
United States Coast Guard

Marine Transportation Systems

Office of Navigation Systems

Radio Technical
Commission for
Maritime Services
Conference
May 5th, 2015
Annapolis, MD



"We Help Mariners Get There"

**Expanding AIS Carriage and
New Operating Requirements**

Jorge Arroyo | AIS Subject Matter Expert | USCG Headquarters | Washington, DC

Expanding AIS Rulemaking Timeline...

- ✓ 07/01/03 Interim Rule and Request for Comments
- ✓ 10/23/03 current AIS requirement (33 CFR 164.46)
 - commercial self-propelled vessels of ≥ 65 feet on **international voyage** or in a VTS area **except fishing and small passenger vessels (<150 pax)**
 - and the following in a VTS area:
 - towing vessels ≥ 26 feet & > 600 hp
 - vessels carrying **≥ 150** passengers for hire

Expanding AIS rulemaking timeline...

- ✓ 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
 - public meetings (2), submissions (80+), comments (330+)
 - commercial self-propelled vessels of ≥ 65 feet
including fishing and sm. passenger boats
 - towing vessels ≥ 26 feet & > 600 hp
 - vessels with ≥ 50 passengers (vice 150 for hire)
 - **hi-speed passenger vessels ≥ 12 pax**
 - **certain dredges & floating plants**
 - **vessel moving certain dangerous cargoes**
- ✓ 1/30/15 Final Rule published



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...

- 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...

- 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.

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

Noteworthy AIS provisions...

- Type-approved Class B allowed, but, not recommended on vessels that are:
 - highly maneuverable
 - navigate at high speed
 - routinely operate in congested waters, or
 - operate in close-quarter situations

Spells out that AIS Class B devices are only permissible on: dredges, fishing industry vessels, and vessels certificated <150 passengers that do not operate in a Vessel Movement Reporting System area (33 CFR 161.12(c)) or at speeds of >14 kts

Current AIS Prices

Milltech Marine Online Store



ACR Nauticast2 Class A AIS Transponder

The ACR Nauticast2 AIS Transponder is a class A unit that is specifically designed to fulfill non-SOLAS carriage requirements. This product is packaged in an All-in-One kit that includes the AIS transponder, VHF & GPS antenna. An ECDIS port adapter is included with your ECDIS display or marine plotter can be ordered for use with 12

ACR-2609 \$2,999.00 [Add to Cart](#)



Furuno FA150 AIS Transponder

Product ID: FU1150-15 MFG ID: FA150

Furuno FA150 is a shipborne Universal AIS (Automatic Identification System) Transponder capable of exchanging navigation and ship data between own ship and other ships or coastal stations.

Availability: Usually ships within 24 hours

List Price ~~\$4,495.00~~ Our Price **\$3,999.95**

Qty: [+](#) [ADD TO CART](#)

[WISHLIST](#) [EMAIL](#)

Class B: \$499 – \$1,700 Class A: 2,900 – \$3,990

WEST MARINE **NEW!**



AIS-1000 Class B "Send and Receive" AIS Transponder

\$699.99 USD

[Add To Cart >>](#)

[+ Add AIS-1000 Class B "Send and Receive" AIS Transponder To Project List](#)

AIS-1000 Class B "Send and Receive" AIS Transponder



COMNAV MARINE 21410002

ComNav Voyager X3 Class A AIS Transceiver

IN STOCK & READY TO SHIP!

RETAIL: \$2,649.00 (YOU SAVE \$574.55)

Sale Price: **\$2,074.45**

ONLY 1 LEFT

[ADD TO CART](#) Qty:

Free UPS Ground Shipping

No Sales Tax (outside of NJ)

Easy 30 Day Returns

24/7 Cleaner Coastline

EVERY ORDER = 25' of CLEANER COASTLINE



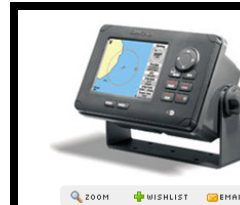
FURUNO FA30 BLACK BOX AIS

List Price: ~~\$1,102.50~~
Our Price: **\$805.00**
You Save: \$297.50 (27%)

