Event Feed

From ICPC-Contest Control Standard
Jump to:navigation, search

NOTICE: This draft proposal is unlikely to ever be implemented. There is a new CCS REST interface proposal and JSON event feed in progress that has supplanted this draft as the new direction.

The *Event Feed* is an externally-accessible XML feed of contest data supplied by a Contest Control System. The event feed is the primary way that external clients can get the state of a running contest.

Contents

Getting the feed

Connect to port 4713 and the entire feed for the contest will be sent to you. When the contest is finalized, the contest tag will be closed and the connection closed.

Connect to port 4714 and the entire feed for the contest will be sent to you, with the exception that no judgement information will be sent for runs submitted during the last hour. When the contest is finalized, the contest tag will be closed and the connection closed (but you will still not get judgements for runs submitted the last hour).

Information updates

CCSs will typically send all configuration elements, followed by a set of events.

Under some circumstances configuration or event elements may be resent. These circumstances include but are not limited to:

- Changing some contest configuration, such as the start time
- Rejudgements of runs
- Fixing typos in names

Under some circumstances the connection may be dropped. These circumstances include but are not limited to:

- Removal (or reinsertion) of a time interval

When reconnecting, all elements will

If a client reconnects to the event feed it will get all configuration and events from the beginning. The client cannot assume that it will see the exact same elements after a reconnect and should discard any state constructed from the event feed prior to reconnecting.

Top level structure

The event feed is an XML document within the root element `<contest>`.

Within the contest element are a number of configuration items and events, each of which are separate top-level elements:

Event types & tags:

Element	Contains	Type
info	contest information and updates	Configuration
language	submission language information	Configuration
region	superregion information	Configuration
judgement	judgement information	Configuration
problem	problem information	Configuration
team	team information	Configuration
clar-request	clarification request	Event
clar-response	clarification (answers to clarification requests) or broadcast messages	Event
submission	submission from a team	Event
submission-judgement	result of submission from a team	Event
run	judgement of individual input file for a run	Event
finalized	the contest standings/medals are assigned, contest is over	Event

Other elements beyond what is documented here may also be sent, these should be ignored. This applies both at the top level and within the top-level elements.

Notes

1. All child-elements are required unless otherwise documented.
2. All contest-time elements are in decimal seconds.
3. All timestamp elements are in decimal seconds since the Unix epoch, Jan 1st, 1970 00:00:00 UTC.

Configuration elements

Configuration elements will be sent in the beginning of the feed. The exception to this rule is if the data in a configuration element is changed in which case it will be resent

Info

Format:

Name	Description	Type
title	Contest title	xsd:string
length	Length of contest	xsd:string HH:MM:SS
scoreboard-freeze-length	Length of time at the end of the contest when scoreboard is frozen	xsd:string HH:MM:SS
penalty-amount	Penalty time	xsd:int minutes
start-time	Wall-clock start time of the contest	xsd:decimal seconds (timestamp)

Any new info element overrides earlier elements.

Example:

```
<info>
  <title>The 2010 World Finals of the ACM International Collegiate
Programming Contest</title>
  <length>05:00:00</length>
  <scoreboard-freeze-length>01:00:00</scoreboard-freeze-length>
  <penalty-amount>20</penalty>
  <start-time>1265335138.26</start-time>
</info>
```

Language

Format:

Name	Description	Type
name	Language name	xsd:string

Example:

```
<language>
  <name>C++</name>
</language>
```

Group

Format:

Name	Description	Type
name	Group name from groups.tsv	xsd:string

Example:

```
<group>
  <name>Europe</name>
</group>
```

Judgement

Format:

Name	Description	Type
acronym	Judgement acronym	xsd:string
name	Judgement full name	xsd:string
penalty	True if this judgement is a failure that causes penalty time to be added	xsd:boolean

Example:

```
<judgement>
  <acronym>WA</acronym>
  <name>Wrong Answer</name>
  <penalty>true</penalty>
</judgement>
```

Problem

Format:

Name	Description	Child Element/Attribute	Type
label	Problem label, typically a single upper case letter	element	xsd:string
name	Problem name	element	xsd:string

A problem element is identified by it's label. If a problem element with the same label as an earlier element arrives the latter overrides the former.

Example:

```
<problem>
  <label>A</label>
  <name>APL Lives!</name>
</problem>
```

Team

Format:

Name	Description	Type
n	Team number	xsd:int
icpc-id	ID from ICPC registration system. Used to match this team to other resources, such as university logos or team pictures	optional xsd:int
name	Team name	xsd:string
nationality	Country code, ISO 3166-1 alpha-3	xsd:string

university	University name	xsd:string
group	Group name, must match some name given in a group element	optional xsd:string

WF CCS must include icpc-id and group. This requirement should be put in CCS document

A team element is identified by it's team number. If a team element with the same team number as an earlier element arrives the latter overwrites the former.

Example:

```
<team>
  <n>1</n>
  <icpc-id>23412</icpc-id>
  <name>American University of Beirut</name>
  <nationality>LBN</nationality>
  <university>American University of Beirut</university>
  <group>Europe</group>
</team>
```

Event elements

Clarification request

The clar-request event is sent when a team submits a clarification request.

Format:

Name	Description	Type
id	Clarification Request ID	xsd:int
team-number	Team ID	xsd:int
question	A question, typically from a team	xsd:string
category	Clarification category	xsd:string
contest-time	Contest-time when the clarification was submitted	xsd:decimal
timestamp	Wall-clock time when the clarification was submitted	xsd:decimal

Example:

```
<clar-request>
  <id>1</id>
  <team-number>0</team-number>
  <question>What is the upper limit on the number of pieces of chocolate
requested by the friends?</question>
  <category>Problem C</category>
  <contest-time>118.48</contest-time>
  <timestamp>1265335256.74</timestamp>
</clar-request>
```

Clarification response

The clar response event is sent when a clar request has been answered.

