GUIDELINE

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PROVISION OF A VTS

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DOCUMENT REVISION

Revisions to this document are to be noted in the table prior to the issue of a revised document. The latest edition of the Guideline is the only version in force unless the Guideline is explicitly revoked by the Council.

Date	Details	Approval
December 2012	Edition 1.0	
January 2022	Edition 2.0 Major review including title change from "Provision of VTS services (INS, TOS & NAS)" to align with new/revised IALA documentation since Edition 1 was released and IMO Resolution A.1158(32) Guidelines for Vessel Traffic Services.	Council 74
June 2026	Edition 3.0 In addition to minor edits to enhance alignment to IMO Resolution A.1158(32) Guidelines for Vessel Traffic Services, the revised version includes considerations associated with situational awareness, interaction and systems, processes and procedures, particularly with the increasing use of digital communications.	Council 04

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1. INTRODUCTION

A Vessel Traffic Service (VTS) is recognized internationally as a navigational safety measure in the International Convention for the Safety of Life at Sea, 1974, as amended (SOLAS) [1]. The Convention also states that Contracting Governments planning and implementing VTS shall, wherever possible, follow the guidelines developed by the International Maritime Organization (IMO).

IMO Resolution A.1158(32) Guidelines for Vessel Traffic Services [2] recognizes IALA as:

> "an important contributor to IMO's role and responsibilities relating to VTS"

and states that:

> "Contracting Governments are encouraged to take into account IALA standards and associated recommendations, guidelines and model courses."

2. DOCUMENT PURPOSE

The purpose of this document is to provide guidance for the provision of VTS to participating ships in a harmonized manner, in accordance with IMO Resolution A.1158(32) and IALA standards.

This Guideline is associated with Recommendation R0127 VTS Operations [3] a normative provision of Standard S1040 Vessel Traffic Services [4]. To demonstrate compliance with Recommendation R0127, the provisions of this Guideline should be taken into account.

2.1. RELATIONSHIP WITH OTHER DOCUMENTS

This Guideline should be read in conjunction with all recommendations and guidelines of the International Organization for Marine Aids to Navigation (IALA) specifically related to VTS, and in particular:

- Recommendation R0127 – VTS Operations
- Recommendation R1012 – VTS Communications
- Recommendation R1026 – Digitalization of Aids to Navigation Services for Vessels of Varying levels of Autonomy
- Guideline G1110 – Use of decision support tools for VTS Personnel
- Guideline G1132 – VTS Voice Communications and Phraseology
- Guideline G1141 – Operational Procedures for delivering VTS
- Guideline G1199 – Guideline on Digital Communications

3. CONSIDERATIONS

IMO Resolution A.1158(32) Guidelines for Vessel Traffic Services defines VTS as:

> "services implemented by a Government with the capability to interact with vessel traffic and respond to developing situations within a VTS area to improve the safety and efficiency of navigation, contribute to safety of life at sea and support the protection of the environment."

A VTS operates within a comprehensive environment in which ships, ports, allied services, and other organizations fulfil their respective roles as appropriate.

Key factors in delivering a VTS include:

- the regulatory and legal framework governing the establishment and operation of VTS;
- the establishment and maintenance of situational awareness within the VTS area;

- the conduct of interaction between VTS and participating ships; and
- the systems, processes and procedures that enable effective provision of VTS.

3.1. REGULATORY AND LEGAL FRAMEWORK

SOLAS regulation V/12 states that:

> "The use of VTS may only be made mandatory in sea areas within the territorial seas of a coastal State"

and that:

> "Contracting Governments shall endeavour to secure the participation in, and compliance with, the provisions of vessel traffic services by ships entitled to fly their flag."

IMO Resolution A.1158(32) Guidelines for Vessel Traffic Services states that:

- Contracting Governments should:

  "establish a legal basis for VTS that gives effect to regulation V/12 of the Convention" and "appoint and authorize a competent authority for VTS".

- Competent authorities for VTS should:

  "establish a regulatory framework for establishing and operating VTS in accordance with relevant international conventions and IMO instruments, IALA standards and national law"

- VTS providers should:
  - "set operational objectives for VTS that are consistent with improving the safety and efficiency of ship traffic and the protection of the environment"; and
  - "ensure that appropriate equipment, systems and facilities for the delivery of VTS are provided".

- Participating ships should:

  "provide reports or information required by VTS" and "take into account the information provided, or advice and warnings issued, by VTS" and "comply with the requirements and instructions given to the ship by VTS unless contradictory safety and/or marine environment protection reasons exist".

  "Nothing in these Guidelines changes the Master's ultimate responsibility for all aspects of the operation of the ship including the responsibility for safe navigation."

