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A taxonomy for piracy incident reporting: Tailored for the test implementation of PIRATES in the Gulf of Guinea

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Abstract

This report is an output of the Pilot Project on Piracy, Maritime Awareness and Risks -Gulf of Guinea, carried out by the Joint Research Centre (JRC) of the European Commission on behalf of EuropeAid. Monthly reports are being produced during the duration of this project.

This report shortly describes the data fields of the maritime piracy taxonomy that was built for the Piracy Incident Reporting And information Exchange System (PIRATES), which is the software developed by JRC and test implemented in the Gulf of Guinea. As regards this taxonomy, piracy incidents were described by their so called attributes, for instance the "name of the ship" that was attacked or the "location of the piracy incident". Then, the attributes were grouped together in so called sections, for instance the "name of the ship" belongs to the group "ship details". The following nine sections were created:

- 1) As regards identification, the following attributed were created: Reporting entity, Date entered, Incident number Incident Sort, Incident Type, Status of report, report last modified.
- 2) As regards DTG and location, the following attributes were created: Incident date, Incident time, Time zone, Period of dat, Country of incident, Position of incident, Location of incident, area of incident, latitude and longitude.
- 3) As regards the ship details, the following attributes were created: name of ship, IMO number, MMSO number, call sign, flag of ship, type of ship, length of ship. DWT of ship and photo of ship.
- 4) As regards ship circumstances, the following attributes were created: next port, last port and nearest port of ship, status of ship, speed of ship, speed of ship, freeboards of ship, security on boards, citadel/safe room, ships security level, visibility, wind speed and wave height.
- 5) As regards details of the attack, the following attributes were created: type and number of attackers, type and number of boats, weapons used, violence used, length of attack, attackers arrested, injured or killed, ship entered by and mitigating actions.
- 6) 6) As regards victim details, there is a possibility to enter the number of victims killed, injured, missing, kidnapped, threatened, taken hostage and/or assaulted. There is a possibility to enter the number of crew on board with EU citizenship.
- 7) As regards narrative, there is a possibility to enter a free/format description of the attack.
- 8) As regards the post/incident details, the following attributed were created consequences for victims, days held in captivity, ship released on, ransom paid, human shield, crew mother-ship, vessel raided, estimated costs and authorities reported to.
- 9) As regards photos and reports, a possibility to attach photos and reports of the incident was developed in PIRATES.

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1. Identification

As regards the identification, the following attributes were created: (a) Reporting entity, (b) Date entered, (c) Incident number, (d) Incident Sort, (e) Incident Type, (f) Status of report, (g) Report last modified.

(a) Reporting entity

The reporting entity is a mandatory field for the entity that is reporting the piracy incident. The following general entities have been created: Navy, Coast Guard, MRCC, Port authority/harbour master, Port police, marine police, ship master/operator/owner and embassy/high commission. Next to this general maritime authorities, specific entities were added to the data model where applicable, i.e. the Ghana Maritime Authority in Ghana or the BIR in Cameroon. All general and specific entities are related to a specific country in the Gulf of Guinea. This list of Gulf of Guinea countries in the data model is based on the ECOWAS and ECCAS countries in West Africa¹. Furthermore, a reporting entity could also be an international organisation².

(b) Date entered

The date entered is the date the piracy incident was reported in the database. It is a mandatory field.

(c) Incident number

The incident number is a unique number related to the incident and is mandatory.

(d) Incident sort

The incident sort is either an actual attack or an attempted attack.

(e) Incident type

There were seven types of incidents created: Hijacking/kidnapping, Hijacked, Kidnapping, Boarded, Fired Upon, Attempted Boarding, Suspicious vessel

(f) Status of report

The status of the piracy report is either initial or final.

(g) Report last modified

This is the date when the report was last modified.

Identification	
Entity	<input type="text"/>
Date entered	<input type="text"/>
Incident Number	<input type="text"/>
Incident sort	<input type="text"/>
Incident type	<input type="text"/>
Status of report	<input type="text"/>
Report last modified	12/18/2013 12:40:59 PM

¹ Benin, Burkina Faso, Cape Verde, Ivory Coast, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo (ECOWAS) and Angola, Burundi, Cameroon, Central African Republic, Chad, Congo, Republic of the Congo, Equatorial Guinea, Gabon and Sao Tomé e Príncipe (ECCAS). Landlocked states were not taken into account.

