

## 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of inaccurate, improper or outdated data.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 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. Continual 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 this guidance.

*Dynamic Data...should be provided via systems that are type-certified, properly installed, maintained and operational<sup>3</sup>*

- 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-certificated) of 150 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 50/60 Hz AC power receptacle (NEMA 5-15).

*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.<sup>8</sup>
- 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 must be FCC licensed Maritime Support Stations, and limited their testing to one hour or less 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#' 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 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 @@@@@@.

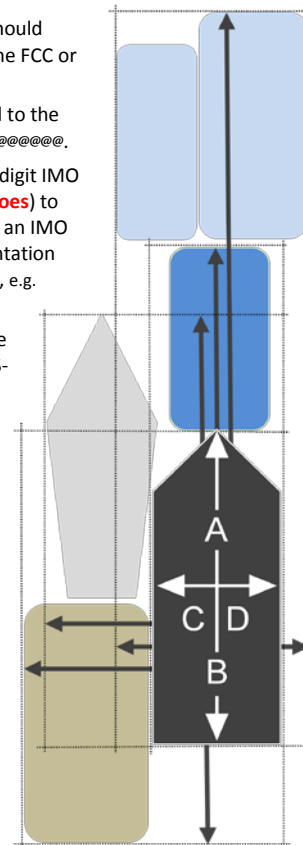
- IMO Number<sup>2</sup> should reflect the assigned 7-digit IMO number. Use leading zeroes (**not trailing zeroes**) to fill the parameter, e.g. 0001234567. Absent an IMO assignment, input your U.S. official documentation number preceded by either '100' or '1000', e.g. 1001234567, 1000123456.

- 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.



**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).

- Destination<sup>4</sup> and your origination should be inputted using 5-character UN location codes (UNLOCODE)<sup>5</sup> for (per IMO SN/Circ.244) or 4-character U.S. GUID<sup>6</sup> 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  
USHOU<>USHOU ...operating solely within a well defined area, e.g. fleeting area, vessel traffic service area, etc.

Origination>Destination using UNLOCODE and USGUID

CNSHA>US^OVVCY ...for Shanghai to San Francisco Pier 35

Origination>Destination using USGUID only

US^OYOP><0Q6L ...a scheduled route, i.e. Staten Island Ferry  
US^OVVCY><OVVCY ...a voyage to and fro, e.g. dinner cruise  
US^ONVR<< ...anchored, moored, or on station (e.g. MODU, FPSO)

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

<sup>1</sup> See <http://wireless.fcc.gov/services/index.htm> {Ship Radio Stations}

<sup>2</sup> Obtained at [www.imonumbers.lrfairplay.com/datause.aspx](http://www.imonumbers.lrfairplay.com/datause.aspx)

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

<sup>4</sup> 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)

<sup>5</sup> Find Country (ISO 3166) & United Nations Location Codes (UN/LOCODE) at: [www.unece.org/cefact/locode/welcome.html](http://www.unece.org/cefact/locode/welcome.html)

<sup>6</sup> Find U.S. Geographic Unique Identifiers (US/GUIDS) for ports, places, berths, routes, and waterways at: [www.navcen.uscg.gov/?pageName=locode](http://www.navcen.uscg.gov/?pageName=locode)

<sup>7</sup> If AIS lacks angle brackets {>} substitute with parenthesis { } | ( ) | ( ( ) }

<sup>8</sup> See 47 CFR 80.1109—Distress, urgency, and safety communications



AIS *Type of Ship* parameter is a 2-digit numeric codes composed either from 1<sup>st</sup> and 2<sup>nd</sup> 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 <sup>st</sup> digit	2 <sup>nd</sup> 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	<del>1 – Carrying DG, HS or MP, IMO hazard or pollutant category X</del> <b>DO NOT USE</b>	31 – Towing <i>astern*</i>	51 – Search and rescue vessels, <i>i.e. USCG boats, USCG Auxiliary boats, assistance towers, first-responders, standby vessels</i>
2 – WIG ( <i>Wing-In-Ground</i> ) craft	<del>2 – Carrying DG, HS, or MP, IMO hazard or pollutant category Y</del> <b>DO NOT USE</b>	32 – Towing <i>astern</i> and length of the tow exceeds 200 meters (656 ft.) or breadth exceeds 25 m (82 ft.) *	52 – Tugs <i>or workboats, that do not regularly engage in towing</i>
3 – Other vessels <i>engaged in actions denoted in column [3x]</i>	<del>3 – Carrying DG, HS, or MP, IMO hazard or pollutant category Z</del> <b>DO NOT USE</b>	33 – Engaged in dredging or underwater operations, <i>or other equipment operations that may obstruct navigation (such as buoy tending, exploration, ice breaking, production, salvaging, sampling, surveying, or other similar activities, but, not diving, fishing, towing or military operations)*</i>	53 – Port tenders, <i>yacht tenders, dive tenders, attending and off-shore supply vessels, etc.</i>
4 – HSC ( <i>Hi-speed Craft</i> ) or passenger ferries	<del>4 – Carrying DG, HS, or MP, IMO hazard or pollutant category OS</del> <b>DO NOT USE</b>	34 – Engaged in diving operations <i>or other types of operations with persons in the water*</i>	54 – Vessels with anti-pollution facilities or equipment
5 – Special craft <i>per column [5x]</i>	5 – Reserved for future use	35 – Engaged in military operations <i>or other types of restricted operations*</i>	55 – Law enforcement vessels, <i>i.e. U.S. Customs and Border Protection vessels, Department of Natural Resources/Conservation boats, marine police boats , etc.</i>
6 – Passenger ships <i>other than HSC and passenger ferries; not including tenders or off-shore supply vessels [see 53]</i>	6 – Reserved for future use	36 – Sailing <i>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 ( <i>freight</i> ) ships, <i>including articulated (ATB) and integrated tug-barge (ITB) vessels</i>	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, <i>including articulated or integrated tug tank barge vessels</i>	8 – Reserved for future use	38 – Reserved for future use	58 – Medical transports (as defined in the 1949 Geneva Convention and Additional Protocols) <i>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.**

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