
United States Coast Guard

Office of Navigation Systems



“We Help Mariners Get There”

**Expanding AIS Carriage and
New Operating Requirements**

Jorge Arroyo | USCG Headquarters | Washington, DC
December 3rd, 2015 * New Orleans, LA



Homeland
Security



AIS Rulemaking Timeline

- ✓ 07/01/03 published Temporary Interim Rule
....and Request for Comments
- ✓ 10/23/03 current AIS requirement (33 CFR 164.46)
- ✓ 07/01/03-01/09/04 sought AIS expansion comment
- ✓ 10/31/05 notice expansion of AIS to **all** waters
- ✓ 12/16/08 NPRM ... 4/15/09 comment deadline
 - ✓ 3 Public Meetings, 80 submissions, 300+ comments
- ✓ 01/30/15 Final Rule ... 4/15/09 comment deadline

New AIS Carriage Requirements...

Effective March 2nd, 2015, these commercially self-propelled vessels, operating on U.S. navigable waters, must have a properly installed, operational Automatic Identification System (AIS) no later than March 1st, 2016

- vessels of ≥ 65 feet in length
- towing vessels of ≥ 26 feet in length & >600 hp
- vessels certificated to carry ≥ 150 passengers
- dredges and ~~floating plants~~ that operate in/near a commercial channel
- vessels engaged in the movement of certain dangerous cargo, **flammable or combustible liquid cargo in bulk**

Effected Vessels by Type	2003		2015	Total Vessels
	SOLAS	Domestic		
Foreign ship >65' <300GT		1,119		1119
<i>Fishing</i>	1	-	2,906	2907
<i>Towing</i>	13	2,212	1,429	3654
<i>Passenger</i>	81	171	288	540
<i>Cargo</i>	154	77	247	478
<i>OSV</i>	55	432	151	638
<i>MODU</i>	1	-	31	32
<i>Industrial</i>	21	11	220	252
<i>Research</i>	10	11	54	75
<i>School</i>		5	10	15
<i>Tank Ships</i>	102	15	35	152
<i>Unknown</i>		16	134	150
<i>Unclassified</i>		13	326	339
<i>Dredges</i>		-	17	17
U.S. Total	438	2,963	5,848	9,249
Total	4,520	5,848	10,368	

Noteworthy AIS Provisions...

- **AIS does not relieve you of navigation rules signaling or radiotelephone requirements**
- **AIS (& assoc. sensors) shall remain on when:**
 - **Underway, at anchor, and at least 15 min. prior to unmooring**
 - **Except if it compromises safety or security**
 - **Securing it must be logged, reported, promptly restored**
- **Inoperative AIS is now a reportable deficiency, but, not a 'no sail' item**

**Prohibits mobile AIS from air, ashore
or on non-self propelled vessels**

Noteworthy AIS Provisions...

- **Spells out ‘effective operating conditions’ to include:**
 - **the ability to reinitialize the AIS | know password**
 - **the accurate broadcast of an official MMSI**
 - **the accurate input, upkeep, and updating**
 - **the ability to access AIS info from conning position**
- **AIS is primarily for the person controlling the vessel, who must maintain a periodic watch**
- **AIS text messaging solely in English & for navigation safety**
- **Permits the use of approved AIS Application Specific Messaging (ASM) for vessels (<1/min.)**



Noteworthy AIS provisions...

AIS Class B devices permissible on:

- **dredges,**
- **fishing industry vessels, and**
- **vessels certificated to carry <150 passengers that do not operate in:**
 - **Vessel Movement Reporting/Traffic System area, or**
 - **at speeds >14 kts**



Noteworthy AIS Provisions...

- **Applies to all navigable waters, no exceptions.**
- **Individual deviations (waivers) are permissible, but, only for vessels:**
 - **that solely operate within a very confined area**
e.g. shipyard, fleeting area, etc.
 - **on short & fixed schedules**
e.g. a bank-to-bank river ferry service
 - **otherwise not likely to encounter other AIS users**

Extends the deviation period from 1 to 5-years and broadens it to vessels on which AIS would be impractical, i.e. lack of display, power, open exposed conning position, etc.



Automatic Identification System

- What is AIS?
- How AIS Works
- Types of AIS
- AIS Messages
 - AIS Base Station Report
 - Class A Position Report
 - Class A Static & Voyage Data
 - Class B Reports
 - AIS ATON Report
 - Long Range AIS Report
- Nationwide AIS (NAIS)
- AIS Requirements
- Reference Information
 - AIS Encoding Guide & LOCODES
 - Frequently Asked Questions

Mission Areas

- Global Positioning System
- Nationwide DGPS
- Nationwide AIS (NAIS)
- AIS (Overview, Messages, etc.)
- Long Range Identification and Tracking
- Local Notice to Mariners
- Light Lists
- Civil GPS Service Interface Committee
- LORAN C (archive)

Subscribe / Report (free)

- Local Notice to Mariners (Weekly)
- GPS Operational Summary (Daily)

AIS FREQUENTLY ASKED QUESTIONS

1. What is AIS?
2. What is an MMSI, how do I get one, and how do I program my AIS?
3. What is the AIS rule and are there alternatives to the rule for small businesses?
4. Do AIS Class B devices meet current USCG AIS carriage requirements?
5. How does AIS help to increase security (and what is NAIS)?
6. When must AIS be in operation?
7. Does the installation of the AIS require additional equipment in order for the AIS to operate properly?
8. Will it be necessary to have electronic navigational charts for use with the AIS?
9. Are fishing vessels subject to AIS carriage, and, is onboard Vessel Monitoring System (VMS) an acceptable substitute for the AIS?
10. Why have some AIS units stopped broadcasting valid position reports?
11. Why am I unable to see an AIS vessels' name or other static information (dimensions, call sign, etc.)?
12. Why do I sometimes see more than one vessel with the same MMSI or vessel name (i.e. NAUT)?
13. I just purchased and installed an AIS Class B, will AIS Class A user 'see' me?
14. Do AIS Class B devices meet current USCG AIS carriage requirements?
15. Is the USCG considering expanding AIS carriage to other vessels or outside of VTS areas?
16. How can I get a copy of an AIS presentation I saw (or heard about it) that was given at...
17. Where can I get AIS data?
18. Reserved for future use.
19. What is AIS Channel Management?
20. Can I use my AIS in an emergency or for distress messaging?
21. Is the Coast Guard broadcasting AIS Aids to Navigation Reports?
22. Have an AIS question not answered here?

Want
to find out
more?

1. What is AIS? Per 47 CFR §80.5, AIS is a maritime navigation safety communications system standardized by the International Telecommunication Union (ITU) and adopted by the International Maritime Organization (IMO) that provides vessel information, including the vessel's identity, type, position, course, speed, navigational status and other safety-related information automatically to appropriately equipped shore stations, other ships, and aircraft; receives automatically such information from similarly fitted ships; monitors and tracks ships; and exchanges data with shore-based facilities. [Read more](#) on what it is, how it works, what it broadcasts, and, the messages it uses, etc.





