# **Documentation**

# Event data structure

This part lists all Instat and Wyscout attributes. For the Wyscout attributes there is also a explanation how the attributes are derived from the Instat structure.

## Instat event structure

These are the attributes from the raw Instat event data. Not all attributes are used for the transformation. Some attributes do not always appear, they are still mentioned below but not used in the final transformation.

|  |
| --- |
| Attributes |
| id |
| uid |
| number |
| action\_id |
| action\_name |
| player\_id |
| player\_name |
| team\_id |
| team\_name |
| half |
| second |
| standart\_name |
| ts |
| dl |
| position\_id |
| position\_name |
| opponent\_id |
| opponent\_name |
| opponent\_team\_id |
| opponent\_team\_name |
| opponent\_position\_id |
| opponent\_position\_name |
| zone\_id |
| zone\_name |
| zone\_dest\_id |
| zone\_dest\_name |
| pos\_x005f\_x |
| pos\_y |
| pos\_dest\_x005f\_x |
| pos\_dest\_y |
| len |
| possession\_id |
| possession\_name |
| possession\_team\_id |
| possession\_team\_name |
| possession\_time |
| possession\_number |
| direction |
| attack\_status\_id |
| attack\_status\_name |
| attack\_type\_id |
| attack\_type\_name |
| attack\_flang\_id |
| attack\_flang\_name |
| attack\_team\_id |
| attack\_team\_name |
| attack\_number |
| gate\_x005f\_x |
| gate\_y |
| body\_id |
| body\_name |
| shot\_type |
| touches |
| shot\_handling |
| assistant\_id |
| assistant\_name |

## Wyscout event structure

|  |  |
| --- | --- |
| Attributes | description |
| id |  |
| matchId |  |
| matchPeriod |  |
| Minute |  |
| Second |  |
| matchTimestamp |  |
| videoTimestamp |  |
| relatedEventId |  |
| type.primary |  |
| type.secondary |  |
| location.x |  |
| location.y |  |
| team.id |  |
| team.name |  |
| team.formation |  |
| opponentTeam.id |  |
| opponentTeam.name |  |
| opponentTeam.formation |  |
| player.id |  |
| player.name |  |
| player.position |  |
| pass.accurate |  |
| pass.angle |  |
| pass.height |  |
| pass.length |  |
| pass.recipient.id |  |
| pass.recipient.name |  |
| pass.recipient.position |  |
| pass.endLocation.x |  |
| pass.endLocation.y |  |
| possession.id |  |
| possession.duration |  |
| possession.types |  |
| possession.eventsNumber |  |
| possession.eventIndex |  |
| possession.startLocation.x |  |
| possession.startLocation.y |  |
| possession.endLocation.x |  |
| possession.endLocation.y |  |
| possession.team.id |  |
| possession.team.name |  |
| possession.team.formation |  |
| groundDuel.opponent.id |  |
| groundDuel.opponent.name |  |
| groundDuel.opponent.position |  |
| groundDuel.duelType |  |
| groundDuel.keptPossession |  |
| groundDuel.progressedWithBall |  |
| groundDuel.stoppedProgress |  |
| groundDuel.recoveredPossession |  |
| groundDuel.takeOn |  |
| groundDuel.side |  |
| groundDuel.relatedDuelId |  |
| infraction.yellowCard |  |
| infraction.redCard |  |
| infraction.type |  |
| infraction.opponent.id |  |
| infraction.opponent.name |  |
| infraction.opponent.position |  |
| possession.attack.withShot |  |
| possession.attack.withShotOnGoal |  |
| possession.attack.withGoal |  |
| possession.attack.flank |  |
| possession.attack.xg |  |
| carry.progression |  |
| carry.endLocation.x |  |
| carry.endLocation.y |  |
| shot.bodypart |  |
| shot.isgoal |  |
| shot.onTarget |  |
| shot.goalZone |  |
| shot.xg |  |
| shot.postShotXg |  |
| shot.goalkeeperActionId |  |
| shot.goalkeeper.id |  |
| shot.goalkeeper.name |  |
| aerialDuel.opponent.id |  |
| aerialDuel.opponent.name  aerialDuel.opponent.position |  |
| aerialDuel.opponent.height |  |
| aerialDuel.firstTouch |  |
| aerialDuel.height |  |
| aerialDuel.relatedDuelId |  |

## Observations

# Tag documentation

On the left hand side are the wyscout tags, on the right are the explanations how the tags are derived.

