

# **Use of Entity Screening and Vessel Tracking to Assist Implementation of UN Sanctions – a Whitepaper**

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## **Abstract**

*Maritime sanctions against North Korea are aimed at slowing down its WMD development, and bringing it back into a dialogue that has not existed since its withdrawal from the NPT in 2003. However, the belligerent rhetoric, and continued pace of nuclear and ballistic missile tests, indicate that the maritime sanctions are only having limited effect, despite their increasing scope. UN reporting points to a range of deception measures employed by North Korea that are making implementation and enforcement harder.*

*Automatic Identification data has long been used by vessels and port authorities to improve maritime safety, but the more recent availability of such data on the internet has made it a potentially useful tool for sanctions implementation. This study examines how entity screening and vessel tracking tools might be of value to companies, authorities and NGOs in implementing and complying with sanctions.*

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## 1. Introduction

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Many of the UN sanctions placed against North Korea since its first nuclear test in 2006 impose restrictions on North Korean merchant shipping. UNSCR 1874, passed in 2009, encouraged member states to inspect ships and destroy any cargo suspected of being related to nuclear activity. Sanctions were progressively tightened under UNSCRs 2087 and 2270. In November 2016, UNSCR 2321 capped North Korea's coal exports and banned exports of copper, nickel, zinc, and silver. Most recently, the Security Council voted unanimously on 5 August 2017 to impose its harshest-yet economic sanctions on North Korea, prohibiting exports of coal, iron, iron ore, lead, lead ore and seafood.

For these measures to contribute significantly to a curtailment of North Korean WMD development, they must be effectively implemented by all member states.

The latest UN Panel of Experts report on North Korea (S/2017/150 published on 27 February 2017) found that “implementation remains insufficient and highly inconsistent.” The report identified and gave examples of various denial and deception measures practiced by North Korea and made a number of recommendations. These included building a register of North Korean vessels and the aliases under which they operate; proactive work by flag registries to refuse services to vessels crewed or commanded by North Koreans; states taking on the responsibility to check if North-Korea-crewed vessels hold valid insurance; for greater vigilance around the import of proscribed North Korean goods.

All of this suggests that the availability of information on vessels in breach of sanctions against North Korea and the capabilities to obtain such information needs to improve. Improvements in these areas would assist the UN Sanctions Committee, individual Member States, and businesses in implementing UNSCRs.

For a number of years, vessels and shore-based maritime entities have used the Automatic Identification System (AIS), originally designed for collision avoidance. Since about 2010, AIS data has started to become publicly available on the internet, and this has given rise to a number of new applications and services, particularly in the field of vessel tracking and screening. This paper aims to assess the potential usefulness of entity screening and vessel tracking for sanctions compliance, implementation, and enforcement in three broad areas:

- For the private sector (particularly banking, freight, or insurance) in its efforts to comply with export control and sanctions legislation;
- For states in their work to prevent the facilitation and movement of illicit trade from, to, or across their territories;
- And for intelligence analysts to improve the information available on illicit freight forwarding networks and methodologies.

To assist with this report, Project Alpha has been granted access to the PurpleTRAC entity screening capability offered by Pole Star. The paper will also look at a range of other available sources and has met with representatives of other providers. The paper will restrict its scope to North Korea, although the entity screening and vessel tracking capabilities have relevance to sanctions in force against other countries of interest.

It should be noted that the primary purpose of most of the solutions examined in this study did not relate to sanctions enforcement. Indeed, the primary purpose of AIS is vessel safety and the primary purpose of the tools examined herein often relates to the provision of commercial services, such as the calculation of insurance risk premiums.

Nonetheless, it has been increasingly recognised that maritime service providers have a responsibility to ensure that vessels are not involved in sanctions violations. In this context, this whitepaper builds upon previous work undertaken by Project Alpha in partnership with the Australian government as published through the UN Security Council.

## 2. Legal and Sanctions framework

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This section outlines the relevant UNSCRs pertaining to North Korea and merchant shipping.

