

Rules of Soccer Simulation League 2D

(RoboCup2016 Leipzig, Germany)

This document contains the rules for the RoboCup2016 Soccer Simulation League 2D competition in Leipzig, Germany.

1. Soccer Simulator

RCSSServer version 15.3.0 will be used. **The default server configuration files (server.conf and player.conf) generated by RCSSServer 15.3.0.**

Note that the number of halves and the switch of penalty shootouts will be changed according to the round.

2. Machines Configurations

Every team will be allowed to use **two machines** for their game. Teams can only use Linux operating system. Teams cannot use the competition machines to hack their program, but two machines will be available for testing.

2.1 Operating System

Linux (Ubuntu 12.04 64bit) will be used.

3. Schedule

June	28	League setup
	29	League setup Team setup Team leaders' meeting & Draw (19 teams)
	30	Seeding round-robin (no elimination): 4 Seeding Groups A-D of 4-5 teams Preliminary round-robin (4 groups E-H of 4-5 teams, with top 4 teams in each group advancing to the next round (groups I and J); and each last team from the groups with 5 teams will be relegating to the Z group and play-offs)
July	1	Qualifying round-robin (I and J): two parallel groups of 8 teams, with top 4 teams in each group advancing to the main round-robin group K (1-8), and the bottom 4 teams in each group going to the consolation round-robin group L (9-16) Group Z round-robin with 3 teams (17 – 19) TC Election & Roadmap discussion

2	<p>Final round-robin group K (1-8)</p> <p>Consolation round-robin group L (9-16)</p> <p>Voting for Best TDP at 17:30</p> <p>Evaluation Challenge: Each team from groups K and L will play one game against last year's champion (WrightEagle2015). The game will have no extra halves or penalty shootouts, and it will end automatically after 6000 cycles. The best result will win the challenge trophy. As a tiebreaker, if two or more teams achieve the same goal difference against WrightEagle, the team which scores more goals, has a better rank. If two or more teams win with the same score, the K-L ranking will be used as a tiebreaker.</p>
3	<p>Consolation play-offs (one game each): L7-L8 (15th), L5-L6 (13th), L3-L4 (11th), L1-L2 (9th)</p> <p>Semifinals: K1-K4 (twice) and K2-K3 (twice). If either the first or the second game finishes in a draw, no extra time or penalties will be played in that game. If after the end of both games the total goal difference between teams is zero, a third game will be started, which if drawn, will continue to extra time and penalties.</p> <p>Final play-offs (one game each): K7-K8 (7th), K5-K6 (5th), LSF1 – LSF2 (3rd), WSF1-WSF2 (1st)</p> <p>All play-offs are decided in one game, which if drawn, will continue to extra time and penalties.</p>

The detailed schedule will be determined at the competition site.

4. Tournament Formats

4.1 Automatic Matches

All matches will be started automatically by the league manager script (or by human referee). Please note these important points:

- Teams are only allowed to update their binaries by 30 minutes before the first game starts in a day.
- You need to provide proper start scripts. Sample scripts will be given in the top of your home directory (e.g. /home/helios/start). Please have a look at them and modify them so that your team starts using the scripts. It should be fairly easy to adapt them for your team.
- In order to test the automatic running games script (the league manager), teams have to finish testing their binaries and scripts on a competition machine **on June 29th**.
- Scripts will be executed by a different user in your user group. Your scripts and your team have to be at least group readable and be executable.
- The scripts should use absolute paths or change to the respective directories.
- Double check that your kill scripts kill all of your programs (goalie, players, and coach) even if your programs terminate automatically.

- Beside the games from round-robin groups, the penalty shootouts will be started automatically after two extra halves if the game ends with a draw, and a winner must be determined after that game. Please make sure your team can handle this.
- If the scripts do not work properly, the organizers will not fix them.
- Do **NOT** output many data to stdout, stderr and files in your home directory because it might cause a serious network delay.
- Do not change the team name during the tournament. The team name that is used in the first match of each team must be kept unchanged. Violating this rule may cause disqualification in the current and/or the following RoboCup competitions.

4.2 Binary Publication After Competition

Teams will be published automatically after the competition. To help us with publishing your team, please create a tar.gz file before the final round and rename it to /home/[teamdir]/[teamdir].tar.gz. In case a team fails to provide this file, we will publish the complete home directory of that team. Also, it may cause disqualification in the following RoboCup competitions.

5. General Tournament Rules

The 2D competition will consist of 19 teams (as of April 4, 2016).

