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| SESAR_JU | |
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| Document information | |
| Project Title | Information Service Modelling deliverables |
| Project Number | 08.03.10 |
| Project Manager | NORACON |
| Deliverable Name | ISRM Primer |
| Deliverable ID | D45 |
| Edition | 00.08.00 |
| Template Version | 03.00.00 |
| Task contributors | |
| DFS, EUROCONTROL, NORACON, NATMIG, FINMECCANICA | |
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| Abstract  Information Management concerns the interoperable and seamless sharing of information between ATM organizations and systems.  The Information Service Reference Model (ISRM) provides logical models for information services consolidating several domain information service models as part of System-Wide Information Management (SWIM). The services in ISRM are based on ISRM foundation. | |

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| Rational for rejection |
| None. |

Document History

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| --- | --- | --- | --- | --- |
| Edition | Date | Status | Author | Justification |
| 00.00.01 | 04/06/2010 | Draft | Anders W. Tell | Created initial Document |
| 00.00.02 | 08/07/2010 | Draft | Florian Kraus | Amended and partly restructured |
| 00.00.03 | 23/07/2010 | Draft | Florian Kraus | Added agreed foundation document structure |
|  | 10/08/2010 | Draft | Jean-Michel Galais | Added Blueprint |
| 00.00.04 | 24/09/2010 | Draft | Jorid Vee Einskar | Added descriptions of new documents, incorporated comments and corrected some document layout issues. |
| 00.01.00 | 22/10/2010 | Final | Jorid Vee Einskar |  |
|  | 27/04/2011 | Final | Jorid Vee Einskar | Updates for next iteration |
| 00.01.01 | 01.06/2013 | Final | Tord Pola | Rework for ISRM 1.0 |
| 00.02.00 | 07/06/2013 | Final | Are Kjæraas | Update edition and references |
| 00.03.00 | 10/03/2014 | Final | Oliver Schrempf | Update edition number and add reference to Configuration Managament Plan |
| 00.03.01 | 21/03/2014 | Draft | Oliver Schrempf | Incorporation of Change Request CR-17 (Drop Physical Models) |
| 00.03.10 | 09/04/2014 | Final | Oliver Schrempf | Prepare for Release |
| 00.04.00 | 16/05/2014 | Draft | Oliver Schrempf | CR-14 apply new template  CR-37 Fix internal link |
| 00.04.01 | 28/08/2014 | Final | Oliver Schrempf | Added reference to new project structure |
| 00.05.00 | 16/12/2014 | Final | Oliver Schrempf | Editorial Changes |
| 00.06.00 | 19/06/2015 | Final | Tord Pola | CR90, CR100 |
| 00.07.00 | 10/12/2015 | Final | Tord Pola | CR-120 Improve wording about SESAR agnostic  CR-121 Remove hyperlinks from references |
| 00.07.10 | 22/03/2016 | Draft | Tord Pola | Major rework for new scope |
| 00.07.20 | 06/04/2016 | Draft | Tord Pola | Incorporation of review comments |
| 00.08.00 | 24/05/2016 | Final | Tord Pola | SESAR Agnostic Version of the ISRM Foundation |

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This deliverable consists of SJU foreground.

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Executive summary

This document is provided as the entry point into the ISRM. It provides a context to all ISRM parts. It also details those documents, ISRM foundation, that support the development of ISRM. ISRM and ISRM foundation are developed in SESAR to be used inside and outside of the SESAR programme.

The purpose of the Information Services Reference Model (ISRM) is to identify and describe services needed by ATM operational processes to fulfil their information needs. Message content exchanged by ISRM services is aligned with AIRM content.

A service in ISRM is designed on a logical level, which means that it can be technically designed and implemented using different technologies.

The ISRM consists of the following components:

* Service Design Model.
* Identified Services Model.
* Services Taxonomy.
* Service Portfolio.

The ISRM Foundation consists of the following components:

* ISRM Primer (this document)
* ISRM Foundation Rulebook
* ISRM Modelling Guidelines
* ISRM Verification Guidelines (not included in ISRM Foundation 00.08.00)
* ISRM Configuration Management Plan (not included in ISRM Foundation 00.08.00)

# Introduction

## Purpose of the document

This document constitutes the entry point into the ISRM. It provides a context to all ISRM parts. It also details those documents, ISRM foundation, that support the development of ISRM.

The entire ISRM set of documents defines information service constructs, principles, rules, recommendations and guidance for the European ATM information service domain.

This document provides references to foundation documents that are directive and guideline material, aimed at assisting readers, users, modellers, implementers and others in their work with ISRM. The goal of this material is to increase acceptance, usage, comprehensibility and other quality aspects.

The Primer has to be read by everyone as a starting point for working with or understanding the ISRM.

Two appendices with embedded tooling, proved to be useful when modelling in Sparx EA, are added to this document

## Intended readership

The ISRM Primer target audiences include:

* All related ATM instances that have a need for exchanging ATM information service.
* Developers of services
* Developers of information systems

## Inputs from other projects

N/A

## Glossary of terms

N/A

## Acronyms and Terminology

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| **Term** | **Definition** |
| **AIRM** | ATM Information Reference Model |
| **ATM** | Air Traffic Management |
| **ICAO** | International Civil Aviation Organization |
| **ISRM** | Information Service Reference Model |
| **SESAR** | Single European Sky ATM Research Programme |
| **SJU** | SESAR Joint Undertaking (Agency of the European Commission) |
| **SWIM** | System-Wide Information Management |
| **UML** | Unified Modelling Language |

# ISRM

The purpose of the Information Service Reference Model (ISRM) is to identify and describe services needed by ATM operational processes to fulfil their information needs.