Automatic Identification System

- What is AIS?
- How AIS Works
- Types of AIS
- AIS Messages
 - AIS Base Station
 - Class A Position
 - Class A Station
 - Class B Repetitive
 - AIS-ATON Function
 - Long Range
 - Nationwide AIS
 - AIS Requirements
- Reference Information
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 - Frequently Asked Questions

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3. What is the AIS rule and are there alternatives to the rule for small businesses?

15. Is the USCG considering expanding AIS carriage to other vessels or outside of VTS areas? Yes. On January 30th, 2015 the Coast Guard published a Final Rule ([80 FR 5281](#)), which on March 2nd, 2015, expands AIS carriage ([68 FR 60599](#)) to most commercial vessels (see those effected [here](#)) operating on any [U.S. navigable waters](#), and, harmonizes U.S. AIS requirements with Regulation V/19.2.4 of the Safety of Life at Sea Convention and § 102 of the Maritime Transportation Security Act of 2002. The docket containing comments submitted, supporting documents, and the regulatory analysis to this and our proposed rulemaking ([73 FR 76295](#)) can be found at [www.regulations.gov](#) [Search: USCG-2005-21869]. Printer-friendly PDF formats of these [2015 requirements](#), our [2008 proposed rule](#), an [amalgamation](#) of both, our [2003 requirements](#), and, a [chart-comparison](#) of all three.

12. Why do I sometimes see more than one vessel with the same MMSI or vessel name (i.e. NAUT)?
13. I just purchased and installed an AIS Class B, will AIS Class A user 'see' me?
14. Do AIS Class B devices meet current USCG AIS carriage requirements?
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**See Our
AIS FAQ #15
For More Info
on AIS Rules...**





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3. What is the AIS rule and are there alternatives to the rule for small businesses?
4. Do AIS Class B devices meet current USCG AIS carriage requirements?
5. How does AIS help to increase security (and what is NAIS)?
6. When must AIS be in operation?

14. Do AIS Class B devices meet current USCG AIS carriage requirements? Maybe. Per 33 CFR 164.46(b)(2), use of an AIS Class B device, in lieu of a mandatory Class A device, is permissible, but, only on: dredges; fishing industry vessels; and, vessels certificated to carry less than 150 passengers, that do not operate in a Vessel Movement Reporting System (VMRS) area defined in Table 161.12(c) or at speeds in excess of 14 knots. See a comparison of Class A and Class B/CS AIS.

11. Why am I unable to see an AIS vessels' name or other static information (dimensions, call sign, etc.)?
12. Why do I sometimes see more than one vessel with the same MMSI or vessel name (i.e. NAUT)?
13. I just purchased and installed an AIS Class B, will AIS Class A user 'see' me?
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**AIS FAQ#14
Class A/B
Comparison
Table**



Comparison of AIS mobile devices...

Shipboard AIS	Class A	Class B/SO	Class B/CS
Transmit Power (Watts)	12.5 W / 2 W (low-power)	5 W / 2 W (low-power)	2 W
Primary Access Scheme	Self-organizing Time-Division Multiple Access (SOTDMA)	SOTDMA	Carrier-sense TDMA non-competing with SOTDMA units
Position Reporting Rate	Either every 2, 3 ½, 6 or 10 s based on speed and course change. Every 3 min. when ≤ 3 kts.	Either every 5, 15 or 30 s based on speed (2-14, 14-23, >23 kts) Every 3 min. when ≤ 2 kts.	Every 30 s Every 3 min. when ≤ 2 kts.
Static Data Reporting Rate	Every 6 min	Every 6 min	Every 6 min
Frequency Range	25 kHz bandwidth between 156.025 MHz to 162.025 MHz	25 kHz bandwidth between 156.025 MHz to 162.025 MHz	25 kHz bandwidth at minimum between 161.500 MHz to 162.025 MHz
Dedicated DSC Receiver for Channel Management	Yes	Yes	Time-shared
Position Source / WGS-84 to 1/10,000 of minute of arc	Internal Global Navigation Satellite System & connection to an External Electronic Positioning System (EPFS)	Internal GNSS	Internal GNSS
Digital Interfaces	2 Input-Output & Multiple Presentation Outputs	Optional	Optional
Display	Multiple Keyboard Display (MKD)	MKD	Optional
Safety Text Messaging	Receive & Transmit	Receive & Transmit	Transmit Optional, and only with non-alterable pre-configured messages
Application Specific Messaging	Receive & Transmit	Receive & Transmit (up to 3 slots)	Receive Optional, cannot Transmit
Transmit Data	All	No Rate of Turn, Navigation Status, Destination, ETA, Draft, or IMO#	No Rate of Turn, Navigation Status, Destination, ETA, Draft, or IMO#
International Electrotechnical Commission (IEC) Certification Standard	IEC 61993-2	IEC 62287-2	IEC 62287-1





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Automatic Identification System

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 - Nationwid
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AIS FAQ#2
Note our
Encoding
Guide

2. What is an MMSI, how do I get one, and how do I program my AIS? A unique and official 9-digit Maritime Mobile Service Identity (MMSI) number is required for every AIS station. To obtain one see our [MMSI page](#). While special attention should be taken in installing an AIS (see [IMO Safety of Navigation Circular 227, GUIDELINES FOR THE INSTALLATION OF A SHIPBORNE AUTOMATIC IDENTIFICATION SYSTEM](#)), its initial programming is relatively straightforward; please see our [USCG AIS Encoding Guide](#) for further instructions. Note, AIS information programmed into the unit (i.e. MMSI, call-sign, name, etc.) should reflect the vessel's official data as provided in its radio station license or state registration (for those vessels licensed by rule).

Mission A

- Global Pos
- Nationwid
- Nationwid
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After initial programming, users must ensure their AIS is always in effective operating condition and broadcasting accurately (33 CFR §164.46(d)). Failure to do so could subject a person to civil penalties not to exceed \$25,000 (46 U.S.C. 70119). Note, each USCG type-approved AIS has an internal built-in integrity tester that mitigates the need to send TEST text messages. For further guidance on the programming and use of AIS text messages please read [USCG Safety Alert 05-10](#).

20. Can I use my AIS in an emergency or for distress messaging?
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1. What is AIS? Per 47 CFR §80.5, AIS is a maritime navigation safety communications system standardized by the International Telecommunication Union (ITU) and adopted by the International Maritime Organization (IMO) that provides vessel information, including the vessel's identity, type, position, course, speed, navigational status and other safety-related information automatically to appropriately equipped shore stations, other ships, and aircraft; receives automatically such information from similarly fitted ships; monitors and tracks ships; and exchanges data with shore-based facilities. [Read more](#) on what it is, how it works, what it broadcasts, and, the messages it uses, etc.



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www.navcen.uscg.gov or Search: AIS FAQs



AUTOMATIC IDENTIFICATION SYSTEM U.S. ENCODING GUIDE



AUTOMATIC IDENTIFICATION SYSTEM is a valuable navigation safety radio communication tool. However, its usefulness is undermined by the broadcast

of inaccurate, improper or outdated data. Mariners are reminded that each AIS be maintained in condition, which includes accurate AIS data parameters. Continuous subject a vessel to civil penalties users should ensure their system encoded according to this guide.

