

*Document No:*

*Title: Service instance description for the Winter Navigation Service*

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# Document status

## Authors

Name	Organisation
Tuomas Martikainen	Finnish Transport Agency
Antti Koskimaa	Atostek

## Document History

Version	Date	Initials	Description
0.1	2017-07-06	TM	Initial version
0.2	2017-08-10	AK	Corrections, additions
1.0	2017-12-19	TM	First released version

## Review

Name	Organisation
Mikael Olofsson	Swedish Maritime Administration
Björn Andreasson	Swedish Maritime Administration

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# 1 Introduction

## 1.1 Purpose of the Document

The purpose of this service instance description document is to provide an operational description of the Winter Navigation Voyage Information Service.

Winter Navigation Voyage Information Service ("service", "WINVIS") provides official ice routes and assistance in ice conditions by exchanging RTZ routes and text messages using VIS Rest Design.

## 1.2 Intended Readership

This service instance description document is intended to be read by service consumers in charge of selecting the service instance to consume.

## 2 Service Instance Identification

The purpose of this chapter is to provide a unique identification of the service instance and describe where the service is in terms of the engineering lifecycle.

<b>Name</b>	<b>Winter Navigation Service</b>
<b>ID</b>	urn:mrn:stm:service:instance:fta:winvis
<b>Version</b>	1.0
<b>Service Specification ID</b>	urn:mrn:stm:service:specification:sma:vis
<b>Service Specification Version</b>	2.2
<b>Service Design ID</b>	urn:mrn:stm:service:design:sma:vis-rest-2.2
<b>Service Design Version</b>	2.2
<b>Description</b>	Provides ice routes and information on icebreaker assistance. Supports exchange of STM Text Message version 1.3 and RTZ 1.1 with STM extensions.
<b>Keywords</b>	winter, winter navigation, winvis, ice, iceroute, iceroutes, icebreaker, dirway, dirways, VIS, Voyage Information Service
<b>Service Type</b>	Winter Navigation
<b>Provider</b>	Finnish Transport Agency urn:mrn:stm:org:fta
<b>Status</b>	Released for production

## 3 Service Instance Details

### 3.1 Overall description

Winter Navigation Service provides ships ice routes and detailed information regarding icebreaker assistance. Information will be provided from ice-coordination centres and directly from icebreakers.

In ice-covered areas, the coordinating icebreaker provides waypoints, which indicate the assistance route. The waypoints are set in order to help vessels navigate more easily and safely in ice conditions and in order to enable vessels to navigate unassisted for as long as possible. Vessels are, however, at all times responsible for their own safe navigation.

General ice waypoints for all ships will be available for all vessels for route planning. Ships can also subscribe to receive all new ice routes. Ice routes won't change after they are published, but they can only be removed when they are not valid anymore.

Icebreaking authorities recommend that all ships that are bound for ports in ice-covered water send their voyage plan to the service. Information will be used for monitoring of the vessels voyage in ice conditions and for planning of icebreaker assistance.

When needed, icebreakers will send detailed recommended ice routes to vessels. These recommendations can be either short alternative segments for the planned route or the modifications in the vessels original route. After receiving the information, vessels navigational personnel can update the current voyage plan and send it to all interested parties.

In addition, icebreakers and coordination centres can send further information using text messages. This can include information such as; the position, name and VHF working channel of the icebreaker, recommended time of arrival to icebreaker meeting point, assistance order or other navigational instructions.

### 3.2 Service coverage

The service covers the area's leading to Finnish and Swedish ports in Baltic Sea, including Gulf of Finland and Gulf of Bothnia



### 3.3 Required input

The incoming RTZ must be an RTZ version 1.1 with STM Extension according to the VIS Design 2.2.

Incoming text messages must be in STM TXT v1.3 format. Text messages must include a reference to vessels voyage plan [informationObjectReferenceId].

### 3.4 Output from the service

Outgoing voyage plans are in RTZ v1.1 STM format. If vessels original RTZ file is modified by the service, all original RTZ-extensions are included in the returned file.

