

Input paper for the following Committee(s): check as appropriate

☐ ARM                      ☐ ENG                      ☐ PAP  
☐ ENAV                      ☒ VTS

Purpose of paper:

☐ Input  
☒ Information

Agenda item                      XX  
Technical Domain / Task Number <sup>2</sup>                      1.3.1  
Author(s) / Submitter(s)                      Intersessional Group 1.3.1

## **INFORMATION ON INTERSESSIONAL MEETING BY TASK 1.3.1 DEVELOP GUIDANCE ON VTS DIGITAL COMMUNICATIONS (OPERATIONAL ASPECTS)**

### **BACKGROUND**

During VTS56 it was decided that an intersessional meeting was needed to work on use cases which describe VTS functions from an operational perspective. These use cases are intended to come in an annex in the Guideline of VTS Digital Communications (Operational Perspective) as discussed in VTS56 by Taskgroup 1.3.1.

These use cases has to be worked out by the different technical working groups [TG2.5.2, TG2.8.1] working with the technical specifications for some of the services that together with other means will enable VTS digital communication. Hence members from TG 2.5.2 and TG2.8.1 also was invited.

The intersessional meeting was held in Rotterdam 15<sup>th</sup> and 16<sup>th</sup> of January 2025.

### **1 DISCUSSION**

The first day of the meeting started with a presentation of Mr Patrick Potgraven, head of the Smart Shipping department of the Ministry of Infrastructure and Watermanagement of The Netherlands. The presentation was about intention sharing by the track pilots on board inland barges. The conclusion of this presentation was that intention sharing makes navigation more safe because the skippers can anticipate on intended tracks of other inland barges with the system on board. Next step are tests where the track pilots also share their intentions with the VTS. The presentation is available on the IALA fileshare in the folder "pre VTS57 intersessional Task Group meetings" - > "Task Group for technical service specification".

After the presentation Mr Hans Huisman presented a concept of operation based on the work from TG1.3.1 in VTS56 and gave some suggestions how to proceed with the Route Exchange Services.

Afterwards the participants split into two groups with both technical and operational specialists in each groups. One group focused on use cases for VTS Information Service and the group focused on the use cases for Route Exchange Service.

The group working on VTS Information Service developed the following use cases for "VTS reporting Service";

- Use case 1; Vessel makes initial contact and receives reporting requirements
- Use case 2; Vessel sends complete report
- Use case 3; Vessel sends invalid report or no report at all

- Use case 4; Vessel sends report or report update
- Use case 5; Vessel enters to VTS area without subscription

And the group also developed use cases for “VTS Information Service”;

- Use case 1; VTS provides information
- Use case 2; VTS provides same information for multiple vessels at once
- Use case 3; VTS/Vessel asks questions or needs answer

The workgroup developed a description, the pre-conditions and the typical sequence of these use cases.

The use cases can be found on the IALA VTS Committee file share in the folder “Pre VTS57 Intersessional Task Group Meetings” -> “Task Group for Technical Service Specifications” under the title “Annex on VTS Digital Communication – use cases UPDATED IN ROTTERDAM”

The group working on the Route Exchange Services focussed on the use cases concerning the route exchange use cases from an operational point of view. In the session both WG1 (Ops) and WG2 (tech) were represented which was very useful to create a mutual understanding of operational realities and technical feasibilities.

As line of thinking during the session a Time Sequence Diagram (TSD) was used to structure how digital communication regarding route exchange might work in a future operation. After having discussed this TSD and modified it during the discussion, this TSD was mapped against the use cases already described in the draft Annex of Guideline of VTS Digital Communications.

Below a picture is included with on top the TSD describing a typical route message dialogue. Below the functions Route exchange, Route reference, Route crosscheck and Route monitoring are depicted. (Note: the dialogue in the TSD does not correctly correspond with the services below it. This is an action still to perform, if we can agree on this approach in VTS57).

The “Route exchange” is depicted in the figure as an overall function of all route exchange sub-functions “Route Reference”, “Route cross check” and Route Monitoring”.