SKU: FURFA30

In Stock

Total AIS Costs	2003		2015	
	Class A	Class A	Class A	Class B
Unit	\$7,000	\$3,230	\$700	
Installation	\$2,000	\$969	\$210	
Operation & Maintenance	\$250	\$250	\$250	
Training	\$110	\$110	\$110	
Individual Cost	\$9,250	\$ 4,449	\$1,160	
Total Costs	\$49.2 M		\$20.5 M	



Simrad AI50 AIS Automatic Identification System

Product ID: SM1139-00

Simrad AI50 AIS Automatic Identification System and be seen. Be in control. Simrad AI50 AIS transmits a digital signal that conveys your boat's identity, speed, and location to other vessels in your area. H

Availability: Usually ships within 24 hours

List Price ~~\$1,249.99~~ Our Price **\$1,249.99**

Qty: [+](#) [ADD TO CART](#)



Humminbird TX AIS Class B Receiver

[f](#) [e](#) [t](#) [w](#)



RRP: \$559.99
Your Price: **\$448.82**
(You save \$111.17)

SKU: 409310-1
Brand: **Humminbird**

Condition: New

Weight: 5.00 LBS

* **Extended Warranty:**
 No Extended Warranty
 2 Year Warranty 39.99
 3 Year Warranty 59.99



NAVIGATION CENTER

The Navigation Center of Excellence

U.S. Department of Homeland Security

UNITED STATES COAST GUARD



Home | DGPS Advisories | GPS Constellation Status | MSI Data Downloads | GPS Testing Notices | LNMs | Almanacs | Nav Rules | AIS | N. Amer. Ice Svc | Contact Us | Search

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

- What is AIS?
- What is an MMSI, how do I get one, and how do I program my AIS?
- What is the AIS rule and are there alternatives to the rule for small businesses?
- Do AIS Class B devices meet current USCG AIS carriage requirements?
- How does AIS help to increase security (and what is NAIS)?
- When must AIS be in operation?
- Does the installation of the AIS require additional equipment in order for the AIS to operate properly?
- Will it be necessary to have electronic navigational charts for use with the AIS?
- Are fishing vessels subject to AIS carriage, and, is onboard Vessel Monitoring System (VMS) an acceptable substitute for the AIS?
- Why have some AIS units stopped broadcasting valid position reports?
- Why am I unable to see an AIS vessels' name or other static information (dimensions, call sign, etc.)?
- Why do I sometimes see more than one vessel with the same MMSI or vessel name (i.e. NAUT)?
- I just purchased and installed an AIS Class B, will AIS Class A user 'see' me?
- Do AIS Class B devices meet current USCG AIS carriage requirements?
- Is the USCG considering expanding AIS carriage to other vessels or outside of VTS areas?
- How can I get a copy of an AIS presentation I saw (or heard about it) that was given at...
- Where can I get AIS data?
- Reserved for future use.
- What is AIS Channel Management?
- Can I use my AIS in an emergency or for distress messaging?
- Is the Coast Guard broadcasting AIS Aids to Navigation Reports?
- 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.



Homeland Security

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





NAVIGATION CENTER

The Navigation Center of Excellence

U.S. Department of Homeland Security

UNITED STATES COAST GUARD



Home | DGPS Advisories | GPS Constellation Status | MSI Data Downloads | GPS Testing Notices | LNMs | Almanacs | Nav Rules | AIS | N. Amer. Ice Svc | Contact Us | Search

Automatic Identification System

- What is AIS?
- How AIS Works
- Types of AIS
- AIS Messages
 - AIS Base Station F
 - Class A Position R
 - Class A Static & V
 - Class B Reports
 - AIS ATON Report
 - Long Range AIS R
- 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

- What is AIS?
- What is an MMSI, how do I get one, and how do I program my AIS?
- What is the AIS rule and are there alternatives to the rule for small businesses?
- Do AIS Class B devices meet current USCG AIS carriage requirements?
- How does AIS help to increase security (and what is NAIS)?

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.

- Why have some AIS units stopped broadcasting valid position reports?
- Why am I unable to see an AIS vessels' name or other static information (dimensions, call sign, etc.)?
- Why do I sometimes see more than one vessel with the same MMSI or vessel name (i.e. NAUT)?
- I just purchased and installed an AIS Class B, will AIS Class A user 'see' me?
- Do AIS Class B devices meet current USCG AIS carriage requirements?
- Is the USCG considering expanding AIS carriage to other vessels or outside of VTS areas?
- How can I get a copy of an AIS presentation I saw (or heard about it) that was given at...
- Where can I get AIS data?
- Reserved for future use.
- What is AIS Channel Management?
- Can I use my AIS in an emergency or for distress messaging?
- Is the Coast Guard broadcasting AIS Aids to Navigation Reports?
- 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.

