EUROPEAN ORGANISATION
FOR THE SAFETY OF AIR NAVIGATION

EUROCONTROL

ESARR ADVISORY MATERIAL/GUIDANCE DOCUMENT
(EAM/GUI)

EAM 2 / GUI 4

EXPLANATORY MATERIAL ON ESARR 2 REQUIREMENTS

Edition	**:**	**1.0**
Edition Date	**:**	**09 August 2004**
Status	**:**	**Released Issue**
Distribution	**:**	**General Public**
Category	**:**	**ESARR Advisory Material**

SAFETY REGULATION COMMISSION

F.2 DOCUMENT CHARACTERISTICS

TITLE		
EAM 2 / GUI 4 **Explanatory Material on ESARR 2 Requirements**		
Document Identifier :	**Reference :**	EAM 2 / GUI 4
eam2gui4_e10_ri_no_signatures	**Edition Number :**	1.0
	Edition Date :	09-08-2004

Abstract :

This guidance material has been prepared by the Safety Regulation Commission to provide guidance for ATM safety regulators and support in implementation and maintenance of ESARR 2.

The main purpose of this document is to provide guidance about the provisions established in ESARR 2 and more specifically in its Section 5 “Safety Requirements”. Each requirement is illustrated by giving explanatory material that includes a rationale, the most significant implications mainly for Regulator but also sometimes for other Investigation bodies or providers.

This is one element of a series of guidance documents to be developed by SRC to support the implementation and post-implementation of ESARR 2.

Keywords :

ESARR 2	Safety Occurrence	Safety Analysis
Reporting Systems	Non-punitive	Taxonomy
Safety Data Exchange		

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DOCUMENT STATUS AND TYPE					
Status :		**Distribution :**		**Category :**	
Working Draft	☐	General Public	☑	Safety Regulatory Requirement	☐
Draft	☐	Restricted EUROCONTROL	☐	Requirement Application Document	☐
Proposed Issue	☐	Restricted SRC	☐	ESARR Advisory Material	☑
Released Issue	☑	Restricted SRU	☐	Comment / Response Document	☐
				Policy Document	☐
				Document	☐

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F.3 DOCUMENT APPROVAL

The following table identifies all management authorities who have approved this document.

AUTHORITY	NAME AND SIGNATURE*	DATE
Quality Control (SRU)	***signed by Daniel Hartin*** (Daniel HARTIN)	09-Aug094
Head Safety Regulation Unit (SRU)	***signed by Peter Stastny*** (Peter STASTNY)	09-Aug094
Chairman Safety Regulation Commission (SRC)	***signed by Martin Radusch*** (Martin RADUSCH)	09-Aug094

* In order to reduce the size of files, all documents placed on the SRC Website do not contain signatures. However, please note that all management authorities have signed the master copies held by the SRU. Requests for copies of master documents should be emailed to: sru@eurocontrol.int.

F.4 DOCUMENT CHANGE RECORD

The following table records the complete history of this document.

EDITION NUMBER	EDITION DATE	REASON FOR CHANGE	PAGES AFFECTED
0.01	19-Dec-02	Creation.	All
0.02	14-Mar-03	SRU review based on AST-FP 3rd meeting.	All
0.1	05-Jun-03	Document status amended to 'Draft Issue' following AST-FP4th meeting.	All
0.2	15-Dec-03	Updates following the SRC consultation (RFC 0341).	Section 3
0.3	11-Mar-04	Updates following the AST-FP5 meeting.	All
1.0	09-Aug-04	Document formmaly issued following SRC approval by correspondence (RFC 0476).	All

F.5 CONTENTS

F.6 EXECUTIVE SUMMARY

This document has been prepared by the Safety Regulation Commission (SRC) to provide guidance for ATM safety regulators and support in the implementation and maintenance of ESARR 2.

The main purpose of this document is to provide guidance regarding the provisions established in ESARR 2 and more specifically, in Section 5 “Safety Requirements”. Each requirement is illustrated by giving explanatory material which includes a rationale and the most significant implications (mainly for the regulator but also for other Investigation bodies or providers).

This document is one element of a series of guidance documents to be developed by the SRC to support the implementation and post-implementation of ESARR 2.

It is intentionally been kept simple and easy to read in order to improve its understanding. Furthermore, it contains components and information appropriate to the development of training courses on ESARR 2.

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1. INTRODUCTION

1.1 Approach

A standardised approach to the formatting of EUROCONTROL Safety Regulatory Requirements is used to reference and clarify the status of information contained within the document.

The requirement template used for ESARR 2, Edition 2.0 includes a number of sections. Some include provisions considered mandatory and others which are of a non-obligatory nature.

The mandatory provisions are currently captured in sections 3, 5, 6 and 7, while the non-obligatory related material is currently captured in sections 1, 2, 4 and 8, of the ESARRs template in existence at the time of release of ESARR 2, Edition 2.0.

NOTE: Work is on going to modify the ESARRs template and better separate the mandatory provisions from related non-obligatory/advisory material. The new format in which ESARR 6 (Software in ATM systems) has been published paves the way for the transposition into community law. At an appropriate juncture ESARR 2 will also be republished in the new format.

The main purpose of this document is to illustrate and clarify the provisions of Section 5 'Safety Requirements' established by ESARR 2 and to facilitate its interpretation.

Section 5 only includes mandatory requirements (expressed using the word "shall"), including those relating to implementation.

Section 5 also provides a statement of the precise actions which are considered necessary to achieve the safety objectives stated in Section 4.

In addition, similar clarifications are also being provided for all other sections in ESARR 2, to facilitate its rationale, understanding and uniform implementation across States.

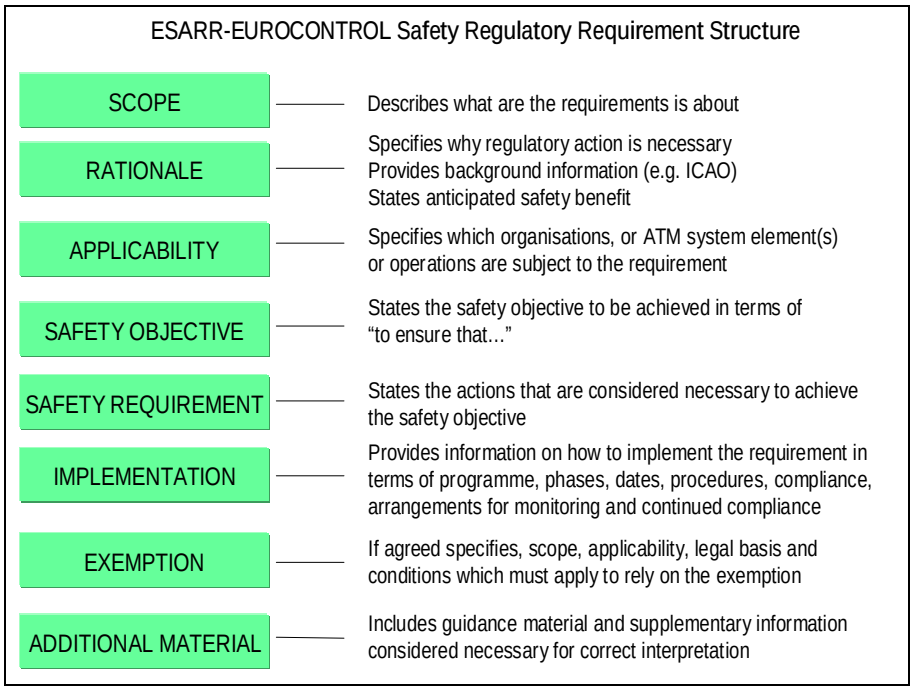
After a brief overview, each section and safety requirement is illustrated by providing explanatory material which includes a rationale, the most significant implications for the ATM Safety Regulator, Provider and/or other appropriate investigation body and information about further development, whenever applicable.

Additional background explanatory material has been added at the beginning of the document to;

- set the scene for safety and safety occurrence reporting in the ECAC region,
- explain the format of ESARRs and particularly ESARR 2,
- explain which sections comprise obligatory provisions and which do not,
- explain the background of the EUROCONTROL Safety Measurement and Improvement Programme,
- explain the rationale of ESARR 2.

