The ICPC Presentation Client

An ICPC Tool

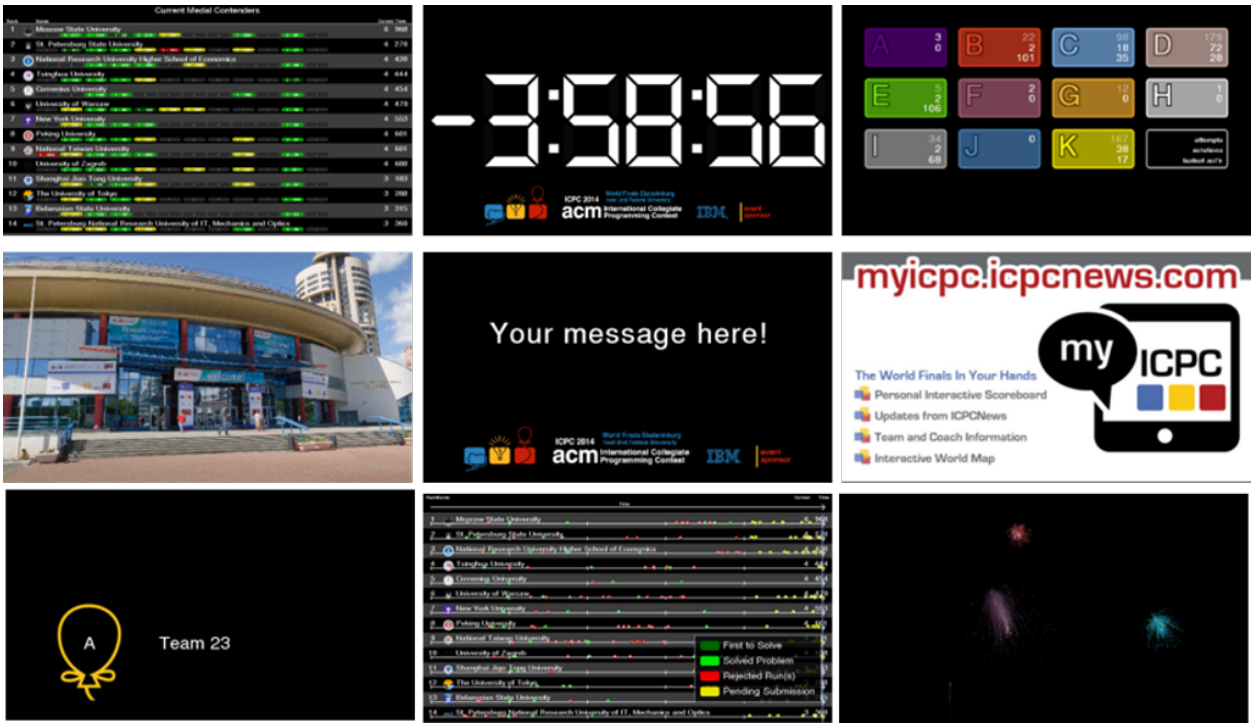
Introduction

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 two different types of contest data sources: a compliant *Contest API*, or a a *contest data package (CDP)*.

When connecting to a live Contest Control System via the Contest API, the Presentation Client works by reading the *event feed* output of the CCS. The ICPC Presentation System will work with any CCS or the CDS that produces an event feed which is compliant with the Contest API Specification. Tools known to produce compliant event feeds include Contest Data Server, DOMjudge, 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.

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 ICPC Tool).

Standalone Mode

The Presentation Client distribution includes a set of scripts which can be used to launch the program, standalone.bat for Windows platforms and standalone.sh for macOS and Linux. (for Linux or similar systems 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* 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 control the operation of the program.

The first 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 a URL, the Presentation Client interprets it as the URL of a Contest API server; it opens a connection to the specified server and reads its input data. The Presentation Client expects the next two parameters to specify a user name and password. This user name and password are used to login to the Contest API.

The next parameter must be the "–p" option followed by a set of presentation names or numbers, separated by spaces; for example, "2 4 clock" (which requests a presentation sequence consisting of presentation number 2, then number 4, then the presentation named "clock").

