

# Missing Arrival Manual Check Log

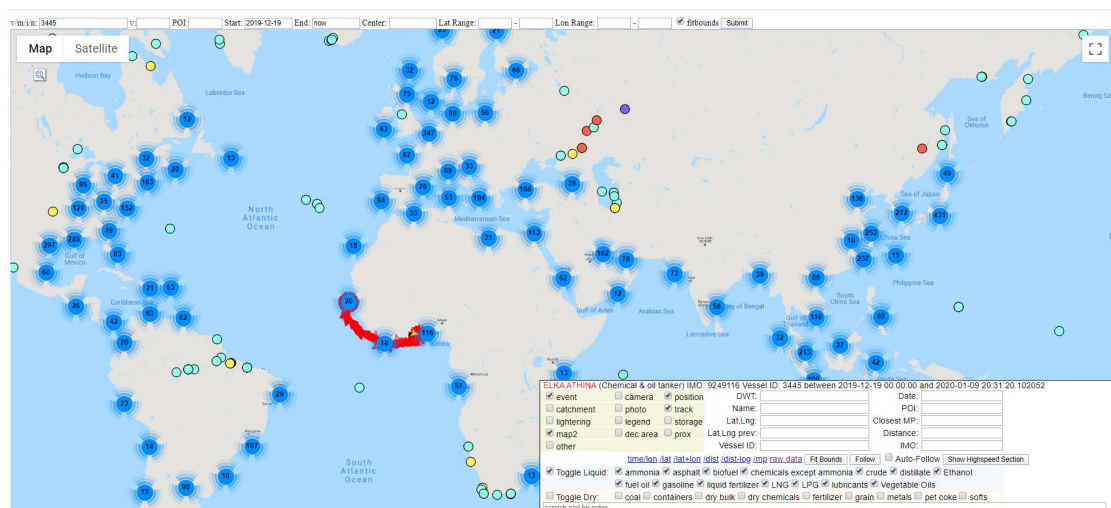
## Vivian Zhou, ClipperData, LLC, Data Analyst Intern

### I. TASK

Solve path violation alert (200-300 records daily) by checking vessels' raw draughts and voyages, applying Excel and SQL to updated missing arrival events & missing draught in database to ensure the accuracy of our model

### II. BACKGROUND

Every day, our model will be run to track the voyage of each vessel, we want to make sure that all destination arrivals have be captured by our model. If there is potential probability of missing arrival for one vessel, the alert will be on and alert record will be automatically created and output on our Excel table. I will manually check those vessels with alert on, it there is missing arrivals, the POI need to be found and added to our database. Especially for large tankers, one missing arrival can lead to very huge loss. Hence, it is very important to figure out every missing arrival and missing/ wrong draught and correct them before 5pm daily. There are many reasons can cause the missing arrivals. For example, signal losses, policy restrictions, international governance and so on. What I do every day is to manually check the voyage of the target vessels on Bargo map as well as check the destinations and draughts record in our database, in order to figure out the missing arrivals/draught to maintain the quality and integrity of our data.



