Appendix Revisions

International Association of Marine Aids to Navigation and Lighthouse Authorities

***AISM***Association Internationale de Signalisation Maritime ***IALA***

10, rue des Gaudines

78100 Saint Germain en Laye, France

Telephone: +33 1 34 51 70 01 Fax: +33 1 34 51 82 05

e-mail: [contact@iala-aism.org](mailto:iala-aism@wanadoo.fr) Internet: [www.iala-aism.org](http://www.iala-aism.org)

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**Basic Service Categories definitions and Minimum Set of Required Basic Services**

**[Working Towards] Edition 1**

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**Initial Version**

Revisions to this Appendix 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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Appendix 1 -

**Basic Service Categories definitions   
and Minimum Set of Required Basic Services**

# Introduction

This Annex defines

* the Basic Services Categories for the shore-based e-Navigation system, both External Basic Services Categories and Internal Basic Service Categories
* some Basic Services, which (virtually) every service has, i.e. a minimum set of Basic Services.

# Normative definition of External Basic Services Categories (E-BS)

## Overview

The External Basic Services (E-BS) are categorized in accordance with their interaction behavior: All External Basic Services are arranged in *External* *Basic Service Categories (E-BS Category)*  in accordance *with the net data flow behavior* of the External Basic Service under consideration. The categories simplify the further description of the various aspects of the service regarding the External Basic Service under consideration. The Figure A1.1 shows the External Basic Service Categories in overview.

**Figure A1.1: External Basic Service Categories E-1 to E-4**

**E-BS Category E-1 for service with (left) / without (right) a Physical Layer:**



**E-BS Category E-2 for with (left) / without (right) a Physical Layer:**



**E-BS Category E-3 with (left) / without (right) a Physical Layer:**



**E-BS Category E-4 with (left) / without (right) a Physical Layer:**



Besides the recognized External Basic Services shown in Figure A1.1 there may be defined additional E-BS in the future.

## Commonalities between External Basic Service Categories

While the External Basic Service Categories introduced above exhibit clear distinctions in regard to the data flow mechanisms, some other *structural* features are common or similar. In order to avoid repetition, these commonalities will be introduced in this paragraph and are referenced by the appropriate definition of an individual E-BS Category.

When there are differences, they will be shown in the appropriate paragraphs. Eventually, the Interaction and Data Storage Model of the service (as explained in Annex 4) will show the differences regarding data flow mechanisms in detail. Also, other models for the service under consideration building on that will also show the differences, e. g. the Interfacing Model (Annex 5), Internal Time Latency Model (Annex 6), Test Model (Annex 8), and the functional component descriptions (Annexes 9-11).

### Commonalities regarding the context of the E-BS Category

Depending on the relative place of the service under consideration within the common shore-based e-Navigation system architecture, there can be recognized commonalities regarding the actors/entities the service interacts with, i.e. its context. These commonalities depend on whether or not the service under consideration has a Physical Layer (compare Structure Model), or not.

#### Service under consideration *with* Physical Layer

The following figure describes the context for services *with* a Physical Layer.



Figure A1.2: Context of External Basic Services Categories E-x *with* a Physical Layer

--- Explanation:

* + Interaction with Physical Link (to the shipping side, outside the shore-based e-Nav system)
  + Requesting service
  + Regularly no requested service (by own service)
  + Importance of Time Base

--- Illustration using the AIS Service as an example for the context of External Basic Services of a service with a Physical Layer:



Figure A1.3: Illustration by using some External Basic AIS Service Categories

#### Service under consideration *without* Physical Layer

The following figure describes the context for services *without* a Physical Layer.