1.2 Description of the Standard EUROCONTROL Safety Regulatory Requirement – ESARR Format

A standardised approach to the formatting of EUROCONTROL Safety Regulatory Requirements is used to aid referencing and to clarify the status of information contained withinin the ESARR. A safety regulatory requirement is a formal stipulation by a regulator of a safety related specification which, if complied with, will lead to acknowledgement of safety competence in that respect. A requirements template[1] has been used since SRC5 (June 1999), as follows:



Section 1 – Scope

Defines the intended scope of the requirements and what the requirements are about.

Section 2 – Rationale

Presents the rationale for the requirements, so that it is clearly specified why regulatory action is felt necessary to maintain and improve aviation safety. The rationale mentions any background information useful to understand the context within which the regulatory action takes place, such as ICAO potential actions and standards, and the safety benefit that is to be anticipated.

[1] *The template explained in the figure above applies to the first two editions of ESARR 2.*

Section 3 – Applicability

Specifies the scope of applicability of the requirements, i.e. the elements of the ATM system, as well as the categories of organisations, that are subject to the requirements.

Defines the systems and/or operations to which the requirements apply in order to give clarity to their application. Equally important, it may identify exclusions, where necessary, to the requirements.

EUROCONTROL requirements will be implemented by the responsible regulatory bodies. It is necessary to define those ATM service providers to whom the requirements are intended to apply (and, where necessary for clarifications, also to whom they are not intended to apply). This aspect is especially important where operations cover multiple phases of flight, such as TMA and airport operations within the gate-to-gate concept, where multiple service providers may be involved.

Section 4 – Safety Objective

Presents a clear and succinct statement of the safety objective to be achieved (expressed in terms of “to ensure that...”).

Section 5 – Safety Requirement

Gives a statement of precise actions which are considered necessary to achieve the stated safety objective. This section includes all applicable mandatory requirements (expressed using the word “shall”), including those relating to implementation.

Section 6 – Implementation

Provides information on how to implement the requirements, at least in terms of:

- Implementation programme, including implementation phases (where required) and associated dates,
- Procedures to be followed to apply, and show compliance with, the requirements,
- Any arrangements considered necessary for monitoring implementation and continued compliance.

Section 7 – Exemptions

If exemptions are agreed, their scope, applicability and legal basis are included here, together with any conditions which must apply when relying upon the exemption. If no exemptions are agreed, it will be unnecessary to include this section in the requirement document.

Section 8 – Additional Material

Additional material, to include guidance information and other supplementary material considered necessary for the correct interpretation of the requirement, its provisions and application, are included in this section.

To the maximum extent possible, the inclusion of detailed technical information is avoided, making use of cross-references to other documents where-ever possible.

2. EUROCONTROL SAFETY MEASUREMENT AND IMPROVEMENT PROGRAMME

2.1 Safety Measurement and Improvement Programme - ESARR 2 and Companion Documents (CODs)

EUROCONTROL's review of existing safety data and reporting schemes in ATM across the ECAC region, led to the conclusion that Europe-wide;

- EUROCONTROL, the European Organisation for the safety of Air Navigation, could not measure the achieved safety levels in ATM;
- Some ECAC States were not in a position to measure the achieved safety levels in ATM in their States;
- The lack of visibility of ATM safety levels and the lack of information on ATM precursors to accidents prevented the development of accident prevention strategies in so far as they relate to ATM;
- The lack of safety data prevented the assessment, a priori and a posteriori, of the safety impact of proposed changes to the ATM System; and
- The lack and/or inconsistency of national safety data across borders prevented the exchange and sharing of lessons learned.

The conclusion which was drawn in the first Performance Review Report, issued early summer 1999, lead the SRC to propose remedial actions at European level, as a matter of urgency.

The SRC therefore proposed to the EUROCONTROL Provisional Council in July 1999 the initiation of a 'safety measurement and improvement programme', which included a set of early initiatives;

- EUROCONTROL Safety Regulatory Requirement: ESARR 2
- two companion documents;
  - A Guidance Material to support the severity classification of safety occurrences in ATM &

- A Publication and Confidentiality Policy, developed in co-ordination with SQS[2] unit

These initiatives were approved through Decision 80 by the EUROCONTROL Permanent Commission in November 1999 (ESARR 2, Edition 1.0) and then in November 2000 (ESARR 2, Edition 2.0).

The EUROCONTROL Safety Measurement and Improvement Programme also gained significant support and recognition during the ECAC MATSE 6 meeting (ECAC Transport Ministers' Meeting on the Air Traffic System in Europe), in January 2000

3. ESARR 2

3.1 General Overview

NOTE: As scope and objectives are closely interrelated, in order to enhance the understanding of ESARR 2 the three parts "Scope", "Objectives" and "Requirements" have been merged and covered at a high level in this section rather than split into separate sections as per ESARR 2.

The scope of ESARR 2 covers the implementation by States of an Occurrence Reporting and Assessment Scheme for Air Traffic Management (ATM) Safety.

Two aspects therefore need to be covered:

- reporting systems,
- assessment of safety occurrences; which in turn comprises of two aspects:
  - reconstruction and analysis of a safety occurrence,
  - determination of the severity and of the risk of re-occurrence.

Whereas the objectives of ESARR 2 are three fold:

- to support the monitoring of levels of ATM safety and related trends over time, both at European and national levels,
- to support the improvement of aviation and ATM safety, whether or not ATM contributed to the causes of accidents and incidents,
- to support the assessment and monitoring of technical and operational changes to the ATM system (RVSM or ACAS being just two examples).

The EUROCONTROL review of past safety data across the ECAC region and related analysis of safety performance at the European level has yielded the conclusion (referenced in the EUROCONTROL ATM Performance Review Report for 1998) that:

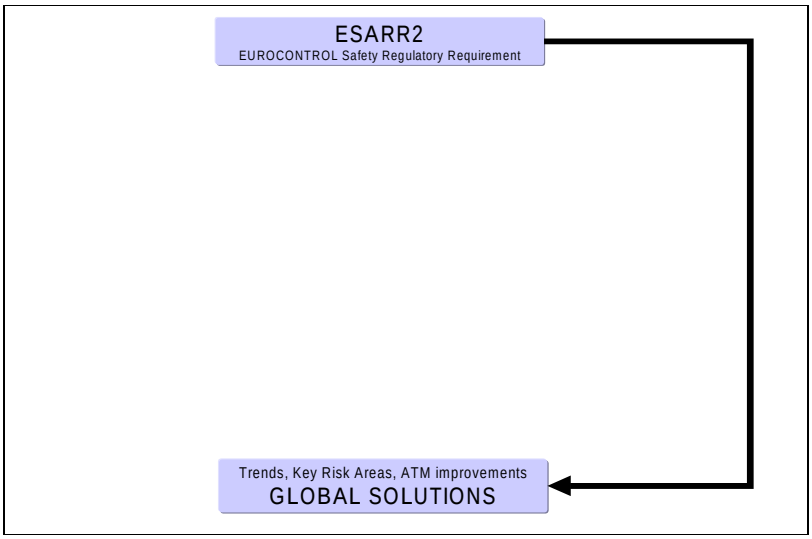
[2] *Safety Management, Quality and Standardisation. Currently the SQS unit activity has been undertaken by DAP/SAF (Safety Enhancement) Business Unit and by the SSM (Safety and Security) Business Unit.*

"Across the ECAC area, significant variations exist in the scope, depth, consistency and availability of ATM safety data".

The aim of ESARR 2 is also to identify possible GLOBAL SOLUTIONS at ECAC level, be it new regulatory requirements or safety management improvements.

Solutions will be derived from the knowledge of;

- the trends; what is new in terms of safety occurrences or emerging hazards or what is becoming of an increasing concern,
- the Key Risk Areas (KRA); those areas or types of occurrences that are already a concern and should be dealt with,
- in what way and proportion ATM is contributing to the occurrence of incidents and accidents and how could ATM be more proactive in supporting airspace users in ensuring they own safety,
- in what way changes to the ATM environment have participated to the existence of safety occurrences,
- in what way ATM could have been more supportive to the airspace users in ensuring their own safety (i.e. for those elements of the aviation transport for which ATM is not directly responsible).



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3.2 Reporting Systems

ESARR 2, requires as a MINIMUM a formal system which can be used by the wider community of persons/organisations that have an interest in the activity concerned.

