Input paper: VTS47-3.1.16

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

**□** ARM **□** ENG **□** PAP **X** Input

**□** ENAV **X** VTS **□** Information

Agenda item 3

Technical Domain / Task Number Technology/2.3.1(Data Models and Data Encoding)

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# VTS-INS product specification

# Summary

This document is a report of the activities undertaken and gives the status of the draft product specifications that has resulted from these efforts. The Annex 1 (VTS47-3.1.16.1) is the draft product specification that has been developed.

## Purpose of the document

It is the hope of Korean Register that the VTS Committee accept the VTS-INS draft product specification as an input to further develop this product specification into an IALA Product Specification and that an S-21x number is assigned to the document.

## Related documents

VTS46-13.3.1 - Maritime Service Portfolios: Digitising Maritime Services

VTS46-13.3.1.1 - Appendix 1 MS 1-3\_merged revised WG 1 VTS46

VTS46-13.3.8 - Develop a Data Model for Digital Information Services for VTS

VTS46-13.3.9 - Annex A - VTS Digital Services

# Background

The Korean Register is participating in the SMART-Navigation project (Korean e-Navigation Project), which is led by the Ministry of Oceans and Fisheries (MOF). As a part of SMART-Navigation Project, Korean Register is interested in developing VTS Information Service product specification. At VTS 46, Korean Register offered to develop a draft product specification for Vessel Traffic Service Information Service that could support the development of Maritime Service 1 - VTS Information Service (INS).

# Discussion

The team embarked on several rounds of scoping exercises to establish limit of scope for development of INS PS and to data discover for sources of information that can positively influence the data model and product specification to be as comprehensive as possible. The goal for the development has been defined as “Development data model for general information exchange between Vessel (Sailing in VTS area) and VTS such as berthing / anchoring”. Through these scoping exercises it was found that input from VTS46, in particularly VTS46-13.3.1, VTS46-13.3.1.1, VTS46-13.3.8 & VTS46-13.3.9 proved very useful in shaping the scenarios. The team also considered V‐127 - Operational Procedures for Vessel Traffic Services, and A.918(22) IMO Standard Marine Communication Phrases in the development. These inputs gave the team a comprehensive source of data related VTS INS that was supplemented by expert advice from Korean VTS operators. Table 1 shows the development rounds that went into selecting data considered in scope.

Table 1 - VTS-INS Scenario Developments

## Product Specification Development

The team developed table exercises to define use cases for where VTS INS data exchange would occur and what type of data would be exchange at the various intervals within such use cases. The team employed sequence diagrams to investigate the theoretical data exchange between vessels and VTS INS service. An example of the pre-arrival report can be seen below, in Figure 1.

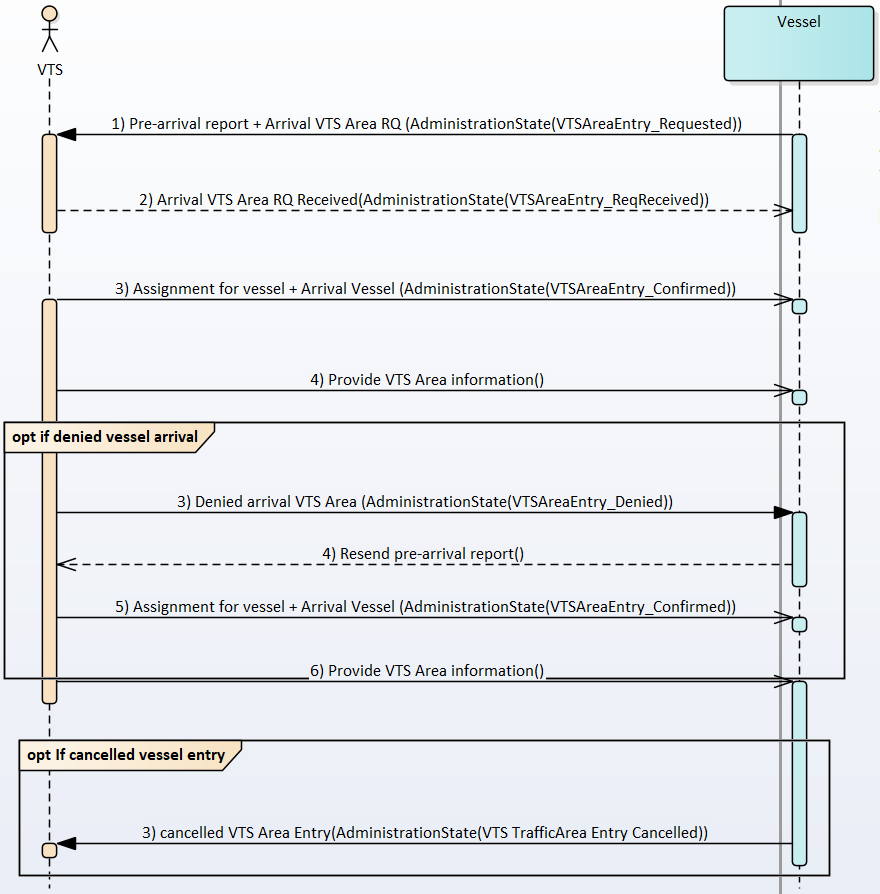


Figure 1 - Pre-arrival report sequence diagram

The sequence diagrams were utilized for creating flow diagrams which mapped each of the different phases of different types of voyages into, within and exiting a VTS area. These flow diagrams could then be mapped to data elements of what types of data were needed for communication at the various points of the voyage. These data elements where the basic data elements that formed the components of the data model. The flow diagram with related data elements mapping for the Pre-Arrival Report is found below in Figure 2, and represent an example of this part of the Product Specification development.