Paragraph 8 of UNSCR 1718, passed on 14 October 2006, required member states to “prevent the direct or indirect supply, sale or transfer to the DPRK, through their territories or by their nationals, or using their flag vessels or aircraft”, of any goods or technology that might assist North Korea’s WMD programmes. It also prohibited the purchase of such goods from North Korea.<sup>1</sup>

UNSCR 1874, passed on 12 June 2009, toughened the restrictions on imports and exports by calling on states to inspect, seize and dispose of any prohibited goods, and to deny bunkering services. The Resolution also imposed obligations on flag states to permit inspections, or face being reported to the Sanctions Committee.<sup>2</sup>

UNSCR 2087, passed on 22 January 2013, did not add new restrictions on shipping, but urged stricter implementation of search and seizure.<sup>3</sup>

UNSCR 2094, passed on 13 March 2013, further strengthened the restrictions on North Korean merchant shipping by authorising states to inspect any cargo being transported from or to North Korea.<sup>4</sup>

UNSCR 2270, passed on 16 March 2016, sharpened the sanctions further by deciding that states were not just authorized to inspect cargoes, but should do so. It also prohibited member states from leasing or chartering vessels to North Korea, or allowing North Korean vessels to use their flag<sup>5</sup>. It also prohibited the procurement from North Korea of coal (except for “livelihood purposes”), iron, iron ore, gold, titanium ore, vanadium ore, and rare earth minerals.<sup>6</sup>

Relating to illicit trade, but not specifically to the ships themselves, UNSCR 2270 also noted the frequent use by North Korea of front companies, shell companies, joint ventures and opaque ownership structures to evade sanctions, and directed the Sanctions Committee to identify relevant entities for potential designation. It also reminded member states to apply due diligence to guard against illicit financial activity.<sup>7</sup>

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1 The full text of UNSCR 1718 can be found at the United Nations website under <https://www.un.org/press/en/2006/sc8853.doc.htm>

2 These provisions are contained in Paragraphs 11 – 17 of UNSCR 1874. The full text of the UNSCR can be found at the United Nations website under <https://www.un.org/press/en/2009/sc9679.doc.htm>

3 These provisions are contained in Paragraphs 7 – 13 of UNSCR 2087. The full text of the UNSCR can be found at the United Nations website under <https://www.un.org/press/en/2013/sc10891.doc.htm>

4 These provisions are contained in Paragraphs 16 – 17 of UNSCR 2094. The full text of the UNSCR can be found at the United Nations website under <https://www.un.org/press/en/2013/sc10934.doc.htm>

5 These provisions are contained in Paragraphs 18 – 20 of UNSCR 2270. The full text of the UNSCR can be found at the United Nations website under <https://www.un.org/press/en/2016/sc12267.doc.htm>

6 These provisions are contained in Paragraphs 29 - 30 of UNSCR 2270.

7 These provisions are contained in Paragraphs 16 and 38 of UNSCR 2270.

UNSCR 2321, passed on 30 November 2016, set limits for coal exports and extended the export ban to copper, nickel, silver and zinc.<sup>8</sup>

UNSCR 2371, passed on 5 August 2017, extended the export ban to lead, lead ore and seafood, banned all coal exports, and authorised the UN Sanctions Committee to designate vessels where information suggested they were in breach of sanctions.<sup>9</sup>

Although these resolutions have been adopted by all member states, it must be stressed that implementation appears patchy. In its 2017 annual report, the UN Panel of Experts on North Korea praised the highest-ever number of reports from countries (76), but still noted the absence of reports from 116 countries.

Supporting these UNSCRs are designations listings. The main designation list, established by UNSCR 1718, lists two entities specifically related to shipping: Ocean Maritime Management Company Ltd (OMM), designated in July 2014; and Chongchonggang Shipping Company, designated in March 2016 after its vessel, the *Chong Chong Gang*, was interdicted shipping arms through the Panama Canal en-route to North Korea in July 2013.<sup>10</sup> In addition to this, a list of vessels owned or operated by designated entity Ocean Maritime Management (OMM) was published as part of UNSCR 2270.<sup>11</sup>

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8 These provisions are contained in Paragraphs 26 - 28 of UNSCR 2321. The full text of the UNSCR can be found at the United Nations website under <https://www.un.org/press/en/2016/sc12603.doc.htm>

9 These provisions are contained in Paragraphs 6 - 11 of UNSCR 2371. The full text of the UNSCR can be found at the United Nations website under <https://www.un.org/press/en/2017/sc12945.doc.htm>

10 The full and current version of "The List established and maintained pursuant to Security Council res. 1718 (2006)" is maintained at <https://scsanctions.un.org/fop/fop?xml=htdocs/resources/xml/en/consolidated.xml&xslt=htdocs/resources/xsl/en/dprk.xsl>

11 UNSCR 2270 Paragraph 23 and Annex III, maintained at [http://undocs.org/S/RES/2270\(2016\)](http://undocs.org/S/RES/2270(2016)).