A wide range of different reporting systems could be adopted depending upon the combination of their possible attributes and of the safety culture level within an organisation:

- Voluntary vs. Mandatory,
- Human or automatic.

The confidentiality of the reporting system should be established through procedures ensuring that the identity of the reporter of a safety occurrence is not recorded (42/2003 EC Directive requirement) and not disclosed.

ICAO stipulates the following regarding the issue of Reporting Systems (Annex 13 Chapter 8 – Accident Prevention measures):

"Incident Reporting Systems

8.1. A State shall establish a mandatory incident reporting system to facilitate collection of information on actual or potential safety deficiencies.

8.2. Recommendation - A State should establish a voluntary incident reporting system to facilitate the collection of information that may not be captured by a mandatory incident reporting system.

8.3. A voluntary incident reporting system shall be non-punitive and afford protection to the sources of information.

Note 1: - A non-punitive environment is fundamental to voluntary reporting.

Note 2: - States are encouraged to facilitate and promote the voluntary reporting of events that could affect aviation safety by adjusting their applicable laws, regulations and policies, as necessary.

Note 3: - Guidance related to both mandatory and voluntary incident reporting systems is contained in the Accident Prevention Manual (Doc. 9422)."

ICAO, as well as EUROCONTROL, both see MANDATORY and VOLUNTARY systems as complementary approaches. The mandatory element would catch those occurrences that are predefined and listed (list of reportable occurrences e.g. Appendix - A of ESARR 2) whereas the voluntary element would enable staff to report any event that they considered worthy of investigation by the safety department.

The real difference between mandatory and voluntary reporting is that the non-reporting of a safety occurrence becomes a professional fault in mandatory systems when it is not in a voluntary system.

Thereafter, it is up to each organisation to determine what system will best catch the largest number of safety occurrences, depending first and foremost on how to maintain the trust and confidence between management and staff which in turn depends upon cultural, historical and other parameters.

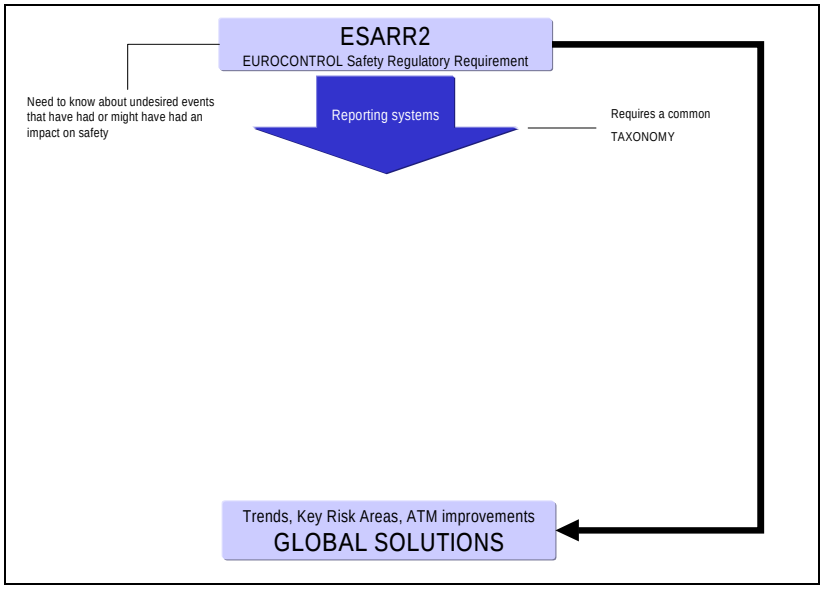
Non punitive/just culture and confidentiality

Whatever the reporting system is, it requires provisions meant to ensure that the system is "non-punitive" within a just culture environment.

"Non-punitive" refers to the best "treatment" to be given to "honest mistakes" which can be defined as those errors that are not done deliberately. Obviously there is no clear separation between what is fully deliberate (e.g. planned and executed) and what is the result of even a small percentage of sloppiness (which could be said as to be the beginning of negligence, moving further towards gross negligence).

A "no-blame" culture per se is neither feasible nor desirable. A small proportion of unsafe human acts are deliberate (e.g. criminal activity, substance abuse, controlled substances, reckless non-compliance, sabotage, etc.) and as such deserves sanctions of the appropriate severity. A blanket amnesty on all unsafe acts would lack credibility in the eyes of employees (workforce) and could be seen to oppose natural justice.

What is needed is a "*just culture"*, an atmosphere of trust in which people are encouraged, even rewarded, for providing essential safety-related information – but one in which it is also clear about where the line must be drawn between acceptable and unacceptable behaviour.



3.3 Need for a taxonomy and harmonised safety occurrences analysis processes

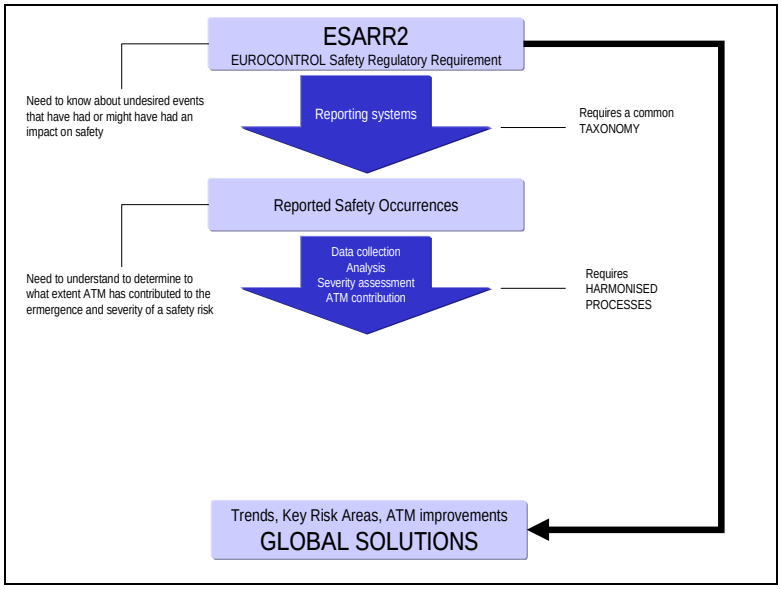
3.3.1 Taxonomy

The ECAC-wide dimension of the ESARR 2 has placed another important constraint on the reporting and also the analysis and severity assessment; a language issue. It is of the utmost importance that the same words are used to designate the same object, idea or concept across ECAC when applied to ATM safety occurrences, especially considering that the ultimate objective of ESARR 2 is to share and aggregate safety data.

Such a specialised language is called 'Taxonomy'; a structured dictionary that covers a specialised domain of activity.

As applied to ATM, taxonomy can be defined as the "set of terms or locutions used to carry out a specialised activity which are organised/classified in such a way that the use of the terms is unambiguous, consistent and robust".

EUROCONTROL has developed an ATM specific TAXONOMY called 'HEIDI (Harmonisation of European Incident/Accident Definition Initiative)'. Work is on-going to ensure that HEIDI and the ICAO ADREP 2000 are fully aligned and that the reporting and investigation requirements from ICAO and EUROCONTROL are consistent.



3.3.2 Assessment of Safety Occurrences

Because the ultimate goal is to exchange and aggregate data, there is a strong need for harmonised processes. This in turn implies that methods, recognised for their robustness, are implemented.

Ideally, the situation should be one where the same occurrence leads to same reliable conclusions wherever it happens in the ECAC area.

EUROCONTROL has so far developed:

- An overall investigation process;
- A methodology called 'SOFIA – Sequentially Outlining and Follow-up Integrated Analysis' - based on a graphical tool to support the process of ATM safety occurrence investigation. After evaluation of several existing methodologies using objective criteria, SOFIA was derived from a recognised method called STEP (Sequentially Timed Event Plotting) and further tailored to ATM, particularly enhancing the analysis component of the method as STEP is merely limited to event reconstruction. SOFIA provides for a tool that enables factual information gathering, event reconstruction, occurrence analysis as well as issuing recommendations, i.e. covers the full range of activities involved in safety occurrence investigation.
- A human factor technique (HERA–JANUS) to deal with human errors in Air Traffic Management (ATM). HERA-JANUS work has produced a method for classifying human errors in ATM and associated contextual factors by selecting appropriate "error types" from the literature, and shaping their usage within a conceptual framework.

