Key	Type	Details	Example Format
cleaned_trace	list	A list of dictionaries where each dictionary is a ping in the cleaned trace. The list will have at least 'n' dictionaries if there were 'n' ping in the input payload. There are only three scenarios while creating cleaned trace: -> Cleaned trace can have same latitude longitude for some ping as provided in the input. -> Some ping can be removed. -> Some ping can be updated. -> Some ping can be interpolated. Each dictionary in cleaned trace will have the following keys and values: **ping_id <str>:** Unique identifier assigned for the current ping. If the current ping is lets say nth interpolated ping between two consecutive ping_ids like ping_id_i and ping_id_j then the ping_id for this ping will be ping_id_i_n. If ping_id is available in input then that will be used, otherwise it will be generated. **input_latitude <float, None>:** Original latitude of the ping as provided in the input. Will be None in case the ping is an interpolated ping. **input_longitude <float, None>:** Original longitude of the ping as provided in the input. Will be None in case the ping is an interpolated ping. **timestamp <int>:** Unix timestamp for the ping as provided in the input(milliseconds). If the current ping is an interpolated ping then the timestamp for the current ping will also be between the timestamps of the surrounding two input ping. **error_radius <float, None>:** Original GPS error radius of the input ping. If the ping has been interpolated then the error_radius value will be None. **event_type <str, None>:** A string denoting the type of event which occurred at the ping as provided in the input. If no event_type was provided in the input for the current ping or if the current ping is interpolated then the value in event_type will be None. **force_retain <bool>:** Same as in input. If the ping is interpolated then the value will be False. **metadata<dict>:** Same as in input. If the ping is interpolated then the value will be False. **cleaned_latitude <float, None>:** Cleaned latitude. If the input ping has been dropped in cleaned trace then the cleaned latitude will be None. **cleaned_longitude <float, None>:** Cleaned longitude. If the input ping has been dropped in cleaned trace then the cleaned longitude will be None. **update_status <str>:** A string denoting the status of the current ping. Can have a value from the list of possible values: ["unchanged", "dropped", "updated", "interpolated"]. The values are defined as follows: "unchanged": If cleaned latitude and longitude are same as input latitude and longitude. "dropped": If the current ping has been dropped in cleaned trace. In this case cleaned_latitude and cleaned_longitude will be None as well. "updated": If the location of the current ping has been updated. "interpolated": If the current ping is an interpolated ping. **last_updated_by <str>:** A string denoting the name of function which last updated the ping. If a user is running a couple of cleaning functions over the trace payload then they can check which function has impacted the ping most recently. **stop_status <bool>:** Denotes stop status of ping. False by default, updated when a function to add stop information is called. Remains False if the ping is not a stop ping. **stop_event_sequence_number <int>:** Denotes the sequence number of stop event, if the current ping is its part. -1 by default updated when a function to add stop information is called. Remains -1 if the ping is not an stop ping. **cumulative_stop_event_time <str>:** Denotes cumulative stop time in the stop event in minutes and seconds till that ping. "0 minutes and 0 seconds" by default, updated when a function to add stop information is called. Remains "0 minutes and 0 seconds" if the ping is not a stop ping. **representative_stop_event_latitude <float, None>:** Denotes the representative latitude of the stop event, if current ping is its part. None by default updated when a function to add stop information is called. Remains None if the ping is not a stop ping. **representative_stop_event_longitude <float, None>:** Denotes the representative longitude of the stop event, if current ping is its part. None by default updated when a function to add stop information is called. Remains None if the ping is not a stop ping. **time_since_prev_ping <float>:** time passed in milliseconds since previous ping. **dist_from_prev_ping <float>:** distance from previous pings in meters. **cleaned_trace_cumulative_dist <float>:** distance accumulated till current ping in meters. **cleaned_trace_cumulative_time <float>:** time passed in milliseconds till current ping.	[{ 'ping_id': '1533', 'input_latitude': 19.052419, 'input_longitude': 73.072199, 'timestamp': 1706755887680, 'error_radius': 24.9, 'event_type': '"event"', 'force_retain': True, 'cleaned_latitude': 19.052441, 'cleaned_longitude': 73.072202, 'update_status': 'updated', 'last_updated_by': 'map_match_trace', 'stop_event_status': True, 'cumulative_stop_event_time': '0 minutes and 0 seconds', 'representative_stop_event_latitude': 19.052415, 'representative_stop_event_longitude': 73.072195, 'stop_event_sequence_number': 1, 'time_since_prev_tp': 0.0, 'dist_from_prev_tp': 0.0, 'cleaned_trace_cumulative_dist': 0.0, 'cleaned_trace_cumulative_time': 0.0, 'metadata': {'trace_id': '110' },]
cleaning_summary	dict	A dictionary summarising the results of trace cleaning. The dictionary has the following keys and values: **total_pings_in_input <int>:** Denotes total number of pings in the input. **total_non_null_pings_in_input** <int>: Denotes total number of non null pings in the input. **total_non_null_pings_in_output <int>:** Denotes total number of non null pings in the output. **total_trace_time <str>:** Denotes total time taken in raw trace, in {value} hours, {value} minutes and {value} seconds **unchanged_percentage <float>:** The percentage of non null pings from the input trace whose location is unchanged in the cleaned trace. **drop_percentage <float>:** The percentage of non null pings from the input trace which were dropped in cleaned trace. **updation_percentage <float>:** The percentage of updated pings w.r.t the number of non null input pings. **interpolation_percentage <float>:** The percentage of pings which are interpolated w.r.t the number of non null input pings. **total_execution_time <float>:** Total time taken in seconds for creating cleanable trace (TraceClean) object and applying trace cleaning functions (TraceClean methods)	{'total_pings_in_input': 3114, 'total_non_null_pings_in_input': 2965, 'total_non_null_pings_in_output': 1644, 'total_trace_time': '7 hours, 24 minutes and 38 seconds', 'unchanged_percentage': 41.28, 'drop_percentage': 44.55, 'updation_percentage': 14.17, 'interpolation_percentage': 0.0, 'total_execution_time': 0.38711}
distance_summary	dict	A dictionary summarizing distance metrics. The dictionary has the following keys and values: **cumulative_distance_of_raw_trace <float>:** Denotes total distance covered in raw trace, ignoring pings with Nonetype input_latitude and input_longitude. Unit is meters. **cumulative_distance_of_clean_trace <float>:** Denotes total distance covered in cleaned trace, ignoring pings with Nonetype cleaned_latitude and cleaned_longitude. Unit is meters. **percent_reduction_in_dist <float>:** The percentage of reduction in distance in cumulative_distance_of_clean_trace w.r.t. cumulative_distance_of_raw_trace. If cumulative_distance_of_clean_trace is > cumulative_distance_of_raw_trace then percent_reduction_in_dist will be 0. Note: Total distance of trace is calculated by taking summation of haversine distance between cosecutive pings.	{'cumulative_distance_of_raw_trace': 36788.37, 'cumulative_distance_of_clean_trace': 36788.37, 'percent_reduction_in_dist': 0.0}