**AIS FAQ#14
Class A/B
Comparison
Table**



Homeland Security

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



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





Automatic Identification System

- What is AIS?
- How AIS
- Types of
- AIS Mes:
- AIS Ba
- Class A
- Class A
- Class E
- AIS AT
- Long R
- Nationwi
- 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?

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.

11. Why am I unable to see an AIS vessel's 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 Our
AIS FAQ #15
For More Info
on AIS Rules...**





NAVIGATION CENTER

The Navigation Center of Excellence

U.S. Department of Homeland Security

UNITED STATES COAST GUARD



Home | DGPS Advisories | GPS Constellation Status | MSI Data Downloads | GPS Testing Notices | LNMs | Almanacs | Nav Rules | AIS | N. Amer. Ice Svc | Contact Us | Search

Automatic Identification System

- What is AIS?
- How AIS Works
- Types of AIS
- AIS Messages
 - AIS Base Station Report
 - Class A Position Report
 - Class A Station & MMSI Data
 - Class B Rep
 - AIS ATON F
 - Long Range
 - Nationwide A
- AIS Requirem
- Reference Inf
 - AIS Encodin
 - Frequently As

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?

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).

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?
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.

Mission Area

- Global Position
- Nationwide D
- Nationwide A
- 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)



Homeland Security

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. This Encoding Guide is intended to assist mariners in the proper entry of AIS data. Mariners are reminded that U.S. regulation requires that each AIS be maintained in effective operating condition, which includes accurate input and upkeep of AIS data parameters. Failure to do so may subject a vessel to civil penalties; to avoid such action AIS Users should ensure their system is up-to-date and encoded according to the guidance contained here.

Dynamic Data...should be provided via systems that are type-certified, properly installed, maintained and operational¹

- External Electronic Positioning Fixing System (EPFS), Heading, and Rate of Turn (ROT) data should be integrated into the AIS, per SOLAS Regulation V/19.2, on vessels on international voyage (SOLAS-certified) of 130 gross tonnage or greater; of 300 gross tonnage or greater, and of 50,000 gross tonnage or greater, respectively. An external EPFS is **not** required on vessels that solely operate domestically.
- Pilot Plug, on vessels required to embark pilots, **must** be readily available and easily accessible from the primary conning position of the vessel and permanently affixed (not an extension cord) and adjacent (within 3 feet) to a 120-volt 30/60 Hz AC power receptacle (NEMA 3-15).

Safety-Related Text Messaging...should be short, concise, and used only to exchange pertinent navigation safety-related information

- AIS safety-related text messages (SRM) must be in English and used solely to exchange navigation safety information.
- Although not prohibited, AIS text messaging **should not** be relied upon as the primary means for distress (MAYDAY) or urgent (PAN PAN) communications.²
- Keep SRM concise and as short as possible (less than 90 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, when conducting on-air testing, should also periodically broadcast an AIS SRM stating: "TEST BCSY". Repair related testing should be kept to a minimum and **not** exceed one hour per day.

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#³ 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 amongst others. For example, the first tender for the cruise ship *JOLLY ROGER OF THE SEA* should be inputted as JOLLY ROGER OF THE-1. Additionally, its AIS message 24B call-sign parameter should reflect the last 6-digits of JOLLY ROGER OF THE SEA's MMSI preceded by an 'A', e.g. A123456.

- Maritime Mobile Service Identity (MMSI) should reflect the MMSI assigned to the vessel by the Federal Communications Commission (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 0000000.
- IMO Number⁴ 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.

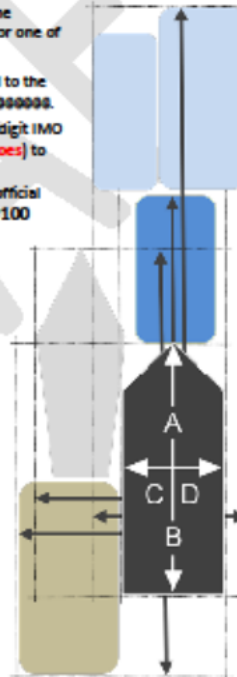
- Type of positioning source should reflect the actual system in use, i.e. GPS, combined GPS-GLONASS, etc.

