Automating Ship Reporting
Proposal for a roadmap for roll-out of automated ship reporting

Yu Yung-Ho  
Professor, College of Engineering  
Korea Maritime and Ocean University  
Head, Advanced IT & Ship Convergence Center  
Korea  
yunghyu10@gmail.com

Fred W. Pot, MSc NA, MBA  
Principal  
Marine Management Consulting  
USA  
fpot@enavolutions.org
Presentation Topics

1. Vessel Shore Reporting Management System (VSRMS)
2. Ship Reporting Architecture Proposal
3. Proposed Implementation Road Map
Some Generated Reports of Different nation ports by VSRMS
CUSTOMS AND EXCISE SERVICE

Arrival Declaration

Name of Vessel: HANJIN TAMPA
Call Sign: AB23436
Voyage No.: 23212332
Arrival Time: 5/20/2016 12:00:00 AM
Arrival Port: Tokyo port
Buoy No.: 435435

(1) Shipping Particulars

| Name of Owner | Delphi Navigation Ltd. |
| Nationality | KOREA |
| Port of Registry | Busan |
| Tonnage - Gross | 16,252 |
| Registered Length | 20007 |
| Tonnage - Net | 45,350 |
| Passenger Capacity | 200 |
| Year Constructed | 2015 |
| Name of Agent | John |
| Address | Busan, South Korea |

(2) Voyage Itinerary

<table>
<thead>
<tr>
<th>Name of Port</th>
<th>Arrival Date</th>
<th>Departure Date</th>
</tr>
</thead>
</table>

Arrival Report
<table>
<thead>
<tr>
<th>Tank</th>
<th>Full Capacity (MT)</th>
<th>Ballast Water Source</th>
<th>Exchange Date</th>
<th>Valve Configuration</th>
<th>Exchange Location Ballast Tank (Abbrev) (Abbrev)</th>
<th>Exchange Date &amp; Time</th>
<th>List Pumps Used (No. &amp; Name)</th>
<th>Empty Only</th>
<th>Readthrough Only</th>
<th>Waste Discharge Only</th>
<th>Exchange Date</th>
<th>Waste Discharge (MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>tank1</td>
<td>765.00</td>
<td>jgh</td>
<td>5/13/2015</td>
<td>5/13/2015 12:00:00 AM</td>
<td>76.00</td>
<td>76.00</td>
<td>878.00</td>
<td>767.00</td>
<td>7,657.00</td>
<td>756.00</td>
<td>567.00</td>
<td>456.00</td>
</tr>
<tr>
<td>tank2</td>
<td>765.00</td>
<td>jgh</td>
<td>5/13/2015</td>
<td>5/13/2015 12:00:00 AM</td>
<td>76.00</td>
<td>76.00</td>
<td>878.00</td>
<td>767.00</td>
<td>7,657.00</td>
<td>756.00</td>
<td>567.00</td>
<td>456.00</td>
</tr>
<tr>
<td>tank3</td>
<td>765.00</td>
<td>jgh</td>
<td>5/13/2015</td>
<td>5/13/2015 12:00:00 AM</td>
<td>76.00</td>
<td>76.00</td>
<td>878.00</td>
<td>767.00</td>
<td>7,657.00</td>
<td>756.00</td>
<td>567.00</td>
<td>456.00</td>
</tr>
</tbody>
</table>
SYSTEM OVERVIEW

ARCHITECTURAL DESIGN OF VSRMS
Scenario 1

Ship

Bridge Team

Data Collection App

Reporting Database

Report Generator

Reports¹

Shore-side Authority

¹ Hard copy, FAX, PDF, XML, CSV, XLS, RTF, MS Word, etc.
Scenario 1

Ship

- Bridge Team

- Ballast Management System
- Waste Management System
- Emissions Management System

Data Collection App

Reporting Database

Report Generator

Reports

1 Hard copy, FAX, PDF, XML, CSV, XLS, RTF, MS Word, etc.
Ship Report Library


- **iala** = the international organization that owns the register of reports
- **sr** = ship report register
- **igr** = inter governmental region code (i.e. Schengen)
- **us** = country code
- **wa** = state/province code
- **sea** = port code
- **12345** = report id