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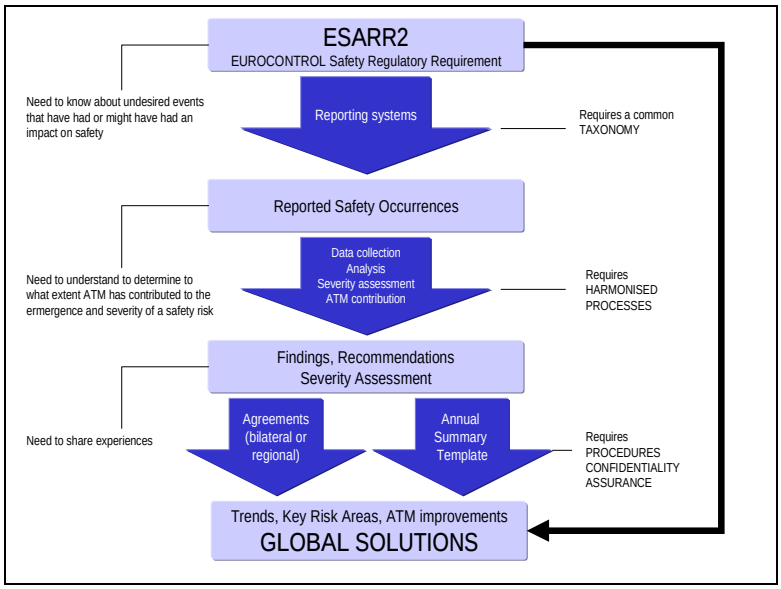
3.4 Safety Data Exchange

The final objective requires exchanging safety data.

As far as ESARR 2 is concerned, the ultimate output on a yearly basis is the Annual Summary Template (AST). This looks at the data provided by States in a statistical mode which enables the derivation of safety trends at ECAC level and as a side benefit, ensures confidentiality. It is left to each State to draw its own conclusions through the benchmarking of its own data and AST results.



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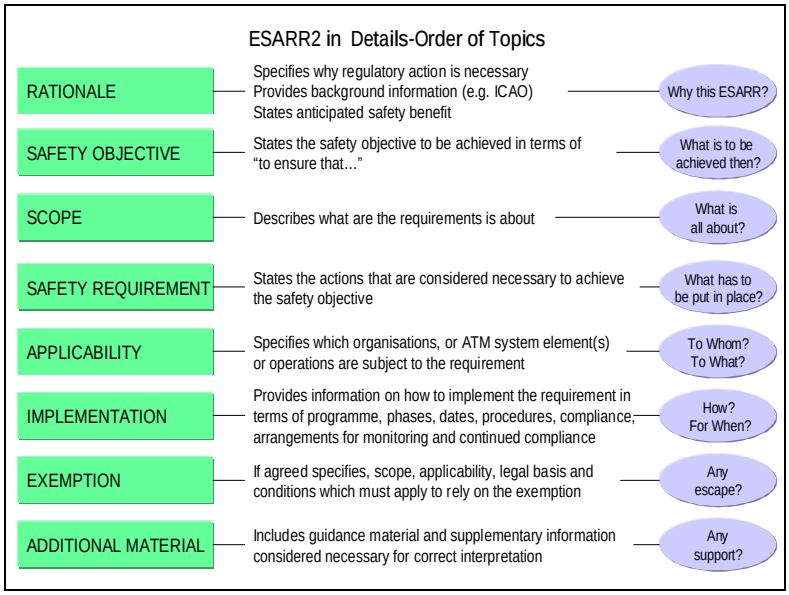
4. ESARR 2 IN DETAIL

Preliminary Note: For a better understanding, the detailed notes below will now follow the standard structure of ESARRs, in the order shown in the slide below. This will also avoid repetitions.



Additionally note that each paragraph will comprise two sections:

- A graphical explanatory section,
- A detailed section containing text for reference and deeper understanding.

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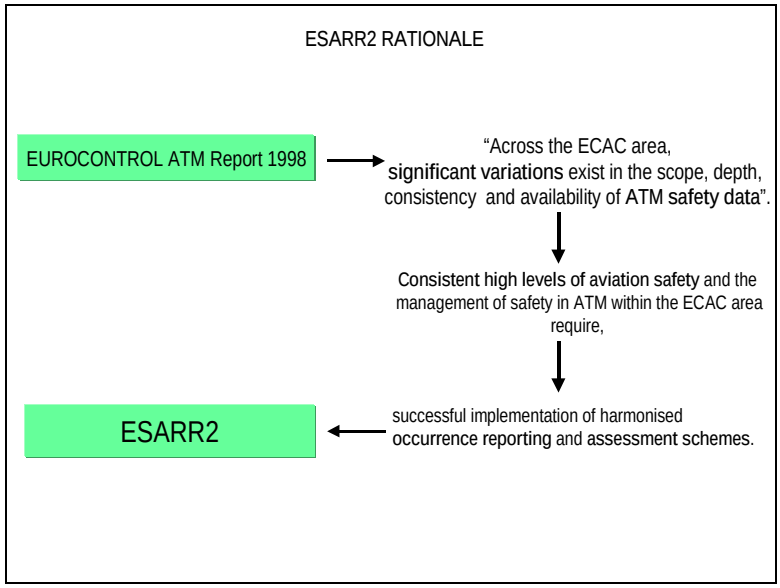
4.1 Rationale

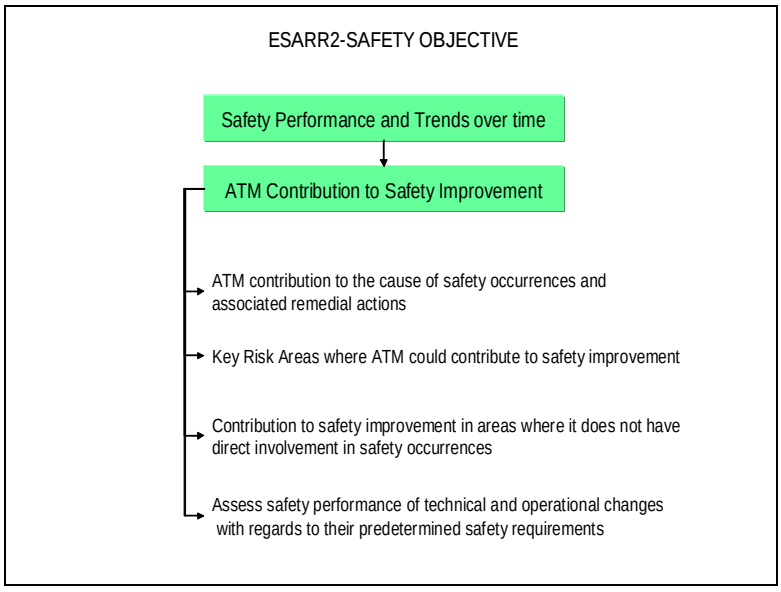
Refer to ESARR 2, Section 2 – Rationale.



The rationale for ESARR 2 and other ESARRs to certain appropriate degrees, find their raison d'être in the roots in the "EUROCONTROL Safety Measurement and Improvement Programme" as already described above in Chapter 2 above.

4.2 Safety Objective

Refer to ESARR 2, Section 4 – Safety Objective.