- Type of vessel should reflect the appropriate Ship Type (see accompanying table).

- 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 37 (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.



Know your password, you will need it to encode your AIS

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) to destination; or voyage departure time, if moored or anchored; or operational termination time (i.e. workboats); should be inputted in Universal Time Coordinated (UTC), **not** local time.
- Destination⁵ and your origination should be inputted using 5-character UN location codes (UNLOCODE)⁶ for (per IMO SN/Circ.244) or 4-character U.S. GUID⁷ codes, as follows:

Origination-Destination using UNLOCODE only

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

Origination-Destination using UNLOCODE and USGUID
CNSHA-USANVCY ...for Shanghai to San Francisco Pier 35

Origination-Destination using USGUID only

USAQYOP->0Q6L ...a scheduled route, i.e. Staten Island Ferry
USAQVCY->0VCY ...a voyage to and fro, e.g. dinner cruise
USAQNR<< ...anchored, moored, or on station (e.g. MODU, FPSO)

Note, the difference in symbology { ^ } > | < < | < }⁸

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

² Obtained at www.imo.org/press/press/2004/04/04_01.htm

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 (UNLOCODE) at: www.unecce.org/cefact/locode/welcome.html

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

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

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

USCG AIS Encoding Guide to Ensure Consistency Standardize name IMO# ABCD values

Minimizes Updates

max. draft destination



Department of
**Homeland
Security**





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, HG, or MP, IMO hazard or pollutant category 1 DO NOT USE	31 – Towing <i>astern*</i>	51 – Search and rescue vessels, i.e. USCG boats and cutters, USCG Auxiliary boats, assistance tugs
2 – WIG (Wing-in-Ground) craft	2 – Carrying DG, HG, or MP, IMO hazard or pollutant category 1 DO NOT USE	32 – Towing <i>astern</i> and length of the tow exceeds 200 meters (656 ft.) or breadth exceeds 23 m (82 ft.) *	52 – Tugs or workboats, that do not regularly engage in towing
3 – Other vessels engaged in actions denoted in column [3x]	3 – Carrying DG, HG, or MP, IMO hazard or pollutant category 2 DO NOT USE	33 – Engaged in dredging, or underwater operations, or other equipment operations that may obstruct navigation (such as buoy tending, ice breaking, salvaging, sampling, surveying, or other similar activities, but, not diving, fishing, towing or military operations)*	53 – Port tenders, yacht tenders, dive tenders, off-shore supply vessels, etc.
4 – HSC (Hi-speed Craft) or passenger ferries	4 – Carrying DG, HG, or MP, IMO hazard or pollutant category 05 DO NOT USE	34 – Engaged in diving operations or other types of operations with persons in the water*	54 – Vessels with anti-pollution facilities or equipment
5 – Special craft per column [5x]	5 – Reserved for future use	35 – Engaged in military operations or other types of restricted operations*	55 – Law enforcement vessels, i.e. U.S. Customs and Border Protection vessels, Department of Natural Resources/Conservation boats, marine police boats, etc.
6 – Passenger ships other than HSC and passenger ferries; not including tenders or off-shore supply vessels [see 53]	6 – Reserved for future use	36 – Sailing vessels*	56 – Spare—for assignments to local vessels that are engaged in towing ahead or alongside, and whose dimensions (ABCD values) represent the overall dimensions of the vessel not including its tow*
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 that are engaged in towing ahead or alongside, and whose dimensions (ABCD values) represent the overall rectangular area of the vessel including its tow*
8 – Tankers, including articulated or integrated tug tank barge vessels	8 – Reserved for future use	38 – Reserved for future use	58 – Medical transports (as defined in the 1949 Geneva Convention and Additional Protocols) or similar public safety vessels
9 – Other types of ship	9 – No additional information	39 – Reserved for future use	59 – Ships according to RR Resolution No. 18 (Mob-83)

**USCG
AIS
Encoding
Guide**
*
**Clarifies
Ship
Types**

*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



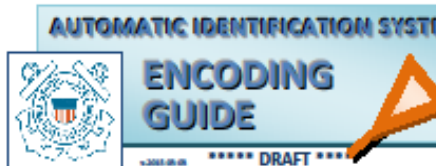
USCG Encoding Guide

*56 – Spare—for assignments to local vessels that are engaged in towing ahead or alongside, and whose dimensions (ABCD values) represent the overall dimensions of the vessel not including its tow**