² The following international organisations were created: IMB-PRC, ICC-IMB, IMO, MTISC, UKMTO/MSCHOA, INTERPOL, EC-JRC, Non-Governmental Organisation (NGO), ReCAAP ISC, Other.

2. DTG and Location

As regards the DTG and location, the following attributes were created: (a) Incident date, (b) Incident time, (c) Timezone, (d) Period of day, (e) Country of incident, (f) Position of incident, (g) Location of incident, (h) Area of incident, (i) Latitude and Longitude.

(a) Incident date

The incident date is the date when the incident occurred. This date is formatted using the standard format 'YYYY/MM/DD, e.g. '2001/07/22'

(b) Incident time

The incident time is the time when the incident occurred. This time is formatted using the standard format 'HH:MM' e.g. '15:19'.

(c) Timezone

The timezone can be either Local Time (LT) or Coordinated Universal Time (UTC)

(d) Period of day

The incident can take place in daylight, darkness or twilight (either before sunrise or after sunset).

(e) Country of incident

The country of incident is the location of incident expressed in the nearest country. For the data model a list with all countries in the world was created. These values are predefined and therefore cannot be entered manually when reporting an incident.

(f) Position of incident

The position of incident is a free-format *description* of the location of incident, for instance "Around 3.5 Nm SE of Lomé".

(g) Location of the incident

Location of incident is the area of attack, which could be either port area, national rivers, international rivers, territorial waters, international waters or "unknown/not stated". These values are predefined and therefore cannot be entered manually when reporting an incident.

(h) Area of incident

The area of incident is the wider area or zone of the incident, which could be West Africa, Far East, South China Sea, China Sea, Malacca Strait, North Pacific Ocean, Yellow Sea, Indian Ocean, Persian Gulf, Arabian Sea, East Africa, Mediterranean Sea, North Atlantic Ocean, South America (C), South America (A), South America (P), North Sea, "Other" or Unknown/Not Stated. Obviously, within the scope of our project the area of incident is always "West Africa".

(i) Latitude and Longitude

Latitude and Longitude is the exact geographical location, expressed in degrees, min, secs, north/south (Latitude) and degrees, min, secs, east/west (Longitude).

DTG and Location			
Incident date	<input type="text"/>	Position of incident	<input type="text"/>
Incident time	<input type="text"/>	Location of incident	<input type="text"/>
Timezone	<input type="text"/>	Area of incident	<input type="text"/>
Period of day	<input type="text"/>	Latitude	<input type="text"/>
Country of incident	<input type="text"/>	Longitude	<input type="text"/>

3. Ship characteristics

As regards the ship details, the following attributes were created: (a) Name of ship, (b) IMO Number, (c) MMSI Number, (d) Call sign, (e) Flag of Ship, (f) Type of ship, (g) length of ship, (h) DWT of ship.

(a) Name of ship

There is a possibility to enter the name of the ship that was attacked manually.

(b) IMO Number

The IMO number is a unique identifier for ships and for registered ship owners and management companies. It is generally only used for larger ships.

(c) MMSI number

A Maritime Mobile Service Identity (MMSI) is a series of nine digits in order to uniquely identify ship stations, ship earth stations, coast stations, coast earth stations, and group calls. The MMSI number is used for the ship's AIS transponder, which is mandatory for ships of 300 tonnes and up, but also used on many smaller ships.