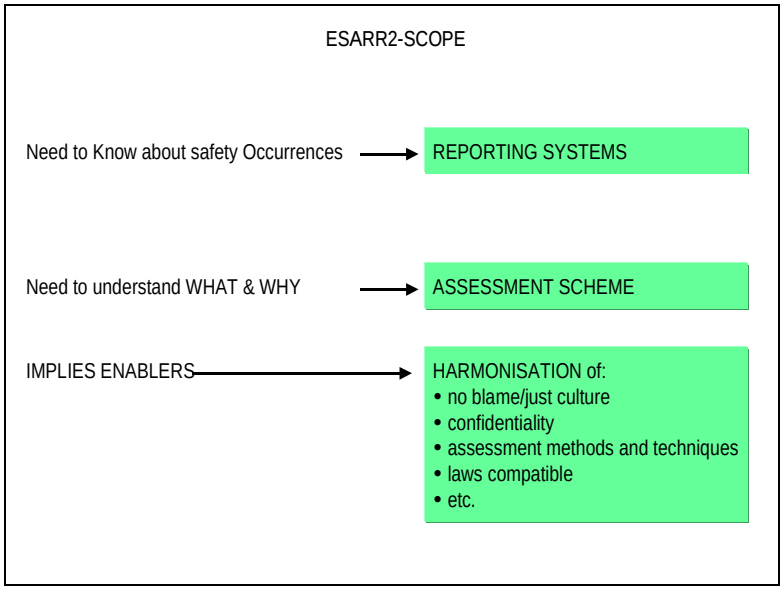


The overall safety objectives are to ensure that, at national and ECAC levels, formal means exist to:

- assess safety performance and related trends over time,
- identify key risk areas where the ATM system could contribute to safety improvement, and to take appropriate actions,
- investigate, assess and draw conclusions on the extent of the ATM system contribution to the cause of all types of safety occurrences and to take corrective measures, whether regulatory or not,
- draw conclusions on how the ATM system could improve safety even in areas where it is not involved in accidents or incidents,
- assess and monitor over time whether technical and operational changes introduced to the ATM system meet their predetermined safety requirements, and take appropriate actions.

4.3 Scope

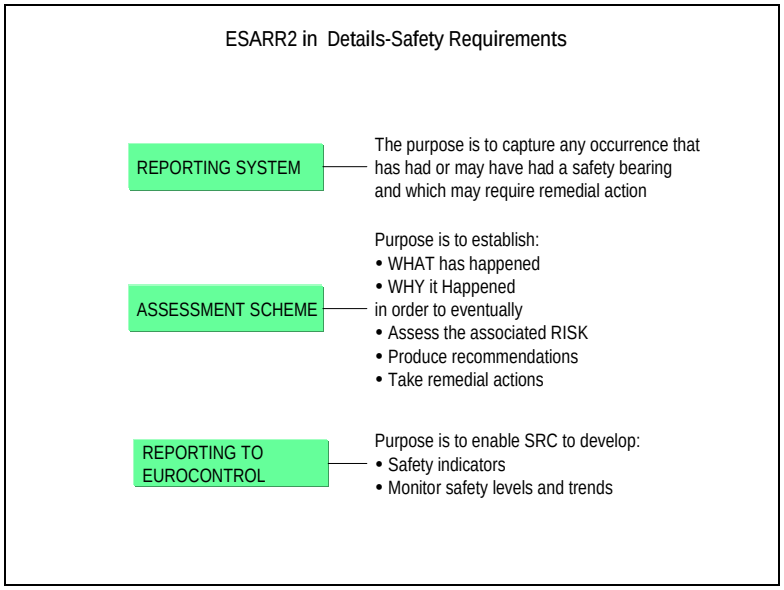
Refer to ESARR 2, Section1 – Scope.

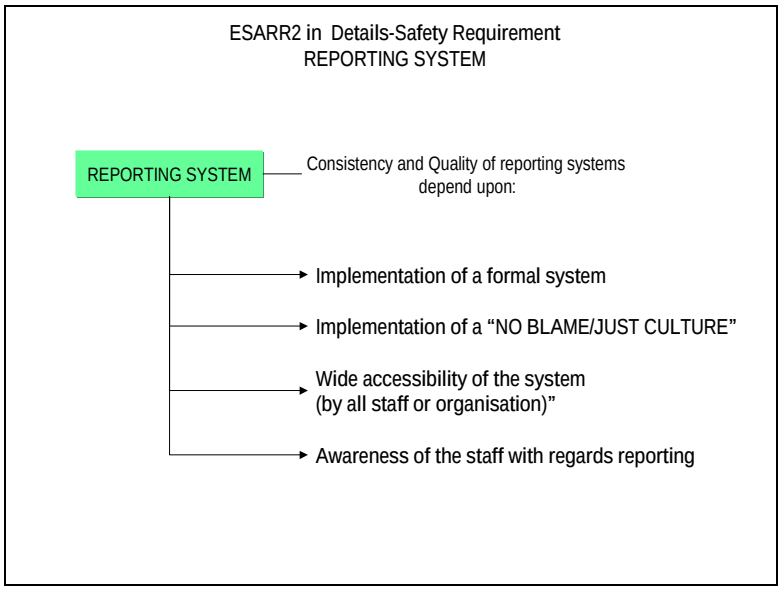


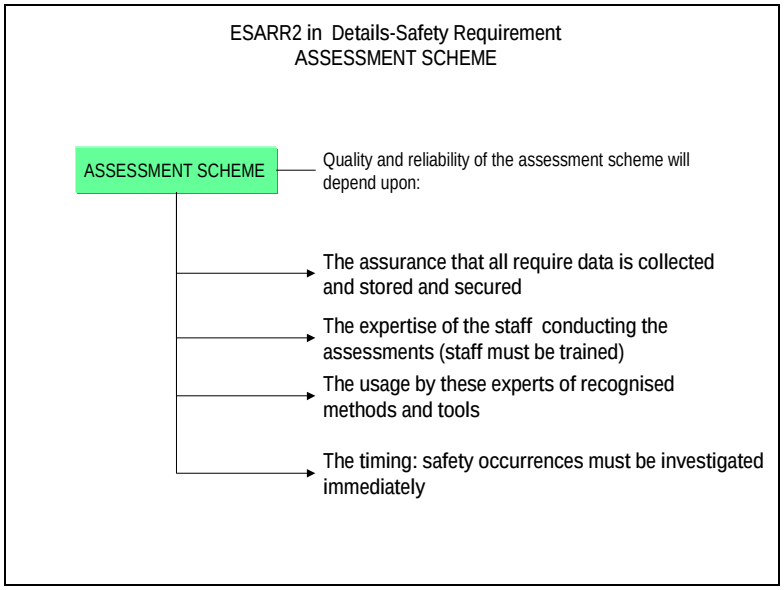
ESARR 2 covers the implementation by States of an Occurrence Reporting and Assessment Scheme for Air Traffic Management (ATM) Safety.

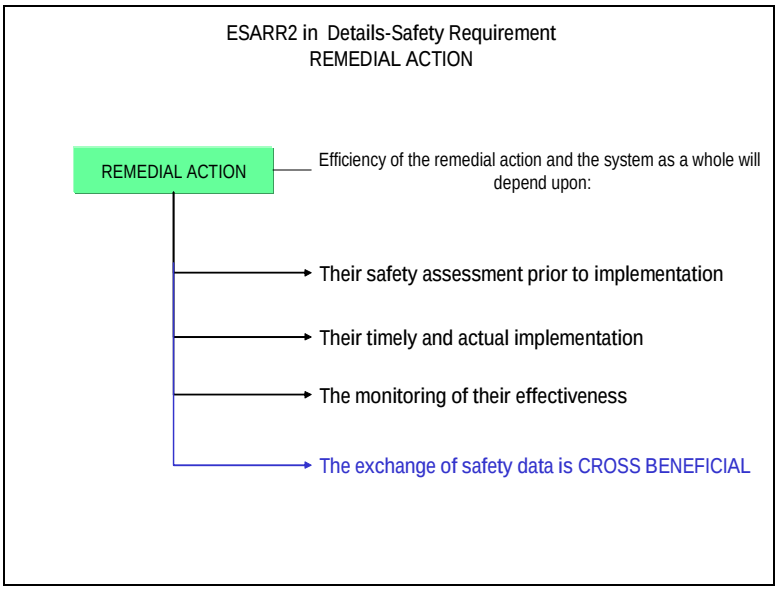
4.4 Safety Requirements

Refer to ESARR 2, Section 5 – Safety Requirements.









ESARR 2 includes two major requirements.

The first one requires that States implement a national reporting and assessment scheme for safety occurrences in ATM.

Note: It should be noted that the consistency and quality of national reporting schemes will be highly dependent upon the implementation of a "no blame/just culture" in States, as well as on the use of other guidance and tools (a common taxonomy, compatible data bases to store the data related to occurrences such as those developed within the EUROCONTROL EATMP).

Each State shall ensure that:

5.1.1 A formal means of safety occurrence reporting and assessment is implemented for all ATM-related occurrences that pose an actual or potential threat to flight safety, or can compromise the provision of safe ATM services, which as a minimum complies with the list of ATM-related occurrences as defined in Appendix A[3],

Appendix A is a mandatory part of ESARR 2.