*57 – Spare—for assignments to local vessels that are engaged in towing ahead or alongside, and whose dimensions (ABCD values) represent the overall rectangular area of the vessel including its tow**

Spare (Local) Codes 56/57 now designated for Pushboats





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 U.S. regulations require each AIS to be maintained in effective operating condition. This includes accurate input and upkeep of AIS data parameters. Failure to do so may subject a vessel to civil penalties; to avoid such penalties AIS Users should ensure their system is up-to-date and encode as follows:

manually inputted at installation. Remember the password. You may need to update these AIS parameters.

The MMSI Identifier (MMSI), call sign, and radio call should mirror the vessel's official documentation, for those vessels that are not assigned a call sign should only be one MMSI assigned by rule, input (@@@@) should not include abbreviation (e.g. USCG, USCGC, USACE, USS, IAPD, etc.). Precursors, i.e. F/V, M/V, MV, OSV

Characters (the parameter limit) should be truncated to 20 characters. Unique distinguishing characters. For example, tug 123456 should be encoded as (WORLD-WIDE AREA) 123456.

IMO registration number precedes the call sign. For example, USAFNY1234Y2. If unnumbered vessels (e.g. tug tenders), use your parent vessel's call sign followed by a dash (-) and a numerical suffix to distinguish you amongst others. For example, the cruise ship Freedom of the Seas should be encoded as (FREEDOM OF THE SEAS) 1234567. Absent an IMO assignment in the AIS message 248 call-sign parameters should be used. For example, digits of Freedom of the Seas MMSI 123456.

Match your assigned 7-digit IMO number with your official number if your AIS does not provide for exactly 10-digits.

Match your assigned 7-digit IMO number with your official number if your AIS does not provide for exactly 10-digits.

New Nav Status for Towing
11=astern
12=ahead

ABCD dimensions for tug+tow

Voyage Related Data...should be manually inputted as necessary to always indicate current conditions

Navigation Status should indicate your current navigational status, i.e. at anchor, underway, engaged in fishing, etc.

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 anchored or moored. Doing so reduces the AIS reporting rate of 2-10 seconds to once every 3 minutes; which mitigates network congestion.

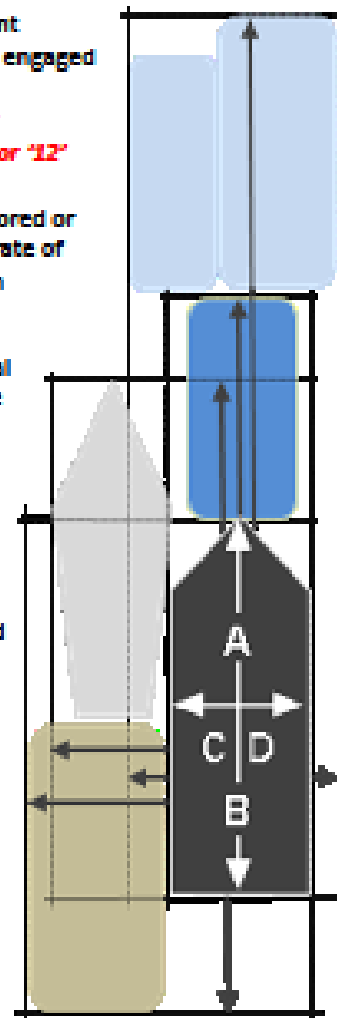
Static Draft should indicate the vessel's actual draft. Input the vessel's maximum draft if the actual draft is unknown.

Type of vessel should indicate a Ship Type denoted in the accompanying table.

Dimensions should indicate the official dimensions of the vessel, in meters not feet, derived from the fore, aft, port and starboard distance to the positioning-system antenna used by AIS (e.g. GPS antenna). Refer to the diagram. In this example the AIS's GPS antenna is located at the intersection of the two white lines.

U.S. Ship Type 57 (see Table) dimensions should represent the overall rectangular area of the vessel and its tow—as portrayed by the dark arrow lines within the rectangles in the diagram.

Estimated Time of Arrival to destination or voyage departure (if moored or anchored). Input Universal Time Coordinated (not local time).



