Arrival Analysis Report

User Manual

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Defence R&D Canada
Centre for Operational Research and Analysis

National Defence Défense nationale

Canada

Arrival Analysis Report

User Manual

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Abstract

The Arrival Analysis Report (AAR) is the first operational module of the Recognized Maritime Picture (RMP) Analysis Toolset (RAT). The module was developed to integrate the predicted arrival data from Transport Canada (TC) with the current positional data held by the Department of National Defence (DND). The module performs data validation and provides integrated results in Google Earth and Microsoft Excel formats. The work directly supports the Marine Security Operations Centres (MSOCs) and was performed as part of Applied Research Project (ARP) 11hn, Maritime Security Planning Tools and Analysis.

Résumé

Le rapport d'analyse d'arrivée (RAA) est le premier module opérationnel de l'ensemble d'outils d'analyse (EOA) de la situation maritime générale (SMG). Le module a été élaboré pour intégrer les données d'arrivée prédite de Transports Canada (TC) avec les données de position actuelles détenues par le ministère de la Défense nationale (MDN). Le module effectue une validation des données et procure des résultats intégrés dans les formats Google Earth et Microsoft Excel. Le travail soutient directement les centres d'opérations de la sécurité maritime (SOSM), et a été effectué dans le cadre du programme de recherche appliquée (PRA) 11hn, Maritime Security Planning Tools and Analysis.

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Executive summary

Arrival Analysis Report: User Manual

Jim Tough; Dave Morash; Brian Stroud; DRDC CORA CR 2011-060; Defence R&D Canada – CORA; August 2011.

The Arrival Analysis Report (AAR) is the first operational module of the Recognized Maritime Picture (RMP) Analysis Toolset (RAT). The module was developed to integrate the predicted arrival data from Transport Canada (TC) with the current positional data held by the Department of National Defence (DND). The module performs data validation and provides integrated results in Google Earth and Microsoft Excel formats.

This report documents how a user should operate the AAR module. Its layout and organization matches the N63 documentation style used for the wider RMP software architecture including the Global Position Warehouse (GPW). In this style, the report also serves as the online help for AAR. Context sensitive help buttons throughout the application will point the user to the appropriate location in this report.

A separate complimentary document, the AAR Technical Report[1], provides more detail from the module's requirements to how it was developed and implemented.

[1] Tough, J, Morash, D, and Stroud, B, Arrival Analysis Report (AAR): Technical Report, Unclassified, DRDC CORA CR 2011-059, May 2011

Sommaire

Arrival Analysis Report: User Manual

Jim Tough; Dave Morash; Brian Stroud; DRDC CORA CR 2011-060; R & D pour la défense Canada – CORA; Août 2011.

Le rapport d'analyse d'arrivée (RAA) est le premier module opérationnel de l'ensemble d'outils d'analyse (EOA) de la situation maritime générale (SMG). Le module a été élaboré pour intégrer les données d'arrivée prédite de Transports Canada (TC) avec les données de position actuelles détenues par le ministère de la Défense nationale (MDN). Le module effectue une validation des données et procure des résultats intégrés dans les formats Google Earth et Microsoft Excel.

Ce rapport décrit comment un utilisateur devrait utiliser le module RAA. Son plan d'ensemble et son organisation correspondent au style de documentation N63 utilisé pour l'architecture logicielle SMG plus large, y compris la mémoire de positions de type mondial (MPM). Dans ce style, le rapport sert aussi d'aide en ligne pour le RAA. Les boutons d'aide sensibles au contexte dans toute l'application dirigeront l'utilisateur vers l'emplacement approprié dans le présent rapport.

Un document complémentaire séparé, l'AAR Technical Report, fournit plus de détails allant des exigences du module à la façon dont il a été élaboré et mis en œuvre.

Arrival Analysis Report (AAR)

Release 1/0

USER MANUAL

DN1104
May 2011

Table of Contents

List of Figures

List of Tables

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AAR General Reference Information

1.1 Disclaimer

This document contains no classified information. Any screen shots that contain classification (and/or caveat) header and footer text are included for the sole purpose of describing the application, and are provided for reference only.

1.2 How to Navigate This Document

The purpose of this section is to describe how to navigate within this document. As you are using this document you can navigate from section to section using the links provided. To follow a link, click on it while holding the Ctrl key. To return to where you were before following the link, hold the Alt key and press the back arrow (Alt+←). For example, if you are importing a new file and having problems, you may want to go to section 2.1.2 which describes the format of error messages, then follow the link to appendix B which contains a table describing each possible error message and then return to where you were in section 2.1.2. Note that it is also possible to follow several links deep and then use Alt+← several times to return.

1.3 Overview of the AAR

The Arrival Analysis Report (AAR) is a report tool that accepts a list of ships, compares the list with records in the Additional Reference Table (ART) and in the Global Position Warehouse (GPW), and returns the corresponding tracks in Google Earth and Microsoft Excel format. Typically, the input list is taken as Transport Canada's (TC's) list of vessels entering Canada. This data is known as the Vessels Entering Eastern/Western Canada (VEEC/VEWC). However, a different list of ships could be put into the VEEC/VEWC format and similarly processed through the AAR instead. The vessel data provided in the list is validated against the reference vessel data recorded in ART and against the current vessel track data recorded in GPW. Any conflicts found are reported to the user who may investigate the difference and correct either the input data or the ART data as required. The Google Earth output displays the matching vessels tracks and ties them to their next port of call in Canada. This output can also be dead reckoned so that all tracks are estimated to a particular point in time. The Microsoft Excel output provides a more condensed report of the vessels and includes the conflict results between the input data and the GPW data. Vessels which were provided as input, but have no active track in GPW are also listed in each output.

This user guide introduces the Arrival Analysis Report (AAR) web application. It will provide a high level description of the general architecture used to support AAR as well as a detailed description of the user functionality found within the application. A separate complimentary document, the AAR Technical Report[1], provides more detail from the module's requirements to how it was developed and implemented.

[1] Tough, J, Morash, D, and Stroud, B, Arrival Analysis Report (AAR): Technical Report, Unclassified, DRDC CORA CR 2011-059, May 2011

The Arrival Analysis Report (AAR) is the first module of the RMP Analysis Toolset (RAT) put into production. The RAT is being developed within the larger Global Position Warehouse (GPW) architecture. In this way, the RAT tools have access to the RMP data archived in GPW and are accessible to all DND and OGD users of GPW.

1.4 AAR System Requirements

The following list contains the system requirements for the AAR:

- **Supported Browsers:** Tested with MS Internet Explorer 7. Expected to be compatible with FireFox 3.6x. Required for the user interface.
- **Google Earth:** Tested with version 5.2.x. Required for viewing KML output.
- **MS Excel:** Tested with MS Office 2003. Required for viewing Excel spreadsheet output.
- **GPW:** As the AAR is a subsystem of GPW, the GPW database and application must be available to the AAR.

1.5 Tool Button Descriptions

The tool buttons described in this section are found throughout the application and have consistent functionality throughout the application.

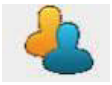
Edit: this icon is used to indicate that the field to the right of the icon may be edited by pressing the icon.

Clear: this icon is used to indicate that the record may be cleared by simply pressing the icon and confirming.

Information: this icon indicates that extra information exists for this record and can be read by hovering the mouse over the icon and reading the icon's tooltip.

New: this indicates that by clicking this icon, a new record can be inserted.

Logout: this will logout the current user and ends the session.



View Active Sessions: this will show what users are currently logged in to the system.

Edit Master Port List: this will navigate you to the Edit Master Port List Screen.

Help: this will take you to the help section in this document for the current application page.

Back: this will navigate you back to the previous page.

Accept Changes: This will save the data on the current screen.

Import Vessels From File: this icon will take you to a screen to import Vessels.

Generate KML Report: This icon will allow you to generate a KML report for Google Earth and let you define a dead reckon date/time and the Symbol and Styling of the Report.

Generate Excel Report: This Icon will generate an Excel report.

2

AAR WEB APPLICATION PROCEDURES

This chapter contains the procedures for using the AAR web application. Each major subsection describes a web page in the application. It steps through how to enter vessels; how to resolve conflicts; and produce outputs for either Google Earth or Microsoft Excel.

2.1 Arrival Analysis Report Draft Page

The Arrival Analysis Report Draft Page allows you to draft an Arrival Analysis Report without affecting the current report. You can import vessels from a file, manually add vessel information and edit vessel information to correct various validation issues. Once all validation errors are resolved, the Arrival Analysis Report Draft Page allows you to accept the draft, overwriting the current Arrival Analysis Report.

Figure 1 shows the layout when you first enter the AAR web application, or after a draft has been cleared.

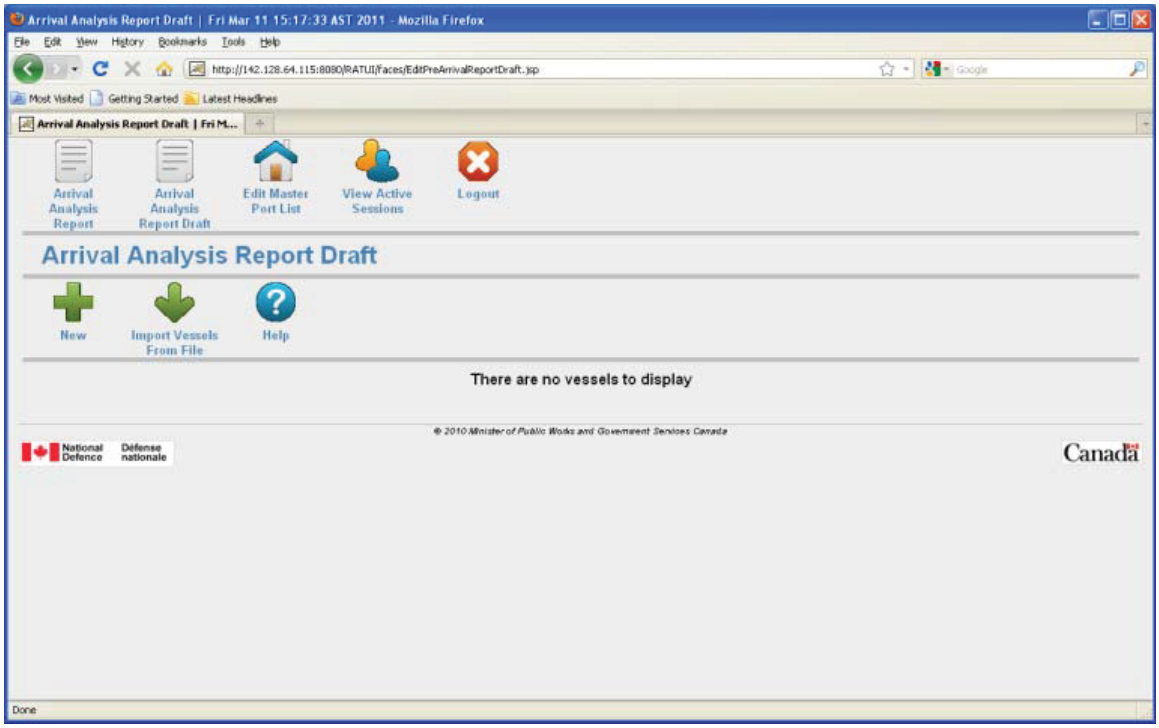


Figure 1: Arrival Analysis Report Draft

There are two ways to enter vessels into the AAR draft. The first is to manually add entries using the green plus sign to add a new vessel. The second much more likely way is to import a list of vessels from a file. You can also use a combination of the two methods by importing a list and then manually adding vessels as well.

2.1.1 Import Vessels From File Page

To import a list of vessels from a file click on the green arrow labeled *Import Vessels From File*. This displays the **Import Vessels** page as shown in Figure 2. Click the *Browse…* button to open a **File Selection** dialog as shown in Figure 3; select the file and click *Open*.

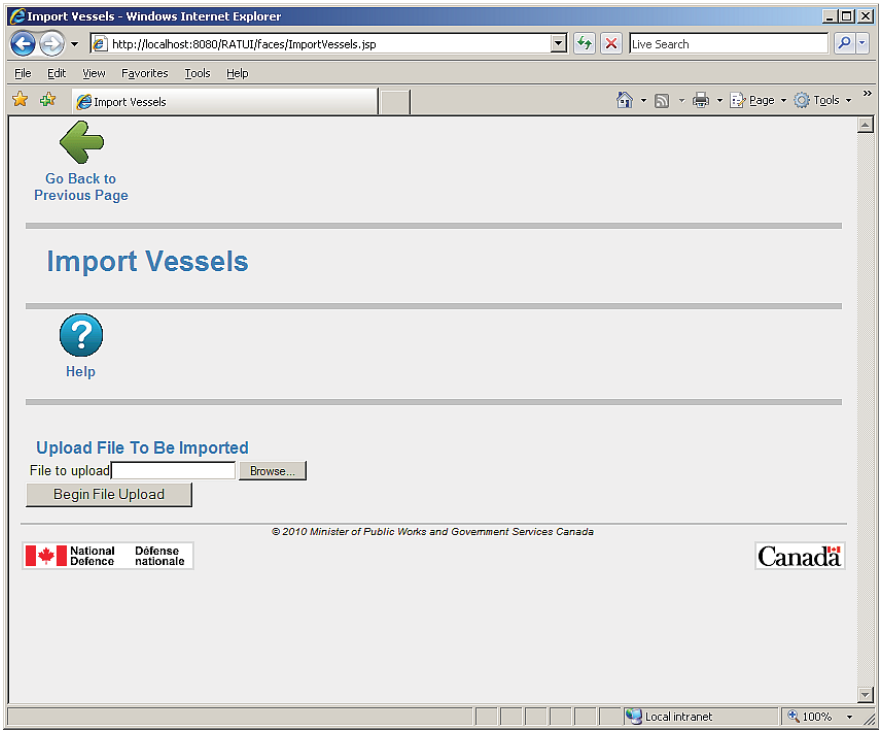


Figure 2: Import Vessels Page

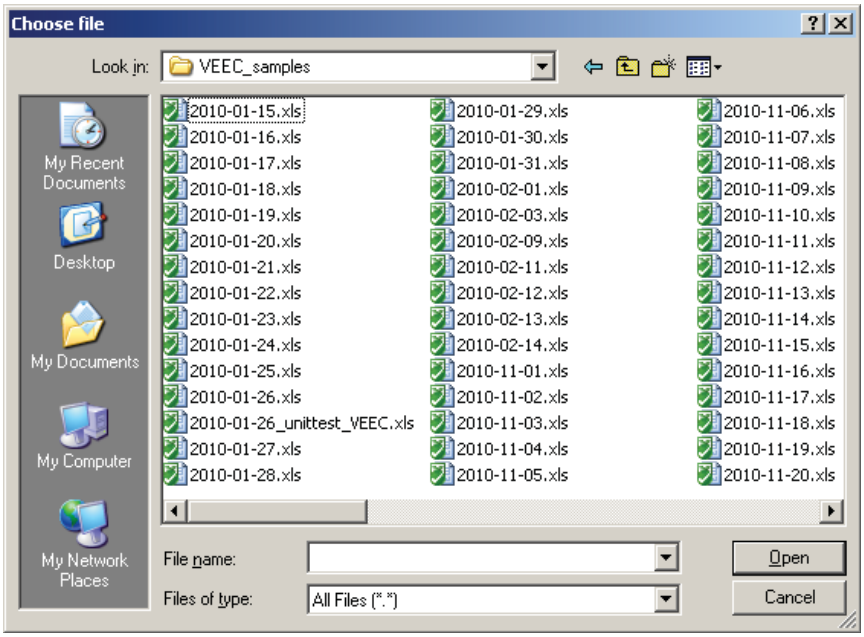
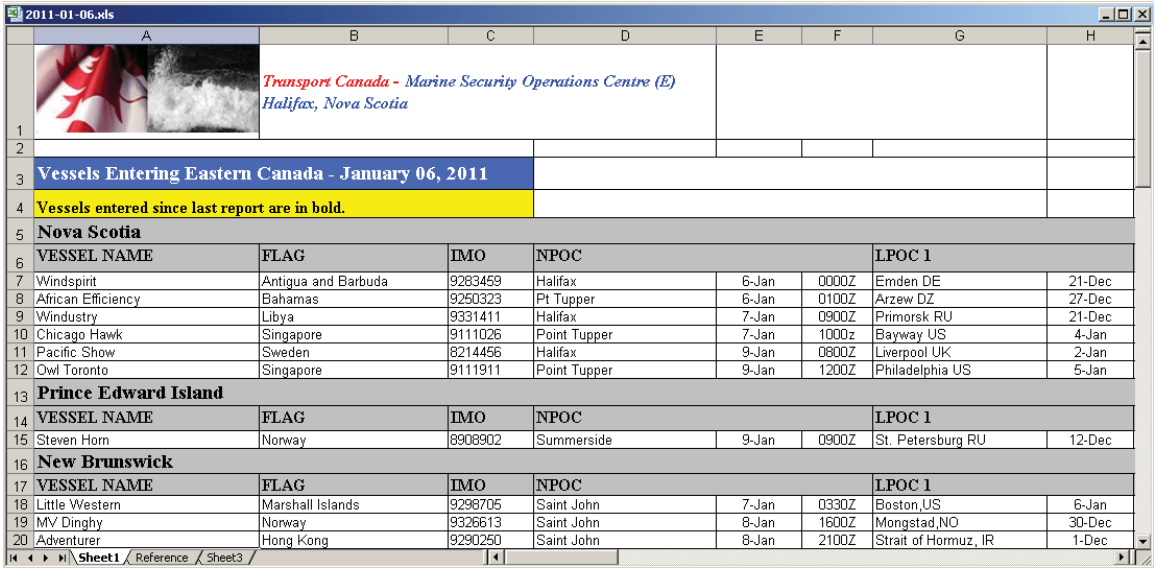


Figure 3 : Import Vessels File Selection Dialog

The file must be formatted like the current VEEC/VEWC Microsoft Excel format provided by Transport Canada as shown in Figure 4. You can also import a file containing an alternate list of vessels using the method described in Section 2.1.1.1.



