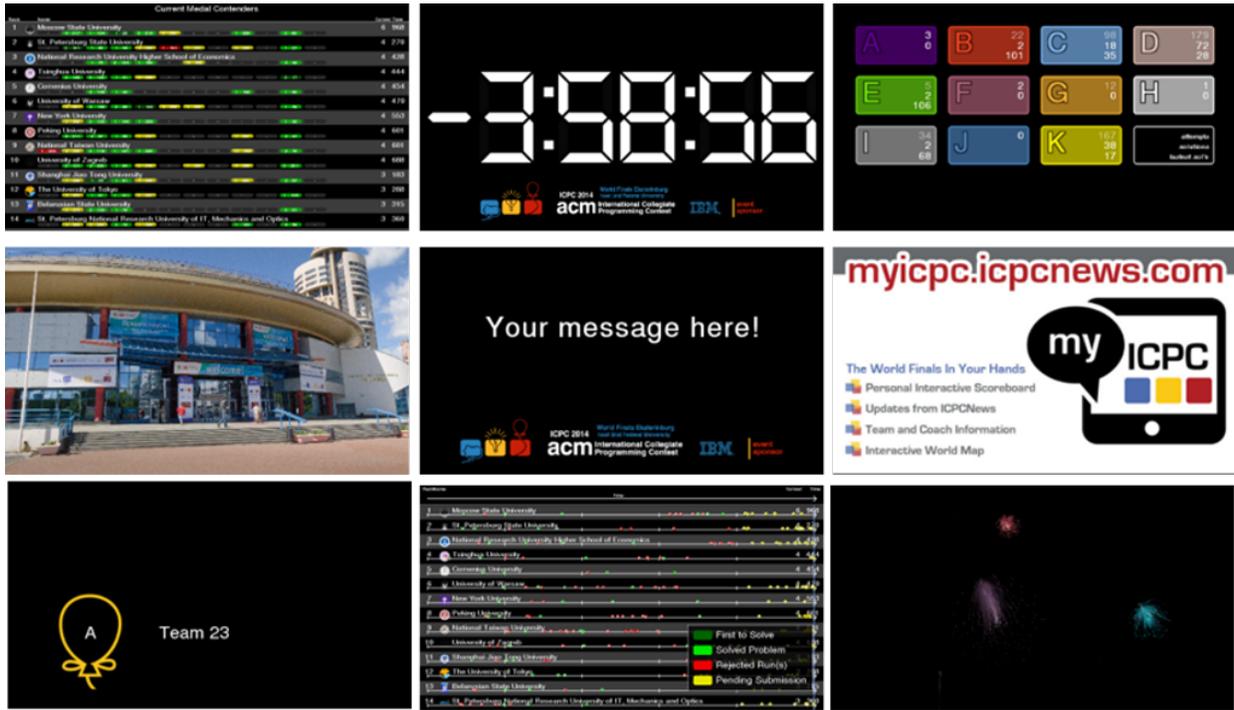# The ICPC Presentation Client

An ACM ICPC Tool

Introduction

The ICPC Presentation System provides a mechanism for generating "slide show" presentations containing user-provided images, photos, and a variety of live data from a running contest. The Presentation System consists of two components: *Presentation Clients* and the *Presentation Admin*. This document describes the Presentation Client component; refer to the separate documentation on the Presentation Admin for an explanation of how that component operates.

A Presentation Client is a single process which displays (rotates between) one or more *presentations*. The Presentation System contains a wide variety of built-in presentations, each of which is identified by having both a *number* and a *title* (also referred to as its *name*). Each presentation client is started by giving it a list of the presentations (by number or title) that the client should display. It is allowable to start multiple simultaneous presentation clients, each displaying its own (possibly overlapping) set of presentations. Each separate presentation client is typically run on a separate machine, with each machine connected to a projector or large display to allow many people to watch. (At the ICPC World Finals, for example, as many as 10 or more separate screens are displayed, each running its own specified sequence of presentations.)

Some built-in presentations incorporate data from a running contest. For example, one presentation knows how to display the current contest scoreboard, updating it as the contest progresses; another displays a rising (animated) balloon, labeled with the appropriate team and problem letter/color, whenever a team solves a problem; another presentation shows a graph of the languages used to solve problems so far in the contest; another shows the runs currently in the "judge's queue" and the judgment each runs receives as it exits the queue; still another presentation shows the current contest clock (remaining time); and so forth.

The following images show some of the many built-in presentations which can be displayed by the Presentation System; see below for a complete list of available presentations.

Input Data Sources

When a Presentation Client is started it must be told, in addition to what presentations to display, where to obtain its input data (images, contest events, etc.). This is referred to as specifying a *contest data source*. Presentation Clients can obtain their input data from three different types of contest data sources: a *contest data package (CDP)*, a *contest control system (CCS)*, or a *contest data server (CDS)*. (A *Contest Data Server* is another ACM ICPC Tool; see the ICPC Tools website for details.)

When connecting to a live Contest Control System, the Presentation Client works by reading the *event feed* output of the CCS The ICPC Presentation System will work with any CCS that produces an event feed which is compliant with the *CLI CCS Specification*. Systems known to produce compliant event feeds include PC-Squared and Kattis; other Contest Control Systems may also produce compatible event feeds and hence work with the Presentation System.

