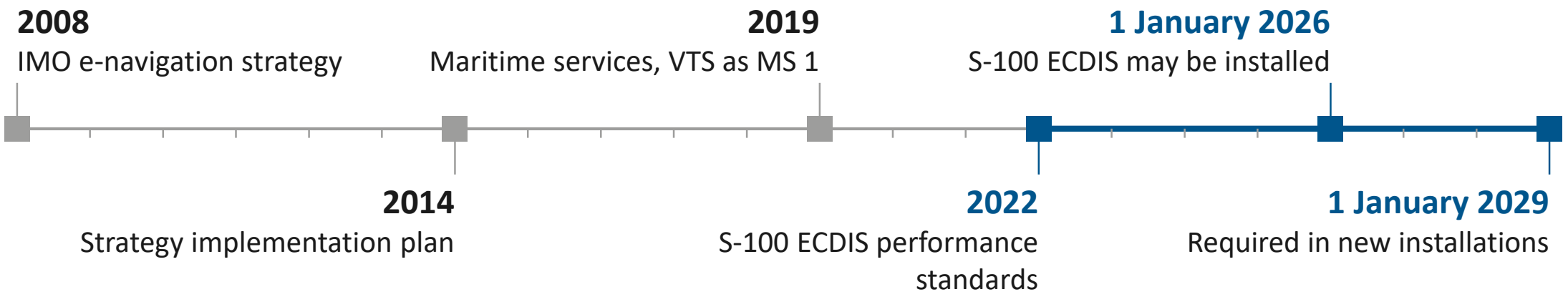
IALA DIGITAL SERVICE STANDARDS: DEVELOPMENTS WITH A FOCUS ON VTS

Minsu Jeon, Technical Director, IALA

10th Digital@Sea Asia-Pacific | Busan | 29 October 2026

LONG DISCUSSED, NOW DEFINED



IMO: e-navigation strategy (MSC 85), implementation plan (MSC 94), MSC.1/Circ.1610, resolution MSC.530(106)/Rev.1

On board, the dates are fixed. The open question is the shore side.

WHY VTS NEEDS DATA

Voice (VHF)

- One channel, one ship at a time
- Read back, written down, keyed in again
- Language and workload pressure on both ends

Data

- Reports, clearances and information exchanged machine to machine
- The same data on the bridge and in the VTS centre
- Fewer read-backs and less re-keying

Voice stays for time-critical communication. Routine exchanges move to data, so the operator’s attention goes where safety needs it.

THE IMO FRAME FOR DIGITAL VTS

Service side

MSC.1/Circ.1610/Rev.1
Maritime Service 1: VTS

Resolution MSC.467(101)
Harmonised format for describing maritime services

Resolution A.1158(32)
Guidelines for Vessel Traffic Services

Ship side

Resolution MSC.530(106)/Rev.1
ECDIS performance standards, including route exchange

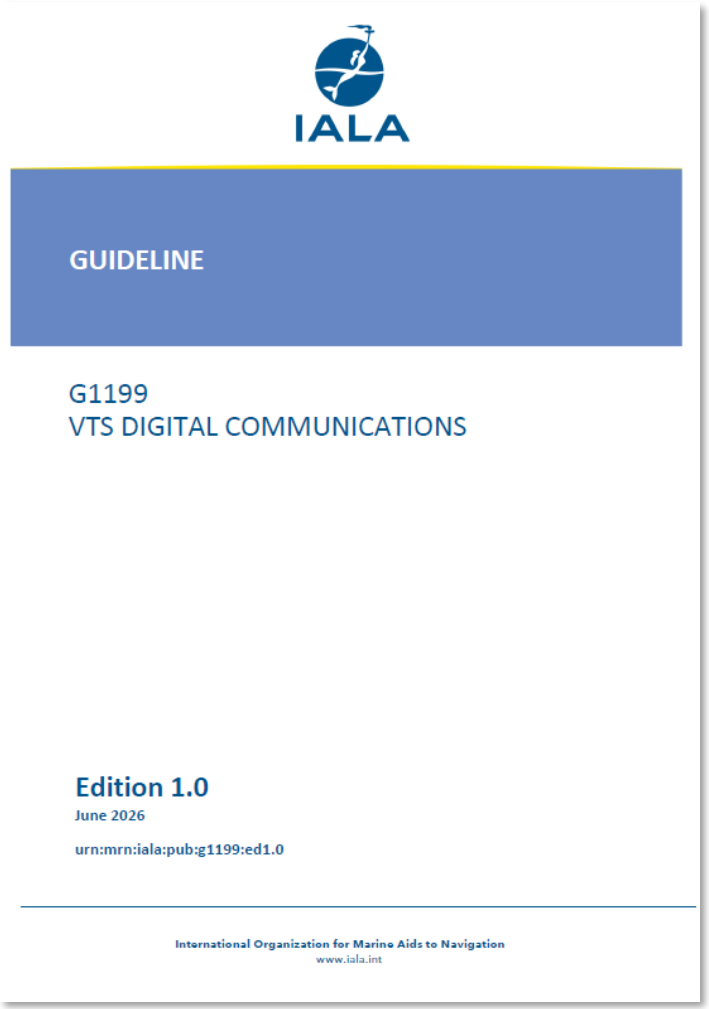
IEC 63173-1 and 63173-2
S-421 route plan and SECOM, referenced by IMO

