Playermaker Report

Endpoint Overview

Fetch Session Data endpoint (`POST /team/{ClientTeam}/session-data`), detailing what data is returned, the format of the data, requirements for accessing the endpoint, and potential reports that can be generated using the available metrics.

Motive: Analyze player and team performance during matches and training sessions.

Fetching Session Data

What We Get from the Endpoint

Response Structure

The response is a JSON object (`SessionDataResponseContract`) with the following fields:

- **headers** (List): Column names for the metrics (e.g., "Season," "PlayerName," "TotalTouches").
- **isLastBulk** (Boolean): Indicates if this is the final batch of data (`true` = no more data to fetch).
- **lastSessionEndTimeUTC** (Long): Epoch time (milliseconds, UTC) of the last session in the response.
- **values** (List): Arrays of data, where each array represents a player's performance in a session, with values corresponding to the `headers`.

Metrics Available

categorized to for reviewing purposefollows:

Session-Level Metrics

- **Season**: E.g., "2023/2024"
- **Date**: E.g., "2023-10-12"
- **Day**: E.g., "Thursday"
- **SessionId**: Unique session identifier
- **SessionType**: "training" or "match"
- **IsValidated**: `1` (true) or `0` (false)
- **PhaseId**, **PhaseType**, **Tag**: Session phase details
- **PhaseStartTime**, **PhaseDuration(min)**: Phase timing
- **MatchOpponent**, **MatchCompetition**, **MatchVenue**: Match-specific details
- **ParticipatedPlayers**, **Format**, **Intensity**, **FieldSize(m)**: Session characteristics

Player-Level Metrics

- **PlayerId**, **PlayerName**, **AgeGroup**: Player identifiers
- **PlayerParticipationTime(min)**: Minutes played
- **TotalTouches(#)**, **LeftLegTouches(#)**, **RightLegTouches(#)**, **Touchespermin(#/min)**: Ball contact stats
- **Releases(#)**, **ReleasesLeft(#)**, **ReleasesRight(#)**, **Releasespermin(#/min)**: Ball release stats
- **TotalPossessions(#)**, **One-Touch(#)**, **ShortPossessions(#)**, **LongPossessions(#)**: Possession details
- **SuccessfulPasses(#)**, **LostPossessions(#)**, **Regains(#)**: Passing and ball recovery
- **TopSpeed(m/s)**, **DistanceCovered(m)**, **WorkRate(m/min)**: Physical performance
- **HIDCovered(m)Zone1[>4(m/s)]**, **SDCovered(m)[>5.5(m/s)]**, **SprintCount(#)**: High-intensity and sprint metrics
- **SpeedZone-DistanceCovered(m)Zone1[0-1.5(m/s)]** to **Zone7[>7(m/s)]**: Speed zone distances
- **IntenseSpeedChangesAcc/Decel(#)[>2.6(m/s^2)]**: Acceleration/deceleration counts
- **HorizontalAccZones(#)Zone1[0-0.4(m/s^2)]** to **Zone6[>2.6(m/s^2)]**: Acceleration zones
- **HorizontalDecelZones(#)Zone1[0-0.6(m/s^2)]** to **Zone6[>2.8(m/s^2)]**: Deceleration zones
- **Receives(#)**, **ReceivesLeft(#)**, **ReceivesRight(#)**: Ball reception stats
- **ReleaseVelocityMin(m/s)**, **ReleaseVelocityMax(m/s)**, **ReleaseVelocityAvg(m/s)**: Release velocity stats

Biomechanical Metrics

- **OverallContactDuration-LeftMean(sec)**, **OverallContactDuration-RightMean(sec)**: Foot contact duration
- **OverallFlightDuration-LeftMean(sec)**, **OverallFlightDuration-RightMean(sec)**: Flight duration
- **OverallStrideLengthLeftMean(cm)**, **OverallStrideLengthRightMean(cm)**: Stride length
- **OverallCadence(steps/min)**, **OverallTotalSteps(#)**: Step metrics
- **SymmetryIndx(%)**: Symmetry indices for contact, flight, and stride
- **HIDContactDurationLeftMean(sec)**, **SprintContactDurationLeftMean(sec)**: High-intensity and sprint-specific biomechanics