2011-01-06.xls

Transport Canada - Marine Security Operations Centre (E)
Halifax, Nova Scotia

Vessels Entering Eastern Canada - January 06, 2011

Vessels entered since last report are in bold.

Nova Scotia

VESSEL NAME	FLAG	IMO	NPOC			LPOC 1	
Windspirit	Antigua and Barbuda	9283459	Halifax	6-Jan	0000Z	Emden DE	21-Dec
African Efficiency	Bahamas	9250323	Pt Tupper	6-Jan	0100Z	Arzew DZ	27-Dec
Windustry	Libya	9331411	Halifax	7-Jan	0900Z	Primorsk RU	21-Dec
Chicago Hawk	Singapore	9111026	Point Tupper	7-Jan	1000z	Bayway US	4-Jan
Pacific Show	Sweden	8214456	Halifax	9-Jan	0800Z	Liverpool UK	2-Jan
Owl Toronto	Singapore	9111911	Point Tupper	9-Jan	1200Z	Philadelphia US	5-Jan

Prince Edward Island

VESSEL NAME	FLAG	IMO	NPOC			LPOC 1	
Steven Horn	Norway	8908902	Summerside	9-Jan	0900Z	St. Petersburg RU	12-Dec

New Brunswick

VESSEL NAME	FLAG	IMO	NPOC			LPOC 1	
Little Western	Marshall Islands	9298705	Saint John	7-Jan	0330Z	Boston,US	6-Jan
MV Dinghy	Norway	9326613	Saint John	8-Jan	1600Z	Mongstad,NO	30-Dec
Adventurer	Hong Kong	9290250	Saint John	8-Jan	2100Z	Strait of Hormuz, IR	1-Dec

Sheet1 / Reference / Sheet3

Figure 4: Sample VEEC file
The vessel information is fictitious and the latter columns have been cropped from the picture (LPOC 2, LPOC 3, CDC, and Remarks fields).

After selecting the file, click the *Begin File Upload* button as seen in Figure 2 to load the file. The **Import Vessels** page is redisplayed showing the file details, which allows the user to import or remove the uploaded file (see Figure 5). Click *Import Vessels From File* to import draft AAR vessel information.

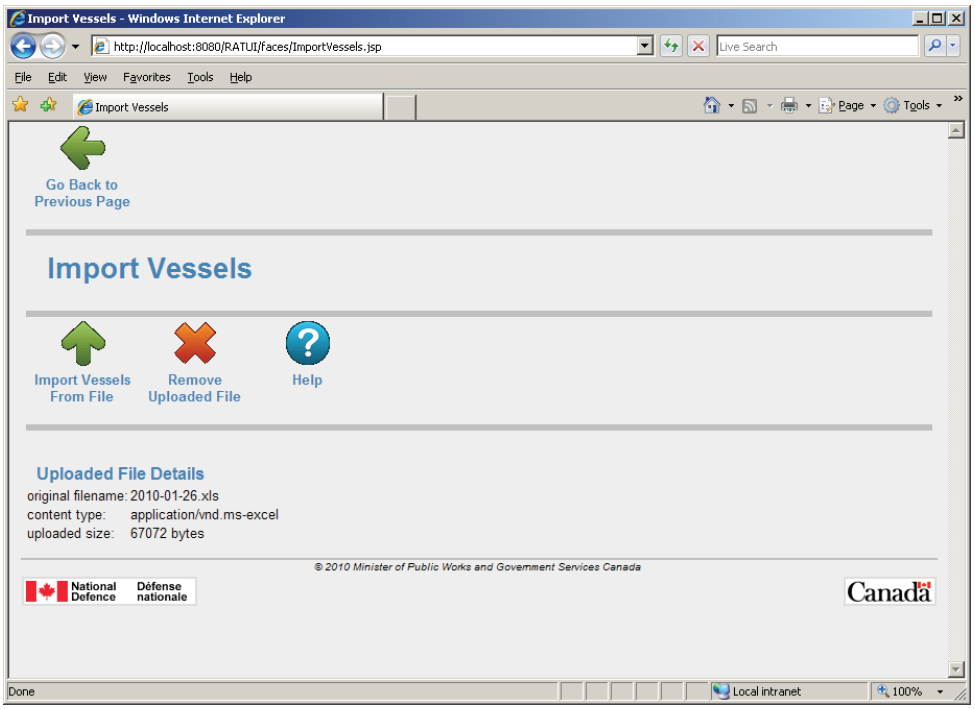
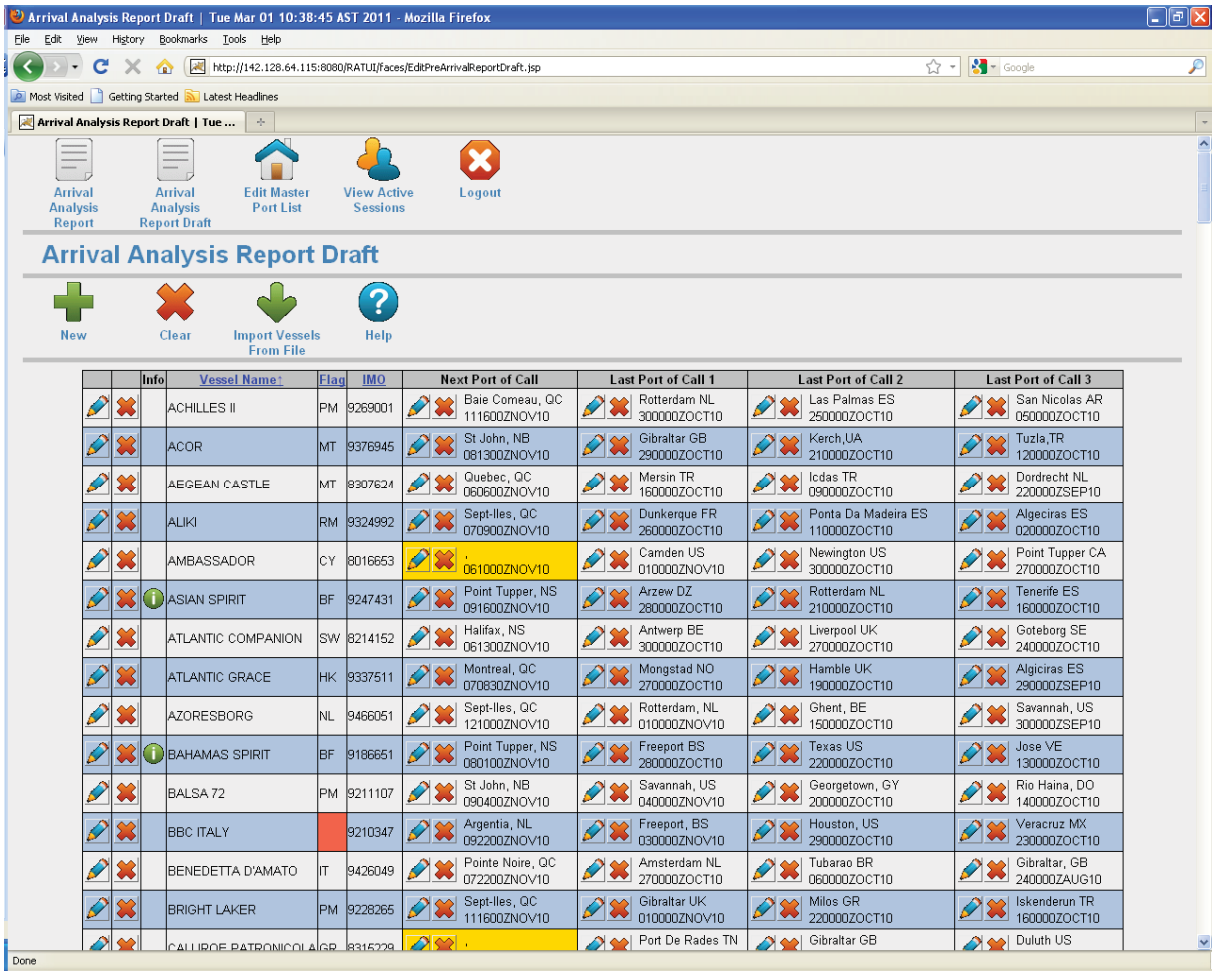


Figure 5: Uploaded File Details

After a file has been imported, an **AAR Draft Report** is generated. Figure 6 shows a typical view of the **AAR Draft Report** screen. Notice the red and yellow coloured cells; these indicate there are errors and warnings for the imported data related to that particular vessel. Figure 7 shows the validation messages that appear at the bottom of the screen. Each message matches to a single problem in the vessel table above. A vessel row may have more than one validation message associated with it. These validation messages are described in Section 2.1.2.



		Info	Vessel Name	Flag	IMO	Next Port of Call	Last Port of Call 1	Last Port of Call 2	Last Port of Call 3
			ACHILLES II	PM	9269001	Baie Comeau, QC 111600ZNOV10	Rotterdam NL 300000ZOCT10	Las Palmas ES 250000ZOCT10	San Nicolas AR 050000ZOCT10
			ACOR	MT	9376945	St John, NB 081300ZNOV10	Gibraltar GB 290000ZOCT10	Kerch,UA 210000ZOCT10	Tuzla,TR 120000ZOCT10
			AEGEAN CASTLE	MT	9307624	Quebec, QC 060600ZNOV10	Mersin TR 160000ZOCT10	Icdas TR 090000ZOCT10	Dordrecht NL 220000ZSEP10
			ALIKI	RM	9324992	Sept-Iles, QC 070900ZNOV10	Dunkerque FR 260000ZOCT10	Ponta Da Madeira ES 110000ZOCT10	Algeciras ES 020000ZOCT10
			AMBASSADOR	CY	8016653	, 061000ZNOV10	Camden US 010000ZNOV10	Newington US 300000ZOCT10	Point Tupper CA 270000ZOCT10
			ASIAN SPIRIT	BF	9247431	Point Tupper, NS 091600ZNOV10	Arzew DZ 280000ZOCT10	Rotterdam NL 210000ZOCT10	Tenerife ES 160000ZOCT10
			ATLANTIC COMPANION	SW	8214152	Halifax, NS 061300ZNOV10	Antwerp BE 300000ZOCT10	Liverpool UK 270000ZOCT10	Goteborg SE 240000ZOCT10
			ATLANTIC GRACE	HK	9337511	Montreal, QC 070830ZNOV10	Mongstad NO 270000ZOCT10	Hamble UK 190000ZOCT10	Algiciras ES 290000ZSEP10
			AZORESBORG	NL	9466051	Sept-Iles, QC 121000ZNOV10	Rotterdam, NL 010000ZNOV10	Ghent, BE 150000ZOCT10	Savannah, US 300000ZSEP10
			BAHAMAS SPIRIT	BF	9186651	Point Tupper, NS 080100ZNOV10	Freeport BS 280000ZOCT10	Texas US 220000ZOCT10	Jose VE 130000ZOCT10
			BALSA 72	PM	9211107	St John, NB 090400ZNOV10	Savannah, US 040000ZNOV10	Georgetown, GY 200000ZOCT10	Rio Haina, DO 140000ZOCT10
			BBC ITALY		9210347	Argentia, NL 092200ZNOV10	Freeport, BS 030000ZNOV10	Houston, US 290000ZOCT10	Veracruz MX 230000ZOCT10
			BENEDETTA D'AMATO	IT	9426049	Pointe Noire, QC 072200ZNOV10	Amsterdam NL 270000ZOCT10	Tubarao BR 060000ZOCT10	Gibraltar, GB 240000ZAUG10
			BRIGHT LAKER	PM	9228265	Sept-Iles, QC 111600ZNOV10	Gibraltar UK 010000ZNOV10	Milos GR 220000ZOCT10	Iskenderun TR 160000ZOCT10
			CALLIROE PATRONICOLA	GR	8315229	,	Port De Rades TN	Gibraltar GB	Duluth US

Figure 6: Arrival Analysis Report Draft with Data

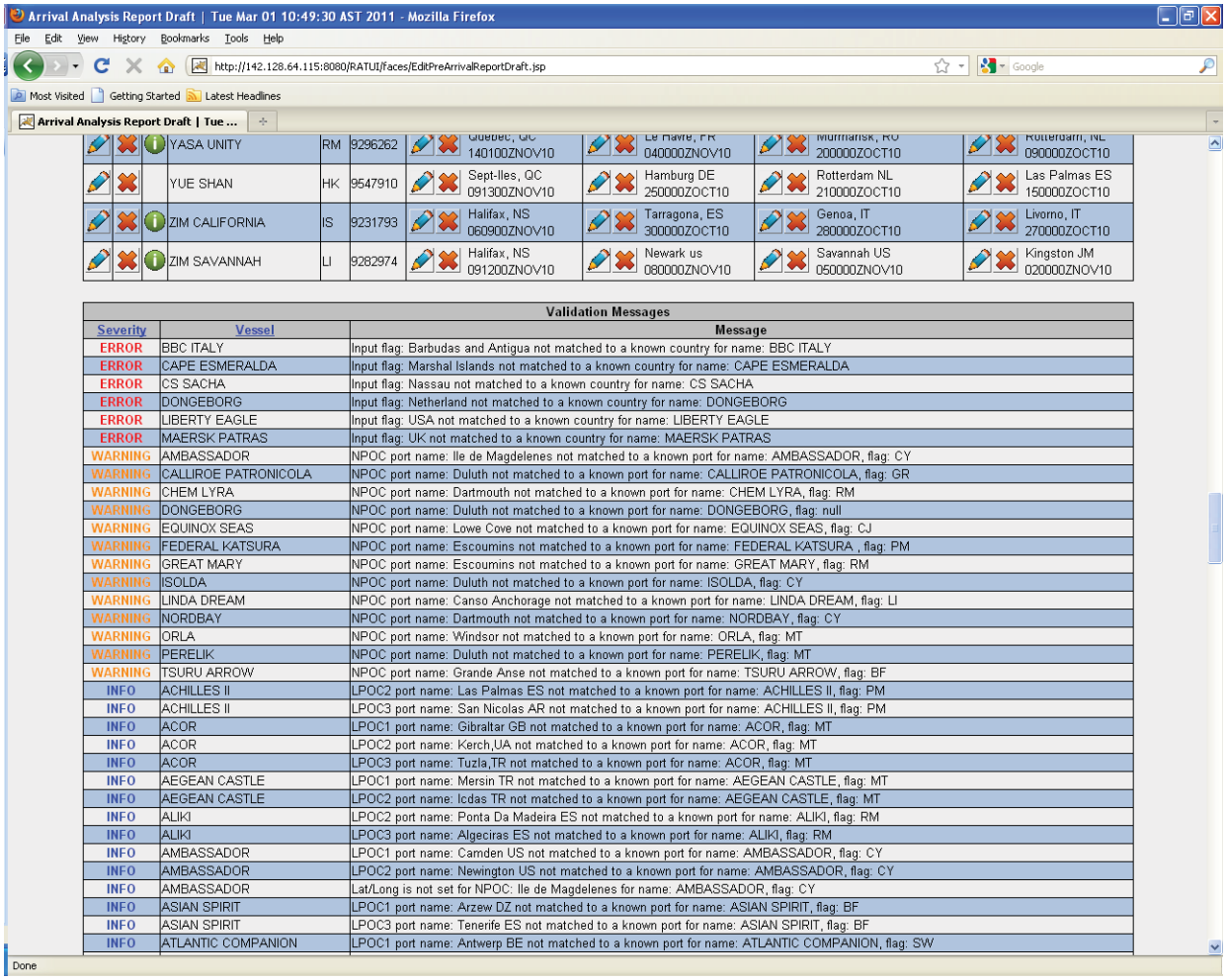


Figure 7: Arrival Analysis Report Draft Validation Messages

2.1.1.1 Importing Alternate Lists

You may also import an alternate list of vessels in the AAR, rather than VEEC/VEWC data. This option allows you to analyze a group of vessels to determine whether they are active in the RMP; their track history if active; and also dead reckon the group to a common point in time.

To import an alternate list of vessels, the file must follow the VEEC format but only requires the name, flag, and IMO to identify the vessel. If the next port of call is not required, it could simply be set to Ottawa, Ontario with an arrival time of New Year's day for example. The last ports of call, CDC, and remarks fields can be left empty. For instance, instead of those shown in Figure 4, the same list of vessels entered as an alternate list would now look like Figure 8.

SampleAlternateList.xls

Transport Canada - Marine Security Operations Centre (E)
Halifax, Nova Scotia

Vessels Entering Eastern Canada - January 06, 2011

Vessels entered since last report are in bold.

