

Updated 8/28/2023

Trips Schema

Note: Trips are additional columns for Movement, not a standalone product. Low quality data from aggregators is excluded from trip metrics. See exclusions at conclusion of document.

Overall schema

Field Name	Description	Data Type	Example
trip_fields	Metrics for the trip as a whole	MAP	See next sections
trip_ping_fields	Metrics for the ping within a trip	MAP	See next sections
trip_to_trip_fields	Metrics calculated from two consecutive trips	MAP	See next sections

Trip Fields

Field Name	Definition	Example
index	Indicates the trip number within an ad_id ordered by trip start time; If a trip is -1, that means it is an outlier and the ping could not be categorized into a trip.	1
pings	Total pings for a trip	47
start_time	Start time of the trip	2022-12-15T01:34:42.000+0000
end_time	End time of the trip	2022-12-15T09:06:40.000+0000
displacement	Total sum of displacement for pings in a trip (km)	12.1964
traverse_time	Total sum of time for pings in a trip (seconds)	124,432
velocity	Velocity of a trip (km/ hr)	8.0073
heading	Heading degrees from 0 to 360	3.6732
heading_cardinal	Heading cardinal	North
overlap_flag	Indicates that the current trip as a whole overlaps in time with another trip	true
overlap_trip_list	List of trips that are overlapped with the current trip	1,3,4
high_velocity_flag	Indicates that the trip as a whole has a velocity above 200 km/hr and displacement is at least 1 km	false
high_velocity_pings	Count of pings within the trip where trip_ping_velocity is above 200km/hr and displacement is at least 1 km	3

Trip Ping Fields

All calculations are from previous ping to current ping.

Field Name	Definition	Example
index	Index marker for ping in the trip	2
displacement	Ping to ping displacement within the trip (km)	.0567
traverse_time	Ping to ping traverse time within the trip (seconds)	120
velocity	Ping to ping velocity within the trip (km/hr)	2.2412
heading	Ping to ping heading within the trip	49.0254
heading_cardinal	Ping to ping heading cardinal within the trip	North East
overlap_trip_list	List of trips that the ping overlaps with	1,5,6
overlap_flag	Indicates that the current ping overlaps in time with another trip	true
high_velocity_flag	Indicates that the current ping has a velocity above 200 km/hr and displacement is at least 1 km	true

Trip to Trip Fields

Field Name	Definition	Example
displacement	Displacement from the end of the last trip to the start of the next trip (km)	12.1996
traverse_time	Time from the end of the last trip to the start of the next trip (seconds)	120
velocity	Velocity from the end of the last trip to the start of the next trip (km/hr)	4.4005
heading	Heading degree from the end of the last trip to the start of the next trip	90.1578
heading_cardinal	Heading cardinal from the end of the last trip to the start of the next trip	North
high_velocity_flag	Indicates that the trip to trip velocity is above 200 km/hr and displacement is at least 1 km	false

Exclusion Criteria

Applies to aggregator data when calculating Trips fields.

Field Name	Definition	Filter Criteria (No trips if)
ping_sink_matches	Exclude sinks above 25	ping_sink_matches > 25
ping_cell_tower	Exclude known cell towers	ping_cell_tower = 1
ping_circle_score	Exclude circle score above .3	ping_circle_score >= 0.3
ping_lat_precision	Exclude low latitude precision with 3 decimal places or less	ping_lat_precision <= 3
ping_long_precision	Exclude low longitude precision with 3 decimal places or less	ping_long_precision <= 3
horizontal_accuracy	Exclude horizontal accuracy above 25	horizontal_accuracy > 25
device_pings	Exclude single ping devices	device_pings = 1