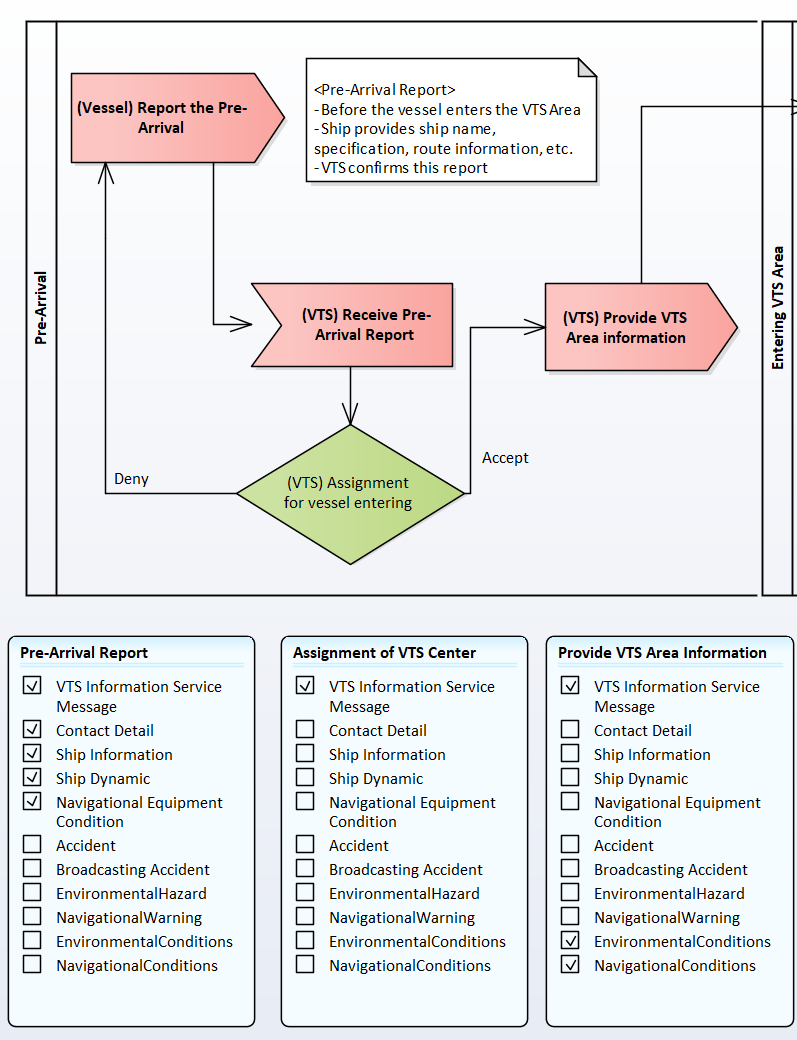


Figure 2 - Pre-Arrival process and information mapping

Through the exercises it was discovered that INS overlap somewhat with S-211 Port Collaborative Decision Making, and the team discussed how to resolve this overlap. The proposed solution developed by the team is to assume that S-211 and VTS INS could both coexist and VTS INS could be implemented in areas where S-211 is not used. This led the team to conclude that some overlap with S-211 data model was possible, and that where the two services coexist the preference should be given to S-211 where information overlap exist, and elsewhere that VTS INS will be used. S-211 has therefore inspired some parts of the data model, such as pre-arrival request and response.

Use cases and sequence diagrams were used to develop a rough data model, which was checked against use cases for gaps where the data model was amended to close gaps in several rounds of review. It is envisioned that VTS-INS will make use of warning and information services, such as S-124 Navigational Warnings, S-412 Weather Warnings[[1]](#footnote-1) and S-421 Route Exchange. It was discussed if these data models should be embedded into the VTS-INS data model, or referenced, and the team concluded that reference was the more flexible approach, because this allow full use of these services without having to plan for concurrent product specification maintenance should one of these product specifications change. This mechanism may also provide a good base for extending references to new product specifications without having to amend VTS-INS data model.