(d) Call sign

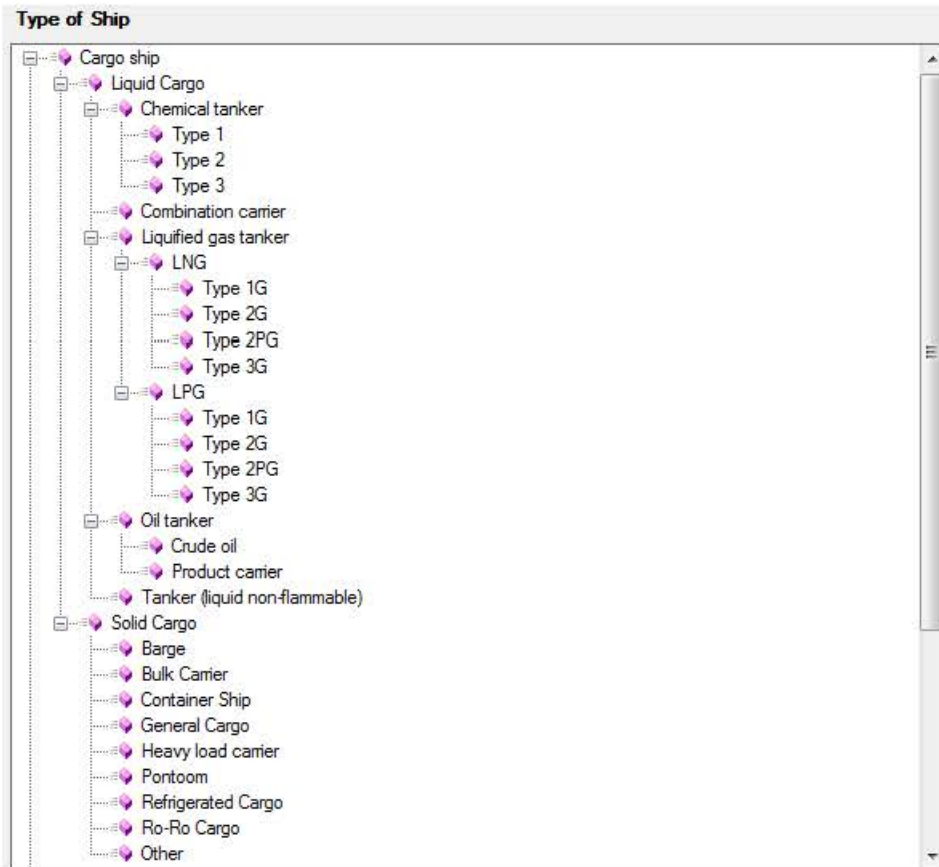
The Call sign is an alphanumeric code that uniquely identifies a ship and is used for radio communication with land based operators or stations and between the vessels.

(e) Flag of ship

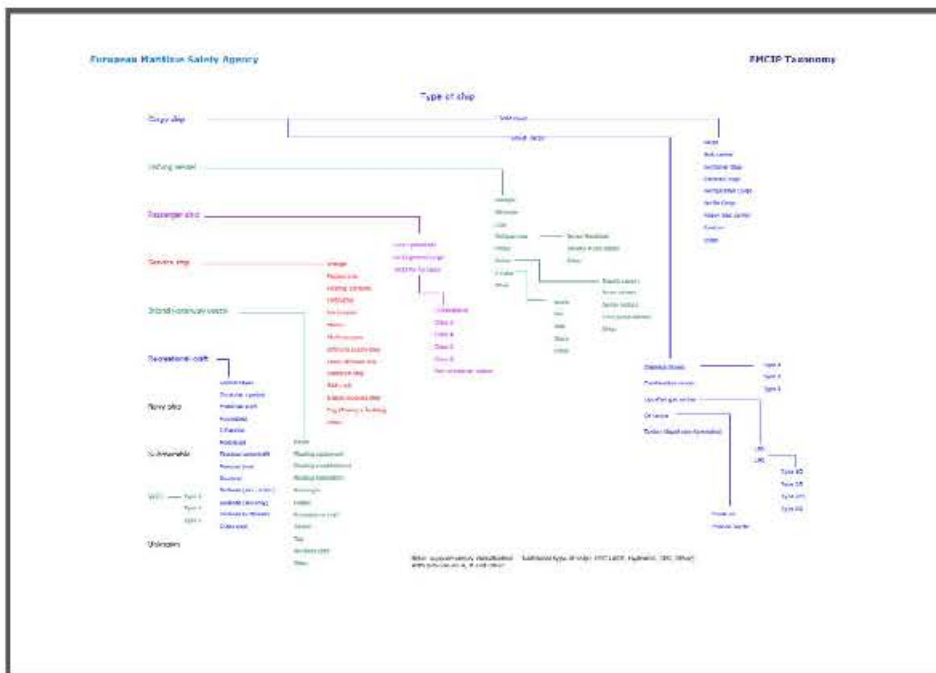
This is the flag of the ship attacked. It refers to the civil ensign a ship flies in order to indicate its country of registration or flag state. A ship operates under the laws of its flag state. For the data model a list with all countries in the world was created. These values are predefined and therefore cannot be entered manually when reporting an incident.