Each State shall ensure that:

5.1.2 Provisions exist for any person or organisation in the aviation industry to report any such occurrence or situation in which he or she was involved, or witnessed, and which he or she believes posed a potential threat to flight safety or compromised the ability to provide safe ATM services. Such provisions shall not be restricted to the reporting of aircraft accidents or serious incidents, since other types of occurrences could reveal the same types of hazards as accidents or serious incidents,

Each State shall ensure that:

5.1.3 ATM personnel and third parties are encouraged by every means to systematically and consistently report such occurrences,

5.1.4 All relevant data that would aid understanding of the circumstances surrounding such occurrences are adequately identified, with the data being secured, recorded and stored in a manner which ensures their quality and confidentiality as well as permitting subsequent collation and assessment,

5.1.5 Investigation or assessment, by a team with the necessary expertise, of those occurrences that are considered to have significant4 implications on flight safety and/or on the ability to provide safe ATM services, takes place immediately, and any necessary remedial action taken,

5.1.6 The severity of each such occurrence5 is determined, the risk posed by each such occurrence classified, and the results recorded,

5.1.7 The causes of such occurrences are analysed, to the utmost degree of objectivity, to identify the extent to which the ATM system helped, or could have helped, to reduce the risk incurred, with the results recorded,

5.1.8 Safety recommendations, interventions and corrective actions are developed, recorded where necessary, and their implementation monitored,

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[3] *Attachment A to ESARR 2 also contains minimum contextual/factual data to be collected and, for those occurrences subject to detailed analysis, typical main results of the assessment or investigation, such as categories of causes, level of severity and safety recommendations/interventions.*

[4] *i.e. Severity C or above, as defined in EUROCONTROL Guidance Material "Severity-Classification scheme for safety occurrences in ATM", Released Issue 1.0.*

[5] *Refer to EUROCONTROL Guidance Material "Severity-Classification Scheme for Safety Occurrences in ATM", Released Issue 1.0.*

Each State shall ensure that:

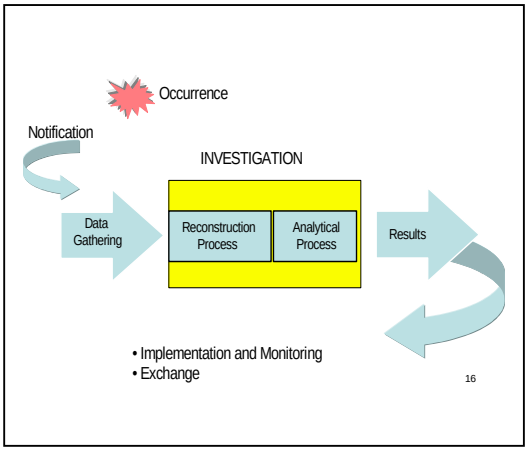
5.1.9 To the extent possible, safety experience, based upon collected safety occurrence data and assessment, is exchanged between States in order to develop a more representative and common awareness of typical hazards and related causes, as well as safety trends and areas where changes to the ATM system could improve safety.

To summarise, the first ESARR 2 requirement says that States shall ensure that a formal means of safety reporting and assessment is implemented for all ATM-related safety occurrences. The safety reporting and assessment scheme shall:

- encourage reporting by any person/organisation of ATM-safety occurrences,
- ensure the collection of all data helping in the understanding of the occurrences with associated facts,
- provide for an investigation of the occurrences,
- produce an assessment of the severity and risk of the occurrence,
- enable the identification of the causes of the occurrence,
- produce safety recommendations and corrective actions,
- allow for the exchange of safety experience across States.

The minimum phases/steps to be included in such a process are mentioned in ESARR 2, ranging from:

- the initial report/notification of all safety occurrences which did, or could have, posed a threat to flight safety,
- the collection of data to help in understanding what happened,
- the investigation itself, which shall rely upon necessary expertise and shall produce an outcome with regards to the assessment of the ATM contribution to the safety occurrence (severity and causes), as well as recommendations/remedial actions,



- to the exchange of safety information across States and organisations.

NOTE: ESARR 2, Attachment A provides a minimum list (not an exhaustive list) of occurrences to be reported and analysed, as well as the minimum factual data to be collected. Also provided in ESARR 2, Attachment A is a list of the categories of causes. The information about causes is critical and key for the determination of appropriate mitigation at national and European level.

NOTE: ESARR 2, Attachment C provides a list of terms and definitions used in ESARR 2. These are based on ICAO definitions. If no ICAO definitions could be found, EUROCONTROL ones were used. If no EUROCONTROL definitions could be found, new definitions were developed by the EUROCONTROL EATMP HEIDI task force.

5.2. Requirements for reporting safety information to EUROCONTROL

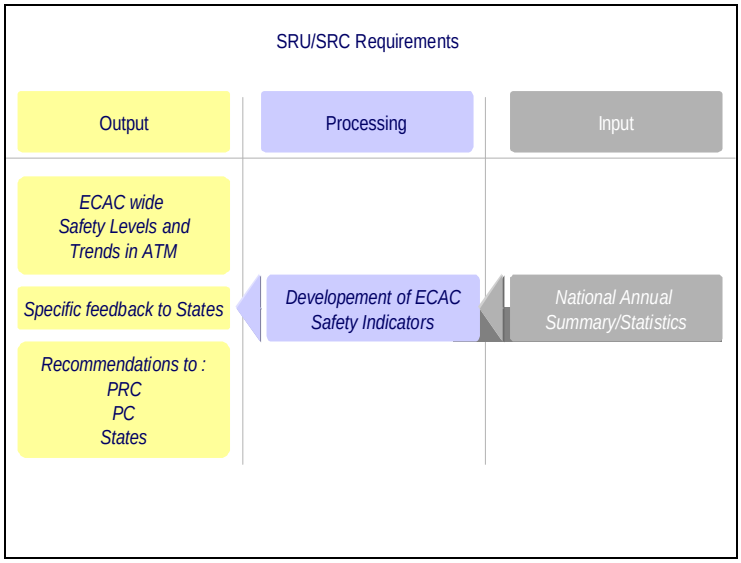
5.2.1 Each State shall ensure that all appropriate safety data are collated and reported to EUROCONTROL in terms of high level safety indicators, which as a minimum comply with Appendix B.

This second requirement for States will enable the SRC to develop safety indicators to monitor ATM safety levels and trends.

The objective is to produce aggregated European statistics both in absolute terms (absolute number of accidents, ATM related incidents etc., irrespective of traffic growth) and relative forms (frequencies of safety occurrences, normalised according to the number of flight hours and movements).

Should safety not be maintained or not meet the objectives the SRC is setting, this activity will trigger actions.

This activity should also enable the assessment of safety against other performance indicators, such as those of delays and capacity. Indeed, an improvement in those areas should not negatively impact safety. In order not to destroy the source of data, the SRC has agreed to keep national inputs confidential; avoiding counterproductive comparisons. Potential safety issues in a State will lead to bilateral discussions and the development of remedial actions.



A publication and confidentiality policy has been agreed by the EUROCONTROL Permanent Commission. It establishes high-level principles to be respected when and if safety data is being exchanged between:

- ATM service providers and regulators,
- States/ national organisations and EUROCONTOL.

This was considered essential in order to establish trust between those working in the area of safety improvement.