### 3. Sanctions evasion techniques

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As the UN sanctions have increased their strength and scope, so have North Korean efforts to evade them. Many such measures have been described in the UN Panel of Experts annual reports. The latest report, dated 27 February 2017, describes “evasion techniques that are increasing in scale, scope and sophistication”.

One successful interdiction, that of the *Jie Shun*, demonstrated several evasion techniques:

- Use of a flag of convenience (in this case a Cambodian flag, with a North Korean captain and crew);
- Concealment of illicit cargo (arms and ammunition concealed underneath 2,300 tons of iron ore) to pass cursory inspection (A previous case, the *Chong Chong Gang*, used a similar method; see S/2014/147<sup>12</sup>);
- Mis-declaration of goods (the bill of lading described the arms and ammunition as “assembly parts of the underwater pump”);
- Falsely declared port of loading (the port of loading was given as Nanjing, China, whereas the arms and ammunition were loaded at Haeju, North Korea, along with the rest of the cargo);
- Use of front companies (the *Jie Shun*’s registration certificate obtained from the Cambodian flag register following the interdiction named the owner as Vast Win Trading Ltd and the operator as K Brothers Marine Co Ltd. K Brothers Marine Co Ltd was found to have the same contact details as Bene Star Shipping, which was linked in numerous transactions with the designated North Korean company Ocean Maritime Management.)
- Deactivation of AIS. The *Jie Shun* reportedly kept it switched off for most of the voyage.

#### Identity fraud

The February 2017 Panel of Experts report also highlighted identity fraud as an evasion tactic used by North Korea. After UNSCR 2270 listed 31 vessels linked to the designated entity Ocean Maritime Management, North Korea renamed 8 of them, also allocating new Maritime Mobile Service identity (MMSI) numbers and call signs.<sup>13</sup>

#### Flags of Convenience

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<sup>12</sup> The 2014 report by the Panel of Experts on North Korea can be found here: <http://undocs.org/S/2014/147>

<sup>13</sup> Details are contained in Paragraphs 138 and 139 of Panel of Experts report S/2017/150, maintained at <http://undocs.org/S/2017/150>.

In its report S/2017/150, dated 27 February 2017, the UN Panel of Experts named 17 merchant ships as “DPRK-flagged vessels owned, operated or certified by foreign companies. Pole Star data suggests that three of these have now changed their flag (see Table 1 below). The use of a flag of convenience is a practice in which a vessel is registered to a country other than that of its owner, operator or managers. It is entirely legal, but in this context may be seen as a form of deception to disguise a vessel’s association with North Korea.

**Table 1: Vessels designated by the UN sailing under a flag of convenience**

IMO number	Name	Flag State
7303279	Fatima 2	Tanzania
8922709	Shaima	Tanzania
9103635	Yekta	Tanzania

Equasis data when queried returned 122 vessels listed as North Korean merchant ships. Referencing these against Pole Star data revealed that while many are flagged as North Korean, several are flagged to other nations: Tanzania, Belize, Togo, Tuvalu and Niue. Details are contained in Table 2 below.

**Table 2: Examples of possible North Korean vessels flagged to other nations:<sup>14</sup>**

Vessel name <sup>15</sup>	IMO number	Flag state <sup>16</sup>
AL IMAN	7711975	Tanzania
EXCEL	8513883	Thailand
ZHI HUI	9095412	Niue
HAE DO JI	8316326	Mongolia
SHENG DA 8	9163166	Belize
XIN SHENG GANG	8651398	Belize
YUKO MARU	9022362	Togo

<sup>14</sup> The flag state data for each IMO number has been obtained from PurpleTRAC.

<sup>15</sup> Vessel name data acquired from Equasis searches.

<sup>16</sup> Flag data acquired from Pole Star.

SULTAN 1	9361081	Togo
ANA	7432953	Tuvalu

#### 4. Entity screening and vessel tracking

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A number of free-to-use or subscription-based services are available that may assist companies, states or intelligence analysts in better implementation of the UNSCRs involving North Korea.