#### Service vs Function

WG2 indicated that the word “Services” is very much a technical term and it is confusing (now and probably will be in the future) to use “services” in an operational guideline as well. It was agreed in the group that the phrase “Function” would be better to use, avoiding confusion. This is to be confirmed in VTS57, if agreed upon.

#### “Slot Management”

In the figure from VTS56, “Slot Management” was part of the “Route management” functions. During this meeting, based on the discussion how, where and when the route exchange would work it was concluded that “Slot management” serves a different goal than route exchange. Therefore “slot management” was removed from the route exchange function overview and it was suggested to make it as a separate function.

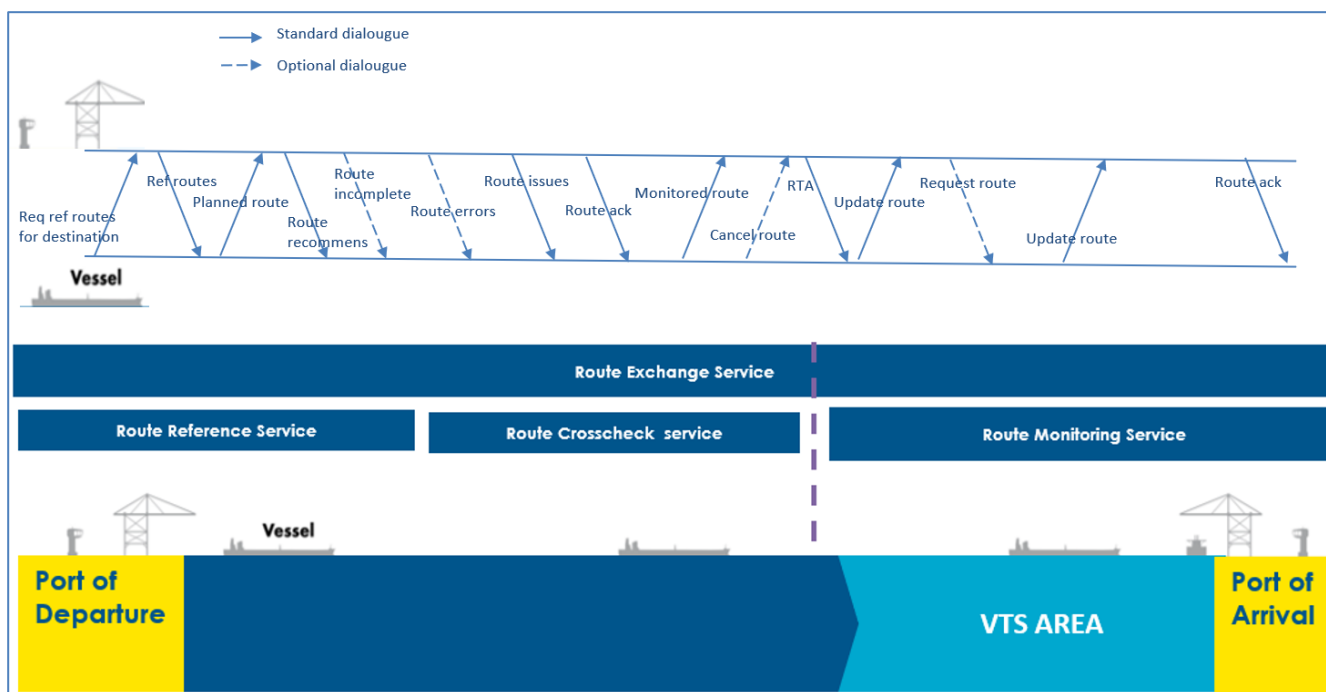


Figure 1 Time Sequence Diagram (TSD) for route exchange

During the meeting the following actions regarding “route exchange” were defined:

1. There are 2 use cases very similar” VTS approved route” and VTS personnel approves route.  
Action: check why these two exists and whether we should maintain them.  
Status: during the meeting checked: the first use case uses the “route exchange function” and the subfunction “cross check route” while the second use case uses the “route exchange” function only. So it concerns indeed two different cases.
2. The use case “VTS approves route” does not correspond with the mandate of a VTS operator. The word “approve” is not correct, suggestion is to use the word “acknowledge”. This means that the VTS operator has seen the route, checked it for issues and has no further recommendations or issues to communicate with the vessel.  
Action: replace “approve” with “acknowledge”.  
Status: The Annex will be updated accordingly for input to VTS57.
3. VTS can respond to the vessel sent route with:
  - a. Route recommendations (route modification readily to be used by the mariner, it included human readable explanation why this recommendation is given)
  - b. Route issues (route problems which require attention of the mariner, the message includes human readable explanation what the issue is toe be solved)
  - c. Route error (route problem on technical level, not requiring action human operator(s)?)
  - d. Route incomplete (the route has so many issues, the VTS operator can not explain all issues nor solve them by giving recommendations, therefor therefore this message is basically giving back the assignment to eth mariner to replan the route in a sound way)
  - e. Route acknowledge (the route has been reviewed by VTS and no issues are seen and need for recommendations is seen. This does not represent a clearance of the route though.)

Action: Include the 5 above mentioned possible VTS responses in the use case “VTS sends back route”.  
Status: Annex txt updated and input for VTS57.

4. Per use case it might be good to describe what is seen as a human action and what is part of an automated process.  
Status: to be discussed during VTS57
5. In the Time Sequence Diagram add an arrow with “cancel route”.  
Action: update the TSD (done already) and include the phrase “cancel route” in the existing use case “Vessel not arrive at VTS area”.  
Status: Annex updated, input for VTS57
6. The arrow “RTA” in the first version of the TSD does not correspond with normal VTS operation nor is in line with the route mechanism which uses “recommended” as modifications to a route.  
Action: “RTA” should be renamed in “recommended time over point”. In the text of the use case of a route recommendation it should mention providing a time over a waypoint as an option of a route modification.  
Status: text update will be made in the Annex, input for VTS57. The connection with Time Slot function is for VTS57.
7. The use case describing the vessel sending an up dated route should include the explanation of the “planned route” as being the first route to exchange and the “monitored route” as the route which is actually sailed.  
Action: update Annex use case text.  
Status: text update in the Annex, input for VTS57.
8. The Time Sequence Diagram can either be included in the body of the Guide line or in the Annex.  
Status: to be discussed during VTS57 and see txt suggestion in this information paper as input.

The picture in the Guideline depicting all the various services was modified as included below. This is intended as input for VTS57. Open for discussion but suggested as an explainer which functions exist and how they are grouped in support of digital communication for VTS. Below the two figures in the draft Guideline VTS56 are used and in red balloons comments made during this intersessional as input for VTS57.