Ontario

VESSEL NAME	FLAG	IMO	NPOC			LPOC 1	
Windspirit	Antigua and Barbuda	9283459	Ottawa	1-Jan	0000Z		
African Efficiency	Bahamas	9250323	Ottawa	1-Jan	0000Z		
Windustry	Libya	9331411	Ottawa	1-Jan	0000Z		
Chicago Hawk	Singapore	9111026	Ottawa	1-Jan	0000Z		
Pacific Show	Sweden	8214456	Ottawa	1-Jan	0000Z		
Owl Toronto	Singapore	9111911	Ottawa	1-Jan	0000Z		
Grey Unicorn	Norway	8908902	Ottawa	1-Jan	0000Z		
Little Western	Marshall Islands	9298705	Ottawa	1-Jan	0000Z		
MV Dinghy	Norway	9326613	Ottawa	1-Jan	0000Z		
Adventurer	Hong Kong	9290250	Ottawa	1-Jan	0000Z		

Sheet1 Reference Sheet3

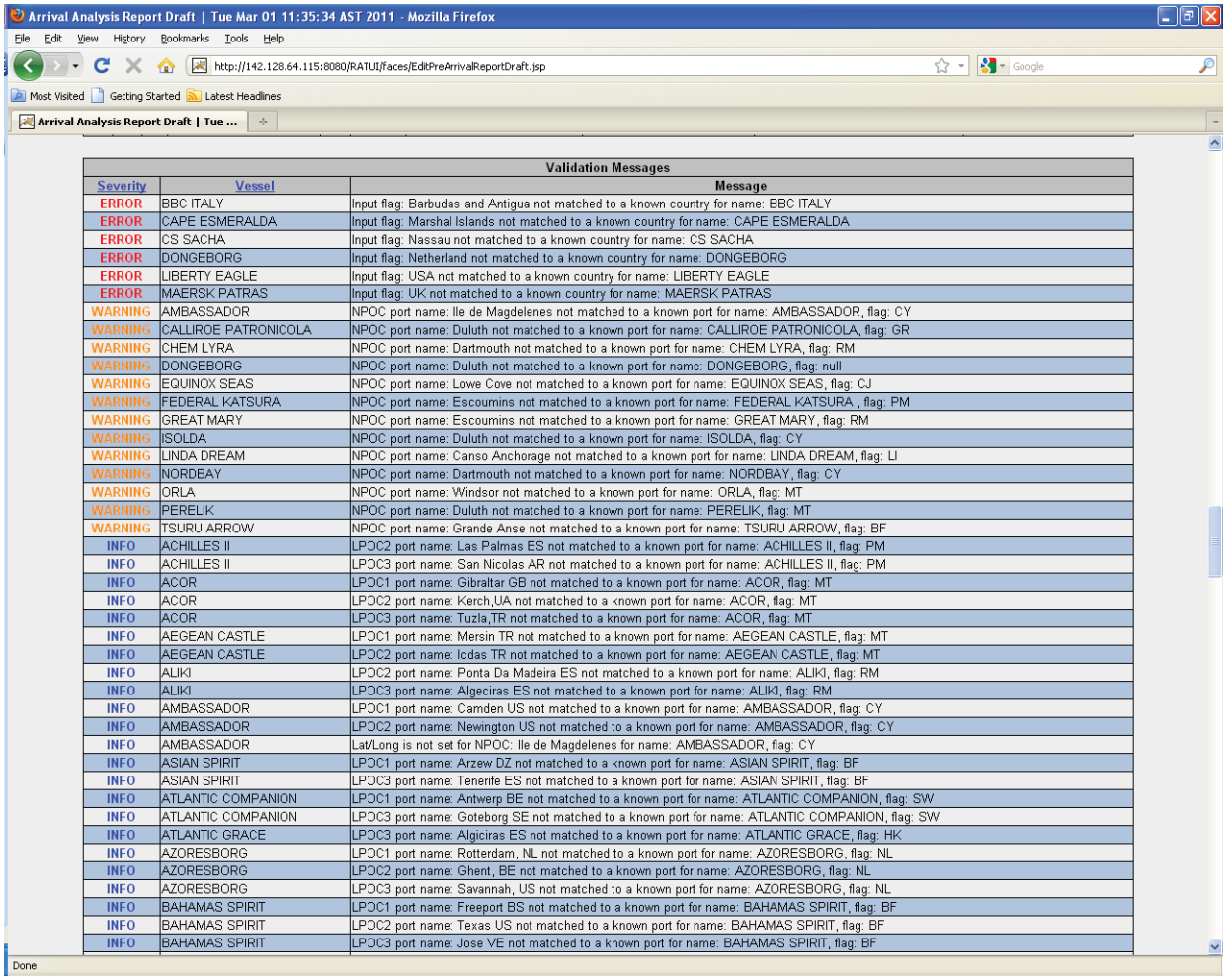
Figure 8: Sample of an Alternate List File

When importing an alternate list, the AAR validation process will still occur. These messages can still be useful to note discrepancies between the input data and the ART or GPW data. There will also be extra validation messages, however, because of the empty input data such as the missing last ports of call. These warnings, related to missing data can be ignored and the draft accepted.

2.1.2 Resolving Errors, Warnings, and Information Messages

When using the **AAR Draft** screen, the application attempts to validate the input data. The input data is checked for completeness and also compared against the reference vessel records contained in ART and the reference port records contained in the master port list. The draft screen will indicate errors, warnings, or information messages while attempting to validate the input data. Errors identify data problems that must be resolved before the draft can be accepted and a report generated. Warnings identify data problems that should be resolved to improve the quality of the report or the quality of the RMP. Information messages identify incomplete data problems that have limited impact on the report but may be useful for the operator to note or fix.

By scrolling to the bottom of the screen, you will see a table of validation messages which lists all of the Errors, Warnings, and Information messages that apply to the vessels above (see Figure 9). After reading each message, scroll back up to the corresponding vessel and correct the appropriate information. This may require correcting the input data such as vessel or port details (see Sections 2.2 and 2.3); or updating the master port list (see Section 2.4); or updating an ART entry (see Section 2.1.2.3). After each problem is resolved, the message will be removed from the list.



Validation Messages

Severity	Vessel	Message
ERROR	BBC ITALY	Input flag: Barbudas and Antigua not matched to a known country for name: BBC ITALY
ERROR	CAPE ESMERALDA	Input flag: Marshal Islands not matched to a known country for name: CAPE ESMERALDA
ERROR	CS SACHA	Input flag: Nassau not matched to a known country for name: CS SACHA
ERROR	DONGEBORG	Input flag: Netherland not matched to a known country for name: DONGEBORG
ERROR	LIBERTY EAGLE	Input flag: USA not matched to a known country for name: LIBERTY EAGLE
ERROR	MAERSK PATRAS	Input flag: UK not matched to a known country for name: MAERSK PATRAS
WARNING	AMBASSADOR	NPOC port name: Ile de Magdelenes not matched to a known port for name: AMBASSADOR, flag: CY
WARNING	CALLIROE PATRONICOLA	NPOC port name: Duluth not matched to a known port for name: CALLIROE PATRONICOLA, flag: GR
WARNING	CHEM LYRA	NPOC port name: Dartmouth not matched to a known port for name: CHEM LYRA, flag: RM
WARNING	DONGEBORG	NPOC port name: Duluth not matched to a known port for name: DONGEBORG, flag: null
WARNING	EQUINOX SEAS	NPOC port name: Lowe Cove not matched to a known port for name: EQUINOX SEAS, flag: CJ
WARNING	FEDERAL KATSURA	NPOC port name: Escoumins not matched to a known port for name: FEDERAL KATSURA , flag: PM
WARNING	GREAT MARY	NPOC port name: Escoumins not matched to a known port for name: GREAT MARY, flag: RM
WARNING	ISOLDA	NPOC port name: Duluth not matched to a known port for name: ISOLDA, flag: CY
WARNING	LINDA DREAM	NPOC port name: Canso Anchorage not matched to a known port for name: LINDA DREAM, flag: LI
WARNING	NORDBAY	NPOC port name: Dartmouth not matched to a known port for name: NORDBAY, flag: CY
WARNING	ORLA	NPOC port name: Windsor not matched to a known port for name: ORLA, flag: MT
WARNING	PERELIK	NPOC port name: Duluth not matched to a known port for name: PERELIK, flag: MT
WARNING	TSURU ARROW	NPOC port name: Grande Anse not matched to a known port for name: TSURU ARROW, flag: BF
INFO	ACHILLES II	LPOC2 port name: Las Palmas ES not matched to a known port for name: ACHILLES II, flag: PM
INFO	ACHILLES II	LPOC3 port name: San Nicolas AR not matched to a known port for name: ACHILLES II, flag: PM
INFO	ACOR	LPOC1 port name: Gibraltar GB not matched to a known port for name: ACOR, flag: MT
INFO	ACOR	LPOC2 port name: Kerch,UA not matched to a known port for name: ACOR, flag: MT
INFO	ACOR	LPOC3 port name: Tuzla,TR not matched to a known port for name: ACOR, flag: MT
INFO	AEGEAN CASTLE	LPOC1 port name: Mersin TR not matched to a known port for name: AEGEAN CASTLE, flag: MT
INFO	AEGEAN CASTLE	LPOC2 port name: Icdas TR not matched to a known port for name: AEGEAN CASTLE, flag: MT
INFO	ALIKI	LPOC2 port name: Ponta Da Madeira ES not matched to a known port for name: ALIKI, flag: RM
INFO	ALIKI	LPOC3 port name: Algeciras ES not matched to a known port for name: ALIKI, flag: RM
INFO	AMBASSADOR	LPOC1 port name: Camden US not matched to a known port for name: AMBASSADOR, flag: CY
INFO	AMBASSADOR	LPOC2 port name: Newington US not matched to a known port for name: AMBASSADOR, flag: CY
INFO	AMBASSADOR	Lat/Long is not set for NPOC: Ile de Magdelenes for name: AMBASSADOR, flag: CY
INFO	ASIAN SPIRIT	LPOC1 port name: Arzew DZ not matched to a known port for name: ASIAN SPIRIT, flag: BF
INFO	ASIAN SPIRIT	LPOC3 port name: Tenerife ES not matched to a known port for name: ASIAN SPIRIT, flag: BF
INFO	ATLANTIC COMPANION	LPOC1 port name: Antwerp BE not matched to a known port for name: ATLANTIC COMPANION, flag: SW
INFO	ATLANTIC COMPANION	LPOC3 port name: Goteborg SE not matched to a known port for name: ATLANTIC COMPANION, flag: SW
INFO	ATLANTIC GRACE	LPOC3 port name: Algiciras ES not matched to a known port for name: ATLANTIC GRACE, flag: HK
INFO	AZORESBORG	LPOC1 port name: Rotterdam, NL not matched to a known port for name: AZORESBORG, flag: NL
INFO	AZORESBORG	LPOC2 port name: Ghent, BE not matched to a known port for name: AZORESBORG, flag: NL
INFO	AZORESBORG	LPOC3 port name: Savannah, US not matched to a known port for name: AZORESBORG, flag: NL
INFO	BAHAMAS SPIRIT	LPOC1 port name: Freeport BS not matched to a known port for name: BAHAMAS SPIRIT, flag: BF
INFO	BAHAMAS SPIRIT	LPOC2 port name: Texas US not matched to a known port for name: BAHAMAS SPIRIT, flag: BF
INFO	BAHAMAS SPIRIT	LPOC3 port name: Jose VE not matched to a known port for name: BAHAMAS SPIRIT, flag: BF

Figure 9: Arrival Analysis Report Draft Messages

2.1.2.1 Errors

Errors are indicated by displaying a red background in the input data cell causing the error. An error message, explaining the reason for the error, is repeated in the table of validation messages below the input data. When an error is resolved the red background and error message will disappear to indicate that the error no longer exists. A full listing of possible error messages and their resolutions is found in Appendix B: AAR Draft Validation Messages.

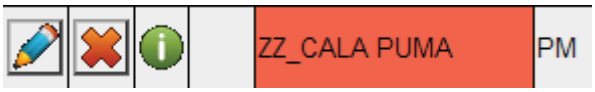


Figure 10: Error Message

2.1.2.2 Warnings

Warnings are indicated by displaying a yellow background in the input data cell causing the warning. A warning message, explaining the reason for the warning, is repeated in the table of validation messages below the input data. When a warning is resolved the yellow background and warning message will disappear to indicate that the warning no longer exists. A full listing of possible warning messages and their resolutions is found in Section Appendix B: AAR Draft Validation Messages.

Figure 11: Warning Message

2.1.2.3 ART Warnings

ART warnings are indicated by displaying a warning icon to the left of the vessel name. The warning is produced when there is a conflict between the input vessel data and the reference vessel data found in ART. A warning message will also be shown in the table of validation messages below the input data, identifying which field caused the conflict. The correct value should be determined by researching the vessel. If the ART record is incorrect, you can click on the warning icon to open the ART manager[2] directly. In the ART manager, search for the vessel and edit the ART record as required. If the input data is incorrect, edit the vessel details as described in Section 2.2.

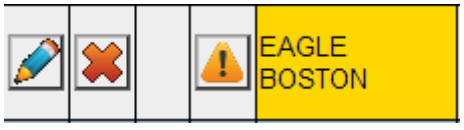


Figure 12: ART Warning Message

[2] Note that there is a separate ART manager and separate ART table on each coast as well as on each network (CSNI and CanMarNet) for a total of four tables. Currently, these tables are not synchronized automatically and therefore it is a good idea to check the ART manager on both CanMarNet and CSNI if possible. In the future, ways to coordinate the ART tables will be investigated.

Keeping the ART records up to date and correct is important because they are used to correct data coming into the RMP. Many, but not all, sources pass through the Attribute Correction Engine (ACE) which compares the contact reports to the ART and Lloyds reference data for vessels. ACE and ART try to correct mistakes in the incoming data and improve the quality of the RMP. Therefore, correcting the ART records will improve the quality of the RMP data and may prevent the same conflict from occurring in the future.

2.1.2.4 Information Messages

Information messages are indicated only by an info line in the table of validation messages below the input data. When an information message is resolved it will be removed from the table. A full listing of possible information messages and their resolutions is found in Appendix B: AAR Draft Validation Messages.

2.1.3 Accept the draft

When all of the validation errors have been addressed the draft report can be accepted. Once the draft is accepted, the page will turn to the Arrival Analysis Report page (see Section 2.5). On this page, any outstanding warnings and info messages will be removed and the vessel info can no longer be changed. From this page, you can generate the KML report (Section 2.6) and the Excel report (Appendix E: Excel Outputs).

2.2 Edit Vessel Details Page

When there are vessel details on the **Arrival Analysis Report Draft** or **Arrival Analysis Report** page that need to be edited, click on the corresponding *Pencil* icon to the left of the desired vessel. Clicking the *Pencil* icon will take you to the **Edit Vessel Details** page, as shown in Figure 13, where you can edit the details of that vessel. The page will be pre-populated with the current values and you can edit the **Vessel Name**, **Flag**, **IMO Number**, **Cargo Designators**, and **Remarks** fields.

With the exception of **Flag**, all fields can be changed by clicking on the field and typing the appropriate text. **Flag** must be chosen from a list of provided values that are shown by clicking on the dropdown list box.

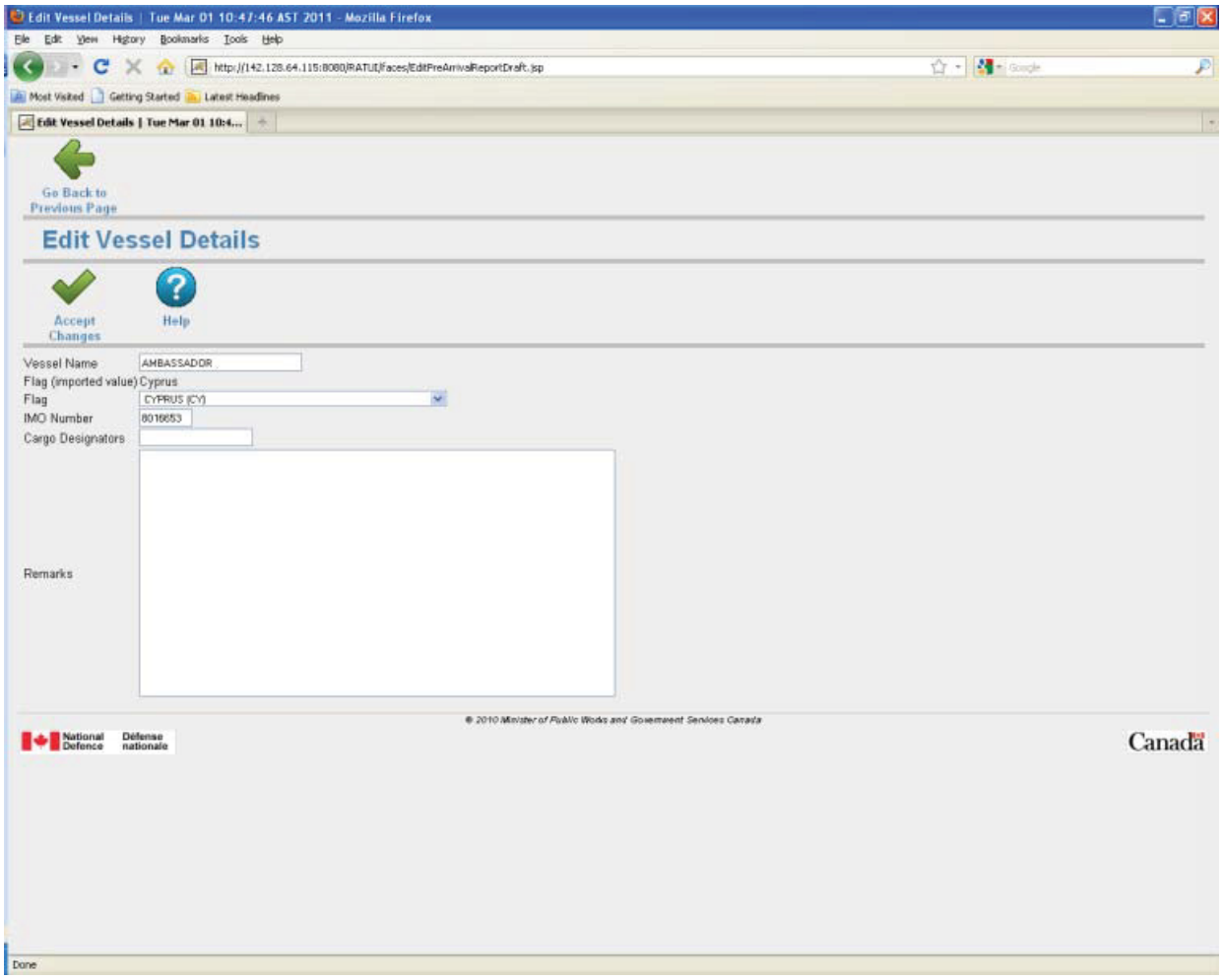


Figure 13: Edit Vessel Details

The changes can be accepted by clicking the *Accept Changes* green checkmark. The **Vessel Name** and **Flag** are required fields; if these are not filled in there will be a red validation message that appears above the **Vessel Name** as shown in Figure 14. Correct the corresponding fields and click *Accept Changes* again to save the information on the screen.

After the edits have been accepted the user will be returned to the **Arrival Analysis Report Draft** or **Arrival Analysis Report** page where the vessel details will be updated.