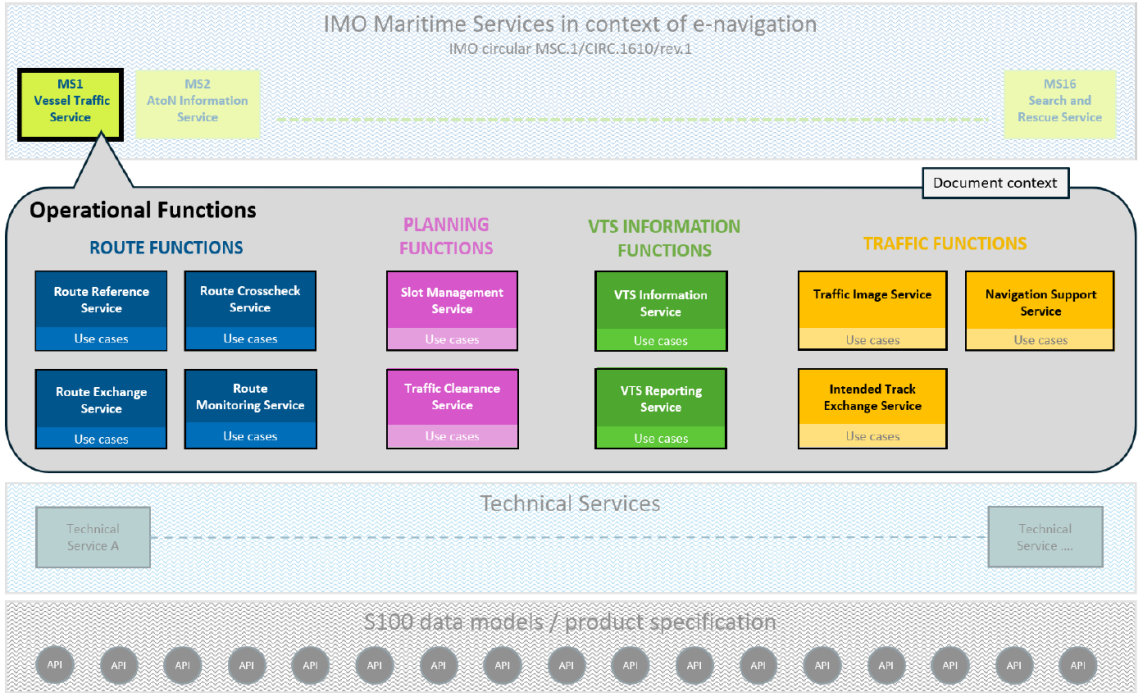
IMO MSC 112

December 2026

Expected to approve guidance on IP-based connectivity for S-100 ECDIS and operational guidance for route exchange, both finalised by NCSR 13

USE CASES FIRST: IALA G1199 VTS DIGITAL COMMUNICATIONS





Today

- Clearance, waiting slot and anchorage position are passed by voice on VHF
- Heard once, written down by hand, sometimes misheard across languages
- No shared record of what was agreed

With S-212

- Clearance, with its conditions, arrives as data on the bridge display
- Slot priority, spacing between ships and anchorage position are assigned digitally
- Both sides hold the same record