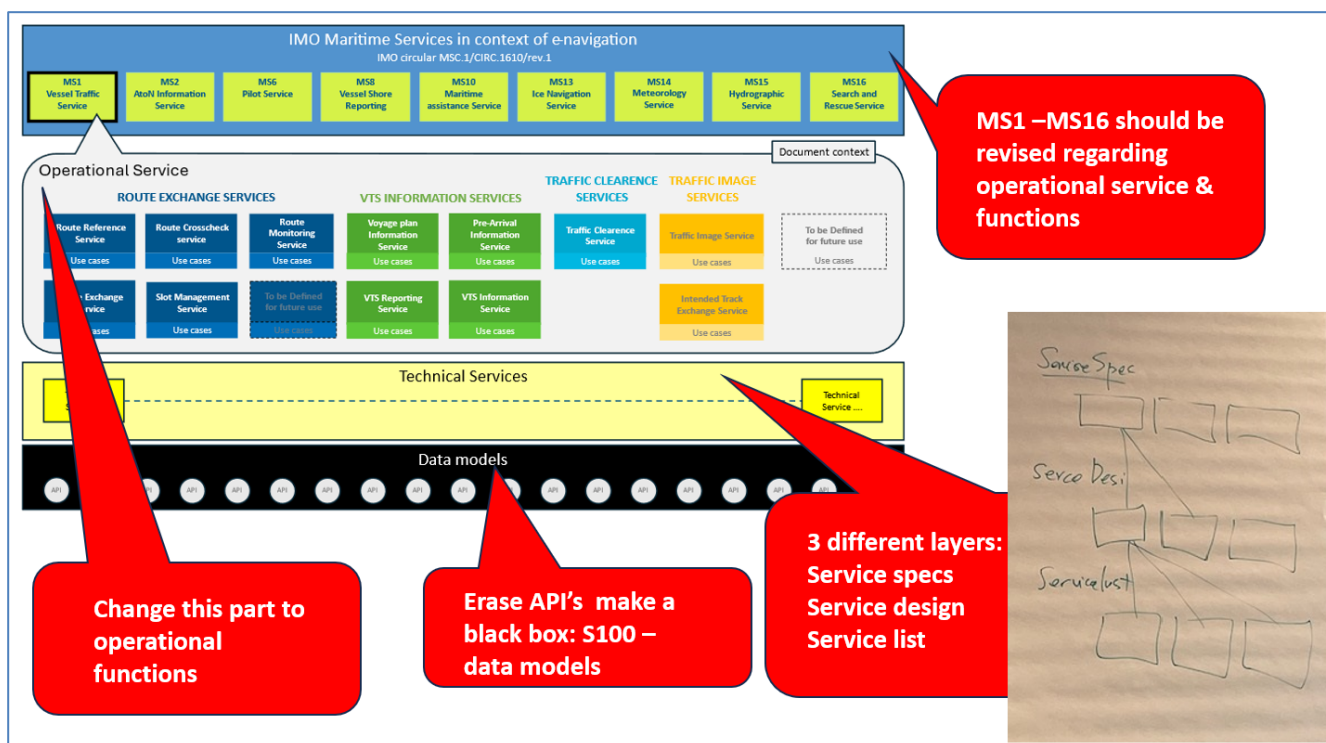


Figure 2 Input for VTS57: In red balloons comments from the intersessional in the VTS56 figure version.