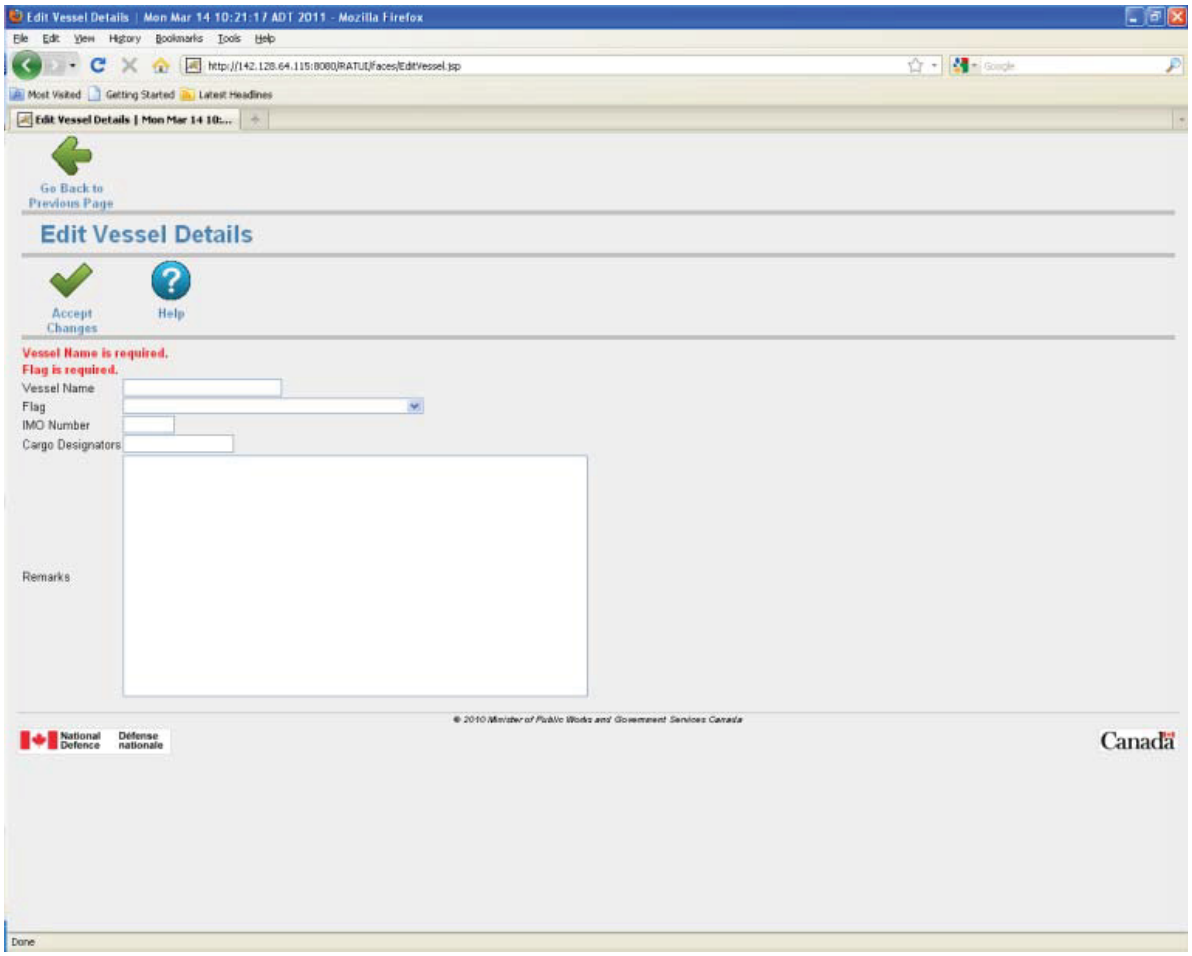


Figure 14: Edit Vessel Details Validation

2.3 Edit Port Page

When there are next port of call or last port of call details on the **Arrival Analysis Report Draft** or **Arrival Analysis Report** page that need to be edited, click on the corresponding *Pencil* icon to the left of the desired port. Clicking the *Pencil* icon will take you to the **Edit Port** page, as shown in Figure 15, where you can edit the details of that port of call. The page will be pre-populated with the current values and you can edit the **Port Name**, **Country**, **Province/State**, **City**, **Port Code**, **Latitude**, **Longitude**, **Arrival time**, and **Arrival Note** fields.

The bottom half of the page presents the port information and the arrival information for the vessel. The imported port name and imported arrival text is provided for reference. Often the imported port name does not match exactly with a port in the **Master Port List**. It is best to match the intended port with the correct record from the **Master Port List**. This should be attempted in two stages.

If the port you need is already in the system you may select it from the drop down list *Copy details from the master port list* in the top half of the page. The **Master Port List** is a long list and can be filtered using the three fields under *Port Filter Settings*. The port list can be filtered by selecting a *country* from the drop down list, and/or by entering the *province/state* and *city* fields. Then by pressing the *green checkmark*, the **Master Port List** will be filtered to a shorter list. Once the correct port has been selected from the *Copy details from the master port list*, click on the *green down arrow*. This will copy the selected master port data down to the bottom half of the page where the current port is being edited. Note that if some fields are empty this is because the **Master Port List** data is incomplete for the selected port.

If the port you need is not found in the **Master Port List**, or the selected master port data is incomplete, it is recommended that the user add/edit the port data in the **Master Port List** as described in section 2.4. These changes will then be available for subsequent uses of the AAR and will prevent the same corrections from being required in the future.

Port information can also be edited manually but this will only apply to the specific vessel and not be available for future uses of the AAR.

Note that the Latitude and Longitude are used to display the next ports of call in Google Earth. Without the coordinates, the port cannot be displayed in Google Earth. The last ports of call are not currently displayed in Google Earth because of the high error rate in trying to match international port names entered as free text fields. This may be changed in the future if the UN LOCODE standard is applied to this field in the **VEEC/VEWC** report.

There are two arrival information fields, which can be edited. The arrival time is entered as a DTG and the text field can be edited or a date can be selected by using the *calendar* icon. The arrival notes can be edited by editing the *text* field. (The **Edit Port** page does not have these two fields if accessed from the **Edit Master Port List** page because these fields are specific to a vessel.)

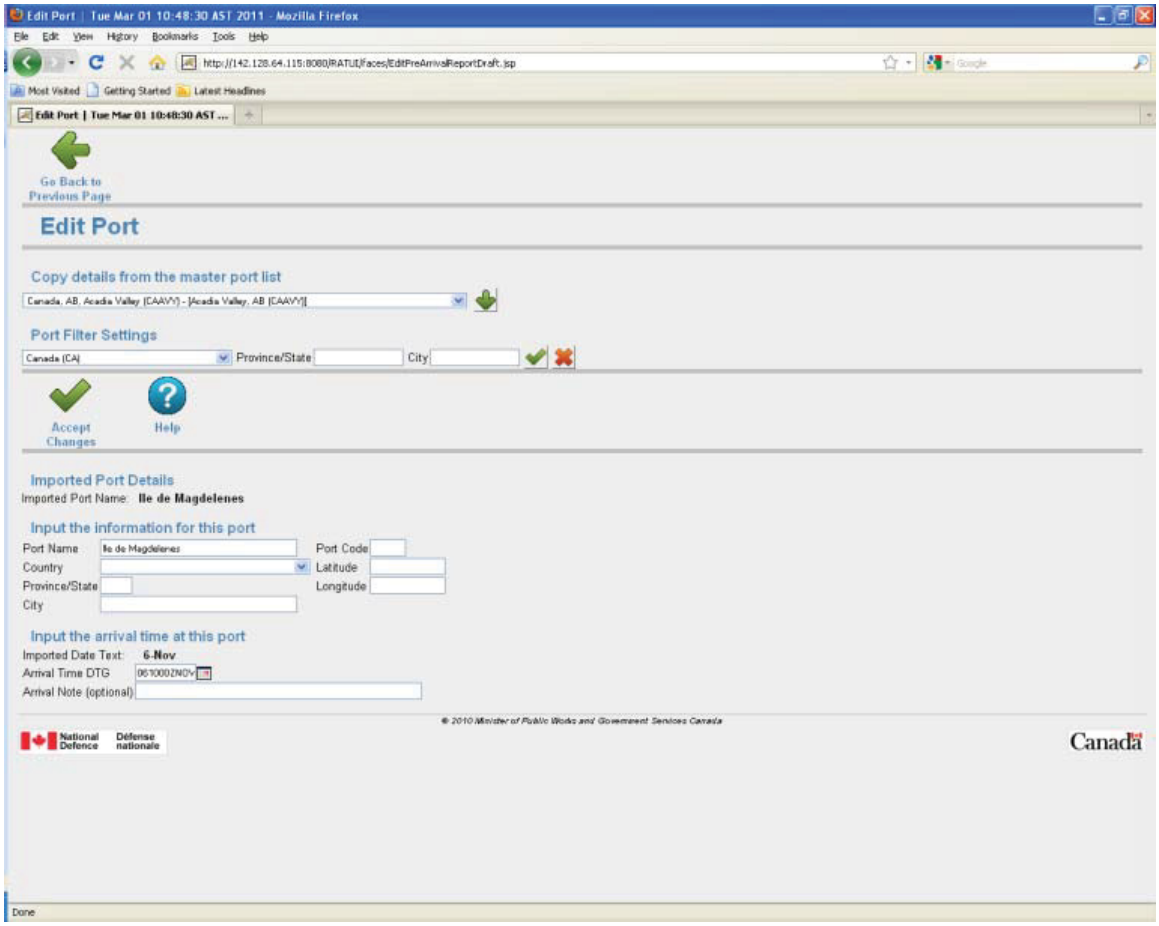


Figure 15: Edit Port

To save the values, click *Accept Changes*. If you have not filled in all of the required fields, validation messages will appear in red as shown in Figure 16. The required fields are **Port Name**, **Port Code**, **Country**, and **City**. To discard your changes, click *Go Back to Previous Page.*

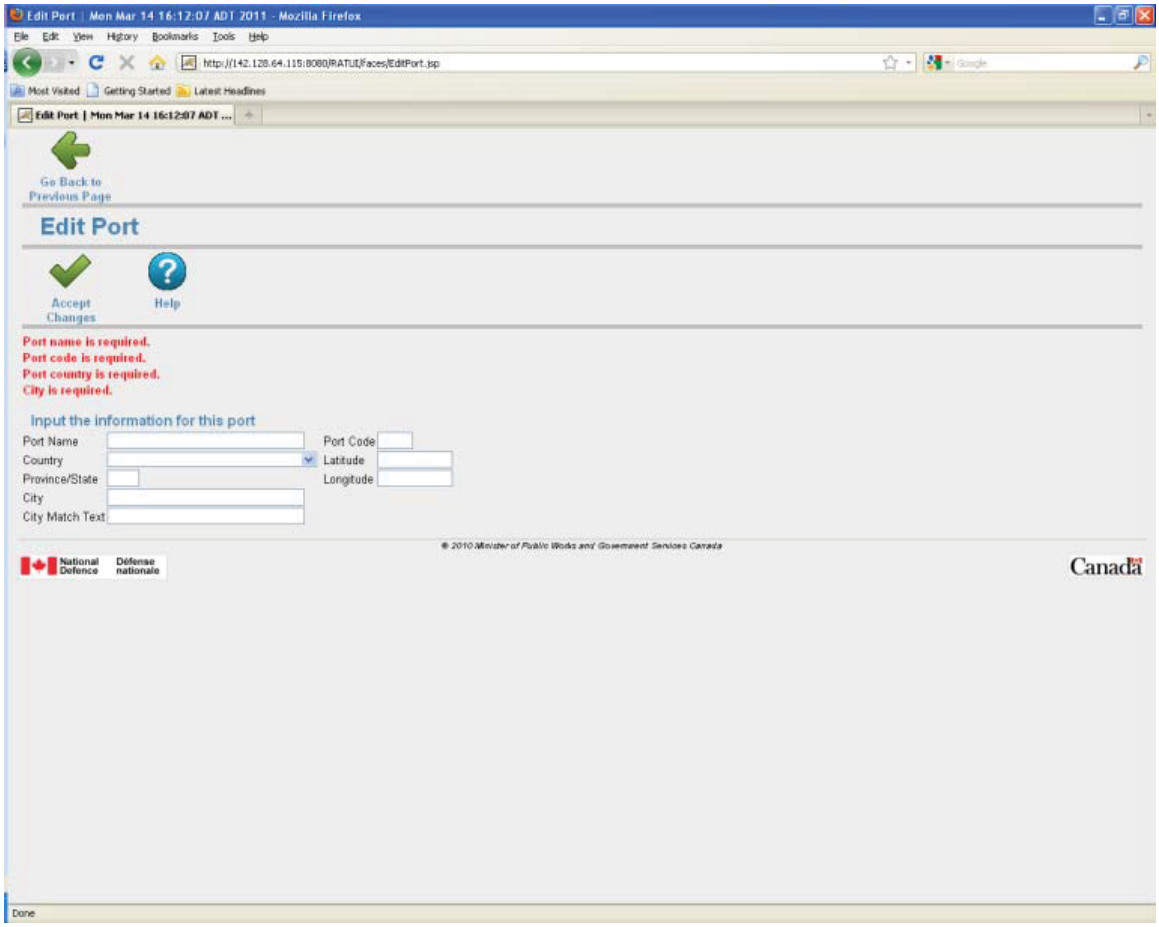


Figure 16: Edit Port Validation Messages

2.4 Edit Master Port List Page

The **Master Port List** is first populated with a UN port list. This is a standardized list of international ports that is maintained by the UN. Each port has a unique code, called a UN LOCODE, which is referenced to eliminate spelling errors and provide consistently. Most of these ports have latitude and longitude coordinates associated with them that have been provided by the UN. The **AAR Master Port List** can be edited by the user to add or delete ports and to edit details of ports in the list. This **Master Port List** will also become available to other GPW and RAT modules in the future.

If you would like to edit the **Master Port List**, select *Edit Master Port List* with the *house* icon from the **main toolbar**. This will bring you to the **Edit Master Port List** page as shown in Figure 17. Here you may add a new port to the list by clicking the *green plus* icon. If you would like to edit a port's details, you may either select it from the complete list directly or apply a filter to narrow down the list.

To apply a filter to the list of ports, select the *country* from the drop down list. You may optionally type in a **Province/State** and/or **City**. When the desired filter is set, you may click the *green check mark* to filter the list. To remove a filter, click the *red X*.

Making changes to the **Master Port List** will be saved for future uses of the AAR and save you and others from making the same changes every time an entry occurs for that Port. The **Master Port List** may also be shared with future GPW and RAT tools.

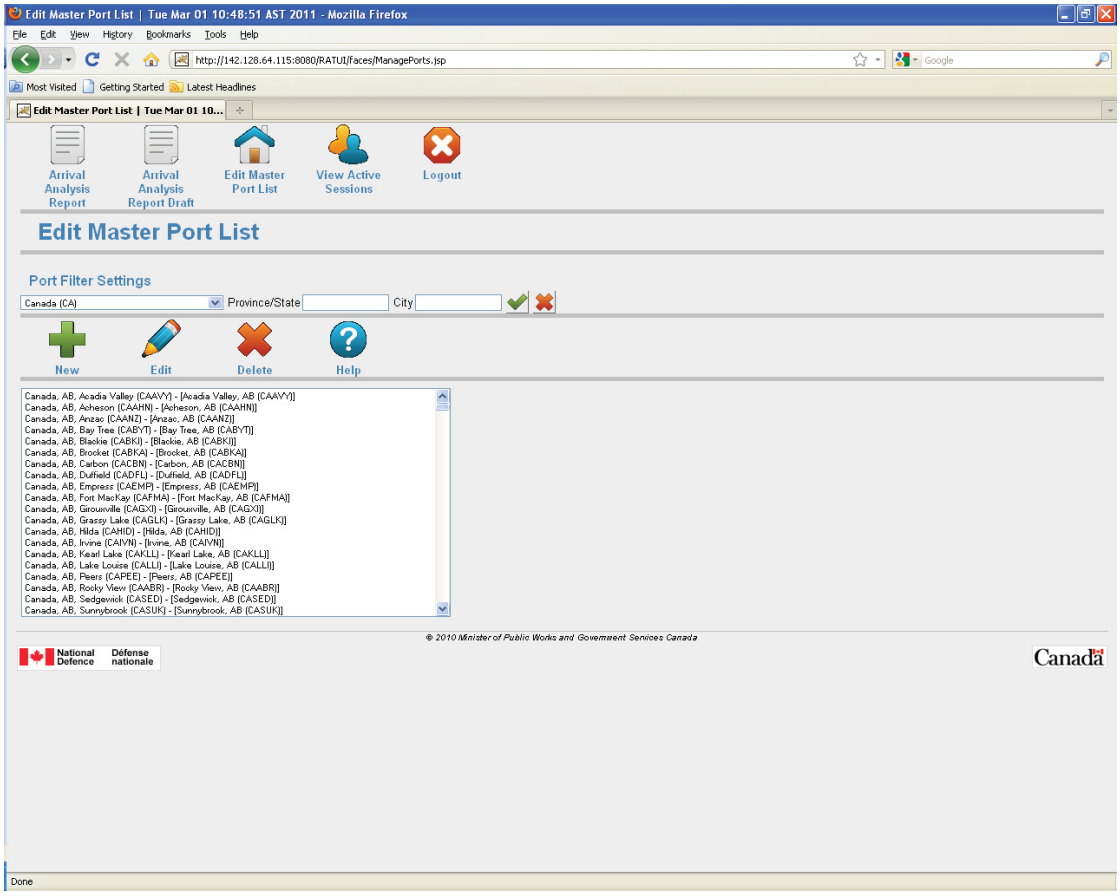


Figure 17: Edit Master Port List

Once a Port is selected, you may click either the *Delete* button or the *Edit* button. If the *Delete* button is pressed, you will be prompted for confirmation on the deletion of the record. If a port is deleted in error, it can not be retrieved; it will have to be re-entered.

Clicking *Edit* will bring you back to Section 2.3 and display the screen shown in Figure 18, but without the arrival information. Those two fields only relate to vessels visiting the port and are not available from the **Master Port List** page.