**Primary tags**

Every event has exactly one primary tag

clearance: if action\_name is “Clearance”

corner: if standart\_name is “Corner”

duel: if action\_name is includes “Tackle”, “Challenge”, “Air challenge”, “Successful dribbling”, “Unsuccessful dribbling”

free\_kick: if standard\_name is “Indirect free kick” or “Direct free kick”

game\_interruption: if action\_name is “Ball out of the field”

goal\_kick: if standard\_name is “Goal kick”

infraction: if action\_name is one of the words “Deferred foul”, “Foul”, “Yellow card”, “Red card”

interception: if action\_name is one of the words “Pass interceptions”, “Shots blocked”, “Cross interception”

offside:if action\_name is “Offside”

own\_goal: if action\_name is “Own goal”

pass: if action\_name is includes “Attacking pass accurate”, “Attacking pass inaccurate”, “Accurate key pass”, “Inaccurate key pass”, “Non attacking pass accurate”, “Non attacking pass inaccurate” and standard\_name is not a set piece

penalty: if standard\_name is “Penalty”

shot: if action\_name is includes “Blocked shot”, “Shot on target”, “Wide shot”, “Shot blocked by a field player”, “Shot into bar/post”, “Goal” and standard\_name is not a set piece

shot\_against: following event of a shot tag with a shot on target (or goal)

throw\_in: if standard\_name is “Throw in”

touch: if action\_name is “Dribbling” or Player has moved at least 5 Units (scaled by the Wyscout pitch coordinates) between receiving the ball and the next action

not implemented: acceleration, fairplay, goalkeeper\_exit.

**Secondary tags**

secondary tags are always paired with one primary tag, a primary can have multiple secondaries

aerial\_duel: if action\_name is “Air challenge”

assist: if action\_name is “Assist”

back\_pass: if the primary is “pass” and the passing angle is >135 or <-135

ball\_out: if action\_name is “Ball out of the field”

carry: if action\_name is “Dribbling” or Player has moved at least 5 Units (scaled by the Wyscout pitch coordinates) between receiving the ball and the next action

conceded\_goal: if primary is “shot\_against” and the secondary in the event before includes the “goal”

counterpressing\_recovery: if requirements for “recovery” are fulfilled + the difference of the “matchTimestamp” of the current and previous event is <5 seconds

cross: if primary is “pass” and action\_name includes “Crosses accurate”, “Crosses inaccurate”, “Inaccurate blocked cross”

cross\_blocked: if primary is “pass” and action\_name is “Inaccurate blocked cross”

deep\_completed\_cross: if primary is “pass” and action\_name is “Crosses accurate” and the pass destination is within 20 meters of the goal.

deep\_completion: if primary is “pass” and action\_name includes “Accurate key pass” or “Attacking pass accurate” and the pass destination is within 20 meters of the goal.

