Satellite, Terrestrial, and Dynamic™ AIS Sample

Sources of AIS Data	Satellite and Terrestrial AIS
Time Range	2019-01-01 at 00:00:00 UTC to 2021-12-31 at 23:59:59 UTC
Downsampling rate	1 hour (one position and one static AIS message per vessel per hour)
Area of Interest	Global
Vessels Include	All Cargos (AIS Ship Types)
Data Files Uploaded To	Google Cloud Console url: https://console.cloud.google.com/storage/browser/maritime_client_ubc Gsutil link: gs://maritime_client_ubc
File List	Spire_Cargos_AIS_01012019_31122021_hourlydownsampled_*.csv

Different AIS Messages

The sample file(s) contains data from two different types of AIS messages: **position messages** and **static voyage messages**.

For example, if position reports are recorded against MMSI 636018333 in AIS message type 1

Message Types 1, 2, 3,4, 18, 19, 27 are some common position messages that contain values in the position related fields, such as speed, heading, rate of turn, position, and status of vessels.

Message Types 5 & 24 are static voyage messages and contain values in the static details and voyage related fields, such as identity, type, size and voyage information.

To identify the Name, IMO number or type of ships related to the AIS Position reports, the MMSI number must be used to join together the 2 different sets of AIS data.

, then the IMO and name of that vessel is discovered by looking for AIS message type 5 reported using the same MMSI number as shown below:

Position					Both			Static				
speed	heading	rot	latitude	longitude	timestamp	msg_type	mmsi	imo	name	callsign	eta	destination
0	511	0	-86.6701	21.8061	2020-04-23T15:38:10.37	1	636018333					
					2020-04-23T15:58:40.38	5	636018333	9821299	SOUTHERN SHARK	D5PG4	2020-04-25T09:00:00	MX COA
13.5	288	-11	-86.7018	21.8523	2020-04-23T16:03:11.23	1	636018333					
12.8	290	0	-86.786	21.919	2020-04-23T17:30:50.34	27	636018333					
14.4	296	-128	-86.8096	21.92199	2020-04-23T17:38:00.41	1	636018333					
14.3	295	-43	-86.9663	21.9533	2020-04-23T17:48:51.11	1	636018333					
					2020-04-23T18:01:10.43	5	636018333	9821299	SOUTHERN SHARK	D5PG4	2020-04-25T12:00:00	MX COA
14.4	290	8	-86.9996	22.0199	2020-04-23T18:20:44.34	1	636018333					
14.1	300	0	-87.0682	22.0678	2020-04-23T18:28:00.45	1	636018333					

For more information about our available AIS Message Types can be found in this FAQ: https://faq.spire.com/available-ais-message-types

AIS Data Sample File Column Descriptions

Column	Data Type	Descriptions
created_at	*date*	ISO 8601 formatted timestamp in UTC of the time the vessel record was created
timestamp	*string*	ISO 8601 formatted timestamp in UTC of the time the AIS message was transmitted

msg_type	*integer*	*AIS message type* *Common values:* 1, 2, 3, 5, 18, 19, 24, 27 AIS message types are explained in more details here https://faq.spire.com/available-ais-message-types
mmsi	*integer*	The Maritime Mobile Service Identity of the vessel transmitting the AIS message *Possible values:* 000000000 - 999999999
latitude	float	*Vessel latitude in degrees* *(North = positive, South = negative)* *range -90 to +90*
longitude	float	Vessel longitude in degrees (East = positive, West = negative) range = -180 to +180
speed	*number*	Vessel speed over ground represented in knots *Possible values:* 0 - 102.2 knots, 102.3 (not available)
course	*number*	Vessel course over ground in degrees *Possible values:* 0 - 359.9 degrees, 360.0 (not available)

heading	*number*	Vessel true heading in degrees *Possible values:* 0 - 359 degrees, 511 (not available)
rot	*integer*	Vessel rate of turn *Possible values:* -127 - 127; -128 (not available)
imo	*integer*	IMO number of the ship Unique International Maritime Organization number for the vessel that stays with the ship for it's life valid values 7 digit number
name	*string*	Vessel name
call_sign	*string*	Vessel call sign
draught	float	Vessel draught represented in 1/10 meters *Possible values:* 0.1 - 255, 0 (not available; default)

ship_and_cargo_type	*integer*	Vessel ship and cargo type code *Some common values:* 30 (fishing vessel), 52 (tug boat), 70 (cargo/fishing ship) more information on determining the ship type is detailed here https://faq.spire.com/determining-ais-ship-type
length	*number*	Vessel length extracted from ship dimensions to_bow and to_stern in meters
width	*number*	Vessel width extracted from ship dimensions to_port and to_starboard in meters
eta	*string*	Vessel estimated time of arrival as entered by the captain, represented in ISO 8601 format *Possible values:* Month: 1 - 12, 0 (not available; default); Day: 1 - 31, 0 (not available; default); Hour: 0 - 23, 24 (not available; default); Minute: 0 - 59, 60 (not available; default)
destination	*string*	Vessel destination as entered by the vessel captain
status	*integer*	Vessel navigation status *Some common values:* 0 (under way using engine), 1 (at anchor), 3 (restricted maneuverability), 7 (engaged in fishing), 15

maneuver	*integer*	Vessel maneuver code *Valid values:* 0 (not available; default), 1 (not engaged in special maneuver), 2 (engaged in special maneuver)
accuracy	*integer*	Vessel GPS geo location accuracy in meters *Possible values:* 1 (high, <=10 meters); 0 (low, >10 meters, default)
collection_type	*string*	How the message was captured *Possible values:* satellite or terrestrial or dynamic
to_bow	*integer*	Distance from positioning device to bow (only available in samples from March 2020 onwards)
to_stern	*integer*	Distance from positioning device to stern (only available in samples from March 2020 onwards)
to_portside	*integer*	Distance from positioning device to portside of the vessel (only available in samples from March 2020 onwards)

to_starboard	*integer*	Distance from positioning device to starboard side of the vessel (only available in samples from March 2020 onwards)

For additional information, please refer to: https://faq.spire.com/