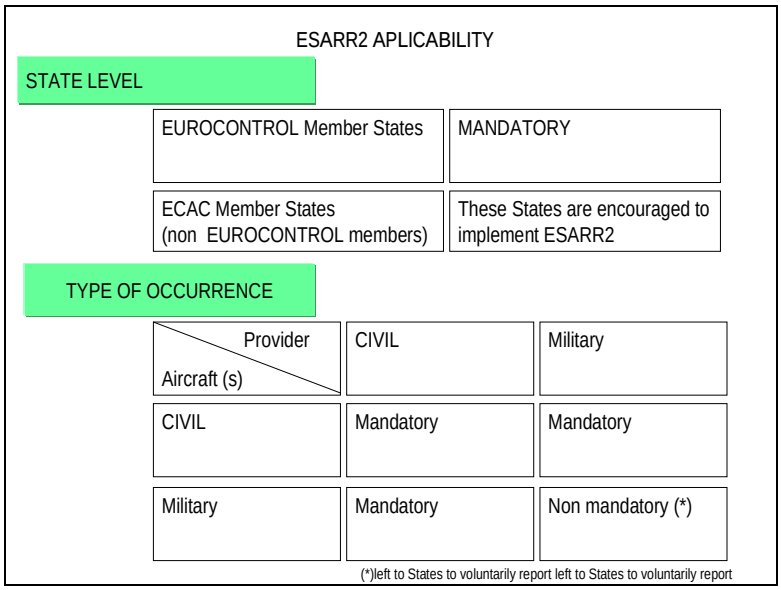
Activities are progressing within EUROCONTROL in order to better define the mechanisms by which this policy may be implemented between States and EUROCONTROL.

This will not only cover ESARR 2 requirement §5.2, but also other exchanges of safety data which are considered necessary to:

- share knowledge on ATM key risk areas, and to develop remedial actions,
- provide national safety data for the production of safety cases in the context of the EATMP programmes (e.g. RVSM, ACAS, etc.).

4.5 Applicability

Refer to ESARR 2, Section 3 – Applicability.



ESARR 2 applies to Member States of EUROCONTROL.. ECAC States who are not Members of EUROCONTROL are also encouraged to apply this requirement.

In turn, Member States determine the national or international institutional arrangements necessary to enable the provisions of this requirement to be met. These provisions have been structured in such a way that, within national regulatory frameworks, part of, or the entire, requirement may be placed by National Administrations upon constituent organisations or others, or individuals within States. ESARR 2 shall apply;

- *in all occurrences involving or affecting civil aircraft only,*
- *in all occurrences where civil ATS is providing services to civil and/or military aircraft,*
- *in all occurrences where military ATS and/or Air Defence is providing services to civil aircraft.*

Only in those cases which exclusively and simultaneously involve a combination of military aircraft and military ATS and/or Air Defence, reporting is not mandated. It is left to States to voluntarily report those occurrences that they consider necessary for the improvement of the safety of air traffic.

Who is therefore obliged to apply ESARR 2?

In accordance with the EUROCONTROL Convention, ESARR 2 will have to be implemented and enforced by the EUROCONTROL Member States (Decision 80 of the EUROCONTROL Permanent Commission). ECAC States who are not members of EUROCONTROL are encouraged to implement ESARR 2 to ensure a proper harmonisation in the area.

Each Member State will have to identify the actions needed to fulfil this international commitment, and ATM Safety Regulators will normally play a key role in the process to adopt ESARR 2 at a national level. In addition, other national authorities should reconsider their complete safety regulatory framework in the light of ESARR 2 (e.g. aircraft safety regulators, Accident Investigation Board, Ministry of Defence, etc.). As such, a full range of national institutional bodies responsible for aviation investigation are obliged to apply ESARR 2 but they are NOT the only ones.

In particular, ESARR 2 shall apply to all providers of ATM services that fall under the jurisdiction of the national ATM safety regulatory body. Providers will have to implement the requirement within their organisations. Member States can directly incorporate ESARR 2 within their national legislation, but other less direct enforcement measures may be used.

Through its incorporation in national regulatory frameworks, ESARR 2 shall apply to AIBs (Accident Investigation Boards).

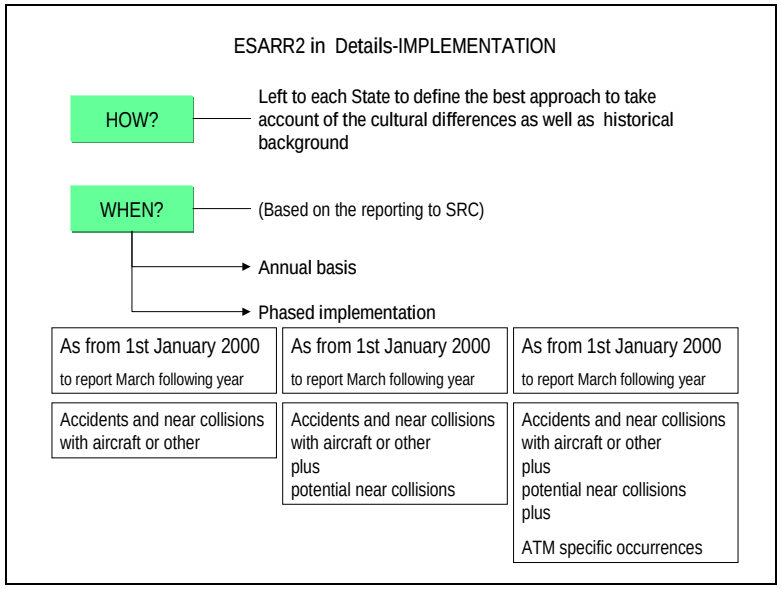
Indeed, it is seen as essential that AIBs use the same language and concept to describe the ATM involvement in accidents and ATM serious incidents (or others that they may investigate). A common language is being advocated across the aviation community to facilitate the sharing and use of safety lessons.

Through its incorporation in national regulatory frameworks, ESARR 2 shall apply to anyone who can witness and report an occurrence which poses, or could pose, a threat to flight safety.

ATM and aircraft Safety Regulators will normally play a key role in the process to adopt ESARR 2 at a national level. Other national authorities may also need to be involved, depending on national institutional arrangements. (e.g. Environment, Defence)

4.6 Implementation

Refer to ESARR2 – Section 6 – Implementation



6.2.	*It is left to each State to decide the best national approach to be adopted to successfully implement this Safety Regulatory Requirement, to encourage a good level of reporting and to produce reliable safety data. In particular, each State will decide upon the implementation, or not, of a national mandatory and/or voluntary reporting scheme.*

In order to account for cultural differences across EUROPE, the SRC has decided that each State would decide upon the best combination of reporting schemes to be implemented at State level.

The objective is to implement a successful overall national reporting and assessment scheme through:

- Mandatory scheme only,
- Mandatory and Voluntary schemes combined,

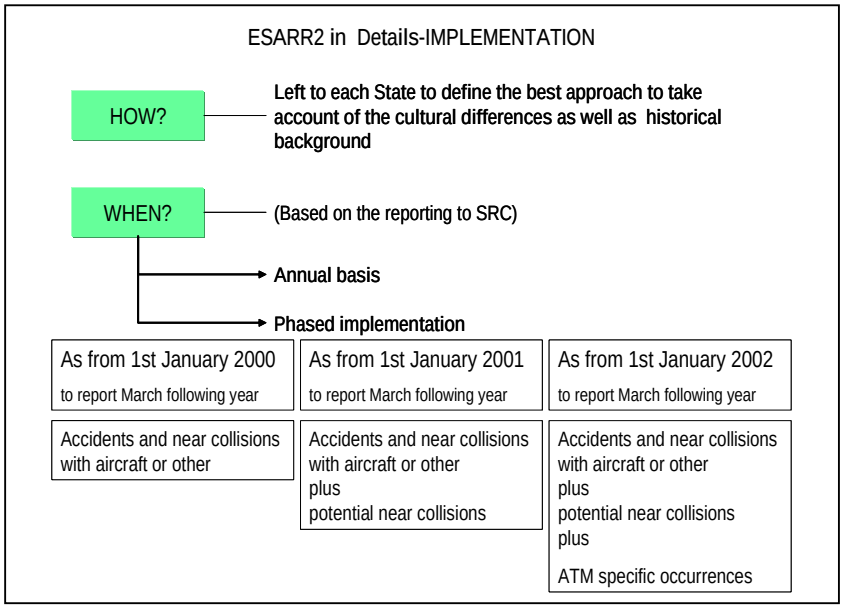
- Voluntary scheme only.

The objective to be pursued is indeed that the level of reporting increases across the European region so that the aviation and ATM communities can learn from past experience and develop accident prevention strategies. In that regard, each State was considered as the best suited to identify the optimum legislative and operational environment to encourage trust and reporting.

No one single body is responsible within a State for ALL accident and incident investigation. Therefore it is left to the States to implement ESARR 2 and to appoint the appropriate focal point(s).

The implementation of ESARR 2 shall be done according to a phased approach, starting at the top of the pyramid.