FROM MARITIME SERVICE TO DATA: THREE BUILDING BLOCKS

Maritime service

What is provided, and to whom

MS 1

Vessel Traffic Services

IMO: MSC.1/Circ.1610

Technical service

How it is delivered between machines

- Traffic clearance
- Route exchange
- Under keel clearance
- Inter-VTS exchange

IALA G1128: specification, design (e.g. SECOM), instance

Product specification

What data is exchanged

- **S-212** VTS digital information
- **S-421** Route plan (IEC)
- **S-129** UKC management (IHO)
- **S-210** IVEF

IHO S-100 framework

Underneath: identities, certificates and service registries. Trust and discovery between machines: MCP session, 13:00

VTS TECHNICAL SERVICES: WHERE THEY STAND

Service	Service specification	Service design	Status
Traffic clearance	SS0001, ed. 1.6	SD0001, SECOM	Endorsed at VTS60
Route exchange	SS0002, ed. 1.2	SD0002, SECOM	Endorsed at VTS60
Under keel clearance	Ed. 1.0	SD0005, ed. 1.0	Design endorsed at VTS60
VTS information service	Working draft	–	In development
Voyage information, slot management, anchorage assignment	–	–	Planned

Specifications and designs are developed openly on GitHub (IALA-IGO). Editions below 2.0.0 are test versions.

Source: VTS60 session report; IALA Technical Services page.

TWO VTS PRODUCT SPECIFICATIONS

S-212

VTS Digital Information Message

Ship ↔ VTS

Edition	0.8.0 working edition, September 2026
First stage	Traffic clearance, including anchorage assignment
VTS60	Renamed from ‘VTS Digital Information Service’

S-210

Inter-VTS Exchange Format

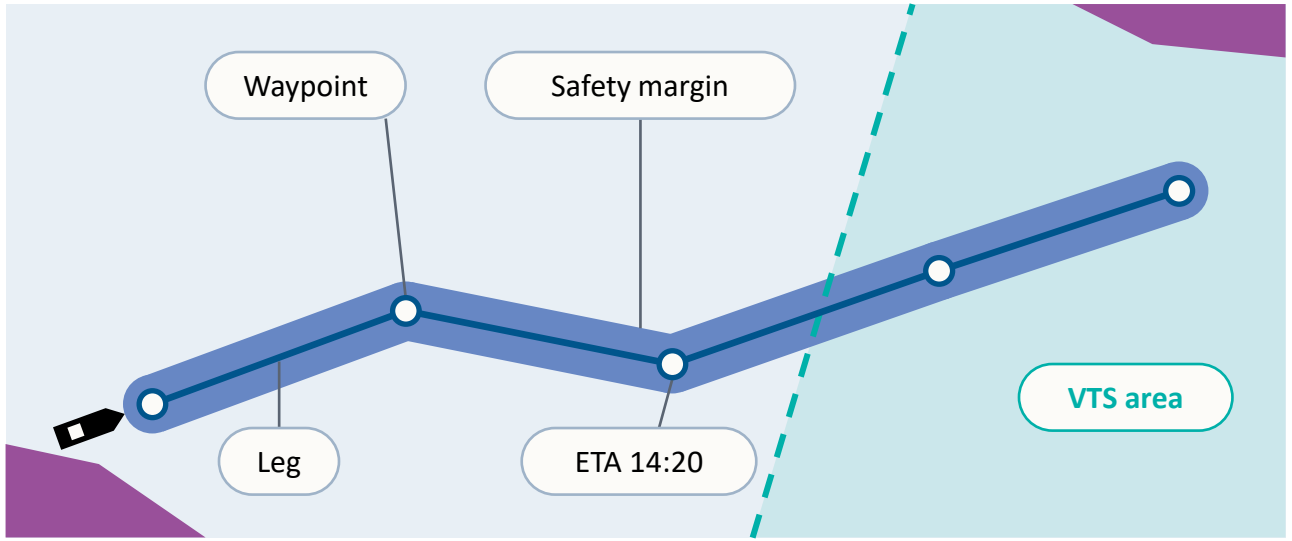
VTS ↔ VTS and other shore authorities

Edition	0.3.0 working draft, VTS60
Scope	Shore-to-shore exchange; not intended for ECDIS
Linked to	Revision of R0145 on IVEF (V-145)

Editions below 2.0.0 are test versions, for testing and evaluation only.