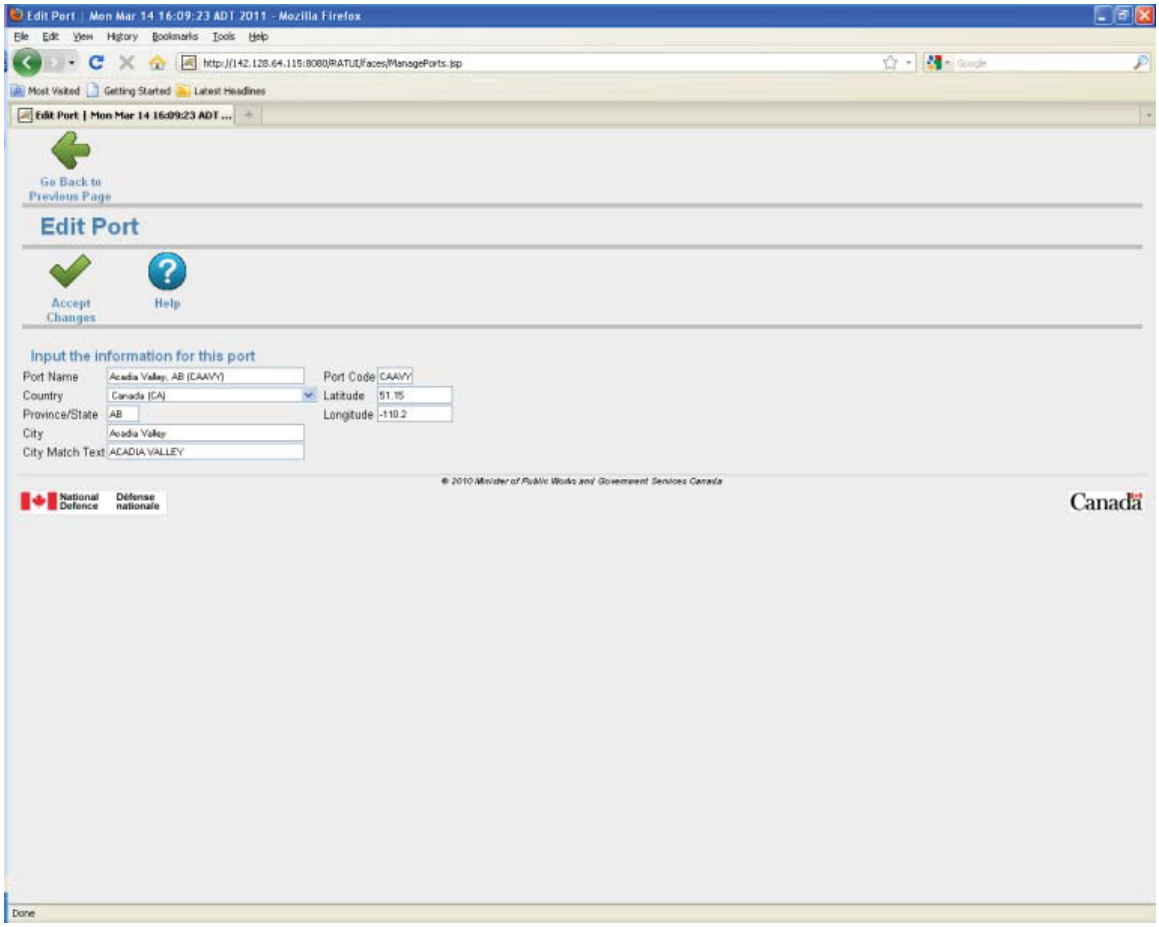


Figure 18: Edit Port

2.5 Arrival Analysis Report Page

The **Arrival Analysis Report** screen is used to view the data that has been imported and corrected. Here you may manually add a vessel to the list by pressing the *green plus* icon captioned **New**, as well as report on the data in two different types of formats.

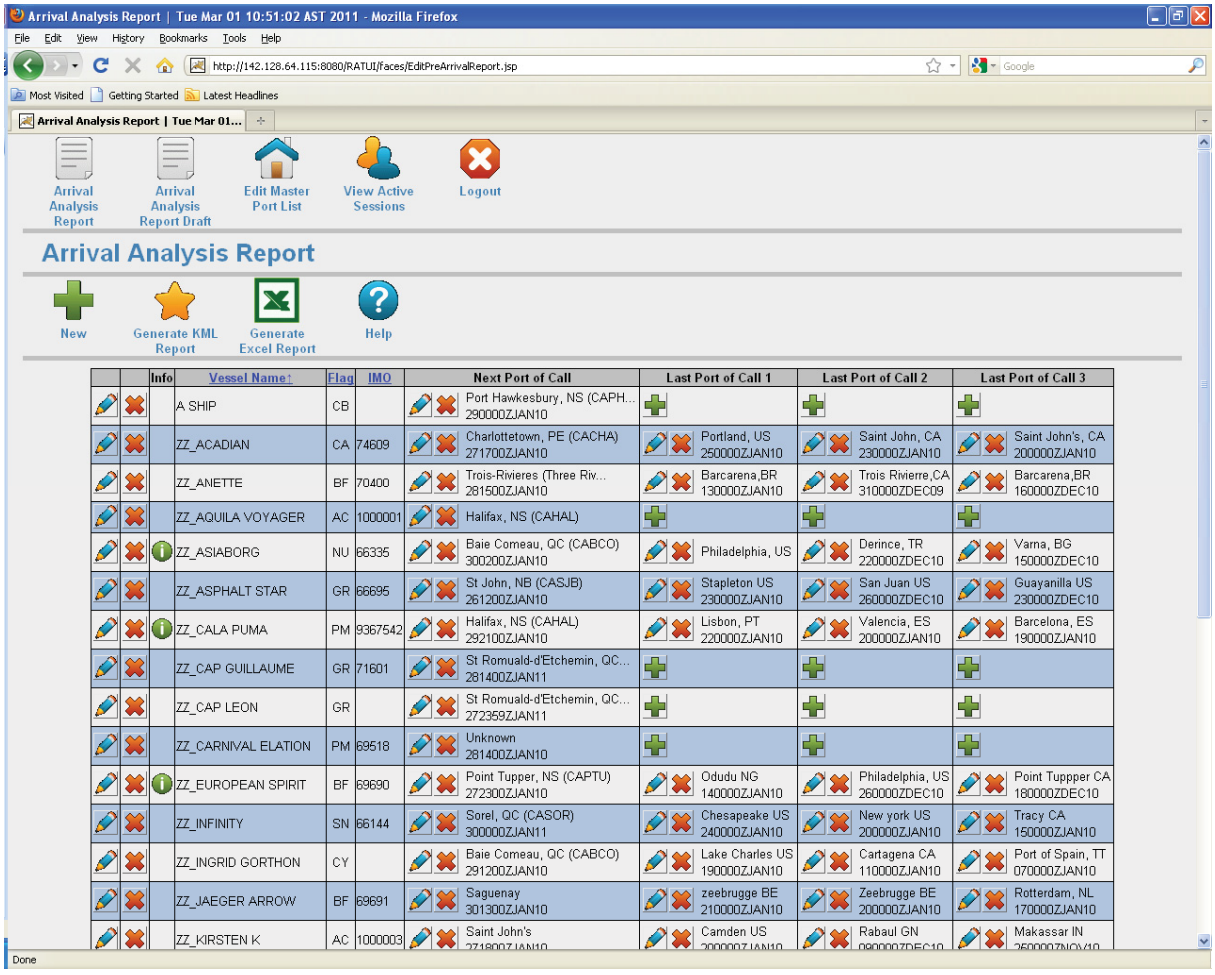


Figure 19: Arrival Analysis Report

2.6 Generate Arrival Analysis KML Report Page

KML Reports can be generated to be viewed within Google Earth. To generate a **KML Report**, click the *Generate KML Report Star* icon and you will be taken to the **Generate Arrival Analysis KML Report** screen as shown in Figure 20. There are 3 choices for the KML Symbology and Styling, which determines how the data will be displayed visually in Google Earth. Additionally, the user may enter an optional dead reckoning date/time as described in Section 2.6.4.

The three choices of **KML Symbology and Styling** use different icon sets and rules for styling the vessel tracks and port locations. The underlying report data remains unchanged regardless of the user's choice. The three choices are described in the following subsections: MILSPEC 2525 (Section 2.6.1); Google Earth (Section 2.6.2); and Proud Canadian (Section 2.6.3). The variety of choices was provided to demonstrate the ability to customize the KML output. If a user needs a new style developed, they should discuss their requirements with Mr. Andrew Wind.

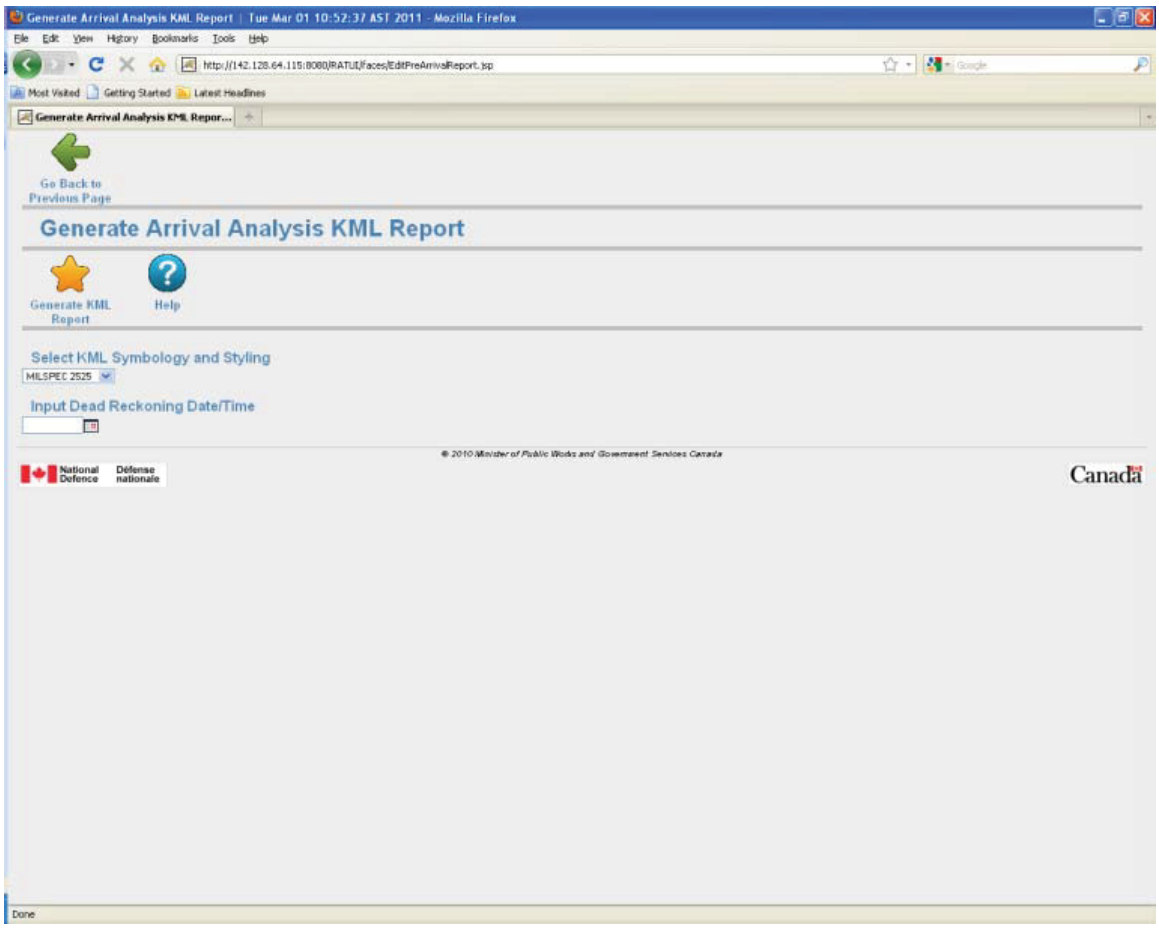


Figure 20: Generate KML Report

The following subsections describe the symbols and styling used for each of the KML symbology sets.

2.6.1 MILSPEC 2525 Symbology and Styling

The MILSPEC 2525 is a standard common warfighting symbology[3]. This choice of KML styling uses a limited set of symbols for displaying the latest contact report (track heads). The **Historical Reports** then use icons indicating the classification of the source providing that position.

The **Historical Reports** in the track history are either **hollow circles** or **hollow triangles**. A **hollow circle** indicates that the report was provided by a source which can be matched to a list of known unclassified sources. A **hollow triangle** indicates that the report was either provided by a classified source or that it didn't match the list of unclassified sources. This distinction was requested by the MSOC(E) users to quickly identify whether there are unclassified reports in the track history to share with other partners who do not have access to the classified data. The list of known unclassified sources is stored in a configuration file for the AAR and can be updated quickly if required.

The colour of the icon is related to the contact's affiliation. Blue is used for friend, green for neutral, red for hostile, and yellow for unknown. These colours are applied to the track head and history icons. Table 1 presents a list of the icons used in this style.

Table 1: Table of icons for MILSPEC 2525 KML symbology and styling choice

ICON	MEANING
	historical contact report (from a known unclassified source)
	historical contact report (from a classified or unknown classification source)
	latest contact report (FRIENDLY AIR)
	latest contact report (FRIENDLY SURFACE)
	latest contact report (FRIENDLY SUBSURFACE)

[3] See http://en.wikipedia.org/wiki/MIL-STD-2525 for a reference.

ICON	MEANING
	latest contact report (HOSTILE AIR)
	latest contact report (HOSTILE SURFACE)
	latest contact report (HOSTILE SUBSURFACE)
	latest contact report (NEUTRAL AIR)
	latest contact report (NEUTRAL SURFACE)
	latest contact report (NEUTRAL SUBSURFACE)
	latest contact report (UNKNOWN AIR)
	latest contact report (UNKNOWN SURFACE)
	latest contact report (UNKNOWN SUBSURFACE)
	domestic port

2.6.2 Google Earth Symbology and Styling

The Google Earth KML symbology and styling choice is a simple style using icons provided with Google Earth. Every vessel is reported with a ship icon for the track head and a hollow circle for historical positions. This option was provided first as a test style. Table 2 presents a list of the icons used in this style.

Table 2: Table of icons for Google Earth KML symbology and styling choice

ICON	MEANING
	historical contact report
	latest contact report
	domestic port

Latest and historical contact report icons will be colored green. Domestic ports will be colored light blue.

2.6.3 Proud Canadian Symbology and Styling

The Proud Canadian symbology and styling is provided with much of the same capability as the MILSPEC 2525 but as an alternative without the military icons. The icon colours follows the same affiliation legend - blue is used for friend, green for neutral, red for hostile, and yellow for unknown. Table 3 presents a list of the icons used in this style.

Table 3: Table of icons for Proud Canadian KML symbology and styling choice

ICON	MEANING
	historical contact report (from a known unclassified source)
	historical contact report (from a classified or unknown classification source)
	latest contact report
	domestic port

2.6.4 Dead Reckoning

Entering a dead reckoning date/time allows the user to predict the position of all vessels to a particular time. This is done by estimating the course and speed based on the last two contact reports. If the last two contact reports are too close together in time or space, that vessel will not be dead reckoned. By leaving this blank, no dead reckoning will be calculated and each vessel track will end at its last known position of the date/time of the report.

The dead reckoned position will be displayed in Google Earth as a line segment extending from the track head. The benefit of using the dead reckoning is that it estimates the position of all vessels to a common time rather than each track stopping at its last contact report time. If a time is entered, the dead reckoning lines will be available and can easily be turned on/off easily as a separate layer in Google Earth. If a time is not entered, dead reckoning is not calculated and therefore cannot be turned on later in Google Earth.

2.7 Generate Excel Report

When generating an **Excel Report**, you are prompted to either *open the file*, or *save* it. You may save it to your computer locally where you can open it at any time. You may also open it directly within Excel (must be installed) to view the report. At this point, you can also choose to save the document from Excel's menu.

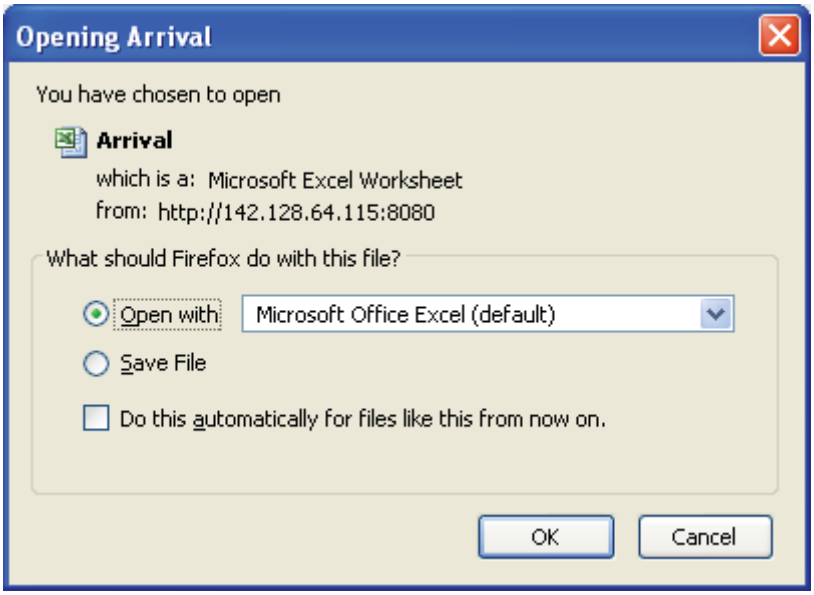


Figure 21: Generating an Excel Report

The **Excel Report** is composed of two sheets. The first sheet reports all the vessel information, repeating all the input data provided, adding information about the vessel's last known position, which sources and sensors have reported the vessel, and both the reported and estimated speed of the vessel. The second sheet contains another list of validation messages. These validation messages, however, report on differences between the input vessel data and the GPW data which was reported in the RMP. Any conflicts found here may identify errors in the RMP. The full list of vessel information and validation messages found in both sheets is provided in Table 9.

2.8 View Active Sessions Page

The **View Active Sessions** page allows you to see who is logged in and using the system (see Figure 22). If a session is expired, it will not appear here.