3.2. SITUATIONAL AWARENESS

A key factor in maintaining the safety and efficiency of navigation and supporting the protection of the environment for both VTS and all ships, is to establish and maintain situational awareness.

The International Dictionary of Marine Aids to Navigation (IALA Dictionary) [5] defines situational awareness as:

> Situational awareness refers to the ability to identify, process and comprehend the critical elements of information about what is happening in the surrounding environment at any given time.
>
> It involves being aware of what is happening around you and understanding how that information, events, and your own actions will impact your goals and objectives, both immediately and in the near future.

Interaction between VTS and ships, using the most appropriate means of communication, should be managed to ensure that situational awareness is effectively established and maintained from the perspectives of both VTS and participating ships.

3.3. INTERACTION

With the transition to more digital interaction, it is important to recognize the use of the terms 'interaction' and 'communication', noting the IMO resolution for VTS uses the term 'interaction' in the definition of VTS. That is:

> 'the capability to interact with vessel traffic and respond to developing situations'.

It is generally accepted that:

- Communication - refers to the act of sharing information
- Interaction - refers to acting in such a manner so as to affect the recipient of the communication.

The key difference between 'communication' and 'interaction' is that 'interaction' is a broader term while 'communication' is a part of the 'interaction'.

Significantly, interaction by digital means may include system-to-system, person-to-system, and system-to-person communication.

This requires not only embracing individual technologies but also implementing systems, processes and procedures to manage any communication means. All communications should be undertaken in a manner that ensures the interaction achieves the same objective and intent to all participating ships and supports situational awareness.

3.4. SYSTEMS, PROCESSES AND PROCEDURES

The increasing integration of new technologies in ship navigation, control and operations will require VTS to interact with ships using appropriate analogue or digital communication means to monitor and manage ship traffic and respond to developing situations.

Key considerations for VTS in interacting with a diverse range of ship operations and technologies include:

1 System Capabilities - to support interaction and situational awareness. This includes receiving, processing and sending information and data.

- Managing a mix of VHF voice, digital communications, and automated data exchange.
- Capability to receive reports and information from ships and in a manner that is assimilated within the VTS system and assimilated within the VTS operational picture. This capability includes sharing such reports and information with relevant stakeholders.
- Capability to identify and interact effectively with all ships regardless of their operational complexity.
- The decision support tool is essential for providing real-time information and communication capabilities, ensuring efficient and effective decision-making processes, see Guideline G1110 Use of Decision Support Tools for VTS Personnel [6].

2 Processes and Procedures

Processes and procedures should be implemented to assist VTS personnel in managing interaction with participating ships, ensuring that all communications are delivered effectively.

This includes interacting both by voice and digital means for all interaction activities, such as those described in Guideline G1141 Operating Procedures for Delivering VTS Chapter 5 [7].

4. PROVISION OF VTS TO PARTICIPATING SHIPS

IMO Resolution A.1158(32) states that:

> "The purpose of a VTS is to contribute to safety of life at sea, improve the safety and efficiency of navigation and support the protection of the environment within a VTS area by mitigating the development of unsafe situations through:

.1 providing timely and relevant information on factors that may influence ship movements and assist on-board decision making.

.2 monitoring and managing ship traffic to ensure the safety and efficiency of ship movements.

.3 responding to developing unsafe situations."

Further, the Resolution states that to achieve their purpose, VTS should provide information or issue advice, warnings and instructions, as deemed necessary.

4.1. TIMELY AND RELEVANT INFORMATION

The provision of timely and relevant information on factors that may influence the ship's movements and assist navigational decision making should be provided where:

- deemed necessary by the VTS; or
- requested by the participating ship.

Timely and relevant information may include but is not limited to:

- The position, identity, intention, and movements of ships.
- Maritime Safety Information (MSI) such as meteorological and hydrological conditions, notices to mariners, status of marine aids to navigation.
- Scheduling information to enable a ship to optimize its overall passage efficiency.
- Limitations of ships in the VTS area that may impose restrictions on the navigation of other ships (e.g., manoeuvrability), or any other potential hindrances.
- Information concerning the safe navigation of the ship.
- Other information such as:
  - Reporting formalities and International Ship and Port Facility Security Code details.
  - Information to and from allied services.
  - Amendments and changes in promulgated information concerning the VTS area such as boundaries, procedures, radio frequencies, reporting points.

4.1.1. DELIVERY OF INFORMATION

Depending on the type of information and the situation, this may be delivered by:

- Broadcasting the information at fixed times and intervals, as promulgated in the appropriate navigational publications.
- Communicating directly with individual ships.
- Data exchange and automated reporting as appropriate and where these are available.