Dynamic Data... should be maintained and

- External Electronic Positioning Heading, and Rate of Turn (ROT) integrated into the AIS, per S-Vessels on international voyage 150 gross tonnage or greater, greater, and of 50,000 gross tonnage respectively. An external EPPS that solely operate domestic waters.
- Pilot Plug, on vessels required to be readily available and easily accessible, conning position of the vessel (not an extension cord) and a 120-volt 50/60 Hz AC power source.

Safety-Related Text Messages should be concise, and used only to convey navigation safety-related information.

- AIS safety-related text messages should be in English and used solely to convey information.
- Although not prohibited, AIS should not be relied upon as the primary means of communication (MAYDAY) or urgent (PAN PAN).
- Keep SRM concise and as short as possible (no more than 20 characters). The use of abbreviations is acceptable and highly encouraged; see the Notice to Mariners, USCG Local Notice to Mariners, Light List, and U.S. Nautical Chart No. 1 for a listing of common abbreviations.
- Testing or repair facilities must be FCC licensed Maritime Support Stations, and limited their testing to one hour or less per day.

E.g. Proper encoding of
-Name
-Number
-Dimensions
Minimizes
Updates for
-Draft
-Destination
-ETA-

Static Data... should reflect the vessel's official radio license or documentation, be inputted at installation, and be password protected

- Names exceeding 20 characters (the parameter limit) should be truncated, **not** abbreviated, and include all unique distinguishing characters. For example, the tug **JOLLY ROGER OF THE SEA 123456** should be inputted as **JOLLY ROGER 0-123456**. Names **should not** include type precursors, e.g. F/V, M/V, MV, OSV, P/V, REC, S/V, or other vessel types, i.e. CG, CBP, USN, LAPD, NYFD, etc. If your vessel is officially named, input 'USA#' followed by your state number, e.g. USA#NY1234YZ. If unnumbered (e.g. tug, tugs, tenders), use your parent vessel's name followed by a numerical designator that distinguishes you from others. For example, the first tender for the cruise ship **OF THE SEA** should be inputted as **JOLLY ROGER OF THE SEA**. Additionally, its AIS message 24B call-sign parameter should be the last 6-digits of **JOLLY ROGER OF THE SEA'S** MMSI number, e.g. A123456.

Mobile Service Identity (MMSI) should be the MMSI assigned to the vessel by the FCC or other authority.

Should reflect the call-sign assigned to the vessel by the FCC; absent a call-sign, input 00000000.

Should reflect the assigned 7-digit IMO number, e.g. 0001234567. Absent an IMO number, input your U.S. official documentation number, e.g. '100' or '1000', e.g. 1000123456.

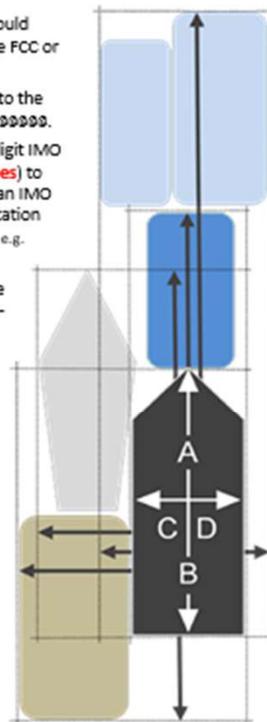
Positioning source should reflect the primary positioning system in use, i.e. GPS, combined GPS-DGPS, etc.

Should reflect the appropriate vessel type (see accompanying table).

Vessel Dimensions should be inputted in meters (**not feet**).

Should reflect the overall dimensions of the vessel as the distance fore (A), length (B), beam (C), and to starboard (D) to the centerline of the vessel system antenna used by the vessel. Section of the two white lines in the diagram.

Dimensions should reflect the overall rectangular area of the vessel **and its tow**—as portrayed by the extended dark arrows within the rectangles in the diagram.



Know your password, you will need it to amend any AIS static data

Voyage Related Data... should be inputted as necessary to always indicate up to date conditions

- Navigation Status**, i.e. at anchor, underway, engaged in fishing, etc, should always be up-to-date.

Note, vessels engaged in towing should use: Navigation Status '11' when towing astern, or '12' when pushing ahead or alongside.

Remember to change your status when at anchor or moored. Doing so reduces the AIS reporting rate from 2-10 seconds to once every 3 minutes; which mitigates network congestion and improves overall AIS range.

- Static Draft** should be inputted in meters (**not feet**) and reflect the vessel's actual or maximum draft.
- Estimated Time of Arrival (ETA)** should be inputted in Universal Time Coordinated (UTC), **not** local time; and, reflect the ETA to your destination or voyage departure time, if moored or anchored. Not applicable to vessels on unknown or variable schedules (i.e. workboats).
- Destination¹** and your origination should be inputted using 5-character UN location codes (UNLOCODE)² for (per IMO SN/Circ.244) or 4-character U.S. GUID³ codes, as follows:

Origination>Destination using UNLOCODE only

USNYC>NLRTM ...one-way voyage New York City to Rotterdam
 USNYC>USNYC ...a voyage to and fro, e.g. dinner cruise
 USMOU>USMOU ...operating solely within a well defined area, e.g. floating area, vessel traffic service area, etc.

Origination>Destination using UNLOCODE and USGUID

CNSHA>USOVCY ...for Shanghai to San Francisco Pier 35

Origination>Destination using USGUID only

USOVCY>C026L ...a scheduled route, i.e. Staten Island Ferry
 USOVCY>C0VCY ...a voyage to and fro, e.g. dinner cruise
 USOVCR>C ...anchored, moored, or on station (e.g. MOOU, FFSO)

Note, the difference in symbology { ^ | > | < | << | >> }⁷

¹ See <http://wireless.fcc.gov/services/index.htm> (Ship Radio Stations)

² Obtained at www.imonumbers.lfairplay.com/data/us.asp

³ Per IMO SN/Circ. 227 & 224 or NMEA 0400 Installation Guidelines

⁴ Any port or offshore place in which a vessel is bound to embark or disembark cargo, crew or passengers; or anchor or maintain station for considerable period of time (i.e. Outer Continental Shelf activity)

⁵ Find Country (ISO 3166) & United Nations Location Codes (UN/LOCODE) at: www.unecode.org/cefact/locode/welcome.html

⁶ Find U.S. Geographic Unique Identifiers (US/GUIDS) for ports, places, berths, routes, and waterways at: www.nvcoen.uscg.gov/?pageName=locode

⁷ If AIS lacks angle brackets (>) substitute with parenthesis () | | | | | | | | | |

⁸ See 47 CFR 80.1109-Distress, urgency, and safety communications



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AIS Type of Ship parameter is a 2-digit numeric codes composed either from 1st and 2nd digit columns or as defined in columns 3x or 5x.
 The terms used are as defined in IMO SOLAS, 46 U.S.C. 2101 or 33 CFR 140.10. Blue italic text denotes amplifying text not found in the original source (ITU-R M.1371-5)