The service will not modify the schedules in the route, but the original schedules will be sent back untouched, even when waypoints are modified, added or removed.

Outgoing text messages are in STM TXT v1.3 format.

### 3.5 Functional description

Winter Navigation Service is searchable through Maritime Connectivity Platform Service Registry.

#### 3.5.1 Voyage planning

- Vessels request ice routes from the service [getVoyagePlans]
- WINVIS returns all active ice routes
- Vessels can subscribe to receive all changes in ice routes and all new routes [subscribeToVoyagePlans]

#### 3.5.2 During vessels voyage

- Vessels send WINVIS it's voyage plan
- WINVIS receives the voyage plan and uses it for monitoring of vessels in ice covered waters. Additionally WINVIS subscribes to the further changes in the route.
- WINVIS sends vessel recommended route to the vessel

##### 3.5.2.1 Alternative 1

- WINVIS modifies voyage plan received from vessel and sends the complete route plan back to the vessel.
- Vessel receives the recommendation and accepts or rejects suggested route.

##### 3.5.2.2 Alternative 2

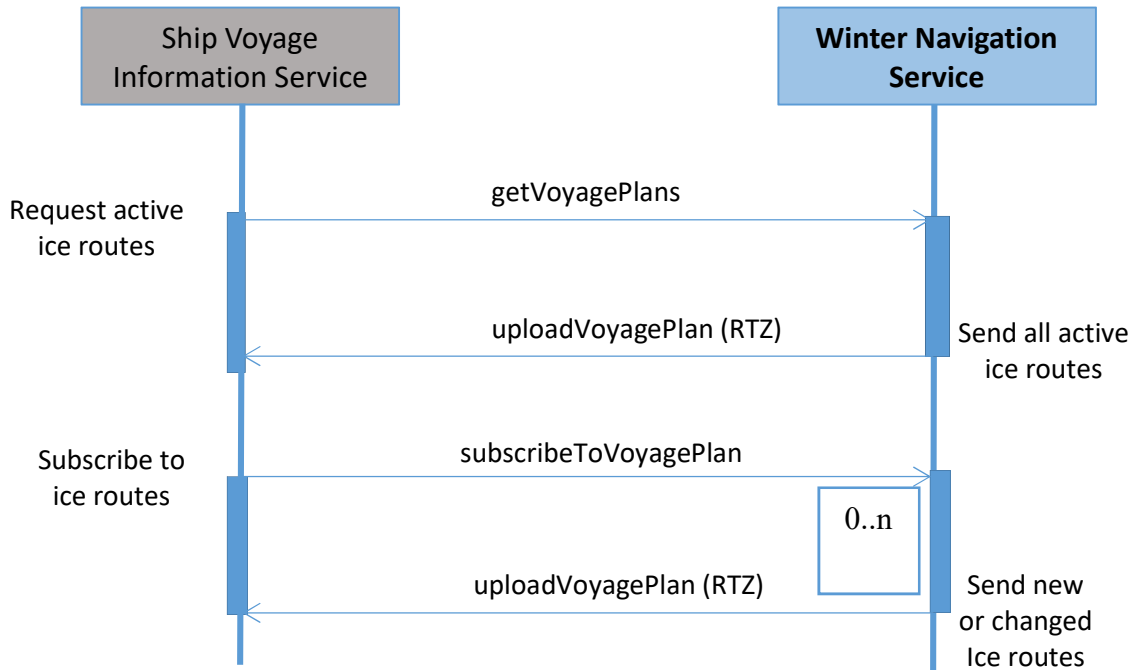
- WINVIS creates and sends a new alternative part for the route
  - Vessel receives the route segment and modifies route plan in on-board system.
- WINVIS sends a text message to vessel. Information can include, e.g.:
    - Recommended time of arrival to icebreaker meeting point, incl. reference to geographical point
    - Information on general instructions on icebreaker assistance
    - Detailed information regarding icebreaker assistance; such as, assistance order, convoy information, towing arrangements.