Notes:
- Country code, State/Province, Port code would be 99:99:999 in case of the report is owned by an inter governmental region
- Note: igr would be 999 if the report is not owned by an inter governmental region
- Note: if the report is owned by a country then state/province, port code would be 99:999
Report Properties

- Type (Single Window, Customs, Health, etc.)
- Submission Criteria (Who?, When?, Where?, How?)
- Format (Hard Copy, Fax, PDF, XML, etc.)
- Languages (i.e. Korean & English)
- Form Layout Template
- Fields (Vessel Name, Arrival Port, etc.)
- Report Database Sources (Table name, Field name)
Scenario 1

Ship

- Ballast Management System
- Waste Management System
- Emissions Management System

Bridge Team

Data Collection App

Reporting Database

Report Generator

Reports

1 Hard copy, FAX, PDF, XML, CSV, XLS, RTF, MS Word, etc.
Scenario 1

Ship

- Ballast Management System
- Waste Management System
- Emissions Management System

Bridge Team

Data Collection App

Reporting Database

Report Generator

Reports

1. Hard copy, FAX, PDF, XML, CSV, XLS, RTF, MS Word, etc.
Scenario 1

Ship

Bridge Team

Data Collection App

Reporting Database

Report Generator

Reports

1 Hard copy, FAX, PDF, XML, CSV, XLS, RTF, MS Word, etc.
Scenario 1

Ship

Bridge Team

Data Collection App

Reporting Database

Report Generator

Reports

Shore-side Authority

\(^1\) Hard copy, FAX, PDF, XML, CSV, XLS, RTF, MS Word, etc.
Scenario 2

Ship

Bridge Team

Data Collection App

Reporting Database

Report Generator

Shipping Line Office

Data Collection App

Report Generator

Cloud

Replication

Reporting Database

Reports

Shore-side Authority

Reports

1 Hard copy, FAX, PDF, XML, CSV, XLS, RTF, MS Word, etc.
Scenario 2

- Cargo/Pax Booking Office
- Crewing Agent
- Stevedores

Ship

Bridge Team

Data Collection App

Data Collection App

Cloud

Shipping Line Office

Report Generator

Reports

EDI

EDI
Scenario 2
Scenario 2

Ship

Bridge Team

Data Collection App

Reporting Database

Report Generator

Shipping Line Office

Data Collection App

Report Generator

Cloud

Reporting Database

Shore-side Authority

Reports

1 Hard copy, FAX, PDF, XML, CSV, XLS, RTF, MS Word, etc.
Scenario 3

Ship
- Bridge Team
  - Data Collection App
  - Reporting Database
  - Report Generator

Shipping Line Office
- Data Collection App
- Report Generator

Cloud
- Replication
- Reports

Shore-side Authority
- Report Generator
- Reports

¹ Hard copy, FAX, PDF, XML, CSV, XLS, RTF, MS Word, etc.
Proposed Roadmap for roll-out of Automated Ship Reporting

1. IMO FAL Committee asks IALA & IEC to develop Ship Reporting Standards to create a viable “eco” system for reporting app developers
2. IALA identifies and categorizes Ship Reports in an open library with bi-annual updates
3. IALA designs and publishes the Reporting Database S-200 PS with bi-annual updates
4. IEC adopts emerging Internet of Things (IoT) standards for ship-board M2M interfaces
5. ICS/BIMCO set-up and administer access to the Reporting Database by authenticated users at the direction of individual shipping lines
6. ICS/BIMCO develops and publishes software that enable reporting app developers to “self-test” compliance with Ship Reporting Standards
7. Shipping Lines and 3rd party vendors develop and maintain reporting apps
8. Shore-side Authorities develop and maintain Reporting Database query tools
Thank you!

Questions?

VSRMS

Yu Yung-Ho
Professor, College of Engineering
Korea Maritime and Ocean University
Head, Advanced IT & Ship Convergence Center
Korea

yunghyu10@gmail.com

Ship Reporting Architecture
Road Map

Fred W. Pot, MSc NA, MBA
Principal
Marine Management Consulting
USA

fpot@enavsolutions.org