1 st digit	2 nd digit	[3x] others "engaged in"	[5x] special craft
0 – Not available	0 – All ships of this type	30 – Fishing <i>industry vessels, including fish processors and fish tenders*</i>	50 – Pilot vessel
1 – Reserved for future use	1 – Carrying DG, HS or MP, IMO hazard or pollutant category X DO NOT USE	<i>towing astern*</i>	51 – Search and rescue vessels, <i>i.e. USCG boats, USCG Auxiliary boats, assistance towers, first-responders, standby vessels</i>
2 – WIG (Wing-in-Ground) craft		<i>towing astern and length of the tow exceeds 200 meters breadth exceeds 25 m (82 ft.) *</i>	52 – Tugs or workboats, <i>that do not regularly engage in towing</i>
3 – Other vessels engaged in <i>denoted in column [3x]</i>	2 – Carrying DG, HS, or MP, IMO hazard or pollutant category Y DO NOT USE	<i>engaged in dredging or underwater operations, or other operations that may obstruct navigation (such as mining, exploration, ice breaking, production, salvaging, surveying, or other similar activities, but, not diving, diving or military operations)*</i>	53 – Port tenders, yacht tenders, dive tenders, attending and off-shore supply vessels, etc.
4 – HSC (Hi-speed Craft) or passenger ferries	3 – Carrying DG, HS, or MP, IMO hazard or pollutant category Z DO NOT USE	<i>engaged in diving operations or other types of operations conducted in the water*</i>	54 – Vessels with anti-pollution facilities or equipment
5 – Special craft <i>per column [5x]</i>		<i>engaged in military operations*</i>	55 – Law enforcement vessels: <i>i.e. U.S. Customs and Border</i>
6 – Passenger ships <i>other than passenger ferries; not including or off-shore supply vessels (see column [3x])</i>	4 – Carrying DG, HS, or MP, IMO hazard or pollutant category Q5 DO NOT USE	<i>towing vessels*</i>	56 – Spare —for assignments to local vessels <i>that are engaged in towing ahead or alongside, and whose dimensions (ABCD values) represent the overall dimensions of the vessel not including its tow*</i>
7 – Cargo (freight) ships, including articulated (ATB) and integrated tug-barge (ITB) vessels	7 – Reserved for future use	37 – Pleasure craft	57 – Spare —for assignments to local vessels <i>that are engaged in towing ahead or alongside, and whose dimensions (ABCD values) represent the overall rectangular area of the vessel including its tow*</i>
8 – Tankers, including articulated or integrated tug tank barge vessels	8 – Reserved for future use	38 – Reserved for future use	<i>and Additional Protocols) or similar public safety vessels</i>
9 – Other types of ship	9 – No additional information	39 – Reserved for future use	59 – Ships according to RR Resolution No. 18 (Mob-83)

*Remember to also update your Navigation Status accordingly, i.e. Status: 3=restricted maneuverability; 7=engaged in fishing; 8=under sail; 11=towing astern; 12=pushing ahead/alongside, etc.
 Redistribution with or without USCG indicia is permissible and encouraged. For further information or additional copies visit www.navcen.uscg.gov [AIS FAQ#2] or email cgnav@uscg.mil



Homeland Security

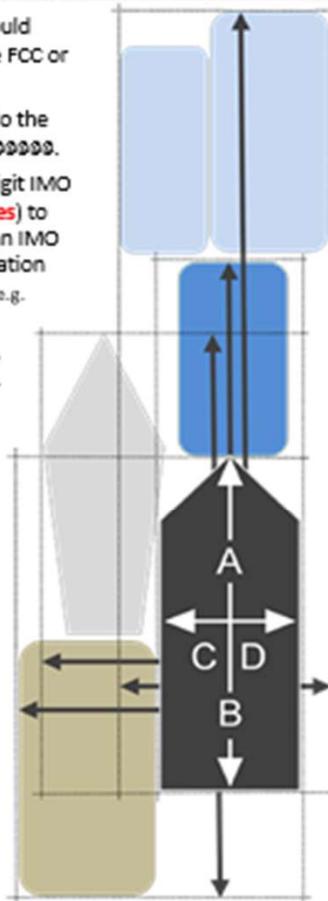


Static Data...should reflect the vessel's official radio license or documentation, be inputted at installation, and be password protected

- Names exceeding 20 characters (the parameter limit) should be truncated, **not** abbreviated, and include all unique distinguishing characters. For example, the tug *JOLLY ROGER OF THE SEA* 123456 should be inputted as JOLLY ROGER 0-123456. Names **should not** include vessel type precursors, e.g. F/V, M/V, MV, OSV, P/V, REC, S/V, TUG; except public vessels, i.e. CG, CBP, USN, LAPD, NYFD, etc. If your vessel is not officially named, input 'USA#' followed by your state registration number, e.g. USA#NY1234YZ. If unnumbered (e.g. associated craft, tenders), use your parent vessel's name followed by a dash (-) and a numerical designator that distinguishes you from others. For example, the first tender for the cruise ship

- Maritime Mobile Service Identity (MMSI)** should reflect the MMSI assigned to the vessel by the FCC or one of its agents.
- Call-sign** should reflect the call-sign assigned to the vessel by the FCC; absent a call-sign, input 00000000.
- IMO Number²** should reflect the assigned 7-digit IMO number. Use leading zeroes (**not trailing zeroes**) to fill the parameter, e.g. 0001234567. Absent an IMO assignment, input your U.S. official documentation number preceded by either '100' or '1000', e.g. 1001234567, 1000123456.
- Type of positioning source** should reflect the actual system in use, i.e. GPS, combined GPS-GLONASS, etc.
- Type of vessel** should reflect the appropriate *Ship Type* (see accompanying table).
- Antenna Position | Vessel Dimensions** should be inputted in meters (**not feet**) and reflect the overall dimensions of the vessel, expressed as the distance fore (A), aft (B), to port (C), and to starboard (D) to the positioning-system antenna used by AIS; the intersection of the two white lines in the diagram.

For U.S. Ship Type 57 (see Table) dimensions should reflect the overall rectangular area of the vessel **and its tow**—as portrayed by the extended dark arrows within the rectangles in the diagram.



Voyage Related Data...should be inputted

- Navigation Status**, i.e. at anchor, underway, engaged in fishing, etc, should always be up-to-date.

Note, vessels engaged in towing should use: Navigation Status '11' when towing astern, or '12' when pushing ahead or alongside.

10 seconds to once every 3 minutes; which mitigates network congestion and improves overall AIS range.

- Static Draft** should be inputted in meters (**not feet**) and be the vessel's actual or maximum draft.

Time of Arrival (ETA) should be inputted in Time Coordinated (UTC), **not** local time; and be ETA to your destination or voyage departure moored or anchored. Not applicable to vessels on or variable schedules (i.e. workboats).