Key	Type	Details	Example Format

stop_summary	dict	A dictionary summarizing stop event metrics. The dictionary has the following keys and values:
		
		stop_events_info <list>: A list of dictionaries, where each dictionary describes an stop event and has the following keys and values:
		stop_event_sequence_number <int>: Integer sequence number of the stop event. Each stop event is given a unique integer value.
		start_time <str>: Timestamp when stop event started. Provided in format <YYYY-MM-DD HH:MM:SS>.
		end_time <str>: Timestamp when stop event ended. Provided in format <YYYY-MM-DD HH:MM:SS>.
		total_stop_event_time <str>: Denotes total time of the the stop event, in {value} hours, {value} minutes and {value} seconds
		number_of_pings <int>: Number of pings in the stop event.
		representative_latitude <float>: Representative latitude of the stop event.
		representative_longitude <float>: Representative longitude of the stop event.
		
		global_stop_events_info <dict>: A dictionary describing global stop information and has the following keys and values.
		total_trace_time <str>: Denotes total time taken in raw trace, in {value} hours, {value} minutes and {value} seconds
		total_stop_events_time <str>: Denotes total time spent in stopping, in the entire trace, in {value} hours, {value} minutes and {value} seconds
		stop_events_percentage <float>: Percentage of total_stop_events_time w.r.t. total_trace_time.
			{
			"stop_events_info": [
			{
			"stop_event_sequence_number": 1,
			"start_time": "2024-02-01 08:21:27",
			"end_time": "2024-02-01 08:26:13",
			"total_stop_event_time": "0 hours, 4 minutes and 46 seconds",
			"number_of_pings": 34,
			"representative_latitude": 19.052406794117648,
			"representative_longitude": 73.07219488235295
			},
			{
			"stop_event_sequence_number": 2,
			"start_time": "2024-02-01 08:27:29",
			"end_time": "2024-02-01 08:41:48",
			"total_stop_event_time": "0 hours, 14 minutes and 19 seconds",
			"number_of_pings": 99,
			"representative_latitude": 19.05241680808081,
			"representative_longitude": 73.07219767676767
			},
			...
			{
			"stop_event_sequence_number": 94,
			"start_time": "2024-02-01 15:31:27",
			"end_time": "2024-02-01 15:46:05",
			"total_stop_event_time": "0 hours, 14 minutes and 38 seconds",
			"number_of_pings": 89,
			"representative_latitude": 19.052417808988764,
			"representative_longitude": 73.07220360674158
			}
			],
			"global_stop_events_info": {
			"total_trace_time": "7 hours, 24 minutes and 38 seconds",
			"total_stop_events_time": "3 hours, 47 minutes and 12 seconds",
			"stop_event_percentage": 51.098283229627405
			}
			}