S-421 ROUTE PLAN (IEC 63173-1)

A ship’s route plan, shared as data



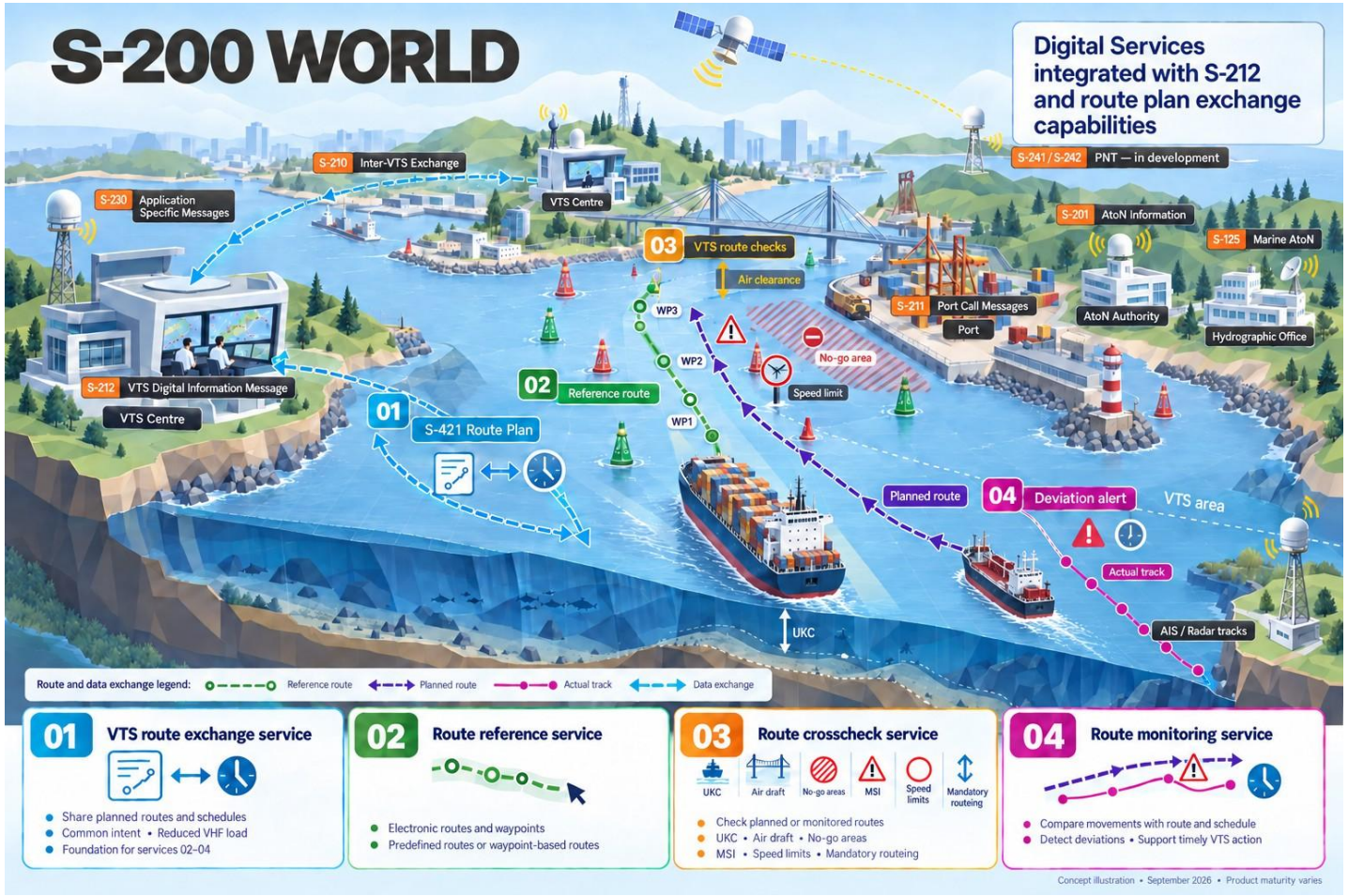
Ship · ECDIS on the bridge
Plans the route

Planned route (S-421)
Checked or recommended route
Sent securely, e.g. with SECOM

Shore · VTS, port, pilots
Checks depth, closures and traffic

Before, the shore guesses where a ship is going. **With S-421 it reads the plan**, and a problem can be dealt with before the ship gets there.