Destination and your origination should be inputted as character UN location codes (UNLOCODE)¹ for IATA SN/Circ.244) or 4-character U.S. GUID⁵ codes, as:

on>Destination using UNLOCODE only

ELRTH ...one-way voyage New York City to Rotterdam
 USNYC ...a voyage to and fro, e.g. dinner cruise
 USMOU ...operating solely within a well defined area, e.g. floating area, vessel traffic service area, etc.

on>Destination using UNLOCODE and USGUID

USAOVCY ...for Shanghai to San Francisco Pier 35

on>Destination using USGUID only

P>-OQBL ...a scheduled route, i.e. Staten Island Ferry
 -OVCY ...a voyage to and fro, e.g. dinner cruise
 -C ...anchored, moored, or on station (e.g. MODU, FFSO)

² difference in symbology { ^ | > | < | << | >> }

¹ www.fcc.gov/services/index.htm (Ship Radio Stations)

² www.imonumbers.info/play.com/dabase.aspx

³ I/Circ. 227 & 224 or NMEA 0400 Installation Guidelines

⁴ offshore place in which a vessel is bound to embark or disembark crew or passengers; or anchor or maintain station for considerable time (i.e. Outer Continental Shelf activity)

⁵ ICAO (ISO 3166) & United Nations Location Codes (UN/LOCODE) at: www.org/cefact/locode/welcome.html

⁶ Geographic Unique Identifiers (US/GUIDS) for ports, places, berths, and waterways at: www.navcen.uscg.gov/?pageName=locode

⁷ angle brackets (>) substitute with parenthesis () | | (| (| |)

⁸ 80.1109-Distress, urgency, and safety communications

New Nav Status

*

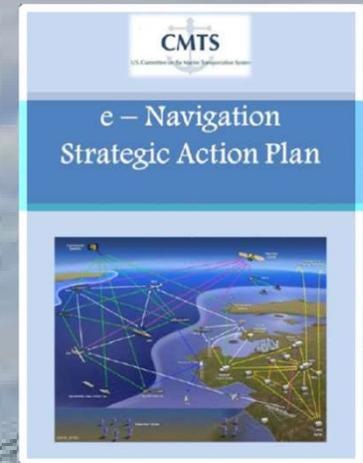
Vessel/ABCD Dimensions For Vessel or Vessel+Tow



Department of
Homeland
Security



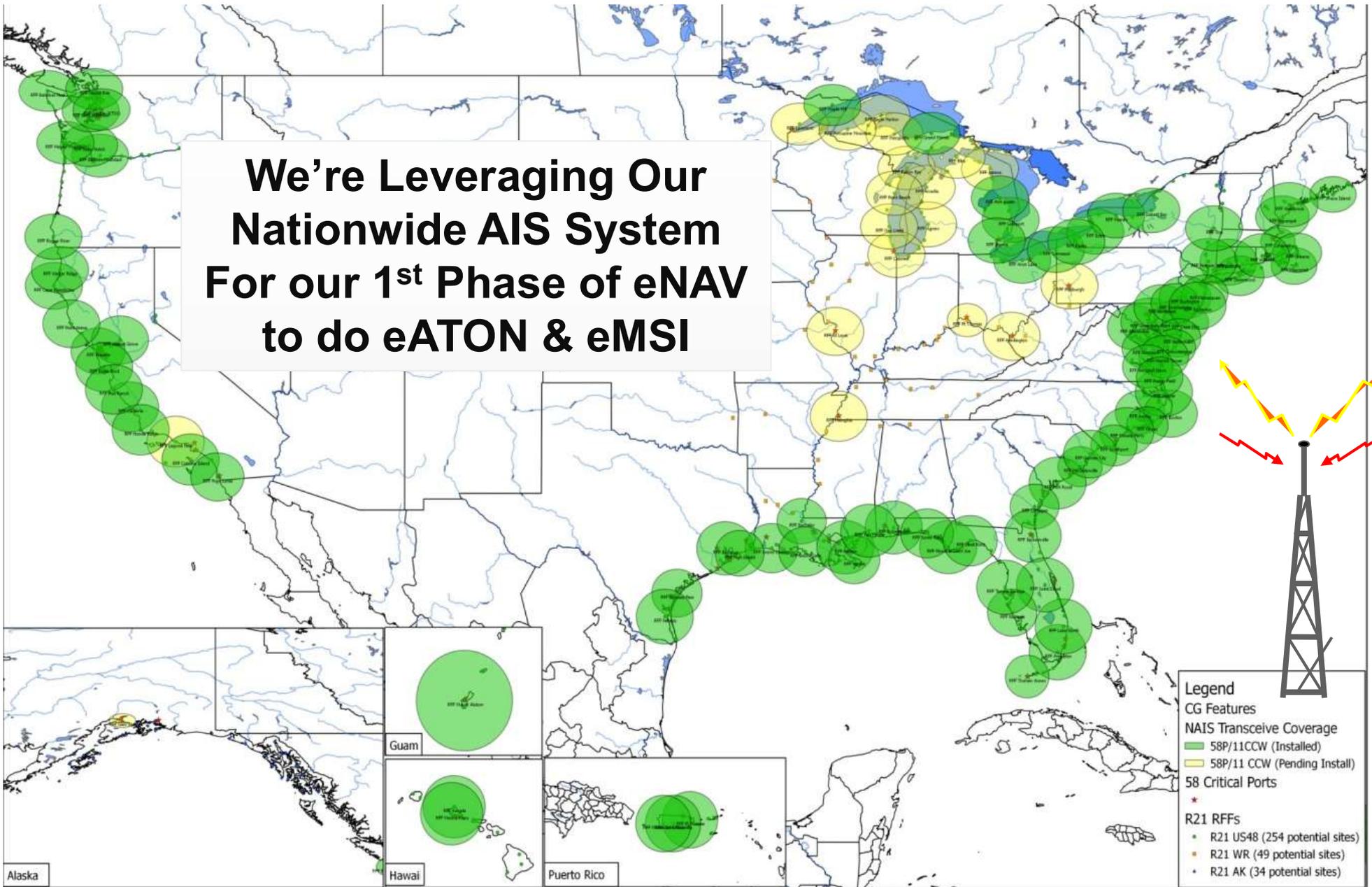
“The ultimate goal of e-Navigation efforts in the U.S. is to use timely and reliable information to make the U.S. Marine Transportation System operate better.”