(f) Type of ship

The type of ship could be cargo ship, passenger ship, fishing vessel, service ship, inland waterway vessel, recreational craft, WIG, navy ship, submersible or unknown/not stated. All these are "main" ship types which can be divided in subtypes of ship, for instance a cargo ship can be either a liquid cargo ship or a solid cargo ship. These both subtypes can again be further divided in subclasses of the ship as can be seen in the figure below.



For the data model a list with all types of ship was created based on the EMCI³ taxonomy for ship types to avoid reinventing the wheel (see figure below for the EMCI taxonomy).



(g) Length of ship

Length overall (Loa) of a vessel means the centreline longitudinal distance measured between the fore part of the uppermost end of the stem to the aft side of the aftermost permanent structure of the ship, not including guards or rubbing strakes, spars, platforms, outboard motors, Z-drives, jet drives, or transom-hung rudders, but including any additional enclosed hull volume that is to be added to the hull in the form of detachable or fixed volumes such as blisters, sponsons.

(h) DWT of ship

The Deadweight Tonnage of the Ship, expressed in Kg.

The image shows a form titled "Ship characteristics" with a light blue background. It contains several input fields and a dropdown menu. On the left side, there are five input fields: "Ship name", "IMO number", "MMSI number", "Call sign", and "Flag of ship". The "Flag of ship" field has a dropdown arrow. On the right side, there are three input fields: "Type of ship", "Length of ship" (with a unit "m" next to it), and "DWT of ship" (with a unit "t" next to it). The "Type of ship" field is a large text area with a scroll bar on the right.

4. Ship circumstances

As regards the ship circumstances, the following attributes were created: (a) next port, last port and nearest port of ship, (b) status of ship, (c) speed of ship, (d) freeboard of ship, (e) security on board, (f) Citadel/safe room, (g) ships security level, (h) visibility, (i) wind speed, (j) wave height.

(a) Next port, last port and nearest port of ship

The next port of ship, last port of ship and nearest port of ship are the ports of the ship that are next, last and nearest when attacked, either under way or at anchor. For the data model a list with all ports in the world was created. These values are predefined and therefore cannot be entered manually when reporting an incident.

(b) Status of Ship

The status of ship refers to the status of ship when attacked. This could be anchored, berthed, drifting, steaming or Unknown/not Stated. These values are predefined and therefore cannot be entered manually when reporting an incident.

(c) Speed of ship

The speed of ship when attacked, expressed in knots.

(d) Freeboard of ship

The freeboard of ship is the height of a ship's deck above water level, expressed in meters.

(e) Security on board

The security on board a ship could be PCASP (Privately Contracted Armed Security Personnel), Navy, Government-Security (Armed or Unarmed) or other security team.

³ EMCIP= European Marine Casualty Information Platform

These values are predefined and therefore cannot be entered manually when reporting an incident. It is also possible to enter “no security team” or “unknown/not stated”.

(f) Citadel/safe room

Citadel/safe room is a place where crew can be mustered during the piracy attack, it either is established or not.

(g) Ships security level

The Ships security level is one of the security levels referred to in the ISPS Code. These values are predefined and therefore cannot be entered manually when reporting an incident. There are three security levels: Security level 1: normal, the level at which the ship or port facility normally operates, Security level 2: heightened, the level applying for as long as there is a heightened risk of a security incident. Security level 3: exceptional, the level applying for the period of time when there is the probable or imminent risk of a security incident.