Example Response

```
{
  "headers": ["Season", "Date", "SessionId", "SessionType", "PlayerName", "TotalTouches", "DistanceCovered"],
  "isLastBulk": true,
  "lastSessionEndTimeUTC": 1697145600000,
  "values": [
    ["2023/2024", "2023-10-12", "12345", "training", "John Doe", "150", "5200.5"],
    ["2023/2024", "2023-10-12", "12345", "training", "Jane Smith", "130", "4800.0"]
  ]
}
```

Requirements to Access the Endpoint

1. Authentication Credentials

- **ClientSecret**: A unique "password" generated by Playermaker for your account.
- **clientKey**: A key provided by Playermaker.
- **clientTeamId**: A numeric ID for the team whose data you're accessing.

2. Login Request

- **Purpose**: Obtain a token for accessing the Fetch Session Data endpoint.
- **Endpoint**: `POST https://b2b.playermaker.co.uk/api/b2b/v1/account/login`
- **Request**:

```
{
  "clientSecret": "tokken_needed",
  "clientKey": "Key_needed,
  "clientTeamId": 123123
}
```

- **Response**: Includes a `token` (valid for 5 hours), `userId`, `email`, `clubName`, and `teams`.
- **Rate Limit**: One login request every 15 minutes.
- **Note**: Only one token is valid per team at a time; generating a new token invalidates the previous one.

3. Fetch Session Data Request

- **Endpoint**: `POST https://b2b.playermaker.co.uk/api/b2b/v1/team/{clientTeamId}/session-data`
- **Headers**:
  - `Content-Type: application/json`
  - `Authorization: bearer your_token`
- **Body**:

```
{
  "sessionType": "all",
  "epochStartDateGMT": 1697059200000,
  "epochEndDateGMT": 1697145600000
}
```

  - `sessionType`: Must be "training", "match", or "all".
  - `epochStartDateGMT`: Start time (13-digit epoch milliseconds, mandatory).
  - `epochEndDateGMT`: End time (optional, must be greater than start if provided).
- **Rate Limit**: One request every 15 minutes.
- **Security**: Tokens are team-specific and expire after 5 hours of inactivity.

Potential Reports Using Available Metrics

Using the metrics from the Fetch Session Data endpoint, various reports can be generated to support coaching, performance analysis, and sports science. Below are examples of reports, including the variables used and their purpose.

1. Player Performance Summary Report

- **Purpose**: Provide a snapshot of individual player performance in a session or across multiple sessions.
- **Metrics Used**:
  - **PlayerName**, **PlayerId**: Identify the player.
  - **SessionType**, **Date**, **SessionId**: Contextualize the session.
  - **TotalTouches(#)**, **LeftLegTouches(#)**, **RightLegTouches(#)**: Technical skills.
  - **SuccessfulPasses(#)**, **LostPossessions(#)**, **Regains(#)**: Passing and ball recovery.
  - **DistanceCovered(m)**, **TopSpeed(m/s)**, **SprintCount(#)**: Physical output.
  - **PlayerParticipationTime(min)**: Time played.
- **Format**: Table or dashboard with one row per player per session.
- **Example Output**:

PlayerName	Date	SessionType	Touches	Passes	Distance(m)	TopSpeed(m/s)
ALi	2023-10-12	training	150	80	5200.5	7.5
Danish	2023-10-12	training	130	75	4800.0	7.2

- **Use Case**: Coaches assess player involvement and effectiveness.

2. Team Workload Report

- **Purpose**: Monitor team physical exertion to optimize training and prevent injuries.
- **Metrics Used**:
  - **SessionType**, **Date**, **ParticipatedPlayers**: Session context.
  - **HIDCovered(m)Zone1[>4(m/s)]**, **SDCovered(m)[>5.5(m/s)]**: High-intensity and sprint distances.
  - **WorkRate(m/min)**, **DistanceCovered(m)**: Overall workload.
  - **IntenseSpeedChangesAcc/Decel(#)[>2.6(m/s^2)]**: Acceleration/deceleration demands.
- **Format**: Aggregated metrics (e.g., averages or totals) per session, visualized as bar charts or trends over time.
- **Example Output**:
  - Bar chart showing average `HIDCovered(m)` per player for each session in a week.
  - Trend line of `WorkRate(m/min)` across a season.
- **Use Case**: Sports scientists balance training intensity to avoid overtraining.