The primary data sources are IMO data (on the vessel and its associated companies) and AIS<sup>17</sup>. AIS is a tracking system designed primarily for collision avoidance at sea. Data sent and received by an on-board transceiver identifies a vessel and provides its course, speed and heading. This enables ships and shore-based authorities to monitor the movements of nearby vessels. AIS data is now viewable publicly on the internet, which has given rise to a growing range of new applications and services; it is these that we now examine specifically for their potential in assisting sanctions implementation.

These services vary in scope, design, purpose, and cost, but they typically provide a means to screen the *bona fides* of a vessel (or entities associated with that vessel) and to carry out near-real-time tracking of a vessel, as well as see its recent movements.

The primary purposes may be to allow ship owners or flag registries to track their vessels, buyers and sellers of cargoes to find and track their goods, or for banks or trading companies to conduct due diligence. The entity screening capability provides the following data points (a combination of IMO data and AIS data. A detailed description of the different AIS reports and the data they contain is published by the US Department of Homeland Security<sup>18</sup>):

- Vessel name;
- IMO number (a unique seven-digit number assigned to all merchant ships of 300 gross tonnes or more. The IMO number is permanent and continues even if a vessel's name, ownership or flag is changed);
- Registered owner (the legal title of ownership of the vessel. May be an owner/manager, a subsidiary of a larger company, a bank, or a one-ship company set up by the bank);
- Operator (responsible for commercial decisions concerning the ship);
- Group beneficial owner (the parent company of the registered owner);
- Ship manager (designated by the owner as the entity responsible for day-to-day running of the ship, including insurance);

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<sup>17</sup> The Automatic Identification System (AIS) is a tracking system used by ships primarily for collision avoidance. Under IMO regulations, AIS must be fitted to vessels over 300 gross tonnes. Data sent and received by an on-board VHF transceiver identifies a vessel and gives its course, speed and heading.

<sup>18</sup> The Department of Homeland Security's detailed description of AIS is available here: <https://www.navcen.uscg.gov/>.

- Technical manager (designated by the owner, operator or ship manager as the entity responsible for technical aspects such as repairs and servicing);<sup>19</sup>
- Maritime Mobile Service Identity (MMSI) a unique nine-digit number used in radio communications;
- And a history of the ship's recent movements.

The following non-exhaustive selection of services is intended to indicate the range of capabilities available.

The **PurpleTRAC** system,<sup>20</sup> a subscription-based service offered by **Pole Star**,<sup>21</sup> provides an entity screening and a vessel tracking solution, and has specific applicability to sanctions enforcement. The entity screening draws on IMO data, while AIS data enables vessel tracking and movement history. Commercially available INMARSAT geo-locational data is also used. Dynamic updates from incoming feeds overlay data manually entered by the company, drawn from sanctions documentation and other sources. This means that, when a search is conducted against the data, the tool can screen a vessel against known sanctioned entities or locations.

The tool generates a 'Warning' report or a 'Critical' report if the vessel being searched on has a direct association with an entity or location subject to sanctions. For instance, if a vessel has called at a North Korean port, the tool generates a 'Warning' report for this vessel. If a vessel is flagged, owned, operated or otherwise associated with a North Korean entity, the tool generates a 'Critical' report.

**FleetMon** describes itself as a vessel database holding positional information, particulars and management information on more than 1,100,000 vessels worldwide. Advanced screening services, tracking information, and historical AIS data may be purchased, and Fleetmon also offers a free-to-access vessel database. IMO and AIS data are the primary sources, with additional data points sometimes available, such as the identity of the insurer. FleetMon also shows a vessel's previous names, and the date that any previous name was last seen. There are no features specifically geared towards sanctions.<sup>22</sup>

**MarineTraffic** likewise offers a range of free and fee-based services designed for those involved in ship management, ship supply, logistics, or brokering. The free service gives access to a vessel database providing vessel details and near-real-time location for any vessel worldwide for which it receives information (based on AIS data) and allows users to populate

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<sup>19</sup> Definitions of registered owner, operator, group beneficial owner, ship manager and technical manager are taken from IHS Fairplay. <http://www.ihsfairplay.com/>

<sup>20</sup> [www.purpletrac.com](http://www.purpletrac.com)

<sup>21</sup> [www.polestarglobal.com](http://www.polestarglobal.com)

<sup>22</sup> <https://www.fleetmon.com>

and follow their own ‘fleet.’ The free service does not provide any ship ownership or management information, and there are no features specifically geared towards sanctions.<sup>23</sup>