Security level 1 means the level for which minimum appropriate protective security measures shall be maintained at all times. Security level 2 means the level for which appropriate additional protective security measures shall be maintained for a period of time as a result of heightened risk of a security incident. Security level 3 means the level for which further specific protective security measures shall be maintained for a limited period of time when a security incident is probable or imminent, although it may not be possible to identify the specific target. Setting security level 3 should be an exceptional measure applying only when there is credible information that a security incident is probable or imminent. Security level 3 should only be set for the duration of the identified security threat or actual security incident. While the security levels may change from security level 1, through security level 2 to security level 3, it is also possible that the security levels will change directly from security level 1 to security level 3.

(h) Visibility

Visibility refers to the visibility is the ship when under attack. These values are predefined and therefore cannot be entered manually when reporting an incident. Visibility is given in the format: 1. Good, meaning that the visibility is greater than 5 nautical miles (9.3 km; 5.8 mi); 2. Moderate, where visibility is between 2 and 5 nmi (3.7 and 9.3 km; 2.3 and 5.8 mi) nautical miles; 3. Poor, where visibility is between 1000 metres and 2 nautical miles; 4. Fog --> where visibility is less than 1,000 m (3,300 ft).

(i) Wind speed

Wind speed is the speed of wind during the attack, expressed in knots.

(j) Wave height

The wave height is the estimated height of the wave during the attack, expressed in meters.

Ship circumstances			
Last port of ship	<input type="text"/>	Security on board	<input type="text"/>
Next port of ship	<input type="text"/>	Citadel/Safe-Room	<input type="text"/>
Nearest port	<input type="text"/>	Ships Security Level	<input type="text"/>
Status of ship	<input type="text"/>	Visibility	<input type="text"/>
Speed of ship	<input type="text"/> kt	Wind speed	<input type="text"/> kt
Freeboard of ship	<input type="text"/> m	Wave height	<input type="text"/> m

5. Details of attack

As regards the details of the attack, the following attributes were created: (a) type and number of attackers, (b) type and number of boats, (c) weapons used, (d) violence used, (e) length of attack, (f) attackers arrested, injured or killed, (h) ship entered by, (i) mitigating actions.

(a) Type and number of attackers

Type of attackers could be Pirates, Robbers, or Militants. These values are predefined and therefore cannot be entered manually when reporting an incident. There is however a possibility to select “unknown/not stated”. Pirates are criminals that board a vessel when it is underway (steaming), or criminals hijacking a vessel, kidnapping people, taken hostages, etc. Robbers are (small groups of) perpetrators whose only goal is theft of easily saleable materials such as oil, outboard engines, ropes etc. Militants are applicable to groups operating from a political and/or an ideological perspective (e.g. in the Niger Delta). There is the possibility to enter the number of attackers.

(b) Type and number of boats

The type of boats used by the attackers could be skiffs, canoes, dhows, speedboats, mother vessels or “other type of boat”. There is also a possibility to select “unknown/not stated”. A skiff is a small light rowing boat, sailing boat or motor boat and a dhow is a traditional sailing vessel with one or more masts. There is the possibility to enter the number of boats as well.

(c) Weapons used

The type of weapons used by the attackers could be sticks, knives, guns, assault rifles/machine guns, explosives or other weapons. There is also a possibility to select “unknown/not stated”. Examples of assault rifles/machine guns include the AK-47 and rocket-propelled grenades (RPG's).

(d) Violence used

The type of violence used by the attackers could be threat of physical violence, physical violence (slapping, punching, pushing), physical violence (extreme abuse), weapons used to enter the ship, weapons used to kill, weapons used to fight security on board, or other use of violence or no use of violence. There is also a possibility to select “unknown/not stated”. These values are predefined and therefore cannot be entered manually when reporting an incident. Multiple values can be entered when reporting on violence used by the attackers.

(e) Length of attack

There is the possibility to enter the length of the attack, expressed in minutes.

(f) Attackers arrested, injured or killed

There is the possibility to enter the number of attackers arrested, injured or killed.