5.1 Forfeit rules:

- a) if a team notifies the Organizing Committee that it does not want to participate in any scheduled game against a particular opponent, then the team is disqualified from the competition, and the rankings are adjusted by improving the ranks of all teams placed below the forfeiting team by one;
- b) if a team fails to start in any game, then the game proceeds with an automatic kick-off, and the final score achieved by the opponent stands as the actual score, but the team that failed to start is not disqualified;
- c) if a team violates gentlemanly rules (e.g., places too many static defenders in front of the goal, etc.), then the score is assigned 30:0 to the opponent, but the offending team is not disqualified from the competition;
- d) if a team's binary is not available before a scheduled game, then the score is assigned 30:0 to the opponent, but the offending team is not disqualified from the competition.

Examples of (a) - the forfeit rule:

- a.1) if team X refuses to play opponent Y (for whatever reason) in a group stage (by notifying the organizers before the group's round), then team X is disqualified, and is removed from the standings, with other teams proceeding to play in the round; the previous rounds that have finished before the forfeit will still include the scores of the disqualified team.
- a.2) if team X refuses to play opponent Y (for whatever reason) in an N-th place play-off, with $N \geq 1$, then team X is disqualified, and is removed from the standings, the opponent Y gets the N-th place, other play-offs proceed as normal, but other teams with rankings below N get their rankings improved by 1. For instance, if team X refuses to play opponent Y in the final, then Y gets the first

place without playing, and teams A and B which played for 3rd place, get their rankings improved by 1, the winner becomes vice-champion, and the loser takes the 'bronze'.

5.2 The setup of the tournament

- In the group rounds, there will be 3 (three) points allocated for a win and 1 (one) point for a draw.
- The order of teams within a round-robin group is to be randomised, before the games begin.
- Seeding round groups A-D consist of 4 or 5 teams. The top four participating teams of RoboCup2015 (HELIOS, Gliders, Oxsy, HERMES) are randomly seeded in A-D. If we miss any of these four teams in the competition, the committee will decide which team will be seeded next. The other teams are randomly assigned to the groups by drawing lots.
- In Preliminary Round groups E-H, the teams are distributed to four groups of 4 or 5 teams, where each team plays against all other teams in the same group. The assignment of a team to a group is based on the ranking of the seeding round (A-D) as follows:
 - Group E: A1, B4, C3, D2, A5
 - Group F: A2, B1, C4, D3, B5
 - Group G: A3, B2, C1, D4, C5
 - Group H: A4, B3, C2, D1
- In Qualifying Round groups E-H, teams are distributed to two groups of 8 teams, where each team plays against all other teams in the same group. The assignment of a team to a group is based on the ranking of the preliminary round (E-H) as follows:
 - Group I: E1, G1, F2, H2, E3, G3, F4, H4
 - Group J: F1, H1, E2, G2, F3, H3, E4, G4
- The top four teams of Qualifying Groups I and J (I1, I2, I3, I4, J1, J2, J3, J4) will be assigned to Group K and the other eight teams will be assigned to Group L (I5, I6, I7, I8, J5, J6, J7, J8), with each team playing against all other teams in the same group.
- Group Z with 3 teams (A5, B5, C5), where each team plays against all other teams. The final ranking will determine the place of each team (17th-19th).
- Evaluation challenge consists of one game between each team from groups K and L and the last year's champion (WrightEagle2015). The games will have no extra halves or penalty shootouts, and they will be end automatically after 6000 cycles. The best result will win the challenge trophy. As a tiebreaker, if two or more teams achieve the same goal difference against WrightEagle, the team which scores more goals, has a better rank. If two or more teams win with the same score against the last year's champion, the K-L ranking will be used as a tiebreaker.
- Consolation playoff matches are held based on the results of the L round-robin matches as follows: L7 vs L8 (for 15th place), L5 vs L6 (for 13th place), L3 vs L4 (for 11th place), and L1 vs L2 (for 9th place).

- Semifinals are held between the top four teams of group K. The semifinals include two games between K1 and K4 and two games between K2 and K3. Both games of each semifinal will have no extra halves or penalty shootouts. If after the end of both games the total goal difference between the teams is zero, a third game will be started which will continue, if drawn, to extra time and penalties.
- Final playoff matches are held based on the results of the K round-robin and semifinals matches as follows: K7 vs K8 (for 7th place), K5 vs K6 (for 5th place), LSF1 vs LSF2 (for 3rd place), and WSF1 vs WSF2 (for the championship).

