Document Revisions

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**IALA Guideline No. ####**

**On**

**Use of decision support tools for VTS personnel**

**Edition 1**

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Revisions to the IALA Document are to be noted in the table prior to the issue of a revised document.

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| **Date** | **Page / Section Revised** | **Requirement for Revision** |
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|  |  |  |
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|  |  |  |
|  |  |  |

Table of Contents

White requires work, input or rewriting

Yellow requires structuring or more work and review

Green has been reviewed by the Task Leader

Blue has been reviewed by WG

[Document Revisions (Title style) 2](#_Toc334606484)

[Table of Contents 3](#_Toc334606485)

[Index of Tables 4](#_Toc334606486)

[Index of Figures 4](#_Toc334606487)

[Use of decision support tools in VTS 5](#_Toc334606488)

[1 Introduction 5](#_Toc334606489)

[1.1 Aim 5](#_Toc334606490)

[1.2 Purpose 5](#_Toc334606491)

[1.3 References 5](#_Toc334606492)

[2 Definitions 5](#_Toc334606493)

[3 Purpose 6](#_Toc334606494)

[4 UTILIZATION of decision Support tools 6](#_Toc334606495)

[4.1 Introduction 6](#_Toc334606496)

[4.2 Formal Safety Assessment 6](#_Toc334606497)

[4.3 Quality of decision support tools 6](#_Toc334606498)

[4.4 Audio 6](#_Toc334606499)

[4.5 Information portrayal 6](#_Toc334606500)

[4.6 Logging and Replay 7](#_Toc334606501)

[4.7 Training 7](#_Toc334606502)

[5 decision support tools 7](#_Toc334606503)

[5.1 CPA/TCPA 7](#_Toc334606504)

[5.2 Collision alerts 7](#_Toc334606505)

[5.3 Grounding alert 7](#_Toc334606506)

[5.4 Anchor watch 7](#_Toc334606507)

[5.5 Area penetration 7](#_Toc334606508)

[5.6 Critical Waypoint Monitoring 7](#_Toc334606509)

[5.7 Speeding 7](#_Toc334606510)

[5.8 Route adherence 7](#_Toc334606511)

[5.9 Analysis and prediction 7](#_Toc334606512)

[5.10 Path time and track prediction 7](#_Toc334606513)

[5.11 Damaged vessel management 7](#_Toc334606514)

[5.12 Under keel clearance 7](#_Toc334606515)

[5.13 Air draught clearance 7](#_Toc334606516)

[5.14 Bridge/locks status 7](#_Toc334606517)

[6 Conclusions 8](#_Toc334606522)

[ANNEX A Example decision support tools 9](#_Toc334606523)

[APPENDIX 1 Appendix title 10](#_Toc334606524)

Index of Tables

[Table 1 Title required 3](#_Toc216488847)

Index of Figures

[Figure 1 Title required 3](#_Toc216488874)

Use of decision support tools for VTS personnel

# Introduction

According to IMO Resolution A.857(20)，Vessel Traffic Services are implemented to improve the safety and efficiency of vessel traffic and to protect the environment. The service should have the capability to interact with the traffic and to respond to traffic situations developing in the VTS area.

Decision support tools have been used in VTS centres to enhance situation awareness by assisting VTS personnel. These tools can assist VTS personnel to support decision making activities at an operational level.

Decision support tools may be identified in the VTS operational procedures such as CPA/TCPA, collision alarms, grounding alarms, anchor watch, etc.

## Objective

The aim of this document is to give guidance on the use of decision support tools in VTS, and to provide a list of examples of decision support tools that may be considered by a VTS authority.

# Acronyms and Definitions

To assist in the use of this guideline, the following acronyms and definitions, mainly based on IMO resolutions, have been used:

1. Acronyms

|  |  |
| --- | --- |
| *COLREG* | International Regulations for Preventing Collisions at Sea |
| *IALA* | International Association of Marine Aids to Navigation and Lighthouse Authorities |
| *IMO* | International Maritime Organization |
| *OOW* | Officer of the Watch |
| *SMCP* | IMO Resolution A.918(22) IMO Standard Marine Communication Phrases |
| *SOLAS* | International Convention for the Safety of Life at Sea |
| *VTS* | Vessel Traffic Services |