(g) Ship entered by

Ship entered by could be ladders, pilot ladders, ropes and hooks, fenders or other means. These values are predefined and therefore cannot be entered manually when reporting an incident. There is also a possibility to select “unknown/not stated”.

(h) Mitigating actions

Mitigating actions that could be taken are: authorities contacted, fire hoses activated, speed increased, weapons used, alarm raised, crew mustered, alert system activated, fire alarm activated, SSAS (Ship Security Alert System) activated, parachute flares fires, naval ships called for assistance, pirates fires at, citadel/safe-room used. These values are predefined and therefore cannot be entered manually when reporting an incident. Multiple values can be entered and there is also a possibility to select “unknown/not stated”.

Details of attack

Type of attackers	<input type="text"/>	Length of attack	<input type="text"/> Minute(s)
Number of attackers	<input type="text"/>	Attackers arrested	<input type="text"/>
Type of boats	<input type="text"/>	Attackers injured	<input type="text"/>
Number of boats	<input type="text"/>	Attackers killed	<input type="text"/>
Weapons used	<input type="text"/>	Ship entered by	<input type="text"/>
Violence used	<input type="text"/>	Mitigating actions	<input type="text"/>

6. Victims

As regards the victim details, there is a possibility to enter the number of victims killed, injured, missing, kidnapped, threatened, taken hostage and/or assaulted. There is a possibility to enter the number of crew on board with EU Citizenship.

Victims

EU Citizenship	Killed	Injured	Missing	Assaulted	Kidnapped	Taken hostage	Threatened

7. Narrative

As regards the narrative, there is a possibility to enter a free-format description of the attack.

Narrative [Edit...](#)

8. Post-Incident Details

As regards the post-incident details, the following attributes were created: (a) Consequences for victims, (b) Days held in captivity, (c) Ship released on, (d) Ransom paid (e) Human Shield, (f) Crew Mothership, (g) Vessel raided, (h) Estimated costs and (i) Authorities reported to.

(a) Consequences for victims

The consequences for the victims during or after the incident could be confinement & loss of privacy, loss of self-esteem and dignity, hunger/malnutrition, psychological stress & abuse, bodily injuries, died from malnutrition, died from diseases, died during rescue efforts or “other consequences”. These values are predefined and therefore cannot be entered manually when reporting an incident. Multiple values can be entered when reporting on consequences for victims.

(b) Days held in captivity

The number of days the victims were held in captivity.

(c) Ship released on

The date ship was released on in case of hijacking.

(d) Ransom paid

Is there ransom paid for the release of the ship and/or the victims and if yes how much.

(e) Human Shield

Were victims used as human shield during captivity or rescue efforts?

(f) Crew mothership

Were victims forced to crew mothership during captivity?

(g) Vessel raided

Which parts of the vessel are raided?

(h) Estimated costs

The estimated total costs of this piracy incident, expressed in euros or dollars.

(i) Authorities reported to

The authorities reported to are the same as the reporting entities mentioned earlier.

Post Incident Details

Consequences		Authorities reported to	
Human shield	<input type="text"/>	Ransom paid	<input type="text"/>
Crew mothership	<input type="text"/>	If yes, how much?	<input type="text"/> Euro
Ship released on	<input type="text"/>	Vessel raided	<input type="text"/>
Days held in captivity	<input type="text"/> Day(s)	Estimated costs	<input type="text"/> Euro

9. Photos and reports

As regards the photos and reports, there is a possibility to attach photos and reports of the incident.

Photos and Reports

Photo of incident	<table border="1"><thead><tr><th>File</th><th>Date</th><th>Size (kb)</th><th>+</th></tr></thead><tbody><tr><td colspan="4"></td></tr><tr><td colspan="4"></td></tr></tbody></table>	File	Date	Size (kb)	+									Report of incident	<table border="1"><thead><tr><th>File</th><th>Date</th><th>Size (kb)</th><th>+</th></tr></thead><tbody><tr><td colspan="4"></td></tr><tr><td colspan="4"></td></tr></tbody></table>	File	Date	Size (kb)	+								
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