A second way to provide the Presentation Client with input data is by creating a *contest data package* (CDP). A CDP is an arbitrarily-named folder with specific contest-configuration contents; see the above reference for details on CDP structure.

Alternatively, a Presentation Client can obtain its input from a Contest Data Server. A CDS provides URL access points for obtaining event feed and other contest data; starting a Presentation Client with the URL of a CDS causes it to connect to the CDS and pull down the necessary information dynamically. (Note: the CDS must have been configured to connect to a compatible CCS in order for it to supply event feed data to the Presentation Client.)

Using the Presentation Client

Installation

To install the Presentation Client, download and unzip the Presentation Client distribution package to any convenient location. The Presentation Client itself is a collection of Java programs (components). The distribution is a self-contained package which contains all the Java libraries and other components necessary to run the Presentation Client. (Note however that Java itself, version 1.8 or higher, must be installed on the machine.)

Operation

The Presentation Client is designed to run in one of two modes: *standalone* or *admin_controlled*. This document focuses on using the Presentation Client in *standalone* mode. Using the Presentation Client in *admin-controlled* mode requires installing the separate *Presentation Admin* ICPC Tool; that usage is discussed briefly below and is described in greater detail in the separate documentation for the Presentation Admin (a separate ACM ICPC Tool).

Standalone Mode

The Presentation Client distribution includes a script (batch file) named *standalone.bat* which can be used to execute the Presentation Client in standalone mode in a Windows environment. (It would be easy to develop an equivalent script for Linux or similar systems; however, see *Additional Notes*, below.) Also, see the Presentation Admin documentation for information regarding a second script, *client.bat*, which is contained in the Presentation Client distribution.

The *standalone.bat* script assumes it is being run from the main Presentation Client folder (i.e., from the folder where the distribution was unzipped). The script is intended to be invoked with a set of command line parameters, which it forwards to the Presentation Client program and which control the operation of the program.

The first parameter to script must be a set of presentation names or numbers, separated by "|"; for example, "2|4|clock" (which requests a presentation sequence consisting of presentation number 2, then number 4, then the presentation named "clock"). Note that the vertical bar character ("|") is significant to many shell programs (command prompts); therefore, Presentation Client arguments containing this character must typically be surrounded by double-quotes.

The second parameter to the script specifies a contest data source. If the second parameter is the name of a folder, the Presentation Client interprets it as the root of a *contest data package (CDP)*, as described above, and it uses the specified CDP to obtain its contest data.

If the second parameter is the keyword "ccs" the Presentation Client expects the next two parameters to specify a host and port, and it attempts to open a connection to an event feed from a Contest Control System at that host and port.

If the second parameter is a URL, the Presentation Client interprets it as the URL of a contest data server; it opens a connection to the specified CDS and reads its input data from the CDS. When the second parameter specifies an HTTPS URL, the Presentation Client expects the next two parameters to specify a user name and password. This user name and password is used to login to a CDS at the specified URL.

To terminate a running presentation, use the mouse to click anywhere on the screen or press Command-Q (Unix) or Ctrl-Q (Windows).

Admin-Control Mode

As described above, the Presentation Client provides support for displaying (rotating between) one or more individual presentations. Each instance of the Presentation Client is limited to this functionality; multiple instances can be started but they have no knowledge of each other, there is no way to coordinate their content other than manually when they are started, and there is no way to change the content of a given Presentation Client except by shutting it down and restarting it.

The ACM ICPC Tool set also includes a separate tool called the *Presentation Admin* (see the ICPC Tool website). The Presentation Admin tool provides functionality for managing multiple Presentation Clients; it allows dynamically changing the content of each of many clients along with additional related functions.

If a Presentation Client is going to be used in conjunction with a Presentation Admin, the Presentation Client must be started in a slightly different way. This is supported by a second script (batch file) named *client.bat*.

Like the *standalone.bat* script, the *client.bat* script assumes it is being run from the main Presentation Client folder (i.e., from the folder where the Presentation **Client** distribution was unzipped), and the script is intended to be invoked with a set of command line parameters which control the operation of the Presentation Client program. In this case, however, the parameters are used to tell the Presentation Client that it is to register itself with a Presentation Admin and to await further instructions from the Admin.

The first parameter to the client.bat script is a client-specific identifier (typically a number) specifying the identity of the client being started (this ID value is used to uniquely identify this particular Presentation Client to the Presentation Admin). The second script parameter must be the URL of a Contest Data Server to which the client should connect and from which it will receive Admin commands (the Presentation Admin will connect to the same CDS and issue commands to it which the CDS forwards to designated Presentation Clients). The third and fourth parameters to the client.bat script are the login user name and password for the CDS.