defensive\_duel: if primary is “duel” and the possession\_team\_name is different from the team\_name of the current event

dribble: if action\_name is “Dribbling”

forward\_pass: if primary is “pass” and passing angle is <45 and >-45

foul: if action\_name is “Foul”

foul\_suffered: if secondary of the next event without the primary “duel” includes “foul” and team\_name from the future event and the current one is different

free\_kick\_cross: if primary is “free\_kick” and action\_name includes “Misplaced crossing from set piece with a shot”, “Accurate crossing from set piece with a shot”, “Misplaced crossing from set piece with a goal”, “Accurate crossing from set piece with a goal”, “Accurate crossing from set piece”, “Inaccurate set-piece cross”

free\_kick\_shot: if requirements for “shot” is fulfilled and primary is “free\_kick”

goal: if action\_name is “Goal”

ground\_duel: if primary is “duel” and action\_name is not “Air challenge”

hand\_pass: if primary is "pass” and body\_name is “Hand”

head\_shot: if primary is "shot” and body\_name is “Header”

key\_pass: if action\_name includes “Accurate key pass”, “Inaccurate key pass”

lateral\_pass: if primary is “pass” and secondary neither includes “back\_pass” or “forward\_pass” and has a pass length >12 meters

long\_pass: if primary is “pass” and pass length > 45 meters

loss: if primary does not include “infraction”, “game\_interruption”, “penalty” and either the possession\_status is “End” or action includes “Attacking pass inaccurate”, “Inaccurate key pass”, “Non attacking pass inaccurate”, “Lost balls”.

offensive\_duel: if primary is “duel” and secondary does not include “defensive\_duel”

opportunity: if action\_name includes “Chance was converted by”, “ Chance was not converted by”

pass\_into\_penalty\_area: if primary is “pass” and pass destination is in the penalty box

pass\_to\_final\_third: if primary is “pass” and pass destination is in the final thrid

penalty\_conceded\_goal: if secondary of the previous event includes “penalty\_goal”

penalty\_foul: if primary is infraction and primary of next event is “penalty”

penalty\_goal: if primary is “penalty” and “goal” is in the secondary

penalty\_save: if primary is “shot\_against” and previous event with primary “penalty” without “goal” in the secondary

progressive\_pass: if primary is “pass” and the pass distance is at least 30 meters closer to the opponent’s endline if the starting and finishing points are within a team’s own half or at least 15 meters closer to the opponent’s endline if the starting and finishing points are in different halves or at least 10 meters closer to the opponent’s endline if the starting and finishing points are in the opponent’s half

progressive\_run: if requirements of “carry” are fulfilled and carry end location is at least 30 meters closer to opponent endline if starting and finishing points are in own half or at least 15 meters closer to opponent endline if starting and finishing points are in different field halves or at least 10 meters closer to opponent goal if starting and finishing points are in opponent half

recovery: if the possession.team.name from the current event is different than the previous event and the current primary is not “game\_interruption”, “shot”, “shot\_against”

red\_card: if action\_name is “Red card”

save: if primary is “shot\_against” and previous event with primary “shot” and entry shot.isGoal is False

save\_with\_reflex: if action\_name is “Supersaves” and primary is “shot\_against”

short\_or\_medium\_pass: if primary is “pass” and “long\_pass” is not in the secondary

shot\_after\_corner: if primary is “shot” and matchTimestamp has a difference <14 seconds with a previous event with primary “corner”

shot\_after\_free\_kick: if primary is “shot” and matchTimestamp has a difference <14 seconds with a previous event with primary “free\_kick”

shot\_after\_throw\_in: if primary is “shot” and matchTimestamp has a difference <14 seconds with a previous event with primary “throw\_in”

shot\_assist: if action\_name includes “Misplaced crossing from set piece with a shot”, “Accurate crossing from set piece with a shot”, “Misplaced crossing from set piece with a goal”, “Accurate crossing from set piece with a goal”

shot\_block: if primary is “interception” and action\_name includes “Shot blocked by field player”, “Shots blocked”

sliding\_tackle: if action\_name is “Tackle”

touch\_in\_box: if action location is in the penalty box and primary is either “shot”, “pass” or “touch

yellow\_card: if action\_name is “Yellow card”

not implemented: dribbled\_past\_attempt, head\_pass, linkup\_play, loose\_ball\_duel, pressing\_duel, second\_assist, smart\_pass, third\_assist, through\_pass, under\_pressure, whistle.