4.1.2. EXAMPLES OF TIMELY AND RELEVANT INFORMATION

Examples of timely and relevant information include those shown in Table 1:

Table 1 Examples of timely and relevant information

Information related to:	Examples:
Navigational situations (including traffic and route information)	• Position, identity, destination of ships and the intention of other traffic • Amendments and changes in promulgated information concerning the VTS area such as boundaries, procedures, analogue or digital communications means , reporting points • The mandatory reporting of movements • Limited manoeuvrability that may impose restrictions on the navigation of other ships, or any other potential hindrances • Suspension or change of routes
Navigational warnings	• Uncharted obstacles such as dangerous wrecks • Diving operations • Ships not under command
Meteorology	• Wind speed and direction • Direction and height of the wave • Visibility • Atmospheric pressure • Formation of ice
Meteorological warnings	• Gale • Storm • Tsunami • Restricted visibility
Hydrography	• Stability of the seabed • The accuracy of surveys • Tidal height • Tidal streams
Electronic navigational aids	• The availability of electronic navigational aids such as: GNSS, DGNSS, eLoran, AIS, RACON
Other information	• Port information • Pilot or tug request • Cargo information. • Health condition • Port State Control (PSC) • International Ship and Port Facility Security (ISPS)

If a VTS is tasked with providing MSI services, guidance on this type of information is found in IMO Resolution A.706(17) World-Wide Navigational Warning Service [8].

4.2. MONITORING AND MTANAGEMENT OF SHIP TRAFFIC

The monitoring and management of ship traffic to ensure the safety and efficiency of ship movements may include:

- Forward planning and prioritization of ship movements to prevent congestion or dangerous situations and improve overall efficiency;
- Organizing ships underway noting that special transports or ships with dangerous goods may affect the flow of other traffic;
- Organizing space allocation;
- Establishing a system of traffic clearances;

- Establishing a system of voyage or passage plans;
- Providing route advice;
- Monitoring and ensuring that mandatory reporting in the VTS area are followed;
- Establishing recommended or advisory routes to be followed;
- Monitoring and ensuring that speed limits are followed;
- Organizing nautical activities (e.g., sailing regattas) or marine works in-progress (such as dredging or submarine cable-laying) to avoid interference with the flow of ship traffic; and
- Ensuring compliance with and enforcement of regulatory provisions for which they are empowered.

4.2.1. EXAMPLES OF THE MONITORING AND MANAGEMENT OF SHIP TRAFFIC

Examples of when the monitoring and management of ship traffic might be required include those shown in Table 2:

Table 2 Examples of situations that may require monitoring and management of ship traffic

Information related to:	Examples:
Traffic clearance	• On or prior to entering a VTS area • Departing from a berth or an anchorage within a VTS area • Entering into a fairway within a VTS area • Prior to commencing a manoeuvre that may be detrimental to safe navigation
Anchorage	• Organizing the movements to/from an anchorage position/area • Assigning an anchorage position • Assisting ships into anchorage position
Enforcement	• Ensuring adherence to speed limits • Ensuring adherence to rules regarding traffic routeing measures • Ensuring adherence to pilotage requirements • Ensuring adherence to traffic regulations and local by-laws
Waterway management (sea, channels, and fairway)	• Requiring a passage plan before entering a VTS area • Planning lock and bridge passages • Reporting position at determined reporting point/line/pilot station. • Dredging or compass swing in confined waterway • Organizing other traffic when a ship has passed point of no return • Organizing the traffic concerning ship dimensions in comparison to fairway restrictions and under keel clearance • Establishing and organizing ship safety zones in case of particular operations • Establishing and organizing exclusion zones • Instructing ships to keep clear from special areas or positions • Organizing the traffic as regards to meteorological, hydrographical, or other restrictions such as visibility, wind speed, current and sea state

4.3. RESPONDING TO DEVELOPING UNSAFE SITUATIONS

Responding to developing unsafe situations involves the graduated use of information, advice, warnings and, where authorized, instructions in order to mitigate emerging risks and enhance navigational safety.

Developing unsafe situations may include:

- A ship unsure of its route or position
- A ship deviating from the recommended or intended route
- A ship requiring guidance to an anchoring position
- A ship that has defects or deficiencies, such as navigation or manoeuvring equipment failure
- Meteorological conditions (e.g., low visibility, strong winds)
- A ship at risk of grounding or collision
- Emergency response or support to emergency services

Key considerations when responding to developing unsafe situations include:

- The level of response should be based on the professional judgement of VTS, taking into account traffic, environmental, operational, communication, operational procedures, business rules (e.g. Decision Support Tool) and other relevant factors.
- VTS interaction should support navigational decision-making through the graduated provision of information, advice, warnings and, where authorized, instructions, in accordance with the applicable regulatory framework.
- The objective of the interaction should be to stabilize the situation and enable the ship to regain normal navigational conditions or to arrange appropriate assistance.