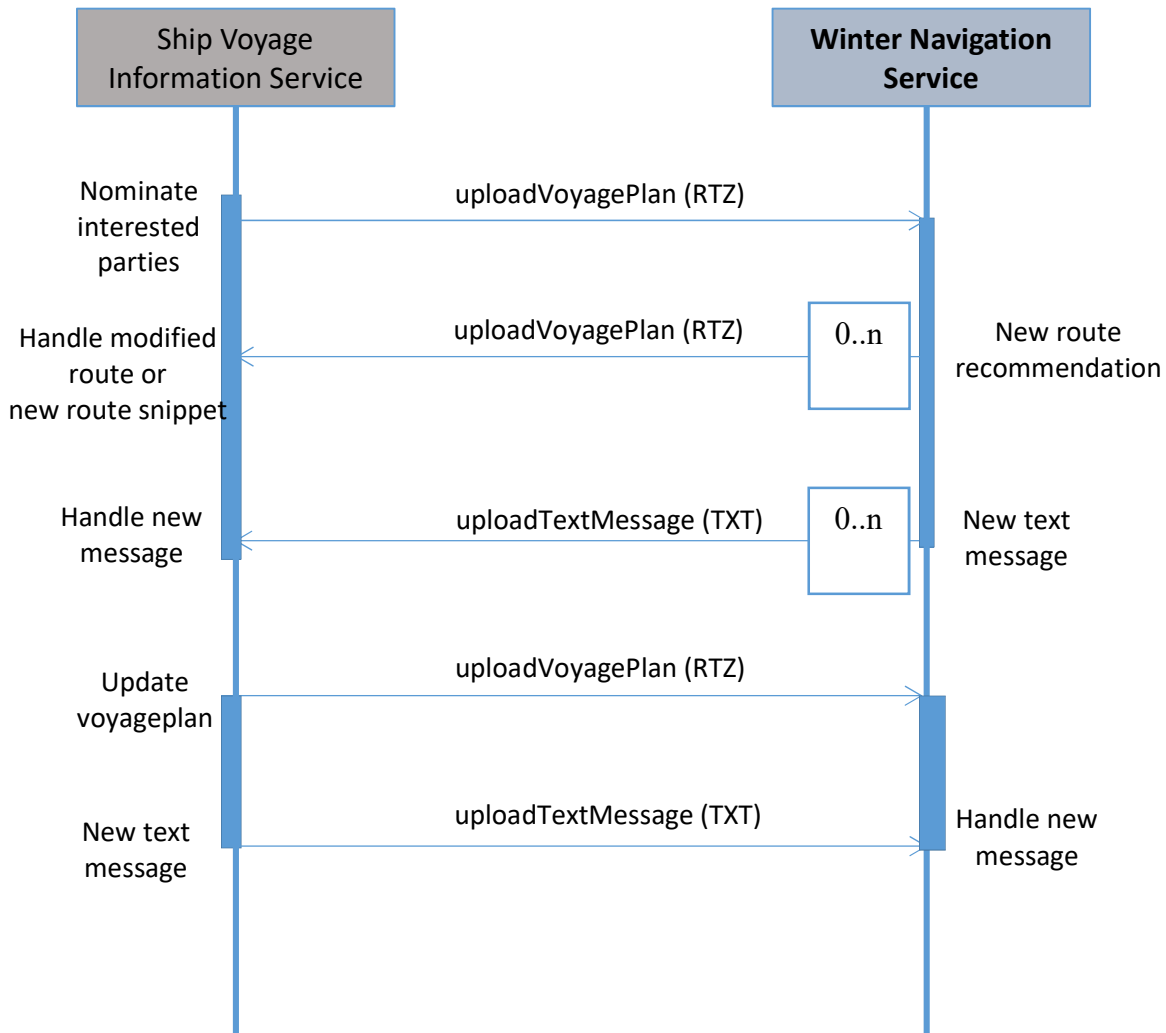
### 3.6 Interaction diagram

Interacting with Winter Navigation Service is done through the Voyage Information Service interface. For further details about the interface, see the VIS documentation.