Format:

Name	Description	Type
clar-request-id	Clarification Request ID	xsd:int
question	A question, typically from a team	xsd:string
answer	Judge's answer to the question	xsd:string
to-all	True if the response was sent to all teams	xsd:boolean
contest-time	Contest time when the response was submitted	xsd:decimal
timestamp	Wall-clock time when the response was submitted	xsd:decimal

Example:

```
<clar-response>
  <clar-request-id>1</clar-request-id>
  <question>What is the upper limit on the number of pieces of chocolate
requested by the friends?</question>
  <answer>The number of pieces will fit in a signed 32-bit integer.</answer>
  <to-all>true</to-all>
  <contest-time>118.48</contest-time>
  <timestamp>1265335256.74</timestamp>
</clar-response>
```

Submission

An event sent whenever a team makes a submission.

Format:

Name	Description	Type
id	Submission ID	xsd:int
team-number	Team Number	xsd:int
problem-label	Problem label	xsd:string
language	Language name	xsd:string
contest-time	Contest time when the run was submitted	xsd:decimal
timestamp	Wall-clock time when the submission was made	xsd:decimal

Example:

```
<submission>
  <id>1410</id>
  <team-number>74</team-number>
  <problem-label>D</problem-label>
  <language>C++</language>
  <contest-time>17960.74</contest-time>
  <timestamp>1265353100.29</timestamp>
</submission>
```

Submission judgement

A run judgement event is sent whenever a judgement has been assigned to a run.

Format:

Name	Description	Type
submission-id	Submission ID	xsd:int
judgement	Judgement acronym	xsd:string
contest-time	Contest time when the judgement was assigned	xsd:decimal
timestamp	Wall-clock time when the judgement was assigned	xsd:decimal
scoreboard-update	Information about scoreboard row updated as a result of this judgement	element

Format of element scoreboard-update:

Name	Description	Type
sort-key	Sort key that represents the scoreboard in descending order. I.e. the row with the highest sort key represents the team currently in the lead. Sort keys are equal if and only if position is tied. Sort key for rows not yet seen (i.e. representing teams with no judgements so far) is zero.	xsd:integer
team	Team number. Must always be the same as the team number for the submission event with submission id as in the parent element. Is repeated here for simplicity for clients	xsd:int
solved-count	Number of solved problems	xsd:int
time	Total penalty time	xsd:int
problem	Scoreboard data for a problem	element

Format of element problem:

Name	Description	Type
label	Problem label, typically a single upper case letter. Must match label given in some earlier problem element. Only problems where information is not false and zeroes must be listed. A label may only occur once in a given scoreboard-update	xsd:string
solved	Is problem with associated label solved by associated team	xsd:boolean
subs	Number of submissions on problem by team	xsd:string
time	Total penalty time on problem	xsd:string

Example:

```
<submission-judgement>
  <submission-id>1410</submission-id>
  <judgement>WA</judgement>
  <contest-time>179.74</contest-time>
  <timestamp>1265353100.29</timestamp>
  <scoreboard-update>
    <sort-key>12345</sort-key>
    <team>23</team>
    <solved-count>9</solved-count>
    825
    <problem>
      <label>A</label><solved>true</solved><subs>3</subs>123
    </problem>
```

```
    <problem>
      <label>B</label><solved>true</solved><subs>3</subs>123
    </problem>
    <problem>
      <label>C</label><solved>true</solved><subs>3</subs>123
    </problem>
    <problem>
      <label>D</label><solved>true</solved><subs>3</subs>123
    </problem>
    <problem>
      <label>E</label><solved>true</solved><subs>3</subs>123
    </problem>
  </scoreboard-update>
</submission-judgement>
```

Run

A run event is sent when a submission is judged against an input file.

Format:

Name	Description	Child Element/Attribute	Type
submission-id	Submission ID of submission that this run is part of	attribute	xsd:int
idx	Input file index (1-based)	attribute	xsd:int
count	Total number of input files	attribute	xsd:int
judgement	Judgement acronym. Must match an acronym given in some earlier judgement element	element	xsd:string
contest-time	Contest time when the test was judged	element	xsd:decimal
timestamp	Wall-clock time when the test was judged	element	xsd:decimal

Example:

```
<run>
  <submission-id>1</run-id>
  <idx>1</idx>
  <judgement>WA</judgement>
  <count>1</count>
  939.751724958
  <timestamp>1265336078.01</timestamp>
</run>
```

Finalized

The finalized event is sent when the contest is finalized.

Format:

Name	Description	Type
timestamp	Wall-clock time when the contest was finalized	xsd:decimal seconds

last-gold	The last place to receive a gold (should always be 4 for a compliant system)	xsd:int
last-silver	The last place to receive a silver (should always be 8 for a compliant system)	xsd:int
last-bronze	The last place to receive a bronze (should often be 12 but could very possibly be something else)	xsd:int
comment	A comment provided during the finalization	xsd:string

Example:

```
<finalized>
  <timestamp>1265336078.01</timestamp>
  <last-gold>4</last-gold>
  <last-silver>8</last-silver>
  <last-bronze>12</last-bronze>
  <comment>Finalized by John Doe and Jane Doe</comment>
</finalized>
```

Change List

The following is a list of behavioural changes from the 2014 event feed:

- Removed <started> boolean from <info>
- Removed <id> from <language>
- Renamed <run> to <submission>
- Renamed <testcase> to <run>

Navigation menu

- Help

Search

Go Search

Tools

- What links here
- Related changes
- Special pages
- Permanent link
- Page information

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