Responses to developing unsafe situations may arise in three generic circumstances:

- When observed by VTS
- On request by a ship
- As part of established operational procedures

4.3.1. Examples of Interaction when Responding to Developing Unsafe Situations

Examples of interaction when responding to developing unsafe situations include those shown in Table 3:

Table 3 Examples of interaction when responding to unsafe situations

Interaction	Examples:
Information	• Requesting ship identification and details such as position, course and speed • Requesting status of ship's equipment • Providing range and bearing from fixed objects, fairway/channel or way-points • Providing proximity to navigational hazards • Providing information related to navigating into a channel/fairway/lane (i.e., track is parallel/diverging/converging with/from/to reference line)
Advice	• Advising a ship to alter the course, speed • Advising a ship to close up/drop back on/from another ship • Advising a ship to keep clear from area/position
Warning	• Deviating from the recommended or intended route towards shallow water, dangerous wrecks or other obstacles not otherwise promulgated • Diving operations • Ships not under command
Instruction	• Instructing a ship to keep clear from area/position Note: The VTS provider should give careful consideration to the authorization of VTS personnel for issuing an Instruction in developing unsafe situations.

5. VTS BEYOND TERRITORIAL SEAS

SOLAS regulation V/12 (Vessel Traffic Services) paragraph 3, specifically states that:

> "The use of VTS may only be made mandatory in sea areas within the territorial seas of a coastal state."

Recognizing the contribution of VTS to the safety of navigation, improved efficiency of traffic flow and the protection of the marine environment, a VTS may be established beyond territorial seas either:

- in association with an IMO adopted system; or
- on the basis of voluntary participation.

5.1. VTS IN ASSOCIATION WITH AN IMO ADOPTED SYSTEM

IMO Resolution A.1158(32) Guidelines for Vessel Traffic Services relating to SOLAS states that:

> "A VTS may be established in association with an IMO adopted ships' routeing system or mandatory ship reporting system in accordance with regulations V/10 and V/11 of the Convention, respectively."

The principles of the provision of VTS to participating ships set out in paragraphs 4.1 – 4.3 still apply, but consideration may need to be given to the legal basis for national regulation and enforcement.

5.2. VTS ON THE BASIS OF VOLUNTARY PARTICIPATION

IMO Resolution A.1158(32) Guidelines for Vessel Traffic Services states that:

> "A VTS may also be established beyond the territorial seas of a coastal State to provide information and advice on the basis of voluntary participation."

When a VTS is established beyond the territorial seas of a coastal State solely on the basis of voluntary participation, it is unlikely that it will have any powers of regulation or enforcement.

While the principles of the provision of VTS set out in paragraphs 4.1 – 4.3 above still apply, a VTS established on the basis of voluntary participation is also unlikely to be empowered to issue instructions.

VTS personnel should take into account that where a VTS is established on the basis of voluntary participation, not all ships present in the VTS area may be participating and may not even be monitoring the designated communications channels.

6. OTHER CONSIDERATIONS

IMO Resolution A.1158(32) Guidelines for Vessel Traffic Services states that:

> "Ships not designated as participating ships may take part in a VTS subject to complying with the requirements of the VTS and any guidance issued by the VTS provider".

Instances where this may occur include situations when:

- a VTS may encourage voluntary participation from categories of ships that are not required by the regulations of that VTS to participate; or
- a ship that is not required by the regulations of that VTS to participate may request to participate in the VTS and receive information and advice during their transit.

In these situations, the principles of the provision of VTS set out in paragraphs 4.1 – 4.3 still apply. However, careful consideration should be given to factors such as:

- The authority to issue requirements or instructions to voluntary participants.
- Voluntary participants may not provide all of the information required of mandatory participants.

- "Participating ships" may not be aware of "voluntary participants".

7. DEFINITIONS

The definitions of terms used in this Guideline can be found in the International Dictionary of Marine Aids to Navigation (IALA Dictionary).

8. ABBREVIATIONS

AIS Automatic Identification System

IMO International Maritime Organization

VHF Very High Frequency

VTS Vessel Traffic Services

9. REFERENCES

[1] IMO. International Convention for the Safety of Life at Sea, 1974, as amended (SOLAS)

[2] IMO. Resolution A.1158(32) Guidelines for Vessel Traffic Services

[3] IALA. Recommendation R0127 VTS Operations

[4] IALA. Standard S1040 Vessel Traffic Services

[5] IALA. International Dictionary of Marine Aids to Navigation (IALA Dictionary)

[6] IALA. Guideline G1110 Use of decision support tools for VTS personnel

[7] IALA. Guideline G1141 Operational procedures for delivering VTS

[8] IMO. Resolution A.706(17)a World-Wide Navigational Warning Service