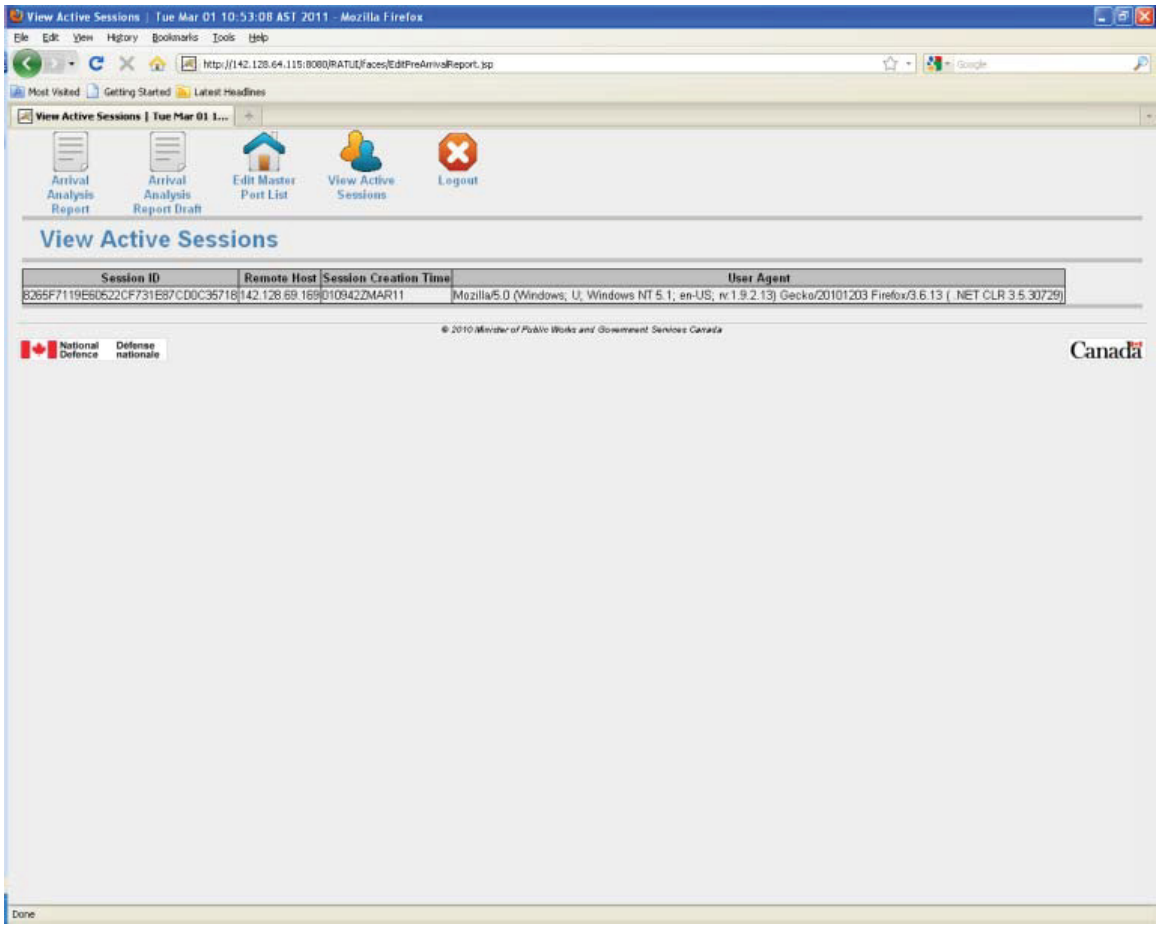


Figure 22: View Active Sessions

2.9 Logout

Although there is not a login required to use AAR, a session is still kept to see who is actively using the system. Once a user logouts, the session is expired. Figure 23 shows an example of the web page presented after pressing logout.

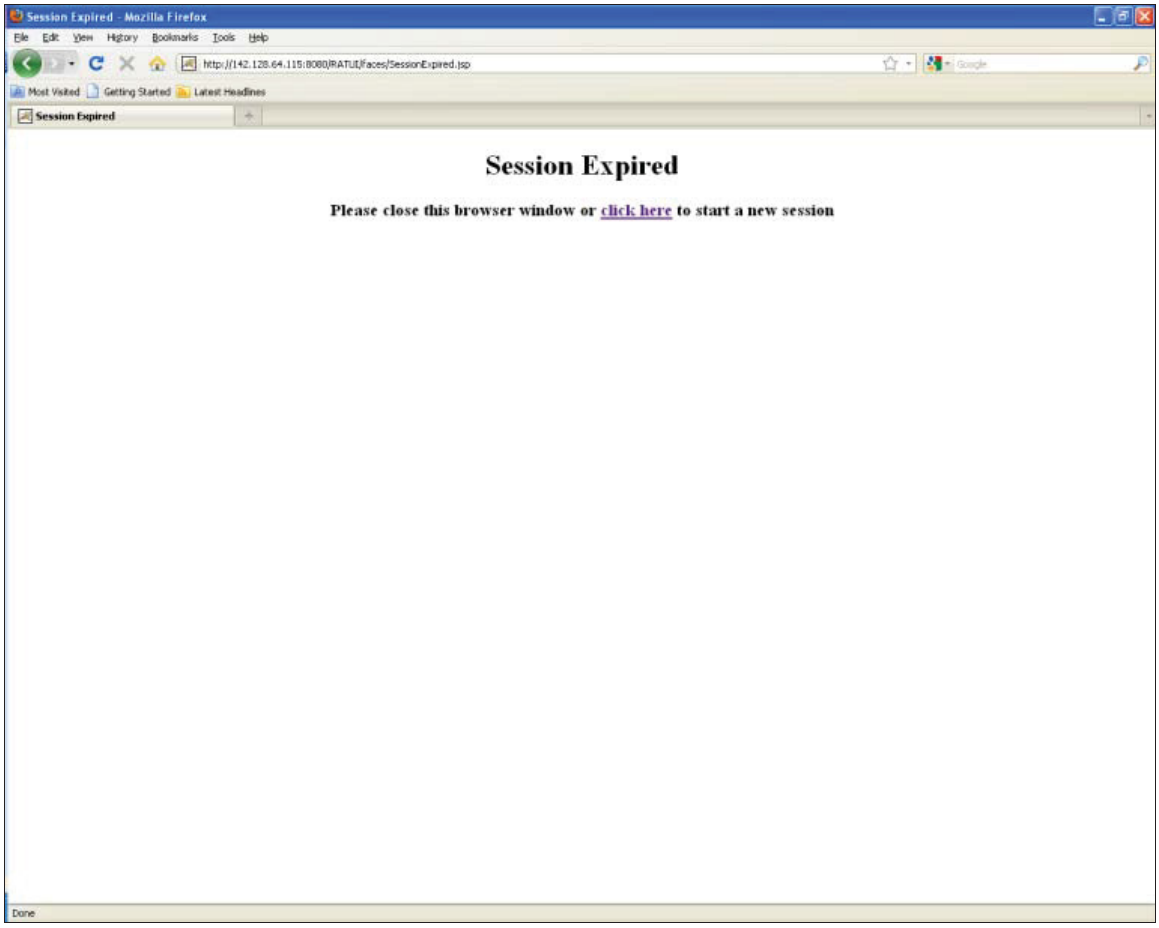


Figure 23: Logout

2.10 Error Page

In the case of an error, a screen similar to that shown in Figure 24 is displayed with a list of the diagnostic stack view that will help to identify the source of the problem. Following the instructions on the screen, you can copy the stack trace into an email message and email it to the address provided. Any feedback provided may be used to help stabilize or fix errors in future releases.

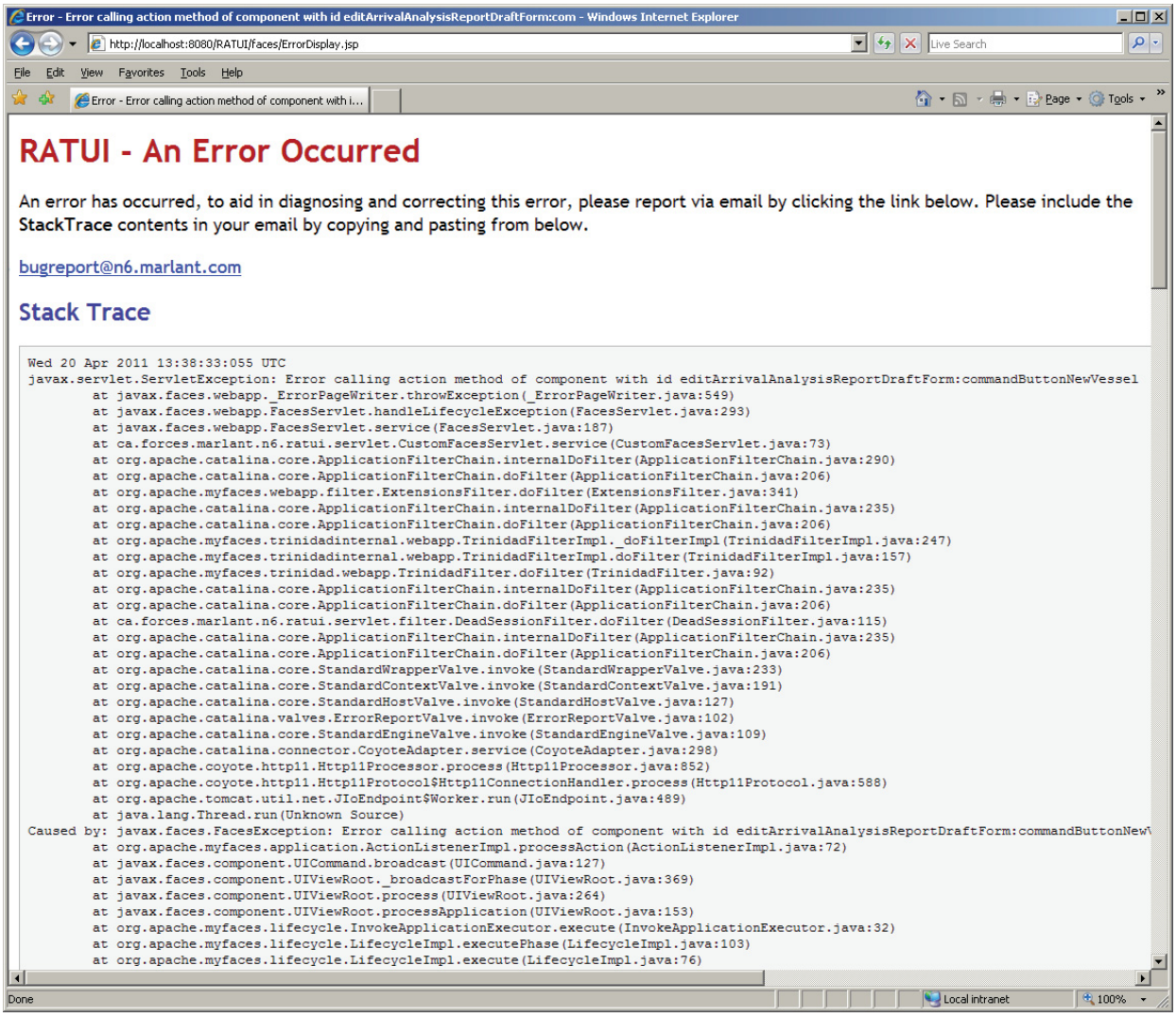


Figure 24: AAR Error Page

Appendix A: List of Acronyms

ART	Additional Reference Table
CDC	Cargo Designator Codes
CSV	Comma Separated Value, this is a file format that is viewable using MS Excel
DND	Department of National Defence
DRDC	Defence Research & Development Canada
GPW	Global Positioning Warehouse
ICS	Intelligence Collection Structure
IMO	International Maritime Organization
LPOC	Last Port of Call
NPOC	Next Port of Call
OGD	Other Government Department
R&D	Research & Development
NPOC	Next Port of Call
TC	Transport Canada
VEEC	Vessels Entering Eastern Canada
VEWC	Vessels Entering Western Canada

B

Appendix B: AAR Draft Validation Messages

This appendix lists each of the potential messages produced by the Arrival Analysis Report Draft validation (see Section 2.1.2) grouped by severity (error, warning and info). Each message is categorized according to the type of data being validated, and contains the message displayed on the Arrival Analysis Draft Report page, along with explanatory summary and details and recommendation on how to fix the issue. These validation messages check the input data and compare it against the vessel records in ART and the port records in the master port list.

The AAR Excel report produces similar validation messages relating to the Arrival Analysis Report. The Excel messages check the input data and compare it against the RMP data archived in GPW. Details regarding the Excel validation can be found in Table 9 of Appendix E: Excel Outputs.

Table 4: Table of AAR Draft Errors

SEVERITY	CATEGORY	MESSAGE	DETAILS	SUMMARY	RECOMMENDED FIX
ERROR	UNIQUE VESSEL	Duplicate input records for name: YYYYY, flag: ZZ	Found multiple vessels in the draft report with the same name and flag. This message will be reported for each of the vessels.	Draft AAR contains multiple vessels with the same name and flag.	If they are meant to be different vessels, edit the vessel details (Section 2.2), otherwise delete the duplicate record.
ERROR	VESSEL FLAG	Input flag not supplied for name: YYYYY	The draft AAR vessels flag is missing and the vessels flag country name is not specified or is comprised of whitespace only.	Draft Vessel Flag not set.	Edit the vessel details (Section 2.2) and add the correct flag.
ERROR	VESSEL FLAG	Input flag: ZZ not matched to a known country for name: YYYYY	The draft AAR vessels flag is missing but the vessels flag country name is specified.	Draft Vessel Flag and Country don't match.	Edit the vessel details (Section 2.2) and correctly match the flag.
ERROR	NPOC	NPOC not supplied for name: YYYYY, flag: ZZ	Draft Vessel Next Port of Call is null.	Draft Vessel has no Next Port of Call set.	Edit the next port of call details (Section 2.3) and add the correct port.
ERROR	NPOC	NPOC port name not supplied for name: YYYYY, flag: ZZ	Draft Vessel Next Port of Call name is not specified or comprised of whitespace only.	Next Port of Call port name is missing or empty.	Edit the next port of call details (Section 2.3) and add the correct port.

Table 5: Table of AAR Draft Warnings

SEVERITY	CATEGORY	MESSAGE	DETAILS	SUMMARY	RECOMMENDED FIX
WARNING	ART	Input IMO: 99999 matches 999 ART records for name: YYYYY, flag: ZZ	GPW ART table has more than 1 record with the IMO number of the AAR draft vessel.	IMO is not unique in the GPW ART table	Use the ART manager (see Section 2.1.2.3) to search for the multiple records and investigate the situation. There should only be one record for each IMO. Therefore an IMO may be entered incorrectly or a vessel may have duplicate records in ART.
WARNING	ART	Input name: YYYYY, flag: ZZ does not match ART name, flag (YYYYY, ZZ) for IMO: 99999	Found a single GPW ART entry for the draft vessels IMO, but the vessel name and/or flag don't match. The flag is only checked if the draft vessel has one.	Found a single GPW ART entry for the draft AAR vessel, but the vessel name and/or flag don't match.	Verify whether the input record or the ART record is correct. If the input record is incorrect, edit the vessel details (Section 2.2). If the ART record is incorrect, edit the ART record (Section 2.1.2.3).
WARNING	ART	Input IMO: 99999 does not match ART IMO (88888) for name: YYYYY, flag: ZZ	If the draft AAR vessel was matched to ART via the vessel name and flag, then the ART.IMO will be compared to AAV.IMO. A mismatch triggers this message.	Draft Vessel IMO does not match ART IMO	Verify whether the input record or the ART record is correct. If the input record is incorrect, edit the vessel details (Section 2.2). If the ART record is incorrect, edit the ART record (Section 2.1.2.3).
WARNING	ART	ART IMO is empty for name: YYYYY, flag: ZZ	If the AAR vessel was matched to ART via the vessel name and flag, then a null IMO value in the ART table will trigger this message.	ART.IMO is null	Edit the ART record (Section 2.1.2.3) to add the IMO.
WARNING	NPOC	NPOC port name: PPPPP not matched to a known port for name: YYYYY, flag: ZZ	AAR draft vessel Next Port of Call city or country is null.	Draft Vessel Next Port of Call can't be matched to known ports.	Edit the next port of call details (Section 2.3) and select the correct port. If the port is not available, add it to the Master Port List (Section 2.4).
WARNING	NPOC ARRIVAL DATE	NPOC arrival time not supplied for name: YYYYY, flag: ZZ	AAR draft vessel Next Port of Call arrival date is null.	Draft Vessel Next Port of Call Arrival Date is not set	Edit the next port of call details (Section 2.3) and add the expected arrival time if known.
WARNING	IMO	No input IMO supplied for name: YYYYY, flag: ZZ	AAR.IMO is null	No IMO set in AAR	Edit the vessel details (Section 2.2) and add the IMO if known.

Table 6: Table of AAR Draft Information Messages

SEVERITY	CATEGORY	MESSAGE	DETAILS	SUMMARY	RECOMMENDED FIX
INFO	NPOC POSITION	Lat/Long is not set for NPOC: PPPPP for name: YYYYY, flag: ZZ	AAR draft vessel Next Port of Call latitude or longitude are null.	Draft Vessel Next Port of Call latitude/longitude are not specified.	Edit the master port list (Section 2.4) and add the correct latitude and longitude so that the port can be displayed in Google Earth.
INFO	LPOC	LPOC not supplied for name: YYYYY, flag: ZZ	AAR draft vessel Last Port of Call is null or is comprised of whitespace only.	Last Port of Call is not set.	Edit the appropriate last port of call details (Section 2.3).
INFO	LPOC	LPOC port name: PPPPP not matched to a known port for name: YYYYY, flag: ZZ	AAR draft vessel Last Port of Call city or county are null.	Last Port of Call does not specify a city or country and therefore can't be matched to any of the known ports.	Edit the appropriate last port of call details (Section 2.3).
INFO	LPOC	LPOC departure time not supplied for name: YYYYY, flag: ZZ	AAR draft vessel Last Port of Call has a null departure time.	Last Port of Call has no departure time set in draft AAR.	Edit the appropriate last port of call details (Section 2.3).