3. Biomechanical Analysis Report

- **Purpose**: Analyze movement patterns to improve performance or reduce injury risk.
- **Metrics Used**:
  - **PlayerName**, **PlayerId**: Identify the player.
  - **OverallStrideLengthLeftMean(cm)**, **OverallStrideLengthRightMean(cm)**: Stride length.
  - **OverallContactDuration-LeftMean(sec)**, **OverallContactDuration-RightMean(sec)**: Foot contact time.
  - **OverallFlightRatio-SymmetryIndex(%)**: Movement symmetry.
  - **HIDStrideLengthLeftMean(cm)**, **SprintStrideLengthLeftMean(cm)**: High-intensity and sprint biomechanics.
- **Format**: Detailed player report with symmetry indices and comparisons to baselines.
- **Example Output**:
  - Table showing `OverallStrideLengthSymmetryIndex(%)` for each player, highlighting asymmetries (>10% difference).
  - Graph comparing `HIDContactDurationLeftMean` vs. `RightMean` to detect imbalances.
- **Use Case**: Physiotherapists identify players at risk of injury due to uneven movement patterns.

4. Match Performance Comparison Report

- **Purpose**: Compare team or player performance across matches to evaluate consistency or tactics.
- **Metrics Used**:
  - **MatchOpponent**, **MatchCompetition**, **MatchVenue**: Match context.
  - **TotalPossessions(#)**, **One-Touch(#)**, **SuccessfulPasses(#)**: Technical performance.
  - **SpeedZone-DistanceCovered(m)Zone7[>7(m/s)]**: High-speed running.
  - **PlayerParticipationTime(min)**: Playing time.
- **Format**: Side-by-side comparison table or radar charts for key metrics across matches.
- **Example Output**:
  - Radar chart comparing `TotalPossessions` and `SuccessfulPasses` for a player in home vs. away matches.
  - Table showing team's `SpeedZone-DistanceCovered(m)Zone7` across last 5 matches.
- **Use Case**: Coaches assess tactical effectiveness against different opponents.

5. Player Development Trend Report

- **Purpose**: Track player progress over time to measure improvement or decline.
- **Metrics Used**:
  - **PlayerName**, **Date**, **AgeGroup**: Player and time context.
  - **Touchespermin(#/min)**, **Releasespermin(#/min)**: Technical efficiency.
  - **WorkRate(m/min)**, **SDpermin(m/min)**: Physical efficiency.
  - **OverallCadence(steps/min)**: Movement efficiency.
- **Format**: Line graphs or heatmaps showing trends over weeks or months.
- **Example Output**:
  - Line graph of `WorkRate(m/min)` for a player from start of season to present.
  - Heatmap of `Touchespermin` across all training sessions for a team.
- **Use Case**: Academies monitor young players' development.

We can have more predictive Reports

Positional Role Analysis Report

- **Purpose: Evaluate player performance by position (e.g., striker, midfielder) to optimize role assignments.**

1. **PlayerName**, **SessionType**, **MatchCompetition**
2. **TotalTouches(#)**, **Releases(#)**, **SuccessfulPasses(#)**
3. **SpeedZone-DistanceCovered(m)Zone5[4-5.5(m/s)]**, **Zone7[>7(m/s)]**
4. **Receives(#)**, **One-Touch(#)'**

Injury Risk Prediction Report

Flag players at risk of injury based on biomechanical and workload data.

1. **PlayerName**, **Date**
2. **OverallStrideLengthSymmetryIndex(%)**, **OverallContactDuration-SymmetryIndx(%)**
3. **HIDStrideLengthLeftMean(cm)**, **SprintStrideLengthRightMean(cm)**
4. **HIDCovered(m)Zone1[>4(m/s)]**, **IntenseSpeedChangesAcc/Declactions(#)[>2.6(m/s^2)]**

Efficiency Report

1. **Analyze passing effectiveness to refine team tactics.**
2. **PlayerName**, **MatchOpponent**, **MatchVenue**
3. **SuccessfulPasses(#)**, **LostPossessions(#)**
4. **One-Touch(#)**, **Receives(#)**
5. **TotalTimeontheball(sec)**

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