1. General Definitions

|  |  |
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| Alarm | A visual or audible indication that a developing situation has occurred and that a decision is required |
| Decision-maker | A person or group authorized to make decisions. |
| Decision support system | An information system to assist the [decision-maker](http://en.wikipedia.org/wiki/Decision-making" \o "Decision-making) at an operational, planning and management level. |
| Decision support tool for VTS personnel | A tool to assist the VTS personnel for supporting decision making at an operational level. A tool may include one or more decision support systems. |
| Hazard | Potential to threaten human life, health, property or the environment (IMO Guideline for FSA). |
| Active decision support tool | A tool that brings out decision suggestions or solutions to support decision making. |
| Passive decision support tool | A tool that aids the process of decision making, but that cannot bring out explicit decision suggestions or solutions. |
| Cooperative decision support tool | A tool that allows the decision-maker to modify, complete, or refine the decision suggestions provided by the tool, and feed back to the tool. The tool again improves, completes, and refines the suggestions of the decision-maker and feedback for validation. The whole process may start again, until a consolidated solution is generated. |

# UTILIZATION of decision Support tools

## Introduction

Decision support tools may differ depending on the needs and functions of the VTS. In order to assist VTS personnel fulfilling their tasks of surveillance in a specific context, some decision support tools may require user input such as the vessel(s) concerned or the area supervised. In other cases, some tools are working permanently in a self-contained way and should warn the VTS personnel automatically.

The operational procedures of the VTS should clarify the use of decision support tools according to local environment of the VTS area.

The decision support tools can be implemented during or after the establishment of VTS, and if necessary a formal safety assessment can be referred for the application of those tools.

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## Type of decision support tools

(Robust, consistent, tested, proven, approved by VTS authority)

Depending on the relationship between the decision support tool and the decision-maker, a decision support tool can be classified as passive, active, or cooperative.

Whatever the type of decision support tool, the final decision is always at the discretion of the decision-maker according to the VTS standard operational procedures.

### Passive decision support tool

A passive decision support tool is the most common type available in VTS centres. Such a tool is generally used for generating alarms.

Example, shallow water alarm

In passive mode, the decision support tool shall raise a visual or audible alarm whenever a vessel is heading to shallow water.

### Active decision support tool

In addition to the functions of a passive decision support tool, an active decision support tool is able to bring out solutions to the decision-maker. These solutions are derived from a list of pre-typed solutions that should comply with the standard operational procedures of VTS.

Example, shallow water alarm

In active mode, the shallow water decision support tool shall raise a visual or audible alarm and provide suggestions such as change course, reduce speed etc.

### Cooperative decision support tool

In addition to the functions of an active decision support tool, a cooperative decision support tool may induce more exchanges between human and machine in order to find a solution that best suits the needs of the decision-maker. Those tools are used in more complex and/or seldom situations where decision making is not easily sorted out.

Example, shallow water alarm

In cooperative mode, the shallow water decision support tool provides options/suggestions to the decision-maker who could request new answers to options suggested by the tool.

Reduce speed could be a solution selected and the cooperative decision support tool could calculate the appropriate speed reduction based on the time of available depth of water in order for the vessel to arrive on the position with sufficient depth.

()

## Operational requirements of decision support tools

## Audio

???

## Information portrayal

3D perspective

## Logging and Replay

Return of experience, lessons learnt, training, etc

## Training

Refer back to v103, That staff should be adequately trained to the type of service provided

# decision support tools

Blah about operational applications of decision support tools in vts

On the contrary, some more generic tools or basic warning systems, such as CPA or TCPA, are permanently estimated and should warn the VTS Personnel if the vessels courses closes within the predefined limits.

## CPA/TCPA

Some of these tools may be classified as critical risk assessment tools because they reflect the risk of collision or groundings; those are for instance CPA, TCPA, and grounding alarm. Other decision support tools are not so critical because they are linked to local regulations or recommendations.

## Collision alerts

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## Grounding alert

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## Anchor watch

??

## Area penetration

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## Critical Waypoint Monitoring

## Speeding

??

## Route adherence

??

## Analysis and prediction

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## Path time and track prediction

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## Damaged vessel management

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## Under keel clearance

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## Air draught clearance

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## Bridge/locks status

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## Space and slot management

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Management and Planning

Blah about management and planning applications of decision support tools in vts

## Traffic analysis

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1. Example decision support tools

Guidelines should have Annexes. Appendices are attached to Annexes.

ANNEX HEAD1

Body Text

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* Office 2003, go to Format / Bullets and Numbering / Restart numbering (lower left in the box)
* Office 2007, go to down arrow next to Numbering icon and select Set Numbering Value

Annex Heading 2

Body text

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1. Appendix title
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