**Fig1: Bargo map sample for vessel 3445**

	125 vessel	125 poi	date_arrive	date_depart	duration	125 draught_arrive	125 draught_depart	abc destination_arrive	abc destination_depart
1	3,445	105,725	2019-12-29 09:56:00	2020-01-09 04:57:06	10 days 19:01:06	11.5	11.5	SNDKR	SNDKR
2	3,445	103,935	2019-11-05 08:36:42	2019-12-19 14:58:50	14 days 06:22:08	8	11.5	LOME TOGO	SNDKR
3	3,445	105,005	2019-09-14 13:54:46	2019-11-04 17:00:06	31 days 03:05:20	13.2	8	LAGOS NIG	LOME TOGO
4	3,445	105,123	2019-08-26 00:37:24	2019-08-30 20:59:52	4 days 20:22:28	8.2	13.2	ANTWERP BEL ORDERS	LAGOS NIG
5	3,445	5,195	2019-08-23 23:00:35	2019-08-25 23:59:22	2 days 00:58:47	8.2	8.2	ANTWERP BEL ORDERS	ANTWERP BEL ORDERS
6	3,445	100,099	2019-08-03 09:49:44	2019-08-09 07:59:59	5 days 22:10:15	13.5	8.2	MA MOH	ANTWERP BEL ORDERS
7	3,445	103,353	2019-07-23 13:57:21	2019-07-25 14:57:47	2 days 01:00:26	8	13.5	LV VNT	MA MOH
8	3,445	103,712	2019-07-03 13:46:22	2019-07-05 05:58:08	1 day 16:11:46	9	8	FR DKK	LV VNT
9	3,445	106,742	2019-07-01 14:50:25	2019-07-03 11:58:11	1 day 21:07:46	13.1	9	FR DKK	FR DKK
10	3,445	100,027	2019-06-03 07:36:28	2019-06-05 08:59:47	2 days 01:23:19	8	13.1	SA JUB	GIGIB
11	3,445	104,617	2019-05-26 02:57:24	2019-05-26 07:59:43	05:02:19	8	11.7	D ANCHORAGE	SA JUB
12	3,445	104,640	2019-05-24 05:54:33	2019-05-25 23:00:00	1 day 17:05:27	11.5	8	JEBEL ALI P/S	D ANCHORAGE
13	3,445	104,641	2019-05-23 11:59:16	2019-05-24 05:06:09	17:06:53	11.5	11.5	JEBEL ALI P/S	JEBEL ALI P/S
14	3,445	104,617	2019-05-18 14:59:21	2019-05-23 03:00:17	4 days 12:00:56	11.5	11.5	C ANCHORAGE	JEBEL ALI P/S
15	3,445	100,693	2019-04-30 14:21:05	2019-05-02 03:10:02	1 day 12:48:57	8	11.7	ORDERS	AEJEA
16	3,445	100,700	2019-04-26 01:55:40	2019-04-26 02:55:40	01:00:00	8	8	ORDERS	DZAZW
17	3,445	106,371	2019-04-23 13:51:01	2019-04-24 04:57:16	15:06:15	8	8	GIB PILOT	ORDERS
18	3,445	6,845	2019-04-01 18:27:25	2019-04-06 20:31:18	5 days 02:03:53	13.3	8	GB MLF	ORDER
19	3,445	103,048	2019-04-01 17:57:21	2019-04-01 17:59:37	00:02:16	13.3	13.3	GB MLF	GB MLF
20	3,445	100,214	2019-03-13 14:32:50	2019-03-15 06:33:56	1 day 16:01:06	8	13.3	DRIFTING AREA	MTMLA
21	3,445	100,228	2019-02-28 17:35:18	2019-03-02 16:10:01	1 day 22:34:43	10.8	8	SA JED	DRIFTING AREA
22	3,445	4,928	2019-02-04 03:55:22	2019-02-06 03:59:56	2 days 00:04:34	12.3	13.2	OIL TANKING TERM	MT MLA

**Fig 2: Destination & Draught record for Vessel 3445 in our database**

### III. Steps

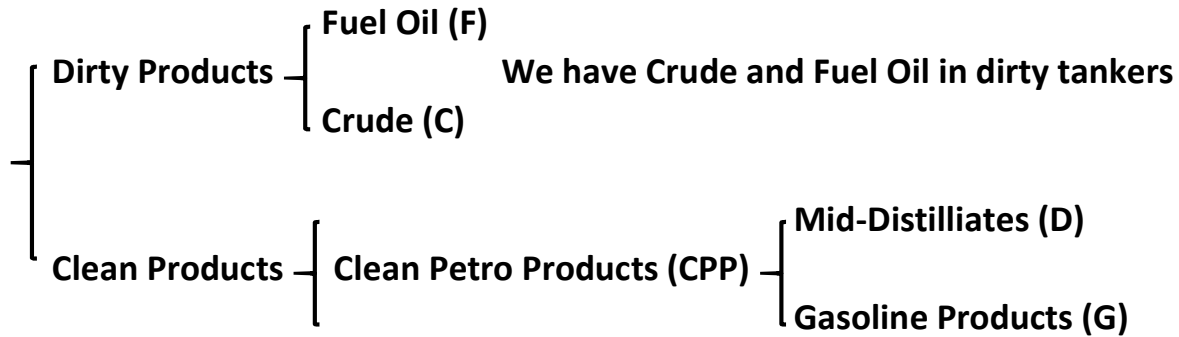
1. Open the bargo link for each vessel with alert, copy the vessel ID and find the vessel information from our `asvt_arrival` table.
2. Check the grade of the voyage which we are looking at in Excel sheet under the “Suite” column with the SQL queries:

**select \* from asvt\_arrival where vessel=XXXX order by 3 desc;**

	abc cmdty	abc description	abc cd_report	✓ liquid	✓ iss_mod
1	C	crude	CRUDE	true	false
2	P	LPG	NGL	true	false
3	L	LNG	NATURAL GAS	true	false
4	B	biofuel	BIOFUELS	true	false
5	T	asphalt	ASPHALT	true	false
6	Q	pet coke	PETCOKE	false	false
7	O	coal	COAL	false	false
8	R	grain	GRAINS	false	false
9	X	containers	CONTAINERS	false	false
10	E	Vegetable Oils	EDIBLE OILS	true	true
11	D	distillate	MIDDLE DISTIL	true	true
12	F	fuel oil	FUEL OIL	true	true
13	G	gasoline	GASOLINE	true	true
14	H	chemicals except	CHEMICALS	true	true
15	A	Ethanol	GASOLINE	true	true
16	U	lubricants	LUBRICANTS	true	true
17	M	ammonia	CHEMICALS	true	true
18	Z	fertilizer	FERTILIZER	false	true
19	Y	dry chemicals	CHEMICALS	false	true
20	S	softs	SOFTS	false	false
21	J	liquid fertilizer	FERTILIZER	true	true
22	K	dry bulk	DRY BULK	false	false
23	V	metals	METALS	false	false

**Fig 3: Commodity Table**

## Summary of grades:



3. Check the map to see if we have the arrival (white arrow) and departure (yellow arrow) of the recent one or two activities. Arrivals/ activities here means a tanker reached or close to a port and then left the port with significantly draught change. If there are any arrivals missing with no arrow appearing on the map and no records in our database, we should manually add the arrivals in the `asvt_arrival` table with SQL queries.

Queries to look up records in our database:

```
select * from asvt_arrival where vessel=VesselID order by 3 desc;
```

Queries to add missing arrivals in our database:

```
insert into asvt_arrival_x values(VesselID, POI numbers , 'XXXX-XX-XX' (arrival time));
```

4. If missing or wrong draughts are found, then apply the following queries:

```
insert into asvt_draught_x values(VesselID, 'XXXX-XX-XX XX:XX:XX'(real time), Draught);
```

Notes: the date for the draught should be consistent. If update arrival draught, then use `date_arrive`; if update departure draught, then use `date_depart`.

## IV. Notes for my daily work:

1. When check the “raw data” page to see the change of draught, if the draught changed a lot, check the corresponding destination. When the destination and draught changed at the same time, but the destination has not be captured by our model, we may consider it as a missing arrival.
2. Looking at the signal carrier. When there are consecutive draught records show a huge jump/drop from the preceding records, for example, carrier ETT report draught is 7 for six consecutive times, while other carriers all report the draught has kept same with no change as 13, we should keep tracking for a while and cannot consider it as missing arrival immediately. If more carriers report the draught as 7 in the near future, there are higher probability to say we have a missing arrival or draught change.

3. When looking for the certain missing arrivals, we have to check the POI which can handle the commodity that the vessel is carrying. If POI of the destination is found but cannot handle the carried commodity, mark in the Excel sheet as “cannot find POI”.
4. Look at time difference corresponding to every successive draught record. If the time difference is longer than one day, there are significant high probability to have a missing arrival.
5. Ignore tiny draught change. For example, the draught has changed from 15.4 to 15.5, it mainly caused by unstable signal instead of draught change. If the draught changed larger than 1, we should pay more attention especially for relative little tankers.
6. FPSO represents offshore oilfield.
7. When the voyage crosses the mainland, report position error in our Excel sheet.
8. When the vessel has stopped on lighting zone for a long time, draught has changed while destination has not changed at all, there should be another vessel loading/unloading to it, instead of missing arrival.
9. When the vessel just arrived a destination, but the location was not captured by our model yet and no arrival record has been stored in our database, mark as “keep tracking” in Excel sheet. It may be capture in the following day.
10. One day the voyage of Vessel 5380024 showed a missing arrival, and the voyage showed an apparently wrong direction. The reason is that vessel has departed from Iran and smuggle to Syria. Since it did not follow the Maritime Convention, the signal was cut off to hide the real voyage. In this case, we will double check with the policy analyst, mark as “missing arrival” in our Excel sheet first, and figure out the actual arrival with the help of policy analyst.
11. One special case: the draught changed from 9.2 =>16.2 => 9.2, but the corresponding destination is Suez without any change, although the initial draught and the ultimate draught are the same, but there are draughts change during the whole process, which may be caused by policy reason. This case should also be marked as “missing arrival”, need to be further check with policy analyst.

## V. Code

```
select * from asvt_arrival where vessel=3445 order by 3 desc;

--sql query to add location & draught
insert into asvt_arrival_x values(1442715,100951,'2019-08-15');
insert into asvt_draught_x values(5364715,'2019-07-08 06:41:35',15);

select * from lookup.cmdty
```