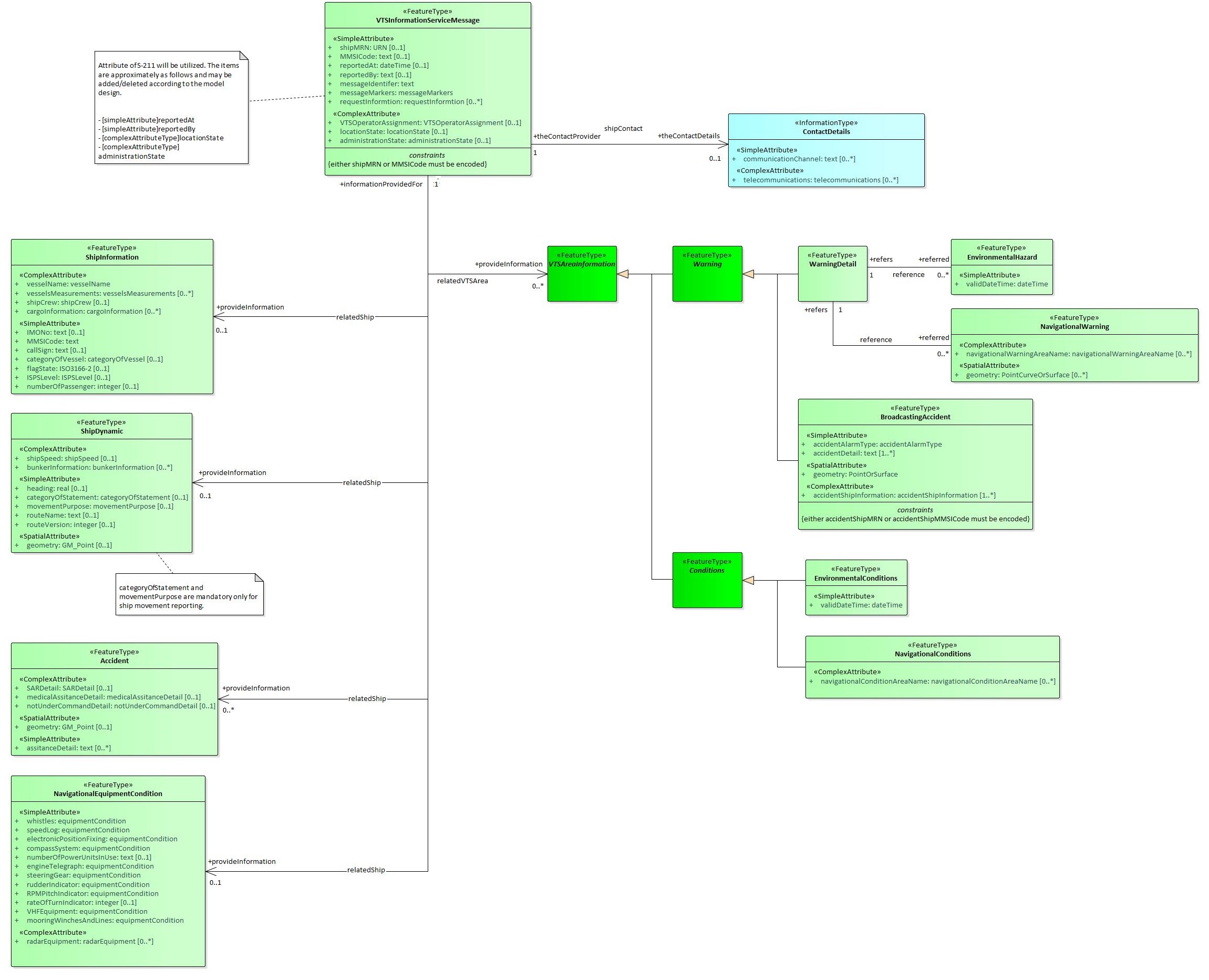


Figure 3 - VTS-INS draft data model

The draft Product Specification is available in Annex 1 to this Input Paper. The draft represents the view of Korean Register as collected during the drafting exercise and it is the opinion of the authors of this input paper that this is a good first draft to stimulate further discussion and development. The data model is comprehensive and is in a condition where the general ideas are captured for review and comment by other stakeholders. One major discussion item that Korean Register would welcome input on is the method of data dissemination in the exchange between VTS and in-scope vessels. The outcome of data dissemination discussions will frame the direction of the further development of the draft VTS-INS Product Specification.

# References

1. VTS46-13.3.1 - Maritime Service Portfolios: Digitising Maritime Services
2. VTS46-13.3.1.1 - Appendix 1 MS 1-3\_merged revised WG 1 VTS46
3. VTS46-13.3.8 - Develop a Data Model for Digital Information Services for VTS
4. VTS46-13.3.9 - Annex A - VTS Digital Services
5. V‐127 - Operational Procedures for Vessel Traffic Services
6. A.918(22) IMO Standard Marine Communication Phrases
7. S-211 Port Collaborative Decision Making Edition 1.0.0
8. S-124 Navigational Warnings
9. S-412 Weather Warnings[[2]](#footnote-2)
10. S-421 Route Plan Exchange

# Action requested of the Committee

The Committee is requested to:

1. Note this paper
2. Accept the VTS-INS product specification draft 0.5.2 as input to further the development of an IALA VTS-INS product specification
3. Initiate the process to assign an S-21x number to the VTS-INS product specification
4. Advice how Korean Register can assist with further developing the VTS-INS product specification

1. Title is unconfirmed following a recent split of S-412 into 3 separate specifications. [↑](#footnote-ref-1)
2. Title is unconfirmed following a recent split of S-412 into 3 separate specifications. [↑](#footnote-ref-2)