To terminate a running presentation, press Ctrl-Q.

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 ICPC Tool set also includes a separate tool called the *Presentation Admin* (see the ICPCTools 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* script, the *client* 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 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 contestURL user password [options], or
standalone.bat/sh contestPath [options]
```

where

```
contestURL is an HTTPS URL to connect to a CDS, followed by user and password

contestPath is a local file or folder to load from a contest data package archive
```

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

```
client.bat/sh CDSurl user password [options]
```

where

```
CDSurl is an HTTPS CDS URL, followed by user and password
```

Command Line Options

`--p <presentations>`

Standalone client only. Any number of parameters specifying the presentation(s) to display. Each parameter must by a number or partial presentation name. For example, “2 4 clock” which requests a presentation sequence consisting of presentation number 2, then number 4, then the presentation named “clock”. Run without any options to see the list of available presentations.

`--name <name>`

Admin-controlled client only. Specifies a name to refer to this client in the admin, e.g. “Stage right” or “Hallway”.

`--display <num>`

Specifies 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.

`--multiDisplay <p@wxh>`

Specifies that this client is part of a presentation stretched across multiple client displays. The format of the parameter is “position @ width x height”, where width and height are the number of displays horizontally and vertically, and position starts at 1 in the top left and is incremented horizontally. For example, use "2@3x2" to indicate this client is position 2 (top middle) in a 3x2 grid.

`--fps`

Shows the frame rate on screen.

`--style <style>`

Allows you to change the way team names are displayed using a template with the following parameters: - “{team.display_name}” - The team’s display name, e.g. “drop tables”. If there is no display name the team name will be used. - “{team.name}” - The team’s name, e.g. “drop tables”. - “{org.name}” - The organizations name, often a short form, e.g. “UBC”. - “{org.formal_name}” - The full organization name, e.g. “University of Toronto”. If there is no formal name the organization name will be used.

Examples: - —style “{team.display_name}” - —style “{team.name} - {org.name}” - —style “{org.formal_name} ({team.name})”

Examples

```
standalone.bat https://cds user pwd --p logo pictures
```

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 ICPC Contest Logo, the second consisting of a set of pictures obtained from the appropriate CDS URL.

```
standalone.bat c:\myContestCDP --p 1 3 16
```

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 https://contestDataServer user pwd --name "Site 2"
```

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 "Site 2". 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 the numbers will be different, and some presentations are only useful when used in conjunction with the Presentation Admin.)

Available presentations: # | Name | Id | Description –: | —- | — | — Beta 1 | Better Fireworks | .better.fireworks 2 | Contest Floor | .floor | Shows the contest floor and all the teams competing 3 | Floor Activity | .old.floor | Displays the contest floor Chart 4 | Historical comparison | .chart.historical 5 | Judge Queue Depth | .chart.queue.depth 6 | Judgement time | .chart.judgement.time 7 | Languages | .chart.language 8 | Problem comparison | .chart.problem.comparison 9 | Problem detail | .chart.problem.detail 10 | Problem summary | .chart.problem.summary | Shows attempts, solutions, and fastest solution time for each problem. 11 | Scoreboard | .chart.score | Shows position of contest leaders through the contest. 12 | Total Problems | .chart.total.problems Clock 13 | Contest clock | .clock | The contest time remaining. 14 | Countdown | .countdown | A countdown clock for start and end of a contest. 15 | Polar countdown | .polar | A polar countdown clock for start and end of a contest. Fun 16 | Bill Poucher | .bill | The venerable ICPC Executive Director. 17 | Do not touch anything | .doNotTouch | A pre-contest message from the ICPC World Finals Systems Director. 18 | Fireworks | .fireworks 19 | Mohamed Fouad | .mohamed ICPC 20 | Balloon Path | .balloon.path | Contest floor showing moving submissions and balloons 21 | Fading Logos | .org.logo.fade | Shows the logos of all organizations by fading between them 22 | Logo Wall | .org.logo.wall | Shows all organization logos 23 | Photo and caption | .single.photo | The photo at CDP/present/photo.jpg and an optional message. 24 | Photos | .photos | A rotating set of photos found in CDP/present/photos/. 25 | Problem Colours | .problems.colors | The problem colors 26 | Problem summary | .problem.summary 27 | Single Team | .team | A team photo and name. 28 | Sliding Logos | .org.logo.slide | Slides the logos of all organizations 29 | Staff | .staff | ICPC staff titles Logos and Messages 30 | CCS | .ccs | The primary (and optional shadow) CCS images found in CDP/present/ccs/primary.png and shadow.png. 31 | ICPC Tools | .icpc.tools | The ICPC Tools logo 32 | Image progression | .imagebuild | Fades through a set of images in progression (CDP/present/path*). 33 | Logo A | .logo | Displays the contest logo (CDP/present/logoA*.png). 34 | Logo B | .logo2 | Displays the contest logo (CDP/present/logoB*.png). 35 | Message | .message | A message and contest banner. 36 | Promotions | .promo | A rotating set of promotional images found in CDP/present/promo/. Maps 37 | Group | .map.group | Shows where groups are from on a map. 38 |