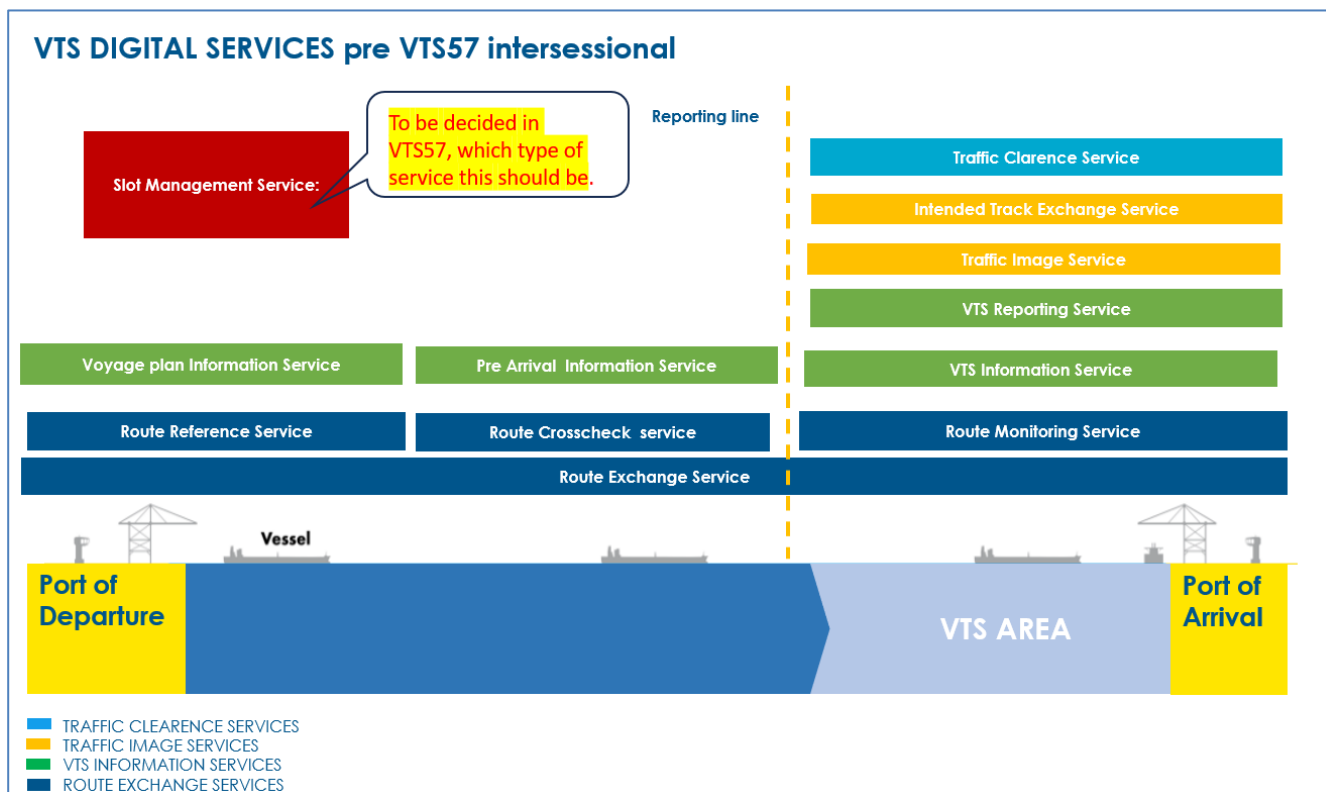


Figure 3 Input for VTS57: services (or functions) mapped on a vessel journey

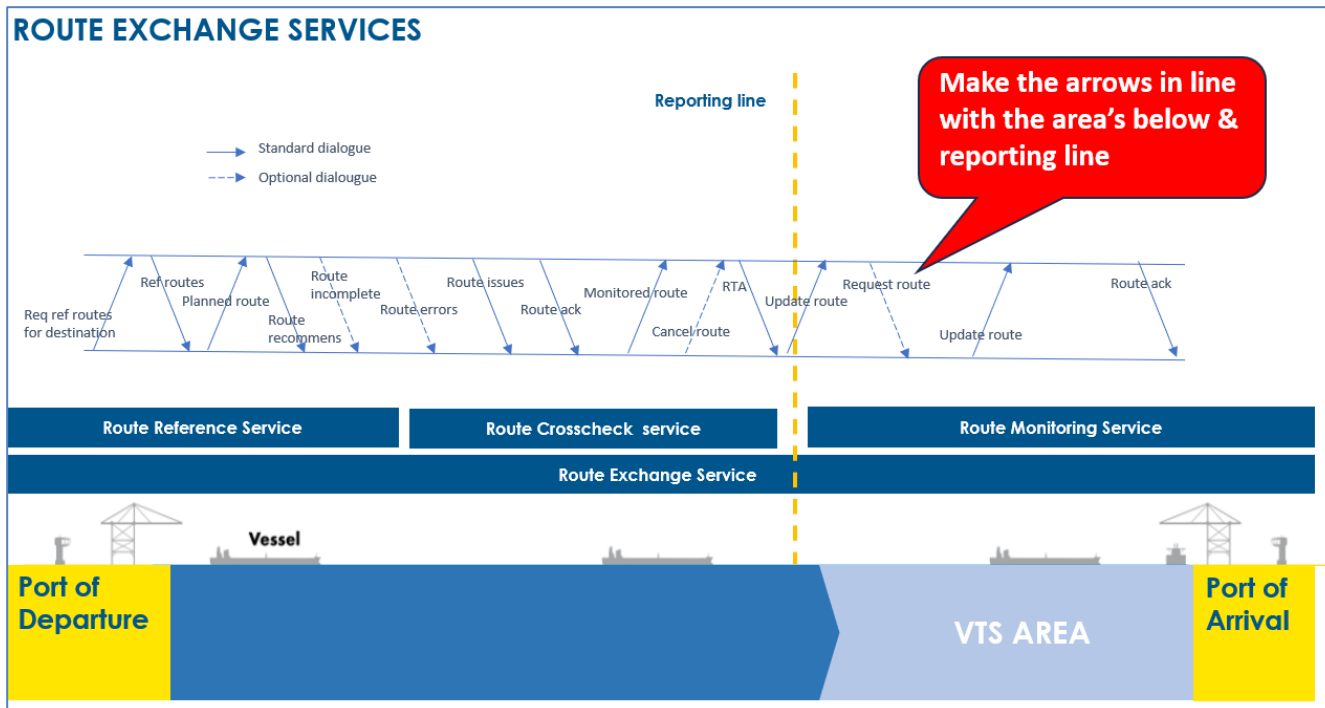
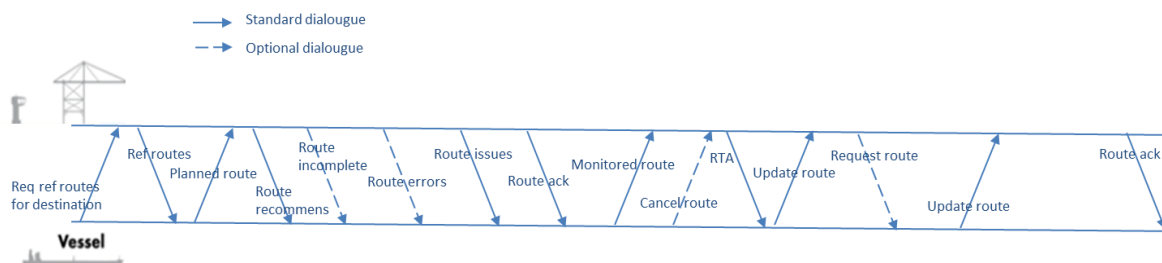