**IHS Maritime** offers a range of subscription-based accesses to information on ships, owners, operators, managers and movements. It is designed for industry, and also for port authorities and coast guards. Its Sea-Web product contains vessel particulars, while its AISLive product allows near-real-time tracking.<sup>24</sup>

**VesselFinder** offers free access to its vessel database, allowing users to search by IMO number, name or MMSI. It gives a vessel’s current position, declared destination, and last five port calls (as derivable from AIS data). A fee-based additional service gives more information on owners, operators and management companies.<sup>25</sup>

**Windward** offers maritime data tailored to various intelligence and business tasks. Rather than offering a publicly available database, Windward provides in-house analysis to add value to data feeds.<sup>26</sup> Subscribers to the service can construct complex queries to identify vessels exhibiting particular behaviours. Of particular interest in the field of sanctions enforcement (and other law enforcement) is Windward’s capability both against ‘dark’ voyages, i.e. where a vessel switches off AIS before undertaking some illicit activity, and against other anomalies in the AIS signal, which might point at spoofing or identity fraud. Windward uses AIS anomalies as significant ‘events’ in themselves.

**Equasis** provides a free-to-use service primarily aimed at improving maritime safety. It obtains data provided from a number of sources and countries. There is no real-time vessel tracking element, but previous locations are given. Equasis allows users to search by vessel, company or flag state.<sup>27</sup>

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23 [www.marinetraffic.com](http://www.marinetraffic.com)

24 IHS Maritime

25 [www.vesselfinder.com](http://www.vesselfinder.com)

26 <http://www.windward.eu>

27 <http://www.equasis.org/EquasisWeb/public/HomePage>

## 5. Use cases

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In order to better examine the applicability of different tools to the problem of sanctions enforcement, it is helpful to examine several ‘use cases’. These use cases are built around different enforcement scenarios.

**Use Case 1: A bank, trading company or insurer has an opportunity for a business transaction involving a vessel, and wishes to conduct sanctions-related due diligence checks before taking on the business.**

Using any of the above entity-screening tools, a bank, insurance company, freight forwarding company, or maritime services company can quickly conduct checks by entering the name of a vessel or its unique IMO number. The PurpleTRAC tool specifically screens the searched-on entity against sanctions listings, meaning that, if the vessel has recently called at a North Korean port, the tool generates a ‘Warning’ report. If the vessel is owned, operated or managed by an entity linked to North Korea, or has a North Korean flag, the tool generates a ‘Critical’ report.

**Use Case 2. A bank, trading company or insurer has an opportunity for a business transaction with a company involved in shipping and wishes to conduct sanctions-related due diligence checks before taking on the business**

Most of the tools listed above are ‘vessel-centric’ in that they are geared to searches conducted against a vessel’s name, IMO number, or MMSI. This is ideal for scenarios where there is direct interaction with a vessel, or where the initial data point is a vessel name, IMO number, or MMSI. However, tools such as PurpleTRAC, FleetMon, or MarineTraffic do not allow searching against a company name making them less suited to this use case.

In this scenario, Equasis appears to be among the best options because it allows users to search against information such as a ship owner, operator, or manager. For instance, a search in Equasis on the entity Korea Kumbyol Trading Co shows it as having an address in Pyongyang, North Korea and an owner and/or manager of a fleet of six North-Korean-flagged vessels. The underlying data provided by the likes of Lloyds could also be used to build a custom solution.

**Use Case 3. A port authority receives from a vessel notification of its wish to enter the port, and wishes to conduct sanctions-related screening checks before granting the vessel permission to enter the port.**

For states wishing to fulfil their obligations under UN Security Council Resolutions against North Korea, both entity screening and the vessel tracking facility may be of use. Typically this

would be coast guard, customs or border agencies conducting checks against vessels arriving at, or transiting, their territory to identify illicit shipments or establish potential breaches of sanctions. A vessel must contact the port authorities to seek permission to enter a port. At this point a border agency or customs authority can run an entity screening check that will quickly give an indication of whether a vessel has associations with North Korea.

The vessel tracking capability can provide additional information as to the vessel's recent movements, which may help in building a profile of the vessel and in establishing whether its actual movements correspond to those which it has declared.

