# NGS Hackathon Data

## Metrics and Coordinate System

Next gen location data uses the following metrics for speed and distance:

* Speed – yards per second
* Distance – yards
* Time – times are in UTC and follow the format yyyy-MM-dd'T'HH:mm:ss

The coordinate system includes the endzones of the field and is as follows:

* The lower left of the field is (x,y) -> (0,0).
* The lower right of the field is (x,y) -> (120,0).
* The upper left of the field is (x,y) -> (0, 53.3).
* The upper right of the field is (x,y) -> (120, 53.3).

## Games

Tracking data for 3 games are provided.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **GameId** | **Away Team Id** | **Away Team** | **Home Team Id** | **Home Team** |
| 1 | 1 | Amsterdam Admirals | 2 | Barcelona Dragons |
| 2 | 3 | Berlin Thunder | 4 | Cologne Centurions |
| 3 | 5 | Frankfurt Galaxy | 6 | Hamburg Sea Devils |

## Tracking Data Specification

**Setup Data**

Roster Information:

[

{

"season": number,

"week": number,

"teamId": "string",

"team": {

"abbr": "string",

"cityState": "string",

"fullName": "string",

"nick": "string",

}

},

"teamPlayers": [

{

"nflId": number,

"displayName": "string",

"firstName": "string",

"lastName": "string",

"positionGroup": "string",

"position": "string",

"jerseyNumber": number,

"height": "string",

"weight": number,

}

]

}

]

Definitions for roster data:

|  |  |  |
| --- | --- | --- |
| **Data Point** | **Description** | **Example Value(s)** |
| season | Season this roster is for | 2015 |
| Week | Week this roster is for | 5 |
| teamId | Unique id for this team | “2700” |
| Team->abbr | Abbreviation | “HOU” |
| Team->citystate | City | “Houston” |
| Team->fullname | Full name of team | “Houston Texans” |
| Team->nick | Nickname | “Texans” |
| TeamPlayers | Array of player info |  |
| TeamPlayers->nflId | Unique id for player | 1234 |
| TeamPlayers->positionGroup | Grouping this player belongs to | DB (defensive Backs)  OL (offensive linemen)  Etc.. |
| teamPlayers->position | Position for this play | QB, RB, etc.. |

**Tracking Data**

Play by play tracking data:

{

"gameId": number,

"ngsPlayId": number,

"play": {

"playDescription": "string",

"playType": "string",

"quarter": number,

"down": number,

"yardsToGo": number,

"possessionTeamId": "string",

"gameClock": "string",

"yardline": "string",

"yardlineNumber": number,

"absoluteYardlineNumber": number,

"timeOfDayUTC": "string",

"isSTPlay": boolean,

"isPenalty": boolean,

"isScoring": boolean,

"isGoalToGo": boolean,

"playStats": [

{

"nflId": number,

"playerName": "string",

"jerseyNumber": number,

"statId": number,

"yards": 0

}

]

},

"schedule": {

"season": number,

"seasonType": "string",

"week": number,

"gameId": number,

"gameDate": "string",

"gameTimeEastern": "string",

"gameTimeLocal": "string",

"isoTime": number,

"homeTeamId": "string",

"visitorTeamId": "string",

"homeTeamAbbr": "string",

"visitorTeamAbbr": "string",

"gameType": "string",

"visitorTeam": {

"season": number,

"teamId": "string",

"abbr": "string",

"cityState": "string",

"fullName": "string",

"nick": "string",

},

"homeTeam": {

"season": number,

"teamId": "string",

"abbr": "string",

"cityState": "string",

"fullName": "string",

"nick": "string",

},

},

"homeTrackingData": [

{

"nflId": "string",

"playerTrackingData": [

{

"time": "string",

"event": "string",

"isOnField": boolean,

"x": number,

"y": number,

"s": number,

"dis": number,

}

]

}

],

"awayTrackingData": [

{

"nflId": "string",

"playerTrackingData": [

{

"time": "string",

"event": "string",

"isOnField": boolean,

"x": number,

"y": number,

"s": number,

"dis": number,

}

]

}

]

}

The definitions for each the tracking data are below.