USCG (USCG Code) for USCG Vessels
 UN/LOCODE for vessels from any U.S. port

AIS (MMSI)/GUID
 MMSI (MMSI) for Vessel Traffic Service

Ke (short, navigation)

Lo (in English)

T (then 90)

USCG Official Chart

Obtain on-air AIS SRM: Per ICH minimum

Find C (where)

Find U (where)

Any port (COOD) etc: Outer, berths and routes etc



2-digit numeric codes for *Type of Ship* are composed 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 and/or 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 vessels, including processors, but, not tenders (see as defined in IMO SOLAS, 46 U.S.C. 2101 or 33 CFR 140.10)	30 – Pilot vessel
1 – Reserved for future use	1 – Carrying pollutant-c <i>DO NOT USE</i>		31 – Search and rescue vessels, i.e. USCGC boats, USCGC Auxiliary, assistance towers
2 – WIG	2 – Carrying pollutant-c <i>DO NOT USE</i>	0 – All ships of this type	32 – Tugs, light boats, push-boats, towboats or workboats, that do not engaged in towing
3 – Other vessels engaged in actions denoted in column [3x]	3 – Carrying pollutant-c <i>DO NOT USE</i>	1 – Carrying DG, HG, or MP, IMO hazard or pollutant category X <i>DO NOT USE</i>	33 – Fish, offshore or port tenders
4 – Carrying pollutant-c <i>DO NOT USE</i>	2 – Carrying DG, HG, or MP, IMO hazard or pollutant category X <i>DO NOT USE</i>	31 – <i>(636)</i>	34 – Commercial response vessels with anti-pollution facilities or equipment
5 – Reserv	3 – Reserv	32 – <i>(636)</i>	35 – Law enforcement vessels, i.e. USCGC cutters, marine police
6 – Reserv	4 – Carrying DG, HG, or MP, IMO hazard or pollutant category X <i>DO NOT USE</i>	33 – <i>salva but, r</i>	36 – Spare—for assignments to local vessels that are engaged in towing ahead or alongside, and whose dimensions (ABCD values) represent the overall dimensions of the vessel not including its tow*
7 – Cargo (freight) ships, including articulated (ATB) and integrated tug-barge (ITB) vessels	7 – Reserv	34 – <i>with</i>	37 – Spare—for assignments to local vessels that are engaged in towing ahead or alongside, and whose dimensions (ABCD values) represent the overall area of the vessel including its tow*
8 – Tankers, including articulated (ATB) and integrated tug tank barge (ITB) vessels	8 – Reserv	3 – Reserved for future use	38 – Medical transports (as defined in the 1949 Geneva Convention and Additional Protocols) or similar public safety or first response vessels
9 – Other types of ship	9 – No add 99 – autonomous or remotely-operated unmanned craft	39 – Reserved for future use	39 – Ships according to RR Resolution No. 18 (Mob-83)

HazCargo Codes -Do Not Use

*Remember to also update your Navigation Status accordingly, i.e. Nav Status: 3 = restricted maneuverability; 8 = under sail; 11= towing astern; 12 = pushing ahead/alongside, etc.

For further information or additional copies visit www.navcen.uscg.gov or email cgnav@uscg.mil
***** DRAFT ***** Redistribution with or without USCG indicia is permissible and encouraged ***** DRAFT *****



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)

- Why am I unable to see an AIS vessels' name or other static information (dimensions, call sign, etc.)?
- Why do I sometimes see more than one vessel with the same MMSI or vessel name (i.e. NAUT)?
- I just purchased and installed an AIS Class B, will AIS Class A user 'see' me?
- Do AIS Class B devices meet current USCG AIS carriage requirements?
- Is the USCG considering expanding AIS carriage to other vessels or outside of VTS areas?
- How can I get a copy of an AIS presentation I saw (or heard about it) that was given at...
- Where can I get AIS data?
- Reserved for future use.
- What is AIS Channel Management?
- Can I use my AIS in an emergency or for distress messaging?
- Is the Coast Guard broadcasting AIS Aids to Navigation Reports?
- 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



Enjoy Your Cinco de Mayo Remember the Battle of Puebla too!



Thank You

Jorge.Arroyo@uscg.mil
cgnav@uscg.mil
1-202-372-1563



Homeland
Security