For instance, if the *O Ka San* (container vessel, IMO 8735924) asked for permission to enter, a port a screening check would reveal that its flag was unknown. A more thorough check would reveal that its operator, ship manager and technical manager (Korea Sonbong General Trading) is registered in North Korea. The authority should then refuse entry to port under UNSCR 1874. In order to arrive at this decision, the authority would need to be using a screening tool that provided details of owner, operator and manager (such as PurpleTRAC or Equasis).

**Use Case 4. A UN member state wishes to conduct sanctions-related screening checks on vessels in, near, or approaching its territorial waters.**

Some tools have the functionality of being able to highlight an area of the map and search for any signals emanating from that area (typically AIS broadcasts).

Carrying out such a check at regular intervals will allow a relevant authority (coast guard, border force, customs or port authority) to maintain an intelligence picture of all vessels within that area with identification, course, and speed information.

Maintaining such a picture relevant to sanctions would be relatively time-consuming, as each entity appearing within the boxed area would need to be screened individually, using either the same or an equivalent tool for links to North Korea. IHS Maritime and Pole Star appear to have integrated this into a single process to some extent.

**Use Case 5. Intelligence analysts wish to identify entities set up to evade sanctions (such as front and cover companies) for potential designation by the UN.**

Entity screening data is of significant value for intelligence analysts to help identify entities with low-visibility links to North Korea. Initial analysis suggests this is a rich source of data that, combined with other sources, could generate reporting that might contribute to sanctions designations and thereby ultimately add fidelity to due diligence checks by states or private companies. This study, for instance, has searched Pole Star data for North-Korean-flagged vessels. The dataset identified ninety-six vessels and provided for each, where known, the name of the registered owner, operator, ship manager, technical manager, and group



beneficial owner. Assuming the flag data is accurate, any associated entities may be considered subject to sanctions.

Initial analysis of the data suggests that North Korea has set up a large number of one-ship companies (analogous to the case of the Chongchonggang Shipping Company Ltd, which owned the vessel of the same name). It also shows a significant number of entities linked to designated entity Ocean Maritime Management. In total, this one dataset has thrown up over 80 entities, most of which have not been reported before, which appear to have direct links to North Korean merchant shipping. Further analysis would be required to obtain further details of these entities.

**Use Case 6: A vessel loads sanctioned goods at a North Korean port and sails to its destination with its AIS switched off.**

This is a difficult scenario which tends to defeat entity screening and vessel tracking tools that rely on AIS data. If the vessel can travel all the way to its destination (by definition a colluding nation), it will have delivered its cargo without providing any data to the AIS collection and analysis tools and thus may have successfully evaded sanctions. Detection of this illicit activity would rely on a different source of data: overhead imagery of the North Korean port, showing the vessel loading and departing,<sup>28</sup> or other emanations from the vessel, such as the geolocational data from its INMARSAT terminal.

If the vessel is operating under a non-North-Korean flag of convenience, the lack of an AIS signal should prompt the flag state to investigate. A responsible flag registry would, by using tools such as those listed above, continuously monitor its flagged vessels, and the non-appearance of an AIS signal would be grounds to contact the vessel.

If the vessel, under any flag, needs to enter a port en-route for bunkering services, or needs to use a waterway for which it must declare itself (Suez Canal or Panama Canal), then it has no choice but to activate its AIS. In this case, even if the entity check does not show any links to North Korea, the lack of any previous recent AIS data might alone be enough to arouse the suspicion of the shore-based authority.

**Use case 7: A vessel loads illicit cargo in North Korea, then transfers it to another vessel at sea. Both vessels have their AIS switched off before, during, and after the ship-to-ship transfer.**

This is another difficult (but entirely credible) scenario, that tends to defeat entity screening and vessel tracking tools that rely on AIS data. Again, imagery and INMARSAT data that could

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<sup>28</sup> A number of companies offer satellite imagery. Google offer a free-to-use service. <http://earthi.space> is among a number of companies offering commercial imagery.

detect such a transfer may be available. It is plausible to use AIS data feeds to detect this, by looking for cases, for instance, where two ships heading towards each other switch off their AIS for a certain time, then switch it back on. Such bespoke solutions are believed to be available from Pole Star and Windward, but it is not clear whose detection and enforcement responsibility this would be, as the transfer would occur in international waters.