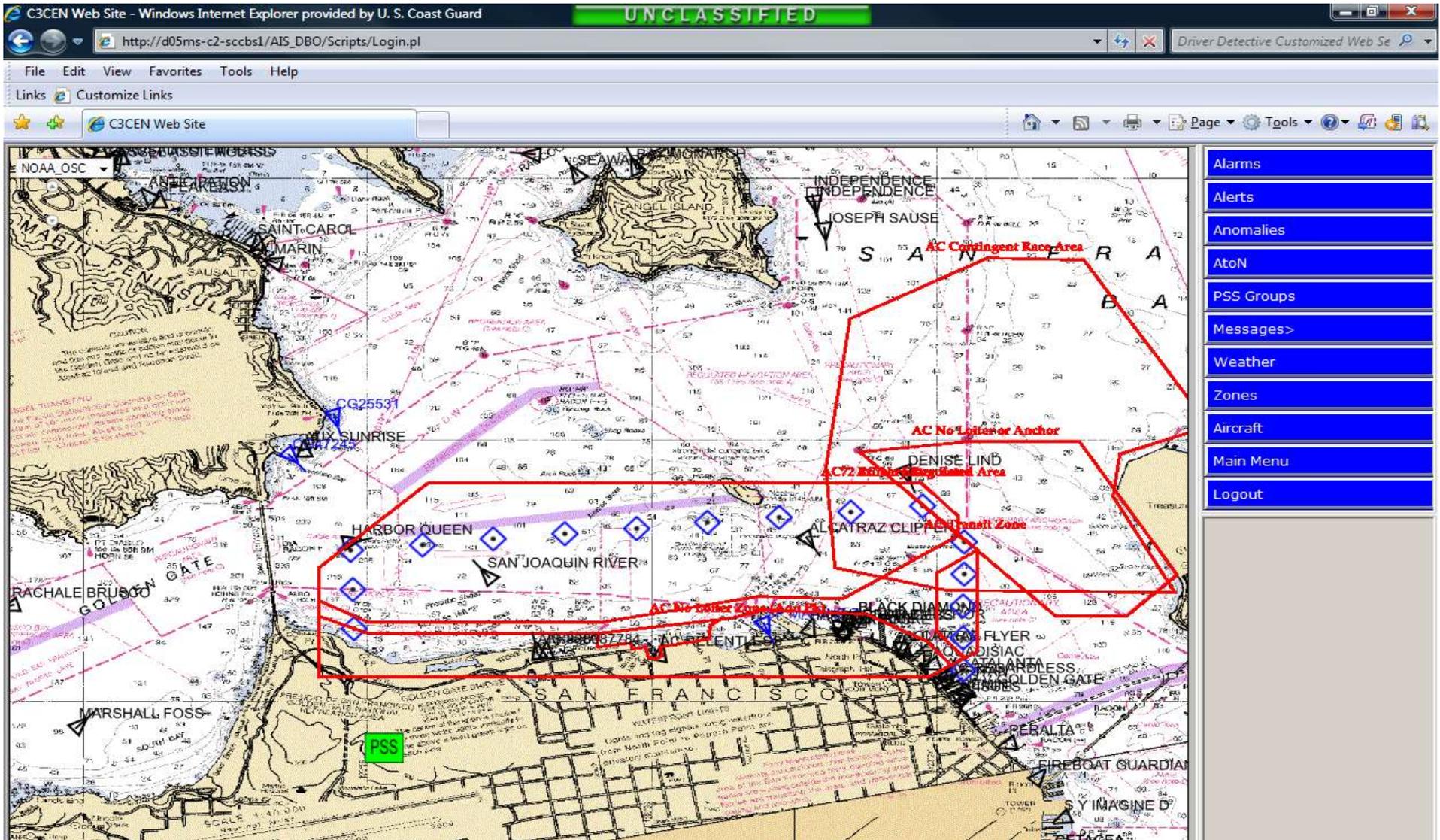
2011

“The U.S. vision for e-Navigation is to establish a framework that enables the transfer of data between and among ships and shore facilities, and that integrates and transforms that data into decision and action information.”