The ISRM is designed according to a service-oriented approach for fulfilling information exchange requirements through a system wide information management.

The ISRM consists of a Service Design Model Providing a logical (i.e. technology independent) representation of the ATM-related information services designed for inclusion in the ISRM, expressed formally in the Unified Modelling Language (UML).

A Service Portfolio is a view on ISRM. It lists, structures and specifies the most important data and metadata at a high level for the services in the ISRM.

A service in ISRM is designed on a logical level, which means that it can be technically designed and implemented using different technologies. The technical design of a service, claiming to be a SWIM service, can be assessed for SWIM compliance, resulting in one of a set of defined levels of SWIM compliance. In this context, ISRM is used as a means of compliance.

A service can be used alone or in a service composition together with other services

The information provided by information services is defined in accordance with the ATM Information Reference Model (AIRM) [1].

Identification and design of information services in ISRM is based on user needs and user’s information requirements.

The ISRM and the ISRM Foundation are developed in SESAR to be used inside and outside of the SESAR programme.

# ISRM Foundation

Besides the primer, the ISRM Foundation consists of two categories of documents:

* **Directive documents** containing governing directives and rule sets. These normative principles, rules and recommendations are governing aspects such as conformance, model consistency, etc. In general there are consequences when violating the rules.
* **Guideline documents** Provides essential guidance and support for the creation and development of the ISRM. It includes guidelines and principles for modelling, verification, consolidation and use of tools which have to be applied when contributing to the ISRM.

The ISRM Foundation consists of the following components:

* **ISRM Primer** (this document):

Provides the entry point to the ISRM and ties the other components together. The Primer is used to refer to the other components and put each of them into context.

* **ISRM Foundation Rulebook** (directive document)

This document [4] provides standards and vocabularies for the development of ISRM information service models. The document is a normative rulebook, and the provision of guidance text, illustrations and examples has been considered to be out of the primary scope.

These standards and vocabularies provide the basis for assessment of ISRM model quality, conformance and implementation (external use/implementation of the ISRM models) and for internal ISRM consolidation, validation, verification, review and change management activities.

* **ISRM Modelling Guidelines** (guideline document)

This document [2] provides information and guidance for expert modelers and implementers of the ISRM service models. The guide focuses on the modeling discipline giving a methodology for refining operational requirements and the identification and specification of services for the ISRM.

The guide is intended to provide practical guidance with defined triggers, prerequisites, inputs, outputs, and assumptions to be made and steps to be performed for each phase of the modelling task.

The Modelling Guidelines presumes that the reader has working knowledge of general service modeling and the UML modeling language.

* **ISRM Configuration Management Plan** (directive document)

The intended usage of the ISRM Configuration Management Plan is scoped to a specific context, e.g. SESAR or SWIM governance. It is highly recommended to produce a configuration management plan, based on ISO10007 [6], for the targeted use although it is not included in ISRM Foundation 00.08.00. The ISRM Configuration Management Plan 00.07.00 [5] produced for SESAR, can be used as an example of an ISRM configuration management plan produced for the SESAR context.

* **ISRM Verification Guidelines** (guideline document)

The intention of an ISRM verification guideline should be to explain the nature of verification and the role of verification in the context of ISRM, to detail the verification process, and to provide references to verification tooling if available. The intended usage of a verification guideline is scoped to a specific context, e.g. SESAR or SWIM governance. It is highly recommended to produce verification guidelines for the targeted use although it is not included in ISRM Foundation 00.08.00. The ISRM Verification Guidelines 00.07.00 [3] produced for SESAR, can be used as an example of a verification guideline produced for the SESAR context

# References

1. 08.01.03, AIRM, D47, 04.01.00, 02/05/2016
2. 08.03.10, ISRM Modelling Guidelines, D45, 00.08.00, 31/05/2016
3. 08.03.10, ISRM Verification Guidelines, D44, 00.07.00, 18/12/2015
4. 08.03.10, ISRM Foundation Rulebook D45, 00.08.00, 31/05/2016
5. 08.03.10, ISRM Configuration Management Plan, D44, 00.07.00, 18/12/2015
6. http://www.iso.org
7. SWIM Logical Service Toolbox

The SWIM Logical Service Toolbox is aligned with the rules defined in ISRM Foundation Rulebook to support modelling services in Sparx EA. It gives appropriate toolboxes for the production of the diagrams mentioned in the modelling guideline. This profile is available to be used by importing the following embedded xml files into the Sparx EA environment using available documentation on “MDG Technology”.



1. Verification scripts

The following embedded xml files include scripts available to perform automatic verification of logical services modelled in Sparx EA according to ISRM foundation rulebook. The verification takes place in two steps:

1. Execution of Verification scripts in EA. The script produces an intermediate result (a csv-file);
2. Using the result from step 1 to create a Verification Report.

In order to make verification scripts available in Sparx EA the xml files need to be imported into the Sparx EA environment using available documentation on “MDG Technology”.



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