## 6. The limitations of entity screening and vessel tracking

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The fidelity and completeness of the data set cannot be guaranteed, due to the nature of AIS. The voluntary basis for many of the AIS data feeds worldwide means that not all AIS data is available and often incomplete. Coverage is often patchy on oceans. In addition, vessels of greatest concern may switch off the AIS, or provide false data. The *Jie Shun* switched off its AIS for most of its voyage prior to the 2016 interdiction of its cargo.<sup>29</sup> AIS can also be spoofed or invalid data can be provided.<sup>30</sup>

Entity screening can search on a vessel name or IMO number to identify a North Korean flag, owner, operator, or manager, immediately indicating the vessel may be in breach of sanctions. However, there is ample evidence that North Korea has frequently taken measures to change these details, with the specific aim of evading sanctions. In assessing the value of entity screening tools, the question must therefore be whether such evasive tactics can withstand entity screening.

Renaming a vessel cannot withstand entity screening, provided the search is made against the IMO number rather than the name. This is because the IMO number remains the same even if the vessel's name or flag changes.

However, many entity screening services are 'vessel-centric' and only allow users to search against certain fields such as a vessel name or IMO number; users cannot search by company name. This is no problem when the initial data point is the vessel name, as it is possible to discover from there all other data associated with a given vessel. However, if the initial data point is the name of a company, (e.g. trying to arrange transportation, freight insurance or finance for a shipment), it is harder to conduct due diligence checks. Care must be taken when using tools in this manner.

Take, for example, the *Ja Song 1*. If a company or government entity is provided with this name (or its IMO number 8863733) and conducts a due diligence check using a tool such as PurpleTRAC, this will immediately show that the vessel is North Korean flagged and has Korea Jasong Shipping Co as owner, operator, group beneficial owner, ship manager and technical manager. However, if the initial data point for further enquiry is Korea Jasong Shipping Co, the tool will not permit a search. This raises a significant risk that companies, despite due diligence, might inadvertently do business with a North Korean front company specifically created to enable illicit cargo shipments.

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<sup>29</sup> Paragraph 62, S/2017/150

<sup>30</sup> Windward. "AIS Data on the High Seas: An Analysis of the Magnitude and Implications of Growing Data manipulation at Sea", 20 October 2014.

In this scenario, the solution is Equasis. A search in Equasis on the entity Korea Jasong Shipping Co shows it as having an address in Pyongyang, North Korea, and owner and/or manager of a fleet of two North-Korean-flagged vessels.

Sanctions prohibit the chartering of vessels to North Korea, and apply to vessels crewed or captained by North Koreans. However, the IMO does not appear to maintain records of chartering status, or the nationality of captain or crew, nor is this transmitted in AIS, so AIS-based systems cannot assist this area of sanctions implementation.

## 7. Recommendations

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Although there are limitations to their use, it is clear that entity screening and vessel tracking are of high value to private companies needing to avoid dealing with a sanctioned entity, and government entities wishing to implement and enforce sanctions. Further study is required to assess how widely such screening techniques are already in use, particularly among the nations along the shipping routes likely to be taken by North Korean cargoes, and among providers of finance and maritime services such as insurance.

Users of such services need to be aware of the limitations of the data and be prepared to use a range of sources. Searching against the unique and unchanging IMO number in addition to vessel name is one such good practice. Use of Equasis to check whether ship owners, operators, or managers have possible links to a sanctioned entity is a useful addition to any entity screening suite.

UNSCR 2270 established a list of designated vessels associated with designated entity Ocean Maritime Management. The most recent UN Panel of Experts report (S/2017/150, published 27 February 2017) recommended maintaining a full list of designated vessels. Such a list would clearly have benefits for companies and government authorities in member states, and this report shows that entity screening tools can generate a lot of new data that might usefully populate such a list.

However, it is not just the vessels themselves that are subject to sanctions, but all the entities (individuals and companies) associated with those vessels. These are entities which evidence suggests have been deliberately created by North Korea to evade sanctions, and whose use appears to be able to defeat some entity screening. Companies and shore-based authorities need to be aware that a thorough due diligence check broadens the scope of examination to the entities and companies associated with a vessel in addition to the vessel itself.

Initial analysis indicates that vessel and shipping company databases may hold details of front and cover companies created to evade sanctions. As a way forward to assist due diligence and sanctions implementation, work needs to be undertaken to identify as many of these individuals and companies as possible, and put forward such an expanded list for potential designation.

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