**We're Leveraging Our
Nationwide AIS System
For our 1st Phase of eNAV
to do eATON & eMSI**



eATONS were used during 2014 America's Cup



Homeland Security



Adding eATONs to the ATON Family

Synthetic AIS

Virtual AIS

Potential Physical AIS

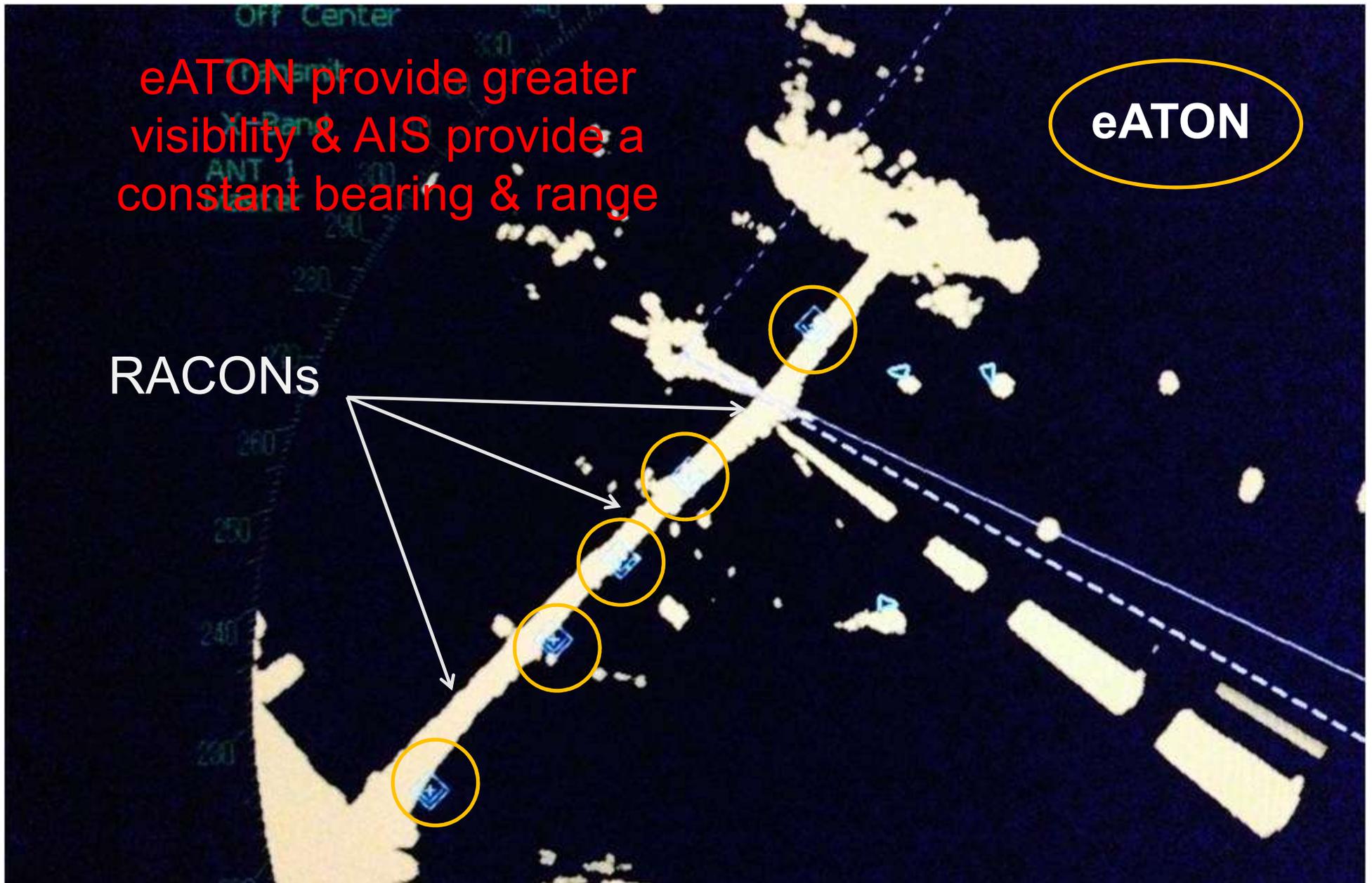
Virtual AIS

Missing

eATON provide greater visibility & AIS provide a constant bearing & range

eATON

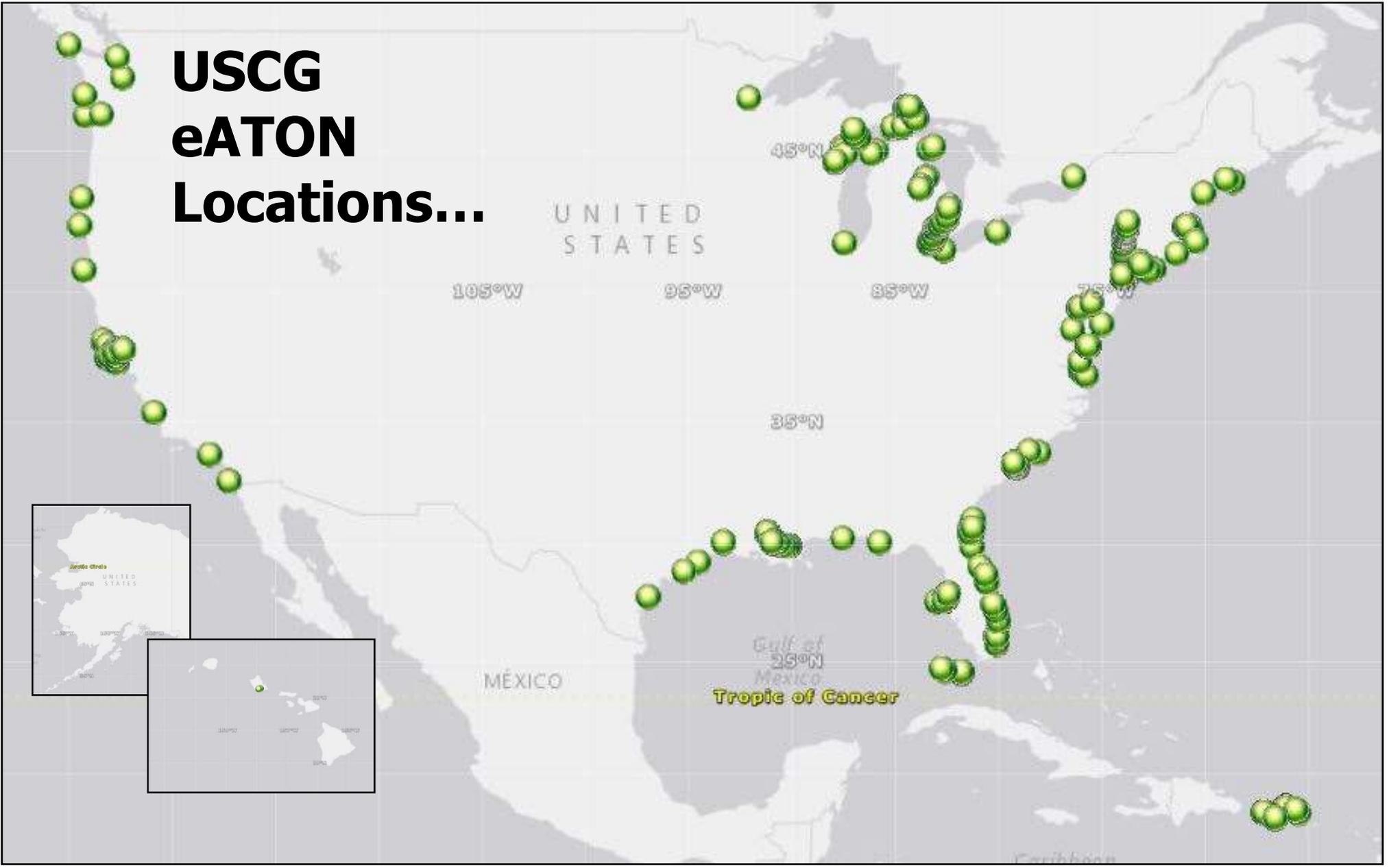
RACONs



Homeland Security



USCG eATON Locations...



NOAA PORTS Tampa & Chesapeake Bay

Control Display Vessels Charts Routes Configuration Hide Help Exit

42.4nmi X 29.0nmi | NorthUp | manual-follow | warn:OFF | user: none
POS: AIS

Tampa Bay Environmental Report

Sensor	Wind (Gust)	Tide	Current	Temp
0 PORT MANATEE	4 (7)kts@142°	2.7ft	-.kts@---	---F
1 ST. PETERSBURG	7 (8)kts@146°	3.1ft	-.kts@---	---F
2 OLD PORT TAMPA	5 (8)kts@128°	3.3ft	-.kts@---	---F
3 MCKAY BAY ENTR	8 (10)kts@133°	3.2ft	-.kts@---	---F
4 BERTH 223	5 (7)kts@126°	-.ft	-.kts@---	---F
5 OLD PORT TAMPA	--(--kts@---	-.ft	1.2kts@214°	---F
6 SEABULK	5 (7)kts@118°	-.ft	-.kts@---	---F
7 SUNSHINE SKYWA	--(--kts@---	-.ft	1.3kts@238°	---F
8 -----	--(--kts@---	-.ft	-.kts@---	---F
9 -----	--(--kts@---	-.ft	-.kts@---	---F

THOM FREED 0.0kts@0°
SUWAY 0.0kts@0°
CROSBY VOYAGER RC LIBE 0.0kts@134.0kts@0°
OMISYANKBEE FREEDOM 0.0kts@2.0kts@251°

Map Satellite

York River East Rear Range Light
Yorktown USCG Training Center
Cape Charles
Cobb Bay
South Key
Kiptopeke Beach
Eastern Shore of Virginia National Wildlife Refuge
York Spit LBB 22
Thimble Shoal LB 18
Chesapeake Bay Bridge Tunnel
Cape Henry LB 2CH
Cape Henry Wave
Chesapeake Light Tower
Virginia Beach
Money Point
Chesapeake
South Craney Island
Naval Station Norfolk LB 7
Sewells Point
Newport News Channel LB 14
Willoughby Degaussing Station
Newport News
Popoison
Southwest Branch Back River
Hampton Roads
Dom. Term. Assoc. Pier 11
Nansemond National Wildlife Refuge
Cobham Bay
Denbigh Park
James river
Burwell Bay
Pagan Point
Smyth
Yorktown

Bottom Mounted ADCP
Water Level
Meteorological
Side Looking ADCP
Data Acquisition System
Quality Control
Data Collection Platform
ATON Mounted ADCP