|  |  |  |
| --- | --- | --- |
| **Data Point** | **Description** | **Example Value(s)** |
| gameId | Unique id for a game | 2015020100 |
| ngsPlayId | Unique id for the play | 5 |
| playDescription | Textual description of the play | 14:54) T.Gurley left tackle to SL 49 for 6 yards (T.McDaniel; D.Lansanah). |
| playType | The type of play. | play\_type\_pass, play\_type\_rush, play\_type\_field\_goal,  play\_type\_kickoff,  etc.. |
| Quarter | NFL Quarter | 1 |
| Down | NFL Down | 1 |
| yardsToGo | Yards to go | 10 |
| possessionTeamId | The NFL team that has possession of the ball | “0650” |
| gameClock | Current time on the game clock | “4:10” |
| Yardline | The yardline the ball is on | NE 30 |
| absoluteYardlineNumber | A yardline from 0-120, where 0-10 is one endzone and 110-120 is the other. 60 represents midfield | 60 |
| timeOfDayUTC | Time of day in UTC | (Standard ISO format) |
| isSTPlay | Is this a special teams play | True/false |
| isPenalty | Was there a penalty on this play | True/false |
| isScoring | Was this a scoring play | True/false |
| playStats | Stat id values that indicate a type of stat accrued on the play. For example if passing yards are obtained for the quarterback, a value of 15 (statId) is provided as well as the yards gained. The full spec for this will be provided at the event. | See fields below |
| playStats -> nflId | Id of the player that accrued the stat | 831 |
| playStats ->playerName | The name of the player | “Tom Brady” |
| playStats -> jerseyNumber | The jersey number of the player | 5 |
| playStats->statId | The statid for the stat accrued | 15 |
| playStats->yards | The number of yards accrued | 80 |
| homeTrackingData | The node that contains the tracking data for this play for the home team. There is an array of players and for each player, the Id and tracking data is provided which includes the x, y coordinates, s for speed value and ‘dis’ for distance gained since last measurement. There is 10 measurements per player per second. |  |
| awayTrackingData | Array of tracking data for the away team |  |

## Tracking Data Downloads

The tracking data sets for each game are available in 3 bundles (Full Game, By Quarter, By Play). The data format is the same but each play is on a newline in the “Full Game” and “By Quarter” bundles. The download links are noted in the table below.

**Game 1 – Admirals @ Dragons (GameID = 1)**

|  |  |
| --- | --- |
| **Description** | **Link** |
| Full | <https://s3.amazonaws.com/ngs-hackathon/games/game-1/full/full-game-1.json> |
| Q1 | <https://s3.amazonaws.com/ngs-hackathon/games/game-1/quarterly/game-1-q1.json> |
| Q2 | <https://s3.amazonaws.com/ngs-hackathon/games/game-1/quarterly/game-1-q2.json> |
| Q3 | <https://s3.amazonaws.com/ngs-hackathon/games/game-1/quarterly/game-1-q3.json> |
| Q4 | <https://s3.amazonaws.com/ngs-hackathon/games/game-1/quarterly/game-1-q4.json> |
| Play | <https://s3.amazonaws.com/ngs-hackathon/games/game-1/game1plays.tar.gz> |
| Team 1 Roster | <https://s3.amazonaws.com/ngs-hackathon/rosters/team1.json> |
| Team 2 Roster | <https://s3.amazonaws.com/ngs-hackathon/rosters/team2.json> |

**Game 2 – Thunder @ Centurions (GameID = 2)**

|  |  |
| --- | --- |
| **Description** | **Link** |
| Full | <https://s3.amazonaws.com/ngs-hackathon/games/game-2/full/full-game-2.json> |
| Q1 | <https://s3.amazonaws.com/ngs-hackathon/games/game-2/quarterly/game-2-q1.json> |
| Q2 | <https://s3.amazonaws.com/ngs-hackathon/games/game-2/quarterly/game-2-q2.json> |
| Q3 | <https://s3.amazonaws.com/ngs-hackathon/games/game-2/quarterly/game-2-q3.json> |
| Q4 | <https://s3.amazonaws.com/ngs-hackathon/games/game-2/quarterly/game-2-q4.json> |
| Play | <https://s3.amazonaws.com/ngs-hackathon/games/game-2/game2plays.tar.gz> |
| Team 3 Roster | <https://s3.amazonaws.com/ngs-hackathon/rosters/team3.json> |
| Team 4 Roster | <https://s3.amazonaws.com/ngs-hackathon/rosters/team4.json> |

**Game 3 – Galaxy @ Sea Devils (GameID = 3)**

|  |  |
| --- | --- |
| **Description** | **Link** |
| Full | <https://s3.amazonaws.com/ngs-hackathon/games/game-3/full/full-game-3.json> |
| Q1 | <https://s3.amazonaws.com/ngs-hackathon/games/game-3/quarterly/game-3-q1.json> |
| Q2 | <https://s3.amazonaws.com/ngs-hackathon/games/game-3/quarterly/game-3-q2.json> |
| Q3 | <https://s3.amazonaws.com/ngs-hackathon/games/game-3/quarterly/game-3-q3.json> |
| Q4 | <https://s3.amazonaws.com/ngs-hackathon/games/game-3/quarterly/game-3-q4.json> |
| Play | <https://s3.amazonaws.com/ngs-hackathon/games/game-3/game3plays.tar.gz> |
| Team 5 Roster | <https://s3.amazonaws.com/ngs-hackathon/rosters/team5.json> |
| Team 6 Roster | <https://s3.amazonaws.com/ngs-hackathon/rosters/team6.json> |