C

Appendix C: VEEC INPUTS

Column	Description
PROVINCE	the province the vessel is entering
VESSEL NAME	the given name of the vessel
FLAG	the country's flag where the vessel is registered
IMO	the unique identifier given to the vessel
NPOC	the next port scheduled to visit
Date	the date of the next scheduled port to visit
Time	the time of the next scheduled port to visit
LPOC1	the last port visited
Date	the date of the last port visited
LPOC 2	the previous port visited to LPOC1
Date	the date LPOC2 was visited
LPOC 3	the previous port visited to LPOC2
Date	the date LPOC3 was visited
CDC	cargo descriptors
Remarks	remarks/comments with regards to this vessel

D

Appendix D: KML OUTPUTS

Google Earth is the tool that is used for visual representation of the data. This document will describe the process of displaying AAR data within Google Earth. This is by no means a user manual for Google Earth. A complete user guide for Google Earth can be found at http://earth.google.com/support/ or from the help menu within Google Earth.

Table 7: lists the Google Earth outputs and their descriptions. Any of the items may be selected on/off for viewing in Google Earth. On the left in the Google Earth sidebar, under places, you will see a listing under Temporary Places called, Arrival Analysis Report. By expanding this, you will see each output as a branch in the tree. By drilling into each output branch, you can choose to turn the output on/off for each individual vessel. Usually, users turn an output on/off for all vessels at a time by selecting the branch. If, however, there is a specific vessel that you want to turn on/off it can be done at the leaf level.

Table 7: Google Earth outputs

Output	Description
Vessel Latest Contact Position	A layer displaying the last reported position for each vessel – these positions are also known as the track heads
Next Ports of Call	A layer displaying the positions of all the ports which have a vessel enroute
Vessel To Port Lines	A layer displaying lines from each vessel to its next port of call
Vessel Track Lines	A layer displaying lines connecting each vessel's contact positions – this is also known as the track history. (This layer displays the lines without marking each position.)
Vessel Previous Contact Positions	A layer displaying each vessel's previous contact positions. (This layer displays each previous position without joining those positions with a line.)
Course/Speed Indicator lines	A layer displaying lines indicating the current course and speed from each vessel's latest contact position. The direction of the line indicates its course while the length of the line indicates its speed.
Security Classification overlay	An image overlay which identifies whether the report was produced from an unclassified or classified system
No Active Track Vessels overlay	An image overlay which lists all input vessels which were not matched to an active track in GPW

The following figures show the various options turned on for the KML report within Google Earth using the Google Earth styling and symbology.