DIGITAL ROUTE EXCHANGE: FOUR VTS SERVICES (NCSR 13)



- **01 Route exchange**
  - ship shares planned route and schedule
- **02 Route reference**
  - VTS proposes reference routes
- **03 Route crosscheck**
  - UKC, air draught, no-go areas, MSI, speed limits, mandatory routeing
- **04 Route monitoring**
  - deviation from route or schedule triggers VTS action

For the VTS: intervention before the incident, not after

WRITTEN BY THOSE WHO WILL USE THEM

33	140	68	57
countries	participants	input papers	action items

IALA VTS Committee, 60th session (VTS60), 2026. Source: draft session report.

Input from administrations, ports, research institutes and industry in Asia, Europe and the Americas

Next session: **VTS61, Shanghai, 1–5 March 2027**

WHAT IS STILL OPEN

Data framework

S-100 support for streaming and message-based services

Change to IHO S-100 Part 14, aligned with IALA G1128

Trust and connectivity

Identity, certificates and service discovery

MCP feasibility study, 13:00 today

Operations and law

Status and recording of digital instructions; operator training

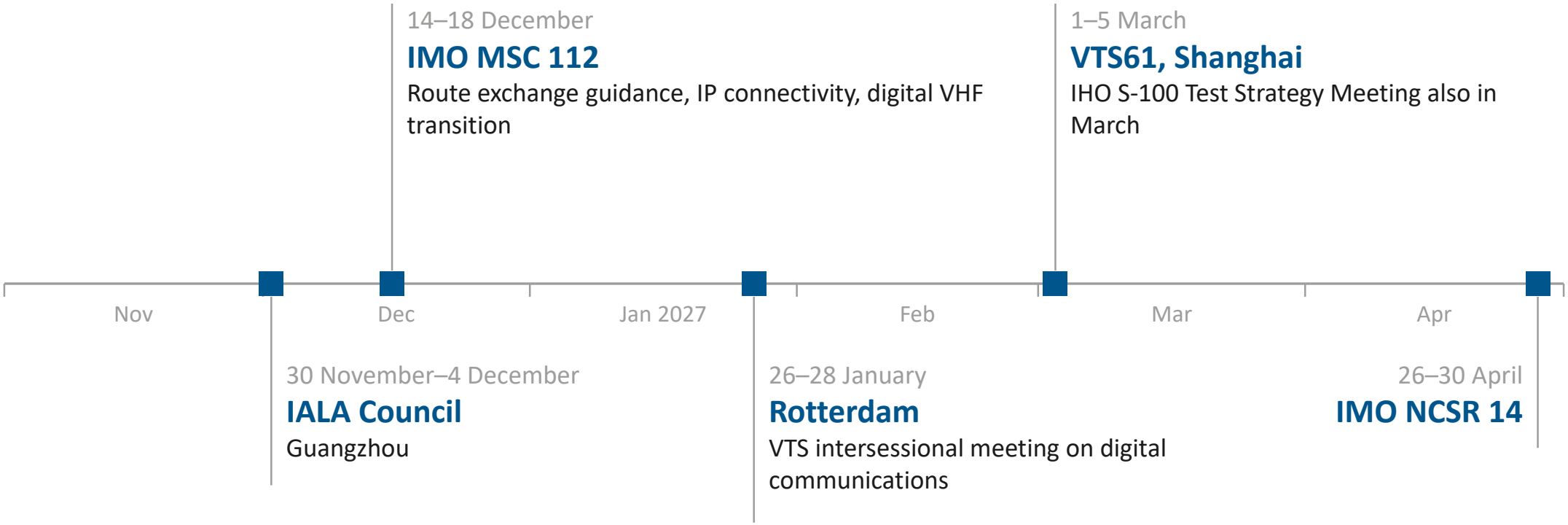
National rules; IALA G1199 and further guidance

Evidence

Showing what VTS and digital services contribute to safety

New VTS Committee task, adopted at VTS60

THE NEXT SIX MONTHS



Several meetings fall within weeks of each other. Input prepared now reaches all of them.

WHERE TO START

One use case, one service: traffic clearance or route exchange

Test	Try the service specifications on a testbed and report what does not work. Specifications are open on GitHub.
Join	Take part in the VTS Committee and its intersessional groups. VTS61 meets in Shanghai in March 2027.
Build capacity	IALA Academy and World-Wide Academy courses on S-200 and on VTS.

Plan the shore side against the ship-side date: S-100 ECDIS for new installations from 1 January 2029.

THANK YOU

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