Ready | bridge->cursor: 38.1nmi@228° | 09/11/2008 12:07:40 | BUCCANEER

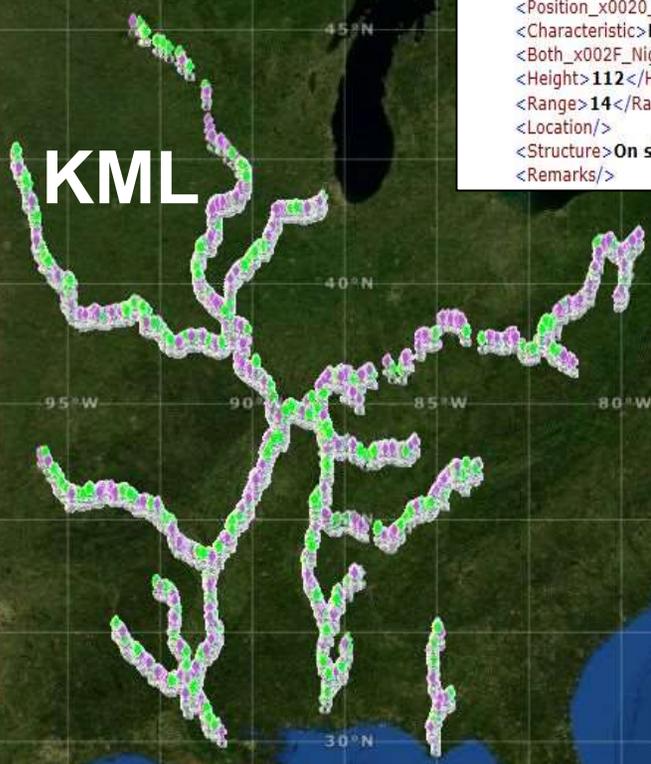
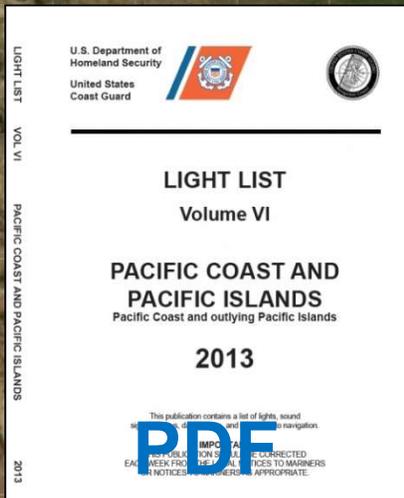
NOAA PORTS Locations...



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Homeland
Security



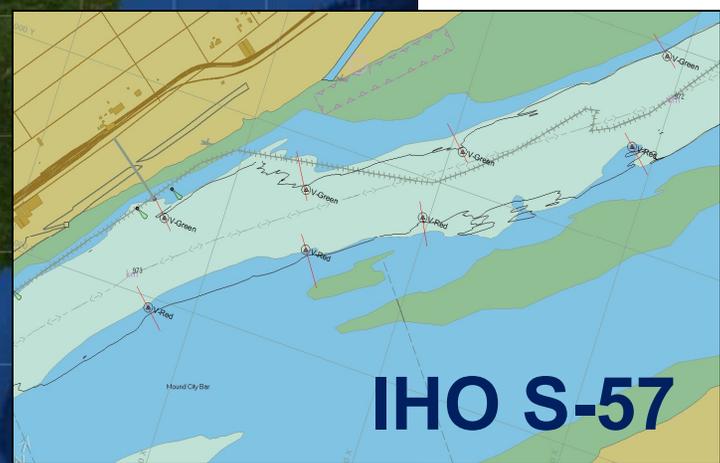
Western Rivers Buoy Data



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  <LLNR>760</LLNR>
  <XREF>16145</XREF>
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  <Aid_x0020_Type>FD</Aid_x0020_Type>
  <Position_x0020_x0028_Latitude_x0029_>48-23-31.169N</Position_x0020_x0028_Latitude_x0029_>
  <Position_x0020_x0028_Longitude_x0029_>124-44-12.950W</Position_x0020_x0028_Longitude_x0029_>
  <Characteristic>FI (2)W 20s</Characteristic>
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  <Height>112</Height>
  <Range>14</Range>
  <Location/>
  <Structure>On skeleton tower. 9</Structure>
  <Remarks/>
  
```

XML



IHO S-57

River	No.	Name and Location	Mile	Bank	Characteristic				Structure (Up/Down)		Remarks	Mile	Latitude	Longitude
					LITCHR	SIGGRP	COLOUR	SIGPER	(1)	(2)	STATUS			
XLS	SORIND	OBJNAM (1)	OBJNAM (2)											



Automatic Identification System

- What is AIS?
- How AIS Works
- Types of AIS
- AIS Messages
 - AIS Base Station Report
 - Class A Position Report
 - Class A Static & Voyage
 - Class B Reports
 - AIS ATON Report
 - Long Range AIS Report
- Nationwide AIS (NAIS)
- AIS Requirements
- Reference Information
 - AIS Encoding Guide & LOCODES
- Frequently Asked Questions

Mission Areas

- Global Positioning System
- Nationwide DGPS
- Nationwide AIS (NAIS)
- AIS (Overview, Messages, etc.)
- Long Range Identification and Tracking
- Local Notice to Mariners
- Light Lists
- Civil GPS Service Interface Committee
- LORAN C (archive)

Subscribe / Report (free)

- Local Notice to Mariners (Weekly)
- GPS Operational Summary (Daily)

AIS FREQUENTLY ASKED QUESTIONS

1. What is AIS?

16. How can I get a copy of an AIS presentation I saw (or heard about it) that was given at...You can download recent presentations given by Coast Guard Office of Navigation Systems personnel here:

- Arroyo@RTCM_2013_09_24 (PDF, 520KB)
- Arroyo@GMDSS_TF_2013_09_26 (PDF, 777KB)
- Arroyo@IALA_VTS_Symposium_on_(2012_09_11) (PDF, 5,243KB)
- Arroyo@Mid_Atlantic_Waterways_Conference_(2012-4-20) (PDF, 6MB)
- Arroyo@USACE IENCP Meeting (2012-04-19) (PDF, 7.74MB)

11. Why am I unable to see an AIS vessels' name or other static information (dimensions, call sign, etc.)?
12. Why do I sometimes see more than one vessel with the same MMSI or vessel name (i.e. NAUT)?
13. I just purchased and installed an AIS Class B, will AIS Class A user 'see' me?
14. Do AIS Class B devices meet current USCG AIS carriage requirements?
15. Is the USCG considering expanding AIS carriage to other vessels or outside of VTS areas?
16. How can I get a copy of an AIS presentation I saw (or heard about it) that was given at...
17. Where can I get AIS data?
18. Reserved for future use.
19. What is AIS Channel Management?
20. Can I use my AIS in an emergency or for distress messaging?
21. Is the Coast Guard broadcasting AIS Aids to Navigation Reports?
22. Have an AIS question not answered here?

1. What is AIS? Per 47 CFR §80.5, AIS is a maritime navigation safety communications system standardized by the International Telecommunication Union (ITU) and adopted by the International Maritime Organization (IMO) that provides vessel information, including the vessel's identity, type, position, course, speed, navigational status and other safety-related information automatically to appropriately equipped shore stations, other ships, and aircraft; receives automatically such information from similarly fitted ships; monitors and tracks ships; and exchanges data with shore-based facilities. [Read more](#) on what it is, how it works, what it broadcasts, and, the messages it uses, etc.

**See
AIS FAQ #16
for Copy of this
Presentation**



United States Coast Guard

Office of Navigation Systems



Thank You

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1-202-372-1563

U.S. Coast Guard
Office of Navigation Systems
Washington, DC 20953



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Security