Figure 4 Input for VTS57: figure created during the intersessional, red balloon as next step to take

The next piece of text is intended to be included in either the Guideline or in the Annex of the Guideline, also to be discussed during VTS57:



The Time Sequence Diagram for the Route Functions show a typical message dialogue for a vessels' journey from departure port to its destination port. The diagram shows how the vessel (the bottom line) and the VTS (the top line) exchange route related messages. The sequence as depicted in the picture show a typical sequence but most messages will be used more often if it concerns a long journey. So this figure must be seen as an illustration of an example journey. Some messages are optional and will not be applied in a normal situation but are merely included in order to cover for situations where information is incomplete or required before it as become available. Those cases are depicted by dashed arrows in the diagram.

The dialogue includes route information exchanges, all as part of the Route Exchange Function and some are using sub functions such as "Route Reference Function", "Route Cross check Function" and "Route Monitoring Function".

In the Annex of this document, use cases concerning route exchange functions are described in more detail how these are foreseen to be applied in an operational setting. (Add use case numbers in the Time Sequence Diagram possibly.)

Participants at the meeting were:

| Name               | Affiliation                                       |
|--------------------|---|
| Maarten Berrevoets | Ministry of Infrastructure and Watermanagement NL |
| Bjørn Coster       | KNC   |
| ESA Kallio         | Fintraffic  |
| Maiju Kaski        | Fintraffic  |
| Juho Pitkanen      | Fintraffic  |
| Ramin Miraftabi    | Fintraffic  |
| Minsu Jeon         | IALA  |
| Wim Smets          |   |
| Malin Dreijer      | NCA   |
| Martijn Ebben      | Port of Rotterdam                                 |
| Milou Aerts        | Port of Rotterdam                                 |
| Hans Huisman       | MARIN   |
| Remi Hoeve         | Ministry of Infrastructure and Watermanagement NL |

## 2 ACTION REQUESTED OF THE COMMITTEE

The Committee is requested to:

- Note the work done during the intersessional meeting in Rotterdam.