A proactive approach was adopted so that the aviation community could learn not only from accidents but also from their precursors.



6.2 States shall start collecting the safety data related to accidents and incidents-near collisions as from 1st January 2000. (Refer to Appendix A- sections 1.1 and 1.2.1 of ESARR 2). States shall then report on an annual basis, and to EUROCONTROL, national safety indicators related to those categories of occurrences by 30th March 2001[6] (Refer to Appendix B of ESARR 2) ;

6.3 States shall start collecting the safety data related to incidents with a potential to become collisions or near collisions, as from 1st January 2001. (Refer to Appendix A- section 1.2.2 of ESARR 2). States shall then report on an annual basis, and to EUROCONTROL, national safety indicators related to those incidents, by 30th March 2002 (Refer to Appendix B of ESARR 2) ;

6.4 States shall start collecting the safety data related to ATM specific occurrences having an impact on the ability to provide safe ATM services, as from 1st January 2002. (Refer to Appendix A, Section 1.3 of ESARR 2). States shall then report on an annual basis, and to EUROCONTROL, national safety indicators related to those occurrences by 30th March 2003 (Refer to Appendix B of ESARR 2).

[6] *Annual reports will only include statistics for those occurrences whose assessment or investigation has been completed by the end of March of the year following the occurrence.*

January 2000

ATM related accidents (such as collisions between aircraft and something else or possibly loss of flight control). ATM incidents restricted to the near collisions between aircraft and something else.

January 2001

In addition, those ATM incidents which could have led to a collision or a near collision between aircraft and something else if other traffic had been there. (e.g. level busts).

January 2002

In addition, those ATM specific occurrences which did not impact any aircraft but had the potential to do so (e.g. loss of surveillance, loss or corrupted communication).

4.7 Exemptions

Refer to ESARR 2 – Section 7 – Exemptions.

NONE.

The establishment of a national reporting and assessment system and submission of the national AST Annual summary template has no exception. This avoids:

- the potential for failing to identify safety issues, and/or
- allowing poor safety management

ESARR 2 will be efficient only if the participation is wide (or the widest) and the more the input is harmonised in both type and quality of data.

4.8 Additional Clarifications

ESARR 2, Attachment A, Para A- 1.3: Does "ATM Specific Occurrences" Apply To Only Those Occurrences, Which Are Not Reported According To A-1.1 Or A-1.2? Or Is It The Intention That e.g. An Accident Caused By A Failure Of The ATM Shall Be Reported Both As An Accident A-1.1 And As An ATM-Specific Occurrence (A-1.3)?

ESARR 2, Attachment A, para A-1.3: the ATM specific occurrences to be reported/notified and investigated at national level are both those which are not reported according to A-1.1 (accidents) or A-1.2 (Incidents) and those ATM related occurrences which led to an accident and incident.

This implies that at national level, both the severity/causes of the ATM related incident/accident and the severity/causes of the ATM related occurrences involved in the chain of events leading to the incidents/accidents are to be assessed.

The mechanism by which this is being carried out is left to each State/organisation's discretion (obviously, when an accident or incident is being reported, ATM events involved in the chain of events have every chance to be de facto identified and thus investigated. Another way would be to report in parallel identified ATM specific occurrences which might have contributed to aircraft related occurrences)

However, when reporting annual statistics to EUROCONTROL (ESARR 2 requirement § 5.2), and in order to avoid ambiguities, it has to be understood that **only those 'ATM specific occurrences' which have not caused accident/incidents have to be reported under that category (section C - in the Annual Summary template). Those 'ATM specific occurrences', which caused accident/incidents will be collected as part of the list of causes to accidents/incidents (section D - in the Annual Summary template).**

ESARR 2 has been approved through Decision 80 together with a Severity Classification Scheme. How this severity classification scheme applies to Safety Occurrences In ATM Scheme Of Occurrences (Page 10) ?

There are three ways in which severity and risk assessment (hence the table on page 10 of the EAM 2 / GUI 1) may be used in occurrence reporting systems:

- Firstly, a preliminary severity and risk assessment can be performed to determine the allocation of resources to be provided for the investigation. Clearly an infrequent, low severity occurrence may not merit the resources of a high severity event. This risk assessment is being re-validated all along the investigation.
- Secondly, a national review of occurrences and severity/frequency may take place during subsequent stages of the occurrence investigation; This is intended to ensure that consistent criteria are applied to any risk posed by an occurrence.
- Thirdly, a national review of occurrences and risks may be done periodically to assess the actual level and areas of risks in the ATM System, monitor achieved levels of safety against safety objectives and identify the ATM key risk areas.

Different ATM service providers or ATM safety regulators may refine and operate their own local classification schemes and develop quantitative targets, depending on the scope of the ATM element under consideration. SRC is issuing harmonised guidelines for the overall severity classification scheme.

The actual risk is a factor of severity and frequency (risk = severity x frequency):

Nationally or locally, qualitative or quantitative frequency thresholds can be determined for each class of severity to trigger (or not) a well resourced investigation (other criteria may be defined locally to support this decision).

When an occurrence is notified, the investigator, by looking at previous records on similar occurrences, identifies its past frequency and is in a better position to anticipate its potential for re-occurrence. Taking into account the "a priori preliminary" severity of the occurrence, the investigation team assesses the tolerability of the risk induced by such an occurrence and proposes accordingly a away forward.

Typically the closer to A1 (very frequent serious incident), the more essential it is that the investigation is allocated significant resources. The closer to E5 (very rare with no safety effect) events, the less essential it is that the investigation is allocated huge resources.

ANNEX 1 – GLOSSARY

TERM	***DEFINITION***
AAIB	Aircraft Accident Investigation Board.
Accident (ICAO Annex 13).	An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, in which: a) a person is fatally or seriously injured as a result of: • being in the aircraft, or • direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or • direct exposure to jet blast, except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or b) the aircraft sustains damage or structural failure which: • adversely affects the structural strength, performance or flight characteristics of the aircraft, and • would normally require major repair or replacement of the affected component, except for engine failure or damage, when the damage is limited to the engine, its cowlings or accessories, or for damage limited to propellers, wing tips, antennas, tyres, brakes, fairings, small dents or puncture holes in the aircraft skin; c) the aircraft is missing or completely inaccessible.
ATCO	Air Traffic Control Officer.
ATM	Air Traffic Management.
EC Directive 94/56	Council Directive establishing the fundamental principles governing the investigation of civil aviation accidents and incidents (OJ L 319, 12.12.1994, p. 14).
EC Directive 95/46	Directive of the European Parliament and of the Council dated 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of data (OJ L 281, 23.11.1995, p. 31).

TERM	***DEFINITION***
EC Directive 42/2003	European Commission Directive on Occurrence reporting in Civil Aviation 42/2003.
ECAC	European Civil Aviation Conference, comprising 38 European States (July 2002).
ESARR	EUROCONTROL Safety Regulatory Requirement.
ESARR 2	"Reporting and Analysis of Safety Occurrences in ATM" (Edition 2.0).
EUROCONTROL	The European Organisation for the Safety of Air Navigation. There are 32 Member States: Albania, Austria, Belgium, Bulgaria, Bosnia and Herzegovina, Croatia, Cyprus, Czech Republic, Denmark, Finland, France, Germany Greece, Hungary, Ireland, Italy, Luxembourg, the former Yugoslav Republic of Macedonia, Malta, Moldova, Monaco, the Netherlands, Norway, Portugal, Romania, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom (situation at 31 July 2002).
Gross Negligence	Any action or an omission in reckless disregard of the consequences to the safety or property of another.
ICAO	International Civil Aviation Organisation.
Incident (ICAO Annex 13)	An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.
Negligence	Where there is a duty of care and a person fails to exercise such care, skill or foresight as a reasonable person in that situation would exercise.
Provisional Council	The EUROCONTROL Provisional Council is the body that adopts, and submits for the Commission's approval, all measures to be taken for the accomplishment of the Commission's tasks. The Provisional Council also advises the Commission on issues it deems appropriate.
Serious Incident (ICAO Annex 13)	An incident involving circumstances indicating that an accident nearly occurred.
SQS	EUROCONTROL Safety, Quality Management and Standardisation Unit.
SRC	Safety Regulation Commission.

*** *End of Document* ***