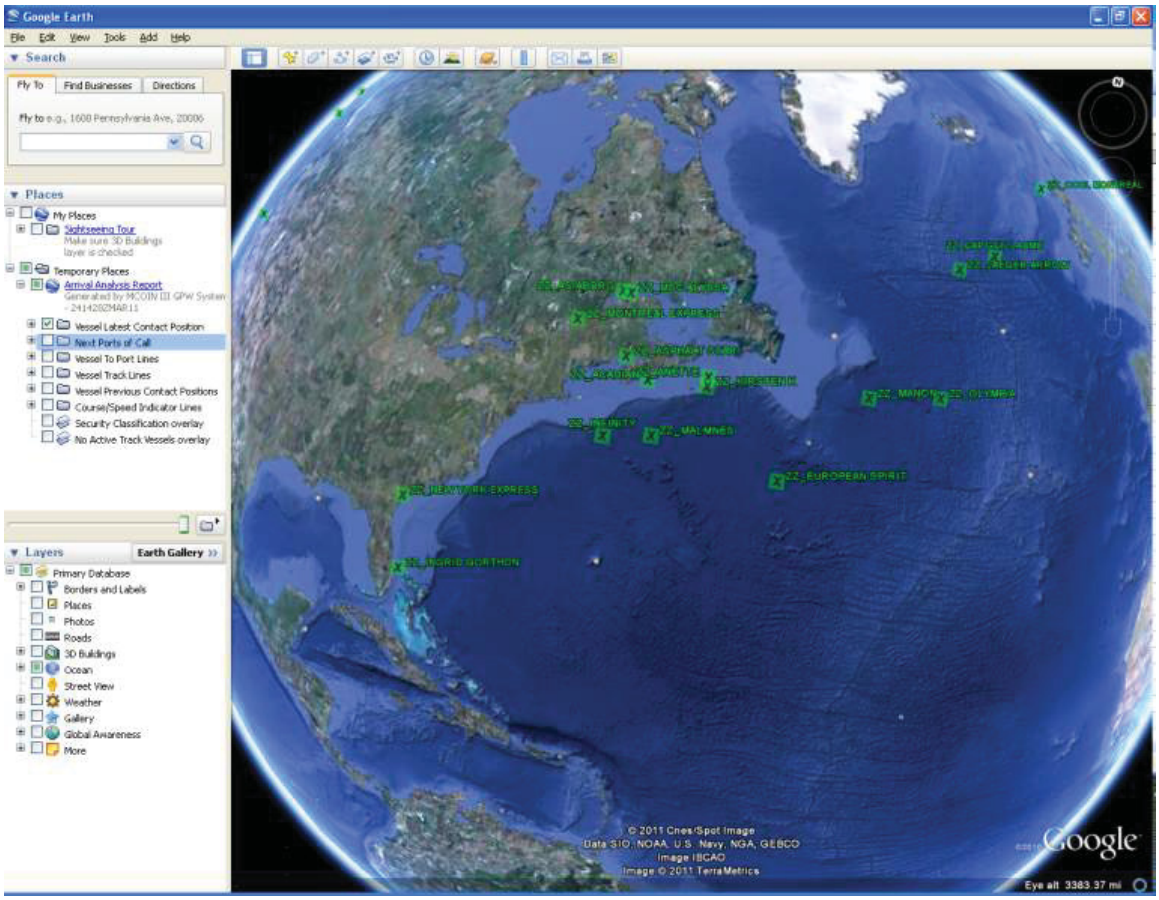


Figure 25: Vessel Latest Contact Position

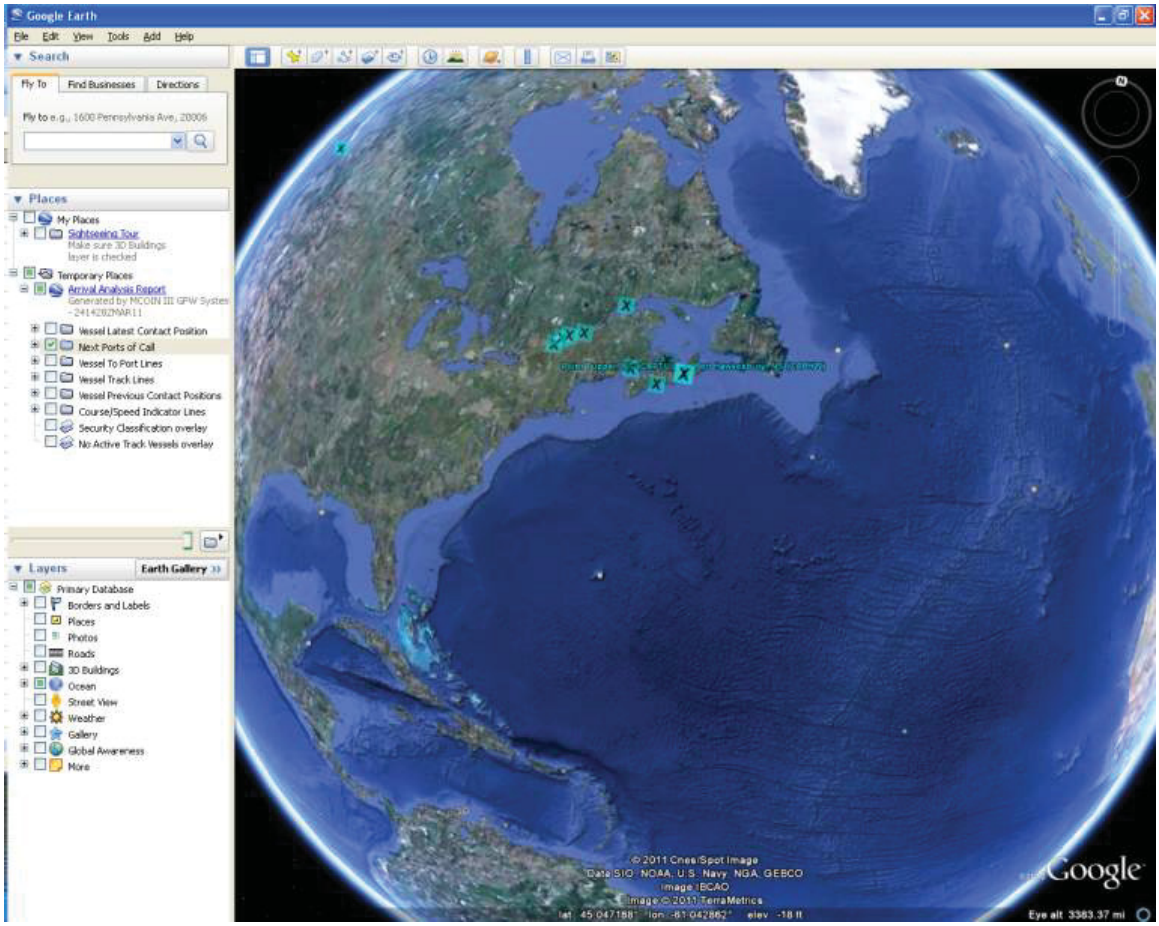


Figure 26: Next Ports of Call

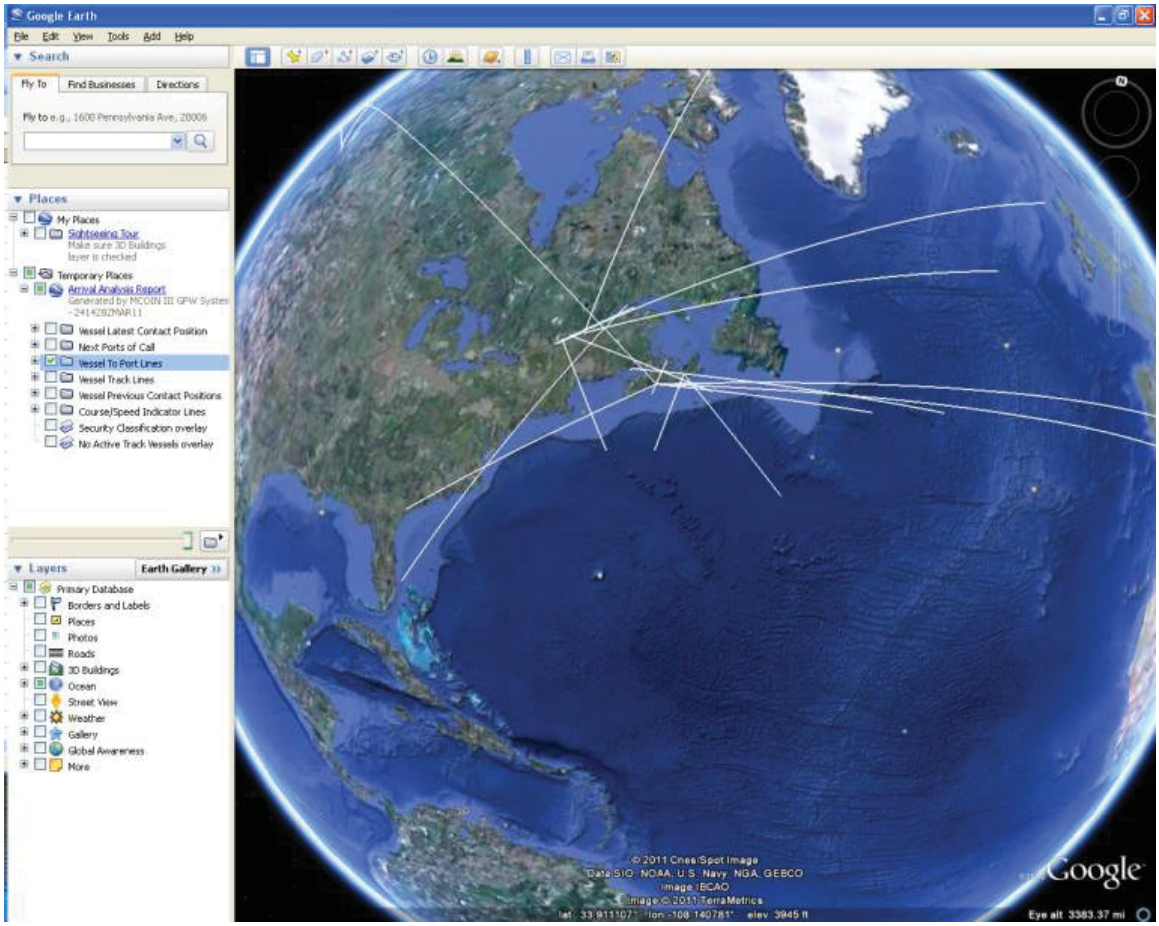


Figure 27: Vessel To Port Lines

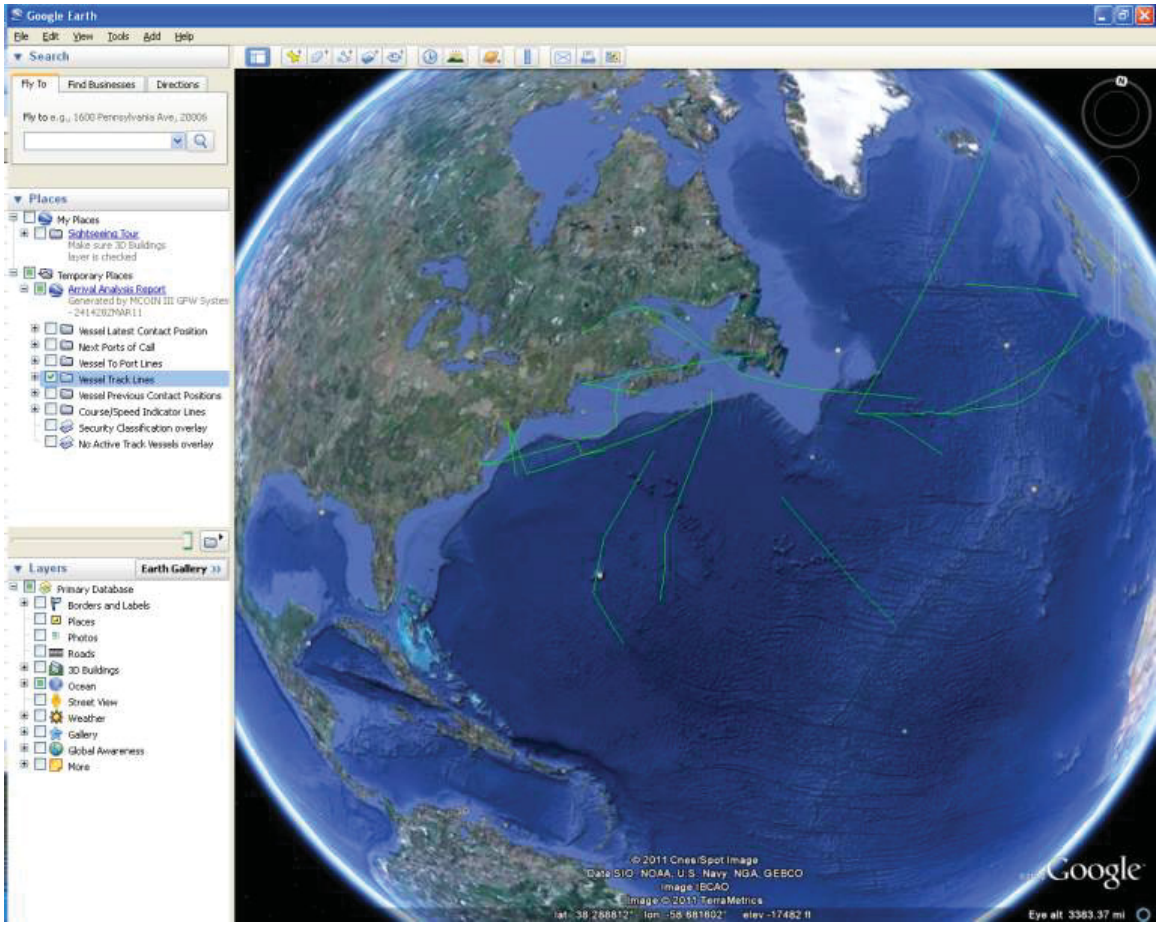


Figure 28: Vessel Track Lines

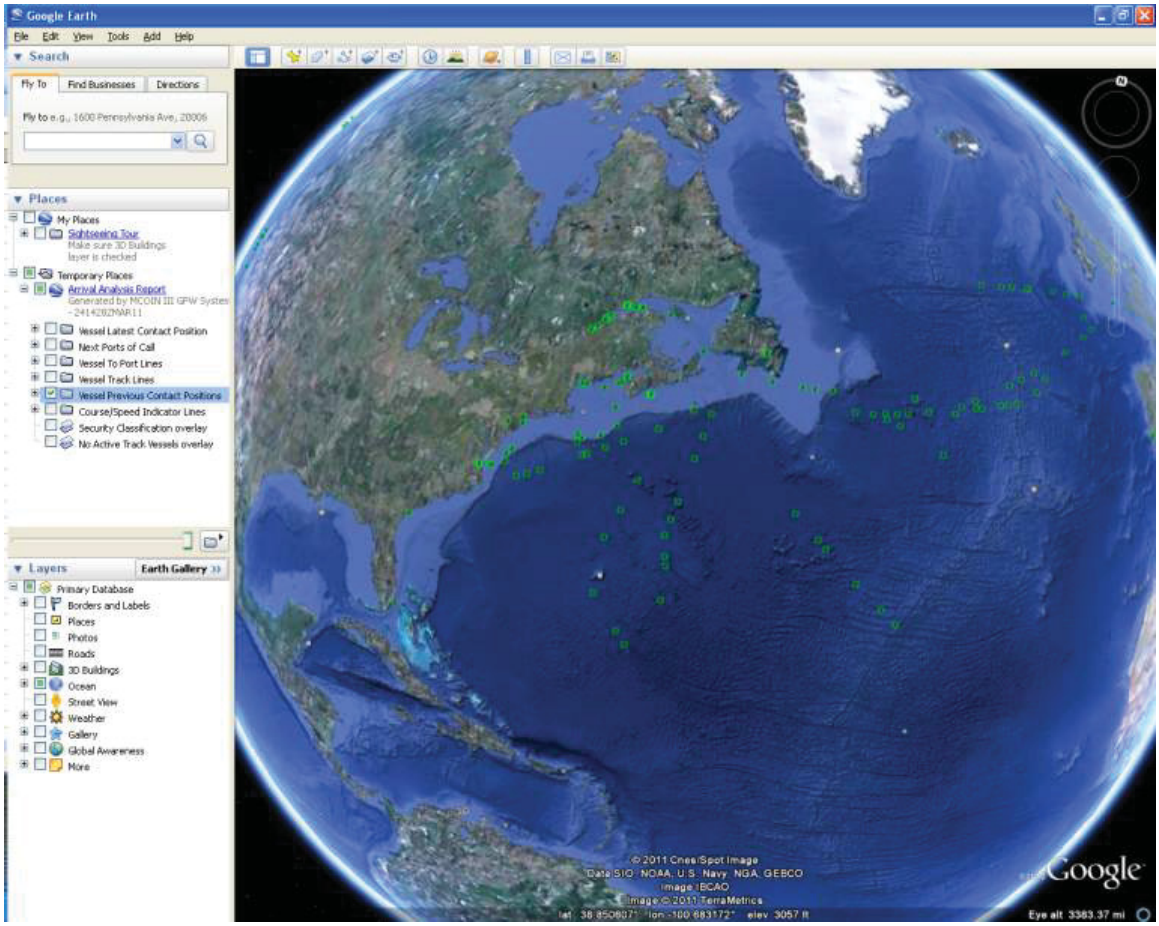


Figure 29: Vessel Previous Contact Positions

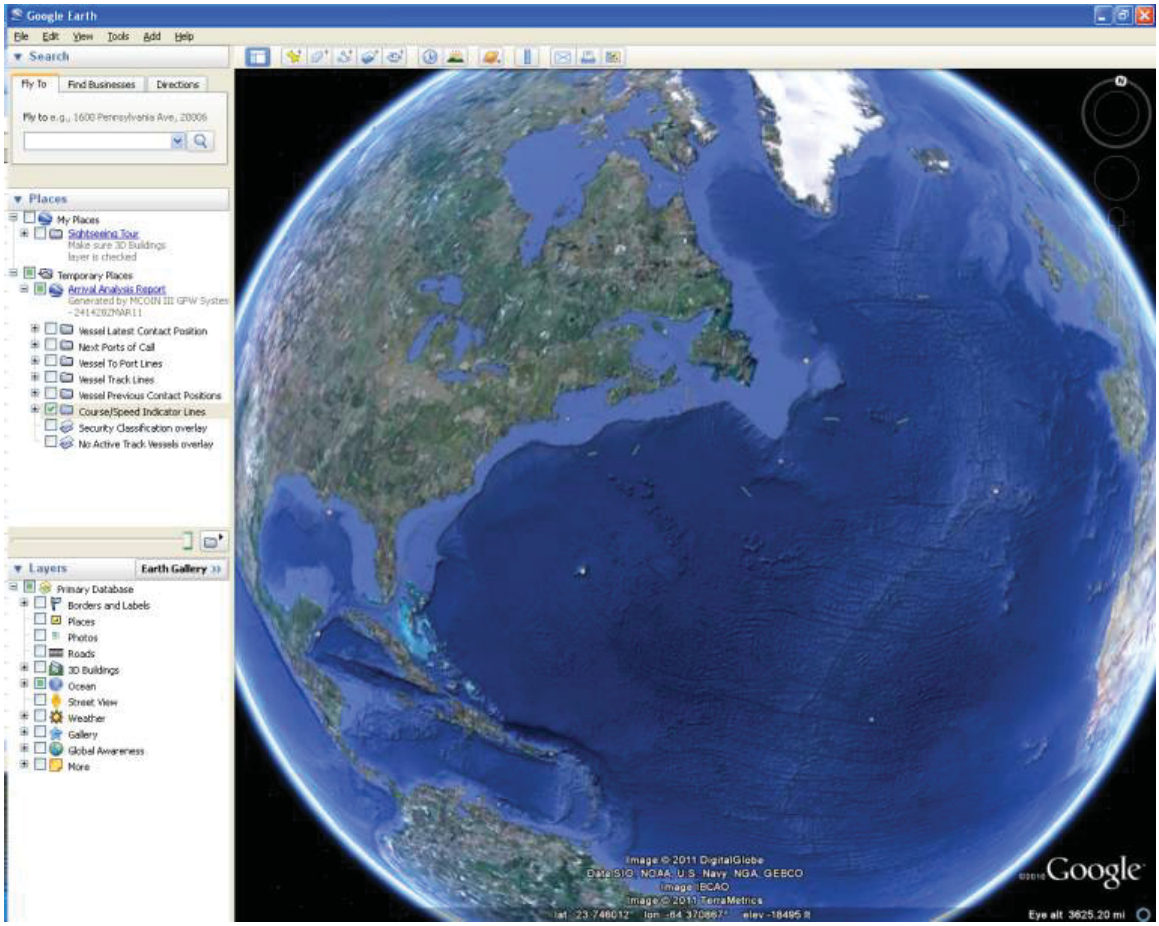


Figure 30: Course/Speed Indicator Lines

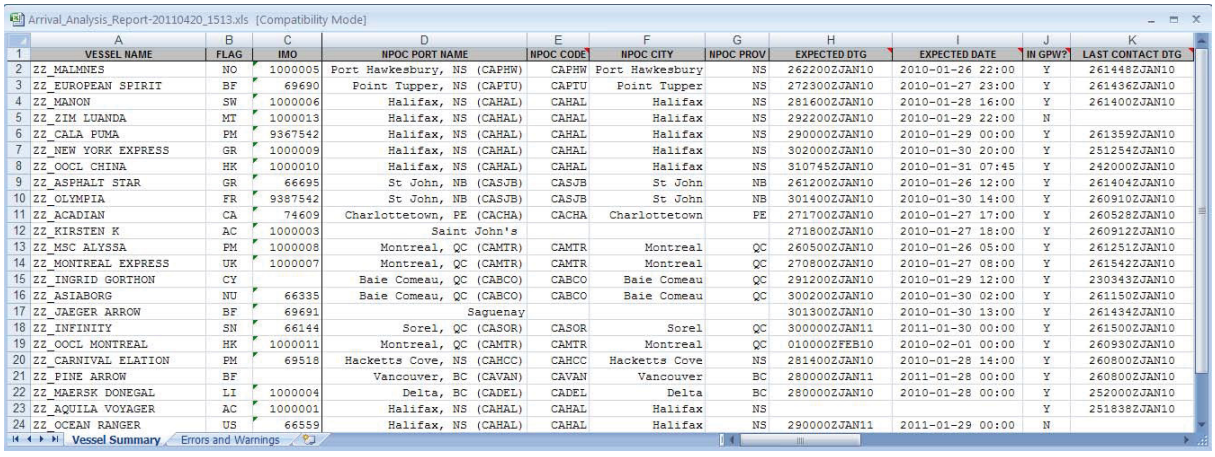
Appendix E: Excel Outputs

The Microsoft Excel output provides a tabular view of the data and now validates the input data against the RMP data found in GPW. The first sheet provides the data summary with the fields described in Table 8 and shown in Figure 31. This summary can be sorted by any field for further analysis. It also quickly identifies which vessels were found active in GPW. The second sheet provides new validation data identifying conflicts between the input data and the RMP data archived in GPW. These validation messages are different from those presented when working on the AAR draft page which compared the input data to ART and the master port list. All of the possible validation messages are described in Table 9 and a sample is shown in Figure 32.

Table 8: Excel output sheet 1 - Vessel Summary

Column	Description
VESSEL NAME	Given name of the vessel
FLAG	The country where the vessel is registered
IMO	The International Maritime Organization (IMO) unique identifier for a vessel
NPOC PORT NAME	The next port the vessel will visit
NPOC CODE	The code of the next port the vessel will visit
NPOC CITY NPOC PROV	The city and province of the next port the vessel will visit
EXPECTED DTG	The date and time the vessel will visit the next port
IN GPW?	A Y/N indicator of whether the vessel is active within GPW
LAST CONTACT DTG	The last time the vessel was in contact
LAST CONTACT DATE	The last date the vessel was in contact
LAST LAT	The latitude coordinates of the vessel during the last contact
LAST LON	The longitude coordinates of the vessel during the last contact

Column	Description
SOURCE CODES	List of source systems having reported on the contact (e.g. PAL or INNAV)
SENSOR CODES	List of individual sensors providing reports (e.g. AIS or radar)
IRCS	International Radio Call Sign identifying a vessel
LPOC1 PORT NAME	The name of the last port visited by the vessel
LPOC1 DEPARTURE DTG	The time the vessel left the last port visited
LPOC1 DEPARTURE DATE	The date the vessel left the last port visited
LPOC2 PORT NAME	The name of the port the vessel visited prior to LPOC1
LPOC2 DEPARTURE DTG	The time the vessel left LPOC2
LPOC2 DEPARTURE DATE	The date the vessel left LPOC2
LPOC3 PORT NAME	The name of the port visited prior to LPOC3
LPOC3 DEPARTURE DTG	The time the vessel left LPOC3
LPOC3 DEPARTURE DATE	The date the vessel left LPOC3
REPORTED SPEED	The current speed reported by the vessel
ESTIMATED SPEED	The estimated speed of the vessel based on its last two contact reports
CARGO DESIGNATORS	Codes that indicate what cargo the vessel is transporting
REMARKS	Any remarks or comments recorded for this vessel


Arrival_Analysis_Report-20110420_1513.xls [Compatibility Mode]

	A	B	C	D	E	F	G	H	I	J	K
1	VESSEL NAME	FLAG	IMO	NPOC PORT NAME	NPOC CODE	NPOC CITY	NPOC PROV	EXPECTED DTG	EXPECTED DATE	IN GPW?	LAST CONTACT DTG
2	ZZ_MALMNES	NO	1000005	Port Hawkesbury, NS (CAPHW)	CAPHW	Port Hawkesbury	NS	262200ZJAN10	2010-01-26 22:00	Y	261448ZJAN10
3	ZZ_EUROPEAN SPIRIT	BF	69690	Point Tupper, NS (CAPTU)	CAPTU	Point Tupper	NS	272300ZJAN10	2010-01-27 23:00	Y	261436ZJAN10
4	ZZ_MANON	SW	1000006	Halifax, NS (CAHAL)	CAHAL	Halifax	NS	281600ZJAN10	2010-01-28 16:00	Y	261400ZJAN10
5	ZZ_ZIM LUANDA	MT	1000013	Halifax, NS (CAHAL)	CAHAL	Halifax	NS	292200ZJAN10	2010-01-29 22:00	N	
6	ZZ_CALA PUMA	PM	9367542	Halifax, NS (CAHAL)	CAHAL	Halifax	NS	290000ZJAN10	2010-01-29 00:00	Y	261359ZJAN10
7	ZZ_NEW YORK EXPRESS	GR	1000009	Halifax, NS (CAHAL)	CAHAL	Halifax	NS	302000ZJAN10	2010-01-30 20:00	Y	251254ZJAN10
8	ZZ_OOCL CHINA	HK	1000010	Halifax, NS (CAHAL)	CAHAL	Halifax	NS	310745ZJAN10	2010-01-31 07:45	Y	242000ZJAN10
9	ZZ_ASPHALT STAR	GR	66695	St John, NB (CASJB)	CASJB	St John	NB	261200ZJAN10	2010-01-26 12:00	Y	261404ZJAN10
10	ZZ_OLYMPIA	FR	9387542	St John, NB (CASJB)	CASJB	St John	NB	301400ZJAN10	2010-01-30 14:00	Y	260910ZJAN10
11	ZZ_ACADIAN	CA	74609	Charlottetown, PE (CACHA)	CACHA	Charlottetown	PE	271700ZJAN10	2010-01-27 17:00	Y	260528ZJAN10
12	ZZ_KIRSTEN K	AC	1000003	Saint John's				271800ZJAN10	2010-01-27 18:00	Y	260912ZJAN10
13	ZZ_MSC ALYSSA	PM	1000008	Montreal, QC (CAMTR)	CAMTR	Montreal	QC	260500ZJAN10	2010-01-26 05:00	Y	261251ZJAN10
14	ZZ_MONTREAL EXPRESS	UK	1000007	Montreal, QC (CAMTR)	CAMTR	Montreal	QC	270800ZJAN10	2010-01-27 08:00	Y	261542ZJAN10
15	ZZ_INGRID GORTHON	CY		Baie Comeau, QC (CABCO)	CABCO	Baie Comeau	QC	291200ZJAN10	2010-01-29 12:00	Y	230343ZJAN10
16	ZZ_ASIABORG	NU	66335	Baie Comeau, QC (CABCO)	CABCO	Baie Comeau	QC	300200ZJAN10	2010-01-30 02:00	Y	261150ZJAN10
17	ZZ_JAEGER ARROW	BF	69691	Saguenay				301300ZJAN10	2010-01-30 13:00	Y	261434ZJAN10
18	ZZ_INFINITY	SN	66144	Sorel, QC (CASOR)	CASOR	Sorel	QC	300000ZJAN11	2011-01-30 00:00	Y	261500ZJAN10
19	ZZ_OOCL MONTREAL	HK	1000011	Montreal, QC (CAMTR)	CAMTR	Montreal	QC	010000ZFEB10	2010-02-01 00:00	Y	260930ZJAN10
20	ZZ_CARNIVAL ELATION	PM	69518	Hacketts Cove, NS (CAHCC)	CAHCC	Hacketts Cove	NS	281400ZJAN10	2010-01-28 14:00	Y	260800ZJAN10
21	ZZ_PINE ARROW	BF		Vancouver, BC (CAVAN)	CAVAN	Vancouver	BC	280000ZJAN11	2011-01-28 00:00	Y	260800ZJAN10
22	ZZ_MAERSK DONEGAL	LI	1000004	Delta, BC (CADEL)	CADEL	Delta	BC	280000ZJAN10	2010-01-28 00:00	Y	252000ZJAN10
23	ZZ_AQUILA VOYAGER	AC	1000001	Halifax, NS (CAHAL)	CAHAL	Halifax	NS			Y	251838ZJAN10
24	ZZ_OCEAN RANGER	US	66559	Halifax, NS (CAHAL)	CAHAL	Halifax	NS	290000ZJAN11	2011-01-29 00:00	N	

Vessel Summary | Errors and Warnings

Figure 31: Sample screenshot of Excel output sheet 1 - Vessel Summary

Table 9: Excel outputs sheet 2 - Errors and Warnings

Severity	Category	Summary	Recommended Fix
High	VESSEL FLAG	Input flag does not match GPW flag	Verify whether the input flag was correct, otherwise this indicates that the vessel is reporting incorrectly or that ART/Lloyds is incorrect. Correcting or adding an ART record may correct this situation from recurring in the future. Although the direct link is not available from Excel, see Section 2.1.2.3 for related details.
High	VESSEL NAME	Input name does not match GPW name	Verify whether the input name was correct, otherwise this indicates that the vessel is reporting incorrectly or that ART/Lloyds is incorrect. Correcting or adding an ART record may correct this situation from recurring in the future. Although the direct link is not available from Excel, see Section 2.1.2.3 for related details.
High	VESSEL IMO	Input IMO: does not match GPW IMO	Verify whether the input IMO was correct, otherwise this indicates that the vessel is reporting incorrectly or that ART/Lloyds is incorrect. Correcting or adding an ART record may correct this situation from recurring in the future. Although the direct link is not available from Excel, see Section 2.1.2.3 for related details.
Medium	GPW	Input IMO is empty in GPW	If the vessel should have an IMO, correcting or adding an ART record may correct this situation from recurring in the future. Although the direct link is not available from Excel, see Section 2.1.2.3 for related details.
Medium	ART	Input name does not match ART name	Verify whether the input record or the ART record is correct. If the ART record is incorrect, edit the ART record using the ART manager (a separate GPW web application). Although the direct link is not available from Excel, see Section 2.1.2.3 for related details.
Medium	VESSEL IMO	No input IMO supplied	The vessel IMO was not supplied to the AAR and therefore could not be reported.

Severity	Category	Summary	Recommended Fix
Medium	NPOC	Input flag does not match ART flag	Verify whether the input record or the ART record is correct. If the ART record is incorrect, edit the ART record using the ART manager (a separate GPW web application). Although the direct link is not available from Excel, see Section 2.1.2.3 for related details.
Medium	LPOC	NPOC arrival time not supplied	The expected arrival time was not supplied to the AAR and therefore could not be reported.
Low	GPW	No active track in GPW	There is no recent position on the vessel in GPW. The vessel may still be far from Canada and not in our surveillance picture. Otherwise if the vessel is expected to be in the RMP, the user may want to further investigate the situation.
Low	LPOC	LPOC not supplied	The last port of call was not supplied to the AAR and therefore could not be reported.
Low	LPOC	LPOC departure time not supplied	The last port of call departure time was not supplied to the AAR and therefore could not be reported.

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The Arrival Analysis Report (AAR) is the first operational module of the Recognized Maritime Picture (RMP) Analysis Toolset (RAT). The module was developed to integrate the predicted arrival data from Transport Canada (TC) with the current positional data held by the Department of National Defence (DND). The module performs data validation and provides integrated results in Google Earth and Microsoft Excel formats. The work directly supports the Marine Security Operations Centres (MSOCs) and was performed as part of Applied Research Project (ARP) 11hn, Maritime Security Planning Tools and Analysis.

Le rapport d'analyse d'arrivée (RAA) est le premier module opérationnel de l'ensemble d'outils d'analyse (EOA) de la situation maritime générale (SMG). Le module a été élaboré pour intégrer les données d'arrivée prédite de Transports Canada (TC) avec les données de position actuelles détenues par le ministère de la Défense nationale (MDN). Le module effectue une validation des données et procure des résultats intégrés dans les formats Google Earth et Microsoft Excel. Le travail soutient directement les centres d'opérations de la sécurité maritime (SOSM), et a été effectué dans le cadre du programme de recherche appliquée (PRA) 11hn, Maritime Security Planning Tools and Analysis.

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