Submissions | .map.balloon | A world map with team submissions coming from their location 39 | Team Intro | .map.team | Steps through all teams on a map. 40 | World | .map.world | Map of the world. Scoreboard 41 | All Groups leaderboard | .leaderboard.group.all 42 | First solution | .first.solution | Tracks the first solution in the contest. 43 | First to solve | .first.to.solve | Shows which team was the first to solve each problem. 44 | Group leaderboard | .leaderboard.group 45 | Judge queue | .judge | The judgement queue. Shows all incoming submissions and the judgement. 46 | Leaderboard | .leaderboard 47 | Scoreboard | .scoreboard | The current contest standings. 48 | Team Judgements | .judge.team | A team judgement queue. Shows all incoming submissions and the judgement. 49 | Timeline | .scoreboard.timeline Team 50 | Desktop | .icpc.team | Team machine desktop display. Shows the team logo and name. 51 | Logo | .icpc.logo | The ICPC identifier. 52 | Snake | .icpc.team.snake | Wave based on team labels 53 | Sync | .icpc.sync | Flashing ICPC in sync. 54 | Video test | .icpc.team.video | A tool to verify video. 55 | Wave | .icpc.team.wave | Do the wave! Test 56 | Alignment | .test.align | A grid to help with projector alignment. 57 | BSoD | .test.bsod | A special hello from the other Bill 58 | Chart | .test.chart | A test chart 59 | Clock | .test.clock | The current system time on the presentation machine. 60 | FPS | .test.fps | A frame rate guage 61 | Synchronization | .test.sync | A moving ball to test synchronization of the system clock. Tile Scoreboards 62 | Team scoreboard | .tile.team | Team picture with overlayed scoreboard tile 63 | Tile list | .tile.scoreboard.list | A contest scoreboard listed alphabetically by team 64 | Tile rank | .tile.scoreboard.rank | A ranked contest scoreboard 65 | Tiles | .tile.scoreboard | The current contest standings.

Team Clients

At some contests you may want to run a presentation client on every team machine. If you just want to display static or common content like the contest logo you can do this with the standalone client, e.g.:

```
standalone.bat https://contestSource user pwd --p logo
```

If you want to run more interesting presentations or control from the admin, use the admin-controlled client with the special id 'team':

```
client.sh https://contestDataServer user pwd --name team
```

This will start a client that understands which team it is running on, and can display team-specific presentations. A good example is the "team desktop" presentation, which shows the team's logo and name, contest logo, and contest time.

The client decides which team machine it is running on by checking the following sources:

Source	Example
team-id environment variable	47
team-id system property (would require changing the script)	47
end of host name	teamnum47
end of host address	195.13.4.47

The first source that correctly resolves into a number is used. All of the examples above resolve to team id 47.

Additional Notes

The Presentation System is written in Java and will run on any platform supporting Java Version 8 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 and Mac platforms. Your mileage may vary (substantially).