#### 3.6.1 Voyage planning



### 3.6.2 During vessels voyage



### 3.7 Allowed methods

The Winter Navigation Service is based on the Voyage Information Service design version 2.2, but handles only a set of the methods.

WINVIS handles interaction on the following methods;

Operation	Method	Allowance/handling	Comment
<b>Receive voyage plan in RTZ</b>	uploadVoyagePlans incl ACK	<b>Yes</b>	RTZ v1.1 with STM extensions v. 1.0.0
<b>Receive STM text messages</b>	uploadTextMessage incl ACK	<b>Yes</b>	STM TXT v1.3
<b>Receive area (S124) messages</b>	uploadArea	No	
<b>Return list of voyage plans on request</b>	getVoyagePlans	<b>Yes</b>	RTZ v1.1 with STM extensions v. 1.0.0
<b>Accept subscription request</b>	subscribeToVoyagePlans	<b>Yes</b>	RTZ v1.1 with STM extensions v. 1.0.0
<b>Accepts request for list of subscribed voyages</b>	findSubscriptionsToVoyagePlans	<b>No</b>	
<b>Accept subscription delete request</b>	removeVoyagePlanSubscription	<b>Yes</b>	

The Winter Navigation Service does not have any kind of access control in the getVoyagePlans interface since all the ice routes are public.

### 3.8 Constraints

The service has the following constraints.

Operation	Method	Constraint
<b>Receive active ice routes</b>	getVoyagePlans	UVID parameter is ignored. One can get all the active ice routes
<b>Subscribe to ice routes</b>	subscribeToVoyagePlans	UVID parameter is ignored. One can only subscribe to all the active ice routes
<b>Receiving text messages</b>	uploadTextMessage	The text message must have a reference to a route that is uploaded to the

		service.
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## 4 Release Notes

Version	Date	Notes
1.0		The service is release in its first version.

## 5 References

Nr.	Version	Reference
[1] Service Documentation Guidelines	01.00	E2 Deliverable D3.4 - Service Documentation Guidelines
[3]		
[4]		

## 6 Acronyms and Terminology

### 6.1 Acronyms

Term	Definition
<b>WINVIS</b>	Winter Navigation Voyage Information Service
<b>DIRWAY</b>	Recommended ice waypoints

### 6.2 Terminology

Term	Definition
<b>Ice route</b>	Same as DIRWAY
<b>Service</b>	The provision of something (a non-physical object), by one, for the use of one or more others, regulated by formal definitions and mutual agreements. Services involve interactions between providers and consumers, which may be performed in a digital form (data exchanges) or through voice communication or written processes and procedures.
<b>Service Consumer</b>	A service consumer uses service instances provided by service providers. All users within the maritime domain can be service customers, e.g., ships and their crew, authorities, VTS stations, organizations (e.g., meteorological), commercial service providers, etc.
<b>Service Instance</b>	One service implementation may be deployed at several places by same or different service providers; each such deployment represents a different service instance, being accessible via different URLs.
<b>Service Instance Description</b>	Documents the details of a service implementation (most likely documented by the service implementer) and deployment (most likely documented by the service provider). The service instance description includes (but is not limited to) service technical design reference, service provider reference, service access information, service coverage information, etc.
<b>Service Interface</b>	The communication mechanism of the service, i.e., interaction mechanism between service provider and service consumer. A service interface is characterised by a message exchange pattern and consists of service operations that are either allocated to the provider or the consumer of the service.
<b>Service Operation</b>	Functions or procedure which enables programmatic communication with a service via a service interface.
<b>Service Provider</b>	A service provider provides instances of services according to a service specification and service instance description. All users within the maritime domain can be service providers, e.g., authorities, VTS stations, organizations (e.g., meteorological), commercial service providers, etc.