Usage

The general form for executing the Presentation Client in standalone mode is

```
standalone.bat/sh  <presentationList> <contestSource> [options]
```

where

```
<presentationList> is one or more presentation names or ids, separated by |

<contestSource> is either an HTTP URL to connect to a CDS
                or an HTTPS URL to a CDS, followed by user and password
                or "ccs" to connect to a CCS, followed by host and port
                or [folder] to load from a contest data package archive folder

[options] can be "--display <num>", where <num> is which desktop display to use
                in full-screen exclusive mode. The primary display is number 1,
                secondary is number 2, etc. If this option is not specified
                the default is the primary display.
```

The general form for executing the Presentation Client in admin-controlled mode is

```
client.bat/sh id CDSurl user password
```

where

```
id is an arbitrary name used to identify this client
CDSurl is an HTTPS CDS URL
user and password are your HTTPS credentials
```

Examples

```
standalone.bat "logo|pictures" https://cds user pwd
```

The above command starts the Presentation Client, causes it to connect to a CDS at the specified URL using the specified user name ("user") and password ("pwd"), and begins alternating between two presentation displays: the first consisting of the ACM ICPC Contest Logo, the second consistng of a set of pictures obtained from the appropriate CDS URL.

```
standalone.sh scoreboard ccs ccsServer 4713 --display 2
```

The above command starts the Presentation Client, causes it to connect to a live Contest Control System on the host named "ccsServer" at port 4713, and begins displaying the "scoreboard" presentation,

updating as information comes in from the live CCS connection. The presentation is shown on the secondary display.

```
standalone.bat "1|3|16" c:\myContestCDP
```

The above command starts the Presentation Client, causes it to load contest information from the Contest Data Package whose root is the folder "c:\\myContestCDP", and begins alternating between presentations 1, 3, and 16.

```
client.sh Client1 https://contestDataServer user pwd
```

The above command starts a Presentation Client in admin-controlled mode, causing it to connect to the CDS specified by the URL *https://contestDataServer* logging in with the name "user" and the password "pwd" and registering itself with the Presentation Admin as "Client1". The Presentation Client then remains quiescent with a blank screen until it receives a command from a Presentation Admin (forwarded via the CDS) telling it what to display.

Available Presentations

The Presentation System contains a variety of built-in presentations which can be displayed by Presentation Clients. (It is also possible for users to create their own presentations, both static and dynamic, and to include them into the ICPC Presentation System; a future version of this document will provide information on how that works.) Some of the available presentations are listed in the table below, which shows their identifying number and name, the internal specification by which they are known, and notes on their operation. (Note that some presentations are only useful when used in conjunction with the Presentation Admin.)

Number	Name	Internal Id (org.acmicpc.presentation.contest)	Notes
1	Balloons	.balloon	Displays a balloon whenever a team solves a problem.
2	Bill Poucher	.bill	The venerable ICPC Executive Director.
3	Chart - Languages	.chart.language	
4	Chart - Problem detail	.chart.problem.detail	

Number	Name	Internal Id (org.acmicpc.presentation.contest)	Notes
5	Chart - Problem summary	.chart.problem.summary	Shows attempts, solutions, and fastest solution time for each problem.
6	Chart - Scoreboard	.chart.scoreboard	The current contest standings; scrolls through all teams and updates dynamically as new data arrives.
7	Chart - Total Problems	.chart.total.problems	
8	Contest clock	.clock	The contest clock (time remaining in the contest).
9	Countdown	.countdown	A countdown clock, initialized by data in the contest event feed.
10	Do not touch anything	.doNotTouch	
11	Fireworks	.fireworks	
12	First solution	.first.solution	Tracking the first solution.
13	First to solve	.first.to.solve	First to solve each problem.
16	Judge queue	.judge	The judgement queue: shows all incoming runs and what the result is.
17	Leaderboard	.leaderboard	
19	Logo	.logo	Displays the contest logo.
20	Logo 2	.logo2	Displays the contest logo.
21	Message	.message	Displays a message and contest banner. The message is set via a property in the Presentation Admin.

Number	Name	Internal Id (org.acmicpc.presentation.contest)	Notes
23	Photo	.single.photo	Displays a single photo, taken from the CDP/present folder in file *photo.jpg*.
24	Pictures	.photos	Displays a rotating set of pictures found in the CDP/present/photos folder.
25	Problem summary	.problem.summary	
26	Promotions	.promo	Displays a rotating set of promotional images.
27	Group leaderboard	.leaderboard.group	
28	Scoreboard	.scoreboard	Contest scoreboard.
30	Single Team	.contest.team	Displays a team photo and name. The team id is set via a property in the Presentation Admin.
31	Solved	.contest.solved	
33	Team Display	.team.display	Display for team machines, shows the team logo and name. The team is is set via a property in the Presentation Admin.
34	Team Pictures	.teampics	
35	Test - Alignment	.test.align	A grid to help with projector alignment.
36	Test - Clock	.test.clock	The current system time (on the presentation machine).
37	Test - Synchronization	.test.sync	A moving ball to test synchronization of the system clock.

Additional Notes

The Presentation System is written in Java and will run on any platform supporting Java Version 7 or greater. However, it makes heavy use of screen-level graphics and is therefore heavily dependent on the graphics drivers on the platform. In our experience, Linux graphics drivers tend to be substantially less robust than others; we have had much better success running the Presentation components on Windows platforms. Your mileage may vary (substantially).