Figure A1.4: Context of External Basic Services Categories E-x *without* a Physical Layer

--- Explanation:

* + Interaction with “requested service” (instead of Physical Link)
  + Requesting service
  + Importance of Time Base

--- Illustration:

--- create a new picture

### Mapping of External Basic Service Categories to functional component description

--- introduction text

#### Service under consideration *with* Physical Layer



Note: time base not shown for sake of simplicity

Figure A1.5: Resulting functional component description for BS Category E-x

PSS: see Annex 9

LSS: see Annex 10

SM: see Annex 11

#### Service under consideration *without* Physical Layer



Note: time base not shown for sake of simplicity

Figure A1.6: Resulting functional component description for BS Category E-x for a service without Physical Layer

## Definition of External Basic Service Category E-1

The data flow direction is from

1. the Physical Link(s) in the case of a service with a Physical Layer, or
2. the Requested Service in the case of a service without a Physical Layer

to the Requested Service.

The data is throughput on a *one-by-one* basis to the Requesting service, as data is received from either the Physical Link(s) or the Requested service.

The External Basic Service Category E-1 follows the common description above.

## Definition of External Basic Service Category E-2

The data flow direction is from the Requesting Service to

1. the Physical Link(s) in the case of a service with a Physical Layer, or
2. the Requested Service in the case of a service without a Physical Layer.

The data is throughput on a *one-by-one* basis, as data is received from the Requesting service.

The External Basic Service Category E-2 follows the common description above.

## Definition of External Basic Service Category E-3

The (configuration) data flow direction is from the service under consideration to

1. the Physical Link(s) in the case of a service with a Physical Layer, or
2. the Requested Service in the case of a service without a Physical Layer

initiated by a specific trigger request from the requesting service.

After reception of the trigger request the data flow from the service under consideration is maintained for a configured period of time (even indefinitely), or until an overriding trigger request is received by the requesting service.

The External Basic Service Category E-3 follows the common description above.

## Definition of External Basic Service Category E-4

External BS Category E-4 is made available to the requesting service by a specific trigger request, while there were preparatory data collecting, processing, and analyzing beforehand. The service under consideration – upon reception of the trigger of the requesting service - then provides data to it from its internal (centralized) data storage. The trigger may request a one-shot or a continuous data provision.

In colloquial terms, *this External BS Category E-4 allows a requesting service to “tap into” the internal (centralized) data storage of the service under consideration*.

The data provided upon request by this External BS Category E-4 typically is data *about* the entity of interest gained by means to gather or create that “meta data” available to the service under consideration. This is a fundamental difference to the External BS Categories E-1 to E-3 where the data exchanged is created *by*, received *from* or transmitted *to* the entity of interest.

The *entity of interest could be for example a Physical Link as such*, and the data sent to the requesting service containing the relevant parameters of the Physical Link is established by the service under consideration (in the case of a service with a Physical Link). This requires the interaction of the Physical Layer of that service under consideration with the Physical Link; however the goal of that interaction is to determine the status of the Physical Link as such (e.g. by measurements), as opposed to receive/transmit data via the Physical Link.

Another example may be *data analyzing results* internally available to the service under consideration. There may be different level of data analyzing results to be available internally.

The External Basic Service Category E-4 follows the common description above as far as the context of the BS Category E-4 is concerned. The mapping of the External BS Category to the functional component description deviates from the common description as follows:

**Mapping of External BS Category E-4 to functional component description for the case of a service under consideration *with* a Physical Layer:**



Note: time base not shown for sake of simplicity

Figure A1.7: Resulting functional component description for External BS Category E-4

**Mapping of External BS Category E-4 to functional component description for the case of a service under consideration *without* a Physical Layer:**



Note: time base not shown for sake of simplicity

Figure A1.8: Resulting functional component description for External BS Category E-4

## Definition of future External Basic Service Categories

Future External Basic Service Categories E-5ff are defined here in an updated version of this Annex.

# Normative definition of Internal Basic Services Categories (I-BS)

## Overview

--- draft some intro paragraphs

**Figure A1.xxx: Internal Basic Services Categories I-1 to I-2**

**Internal BS Category I-1 (for services with a Physical Layer, only):**



**Internal BS Category I-2 (for services with a Physical Layer, only):**



**Figure A1.xxx: Internal Basic Services Categories I-3 to I-4**

**Internal BS Category I-3 (for services wit a Physical Layer, only):**



**Internal BS Category I-4 (for services with Physical Layer, only):**



**Figure A1.xxx: Internal Basic Services Categories I-5 to I-6**

|  |  |
| --- | --- |
| **Internal BS Category I-5**  **(for services with Physical Layer, only)** | **Internal BS Category I-6** |

## Definition of Internal Basic Service Category I-1

BAS Category I-1 are initiated by the technical operation personnel and delivers data from the AIS service to mobile AIS stations.