6. Tiebreakers

Tiebreakers between more than one teams in the group rounds will apply in the following priorities:

1. Points
2. Head-to-head results
 1. If a tie is only for two teams, the tie is broken if and only if the head to head match was not a draw. If there are more than two teams in the tie, the tie is broken if and only if one team won against all the other teams in the tie.
3. Overall goal difference for the round
4. If there are more than two teams in a tie, overall goal difference including only games with the tied teams
5. Overall number of goals scored
6. If there are more than two teams in a tie, overall number of goals scored including only games with the tied teams
7. One game between the tied teams will be started which will continue, if drawn, to extra time and penalties.

If more than two teams are tied, then the above list of tiebreakers is used until only one team is put first. That one team is ranked first and the remaining teams are grouped into another tiebreaker, and the criteria above are applied again from the beginning of the list.

7. Automatic Penalty Shootouts Procedure

To resolve tie-breaks in the group rounds, or the draw in the playoff matches or wherever it will be necessary, penalty shootouts will be used. Note that the penalty shootout will be held automatically in the case of the draw after two extended halves in the playoff matches or in the third game of the semifinal, only if this game is necessary to determine the winner. In the round robin games, automatic penalty shootouts are not used. For penalty shootouts, we are going to use these parameters:

pen_dist_x: 42.5 (The ball will be placed 42.5m from the goal)

pen_allow_mult_kicks: true (allow multiple kicks so normal play)

pen_taken_wait: 200 (the number of cycles waited after start pen is 200)

(This means that the kicker starts 42.5 meters from the goal and can use dashes, turns and kicks. After at most 200 cycles, the shootout is stopped for the kicker).

PLEASE SEE THE SPECIFICATION IN THE NEWS FILE FOR MORE INFORMATION ABOUT PENALTY SHOOTOUTS.

8. Code of Honor

8.1 Coach Messages

The coach can issue arbitrary “freeform” messages during non-play-on mode. The coach can send one advice, one info, and one define, every 30 seconds – the rest will be ignored by the server. Therefore, the coach should not send more than three of those standard-language directives per 30 seconds, so as not to flood the network.

8.2 Fouls

Free kicks and kick-ins are detected automatically by the soccer server in many relevant cases. Sometimes, however, fouls occur which can only be detected by the human referee who has to award a free kick to the disadvantaged team.

Possible reasons to call a foul are:

- If one team surrounds the ball so that the other team cannot kick
- If the goal is blocked by so many players so that the ball could not go in (rough guideline: a wall of players blocking the goal);
- If a team intentionally blocks the movement of opponent players;
- The number of goalie moves is limited to 2. It is possible to get around this by doing a small kick and catching again. This is allowed once then the referee is required to drop the ball on the closest corner of the penalty box (notice this practice is not encouraged we are just acknowledging the potential for miss-kicks – continual use may be considered violating the fair play commitment);
- Anything else that appears to violate the fair play commitment may also be called as a foul after consultation with the committee.

9. Fair Play

The goal of the game is to play soccer according to fair and common sense understanding of soccer and to the restrictions imposed by the virtual simulated world of the soccer server. Circumvention of these restrictions is considered violating the fair play commitment and its use during the tournament games is strictly taboo.

Violation of the fair play commitment play includes for example:

- Using another teams binaries in your team
- If a team is jamming the simulator by sending more than 3 or 4 commands per client per cycle

- If a team communicates by other means than via the server using the 'say' command, for example by using direct inter-process communication;
- If a team attempts to disturb other teams communication by recording and sending strings of former communication or by attempting to fake communication of the opponent team.

Any of the above is strictly forbidden.

Other strategies might be found violating the fair play commitment, after consultation among the committee. However, we expect it to be pretty clear what a fair team should look like. In particular, the destructive disruption of opponent agent operation or the gain of advantage by other means than explicitly offered by the soccer server count as not fair play. If you are in doubt of using a certain method, please ask the committee before the tournament starts. If a team is found to use unfair programming methods during the tournament, it will be immediately disqualified.

If a team is under suspicion of violating the fair-play agreement, the committee has the right to ask for source code inspection.

10. Participation by a Representative Person

General Remark: *Participation by a Representative Person is only possible in extreme cases.*

We will not have the resources to search for problems in participants' startup procedure, so, in their own interest, representative persons of a team are asked to make sure that a 3rd party (i.e. we) can start up your code easily and smoothly on a platform that might be different from their own development platform.