Figure 34: Data flow BAS Category I-1

**Context of the BAS Category I-1**

The following figure describes the context of internal BAS Category I-1, i.e. the relevant actors/entities of the e-Navigation architecture involved.



Figure 35: BAS Category I-1

**Mapping of internal BAS to functional component description for BAS Category I-1**



Figure 36: Resulting functional component description for BAS Category I-1

## Definition of Internal Basic Service Category I-2

BAS Category I-2 are initiated by the technical operation personnel and delivers data continuously from the AIS service to a requested e-Navigation service as well as to mobile AIS stations.



Figure 41: Data flow BAS Category I-2

**Context of the BAS Category I-2**

The following figure describes the context of BAS Category I-2, i.e. the relevant actors/entities of the e-Navigation architecture involved.



Figure 42: BAS Category I-2

**Mapping of internal BAS to functional component description for BAS Category I-2**



Figure 43: Resulting functional component description for BAS Category I-2

## Definition of Internal Basic Service Category I-3

BAS Category I-3 is initiated by the technical operation personnel and delivers data from the AIS VDL to the technical operation personnel.



Figure 45: Data flow BAS Category I-3

**Context of the BAS Category I-3**

The following figure describes the context of BAS Category I-3, i.e. the relevant actors/entities of the e-Navigation architecture involved.



Figure 46: BAS Category I-3

**Mapping of internal BAS to functional component description for BAS Category I-3**



Figure 47: Resulting functional component description for BAS Category I-3

## Definition of Internal Basic Service Category I-4

BAS Category I-4 is initiated by the technical operation personnel. They provide data already available at the AIS service about the AIS VDL and the profile of individual AIS mobile stations.



Figure 49: Data flow BAS Category I-4

**Context of the BAS Category I-4**

The following figure describes the context of BAS Category I-4, i.e. the relevant actors/entities of the e-Navigation architecture involved.



Figure 50: BAS Category I-4

**Mapping of internal BAS to functional component description for BAS Category I-4**



Figure 51: Resulting functional component description for BAS Category I-4

## Definition of Internal Basic Service Category I-5

No material available from A-124 (Ed. 2.0) ???!!!

## Definition of Internal Basic Service Category I-6

No material available from A-124 (Ed. 2.0) ???!!!

## Definition of future Internal Basic Service Categories

Future Internal Basic Service Categories I-8ff are defined here in an updated version of this Annex.

# Minimum set of Basic Services for any service

## Introduction

This part of this Annex 1 defines the Minimum set of Basic Services generally required for any service of the shore-based e-Navigation system. The Minimum set of Basic Services is composed both of a set of required External Basic Services and a set of required Internal Basic Services. The lists of required External and Internal Basic Services are contained in this chapter, while the definitions of individual External and Internal Basic Services of the Minimum set are contained in subsequent chapters. All definitions employ the Basic Service Categories as developed in the first part of this Annex.

## List of generally required External Basic Services

This chapter contains the list of External Basic Services generally required for the Minimum set of Basic Services. The individual External Basic Services required for each service are identified by their name, mnemonic, and category. The individual External Basic Services as such will be defined in a later chapter.

- TBD -

## List of generally required Internal Basic Services

This chapter contains the list of Internal Basic Services generally required for the Minimum set of Basic Services. The individual Internal Basic Services required for each service are identified by their name, mnemonic, and category. The individual Internal Basic Services as such will be defined in a later chapter.

- TBD -

# Definition of individual External Basic Services for the Minimum set

This chapter contains the normative definitions of all of the individual External Basic Services for the Minimum set of Basic Services.

- TBD -

# Definition of individual Internal Basic Services for the Minimum set

This chapter contains the normative definitions of all of the individual Internal Basic Services for the Minimum set of Basic Services.

- TBD -